# Economic Evidence Base for London 2016

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GLA Economics provides expert advice and analysis on London's economy and the economic issues facing the capital. Data and analysis from GLA Economics form a basis for the policy and investment decisions facing the Mayor of London and the GLA group.

# Contents

# Executive summary

*This document seeks to provide consistent data and analysis of London's economy for strategy development purposes (for instance to support the development of the London Plan, Economic Development Strategy and Transport Strategy). The executive summary provides a condensed outline of the main findings from the economic evidence base with individual chapters providing more detail.*

On many measures London's economy is very successful. In 2014 London's economic output (its 'Gross Value Added') totalled £364 billion; twice the size of the economies of Scotland and Wales put together.

Indeed if London's economy is considered against European countries (on a comparable basis) it would rank as the eighth biggest economy (see Table 1); London's economy is larger than Belgium, Sweden, Austria or Norway for example.

**Table 1: Size of European economies and London, 2014 (Million PPS (purchasing power standard)**

| 1 | Germany | 2,795,700 |
|---|---|---|
| 2 | France | 1,937,806 |
| 3 | United Kingdom | 1,933,613 |
| 4 | Italy | 1,604,114 |
| 5 | Spain | 1,163,000 |
| 6 | Poland | 714,521 |
| 7 | Netherlands | 605,554 |
| 8 | London | 436,937 |
| 9 | Belgium | 362,995 |
| 10 | Sweden | 326,823 |

*Source: Eurostat. Note: PPS is an artificial currency unit used to compare countries or cities, on a consistent basis: one PPS can buy the same amount of goods and services in each country.*

London's economic success is further illustrated by the fact that, contrary to the country as a whole, London runs a trade surplus with the rest of the world. As a result, London's economy provides a net injection to the national economy which, through supply chain linkages, helps to drive economic activity across the country. The more international trade London engages in the more economic activity there is likely to be for the rest of the UK.

## International trade and specialisation

International trade is an important influence on London's economy because it increases the size of the market into which London's businesses can sell (or buy from): the bigger the market, the more economically viable it is to focus on specialised products or services.  As a result, globalisation - the increasingly connected and integrated nature of the international economy - has led to structural change in London's economy – with London specialising in a number of internationally competitive business areas.

Figure 1 shows that London's economy is specialised (in the sense that it has a greater proportion of employment in a particular sector when compared to the rest of the country) in financial and insurance activities and this is also London's biggest area of economic activity (accounting for almost a fifth of London's GVA and over 4 per cent of the entire UK's economic output).  Similarly, London is specialised in information and communication, professional services and real estate – which together account for another third of London's economic activity.  What Figure1 also shows is that, unsurprisingly, London is not specialised (in relation to the rest of the country) in activities that might be considered to be land-intensive, like agriculture and traditional manufacturing.

**Figure 1: Indices of Specialisation[1] compared to output share, London, 2014**
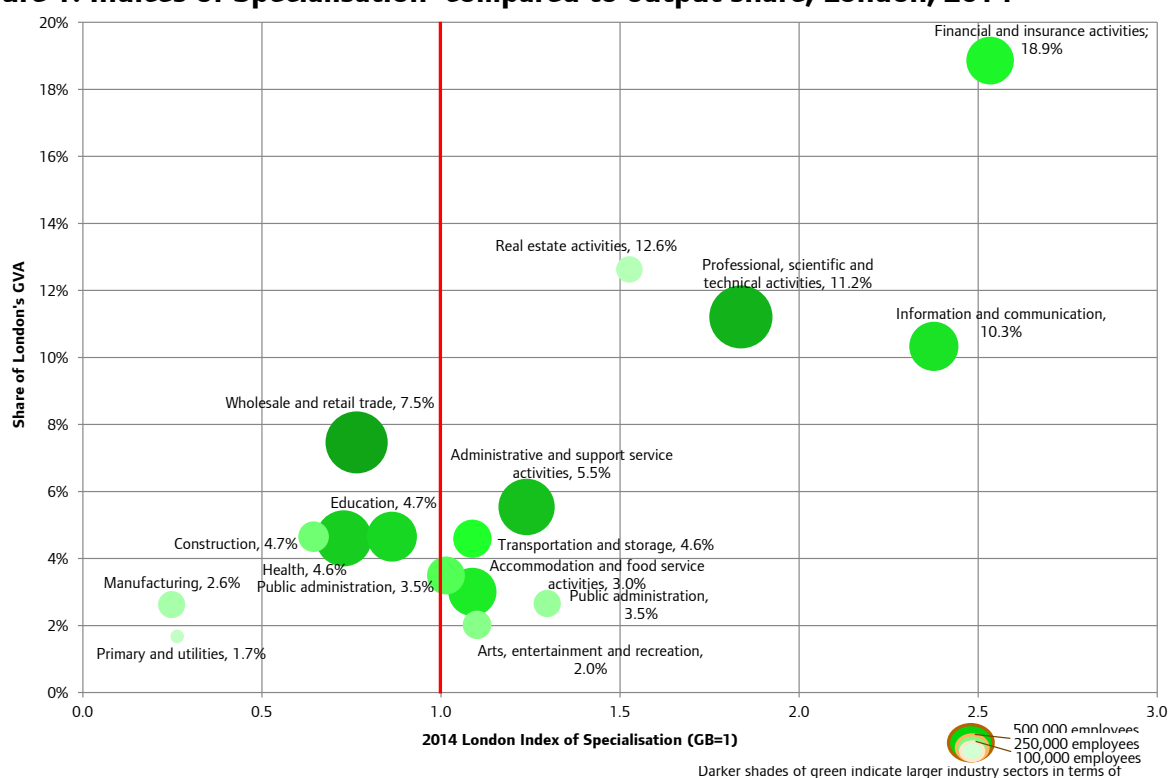


*Source: GLA Economics calculations; drawn from Business Register and Employment Survey, and Regional Accounts, both ONS*

Many of the sub-sectors within the broad sector headings outlined in Figure 1 are internationally competitive specialisms – where London exports a significant amount of services.  Some examples include air transport; film/TV/music; creative, arts and entertainment activities; computer programming and consultancy; finance (e.g. securities and fund management activities); legal and accounting services; and, advertising – all of which have a significant concentration in London (as compared to the rest of the country).  More detail on London's trade and specialisation is provided in Chapter 1 of the evidence base.
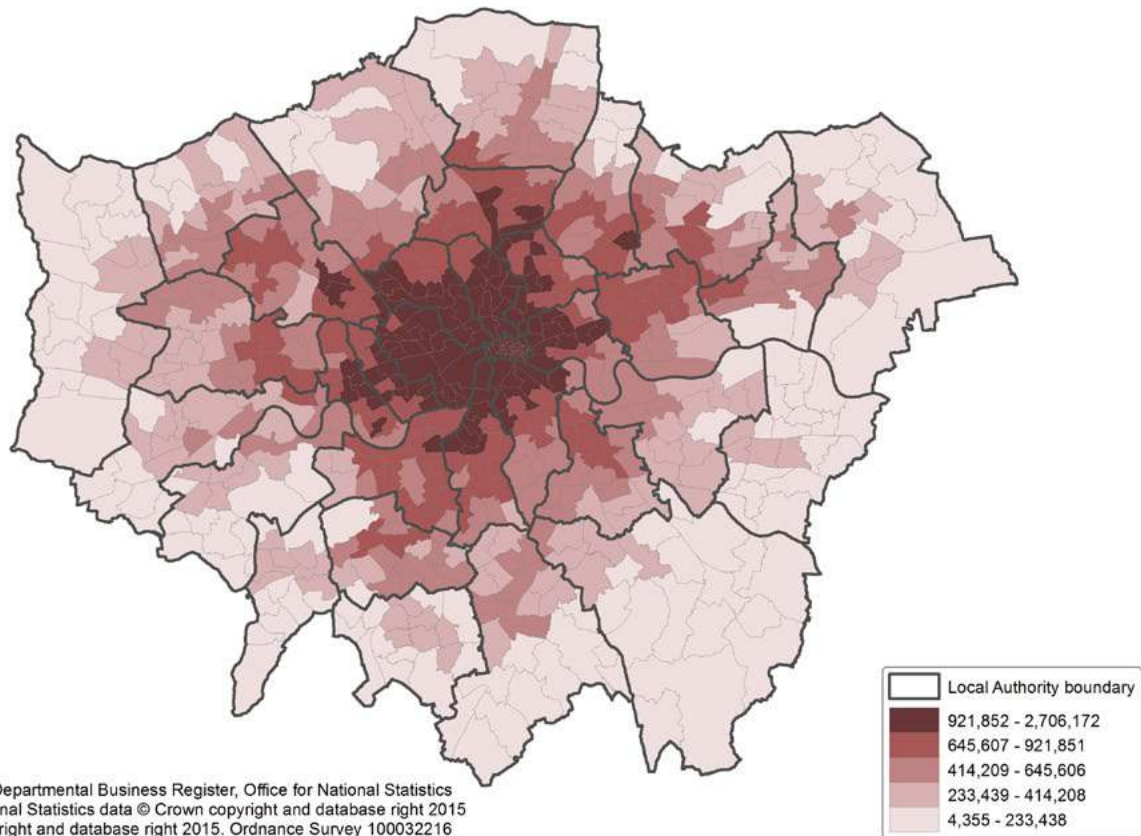
## Agglomeration in central London

This sectoral specialisation has also, to a degree, manifest itself in a spatial specialisation or concentration.  So particular (and many) functions of London's economy have tended to locate in certain areas of London – primarily central London.

This is because central London offers a number of features that can't be found in combination in many other places in the UK or the world over.  London is an attractive location for international businesses given its well-established legal, political and regulatory frameworks; the use of the English language as a means of international communication; international transport links; and, a low rate of corporation tax amongst other factors.  This attractiveness to business is highlighted in many global city ranking indices (for instance ranking as the leading global city according to the PWC Cities of Opportunity and the Global Financial Centres Index).  Indeed 40 per cent of the world's largest 250 companies base their European headquarters in London.  Moreover, central London additionally offers businesses good access to a deep and highly-skilled labour force, a range of complementary markets (both in terms of businesses able to serve or supply (input markets) and businesses willing to buy the product or service (output markets)) and the benefits of spill-over effects such as the rapid transfer of innovation and knowledge.  These so-called "agglomeration benefits" bring benefits to the economy over and above those that accrue to the individual firms themselves.  As a result, whilst the UK and London offers an attractive base for many businesses, central London has a particular attraction for many globally competitive firms who want to locate near to one another.

The attractiveness of London to global businesses means there are many internationally attractive employment opportunities available in London – one of the factors which encourages people to live in the capital.  However, other factors also make London an attractive place for people to live and work.  These can include London's culture and heritage; the access to green space in London; and, access to good quality schools and health care.  London's attractiveness to people is evidenced by its population growth in the recent past, with London's population growing by an average of around 95,000 a year since 2000 (and consistently over 100,000 a year since the economic downturn of 2008/09).  Much of this increase has been from international migration – making London a very diverse city with 37 per cent of the population born overseas.

Map 1 shows the number of people who, using public transport and a 45-minute travel time, could travel to individual wards within London.  It shows that up to 2.7 million people could get to the areas marked in dark red within 45 minutes.  This illustrates the attractiveness of central London to businesses particularly reliant on skilled labour; London's radial transport system opens up a huge labour market to firms located in central London.  Many of these workers will also come from outside London's boundaries principally from the Greater South East.  Indeed in some parts of the Greater South East, London accounts for the place of work for over 40 per cent of that area's total workforce.  As a result, London is a highly-skilled city with over half of all workers in the capital educated to at least degree level.

**Map 1: Population accessibility by public transport within 45 generalised minutes, by ward in London**



Source: Inter-Departmental Business Register, Office for National Statistics
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Local Authority boundary
921,852 - 2,706,172
645,607 - 921,851
414,209 - 645,606
233,439 - 414,208
4,355 - 233,438

*Source: GLA Intelligence Unit*

The product of all these factors is a concentration of employment at the centre of the city. Map 2 shows the number of employees per square km. In essence the preference revealed by companies' business location decisions is that they want to locate near the centre – near to one another – in order to benefit from central London's agglomeration benefits. These agglomeration benefits further underpin London's international comparative advantage with research suggesting that the areas in which London specialises – such as financial and business services - are those areas that benefit most from agglomeration economies.

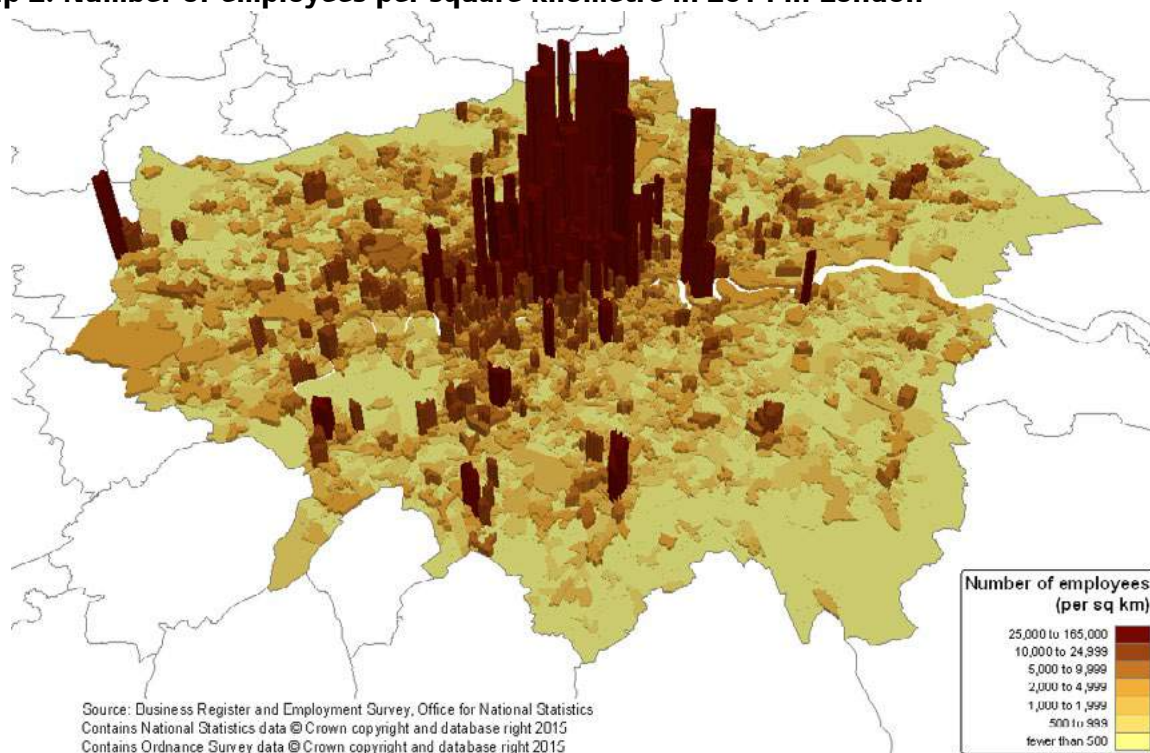**Map 2: Number of employees per square kilometre in 2014 in London**



Source: Business Register and Employment Survey, Office for National Statistics
Contains National Statistics data © Crown copyright and database right 2015
Contains Ordnance Survey data © Crown copyright and database right 2015

Number of employees
(per sq km)

25,000 to 165,000
10,000 to 24,999
5,000 to 9,999
2,000 to 4,999
1,000 to 1,999
500 to 999
fewer than 500

*Source: Business Register and Employment Survey (BRES)*

This competition for space in the centre of London puts upward pressure on the price of land and means businesses in London have to be very competitive to survive. This competition drives productivity which is reflected in ONS productivity figures showing that London's economy is around 30 per cent more productive than the UK average.

This productivity, trade and general level of economic activity also drives significant fiscal surpluses. In 2013-14 it is estimated that London raised £34 billion more in taxes than was spent in London from public expenditure. This is the highest amount of any region or country of the UK (with the South East and East of England the only other regions to make a positive contribution to the Exchequer). To put this figure in context, public deficits are usually represented as a proportion of annual GVA/GDP. In 2013-14 London's net fiscal *surplus* was equivalent to around 10 per cent of London's GVA, at a time when public sector net *borrowing* for the UK as a whole was running at almost 6 per cent of GDP[2]. Indeed despite the economic downturn in 2008-09 London continued to generate a fiscal surplus for the country as a whole – and has done for at least the past two decades or so. More detail on London's spatial economy and the competition for land is provided in Chapters 2 to 4 in the evidence base.

## London: a diverse economy

However, London's economy is about more than central London alone. Indeed, whilst many of the globally competitive businesses that locate in the very centre of the city (to access a large pool of highly-skilled labour and to feed off one another to do business), other sectors - particularly those serving local markets - need to be located near to consumers. These sectors (e.g. retail, health, education, local government etc) tend to have their employment spread much more widely across London – providing local employment opportunities for London's residents. Indeed the majority of London's employment is located outside central London – spread across London as a whole.

As noted earlier, London's attractiveness as a place to live and work is illustrated by the growth in its population in recent decades. London's population now stands at 8.7 million, the highest it has ever been and more than Scotland and Wales put together (despite London accounting for just 1.6 per cent of the combined land area of Scotland and Wales). This population drives a significant level of demand for a wide range of locally delivered goods and services: retailers to supply the food and goods required to live; teachers to teach London's schoolchildren; health care professionals to run London's hospitals, GP surgeries and care services for example. Central London businesses also drive a demand for goods and services that are, in part, serviced by businesses located in the rest of London.

This level of demand means that a significant number of people are employed in London in these sectors. Over half a million people in London are employed in health and social work activities. Similarly, over 400,000 people in London are employed in the retail and education sectors respectively. As such these three sectors each employ more people in London than are employed in London's financial and insurance services. In all, London employs more than 200,000 people in 13 different broad sectors; London is a diverse economy.

## Risks to London's economy

Projections for London's population and employment suggest London will continue to grow over the next few decades although there are upside and downside risks to these projections. One of the main potential future influences on these projections is the final outcome from the referendum vote to leave the European Union (EU). The nature and scale of any long-term impact from the vote is unknown at the moment and will depend to a large extent on factors like the trade deals that are negotiated with the EU and non-EU countries and any change to the UK's existing migration system (including the free movement of labour within the EU). More detail on the projections and the numerous risks to those projections are set out in Chapter 6 of the evidence base.

As shown above, central London is a hub for global business services: generating significant levels of employment, substantial levels of service exports together with considerable fiscal surpluses for the UK as a whole. However, this evidence base sets out a number of risks to London's future economic prosperity. If these risks are not mitigated then central London risks losing its attractiveness to both business and people, which could in turn erode the agglomeration benefits. Ultimately this would result in London losing its international competitiveness, with businesses choosing to move their premises not to elsewhere in the UK, but to another country. If this were to happen the UK would lose the employment, exports, spur to productivity and significant fiscal surpluses that are currently generated by central London businesses; this would be a loss to the UK as a whole, not just to London.

In essence, London's success and its attractiveness to businesses and people bring about a number of issues that need management if London is to continue to prosper.

The number of people and businesses that want to locate in London means there is intense competition for land in London which results in some of the highest land and property prices in the UK and across other global cities. Over the past couple of decades or so there have been strong rises in London house prices which are far higher than the rest of the country. The gap in average house

prices between London and the rest of the country has grown wider every year since 1995 with the exception of 2009. House prices are, on average, over 10 times average earnings in London and therefore represent a significant barrier to many Londoners looking to own their own home in London. High house prices also knock on to high rental prices with the relative costs of private renting having risen sharply in London compared to other English regions in the past decade or so.  Such high housing costs – high by international, not just domestic, standards - reduce the affordability of London.  Whilst London's population has continued to rise in the past few decades, there is a risk that the affordability of London reduces to such an extent that London loses its attractiveness as a place to live and businesses find it increasingly difficult to fill the vacancies they have.

There is also a risk that high demand for housing may crowd out commercial (including industrial) uses of land. Evidence from the London Development Database suggests that Permitted Development Rights introduced in May 2013, which allow conversion of offices to housing without the normal planning procedures, are having a considerable impact on the stock of office space in some boroughs. In the period 2008 to 2013 the percentage of residential units completed on land classed previously as office use was around 12 per cent, but in 2014/15 this increased to 24 per cent.  Similarly to population, whilst the number of businesses located in London has continued to increase over at least the last decade or so (with the exception of 2008/09), there is a risk that business premises become too expensive such that businesses no longer find it profitable to operate in London.

The economic evidence base highlights a number of other, what may be considered as, 'congestion costs' which, if left unchecked or unmanaged, could risk London's future attractiveness to both business and people.

One such cost derives from the pressures on London's transport network.  Many parts of London's private and public transport networks suffer from significant congestion and overcrowding; London also has limited airport capacity.  There are similar pressures in other parts of London's infrastructure network.  London's significant population growth has put a strain on many public services including school places, health services and social housing for example.  London's growth is estimated to increase overall energy demand by 20 per cent by 2050.  Moreover, without intervention it is predicted that London will have a deficit in water supply of half a billion litres of water per day by 2050. London's growth also puts significant pressure on its natural capital – those elements of the natural environment which provide goods and services.  Issues like air pollution, noise disturbance, flooding and climate change more generally all pose risks to London's future growth (see Chapter 7 for more detail).

## Socio-economic issues for London's economy
And for all its apparent success in terms of economic output, trade and tax raising potential, not everyone benefits equally from London's prosperity.

Whilst London's employment rate is currently at the highest level it has been since at least 1992, it remains below that for the UK as a whole.  Women with dependent children in London in particular are less likely to be in employment than their counterparts in the rest of the country.  London's unemployment rate is also higher than that for the UK as a whole.

Between 2008 and 2015 London's nominal median gross hourly wage increased by 8.4 per cent. This was the slowest rate of increase across all 12 UK regions (with the average rate of growth 11.5 per cent for the UK). This coupled with the rise in costs over the same period, with increases in housing costs, transport costs, childcare costs and fuel costs have all combined to reduce the affordability of living in London in recent times.  Indeed almost half of London households have less disposable income, after accounting for housing costs, than equivalent households in the rest of the UK. London's labour market performance is considered in Chapter 9 of the evidence base with London's socio-economic issues considered in detail in Chapter 10.

Poverty levels among London's population, after taking account of housing costs, are much higher in London than the UK as a whole. Up to a third of all inner London residents are in poverty on this measure and nearly a quarter of outer London residents, which is also higher than for any other UK region. The situation is even more acute for child poverty; 46 per cent of households with children are in poverty in inner London and 33 per cent in outer London (the highest rates of any UK region).

There is a correlation between socio-economic inequalities and health inequalities in London; health outcomes differ between different population groups and by location as well as when broken down by educational attainment, housing tenure and employment status. To this end, London faces certain health issues that are unique in England. Around two fifths (43 per cent) of all people living with diagnosed HIV in the UK live in London, and London accounts for two fifths of all tuberculosis cases in England. Many Londoners are also affected by a mental health disorder, with two million people in the capital estimated to experience some form of mental ill health every year.

On average, Londoners reported the lowest levels of life satisfaction, happiness and feeling the things they do in life are worthwhile and the highest anxiety rating of any UK region. In 2015/16, London's average anxiety rating was 3.04 (out of 10) - significantly higher than the England average of 2.87 in statistical terms. Londoners rated themselves as feeling relatively less satisfied with their life nowadays – giving an average score of 7.51 out of 10, again significantly lower than the UK average of 7.65 statistically speaking. These average figures can however mask differences in the share of respondents who report low levels of personal wellbeing (or high levels of anxiety) that may be of particular concern.

So whilst, on many measures, London is a very successful economy, there are many risks to London's future economic prosperity and instances where London residents are not benefitting from London's economic success. The body of the evidence base considers these issues in more detail.

## Exective summary endnotes

1 Index of specialisation is calculated as follows: (sector employee jobs in London / all employee jobs in London) / (sector employee jobs in Rest of GB / all employee jobs in Rest of GB). Both GVA and employee jobs numbers refer to 2014.

2 OBR public finances databank – UK public sector net borrowing requirement for 2013-14 (http://budgetresponsibility.org.uk/data/)

# Introduction

*In his report into the 'Further Alterations to the London Plan' the Planning Inspector recommended there be an immediate full review of the London Plan[1]. As part of this full review, the economic evidence base which underpins the London Plan as well as a range of other Mayoral strategies has been updated.  A draft evidence base was published in February 2016[2].*

The 'City for All Londoners' publication sets out the Mayor's vision for London which will be developed further in individual strategies[3]. To support that strategy development, this report sets out the economic evidence base.  It represents data available up to the beginning of October 2016.

As well as the executive summary, the economic evidence base consists of 10 chapters.  Chapter 1 looks at London's position in the global economy and the forces of globalisation acting upon it. Chapter 2 looks at the spatial characteristics of London's economy. Chapter 3 looks at commuting and London's transport system.  Chapter 4 looks at the use of land across London – including for housing. Chapter 5 sets out some indicators of London's economic success. Chapter 6 looks at some of the main risks likely to face London's economy in the next few decades with Chapter 7 looking in more detail at London's environment.  Chapters 8 and 9 look at London's population and its labour market respectively before Chapter 10 looks at other socio-economic issues in London.

Any comments on the economic evidence base should be directed to GLAEconomics@london.gov.uk.

### Introduction endnotes

1 Planning Inspector's report into the Further Alterations of the London Plan: https://www.london.gov.uk/file/20679/download?token=DPerSdTu

2 See: https://www.london.gov.uk/business-and-economy-publications/draft-economic-evidence-base-2016

3 See: https://www.london.gov.uk/get-involved/have-your-say/all-consultations/city-all-londoners

# 1: London's economy, trade and specialisation

## 1.1 Key points

- London is an international city with a long history shaped by globalisation. The capital's interconnectedness with the global economy has led to increased trade and allowed industrial specialisations to emerge; over time, this has caused significant changes to the structure of London's economy.

- As measured by GVA, London's total economic output was worth around £364 billion in 2014, 6.8 per cent higher than in 2013[1]. In 2014, London accounted for 22.5 per cent of the UK's total GVA, up from 18.9 per cent in 1997.

- In 2014, London's service exports totalled £92.1 billion, with London accounting for over two-fifths of the UK's total export of services. London's largest exporting sectors were in financial services, travel services; and in the real estate and professional, scientific and technical activities sector.

- Europe accounted for 52 per cent of total UK service exports in 2013, with the European Union accounting for around three-quarters of the European continent total.

- London exported around £28.7 billion worth of goods in 2014, a 23 per cent increase on 2003. Therefore London's total exports (goods and services) are estimated to be worth £120.8 billion in 2014.

- The structure of London's economy has changed over the last 40 years, with significant increases in jobs in service sector activities. However the number of jobs in the manufacturing sector in London has fallen by 85 per cent since 1971.

- Between 1971 and 2015, the total number of jobs in London has increased by almost one million. The Professional, scientific and technical activities sector accounts for the largest number of jobs, at 755,000 (or 14 per cent).

- Compared to Great Britain, London is specialised (in terms of jobs) in both the Information and communications sector and the Financial and insurance activities sector. Within these broad sectors there are a large number of significant sub-sectors of particular specialisation within London. In addition to this specialisation, there are significant levels of employment in a number of broad sectors – making for quite a diverse economic structure.

- London has higher levels of labour productivity when compared to the rest of the UK. The GVA per workforce job for London is around 36.5 per cent higher than the UK as a whole.

- In terms of economic output, the Financial and insurance activities sector is the largest single sector in London, generating £68.7 billion of GVA and accounting for 18.9 per cent of London's total economic output.

- The spatial make-up of London's economy shows that other industrial sectors are important to different boroughs. The Financial and insurance activities sector accounts for 66.6 per cent of total output in the City of London; whereas in Hillingdon, the Distribution, transport, accommodation and food sector accounts for 39.7 per cent of output; and in Barking and Dagenham, the Production industries account for 21.2 per cent of total output.

- Through trade and specialisation, London has become a major global city. However, in terms of sheer size, New York and Tokyo generate more total output; whereas cities such as Shanghai and Singapore have been growing faster, with compound annual growth rates averaging over 5 per cent between 2006 and 2014, compared to 2.4 per cent in London.

## 1.2 An overview of London's economy

London is an international city with a long history shaped by globalisation. There are many reasons which explain how London has developed over time; such as its geographical position, well-established political, legal and regulatory frameworks; through to London's historical position as a location for trade all of which mean London has established itself as a major centre of economic activity (these points are discussed in more detail within Chapter 5). Through becoming more interconnected with other nations, there have been increases in trade, leading to London developing industrial specialisms over time. The role of trade has therefore caused significant changes in the structure of London's economy over time.

London's comparative advantage – referring to the ability to carry out one economic activity more efficiently than another - has shifted over time, as the city has moved its resources from less productive to more productive uses. These developments have not necessarily followed the same pattern as the rest of the UK; London today has greater exports within certain sectors, and different employment specialisms within industries than the rest of the UK (at the same time as there being some sectors where London is less specialised than the rest of the UK).

This chapter provides an overview of how London's economy has developed over time and the forces acting upon it. It looks at the role of trade in explaining how activity in London has shifted from lower productivity to higher productivity activities. It also acts as the lead in to the rest of the Economic Evidence Base. The role of trade and shifts in economic activity have led to changes in the spatial nature of activity (which is considered further within Chapter 2), and London's development as a location for business and people are considered within Chapter 5.

## 1.3 London as a location for trade

Throughout history, London's economy has been shaped by trade – both within the UK and internationally. Figure 1.1 shows the growth of global trade over time. As a result, over time London has developed particular specialisations and comparative advantages, with much of the capital's recent history being shaped by the growth of the City of London as a centre of finance, and the agglomeration of activity and services which have been created through the capital's development as a leading centre for business. London is both an importer and exporter of goods and services, and attracts investment from around the world. London has therefore developed a leading position in the global economy (evidence of which is provided in further detail within Chapter 5).

More generally, openness to trade is vital to any economy since trade grows the size of markets, encouraging specialisations and increasing the returns to innovation, driving growth, and enabling an economy to benefit from new technology. Trade brings greater competition and encourages firms to be as efficient as possible by encouraging economies to exploit their comparative advantage.

**Figure 1.1: Changes in global trade and GDP over time**
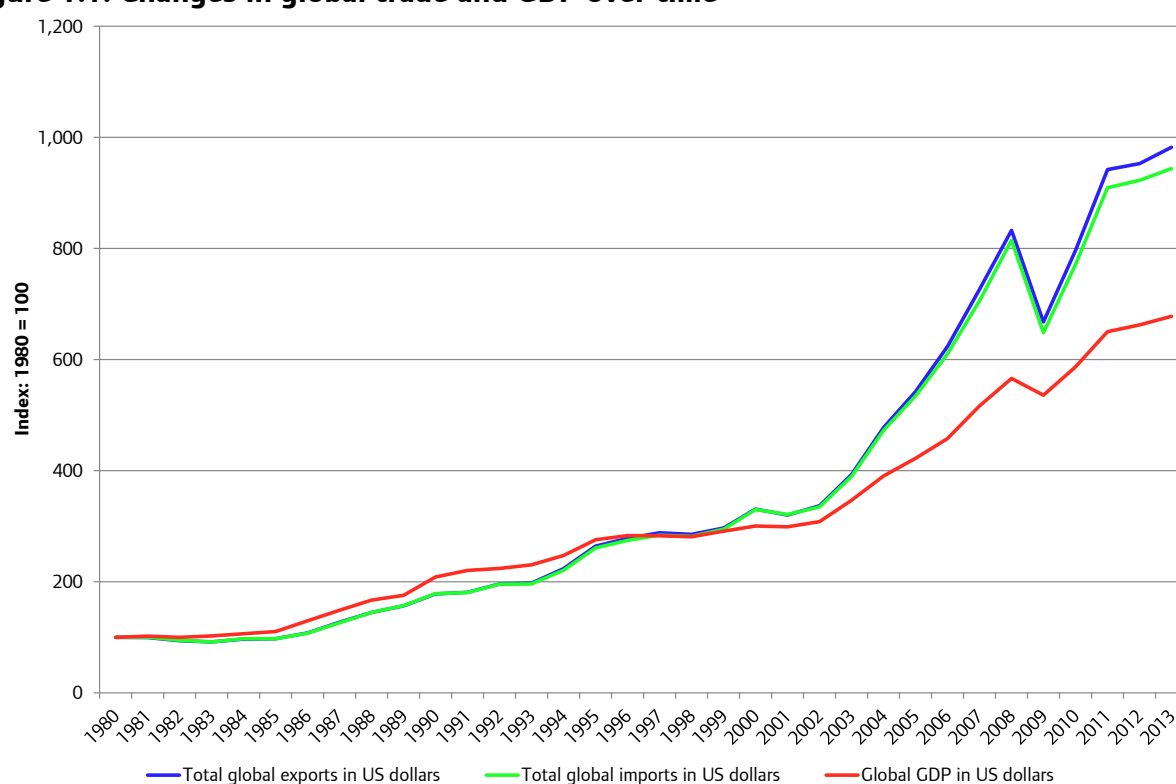


*Source: GLA Economics calculations on data from World Trade Organisation, and IMF.*

One way in which the openness of an economy to trade can be measured is by summing total exports and imports of goods and services, and representing the findings as a share of gross domestic product (GDP). Whilst the UK's openness to trade (as measured by trade to GDP ratio) dipped slightly in 2014, as shown in Figure 1.2, in 2013, the last year for which all country's trade and GDP data is available, the UK was ranked third highest among G8 economies (behind Canada and Germany), with a trade to GDP ratio of 61.6 per cent[2].

**Figure 1.2: The UK's openness to trade – imports and exports as a percentage of GDP**
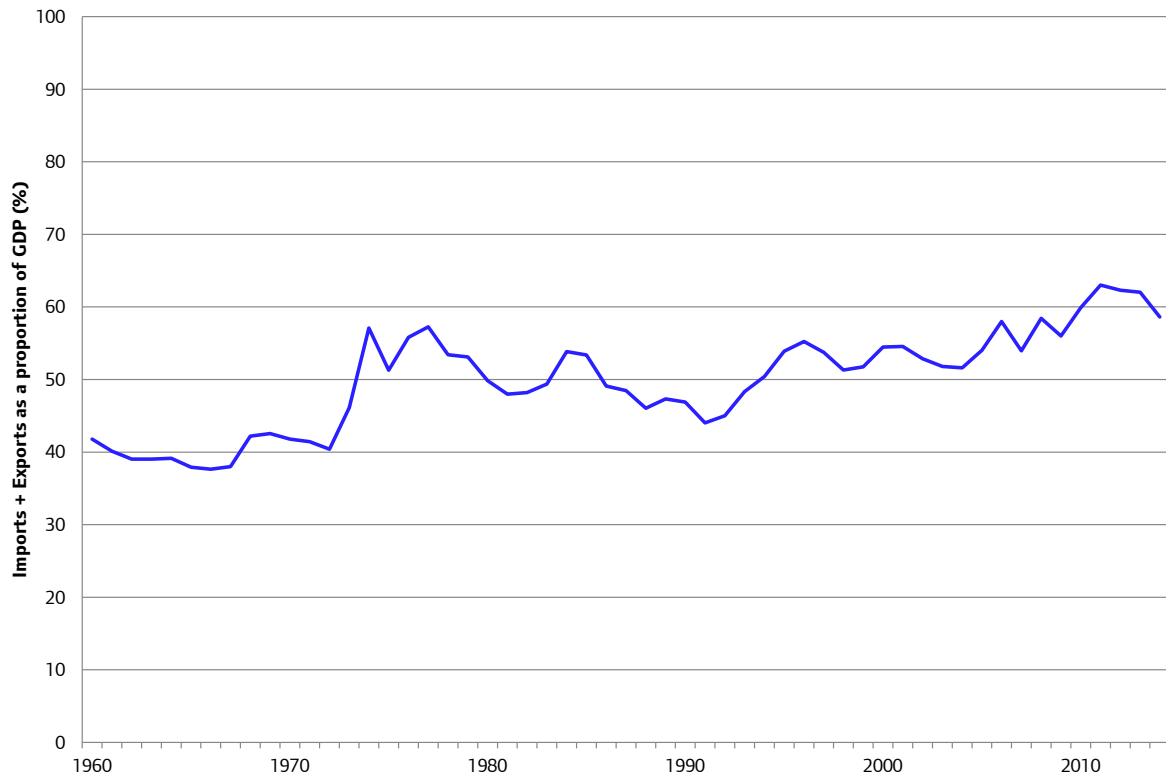


*Source: World Bank*

### 1.3.1 London's international trading position

While there are extensive data on the UK's trading position (i.e. levels of imports and exports) directly available from the Pink Book (the annual publication by the ONS that details the UK's balance of payments), data on London's trading position is scarcer, and this section of the chapter will bring together a variety of data to evidence the importance of trade to London's economy.

For the UK as a whole, the absolute levels of trade have been increasing (even when accounting for changes in prices).  However, the UK has run a trade deficit for most of the past 20 years. In 2014, the total value of both imports and exports were in excess of £500 billion, with a trade deficit of £34.5 billion, as shown in Figure 1.3.

**Figure 1.3: The UK's international trading position**
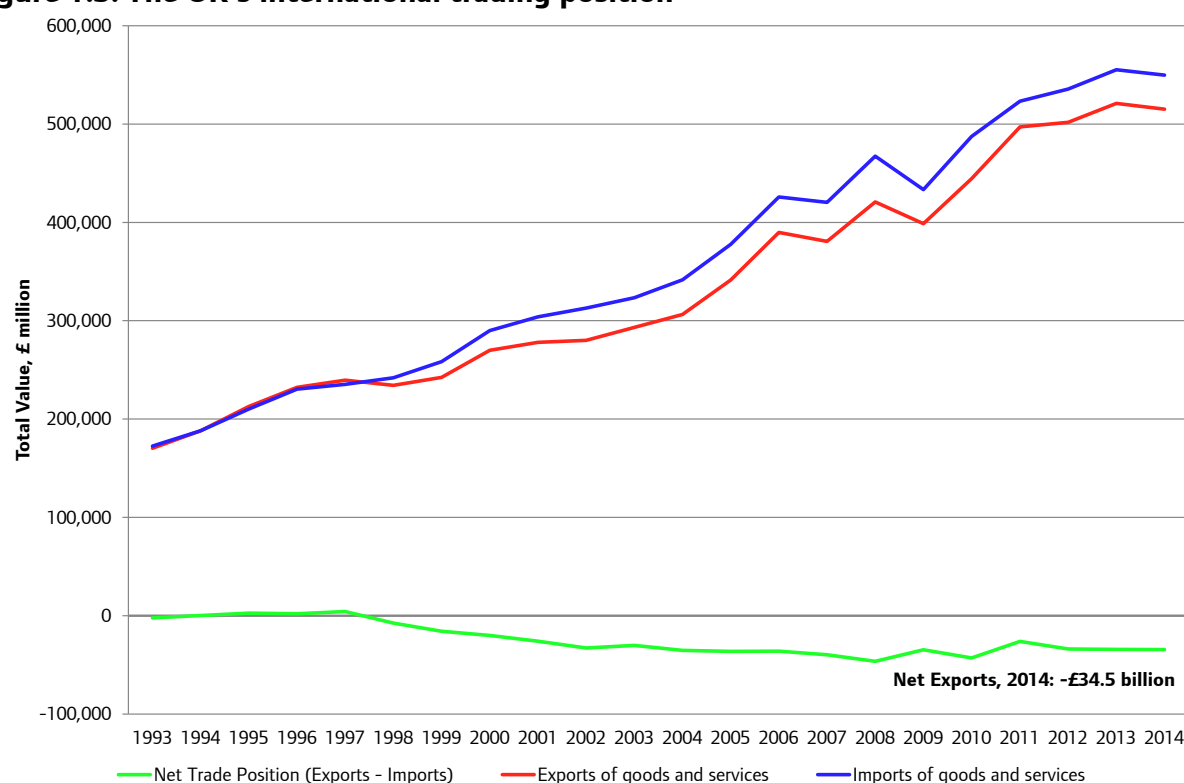


Source: GLA Economics calculations; drawn from Pink Book, ONS

In contrast to the position at the national level, previous analysis undertaken by GLA Economics estimated that London ran a trade surplus. The London Business Survey estimated that businesses exported £28 billion more than they imported in the year to mid-2014. However these statistics and those from the ONS Pink Book are not consistent with one another so some caution is required with this finding.

While data on London's exports of goods are readily available from the HM Revenue and Customs "Regional Trade Statistics" publication, a consistent series of estimates for exports of services has not previously been available. GLA Economics have previously undertaken in-house estimates of the value of service exports (published in GLA Economics Working Paper 69), but this year, the ONS have produced experimental statistics of service exports for all regions and nations of the UK, drawing upon information within the Pink Book as well as data from the International Passenger Survey, the International Trade in Services survey, and the Inter-Departmental Business Register.[3] These new data are only available from 2011 to 2014 and should not be compared with the previous estimates for 2003 to 2010.

### 1.3.2 London's service exports

Data from the ONS show the importance of the capital in the UK's total export position. Figure 1.4 shows the level of service exports by region, with London's service exports totalling £92.1 billion in 2014. Whilst this level has stayed reasonably constant, London's total share of UK service exports has fallen by just under five percentage points between 2011 and 2014, standing at 42.6 per cent in 2014 (Figure 1.5).

## Figure 1.4: Regional service exports, 2014
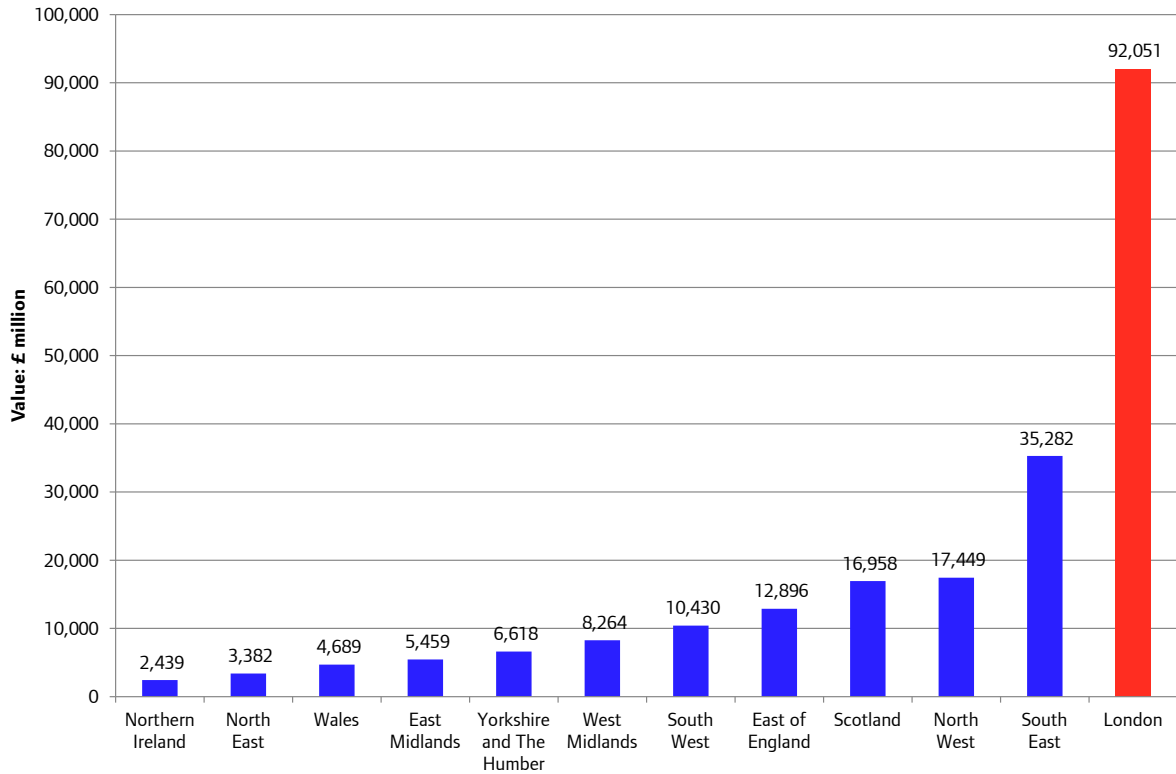


Source: Office for National Statistics

## Figure 1.5: London's regional service exports, 2011 – 2014
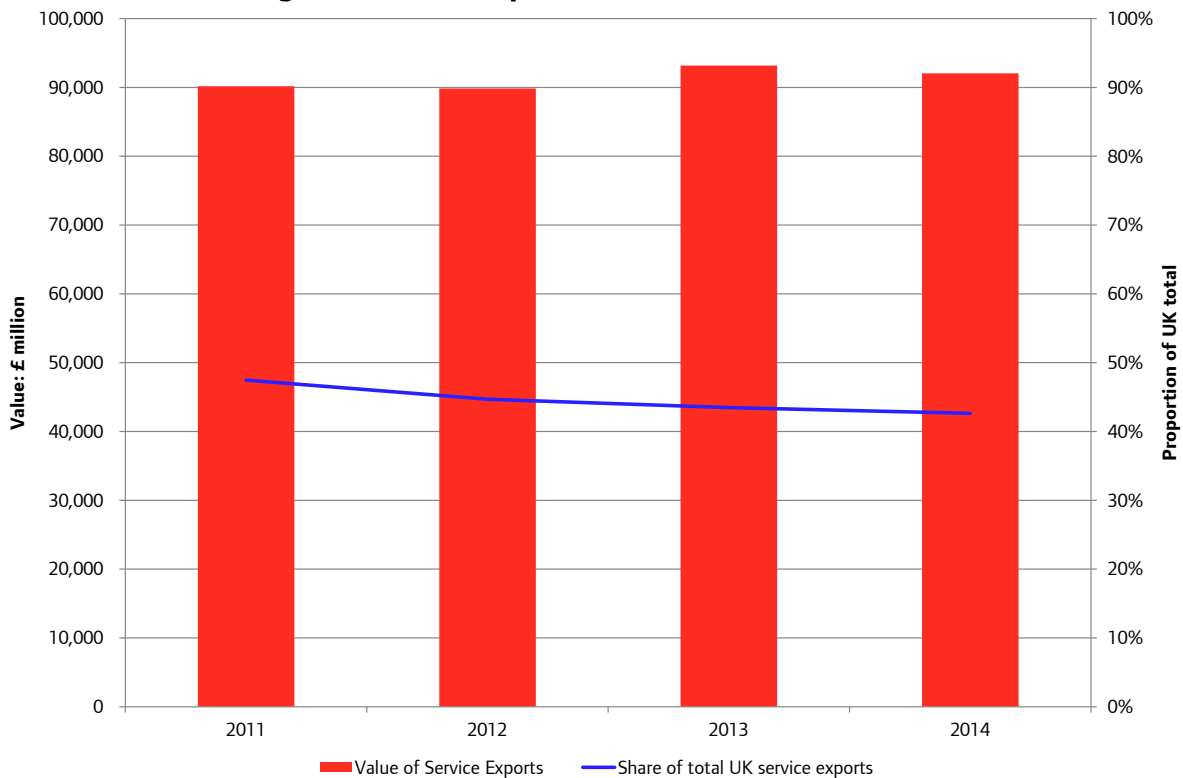


Source: Office for National Statistics

Data from the ONS also provide an indication of the industrial sectors where exports of services are drawn from, and these data are shown in Table 1.1. While the time series runs from only 2011 – 2014, it does provide an indication of the importance of some sectors to London's exports. The Financial services; Real estate, professional, scientific and technical; and, Information and communications sectors accounted for almost 60 per cent of total service exports in 2014 (Figure 1.6).

**Table 1.1: London's service exports by industrial sector, 2011 – 2014, £ million**

| Sector | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|
| Primary and utilities (agriculture, mining, utilities) | 36 | 66 | 27 | 16 |
| Manufacturing | 739 | 784 | 802 | 398 |
| Transport | 8,723 | 9,143 | 9,114 | 10,320 |
| Travel | 11,819 | 13,018 | 14,655 | 15,542 |
| Construction | 464 | 726 | 819 | 1,066 |
| Wholesale and motor trades | 7,798 | 3,802 | 3,132 | 1,681 |
| Retail (excluding motor trades) | 401 | 394 | 476 | 480 |
| Information and communications | 11,118 | 11,792 | 12,643 | 14,595 |
| Real estate, professional, scientific and technical | 12,950 | 15,300 | 15,026 | 14,834 |
| Insurance and pension services | 2,489 | 3,161 | 3,076 | 3,526 |
| Financial | 30,739 | 27,511 | 28,329 | 25,247 |
| Administrative and support services | 1,959 | 3,205 | 3,922 | 2,991 |
| Public admin, health and education; arts, entertainment and recreation; other services | 928 | 931 | 1,161 | 1,355 |
| **Total** | **90,162** | **89,833** | **93,181** | **92,051** |

*Source: Office for National Statistics*

**Figure 1.6: Proportion of London's total service exports, by industrial sector, 2014**
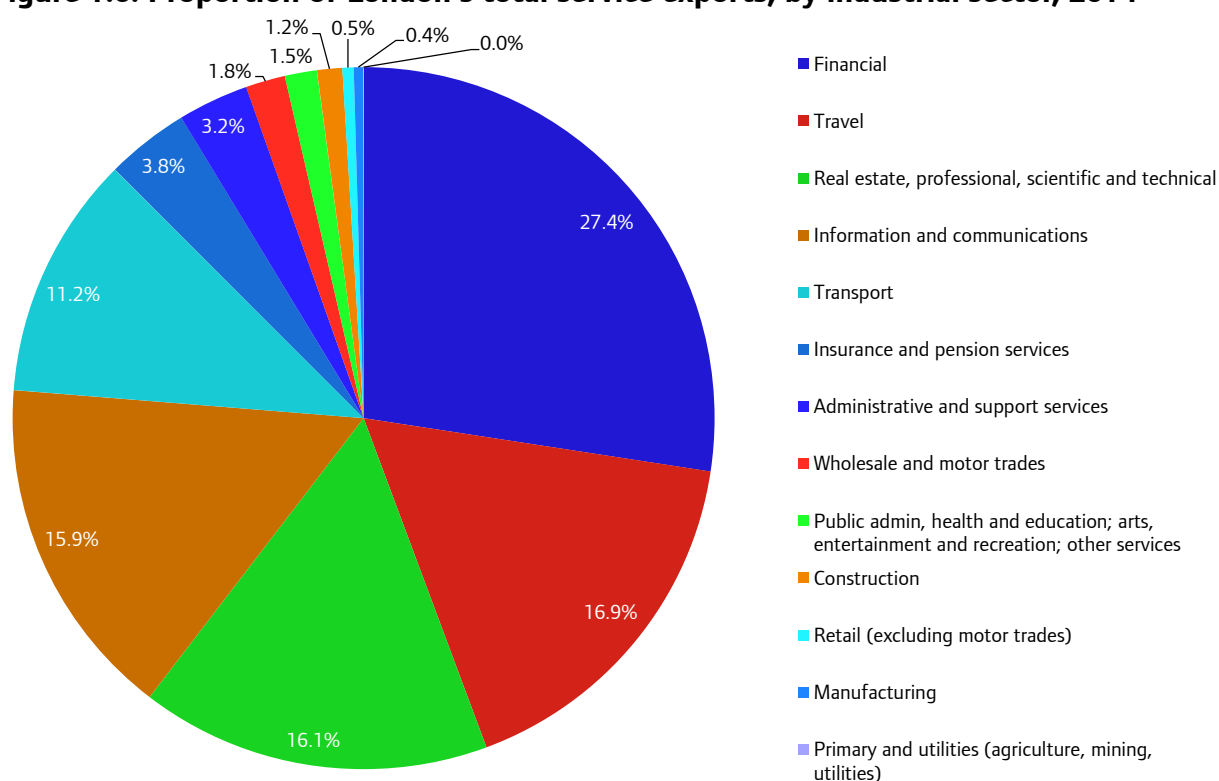


*Source: Office for National Statistics*

## 1.3.3 London's trade in goods

In 2014, London exported around £28.7 billion worth of goods, a 23 per cent increase on 2003. UK goods exports exceeded this, growing by almost 53 per cent over the same period. As a result, London's share of total UK goods exports fell slightly between 2003 and 2014 (Figure 1.7).

**Figure 1.7: London's goods exports as a share of UK (2003 – 2014)**
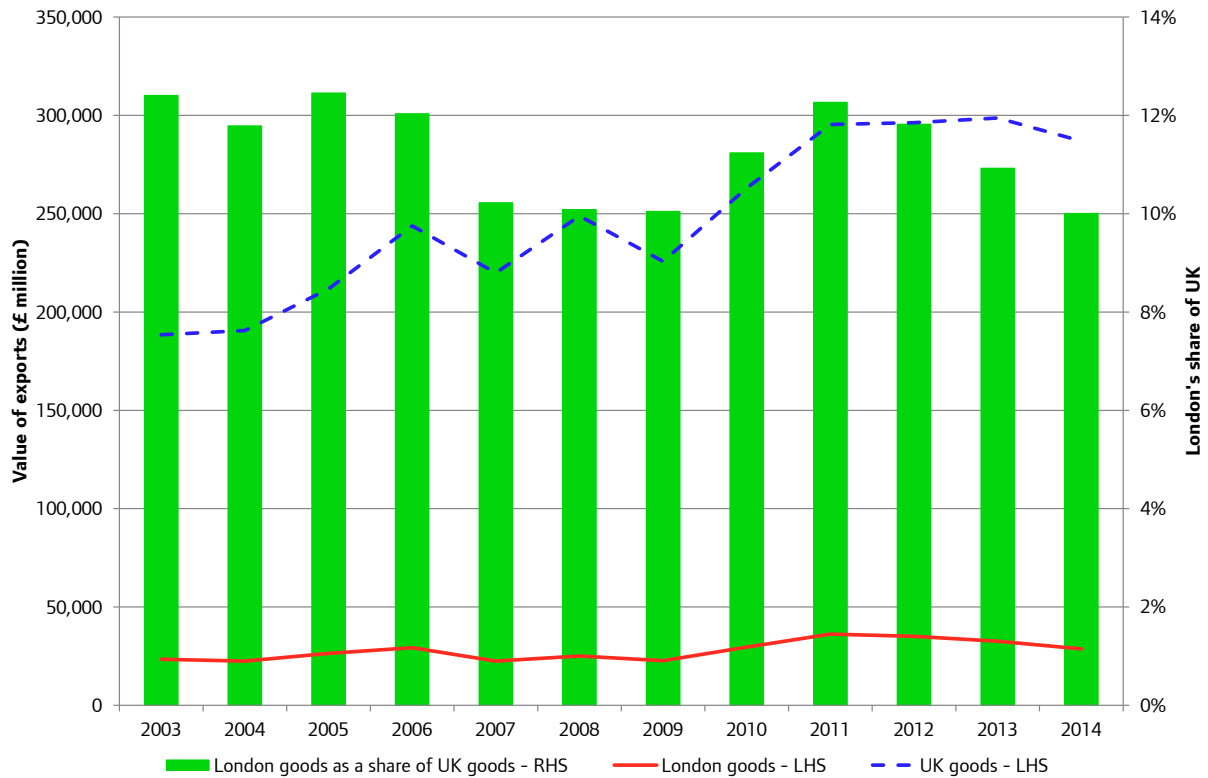


Source: Regional Trade Statistics, HMRC

In 2014, London's strongest goods export sector, valued at £12.2 billion, was 'Miscellaneous manufactured articles', which includes goods such as: clothing; toys and games; and works of art and antiques (Figure 1.8); exports in this category increased by 98 per cent between 2003 and 2014. In contrast, goods exports of 'Machinery and transport equipment' fell by 24 per cent, from £5.9 billion in 2003 to £4.5 billion in 2014. Perhaps unsurprisingly, London's exports of 'Food and live animals' and 'Crude materials' are negligible.

**Figure 1.8: London's goods exports by sector (2003 - 2014)**
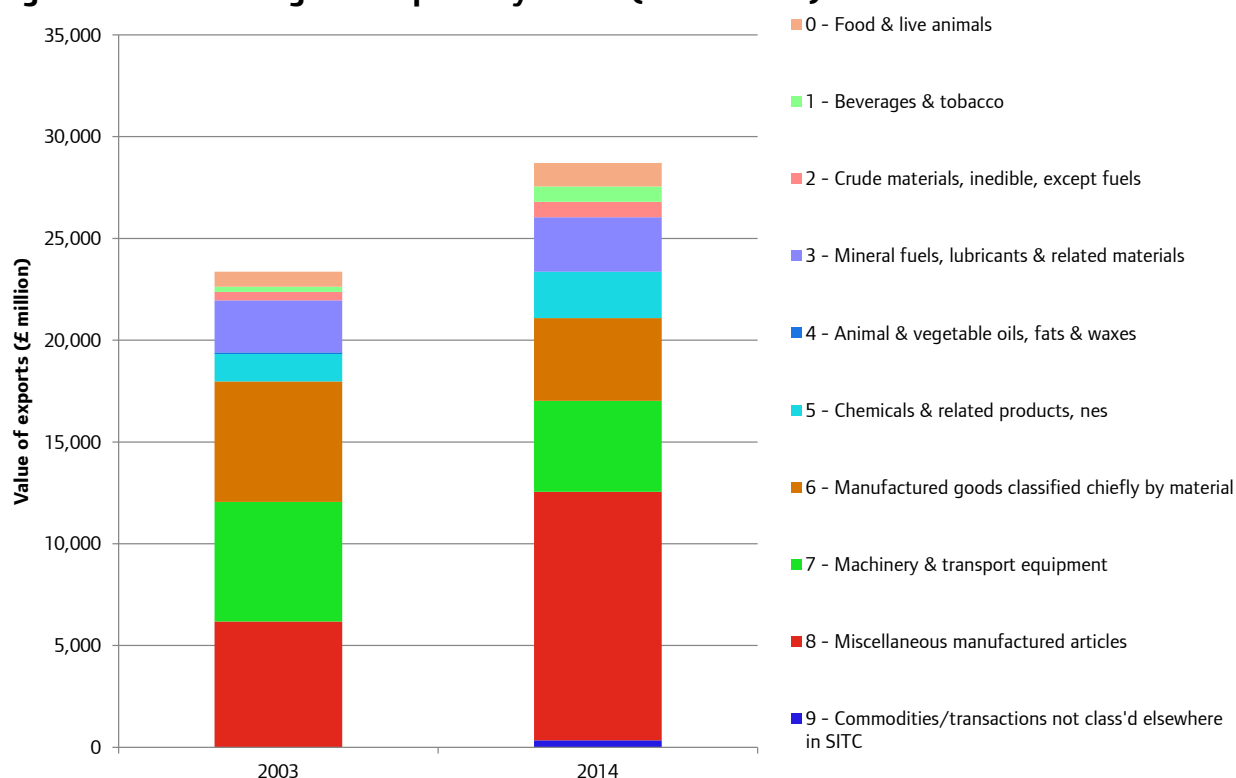


Source: Regional Trade Statistics, HMRC

## 1.3.4 Summary of London's trading position

The trends in London's exports and imports are very similar to those seen for the UK as a whole, with growth in both goods and service exports. It is estimated that London's total exports stood at around £119.8 billion in 2014, a significant increase over the last decade. However, due to the break in series for service exports from 2011 onwards, it is not possible to say with certainty the total increase over the time period. There has been growth in both services and goods exports, but the growth in goods exports has been relatively modest (Figure 1.9).

**Figure 1.9: London's total exports, 2003 – 2014**[4]



Note: Break in series for London service exports denoted by solid line for data from 2011 to 2014
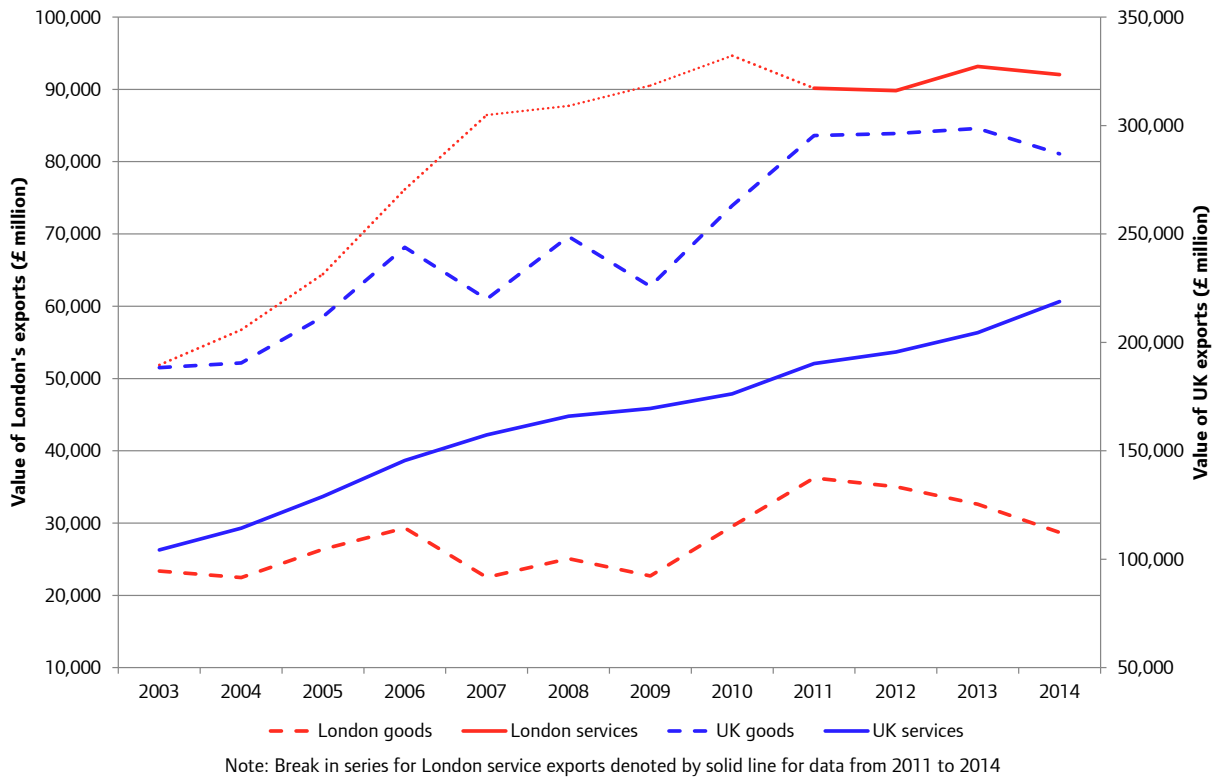
*Source: Pink Book for UK level service exports data, ONS; GLA Economics*

Data from the Pink Book provides detail as to the UK's major trading partners. Figure 1.10 shows that Europe and North America are the UK's largest trading partners, accounting for over three-quarters of total service exports; Europe itself accounted for 52 per cent of total service exports in 2014 (with the European Union accounting for around three-quarters of the European continent total).

**Figure 1.10: UK export of services by destination, 2014**
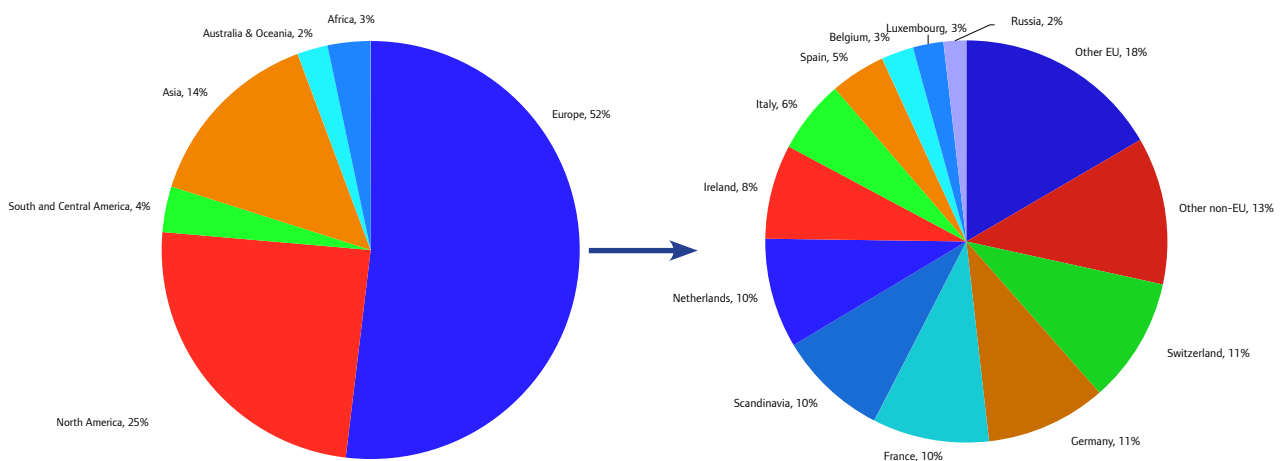


*Source: The Pink Book 2015, ONS*

Drawing upon previous analysis undertaken by GLA Economics, the United States was estimated by far the largest single export market for the capital, ahead of Germany, France, the Netherlands, and Switzerland. However Figure 1.11 also shows that China and Luxembourg, as well as Australia and India to a lesser extent, have become increasingly important trading partners for the capital (although these nations are significantly behind the United States in terms of the absolute level of service exports).

**Figure 1.11: London's estimated service exports by destination, 2013**
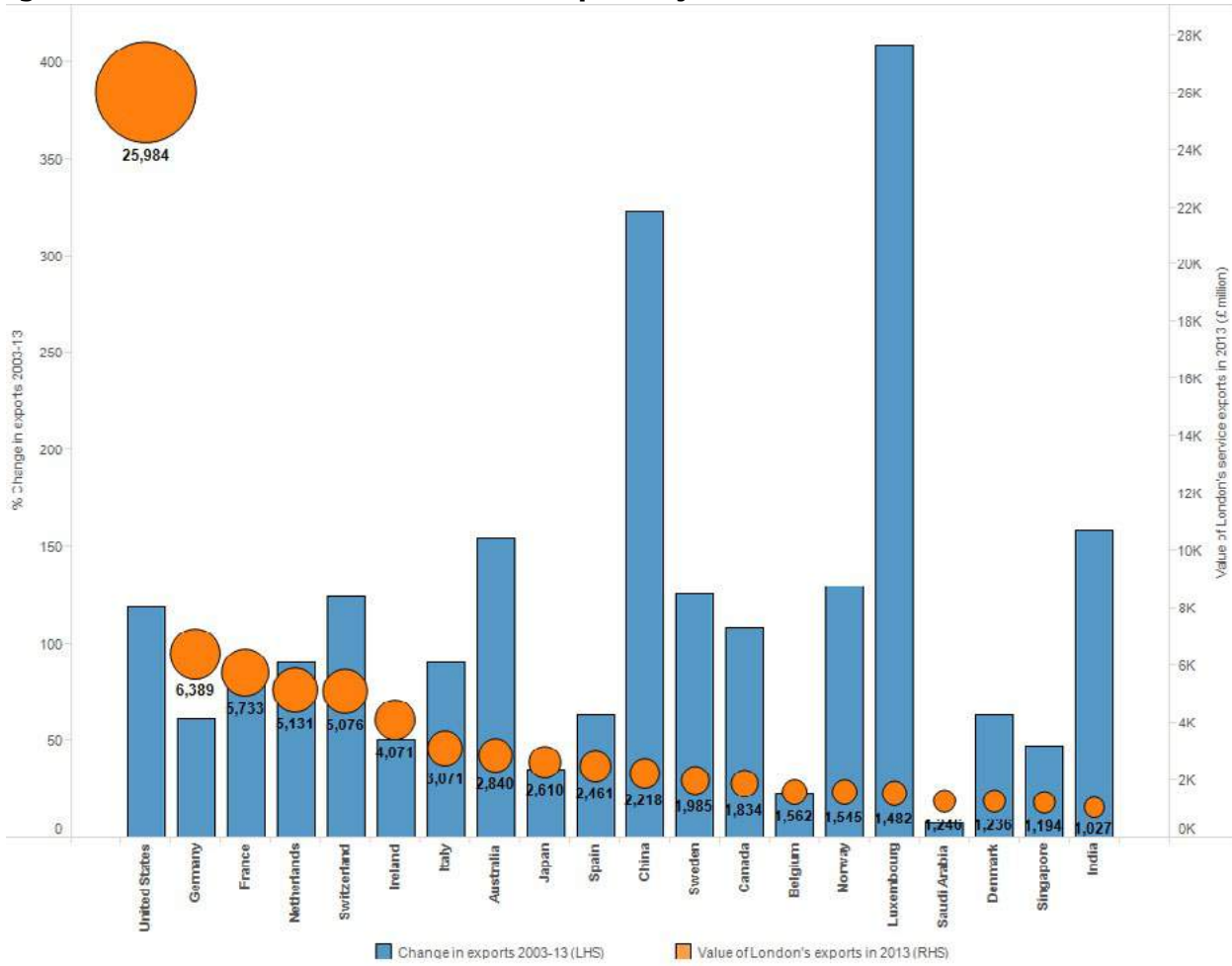
Source: International Trade in Services (ITIS) 2013, ONS, GLA Economics

## 1.4 London's economic specialisms

As a result of globalisation and trade, London's economy has developed in such a way that it has developed specialisms in certain activities. One way this can be evidenced is looking at how the number of jobs located in London has shifted over time. Figure 1.12 shows how this has changed over the last 40 years, by broad sector of activity. It shows the rise of service sector activity, with the manufacturing sector reducing in its importance as regards the proportion of total jobs in the capital.

**Figure 1.12: Jobs by sector in London, 1971 – 2015**
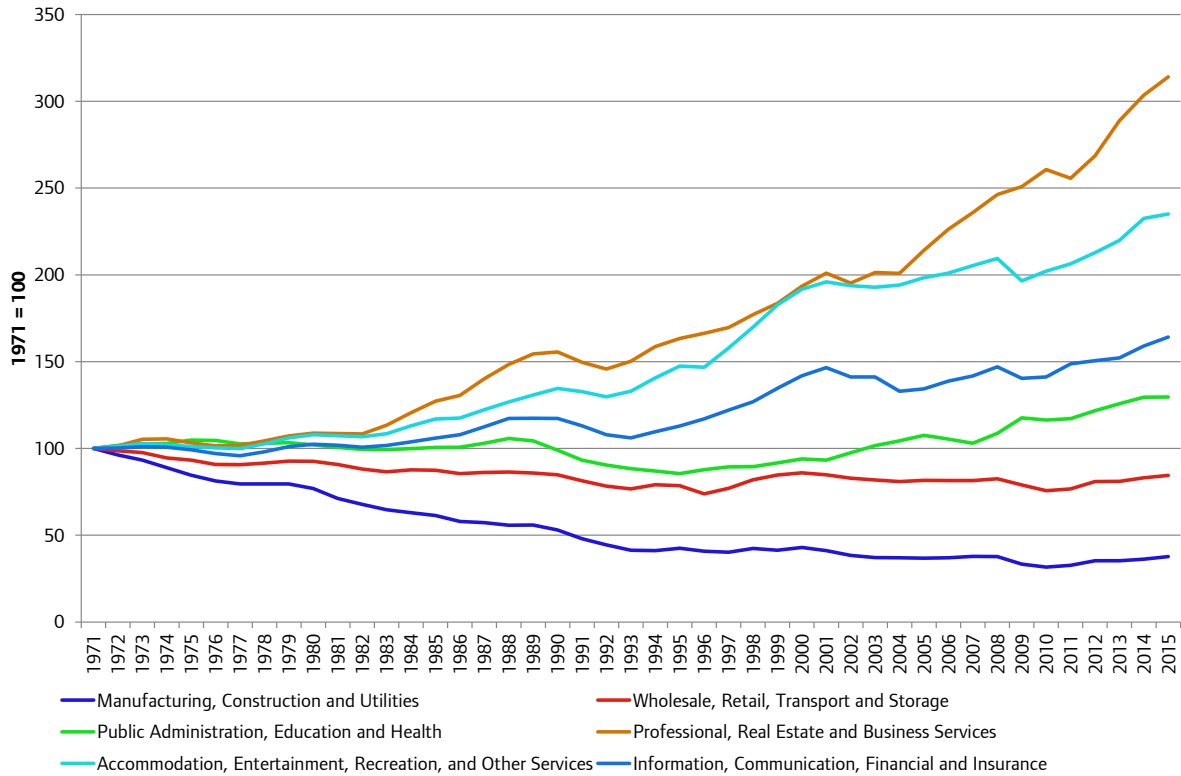


Source: Workforce Jobs, Office for National Statistics; GLA Economics calculations

Figure 1.13 shows there has been a significant rise in the Professional, real estate, scientific and technical activities sector (which has more than trebled over the past 40 years), as well as a rise in Other service sectors more generally. In contrast, there has been a significant fall in more primary sectors, with Manufacturing falling by 85 per cent over the period. To put these figures in context, the total level of jobs in London was 4.55 million in 1971, falling to around 3.8 million by the early 1990s, and rising to 5.538 million in 2015 (Table 1.2).

**Figure 1.13: Changes in jobs in London by sector 1971 – 2015**
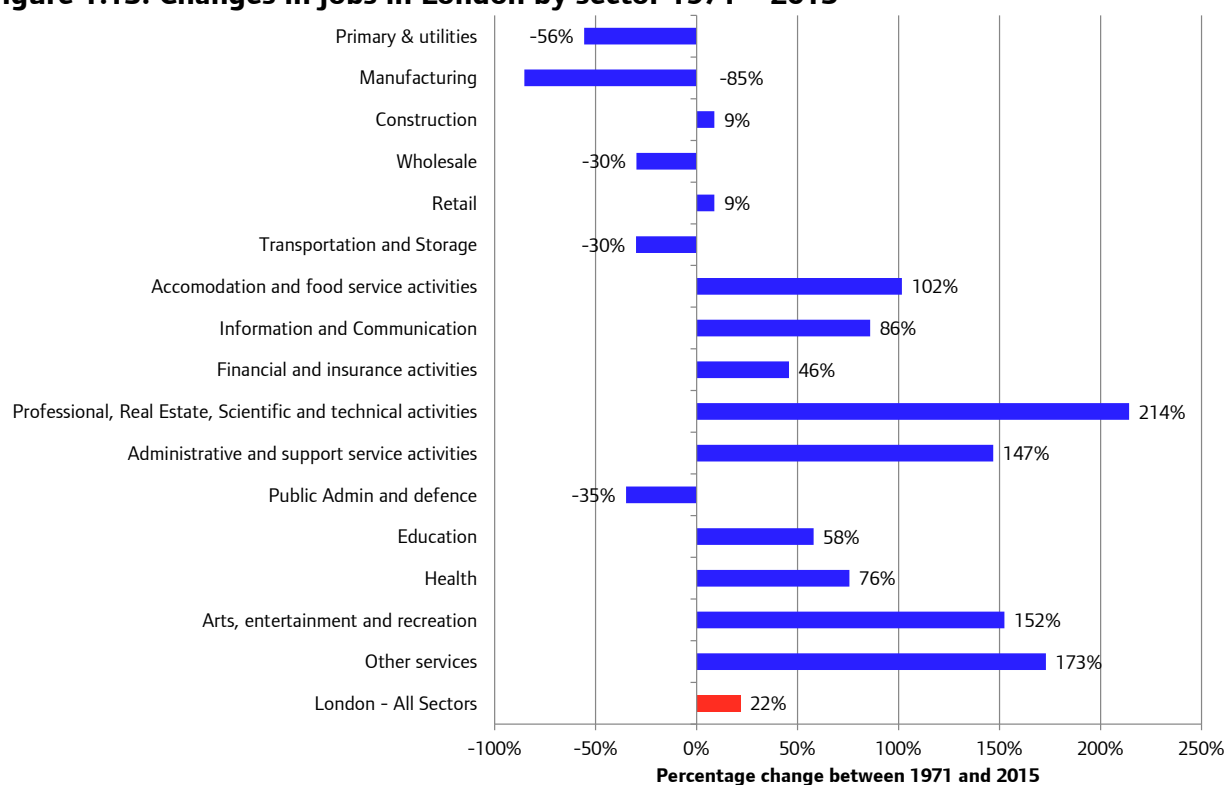


Source: Workforce Jobs, ONS

**Table 1.2: Total number of jobs in London by sector, thousands, 1971 – 2015**

| Sector | 1971 | 1996 | 2011 | 2015 | Change 1971 - 2015 |
|---|---|---|---|---|---|
| Primary & utilities | 77 | 31 | 32 | 34 | -43 |
| Manufacturing | 872 | 262 | 120 | 128 | -743 |
| Construction | 274 | 206 | 248 | 298 | +24 |
| Wholesale | 293 | 219 | 185 | 206 | -87 |
| Retail | 410 | 345 | 401 | 446 | +36 |
| Transportation and Storage | 395 | 247 | 257 | 276 | –119 |
| Accommodation and food service activities | 181 | 204 | 321 | 365 | +184 |
| Information and Communication | 229 | 246 | 373 | 426 | +197 |
| Financial and insurance activities | 268 | 336 | 367 | 391 | +123 |
| Professional, Real Estate, Scientific and technical activities | 279 | 464 | 714 | 877 | +598 |
| Administrative and support service activities | 223 | 361 | 496 | 550 | +327 |
| Public Admin and defence | 339 | 224 | 223 | 220 | -118 |
| Education | 268 | 228 | 362 | 423 | +155 |
| Health | 310 | 354 | 490 | 545 | +235 |
| Arts, entertainment and recreation | 80 | 132 | 159 | 201 | +121 |
| Other services | 55 | 94 | 135 | 150 | +95 |
| **London total** | **4,553** | **3,953** | **4,882** | **5,538** | **+985** |

Source: Workforce Jobs, ONS

Looking at London's current industrial structure, the importance of service sector activities to London's economy is further demonstrated. Figure 1.14 shows the total number of jobs in London by sector, and the proportion of total jobs each sector accounts for. Professional, scientific and technical activities is the largest sector of employment, accounting for 755,000 jobs (13.6 per cent of the London total). Despite some perceptions that London's economy is dominated by Financial

services, the sector accounts for around 390,000 (7.0 per cent) of the London total. Indeed, other sectors like Health, Education and Retail all account for a higher proportion of London's jobs and, as shown in Chapter 2, tend to be more spatially spread than jobs in some of London's other service sectors. Figure 1.14 illustrates the diversity of London's economy with a significant number of jobs in a number of different sectors.

**Figure 1.14: Jobs by sector in London, as a proportion of total jobs; 2015**
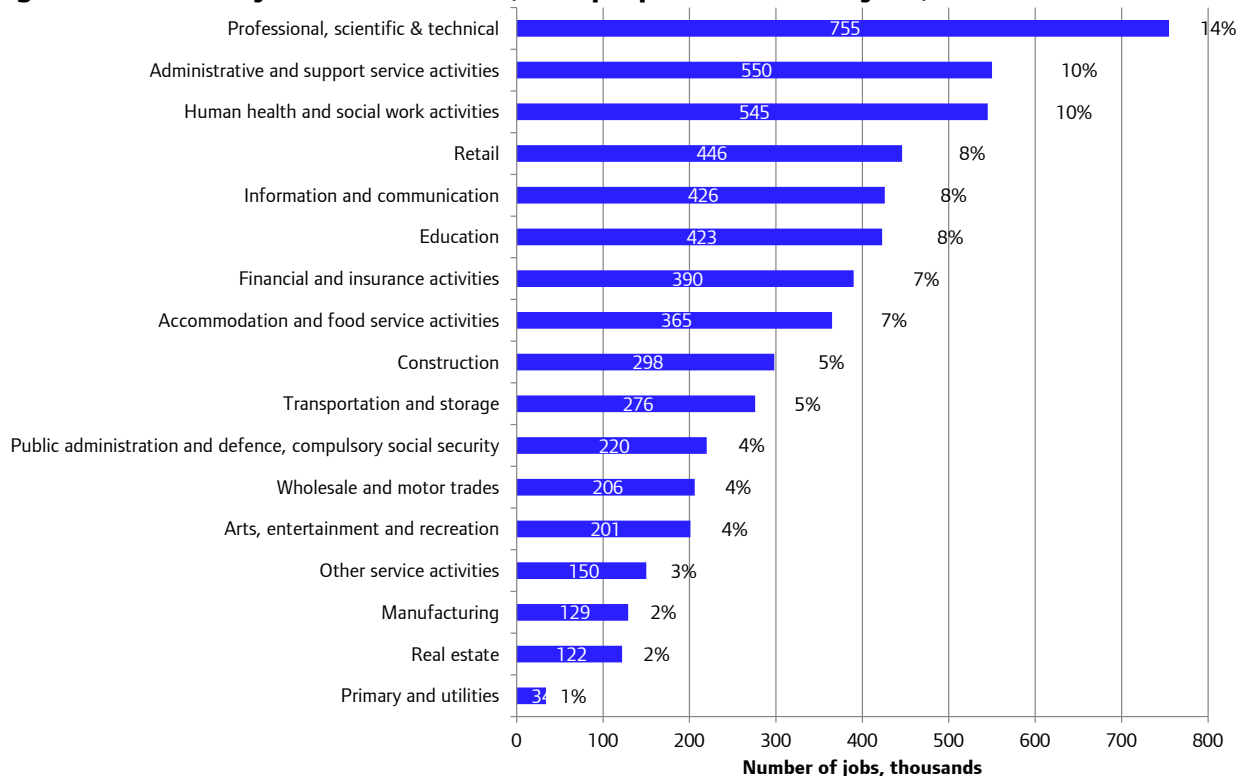


*Source: Workforce Jobs, ONS*

Whilst London's economy is characterised by significant levels of employment across a broad range of sectors, from a wider GB perspective some sectors are particularly concentrated in London. One way of looking at this is through the use of the 'index of specialisation' indictor. The index of specialisation is calculated as follows:

$$\frac{\left(\dfrac{\text{Sector employee jobs in London}}{\text{All employee jobs in London}}\right)}{\left(\dfrac{\text{Sector employee jobs in rest of GB}}{\text{All employee jobs in rest of GB}}\right)}$$

An index of specialisation of one means that the same proportion of jobs occur in London as occur in the rest of Great Britain. An index of specialisation of greater than one means that a higher proportion of jobs in that sector are located in London when compared with the rest of Great Britain.[5]

Table 1.3 provides the index of specialisation scores for the 1 digit SIC2007 sections, and shows similar analysis to earlier charts, that London is particularly specialised in service sector industries, with most of these recording scores greater than one. London's most significant specialisations are in Financial and insurance activities; Information and communication; and Professional, scientific and technical activities.

This analysis shows that sectors such as Manufacturing and Primary and utilities which tend to be more land intensive have a low index of specialisation score. The findings also resonate with the earlier trade findings with those areas of significant trade tending to have higher levels of specialisation.

**Table 1.3: London's indices of specialisation by 1 digit SIC section, 2014**

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| A,B,D,E: Primary and Utilities | 28,700 | 0.6% | 535,400 | 5.1% | **0.26** |
| C : Manufacturing | 113,300 | 2.4% | 2,241,200 | 4.8% | **0.25** |
| F : Construction | 144,800 | 3.1% | 1,102,100 | 11.6% | **0.64** |
| G : Wholesale and retail trade | 594,700 | 12.6% | 3,815,600 | 13.5% | **0.76** |
| H : Transportation and storage | 227,300 | 4.8% | 1,025,000 | 18.2% | **1.09** |
| I : Accommodation and food service activities | 358,000 | 7.6% | 1,614,600 | 18.1% | **1.09** |
| J : Information and communication | 372,800 | 7.9% | 769,700 | 32.6% | **2.38** |
| K : Financial and insurance activities | 351,900 | 7.4% | 681,400 | 34.1% | **2.53** |
| L : Real estate activities | 107,600 | 2.3% | 345,900 | 23.7% | **1.53** |
| M : Professional, scientific and technical activities | 613,900 | 13.0% | 1,638,900 | 27.3% | **1.84** |
| N : Administrative and support service activities | 490,600 | 10.4% | 1,942,300 | 20.2% | **1.24** |
| O : Public administration and defence | 220,000 | 4.6% | 1,064,600 | 17.1% | **1.01** |
| P : Education | 385,700 | 8.1% | 2,191,800 | 15.0% | **0.86** |
| Q : Human health and social work activities | 483,700 | 10.2% | 3,257,700 | 12.9% | **0.73** |
| R : Arts, entertainment and recreation | 125,200 | 2.6% | 558,100 | 18.3% | **1.10** |
| S : Other service activities | 114,600 | 2.4% | 433,700 | 20.9% | 1.30 |

*Source: GLA Economics calculations; drawn from Business Register and Employment Survey, Office for National Statistics*

This broad sector level analysis can hide specialisations that lie within sectors. Detailed tables are provided in the appendix to this chapter looking at lower level specialisations. The tables show sub-sectors which have an index of specialisation number greater than 1.4 and more than 4,000 employee jobs.

There are a number of areas of activity in which London is highly specialised. Many of the areas in which London has a strong trading performance are also those in which it has a specialisation when compared to the rest of GB. The largest component of service exports, finance, shows a number of areas of specialisation including securities and fund management activities. Another large area of service exports is professional services where specialisations in legal, accountancy, management consultancy, advertising, market research and architecture are apparent. The information and communication sector shows a number of specialisations in London including publishing, motion picture, video and TV programming, computer programming and consultancy. Other areas of specialisation shown in the appendix include air transport, creative, arts and entertainment activities and activities of business, employer and professional member organisations.

A further way in which London's industrial structure can be understood is through considering the output shares of different sectors. Figures 1.15 and 1.16 compare the importance of individual sectors in terms of output shares (i.e. the proportion of GVA that each sector accounts for) alongside the level of specialisation (in terms of jobs). The size of the circle illustrates the number of employees in that sector. Sectors within the top right quadrants of these diagrams would be considered as highly specialised and contributing significant levels of output. Further analysis of London's economic output is considered in section 1.5.

**Figure 1.15: Indices of Specialisation compared to output share, London, 2014**
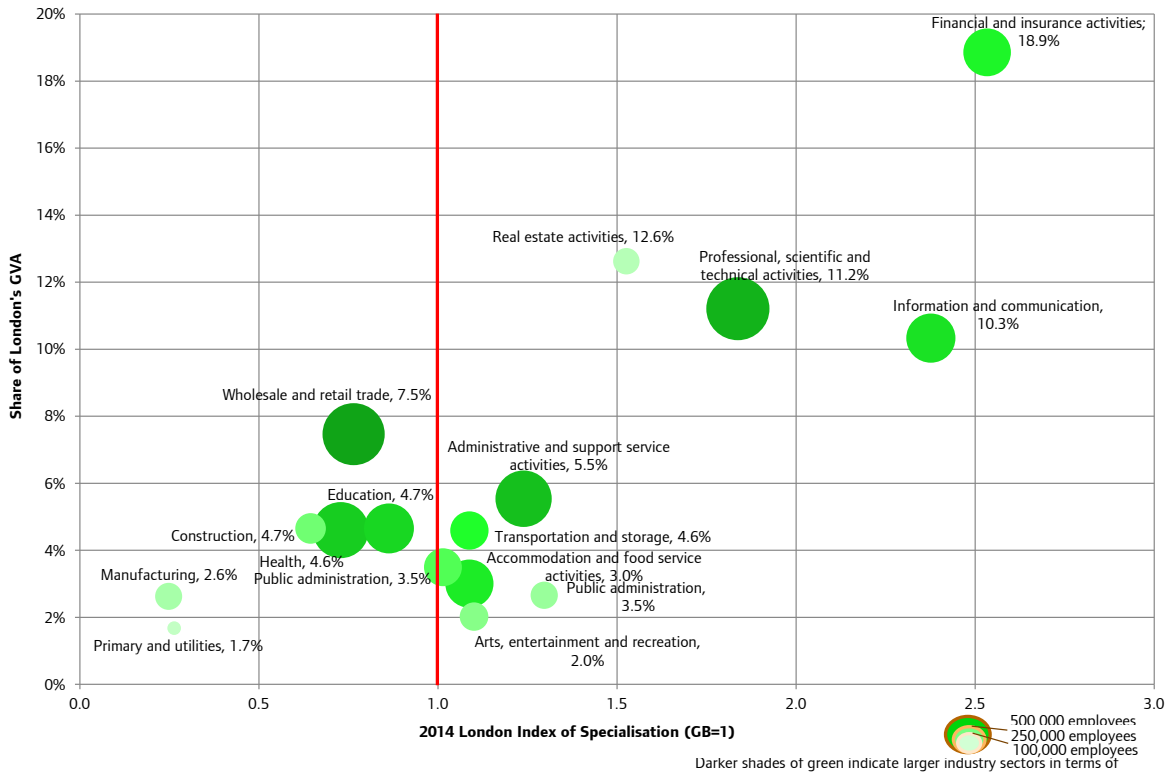


*Source: GLA Economics calculations; drawn from Business Register and Employment Survey, and Regional Accounts, both ONS.*

**Figure 1.16: Indices of Specialisation compared to output share, London, 1997**
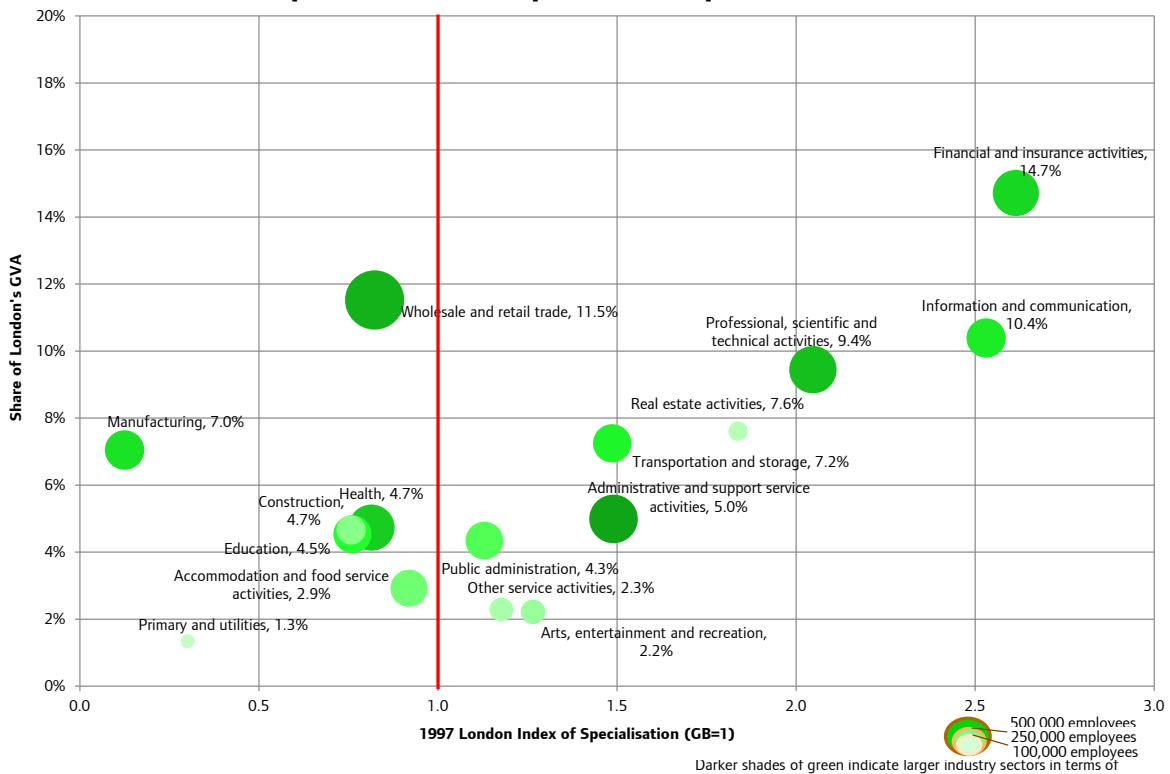


*Source: GLA Economics calculations; drawn from Business Register and Employment Survey, ONS.*

## 1.5 London's economic output

Focusing more on output, Gross Value Added (GVA) measures the contribution of a sector or industry to the economy and is commonly used as an estimation of GDP and an indicator of the 'state' of the economy[6].

London's total economic output was worth approximately £364 billion in 2014, accounting for 22.5 per cent of the UK's total output, an increase of 6.8 per cent on the previous year[7].

Since 2008, London's GVA has increased 28.9 per cent in nominal terms (i.e. without taking account of inflation), compared to 18.2 per cent for the UK as a whole (Figure 1.17)[8]. The growth in London's nominal GVA accounted for 32.6 per cent of the UK's total GVA increase between 2013 and 2014 (and has never accounted for less than 22 per cent since 2008 with an average of 30.5 per cent between 2010 and 2014, this compares to the 1997 to 2008 average of 23.1 per cent).

**Figure 1.17: Nominal growth rates in GVA in London and the UK (1998 – 2014)**
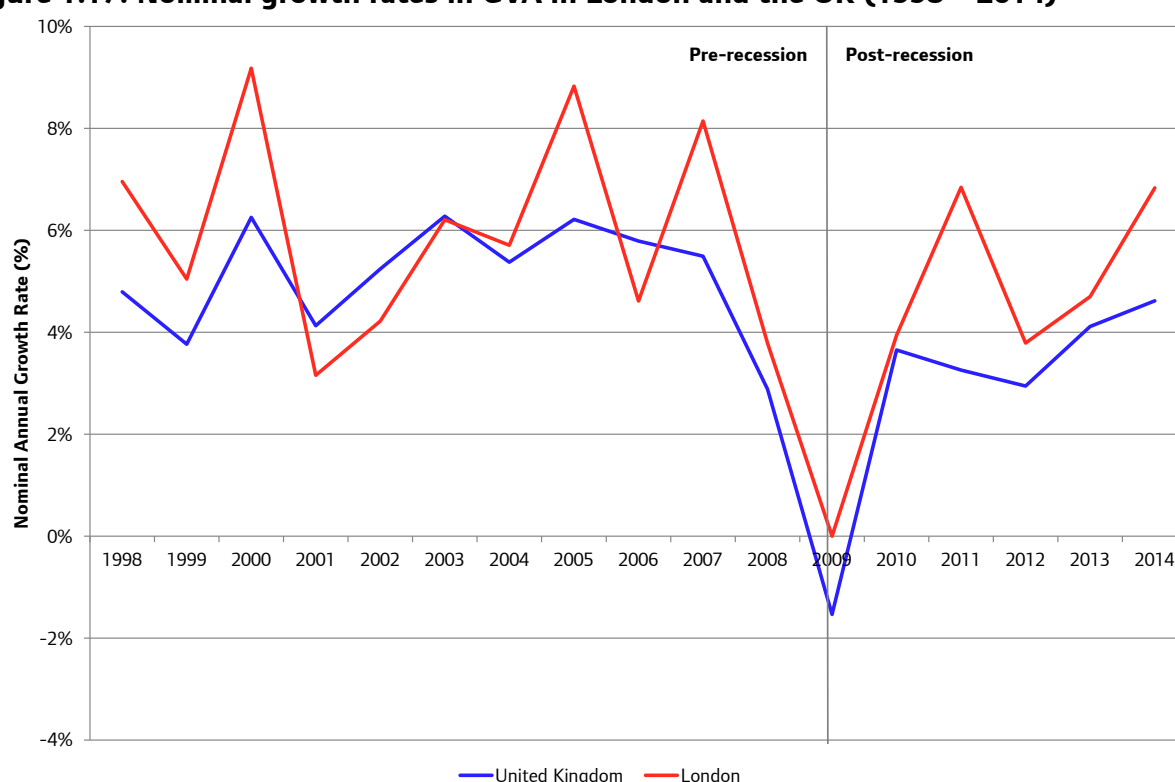


*Source: Regional Gross Value Added (Income Approach), ONS; GLA Economics calculations*

Since the 2008/09 recession, GVA growth has been sluggish by historic standards, whilst employment growth has been uncharacteristically and unexpectedly strong; this has had knock on effects for how productive London appears (see Box 6.1 in Chapter 6). It has been argued that at least some of the strength seen in the labour market has come from increased labour market flexibility and, within that, potentially less stable employment. Similarly, it has been argued that wages have failed to keep up with rising costs of living[9]. The social implications associated with London's economy are discussed in Chapter 10.

## 1.5.1 London's GVA across sectors

As has been seen through data on London's employment by sector, individual sectors' contribution to overall output growth is not evenly distributed. Table 1.4 shows the change in total output (in nominal terms) of each sector of London's economy between 1997 and 2014.

**Table 1.4: London's GVA by sector, 1997 and 2014 (£ million)**

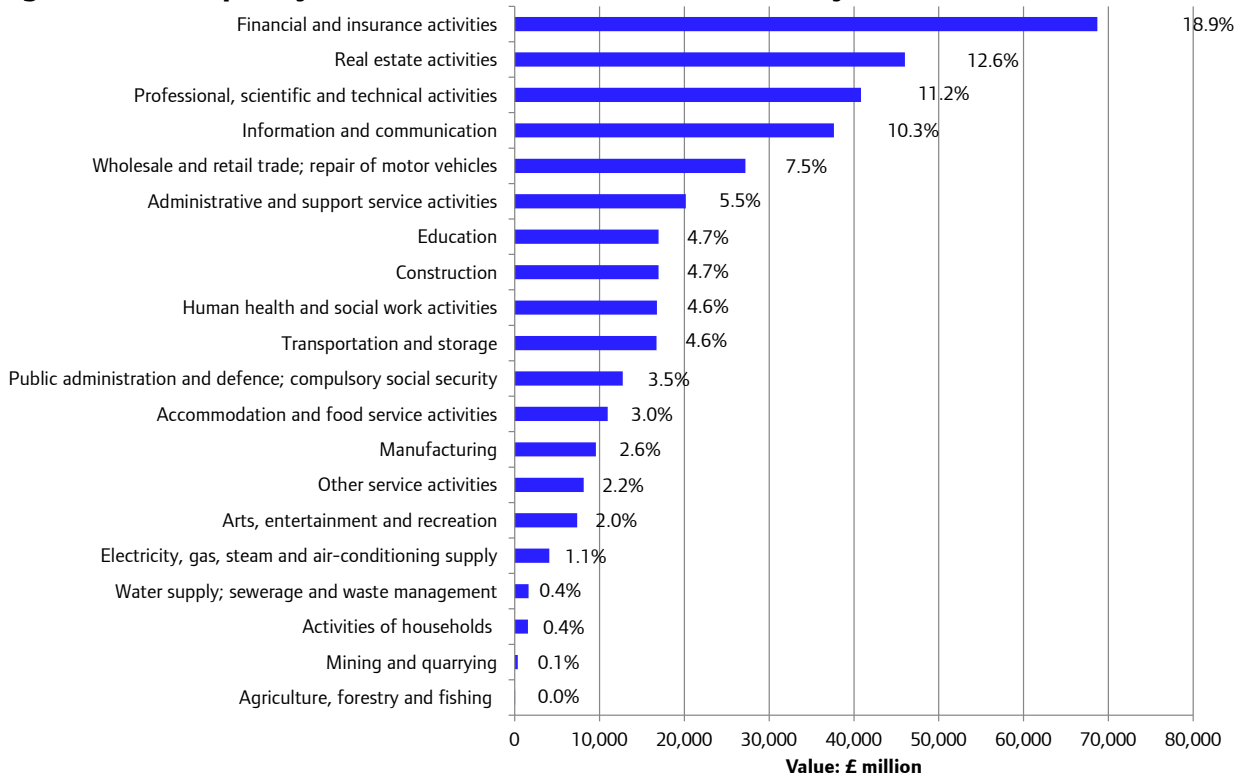| Sector | 1997 | 2014 | Change 1997 – 2014 |
|---|---|---|---|
| Agriculture, forestry and fishing | 39 | 51 | +31% |
| Mining and quarrying | 425 | 363 | -15% |
| Manufacturing | 10,525 | 9,561 | -9% |
| Electricity, gas, steam and air-conditioning supply | 893 | 4,071 | +356% |
| Water supply; sewerage and waste management | 645 | 1,619 | +151% |
| Construction | 6,961 | 16,948 | +143% |
| Wholesale and retail trade; repair of motor vehicles | 17,211 | 27,193 | +58% |
| Transportation and storage | 10,824 | 16,720 | +54% |
| Accommodation and food service activities | 4,363 | 10,952 | +151% |
| Information and communication | 15,521 | 37,639 | +143% |
| Financial and insurance activities | 21,984 | 68,698 | +212% |
| Real estate activities | 11,360 | 45,998 | +305% |
| Professional, scientific and technical activities | 14,106 | 40,832 | +189% |
| Administrative and support service activities | 7,455 | 20,174 | +171% |
| Public administration and defence; compulsory social security | 6,490 | 12,727 | +96% |
| Education | 6,778 | 16,951 | +150% |
| Human health and social work activities | 7,066 | 16,763 | +137% |
| Arts, entertainment and recreation | 3,307 | 7,363 | +123% |
| Other service activities | 2,770 | 8,120 | +193% |
| Activities of households | 644 | 1,568 | +143% |
| **TOTAL** | **149,367** | **364,310** | **+144%** |

*Source: Regional Accounts, ONS.*

Based on the total numbers of jobs alone, 'Professional, scientific and technical activities' was the largest sector in London in 2015 (Figure 1.14). However, when measuring economic output by GVA, 'Financial and insurance activities' can be seen to have accounted for just under a fifth of all activity in London (Figure 1.18), thereby constituting London's most significant industry on this basis. GVA figures further show that the value of the 'Financial and insurance activities' industry has grown by 212 per cent since 1997 (Table 1.4). This is the third fastest rate of growth for any industry in London, surpassed only by 'Electricity, gas, steam and air conditioning supply' (356 per cent), and 'Real estate activities' (305 per cent). In 2014, 51.8 per cent of the UK's GVA in the 'Financial and insurance activities' industry was generated in London (up from 42.6 per cent in 1997). Indeed, London's 'Financial and insurance activities' industry alone, made up 4.3 per cent of the UK's total GVA in 2014. 'Professional, scientific and technical activities', 'Real estate activities', and 'Information and communication' all also made sizeable contributions towards London's economy, accounting for 11.2 per cent, 12.6 per cent, and 10.3 per cent of London's total GVA in 2014 respectively (Table 1.5).

The importance of service sector activities, especially in professional and financial services is shown in employment specialisation and total output, as shown in Figure 1.18. The four largest sectors of London's economy accounted for over half of London's total output in 2014.

**Figure 1.18: Output by industrial sector, and share of activity, London, 2014**

| Sector | Value (£ million) | Share |
|---|---|---|
| Financial and insurance activities | | 18.9% |
| Real estate activities | | 12.6% |
| Professional, scientific and technical activities | | 11.2% |
| Information and communication | | 10.3% |
| Wholesale and retail trade; repair of motor vehicles | | 7.5% |
| Administrative and support service activities | | 5.5% |
| Education | | 4.7% |
| Construction | | 4.7% |
| Human health and social work activities | | 4.6% |
| Transportation and storage | | 4.6% |
| Public administration and defence; compulsory social security | | 3.5% |
| Accommodation and food service activities | | 3.0% |
| Manufacturing | | 2.6% |
| Other service activities | | 2.2% |
| Arts, entertainment and recreation | | 2.0% |
| Electricity, gas, steam and air-conditioning supply | | 1.1% |
| Water supply; sewerage and waste management | | 0.4% |
| Activities of households | | 0.4% |
| Mining and quarrying | | 0.1% |
| Agriculture, forestry and fishing | | 0.0% |

Value: £ million

*Source: Regional Accounts, ONS.*

When looking at the comparative importance of sectors in the economy, Table 1.5 shows how London has developed over time as a centre for business services. Looking at the shares of each individual sector to total output, the Financial and insurance activities sector has an output share that is over 10 percentage points higher than the UK as a whole. On the opposite side, Manufacturing has an output share 8 percentage points lower than the UK as a whole.
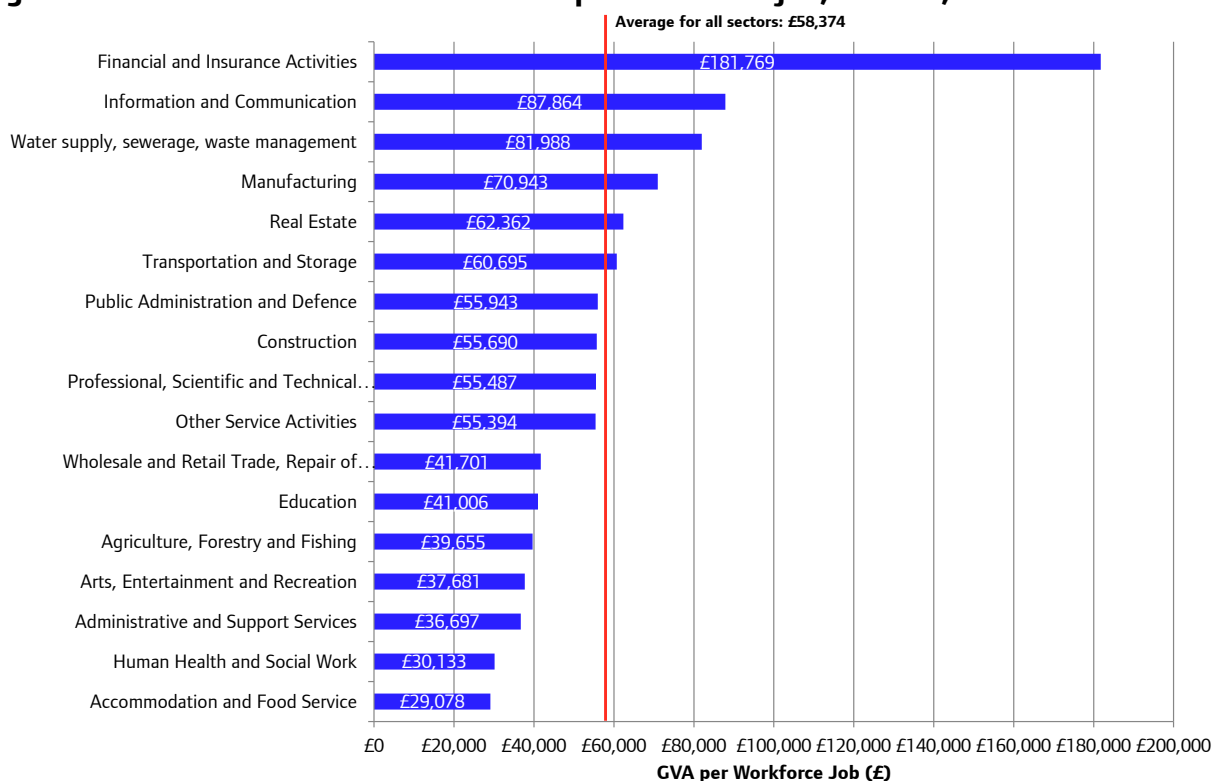
**Table 1.5: Sector shares of total output, London and the UK, 2014**

| Sector | Share of total London output | Share of total UK output | Difference (percentage points) |
|---|---|---|---|
| Agriculture, forestry and fishing | 0.0% | 0.7% | -0.7 |
| Mining and quarrying | 0.1% | 1.6% | -1.5 |
| Manufacturing | 2.6% | 10.6% | -8.0 |
| Electricity, gas, steam and air-conditioning supply | 1.1% | 1.5% | -0.4 |
| Water supply; sewerage and waste management | 0.4% | 1.1% | -0.6 |
| Construction | 4.7% | 6.2% | -1.5 |
| Wholesale and retail trade; repair of motor vehicles | 7.5% | 10.7% | -3.2 |
| Transportation and storage | 4.6% | 4.5% | 0.1 |
| Accommodation and food service activities | 3.0% | 2.9% | 0.1 |
| Information and communication | 10.3% | 6.2% | 4.2 |
| Financial and insurance activities | 18.9% | 8.2% | 10.6 |
| Real estate activities | 12.6% | 11.6% | 1.1 |
| Professional, scientific and technical activities | 11.2% | 7.4% | 3.8 |
| Administrative and support service activities | 5.5% | 4.7% | 0.8 |
| Public administration and defence; compulsory social security | 3.5% | 5.1% | -1.6 |
| Education | 4.7% | 6.1% | -1.4 |
| Human health and social work activities | 4.6% | 6.7% | -2.1 |
| Arts, entertainment and recreation | 2.0% | 1.6% | 0.4 |
| Other service activities | 2.2% | 2.3% | -0.1 |
| Activities of households | 0.4% | 0.4% | 0.0 |

Source: GLA Economics calculations; drawn from Regional Accounts, ONS.

## 1.5.2 London's productivity

Combining data on output and jobs provides for an investigation of London's productivity. GLA Economics have previously developed a methodology calculating the productivity of labour (removing the elements of rental incomes included within National Accounting). This analysis finds that sectors such as financial services are highly productive (Figure 1.19), as through trade and specialisation, London has been able to generate significant levels of economic output.

**Figure 1.19: Sector level estimates of GVA per workforce job, London, 2014**

Average for all sectors: £58,374

| Sector | GVA per Workforce Job |
|---|---|
| Financial and Insurance Activities | £181,769 |
| Information and Communication | £87,864 |
| Water supply, sewerage, waste management | £81,988 |
| Manufacturing | £70,943 |
| Real Estate | £62,362 |
| Transportation and Storage | £60,695 |
| Public Administration and Defence | £55,943 |
| Construction | £55,690 |
| Professional, Scientific and Technical... | £55,487 |
| Other Service Activities | £55,394 |
| Wholesale and Retail Trade, Repair of... | £41,701 |
| Education | £41,006 |
| Agriculture, Forestry and Fishing | £39,655 |
| Arts, Entertainment and Recreation | £37,681 |
| Administrative and Support Services | £36,697 |
| Human Health and Social Work | £30,133 |
| Accommodation and Food Service | £29,078 |

GVA per Workforce Job (£)

*Source: GLA Economics calculations*
*Note: This table does not include "mining and quarrying" and "electricity, gas, steam and air conditioning supply", since such physical activities do not generally take place in the capital, recorded output are likely to be the activities of head office functions.*

When breaking down further into 2 digit SIC2007 divisions, there are certain sectors which can be seen as highly productive in terms of labour productivity. Table 1.6 shows the top 20 highest GVA per workforce job industry divisions. It shows that some service sector activities (such as financial services, legal and accounting etc.) have very high GVA per workforce job estimates. In addition, there are a wide range of other industry sectors that are included within this list including some manufacturing, warehousing and waste management activiites.

**Table 1.6: Highest GVA per workforce job divisions, London, 2014**

| SIC 1 digit section code | SIC 2 digit division | GVA per workforce job |
|---|---|---|
| K | 66: Activities auxiliary to financial services and insurance | £199,723 |
| M | 69: Legal and accounting activities | £167,705 |
| L | 68: Real estate activities | £145,144 |
| E | 38: Waste collection, treatment and disposal activities | £125,969 |
| C | 31: Manufacture of furniture | £105,053 |
| K | 65: Insurance, reinsurance and pension funding, except compulsory social security | £96,840 |
| C | 22: Manufacture of rubber and plastic products | £94,227 |
| J | 62: Computer programming, consulting and related activities | £94,127 |
| K | 64: Financial service activities, except insurance and pension funding | £92,522 |
| J | 63: Information service activities | £87,859 |
| H | 52: Warehousing and support activities for transportation | £86,685 |
| F | 42: Civil engineering | £82,559 |
| J | 60: Programming and broadcasting activities | £82,547 |
| H | 53: Postal and courier activities | £80,523 |
| F | 41: Construction of buildings | £80,489 |
| C | 26: Manufacture of computer, electronic and optical products | £78,994 |
| J | 61: Telecommunications | £76,585 |
| C | 32: Other manufacturing | £73,485 |
| C | 33: Repair and installation of machinery and equipment | £73,006 |
| D | 35: Electricity, gas, steam and air conditioning supply | £70,419 |

*Source: GLA Economics calculations.*
*Note: Industry divisions with more than 4,000 employee jobs only*

In part due to London being specialised in certain service sector activities, London has GVA per workforce job levels that are considerably higher than the UK as a whole (Figure 1.20). In 2014, it is estimated that London had a GVA per workforce job that was 36.5 per cent higher than the UK as a whole.

**Figure 1.20: GVA per workforce job estimates by region/country within the UK, 2014**
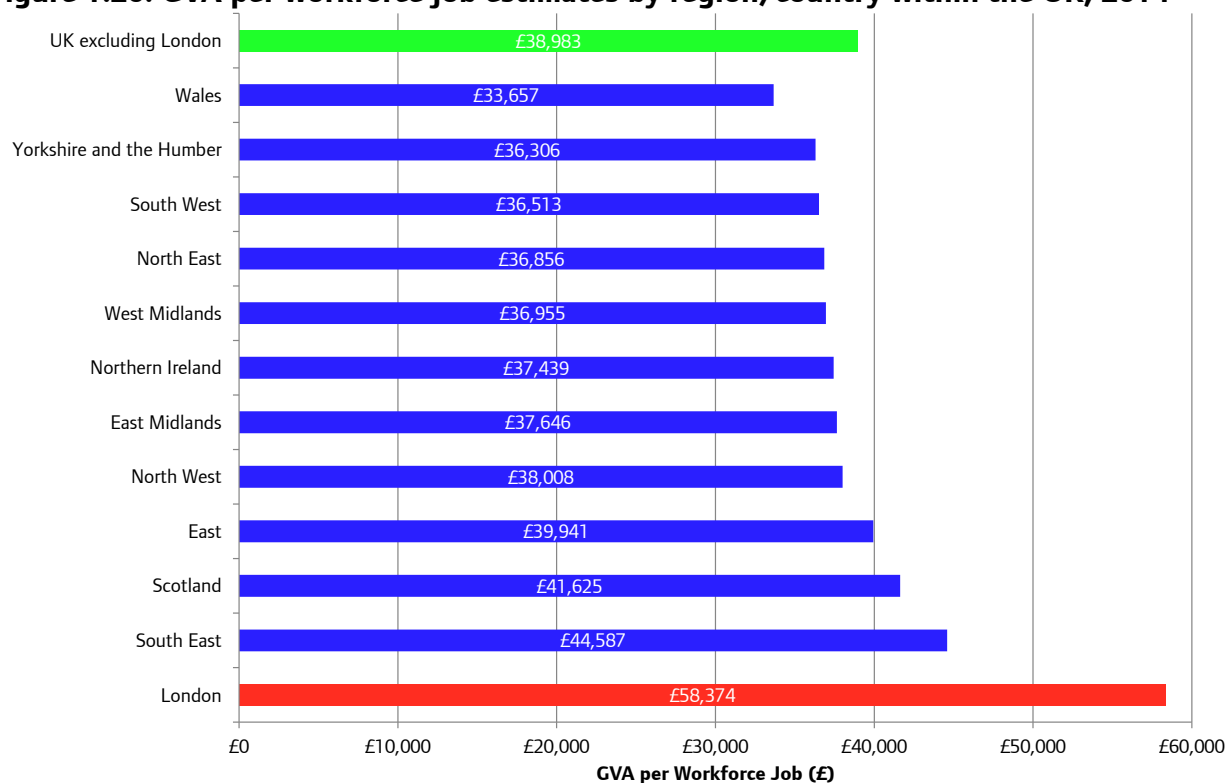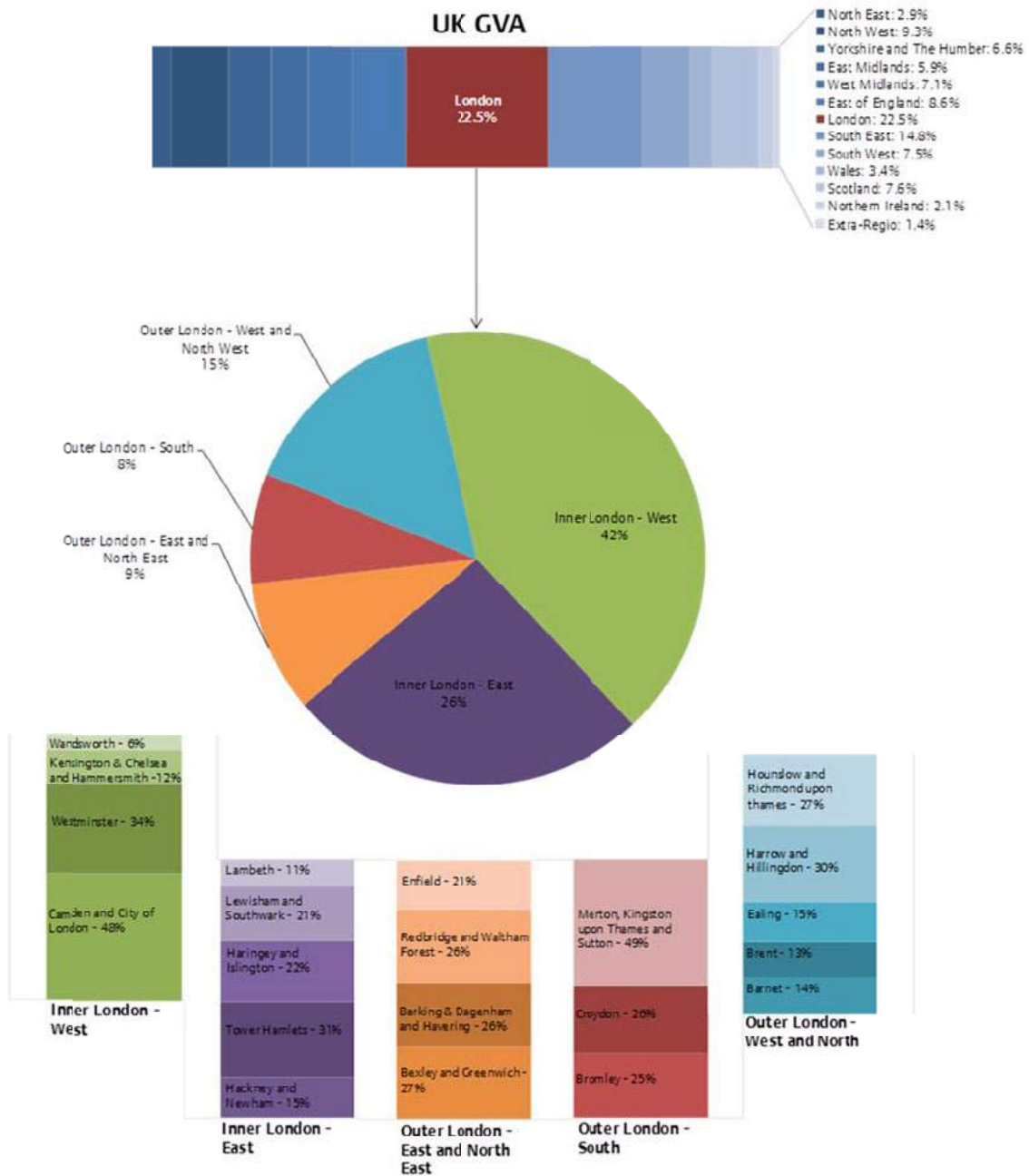


*Source: GLA Economics calculations. Rest of UK equals UK excluding extra-regio minus London.*

Further analysis of productivity in London is provided within Chapter 6, which provides detail on the outlook for London's economy.

## 1.5.3 Spatial aspects of London's economic output

In line with its higher productivity, whilst London accounts for 13.3 per cent of the UK's population and 16.5 per cent of the total level of UK jobs, it comprised 22.5 per cent of the UK's total output in 2014, significantly higher than any other region or nation of the UK. Based on the ONS level of geographies (NUTS regions), over 68 per cent of London's GVA was produced in Inner London in 2014, with 42 per cent of London's total GVA produced in Inner London – West alone. Indeed, in 2014 Inner London – West had a higher GVA than all UK regions or nations except for the South East (and, of course, London). The geographical breakdown of headline UK GVA is provided in Figure 1.21.

**Figure 1.21: UK economic output, broken down by NUTS level geographies, 2014**



*Source: Office for National Statistics, GLA Economics calculations*

At the borough level, Westminster and the City of London are the largest individual boroughs, comprising around £50 billion of GVA each (Figure 1.22). Westminster comprises 14.0 per cent of London's total economic output.

**Figure 1.22: London's economic output by borough**
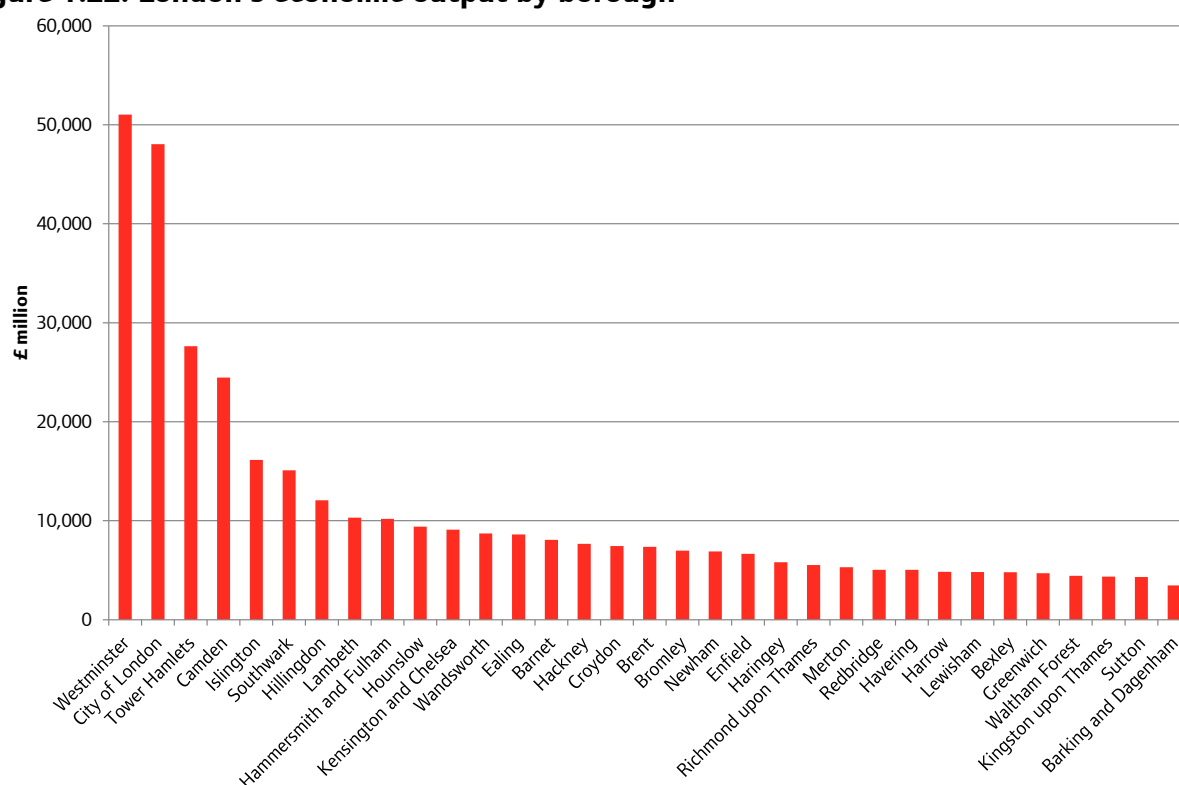


*Source: Office for National Statistics, GLA Economics calculations*

The structure of local authorities' economies in London varies, and these issues are considered in further detail within Chapter 2. However, an examination of the data finds that certain boroughs have shares of output in particular sectors which do not match the London economy as a whole. Table 1.7 shows how in Financial and insurance activities, the City of London and Tower Hamlets – essentially the Central Activities Zone and the Northern Isle of Dogs area (referred to within Chapter 2) – are boroughs where the sector provides the majority of the borough's output.

**Table 1.7: Share of total local authority output, Financial and Insurance Activities, 2014**

| Local authority | Share of total borough output |
|---|---|
| City of London | 66.6% |
| Tower Hamlets | 51.9% |
| Islington | 17.7% |
| Westminster | 16.6% |
| Camden | 12.7% |
| Bromley | 10.0% |
| Southwark | 9.9% |
| Croydon | 9.4% |
| Hackney | 8.9% |
| Kensington and Chelsea | 6.5% |
| **London** | **18.9%** |

*Source: Office for National Statistics, GLA Economics calculations*

Within Business services activities, local authorities within Inner London dominate, with almost 30 per cent of Southwark's total economic output in this sector.

**Table 1.8: Share of total local authority output, Business Services, 2014**

| Local authority | Share of total borough output |
|---|---|
| Southwark | 28.8% |
| Camden | 24.0% |
| Islington | 23.2% |
| Merton | 21.6% |
| Hackney | 21.5% |
| Lambeth | 19.9% |
| Westminster | 19.3% |
| Richmond upon Thames | 18.3% |
| City of London | 16.6% |
| Waltham Forest | 16.4% |
| **London** | **16.7%** |

Source: Office for National Statistics, GLA Economics calculations
Note: Business Services refer to SIC2007 sections M and N.

Distribution, transport and accommodation and food industries are a more important part of economic activity within Outer London. Hillingdon is the borough with the largest proportion of its total economic output within this sector, due in large part to Heathrow airport.

**Table 1.9: Share of total local authority output; Distribution, transport; accommodation and food, 2014**

| Local authority | Share of total borough output |
|---|---|
| Hillingdon | 39.7% |
| Brent | 25.9% |
| Ealing | 24.5% |
| Havering | 24.2% |
| Enfield | 22.8% |
| Hounslow | 22.4% |
| Newham | 21.4% |
| Bexley | 21.2% |
| Richmond upon Thames | 20.7% |
| Barking and Dagenham | 20.6% |
| **London** | **15.1%** |

Source: Office for National Statistics, GLA Economics calculations
Note: Distribution, transport; accommodation and food refer to SIC2007 sections G, H and I.

While service sector activity was a more important part of the total economic output of Inner London boroughs, production industries (which includes manufacturing) forms a much greater proportion within Outer London boroughs' output, and considerably higher than the average for London's economy as a whole.

**Table 1.10: Share of total local authority output, Production industries, 2014**

| Local authority | Share of total borough output |
|---|---|
| Barking and Dagenham | 21.2% |
| Bexley | 15.8% |
| Brent | 13.4% |
| Ealing | 12.4% |
| Haringey | 12.0% |
| Newham | 10.6% |
| Enfield | 9.4% |
| Greenwich | 8.7% |
| Waltham Forest | 8.2% |
| Havering | 7.9% |
| **London** | **4.3%** |

Source: Office for National Statistics, GLA Economics calculations
Note: Production industries refer to SIC2007 sections B, C, D and E.

Typically, the proportion of total output provided by public services tends to be higher within Outer London, however it is an important feature of all local authorities given the nature of the services provided.

**Table 1.11: Share of total local authority output, Public administration; education; health, 2014**

| Local authority | Share of total borough output |
|---|---|
| Lewisham | 26.6% |
| Greenwich | 22.8% |
| Lambeth | 22.3% |
| Redbridge | 20.5% |
| Wandsworth | 20.2% |
| Kingston upon Thames | 19.7% |
| Waltham Forest | 19.6% |
| Newham | 18.9% |
| Croydon | 18.6% |
| Barnet | 18.4% |
| **London** | **12.7%** |

Source: Office for National Statistics, GLA Economics calculations
Note: Public administration; education; health refer to SIC2007 sections O, P and Q.

The construction industries forms a larger part of total economic output within Outer London boroughs, with output shares several percentage points higher than for London as a whole.

**Table 1.12: Share of total local authority output, Construction, 2014**

| Local authority | Share of total borough output |
|---|---|
| Havering | 13.1% |
| Bexley | 11.4% |
| Sutton | 11.0% |
| Enfield | 9.9% |
| Bromley | 9.8% |
| Barking and Dagenham | 9.2% |
| Redbridge | 8.4% |
| Newham | 8.3% |
| Lewisham | 8.3% |
| Harrow | 8.3% |
| **London** | **4.7%** |

*Source: Office for National Statistics, GLA Economics calculations*

## 1.6 London's place in the global economy

Many industrial sectors are important to London's economy. London's economy is diverse as seen by the relative importance of particular sectors within different areas of the capital. However, at a more macroeconomic level, globalisation, trade and specialisation have led to London becoming a city primarily specialising in service sector activities. The growth of the capital as a leading destination for business and people has meant that it has become a leading global city (a topic discussed in more detail within Chapter 5). GLA Economics has undertaken an analysis into understanding how major global cities compare, with some of the findings summarised in this section.[10]

Making comparisons between global cities is intrinsically difficult, for example due to the definitions used in allocating activities to sectors or the methods used in calculating output, however it provides an indication of the importance of major cities to the economy as a whole.

In terms of its sheer size, London is considerably larger than other cities within the UK (London accounts for 22.5 per cent of the UK's total output), however it is much smaller than some other global cities, as shown in Figure 1.23. In addition, the growth rates of emerging cities such as Shanghai and Singapore are much higher, with compound annual growth rates of 5.8 per cent and 5.0 per cent respectively between 2006 and 2014, compared to 2.4 per cent for London over that period.

**Figure 1.23: Total economic output for global cities, £million (2014)[11,12,13]**
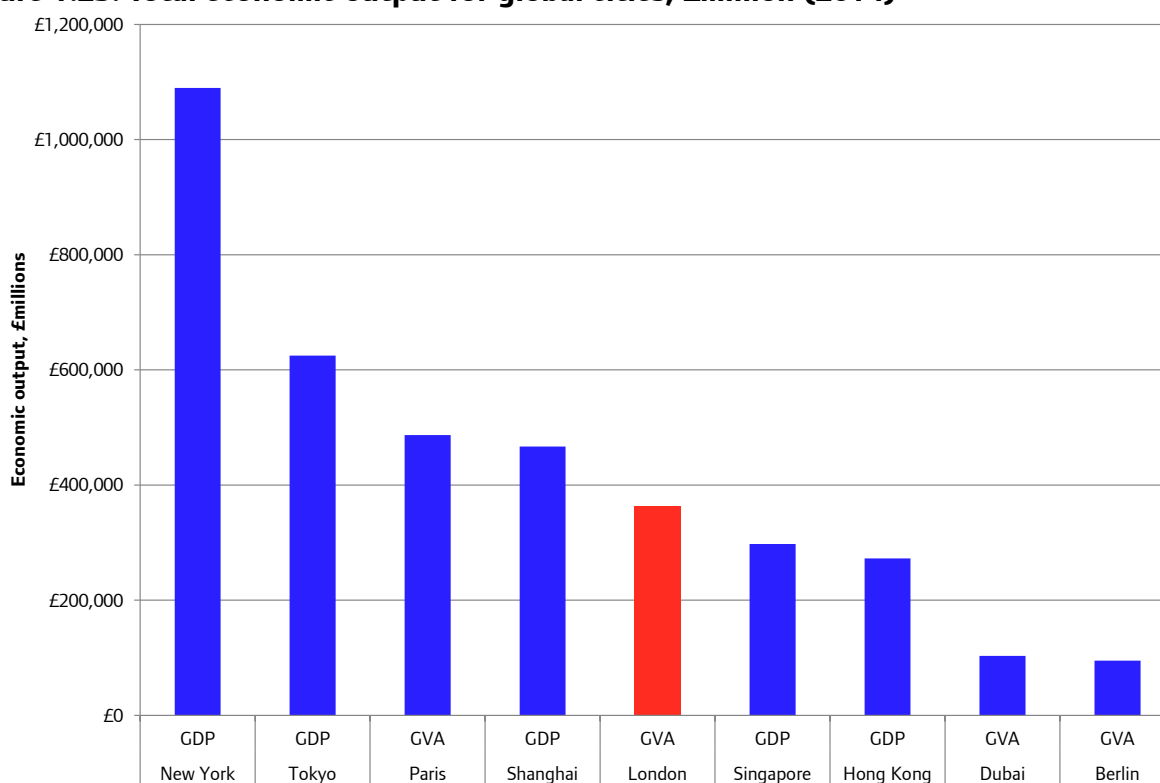


*Source: ONS, US Bureau of Economic Analysis, INSEE, Statistik Berlin Brandenburg, SingStat, HK Census and Statistics Department, National Bureau of Statistics of China, Dubai Statistics Centre.*

As shown in Table 1.13, within developed economies (such as London and New York), the importance of business services and finance is clear – with the broader section of finance and real estate accounting for 31.5 per cent of London's economy, and 34.1 per cent of New York's. In emerging economies, these sectors are comparatively less important, with a greater focus on primary activities. What is clear though is that major cities develop their own comparative advantages over time, and as such become centres for certain types of activities; whether it be in business services, or retail, or manufacturing.

**Table 1.13: Industry share of total output for the global cities in 2014**

| City | London | New York | Paris | Berlin | Tokyo | Singapore | Hong Kong | Shanghai | Dubai |
|---|---|---|---|---|---|---|---|---|---|
| | GVA | GVA | GVA | GVA | GDP | GDP | GDP | GDP | GVA |
| **Primary & Utilities** | 1.7% | # | 2.4% | # | 1.5% | .. | 0.1% | 0.5% | 5.4% |
| **Manufacturing** | 2.6% | # | 6.7% | 12.5% | 6.9% | 18.8% | 1.3% | 31.2% | 11.3% |
| **Construction** | 4.7% | # | 4.2% | 3.9% | 4.3% | 5.2% | 4.4% | 3.5% | 7.4% |
| **Wholesale & Retail Trade** | 7.5% | 10.6% | 10.5% | # | 20.8% | 16.8% | 24.1% | 15.5% | 29.1% |
| **Transportation & Storage** | 4.6% | # | 5.0% | # | 4.0% | 7.4% | 6.2% | 4.4% | # |
| **Leisure & Hospitality** | 5.0% | # | # | # | # | # | # | # | # |
| Accommodation & Food | 3.0% | 2.3% | 2.8% | # | # | 2.2% | 3.6% | 1.5% | 5.4% |
| Arts, Entertainment & Recreation | 2.0% | # | # | # | # | # | # | # | # |
| **Information & Communication** | 10.3% | 7.7% | 9.7% | # | 11.5% | 4.2% | 3.5% | # | # |
| **Financial Activities** | 31.5% | 34.1% | 20.3% | # | 22.6% | # | # | 20.9% | # |
| Finance & Insurance | 18.9% | 17.5% | 7.5% | # | 9.6% | 12.2% | 16.6% | 14.4% | 11.7% |
| Real Estate | 12.6% | 16.6% | 12.8% | # | 13.0% | # | # | 6.5% | # |
| **Professional & Business Services** | 16.7% | # | 18.9% | # | # | # | # | # | # |
| Professional, Scientific & Tech Services | 11.2% | # | # | # | # | # | # | # | # |
| Administrative & Support Services | 5.5% | # | # | # | # | # | # | # | # |
| **Public Admin, Education & Health** | 12.7% | 17.2% | 16.4% | # | 6.3% | .. | 10.5% | .. | 7.7% |
| Public Administration | 3.5% | 9.2% | # | # | # | .. | # | .. | 5.5% |
| Education | 4.7% | 1.4% | # | # | # | .. | # | .. | # |
| Human Health & Social Work | 4.6% | 6.6% | # | # | # | .. | # | .. | # |
| **Other Services** | 2.2% | 1.9% | 3.2% | # | # | # | # | # | # |
| Activities of House-holds | 0.4% | # | # | # | 1.7% | # | # | # | 0.3% |
| **Total** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

*Source: ONS, US BEA, INSEE, Statistik Berlin Brandenburg, Tokyo Bureau of Statistics, SingStat, HK Census and Statistics Department, China NBS, Dubai Statistics Centre.*

*Notes:*

*1. Only data that fits the industry definitions are shown in this table, but still contributes to the total and these are indicated by "#". Industries that are genuinely not included in the data (and the total) are indicated by "..". Consequently, the sum of the industries shown in this table may not equal to 100%.*

*2. Output estimates were originally in current prices, but to show the underlying output trend these have been adjusted into constant 2014 prices using the national GDP deflators.*

*3. Shanghai only includes urban units.*

Despite London having considerably higher labour productivity than the UK as a whole (as shown in Figure 1.20), an examination of the productivity of other global cities finds that London is less productive. It must be remembered that there are inherent difficulties in making such comparisons between cities – in this case in the definitions and output and jobs – therefore results should be treated with caution. Acknowledging this, Singapore had the highest output per job of the selected global cities, at approximately £149,800 in 2014, whereas London had the third lowest of all the global cities covered (Figure 1.24). Whilst acknowledging the difficulties in making comparisons, the differences in productivity were not explained by differences in industrial composition or qualification levels between the different cities.

**Figure 1.24: Output per job for global cities, 2014, current prices**
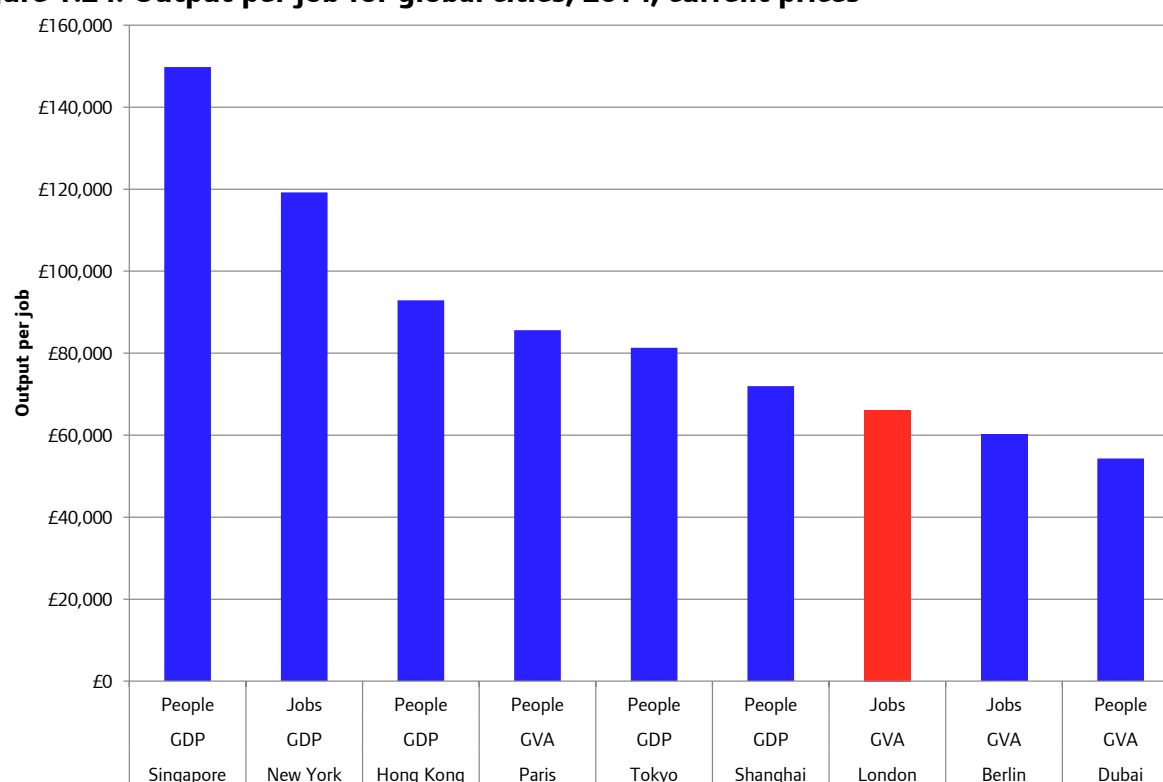


Source: ONS, US BLS/BEA, Eurostat, INSEE, Statistik Berlin Brandenburg, Tokyo Bureau of Statistics, SingStat, HK Census and Statistics Department, China NBS, Dubai Statistics Centre
Notes:
1. These figures may not include all industries.
2. Data for Paris and Tokyo refer to 2013 and in 2013 prices.
3. Shanghai only includes urban units.
4. Data for London are based on total GVA rather than GVA attributable to the workforce (as used in Section 1.4.1)

## Chapter 1 endnotes

1 These figures on GVA are from the Regional Accounts published by the ONS and are in nominal terms, i.e. no changes have been made to account for the effects of inflation.

2 Department for Business Innovation and Skills, 'Openness to trade', 2015.

3 Office for National Statistics, ' Estimating the value of service exports abroad from different parts of the UK: 2011 to 2014', July 2016

4 London service export data from 2011-2014 uses the ONS experimental regionalised data series. Data prior to 2011 comes from the Pink Book.

5 This analysis utilises the Business Register and Employment Survey, therefore uses Great Britain as the largest geography to compare against.

6 More information about how GVA is used by government is available here.

7 These figures on GVA are from the Regional Accounts published by the ONS and are in nominal terms, i.e. no changes have been made to account for the effects of inflation.

8 ONS, 'Regional Gross Value Added (Income Approach)', December 2015.

9 See GLA Economics, 'London's changing economy since 2008', October 2015, for further details.

10 GLA Economics, 'London in comparison with other global cities', GLA Economics Current Issues Note 48.

11 These figures may not include all industries.

12 Data for Paris and Tokyo refer to 2013 and in 2013 prices

13 Shanghai only includes urban units (i.e. business units in towns or cities).

# 2: The spatial characteristics of London

## 2.1 Key points

- A number of different geographies can be used to examine London depending on what issue is of interest such as London's administrative geography, its Functional Urban area, its connected built up area etc.

- Agglomeration has led to a large clustering of economic activity in London, particularly in the area of the Central Activities Zone and the northern part of the Isle of Dogs.

- It is calculated that the output of the Central Activities Zone, northern part of the Isle of Dogs and a 1km fringe around them stood at just over £188 billion in 2014, accounting for nearly 52 per cent of London's output and just under 12 per cent of UK output from an area of land covering just 0.03 per cent of the UK[1].

- Significant concentrations of employment can also be seen in Central London which have grown over time, but with other areas such as Heathrow and Croydon also being important areas of employment in London. Important hubs of employment are seen across London and not just within Inner London.

- London represents a significant share of employment in the Greater South East accounting for just over 42 per cent of employee jobs in 2015.

- Distinct clusters of sectors by employment are seen within London with Financial and insurance activities, and Professional, scientific and technical activities being of importance in Inner London; while employment in the Transportation and communication sector is generally more significant in Outer London.

- London is a dynamic business area containing the greatest number of active enterprises of any UK nation or region and nearly one fifth of all UK enterprises. However, in terms of firms migrating into and out of London the capital has seen more firms move out than move in from the Greater South East and the rest of the UK in recent years. Although, the firms lost are more than made up for by new firm start-ups.

## 2.2 Introduction

Urbanisation and the trade of goods and services often go hand in hand. Cities benefit from agglomeration economies, external benefits that arise when economic activity takes place in a concentrated space. The spatial nature of London's economy is the product of hundreds of years of trade and agglomeration at work. Central London is, and will likely remain, the most significant employment centre in the Greater South East region, with over two million jobs in the Central Activities Zone, Northern Isle of Dogs and their fringes alone. London's specialised, globally competitive activities tend to locate here, and in fact some locate almost exclusively in central London because they benefit so greatly from agglomeration economies. Meanwhile, those in London's outer boroughs provide a support function to other businesses in the region as part of a complex network of businesses, while also fulfilling the needs of London's many residents. This chapter considers aspects of the spatial nature of London's economy, including its relationship with surrounding regions.

## 2.3 London: its evolution and relationship to its neighbours

This section examines the evolution of London's population, to give a background to its changing geography. It then looks at different definitions of London itself such as the boundaries of Greater London, travel to work areas etc. and shows that more than the official administrative boundaries of Greater London may be necessary when thinking about the geography of the capital.

London has long had a large and often growing population as shown by Table 2.1 and this has meant that setting a geographic definition of London has always been more difficult than it may first appear. Thus in bygone times would London be defined as just the City of London or should it also have included neighbouring populations in Southwark and Westminster? Where the exact boundary of London lies remains a question to this day. In order to best understand the capital, different definitions of where London starts and ends are appropriate, so that they best reflect the issue that is being considered.

**Table 2.1: World's largest cities, 1500-1900 (inhabitants, millions)**

|   | 1500 | | 1600 | | 1800 | | 1900 | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Beijing | 0.7 | Beijing | 0.7 | Beijing | 1.1 | London | 6.5 | Shanghai | 24.3 |
| 2 | Istanbul | 0.7 | Istanbul | 0.6 | London | 1.1 | New York | 4.2 | Karachi | 23.5 |
| 3 | Vijayanagar (India) | 0.5 | Agra | 0.5 | Guangzhou | 0.8 | Paris | 3.3 | Beijing | 21.5 |
| 4 | Cairo | 0.4 | Osaka | 0.4 | Tokyo | 0.7 | Berlin | 2.7 | Delhi | 16.8 |
| 5 | Tabriz (Iran) | 0.3 | Kyoto | 0.3 | Istanbul | 0.6 | Chicago | 1.7 | Lagos | 16.1 |
|   | London | 0.06 | London | 0.2 |   |   |   |   | London | 8.6 |

*Source: Tertius Chandler, (1987), Four Thousands Years of Urban Growth via London 2036: an agenda for jobs and growth[2] (1500–1900); [Wikipedia](#) and [London Datastore](#) (2015)*

A number of definitions of London's boundaries exist with a few of these summarised below. It should be noted that each definition of London has their advantages and disadvantages, with some providing ease of international comparison and others providing insights into London's true economic spread. Thus which boundaries are used in any analysis will be partly dependent on the type of question asked, however in this analysis, given the GLA's statutory responsibilities, the definition of London mostly used in this report will be that of the administrative boundaries of Greater London.

For administrative purposes London is defined as the Greater London area which covers 33 constituent local authorities (LAs) (32 boroughs surrounding the nucleus of the City of London) and is shown in Map 2.1. However, looking at London's administrative boundaries may lead to an impression that all of this area is developed when in fact a significant portion of land within London is green space. Thus a different definition of London can be given by just looking at London's 'core' built-up geography as defined by the Office for National Statistics' (ONS) Major Towns and Cities methodology[3] which is shown in Map 2.2.
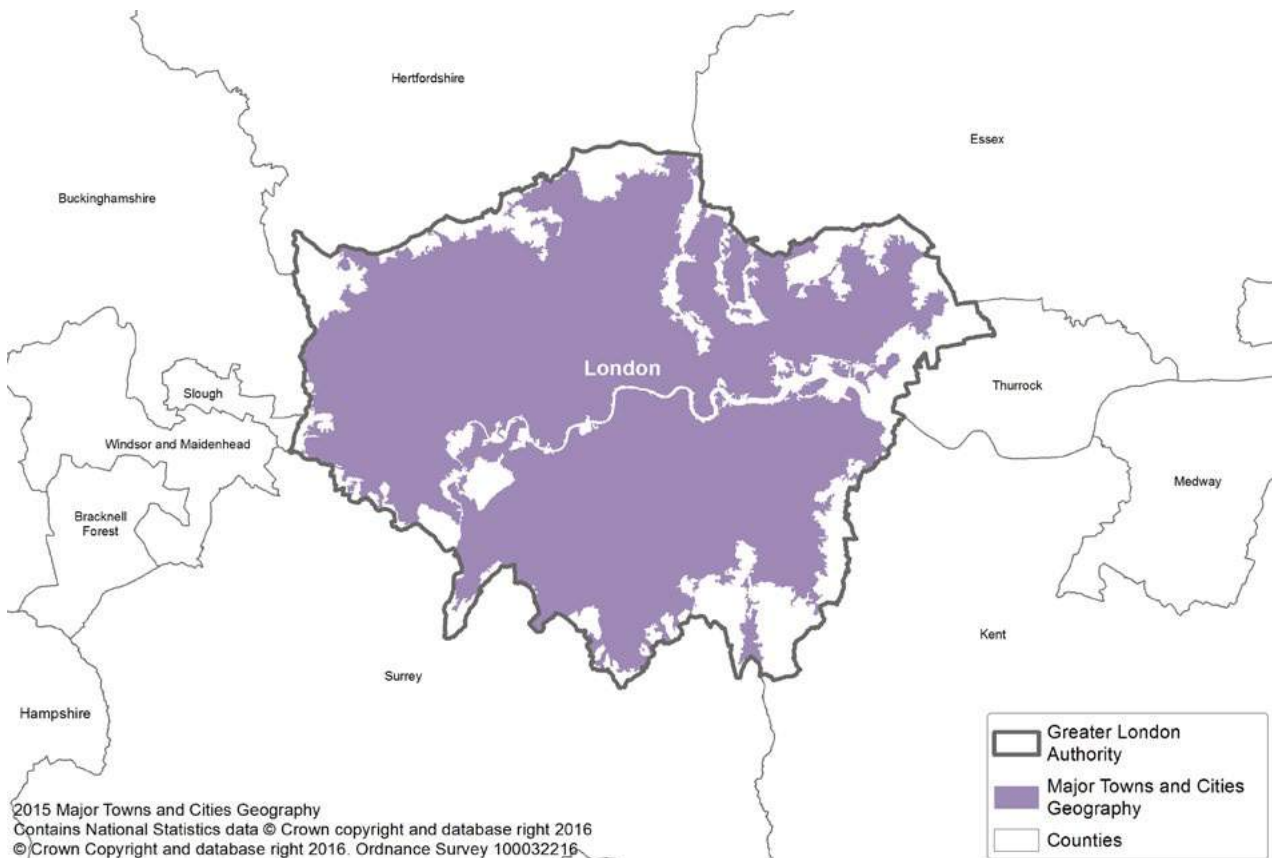
## Map 2.1: Greater London and its constituent local authorities



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London Boroughs

*Source: GLA Intelligence Unit*

## Map 2.2: London's 'core' geography



2015 Major Towns and Cities Geography
Contains National Statistics data © Crown copyright and database right 2016
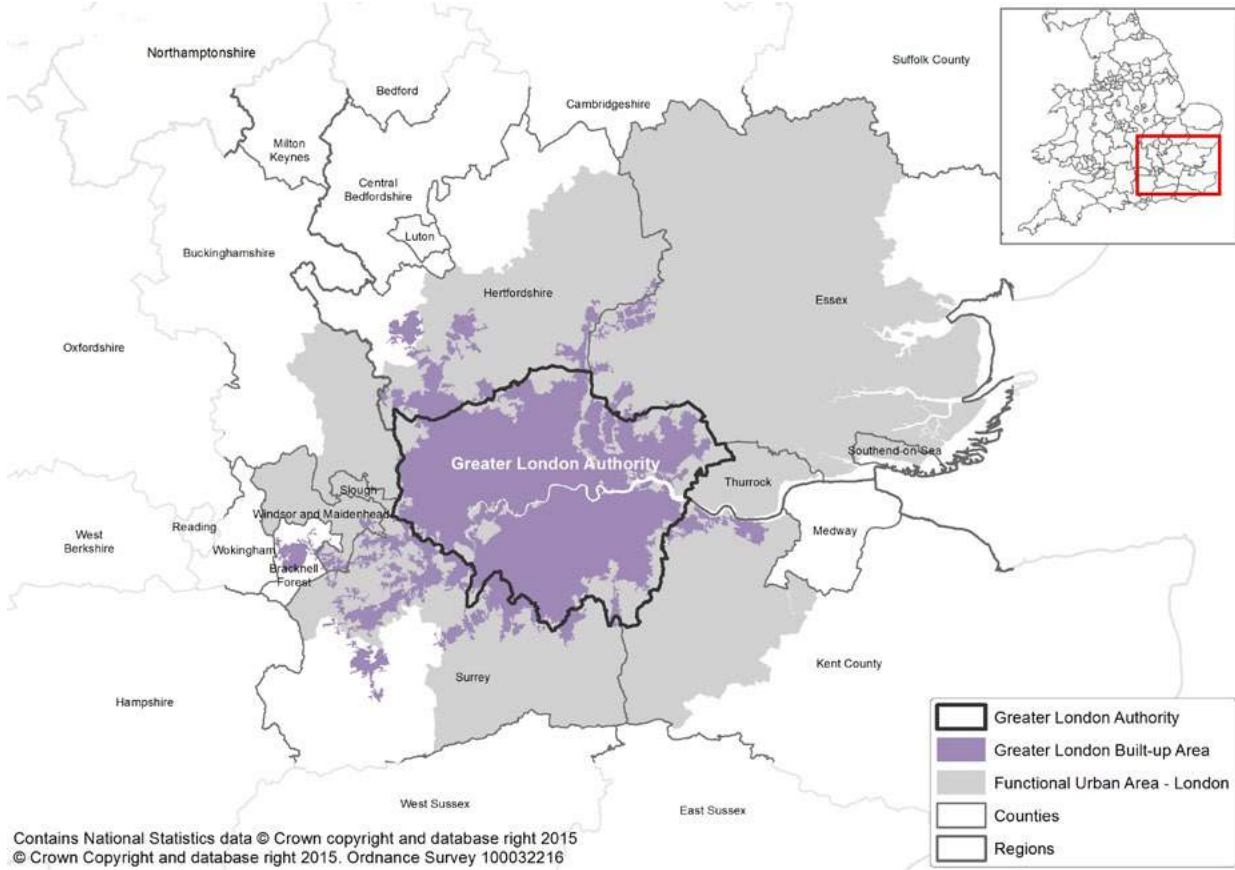© Crown Copyright and database right 2016. Ordnance Survey 100032216

Greater London Authority

Major Towns and Cities Geography

Counties

*Source: GLA Intelligence Unit*

Another way of looking at London is via its reach which goes beyond its official administrative boundary. This is illustrated by other definitions. For instance its built form illustrates how its social impact goes wider than its official boundaries. This is shown in Map 2.3 which shows London's connected built-up or metropolitan areas which extend beyond the defined boundaries of the Greater London area, demonstrating that development has extended beyond these administrative boundaries.

London draws people to work within it from far and wide and so another way of defining London would be by those dependent on it for work whether or not they live within its administrative boundaries. This can be shown by its travel to work area (TTWAs). This is, as noted by the ONS in its current definition of TTWAs, defined generally by "at least 75 per cent of an area's resident workforce work in the area and at least 75 per cent of the people who work in the area also live in the area. The area must also have a working population of at least 3,500. However, for areas with a working population in excess of 25,000, self-containment rates as low as 66.7 per cent are accepted. TTWA boundaries are non-overlapping, are contiguous and cover the whole of the UK. TTWAs do cross national boundaries, although no account is taken of commuting between Northern Ireland and the Republic of Ireland"[4]. Maps 2.4 a to c show the UK's, parts of the Greater South East's and London's TTWAs. As can be seen London's TTWA extends eastward beyond its administrative boundaries toward Tilbury and Gravesend and northwards towards Harlow. Interestingly, a significant part of West London including Heathrow is not a part of the London TTWA, but has its own TTWA called Heathrow and Slough. Whilst not in the London TTWA, arguably Heathrow and Slough TTWA should be considered as part of London given much of it lies within the city's boundaries.

Further, it should be noted that the above discussed TTWAs are for the entire working population; however sub groups of the working population may have significantly different TTWAs[5]. Thus the ONS in recent research has highlighted that in the case of workers that commute by train there exists a TTWA that "covers close to the entire East and South East of England"[6]. They further observe that the size and number of TTWAs in the UK varies depending on whether part-time or full-time workers are being examined and note that "London is captured in one TTWA for full-time employees, however is split across 4 TTWAs for part-time employees"[7]. Varying size and numbers of TTWAs also hold for workers in different age groups with London generally forming "one large TTWA for the 16 to 24, 25 to 34 and 35 to 49 age groups; however, for the older age groups London is divided into smaller TTWAs"[8].
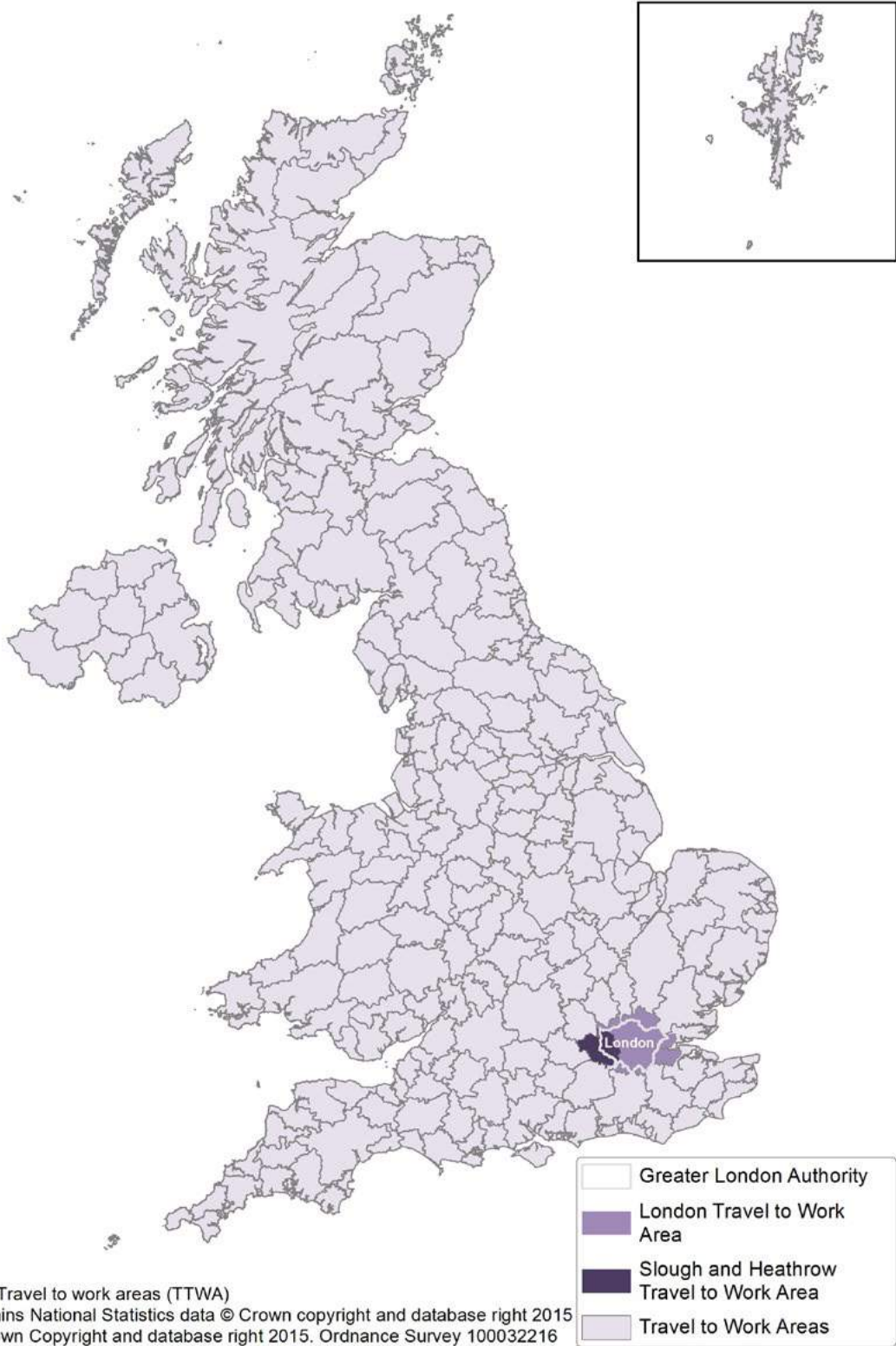
Map 2.3 shows another attempt at encapsulating the economic reach of the capital with it showing London's Functional Urban Area[9], which is a definition that allows international comparisons between cities, by covering the wider area over which London's economic impact is thought to extend. Its use in comparisons across European urban areas is that it provides a consistent international standardised definition of a city and then goes on to define its commuting zone in a way that allows for like for like comparisons that do not depend on arbitrary national definitions of either a city or their surrounding economic geography. Finally, it should also be noted that Maps 3.3 to 3.6 in the next chapter of this Evidence Base show the commuter flows into London from areas outside of Greater London and thus highlight how large areas of the Greater South East are influenced by London.

**Map 2.3: Greater London's connected built-up area and functional urban area**



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*Source: GLA Intelligence Unit*

**Map 2.4a: United Kingdom 2011 Travel to Work areas**



2011 Travel to work areas (TTWA)
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Legend:
- Greater London Authority
- London Travel to Work Area
- Slough and Heathrow Travel to Work Area
- Travel to Work Areas

*Source: ONS & GLA Intelligence Unit*

**Map 2.4b: Travel to Work Areas in 2011 with a focus on part of the Greater South East**
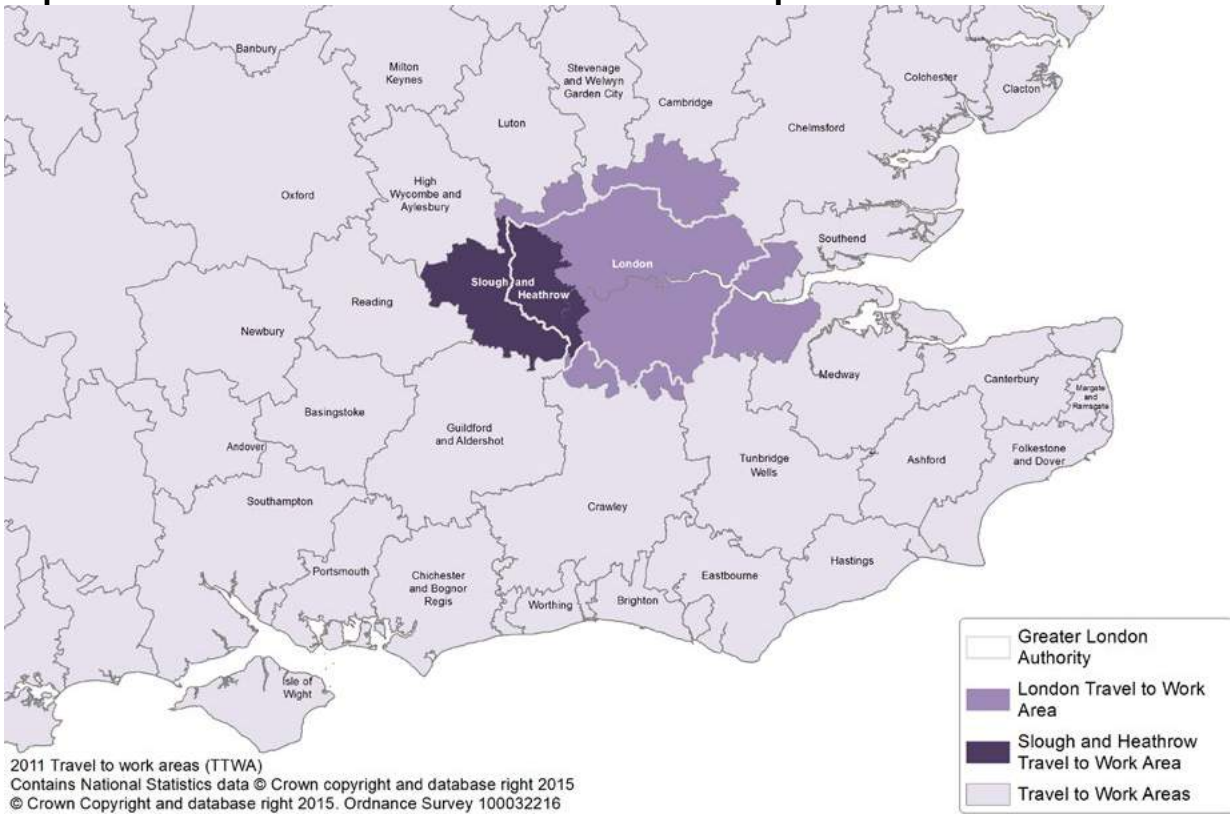


*Source: ONS & GLA Intelligence Unit*

**Map 2.4c: London's and Slough and Heathrow's 2011 Travel to Work Areas**
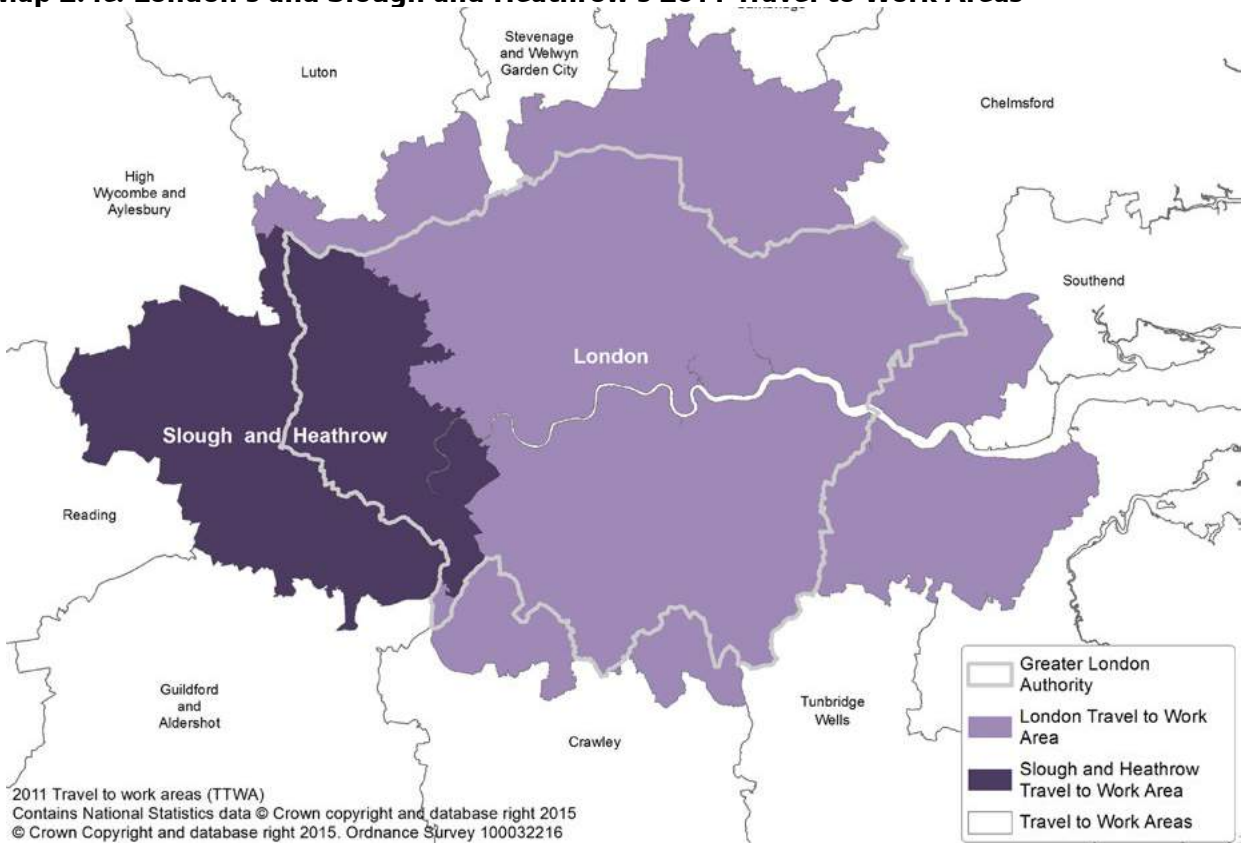


*Source: ONS & GLA Intelligence Unit*

Having observed that London's reach or spatial impact can be defined in many ways it should be noted that particular (and many) functions of London's economy have tended to locate in certain areas of London – particularly central London leading to very high employment densities as shown by Map 2.5.

**Map 2.5: Number of employees per square kilometre in 2014 in London**



Source: Business Register and Employment Survey, Office for National Statistics
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Contains Ordnance Survey data © Crown copyright and database right 2015

Number of employees (per sq km)
25,000 to 165,000
10,000 to 24,999
5,000 to 9,999
2,000 to 4,999
1,000 to 1,999
500 to 999
fewer than 500
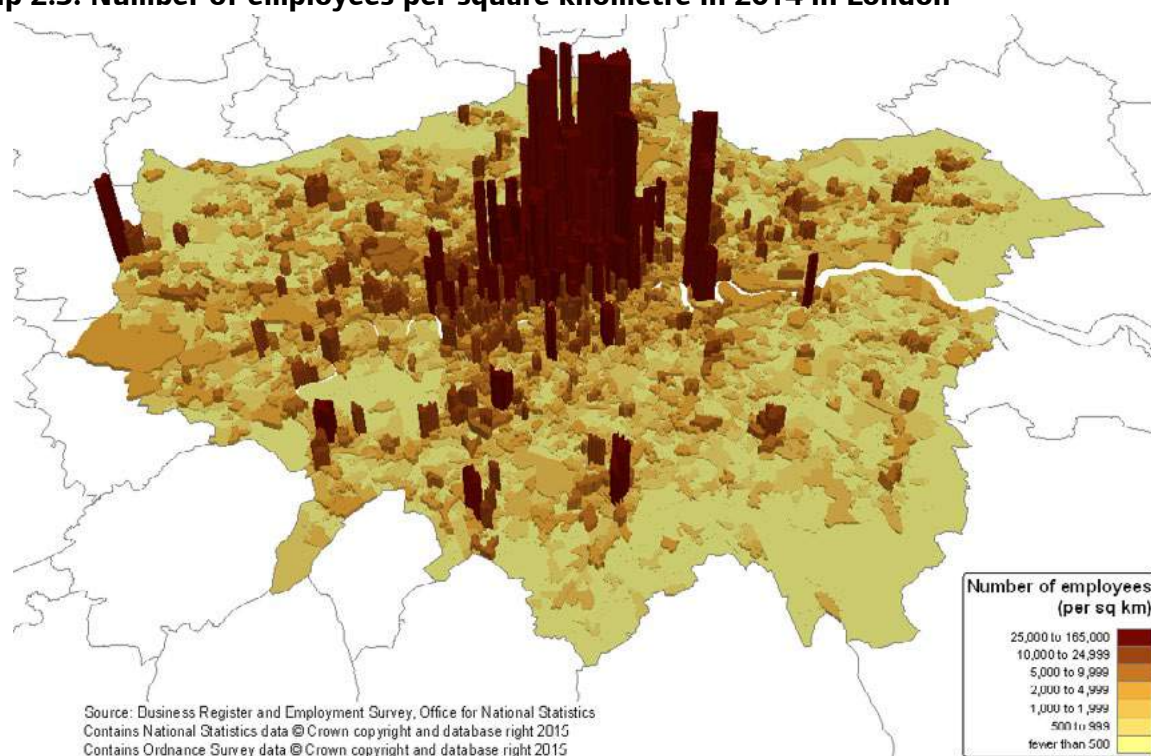
*Source: Business Register and Employment Survey (BRES)*

Central London offers a range of factors that are not found in combination in many other places. As shown by a number of surveys[10] on a range of factors, businesses see London as the best place in Europe to locate – with the top one of these being availability of qualified staff (see Chapter 5 for more details on this). A large number of firms therefore locate themselves within central London with 40 per cent of the world's largest 250 companies basing their European headquarters in London. London's nearest European rival is Paris with 8 per cent[11]. This concentration of businesses at the centre of London brings benefits to the economy over and above those that accrue to the individual firms themselves: agglomeration benefits[12]. These agglomeration benefits are the positive externalities which arise when specialised economic activity takes place in a spatial concentration – such as in central London. The four key elements of agglomeration are: labour, specialised inputs, knowledge, and the market.

Such agglomeration benefits support the development of economic activity by providing firms with access to a deep and highly-skilled labour force, a range of complementary input and output markets and the benefits of spill over effects such as the rapid transfer of innovation and knowledge. These agglomeration benefits are also greater in certain industries such as Finance, Insurance and Business services[13], as outlined in Chapter 1 of this Evidence Base.

The economies of agglomeration have a degree of circular causality – existing spatial concentration results in forces that encourage further spatial concentration. The productivity benefits of high employment density, within industries, across geography and over time, are found in cities across the world. The development of London's radial public transport network has enabled the growth of central London by reducing the cost of accessibility to a significant proportion of the region's population; the implementation of the various transport projects such as Crossrail and High Speed 2 (HS2) will advance this accessibility further.

It should also be noted that these agglomeration economies in the centre of the city have wide impacts outside of central London through 'chains of substitution'. As a result a good understanding of the factors driving economic activity in central London can aid in the understanding of the economic drivers of other areas of the capital and beyond. Finally, although beneficial to the city's economy, agglomeration economies can also lead to costs within London in terms of increased congestion and competition for space, between businesses seeking to maximise the benefits of agglomeration, and increased demand for housing from people working in these areas. These costs are examined in more detail later in this chapter and also in Chapters 4 (where the impact on land use is considered), 6 (where the risks to London's economy is considered), 7 (where the impact on London's environment is considered) and 10 (where the social impacts are considered) of this Evidence Base.

## 2.4 The Central Activities Zone, Northern Isle of Dogs and their fringes

It can be seen that a geography of particular importance to not only London or the UK as a whole but arguably Europe in general is London's Central Activities Zone (CAZ). As noted the CAZ contains a unique cluster of activities including central government offices, headquarters and embassies, and a large concentration of business activity, with many businesses clustering by industry sector. This clustering also occurs in the northern part of the Isle of Dogs[14] (NIOD) and may further bleed into a fringe surrounding the CAZ and the NIOD. This section sets out to examine the economy of this dynamic area in detail[15].

### 2.4.1 The output of the CAZ

Given the economic activity that is easily observable and concentrated in the CAZ, the NIOD and their fringes it is likely that these areas are responsible for a large proportion of London's output. However, official measures of output for the CAZ, its fringe, the NIOD and its fringe are not available from the ONS. Data is however now available at borough level[16]. GLA Economics has thus used this data to produce estimates of output in the CAZ; the results of this analysis are given in Table 2.2, although it should be emphasised that these numbers are estimates based on GLA Economics' calculations and are not official ONS statistics.

**Table 2.2: Calculations of GVA (I) generated within the CAZ, NIOD, and their approximately 1km fringes in 2014 (£ million rounded to the nearest £10 million)**

| Area | GVA (£ million) | Areas GVA as a % of London's total GVA | Areas GVA as a % of the UK's total GVA |
|---|---|---|---|
| CAZ | 145,600 | 40.0% | 9.0% |
| CAZ 1km Fringe | 23,210 | 6.4% | 1.4% |
| NIOD | 17,380 | 4.8% | 1.1% |
| NIOD 1km Fringe | 2,120 | 0.6% | 0.1% |
| CAZ & NIOD | 162,980 | 44.7% | 10.1% |
| CAZ, NIOD & a 1km Fringe | 188,310 | 51.7% | 11.6% |

*Source: ONS, BRES and GLA Economics' calculations*

Given that in 2014 London's GVA stood at £364,310 million, these estimates would suggest that the CAZ accounted for nearly 40 per cent of London's GVA. While they further suggest that the CAZ and NIOD accounted for nearly 45 per cent of London's GVA and the CAZ, NIOD and the 1 km fringe around these areas accounted for nearly 52 per cent of London's GVA. UK GVA stood at £1,618,346 million in 2014 implying that the CAZ, NIOD and their fringes accounted for just under 12 per cent of UK GVA from a land area accounting for just 0.03 per cent of the UK's land mass.

## 2.4.2 Employment in the CAZ and NIOD

The CAZ along with the NIOD and the immediate areas that border them are also home to a large number of jobs, as shown in Table 2.3 which show the evolution of employee jobs in the CAZ, NIOD and their approximately 1 km fringes over the years 2009 to 2014. There was a large increase in employees within this area over the six years under consideration, with the numbers of employees increasing at a faster rate in the CAZ, NIOD and their fringes compared to the increases seen in London as a whole. It should be noted that employee growth in the NIOD was particularly strong with it increasing from around 98,000 in 2009 to around 131,000 in 2014 an increase of over 34 per cent. In terms of the total number of employees in London, the CAZ accounts for around 36 per cent, with this increasing to 38 per cent when the NIOD is included, and around 45 per cent when their respective fringes are taken into account. Given the calculation that the CAZ, NIOD and their fringes account for 52 per cent of London's output this employee figure would imply that employees in this area are generally more productive than the London average.

**Table 2.3: Employees in the CAZ, NIOD, and an approximately 1km fringe around them and London in 2009 to 2014 (million) and their growth over those years (% change)**

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | Areas Share of London total in 2014 | Change from 2009 to 2014 |
|---|---|---|---|---|---|---|---|---|
| CAZ | 1.42 | 1.46 | 1.51 | 1.55 | 1.61 | 1.68 | 35.5% | 18.3% |
| CAZ 1km Fringe | 0.27 | 0.28 | 0.29 | 0.30 | 0.30 | 0.31 | 6.6% | 13.9% |
| NIOD | 0.10 | 0.10 | 0.12 | 0.12 | 0.13 | 0.13 | 2.7% | 34.4% |
| NIOD 1km Fringe | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.6% | 20.5% |
| CAZ & NIOD | 1.52 | 1.55 | 1.63 | 1.67 | 1.74 | 1.81 | 38.3% | 19.3% |
| CAZ, NIOD & their 1km Fringes | 1.82 | 1.86 | 1.95 | 2.00 | 2.07 | 2.15 | 45.5% | 18.5% |
| London | 4.14 | 4.21 | 4.30 | 4.45 | 4.56 | 4.73 | 100.0% | 14.2% |

Source: BRES

The nature of employees in the CAZ, NIOD and their fringes is, as could be expected, heavily concentrated in a few sectors as shown by Table 2.4, with Professional, scientific and technical being particularly important. The five sectors considered in Table 2.4 accounted for around 65 per cent of all employees in the CAZ in 2014, 66 per cent of employees in the CAZ & NIOD, and 63 per cent of employee jobs in these two areas and their fringe. In the NIOD alone these five sectors accounted for 82 per cent of all employees. This compares to London as a whole where these five sectors accounted for around 46 per cent of all employees in 2014. Further, as can be seen from Table 2.4 of employees in these sectors a large minority to large majority of all of London's employees in these specialised areas of work is located in the very centre of the city. Given the importance of these sectors to international trade this thus highlights the importance of this geography to the economy of not only London but also to the economy of the UK as a whole.

**Table 2.4: Employees by sector in 2014 in the CAZ, NIOD, and an approximately 1 km fringe around them (top five sectors only)**

| | CAZ | CAZ as % of sector total for London | CAZ 1km Fringe | CAZ Fringe as % of sector total for London | NIOD | NIOD as % of sector total for London | NIOD 1km Fringe | NIOD Fringe as % of sector total for London | CAZ & NIOD | CAZ & NIOD as % of sector total for London | CAZ, NIOD & their Fringes | CAZ, NIOD & their Fringes as % of sector total for London |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Professional, scientific and technical activities | 358,000 | 58.3% | 36,000 | 5.9% | 18,000 | 2.9% | 2,000 | 0.3% | 376,000 | 61.2% | 414,000 | 67.4% |
| Financial & insurance activities | 237,000 | 67.3% | 11,000 | 3.1% | 57,000 | 16.2% | 1,000 | 0.3% | 294,000 | 83.5% | 307,000 | 87.2% |
| Information & communication | 186,000 | 49.9% | 27,000 | 7.2% | 13,000 | 3.5% | 3,000 | 0.8% | 199,000 | 53.4% | 229,000 | 61.4% |
| Business administration and support services | 178,000 | 36.3% | 25,000 | 5.1% | 15,000 | 3.1% | 9,000 | 1.8% | 193,000 | 39.3% | 227,000 | 46.2% |
| Accommodation & food services activities | 135,000 | 37.7% | 39,000 | 10.9% | 5,000 | 1.4% | 2,000 | 0.6% | 140,000 | 39.1% | 182,000 | 50.8% |

*Source: BRES & GLA Economics calculations*

The large number of employees in the CAZ, NIOD and their bounding areas is further underlined by Maps 2.6 and 2.7[17]. These maps show employees per square kilometre, with the higher the bar illustrating a larger number of employees, and emphasises the concentration of employees in most areas of the CAZ and NIOD and some areas of their fringes and shows how this concentration has increased between 2003 and 2014. In particular they especially highlight the high concentration of employees in the centre of the CAZ and the NIOD and show how this has become more marked over time.

Although a clear concentration of employees can be observed in this geography, this does not imply that there is a uniform dispersal of employment in the dominant sectors of the economy across the CAZ, NIOD and their fringes. In fact, a geographic concentration of employment by industrial sector in certain areas of the CAZ etc. could well be expected from knowledge of industries clustering together whether it is, for example, insurance firms around Lloyds or tech firms around 'Silicon Roundabout'[18].

Map 2.8, using statistical analysis[19] of census employment data (and is thus for the year 2011), shows the effect of these economies of agglomeration[20] to form employment clusters for a number of industries. It should of course be noted that these results can vary depending on the data and statistical analysis used as highlighted in Map 2.9, although this still shows similar clustering to that shown in Map 2.8. While as shown by Map 2.10 hub analysis can also highlight areas of particular importance to sectors of the economy which may be missed by other forms of analysis. Thus in determining areas of importance to different sectors of the economy a variety of analysis can be best used to shed light on this issue.

**Map 2.6: Number of employees per square kilometre in 2003 in the CAZ, NIOD and an approximately 1km fringe around them**
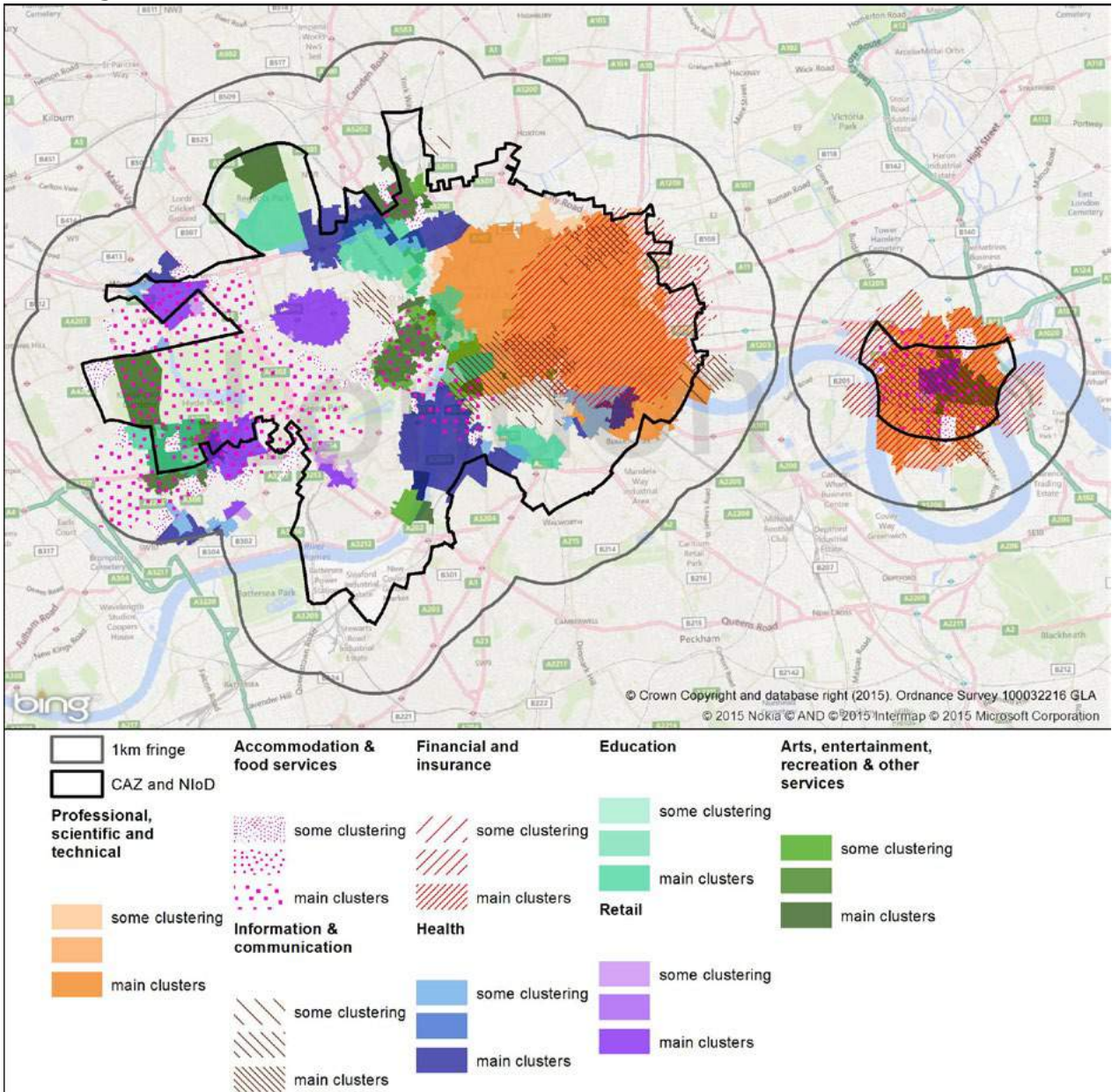


Source: Annual Business Inquiry, Office for National Statistics
Contains National Statistics data © Crown copyright and database right 2015
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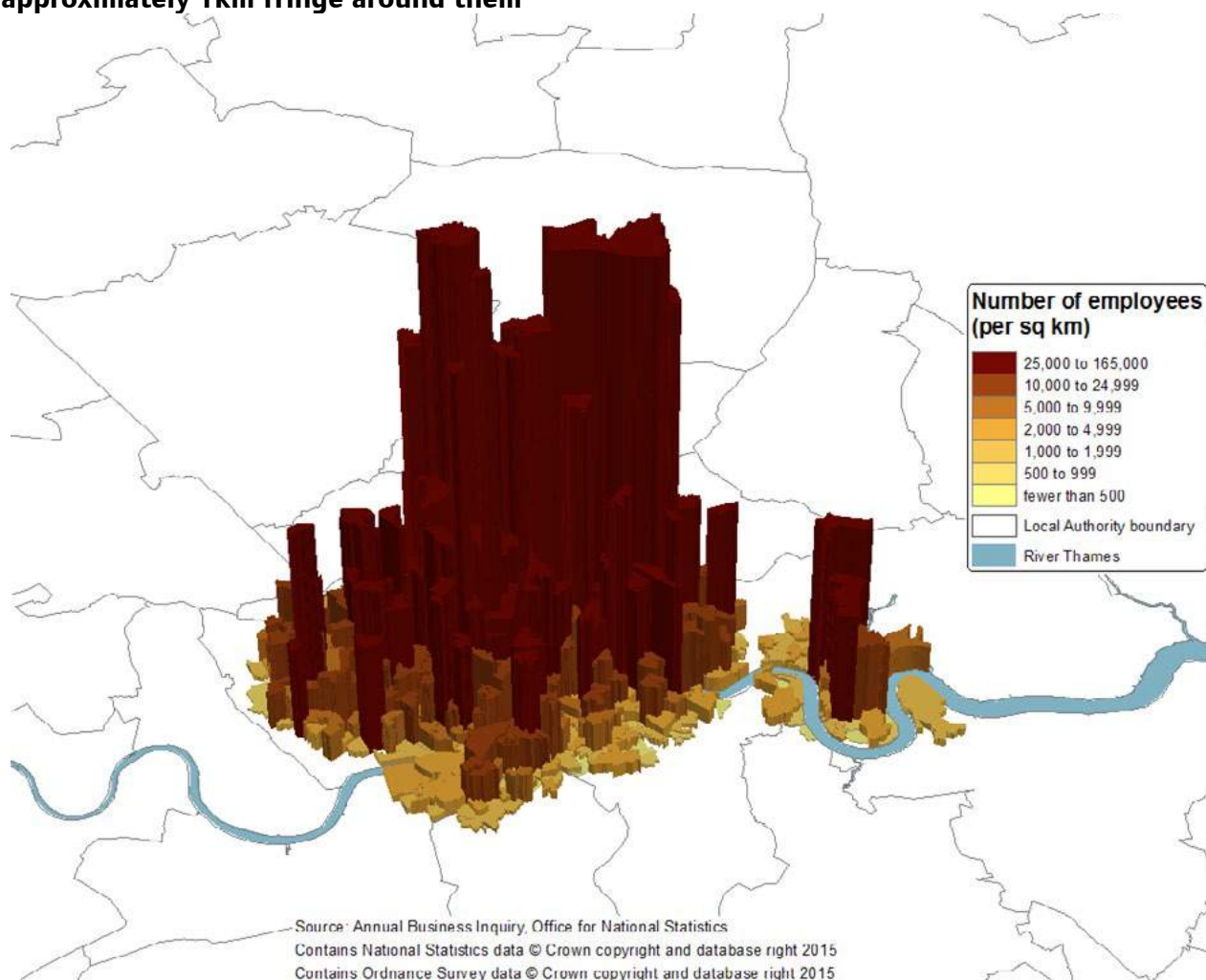
*Source: Annual Business Inquiry (ABI)[21]*

**Map 2.7: Number of employees per square kilometre in 2014 in the CAZ, NIOD and an approximately 1km fringe around them**
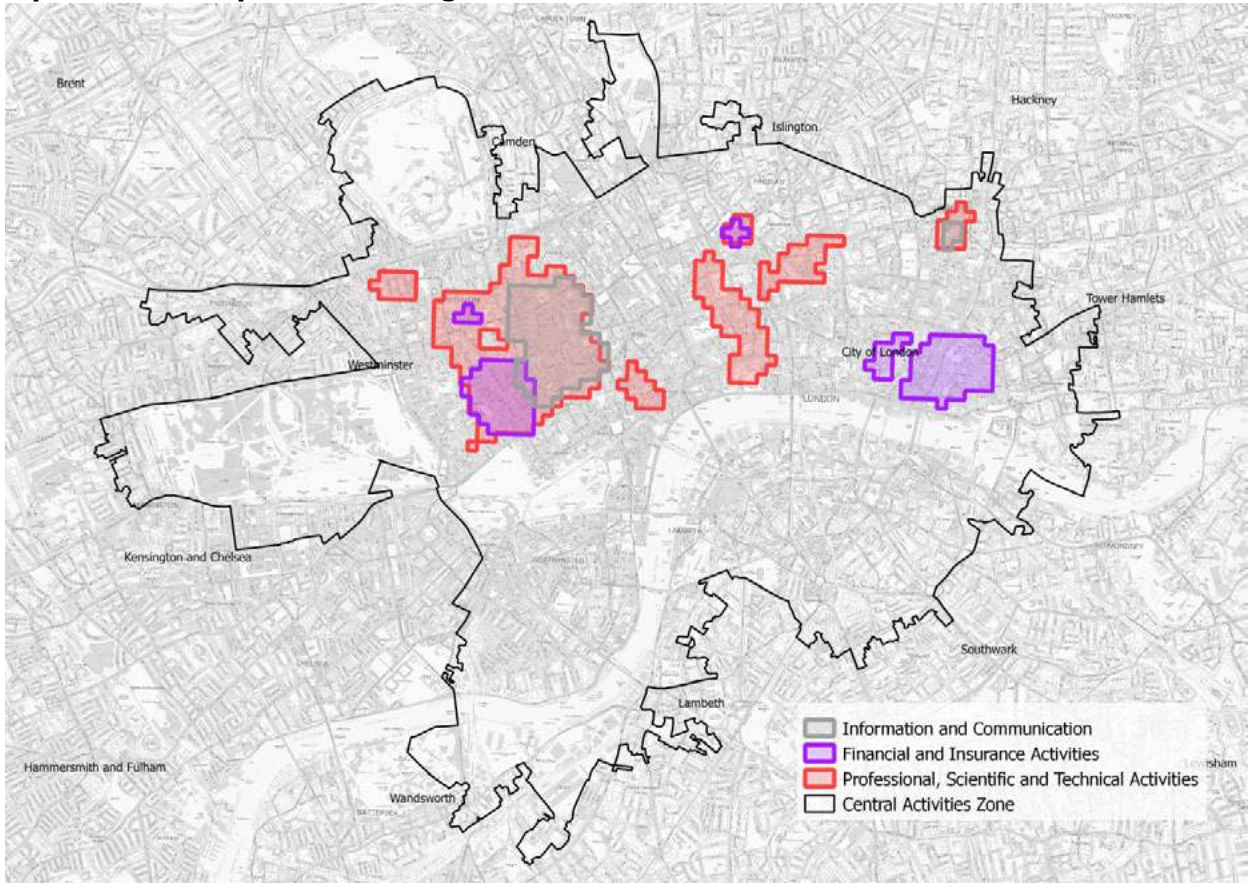


Source: Business Register and Employment Survey, Office for National Statistics
Contains National Statistics data © Crown copyright and database right 2015
Contains Ordnance Survey data © Crown copyright and database right 2015
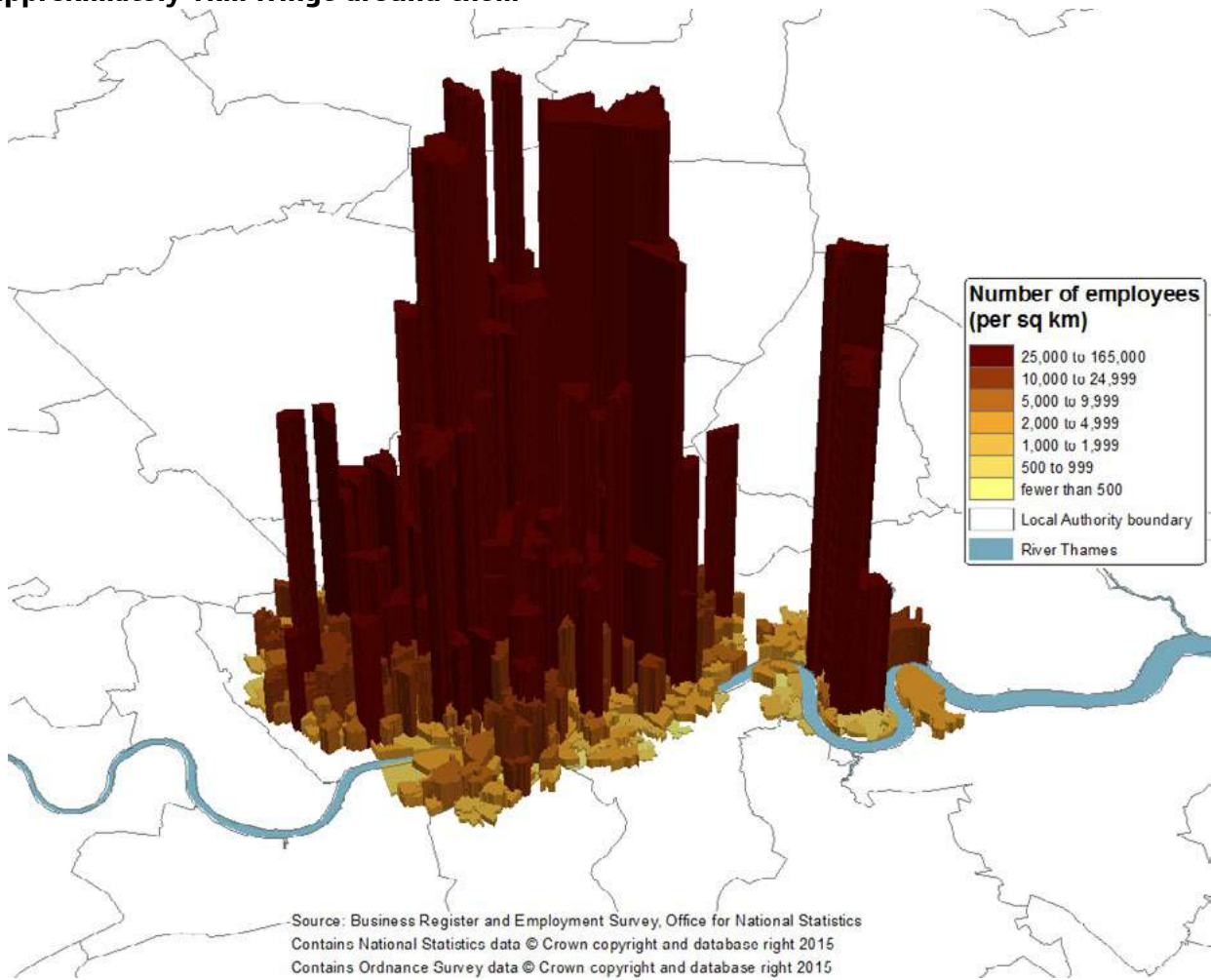
*Source: BRES*

**Map 2.8: Clustering[22] by industry employment type in the CAZ, NIOD and an approximately 1km fringe around them in 2011**



*Source: Census[23] and GLA Intelligence Unit analysis*

**Map 2.9: Heat-map of co-locating firms in selected sectors in the CAZ, 2013**[24]



*Source: TBR Observatory 2015. QGIS Development Team, 2015. QGIS Geographic Information System. Contains National Statistics data and Ordnance Survey data © Crown copyright and database right 2015 (TBR ref: W11/M1).*

**Map 2.10: Selected sector postcode hubs in central London, 2013**
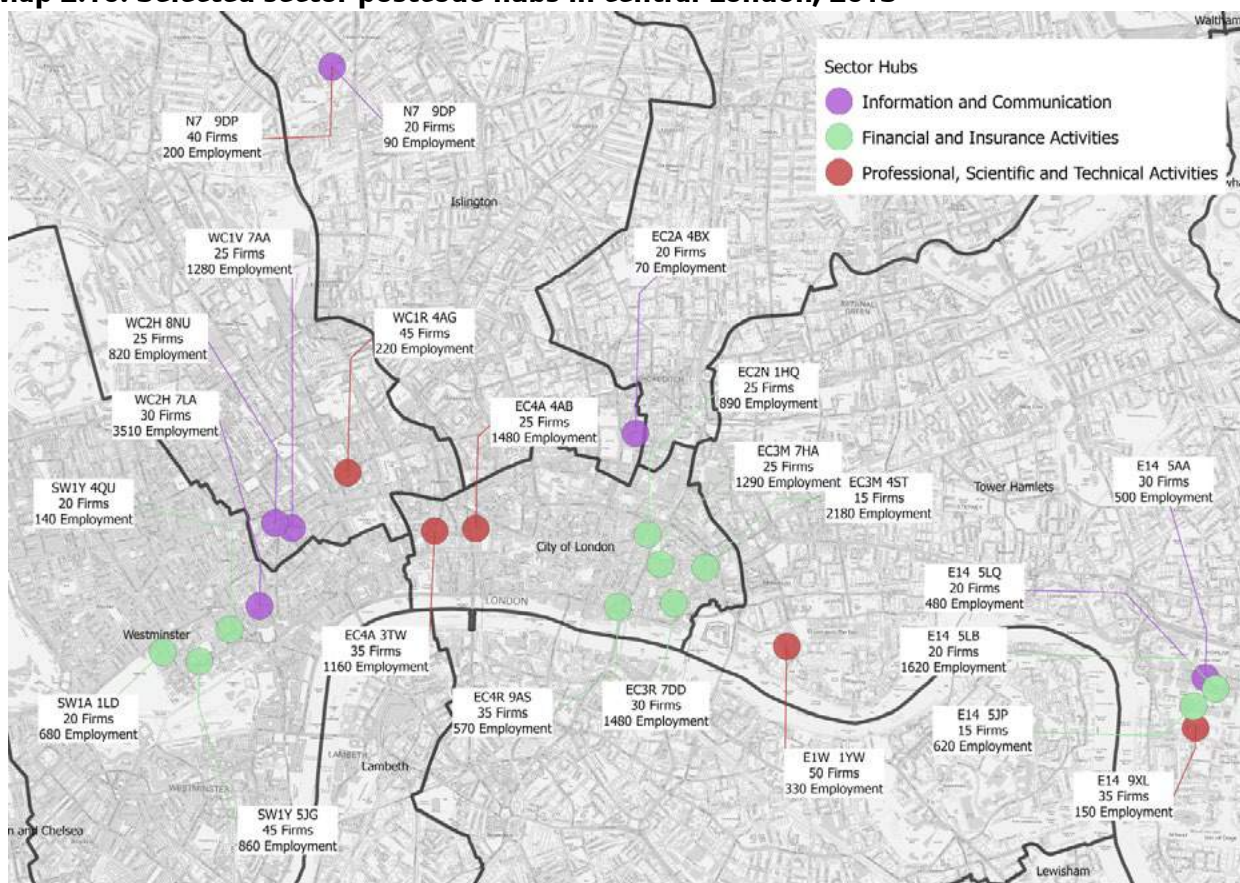


*Source: TBR Observatory 2015. QGIS Development Team, 2015. QGIS Geographic Information System. Contains National Statistics data and Ordnance Survey data © Crown copyright and database right 2015 (TBR ref: W12/M1).*

Finally, although the CAZ is an important area of employment concentration in London there exist a number of town centres across the capital of varying size that also act as centres of employment. Analysis and data on these centres can be found in the London Plan technical and research reports publications, although at the time of writing this Evidence Base an update to the Town Centre Health Check Analysis is currently being undertaken. Further, it should be noted that there also exists a number of specific geographies in London which are of particular interest beyond the CAZ and town centres, given the potential future development potential of these areas. Further analysis of these areas is included in Appendix 2.1 of this chapter.

## 2.5 The wider London economy

Although the CAZ, NIOD and their fringes account for a noteworthy concentration of employment, particularly in London's specialised services, London has a large level of employment outside of these service areas, many of which meet the needs of London's large population via the retail, health, education etc. sectors. The nature of this different sectoral make up of London's sub regional labour markets is examined in more detail in GLA Economics Working Papers 75 to 79. This section now examines the wider London economy, beyond that already examined in Chapter 1 of this Evidence Base.

### 2.5.1 Employee levels and concentration, density and changes over time

Maps 2.11 and 2.12 shows how employee concentration in London has evolved since 2003. The maps show that while employees are highly concentrated in the CAZ and NIOD other areas such as Hillingdon (most likely associated with Heathrow), some industrial areas and various town centres also see significant employee concentration. Indeed in absolute terms the majority of London's employee jobs reside outside the CAZ, NIOD and their fringes. The maps also highlight the strong growth in employee jobs seen in a number of areas of London in recent years. Appendix 2.2 of this chapter provides Maps B1 to B5 which look at employee jobs in London at the lower NUTS2 geography levels to allow for an examination of the employee jobs situation in London at a more disaggregated geographic level. Maps B6 & B7 also in Appendix 2.2 of this chapter examine the recent history of employee concentration in London using a different geographical measure, in this case workplace zones. Still, as shown by Map 2.13, since 2009 not all areas of London or even inner London have seen a rise in employee numbers. However, Map 2.13 also shows that employee growth since 2009 has generally been much stronger in inner London than outer London.
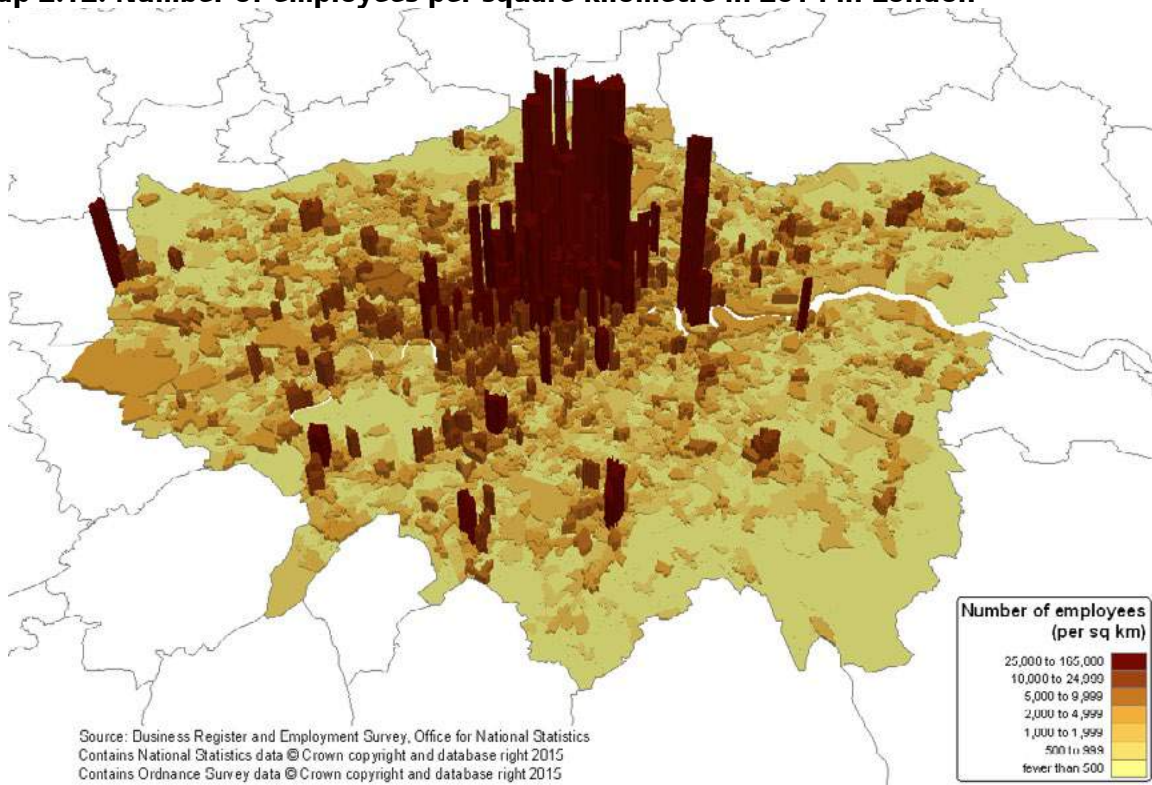
The dominance of London as a centre for employee jobs can be observed from Map 2.14 which shows employee jobs concentration per square kilometre in the Greater South East (GSE) in 2015. The map shows that whilst the concentration of jobs is at its greatest at the centre of the city, when compared to the GSE as a whole there is a significant level of employment across London as a whole, with London accounting for just over 42 per cent of all employee jobs in the Greater South East in 2015. Finally, it should be noted that further details on London's workforce are provided in Chapter 9 of this Evidence Base.

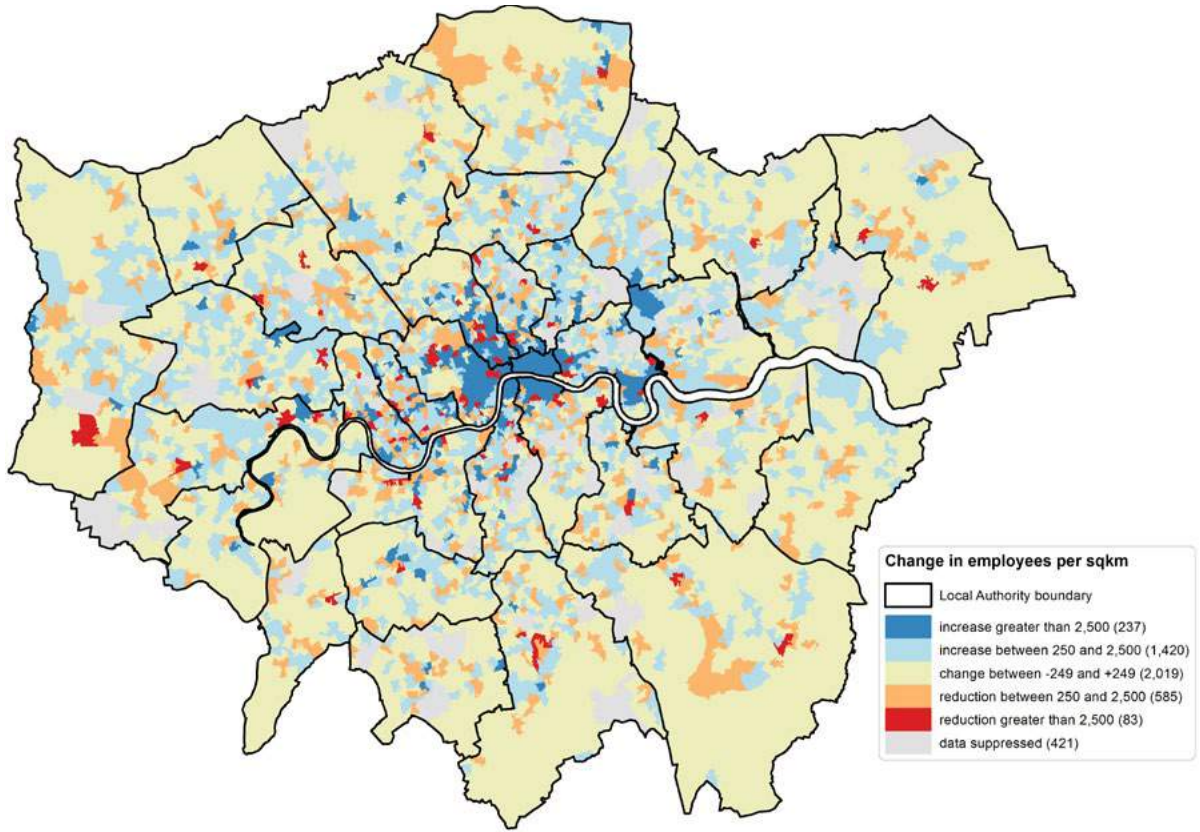**Map 2.11: Number of employees per square kilometre in 2003 in London**



Source: Annual Business Inquiry, Office for National Statistics
Contains National Statistics data © Crown copyright and database right 2013
Contains Ordnance Survey data © Crown copyright and database right 2013

Number of employees
(per sq km)

25,000 to 165,000
10,000 to 24,999
5,000 to 9,999
2,000 to 4,999
1,000 to 1,999
500 to 999
fewer than 500
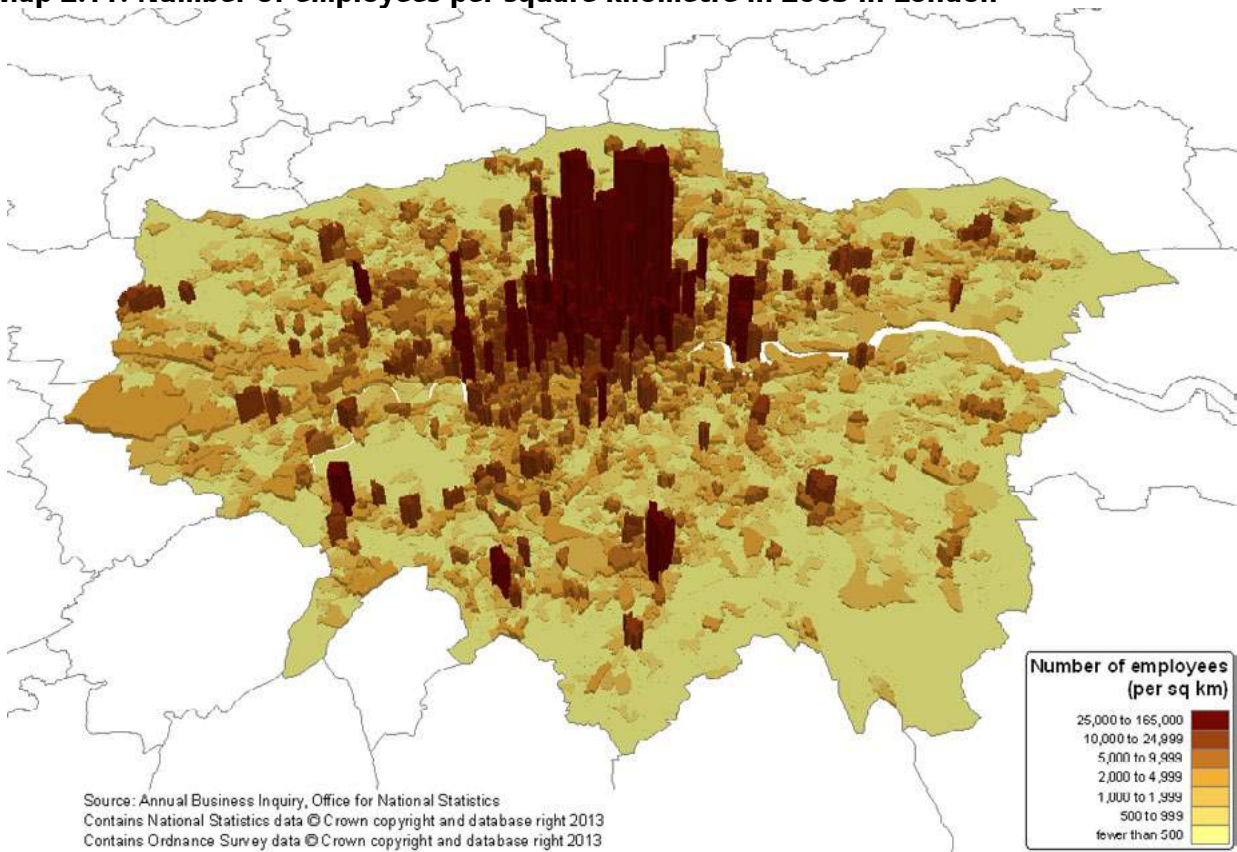
*Source: Annual Business Inquiry (ABI)*

**Map 2.12: Number of employees per square kilometre in 2014 in London**



Source: Business Register and Employment Survey, Office for National Statistics
Contains National Statistics data © Crown copyright and database right 2015
Contains Ordnance Survey data © Crown copyright and database right 2015

Number of employees
(per sq km)

25,000 to 165,000
10,000 to 24,999
5,000 to 9,999
2,000 to 4,999
1,000 to 1,999
500 to 999
fewer than 500

*Source: BRES*

**Map 2.13: Change in the number of employees per square kilometre in London LSOA's between 2009 and 2014**



**Change in employees per sqkm**

| | |
|---|---|
| | Local Authority boundary |
| | increase greater than 2,500 (237) |
| | increase between 250 and 2,500 (1,420) |
| | change between -249 and +249 (2,019) |
| | reduction between 250 and 2,500 (585) |
| | reduction greater than 2,500 (83) |
| | data suppressed (421) |

Note: LSOA denotes Lower-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
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Contains Ordnance Survey data © Crown copyright and database right 2016. Ordnance Survey 100032216

*Source: Inter-Departmental Business Register (IDBR)*

**Map 2.14: Number of employees per square kilometre in 2015 in the Greater South East**
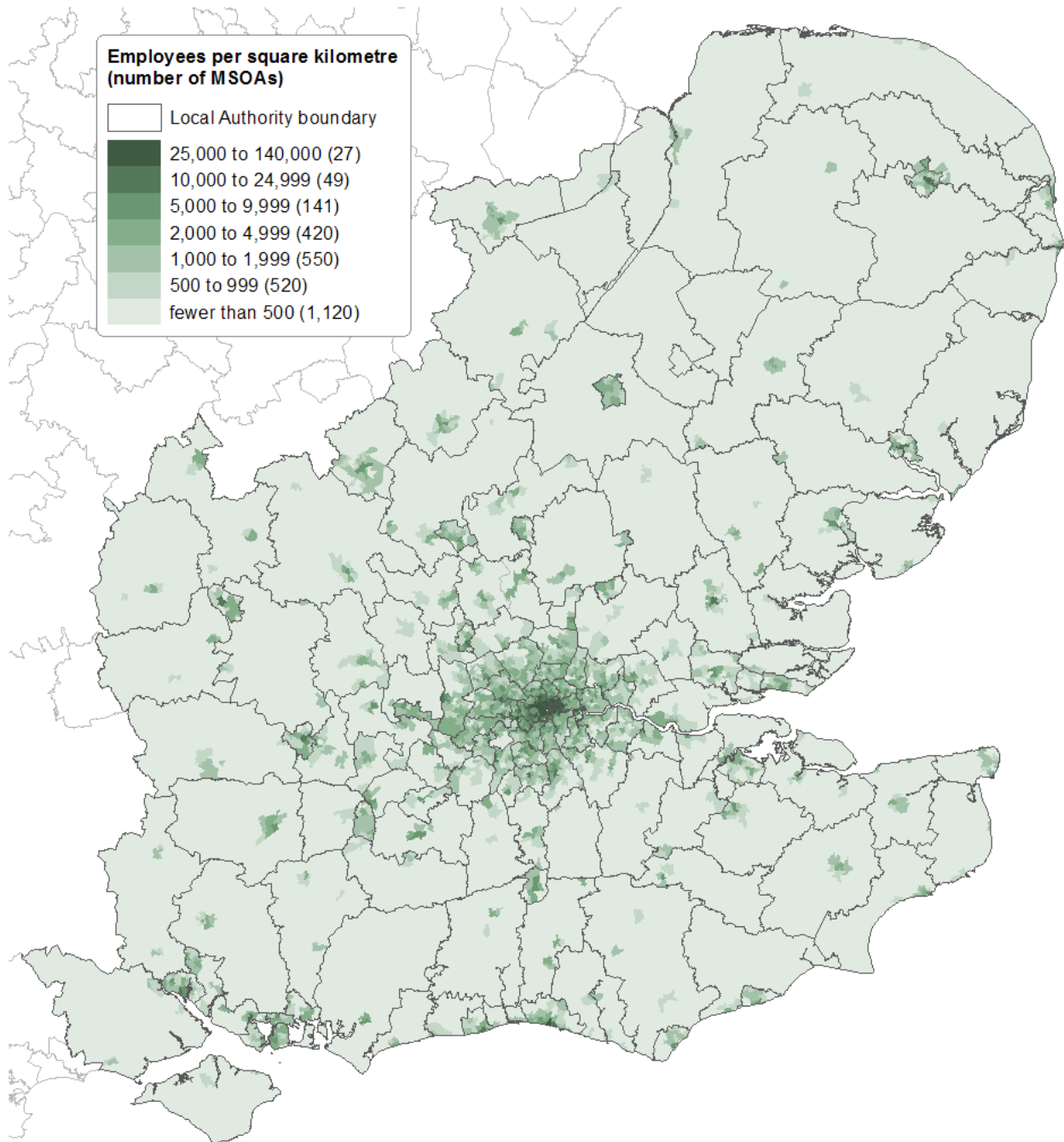


**Employees per square kilometre
(number of MSOAs)**

☐ Local Authority boundary

■ 25,000 to 140,000 (27)
■ 10,000 to 24,999 (49)
■ 5,000 to 9,999 (141)
■ 2,000 to 4,999 (420)
■ 1,000 to 1,999 (550)
■ 500 to 999 (520)
□ fewer than 500 (1,120)

Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: IDBR*

## 2.5.2 Firms in London

Just as London is the location for a lot of employment, so London is home to a large number of workplaces. This is especially the case in the CAZ, but as can be seen from Map 2.15 other areas of London, especially in the west of London, as well as various town centres and several Strategic Industrial Locations (SIL) such as Park Royal, the Thames Gateway SILs in Newham (Royals), Charlton and Barking and Dagenham (River Road) also have significant concentration of workplaces. Conversely, it can be see that some areas of east London have relatively few workplaces concentrated within them. The nature of the firms also varies across London with smaller workplaces (those employing less than 250) generally being more important in the south and north west of London with very few firms of this size trading in the city (see Map 2.16), while large workplaces (those employing 250 or more people) being more visible in a belt that runs from West London through central London to small areas of South London and North London (see Map 2.17). It should however be noted (as shown by Table 2.5) that large employment businesses are quite rare as a total number of all businesses across all of London with most businesses being Small and Medium sized Enterprises (SME's). However, as also shown in Table 2.5 although SME's make up over 99 per cent of all London businesses they accounted for just over 51 per cent of all of London's employment and just under 50 per cent of the turnover of London's firms in 2015.

**Map 2.15: Workplaces in London in 2014 by MSOA**[25]



Note: MSOA denotes Middle-layer Super Output Areas
Source: Inter-Departmental Business Register, Office for National Statistics
Contains National Statistics data © Crown copyright and database right 2015
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Legend:
- Local Authority boundary
- 531 - 17,365
- 381 - 530
- 286 - 380
- 211 - 285
- 55 - 210
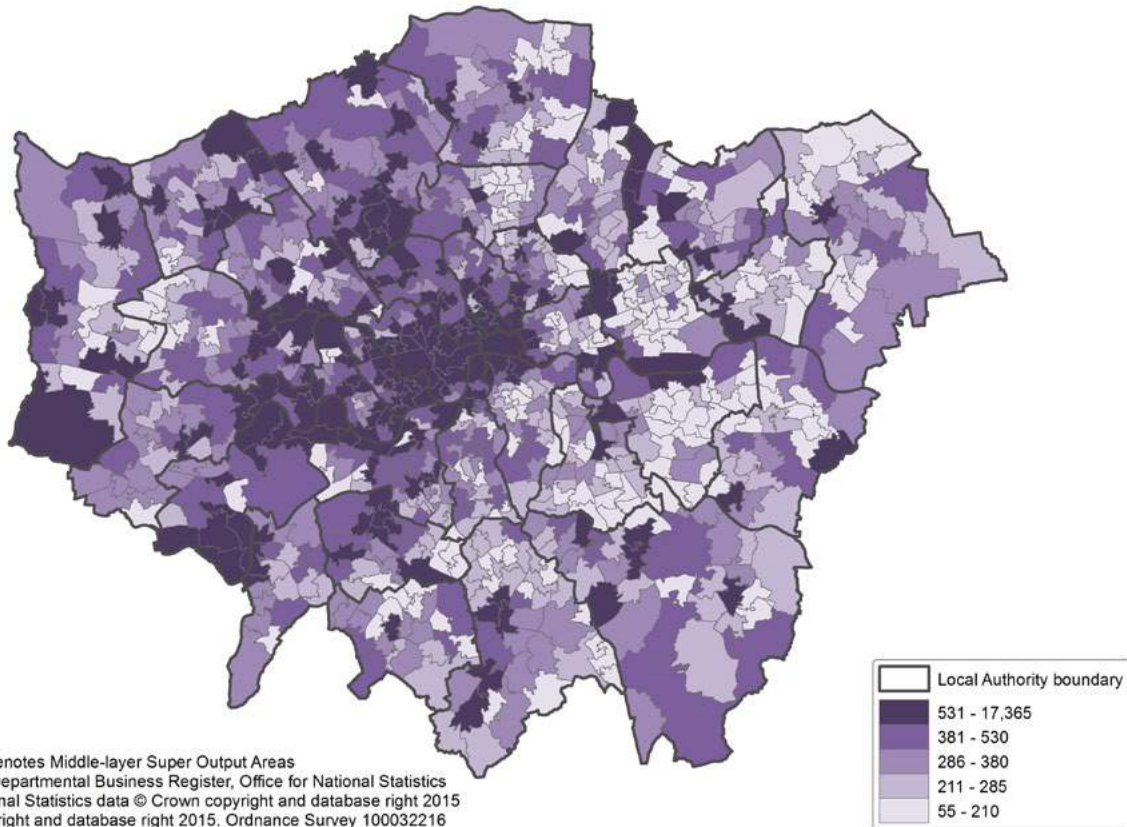
*Source: ONS and GLA Intelligence Unit*

**Map 2.16: Workplaces that employ less than 250 people by MSOA in London in 2014 as a percentage of the MSOA's total workplaces**



Note: MSOA denotes Middle-layer Super Output Areas
Source: Inter-Departmental Business Register, Office for National Statistics
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Legend:
Local Authority boundary
96 - 100
94 - 96
91 - 94
87 - 91
36 - 87
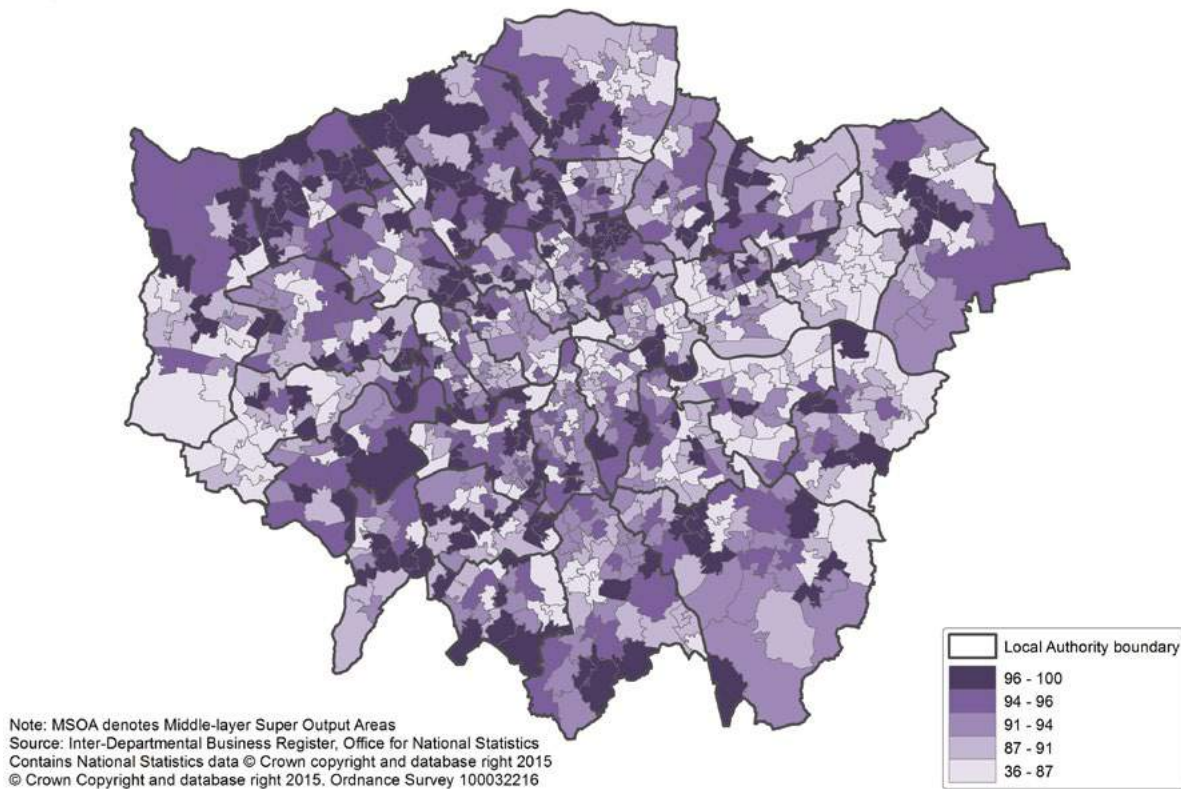
*Source: ONS and GLA Intelligence Unit*

**Map 2.17: Workplaces that employ 250 or more people by MSOA in London in 2014 as a percentage of the MSOA's total workplaces**



Note: MSOA denotes Middle-layer Super Output Areas
Source: Inter-Departmental Business Register, Office for National Statistics
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Legend:
Local Authority boundary
13 - 64
9 - 13
6 - 9
4 - 6
0 - 4
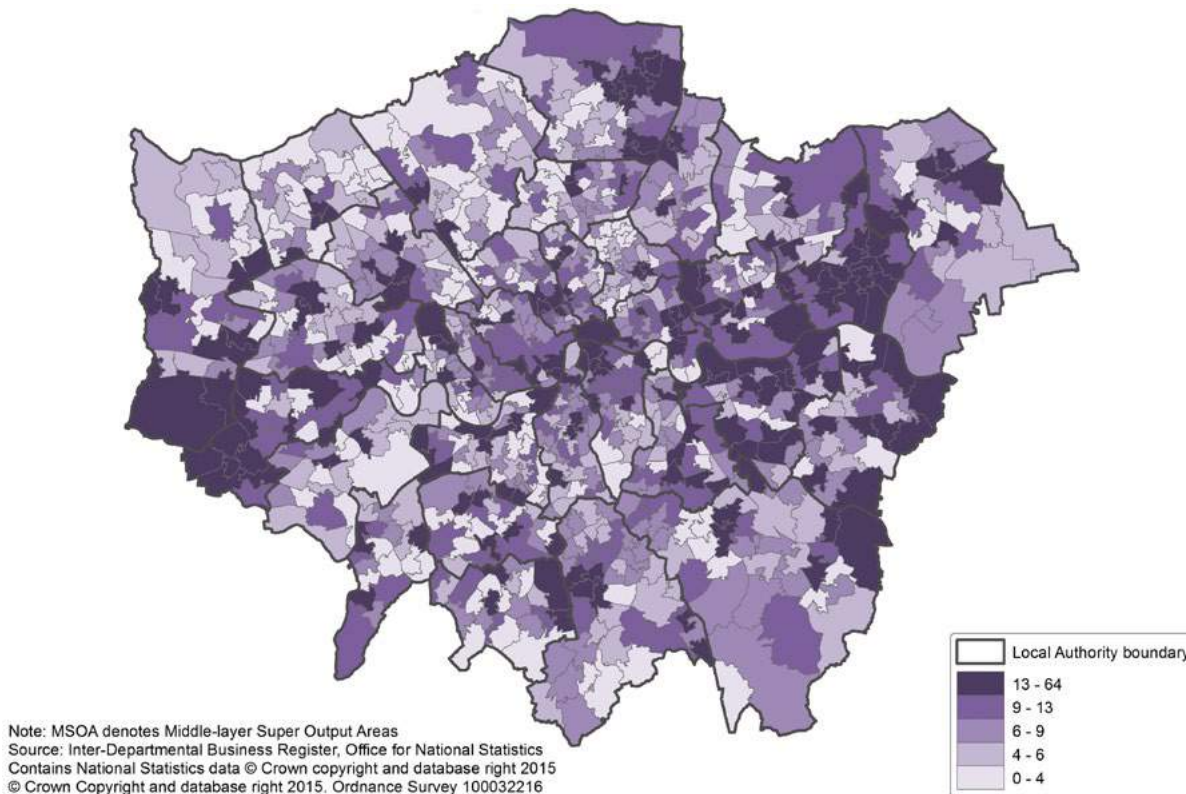
*Source: ONS and GLA Intelligence Unit*

**Table 2.5: Number of businesses in the private sector and their associated employment and turnover, by number of employees and selected industry section in London, start 2015[26]**

| Business Size Group | Business Details | Manufacturing | Construction | Wholesale & Retail | Accommodation & Food Services | Info. & Comm. | Financial & Insurance Activities | Professional, scientific & technical activities | Admin. & Support Services | Arts, entertainment and recreation | All Businesses |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 employees (unregistered)[27] | Firms | 11,535 | 132,070 | 24,370 | 2,990 | 34,670 | 7,000 | 70,850 | 41,985 | 61,880 | 544,920 |
| | Jobs (1000s) | 12 | 133 | 28 | 4 | 40 | 15 | 81 | 45 | 65 | 589 |
| | Turnover (£m)[28] | 321 | 5,288 | 1,288 | 98 | 1,425 | - | 4,612 | 1,539 | 2,381 | 21,936 |
| 0 employees (registered) | Firms | 5,045 | 21,385 | 21,520 | 2,100 | 37,510 | 6,155 | 64,240 | 20,940 | 9,940 | 216,125 |
| | Jobs (1000s) | 5 | 22 | 23 | 2 | 38 | 4 | 66 | 22 | 11 | 224 |
| | Turnover (£m) | 621 | 5,094 | 3,844 | 391 | 6,222 | - | 11,856 | 3,831 | 1,353 | 39,678 |
| 1 | Firms | 450 | 1,245 | 3,170 | 1,340 | 255 | 110 | 3,740 | 3,240 | 610 | 18,050 |
| | Jobs (1000s) | 1 | 3 | 7 | 3 | 1 | 0 | 8 | 7 | * | 39 |
| | Turnover (£m) | 62 | 262 | 869 | 123 | 43 | - | 668 | 809 | * | 3,576 |
| 2-4 | Firms | 3,520 | 12,265 | 18,420 | 8,160 | 13,815 | 2,555 | 23,520 | 10,400 | 2,990 | 116,035 |
| | Jobs (1000s) | 10 | 32 | 55 | 27 | 33 | 7 | 62 | 29 | 8 | 321 |
| | Turnover (£m) | 1,078 | 6,838 | 15,749 | 1,204 | 3,980 | - | 7,495 | 6,601 | 1,003 | 51,872 |
| 5-9 | Firms | 1,645 | 2,945 | 8,175 | 4,685 | 2,820 | 1,225 | 6,825 | 3,565 | 945 | 41,680 |
| | Jobs (1000s) | 11 | 19 | 54 | 31 | 19 | 8 | 46 | 24 | 6 | 279 |
| | Turnover (£m) | 1,306 | 4,946 | 21,457 | 1,369 | 3,203 | - | 6,709 | 4,703 | 859 | 55,128 |
| 10-19 | Firms | 930 | 1,210 | 3,540 | 2,595 | 1,575 | 755 | 3,415 | 2,010 | 520 | 21,435 |
| | Jobs (1000s) | 13 | 16 | 48 | 35 | 21 | 10 | 47 | 27 | 7 | 293 |
| | Turnover (£m) | 1,425 | 3,604 | 40,281 | 1,698 | 3,997 | - | 6,789 | 4,479 | 787 | 69,941 |
| 20-49 | Firms | 515 | 405 | 1,515 | 1,545 | 1,020 | 495 | 1,710 | 1,125 | 185 | 10,570 |
| | Jobs (1000s) | 16 | 12 | 45 | 46 | 31 | 16 | 53 | 35 | 6 | 322 |
| | Turnover (£m) | 2,409 | 3,150 | 67,830 | 2,496 | 11,022 | - | 9,491 | 6,534 | 613 | 111,650 |

| | | 170 | 115 | 430 | 440 | 380 | 235 | 565 | 510 | 85 | 3,590 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50-99 | Firms | 170 | 115 | 430 | 440 | 380 | 235 | 565 | 510 | 85 | 3,590 |
| | Jobs (1000s) | 12 | 8 | 29 | 30 | 26 | 17 | 40 | 36 | 6 | 249 |
| | Turnover (£m) | 1,792 | 1,957 | 23,217 | 1,722 | 6,596 | - | 6,583 | 6,899 | * | 57,193 |
| 100-199 | Firms | 80 | 45 | 180 | 190 | 180 | 155 | 250 | 225 | 30 | 1,595 |
| | Jobs (1000s) | 11 | 7 | 25 | 26 | 25 | 22 | 36 | 31 | * | 222 |
| | Turnover (£m) | 2,030 | 2,308 | 59,949 | 1,469 | 7,048 | - | 6,610 | 3,241 | 1,662 | 94,325 |
| 200-249 | Firms | 15 | 15 | 45 | 35 | 35 | 35 | 65 | 70 | 5 | 375 |
| | Jobs (1000s) | 3 | 4 | 10 | 8 | 7 | 8 | 15 | 15 | * | 84 |
| | Turnover (£m) | 845 | 1,076 | 6,386 | 483 | 1,213 | - | 3,575 | 3,386 | * | 19,750 |
| 250-499 | Firms | 25 | 25 | 70 | 70 | 60 | 75 | 120 | 135 | 20 | 700 |
| | Jobs (1000s) | 8 | 8 | 24 | 24 | 21 | 26 | 43 | 47 | 7 | 245 |
| | Turnover (£m) | 2,224 | 3,050 | 142,219 | 1,410 | 5,576 | - | 9,145 | 4,976 | 993 | 175,596 |
| 500+ | Firms | 30 | 15 | 110 | 80 | 75 | 90 | 95 | 115 | 20 | 760 |
| | Jobs (1000s) | 81 | 45 | 569 | 204 | 206 | 266 | 155 | 325 | 49 | 2,209 |
| | Turnover (£m) | 63,129 | 8,351 | 103,010 | 9,566 | 50,229 | - | 27,797 | 20,992 | 32,977 | 389,930 |
| Total | Number | 23,960 | 171,740 | 81,545 | 24,230 | 92,395 | 18,885 | 175,395 | 84,320 | 77,230 | 975,835 |
| | Employment (1000s) | 183 | 309 | 917 | 441 | 468 | 400 | 652 | 641 | 170 | 5,076 |
| | Turnover (£m) | 77,241 | 45,924 | 486,097 | 22,027 | 100,554 | - | 101,331 | 67,990 | 43,492 | 1,090,576 |

Source: BIS – Business Population Estimates. Note: * symbol replaces data that are deemed to be disclosive, – symbol indicates where data is not available.

### 2.5.3 The hubs of London

Although as shown above, concentration in employment or firms can be seen across different parts of London's geography, recent research commissioned by GLA Economics[29] has shown that certain areas of London are particularly dominant in terms of total firm or employment concentration. The research also showed that some of these hubs had grown considerably between 2004 and 2013 as shown by Tables 2.6 and 2.7, while Maps 2.18 and 2.19 show the location of these hubs in 2013. Further analysis of hubs for different sectors of the economy can be found in GLA Economics Working Paper 73.

**Table 2.6: Postcode hubs by firm count (top five for retail and business), 2013 (with associated employment and 2004 data)**

| Postcode | 2013 | | 2004 | | Key building (if exists) name/details |
|---|---|---|---|---|---|
| | Firms | Employment | Firms | Employment | |
| W12 7GF | 85 | 2,100 | 35 | 1,200 | Westfield London |
| W1G 0PW | 135 | 5,070 | 35 | 670 | Cavendish Square |
| SW1Y 4LR | 130 | 1,340 | 30 | 2,300 | Regent Street |
| W5 5JY | 65 | 1,430 | 75 | 1,500 | Ealing Broadway Shopping Centre |
| NW4 3FP | 30 | 1,660 | 30 | 1,620 | Brent Cross Shopping Centre |
| SW9 6DE | 75 | 1,580 | 30 | 1,010 | Kennington Business Park |
| CR0 0XZ | 210 | 1,000 | 95 | 830 | Airport House |
| N7 9DP | 130 | 730 | 95 | 750 | The Busworks |
| NW5 1TL | 70 | 3,630 | 60 | 1,780 | Highgate Studios |
| EC3R 7DD | 45 | 1,630 | 25 | 1,750 | Minster Court |

*Source: TBR Observatory 2015 (TBR ref: W12/S7)*

**Map 2.18: Top ten postcode hubs by firm count, London, 2013**



*Source: TBR Observatory 2015. QGIS Development Team, 2015. QGIS Geographic Information System. Contains National Statistics data and Ordnance Survey data © Crown copyright and database right 2015 (TBR ref: W12/M5).*

**Table 2.7: Postcode hubs by employment (top five for retail and business), 2013 (with associated firm count and 2004 data)**

| Postcode | 2013 | | 2004 | | Key building (if exists) name/details |
|---|---|---|---|---|---|
| | Firms | Employment | Firms | Employment | |
| SE1 9RT | 10 | 12,240 | 15 | 11,610 | Guy's Hospital |
| E14 5HP | 25 | 6,760 | 10 | 9,620 | 1 Churchill Place |
| EN1 3XA | * | 10,800 | Not in existence in 2004 | | Enfield Civic Centre |
| CR9 3JS | 5 | 11,560 | * | 11,900 | Taberner House |
| W14 8UD | 55 | 10,690 | 10 | 3,390 | N/A |
| SE1 7NA | 50 | 8,600 | 70 | 9,600 | Shell Centre |
| W2 1NY | 5 | 8,770 | 10 | 110 | St Marys Hospital |
| CR9 2BY | 5 | 8,210 | * | 140 | Lunar House |
| N11 1NP | 10 | 6,170 | 5 | 80 | North London Business Park |
| W2 1NW | 5 | 5,730 | 5 | 5,740 | Waterside House |

*Source: TBR Observatory 2015 (TBR ref: W12/S7). * indicates data has been suppressed due to reasons of confidentiality.*

**Map 2.19: Top 10 postcode hubs by employment, London, 2013**



*Source: TBR Observatory 2015. QGIS Development Team, 2015. QGIS Geographic Information System. Contains National Statistics data and Ordnance Survey data © Crown copyright and database right 2015 (TBR ref W12/M5).*

## 2.5.4 The changing nature of output in London's local authorities

Until May 2016 there were no estimates of output at the LA level for all of London's LAs from the ONS, with the lowest geography being at the NUTS3 level which covered some individual London boroughs or combination of London LAs. However, in May 2016 the ONS published estimates of GVA by LA in England for the period 1997 to 2014[30]. It should be noted that this data was then revised in July 2016 to take account of ONS revisions to their estimates of output at the NUTS3 level. Also published was an estimate of LA output by broad industrial classification sectors. These estimates **are not national statistics**, however the data does allow for an examination of the changing nature of output in London at the LA level.

Map 2.20 thus shows the evolution of the importance of individual LAs in London to London's total GVA. As can be observed, although all LAs increased their GVA over this period, between 1997 and 2014 inner London LAs generally increased their share of London's economy while outer London LAs generally reduced their share of London's total GVA. However, the importance of London's LAs to output in the different broad sectors of London's economy was more mixed as shown in Maps C1 to C9 in Appendix 2.3 of this chapter[31]. Thus as can be seen outer London is more important to the Production sector in London in 2014, while Financial and insurance activities was generally more concentrated in inner London. It should also be noted that Appendix 2.3 of this chapter also provides maps examining the importance of these broad sectors to the total output of London's individual LAs to provide context to the industrial structure of London's LAs and shows the general declining importance of the Production sector over time to total output in London's LAs but also that the Real estate sector has gradually become generally more important to total output in London's LAs over time.

**Map 2.20: Contribution of London's LAs to total output in London in 1997 and 2014[32]**
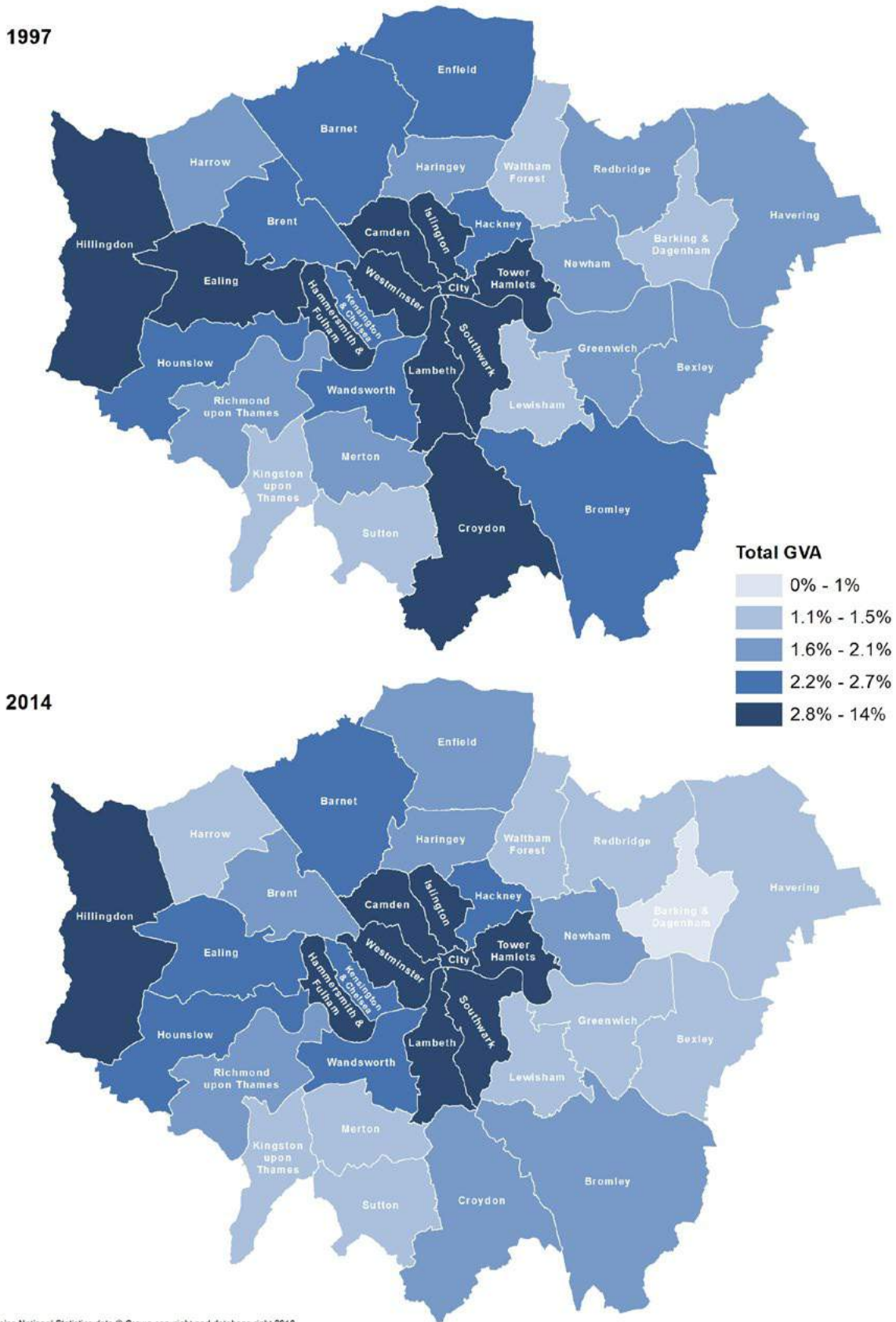


Source: ONS & GLA Economics calculations

## 2.6 Selected sectors of the London economy

This section sets out to examine the spatial nature of selected broad sectors of the economy in London. It illustrates that while many internationally competitive activities take place in central London – other activities (for instance those supporting London's population) are spread across the capital. It should also be noted that GLA Economics has in the past examined the spatial nature of employment in the science and technology category[33] and the creative industries[34] and Appendix 2.4 of this chapter provides brief summaries and where necessary updates on these areas of the economy.

### 2.6.1 Employment clustering in London

Examining employment data in London highlights the importance of certain geographies for different sectors of London's economy as was highlighted in Map 2.8 for just the CAZ and NIOD. Appendix 2.5 of this chapter replicates that analysis for London as a whole as well as for the Greater South East. However, Map 2.21 using Census data but a different clustering methodology looks at some of the dominant employment sectors in London's workplace zones and highlights differences between inner and outer London[35]. Thus it shows that Financial and insurance activities and Professional, scientific and technical activities are of importance in inner London; while the Transportation and communication sector is generally more significant in outer London. Also highlighted is the importance of Public administration, Education and Human health activities in employment in areas of both inner and outer London in order in part to serve the population of these areas. Maps highlighting these individual clusters in more detail for both London and the Greater South East as a whole are also provided in Appendix 2.5 of this chapter. Although this map highlights the dominant employment sector in these workplace zones, other industrial sectors could also be clustered across these areas but are obscured by the dominant cluster. One methodology for finding these other employment clusters is given in Appendix 2.5 of this chapter.

Finally, Map 2.22 shows another way of looking at the nature of London's economic geography and the clustering of certain types of jobs, this time using COWZ-EW[36]. This is based on the workers characteristics and their workplaces, examining whether areas are similar or different depending on their workers and workplaces characteristics. Thus as can be seen from Map 2.22 the centre of London and the NIOD is dominated by "Top Jobs" but with other areas of this sort spread throughout London. Note that "Top Jobs" is defined as "high status employment in business, industry and public service. Primarily the highest status city centres but also top science and business parks"[37] and thus highlights the global nature of output in a number of bits of London. However, what is also shown is the importance of jobs servicing London's population with these jobs spread throughout large parts of the capital.

**Map 2.21: Dominant employment clusters in London by workplace zones in 2011**
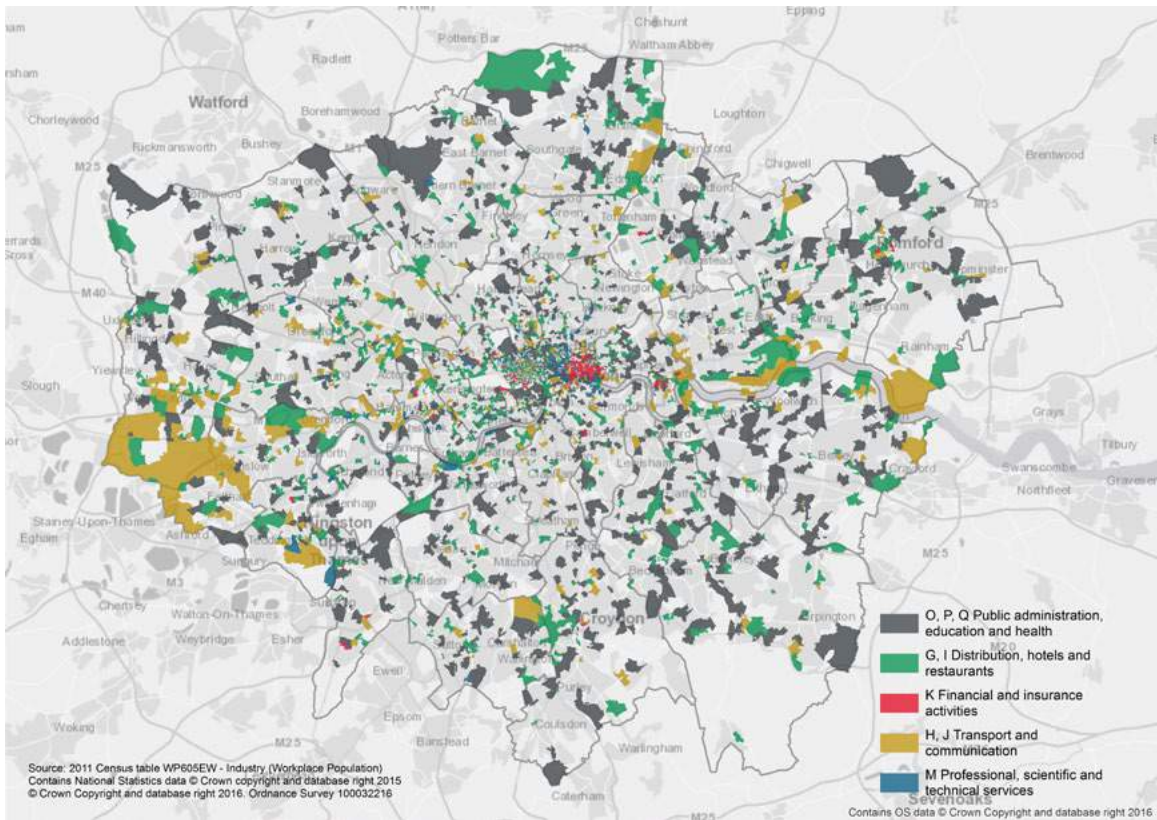


*Source: Census and GLA Intelligence Unit Analysis*

**Map 2.22: Workplace zones type in London by COWZ-EW classification[38]**
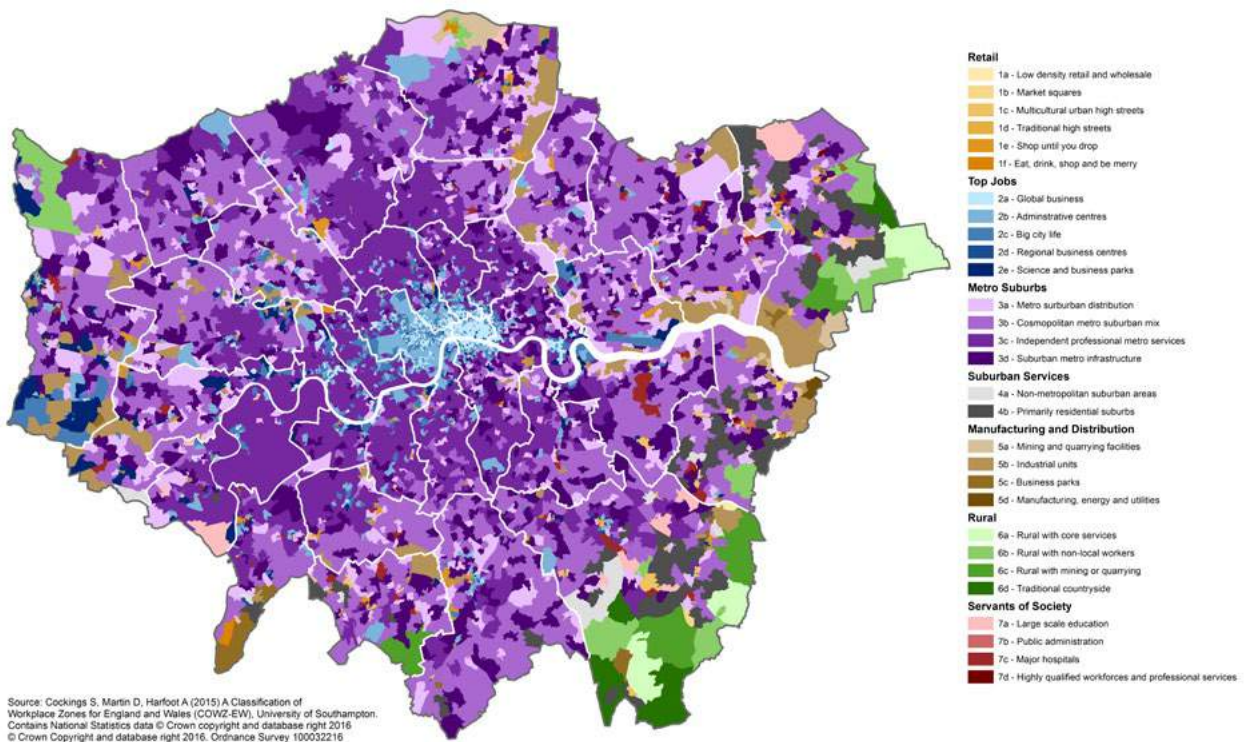


*Source: Census data via DataShine COWZ-EW and GLA Intelligence Unit mapping*

## 2.6.2 Employee concentration by broad sectors of the economy

This sub section examines the geography of employee jobs concentration by broad sectors in London in greater detail in order to give a better understanding of the economic geography of London beyond the clusters highlighted above. However, it should be noted that some sectors are not presented in this chapter, as those sectors cannot be analysed at low-level geographies because of data confidentiality reasons.

Map 2.23 shows that central London is an important area of employee jobs in the Accommodation and food service sector. There are also other smaller areas of employee jobs concentration in this sector across the rest of London.

**Map 2.23: Employee concentration in Accommodation & food service activities in London in 2015**
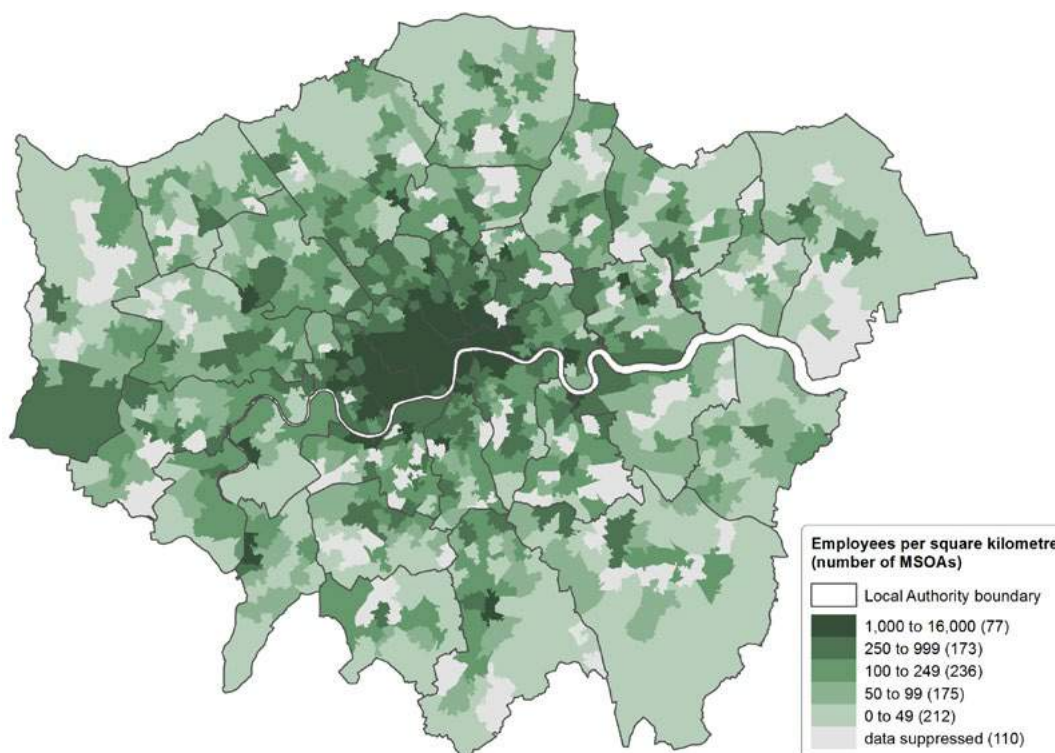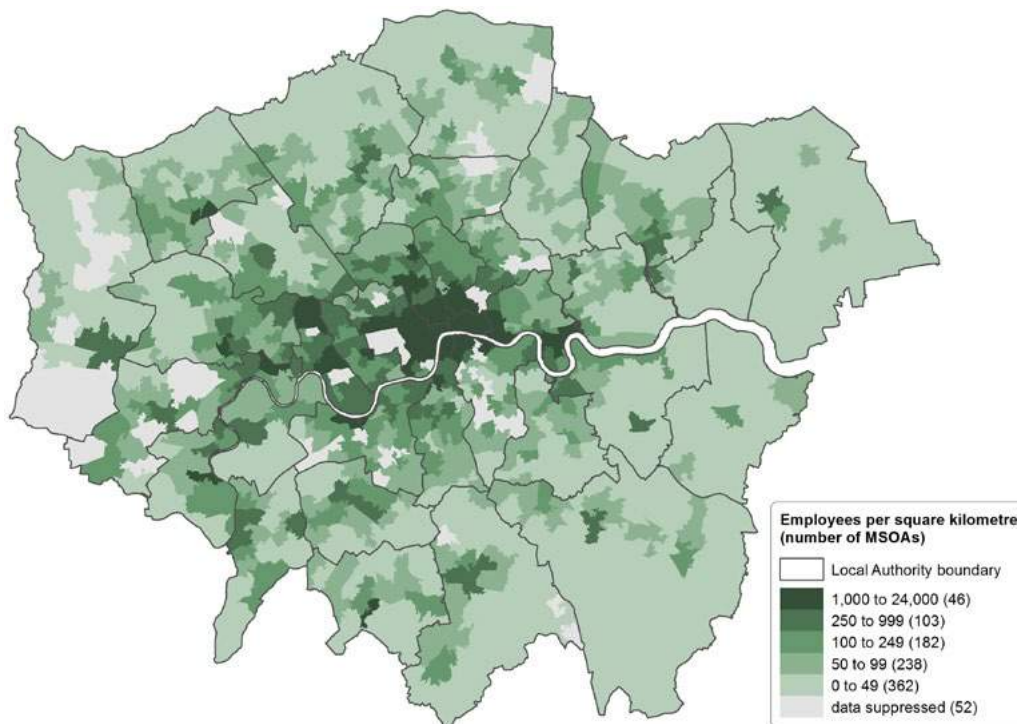
Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
Contains National Statistics data © Crown copyright and database right 2016
Contains Ordnance Survey data © Crown copyright and database right 2016. Ordnance Survey 100032216

*Source: IDBR*

Employees in Administrative and support services are also heavily concentrated in central London and the NIOD but as seen from Map 2.24 other areas, especially in West London around the Thames and Heathrow, also see large numbers of employees in this sector.

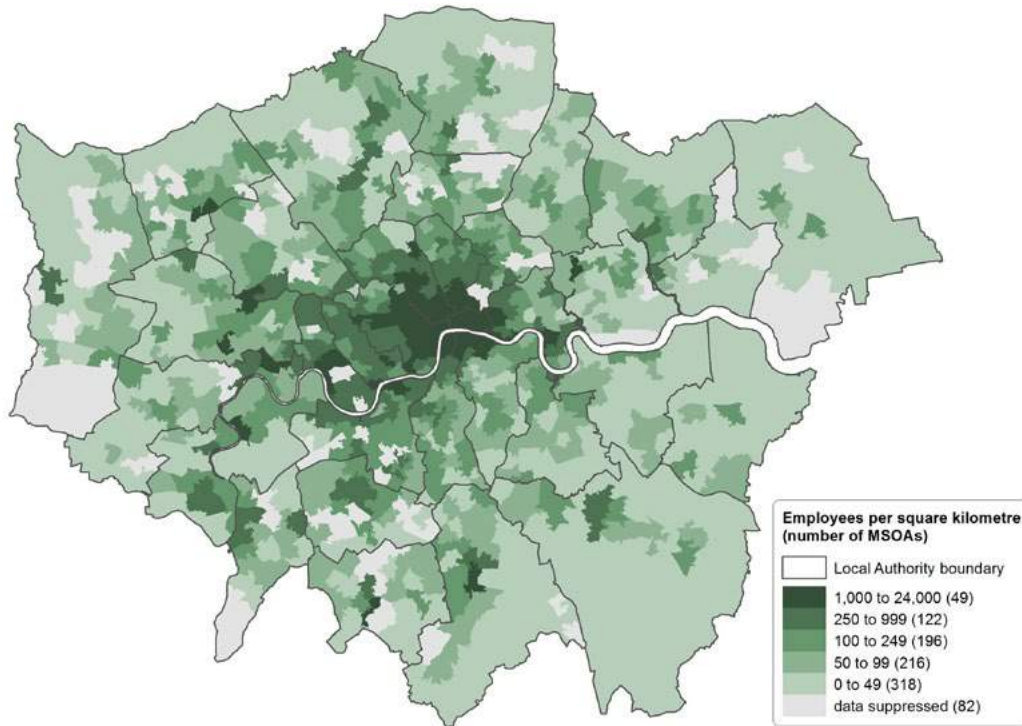**Map 2.24: Employee concentration in Administrative and support services in London in 2015**
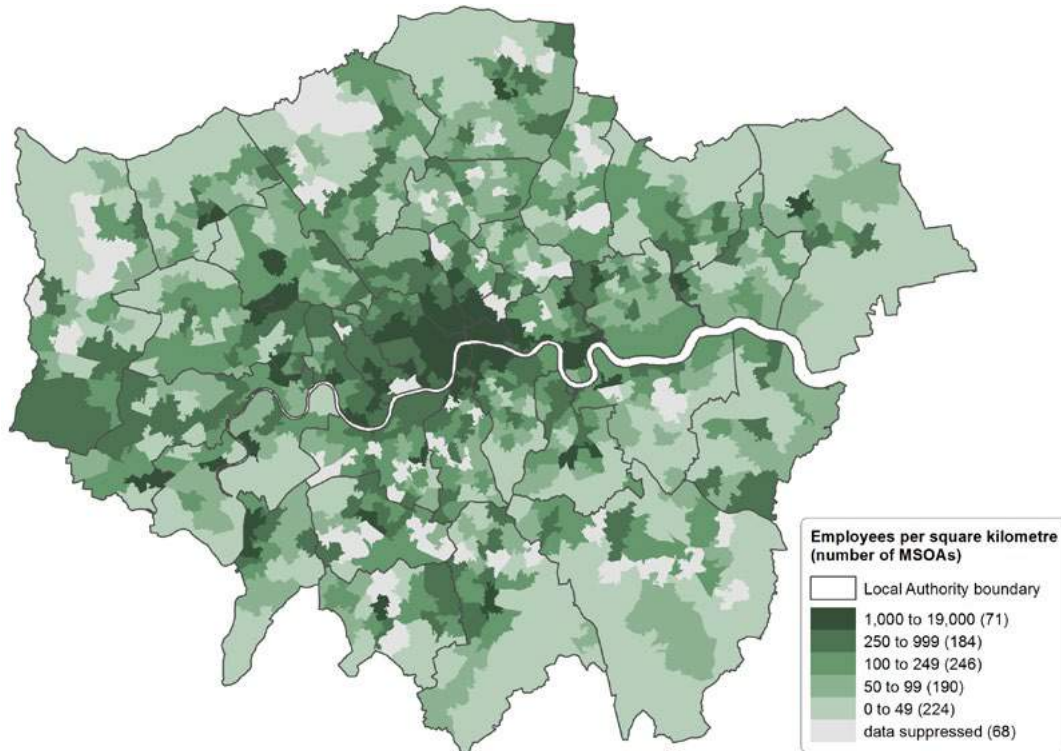


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
Contains National Statistics data © Crown copyright and database right 2016
Contains Ordnance Survey data © Crown copyright and database right 2016. Ordnance Survey 100032216

*Source: IDBR*

Map 2.25 shows that beyond central London there are concentrations of employees in Construction in London east of the city and west of the CAZ, as well as some areas of South London.

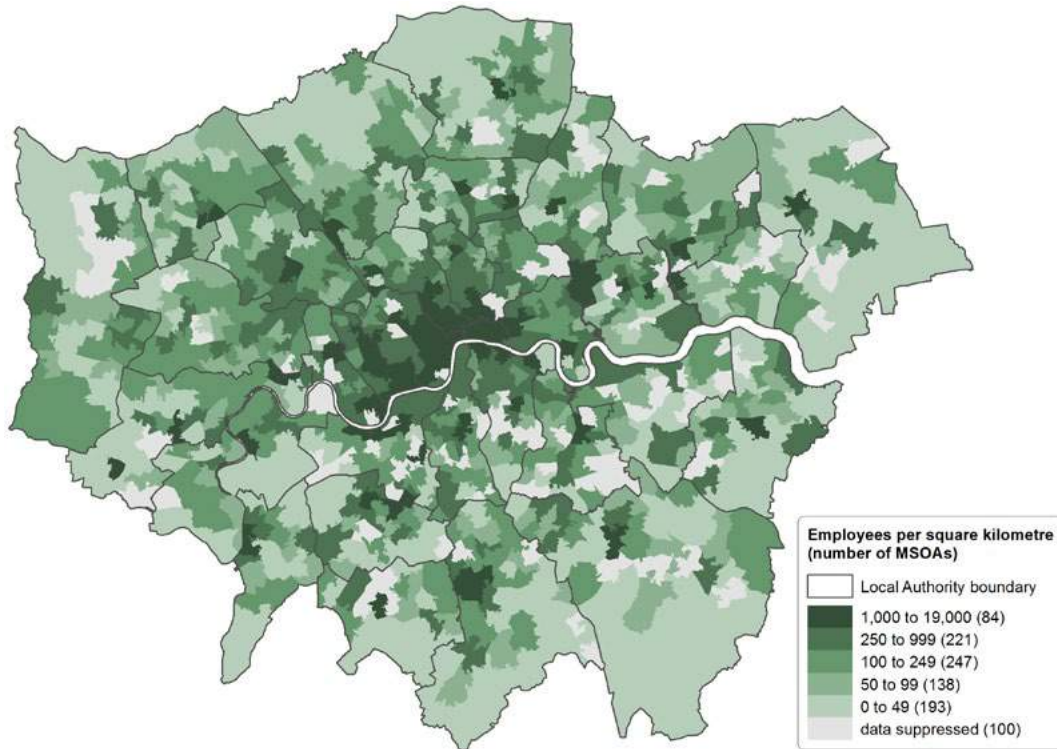**Map 2.25: Employee concentration in Construction in London in 2015**
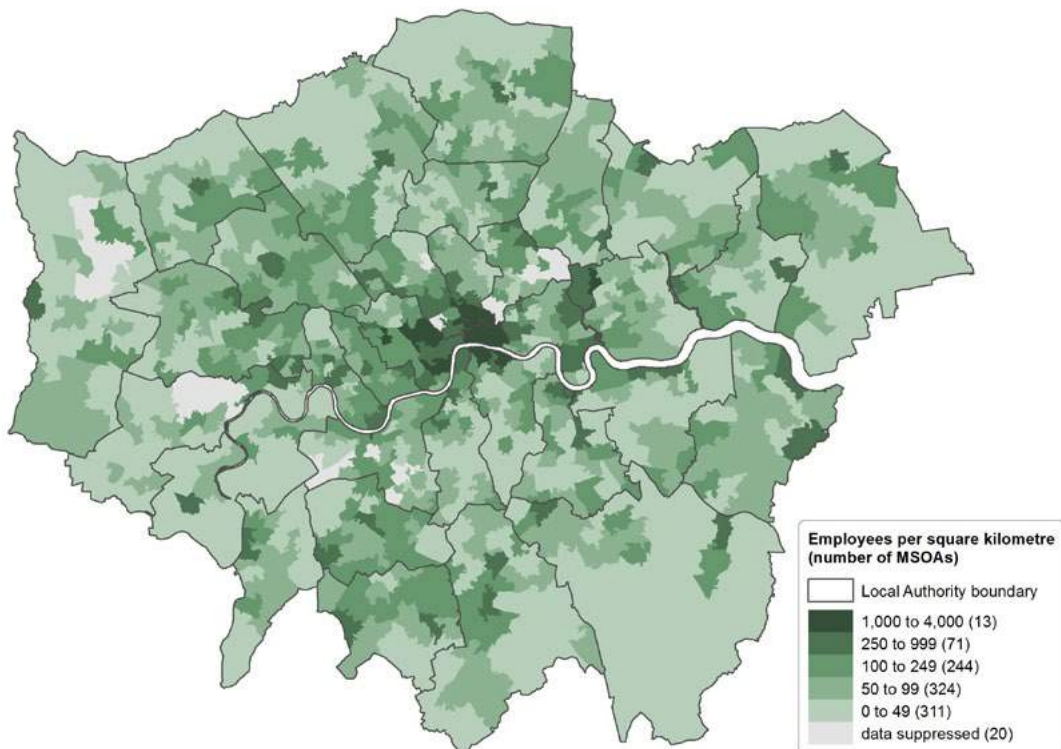


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
Contains National Statistics data © Crown copyright and database right 2016
Contains Ordnance Survey data © Crown copyright and database right 2016. Ordnance Survey 100032216

*Source: IDBR*

Employees in Head offices and management consultancy as shown by Map 2.26 are unsurprisingly concentrated in central London, the NIOD and also around Heathrow.

**Map 2.26: Employee concentration in Head offices and management consultancy in London in 2015**
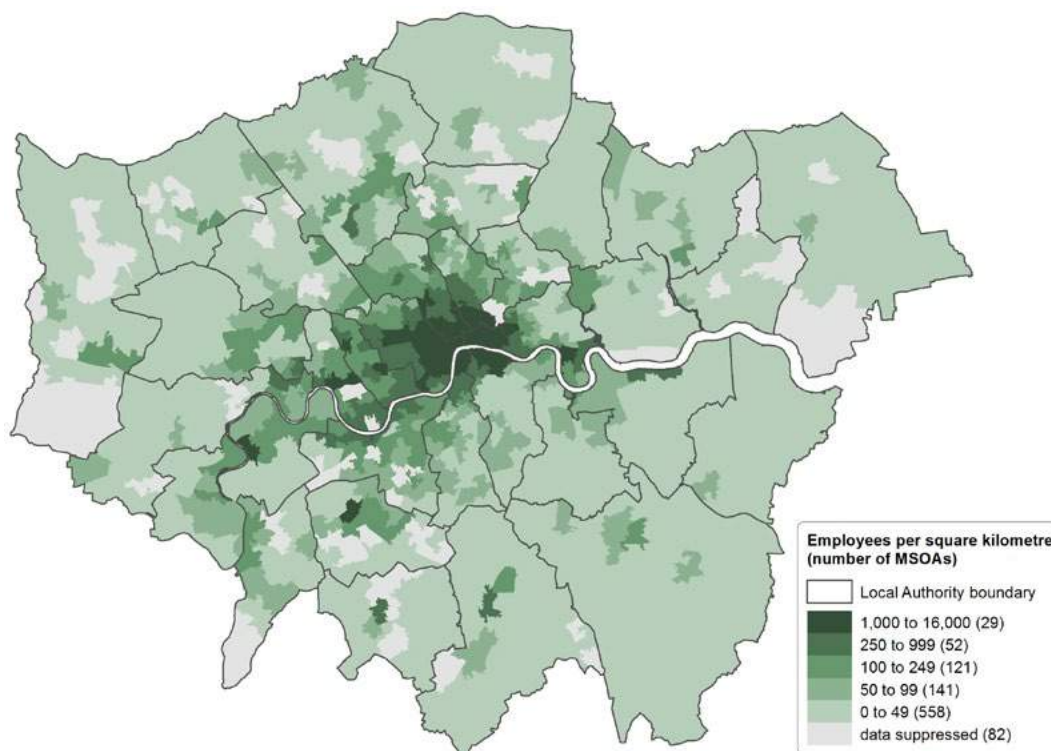


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: IDBR*

Map 2.27 shows that employees in Human health and social work activities are highly concentrated in a number of areas of London, but in contrast to other activities are more spread out across London, most likely to meet the needs of the widely distributed population of London.

**Map 2.27: Employee concentration in Human health and social work activities in London in 2015**
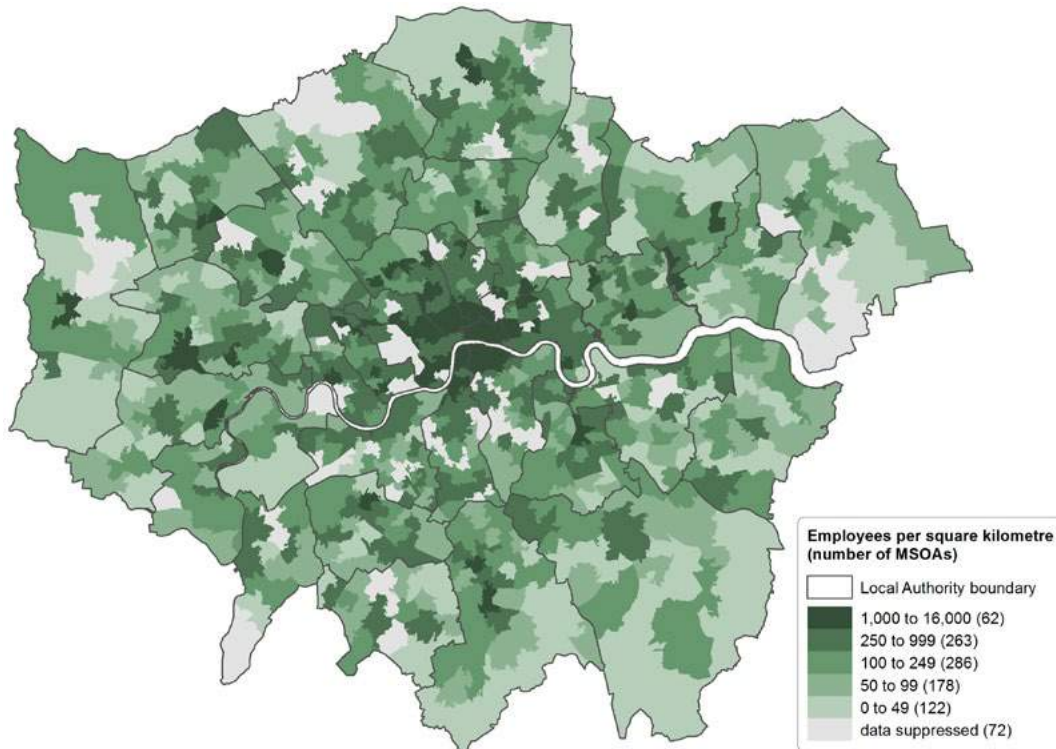


Employees per square kilometre (number of MSOAs)

Local Authority boundary

1,000 to 16,000 (62)
250 to 999 (263)
100 to 249 (286)
50 to 99 (178)
0 to 49 (122)
data suppressed (72)

Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: IDBR*

Map 2.28 shows that employees in Information and communications are concentrated in central London and the NIOD, as well as in areas of West London, parts of Richmond upon Thames and Sutton.

**Map 2.28: Employee concentration in Information and communications in London in 2015**



Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: IDBR*

Employees in Professional, scientific and technical activities (excluding Head office and management consultancy) are concentrated in central London, the NIOD and spreading into west London. However, Map 2.29 also shows areas of concentration in Croydon, Harrow, Newham, and Sutton.

**Map 2.29: Employee concentration in Professional, scientific and technical activities (excluding Head office and management consultancy) in London in 2015**



Employees per square kilometre (number of MSOAs)

Local Authority boundary

1,000 to 24,000 (49)
250 to 999 (122)
100 to 249 (196)
50 to 99 (216)
0 to 49 (318)
data suppressed (82)

Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: IDBR*

Map 2.30 shows employees in Retail (excluding motor services) being concentrated in central London but with other areas of concentration spread across the whole of London and often associated with the various town centres in the capital.

**Map 2.30: Employee concentration in Retail (excluding motor services) in London in 2015**



Employees per square kilometre
(number of MSOAs)

Local Authority boundary

1,000 to 19,000 (84)
250 to 999 (221)
100 to 249 (247)
50 to 99 (138)
0 to 49 (193)
data suppressed (100)

Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: IDBR*

Map 2.31 shows that employees in Wholesale (including motor services) are concentrated in a broad swathe of Central and West London and around Heathrow. While other areas are visible in Barking and Dagenham, Bexley, Croydon, Enfield, Greenwich, Harrow, Havering, Hounslow, Kingston upon Thames, and Sutton.

**Map 2.31: Employee concentration in Wholesale (including motor services) in London in 2015**
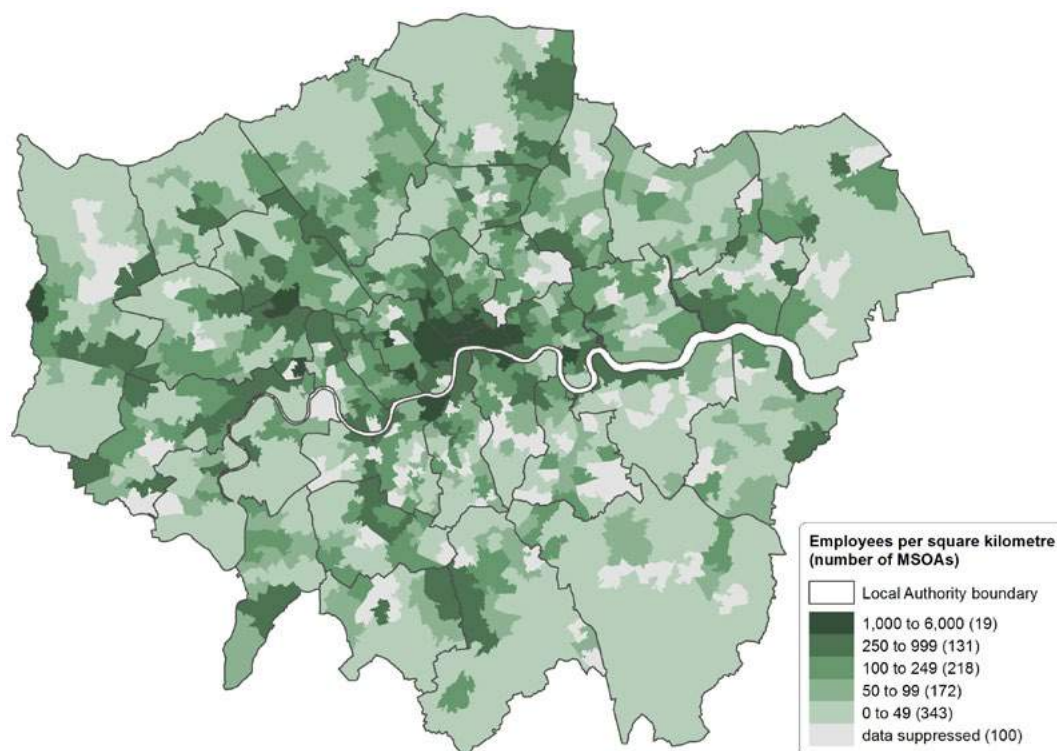


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: IDBR*

Other data could be used to examine employment concentration in London as was recently shown in a working paper for GLA Economics[39] at a slightly more aggregated geography for London, however the broad findings outlined above still hold true.

## 2.7 The lifecycle of firms in London

This section examines the lifecycle of firms in London from their birth or relocation into London to their migration out of London or their death if this occurs.

### 2.7.1 Firm births and deaths in London

As will be shown in more detail in Chapter 5 of this Evidence Bases London is a dynamic business area with it containing the most active enterprises of any UK nation or region and nearly one fifth of all UK enterprises. It also, outside of recessions, generally sees more business births than deaths (as shown by Figure 2.1) and thus has seen an expanding number of businesses over time. As noted, more detail on business start-ups and deaths and their spatial nature is given in Chapter 5 of this Evidence Base.

**Figure 2.1: Annual business net-start up rate, London and the UK**
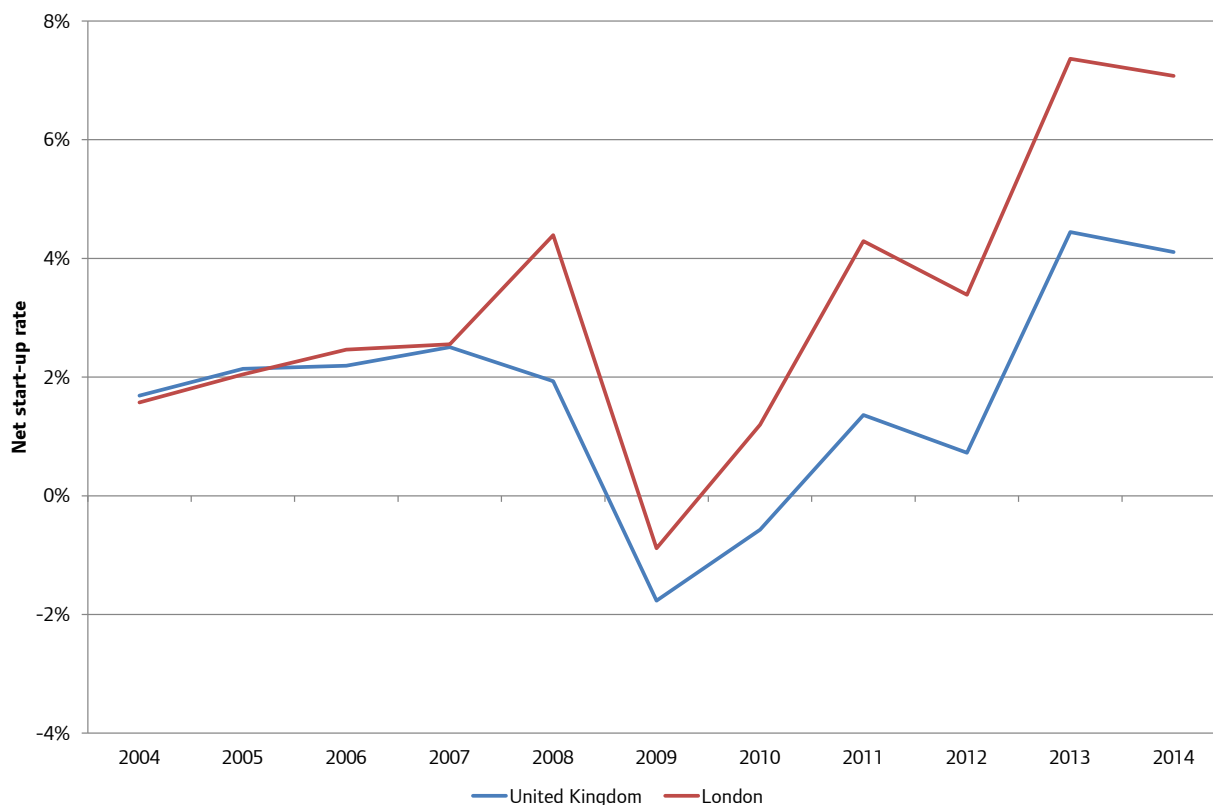


Source: ONS – Business Demography

## 2.7.2 Migration of firms from London

This sub section looks at the movement of firms and employment into and out of London and from or to the Greater South East and the UK over time. This examination should not be taken to imply that the eventual migration of firms from their founding region is guaranteed or is most likely but rather examines the flow of this migration for any firms that choose to relocate.

Concentration of internationally competitive businesses in the centre of London drives up the value of land. That drives businesses to be very productive, but the increased cost of this land has 'knock on' effects through a chain of substitution through the rest of London. Some companies and sectors find this high value of land difficult to live with and so move out of the capital. Thus although London generally creates more firms than the rest of the UK and generally sees growth in the number of firms based in the capital (as was shown above and will be shown in more detail in Chapter 5), research for GLA Economics has found that in terms of firms migrating into and out of London the capital has seen more firms and employment move out than move in from "the Greater South East and the rest of the UK. In 2012-13, 1,600 more firms migrated out of London than migrated in, resulting in a net loss of employment to the GSE and the rest of the UK of 10,470"[40].

This net firm migration could be in reaction to the cost of doing business in the capital due to the price of land. Maps 2.32a and 2.32b show net firm migration in and out of London, by London borough, in 2004 and 2013, although it should be noted that these maps do not include firm migration between London boroughs. As can be observed the maps indicate that in 2013, most London boroughs experienced net outward firm migration, with Sutton being the only London borough showing a noticeable net gain from firm migration. Maps 2.33a and 2.33b show that the destination of outwardly migrating London firms, over a number of years, was across most of the UK but with a heavier concentration into the wider Greater South East. Further analysis of firm migration is given in Chapter 5 of this Evidence Base.

**Maps 2.32a & 2.32b: Net migration of businesses to and from London in 2004 and 2013 (as a percentage of business stock)**
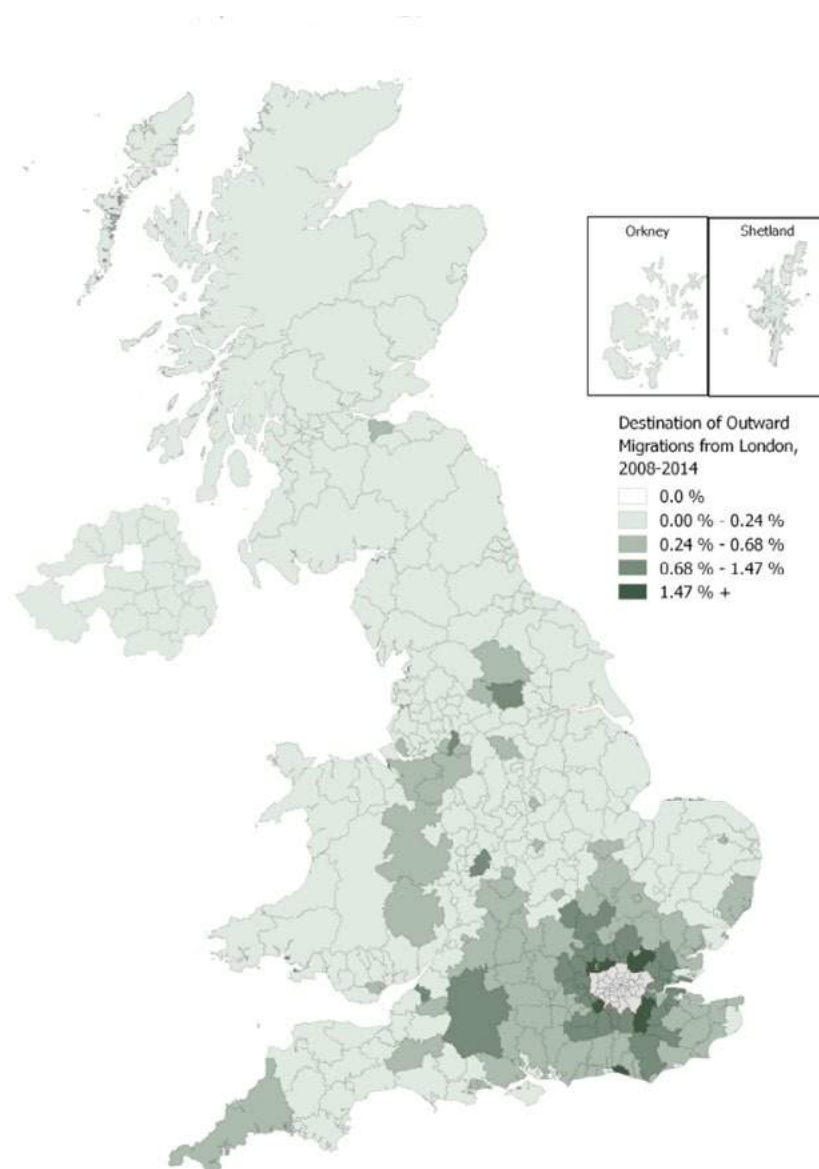**2004**
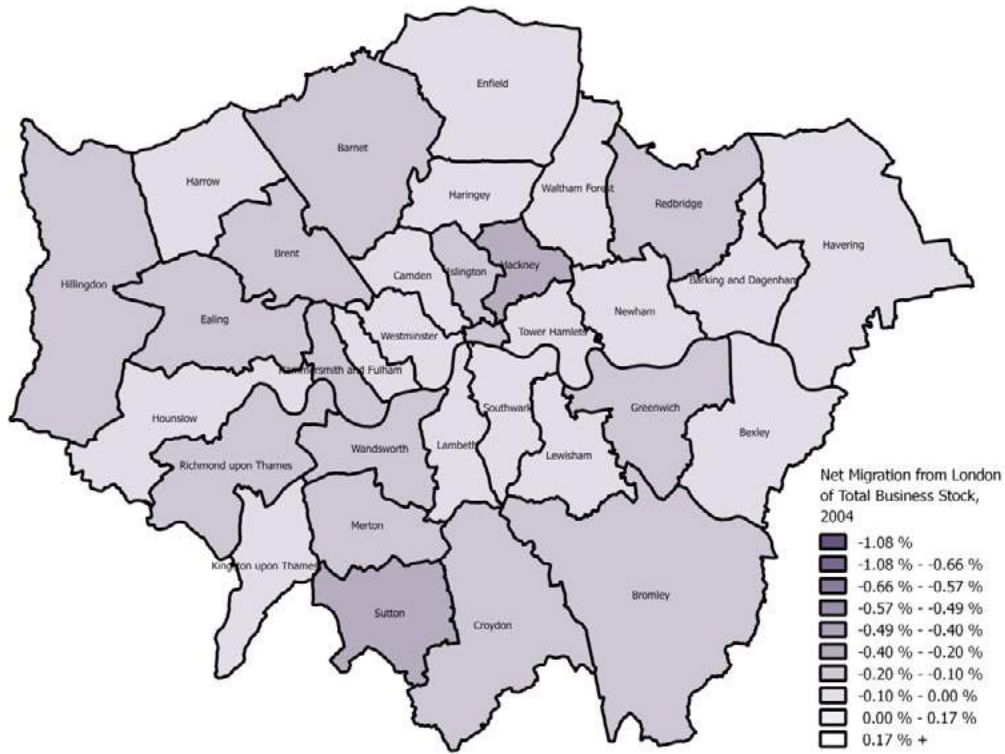


**2013**
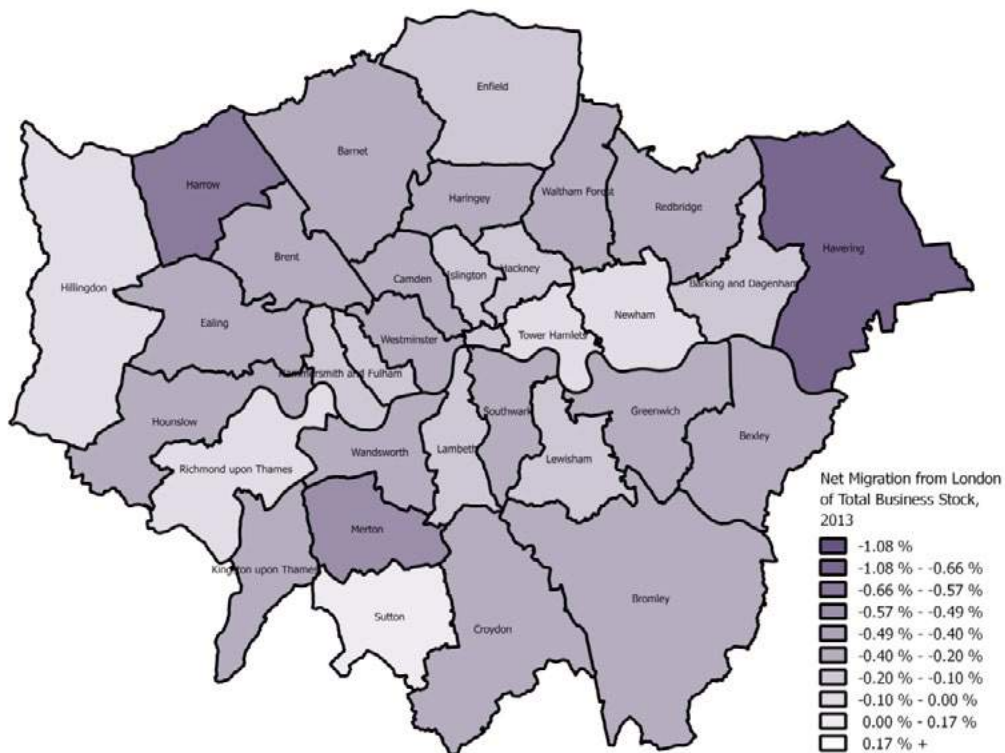


*Source: TBR Observatory 2015. QGIS Development Team, 2015. QGIS Geographic Information System. Contains National Statistics data and Ordnance Survey data © Crown copyright and database right 2015 (TBR ref: W4/M1 & M2).*

**Maps 2.33a & 2.33b: Destination of outward migrating firms, 1998-2007 and 2008-2014, by local authority (percentage of all outward migration)**
**1998-2007**
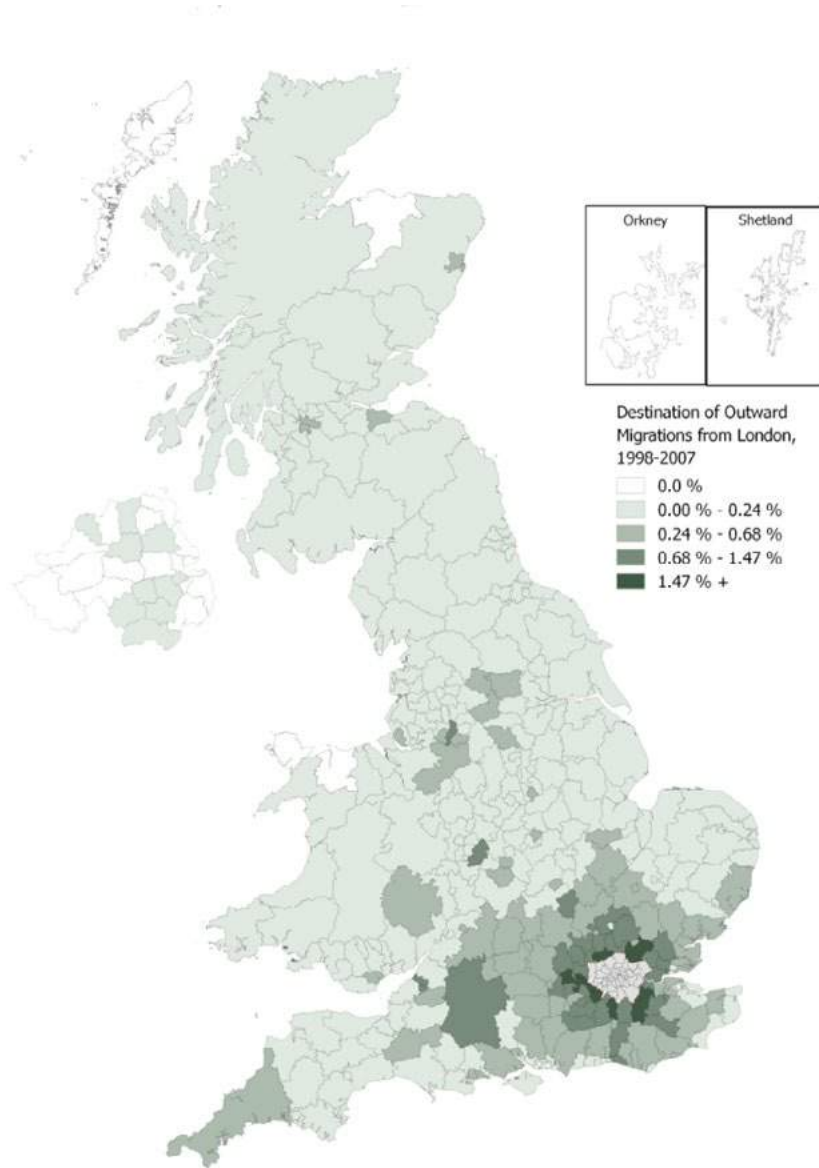
**2008-2014**



Destination of Outward
Migrations from London,
2008-2014

0.0 %
0.00 % - 0.24 %
0.24 % - 0.68 %
0.68 % - 1.47 %
1.47 % +

*Source: TBR Observatory 2015. QGIS Development Team, 2015. QGIS Geographic Information System. Contains National Statistics data and Ordnance Survey data © Crown copyright and database right 2015. (TBR ref: W11/M1).*

## 2.8 Conclusion

This chapter has shown how the forces of globalisation and agglomeration have led to sectoral specialisation which has also, to a degree, manifested itself in a spatial specialisation or concentration. Thus particular (and many) functions of London's economy have tended to locate in certain areas of London – particularly central London. And this is because central London offers a number of things that can't be found in combination in many other places. Central London offers good access to a large pool of high skilled labour (as shown later in this Evidence Base in Chapter 9) and good access to complementary inputs (so finance houses putting together merger deals for example have good access to legal services, accountancy and audit services, management consultancies etc.). Thus many businesses locating in central London want to be near one another. However, economic activities serving more local geographic markets take place across London as a whole. All of this though leads to demands on the transport network and also intense competition for land. The next two chapters of this Evidence Base examine these issues in more detail.

## Chapter 2 endnotes

1 UK land area based on mean high water excluding area of inland water.

2 London First, January 2015, 'London 2036: An agenda for jobs and growth'.

3 ONS, March 2016, 'Major Towns and Cities – Methodological Note and User Guidance'.

4 ONS, 'Travel to Work Areas'.

5 Maps of these alternative TTWAs can be found at: ONS, September 2016, 'Alternative Travel to Work Areas'.

6 ONS, September 2016, 'Travel to work area analysis in Great Britain: 2016'.

7 Ibid.

8 Ibid.

9 More detail on Functional Urban Areas is available from Eurostat here: Eurostat, 'European cities – the EU-OECD functional urban area definition'.

10 For an example see: Cushman & Wakefield, 2011, 'European Cities Monitor'.

11 GLA Economics, September 2014, 'Growing Together II: London and the UK economy'.

12 These benefits have been shown by a number of academic studies such as: Andersson, F., Burgess, S., & Lane, J. I., (2007), 'Cities, matching and the productivity gains of agglomeration'. Journal of Urban Economics, 61 (1). Which found "that thicker urban labor markets are associated with more assortative matching in terms of worker and firm quality" and "that production complementarity and assortative matching is an important source of the urban productivity premium".

13 Graham, D., (2007), 'Agglomeration, productivity and transport investment'. Journal of Transport Economics and Policy, 41(3).

14 An area that contains Canary Wharf.

15 For a more in depth analysis of the CAZ, NIOD and their fringes please see: Douglass, G., August 2015, 'Working Paper 68: Work and life in the Central Activities Zone, northern part of the Isle of Dogs and their fringes'. GLA Economics.

16 ONS, 18 May 2016, 'Regional GVA(I) by Local Authority in England 1997 to 2014'.

17 Note both these maps are drawn from a north facing perspective and given the concentration of employees in the centre of the CAZ and NIOD may hide details to the north of these concentrations.

18 The area around Old Street Roundabout where a number of tech firms have congregated.

19 The clustering was carried out using GIS Hot Spot Analysis. Given a set of weighted features, it identifies statistically significant hot spots and cold spots using the Getis-Ord Gi* statistic. This is based on the value of a cell and the value of the cells immediately around it. A high value cell with high value cells around it will get the highest score.

In detail the Getis-Ord Gi* statistic is used to identify statistically significant hot spots and cold spots, with the 'Fixed Distance Band' parameter being used to reflect spatial relationships; the default distance calculated by the tool was used (2771m), which ensures each feature (geographical area) has at least one neighbour. ArcGIS describes this as:

"Each feature is analyzed within the context of neighbouring features. Neighbouring features inside the specified critical distance receive a weight of 1 and exert influence on computations for the target feature. Neighbouring features outside the critical distance receive a weight of zero and have no influence on a target feature's computations".

For more details on the employment clustering in the CAZ please see: Douglass, G., August 2015, 'Working Paper 68: Work and life in the Central Activities Zone, the northern part of the Isle of Dogs and their fringes'. GLA Economics.

20 External benefits that arise when economic activity takes place in a concentrated space.

21 ABI data was used for this map as BRES data does not go back to 2003.

22 Appendix C of: Douglass, G., August 2015, 'Working Paper 68: Work and life in the Central Activities Zone, the northern part of the Isle of Dogs and their fringes'. GLA Economics, provides more detail on the methodology used in the clustering analysis in this map.

23 Census data are adapted from data from the Office for National Statistics licenced under the Open Government Licence v.3.0.

24 This map was initially published in: Trends Business Research Ltd, February 2016, 'Working Paper 73: The changing spatial nature of business and employment in London'. GLA Economics.

25 Middle-layer Super Output Areas.

26 The following table provides background data on firms in London – such as the number, proportion employed within them, and estimated business turnover.

There are two main sources of data on business counts available:

· UK Business Counts (Office for National Statistics)

· Business Population Estimates (Department for Business, Innovation & Skills (BIS))

For this table, the BIS Business Population Estimates have been used.

Definitions:

The two sources differ in their scope, mostly in the treatment of unregistered businesses. These are businesses that are not registered for VAT or PAYE. Businesses which make gross revenues in excess of £83,000 must register with HMRC for VAT.  Businesses must register for PAYE if employees are paid £112 or more a week, get expenses and benefits, have another job or get a pension.

Data from BIS are drawn from the Interdepartmental Business Register, but also include an estimate of unregistered businesses (drawing from household surveys carries out by the ONS), therefore the number of SMEs through this source will be much higher, especially in the number of zero-employee businesses. Data from the ONS are based upon the Interdepartmental Business Register and only includes businesses which are registered for VAT and PAYE.

Therefore, the BIS statistics are arguably a more complete dataset on all business activity, but both sources have different strengths (for example ONS business data can be used to estimate net business start-up rates, have a greater industry sector breakdown than the BIS statistics and can provide detail of local units – i.e. individual workplaces). A fuller background note on business statistics sources are available here.

27 Businesses with no employees can either be 'registered' for VAT or PAYE or are 'unregistered'.

28 BIS impute the turnover of unregistered businesses based on the turnover for zero-employee VAT/PAYE registered businesses at industrial sectoral level.

29 Trends Business Research Ltd, February 2016, 'Working Paper 73: The changing spatial nature of business and employment in London'. GLA Economics.

30 ONS, May 2016, 'Regional GVA(I) by Local Authority in England 1997 to 2014'. Note as highlighted in the text the data in this link was revised in July 2016 to take account of ONS revisions of their estimates of output at the NUTS3 level.

31 Note that the scale used for these maps varies between maps.

32 Note that the scale used for this map and the ones in Section C of the appendix to Chapter 2 varies between maps.

33 Douglass, G. & Hoffman, J., March 2015, 'Working Paper 64: The science and technology category in London'. GLA Economics.

34 Togni, L., October 2015, 'Working Paper 70: The creative industries in London'. GLA Economics.

35 Cluster analysis groups together areas with similar characteristics. K-means clustering was applied to grouped Industrial class data available for London's 2011 Census Workplace Zones. These classes were grouped as follows:

A, B, D, E:  Agriculture, Mining, Electricity, Water supply*

C: Manufacturing

F: Construction

G, I:  Distribution, hotels and restaurants

H,J:  Transport and communication

K: Financial and insurance activities

L: Real estate activities

M: Professional, scientific and technical activities

N: Administrative and support service activities

O, P, Q:  Public administration, education and health

R, S, T, U: Other

*variable is rejected after first round k-mean test, as it creates noise in the cluster results, so it is not included in the final k-mean analysis)

Running the k-means algorithm identified five clusters of Workplace Zones that demonstrated a strong similarity in the Industrial type of its workers, these were:

G, I:  Distribution, hotels and restaurants

K: Financial and insurance activities

M: Professional, scientific and technical activities

O, P, Q:  Public administration, education and health

H,J:  Transport and communication

all other areas were not found to have a dominate industry type present so were grouped together.

36 Classification of Workplace Zones for England and Wales.

37 Cockings, S., Martin, D., & Harfoot, A., August 2015, 'A Classification of Workplace Zones for England and Wales (COWZ-EW): Annex A - Profiles of Supergroups'.

38 Classification Of Workplace Zones for England/Wales.

39 Trends Business Research Ltd, February 2016, 'Working Paper 73: The changing spatial nature of business and employment in London'. GLA Economics.

40 Ibid.

# 3: Transport in London and beyond

## 3.1 Key points

- London's radial public transport network helps support its economy. It allows a lot of people to be brought into a very small area enabling the exploitation of agglomeration economies which underpin the international competitiveness of London's economy.

- This is shown by the number of commuters that come into London from the wider Greater South East. In some parts of the Greater South East London accounts for the place of work for over 40 per cent of that area's total workforce.

- Commuting for work is also high within London with over 600,000 in-commuters commuting to work in Westminster and the City in 2011.

- The efficient transport system means that large sections of London are within 45 minutes (public transport travel time) of a significant number of jobs. Thus data from Transport for London (TfL) shows that typically, for people living in outer London, between 0.25 and 0.5 million jobs are potentially available from their home location within 45 minutes travel time. However, this rises to typically around 2.5 million jobs potentially available to a resident of central London.

- Public transport has become increasingly important over the past 20 years with the percentage share of journey stages of private transport in London having declined while that of public transport has increased.

- London's transport system is also important for the UK as a whole with Heathrow Airport being the sixth biggest in the world in terms of passenger numbers, although its position in global rankings has declined over time as other global airports grew passenger numbers more quickly. Still it remains the second biggest in terms of international passengers (ie not including domestic passengers) with Gatwick coming in at number 12.

## 3.2 Introduction

In Chapter 2 the different geographies that can be used to define London were examined and the concentration of economic activity within the centre of the city due to agglomeration economies was outlined. This geographical spread and concentration of activity can only be supported by an efficient transport network to allow a significant flow of people into and around London. This chapter examines the flow of commuters into London before looking at the transport network that allows these flows in some detail. It then briefly examines some of the transport infrastructure in the wider South East. The strains due to congestion and other issues faced by the transport system are also of great importance to London's economy and people and are covered in detail in Chapter 6 of this Evidence Base.

## 3.3 London's commuter geography

This section begins to examine the links to London of those areas economically tied to the capital by looking at commuter flows into London. While London sees commuters flowing into it from the wider Greater South East and beyond, it also sees much internal travel between different areas of the capital as well. Further details on commuters are given in Chapter 8 of this Evidence Base.

### 3.3.1 Commuters into the Central Activities Zone

A large number of people both within London and the wider Greater South East work in the Central Activities Zone (CAZ) and need to commute into it every work day. Maps 3.1 and 3.3 shows data on the residence origin of workers in the CAZ on a map of London and the wider Greater South East respectively at the Middle Layer Super Output Area (MSOA) level; they thus indicate the greater importance of certain geographies for workers into the CAZ. In addition, Maps 3.2 and 3.4 show the number of workers coming from different MSOAs as a percentage of each area's workforce indicating the importance of the CAZ as an employment destination for these areas. The patterns shown in these maps are consistent with the travel to work area (TTWA) for London analysed in Chapter 2 of this Evidence Base, which showed less reliance of West London on the CAZ, with a separate TTWA for Heathrow and West London compared to the rest of the capital.

**Map 3.1: Workers in CAZ only based workplaces by residence origin in London, 2011, absolute numbers**
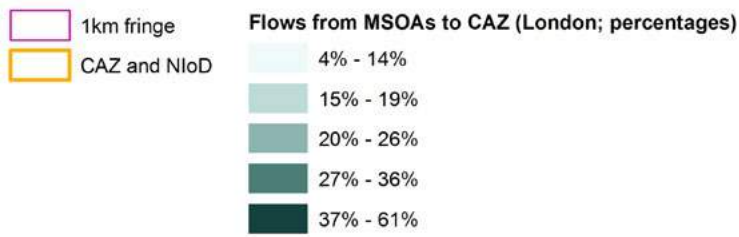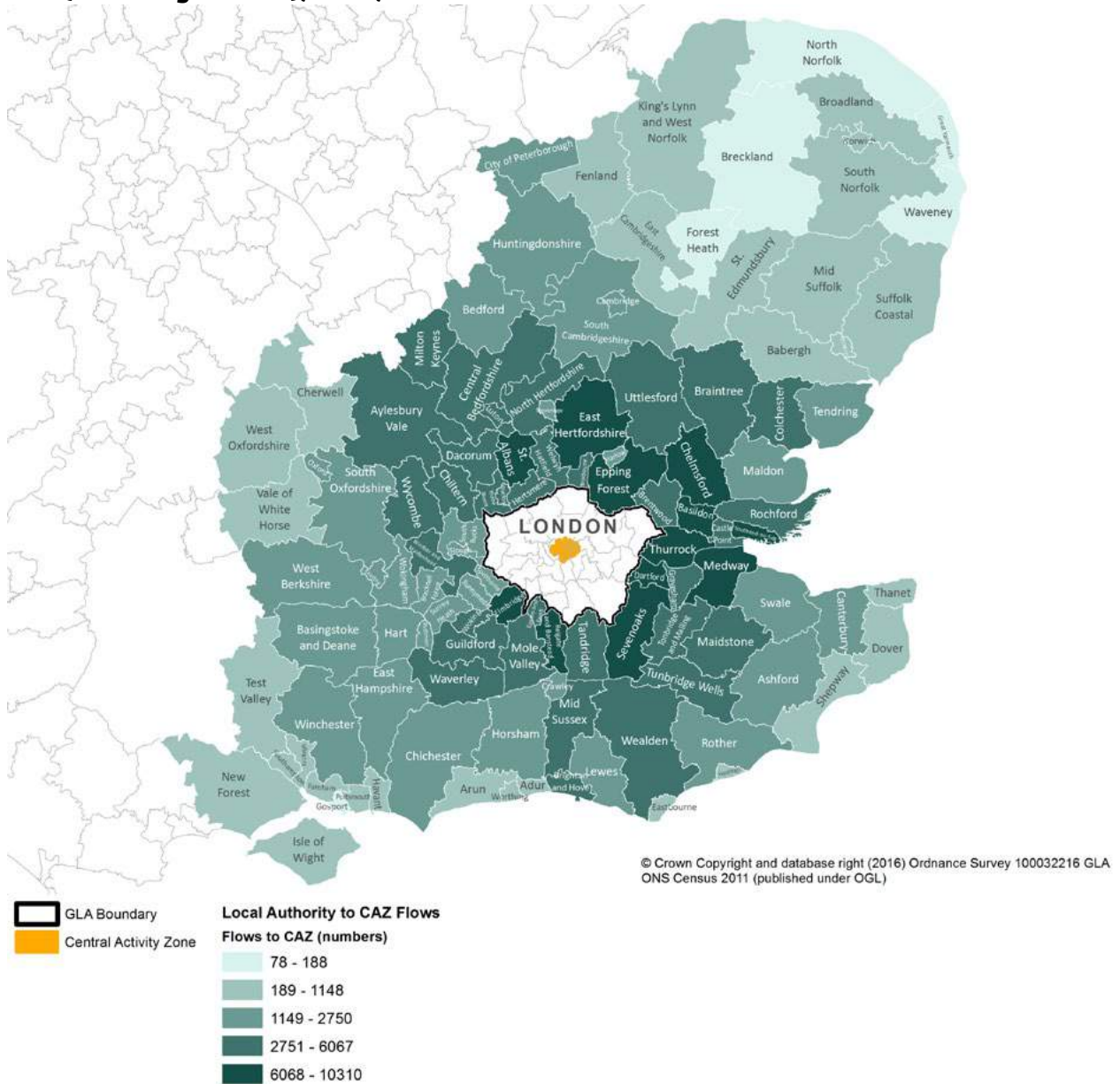


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1km fringe
CAZ and NIoD

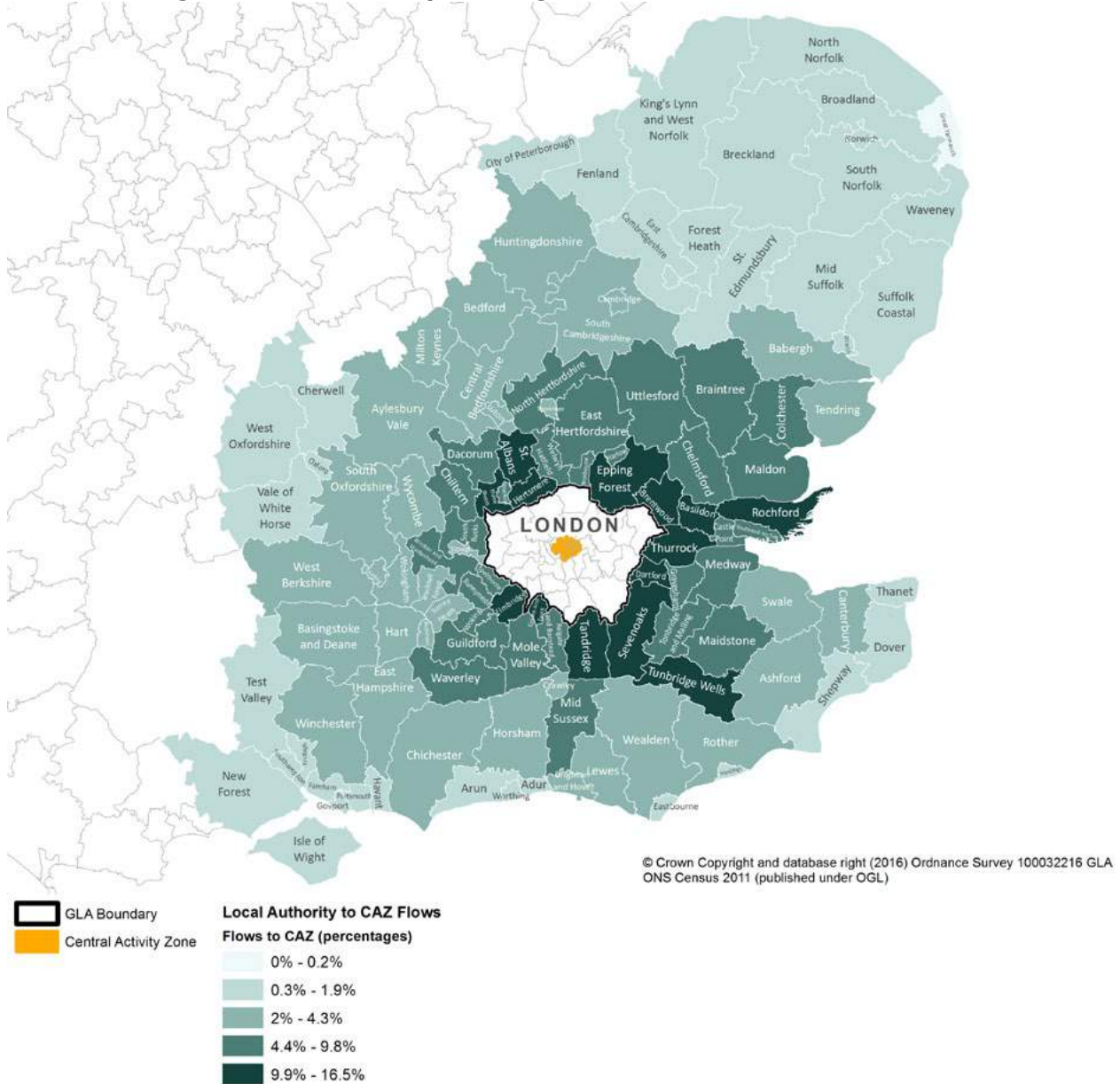**Flows from MSOA to CAZ (London; numbers)**

130 - 518
519 - 712
713 - 1066
1067 - 1577
1578 - 4700
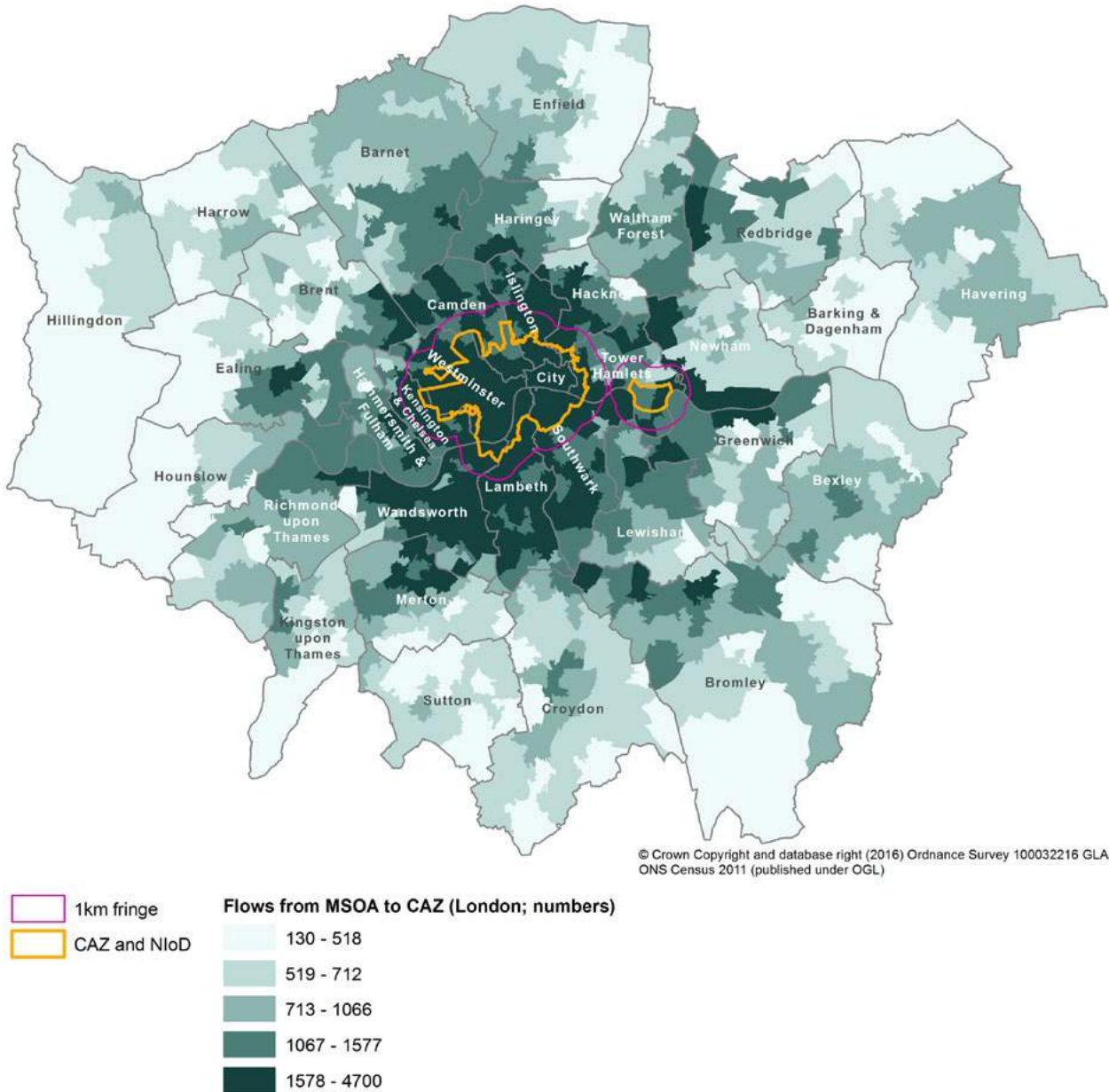
*Source: Census and GLA Intelligence Unit analysis*

**Map 3.2: Workers in CAZ only based workplaces by residence origin in London, 2011, as percentage of an areas workforce**
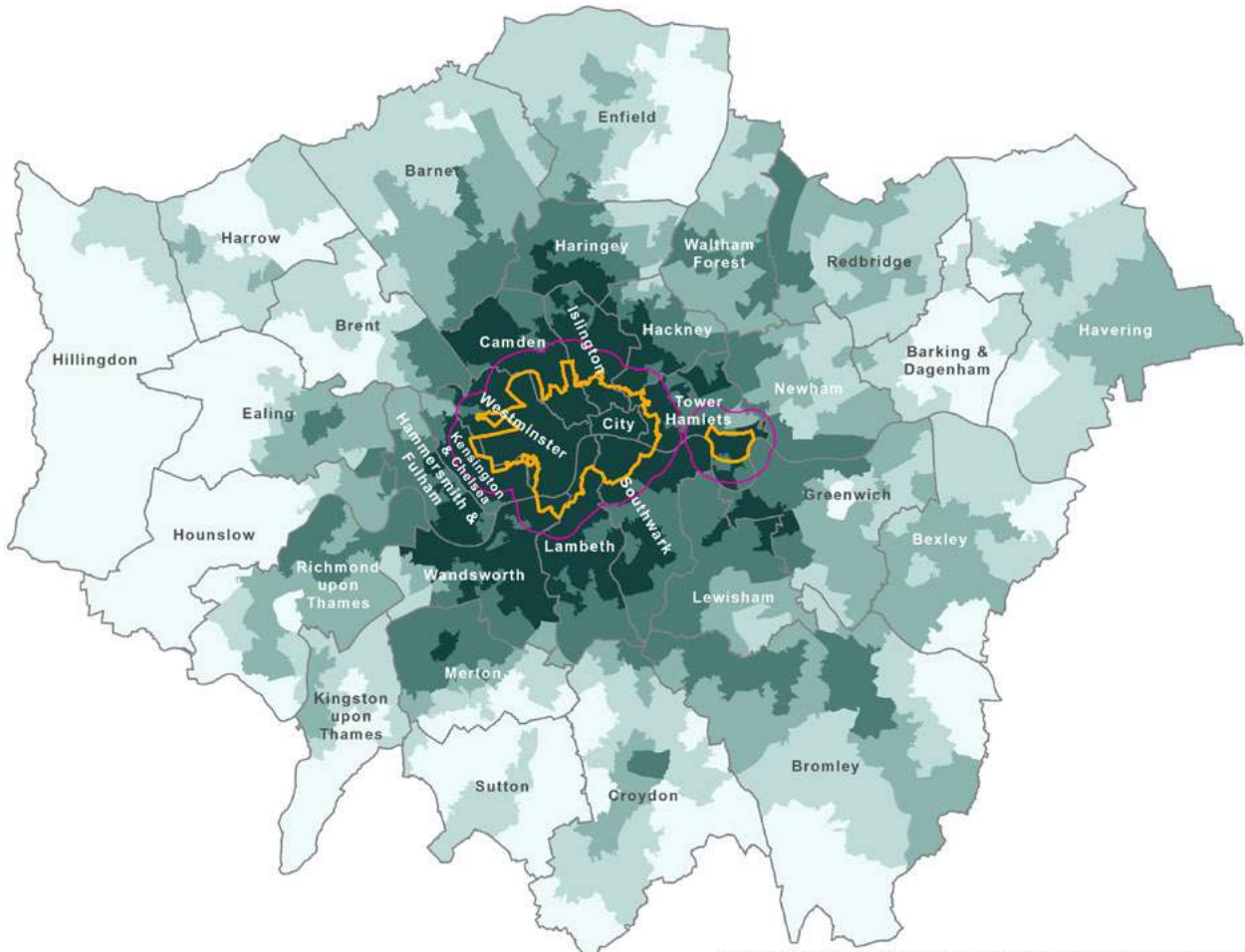


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ONS Census 2011 (published under OGL)

1km fringe
CAZ and NIoD

**Flows from MSOAs to CAZ (London; percentages)**
4% - 14%
15% - 19%
20% - 26%
27% - 36%
37% - 61%

*Source: Census and GLA Intelligence Unit analysis*

**Map 3.3: Workers in CAZ only based workplaces by residence origin in the Greater South East (excluding London), 2011, absolute numbers**



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GLA Boundary
Central Activity Zone

**Local Authority to CAZ Flows**
**Flows to CAZ (numbers)**
78 - 188
189 - 1148
1149 - 2750
2751 - 6067
6068 - 10310

*Source: Census and GLA Intelligence Unit analysis*

**Map 3.4: Workers in CAZ only based workplaces by residence origin in the Greater South East (excluding London), 2011, as percentage of an areas workforce**



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ONS Census 2011 (published under OGL)

GLA Boundary
Central Activity Zone

Local Authority to CAZ Flows
Flows to CAZ (percentages)
0% - 0.2%
0.3% - 1.9%
2% - 4.3%
4.4% - 9.8%
9.9% - 16.5%

*Source: Census and GLA Intelligence Unit analysis*

## 3.3.2 Commuters into London as a whole

London is an important work destination for people living in the Greater South East outside of London with Map 3.5 showing the absolute number of workers an area provides to London and Map 3.6 showing the percentage of an area's workforce that work in London. These maps thus highlight the economic interconnection between London and the wider Greater South East.

**Map 3.5: Workers in London based workplaces by residence origin in the Greater South East (excluding London), 2011, absolute numbers**



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ONS Census 2011 (published under OGL)

GLA Boundary

**Local Authority to London Flows (South East and East of England)**

Flows to London (numbers)

- 0 - 188
- 189 - 1148
- 1149 - 2750
- 2751 - 6067
- 6068 - 25853
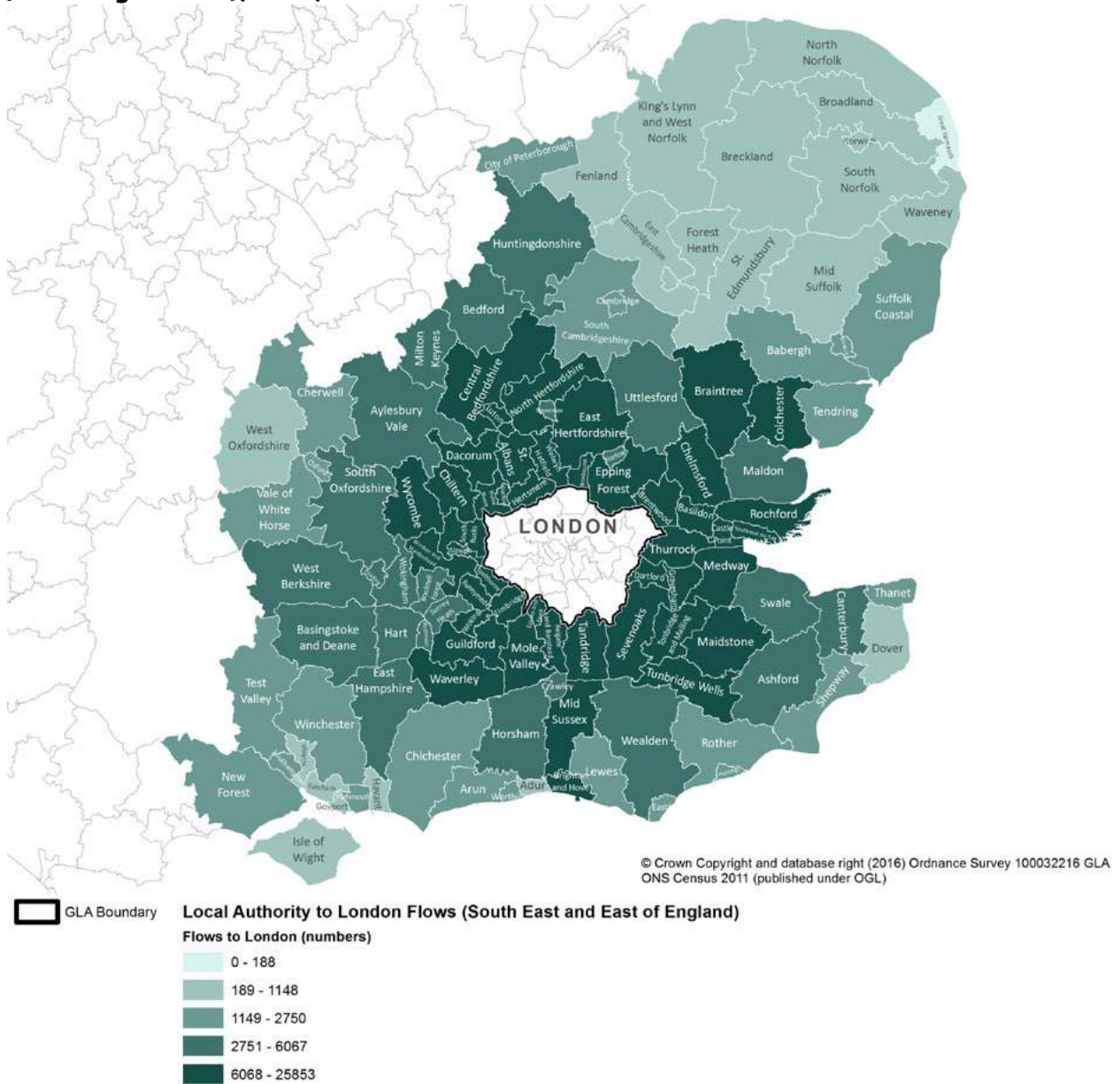
*Source: Census and GLA Intelligence Unit analysis*

**Map 3.6: Workers in London based workplaces by residence origin in the Greater South East (excluding London), 2011, as percentage of an areas workforce**



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ONS Census 2011 (published under OGL)

GLA Boundary

**Local Authority to London Flows (South East and East of England)**
**Flows to London (percentages)**
- 0% - 0.2%
- 0.3% - 1.9%
- 2% - 4.3%
- 4.4% - 9.8%
- 9.9% - 41.5%
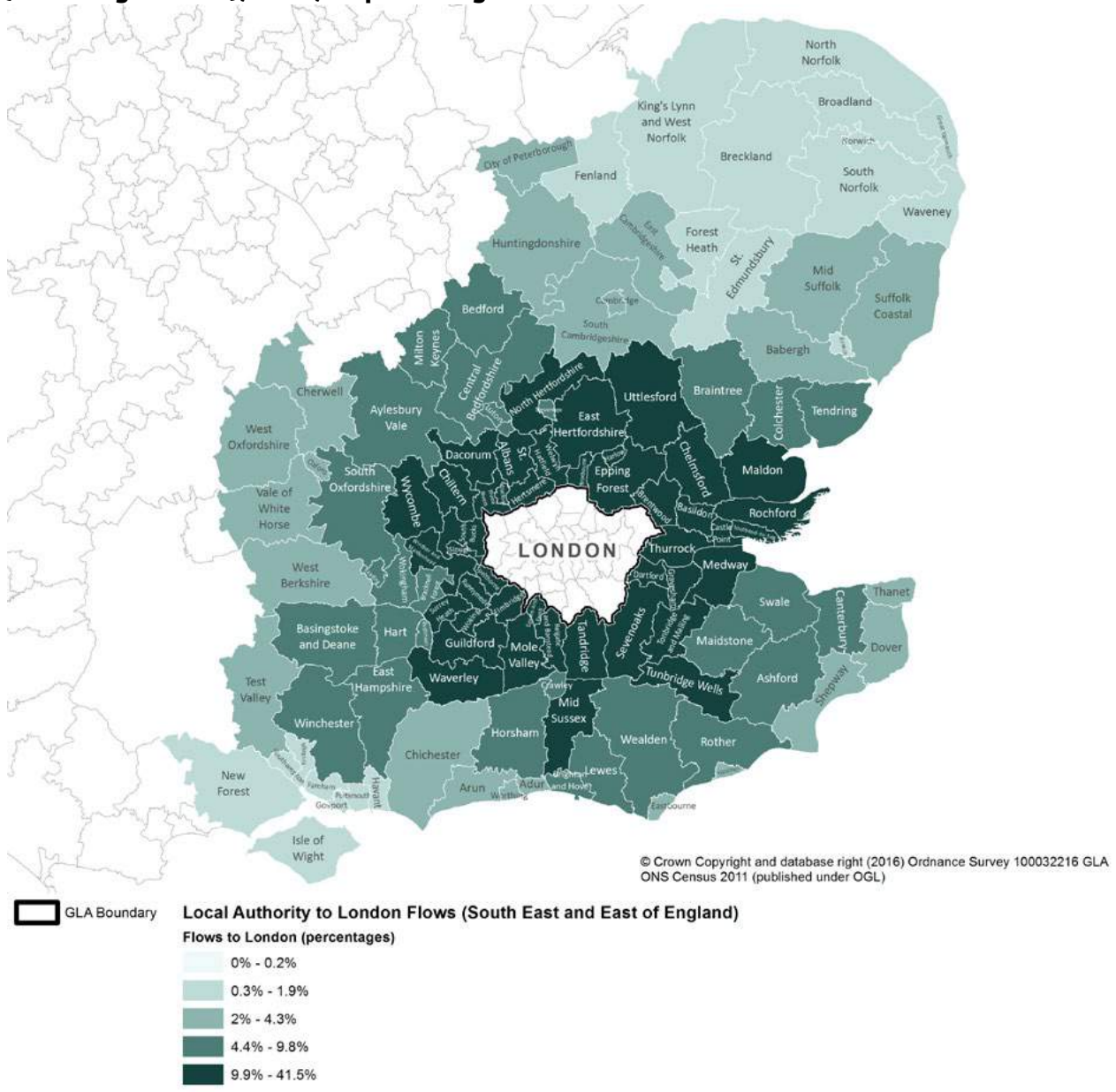
*Source: Census and GLA Intelligence Unit analysis*

Figures 3.1 to 3.3 examine London's commuters in more detail. Figure 3.1 shows the steady increase in out-commuting and in-commuting that has occurred since 1991, while Figure 3.2 shows that most but not all commuters in London come from the wider Greater South East. In looking at the source and characteristics of commuters in to London, TfL observes that "unsurprisingly, the local authorities hosting the largest numbers of commuters into London are those closest to the London boundary, such as Epping Forest, Thurrock, and St Albans. Outside of the South East and East regions, Wiltshire was the local authority with the highest number of commuters to London". TfL further notes that "commuters from outside London tend to be older on average than London workers – 44 per cent are aged 35 to 49 and more than 20 per cent are aged over 50. The vast majority also use one of two modes of transport to travel to London, with 45 per cent travelling by rail and 40 per cent by car. Commuting into London by train is much more common if the workplace is in inner (including central) London, whereas car dominates in outer London workplaces. For example, 85 per cent of (non-resident) commuters to the London borough of Hillingdon travel by car"[1]. A breakdown of the travel mode of commuters into London from outside of the capital is given later in this chapter in Figure 3.7.

**Figure 3.1: Long term trend in commuting to and from London**
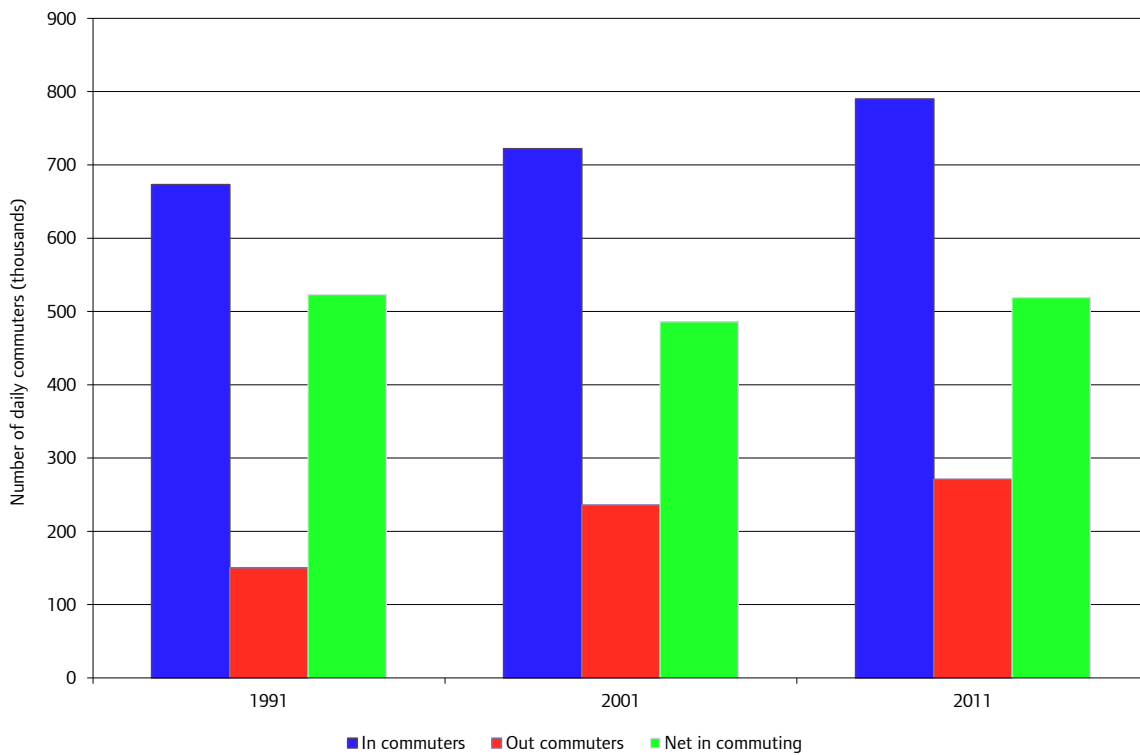


Source: Census via TfL – Travel in London 7[2]

**Figure 3.2: Proportion of commuters into London by region of residence, 2011**



- South East residents
- East residents
- Rest of UK residents

50.9%
38.7%
10.5%
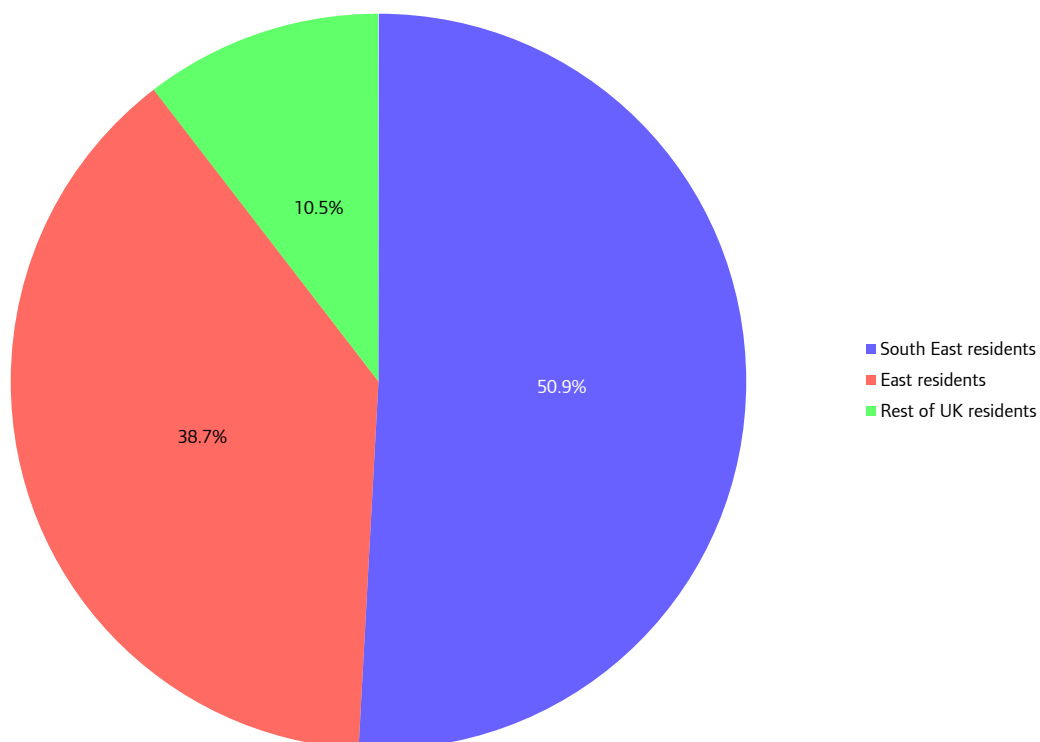
*Source: Census via TfL – Travel in London 7*

Looking at commuters within London itself TfL observe that "the majority of London residents that work in London are employed in a different borough to where they live – just over 71 per cent"[3]. However, as can be seen from Figure 3.3, inner London boroughs dominate as a destination for commuters from within London with nearly 30 per cent of total commuters in London commuting to Westminster and the City.

**Figure 3.3: Commuting inflows from within London by borough, 2011, London residents only**
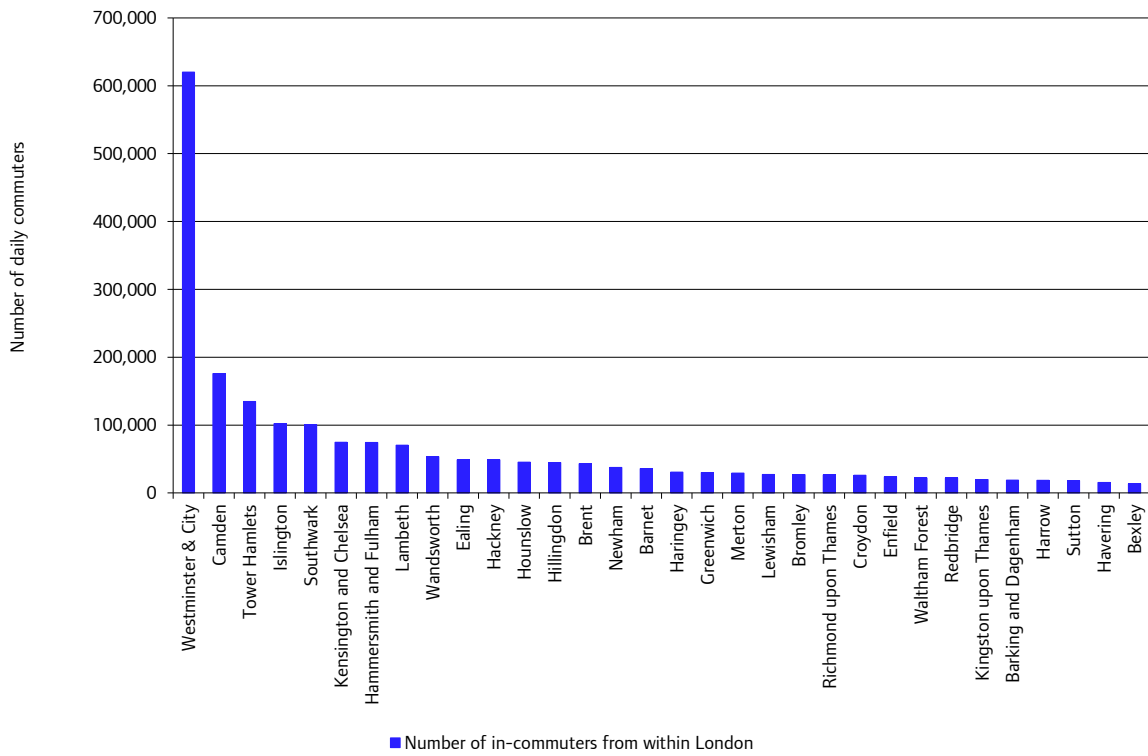


*Source: Census via TfL – Travel in London 7*

Map 3.7 examines these London based commuter flows in more depth and shows the most important source local authorities for commuters into the top five commuter destinations in London (these being Camden, the City of London, Southwark, Tower Hamlets and Westminster). It should however be noted that these are not the only important commuter destinations in London and the South East with for instance substantial commuter flows going to businesses along the M4 corridor. Still, as can be seen from Map 3.7, inner London local authorities attract significant flows of people from across London with a large percentage of them relying on London's public transport system to get them swiftly to work.

**Map 3.7: Top five London local authorities by origin and destination of worker flows**



Origin and Destination of Worker Flows in London: Top 5 Boroughs

No. of worker flows from borough*
- 6,000 - 10,682
- 10,683 - 13,297
- 13,298 - 29,116

No. of residents who live and work in the borough
- 23,151 - 25,310
- 25,310 - 34,762

*People working from home/no fixed placeoutside UK/ offshore installation is excluded from map

2011 Census Workplace Zone table WU01EW
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*Source: Census and GLA Intelligence Unit Analysis*

## 3.4 Transport in the CAZ

As highlighted by the commuters flows shown above, public transport is vital for the functioning of the CAZ, it being the only realistic way in which to get a significant part of its large workforce into such a confined area. Thus the CAZ is well serviced by public transport, with this likely to improve in the future as a number of public transport schemes are in the process of being built, have been committed to or proposed as shown by Map 3.8.

**Map 3.8: Major public transport infrastructure including schemes committed and future opportunities**
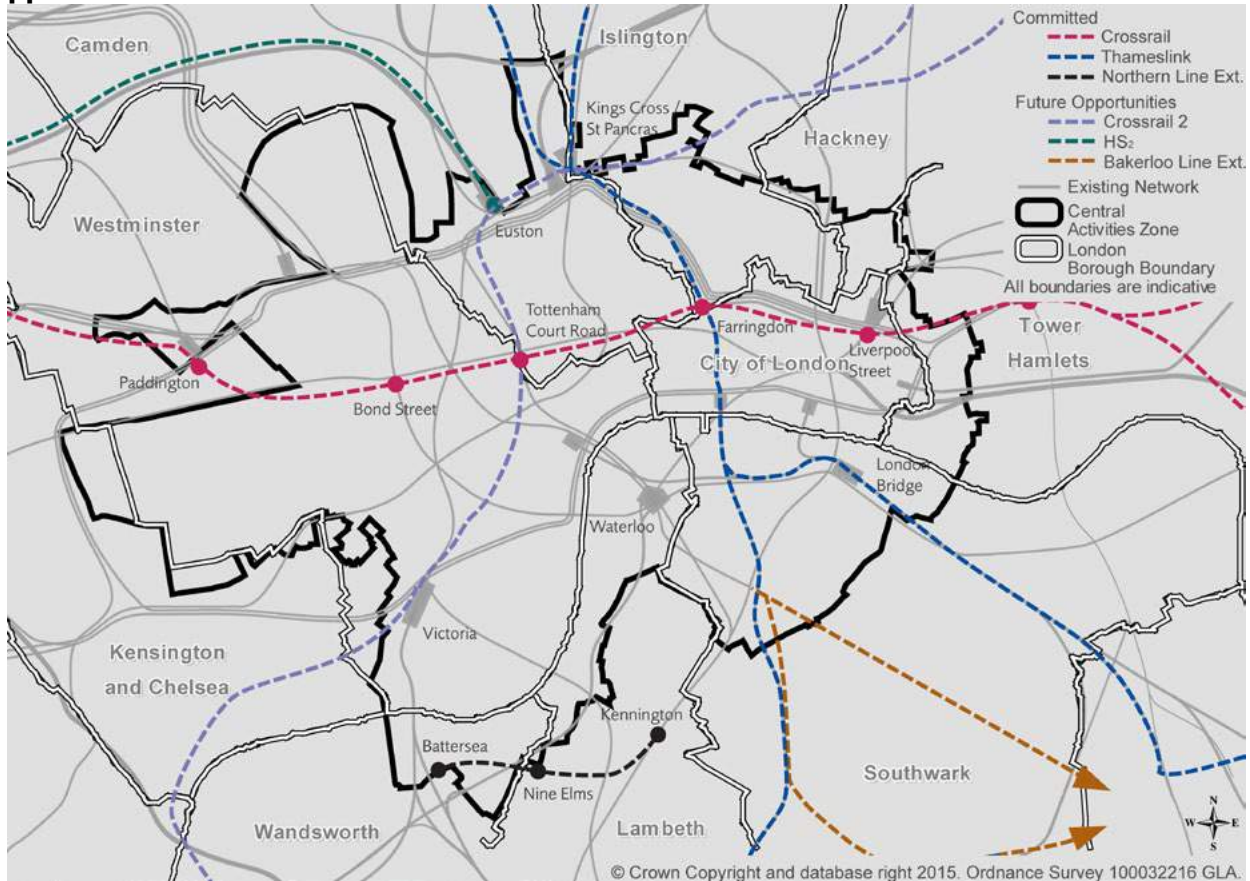


*Source: GLA & TfL*

## 3.5 Transport in London as a whole

To get to the CAZ but also around the wider London area requires an extensive transport system and the transport connections in London as a whole are extensive and snake into the wider South East as highlighted by Map 3.9, which shows the rail and tube routes in London and the surrounding geographies. This section examines how this transport network combines to provide strong public transport accessibility within London, which opens up numerous job opportunities to Londoners.

## Map 3.9: Geographically accurate tube and rail map



*Source: TfL[4]*
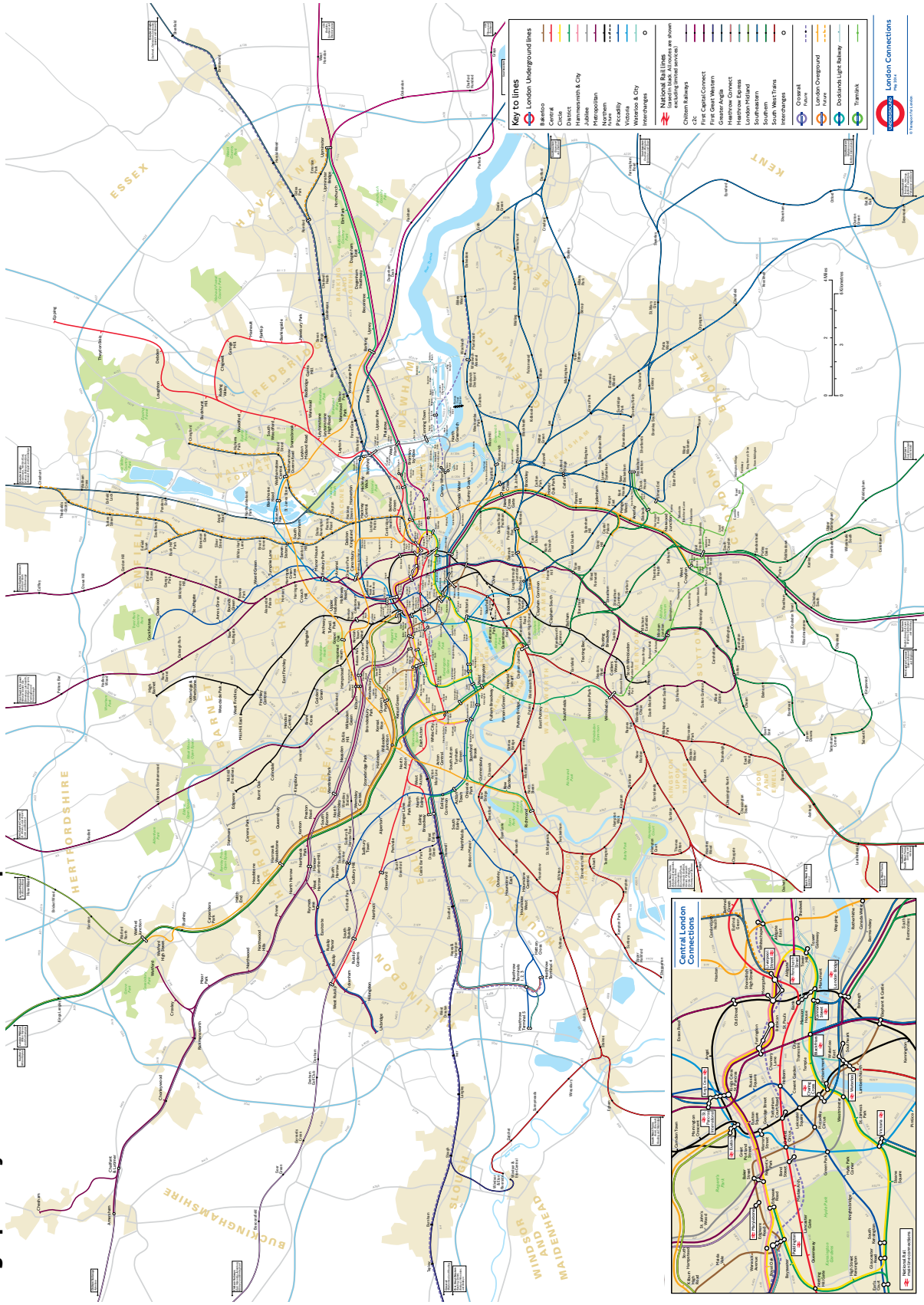
### 3.5.1 Public Transport Accessibility Levels

Public Transport Accessibility Levels (PTALs) indicate relative connectivity to the public transport network for any location in London. The term 'connectivity to the network' indicates that the PTAL measure focuses on the proximity to public transport services, and not on where these services actually take people to or indeed how accessible they are to all members of the population.

Map 3.10 shows Greater London PTALs for 2015. Clearly central London is dominated by high PTAL values, as are other metropolitan town centres, such as Croydon, Kingston and Harrow. The predominantly radial orientation of the main public transport corridors is also visible in the map. Note that PTAL values are on a scale from 1 to 6, with 6 representing the highest connectivity level.

**Map 3.10: PTAL in London with highlighted town centres, 2015**
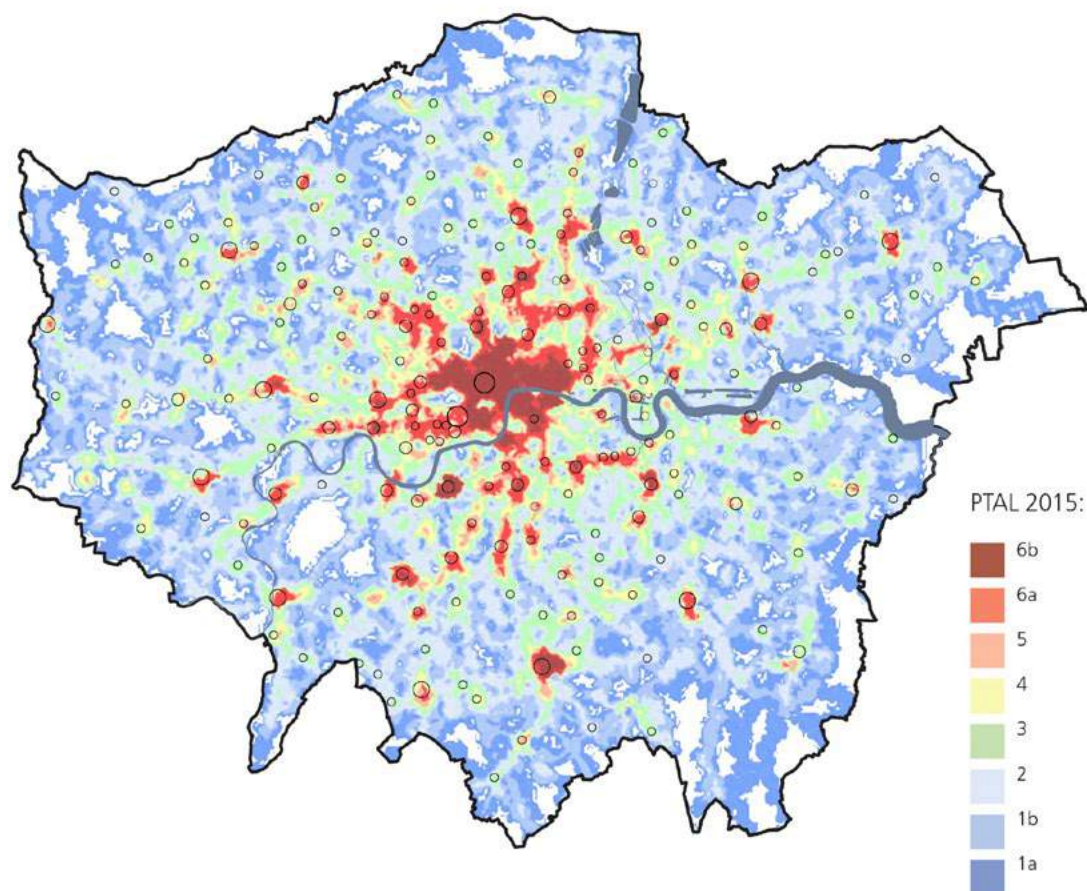


*Source: TfL Planning, Strategic Analysis*

Despite frequent incremental improvements to the public transport networks, the overall pattern of PTAL scores changes only slowly at the Greater London level. However, specific additions to the networks, such as the opening of the East London line, and Games-related improvements around Stratford, can make a substantial difference locally. At the borough level (in terms of average PTAL scores across a borough) the nature of these improvements over time becomes more apparent. Note that the actual PTAL score, on a scale from 1 to 6, is derived from an access index, which is on a linear scale.

Projecting forwards to 2021, post-dating the expected opening date of Crossrail 1/The Elizabeth Line, further improvements are expected, equating to an improvement of 23.6 per cent between 2008 and 2021, although it should be noted that Crossrail 1/The Elizabeth Line will largely use existing infrastructure outside of the central area, and that PTAL values in central London are already very high. Nevertheless the number of boroughs with the highest average PTAL value of 6 will rise from two in 2008 to five in 2021.

## 3.5.2 Worker and employment catchments

One measure that can be used to quantify the support that London's transport network provides to London's economy is the number of people and therefore in many cases workers that are potentially available within a 45 minute travel time by public transport to a particular location. The map should be interpreted in terms of, from any one point, the number of people that can reach a given area in 45 minutes by public transport. Map 3.11 thus shows the large population that is within 45 minutes travel time of central London. This large accessible population is made possible by London's transport system and therefore highlights how the system helps to support the concentration of economic activity seen in the centre of the capital that was highlighted in Chapter 2 of this Evidence Base.

**Map 3.11: Population accessibility by public transport within 45 generalised minutes, by ward in London**



Source: Inter-Departmental Business Register, Office for National Statistics
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Local Authority boundary
921,852 - 2,706,172
645,607 - 921,851
414,209 - 645,606
233,439 - 414,208
4,355 - 233,438
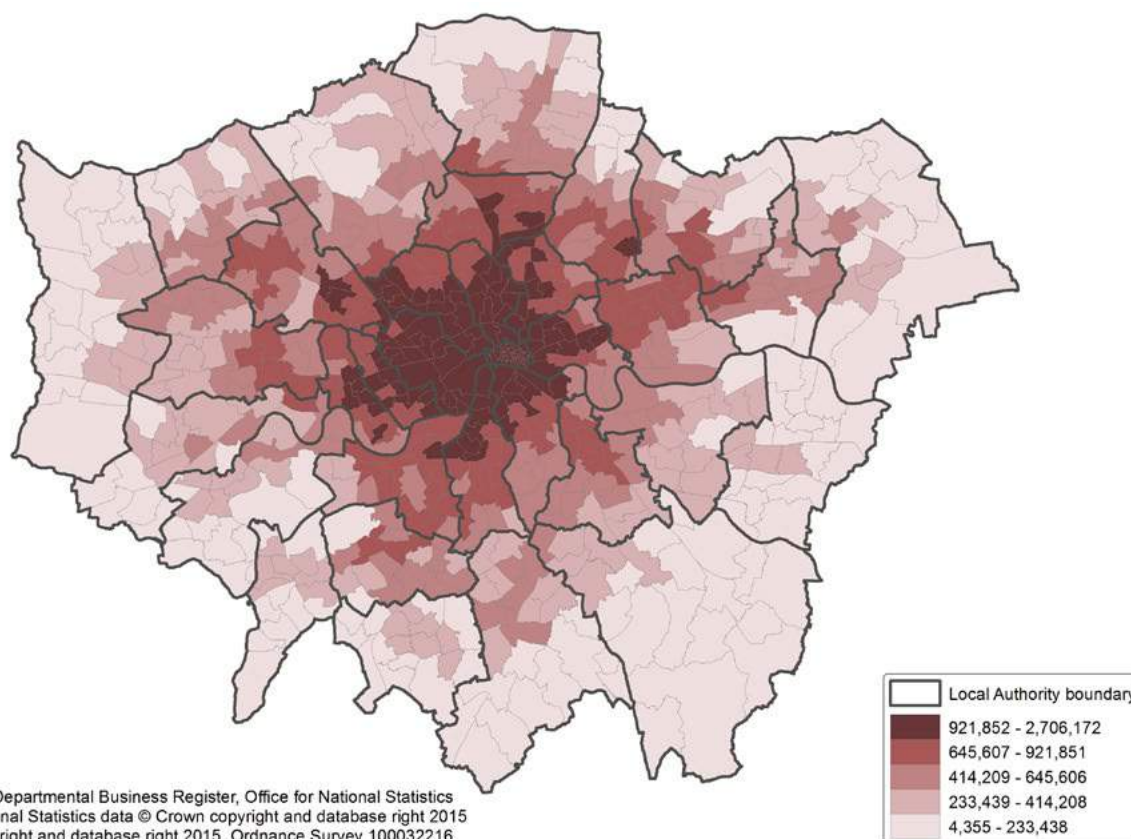
*Source: GLA Intelligence Unit*

Another way of looking at these benefits (and driven by the above) is the number of jobs (whether filled or currently vacant) that are potentially available within a given travel time from a particular residential location. The basis for assessing this is a travel time contour of 45 minutes by the principal public transport modes, expressed as an aggregate measure across Greater London.

Map 3.12 shows these results for 2015. The map should be interpreted in terms of, from any one point, the number of jobs that are potentially reachable in 45 minutes by public transport. As might be expected, the map reflects the concentric pattern of employment density (driven by the transport networks ability to funnel workers into central London) and the primarily radial orientation of the public transport networks. Typically, for people living in outer London, between 0.25 and 0.5 million jobs are potentially available from their home location within 45 minutes travel time. However, this rises to typically around 2.5 million jobs potentially available to a resident of central London.

**Map 3.12: Number of jobs available by mass public transport within 45 minutes travel time, 2015**
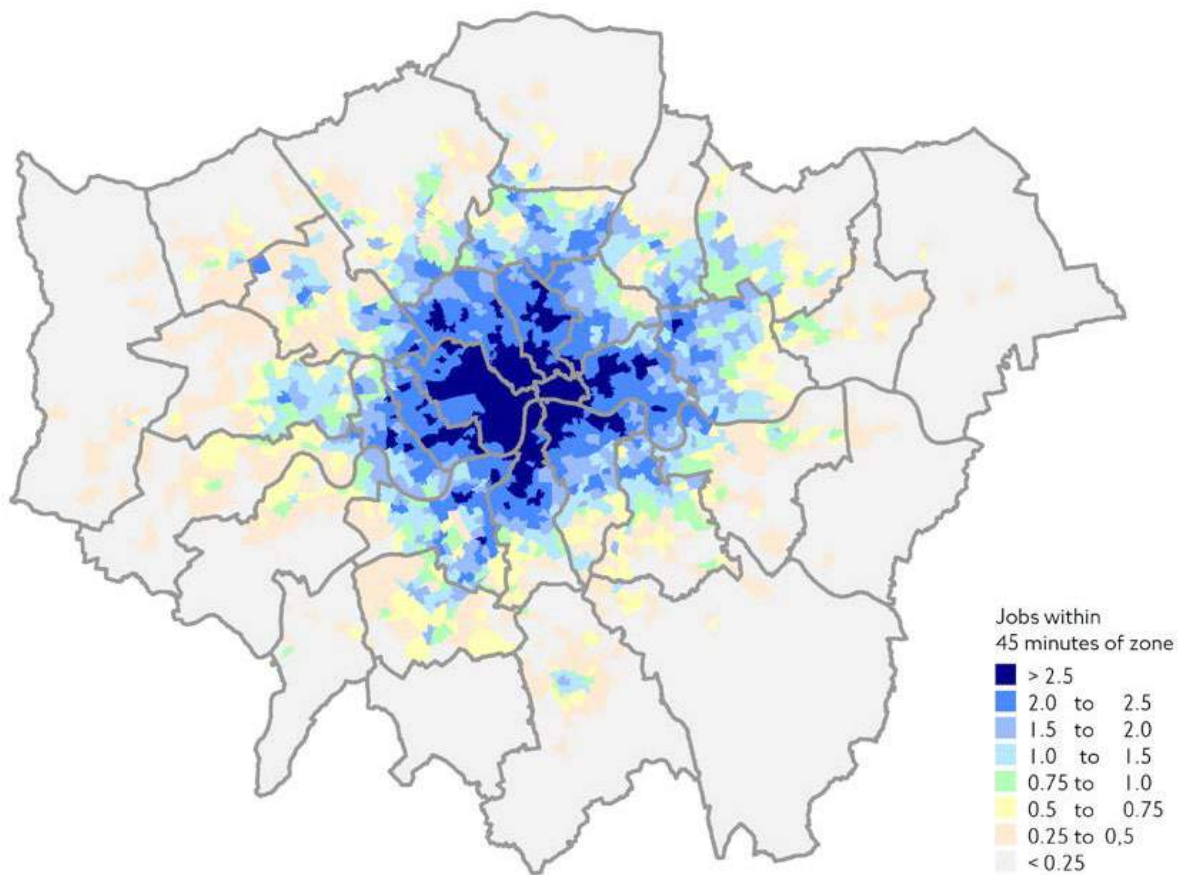


*Source: TfL Planning, Strategic Analysis*

Map 3.13 shows these results for 2031. The expansion in job catchment is marked and this is a function of both the expansion of the transport network, reflecting committed capacity increases such as Crossrail 1/The Elizabeth Line, as well as increased number of jobs in the CAZ.

**Map 3.13: Number of jobs available by mass public transport within 45 minutes. 2031**

Jobs within 45 minutes travel time of zone

RRP 2031 Reference Case

2031 Jobs

Jobs within
45 minutes travel time

Highest

Lowest
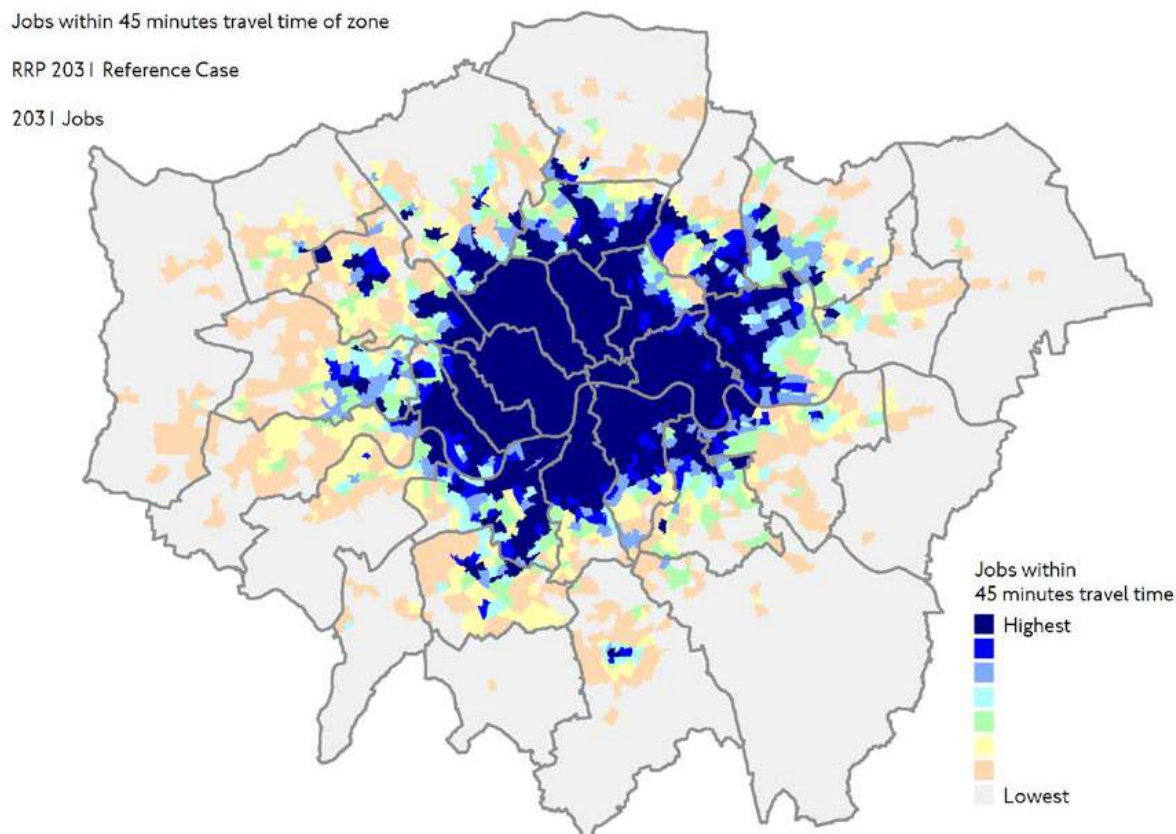
*Source: TfL Planning, Strategic Analysis*

## 3.6 Transport mode in London

Building on the commuter flows and public transport accessibility highlighted above, this section examines the popularity and growth of the various transport modes that are used to move around the capital.

### 3.6.1 Transport modal shares

Looking at the mode of transport used in London as a whole it can be seen from Figure 3.4 that private vehicle transport only accounts for around a third of daily journeys, with its share having declined significantly over recent years as shown in Table 3.1. This is perhaps unsurprising given that low average traffic speeds in London have been consistent for some time and would suggest that the road system is at near capacity thus limiting the ability of car use to meet the increase in travel demand that has been seen in London. Placing this into an international context, Figure 3.5 shows how London's transport modes compare to two other global cities, New York and Hong Kong, and shows the differing importance of transport modes between the cities, but also  highlighting the importance of public transport in global cities. Of particular interest is the importance of walking in Hong Kong's relatively small but highly densely populated environment.

## Figure 3.4: Transport modal shares of daily journey stages in London, 2014[5]
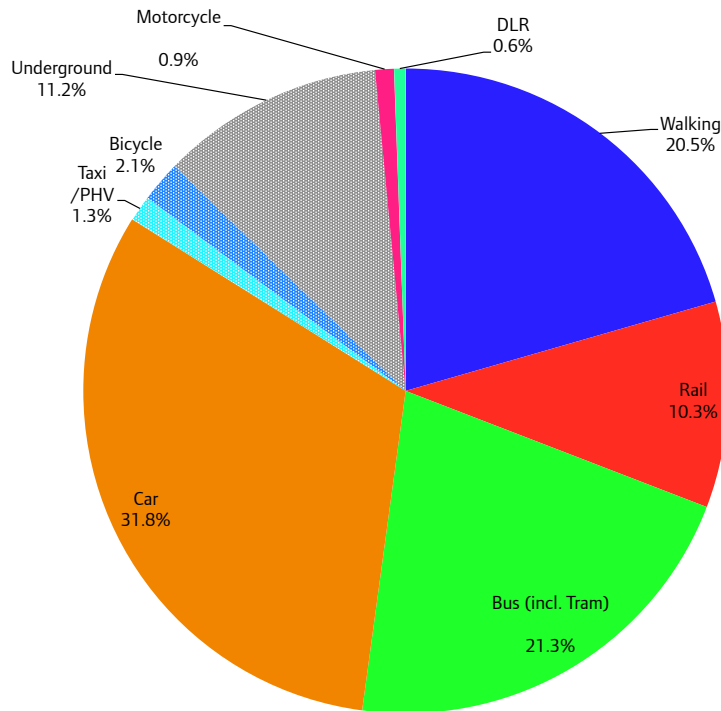


Source: TfL – Travel in London 8[6]

## Figure 3.5: Transport modal shares in comparison cities[7]
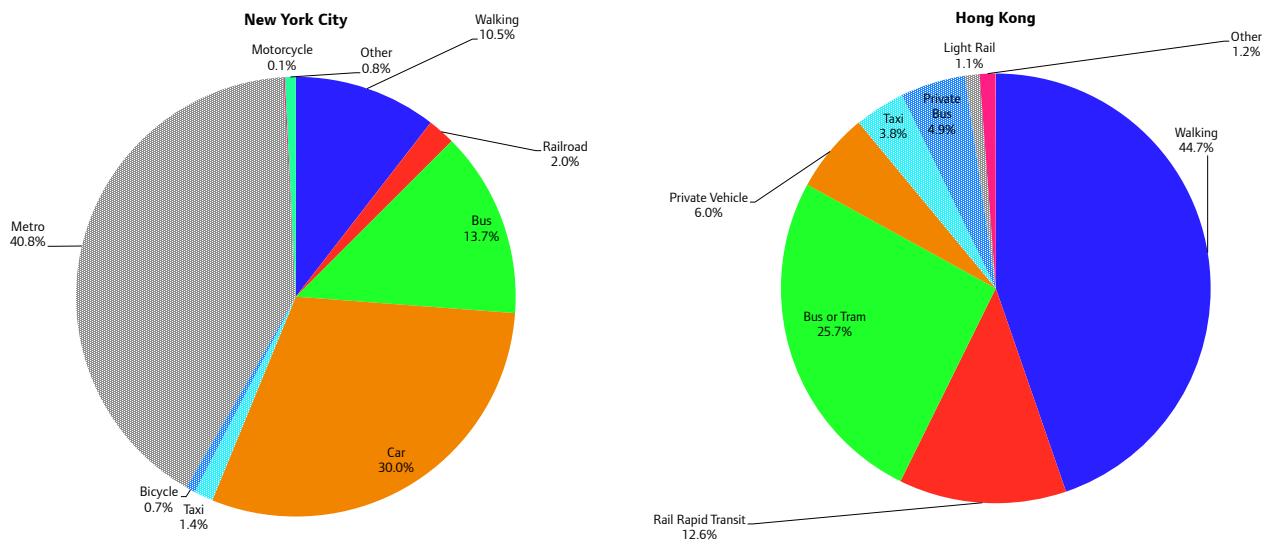


Source: LSE, urban age project[8]

**Table 3.1: Percentage shares of journey stages by type of transport, 1993 to 2014**

|      | Public Transport | Private Transport | Cycle | Walk |
|------|------------------|-------------------|-------|------|
| 1993 | 30%              | 46%               | 1%    | 22%  |
| 1994 | 30%              | 46%               | 1%    | 22%  |
| 1995 | 31%              | 46%               | 1%    | 22%  |
| 1996 | 31%              | 46%               | 1%    | 22%  |
| 1997 | 32%              | 45%               | 1%    | 22%  |
| 1998 | 33%              | 45%               | 1%    | 22%  |
| 1999 | 33%              | 44%               | 1%    | 22%  |
| 2000 | 34%              | 43%               | 1%    | 21%  |
| 2001 | 35%              | 43%               | 1%    | 22%  |
| 2002 | 35%              | 42%               | 1%    | 21%  |
| 2003 | 37%              | 41%               | 1%    | 21%  |
| 2004 | 38%              | 39%               | 1%    | 21%  |
| 2005 | 38%              | 39%               | 2%    | 21%  |
| 2006 | 39%              | 39%               | 2%    | 21%  |
| 2007 | 41%              | 37%               | 2%    | 20%  |
| 2008 | 42%              | 36%               | 2%    | 21%  |
| 2009 | 42%              | 35%               | 2%    | 21%  |
| 2010 | 43%              | 35%               | 2%    | 21%  |
| 2011 | 43%              | 34%               | 2%    | 21%  |
| 2012 | 44%              | 33%               | 2%    | 21%  |
| 2013 | 45%              | 33%               | 2%    | 21%  |
| 2014 | 45%              | 32%               | 2%    | 21%  |

*Source: TfL – Travel in London 8*

As was shown in Section 3.3 commuter flows are significant in London both from inside the capital and from the wider South East and public transport is vital in facilitating these flows. This is illustrated by Figure 3.6 which shows that around half of workers from London working in London commute to their job via public transport, over 10 per cent either cycle or walk to work with a further 10 per cent working at home. However, Figure 3.7, which examines commuters from the wider South East that work in London, shows the importance of trains for getting commuters to their job in London and also highlights the importance of the car as well. Finally, Figure 3.8 examines the travel to work patterns of all workers in London whether they live within the capital or not and again shows the importance of public transport for getting workers to work in London with public transport accounting for over 50 per cent of all commuter journeys in 2011.

**Figure 3.6: Method of travel to work for workers in London from London in 2011**



Other 0.5%
Working from home 10.4%
Tube/Tram 22.9%
Train 12.7%
Bus/Coach 14.0%
Taxi 0.5%
Motorbike 1.1%
Drive car 23.8%
Passenger in car 1.6%
Bike 4.1%
Walk 8.5%
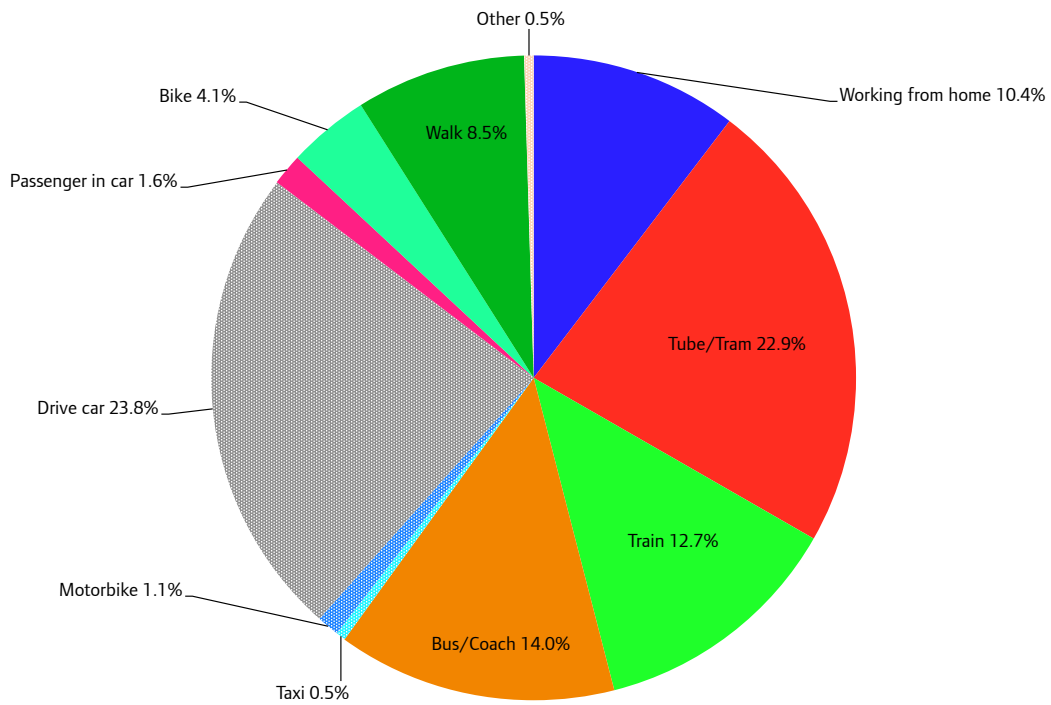
*Source: Census and GLA Intelligence Unit Analysis*

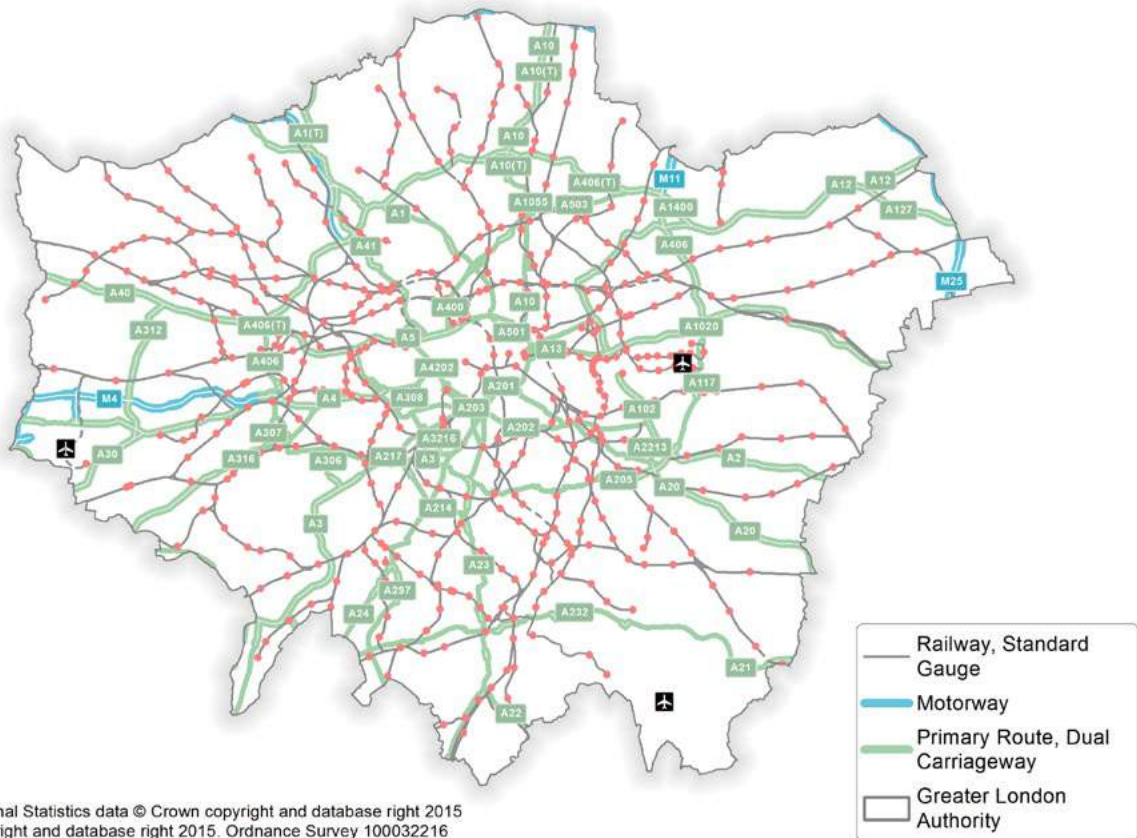**Figure 3.7: Method of travel to work for workers into London from the wider South East in 2011**



Other 0.5%
Walk 1.8%
Bike 0.9%
Passenger in car 2.0%
Tube/Tram 5.5%
Train 45.0%
Drive car 40.1%
Bus/Coach 3.0%
Taxi 0.1%
Motorbike 1.2%
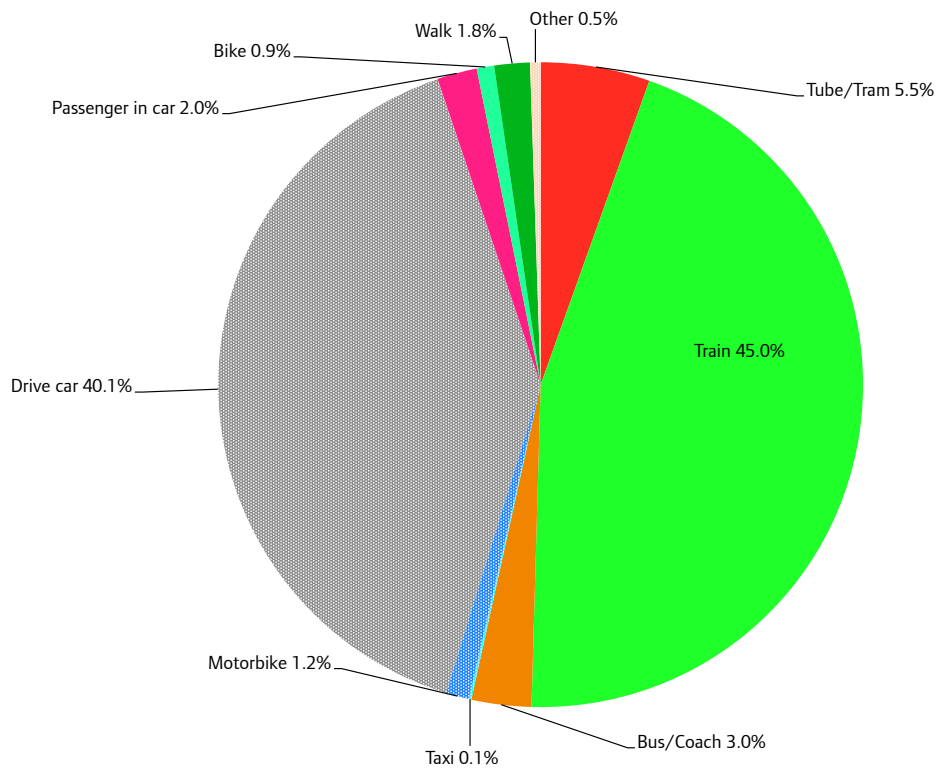
*Source: Census and GLA Intelligence Unit Analysis*

**Figure 3.8: Method of travel to work for workers into London from London and the wider South East in 2011**
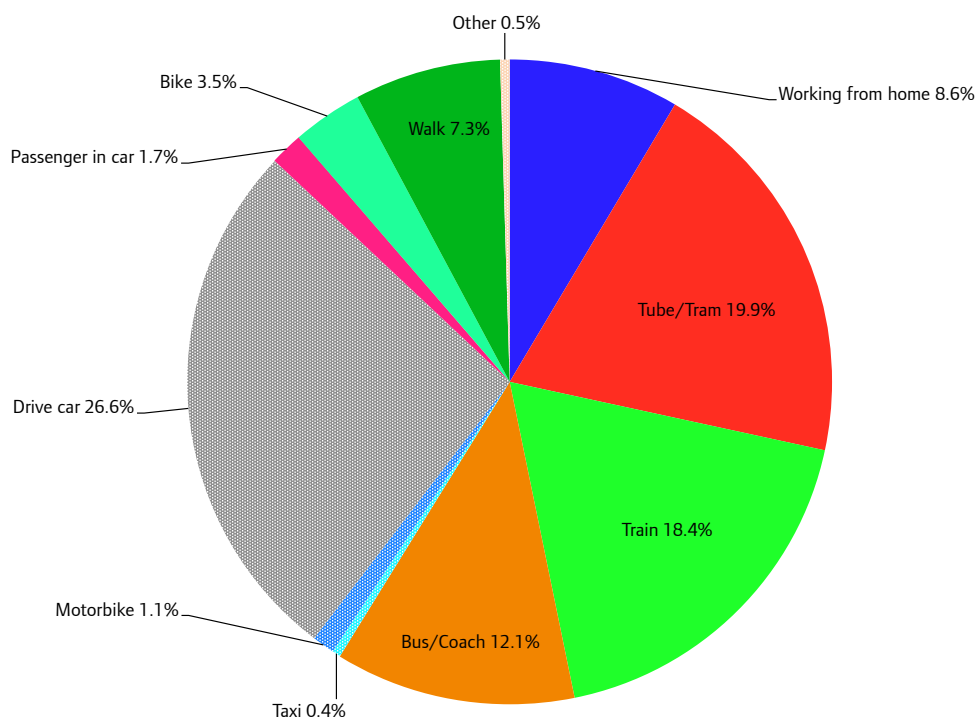


Source: Census and GLA Intelligence Unit Analysis

## 3.6.2 Private transport

As was highlighted by Figure 3.4 and Table 3.1, although public transport is of vital importance to those wishing to travel around London, journeys by private transport still make up a significant proportion of journeys in the capital. Thus looking at road transport in London, Map 3.14 highlights the major roads, rail lines and airports in London. While, Figure 3.9 shows that even though the general trend in road usage has been downwards, this has not been the case for light goods vehicles which generally saw growth from 2001 until 2007 (the recession); usage has recently picked up again after a couple of years of flat lining with this recent growth also seen in heavy goods vehicles as well. However, as will be highlighted in Chapter 6 of this Evidence Base, London's road network faces significant challenges due to congestion which act as a break on the growth of private transport in the capital. Although as shown by Figure 3.10 the decline in road traffic usage in London has varied depending on which part of London's geography is examined, with road traffic usage in central London having shown the largest decline since 2000.

**Map 3.14: Roads, rail and airports in London**



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*Source: GLA Intelligence Unit*

**Figure 3.9: Growth in road traffic in London, 2001 to 2015, Index: 2001=100**
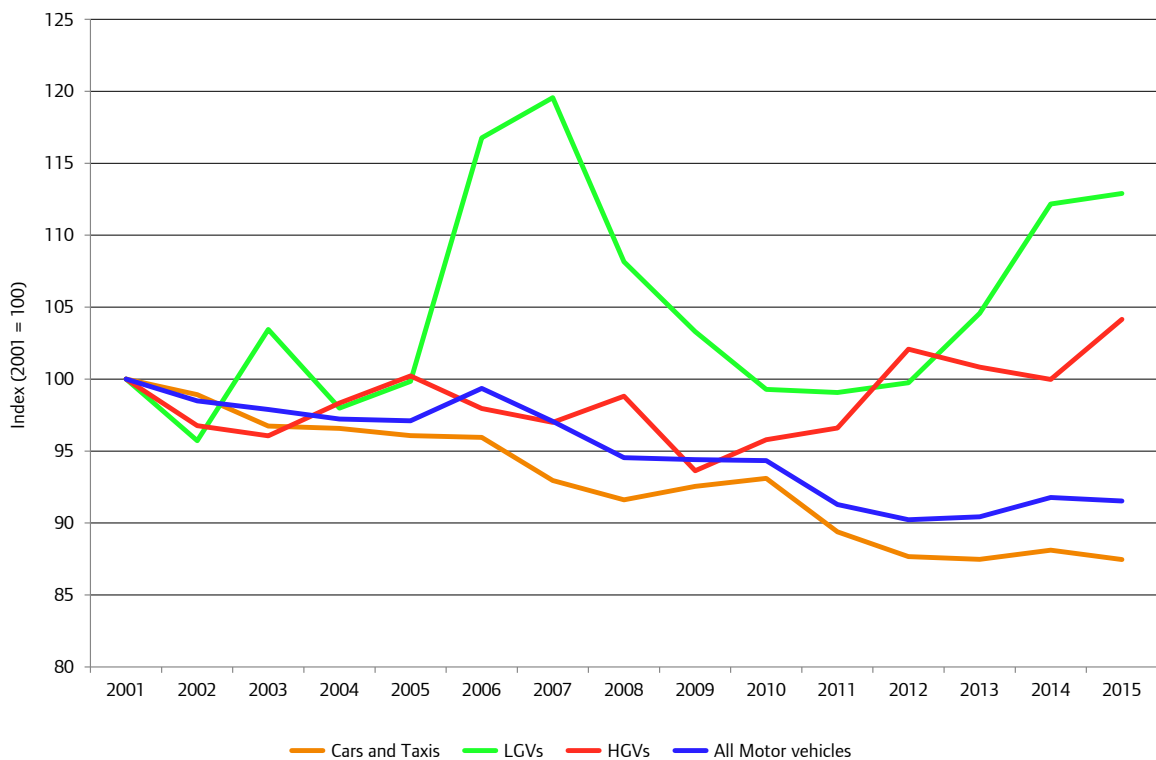


*Source: TfL*

**Figure 3.10: Trends in road traffic (vehicle kilometres), all motor vehicles in central, inner London, outer London, and Greater London as a whole, Index: Year 2000=100[9]**
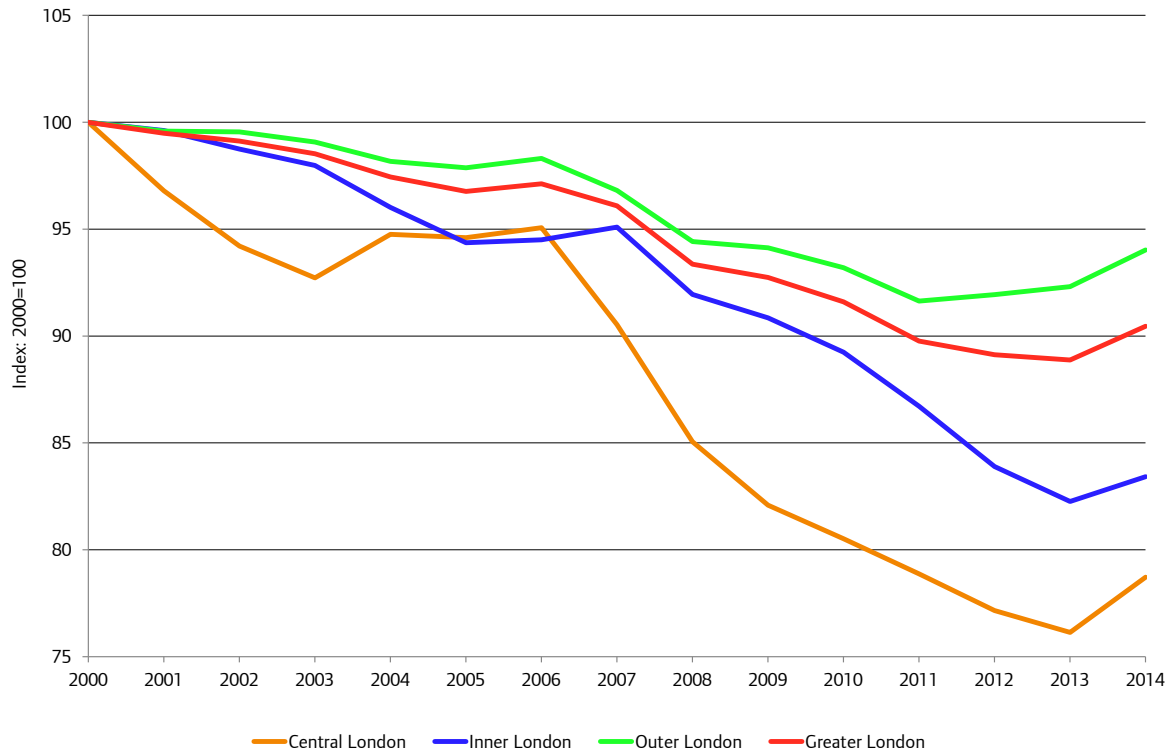


Source: Department for Transport via TfL – Travel in London 8

### 3.6.3 Buses

In part due to the constraints placed on private transport, public transport is of vital importance for moving people around the capital and has become more important over time. This is highlighted by Table 3.2 which shows the strong growth in bus, rail, and Tube usage and in particular emphasises the importance of bus travel in London, with it accounting for more passenger journeys than any other single form of public transport.

**Table 3.2: Aggregate travel volumes in Greater London, estimated daily average number of trips by main mode of travel, 1993 to 2014, Seven-day week (Millions of trips)**

| Year | Rail | Underground/DLR | Bus (including tram) | Taxi/PHV | Car driver | Car passenger | Motor cycle | Cycle | Walk | All modes |
|------|------|-----------------|----------------------|----------|------------|---------------|-------------|-------|------|-----------|
| 1993 | 1.3 | 1.4 | 2.1 | 0.3 | 6.6 | 3.6 | 0.2 | 0.3 | 5.2 | 20.9 |
| 1994 | 1.3 | 1.5 | 2.1 | 0.3 | 6.7 | 3.6 | 0.2 | 0.3 | 5.2 | 21.1 |
| 1995 | 1.3 | 1.6 | 2.2 | 0.3 | 6.6 | 3.6 | 0.2 | 0.3 | 5.2 | 21.2 |
| 1996 | 1.4 | 1.5 | 2.3 | 0.3 | 6.7 | 3.6 | 0.2 | 0.3 | 5.3 | 21.5 |
| 1997 | 1.5 | 1.6 | 2.3 | 0.3 | 6.7 | 3.6 | 0.2 | 0.3 | 5.3 | 21.8 |
| 1998 | 1.5 | 1.7 | 2.3 | 0.3 | 6.7 | 3.6 | 0.2 | 0.3 | 5.3 | 21.9 |
| 1999 | 1.6 | 1.8 | 2.3 | 0.3 | 6.9 | 3.6 | 0.2 | 0.3 | 5.4 | 22.4 |
| 2000 | 1.7 | 2 | 2.4 | 0.3 | 6.8 | 3.6 | 0.2 | 0.3 | 5.5 | 22.7 |
| 2001 | 1.7 | 1.9 | 2.6 | 0.3 | 6.8 | 3.6 | 0.2 | 0.3 | 5.5 | 22.9 |
| 2002 | 1.7 | 1.9 | 2.8 | 0.3 | 6.8 | 3.5 | 0.2 | 0.3 | 5.6 | 23.2 |
| 2003 | 1.8 | 1.9 | 3.2 | 0.3 | 6.7 | 3.5 | 0.2 | 0.3 | 5.6 | 23.4 |
| 2004 | 1.8 | 2.0 | 3.3 | 0.3 | 6.6 | 3.4 | 0.2 | 0.3 | 5.6 | 23.6 |
| 2005 | 1.8 | 1.9 | 3.2 | 0.3 | 6.5 | 3.4 | 0.2 | 0.4 | 5.7 | 23.4 |
| 2006 | 1.9 | 2.0 | 3.1 | 0.3 | 6.4 | 3.5 | 0.2 | 0.4 | 5.7 | 23.6 |
| 2007 | 2.1 | 2.0 | 3.6 | 0.4 | 6.3 | 3.5 | 0.2 | 0.4 | 5.8 | 24.3 |
| 2008 | 2.2 | 2.1 | 3.8 | 0.3 | 6.1 | 3.5 | 0.2 | 0.5 | 5.9 | 24.6 |
| 2009 | 2.1 | 2.2 | 3.9 | 0.3 | 6.2 | 3.5 | 0.2 | 0.5 | 6.0 | 24.8 |
| 2010 | 2.3 | 2.1 | 4.0 | 0.3 | 6.1 | 3.6 | 0.2 | 0.5 | 6.1 | 25.1 |
| 2011 | 2.4 | 2.2 | 4.1 | 0.3 | 5.9 | 3.6 | 0.2 | 0.5 | 6.2 | 25.3 |
| 2012 | 2.6 | 2.4 | 4.1 | 0.3 | 5.9 | 3.6 | 0.2 | 0.5 | 6.3 | 25.8 |
| 2013 | 2.7 | 2.5 | 4.1 | 0.3 | 5.8 | 3.6 | 0.2 | 0.5 | 6.3 | 26.1 |
| 2014 | 2.8 | 2.6 | 4.1 | 0.3 | 5.9 | 3.7 | 0.2 | 0.6 | 6.4 | 26.6 |

*Source: TfL – Travel in London 8*

This growth in bus usage is also marked if other metrics are examined such as passenger kilometres and journey stages as shown by Figure 3.11 which places the strong recent growth in bus usage into a more historic context. This reflects the strong provision of bus services in London as highlighted in Map 3.15 which shows the bus routes in London and those that extend into the surrounding geography and highlights the geographically comprehensive nature of this service.

**Figure 3.11: Passenger kilometres and journey stages travelled by bus**
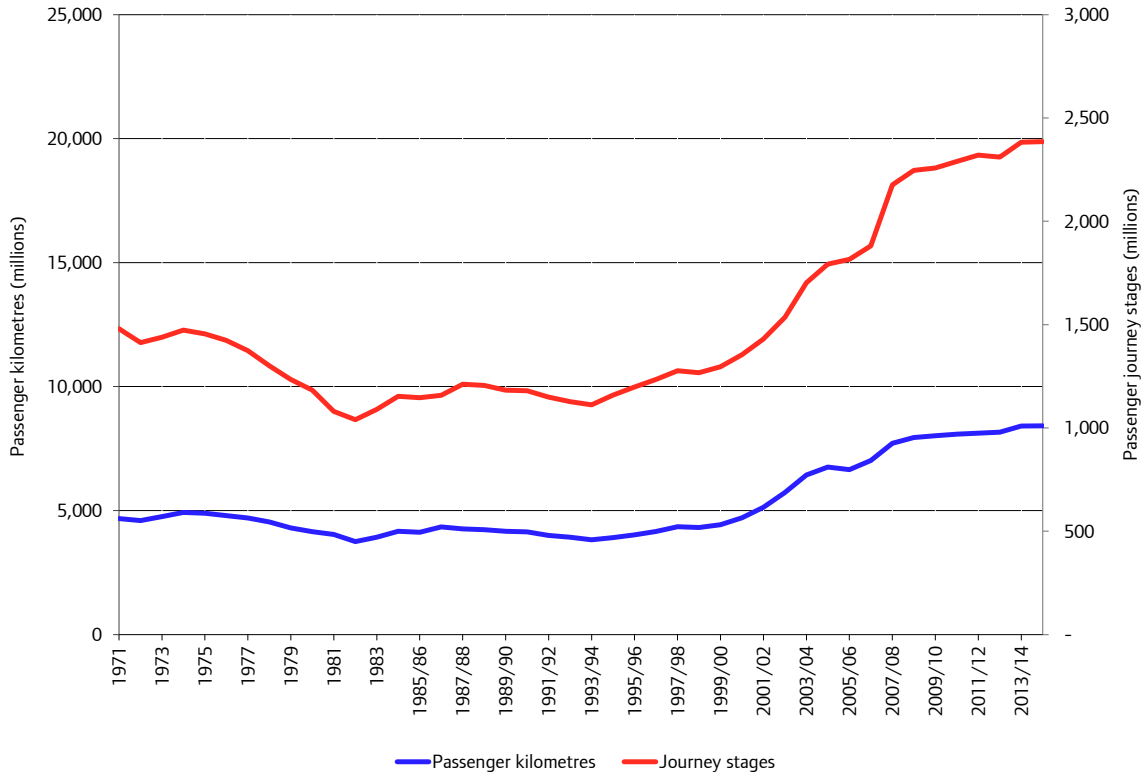


Source: TfL – Travel in London 8[10]

**Map 3.15: Bus routes in London in 2015**



Source: TfL

In terms of users and reasons for use of London's bus network, this varies depending on whether the user is using a Day Bus or a Night Bus. Thus TfL survey results have found that "women are more likely (57%) to be day bus passengers than men (43%). Meanwhile, almost two-thirds of night bus passengers are men (64%) - compared to just one third of night bus passengers who are women (36%)"[11]. TfL also found that "although the largest segment, the proportion of bus passengers who are White is around 10 percentage points lower than among the London population in general. Asian bus passengers are also slightly under-represented. Conversely the proportion of Black or other ethnic group passengers is higher than that of Londoners in general"[12]. Table 3.3 shows that perhaps unsurprisingly the reasons for traveling by bus varies by age with those between 16 and 19 years old and those over 60 much less likely to be using the bus to travel for work compared to users aged 20 to 59 years old.

**Table 3.3: Main Journey Purpose by Age (Grouped) – Day and Night Bus Passengers (% of journeys)**

| | 16-19 | | 20-34 | | 35-59 | | 60+ | |
|---|---|---|---|---|---|---|---|---|
| | Day Bus | Night Bus | Day Bus | Night Bus | Day Bus | Night Bus | Day Bus | Night Bus |
| Travelling to/from work | 21 | 27 | 61 | 51 | 60 | 59 | 19 | 37 |
| Employer Business | 1 | 1 | 2 | 1 | 3 | 3 | 1 | 2 |
| To/from school/education | 36 | 13 | 6 | 4 | 3 | 1 | 1 | 2 |
| To/from shopping | 8 | 2 | 7 | 1 | 9 | 1 | 33 | 6 |
| Visiting friends/relatives | 13 | 20 | 8 | 13 | 8 | 11 | 12 | 18 |
| Leisure | 9 | 19 | 7 | 19 | 5 | 14 | 13 | 13 |
| Personal Business | 2 | 3 | 2 | 1 | 2 | 2 | 4 | 2 |
| Healthcare Appointment | 1 | 1 | 1 | - | 3 | - | 7 | 3 |
| Taking/collecting child | 1 | 1 | 1 | - | 1 | - | 1 | 1 |
| Picking up/dropping off someone | 1 | 1 | 1 | - | 1 | - | 1 | 1 |
| Holiday/Sightseeing | 2 | 4 | 2 | 3 | 2 | 2 | 3 | 6 |
| Other | 5 | 10 | 2 | 5 | 3 | 6 | 6 | 9 |

Source: TfL – Bus User Survey 2014[13]

While bus priority is provided on some key sections of the network, this still amounts to only around 3 per cent of roads served by buses. Bus speeds thus vary significantly by borough (see Map 3.16) with inner London seeing generally slower speeds, most likely indicating the congested nature of a number of roads in inner London.

**Map 3.16: Bus speed by borough, pm peak Monday to Friday in 2013/14**



Mean Observed Speed (mph)

| 0 - 6.9 |
| 7 - 7.9 |
| 8 - 8.9 |
| 9 - 9.9 |
| 10 - 10.9 |
| 11 - 11.9 |
| 12 - 12.9 |
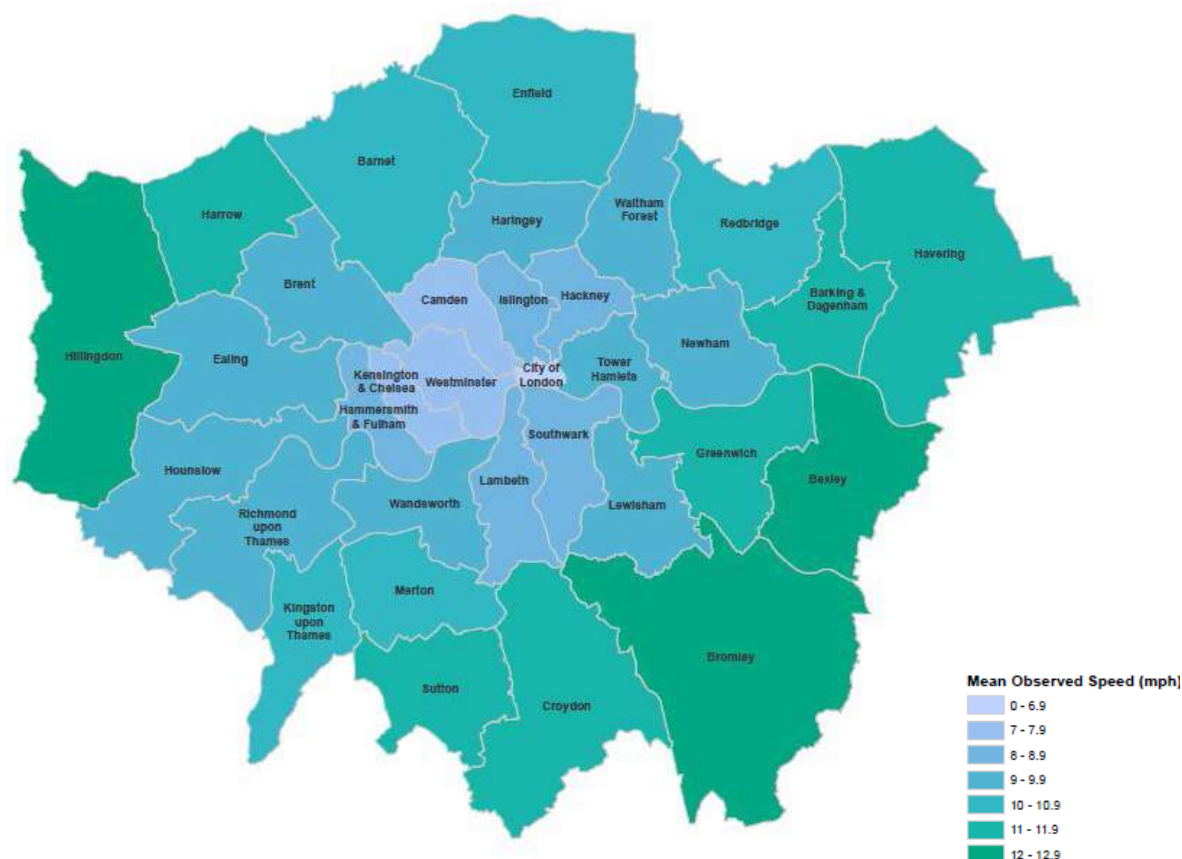
*Source: TfL*

Bus speeds though aren't the only priority of bus passengers with bus reliability and waiting times also important. These are, however, generally good in London, although there are some signs that congestion may be starting to impact on reliability. Thus TfL have observed that "bus reliability, in terms of the percentage of schedule operated, has been at consistently high levels throughout the period from 2008/09. In 2014/15, 97.1 per cent of the schedule was operated, compared with 97.2 per cent in 2008/09. Achieving and maintaining these high levels of bus network reliability has been a major feature of the period since 2000. In terms of excess waiting times, for much of the period since 2008 the average bus passenger has had to wait … one minute longer than they would otherwise have to do if the service ran perfectly to schedule, although this has increased to 1.1 minutes in 2014/15, and there are signs that wider congestion trends during 2015 are beginning to impact on bus service reliability"[14].

## 3.6.4 Walking

Walking is a near universal mode of transport, accounting for 30 per cent of all trips made by Londoners[15] and two thirds of trips under a mile. Walking is the most common mode used to travel for shopping and to travel to school/college. Furthermore, people walk as part of trips made by other modes, and in particular to access public transport (see Figure 3.12). There are more than four times as many walk stages as walk trips made every day – 30 million walk stages, including 13 million longer than five minutes. People walk further to access rail modes than to catch a bus, whilst most car trips involve very little walking at all.

**Figure 3.12: Average distance walked and time spent to access public transport**



*Source: London Travel Demand Survey 2011/12-2013/14, 'A picture of walking in London' Thinkpiece*

Over the past eight years, the number of walk trips has increased in line with population, whilst the number of walk stages longer than five minutes has increased at a faster rate; reflecting mode shift from car to public transport. In future, TfL projects that growth in walking will come from an increase of 29 per cent in walk-all-the-way trips (to 8 million per day) reflecting population growth, and also from an increase in walk stages derived from growing public transport demand (reaching 38 million in 2041). The higher the future mode share for public transport, the more walk travel will be generated. The majority of the growth will be in inner London, reflecting the distribution of the growth and also the greater reliance on public transport in inner London.

There is some potential to increase the amount of walk travel by encouraging short journeys made by car in outer London to be made by walking. The design of new places in London will also determine how much walking people do – residents of new developments will be more likely to walk if they are well connected to local services within a comfortable and pleasant walk, and if they are well connected to the public transport network, minimising the need for a car.

Walking is more than just a mode of transport: as pedestrians, people are at their most engaged with the city and the people around them. The demand for high quality streets and public spaces that support physical, social and economic activity will increase as London's population grows and changes. However, at the same time, the competition for time and space, including space to 'dwell', will intensify as the population and economy grow. Many streets in central and inner London already suffer from pedestrian overcrowding and low levels of pedestrian comfort. Particular challenges arise at major rail termini and on busy high streets on the strategic road network, where the needs of pedestrians conflict with the movement requirements of other modes.

## 3.6.5 The Underground

The Tube is an important part of London's transport provision and there has been a general increase in the number of passenger journeys over time as shown by Figure 3.13. The service has seen an improvement in reliability "with a 43 per cent reduction in the amount of time customers lost to delays in five years" meaning that "in the five years since 2008/09, the total was cut from more than 36 million lost customer hours to less than 21 million if the impact of industrial action is excluded"[16]. Further, the Underground has seen a reduction in average journey time as shown by Figure 3.14, with TfL noting that "across the Tube network as a whole, the average journey is now almost two minutes faster than it was in 2008/09, thanks to faster scheduled journey times and a reduction in delays"[17]. However, the popularity of the Underground also provides it with challenges; these are expanded upon in Chapter 6 of this Evidence Base.

**Figure 3.13: London underground passenger journeys (millions)**
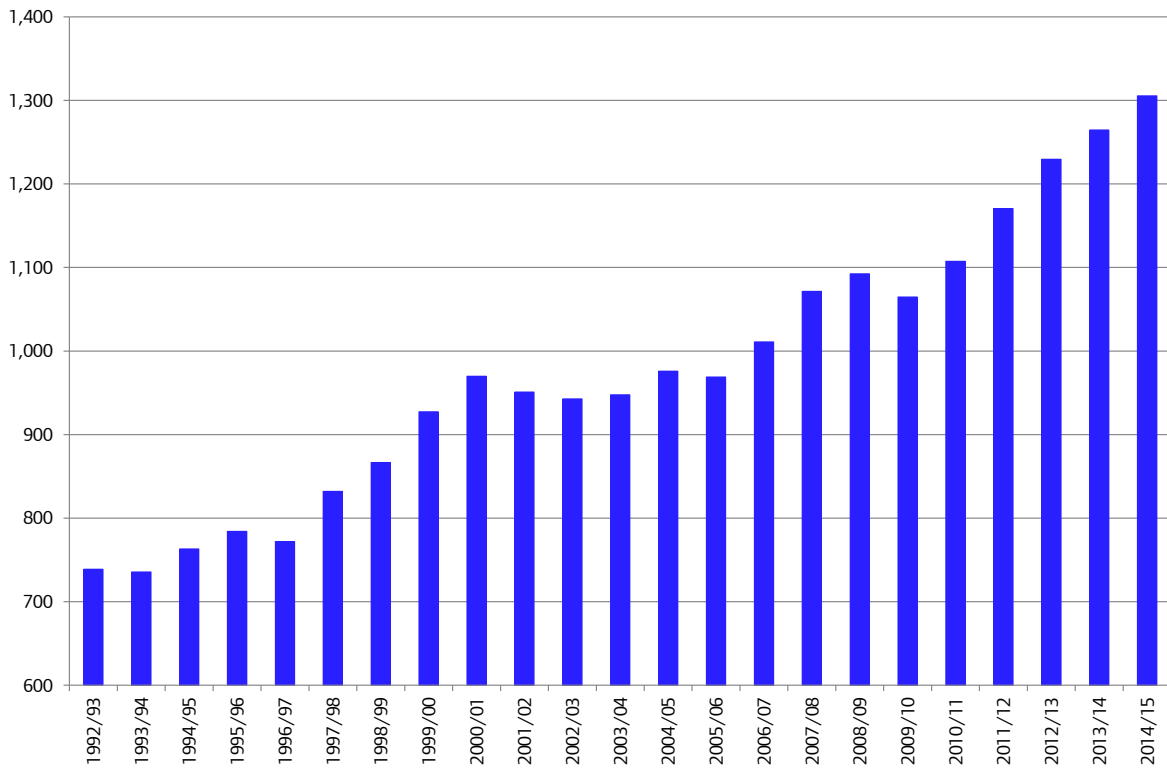


*Source: TfL*

**Figure 3.14: Average journey times on the London Underground (minutes)**
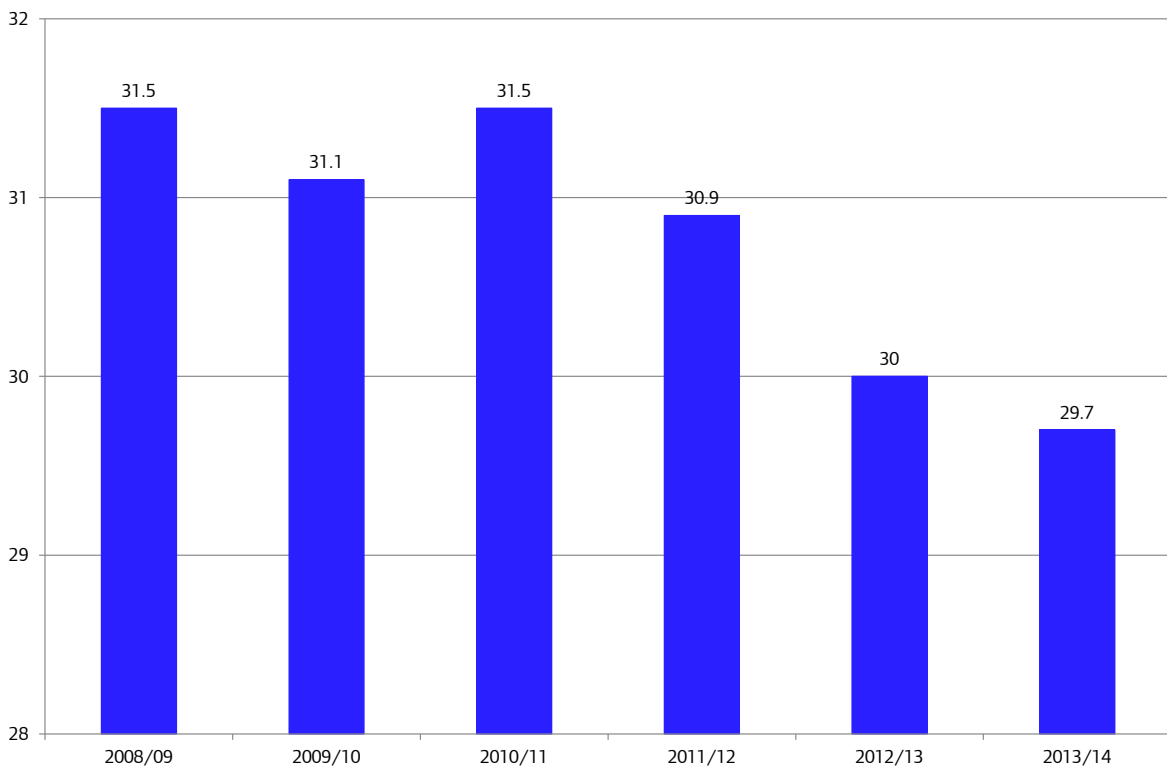


*Source: TfL*

## 3.6.6 The Overground, National Rail, DLR, and Tramlink

Looking beyond the Underground, Figure 3.15 shows the importance of continued transport innovation as shown by the rapid growth of London Overground journeys since the inception of the service. This highlights the pent-up demand that exists for rail travel within London. This demand is also present in the Greater South East as shown by Table 3.4 which shows passenger journeys on national rail. However, this demand for national rail also leads to challenges due to overcrowding on the rail services. This issue is covered in detail in Chapter 6 of this Evidence Base.

**Figure 3.15: Passenger kilometres and journey stages by London Overground**
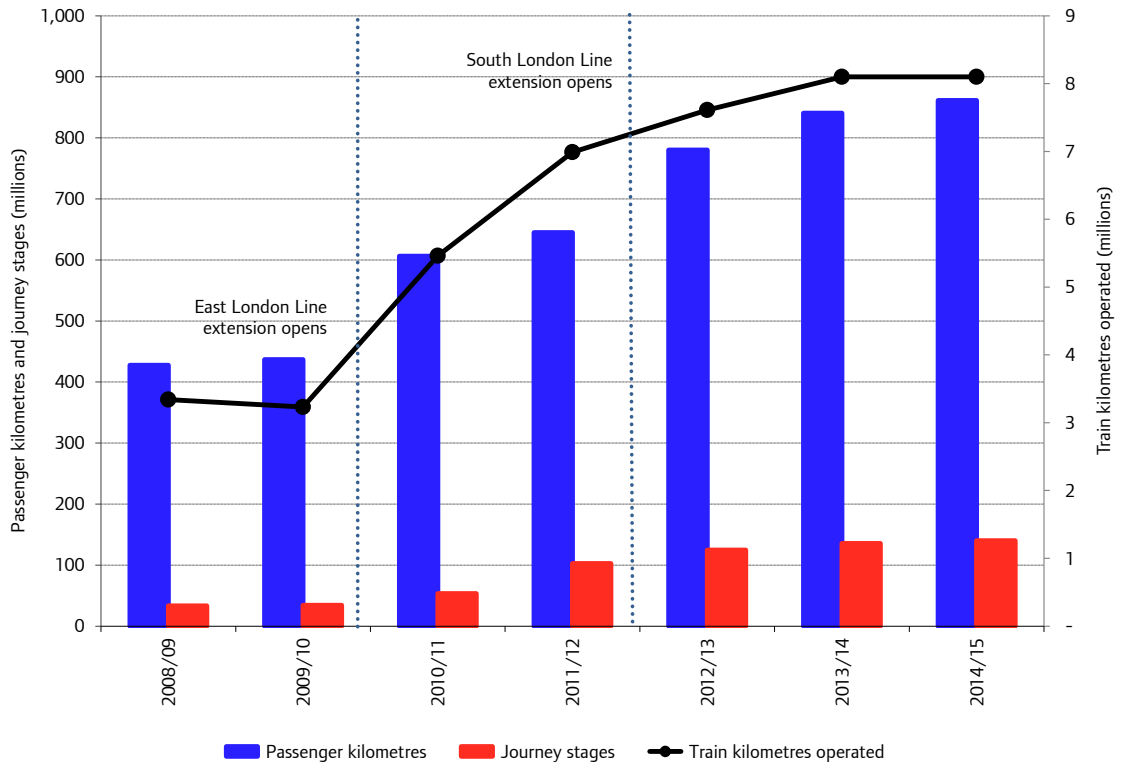


*Source: TfL – Travel in London 7 & 8*

**Table 3.4: Passenger kilometres and passenger journey stages by National Rail – operators classified by the Office of Rail Regulation as London and South East operators**

| Year | Passenger kilometres (billions) | Year-to- year percentage change | Passenger journeys (millions) | Year-to- year percentage change |
|---|---|---|---|---|
| 1998/99 | 17.1 | .. | 616 | .. |
| 1999/00 | 18.4 | 7.6% | 639 | 3.6% |
| 2000/01 | 19.2 | 4.3% | 664 | 4.0 |
| 2001/02 | 19.3 | 0.5% | 663 | -0.1% |
| 2002/03 | 19.8 | 2.6% | 679 | 2.4% |
| 2003/04 | 20.1 | 1.7% | 690 | 1.6% |
| 2004/05 | 20.5 | 1.9% | 704 | 2.1% |
| 2005/06 | 20.7 | 1.1% | 720 | 2.2% |
| 2006/07 | 22.2 | 7.1% | 769 | 6.9% |
| 2007/08 | 23.5 | 6.1% | 828 | 7.7% |
| 2008/09 | 24.2 | 2.9% | 854 | 3.1% |
| 2009/10 | 23.8 | -1.8% | 842 | -1.4% |
| 2010/11 | 25 | 5.2% | 918 | 9.0% |
| 2011/12 | 26.5 | 5.7% | 994 | 8.3% |
| 2012/13 | 27.4 | 3.4% | 1,033 | 3.9% |
| 2013/14 | 28.6 | 4.4% | 1,107 | 7.2% |
| 2014/15 | 29.6 | 3.4% | 1,155 | 4.3% |

*Source: Office of Rail and Road via TfL – Travel in London 8*

It should however be noted that growth in demand for the use of public transport is not restricted to those services highlighted already, as shown by Figures 3.16 to 3.17 which illustrate the general recent growth in usage of the DLR and Tramlink services. This growth is also seen in the use of the River Services, as shown later in this chapter of the Evidence Base in Figure 3.20.

**Figure 3.16: Passenger kilometres and journey stages by DLR**
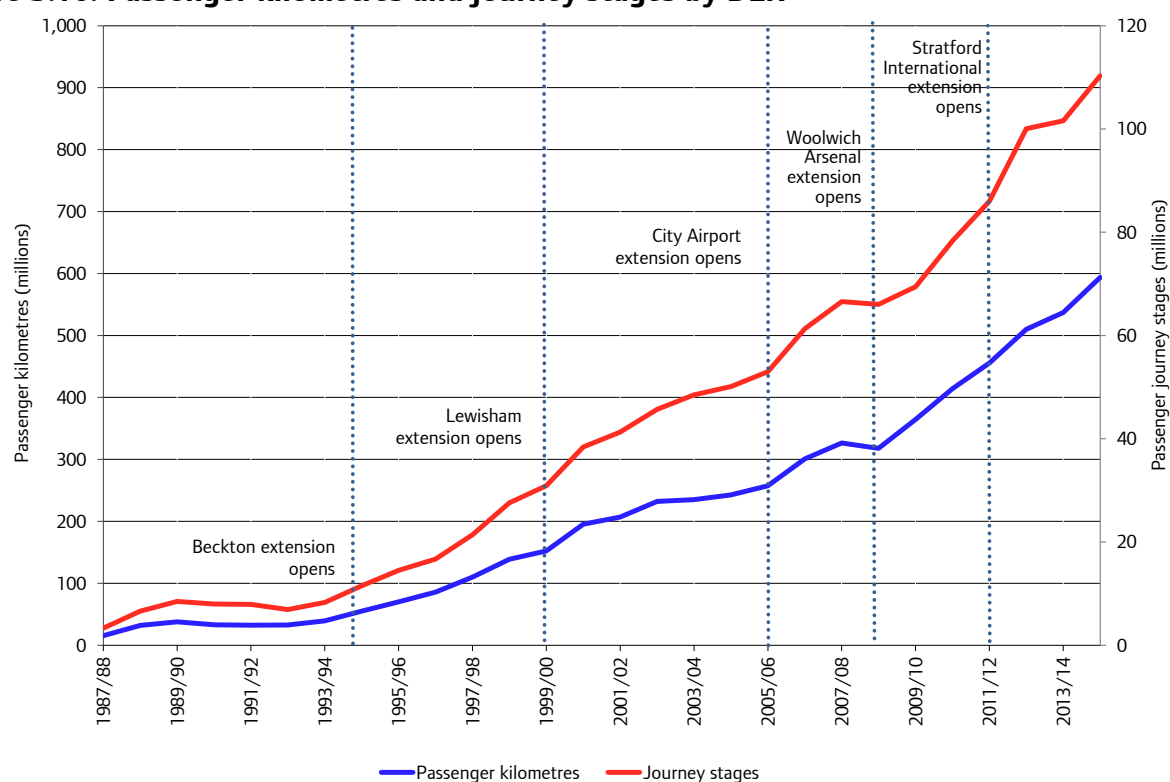


*Source: TfL – Travel in London 8*

**Figure 3.17: Passenger kilometres and journey stages by London Tramlink**
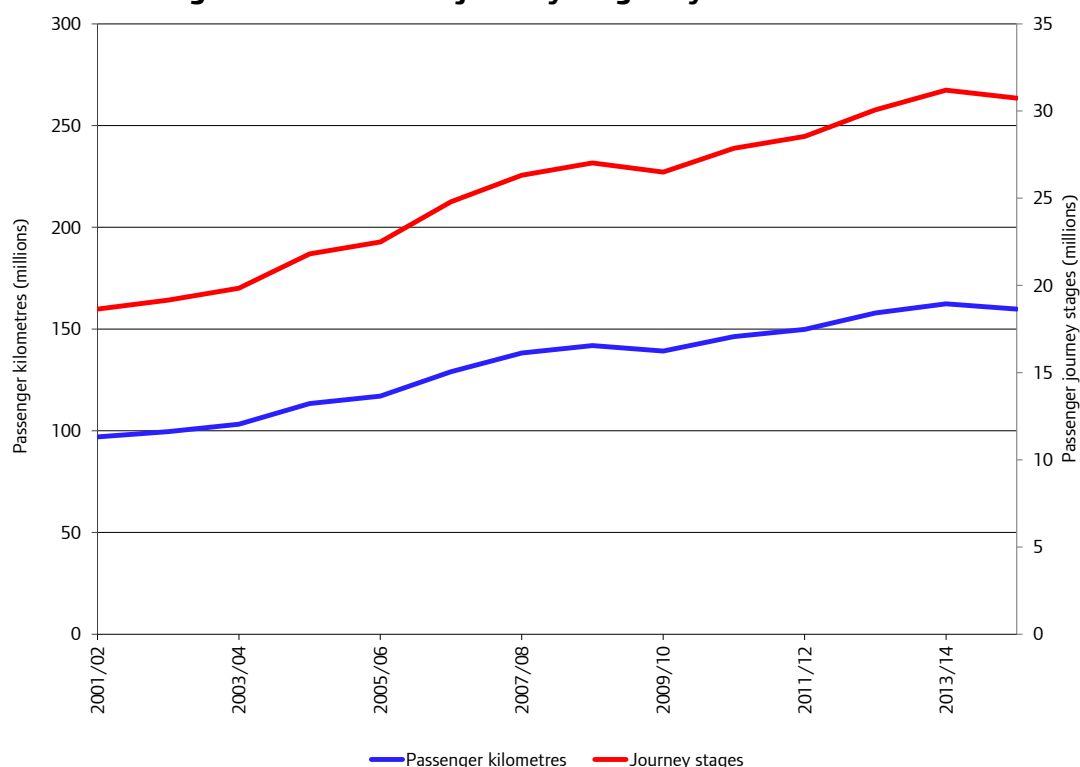
## 3.6.7 Cycling

Cycling is now a major mode of transport in London, with 610,000 journeys made each day by bike in 2014 equating to 10 per cent of bus passenger journeys, a fifth of Tube passenger journeys or 100 per cent of all journeys on the District Line. This is the result of sustained investment by TfL working jointly with the London boroughs to create the London Cycle Network (LCN) and LCN+ as well as the early Cycle Superhighways and more recently the first phases of the Mayor's Vision for Cycling.

There is potential to grow cycling further to 2041. Analysis of cycling potential carried out in 2010[18] identified 4.3 million trips made by motorised modes which could be cycled but were not cycled at present. Concerns about safety are the key barrier to increasing cycling with 'safety' or 'perception of safety' the number one deterrent for 75 per cent of those thinking about taking up cycling. Research found that many potential cyclists are not comfortable cycling in traffic and require high quality, segregated routes to begin cycling. Lack of high quality infrastructure is also a barrier. About half of cyclists rate as 'poor' or 'very poor' the security of their bike when left unattended, the availability of cycle racks near their home and the availability of cycle lanes. To date, cycling has been dominated by white, higher income, men in their thirties and forties and yet TfL analysis shows that – if their barriers were removed – 55 per cent of potential new cyclists would be female, 11 per cent over 55, 14 per cent under 15 and 35 per cent from ethnic minorities.

There has been substantial growth in the number of people choosing to cycle in order to access central London, with flows across the cordon surrounding central London (see the Appendix to this chapter for a map setting out the geography of the central cordon) increasing by more than 200 per cent since 2001. Employment growth in central London will increase demand for cycle travel in central London. The key challenges and barriers to growth in cycling in central London include:

● Improving route connectivity and reducing severance e.g.: crossing the Inner Ring Road.
● Interchange with public transport particularly at mainline rail stations.
● Managing freight-cycle conflict and reducing motorised traffic to free up road space.
● Managing speeds to improve safety.

The greatest increase in trips by cycling made by London residents has been in inner London, up by 133 per cent since 2005/06 (based on trip origin) and houses the population most amenable to cycling. Key challenges will include:

- Providing high quality and safe routes within inner London and from inner to central London, reducing conflict with freight and other road traffic.
- Meeting the need for secure and safe cycle parking at origins and destinations across inner London, including facilitating interchange with public transport.

Cycling has grown the least in outer London, but has the most potential for growth in terms of trip volumes - only 5 per cent of trips that could be cycled are currently cycled. The key challenges will include:

- Providing high quality and safe cycleways designed for use by families and focussed on accessing town centres and local places.
- Meeting the need for secure and safe cycle parking at origins and destinations across outer London, including facilitating interchange with public transport.
- Managing speeds to make cycling feel and be safe.
- Connecting to neighbouring counties through seamless cycle networks.

Further, as shown by Map 3.17 cycling has the potential to integrate into the rest of the transport system increasing an area's PTAL.

**Map 3.17: An example of how cycling can increase connectivity to public transport**
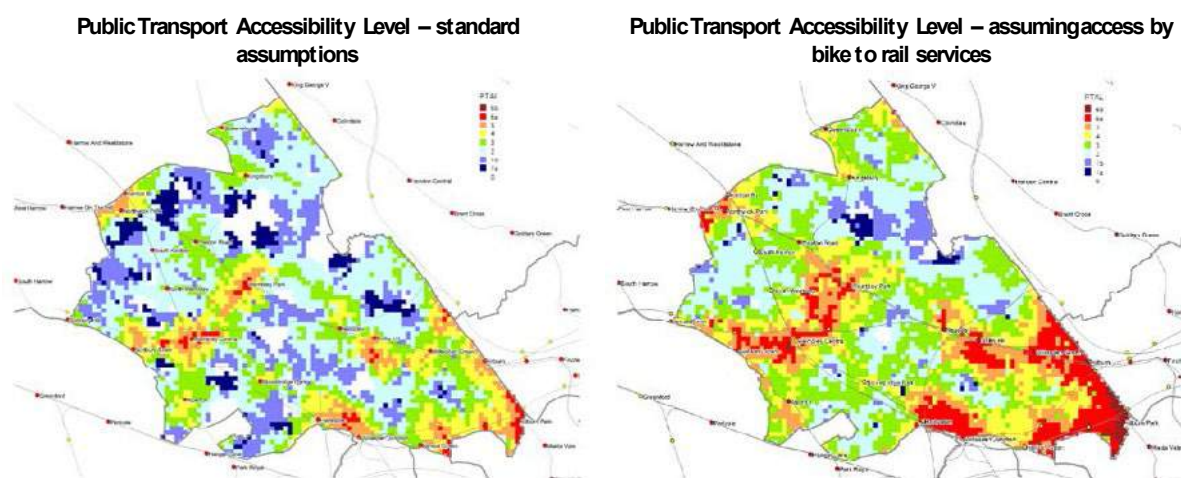


*Source: TfL Planning, Strategic Analysis*

Across London, a key challenge will be to 'design in' cycling as an appealing choice in growth and opportunity areas. This will require ambitious cycle networks and facilities at all new growth locations and developments.

Another cycling innovation in London that has in part driven cycling's growth has been the ongoing investment into the Santander Cycles scheme. Map 3.18 shows the growth of the scheme since its launch in July 2010 to now cover 12 boroughs, 766 docking stations and over 20,000 docking points.

**Map 3.18: Santander cycle hire scheme docking stations as of June 2016**
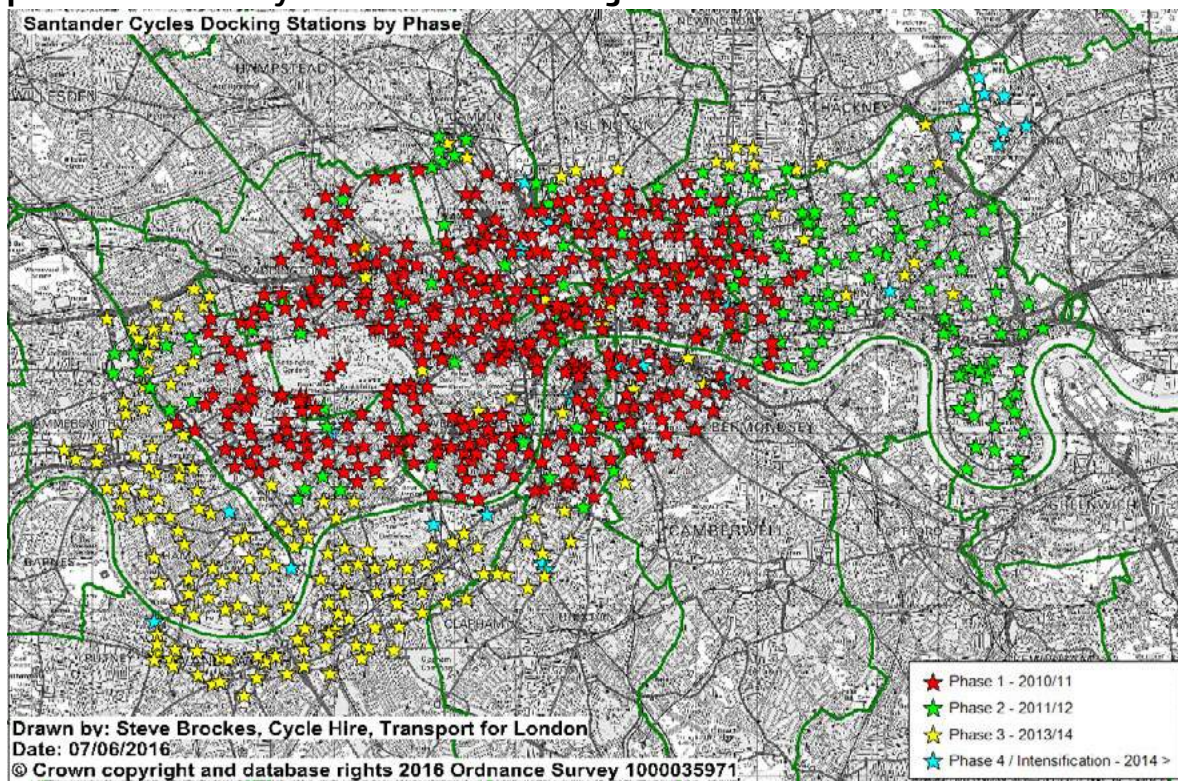


*Source: TfL*

In terms of usage of the cycle hire scheme TfL data shows that at the end of May 2016 there had been over 50.4 million hires over its history, but that as would be expected there is a great seasonal variability in hires with summer periods seeing over 1 million hires per month, while winter periods seeing less than half a million hires a month. As would also be expected, docking stations with heavy commuter flows or associated with leisure activities are particularly popular, with six of the ten most popular docking stations located by mainline rail stations and with the other four located in parks. Thus as can be seen from Figure 3.18, Waterloo Station is the most popular docking station in the scheme and has seen an increase in hires each year.

**Figure 3.18: Top 10 most popular Santander cycle hire stations, July 2010 – May 2016**
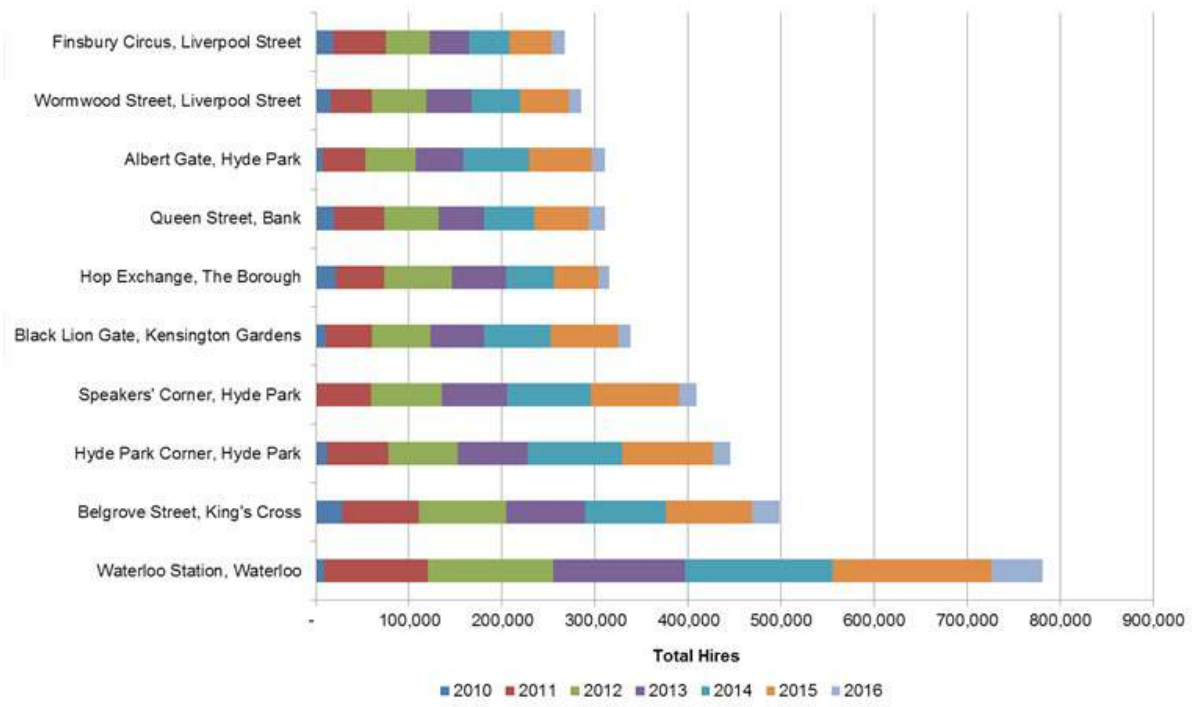


*Source: TfL*

## 3.6.8 The continued evolution of London's transport system

As has been highlighted throughout this section London's transport system continues to evolve and provide connections to the wider South East. The next major stage of this transport evolution is shown by Map 3.19 which illustrates the route of Crossrail 1/The Elizabeth Line. It is estimated that this transport investment will provide "better access to the capital for the 750,000 workers who already commute into London", while "overall the benefits of Crossrail are estimated to be at least £42 billion in current prices"[19].

**Map 3.19: Crossrail 1/The Elizabeth Line route map**
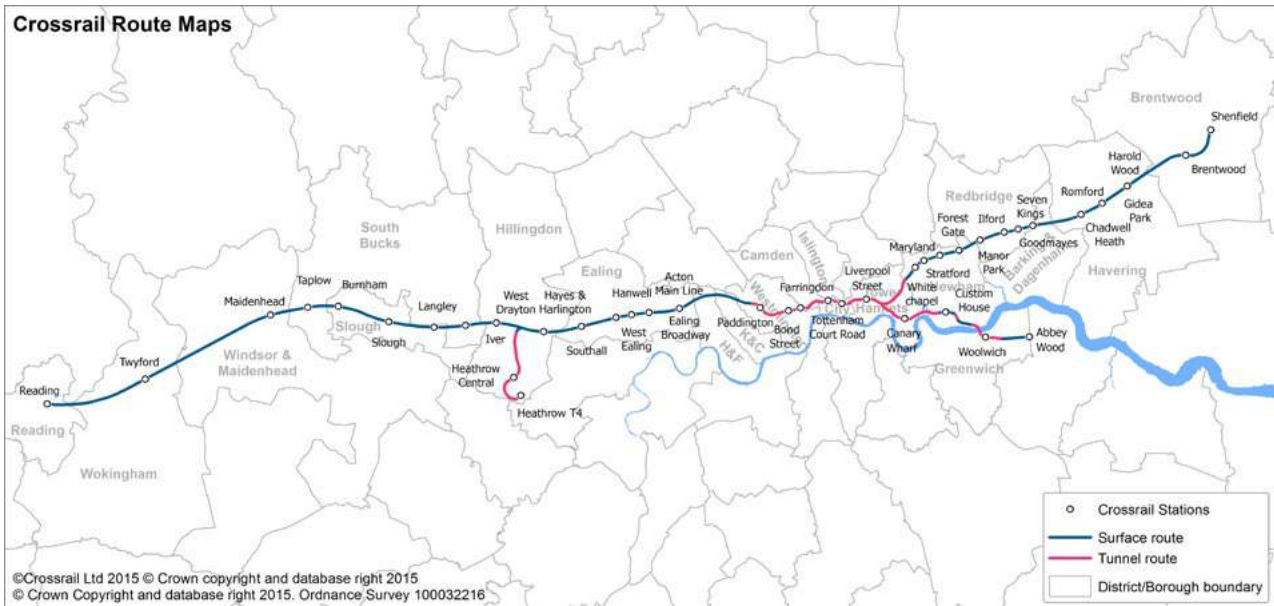


*Source: GLA Intelligence Unit mapping*

## 3.7 Transport in the Greater South East

As highlighted previously, London is connected to the Greater South East in terms of commuters coming into and out of London. However, significant parts of London's transport network are also of vital importance to the economies of the Greater South East and the UK as a whole as well as to London such as airport capacity. Map 3.20 shows London's and the Greater South East's airport, motorway and rail connections and highlights the links between London and the rest of the UK. This section examines these transport links although it should be noted that the challenges faced by the rail network in the Greater South East are covered in depth in Chapter 6 of this Evidence Base.

**Map 3.20: Airport, rail and road infrastructure in the South East region**
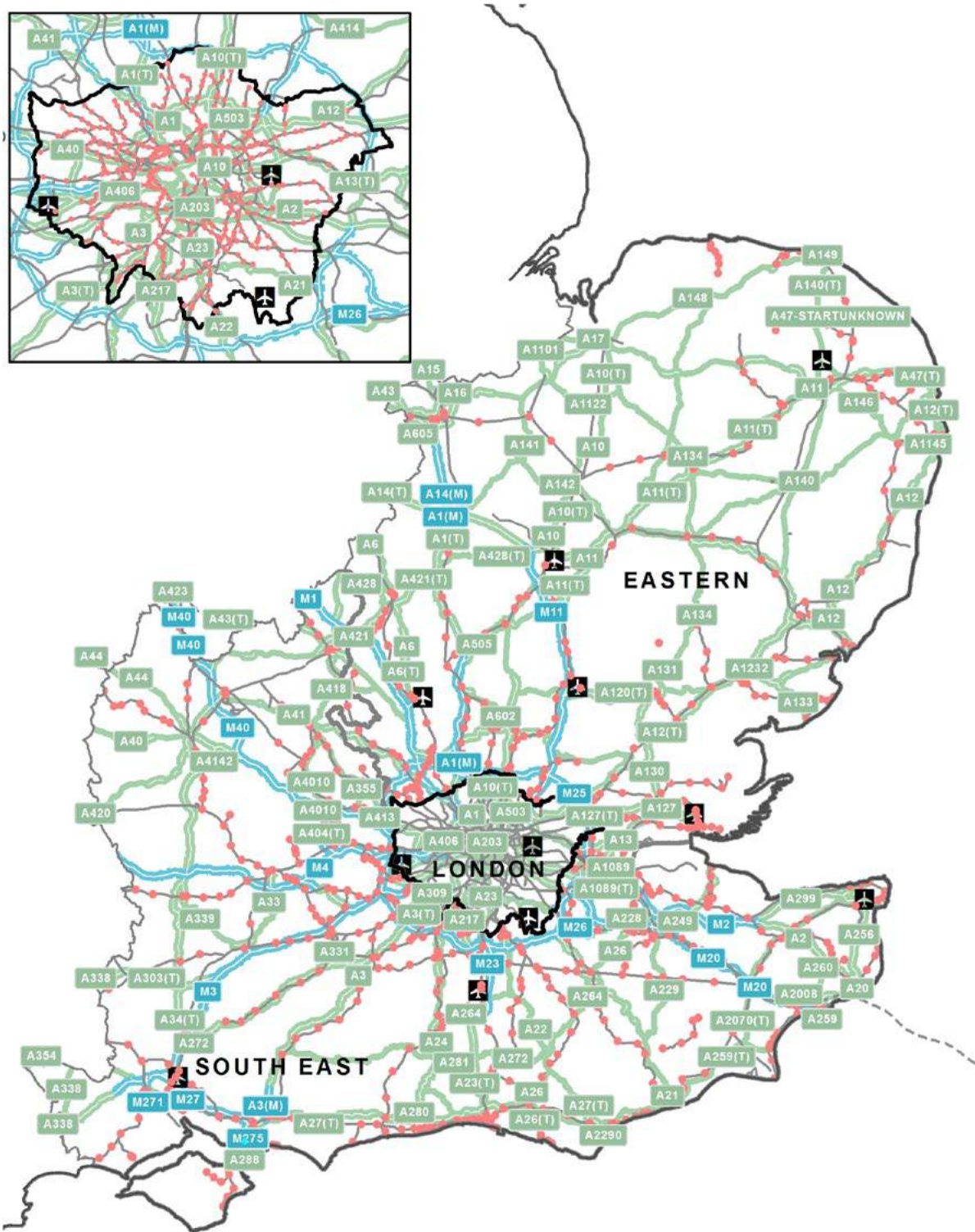


Note: MSOA denotes Middle-layer Super Output Areas
Contains National Statistics data © Crown copyright and database right 2015
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☐ Greater London Authority

*Source: GLA Intelligence Unit*

### 3.7.1 London's Airports

London Heathrow is the pre-eminent UK airport, taking the sixth most passengers globally (see Table 3.5). In the year to December 2015, it is estimated from preliminary data that 75.0 million passengers went through Heathrow; since 2010, passenger numbers have increased by 13.8 per cent.

**Table 3.5: Cities with largest numbers of passenger numbers[20], and other selected global cities (millions of passengers)**

| Rank | Airport | 2001 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|------|---------|------|------|------|------|------|------|------|------|
| 1 | Atlanta | 75.9 | 85.9 | 89.3 | 92.4 | 95.5 | 94.4 | 96.2 | 101.5 |
| 2 | Beijing | .. | 41.0 | 73.9 | 78.7 | 81.9 | 83.7 | 86.5 | 89.9 |
| 3 | Dubai | .. | .. | 47.2 | 51.0 | 57.7 | 66.4 | 70.5 | 78.0 |
| 4 | Chicago | 67.4 | 76.5 | 66.8 | 66.7 | 66.6 | 66.8 | 70.1 | 76.9 |
| 5 | Tokyo | 58.7 | 63.3 | 64.2 | 62.6 | 66.8 | 68.9 | 72.8 | 75.3 |
| 6 | London Heathrow | 60.7 | 67.9 | 65.9 | 69.4 | 70.0 | 72.4 | 73.4 | 75.0 |
| 7 | Los Angeles | 61.6 | 61.5 | 59.1 | 61.9 | 63.7 | 66.7 | 70.6 | 74.7 |
| 8 | Hong Kong | 32.5 | 40.3 | 50.3 | 53.3 | 56.1 | 59.6 | 63.1 | 68.3 |
| 9 | Paris | 48.0 | 53.8 | 58.2 | 61.0 | 61.6 | 62.1 | 63.8 | 65.8 |
| 10 | Dallas/Fort Worth | 55.1 | 59.2 | 56.9 | 57.8 | 58.6 | 60.5 | 63.5 | 64.1 |
| 15 | New York | 29.3 | 41.9 | 46.5 | 47.6 | 49.3 | 50.4 | 53.2 | 56.8 |

*Source: Airports Council International*

However over the course of the last five years, there has been significant growth in airports across the Middle East and Asia. Table 3.5 shows that back in the year 2001, Beijing and Dubai were not listed amongst the top 30 airports for passenger numbers (Beijing only entered the top 30 in 2004; Dubai in 2007). While, compared with cities like Dubai, Shanghai and Guangzhou which saw average annual growth rates in passenger numbers between 2010 and 2015 of 10.6 per cent, 8.2 per cent, and 6.1 per cent respectively London Heathrow saw average annual growth of just 2.6 per cent highlighting London airport capacity constraints. For more on London's airport capacity constraints, see Chapter 6 of this Evidence Base. However, as seen from Table 3.6, preliminary estimates suggest in terms of international passenger numbers Heathrow still ranks second behind Dubai with Gatwick coming in 12th place.

**Table 3.6: Total international passenger traffic[21] in 2015**

| Rank | Airport | International Passengers | Growth between 2014 and 2015 |
|------|---------|------------------------|------------------------------|
| 1 | Dubai | 77,453,466 | 10.7% |
| 2 | London Heathrow | 69,816,491 | 2.5% |
| 3 | Hong Kong | 68,071,282 | 8.2% |
| 4 | Paris | 60,366,933 | 3.0% |
| 5 | Amsterdam | 58,245,545 | 6.0% |
| 6 | Singapore | 54,836,000 | 2.9% |
| 7 | Frankfurt | 53,994,154 | 2.4% |
| 8 | Incheon | 48,720,319 | 8.5% |
| 9 | Bangkok | 43,251,807 | 16.3% |
| 10 | Istanbul | 42,302,859 | 11.1% |
| 11 | Taipei | 38,104,007 | 7.6% |
| 12 | Gatwick | 36,667,769 | 6.4% |
| 17 | New York | 30,020,301 | 6.5% |

*Source: Airports Council International*

In 2015, there were a total of 135.6 million passengers at London airports (Heathrow, Gatwick, Stansted and City), an increase of 0.4 per cent on the previous year. Figure 3.19 shows that following the 2008/09 Great Recession, there has been a general pick-up in passenger growth from 2011 onwards, leading to record high passenger numbers in 2015. Since the year 2000, total passenger numbers at London airports have increased by nearly 25 per cent, and since 2010, the increase was over 14 per cent.

**Figure 3.19: Annual growth in total passenger numbers at London airports, 1999 – 2015**



Annual Growth Rate
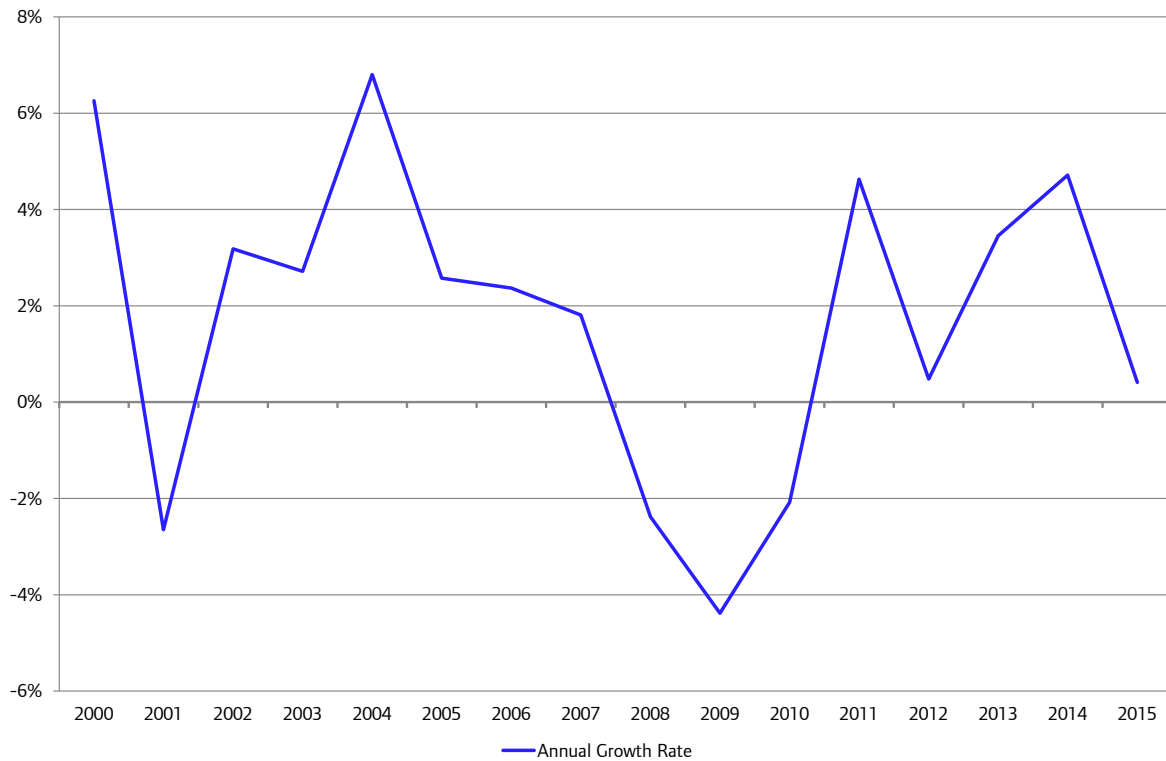
*Source: GLA Economics calculations; Civil Aviation Authority*

## 3.7.2 The Thames and Port of London

In recent research for the Port of London Authority, Oxford Economics found that the Thames as a public amenity[22] was responsible for sport/recreation valued at £132 million, while wards adjacent to the Thames generated economic value related to tourism to the value of £2.4 billion. Further, "some 4.7 million people visit Thames or maritime-related attractions annually", with "at least 23.4 million people visit[ing] the attractions located by the side of the Thames"; while, "in 2014, almost 10 million passenger journeys were made on the River Thames, up from eight million the year before. The trips were by passengers commuting to work, sightseers, on charter boats, high speed RIBs and the Woolwich ferry". This growth in passenger numbers on the Thames is further highlighted by Figure 3.20, which shows the general growth in the numbers of passengers using TfL's River Services per period from 2012/13 to 2014/15.

**Figure 3.20: Passengers using TfL's River Services**[23]
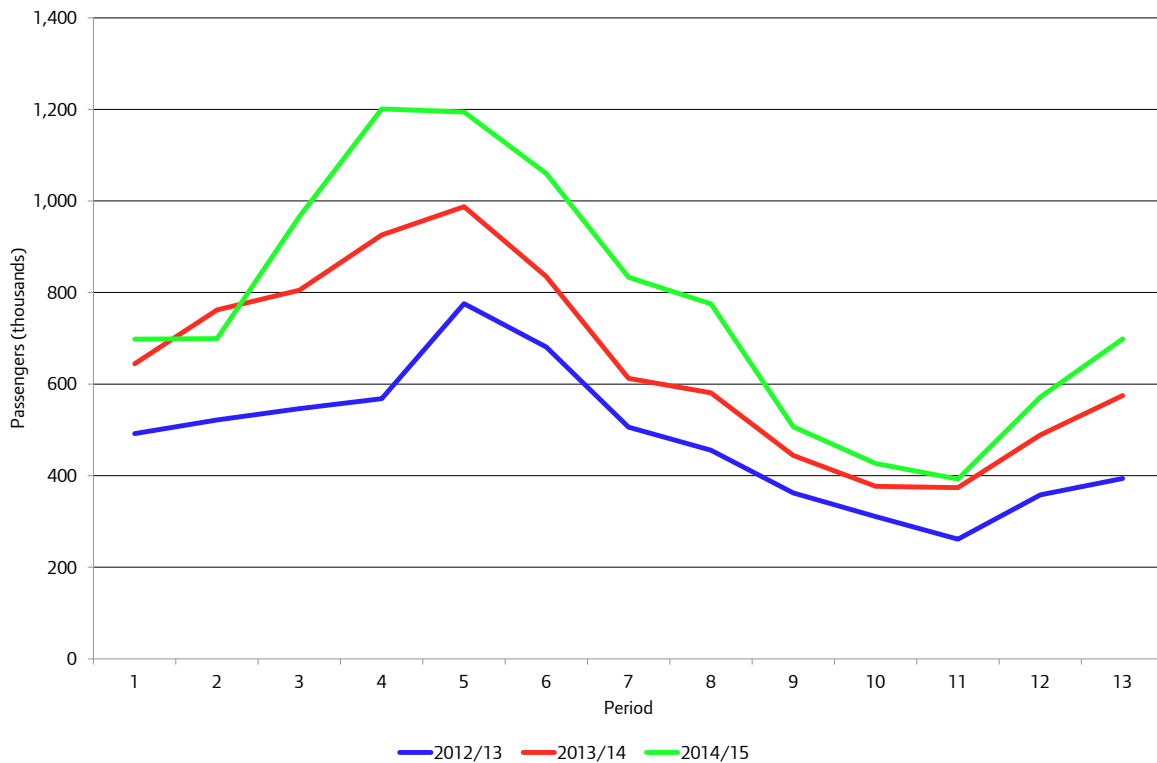


*Source: TfL – Travel in London 8*

While, SQW has noted[24] that "the Port of London is the second biggest in the UK. The port handled 44.5 million tonnes of goods and materials in 2014". Adding that it "is made up of over 70 independently run terminals and wharves along 95 miles of the tidal Thames from Teddington Lock to the North Sea", with major operations in the port including: "the Port of Tilbury; London Gateway container port; Ford at Dagenham; building materials operations such as Tarmac and Cemex; and the Tate & Lyle Sugars refinery at Silvertown". They thus find that the overall impact in terms of output of the Thames was over £4 billion with it generating over 43,000 jobs. It should of course be noted that while a number of these facilities are outside of London's administrative boundaries, they arguably fall within London's economic geography.

## 3.8 Conclusion

This chapter has outlined the extensive nature of London's transport infrastructure and how this enables the flows of people either as workers, consumers etc. that keep the capital's economy running. It has also highlighted the importance of this network to not just London but the UK as a whole. However, there are also significant strains that high demand has placed on the capital's transport network which will be examined in detail in Chapter 6 of this Evidence Base. These strains derive from the attractive nature of London as a place to live, work and do business. This attractiveness also leads to heavy demand for a finite amount of land within London, with the next chapter of this Evidence Base examining this issue in more detail.

## Chapter 3 endnotes

1 TfL, 2014, 'Travel in London: Report 7'.

2 Ibid.

3 Ibid.

4 TfL: London connections map.

5 Note that this diagram covers all travel made in London and not just by Londoners.

6 TfL, 2015, 'Travel in London: Report 8'.

7 Refers to trips to work only.

8 Urban Age Cities Compared: Where People Live.

9 TfL notes that in interpreting the trend for central London shown by Figure 3.10, "it is important to recognise that this reflects a different area and set of conditions to that previously reported by TfL through the Congestion Charging Impacts Monitoring reports".

10 Note: TfL observes that a "new estimation method  for bus [was] introduced in 2007/08".

11 TfL, 2014, 'TfL Bus User Survey 2014'.

12 Ibid.

13 Ibid.

14 TfL, 2015, 'Travel in London: Report 8'.

15 Note that this number is higher than the number reported in Figure 3.4 as this figure covers journeys made by Londoners only whereas Figure 3.4 covers all journeys made in London.

16 TfL, March 2015, 'Building our Capital: five years of delivery by London Underground'.

17 Ibid.

18 Details of this analysis can be found at: TfL, December 2010, 'Analysis of Cycling Potential: Policy Analysis Research Report'.

19 Crossrail, 'Delivering substantial economic benefits in London, the South-East and across the UK'.

20 Covers total passengers enplaned and deplaned, with passengers in transit counted once. Note it thus covers both domestic and international flights.

21 International Passengers are defined as traffic performed between the designated airport and an airport in another country/territory ie excluding passengers on domestic flights.

22 Oxford Economics, September 2015, 'Adding Value: The River Thames Public Amenity'. Port of London Authority.

23 Note data for 2012/13 is based on the previous system of counting passengers.

24 SQW Limited, September 2015, 'River Thames Economic Prosperity'. Port of London Authority.

# 4: The value of land and housing in London

## 4.1 Key points

- There is intense competition for land in London which results in some of the highest land and property prices in the UK and across other global cities. Land values vary significantly in the capital according to location, transport accessibility, planning status and many other factors.

- There are large differentials in land values between, and within, different land use classes. While it is difficult to obtain consistent data on land values, residential values in London are estimated to be on average 3.2 times higher than industrial land values. Within the residential sector, land values can range between £7.3 million per hectare in East London to £93.3 million per hectare in Westminster. In the industrial market, there is a narrower range of between £2.5 million per hectare in East London to £6.2 million per hectare in key industrial areas like Park Royal and around Heathrow, and up to £7.4 million in central London areas.

- There have been strong rises in London house prices which are far higher than the rest of the country. The gap in average house prices between London and the rest of the country has grown wider every year since 1995 with the exception of 2009. Average house prices in April 2016 ranged from £1.31 million in Kensington and Chelsea to £272,000 in Barking and Dagenham compared to the England average of £220,000. The relative costs of private renting have also risen sharply in London compared to other English regions.

- Demand for housing in London is driven by a number of different factors, including London's attractiveness as a place to work and live, rising incomes, access to credit, lower borrowing costs and the appeal of property as an investment class and store of value. There is limited evidence available on the exact impact of foreign ownership or the buy-to-let market on house prices in London.

- The supply of housing in London has not been keeping up with growth in the number of households. According to the Strategic Housing Market Assessment, an estimated 49,000 new homes are required each year in London to 2035 due to population growth and the existing backlog of need. Only around 30,000 homes were however added to London's total housing supply in 2014. A number of different hypotheses have been put forward to explain the lack of response in supply, which are explored in this chapter.

- There is a risk that high demand for housing may crowd out commercial uses of land. Evidence from the London Development Database suggests that Permitted Development Rights introduced in May 2013, which allow conversion of offices to housing without the normal planning procedures, are having a considerable impact on the stock of office space in some boroughs. In the period 2008 to 2013 the percentage of residential units completed on land classed previously as office use was around 12 per cent, but in 2014/15 this increased to 24 per cent.

- Population density - the number of people living (or working) in a given area – is an important factor in considering how to accommodate London's future growth. In the centre of London, there is some evidence to suggest that population density is relatively low compared to other major global cities around the world, despite London being smaller in terms of its geographical size. There is evidence of both overcrowding and under-occupation of the housing stock in different parts of London.

## 4.2 Housing and land use in London

Land and property are hugely important socially and economically to London. Having sufficient housing available to accommodate the population comfortably matters for living standards and labour supply, while decisions over whether to allocate land for business or residential use has implications for the structure of the economy. Within an urban environment, the location of commercial and residential buildings is driven by a range of factors including: topographical (like the river), the location of transport infrastructure, and also the city's inherited traditions of urban culture and development.

London's population has grown every year since 1988, even during the recessions of 1990-1991 and 2008-2009. The population increased from around 6.7 million in 1988 to 8.7 million in 2015[1], the highest it has ever been and above the previous peak in 1939 (see Chapter 8). Over this same period, the number of jobs (including employees and self-employed) increased from 4.28 million in 1988 to 5.54million in 2015[2] (see Chapters 6 and 9). As a consequence of London's growth, competition for land for a variety of residential, commercial, social and community uses has intensified.

In economic theory, firms or individuals deriving the greatest economic value from a piece of land (in terms of the activities they undertake on it) will be the most willing and able to pay for it and can therefore outbid their rivals, thus determining how the land is used[3]. In practice, since the 1947 Town and Country Planning Act, the right to develop land or to change its use in the UK, has effectively been nationalised and is determined through the planning system[4].

As in most cities, land prices in London tend to be highest in the centre and generally decline with distance from the core, reflecting the agglomeration benefits of central locations compared to peripheral ones. Typically, businesses generating the highest value output are able to outbid rivals including homeowners or landlords hence the clustering of firms in the centre. However, such is the value of residential property in London that commercial space in some parts of London faces growing competition from residential uses. Despite this competition, central London remains a prime location for businesses. It lies at the centre of the most populous region in the UK and is within easy reach for millions of people travelling by public transport.

While businesses in London benefit from agglomeration economies, there exists a trade-off between these forces and the associated urban costs, such as congestion and more expensive housing. Urban costs can take a variety of forms. Some of these costs, like higher land costs, are monetary; others, like the disutility from longer commutes or the loss of green space, are less tangible and harder to measure. Mobility within and between cities however implies that urban (dis)-amenities and commuting costs will, at least to some extent, be reflected in land prices (as people 'vote with their feet'[5]). These urban costs are discussed further in Chapter 6, and the environmental costs are considered in Chapter 7.

The rest of this chapter is structured as follows: it begins by mapping land use across London by different uses before providing indicators of the value of land and the activities that take place upon it. The chapter goes on to consider how these price signals are, in part, influencing land use change in London. The housing market is then considered in further detail including the main drivers of demand and supply and their impact on prices. Finally the chapter considers evidence on population density in London with comparisons to other major global cities.

## 4.3 Mapping the use of land in London

London covers an area of approximately 160,000 hectares[6] across its 32 boroughs and the City of London. Map 4.1 shows how this land is used based on a set of simplifying categories[7]. The map shows quite clearly the focus of employment land in the Central Activities Zone (CAZ) with other concentrations to the east through the Thames Gateway and to the west along the M4 Corridor and around Heathrow. Perhaps surprising is the quantity of land categorised as green space not just in outer London boroughs which include Green Belt but dispersed through the capital in its many parks and recreational spaces.

**Map 4.1: Land use in London, 2015**
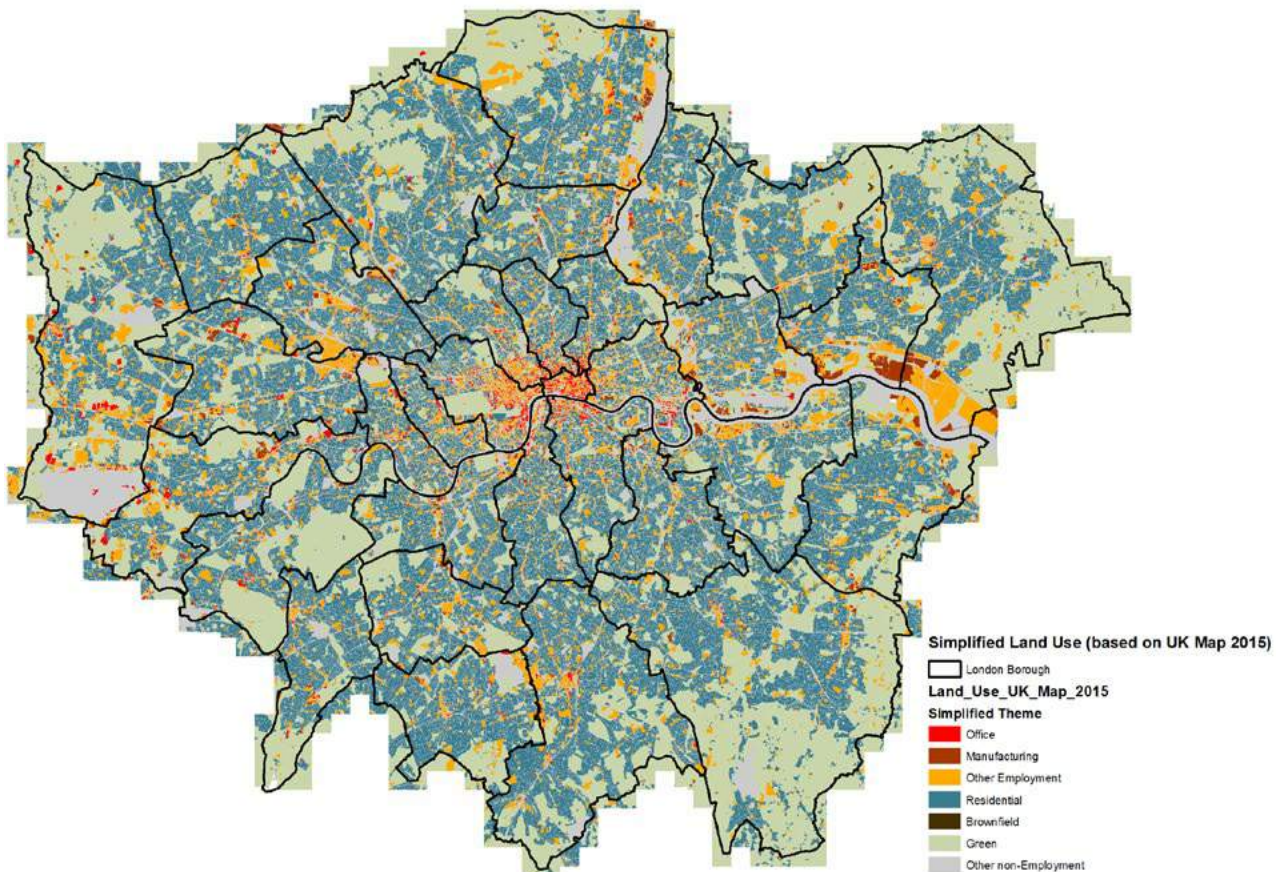


*Source: The GeoInformation Group, UK Map 2015*

Figure 4.1 shows that of the 160,000 hectares of land in London, 57,000 hectares (36 per cent) is in residential use while 40,000 hectares (25 per cent) is 'green' including sports fields, parks, agricultural land, etc. but excluding residential gardens. Employment uses occupy 11 per cent of land in London with offices and general industrial sites (excluding warehousing) both accounting for just 1 per cent of the land area respectively, while other employment uses including retail, warehousing, and public services occupy 9 per cent of total land. Other non-employment uses including land for transport (roads, rail tracks, tunnels, etc.), waste disposal, electricity and gas substations, cemeteries and other uses occupy 28 per cent of the land.

**Figure 4.1: Land use in London, 2015 (%)**
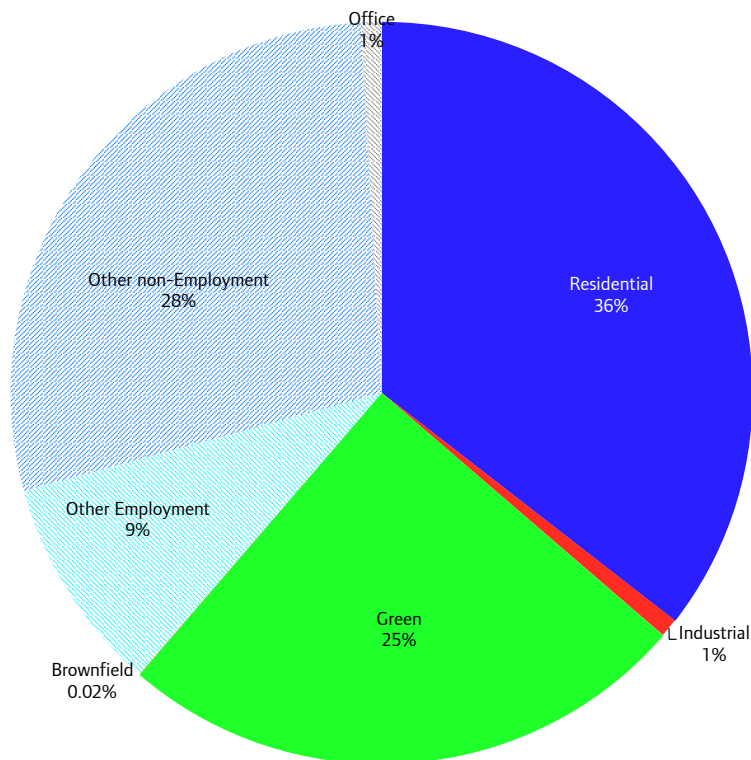


*Source: GLA/the GeoInformation Group, UK Map 2015*[8]

Unlike office and retail space which tends to cluster centrally, industrial and warehousing space in London tends to concentrate in particular 'wedges' or 'pockets' which afford easy access to markets in and out of London. Map 4.2 shows the principal industrial property markets in London.  For more on the spatial distribution of firms in London, see Chapter 2.

**Map 4.2: Principal property market areas for industrial and warehousing**



Map reproduced from GBPro 200 GB (2005 edition). © Colins Bartholomew Ltd (2005). Map for representative purposes only.
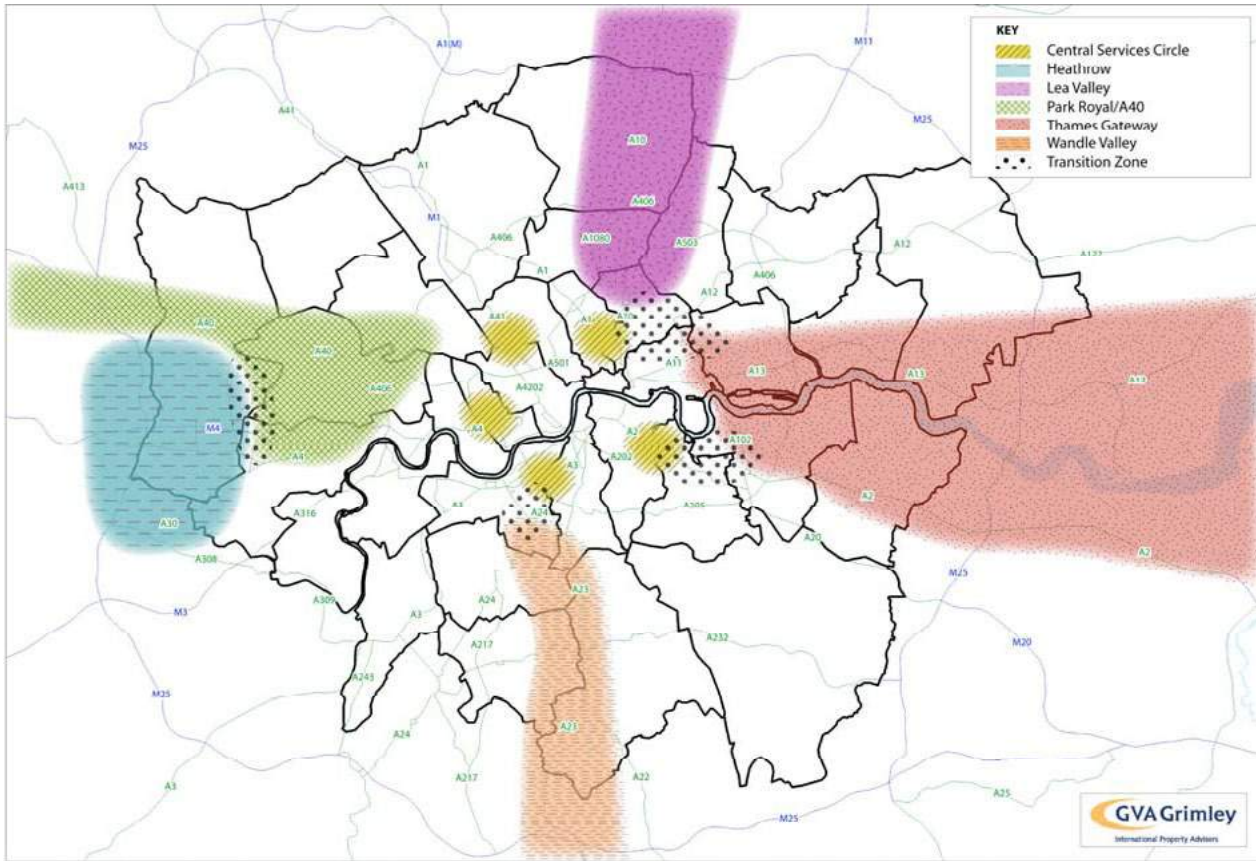
*Source: URS*

## 4.4 Land values

In theory, the value of land in different uses should reflect the underlying demand for the property type built on it relative to the supply of land for that type of use. In practice, it is complicated by a range of factors including *inter alia*: discontinuities in the market (including those introduced by topographical factors), investment and lending patterns, transport accessibility, development potential, planning status and obligations, and many other factors, all of which contribute to a 'complex and irregular mosaic of property values'[9].

Market information on land values per hectare is generally limited as land is traded relatively infrequently and there is little publicly available market information as those transactions that do take place are usually private. Evidence on land prices therefore tends to involve estimating the value from a hypothetical scheme in an area with assumptions made about plot ratios, number of dwellings or floorspace that could be developed, build costs, sales values and other considerations in a typical development appraisal[10]. Standardised estimates of this type for different land use classes by region are no longer published by the Valuation Office Agency (VOA)[11]. For this reason estimates from third parties are used where available.

Residential land values and industrial land values per hectare in London are shown in the Industrial Land Supply and Economy Study[12] commissioned by the GLA to inform the London Plan. The average value of a hectare of residential land in 2015 was £15.7 million but this varies significantly across London from £7.3 million per hectare in Havering to £93.3million in Westminster. These values are reflected in house prices and rents, which are analysed later in this chapter.

Industrial land values are lower and average £4.9 million per hectare with a narrower range of between £2.5 million per hectare in East London up to £6.2 million per hectare in parts of the Park Royal/ Heathrow/A40 sub region and £7.4 million a hectare in central areas where industrial land supply is more limited. Estimates of greenbelt/greenfield land values in London are not published but for context DCLG estimates the value of a typical agricultural site in the South East (outside London and excluding any 'hope' value) to be £22,000 per hectare[13]. This demonstrates starkly the value of securing planning permission to develop land and the type of use for which planning consent is granted.

Residential land values in London were estimated to be on average 3.2 times higher than industrial land values in London in 2015 ranging from a ratio of 1.3 in Brent to 15 in Westminster. The differential in land values highlighted in Table 4.1 also illustrates why there is significant pressure on industrial land in London to be converted for residential use. The loss of industrial land in London is discussed in further detail in Chapter 6.

**Table 4.1: Industrial and residential land values per hectare and per square metre in London, 2015**

| | Industrial £m/ha | Residential £m/ha | Industrial £/per sq.m | Residential £/per sq.m | Ratio residential to industrial |
|---|---|---|---|---|---|
| **London** | **4.9** | **15.7** | **490** | **1570** | **3.2** |
| Central Services Circle | 6.8 | 52.0 | 680 | 5200 | 7.6 |
| Camden | 6.2 | 33.3 | 620 | 3330 | 5.4 |
| City of London | * | * | * | * | * |
| Hackney | 2.5 | 20.7 | 250 | 2070 | 8.3 |
| Islington | 7.4 | 52.0 | 740 | 5200 | 7.0 |
| Kensington & Chelsea | 7.4 | 91.1 | 740 | 9110 | 12.3 |
| Lambeth | 6.2 | 25.4 | 620 | 2540 | 4.1 |
| Lewisham | 2.5 | 14.8 | 250 | 1480 | 5.9 |
| Southwark | 7.4 | 41.1 | 740 | 4110 | 5.6 |
| Tower Hamlets | 2.5 | 19.0 | 250 | 1900 | 7.6 |
| Westminster | 6.2 | 93.3 | 620 | 9330 | 15.0 |
| Lea Valley | 3.7 | 10.4 | 370 | 1040 | 2.8 |
| Enfield | 3.7 | 15.5 | 370 | 1550 | 4.2 |
| Haringey | 3.7 | 10.4 | 370 | 1040 | 2.8 |
| Waltham Forest | 2.5 | 9.4 | 250 | 935 | 3.7 |
| Park Royal/A40/Heathrow | 4.9 | 12.8 | 490 | 1280 | 2.6 |
| Barnet | 3.7 | 15.7 | 370 | 1570 | 4.2 |
| Brent | 6.2 | 8.0 | 620 | 800 | 1.3 |
| Ealing | 4.9 | 12.8 | 490 | 1280 | 2.6 |
| Hammersmith & Fulham | 6.2 | 56.8 | 620 | 5680 | 9.2 |
| Harrow | 6.2 | 14.8 | 620 | 1480 | 2.4 |
| Hillingdon | 4.9 | 11.6 | 490 | 1160 | 2.4 |
| Hounslow | 4.9 | 8.8 | 490 | 880 | 1.8 |
| Richmond upon Thames | 4.9 | 38.0 | 490 | 3800 | 7.8 |
| Thames Gateway | 2.5 | 9.0 | 250 | 895 | 3.6 |
| Barking & Dagenham | 2.5 | 8.0 | 250 | 800 | 3.2 |
| Bexley | 2.5 | 7.5 | 250 | 750 | 3.0 |
| Bromley | 6.2 | 10.1 | 620 | 1010 | 1.6 |
| Greenwich | 2.5 | 24.4 | 250 | 2440 | 9.8 |
| Havering | 2.5 | 7.3 | 250 | 730 | 2.9 |
| Newham | 2.5 | 10.2 | 250 | 1020 | 4.1 |
| Redbridge | 2.5 | 8.9 | 250 | 890 | 3.6 |
| Wandle Valley | 6.2 | 21.5 | 620 | 2150 | 3.5 |
| Croydon | 6.2 | 21.5 | 620 | 2150 | 3.5 |
| Kingston upon Thames | 6.2 | 22.8 | 620 | 2280 | 3.7 |
| Merton | 6.2 | 16.0 | 620 | 1600 | 2.6 |
| Sutton | 6.2 | 14.6 | 620 | 1460 | 2.4 |
| Wandsworth | 6.2 | 24.5 | 620 | 2450 | 4.0 |

*Source: AECOM[14] et al., March 2016*

Savills' land development index, which mostly covers central London, shows that since 2008 the price of residential land has grown at a faster pace than land for offices and hotel developments. Land for residential development now exceeds its pre-crisis peak by more than 30 per cent. This further illustrates the increasing pressure on commercial space in central London areas as a result of rising residential land values.

**Figure 4.2: Savills land development index, prime London**
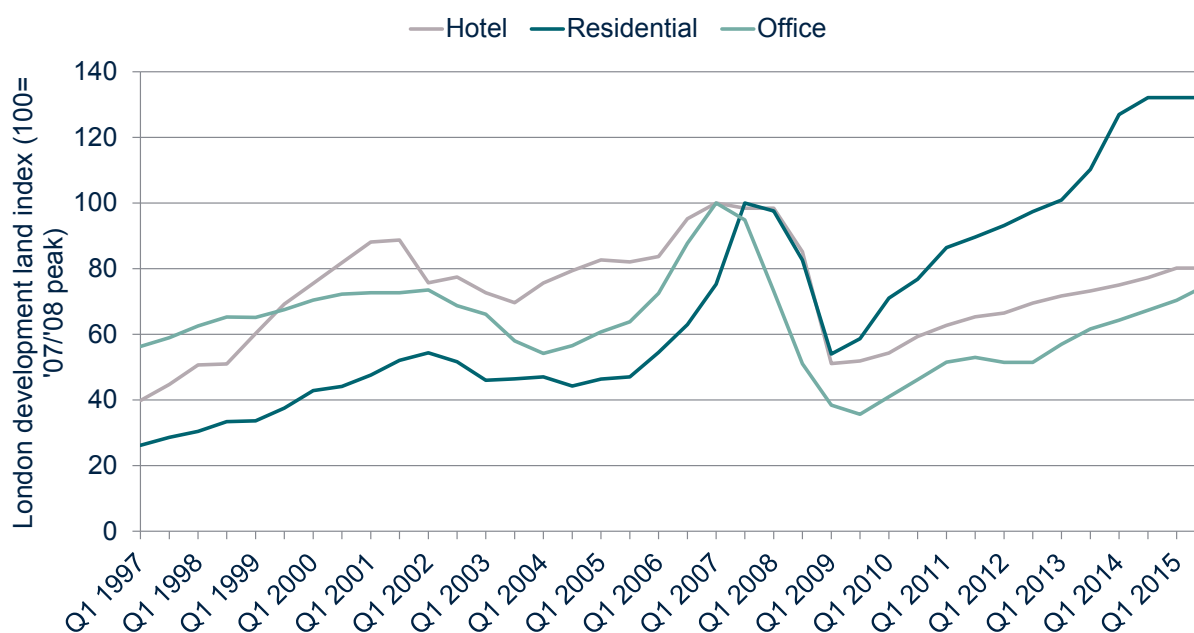


*Source: Savills*

## 4.4.1 Rateable values

The value of commercial and industrial premises are calculated by the Valuation Office Agency (VOA) based on the notional annual rent that a non-domestic property could let for on the open market (the rateable value). Table 4.2 shows that the average rateable value for a property is highest in the office sector at £84,190 compared to £47,350 for warehouses and £20,634 for factories.

**Table 4.2: Number of properties and rateable values in London, by property type**

| | Number of properties (000s) | Total rateable value (£ million) | Average rateable value (£) | London's share of total rateable value in England & Wales |
|---|---|---|---|---|
| Shops | 93 | 3,364 | 36,270 | 25% |
| Offices | 87 | 7,322 | 84,190 | 53% |
| Warehouses | 27 | 1,255 | 47,350 | 15% |
| Factories | 23 | 468 | 20,634 | 9% |
| Other properties | 77 | 4,054 | 52,860 | 20% |
| **All properties** | **306** | **16,545** | **54,028** | **27%** |

*Source: HMRC, non-domestic ratings, 2010 rateable values as at April 2013*

Figure 4.3 shows that per square metre the office and retail sectors in London have the highest rateable values of all regions nationally. Average rateable values in London for all types of land are substantially higher than those in the rest of the country with offices in the capital valued at more than 250 per cent more. London alone accounts for over a quarter of total rateable values in England and Wales.

**Figure 4.3: Rateable values (per sq.m) by commercial land use class across England and Wales, 2012**
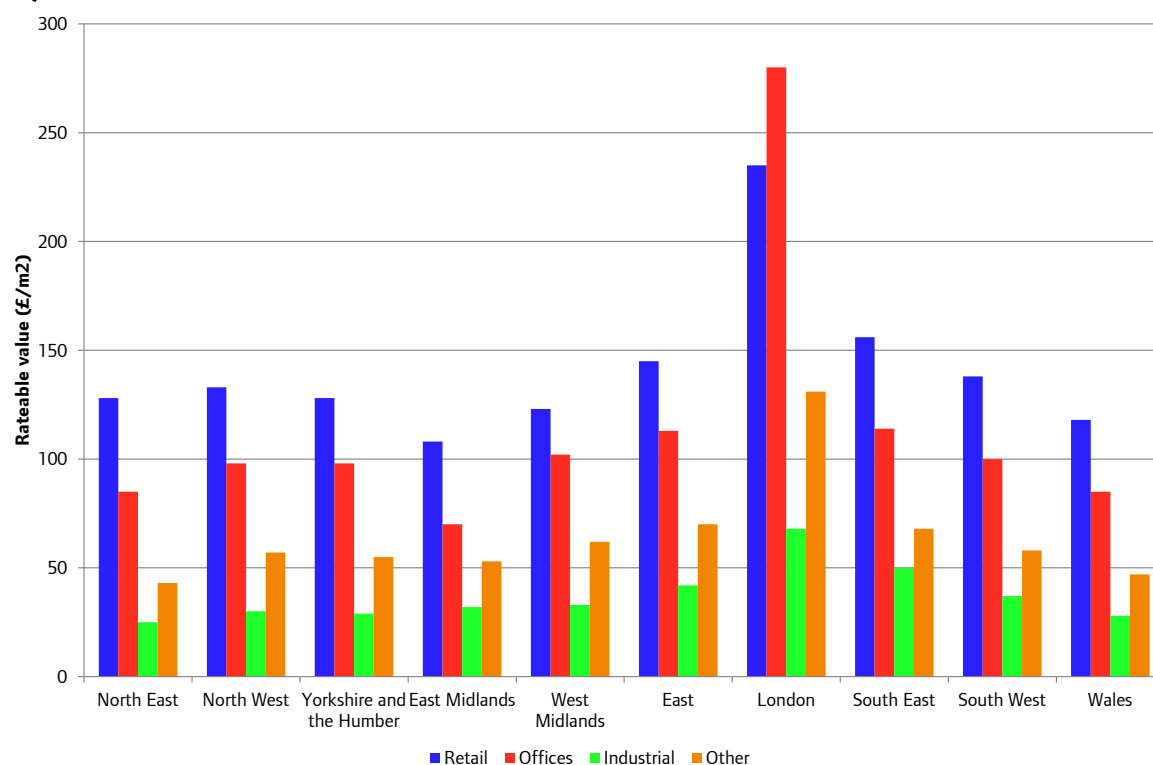


Source: VOA rateable value statistics, 2012

## 4.4.2 Rental values

Rental values for different property types provide an indicator of the value of different types of activities taking place on land. This section provides rental values per annum across London's prime property markets, summarised as follows:

- Prime office rents[15] range between £430 and £1,300 per square metre (£40 to £120 per square foot) in London (see Table 4.3)
- Prime industrial rents[16] range between £118 and £172 per square metre (£11 to £16 per square foot) across London's different submarkets (see Table 4.4).
- Prime retail rents for 'Zone A' (shopfront) space range between £4,800 and £18,800 per square metre (£450-£1750 per square foot) in the main central London shopping areas (see Table 4.5).
- Average residential one bedroom flat rents range from under £194 per square metre (£18 per square foot) in outer London to more than £366 per square metre (£34 per square foot) in central London (see Map 4.3)

It should be noted that each indicator is measured very differently and covers different geographies so care should be taken when drawing comparisons between different markets.

**Office rents**

Looking first at the office market, prime rents in 2015 were highest in the Mayfair and St. James's areas at £1300 per square metre (£120 per square foot) compared to £750 per square metre (£70 per square foot) in the City and £485 per square metre (£45 per square foot) in the Docklands[17]. Total occupancy costs, which include service charges, business rates and other occupier costs, are also shown below.

**Table 4.3: Office Rental Values and Occupancy Costs in London (£ per sq.ft/m per annum), 2015**[18]

| Location | Prime Rents (£ per square foot) | Occupancy Costs (£ per square foot) | Prime Rents (£ per square metre) | Occupancy Costs (£ per square metre) |
|---|---|---|---|---|
| Mayfair | £120 | £179 | £1,292 | £1,927 |
| St James's | £120 | £179 | £1,292 | £1,927 |
| North of Oxford Street | £95 | £145 | £1,023 | £1,555 |
| Soho | £88 | £131 | £942 | £1,410 |
| Belgravia & Knightsbridge | £85 | £138 | £915 | £1,485 |
| Fitzrovia | £85 | £120 | £915 | £1,292 |
| Covent Garden | £79 | £117 | £850 | £1,254 |
| Marylebone, Euston & King's Cross | £78 | £106 | £834 | £1,136 |
| Victoria | £80 | £119 | £861 | £1,281 |
| Bloomsbury | £75 | £110 | £807 | £1,184 |
| City - Core | £70 | £101 | £753 | £1,082 |
| Kensington and Chelsea | £65 | £105 | £700 | £1,130 |
| City - Midtown | £68 | £102 | £727 | £1,098 |
| City - Eastern | £68 | £98 | £727 | £1,055 |
| City - Northern | £70 | £101 | £753 | £1,082 |
| City - Southern | £68 | £97 | £727 | £1,044 |
| City - Western | £70 | £100 | £753 | £1,076 |
| Paddington | £65 | £95 | £700 | £1,023 |
| Clerkenwell | £68 | £91 | £727 | £980 |
| Shoreditch | £65 | £86 | £700 | £926 |
| Waterloo | £58 | £82 | £619 | £883 |
| Southbank | £63 | £91 | £673 | £974 |
| Aldgate | £60 | £85 | £646 | £915 |
| Hammersmith | £53 | £79 | £565 | £845 |
| Camden | £53 | £78 | £565 | £834 |
| Battersea | £48 | £71 | £511 | £764 |
| Vauxhall | £50 | £74 | £538 | £797 |
| Docklands | £45 | £71 | £484 | £759 |
| Stratford | £40 | £57 | £431 | £614 |

*Source: JLL Research, Central London Office Market Report Q4 2015*

## Industrial rents

Prime industrial rents are generally lower than office rents in London. As with office rents these vary across different parts of London reflecting the balance of demand and supply for space in different areas. In the principal industrial submarkets, they range from a high of £172 per square metre (£16 per square foot) in the Central Services Area and £162 per square metre (£15 per square foot) in Heathrow and Park Royal to lows of £118 per square metre (£11 per square foot) in parts of the Thames Gateway.

## Table 4.4: Industrial rents in London (£ per sq.ft/m per annum), 2015

| | Rental Value £ per sq.ft Mid | Rental Value £ per sq.ft Low | Rental Value £ per sq.ft: High | Rental Value £ per sq.m Mid | Rental Value £ per sq.m: Low | Rental Value £ per sq.m: High |
|---|---|---|---|---|---|---|
| **London** | **£10.25** | **£5.00** | **£16.00** | **£110.25** | **£53.75** | **£172.25** |
| Central Services Circle | £9.75 | £8.00 | £16.00 | £105.00 | £86.00 | £172.25 |
| Camden | £10.00 | £8.00 | 16.00 | £107.75 | £86.00 | £172.25 |
| City of London | * | * | * | * | * | * |
| Hackney | £10.00 | £5.00 | 11.50 | £107.75 | £53.75 | £123.75 |
| Islington | £12.00 | £10.0 | 15.00 | £129.25 | £107.75 | £161.50 |
| Kensington and Chelsea | £10.00 | * | * | £107.75 | * | * |
| Lambeth | £10.00 | £8.00 | 15.00 | £107.75 | £86.00 | £161.50 |
| Lewisham | £9.00 | £7.00 | 10.00 | £97.00 | £75.25 | £107.75 |
| Southwark | £9.50 | £8.00 | 13.00 | £102.25 | £86.00 | £140.00 |
| Tower Hamlets | £10.00 | £7.00 | 15.00 | £107.75 | £75.25 | £161.50 |
| Westminster | £12.00 | * | * | £129.25 | * | * |
| Lea Valley | £9.50 | £6.50 | £12.50 | £102.25 | £70.00 | £134.50 |
| Enfield | £9.00 | £7.00 | £9.50 | £97.00 | £75.25 | £102.25 |
| Haringey | £8.00 | £7.00 | 10.00 | £86.00 | £75.25 | £107.75 |
| Waltham Forest | £11.00 | £7.50 | 13.50 | £118.50 | £80.75 | £145.25 |
| Park Royal/A40/Heathrow | £11.50 | £7.00 | £15.00 | £123.75 | £75.25 | £161.50 |
| Barnet | £10.00 | £8.00 | 14.00 | £107.75 | £86.00 | £150.75 |
| Brent | £12.50 | £8.50 | 14.00 | £134.50 | £91.50 | £150.75 |
| Ealing | £11.00 | £7.50 | 13.00 | £118.50 | £80.75 | £140.00 |
| Hammersmith and Fulham | £14.00 | £10.0 | 15.00 | £150.75 | £107.75 | £161.50 |
| Harrow | £11.00 | £8.50 | 13.00 | £118.50 | £91.50 | £140.00 |
| Hillingdon | £11.00 | £7.00 | 15.00 | £118.50 | £75.25 | £161.50 |
| Hounslow | £12.00 | £8.00 | 15.00 | £129.25 | £86.00 | £161.50 |
| Richmond upon Thames | £9.00 | £7.50 | 13.00 | £97.00 | £80.75 | £140.00 |
| Thames Gateway | £8.50 | £5.00 | £11.00 | £91.50 | £53.75 | £118.50 |
| Barking and Dagenham | £7.00 | £5.00 | £9.50 | £75.25 | £53.75 | £102.25 |
| Bexley | £7.50 | £5.00 | £9.00 | £80.75 | £53.75 | £97.00 |
| Bromley | £10.00 | £6.00 | 11.00 | £107.75 | £64.50 | £118.50 |
| Greenwich | £10.00 | £5.00 | 10.00 | £107.75 | £53.75 | £107.75 |
| Havering | £7.00 | £6.50 | £8.00 | £75.25 | £70.00 | £86.00 |
| Newham | £11.50 | £6.50 | 12.50 | £123.75 | £70.00 | £134.50 |
| Redbridge | £9.00 | £5.00 | 11.00 | £97.00 | £53.75 | £118.50 |
| Wandle Valley | £11.25 | £6.00 | £13.50 | £121.00 | £64.50 | £145.25 |
| Croydon | £10.25 | £7.00 | 12.00 | £110.25 | £75.25 | £129.25 |
| Kingston upon Thames | £12.00 | £7.00 | 13.00 | £129.25 | £75.25 | £140.00 |
| Merton | £10.50 | £6.00 | 11.50 | £113.00 | £64.50 | £123.75 |
| Sutton | £11.75 | £7.50 | 12.00 | £126.50 | £80.75 | £129.25 |
| Wandsworth | £13.00 | £8.00 | 13.50 | £140.00 | £86.00 | £145.25 |

*Source: DTZ in AECOM, Cushman and Wakefield 2015. Note: * = insufficient data.*

**Retail rents**

Retail rents also vary significantly across London's main shopping areas. Prime retail space in the luxury market can command the highest rents among all commercial land use classes as illustrated in Table 4.5. Research by BNP Paribas[19] shows that in Bond Street's luxury market, a rent of £18,837 per square metre (£1,750 per square foot) was achieved in the first quarter of 2016.  This is based on Zone A space, a classification used in the valuation of retail space which is equivalent to the shopfront area[20].  Rents in Bond Street make it some of the most expensive retail real estate in Europe and are on a par with Hong Kong, Tokyo and New York[21].

**Table 4.5: Central London prime retail rents (£ per sq.ft/m per annum), Q1 2016**

| Location | Rents Zone A (£ per square foot) | Rents Zone A (£ per square metre) |
|---|---|---|
| Bond Street | 1,750 | 18,837 |
| Oxford Street | 1,015 | 10,925 |
| Knightsbridge | 800 | 8,611 |
| Covent Garden | 700 | 7,535 |
| Regent Street | 650 | 6,997 |
| Kings Road | 450 | 4,844 |

*Source: BNP Paribas. Note: Based on the highest rent achieved in the location for 'Zone A' (shopfront) space.*

Town Centre Health Checks[22] undertaken in 2013 by the GLA examined rents (and other indicators of performance) for a number of retail centres across London. Drawing on this research, rents for Zone A space in some of London's other main retail centres[23] are summarised in Table 4.6. While this data is from 2012, it can be seen that rents are considerably lower in these areas.

**Table 4.6: Retail rents in centres across London (£ per sq.ft/m per annum), 2012**

| Location | Rents Zone A (£ per square foot) | Rents Zone A (£ per square metre) |
|---|---|---|
| West End | 1,000 | 10,764 |
| Knightsbridge | 635 | 6,835 |
| Croydon | 220 | 2,368 |
| Ealing | 110 | 1,184 |
| Shepherds Bush | 325 | 3,498 |
| Wood Green | 110 | 1,184 |
| Harrow | 115 | 1,238 |
| Romford | 170 | 1,830 |
| Kingston | 300 | 3,229 |
| Ilford | 105 | 1,130 |
| Sutton | 75 | 807 |
| Hounslow | 75 | 807 |

*Source: Colliers/GLA*

**Residential rents**

In the residential lettings market, average advertised rents for one bedroom flats range from under £194 per square metre (£18 per square foot) in outer London to more than £366 per square metre (£34 per square foot) in central London[24]. Rental and sales values in the residential market are discussed in further detail later in this chapter.

**Map 4.3: Average rent for one bedroom flats (£ per sq.ft/per annum), 2015**
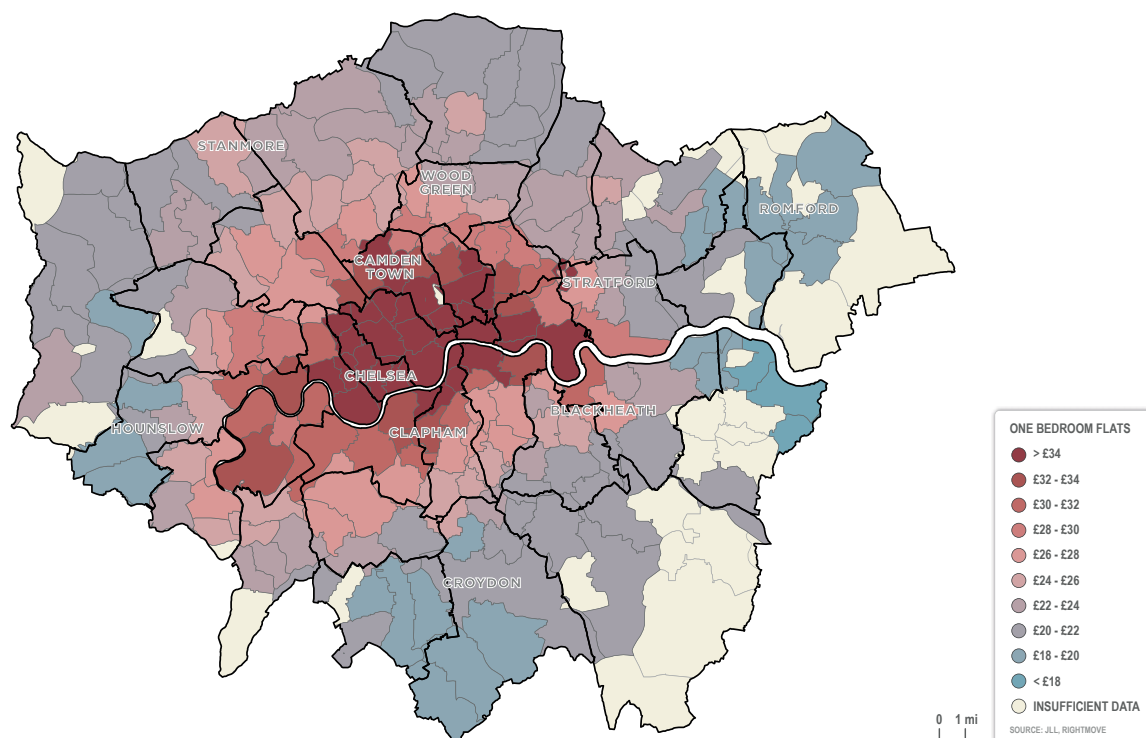


*Source: JLL/Rightmove, 2016*

## 4.5 Land use change in London

The land values and rents discussed above are important drivers of land use change in London, acting as price signals in the market for land and property. The following section considers how land use is changing in London as a consequence of these price signals and other drivers of land use change.

### 4.5.1 Land changing to residential use

Figure 4.4 shows gross housing completions in London over the period 2008-2014 from the London Development Database, broken down according to the previous use of the land. In 2008 close to 30 per cent of new units were built on land that was residential but in 2014 this fell to 24 per cent suggesting a slight decline in the proportion of completions on residential land (the blue component of the bar chart). Conversely the proportion of homes built on non-residential land appears to have increased slightly. In 2008, 57.5 per cent of homes were built on non-residential land and by 2014 this increased to 62 per cent.

**Figure 4.4: Gross housing completions in London by previous land use**
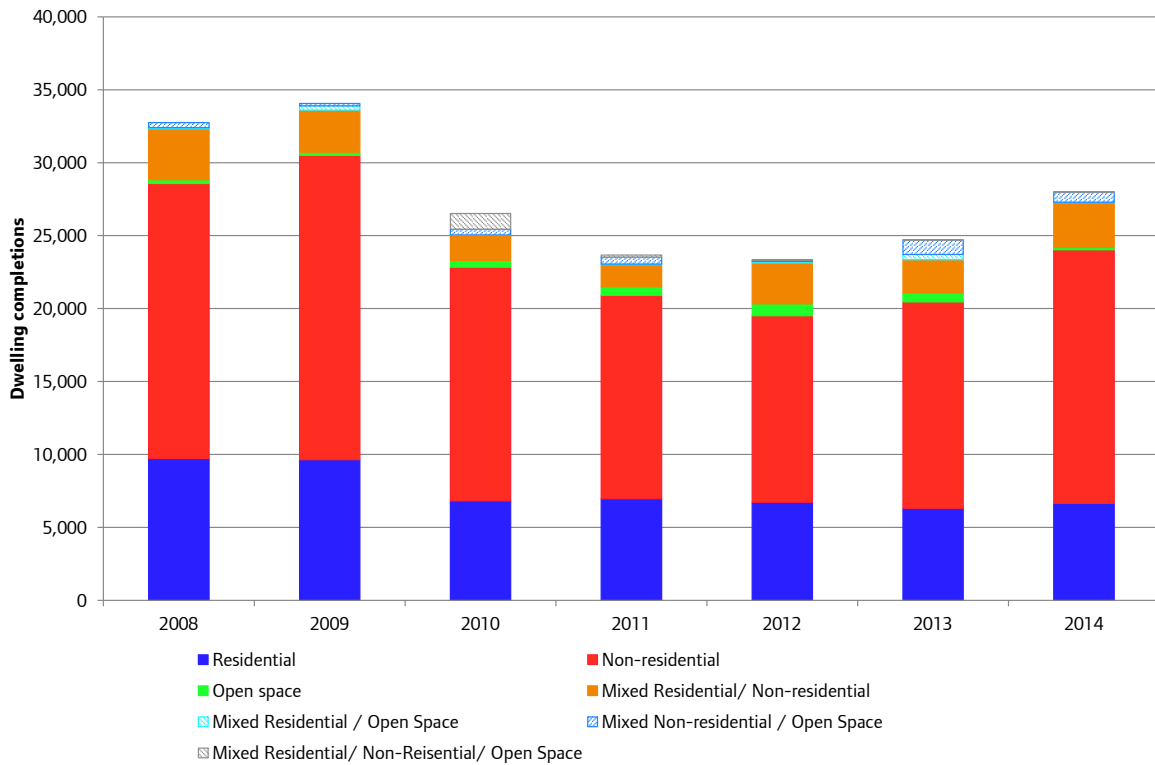


Source: London Development Database

Figure 4.5 examines the non-residential component in Figure 4.4 in more detail. In 2014, around 24 per cent of dwellings created on non-residential land were formerly offices, an increase on previous years when closer to 12 per cent were created from office space. This may be due the impact of Permitted Development Rights (discussed below and in Chapter 6). The 'other' category in Figure 4.5 includes hotels, hostels, care homes, non-residential institutions, leisure uses and sui generis[25] uses.

**Figure 4.5: Gross housing completions in London from previously non-residential land**
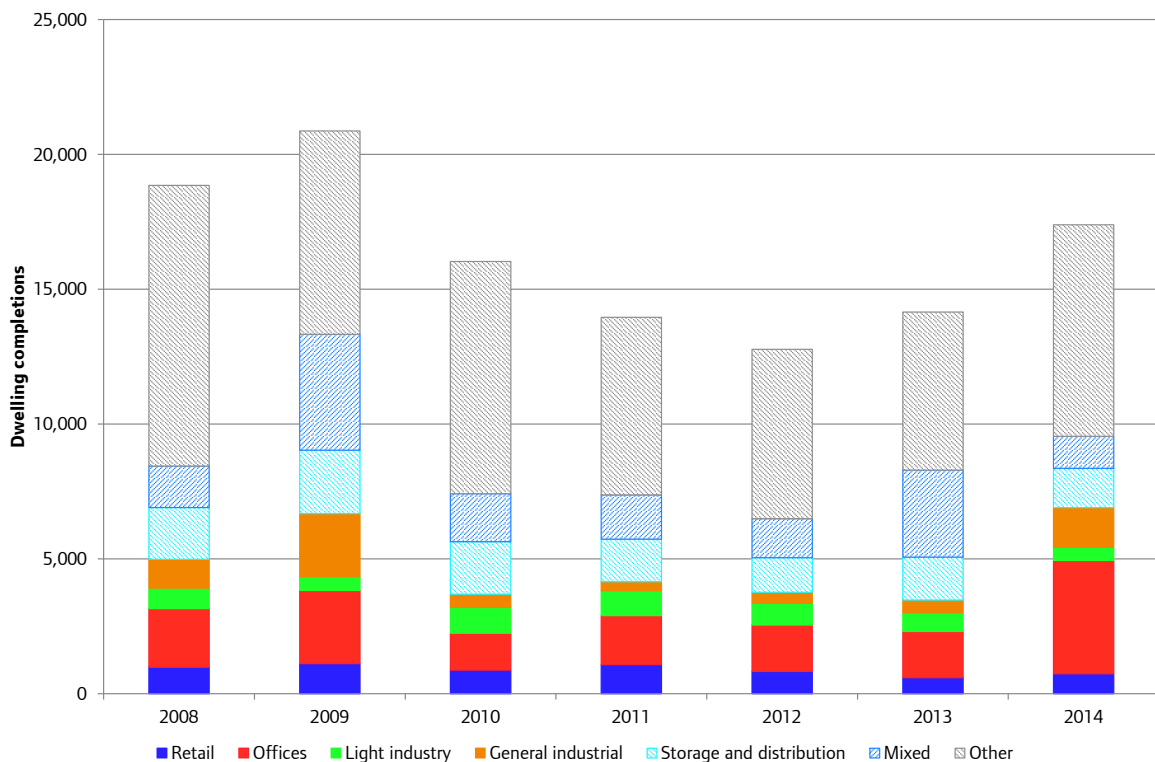


Source: London Development Database

## 4.5.2 Office to residential conversions

Evidence from the London Development Database suggests that changes in land use between commercial and residential are translating into relatively large losses in the availability of commercial floorspace for some boroughs. The introduction of Permitted Development Rights (PDR) in May 2013 to fast-track the conversion of offices to homes has resulted in the following:

- At least 2,800 office-to-residential prior approval applications were made across London between May 2013 and April 2015, of which over 2,000 were approved.

- If all of the schemes that have been approved but not superseded were to be developed, they would provide around 18,000 new residential dwellings. Around 5,300 of these had either been started or completed by the end of March 2015.

- If all of the approved schemes were implemented, more than 1.1 million square metres of floorspace could be lost at an average of around 650 square metres per scheme. This is equivalent to a loss of around four per cent of London's stock of office floorspace.

- In terms of occupancy, 55 per cent of the schemes were either occupied or part occupied at the time of the application (of those schemes where data was available[26]).

- A total of 310,000 square metres of office floorspace are estimated to have been lost through schemes that have started or completed as a result of permitted development rights. This is equivalent to a loss of around one per cent of London's stock of office floorspace.

Table 4.7 shows where in London the highest amount of floorspace was proposed for conversion to residential use under Permitted Development Rights to March 2015. The five boroughs with the highest amount of floorspace proposed for conversion were Croydon, Camden, Sutton, Richmond and Harrow.

**Table 4.7: Office floorspace converted to residential use under Permitted Development Rights (PDR) to March 2015**

| Planning Authority | Number of prior approvals for which floorspace data is available | Potential office floorspace lost | Total office floorspace m² 2012 | % of stock potentially lost to PDR | Dwellings proposed |
|---|---|---|---|---|---|
| Croydon | 97 | 137,632 | 640,000 | 22% | 2,452 |
| Camden | 109 | 79,369 | 2,137,000 | 4% | 934 |
| Sutton | 62 | 76,395 | 163,000 | 47% | 1,080 |
| Richmond upon Thames | 203 | 70,421 | 300,000 | 23% | 862 |
| Harrow | 62 | 69,160 | 224,000 | 31% | 1,151 |
| Barnet | 87 | 66,195 | 356,000 | 19% | 1,093 |
| Wandsworth | 117 | 52,734 | 310,000 | 17% | 691 |
| Hounslow | 49 | 50,226 | 756,000 | 7% | 820 |
| Islington | 79 | 48,650 | 1,455,000 | 3% | 748 |
| Hammersmith and Fulham | 109 | 43,359 | 763,000 | 6% | 495 |
| Lambeth | 82 | 40,085 | 290,000 | 14% | 610 |
| Brent | 37 | 38,141 | 277,000 | 14% | 621 |
| Bromley | 69 | 36,748 | 295,000 | 12% | 619 |
| Kingston upon Thames | 65 | 36,333 | 485,000 | 7% | 582 |
| Hillingdon | 30 | 34,648 | 664,000 | 5% | 684 |
| Lewisham | 33 | 28,634 | 633,000 | 5% | 503 |
| Merton | 66 | 26,277 | 266,000 | 10% | 423 |
| Tower Hamlets | 29 | 24,464 | 2,458,000 | 1% | 378 |
| Ealing | 59 | 21,634 | 442,000 | 5% | 337 |
| Enfield | 25 | 18,866 | 202,000 | 9% | 323 |
| Redbridge | 20 | 16,374 | 156,000 | 10% | 304 |
| Southwark | 32 | 14,923 | 1,270,000 | 1% | 203 |
| Westminster | 23 | 11,598 | 5,373,000 | 0% | 111 |
| Waltham Forest | 33 | 9,229 | 101,000 | 9% | 198 |
| Barking and Dagenham | 9 | 8,250 | 101,000 | 8% | 124 |
| Havering | 14 | 7,271 | 154,000 | 5% | 137 |
| Newham | 11 | 6,893 | 242,000 | 3% | 138 |
| Haringey | 18 | 6,401 | 141,000 | 5% | 129 |
| Bexley | 9 | 5,378 | 151,000 | 4% | 93 |
| Hackney | 19 | 3,863 | 546,000 | 1% | 67 |
| Greenwich | 11 | 3,844 | 155,000 | 2% | 72 |
| LLDC[27] | 2 | 555 | N/A | N/A | 9 |
| Total | 1670 | 1,094,549 | 21,506,000 | 5% | 16,991 |

*Sources: London Development Database/VOA/GLA Economics. Notes: Only includes schemes for which office floorspace being lost through PDR was available - the total number of schemes with prior approval to March 2015 was 2,003 so the floorspace potentially lost will be higher than summed in this table. Boroughs wholly covered by exemptions to PDR are excluded so this does not represent total office floorspace stock in London (which was 26.7million square metres in 2012, the last year for which data is available from the Valuation Office Agency).*

While the percentage of stock being lost remains relatively small in the context of London's total stock of office floorspace, it is clear that some boroughs are being affected more than others. The trends presented here provide early signs of the impact PDR is having in changing land from commercial to residential use. Chapter 6 considers the potential risks to the economy if commercial space were to be crowded out by the demand for housing. The GLA continues to monitor the impact of Permitted Development Rights and new data for the year 2015/16 will be published in due course.

## 4.5.3 Changes in business floorspace

The following examines changes in business floorspace using Valuation Office Agency (VOA) data. It should be noted that this data only covers the period 2000-2012. Across London there was 69.5 million square metres of business floorspace in 2012 (the latest available data). Offices were the most common use, making up over 38 per cent of the commercial floorspace in London, up from 34 per cent in 2000. Having fallen by seven percentage points between 2000 and 2012, industrial floorspace made up 30 per cent of the total, retail space accounted for 24 per cent (broadly similar to the 23 per cent in 2000), while 7 per cent of space was for other uses – an increase of 1 percentage point over the 12 year period.

The patterns of changes in business floorspace use over this period are different across inner London when compared to outer London. Total business floorspace in inner London remained broadly unchanged between 2000 and 2012, falling by 140,000 square metres (0.4 per cent) at an average of 12,000 square metres per year over this period. In outer London between 2000 and 2012 total business floorspace fell by 1.9 per cent or around 600,000 square metres – an average of 51,000 square metres per year.

**Figure 4.6: Business floorspace in inner and outer London, 2000 and 2012**
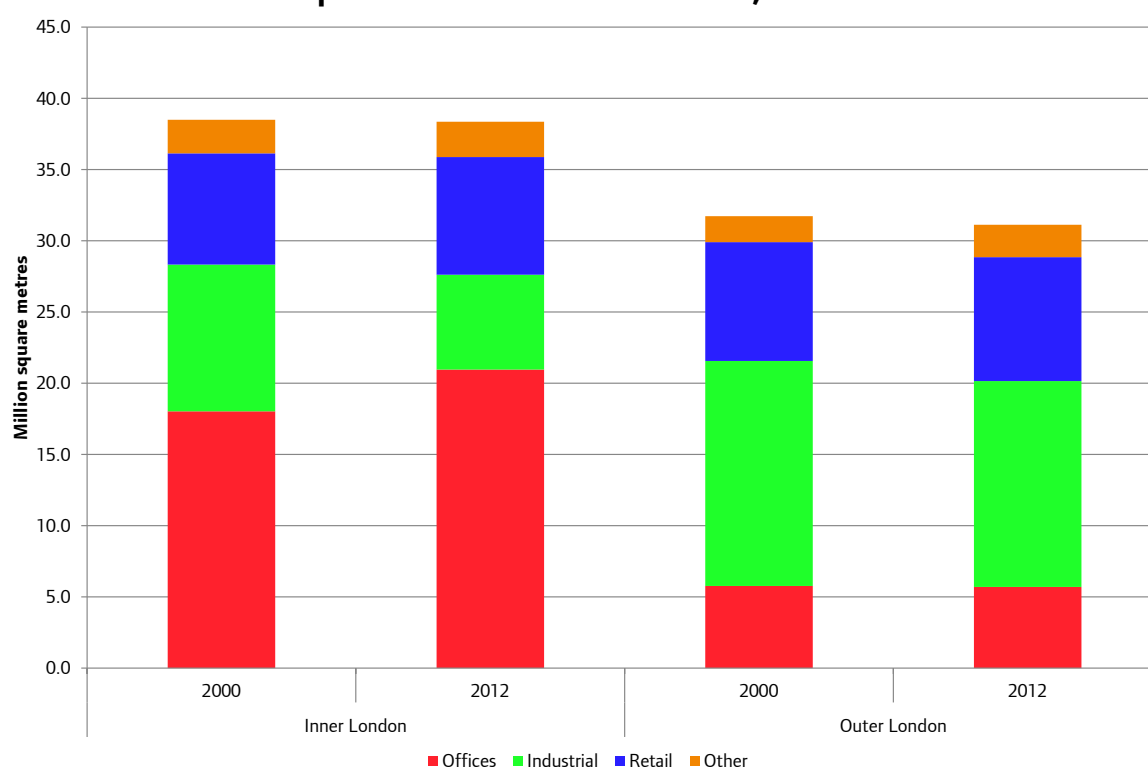


*Source: VOA 2000-2012*

Total office floorspace took up 26.7 million square metres of floorspace in 2012, up 12 per cent from 23.8 million square metres in 2000, an average increase of around 240,000 square metres per year. Almost 80 per cent of the office space was located in inner London, which increased by 2.9 million square metres between 2000 and 2012, an average of around 240,000 square metres per year. The change was primarily driven by increases in the City of London and Tower Hamlets, with these two boroughs accounting for almost two-thirds of the increase, adding 1.9 million square metres between them – or 160,000 square metres each year. These two boroughs, along with Westminster, account for almost half of the office floorspace across London (12.8 million square metres). In outer London, the total stock of office space remained relatively static, declining by 67,000 square metres or 6,000 square metres per year, to 5.7 million square metres.

Retail premises take up 17 million square metres of floorspace, and are spread widely across London, with 49 per cent located in inner London and 51 per cent in outer London. From 2000 to 2012 the total retail floorspace remained relatively constant, increasing by 5 per cent over this period – around 800,000 square metres in total, or 67,000 per year. Within London's town centres, total occupied retail floorspace covered approximately 7.1 million square metres in 2012, up 140,000 square metres from 2007. Strong growth in convenience retail floorspace (+175,000 square metres, +14%) was counterbalanced by modest reductions in comparison retail floorspace of 13,000 square metres, and service retail floorspace of 22,000 square metres)[28]. In inner London retail space increased by around 40,000 square metres per year (460,000 square metres in total) between 2000 and 2012. Meanwhile in outer London retail floorspace increased by around 350,000 square metres in total or 29,000 each year.

A further 21.1 million square metres are taken up by industrial uses including warehousing, reflecting a 19 per cent fall between 2000 to 2012, when industrial floorspace decreased by 5 million square metres or 415,000 square metres per year[29]. Industrial floorspace fell by 35 per cent in inner London between 2000 and 2012, a 3.7 million square metre decline or an average of over 300,000 square metres per year. In outer London the falls in industrial space were slower at around 110,000 square metres per year, falling to 14.4 million in 2012 from 15.8 million in 2000.

**Figure 4.7: Business floorspace in London, 2000-2012**
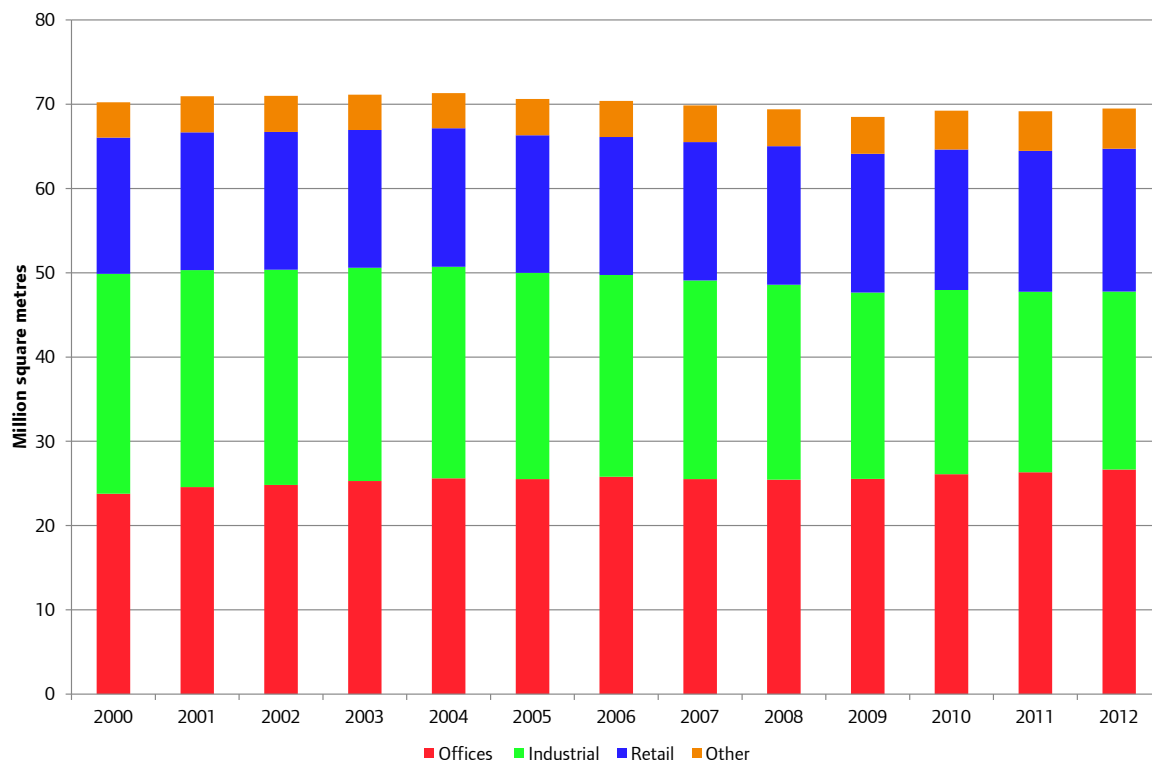


*Source: VOA 2000-2012*

## 4.6 House prices

The value of residential property in London has been increasing in recent years. London's house prices are considerably higher, and have been rising at a faster rate, than the country as a whole. In each year since Land Registry records began in 1995, the official house price index shows that average house prices in London[30] have exceeded the average for every other region in England and Wales. This gap in average house prices between London and the country as a whole has also grown larger in each year. The only exception to this was in 2009 when the average price paid for properties in London fell by £45,000 in 12 months to January 2009. This exceeded the fall in average prices in England and Wales of £29,000 over this recession period (see Figure 4.8).

In the period from 1995 to 2016 the gap between the average prices paid for housing across London boroughs has also grown bigger. This reflects the rapid increase in house prices in central areas, where house prices were relatively high at the start of the period.

**Figure 4.8: House prices in London and in England and Wales, 1995-2016**
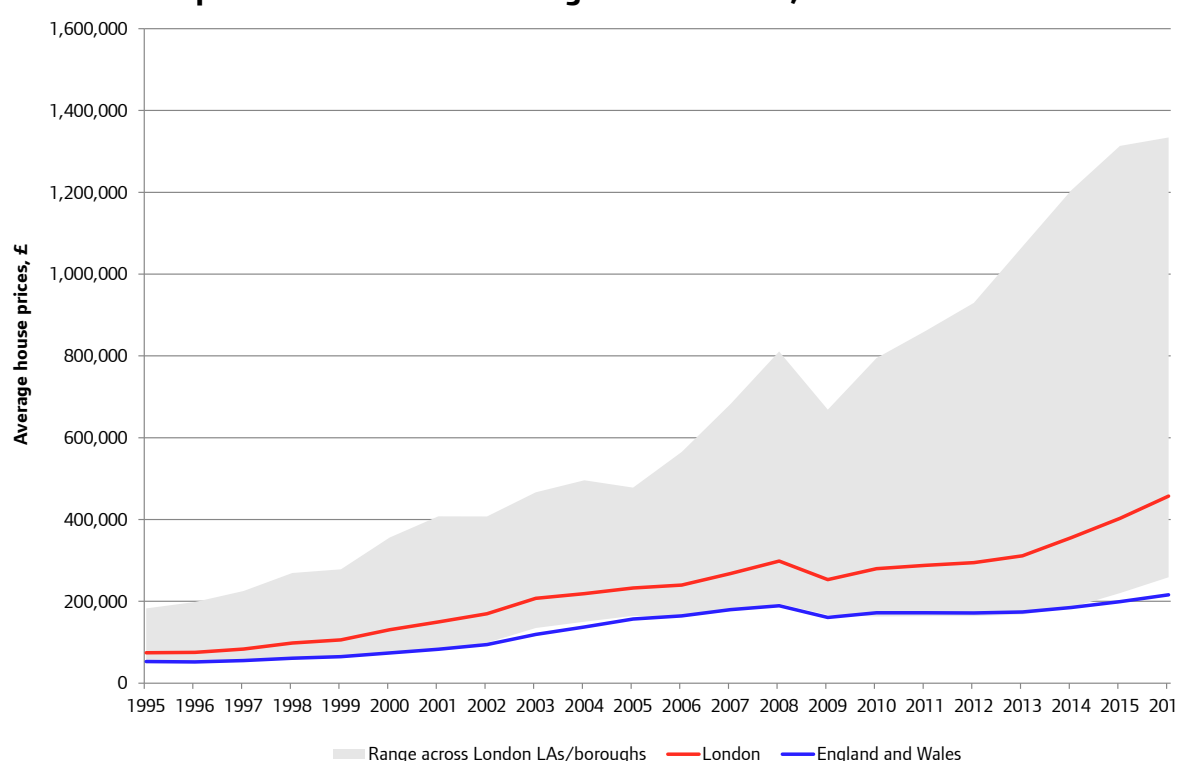


*Source: ONS and Land Registry, official house prices index, average (geometric mean) prices as of January.*

This is particularly true in desirable central London boroughs where average house prices in April 2016 were as high as £976,000 in Westminster, and £1.31 million in Kensington and Chelsea. This compares to a London borough low average house price of £272,000 in Barking and Dagenham. This is still higher than the national average for England of £220,000 (see Map 4.4).

**Map 4.4: Average house prices across London, April 2016**

| | | | | Enf | | |
|---|---|---|---|---|---|---|
| | | | | £379,174 | | |

| | Hrw | Brn | Hgy | Wth | |
|---|---|---|---|---|---|
| | £451,907 | £512,316 | £537,527 | £424,663 | |

| Hdn | Elg | Brt | Cmd | Isl | Hck | Rdb |
|---|---|---|---|---|---|---|
| £395,562 | £477,627 | £485,870 | £872,369 | £665,791 | £533,875 | £386,014 |

| Hns | Hms | Kns | Wst | Cty | Tow | Nwm |
|---|---|---|---|---|---|---|
| £382,648 | £780,863 | £1,314,702 | £975,595 | £928,217 | £468,478 | £347,584 |

| Rch | Wns | Lam | Swr | Lsh | Grn |
|---|---|---|---|---|---|
| £650,955 | £606,611 | £526,337 | £516,675 | £410,126 | £366,517 |

| Kng | Mrt | Crd | Brm |
|---|---|---|---|
| £484,213 | £505,712 | £345,858 | £423,901 |

| Stn | London |
|---|---|
| £357,563 | £470,025 |
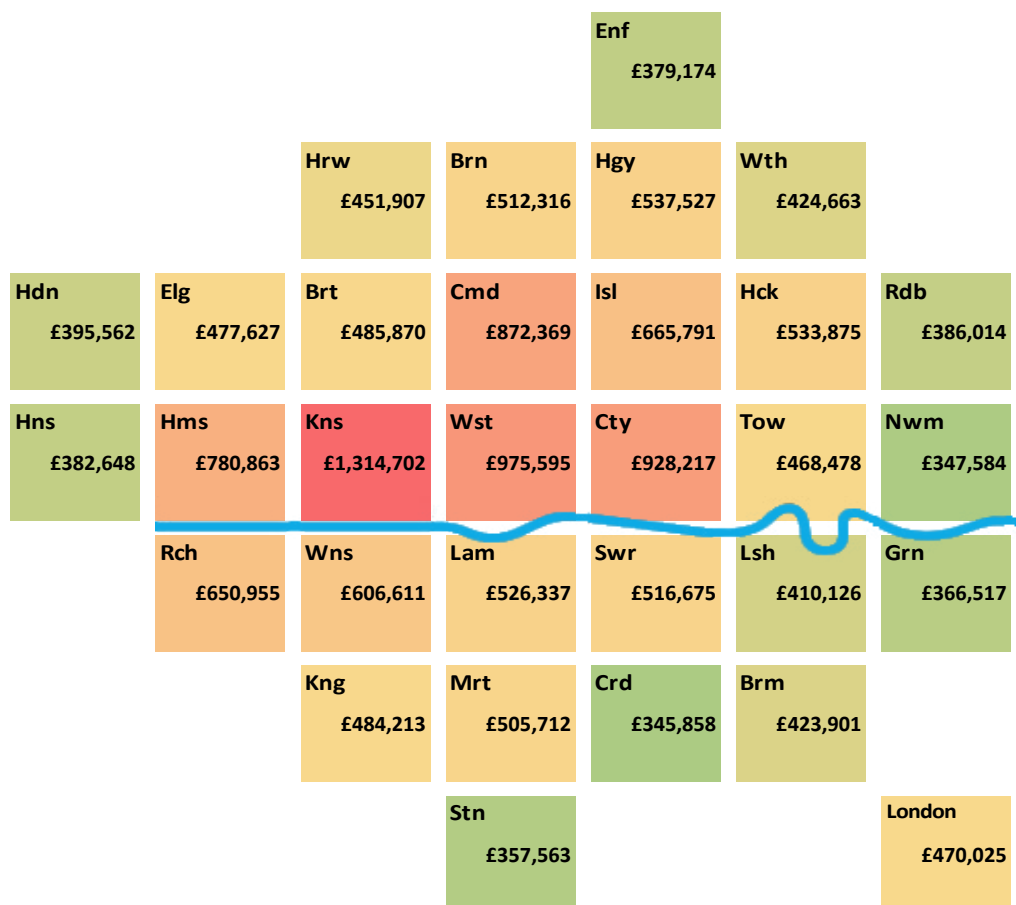
*Source: ONS/Land Registry, Official House Price Index, April 2016*

High house prices have also spread beyond London's borders. This may partly be a result of people living outside of the capital and commuting in for work (considered in chapters 2 and 9). Neighbouring counties such as Surrey, Essex, Kent, Buckinghamshire and Hertfordshire have areas where the median house price exceeds £400,000 (see Map 4.5).

**Map 4.5: Median house prices in London and the Greater South East, 2015**



Note: MSOA denotes Middle-layer Super Output Areas
Contains National Statistics data © Crown copyright and database right 2015
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**Median house prices by MSOA**

- 78,000 - 200,000
- 200,001 - 249,950
- 249,951 - 305,000
- 305,001 - 399,950
- 399,951 - 3,500,000
- Greater London Authority
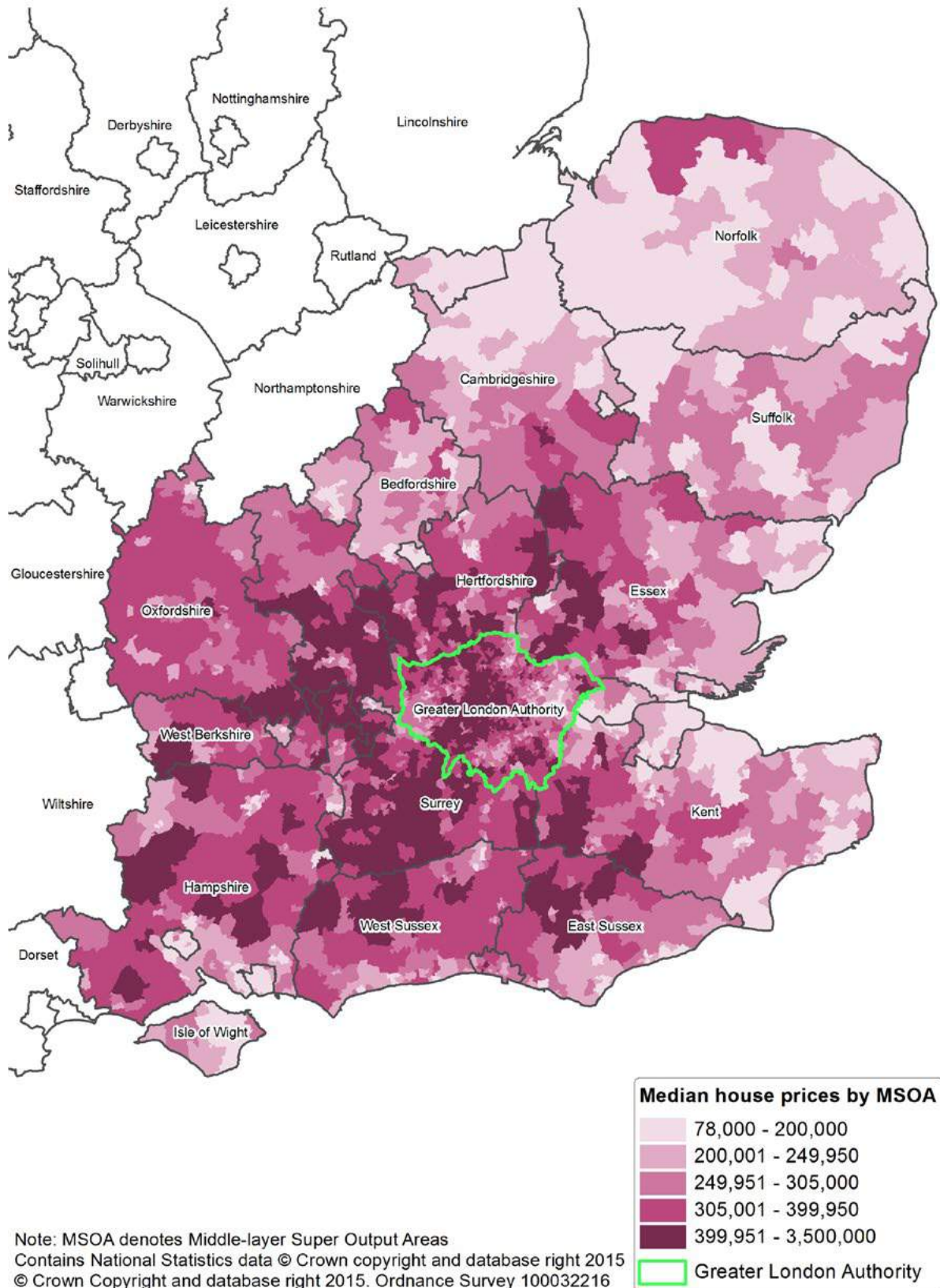
*Source: ONS House price statistics for small areas, using Land Registry price paid data.*

## 4.6.1 Private rents in London

As with the price of buying a home, the median price of private monthly rents in London is also considerably higher than in England as a whole. Based on data on private monthly rents from the VOA, median rents in London in 2015/16 were £1,452 per month, more than twice as high as median rents in England as a whole (£650 per month). The VOA data provides a 'snapshot' on the median value of private monthly rents, and although it cannot enable robust comparisons over time, it can be used to illustrate the differences in average rents across London[31].

Map 4.6 shows that in the 12 months to March 2016, the median monthly private rent was highest in Kensington and Chelsea (£2,492) and Westminster (£2,383). While considerably lower, median rents recorded in the London Boroughs of Havering and Bexley were £1,000, 54 per cent above the national average.

**Map 4.6: Median monthly private rents by local authority, 2015/16**

| | | | Enf £1,250 | | | |
|---|---|---|---|---|---|---|
| | Hrw £1,300 | Brn £1,387 | Hgy £1,400 | Wth £1,200 | | |
| Hdn £1,150 | Elg £1,350 | Brt £1,473 | Cmd £1,950 | Isl £1,733 | Hck £1,668 | Rdb £1,150 | Hvg £1,000 |
| Hns £1,450 | Hms £1,582 | Kns £2,492 | Wst £2,383 | Cty £2,102 | Tow £1,625 | Nwm £1,300 | Bar £1,100 |
| | Rch £1,595 | Wns £1,650 | Lam £1,560 | Swr £1,473 | Lsh £1,200 | Grn £1,275 | Bxl £1,000 |
| | Kng £1,300 | Mrt £1,400 | Crd £1,075 | Brm £1,195 | | |
| | Stn £1,075 | | | London £1,452 | England £650 |
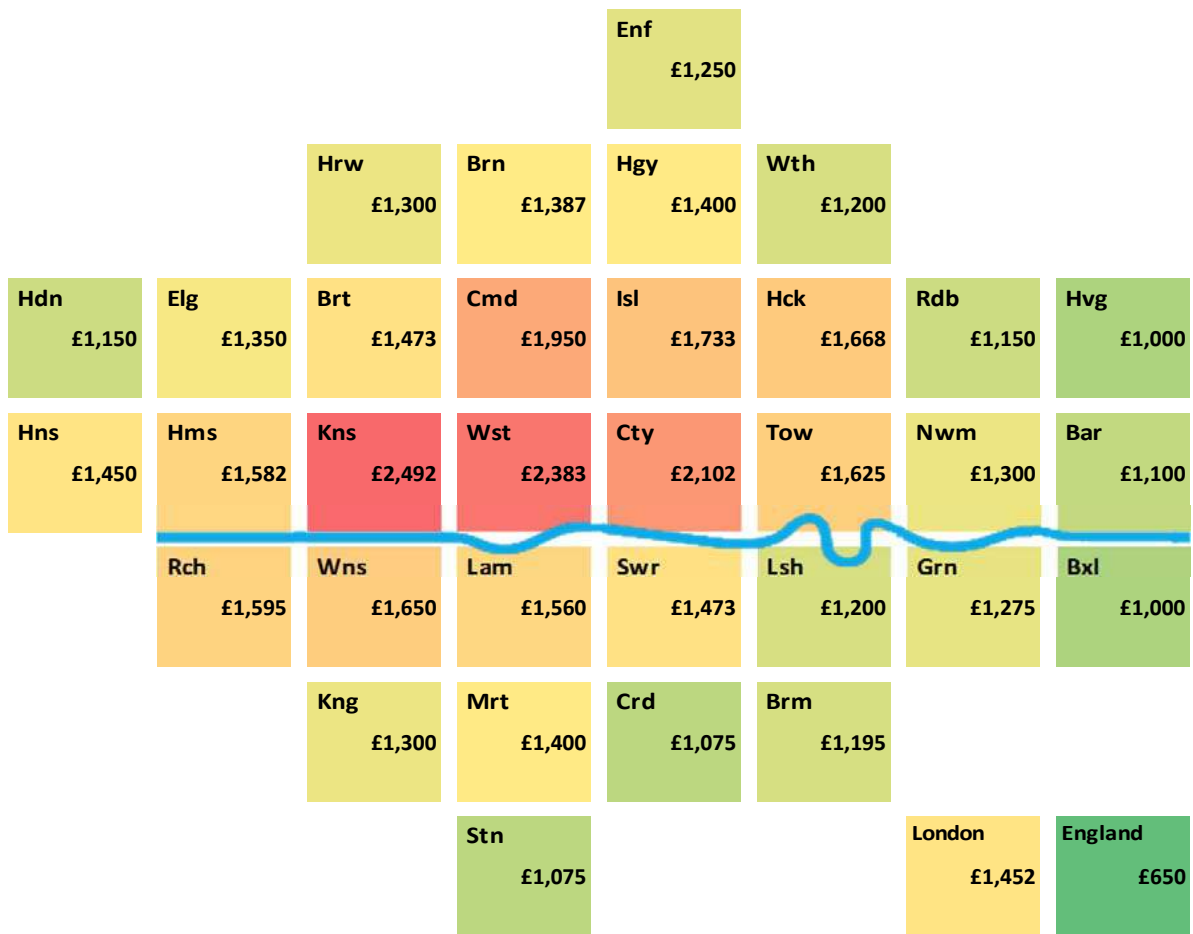
*Source: VOA private rental market statistics, 2015/16*

London's private rental housing is also costly compared to other world cities. This can be observed from Figure 4.9, based on UBS data[32], which shows that the medium normal local rent in London is high, with renting only costing more in New York, and Hong Kong.

**Figure 4.9: Normal local rent[33] costs in selected world cities (US$), 2015**



New York
Hong Kong
London
Chicago
Luxembourg
Doha
Los Angeles
Miami
Oslo
Taipei
Sydney
Zurich
Dublin
Tokyo
Copenhagen
Paris
Geneva
Helsinki
Beijing
Dubai
Munich
Milan
Brussels
Rome
Auckland
Frankfurt
Amsterdam
Tel Aviv
Seoul
Toronto
Shanghai
Moscow
Istanbul
São Paulo
Madrid

0    500    1,000    1,500    2,000    2,500    3,000    3,500    4,000    4,500

**Normal local rent costs, US$**
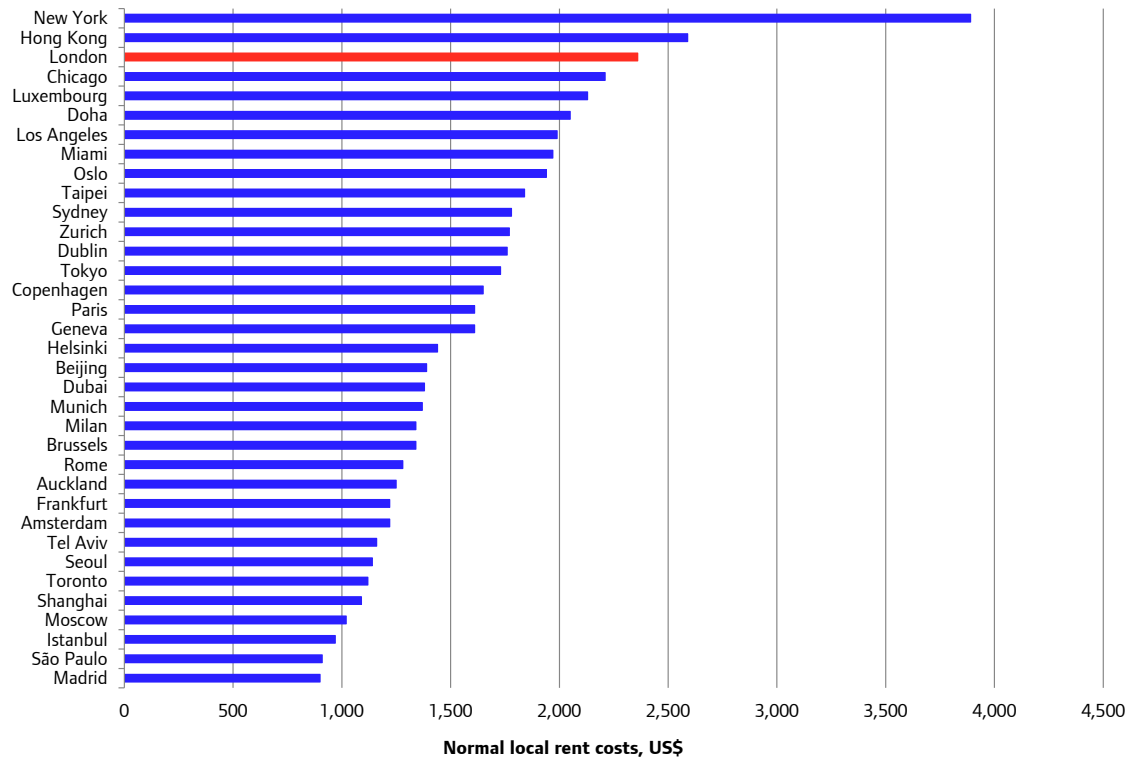
*Source: UBS, 2015*

Within the UK, the relative costs of private renting have risen sharply in London compared to England (excluding London). Figure 4.10 provides experimental data from the ONS providing a quarterly index of housing rental prices, showing three distinct periods: rental price increases from January 2005 until February 2009, rental price decreases from July 2009 to February 2010, and increasing rental prices from May 2010 onwards. In each period, London shows a similar trend to the rest of England but with faster rent increases from around the end of 2010.

**Figure 4.10: Private housing rental price index, London and England (excluding London) January 2005 – June 2016**
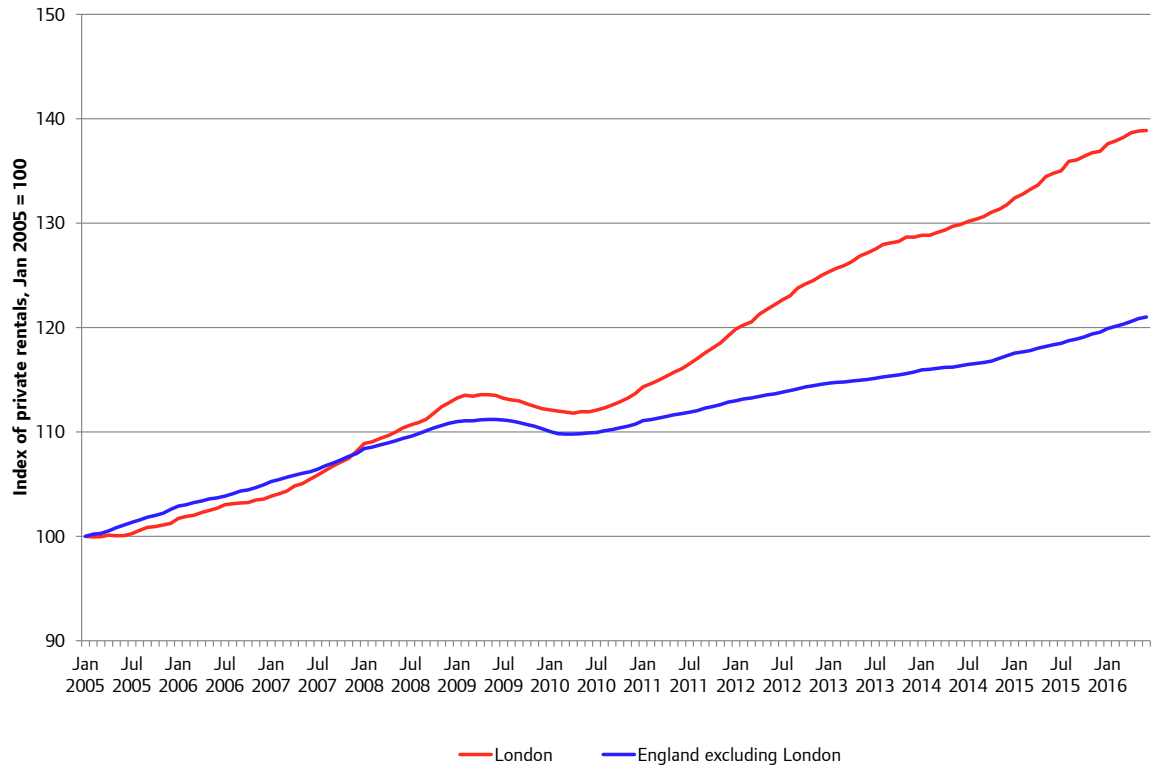


*Source: ONS, Index of Private Rental Prices, Notes: Index level, January 2005 = 100, not seasonally adjusted.*

## 4.6.2 House prices and the business cycle

Over a longer-time horizon, housing markets in London have witnessed a number of ups and downs, with volatile house prices in London tending to amplify changes in national house prices. Although falls in the actual (nominal) value of the average home are relatively rare, London has experienced several episodes of real house price deflation since the ONS data series began in 1969. From the patterns of previous cycles, no clear trends can be observed from price data alone that suggest whether London house prices are approaching a new peak, and whether this will entail a levelling off, or a more exceptional downward adjustment.

**Figure 4.11: Nominal and real house price levels in London and the business cycle, 1969-2015**
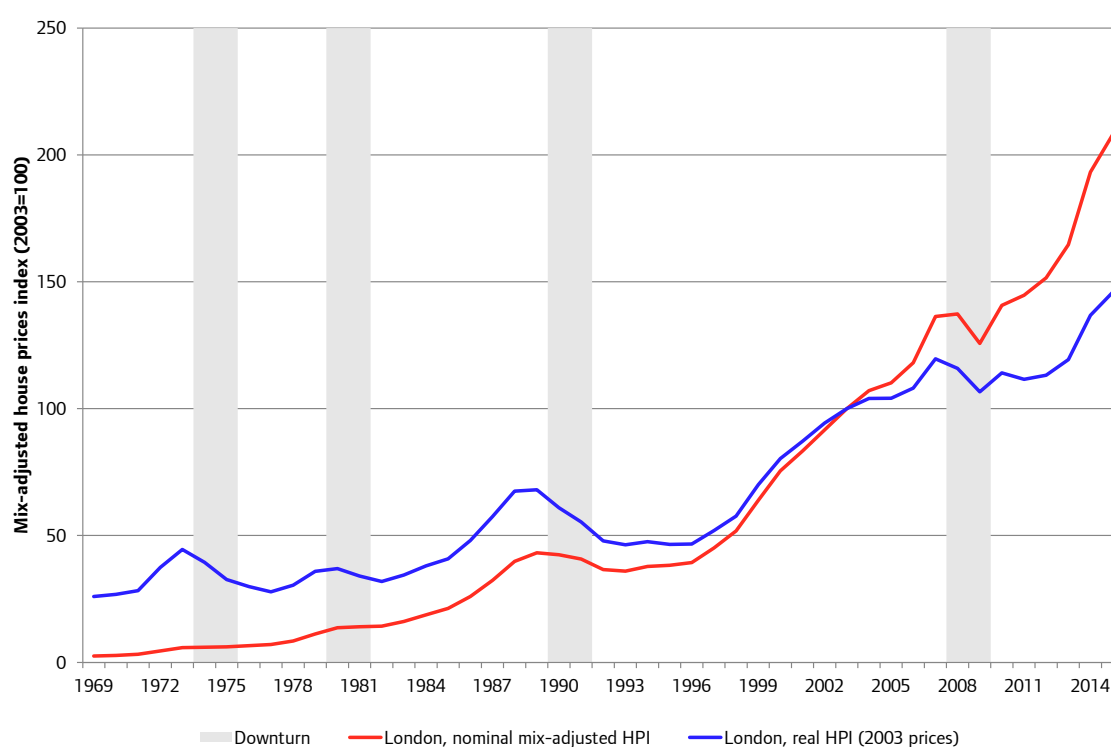


Source: ONS House Price Index reference table 33

## 4.6.3 Drivers of demand for housing

London is a particularly desirable place to live and work, with people attracted to the city for a number of reasons including the variety of career opportunities, the openness to different cultures, as well as the vast array of leisure and cultural offerings (see Chapter 5). In economic terms, effective demand is this desire backed up by an ability to pay. Important factors in driving demand therefore include changes in incomes, access to credit and the cost of mortgages.

In terms of income, evidence suggests that the 'income elasticity of demand' for housing in the UK is positive, meaning that market demand for housing does indeed grow as people become better off. In certain highly desirable London sub-markets and for specific types of home, it is possible that demand for housing is particularly sensitive to changes in incomes. Research by Cheshire and Sheppard[34], for example, finds evidence that the demand for housing space (both the internal space and garden space) increases at around twice the rate of increases in household incomes. In the past two decades, workers' median earnings in London have increased by an average of 3.8 per cent, compared to a 9.8 per cent annual increase in the price paid for housing. Measures of the affordability of housing are considered in Chapter 10.

Borrowing costs for home buyers are also important – and these costs are at historically low levels. Figure 4.12 shows that interest rates on regulated mortgages secured on properties in London were 2.1 per cent in the first quarter of 2016, down from an estimated high of 13.0 per cent in 1990. Such historically low mortgage interest rates have reduced the nominal debt repayment burden and increased households' borrowing power. It is also notable that while Bank of England base rates have been set at 0.5 per cent for most of the period since March 2009, the average mortgage interest rate faced by homebuyers has fallen by around 2 percentage points in this period.

**Figure 4.12: Mortgage interest rates in London and the UK, 1980-2015**
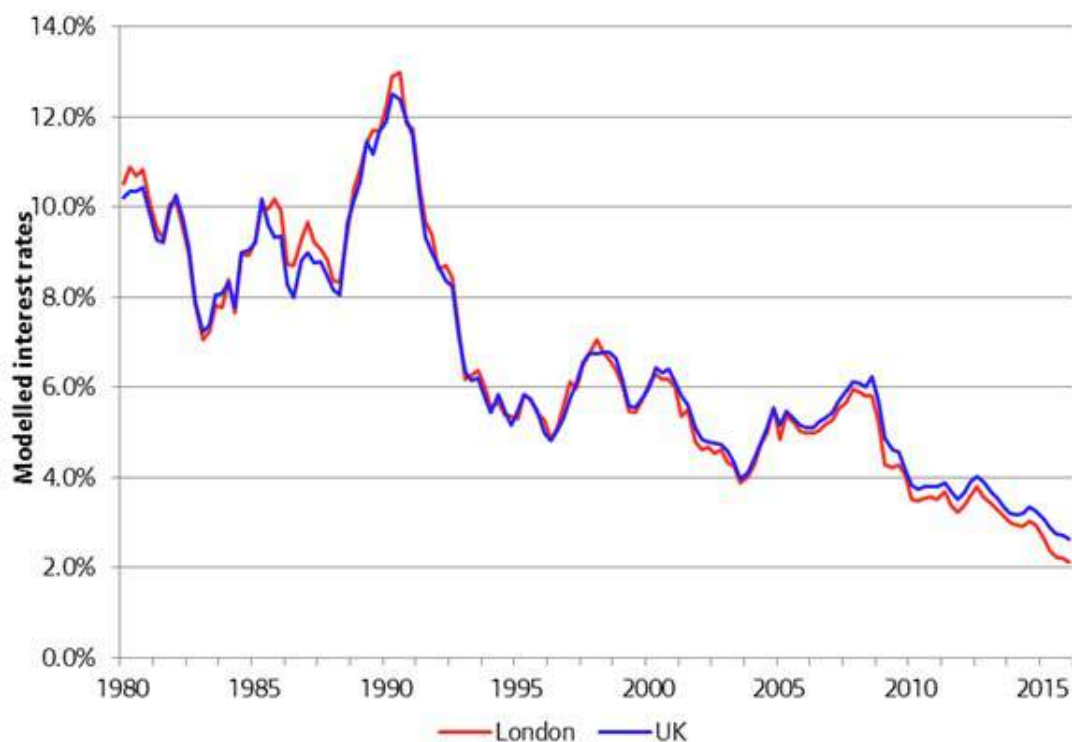


*Source: Greater London Authority, An Economic Analysis of London's Housing Market (November 2015), updated using revised data from the Council for Mortgage Lenders to Q1 2016.*

A 2005 OECD paper[35] suggested that financial deregulation since the 1980s and more recent lending innovations (such as offset mortgages which allow borrowers to offset their savings against the mortgage balance) have significantly reduced household costs of borrowing[36]. The relaxation of borrowing constraints, and the reduced cost of mortgages, in turn may have positively fed back to house prices.

It has also been argued that two other changes in London's housing markets, related to the use of property as an investment, have fed into overall increases in house prices: increasing foreign ownership of housing, and growth in the buy-to-let market.

There is limited available evidence quantifying the exact impact on house prices of these two factors. Indeed, although increasingly supported by buy-to-let mortgages – and so, arguably, a recent addition to credit markets - the share of the private rental market in London remains lower than it was in the 1960s and 1970s. However, it is arguable that the strong long-run performance of London housing relative to alternative investments may have contributed to London's housing stock being increasingly seen as a vehicle in which to hold money, acting as a possible further incentive towards property ownership.

Similarly, with regard to foreign ownership, there is also little available evidence on the exact quantitative impact on house prices in London overall. While there is no accurate or timely data that tracks foreign investment in residential property in England, industry estimates suggest that foreign demand has been strongest in prime central areas[37,] and it is therefore in these markets that the impacts are likely to be greatest. However, putting this in the context of all residential property transactions, the Bank of England has estimated that foreign inflows accounted for around only 3 per cent of total property transactions in London[38]. There is also some evidence to suggest that following the economic crisis, the additional demand for new build properties from overseas may have to some extent lessened the negative impact of credit constraints on construction activity[39].

## 4.7 The supply of homes in London

While the pull factors draw in aspiring home owners from the rest of the UK and overseas, London's population growth is also partly a product of high levels of natural growth in terms of births and deaths associated with its relatively youthful population (see Chapter 8). At its most fundamental level, the overall 'need' for housing in London can therefore be seen as a product of the impacts of these socio-economic and demographic drivers on the size of the capital's population, and trends in the size of households.

### 4.7.1 Housing London's growing population

While the net supply of homes in London has increased since the turn of the century, this has been accompanied by strong rates of population growth, which has not always been the case. Between 1961 and 1991 London's population decreased by over 1.6 million people, while over the same period the dwelling stock increased by over half a million homes.

More recently, between 1991 and 1998 the housing stock increased by 4.4 per cent, compared to a 3.5 per cent increase in population, adding over 18,000 homes per year while the population increased annually by almost 34,000. This was a period when real house prices were stable, rising on average by 1 per cent per annum. However, between 1998 and 2015 real house prices grew by over 9 per cent per annum. This was a period when increases in population exceeded that of housing supply, with London's population rising by 21.1 per cent at an average of over 93,000 people each year. The rise in the dwelling stock was much lower, increasing at an average of just over 24,000 homes a year, a total increase of 12.7 per cent over the period.

For growth of the dwelling stock to have kept pace with population growth over this period, over 250,000 extra homes needed to be added to the housing stock – an average of almost 16,000 each year – on top of the 24,000 per year that were added during this period. As the supply of additional homes did not keep pace with demand, the number of people per dwelling increased from 2.32 in 1998 to 2.49 in 2014.

Looking forward, GLA population projections show that between 2014 and 2041 London's population is projected to increase by between 72,600 (long-term migration assumptions) and 87,100 people per year (short-term migration assumptions). The total rise in population projected is between 23.0 per cent and 27.5 per cent – an aggregate increase of between 1.96 million and 2.35 million people[40]. According to the Strategic Housing Market Assessment, it is projected that London requires around 49,000 new homes each year between 2015 and 2035[41], due to rapid population growth and the existing backlog of need. This is 63 per cent more than the 30,000 homes that were added to London's total housing supply in 2014[42]. These estimates reflect an expectation that household formation rates will fall to levels similar to the 1990s, with an average household size of 2.34 projected by 2035. This change is driven by a population that is expected to become older, which will result in the formation of smaller households.

### 4.7.2 House building in response to higher prices

In a well-functioning housing market, rising prices act as a signal of increased demand in London, and will be met, to the extent possible, with an increase in the quantity of housing supplied; as the value of land rises there is an incentive to build on it or, if the land is already occupied, to increase the intensity of its use. The housing market is however imperfect and evidence suggests that housing supply and construction activity are either slow or unable to respond.

While house building has tended to fall following a drop in house prices, there is not always a corresponding increase during periods of rising prices. Although modest increases in the supply of private completed houses did however take place at the time of the previous two house price booms in the late 1980s and early 2000s, the levels of house-building in London have not kept pace with changes in house prices or the population.

As a result, gross house building levels in London have remained stubbornly below the levels seen in the 1970s, at which time the majority of new builds were developed by the public sector (see Figure 4.13).

**Figure 4.13: New house building and house prices in London, 1969–2015**
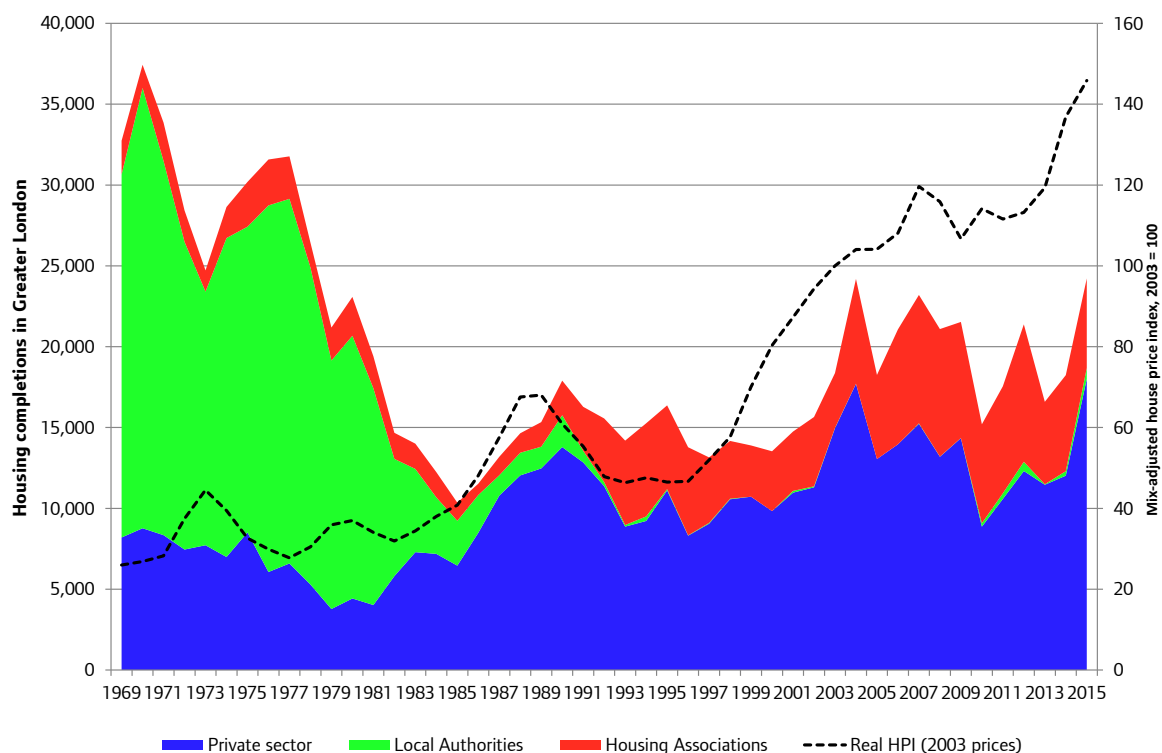


*Sources: 1969 to 1989 data provided to GLA by DCLG; 1990-2015: DCLG house building statistics tables 217, 255 and 255a. ONS mix-adjusted house price index reference table 33.*

This construction data however only applies to new buildings (in effect, a gross measure) and does not take account of other possible changes to the dwelling stock as a result of conversions, changes of use and/or demolitions.

In each of the last five years for which data are available, overall net changes were 6 to 11 per cent higher than the number of new builds in London alone, adding almost 10,000 additional dwellings to the overall housing stock[43].

This notwithstanding, new build remains the primary driver of an increasing housing stock and the additional 10 per cent increase realised from conversions and other changes is still far from being responsive to the levels that recent trends in house prices would suggest are necessary to meet demand.

Looking back over a longer time period, Census estimates of the number of dwellings allow us to infer the net change across each decade. Figure 4.14 suggests that in contrast to recent trends, net additions to the housing stock were considerably less than gross levels of new building in the 1960s and 1970s. This is consistent with many of the new buildings at the time simply replacing existing stock following slum clearances and other post-war demolitions. On an annual average basis, gross new builds and net additions to the housing stock have been slightly lower in the four years between 2011 and 2015 than in the previous decade, at a time of rising house prices.

**Figure 4.14: Gross new house building and change in dwelling stock in London, annual averages**

## 4.7.3 Market frictions and physical constraints on housing supply

A number of possible market frictions and inefficiencies have been put forward in the literature to explain why housing is slow to respond to market signals[44]. These include: difficulties for house-builders to access commercial finance; risk aversion or perverse incentives that lead to stock-piling of land; shortages of staff and construction materials; as well as imperfect competition in the market for residential development (relative to other land uses).

One of the most commonly cited constraints in the literature is the planning system and the view that it restricts the supply of land thereby inflating prices. The 1947 Town and Country Planning Act introduced a requirement on local authorities to develop forward looking policy documents which exist today as Local Plans. Local Plans outline what kind of development is permitted where and identify restrictions on development such as Conservation Areas and Green Belt designations[45]. Local Planning Authorities have a duty 'to ensure that their Local Plan meets the full, objectively assessed needs for market and affordable housing in the housing market area, as far as is consistent with the policies set out in this National Planning Policy Framework, including identifying key sites which are critical to the delivery of the housing strategy over the plan period'[46].

The first conservation areas in London were designated in 1967 and there are now over a thousand in total. An estimated 15 per cent of the land in London is within a designated conservation area, a proportion which ranges from one per cent in Barking and Dagenham to 72 per cent in Kensington and Chelsea and 77 per cent in Westminster.

Twenty-two per cent of London's land (341 km$^2$) lies within the metropolitan Green Belt, only a small amount of which overlaps conservation areas. While 14 boroughs have no Green Belt land, in Havering and Bromley the Green Belt comprises just over half of the total land area[47]. Ninety-four per cent of the metropolitan Green Belt lies outside of London.

**Map 4.7: London conservation areas and Green Belt**
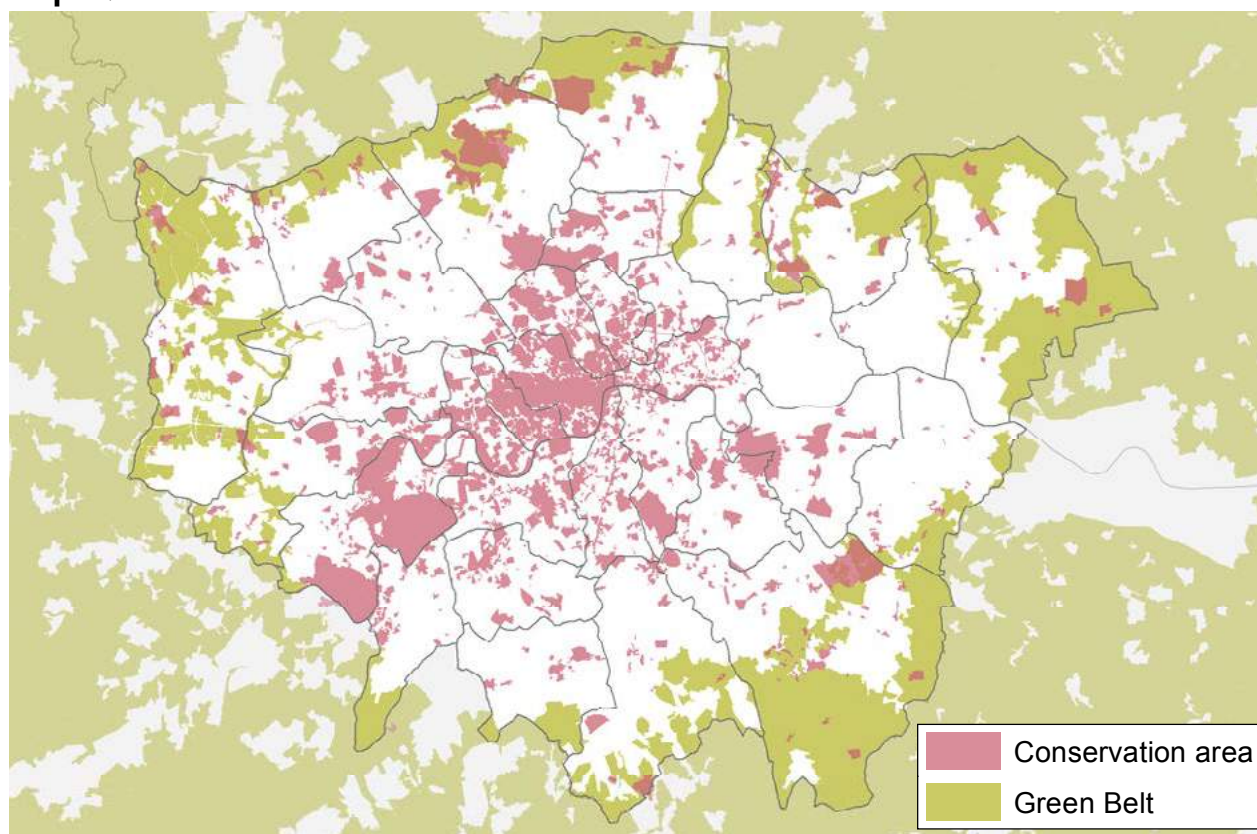


*Source: English Heritage, Conservation area boundaries provided to GLA*

It is necessary to weigh up the costs and benefits of any such restrictions in order to assess whether the (often intangible) value of protections in terms of amenity benefits (and the offsetting dis-amenities) are worth the additional monetary costs that result from the upward pressure that this places on the price of land. In the case of protected green areas, in line with the 'theory of the commons'[48], Helm argues that it may be necessary to consider the system benefits and the value of the natural capital endowments as a whole, as well as the potential benefits that could be derived if greater efforts were made to maximise the value of green space by, for example, increasing their amenity value by improving public access[49]. See Chapter 7 for more on this issue.

A range of evidence exists which looks into the role of planning constraints on land prices. In the case of commercial property, analysis by academics at the London School of Economics[50] finds that regulatory limits on the height and density of buildings in the West End inflate the price of office space by an estimated 800 per cent, compared to a comparable price effect of around 300 per cent in Paris and Milan.

Similarly, in an assessment of the determinants of house prices in England, Hilber and Vermeulen[51] estimated that around 35 per cent of the price of a house in England is directly attributable to the regulatory restrictiveness of land use planning in that area. This was measured by the average refusal rate of major residential projects which the authors find to be highest in London and the South East.

In a separate paper on the relationship between planning and housing, Hilber (2012)[52] however notes that house prices in London would still be fairly high by world standards even "…if the planning system was reformed and various regulatory constraints relaxed. Moreover, such reforms would be likely only to lower price pressures gradually and over longer time periods". This is because the supply (or flow) of new homes in any period will only have a marginal effect on the overall supply (or stock) of homes available.

Data on planning permission approvals also shows that the slow pace of house building is not only a question of planning restrictions. Typically, planning approvals are given for roughly 1.5 to 2 times the actual number of homes finally built, and this gap has been broadly consistent over the past 10 years – so although the level of approvals indicate a capacity for more homes, something else is preventing these from actually being built.

In interviews with the firms behind London planning permissions in 2014, Molior finds that whilst funding is no longer a widespread issue, shortages of staff and materials may be delaying activity[53]. In a 2012 report, Molior[54] highlighted that 45 per cent of schemes of 20 or more private homes in the Greater London area were in the control of firms that were not builders, although a 2014 update showed that this had since been reduced to around 30 per cent[55]. The Outer London Commission also highlights concerns with the market for homebuilding, noting that the 'established business model operated by developers and house builders, [which] requires them to maintain sales values in order to satisfy shareholders and hedge against market risk' leads to slower build out rates than are otherwise 'technically' possible, particularly on very large sites[56].

## 4.8 Population density of London

With the constraints on land that exist in London, how efficiently this land is used to meet the demands of a growing population is an issue that currently faces the capital. Increasing the population density would be one way to allow London to house at least some of its growing population within its current boundaries. Whilst population density in inner London is significantly higher than outer London, central London's population density is lower compared to other global cities. This suggests that there might be scope for London to increase its population density centrally towards that of other major cities, but also in the outer areas of the city by increasing densities towards those of areas in inner London.

### 4.8.1 The impacts of higher population density

The findings of research into the impact of higher population densities are mixed. A key challenge when identifying the advantages and disadvantages of higher density living is that different people experience the impacts of density in different ways, which results in the findings of the research being very much open to debate. The concentration of population density can have economic, environmental, health and social impacts amongst others, which have been summarised by Boyko and Cooper[57].

Economic advantages from higher density development include improving a city's economic efficiency and employment opportunities through agglomeration, thereby increasing productivity levels. According to a study in the USA by Ciccone and Hall[58] a doubling of employment density increases average labour productivity by around six per cent, promoting the critical mass necessary to support local retail and service areas, whilst transit also becomes more viable and efficient, and existing infrastructure is used more efficiently. This is broadly reflected in cities that have higher levels of agglomeration also tend to have higher GDP per capita and higher productivity levels[59].

Disadvantages attributed to higher density include greater costs to build and maintain higher density projects, increasing the relative price of dwellings; restricting access to undeveloped land, and negatively impacting the economic development of surrounding rural areas. Increases in traffic congestion are also cited as a disadvantage, whilst some studies have found that the returns from higher density diminish beyond a certain point. The costs of higher densities can exceed the benefits of agglomeration under certain conditions, where there is an under-investment in transport and infrastructure, and insufficient planning, which results in increases in congestion, crowding and pollution (see Chapter 6)[60].

Benefits for the environment attributed to higher densities can include reducing carbon emissions and pollution due to lower rates of vehicle use, and making better use of natural resources. For example, there is a 10-fold difference in transport related carbon emissions between energy-intensive sprawling cities and compact cities that are more energy efficient[61]. The densest areas of London have greater shares of trips made by public transport, walking and cycling, with evidence of a shift away from cars as the means of travel to work in areas experiencing an increase in population density[62]. However, other studies suggest emissions in high density cities are higher overall. One study finds that individuals' desire to travel to distant locations, which alongside increased congestion and travel time associated with higher densities, mean that overall emissions are higher[63]. Other disadvantages identified in research include exacerbating pollution due to reduced space for trees and shrubs; reducing the capacity to cope with domestic waste and recycling; and using more energy during the construction of high density buildings.

Boyko and Cooper also found in their research that the health benefits from density include increasing exercise by enabling more walkable and bicycle friendly neighbourhoods, whilst other research suggests that higher density living can result in mental health issues. Findings on the social impacts of higher density are also mixed, with research finding that it can significantly improve housing choice, and create a more liveable and sustainable urban environment. However other studies revealed higher densities can lead to cramped living environments, a loss of privacy, increases in noise and nuisance, and contribute to a lower overall sense of community.

Overall, there is no clear consensus on the costs and benefits that arise from higher densities. This underlines the importance of planning and design when increasing population density. Increases in development density that are well planned and designed can ensure that the benefits from population density are maximised, whilst minimising the costs associated with it.

## 4.8.2 Current levels of density in London

Overall it is estimated there are 5,510 people per square kilometre in London as a whole, with inner London boroughs more concentrated at 10,773 people per square kilometre, and density even higher in the central London boroughs at 11,565 people per square kilometre[64]. There are some small areas in London which have particularly high population densities. Islington is the borough with the highest population density of 15,118 people per square kilometre, whilst there are five wards in Westminster, and single wards in Newham, Hackney, Kensington and Chelsea, Camden, and Hammersmith and Fulham, that have population densities of over 20,000 people per square kilometre.

In outer London density is much lower with 4,165 people per square kilometre, with the lowest density in Bromley at 2,162 people per square kilometre[65]. Higher population densities in inner London can be attributed to its proximity to higher concentrations of employment, and the historical development of the city when transport was more costly.

**Map 4.8: Population density in London, 2015 (person per hectare)**



Source: Land Area and Population Density, Ward and Borough,
Greater London Authority. Contains National Statistics data
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| | |
|---|---|
| | Local Authority boundary |
| | Over 200 |
| | 150 - 200 |
| | 100 - 150 |
| | 50 - 100 |
| | Below 50 |
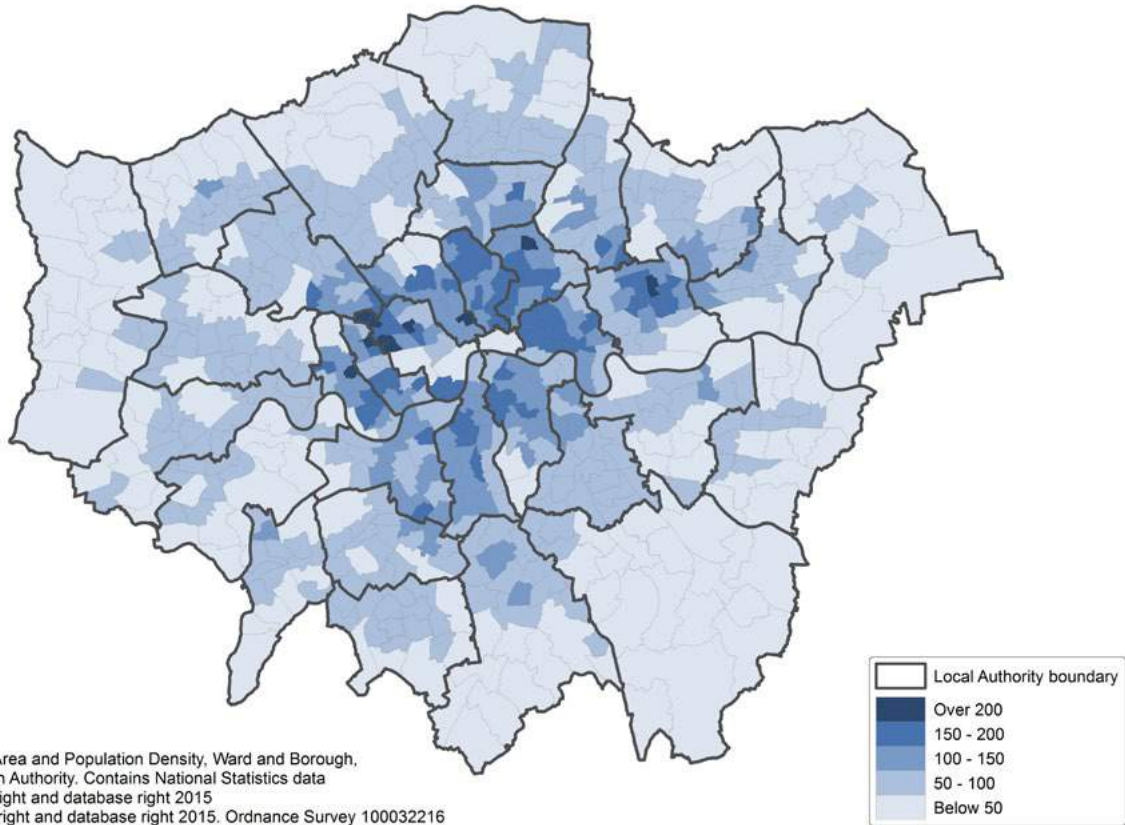
*Source: Greater London Authority*

Looking more closely at where Londoners live across different output areas using the 2011 Census, we see those areas of employment land, parks and green space where fewer residents live marked in white. The pattern of higher density of residents in inner London is also clear to see from the concentration of red dots in central areas (Map 4.9).

**Map 4.9: Population density in London by output area, 2011**



Population Density at
Output Area level

(person per hectare)

- Less than 42.9
- 42.9 - 66.6
- 66.6 - 86.3
- 86.3 - 109.2
- 109.2 - 140.6
- 140.6 - 194.1
- Over 194.1

Source:2011 Census, Map produced by Intelligence Unit
© Crown Copyright and database right 2016. Ordnance Survey 100032216 GLA
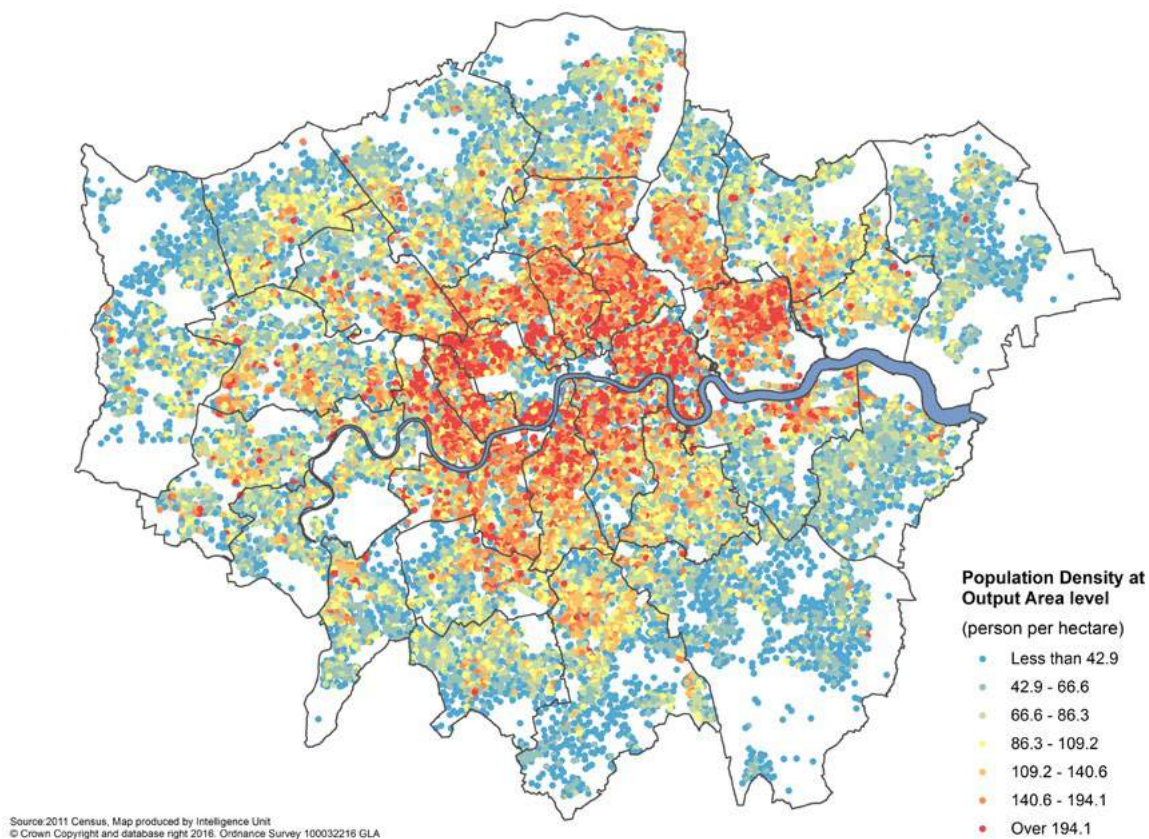
*Source: 2011 Census*

Current population projections estimate that the total population density of the city will increase to 6,586 people per square kilometre by 2041, a rise of 19.5 per cent. Inner London boroughs are expected to increase in density by 23 per cent, whilst outer London boroughs are projected to increase their density by 17.2 per cent over the next 25 years (Map 4.10).

**Map 4.10: Projected population density in London, 2041 (person per hectare)**



Source: Land Area and Population Density, Ward and Borough,
Greater London Authority. Contains National Statistics data
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Legend:
- Local Authority boundary
- Over 200
- 150 - 200
- 100 - 150
- 50 - 100
- Below 50
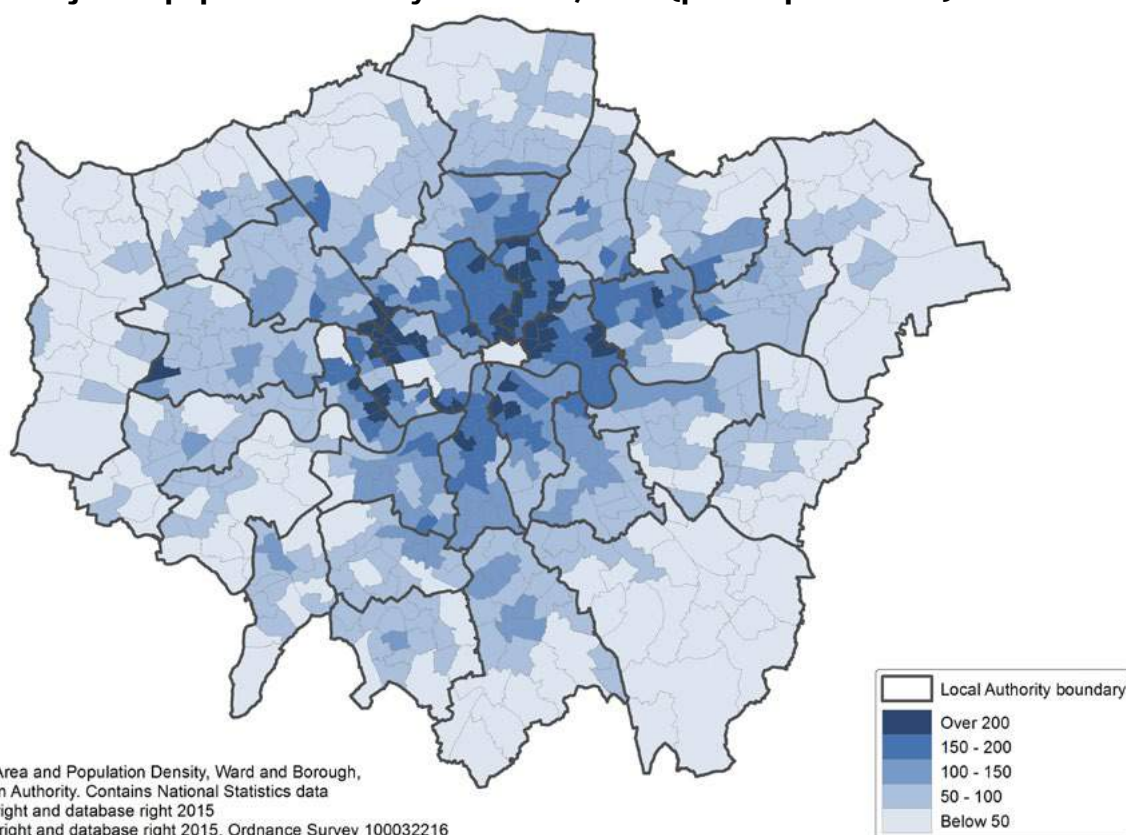
*Source: Greater London Authority*

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**Box 4.1: More Residents/More Jobs?**

It often makes sense to think about demographic and employment trends separately. Population increase is affected by birth and death rates and by migration patterns, all of which are only indirectly the result of economic pressures. Jobs, however, are the result of business investment, public spending and economic opportunities which may not have much to do with population trends.

However, some important dynamics are missing from this brief summary. It is obvious that where there are more residents there will be more employment opportunities, to cover greater demand for health centres to gyms to schools to estate agents etc.; so more economic activity is associated with areas with more people. Moreover, local residents setting up in business may prefer to establish their business near their home, even if their customers are in a different part of the country (or abroad).

Identifying the job-population association is a complicated task. A prescriptive approach (e.g. how many estate agents a residential development will require) should, arguably, be avoided. Furthermore, the approach needs to capture investments by residents that are not for local consumption.

Impact assessment studies for residential and commercial developments can often be used to estimate changes to employment and population levels in the local area. This will typically be based on the ratio of employment to population in the surrounding region, a method that works better for discrete and well defined smaller urban areas, than for London.

Therefore, due to the size and nature of London, levels of both public transport and highway accessibility influence the location of employment and population. Most London workers expect to commute to work; principally by either car or public transport[66].

Recent research by GLA Economics[67] has examined this issue in detail and finds the following:

Areas within London with low levels of accessibility exhibit a strong relationship between employment and population density. These predominantly outer London areas have a higher proportion of employment that serves the local population.

For areas of high public transport accessibility, above 0.7 million people, the relationship between population density and employment density breaks down. Here instead, accessibility itself becomes a stronger determinant of employment density. In these areas of high accessibility, a lower proportion of employment exists to serve the local population. In its place, more specialised and higher paid employment is found, access for which is predominantly gained by public transport.

Despite finding a significant relationship for areas of London with low public transport accessibility, there is still a large margin of variation around the employment to population density ratio.

Nevertheless, there is reasonable evidence to suggest that land turned over for housing in areas of low transport accessibility could be associated with employment growth in the local economy. Taking the coefficient of employment density regressed alone on population density in areas of low accessibility, it can be deduced that an increase to the resident population of 1,000 will on average have the potential to give rise to a further 171 jobs in the locality.

### 4.8.3 Density of London compared to other cities
Given the projections of higher population density in London, it is useful to analyse how current densities compare to other cities. Three other 'global' cities – Paris, New York, and Tokyo - have been chosen for this comparison.

Overall, Tokyo has the highest population density of the four cities with over 6,000 people per square kilometre. London is second, followed by Paris and then New York based on the wider definitions of these city boundaries. Looking at the central areas of these cities however, the population density of central Paris is 1.8 times that of central London. In New York, Manhattan and the Bronx are 1.6 times the density, while the central wards of Tokyo are 1.4 times dense, with London having the lowest population density in the central area of all these cities.

**Map 4.11: Population densities of central areas in selected global cities: Central London 2015**

Total Area of Central London: 131 km²



0    5    10 km

Source: Land area and population density, 2001-2041
(GLA estimates/projections)
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**Number of people per km²**
- Less than 15,000
- 15,001 - 20,000
- 20,001 - 25,000
- More than 25,000
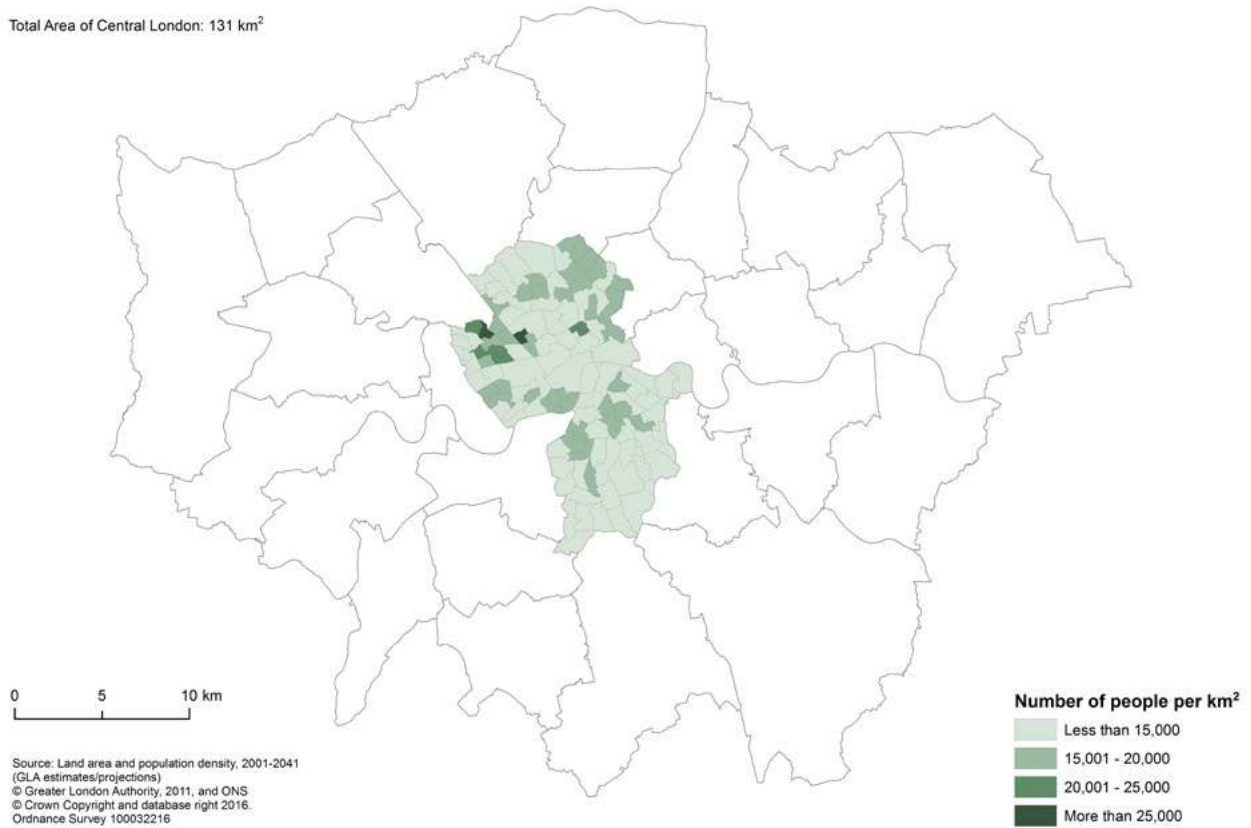
Source: GLA

**Map 4.12: Population densities of central areas in selected global cities: Central Paris 2011**

Total Area of Central Paris: 105 km²



0    5    10 km

Source: Basic key figures: evolution and structure of the
population in 2011 (Census 2011) © INSEE; GEOFLA®

**Number of people per km²**
- Less than 15,000
- 15,001 - 20,000
- 20,001 - 25,000
- More than 25,000
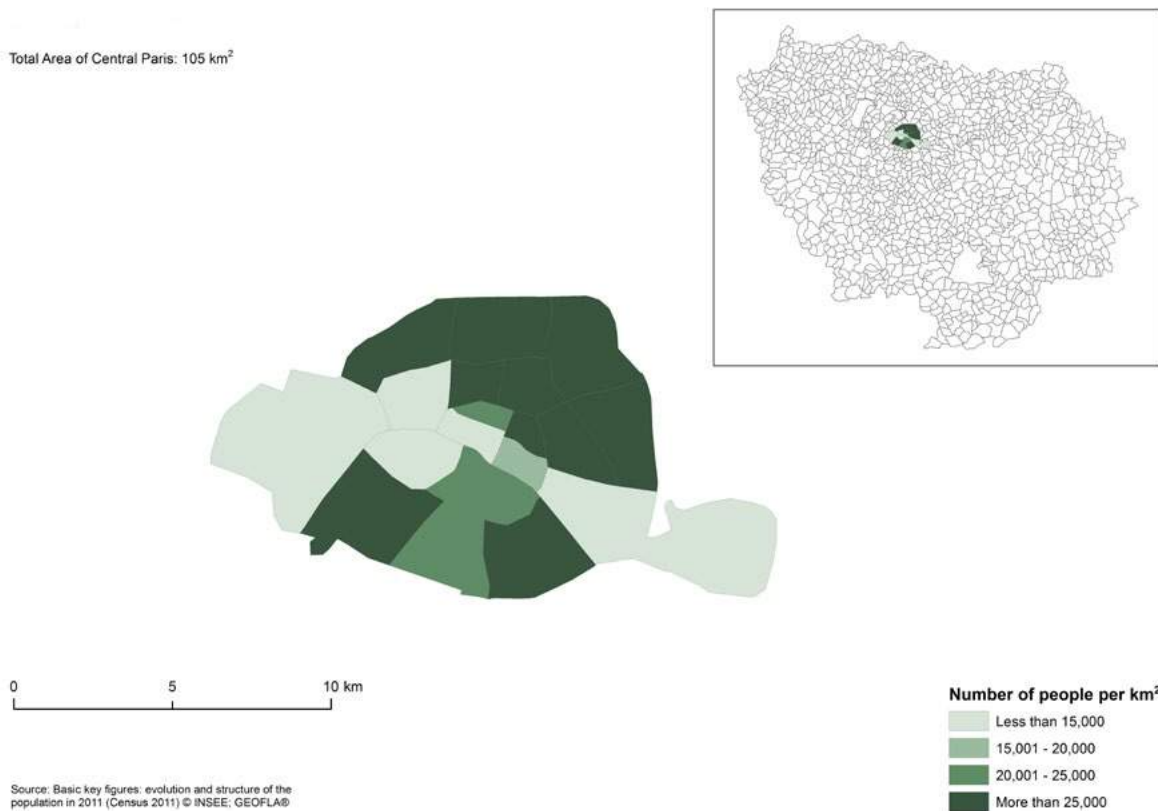
Source: Census 2011 by Arrondissement/GLA

**Map 4.13: Population densities of central areas in selected global cities: New York 2010**

Total Area of Manhatten and Bronx: 169 km²



0    5    10 km

Source: US Census Bureau 2010

**Number of people per km²**

Less than 15,000
15,001 - 20,000
20,001 - 25,000
More than 25,000
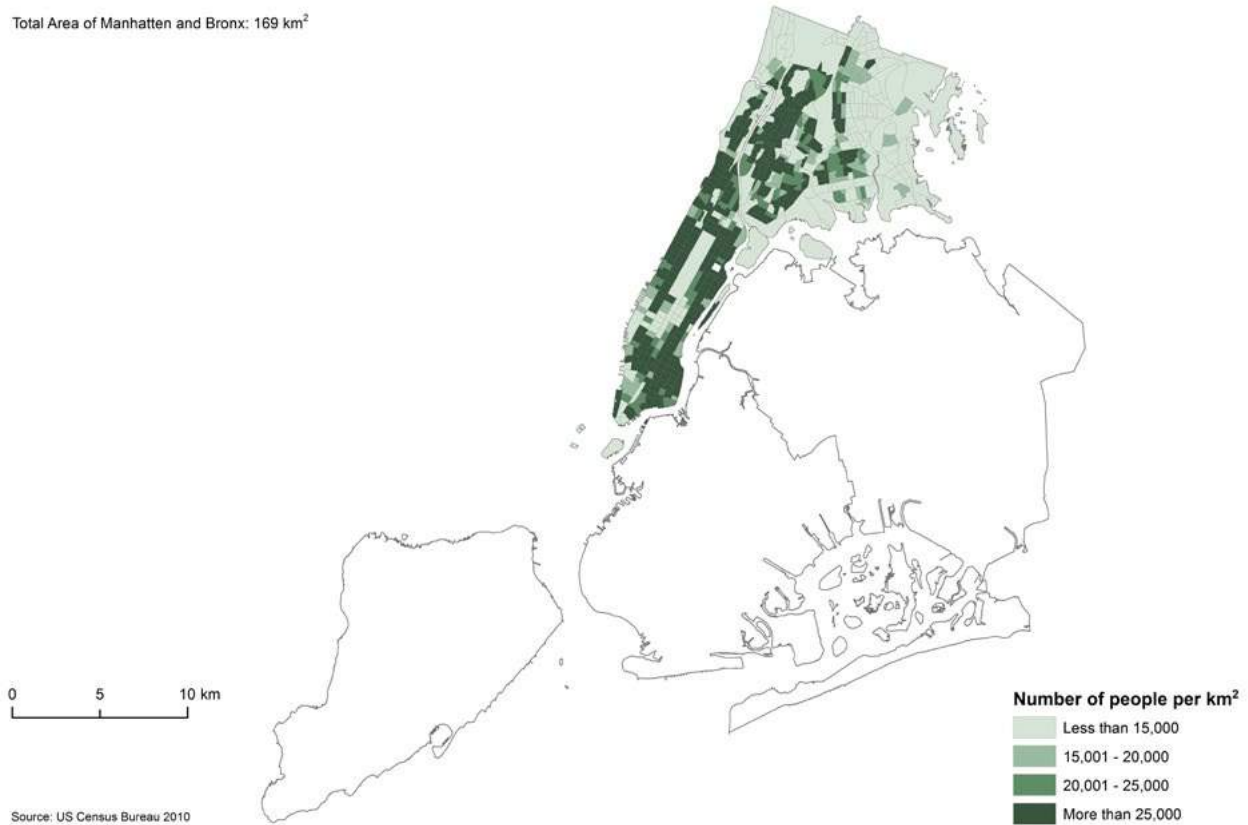
*Source: United States Census Bureau 2010/GLA*

**Map 4.14: Population densities of central areas in selected global cities: Tokyo 2013**

Total Area of Central Tokyo: 187 km²



0    5    10 km

Source:Tokyo Statistical Yearbook 2013.
Tokyo Metropolitan Government, Statistics Division

**Number of people per km²**

Less than 15,000
15,001 - 20,000
20,001 - 25,000
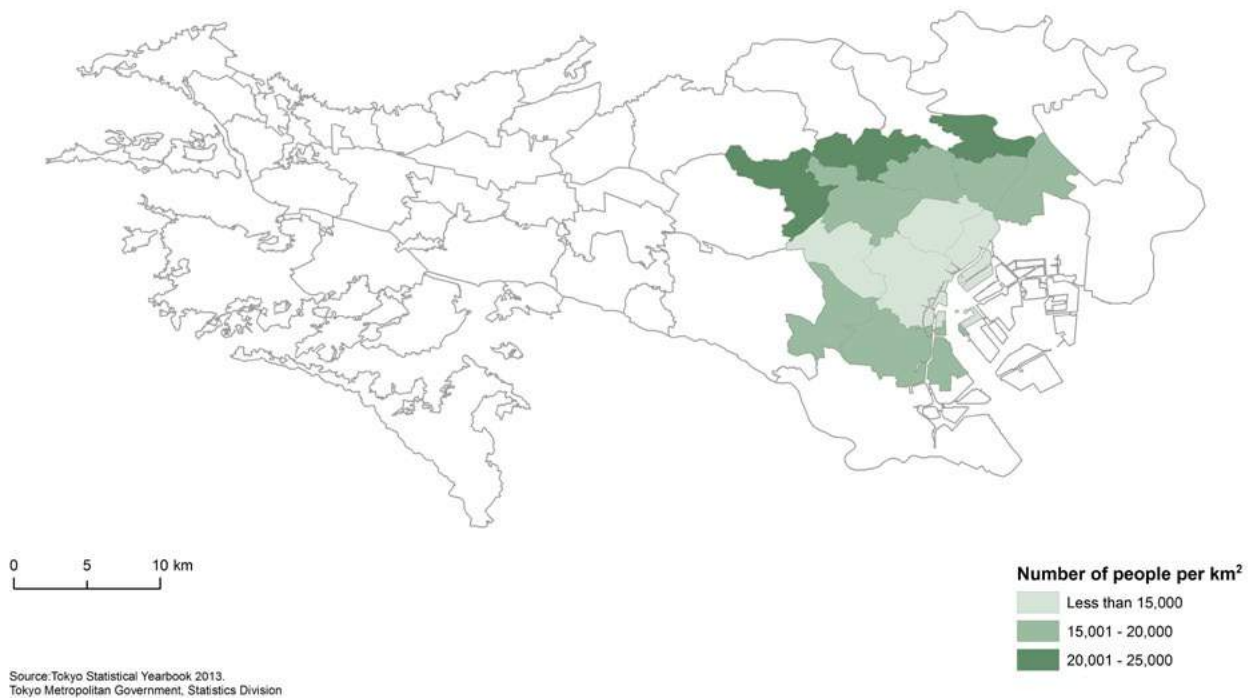
*Source: Tokyo Statistical Yearbook 2013/GLA*

**Table 4.8: Density of selected global cities**

| City | Population (millions) | Area (km²) | Density (per km²) |
|---|---|---|---|
| London | 8.7 | 1,597 | 5,448 |
| *Central London* | *1.5* | *129* | *11,565* |
| Paris[68] | 11.9 | 12,012 | 991 |
| *Central Paris[69]* | *2.2* | *105* | *21,264* |
| Tokyo | 13.5 | 2,191 | 6,162 |
| *Central Tokyo[70]* | *3.1* | *187* | *16,533* |
| New York City | 8.5 | 786 | 10,756 |
| *Manhattan and The Bronx* | *3.1* | *168* | *18,300* |

Source: GLA Estimates, Eurostat, US Census, citypopulation.de

Furthermore, particular areas within the centre of these cities have even higher densities. Manhattan alone has a population density of over 27,000 people per square kilometre, while the Toshima ward in Tokyo has a density of almost 23,000 people per square kilometre. These densities are much higher than the 15,000 people per square kilometre in Islington, suggesting that, by international standards, London has the scope to further increase its population density in the central part of the city.

The relatively low density in central London is reflected in the lower number of tall buildings compared to Tokyo and New York City. In London, three quarters of buildings are three storeys or fewer, compared to 55 per cent in Tokyo and 39 per cent in New York City[71]; while buildings of eleven storeys or more are much less common in London, at just 3 per cent, compared to 14 per cent in Tokyo, and 19 per cent in New York City.

**Figure 4.15: Building height in selected cities**
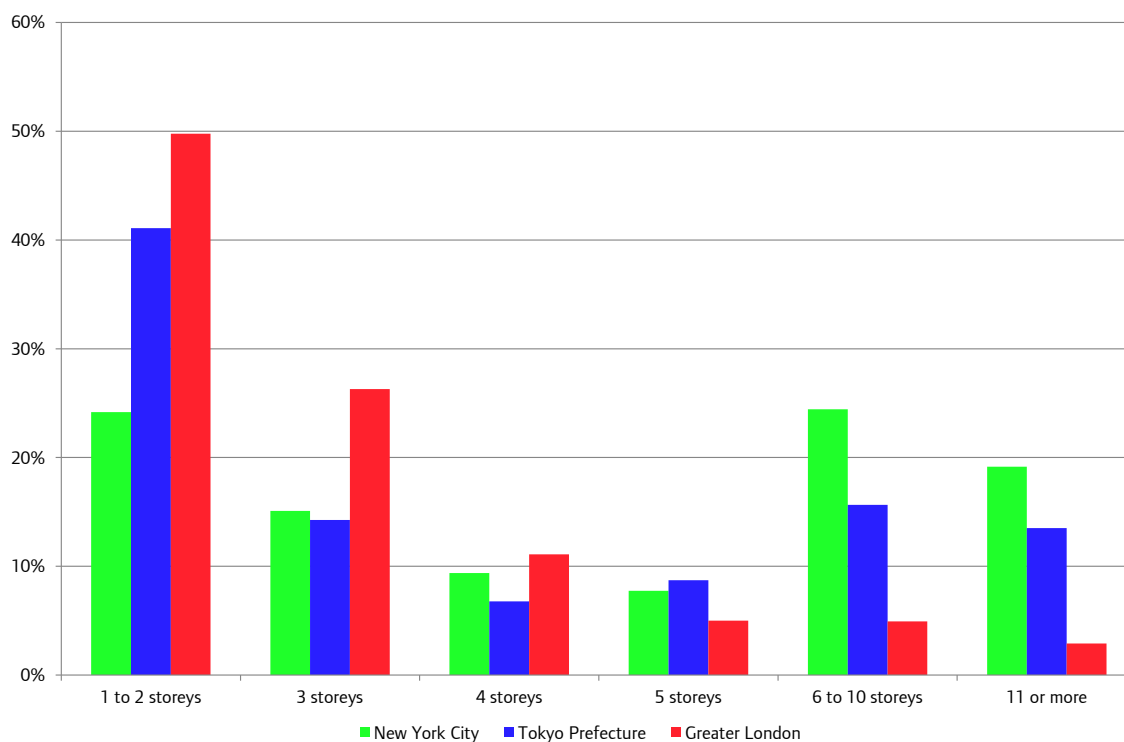


Sources: English Housing Survey, Japan Housing and Land Survey, New York Housing and Vacancy Survey

Whether or not these tall buildings in London are predominantly residential also has an impact on population density. Whilst London has 15 towers taller than 150 metres, only one of these towers is residential. By contrast, New York has 188 towers of which 66 are residential, and Tokyo has 118 towers of which 46 are residential. However, if all the currently planned towers in London are built, by 2025 it is estimated that London could have 44 towers, of which 25 would be residential[72].

Moving further out from the centre, New York City has the highest density of the four cities at 8,765 people per square kilometre, followed by London with a density of 4,165. This is higher than the Tama area in Tokyo by around 15 per cent, but around eight times the density of outer Paris. However, geographically, London is larger than New York City, but smaller than Tokyo and significantly smaller than Paris. London covers an area of 1,572 square kilometres; Tokyo is 1.4 times this size, Paris over seven times the size. New York City is just half the size of London, but the wider New York Metropolitan area, which expands beyond New York City, is much larger covering over 30,000 square kilometres and is home to over 22 million people, at a much lower overall population density than New York City itself.

Comparing the density of London to other global cities, London's population density of almost 5,500 people per square kilometre is above that of Berlin (3,900/sq.km), Shanghai (3,800/sq.km) and Dubai (600/sq.km) but below that of Hong Kong (6,500/sq.km) and Singapore (7,600/sq.km).

**Table 4.9: Population density of other global cities**

| City | Definition | Population[73] (millions) | Area (km2) | Density (per km2) |
|---|---|---|---|---|
| London | London NUTS 1 region | 8.7 | 1,597 | 5,448 |
| Berlin | Berlin NUTS 1 region | 3.5 | 892 | 3,924 |
| Dubai | Emirate of Dubai | 2.4 | 3,885 | 618 |
| Singapore | State of Singapore | 5.5 | 719 | 7,650 |
| Hong Kong | Hong Kong SAR | 7.2 | 1,104 | 6,522 |
| Shanghai | Shanghai province | 24.2 | 6,334 | 3,821 |

*Source: GLA Intelligence[74], Statistik Berlin-Brandenburg, SingStat, HK Census and Statistics Department, National Bureau of Statistics of China, Dubai Statistics Centre*

Another manner in which to consider the density of the city is by measuring its population weighted density. This attempts to measure the density at which the average resident lives, rather than dividing the total population by the entire city area, by using a weighted average of parcels of land based on their population. Based on this measure, compared to other cities in Europe, London has a population density of around 80 people per hectare, similar to that of Berlin with 83 people per hectare, and lower than Madrid (186 people per hectare), Paris (133 people per hectare) and Rome (89 people per hectare). Of the cities measured in Europe, Barcelona had the highest density of 246 people per hectare[75].

## 4.8.4 Capacity of the existing stock

Another potential way to house the growing population of London would be to increase the use of the existing housing stock. There were 3.27 million households in London at the time of the last Census in March 2011. Of this number, 1.62 million (49.5 per cent) were owner occupied including those with a mortgage and shared ownership, and 1.65 million (50.5 per cent) were rented[76]. Owner occupied homes however tend to have more bedrooms per household – with three bedrooms the most common arrangement. Among private and socially rented accommodation, one or two bedroom homes were more common, accounting for 71 per cent of households living in this sector.

For each household, we can subtract the notional, number of bedrooms recommended by the bedroom standard[77] to house the people living there from the number of bedrooms actually available to derive what is known as a 'bedroom occupancy rating'. This rating could indicate overcrowding or under-occupation within a household as follows:

- Occupancy rating of zero: implies that a household has the precise notional number of bedrooms recommended by the bedroom standard, for the number and composition of people living within the household.
- Occupancy rating of -1 or less: indicates that a household has at least one bedroom too few for the number and composition of people living in the household and is considered 'overcrowded' by the bedroom standard.
- Occupancy rating of +1: indicates that a household has one bedroom more than is recommended for the number and composition of people living in the household.
- Occupancy rating of +2 or more: indicates that a household has two or more bedrooms more than is recommended for the number and composition of people living in the household and is considered 'under-occupied' by the bedroom standard (though this does not necessarily mean that the bedrooms are unused).

Table 4.10 shows that at least 1 in 3 households had two or more spare bedrooms across all English regions and Wales, except for London, where just over 1 in 5 (21.1 per cent) of households were under-occupied. This may partly reflect London's relatively low percentage of owner occupied households (50 per cent), which are more likely to have spare bedrooms[78]. London also had the highest percentage (11.3 per cent) of households that are overcrowded (with an occupancy rating of -1 or less). The relatively higher house prices and rents in London, and higher population density, could encourage more sharing among families and individuals.

**Table 4.10 Percentage of households by occupancy rating for bedrooms, 2011**

| Country/ Region | Occupancy rating (bedrooms) of +2 or more | Occupancy rating (bedrooms) of +1 | Occupancy rating (bedrooms) of 0 | Occupancy rating (bedrooms) of -1 or less |
|---|---|---|---|---|
| England and Wales | 34.6 | 34.5 | 26.4 | 4.5 |
| North East | 33.5 | 39.3 | 24.3 | 2.9 |
| North West | 34.5 | 37.1 | 24.8 | 3.6 |
| Yorkshire | 35.3 | 36.9 | 24.3 | 3.6 |
| East Midlands | 38.8 | 36.1 | 22.0 | 3.1 |
| West Midlands | 36.0 | 34.5 | 25.1 | 4.5 |
| East of England | 37.7 | 34.5 | 24.4 | 3.4 |
| **London** | **21.1** | **28.3** | **39.3** | **11.3** |
| South East | 37.1 | 33.6 | 25.7 | 3.6 |
| South West | 38.7 | 34.7 | 23.9 | 2.8 |
| Wales | 39.8 | 35.5 | 21.7 | 2.9 |

*Source: ONS 2011 Census. Note: some rows do not sum to 100 due to rounding.*

Historic trends of this measure of occupancy are not available as the 2011 Census was the first to ask questions about the number of bedrooms. Instead, it is possible to identify whether households have more than one person per room (including bedrooms, kitchens and living rooms but not bathrooms, toilets, storage rooms, halls or landings). By this measure, around a quarter of households in London were overcrowded in 1931, falling to 4 per cent in 1991. It then rose to 6 per cent in 2011, compared to 1.5 per cent in the rest of England[79]. This suggests that while overcrowding rates are rising in London, they remain far below the levels seen in previous decades.

In terms of long-term trends in under-occupation, in a recent book Dorling[80] presents analysis that suggests that the ratio of people to rooms across England as a whole has 'never been lower'. Looking at data on households with less than or equal to 0.5 rooms per person from the Census data, it shows that 58 per cent of London households were under-occupied by this measure in 2011, down from 63 per cent in 2001, and compared to a figure of 71 per cent for England as a whole.

## 4.8.4.1 Overcrowding

The English Housing Survey can provide further estimates and more detailed information on overcrowding in London. This shows that around three-quarters of the increase in overcrowding seen in recent years was in the private rented sector. This is consistent with the expected behavioural response to the undersupply of homes and increased cost of housing over this period (seen earlier in this chapter). It may also partly result from the increases in international migrants from poorer countries between 2001 and 2011, who tend to live at much higher densities in terms of people per room[81].

The English Housing Survey data presented in table 4.11 gives the breakdown of overcrowding by tenure and the age of the household reference person (HRP), which replaced the traditional concept of the 'head of the household' in 2001. This shows that young people in rented households are most likely to be among the roughly 254,000 households that are defined as overcrowded.

**Table 4.11: Percentage of households with overcrowding by age of HRP and tenure**

| Age of household reference person | Own with mortgage | Own outright | Private renter | Rent from local authority | Rent from housing association | Total |
|---|---|---|---|---|---|---|
| 16-24 | 0% | 0% | 9% | 37% | 11% | 12% |
| 25-34 | 4% | 9% | 11% | 18% | 13% | 10% |
| 35-44 | 4% | 7% | 15% | 22% | 21% | 12% |
| 45-54 | 5% | 4% | 8% | 13% | 14% | 8% |
| 55-64 | 4% | 3% | 4% | 6% | 7% | 4% |
| 65 or over | 2% | 1% | 3% | 3% | 2% | 1% |
| Total | 4% | 2% | 11% | 14% | 12% | 8% |

Source: English Housing Survey, three-year average 2012/13 to 2014/15

## 4.8.4.2 Under-occupation

Based on the three-year averages from the English Housing Survey[82], there are an estimated 791,000 households defined as under-occupying in London, equivalent to 24 per cent of all households in the capital. In contrast to the incidence of overcrowding seen above, Table 4.12 shows that under-occupation is concentrated among households that are older, and which own their home.

**Table 4.12: Percentage of households with under-occupation by age of HRP and tenure**

| Age of household reference person | Own with mortgage | Own outright | Private renter | Rent from local authority | Rent from housing association | Total |
|---|---|---|---|---|---|---|
| 16-24 | 22% | 0% | 4% | 3% | 2% | 4% |
| 25-34 | 20% | 26% | 3% | 0% | 3% | 7% |
| 35-44 | 24% | 38% | 6% | 3% | 0% | 14% |
| 45-54 | 31% | 46% | 18% | 4% | 6% | 23% |
| 55-64 | 37% | 53% | 13% | 19% | 13% | 36% |
| 65 or over | 63% | 62% | 33% | 17% | 18% | 50% |
| Total | 29% | 55% | 8% | 8% | 7% | 24% |

Source: English Housing Survey, three-year average 2012/13 to 2014/15

Map 4.15 uses the 2011 Census data to map patterns of under-occupied homes across London. This shows that under-occupation tends to be more common in outer London areas than it is in inner London, with the outer south-eastern part of the city being where rates of under-occupation are highest. Closer to the city centre, under-occupation appears to be more common in the southern and western parts of the city, compared to the northern and eastern areas which make better utilisation of the existing housing stock. In terms of density, this is important as those areas with lower population densities tend to also underutilise the current housing stock to a greater extent.

**Map 4.15: Share of homes under occupied in London**



Note: MSOA denotes Middle-layer Super Output Areas
Contains National Statistics data © Crown copyright and database right 2015
© Crown Copyright and database right 2015. Ordnance Survey 100032216
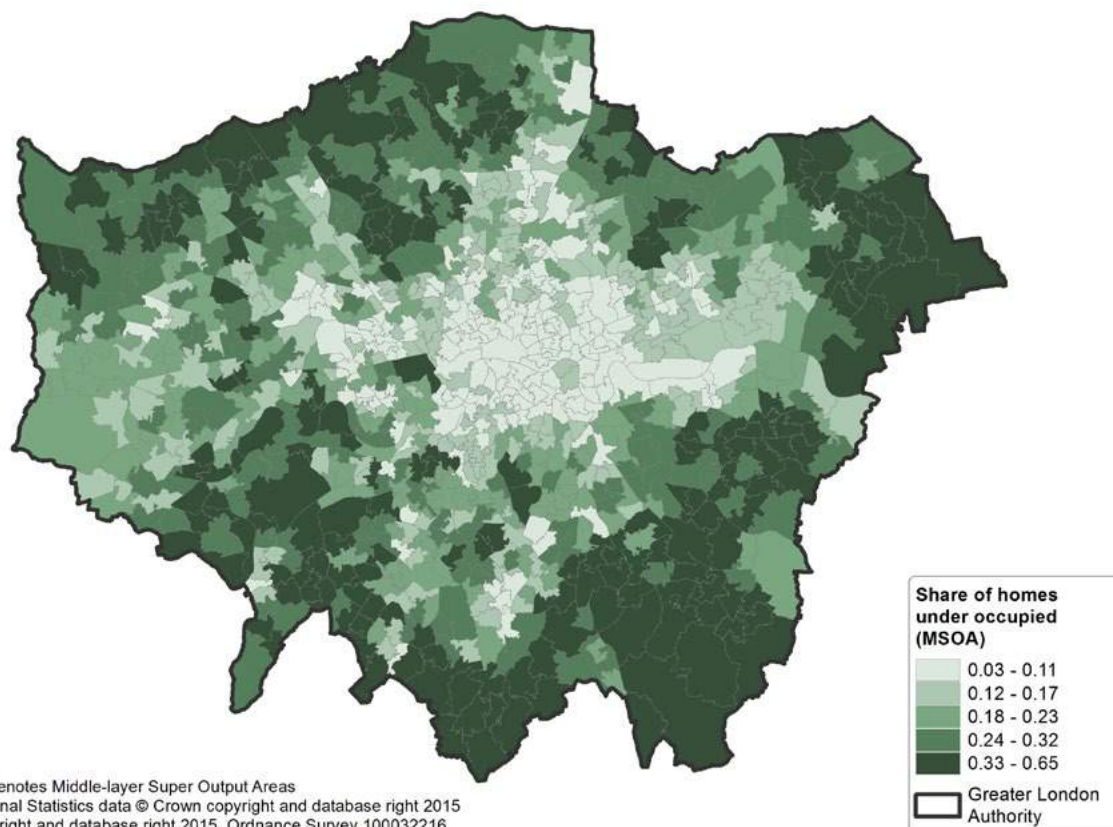
*Source: Census 2011*

Dorling[83] highlights that across England, as people have tried to solve the housing problems themselves, a large number of extensions and extra rooms may have been built – when the family is getting to its maximum size. That the children have since then moved away, he suggests, may be part of the reason why there is now so much under-used stock.

Whilst there are a number of factors that influence how the housing stock is consumed, one consideration is the cost of moving home. Various studies have found that taxes such as Stamp Duty Land Tax can reduce household mobility[84]. Furthermore, characteristics of the current tax system have been found to encourage inefficient use of the housing stock, for example, discounts on council tax that are offered for single occupants, as well as second and empty homes that encourage under-occupation[85]. Well-designed taxes could influence the incentives of under-occupation and encourage a more efficient use of the housing stock.

## Chapter 4 endnotes

1  ONS mid-year population estimates.

2  ONS Workforce Jobs estimates as at March 2016.

3  Henderson, J., 2009, 'Cities and Development', Journal of Regional Science, 50th Anniversary issue.

4  National planning policy is set out in the National Planning Policy Framework (NPPF) while in London, planning is undertaken at strategic level through the London Plan which cascades down to borough-level Local Plans.

5  Tiebout, C. M.,1956, 'A pure theory of local expenditures', The Journal of Political Economy, Vol. 64, No. 5, (Oct., 1956), pp. 416-424, cited in: Fujita and Thisse (2002), "Economics of agglomeration: cities, industrial location and regional growth", Cambridge University Press, May 2002.

6  1 hectare = 10,000 square metres, broadly equivalent to the interior area of an Olympic athletics track.

7  GLA analysis of GeoInformation Group data. Categories do not necessarily match standard land use categories used in planning due the source data. The difficulties in categorising land, especially mixed use developments, should be noted here.

8  GLA analysis of GeoInformation Group UK Map data.

9  Jones, C. and Watkins, C., 2009, 'Housing Markets and Planning Policy', Oxford: Wiley-Blackwell.

10  See DCLG, December 2015, 'Land value estimates for policy appraisal'

11  See Paul Cheshire's LSE blog post from January 14th 2014, 'Having no public data on land prices is a real problem if we are to make sensible decisions about land release or scarcity'

12  AECOM, Cushman & Wakefield, in association with We Made That and Maddison Graphics, March 2016, 'Industrial Land Supply and Economy Study 2015'

13  See DCLG, December 2015, 'Land value estimates for policy appraisal'

14  AECOM, Cushman & Wakefield, in association with We Made That and Maddison Graphics, March 2016,

15  Prime office space here is defined as Grade A office space - new or newly refurbished office space where the building specification includes suspended ceilings and fully accessible raised floors for data/telecommunications cable management, passenger lift and air conditioning facilities.

16  Prime industrial is defined here as the 'high' end of industrial rents presented in Table 4.4.

17  JLL Research, 2016, 'The Central London Market Report Q4 2015'.

18  Prime rents reflect the rents paid at the high end of the market, whilst the occupancy costs include the other costs of renting office space such as business rates.

19  BNP Paribas, 2016, 'Central London Office & Retail Market Q1 2016'

20  UK retail rents are often expressed as a 'Zone A' per square foot / per square metre. This relates to the established UK method of valuation, 'zoning', which adopts the theory that the front of a shop – the part seen by passers by – is worth more than the rear of a shop. Therefore, a shop with a width of 30ft and depth of 20ft is worth more than a shop with a width of 20ft and depth of 30ft. Both shops in this example comprise the same overall floor area – 600 sq. ft – but by using the zoning method of valuation the shop with the wider frontage is worth more (Source: BNP Paribas).

21  Colliers International, July 2015, 'Midsummer Retail Report 2015'.

22  For more on Town Centre Health Checks, see the London Plan technical and research reports pages of the GLA website.

23  These are the 'International' and 'Metropolitan' centres as defined in the London Plan 2011 but there are a large number of other 'Major' and 'District' centres in London.

24  JLL, May 2016, 'London Residential Heatmaps 2016'

25  Sui generis uses are land uses that do not fall within the typical use classes. Such uses include: betting offices/ shops, pay day loan shops, theatres, larger houses in multiple occupation, hostels providing no significant element of care, scrap yards, petrol filling stations and shops selling and/or displaying motor vehicles, retail warehouse clubs, nightclubs, launderettes, taxi businesses, amusement centres and casinos.

26  Occupancy levels were known for 804 of the schemes with prior approval.

27  The London Legacy Development Corporation (LLDC) acts as the planning authority for the area around and including the Queen Elizabeth Olympic Park.

28  GLA, London town centre health check analysis report 2013

29  Valuation Office Agency (VOA), commercial and industrial floorspace

30  The new UK HPI uses a geometric mean as opposed to the arithmetic mean used in the old ONS HPI, or median used in the Land Registry price paid series. The geometric mean is less sensitive to extreme, high property values that may otherwise skew average prices upwards, while it continues to represent them in the calculation process.

31  Further information on the VOA methodology for calculating private rents can be found at: https://www.gov.uk/government/publications/private-rental-market-statistics-england-only/release-notes-10-june-2014#methodology

32  UBS, September 2015. 'Prices and earnings – Edition 2015: Do I earn enough for the life I want?'.

33  In order to estimate the worldwide costs of housing, UBS considered the prices for three different types of apartments, standardised to Western preferences. To capture local standards, the survey asked for the price of an apartment of typical size, location, and amenities for the respective city. Prices included utilities (energy and water taxes), but not the use of a garage. All three housing options were weighted equally.

34  Cheshire, P and S. Sheppard (1998) 'Estimating the demand for housing, land and neighbourhood characteristics', Oxford Bulletin of Economics and Statistics, 60, 3, 357-82.

35  OECD, 'Recent house price developments: the role of fundamentals', OECD Economic Outlook, 78, pp. 123-154.

36  Based on its analysis of the demand and supply of housing finance, the Office for Budget Responsibility (OBR) also finds evidence on much higher levels of credit rationing prior to 1981. Source: Auterson, T., 'Forecasting house prices', OBR Working paper 6, July 2014.

37  Research by Knight Frank for example finds that those buyers who are resident overseas (irrespective of nationality), represented 28 per cent of buyers of prime central London homes in the 12 months to June 2013 (rising to 49 per cent when considering only those properties that were new build developments). Source: Knight Frank, 'International buyers in London', October 2013

38  The Bank's 3 per cent estimate is based on estimates by Knight Frank and Savills of the size and scale of foreign purchases, and assumptions about the scale of foreign purchases in the secondary market outside of what is considered 'prime' central London. Source: Bank of England, November 2014, 'Financial Stability Report'.

39  Holman, N., Fernández-Arrigoitia, M., Scanlon, K. and Whitehead, C. 'Housing in London: addressing the supply crisis', LSE London 2015

40  GLA Intelligence, 'GLA 2015 round population projections', July 2016.

41  Greater London Authority, The London Strategic Housing Market Assessment (2013)

42  This counts the absolute increase in stock one year to the next, including self-contained homes from new build, as well as other losses and gains (such as demolitions, conversions and changes of use). It also includes non-self-contained housing based on the number of bedrooms in communal accommodation (such as student halls). Source: Greater London Authority, 12th London Plan Annual Monitoring Report

43  Source: London development database, extracted on 06/08/15. Note: as above, this counts the absolute increase in stock one year to the next. This data does not however include additions of non-self-contained homes in communal accommodation.

44  For a discussion, see HM Government (2006), 'Barker Review of Land Use Planning', December 2006.

45  While there is a constant review of Green Belt land in England, land can only be removed from the Green Belt through local authorities adopting new Local Plans which must satisfy tests for protecting Green Belt land set out in the National Planning Policy Framework. Green Belt land is a mix of previously developed and non-previously developed land. It can cover villages comprising a mixture of residential, retail, industrial and recreational land, as well as fields and forests. In this context, it is helpful to make a distinction between land use and designation. Land use describes the main activity taking place on an area of land, for example residential or agriculture, whereas the land designation describes an area of land (with perhaps many land uses) with a special characteristic such as National Parks, Urban Areas, Areas of Outstanding Natural Beauty and Green Belt.

46  DCLG, 2012, 'National Planning Policy Framework' (NPPF), p.12

47  DCLG, October 2015, Area of designated Green Belt land by local planning authority.

48  Hardin, G., 1968, 'The Tragedy of the Commons', Science vol. 162, no. 3859, pp. 1243-1248.

49  For further evidence on the costs and benefits of the Green Belt and London's green spaces, see Chapter 7.

50  Cheshire and Hilber, 2008, 'Office Space Supply Restrictions in Britain: The Political Economy of Market Revenge' Economic Journal, Royal Economic Society, vol. 118(529).

51  Hilber, C. and Vermeulen, W., November 2010, 'The impacts of restricting housing supply on house prices and affordability'.

52  Hilber, C 'UK Housing and Planning Policies: the evidence from economic research', LSE Centre for Economic Performance, April 2015.

53  GLA, 'Barriers to Housing Delivery Update: Private sector housing development on large sites in London', July 2014. Report by Molior London for the GLA.

54  GLA, December 2012, 'Barriers to housing delivery: what are the market-perceived barriers to residential development in London?' Report by Molior London for the GLA.

55  GLA, 'Barriers to Housing Delivery Update: Private sector housing development on large sites in London', July 2014. Report by Molior London for the GLA.

56  Outer London Commission, 'Removing the barriers to housing delivery', Sixth Report, March 2016.

57  Boyko, C.T. and Cooper, R., 2011, 'Clarifying and re-conceptualising density' Planning in Progress.

58  Ciccone, A. and Hall, R.E., 1996, 'Productivity and the density of economic activity'

59  Clark, G. and Moir, E., 2015, 'Density: drivers, dividends and debates'. Urban Land Institute

60  Pichardo-Muniz and Chavarria, 2012, 'Agglomeration Economics Versus Diseconomies: The Case of the Greater Metropolitan Area (GMA) of Costa Rica'.

61  Rode, P. and Floater, G., 2014, 'Accessibility in cities – transport and urban form' LSE Cities NCE Cities Paper 3.

62  TfL, 2015, 'Travel in London Report 8'

63  Gleeson, B., 2011, 'Make No Little Plans': Anatomy of Planning Ambition and Prospect. Geographical Research.

64  For the rest of this section, 'Central London' includes Camden, City of London, Islington, Kensington and Chelsea, Lambeth, Southwark and Westminster. This is consistent with the central London sub-region as defined in the London Plan (March 2015)

65  Greater London Authority, 'Land Area and Population Density, Ward and Borough'.

66  According to GLA Intelligence, based on an analysis of the Census 2011, people living in London tend to have shorter distances to commute than those living in England and Wales, are more likely than others to travel to work by using public transport, and less likely than others to travel by either driving or being a passenger in a car or van. More detailed analysis and figures are reported in the following reports: GLA Intelligence, 2014, '2011 Census Snapshot: Method of Travel to work in London', CIS 2014-06 Census Information Scheme.

67  GLA Economics, October 2015, 'Working Paper 71: More residents, more jobs? 2015 update - The relationship between population, employment and accessibility in London'.

68  Île-de-France is the NUTS 1 level region for Paris.

69  Based on the department: 'Ville de Paris'.

70  Central area identified containing 13 of the 23 special wards in central Tokyo

71  English Housing Survey, Japan Housing and Land Survey, New York Housing and Vacancy Survey.

72  JLL, September 2015, 'Raising the Roof'.

73  All populations for 2015, except Hong Kong which is for 2014.

74  GLA Economics, 2016, 'London in comparison with other global cities'.

75  Charting Transport, November 2015, 'Comparing the densities of Australian and European cities',

76  Housing tenure is considered further in Chapter 10.

77  The Housing (Overcrowding) Bill of 2003 defines the bedroom standard as: "(4) For the purposes of the bedroom standard a separate bedroom shall be allocated to the following persons—  (a)  A person living together with another as husband and wife (whether that other person is of the same sex or the opposite sex), (b)  A person aged 21 years or more, (c) Two persons of the same sex aged 10 years to 20 years,  (d) Two persons (whether of the same sex or not) aged less than 10 years, (e) Two persons of the same sex where one person is aged between 10 years and 20 years and the other is aged less than 10 years, (f) Any person aged under 21 years in any case where he or she cannot be paired with another occupier of the dwelling so as to fall within (c), (d) or (e) above." Note that while the 2011 Census uses the bedroom standard definition stated above, the Housing Bill of 2003 also takes account of uninhabitable bedrooms and rooms with less than 50ft2 floor space in determining bedrooms or rooms available to a household. The census does not collect this information and it is therefore not used in deriving the 2011 Census bedroom occupancy ratings.

78  ONS, April 2017, 'Overcrowding and under-occupation in England and Wales'

79 Sources: 'A Vision of Britain through time' [website] for data from 1931 to 2001, ONS Census 2001 and 2011.

80 Dorling, D. 'All that is solid: how the great housing disaster defines our times, and what we can do about it', February 2015

81 Gordon, I., 2014, 'Fitting a quart in a pint pot?: Development, displacement and/or densification in the London region'.

82 English Housing Survey 2012/13 – 2014/15

83 Prospect magazine interview with Dorling, D. 'The great housing disaster' [website], March 2014, accessed on 9 August 2016.

84 Hilber, C. 2015, 'UK Housing and planning policies: the evidence from the economic research', LSE Centre for Economic Performance.

85 Mirrlees, J., 2010, 'Reforming the Tax System for the 21st Century: The Mirrlees Review'.

# 5: London's attractiveness as a location for business and people

## 5.1 Key points

- London is a competitive location for business, benefitting from inherent advantages such as legal, political and regulatory frameworks, as well as having corporation tax rates lower than any other G7 country.

- The capital figures prominently across a range of city ranking indices and positioned as the leading global city according to the PWC Cities of Opportunity and the Global Financial Centres Index.

- London is a prominent destination for inward investment, particularly in areas in which London has industrial specialisation, such as information and communication, financial services and professional services.

- London has a highly skilled workforce, with over half of all workers in the capital being educated to at least degree level.

- London comprises 41 per cent of total net international migration to the UK, with net migration of around 100,000 each year over the last decade. Coming to the UK for work is the most common reason for migration, followed by study, and accompanying family already in the UK.

- There are many factors which encourage people to live in the capital such as the economic opportunities available through work, as well as its culture and heritage.

- The proportion of London's population who were born outside the UK has grown considerably over time, currently at 37 per cent according to the 2011 Census. These rates are similar to other major global cities such as New York, Hong Kong, and Singapore.

- The capital not only attracts people for work, it also attracts students to its universities, which feature prominently in international rankings. There are over 100,000 international students in the capital, comprising almost a quarter of all international students in the UK.

- London is one of the most visited cities in the world, with 18.6 million people visiting the capital in 2015.

## 5.2 Introduction

London is a leading global city on many counts. Historically, it has developed over time as a result of being a centre for trade, and it is through globalisation and trade that London has become increasingly specialised in certain activities (particularly in financial and business services), and has built upon its comparative advantages (see Chapter 1 for more detail).

Many factors explain why London remains a competitive location, however this can be evidenced through exploring why businesses and people want to locate in the capital. Without London developing as a location for globally mobile business, people will not be attracted to locate in the capital to take advantage of employment opportunities and potential higher standards of living; but without people wanting to live and work in the capital, businesses may not be able to draw upon the specialist skills they need to effectively operate in the capital.

London's specialisms in high skilled, high value business activities means that London is able to offer high wages and numerous career opportunities. People are attracted to the capital from both within the UK and outside; for businesses, this means that there is a ready supply of labour for higher value occupations and activities. However, London's economy – as well as being specialised in some areas – is quite diverse, offering a range of opportunities to those looking to live and work in London.  Sectors such as accommodation & food, retail, administrative and support services, construction, and public services are all significant employers in London's economy – and all of which need a mixture of high and lower skill sets.

This chapter looks at the factors that have drawn businesses and people to the capital, and provides evidence explaining the importance of each – for example, by examining trends in inward investment, taxation and regulation; but also by considering London's standing within global ranking indicators.

## 5.3 London's attractiveness as a location for business

The first half of this chapter looks at the various factors which influence businesses, both internationally and within the UK, to locate to the capital; and includes the following:

- London's geographic position
- Tax and regulatory environment
- Legal, regulatory and political framework
- London as a centre for business
- London as a financial centre

Within each of these categories, data are explored to show the evidence for each, drawing upon official statistics and other survey data.

### 5.3.1 London's global position and historical development

Over time, London's status as a global city has developed as a result of its central location. London sits between East and West with the implication being that London can overlap the business hours of other major business locations. Tokyo and the Far East business closes at the start of London's main business hours, the Middle East largely sits within main business hours and New York and other centres in the West start towards the end of business hours in London. The capital is therefore able to develop strong connections with all of these business locations, sitting naturally as the connection between East and West.

In addition, the UK has played an important role in global history and globalisation. English has become the pre-eminent business language, used in North America, and widely taught as an essential skill across education systems. The presence of a wide range of cultures coming together in a global city, with English as a common language, enables the capital to attract both business and people.

Analysis undertaken for the British Council by Ipsos Mori in 2014 looked at the relative importance of the factors that influenced the attractiveness of countries. By examining the responses of two separate questions on the attractiveness of the UK and countries in general, the research found that language was relatively more important in making the UK attractive compared with other nations, as shown from the extract of the report in Figure 5.1.

**Figure 5.1: Factors influencing the attractiveness of the UK and countries more generally**

Question 1: Which, if any, of the following characteristics particularly contribute to making a country attractive to you?

Question 2: Which, if any, of the following characteristics particularly contribute to making the UK attractive to you?

**Absolute importance in making a country attractive**

-3%
+12%
-17%
+8%
-14%
+24%
+18%
-37%
+24%
-14%
-8%
-2%
+6%
-17%
-7%
-18%
+30%

10%
8%
6%
4%
2%

Relatively LESS important in making UK attractive
Relatively MORE important in making UK attractive

People    Science, research and ability to innovate    Technology and infrastructure
Economy and business environment    Brands, products and services    Countryside and landscape
Weather    A reputation for being safe and secure    Social and political institutions
The current and past actions of its government    Education system and institutions    Cultural and historic attractions
Arts    Language    History    Sporting teams, events and achievements    Cities

Base: Five-country data (5,029); 18–34 year olds in Brazil (1,003), China (1,007), Germany (1,003), India (1,006), US (1,010), Fieldwork December 2013 – January 2014. Data presented here is weighted to relevant national populations. Source: Fieldwork – Ipsos MORI; Analysis – In2Impact.

*Source: British Council*

## 5.3.2 Legal, financial and political frameworks

The UK has a well recognised legal framework, as well as accounting and finance practices. This gives confidence to investors when making decisions on where to locate. In addition, traditionally the UK has been seen as a politically stable location. When examining London's position in the global economy, all these factors together play a significant role in attracting business to the capital.

## 5.3.3 Tax and regulatory environment

In recent times, the UK government has looked to present the UK as a competitive global location through lowering corporation tax levels and ensuring a pro-business regulatory environment. Figure 5.2 demonstrates how the UK ranks in relation to other nations for corporation tax rates, showing that in 2016, it has the lowest corporation tax rate of any G7 country.

**Figure 5.2: Corporation tax rates, OECD nations, 2016**
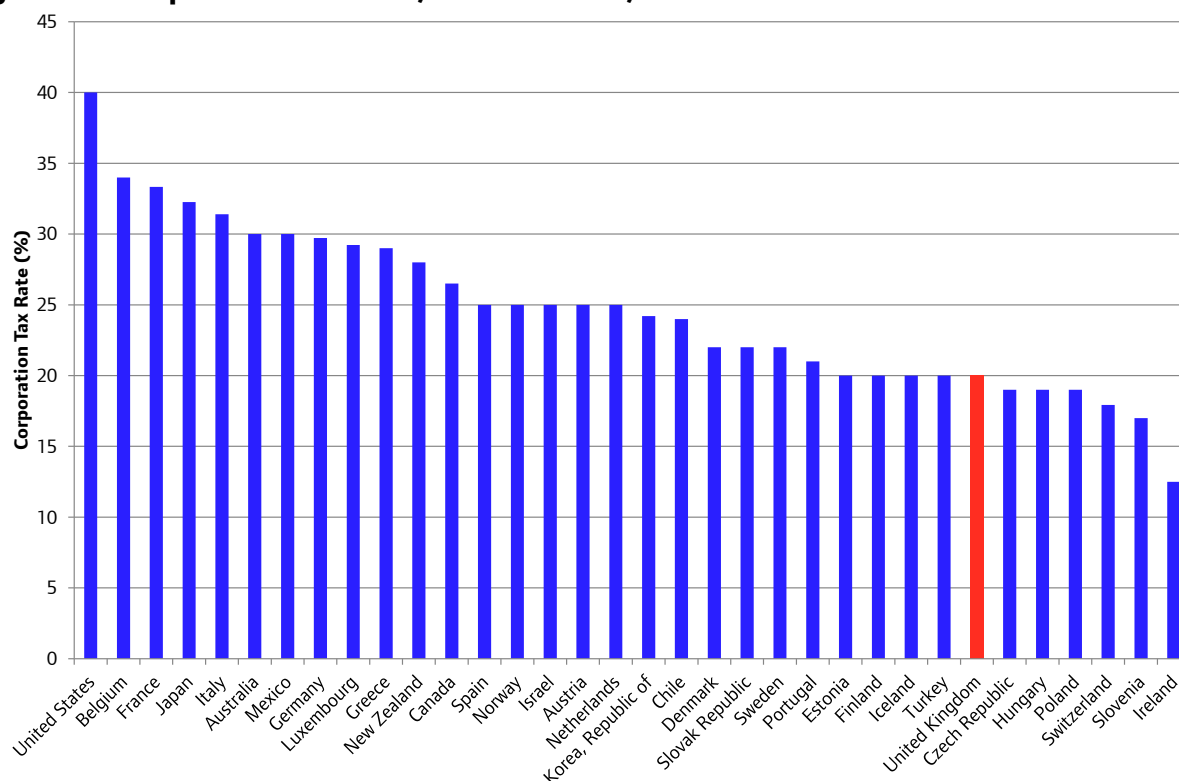


*Source: KPMG*

The UK has become increasingly competitive on corporation tax, with the rate falling from 30 per cent in 2008, down to 20 per cent in 2015. The UK is now amongst the most competitive locations on corporate tax, and this progression over time is shown within Table 5.1. However this table does not include countries and territories where the corporation tax rate is zero, notably the Cayman Islands, Bermuda and Bahrain. The table also shows that some jurisdictions continue to have lower corporation tax rates than the UK, notably Singapore, Hong Kong and Switzerland.

**Table 5.1: Highest corporation tax rate in selected countries over time, 2006-2016 (ranked highest to lowest, 2016)[1]**

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| United Arab Emirates | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 |
| United States | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| France | 33.33 | 33.33 | 33.33 | 33.33 | 33.33 | 33.33 | 33.33 | 33.33 | 33.33 | 33.33 | 33.33 |
| Japan | 40.69 | 40.69 | 40.69 | 40.69 | 40.69 | 40.69 | 38.01 | 38.01 | 35.64 | 33.06 | 32.26 |
| Italy | 37.25 | 37.25 | 31.4 | 31.4 | 31.4 | 31.4 | 31.4 | 31.4 | 31.4 | 31.4 | 31.4 |
| Germany | 38.34 | 38.36 | 29.51 | 29.44 | 29.41 | 29.37 | 29.48 | 29.55 | 29.58 | 29.65 | 29.72 |
| Canada | 36.1 | 36.1 | 33.5 | 33 | 31 | 28 | 26 | 26 | 26.5 | 26.5 | 26.5 |
| Global average | 27.5 | 26.95 | 26.1 | 25.38 | 24.69 | 24.5 | 24.4 | 23.71 | 23.64 | 23.68 | 23.63 |
| EU average | 24.83 | 23.97 | 23.17 | 23.11 | 22.93 | 22.7 | 22.51 | 22.75 | 21.34 | 22.15 | 22.09 |
| United Kingdom | 30 | 30 | 30 | 28 | 28 | 26 | 24 | 23 | 21 | 20 | 20 |
| Switzerland | 21.3 | 20.63 | 19.2 | 18.96 | 18.75 | 18.31 | 18.06 | 18.01 | 17.92 | 17.92 | -- |
| Singapore | 20 | 20 | 18 | 18 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Hong Kong | 17.5 | 17.5 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 |
| Macau | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |

*Source: KPMG[2]. Note: Data for Switzerland for 2016 not currently available.*

Although the UK is a competitive location for business based on corporate taxation, it is less so on levels of personal taxation. London's economy attracts workers who are highly skilled and internationally mobile, so levels of personal taxation could affect the decision on whether to live and work in London. Table 5.2 provides data from KPMG on the highest income tax rates in selected countries, which sees the UK sit towards the top; however it must be remembered that tax systems vary from country to country, and as such tax burdens in other areas (sales taxes, other indirect taxes) may not fully correlate with levels of income taxation.

**Table 5.2: Highest income tax rate in selected countries and area averages over time, 2006-2016 (ranked highest to lowest on 2016)[3]**

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50.84 | 50.84 | 50.84 | 55.95 |
| Ireland | 42 | 41 | 41 | 46 | 47 | 48 | 48 | 48 | 48 | 48 | 48 |
| Germany | 42 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 |
| United Kingdom | 40 | 40 | 40 | 40 | 50 | 50 | 50 | 45 | 45 | 45 | 45 |
| France[4] | 40 | 40 | 40 | 40 | 41 | 41 | 45 | 45 | 45 | 49 | -- |
| Italy | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 |
| Switzerland | 40.4 | 40.4 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| United States | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 39.6 | 39.6 | 39.6 | 39.6 |
| EU average | 39.9 | 39.32 | 37.56 | 37.03 | 37.3 | 37.09 | 37.46 | 38.37 | 38.38 | 37.78 | 37.23 |
| Global average | 32.68 | 31.96 | 31.44 | 30.96 | 31.25 | 30.85 | 31.34 | 30.99 | 31.12 | 31.17 | -- |
| Canada | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 33 |
| Singapore | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 22 |
| Hong Kong | 16 | 16 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Macau | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| United Arab Emirates | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Source: KPMG[5]*

While the United Kingdom has a relatively competitive tax system regarding business taxes, some countries offset this with differing levels of personal income taxation, and on goods and services. Figure 5.3 shows that indirect taxation as a proportion of total taxation in the UK is comparatively higher, however its impact on London's competitiveness as a location for business and people is arguably likely to be lower compared to relative levels of corporation or personal taxation.

**Figure 5.3: Taxation on goods and services as a proportion of total taxation, 2013**
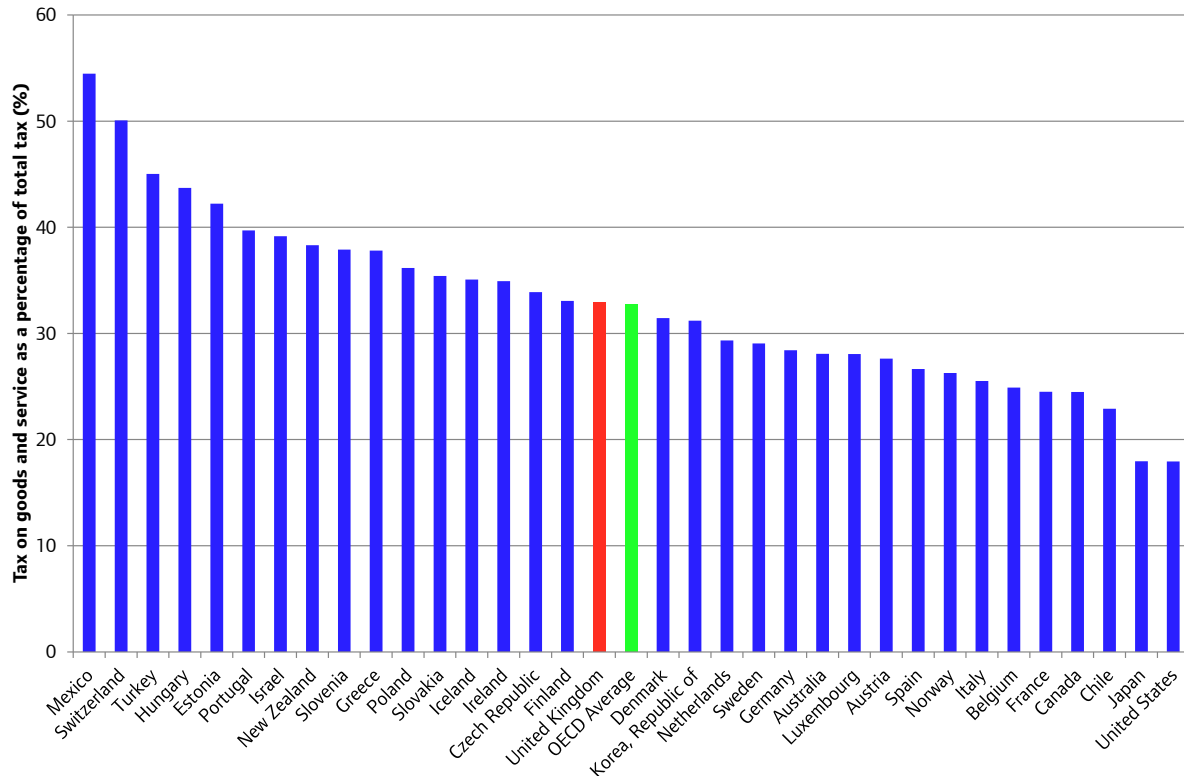


*Source: OECD*

## 5.3.4 London's business make-up

As a result of the many pull factors that encourage businesses to invest in London, as well as the potential returns that businesses can achieve from being successful in such a large market, London is a competitive business environment, with higher levels of business start-ups and closures: business churn is higher in London than the UK as a whole. This section provides an overview of London's business make-up drawing upon national datasets as well as work commissioned by GLA Economics on the spatial nature of business in London.[6]

### Business births and deaths

According to ONS Business Demography data, there were 500,825 active enterprises in London, comprising 19.6 per cent of all businesses in the UK in 2014 (Table 5.3). Between 2009 and 2014, London's share of active enterprises grew by 2.5 percentage points, with a consistent growth profile over the six year period. London also has a considerably higher number of business births and deaths compared to other regions, and these data are shown in Table 5.4.

As can be seen, due to the competitive nature of business in the capital, net-start up rates in London are much higher than those in any other region of the UK.

**Table 5.3: Numbers of VAT/PAYE registered enterprises by region, 2014**

| Region | Number of active enterprises | Proportion of total UK |
|---|---|---|
| North East | 68,775 | 2.7% |
| North West | 249,465 | 9.8% |
| Yorkshire and the Humber | 176,840 | 6.9% |
| East Midlands | 167,360 | 6.6% |
| West Midlands | 198,765 | 7.8% |
| East | 254,340 | 10.0% |
| South East | 403,070 | 15.8% |
| South West | 215,905 | 8.5% |
| Wales | 92,445 | 3.6% |
| Scotland | 167,860 | 6.6% |
| Northern Ireland | 55,240 | 2.2% |
| **London** | **500,825** | **19.6%** |
| **United Kingdom** | **2,550,890** | **--** |

Source: Business Demography, ONS; GLA Economics calculations

**Table 5.4: Enterprise births, deaths and net-start up rate by region, 2014**

| Region | Enterprise Births | Enterprise Deaths | Net Start-up rate |
|---|---|---|---|
| North East | 9,650 | 6,985 | 3.9% |
| North West | 34,275 | 25,300 | 3.6% |
| Yorkshire and the Humber | 23,745 | 17,325 | 3.6% |
| East Midlands | 22,035 | 15,705 | 3.8% |
| West Midlands | 25,740 | 19,100 | 3.3% |
| East | 32,595 | 23,580 | 3.5% |
| South East | 51,280 | 36,765 | 3.6% |
| South West | 25,300 | 19,275 | 2.8% |
| Wales | 11,345 | 8,490 | 3.1% |
| Scotland | 21,235 | 15,565 | 3.4% |
| Northern Ireland | 4,805 | 4,605 | 0.4% |
| **London** | **88,580** | **53,140** | **7.1%** |
| **United Kingdom** | **350,585** | **245,835** | **4.1%** |

Source: Business Demography, ONS; GLA Economics calculations

Similar trends have occurred over time; London has seen higher levels of net business start-ups than the UK as a whole as shown in Figure 5.4.

**Figure 5.4: Annual business net-start up rate, London and the UK**
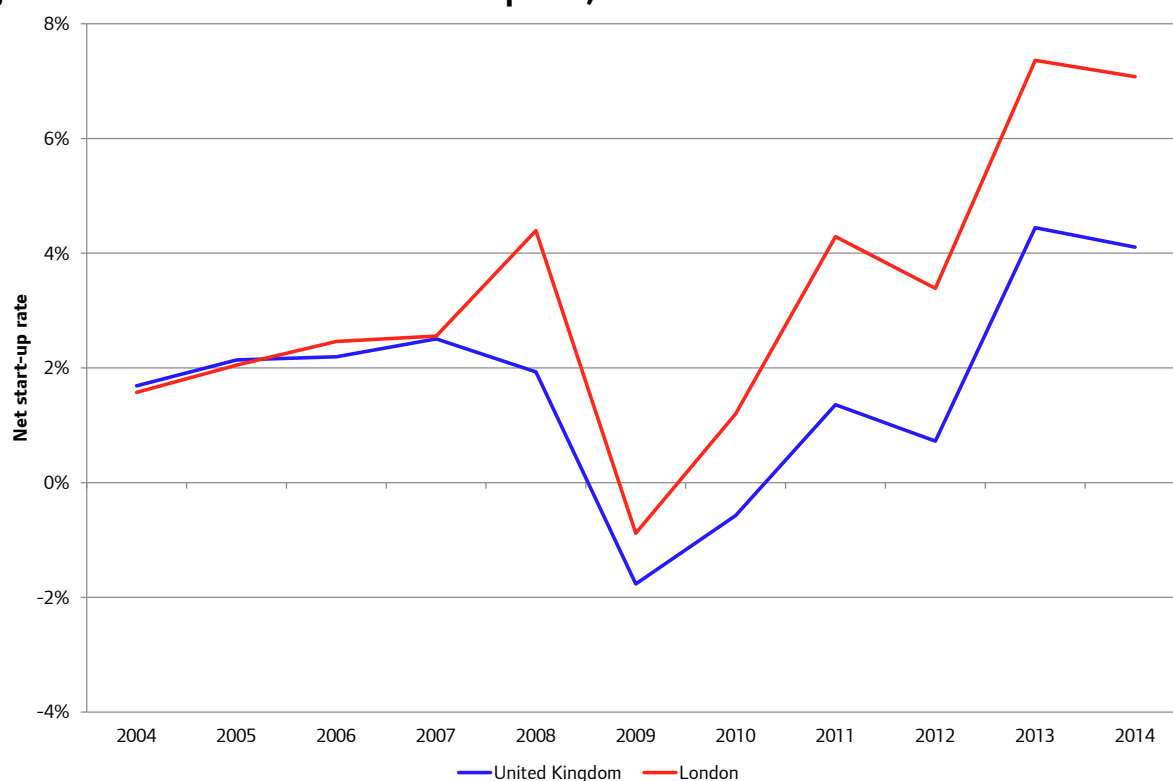


*Source: Business Demography, ONS; GLA Economics calculations*

All of this is representative of a competitive business environment. Whilst net-start-up rates went negative in the period of the 2009 recession they have since picked up. As a result, despite a significant level of business failures, the continued draw of London as a centre for business means that business start-ups remain high, as shown in Table 5.5.

**Table 5.5: Enterprise births and deaths in London by year**

|             | 2009    | 2010    | 2011    | 2012    | 2013    | 2014    |
|-------------|---------|---------|---------|---------|---------|---------|
| Births      | 50,575  | 52,755  | 61,395  | 65,095  | 83,600  | 88,580  |
| Deaths      | 54,130  | 47,800  | 43,325  | 50,205  | 49,280  | 53,140  |
| Net Births  | -3,555  | 4,955   | 18,070  | 14,890  | 34,320  | 35,440  |

*Source: Business Demography, ONS*

Along with a higher net start-up rate, business survival rates in London are lower than for the UK as a whole, which in part can be attributed to a more competitive business climate in the capital. Data shows that for businesses born in 2009, the one, three and five year business survival rates are typically 2 to 3 percentage points lower in the capital than the UK as a whole, with 38.6 per cent of businesses born in 2009 still in operation five years later (Figure 5.5).

**Figure 5.5: Business survival rates for those established in 2009, London and the UK**
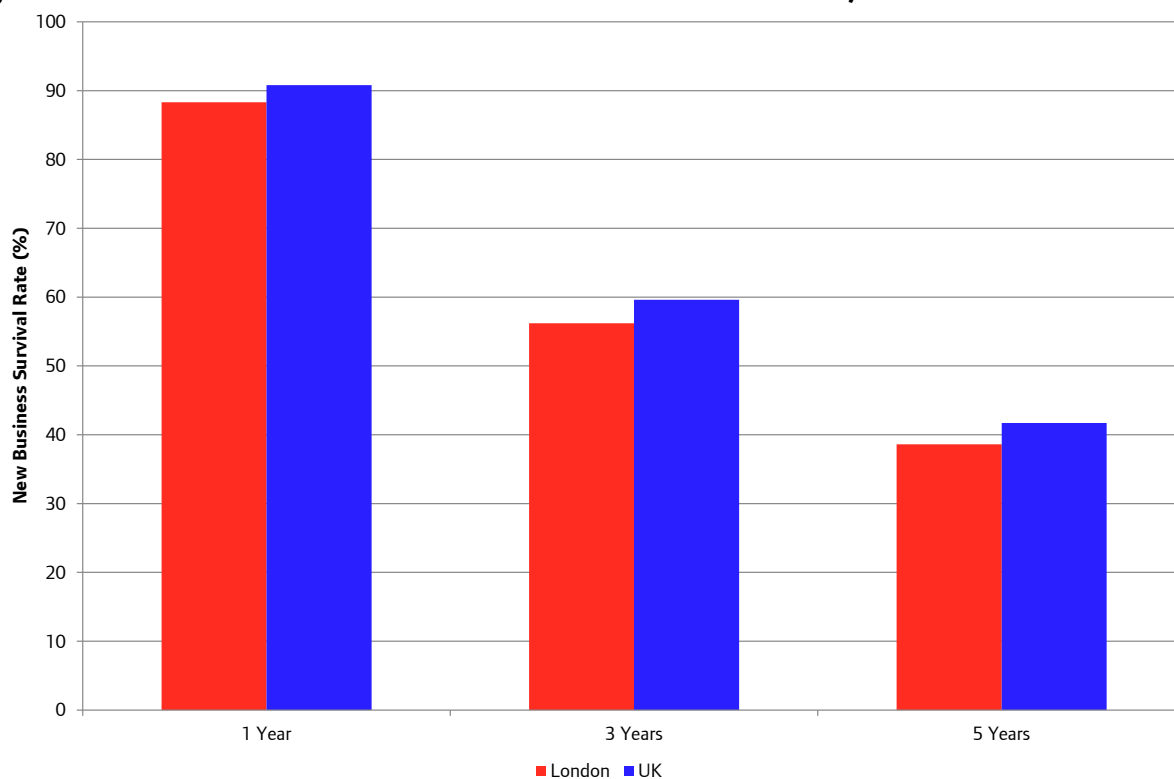


Source: Business Demography, ONS

## Changing spatial nature of businesses in London

Data analysed by Trends Business Research (TBR) provides an insight into how the business make up of London has changed over time. Within Chapter 2, analysis of spatial aspects of business in London are considered. Within this chapter, the analysis looks at how the stock of businesses in the capital has changed over time. The data in Table 5.6 show that the Central Activities Zone (CAZ) and Northern Isle of Dogs (NIOD) area is highly competitive with net start-up rates in excess of those in other areas of London, however all areas (including both inner and outer London) can be seen to be competitive. This analysis shows that, across London, more businesses are started, in general, than are closed.

**Table 5.6: Net business births as a percentage of stock in London**

|  | 1998-2001 | 2001-2004 | 2004-2007 | 2007-2008 | 2008-2009 |
|---|---|---|---|---|---|
| CAZ | 5.5% | 3.3% | 5.3% | 9.2% | 1.3% |
| NIOD | 10.1% | 7.3% | 8.2% | 12.4% | 4.1% |
| Inner London | 4.8% | 4.5% | 5.6% | 7.4% | -1.3% |
| Outer London | 4.3% | 2.4% | 6.3% | 7.0% | -1.5% |
| London | 4.6% | 3.5% | 5.9% | 7.2% | -1.4% |
| CAZ/NIOD | 5.6% | 3.3% | 5.3% | 9.2% | 1.4% |

|  | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 |
|---|---|---|---|---|
| CAZ | 5.5% | 5.3% | -1.7% | -0.5% |
| NIOD | 9.6% | 7.8% | 1.1% | 2.1% |
| Inner London | 1.9% | 7.8% | -0.2% | 3.0% |
| Outer London | 0.7% | 8.5% | -0.5% | 3.6% |
| London | 1.3% | 8.1% | -0.4% | 3.3% |
| CAZ/NIOD | 5.6% | 5.3% | -1.6% | -0.5% |

Source: TBR

When looking at individual sectors, measures of business churn (that being births plus deaths as a percentage of total business stock) show that the business make-up is consistently being refreshed, however no correlation can really be drawn at the sector level as to whether business churn levels are higher in sectors where London has specific comparative advantages, as shown in Table 5.7 (with a fuller time series provided within Appendix 5.2).

**Table 5.7: Rates of business churn in London by sector, selected years**

| Sector | 2008-2009 | 2010-2011 | 2012-2013 |
|---|---|---|---|
| Science/Tech | 21.4% | 19.8% | 19.6% |
| Creative Industries | 23.0% | 19.0% | 18.5% |
| Construction | 21.6% | 16.3% | 23.2% |
| Manufacturing | 17.1% | 18.7% | 15.8% |
| Retail Trade | 17.7% | 23.6% | 19.3% |
| Transportation and storage | 18.0% | 20.5% | 19.1% |
| Accommodation and food service activities | 18.6% | 23.7% | 19.3% |
| Information and communication | 25.2% | 22.2% | 22.1% |
| Financial and insurance activities | 15.0% | 23.4% | 19.6% |
| Real estate activities | 13.4% | 12.0% | 16.2% |
| Professional, scientific and technical activities | 20.7% | 17.9% | 23.0% |
| Administrative and support service activities | 31.3% | 23.6% | 20.7% |
| Public administration and defence | 15.3% | 32.2% | 14.6% |
| Education | 15.7% | 15.4% | 13.5% |
| Human health and social work activities | 20.2% | 26.1% | 29.5% |
| Arts, entertainment and recreation | 18.0% | 17.8% | 19.7% |
| Other services activities | 20.6% | 22.2% | 19.4% |

*Source: TBR*

## 5.3.5 Indicators of London's competitiveness

*City ranking indicators*

One of the ways that the competitiveness of London can be observed is through the review of city ranking indicators.  Table 5.8 sets out a series of such surveys and London's position within them. However, some care is required when considering such indicators given the differences in methodology and assumptions between them – a topic on which GLA Economics previously reported.[7]

**Table 5.8: City Ranking Indicator Summary**

| Survey where London came first | Survey where London came second | Survey where London was in the top five |
|---|---|---|
| Cities of Opportunity 7 (2016) – PwC[8] | 2025 City Competitiveness Index – The Economist Intelligence Unit[9] | A.T. Kearney Global Cities Outlook 2016 (4th) |
| A.T. Kearney – Global Cities Index 2016[10] | Networked Society City Index 2014 - Ericsson[14] | Sustainable Cities Index 2016 – Arcadis[11] |
| European Attractiveness Survey 2016 – EY[13] | Cities in Motion Index 2014 – IESE Business School[17] | City Prosperity Index 2012/2013 – United Nations (4th)[12] |
| Global Destination Cities Index 2015 – MasterCard[16] | GfK/Anholt City Brands Index 2015 | Innovation Cities Index 2014 – Innovation Cities (3rd)[15] |
| Global Power City Index 2015 – The Mori Memorial Foundation[18] | GfK/Anholt City Brands Index 2015 | |
| The World According to GaWC 2012 – Globalization and World Cities (Loughborough University)[19] | | |
| Global Financial Centre Index 20 – Z/Yen[20] | | |
| European Digital City Index 2015 – Nesta | | |

With the previous caveat in mind, there are many factors which explain why London is a globally competitive city. One example of a wide ranging index is the PWC Cities of Opportunity, which assesses the competitiveness of cities across ten broad indicators (and 59 component indicators). The seventh version of this report ranked London as the leading global city ahead of Singapore and Toronto. Table 5.9 provides the ranking order of cities included within this index.

**Table 5.9: PWC Cities of Opportunity Rankings**

| Rank | City | Rank | City | Rank | City |
|---|---|---|---|---|---|
| 1 | London | 11 | Seoul | 21 | Shanghai |
| 2 | Singapore | 12 | Berlin | 22 | Moscow |
| 3 | Toronto | 13 | Chicago | 23 | Mexico City |
| 4 | Paris | 14 | Los Angeles | 24 | Johannesburg |
| 5 | Amsterdam | 15 | Tokyo | 25 | Sao Paulo |
| 6 | New York | 16 | Madrid | 26 | Bogota |
| 7 | Stockholm | 17 | Dubai | 27 | Rio de Janeiro |
| 8 | San Francisco | 18 | Milan | 28 | Jakarta |
| 9 | Hong Kong | 19 | Beijing | 29 | Mumbai |
| 10 | Sydney | 20 | Kuala Lumpur | 30 | Lagos |

*Source: PWC Cities of Opportunity*

More specifically, a review of the broader indicators gives an indication of the relative strength of the capital. Table 5.10 shows the capital's ranking across each of the ten broad indicators.

**Table 5.10: London's position across broad indicators within PWC Cities of Opportunity index**

| Indicator Set | London's Ranking | Highest Rated city | Second rated city | Third rated city |
|---|---|---|---|---|
| Intellectual capital and innovation | 1st | London | San Francisco | Paris |
| Technology readiness | 2nd | Singapore | London | Amsterdam, New York |
| City gateway | 1st | London | Paris | Beijing |
| Transportation and infrastructure | =8th | Singapore | Dubai | Stockholm |
| Health, safety and security | 8th | Tokyo | Toronto | Sydney |
| Sustainability and the natural environment | 13th | Stockholm, Sydney | -- | Seoul, Toronto |
| Demographics and livability | 3rd | Paris, New York | -- | London |
| Economic clout | 1st | London | New York | Beijing |
| Ease of doing business | 3rd | Singapore | Hong Kong | London |
| Cost | 26th | Johannesburg | Toronto | Los Angeles |

Source: PWC Cities of Opportunity

A review of London's position shows key areas of strength for the capital, but also areas where London performs less well. London leads in three of the broad indicators, and these findings correlate with other survey data on the capital. London is in the top three for six of the ten indicators, however London rates as the 5th worst of the cities analysed in terms of costs, which look at areas such as corporate and personal taxation, the costs of business occupancy and the costs of living (a topic explored in more detail within Chapter 10). London's relative place amongst other major cities highlights risks to London's future prosperity – a topic which is explored in more detail in Chapter 6.

*Foreign Direct Investment*

One way in which London's "economic clout", "city gateway" and "intellectual capital and innovation" can be observed is through the scale of inward investment into the capital. In recent times, businesses and investors have seen London as a suitable location to invest for a wide variety of reasons, whether it be as the gateway into the UK and European markets, to take advantage of the highly skilled labour force, or to seek to draw upon the benefits of agglomeration with other businesses within their sector (or shared services which would lead to greater innovation). In light of the UK electorate's vote to leave the European Union, and depending on the nature and outcomes from negotiation processes, London's continued attractiveness as a place to invest (and access the EU single market) may be impacted in the medium and longer term.

From an economic perspective, inward investment can act as a means of increasing productivity, as a new entrant into a market may have new ideas, methods or technologies which increases productivity. As part of this process, new entrants, if they have technology far in advance of domestic firms, may mean that less productive firms are forced to leave the market; as a result the net benefits from inward investment will likely be through improvements in total factor productivity.

The data within this section have been sourced from two main suppliers. fDi Markets is a real-time data resource providing details on investment flows, for example, monitoring investment that comes into London or originates from London. These data also record the industrial sector which the investment is in (these definitions however do not correlate with the Standard Industrial Classification (SIC) from the ONS), the number of new jobs estimated to be created, and the level of capital investment related to it. However a limitation is that data on jobs and capital investment are estimates based on market intelligence and press releases. Data on the number of investment projects however are more certain.

In addition, data from the Global Investment Monitor from EY is also used to provide additional analysis and corroborating evidence. Reports such as the UK (and European) attractiveness surveys give insights into the scale of investments and some of the associated issues relating to inward investment – such as industry leaders views on the future trends for investment and global macroeconomics issues that may influence future paths of investment.

## i) Global trends in FDI

London has to compete against other major global cities and nations for investment, especially as capital and people are increasingly able to move freely and quickly. As a destination for investment, London has been consistently competitive over the last decade – this is shown in Table 5.11. London has consistently been in the top three cities for the number of inward investment projects coming to the capital (Table 5.12).

### Table 5.11: Number of inbound FDI projects by city, 2005 - 2015

| Rank | Destination City | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | Total: 2005 - 2015 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | London | 228 | 333 | 393 | 386 | 421 | 423 | 494 | 3,855 |
| 2 | Singapore | 161 | 363 | 393 | 403 | 438 | 444 | 386 | 3,721 |
| 3 | Shanghai | 344 | 307 | 305 | 265 | 304 | 271 | 193 | 3,241 |
| 4 | Dubai | 185 | 217 | 265 | 250 | 264 | 242 | 261 | 2,814 |
| 5 | Hong Kong | 132 | 231 | 259 | 252 | 244 | 202 | 199 | 2,402 |
| 6 | Paris | 129 | 156 | 142 | 139 | 218 | 208 | 184 | 1,852 |
| 7 | Beijing | 169 | 166 | 154 | 152 | 131 | 117 | 88 | 1,752 |
| 8 | New York | 44 | 151 | 151 | 161 | 217 | 207 | 217 | 1,494 |
| 9 | Bangalore | 125 | 97 | 115 | 89 | 85 | 100 | 120 | 1,146 |
| 10 | Sydney | 39 | 113 | 124 | 147 | 138 | 137 | 138 | 1,112 |

Source: fDi Markets

### Table 5.12: Ranking of cities for selected years (number of inbound projects): 2005, 2010, 2013 – 2015

| Destination City | 2005 | 2010 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| London | 2 | 2 | 2 | 2 | 1 |
| Singapore | 5 | 1 | 1 | 1 | 2 |
| Shanghai | 1 | 3 | 3 | 3 | 6 |
| Dubai | 3 | 5 | 4 | 4 | 3 |
| Hong Kong | 6 | 4 | 5 | 7 | 5 |
| Paris | 7 | 7 | 6 | 5 | 7 |
| Beijing | 4 | 6 | 9 | 10 | 13 |
| New York | 28 | 8 | 7 | 6 | 4 |
| Bangalore | 9 | 13 | 14 | 13 | 9 |
| Sydney | 8 | 9 | 8 | 9 | 8 |

Source: fDi Markets

Outside of simply looking at the numbers of inward investment projects, London's global position relating to the estimated numbers of jobs created and the level of capital investment associated with investment are similar; Tables 5.13 and 5.14 provide details of the levels of investment in 2005, 2010 and 2013-2015.

**Table 5.13: Capital expenditure associated through inbound FDI, by city, US $ milion**

| Rank | Destination City | 2005 | 2010 | 2013 | 2014 | 2015 | Total: 2005 - 2015 |
|------|------------------|------|------|------|------|------|--------------------|
| 1 | Shanghai | 16,849 | 12,253 | 11,388 | 8,984 | 7,052 | 143,911 |
| 2 | Singapore | 6,866 | 16,553 | 9,348 | 12,111 | 8,261 | 138,941 |
| 3 | London | 3,650 | 6,130 | 8,124 | 9,326 | 12,824 | 107,307 |
| 4 | Beijing | 6,089 | 5,937 | 6,795 | 2,648 | 2,496 | 78,366 |
| 5 | Dubai | 4,907 | 5,806 | 4,038 | 7,881 | 7,143 | 76,793 |
| 6 | Hong Kong | 3,658 | 6,147 | 7,114 | 5,432 | 4,300 | 63,054 |
| 7 | NYC (NY) | 2,938 | 3,167 | 9,880 | 3,965 | 10,556 | 45,716 |
| 8 | Cairo | 4,121 | 1,764 | 876 | 451 | 340 | 41,132 |
| 9 | Tianjin | 2,329 | 3,670 | 2,467 | 6,198 | 3,274 | 41,093 |
| 10 | Sao Paulo | 1,335 | 4,036 | 5,312 | 2,776 | 2,049 | 40,608 |

*Source: fDi Markets*

**Table 5.14: Number of jobs created by inbound FDI, by city**

| Rank | Destination City | 2005 | 2010 | 2013 | 2014 | 2015 | Total: 2005 - 2015 |
|------|------------------|------|------|------|------|------|--------------------|
| 1 | Shanghai | 64,451 | 38,636 | 40,171 | 33,762 | 21,947 | 495,999 |
| 2 | Singapore | 17,737 | 33,281 | 24,245 | 31,574 | 27,201 | 317,965 |
| 3 | Bucharest | 17,808 | 18,167 | 22,730 | 10,976 | 12,411 | 314,256 |
| 4 | Beijing | 26,121 | 20,819 | 23,842 | 8,565 | 10,279 | 255,587 |
| 5 | Bangalore | 34,415 | 22,024 | 12,444 | 18,936 | 30,193 | 253,697 |
| 6 | Moscow | 30,152 | 19,159 | 18,913 | 12,946 | 12,938 | 233,190 |
| 7 | Dubai | 14,264 | 14,282 | 11,419 | 12,177 | 19,341 | 216,811 |
| 8 | Chennai | 19,562 | 17,019 | 8,443 | 7,465 | 7,753 | 199,937 |
| 9 | London | 8,597 | 13,429 | 20,410 | 24,652 | 23,106 | 193,455 |
| 10 | St Petersburg | 27,568 | 15,587 | 8,142 | 8,249 | 2,079 | 162,287 |

*Source: fDi Markets*

**ii) Region of origin for investment**

Figure 5.6 shows the origin of investment into the UK. The majority of investment into the UK is from North America (40 per cent). Western Europe accounts for a broadly similar amount (just under 40 per cent) with the Asia-Pacific region accounting for 14 per cent of total inward investment to the UK. Other areas such as the Middle East, Latin America, Africa etc. account for less than 10 per cent of total inward investment.

**Figure 5.6: Shares of inward FDI to the UK by geographical region, 2005 – 2015**



- North America — 40.8%
- Western Europe — 39.1%
- Asia-Pacific — 14.1%
- Middle East — 2.5%
- Emerging Europe — 1.8%
- Latin America & Caribbean — 1.0%
- Africa — 0.8%
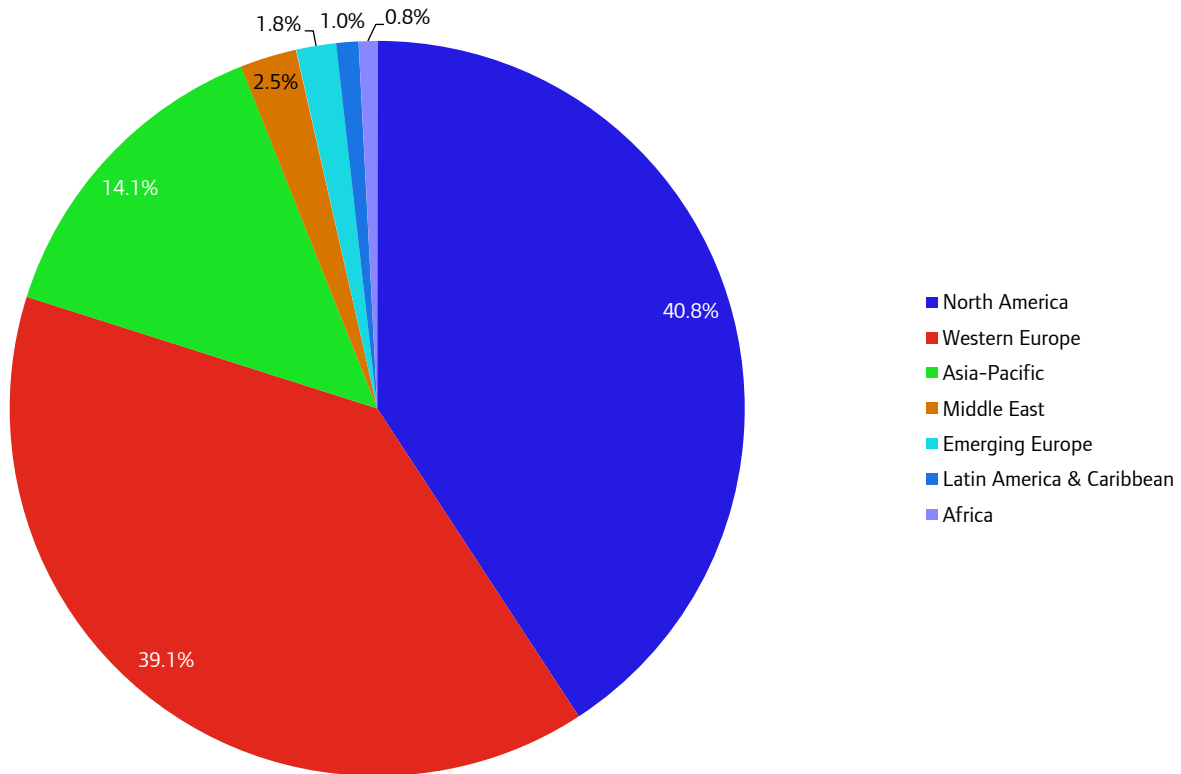
*Source: fDi Markets*

When these data are broken down to the London level, North America becomes more important as an investment partner. The share of investment from North America is almost 6 percentage points higher (at 46.7 per cent), and the share from Western Europe is 7 percentage points lower than that for the UK as a whole (31.9 per cent). Asia-Pacific and the Middle East see no significant differences between the UK and London on shares of total inward investment (Figure 5.7).

**Figure 5.7: Shares of inward FDI to London by geographical region, 2005 – 2015**



- North America — 46.7%
- Western Europe — 31.9%
- Asia-Pacific — 13.3%
- Emerging Europe — 3.1%
- Middle East — 2.6%
- Latin America & Caribbean — 1.5%
- Africa — 0.8%
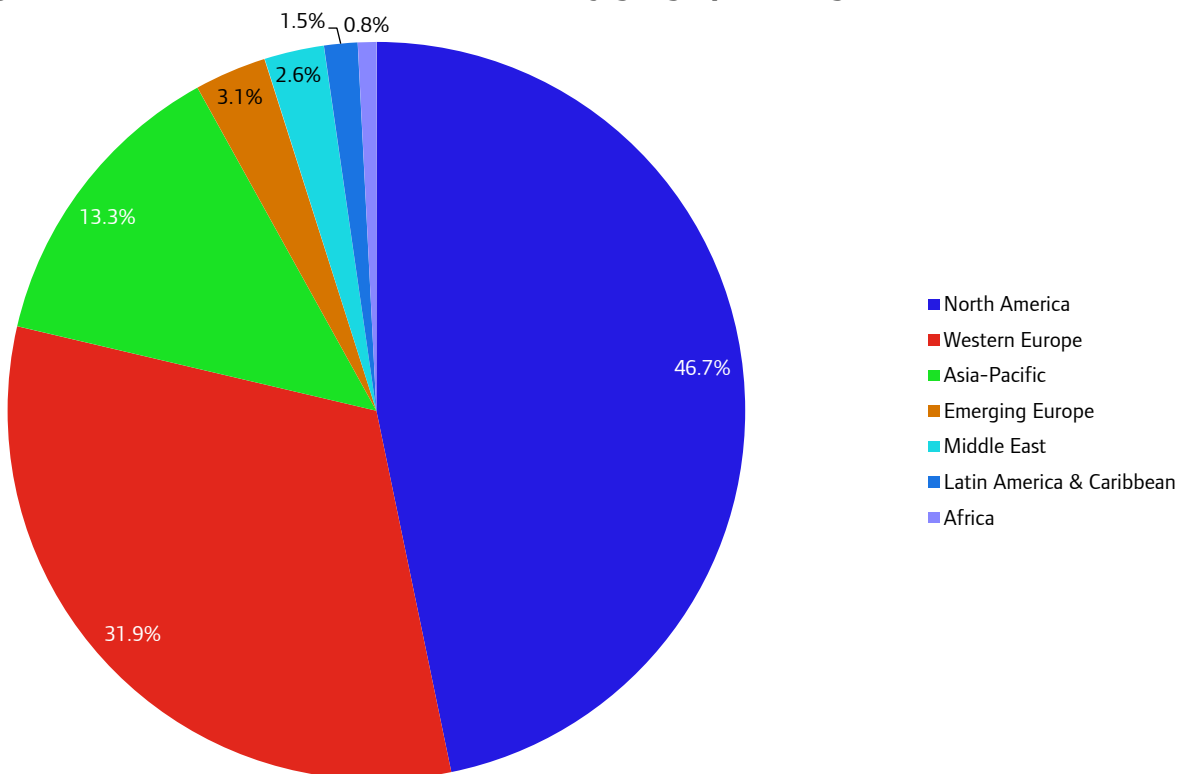
*Source: fDi Markets*

**Table 5.15: Summary table of inward FDI by geographical region, 2005 – 2015**

| Origin Market | FDI to the UK | FDI to London | Difference (percentage points) |
|---|---|---|---|
| North America | 40.8% | 46.7% | +5.9% |
| Western Europe | 39.1% | 31.9% | -7.2% |
| Asia-Pacific | 14.1% | 13.3% | -0.8% |
| Middle East | 2.5% | 3.1% | +0.6% |
| Emerging Europe | 1.8% | 2.6% | +0.8% |
| Latin America & Caribbean | 1.0% | 1.5% | +0.5% |
| Africa | 0.8% | 0.8% | -- |

*Source: fDi Markets*

**Table 5.16: Summary table of inward FDI by origin country, 2005 – 2015**

| Origin Country | FDI to the UK | FDI to London | Difference (percentage points) |
|---|---|---|---|
| United States | 38.1% | 43.9% | +5.8% |
| France | 7.1% | 7.4% | +0.3% |
| Germany | 8.3% | 4.0% | -4.3% |
| Spain | 3.2% | 3.9% | +0.7% |
| Italy | 2.4% | 3.7% | +1.3% |
| Canada | 2.7% | 2.8% | +0.1% |
| India | 3.1% | 2.7% | -0.4% |
| Australia | 2.4% | 2.6% | +0.2% |
| Japan | 3.8% | 2.5% | -1.3% |
| Ireland | 3.7% | 2.3% | -1.4% |

*Source: fDi Markets*

**iii) London as an origin of investment**

As well as being a major recipient of inward investment, London is also the source for outbound FDI to other nations. Much attention is focussed on inward FDI as it gives an indication of the competitiveness and attractiveness of the capital as a place for business, however the data from fDi Markets show that in terms of absolute number of projects, the level of outbound FDI is greater than inbound, as shown in Table 5.17.

**Table 5.17: Number of FDI projects entering into/originating from London**

| Type | 2005 | 2010 | 2013 | 2014 | 2015 | Total: 2005 - 2015 |
|---|---|---|---|---|---|---|
| Inbound FDI | 228 | 333 | 421 | 423 | 494 | 3,855 |
| Outbound FDI | 446 | 783 | 937 | 661 | 682 | 7,929 |

*Source: fDi Markets*

In addition, the nature of outbound FDI investment is different to that of inward FDI. First, when looking at the destinations where London sourced FDI goes to, it can be seen that Asia-Pacific becomes more important, and Western Europe and North America less so.

**Figure 5.8: Outbound FDI from London to geographical regions, 2005 – 2015**
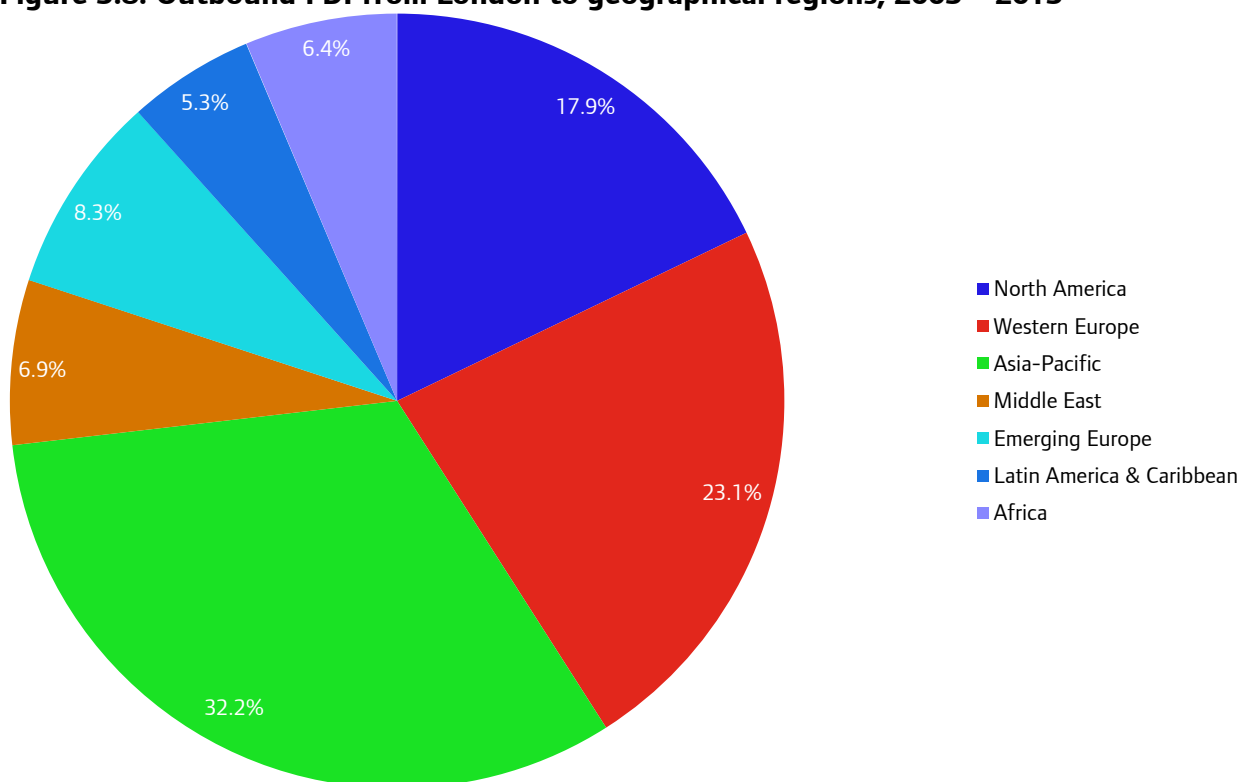


*Source: fDi Markets*

**Table 5.18: Comparison of inbound and outbound investment, 2005-2015**

| Region | Inbound FDI to London | Outbound FDI from London | Difference (percentage points) |
|---|---|---|---|
| Asia-Pacific | 13.3% | 32.2% | +18.9 |
| Western Europe | 31.9% | 23.1% | -8.8 |
| North America | 46.7% | 17.9% | -28.8 |
| Emerging Europe | 2.6% | 8.3% | +5.7 |
| Middle East | 3.1% | 6.9% | +3.8 |
| Africa | 0.8% | 6.4% | +5.6 |
| Latin America & Caribbean | 1.5% | 5.3% | +3.8 |
| Total Projects | 3,855 | 7,929 | -- |

*Source: fDi Markets*

**iv) Type of investment entering London**

When looking at sectors of investment, professional services dominate. Tables 5.19 and 5.20 outline the predominate industrial sectors for inward investment to London and the UK. Although to note that the categorisations of sectors here are not identical to SIC definitions for industries.

**Table 5.19: Main industry sectors of inward investment to London (all industries with a share of greater than 1 per cent); 2005 – 2015**

| Sector | Number of inward FDI projects | Proportion of total inward FDI |
|---|---|---|
| Software & IT services | 1,183 | 30.7% |
| Business Services | 608 | 15.8% |
| Financial Services | 549 | 14.2% |
| Textiles | 475 | 12.3% |
| Communications | 230 | 6.0% |
| Consumer Products | 189 | 4.9% |
| Real Estate | 111 | 2.9% |
| Hotels & Tourism | 99 | 2.6% |
| Transportation | 54 | 1.4% |
| Food & Tobacco | 41 | 1.1% |

*Source: fDi Markets*

**Table 5.20: Main industry sectors of inward investment to the UK (all industries with a share greater than 1 per cent); 2005 – 2015**

| Sector | Number of inward FDI projects | Proportion of total inward FDI |
|---|---|---|
| Software & IT services | 2,162 | 20.2% |
| Business Services | 1,174 | 11.0% |
| Financial Services | 944 | 8.8% |
| Textiles | 944 | 8.8% |
| Consumer Products | 532 | 5.0% |
| Communications | 518 | 4.8% |
| Industrial Machinery, Equipment & Tools | 458 | 4.3% |
| Food & Tobacco | 431 | 4.0% |
| Transportation | 328 | 3.1% |
| Hotels & Tourism | 290 | 2.7% |
| Real Estate | 251 | 2.3% |
| Alternative/Renewable energy | 249 | 2.3% |
| Electronic Components | 219 | 2.0% |
| Coal, Oil and Natural Gas | 202 | 1.9% |
| Automotive Components | 176 | 1.6% |
| Pharmaceuticals | 167 | 1.6% |
| Automotive OEM | 139 | 1.3% |
| Chemicals | 139 | 1.3% |
| Business Machines & Equipment | 133 | 1.2% |
| Medical Devices | 122 | 1.1% |
| Plastics | 117 | 1.1% |
| Aerospace | 116 | 1.1% |
| Metals | 113 | 1.1% |

*Source: fDi Markets*

**Figure 5.9: London's share of inward FDI to the UK by industrial cluster, 2011 – 2015**
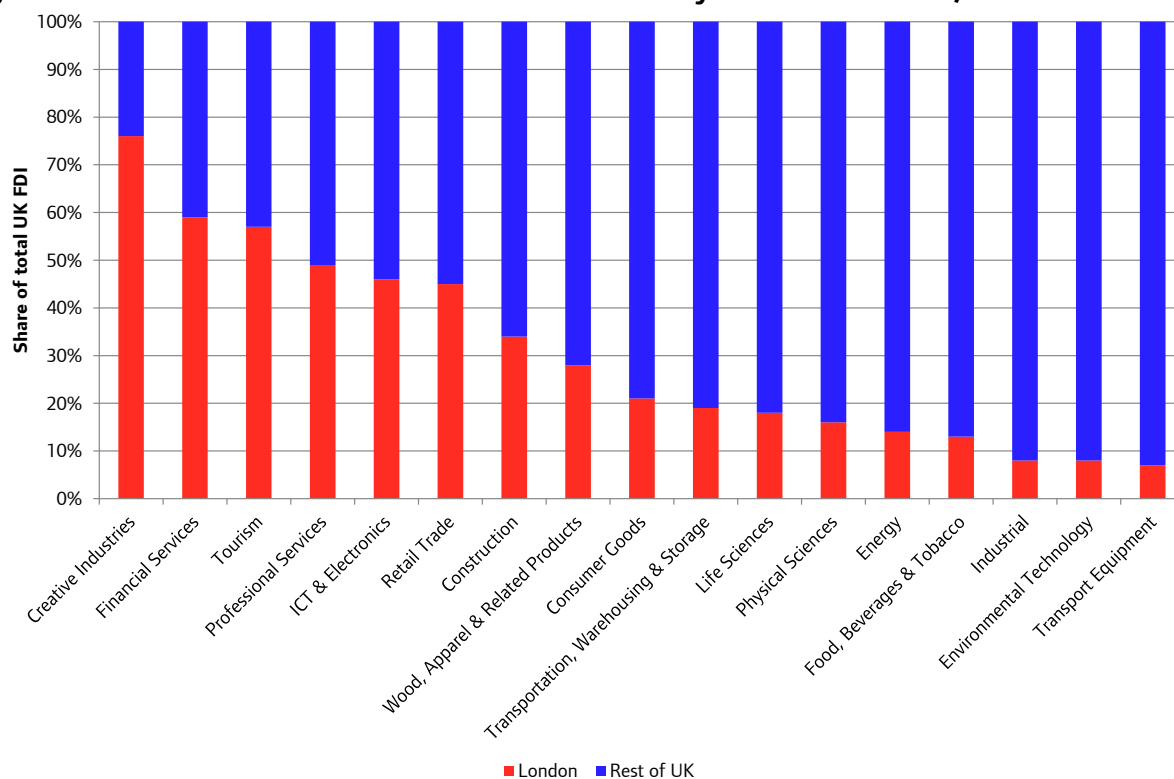


*Source: fDi Markets; sourced from London & Partners analysis*

When looking at London as the source for investment, there is a much greater prevalence of business services and financial services, as compared to inward FDI, where Software & IT services was the largest individual sector. However, there is more generally a similar mix of sectors as is the case with inward FDI, as shown in Table 5.21.

**Table 5.21: Main industry sectors of outbound investment from London (all industries with a share of greater than 1 per cent); 2005 – 2015**

| Sector | Number of outbound FDI projects | Proportion of total outbound FDI |
|---|---|---|
| Business Services | 2,221 | 28.0% |
| Financial Services | 1,433 | 18.1% |
| Software & IT services | 823 | 10.4% |
| Textiles | 669 | 8.4% |
| Communications | 413 | 5.2% |
| Real Estate | 381 | 4.8% |
| Consumer Products | 276 | 3.5% |
| Metals | 236 | 3.0% |
| Coal, Oil and Natural Gas | 200 | 2.5% |
| Food & Tobacco | 171 | 2.2% |
| Transportation | 164 | 2.1% |
| Beverages | 125 | 1.6% |
| Hotels & Tourism | 84 | 1.1% |

*Source: fDi Markets*

*London's (and the UK's) attractiveness as a destination for investment*
Whereas most of the data for this section have been drawn from quantitative data directly extracted from the fDi Markets database, the following provides analysis into some of the drivers of investment, for the UK, London and the rest of the world drawn from a mixture of qualitative and quantitative evidence from the EY Global Investment Monitor and Attractiveness Surveys. The most recent surveys are for 2016, although these results were published in advance of the result on the referendum on the UK's membership of the European Union. Observing future releases and data will be important to understanding the potential future path of inward investment into the UK and London. Further commentary on the potential impacts of the UK decision to the leave the European Union are provided within Chapter 6.

The UK is rated very highly compared to other European locations on a range of attributes. It scores higher than Germany and France on factors such as "Quality of life, diversity, culture and language" and "Education in trade and academic". These top two factors however are different to the factors of most importance to France and Germany, those being "Telecommunications infrastructures", "Transport and logisitic infrastructures" (which the UK rates lower than both France and Germany), and "Local labour skills" (in which the UK rates below Germany, but above France). When considered in the whole, the EY European Attractiveness Survey found that of 738 respondents, the UK was rated below Germany as part of the three top countries for FDI in Europe (Germany was quoted by 73 per cent of respondents, UK by 59 per cent, and France by 47 per cent).

**Table 5.22: 2016 Survey responses on the attractiveness of the UK as a location for establishing new FDI activities**

| Factor | Very attractive | Fairly attractive | Total - 2016 | Comparison - 2015 |
|---|---|---|---|---|
| Quality of life, diversity, culture and language | 52% | 36% | 88% | 90% |
| Education in trade and academic | 38% | 48% | 86% | 90% |
| Stability of social climate | 33% | 51% | 84% | 86% |
| Telecommunication and infrastructures | 41% | 42% | 83% | 85% |
| Local labour skills level | 25% | 55% | 80% | 80% |
| Stability and transparency of political, legal and regulatory environment | 31% | 47% | 78% | 82% |
| Access to European market | 40% | 38% | 78% | 83% |
| UK's domestic market | 28% | 48% | 76% | 78% |
| Transport and logistic infrastructures | 34% | 41% | 75% | 81% |
| Entrepreneurial culture, support for entrepreneurs | 34% | 41% | 75% | 78% |

*Source: EY UK Attractiveness Survey 2016*

Overall, London remains the most important location for investment in the UK and Europe, with 57 per cent of the 1,469 business leaders sampled in the 2016 European Attractiveness Survey stating that London was amongst the top three cities for FDI in Europe (Table 5.23).

**Table 5.23: Responses to the question: "Which are the top three cities for FDI in Europe?"**

| City | Positive responses |
|---|---|
| London | 57% |
| Paris | 43% |
| Berlin | 29% |
| Amsterdam | 15% |
| Barcelona | 11% |
| Munich | 11% |

*Source: EY Global Investment Monitor, 2016*

The importance of London as a base of operations for European and global operations is confirmed by looking at analysis from Deloitte, which found that of Fortune 250 companies, London was the global or regional headquarters for 40 per cent of these, significantly ahead of any other European city (Table 5.24).

**Table 5.24: HQ locations of Top 250 companies with global or regional HQ in Europe**

| City | Percentage |
|---|---|
| London | 40 |
| Paris | 8 |
| Madrid | 3 |
| Amsterdam | 2.5 |
| Brussels | 2.5 |
| Munich | 2 |
| Luxembourg | 2 |
| Moscow | 2 |
| Geneva | 2 |
| Other European cities | 37 |

Source: Deloitte London Futures Report, 2014

London's potential future strength as a European and global centre is also seen by responses to a question of the potential for cities to produce the next technology giant. Here London sits behind only San Francisco amongst the 1,469 surveyed (Table 5.25).

**Table 5.25: Responses to the question: "Which three cities in the world offer the best chance of producing the next technology giant?"**

| City | Positive responses |
|---|---|
| San Francisco | 29% |
| London | 23% |
| Shanghai | 21% |
| New York | 16% |
| Beijing | 14% |
| Berlin | 10% |

Source: EY Global Investment Monitor, 2016

Given London's (and the UK's strength) as a global centre for financial and business services, responses to the question on which sectors will be driving growth into the future give credence to the argument that London is well placed to continue to develop into the future, building upon London's inherent industrial specialisations (see Chapter 1).

**Table 5.26: Responses to the questions: "Which business sectors will drive the UK's growth in the coming years"**

| Sector | Positive responses |
|---|---|
| Banking, insurance, wealth and asset management | 43% |
| Information and communication technologies, IT/digital economy | 34% |
| B2B services excluding finance | 19% |
| Energy and utilities | 18% |
| Transport industry and automotive | 16% |
| Pharmaceutical industry and biotechnologies | 15% |
| Real estate and construction | 15% |
| Consumer goods | 11% |

Source: EY Global Investment Monitor 2016

**Table 5.27: Responses to the question: "Which business sectors will drive Europe's growth in the coming years"**

| Sector | Positive responses |
|---|---|
| Information and communication technologies | 30% |
| Banking, insurance, wealth and asset management | 30% |
| Energy and utilities | 21% |
| Consumer goods | 20% |
| B2B services excluding finance | 20% |
| Logistics and distribution channels | 19% |
| Pharmaceutical industry and biotechnologies | 15% |
| Transport industry and automotive | 15% |

*Source: EY Global Investment Monitor 2016*

London's performance in FDI has been very strong in recent times, along with London's position in the global economy. However, some aspects of the EY survey provide evidence of uncertainty as to the continued success of the capital. For example, there was a four percentage point fall in the proportion of respondents who report that their company has plans to establish or expand operations in the UK over the next year (dropping from 27 per cent to 23 per cent). In addition, looking over a three year period, there is reduced confidence that the UK's attractiveness as a destination for investment over the next three years will improve, as shown in Table 5.28.

**Table 5.28: Responses to the question: "How do you think the UK's attractiveness for FDI will evolve over the next three years?"**

| Survey Year | Improve | Stay the same | Decrease |
|---|---|---|---|
| 2010 | 56% | 32% | 9% |
| 2011 | 47% | 37% | 9% |
| 2012 | 59% | 32% | 7% |
| 2013 | 65% | 30% | 4% |
| 2014 | 54% | 35% | 8% |
| 2015 | 54% | 39% | 5% |
| 2016 | 36% | 44% | 16% |

*Source: EY Global Investment Monitor 2016*

Similarly, in the A.T. Kearney Foreign Direct Investment Confidence Index the UK has fallen two places to 5th in 2016 (Table 5.29).

**Table 5.29: A.T. Kearney Foreign Direct Investment Confidence Index**

| Rank | Country | Change from previous year |
|---|---|---|
| 1 | United States | No change |
| 2 | China | No change |
| 3 | Canada | Up 1 |
| 4 | Germany | Up 1 |
| 5 | United Kingdom | Down 2 |
| 6 | Japan | Up 1 |
| 7 | Australia | Up 3 |
| 8 | France | No change |
| 9 | India | Up 2 |
| 10 | Singapore | Up 5 |

*Source: A.T. Kearney*

The outcome from the referendum on the UK's membership of the European Union may also impact on investor confidence. Responses to three questions in the EY Attractiveness Survey give insight into the potential impact to the UK and London going forward (Table 5.30).

**Table 5.30: Responses to various questions on the European Single Market**

| How important to you is the access to the European Single Market available from the UK in the attractiveness of the UK as an investment decision? | | | | |
|---|---|---|---|---|
| Very important | Fairly important | Little importance | Not at all | Can't say |
| 45% | 34% | 14% | 5% | 2% |

| If the UK did vote to leave the EU but retained access to the Single Market on slightly less favourable terms than today, would this make the UK more attractive, less attractive, the same as today as an investment destination or can't you say? | | | |
|---|---|---|---|
| More attractive | Same as today | Less attractive | Can't say |
| 10% | 32% | 52% | 6% |

| If the UK did vote to leave the EU but retained access to the Single Market on significantly less favourable terms than today, would this make the UK more attractive, less attractive, the same as today as an investment destination or can't you say? | | | |
|---|---|---|---|
| More attractive | Same as today | Less attractive | Can't say |
| 7% | 32% | 55% | 6% |

*Source: EY UK Attractiveness Survey 2016*

## 5.4 London as a place to live

In addition to there being a wide variety of reasons why businesses wish to locate in the capital, there are also many reasons why people also wish to locate in the capital – which to some extent are correlated with the reasons why businesses also locate in London. As a summary, the factors which are considered include:

- The economic and employment opportunities available
- Higher wages
- Improved quality of life for workers and their families
- Internationally renowned education sector
- London as a place to live and work at different stages of life
- Culture, heritage and diversity of the capital

The evidence that sits behind these factors are varied, some are quite clear (such as through the higher wages that workers are able to receive through working in London), however some are observed through more anecdotal evidence (such as through data on international tourism to the capital, with the assertion that some tourists may wish to live and work in the capital in the future as a result of their experiences as a tourist).

### 5.4.1 Economic and employment opportunities

As a major global economic centre, people are drawn to the capital to further their career prospects, but also to relocate to achieve a higher standard of living. This effect is true for both UK residents and international migrants. In the context of the UK, wages are higher in London compared to other regions, there is also greater disparity in the distribution of wages, typically as a result of the proportion of workers in high value sectors. Figure 5.10 outlines the differences in wage levels between regions of the UK, in part explaining the draw that London has for UK residents from outside London for work.

**Figure 5.10: Gross hourly wage by region, all jobs, 2015**
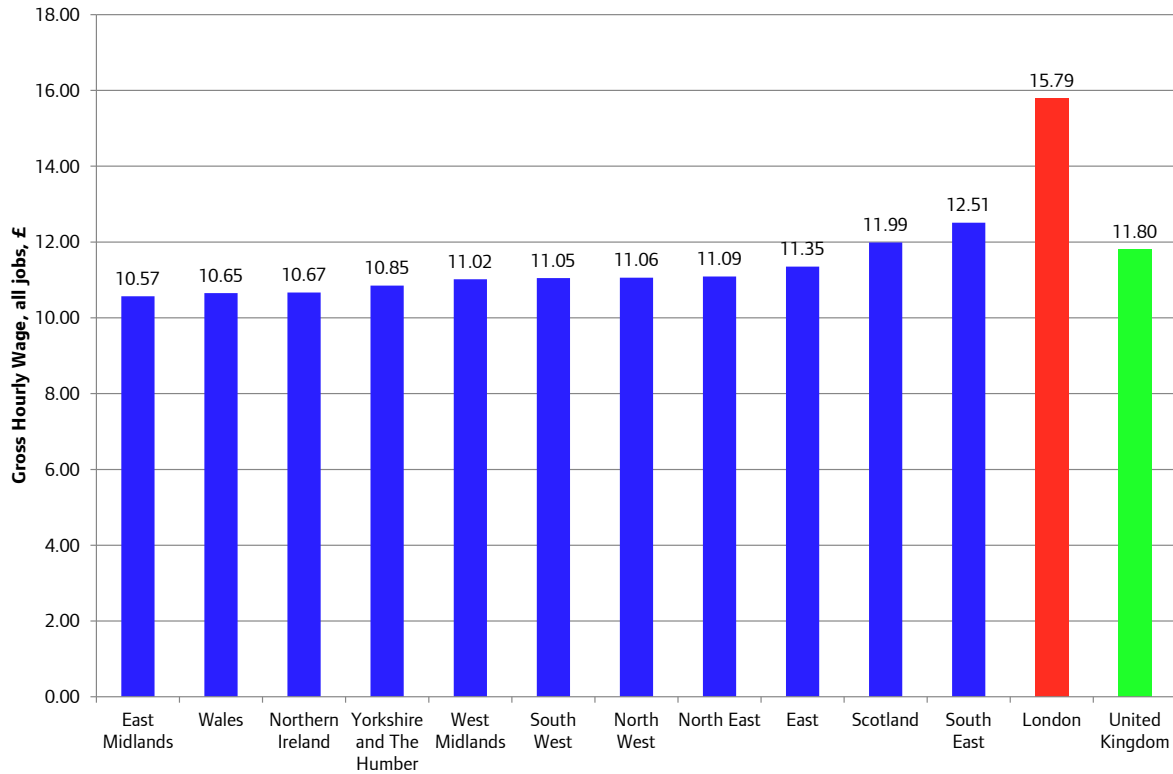


*Source: Annual Survey of Hours and Earnings, ONS*

These findings are due in part because of the industrial structure of London, where (see Chapter 1), the capital has specialisations in service sector activities. Figure 5.11 shows wage levels by industrial sector, and that wage levels are consistently higher in London than for the UK as a whole.

**Figure 5.11: Gross hourly wage levels by industrial sector, all jobs, 2015**
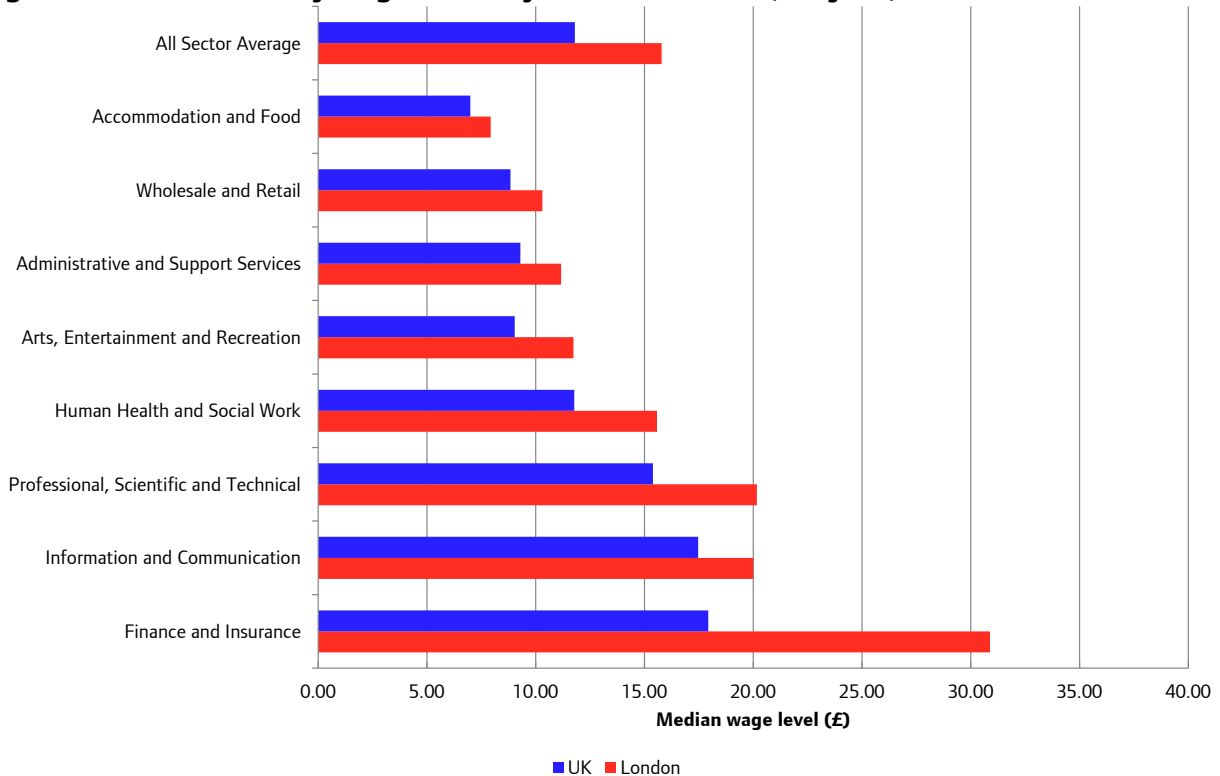


*Source: Annual Survey of Hours and Earnings, ONS*

However, as will be outlined further in Chapter 10, higher wage levels across sectors do not mean that all of London's population receive those higher wages. The income distribution between deciles of London's jobs are outlined in Figure 5.12, and shows an increasing divergence between London and the UK as a whole the higher up the income distribution. Given the higher costs of living between London and other parts of the UK (this can make living in London at the lower end of the income distribution difficult – see Chapter 10 for more detail).

**Figure 5.12: Wages by decile, all jobs, London and the UK**
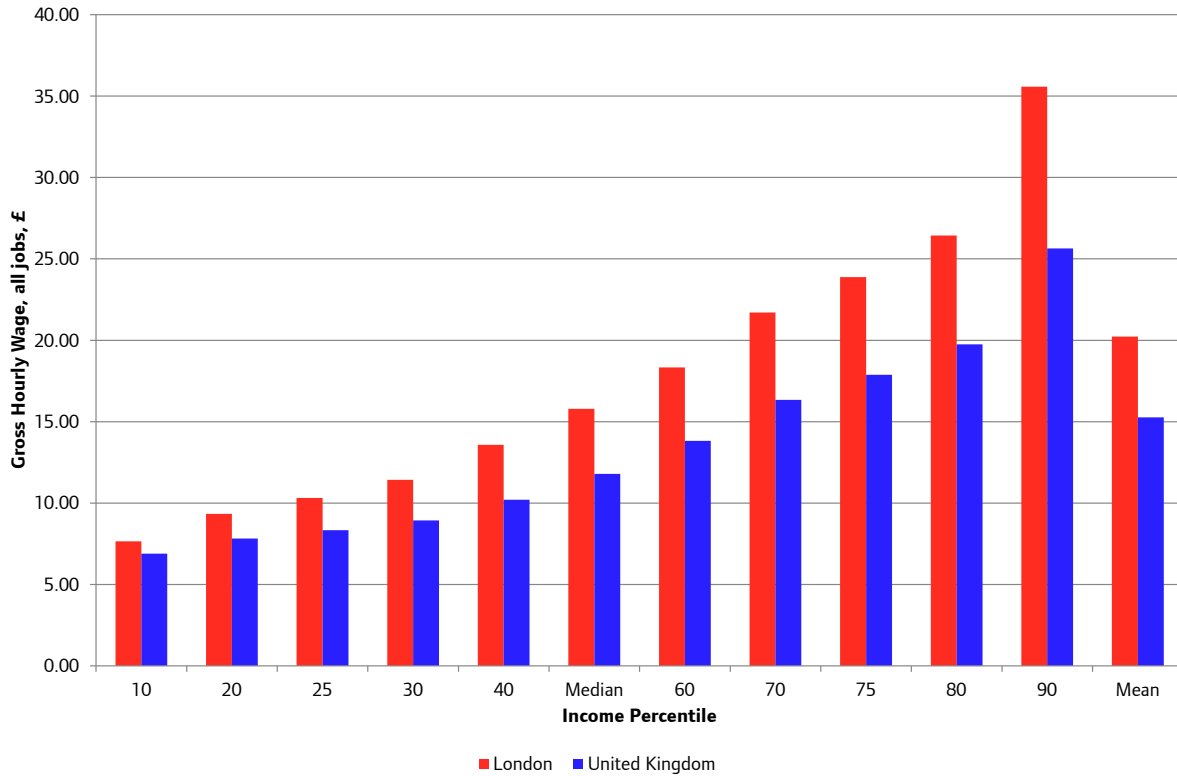


Source: Annual Survey of Hours and Earnings, ONS

Considering London as a competitive global destination, the wages that are available to those migrating from outside the UK are a major draw to live and work in the capital. Those coming to London from outside are drawn to the capital by the economic opportunities and the improved quality of life they can achieve. However, evidence does show that while London does have high wage levels, in the European and global context, these are not as high as some other places. Such data are shown in Tables 5.31 and 5.32.

**Table 5.31: Average annual wages in selected countries in 2012, 2013 and 2014 (2014 USD PPPs and 2014 constant prices, countries ranked on 2014 value)**

|  | 2012 | 2013 | 2014 |
|---|---|---|---|
| Luxembourg | 58,330 | 60,214 | 61,511 |
| United States | 56,735 | 56,811 | 57,139 |
| Switzerland | 55,540 | 56,461 | 57,082 |
| Ireland | 52,645 | 52,602 | 53,286 |
| Norway | 50,801 | 51,446 | 51,718 |
| Australia | 52,229 | 51,374 | 51,148 |
| Netherlands | 51,156 | 51,357 | 51,003 |
| Denmark | 48,901 | 48,761 | 49,589 |
| Canada | 46,902 | 47,794 | 48,164 |
| Belgium | 47,682 | 48,102 | 48,093 |
| Austria | 45,733 | 45,660 | 45,988 |
| Germany | 42,893 | 43,326 | 43,872 |
| **United Kingdom** | **41,726** | **41,494** | **41,659** |
| Sweden | 40,165 | 40,447 | 40,994 |
| France | 40,258 | 40,530 | 40,828 |
| Finland | 40,968 | 40,736 | 40,742 |
| Korea | 36,173 | 36,698 | 36,653 |
| Spain | 35,994 | 36,174 | 36,013 |
| Japan | 36,296 | 36,481 | 35,672 |
| Italy | 34,491 | 34,476 | 34,744 |
| Slovenia | 32,830 | 33,269 | 33,068 |
| Israel | 29,316 | 29,361 | 29,635 |
| Greece | 27,584 | 26,145 | 26,436 |
| Portugal | 23,940 | 24,503 | 23,977 |
| Poland | 23,140 | 23,571 | 23,649 |
| Slovak Republic | 20,966 | 21,124 | 22,151 |
| Hungary | 21,212 | 21,033 | 21,399 |
| Czech Republic | 21,031 | 20,660 | 21,185 |
| Estonia | 18,871 | 19,453 | 21,020 |
| Mexico | 12,708 | 12,952 | 12,850 |

*Source: OECD[21]*

The following data from UBS also gives an indication of the relative wage levels of different cities across the world, however it finds that London only ranks 13th on this indicator, with cities in Switzerland ranking as the top two (Table 5.32).

**Table 5.32: Wage levels in selected world cities[22] (Index New York = 100)[23]**

| Rank | City | Gross | Net | Rank | City | Gross | Net | Rank | City | Gross | Net |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Zurich | 131.3 | 141.8 | 25 | Paris | 62.8 | 67.1 | 49 | Santiago de Chile | 23.1 | 25.1 |
| 2 | Geneva | 130.1 | 135.2 | 26 | Rome | 60 | 54.2 | 50 | Buenos Aires | 22.6 | 26.3 |
| 3 | Luxembourg | 106.4 | 97.1 | 27 | Nicosia | 59.1 | 64.4 | 51 | Vilnius | 21.5 | 21.2 |
| 4 | New York City | 100 | 100 | 28 | Milan | 58.7 | 53.1 | 52 | Moscow | 21.3 | 21.5 |
| 5 | Miami | 92.4 | 92.9 | 29 | Lyon | 58.6 | 62.8 | 53 | Prague | 20 | 20.3 |
| 6 | Copenhagen | 92.2 | 56.8 | 30 | Barcelona | 51.7 | 46.8 | 54 | Riga | 18.1 | 17.1 |
| 7 | Sydney | 89.8 | 83.9 | 31 | Madrid | 50.9 | 46.2 | 55 | Shanghai | 18.1 | 19.2 |
| 8 | Oslo | 87.7 | 80.4 | 32 | Hong Kong | 49.4 | 51.3 | 56 | Kuala Lumpur | 17.8 | 20.2 |
| 9 | Los Angeles | 87.5 | 88.2 | 33 | Tel Aviv | 46.5 | 47.3 | 57 | Bogotá | 17.5 | 20.3 |
| 10 | Chicago | 85.2 | 84.5 | 34 | Seoul | 45.9 | 50.2 | 58 | Bangkok | 16.8 | 18.9 |
| 11 | Montreal | 77.4 | 78.2 | 35 | Manama | 45.7 | 53.1 | 59 | Lima | 16.3 | 18.9 |
| 12 | Stockholm | 76 | 63.7 | 36 | Dubai | 40.4 | 46.9 | 60 | Budapest | 15.8 | 16 |
| 13 | London | 75.5 | 72.3 | 37 | Taipei | 35.1 | 38.8 | 61 | Bucharest | 14.1 | 14.2 |
| 14 | Brussels | 72.8 | 61.1 | 38 | São Paulo | 34.7 | 38.8 | 62 | Beijing | 13.4 | 14.5 |
| 15 | Toronto | 71.4 | 69.5 | 39 | Ljubljana | 33.6 | 32.7 | 63 | Mexico City | 12.2 | 13 |
| 16 | Tokyo | 70.1 | 66.5 | 40 | Johannesburg | 32.8 | 30.7 | 64 | Sofia | 11.4 | 12.1 |
| 17 | Auckland | 70 | 68.6 | 41 | Doha | 32.2 | 37.4 | 65 | Manila | 9.4 | 9.2 |
| 18 | Dublin | 68.8 | 64.3 | 42 | Lisbon | 31.9 | 32 | 66 | Mumbai | 8.3 | 9.1 |
| 19 | Vienna | 68.5 | 69.7 | 43 | Athens | 29.8 | 28.2 | 67 | Cairo | 8.2 | 8.8 |
| 20 | Helsinki | 67.8 | 62.8 | 44 | Bratislava | 28.4 | 27.6 | 68 | New Delhi | 7.6 | 8.5 |
| 21 | Munich | 67.7 | 68.2 | 45 | Rio de Janeiro | 26.8 | 30.3 | 69 | Nairobi | 6.5 | 6.5 |
| 22 | Frankfurt | 66.6 | 67.1 | 46 | Istanbul | 26.5 | 26 | 70 | Jakarta | 6.2 | 6.8 |
| 23 | Amsterdam | 65.3 | 53.3 | 47 | Tallinn | 26.1 | 24.2 | 71 | Kiev | 6.1 | 6.1 |
| 24 | Berlin | 64 | 64.5 | 48 | Warsaw | 23.2 | 22.4 | | | | |

*Source: UBS[24]*

## 5.4.2 Quality of Life

One of the major reasons for people to live and work in a particular location is the quality of life that can be achieved. The wages that an individual earns is one component of quality of life; but there are a wide range of other factors which influence whether a person chooses to live in the capital. The Mercer Quality of Living Rankings is a city index which assesses the relative quality of life for expatriates, providing an indication of the attractiveness of a location as a place to work.

Some other indicator rankings include components on London as a place to live, notably the PWC Cities of Opportunity index mentioned earlier, however this indicator is solely based on the relative quality of living of cities. In the Mercer indicator, London performs less well – in 39th position – although it is the highest ranked of all UK cities. Table 5.33 shows the top 10 cities on this indicator.

**Table 5.33: Top ten cities on the Mercer Quality of Life ranking**

| Position | City |
|---|---|
| 1 | Vienna |
| 2 | Zurich |
| 3 | Auckland |
| 4 | Munich |
| 5 | Vancouver |
| 6 | Dusseldorf |
| 7 | Frankfurt |
| 8 | Geneva |
| 9 | Copenhagen |
| 10 | Sydney |
| 39 | London |

*Source: Mercer Quality of Life Index*

An interesting finding from this survey is that the cities towards the top end of the ranking are cities with smaller populations, as shown in Table 5.34. This implies that cities where populations are lower and with lower densities afford a better quality of life than those considered as "global cities".

**Table 5.34: Metropolitan area populations of cities within top ten of Mercer Quality of Life index**

| Position | City | Population |
|---|---|---|
| 1 | Vienna | 2.6 million |
| 2 | Zurich | 1.9 million |
| 3 | Auckland | 1.4 million |
| 4 | Munich | 5.8 million |
| 5 | Vancouver | 2.3 million |
| 6 | Dusseldorf | 0.6 million |
| 7 | Frankfurt | 0.7 million |
| 8 | Geneva | 0.5 million |
| 9 | Copenhagen | 2.0 million |
| 10 | Sydney | 4.4 million |
| 39 | London | 8.7 million |

*Note: Where possible, populations are for the metropolitan area; from various sources.*

London is not the only established global city which performs relatively poorly in this survey, and Table 5.35 provides the rankings for the top ten cities as referenced within the PWC Cities of Opportunity rankings.

**Table 5.35: Relative positions in PWC Cities of Opportunity ranking and Mercer Quality of Living ranking**

| Position in PWC Cities of Opportunity Ranking | City | Position in Mercer Quality of Living Ranking |
|---|---|---|
| 1 | London | 39th |
| 2 | Singapore | 26th |
| 3 | Toronto | 15th |
| 4 | Paris | 37th |
| 5 | Amsterdam | 11th |
| 6 | New York | 44th |
| 7 | Stockholm | =19th |
| 8 | San Francisco | 28th |
| 9 | Hong Kong | 70th |
| 10 | Sydney | 10th |

Source: PWC, Mercer

## 5.4.3 London as a centre for study

Another indicator which illustrates London's attractiveness to people is shown by the number of students who choose to study in the capital. Students are drawn to the capital by London's high quality universities (which can help with their future career prospects), but also due to factors such as London's cultural offering and vibrancy (explored in further detail later in the chapter). Data from London Higher finds that over 100,000 overseas students study in London, comprising 28 per cent of all students in the capital; 24 per cent of all overseas students in the UK study in the capital. The numbers of overseas students studying in the capital has been relatively stable over the last five years, however there was a marked fall between 2011/12 and 2012/13. Taking into account the fee income of international students in London, as well as subsistence spending (rent, food, travel etc.), as well as the spending of overseas friends and relatives visiting international students in London; London & Partners estimate that international students directly contributed £3 billion to the UK economy in 2013/14 and supported over 37,000 jobs.[25]

**Table 5.36: International students in London**

| Year | Overseas students in London | Proportion of all overseas students in the UK |
|---|---|---|
| 2009/10 | 102,000 | 25% |
| 2010/11 | 106,000 | 25% |
| 2011/12 | 106,000 | 24% |
| 2012/13 | 101,000 | 24% |
| 2013/14 | 104,000 | 24% |
| 2014/15 | 104,600 | 24% |

Source: London Higher

A signficant reason for the popularity of London as a destination for international students is the academic and research standing of London's universities. There are over 45 universities in London, and London's universities feature prominently in global rankings, as shown in Table 5.37.

## Table 5.37: Number of universities in London within the top 100 globally

| Publication | Number in Top 100 |
|---|---|
| Times Higher Education World University Rankings[26] | 5 |
| QS World University Rankings[27] | 4 |
| Times Higher Education World Reputation Rankings[28] | 5 |
| The Economist Full-time MBA ranking[29] | 2 |
| FT Global MBA Ranking 2014[30] | 3 |

*Source: GLA Economics analysis, see endnotes*

## 5.4.4 London's changing demographics and the impacts of different groups in society

London's development as a major global city means that the population has become increasingly diverse. The proportion of London's population born outside of the UK has grown over time, and is shown in Table 5.38. The proportion of Londoners born outside the UK has more than doubled since 1981 (from 18 per cent to 37 per cent). Overall, almost three million people living in London at the time of the 2011 Census (37 per cent) were born outside the UK[31]. In contrast, for England and Wales (excluding London) less than one in ten people were born outside the UK.

## Table 5.38: Foreign born population in London, 1971-2011

| Year | London population | Foreign-born | Share of foreign-born | Rest of Europe | Rest of World |
|---|---|---|---|---|---|
| 1971 | 7,236,721 | 1,103,616 | 15% | 198,847 | 904,769 |
| 1981 | 6,608,598 | 1,203,022 | 18% | 451,013 | 752,009 |
| 1991 | 6,679,699 | 1,451,041 | 22% | 495,651 | 955,390 |
| 2001 | 7,172,090 | 1,940,389 | 27% | 555,822 | 1,384,567 |
| 2011 | 8,173,941 | 2,998,264 | 37% | 998,694 | 1,999,570 |

*Source: ONS Census data commissioned tables: 1971-2011. Notes: the London population is a count of persons present in 1971 with a recorded country of birth, residents for 1981, and all usual residents from 1991 onwards.*

London has the second largest foreign-born population of any other city after New York City in terms of absolute numbers[32], and is comparable to other global cities such as Hong Kong, Sydney, and Singapore in terms of the share of foreign-born in its population (Table 5.39).

## Table 5.39: Estimates of the foreign born population in selected global city regions

| Global city | Foreign-born population ('000s) | Share of total population (%) | Source |
|---|---|---|---|
| United Arab Emirates | 7,827 | *84% | 2013 UN Population database |
| New York, US | 3,067 | 38% | 2011 American Community Survey |
| **London** | **2,998** | **37%** | **2011 Census, ONS** |
| Hong Kong SAR | 2,805 | 39% | 2013 UN Population database |
| Toronto, Canada | 2,537 | 37% | 2011 National Household Survey |
| Singapore | 2,323 | 43% | 2013 UN Population database |
| Paris, France | 2,007 | 19% | 2011 Census, Insee |
| Sydney, Australia | 1,759 | 40% | ABS Census, 2011 |
| Qatar | 1,601 | *74% | 2013 UN Population database |
| Los Angeles, US | 1,490 | 39% | 2011 American Community Survey |
| San Francisco, US | 1,341 | 36% | 2013 American Community Survey |
| Madrid, Spain | 622 | 20% | 2014, Local Population Register |
| Tokyo, Japan | 322 | 2% | 2010, Population Census of Japan |

*Notes: Sources may not be directly comparable due to differences in the treatment of short-term residents within the target population, as well as the effects of sampling and response patterns in different countries. *Data used to produce estimates for Qatar and the UAE refer to foreign citizens.*

## i) Trends in long-term international migration to London

London's attractiveness as a location to live and work is seen through data on migration flows. Figure 5.13 shows net international migration for long-term migrants. Since the early 1990s, net international migration to London has fluctuated between around 15,000 and just over 100,000 each year – with an average of 60,000 per year.

London comprises a significant proportion of total net migration to the UK; between mid-2013 and mid-2014, London comprised 41.4 per cent of total UK net migration. This therefore shows the importance of London in attracting people to live and work, but also the continued attraction of London as a global city.

**Figure 5.13: Net International Migration to London and the UK**
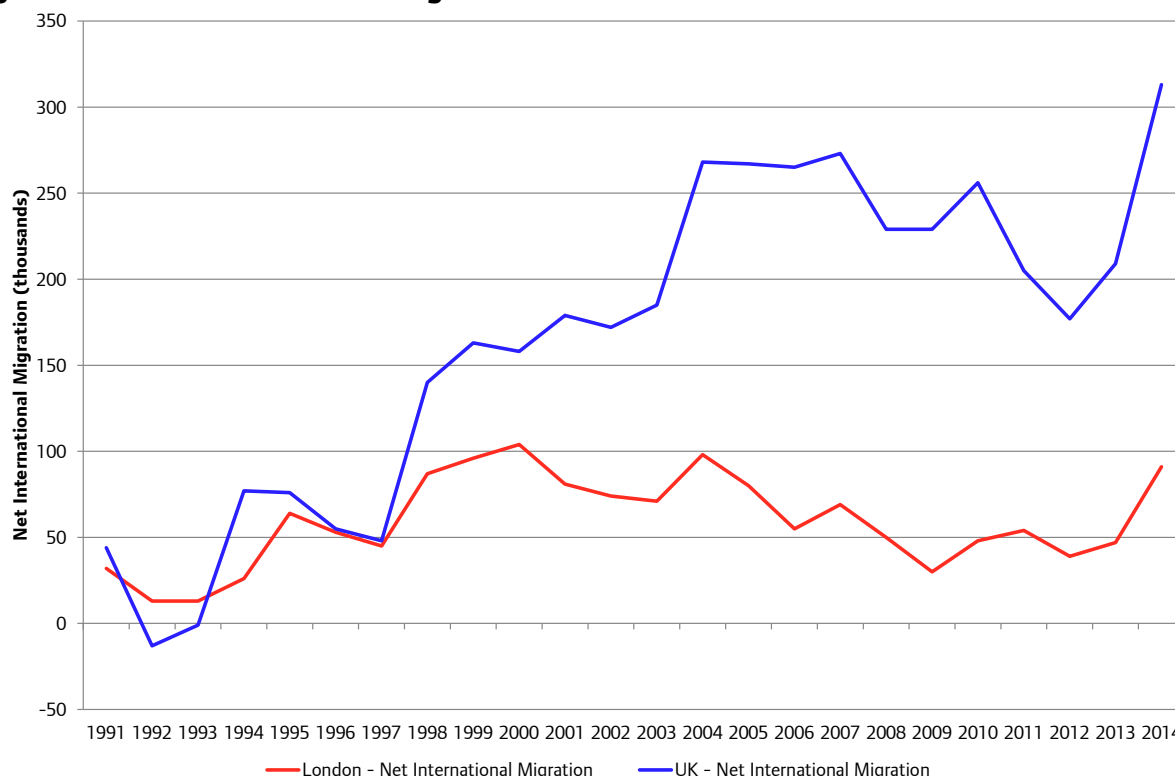


Source: Long-term International Migration, ONS

Looking further at flows of migration, it shows that movement of people works in both directions, highlighting that people are able to move relatively freely in a more connected world. In 2014, 178,000 long-term migrants came to London, with 87,000 emigrating away from the capital. For the UK as a whole, 632,000 long-term migrants arrived, with 319,000 leaving the UK.

**Figure 5.14: International migration flows, London and the UK**
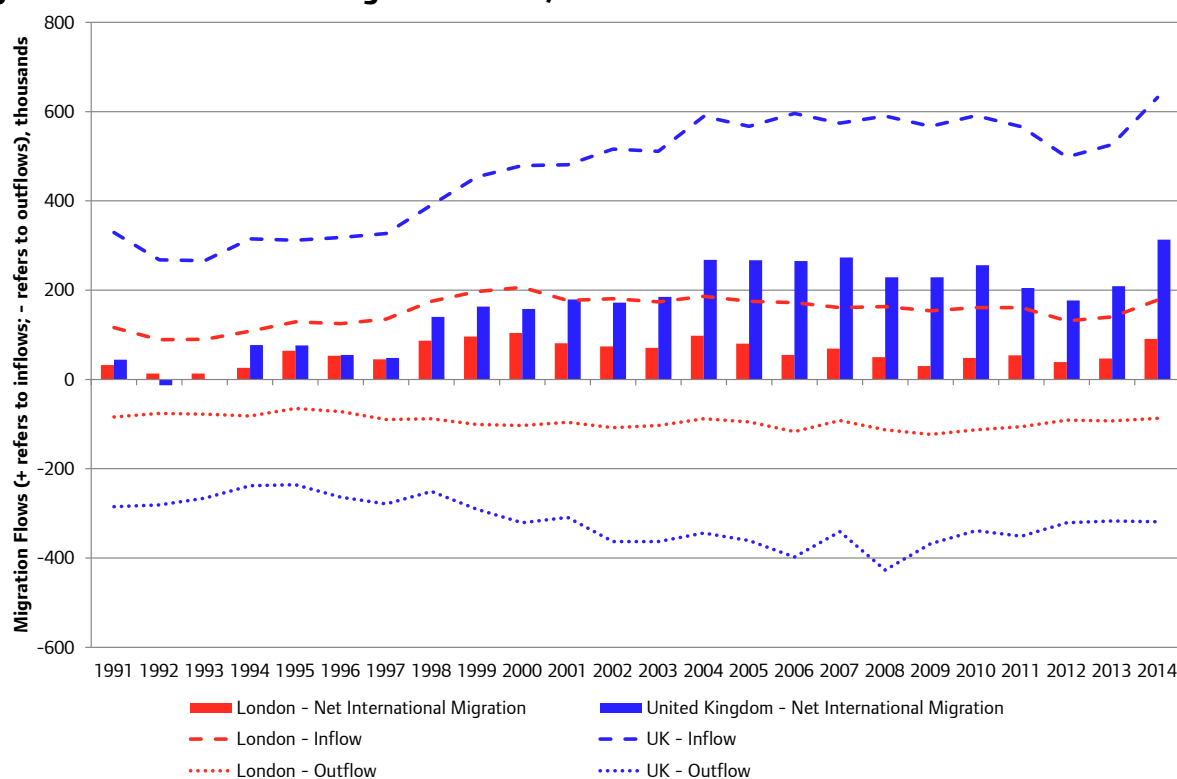


*Source: Long-term International Migration, ONS*

## ii) Reasons for international migration

The attractiveness of London as a location for international migration is evidenced by the results of a 2014 poll, where London came out on top when over 200,000 people across 189 countries were asked "which cities would you consider working in abroad?" Unprompted, 16 per cent of the respondents said that they would move to the UK capital, ahead of New York and Paris in second and third place respectively[33]. Economic and employment opportunities play an important role in attracting people to move to the capital. Drawn from ONS data, work-related reasons have constituted the main reason in all but three of the past 20 years since 1995 (see Figure 5.15). In the period 1980-1994, the main reason for migration to the UK was instead mainly for dependents to accompany migrants already working in the UK, to join family members or other reasons (such as asylum). This shows a shift towards economic and employment opportunities as a major reason for migration, the growth of London as a major global city and the economic opportunities it offers being a major contributing factor.

The numbers of migrants moving to the UK each year for work increased dramatically in 1998 and again in 2004, followed by a drop in 2008/09 during the financial crisis and subsequent rapid increase in 2014 based on the latest estimates. Migration for work-related reasons therefore seems to coincide strongly with the relative strength of economic activity in the UK.

Notably, the sizeable jumps in the numbers of people moving to the UK (and London) for work in 1998 and 2004 also coincided with changes in policy. After 1997, LSE research[34] highlights that there was a large increase in the number of work permits issued to workers outside the EU (particularly to migrants arriving from English-speaking countries such as the US and Australia). Since 2004 people from EU accession countries have been able to move to the UK, and migrants from these countries have been particularly likely to report coming to the UK for work.

As the number of work-related migrants declined during the recession in 2008/09, formal study briefly overtook work as the main reason for migration to the UK. The pull of UK universities and colleges in particular is a significant reason for migration to the UK. After the US, the UK was the second most popular destination for international tertiary students in 2012, based on data from UNESCO[35].

**Figure 5.15: Main reason for immigration to the UK, 1980-2014**
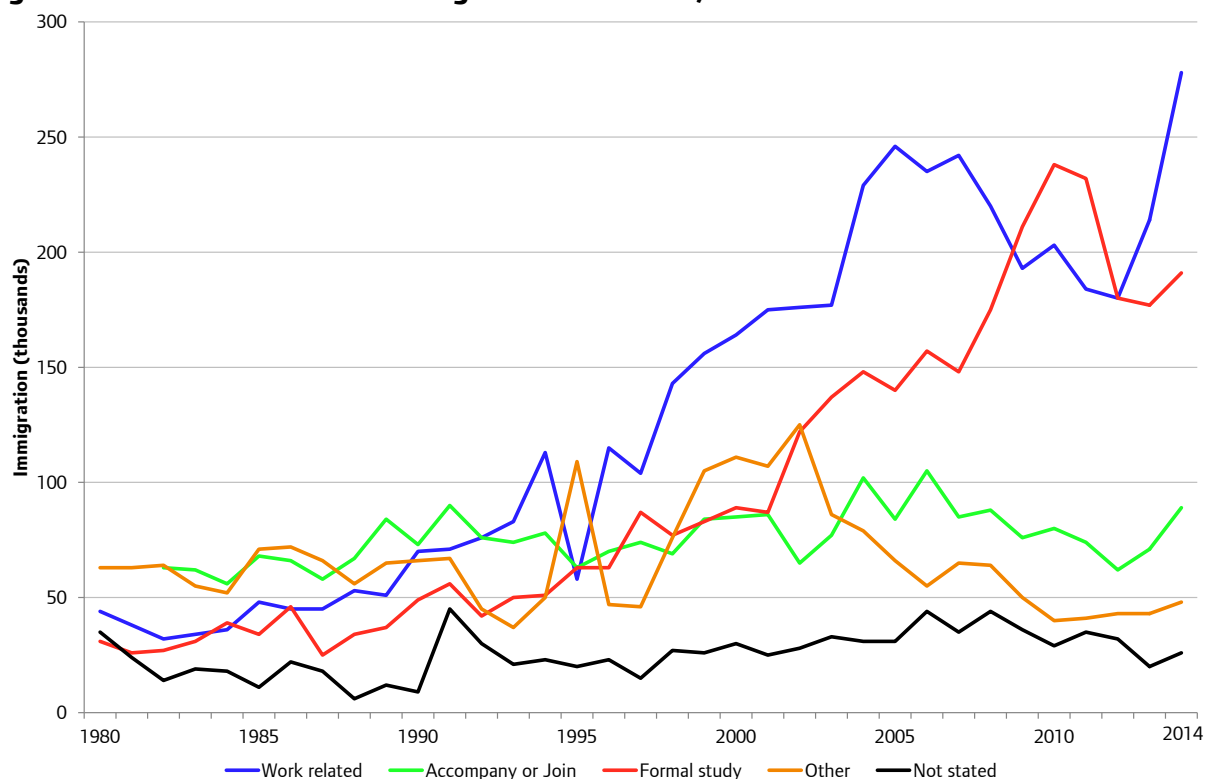


*Source: ONS migration statistics quarterly report, August 2015.[36]*

This data on the reported intentions of annual flows of migrants into the UK however fails to take account of the length of stay beyond 12 months, and the propensity to settle, which ultimately shapes the changes in London's population over time. Looking at the migration status of non-EEA migrants five years after entry into the UK via the immigration system, Home Office research[37] found that the propensity to settle or remain in the UK varied considerably by the initial route of entry. For those arriving in 2008 by the family visa, more than four in five (81 per cent) had either settled or had valid leave to remain in the UK after five years, compared to 53 per cent for those arriving as dependants, 28 per cent of those arriving via a skilled work visa, and just 16 per cent of those arriving for study[38]. This reflects that non-EEA arrivals to the UK for work, and particularly those coming for study, are more likely to be in the UK on a short-term or temporary basis[39].

This in turn has implications for the main reasons for migration among the overall stock of migrants in the UK. Making use of new data from the Annual Population Survey (APS), Home Office research[40] found that family and dependant routes dominated in terms of the reasons as to why the foreign-born population originally came to the UK. Of the 7.5 million foreign born residents in England and Wales, 41 per cent gave their main reason for coming to the UK as joining a settled person/family or accompanying another migrant, while 26 per cent came to work and 14 per cent for study. This contrasts significantly with the data presented on annual inflows, which instead shows that just 14 per cent of arrivals in 2013 came to accompany or join, while 41 per cent came for work and 34 per cent for study.

It is important to recognise that the attractiveness of London as a place for business investment, to work, and to live, each play an important role in the decisions of migrants to come to London. People are drawn to the capital for a variety of reasons, whether it be to take advantage of employment opportunities, which enable them and their families to have an improved quality of life, higher incomes and improved standards of living; or to be part of a diverse community, drawn by its cultural offering. London's competitiveness and status as a global city will continue to mean that people will be attracted to the capital into the future.

## 5.4.5 London as a visitor destination

One of the major reasons behind London's status as a global city is the draw of its culture, heritage and diversity to both UK and international visitors. Visitors' experiences in London can also act as an influencing factor to arguably encourage people to migrate to the capital for work. While data on reasons for migration cannot provide evidence on a visitor's previous experiences as a confirming factor in a later decision to locate to the capital, it is likely that London's culture and diversity is a draw.

London is amongst the most visited cities in the world. According to the Euromonitor Top City Destination Ranking, London was the second most visited city in the world, behind only Hong Kong, with Paris the only other EU country in the top 10 (Table 5.40).

**Table 5.40: Most visited cities in the world, 2014**

| Rank | City | Arrivals in 2014 | Growth on previous year |
|------|------|------------------|-------------------------|
| 1 | Hong Kong | 27.77 | 8.2% |
| 2 | London | 17.38 | 3.6% |
| 3 | Singapore | 17.09 | -0.4% |
| 4 | Bangkok | 16.25 | -7.0% |
| 5 | Paris | 14.98 | -1.9% |
| 6 | Macau | 14.97 | 7.4% |
| 7 | Dubai | 13.20 | 8.4% |
| 8 | Shenzhen | 13.12 | 8.0% |
| 9 | New York City | 12.23 | 3.2% |
| 10 | Istanbul | 11.87 | 13.2% |

*Source: Euromonitor*

More timely data from the International Passenger Survey (ONS) estimated that 18.6 million international visitors came to the capital and 12.9 million overnight visits were made by UK residents (Figure 5.16). In addition, in 2015, there were a total of 280.0 million tourism domestic day visits in the capital. The largest growth in tourism over the last decade has come from the international market and this is shown in Table 5.41.

**Table 5.41: Growth over time of international visitors and expenditures, 2005 – 2015**

| Year | Total International Visitors (million) | Total International Visitor Spend (£ billion; nominal prices) |
|---|---|---|
| 2005 | 13.9 | 6.9 |
| 2006 | 15.6 | 7.8 |
| 2007 | 15.3 | 8.2 |
| 2008 | 14.8 | 8.1 |
| 2009 | 14.2 | 8.2 |
| 2010 | 14.7 | 8.7 |
| 2011 | 15.3 | 9.4 |
| 2012 | 15.5 | 10.1 |
| 2013 | 16.8 | 11.5 |
| 2014 | 17.4 | 11.8 |
| 2015 | 18.6 | 11.9 |

| | |
|---|---|
| Growth of international visitors (2005 – 2015) | 33.8% |
| Average annual growth rate of visitors | 3.0% |

| | |
|---|---|
| Growth of international tourism visitor spend (2005 – 2015; in constant 2005 prices) | 39.4% |
| Average annual growth rate of visitor expenditure (in constant prices) | 3.4% |

*Source: GLA Economics calculations, drawn from International Passenger Survey, ONS*

**Figure 5.16: International and domestic overnight tourism to London**
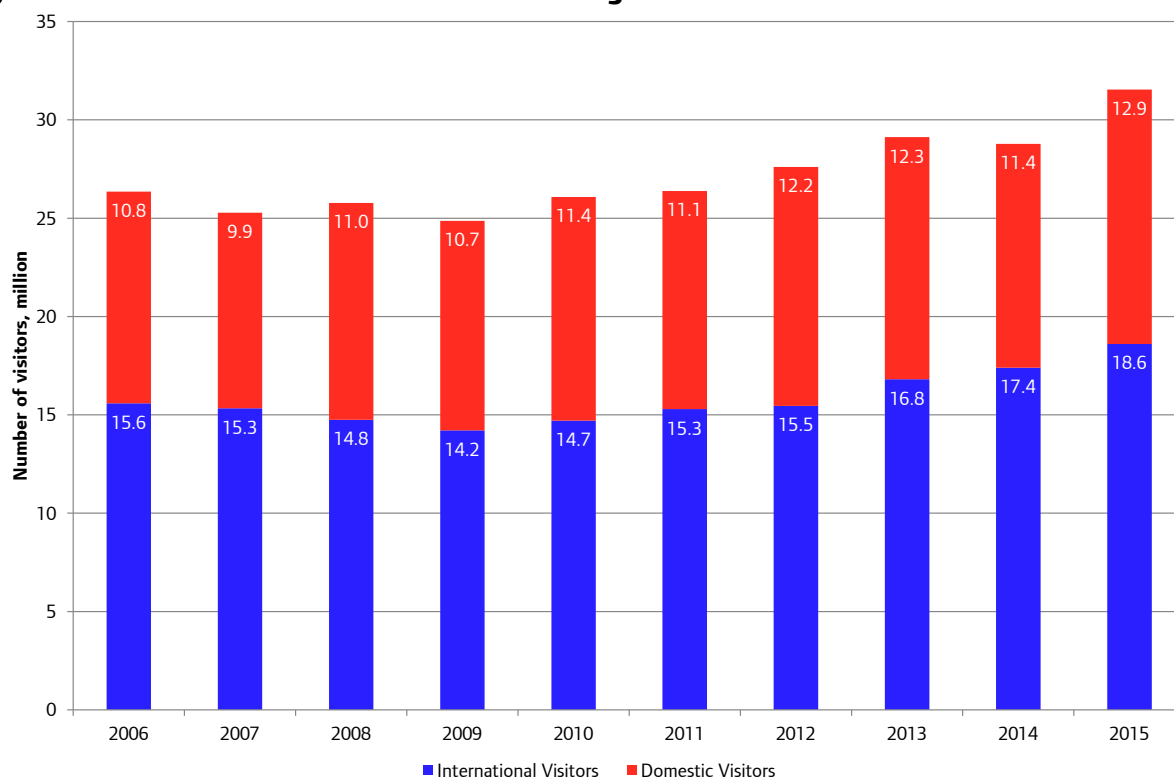


*Source: Visit Britain/Visit England; GLA Economics calculations*

The scale of London's tourism economy is therefore significant, with total estimated visitor spend from overnight and day visitors of £26.6 billion in 2015. Modelling based on GLA Economics' estimation of GVA per workforce job in London estimates that the total GVA of the tourism industry in London stood at £11.5 billion in 2014, with the sector supporting around 283,000 jobs. Similar modelling from the ONS based upon the Tourism Satellite Account, estimated that Tourism Direct Gross Value Added for London (which includes the expenditure of UK residents as they leave the UK on international trips) stood at £15.4 billion in 2013.[41]

## *Trends in international tourism*
London has maintained its position as a major international tourism destination, in part due to the cultural and historic offering as well as being a destination for major events and business tourism.

### i) Tourism by origin market
Drawn from data between 2002 and 2015, the data show a shift in London's main tourism markets. Europe has grown in importance, whereas the North American market has reduced in importance, as shown in Table 5.42.

**Table 5.42: Proportion of visits to London by continent**

| Continent | 2002 | 2007 | 2012 | 2015 |
|---|---|---|---|---|
| Europe | 54.7% | 62.8% | 65.0% | 66.0% |
| North America | 24.2% | 18.3% | 14.7% | 13.7% |
| Asia (inc. Aust/New Zealand) | 12.3% | 11.4% | 11.7% | 11.5% |
| Middle East | 3.2% | 2.5% | 3.1% | 3.5% |
| Central and South America | 2.1% | 1.9% | 3.1% | 3.1% |
| Africa | 3.7% | 3.0% | 2.5% | 2.1% |

*Source: International Passenger Survey*

When looking at individual countries, the United States remains the largest single market, whereas many individual European countries have seen growth in not only the number of visits (Table 5.43), but also the proportion of total visits to London (Table 5.44).

**Table 5.43: Top 30 markets for international tourism to London, total number (millions) of visits (ranked highest to lowest on 2015)**

| Rank | Country | 2002 | 2007 | 2012 | 2015 |
|---|---|---|---|---|---|
| 1 | USA | 2.45 | 2.33 | 1.86 | 2.14 |
| 2 | France | 1.10 | 1.34 | 1.68 | 2.07 |
| 3 | Germany | 0.89 | 1.20 | 1.20 | 1.40 |
| 4 | Italy | 0.54 | 0.84 | 0.96 | 1.17 |
| 5 | Spain | 0.44 | 0.97 | 0.80 | 1.15 |
| 6 | Irish Republic | 0.63 | 0.73 | 0.60 | 0.79 |
| 7 | Netherlands | 0.49 | 0.67 | 0.64 | 0.69 |
| 8 | Australia | 0.44 | 0.60 | 0.60 | 0.63 |
| 9 | Sweden | 0.29 | 0.40 | 0.50 | 0.55 |
| 10 | Poland | 0.12 | 0.43 | 0.40 | 0.53 |
| 11 | Belgium | 0.29 | 0.35 | 0.47 | 0.53 |
| 12 | Switzerland | 0.31 | 0.37 | 0.43 | 0.50 |
| 13 | Norway | 0.18 | 0.31 | 0.40 | 0.43 |
| 14 | Denmark | 0.19 | 0.31 | 0.33 | 0.42 |
| 15 | Canada | 0.36 | 0.48 | 0.40 | 0.41 |
| 16 | Other Eastern Europe | 0.08 | 0.48 | 0.29 | 0.31 |
| 17 | India | 0.14 | 0.22 | 0.23 | 0.28 |
| 18 | Brazil | 0.06 | 0.11 | 0.22 | 0.26 |
| 19 | Romania | 0.00 | 0.00 | 0.11 | 0.24 |
| 20 | Portugal | 0.10 | 0.14 | 0.15 | 0.22 |
| 21 | South Korea | 0.07 | 0.13 | 0.13 | 0.18 |
| 22 | United Arab Emirates | 0.06 | 0.09 | 0.13 | 0.18 |
| 23 | China | 0.04 | 0.08 | 0.10 | 0.17 |
| 24 | Czech Republic | 0.06 | 0.13 | 0.14 | 0.17 |
| 25 | Israel | 0.15 | 0.10 | 0.11 | 0.16 |
| 26 | Finland | 0.07 | 0.10 | 0.13 | 0.16 |
| 27 | Austria | 0.11 | 0.16 | 0.15 | 0.15 |
| 28 | Japan | 0.29 | 0.22 | 0.18 | 0.15 |
| 29 | Singapore | 0.06 | 0.06 | 0.11 | 0.15 |
| 30 | Greece | 0.10 | 0.10 | 0.09 | 0.15 |

Source: International Passenger Survey, ONS

**Table 5.44: Top 30 markets for international tourism to London, proportion of total visits (ranked highest to lowest on 2015)**

| Rank | Country | 2002 | 2007 | 2012 | 2015 |
|---|---|---|---|---|---|
| 1 | USA | 21.1% | 15.2% | 12.0% | 11.5% |
| 2 | France | 9.5% | 8.8% | 10.9% | 11.1% |
| 3 | Germany | 7.7% | 7.8% | 7.8% | 7.5% |
| 4 | Italy | 4.7% | 5.5% | 6.2% | 6.3% |
| 5 | Spain | 3.8% | 6.3% | 5.1% | 6.2% |
| 6 | Irish Republic | 5.4% | 4.8% | 3.9% | 4.3% |
| 7 | Netherlands | 4.2% | 4.3% | 4.1% | 3.7% |
| 8 | Australia | 3.8% | 3.9% | 3.9% | 3.4% |
| 9 | Sweden | 2.5% | 2.6% | 3.3% | 3.0% |
| 10 | Poland | 1.0% | 2.8% | 2.6% | 2.9% |
| 11 | Belgium | 2.5% | 2.3% | 3.0% | 2.9% |
| 12 | Switzerland | 2.7% | 2.4% | 2.7% | 2.7% |
| 13 | Norway | 1.5% | 2.0% | 2.6% | 2.3% |
| 14 | Denmark | 1.6% | 2.0% | 2.1% | 2.3% |
| 15 | Canada | 3.1% | 3.1% | 2.6% | 2.2% |
| 16 | Other Eastern Europe | 0.7% | 3.2% | 1.9% | 1.7% |
| 17 | India | 1.2% | 1.4% | 1.5% | 1.5% |
| 18 | Brazil | 0.6% | 0.7% | 1.4% | 1.4% |
| 19 | Romania | 0.0% | 0.0% | 0.7% | 1.3% |
| 20 | Portugal | 0.8% | 0.9% | 1.0% | 1.2% |
| 21 | South Korea | 0.6% | 0.8% | 0.8% | 1.0% |
| 22 | United Arab Emirates | 0.5% | 0.6% | 0.9% | 1.0% |
| 23 | China | 0.3% | 0.5% | 0.7% | 0.9% |
| 24 | Czech Republic | 0.5% | 0.9% | 0.9% | 0.9% |
| 25 | Israel | 1.3% | 0.7% | 0.7% | 0.9% |
| 26 | Finland | 0.6% | 0.6% | 0.8% | 0.9% |
| 27 | Austria | 0.9% | 1.1% | 1.0% | 0.8% |
| 28 | Japan | 2.5% | 1.4% | 1.2% | 0.8% |
| 29 | Singapore | 0.5% | 0.4% | 0.7% | 0.8% |
| 30 | Greece | 0.8% | 0.6% | 0.6% | 0.8% |

*Source: International Passenger Survey, ONS*

Even though the number of visitors to London has grown over the last decade, a noticeable trend has been that the number of nights per visit has fallen (Table 5.45). In part this is to be expected, since improvements in connectivity mean that people are able to visit many locations as part of their trip. This has potential implications for London in the future demand and supply of hotel accommodation in the capital, if trends were to continue.

**Table 5.45: Nights per visit by origin market and for all countries, 2005 – 2015**

| Country | 2002 | 2007 | 2012 | 2015 |
|---|---|---|---|---|
| USA | 5.78 | 5.66 | 6.03 | 5.52 |
| France | 4.06 | 4.86 | 4.24 | 4.28 |
| Germany | 4.45 | 3.95 | 4.22 | 4.30 |
| Italy | 6.28 | 6.00 | 5.54 | 5.61 |
| Spain | 7.33 | 5.40 | 6.19 | 5.22 |
| **TOTAL** | **6.50** | **6.25** | **6.10** | **5.83** |

*Source: International Passenger Survey*

Over the last decade, it has been the growth of London as a holiday destination that has driven the increases in total visits to the capital (Table 5.46), where the proportion of holiday visits has grown from 41.9 per cent to 49.6 per cent between 2002 and 2015, as shown in Table 5.47.

**Table 5.46: Visits to London by purpose, total number, (millions)**

| Purpose | 2002 | 2007 | 2012 | 2015 |
|---|---|---|---|---|
| Business | 2.79 | 3.58 | 3.07 | 3.71 |
| Holiday | 4.86 | 6.50 | 7.65 | 9.21 |
| Miscellaneous | 1.07 | 1.30 | 1.04 | 1.13 |
| Study | 0.19 | 0.25 | 0.18 | 0.18 |
| Visiting friends or relatives | 2.70 | 3.70 | 3.53 | 4.35 |
| **TOTAL** | **11.60** | **15.34** | **15.46** | **18.58** |

*Source: International Passenger Survey*

**Table 5.47: Proportion of total visits to London by purpose, 2002 – 2015**

| Purpose | 2002 | 2007 | 2012 | 2015 |
|---|---|---|---|---|
| Business | 24.1% | 23.3% | 19.8% | 20.0% |
| Holiday | 41.9% | 42.4% | 49.5% | 49.6% |
| Miscellaneous | 9.2% | 8.5% | 6.7% | 6.1% |
| Study | 1.6% | 1.7% | 1.2% | 1.0% |
| Visiting friends or relatives | 23.2% | 24.1% | 22.8% | 23.4% |

*Source: International Passenger Survey*

## 5.4.6 Role of culture and diversity in London's attractiveness as a place to live

One of the major reasons for people to visit and live in London is its cultural offer. London's culture is built upon its history and heritage, as well as through its communities.

For example, London is home to four UNESCO world heritage sites, 349 live music venues and 857 art galleries; London stages major global festivals and events, such as London Fashion Week as well as sporting and cultural events. Data from the World Cultural Cities Report[42] show that London performs strongly against other major global cities across a number of indicators, as shown in Table 5.48.

**Table 5.48: City comparisons on cultural provision**
**Main European cities:**

|  | London | Paris | Madrid | Rome | Berlin |
|---|---|---|---|---|---|
| Art galleries | 857 | 1151 | 299 | 200 | 421 |
| Festivals and celebrations | 271 | 360 | 69 | -- | 63 |
| National museums | 13 | 27 | 7 | -- | 18 |
| Admissions to all theatres | 22.0m | 5.6m | 2.6m | 1.5m | 2.4m |
| Live music venues | 320 | 430 | 92 | -- | 250 |
| Michelin star restaurants | 62 | 105 | 12 | -- | 14 |
| Theatres | 241 | 353 | 112 | -- | 56 |
| Museums | 215 | 313 | 59 | 32 | 158 |
| UNESCO World Heritage Sites | 4 | 4 | 0 | 4 | 3 |

**Non-European cities:**

|  | New York | Toronto | Los Angeles | Sydney | Tokyo |
|---|---|---|---|---|---|
| Art galleries | 613 | 156 | 434 | 207 | 688 |
| Festivals and celebrations | 263 | 127 | 257 | -- | 485 |
| National museums | 7 | 0 | 2 | 1 | 8 |
| Admissions to all theatres | 13.1m | 2.5m | 2.1m | 6.1m | 12.0m |
| Live music venues | 453 | 149 | 510 | 435 | 385 |
| Michelin star restaurants | 76 | -- | 20 | -- | 224 |
| Theatres | 420 | 75 | 330 | 73 | 230 |
| Museums | 143 | 63 | 231 | 83 | 47 |
| UNESCO World Heritage Sites | 1 | 0 | 0 | 3 | 1 |

**Other European cities:**

|  | Vienna | Warsaw | Stockholm | Brussels | Moscow |
|---|---|---|---|---|---|
| Art galleries | >100 | 44 | 120 | 313 | 65 |
| Festivals and celebrations | 50 | 54 | 50 | 247 | 537 |
| National museums | 14 | 14 | 29 | 8 | 29 |
| Admissions to all theatres | 4.7m | 1.8m | 2.0m | -- | 7.5m |
| Live music venues | -- | 33 | 65 | 37 | 367 |
| Michelin star restaurants | 94 | 1 | 9 | -- | -- |
| Theatres | -- | -- | 80 | 61 | 182 |
| Museums | 56 | 73 | 99 | 93 | 365 |
| UNESCO World Heritage Sites | 2 | 1 | 3 | 3 | 3 |

*Source: World Cities Culture Forum*

*Note: '--' denotes that data are not available*

Data from the Association of Leading Visitor Attractions (ALVA) shows the importance of the capital for cultural and tourist attractions in the UK; all of the top 10 and 15 of the top 20 visitor attractions are in London. Of these 15 attractions, 13 are free to entry. Table 5.49 outlines the top 10 attractions in the UK based on number of visitors.

**Table 5.49: Most visited attractions in the UK, 2015**

| Rank | Attraction | Free or Pay to Entry | Number of Visitors |
|------|-----------|---------------------|-------------------|
| 1 | British Museum | Free | 6,820,686 |
| 2 | The National Gallery | Free | 5,908,254 |
| 3 | Natural History Museum (South Kensington) | Free | 5,284,023 |
| 4 | Southbank Centre | Free | 5,102,883 |
| 5 | Tate Modern | Free | 4,712,581 |
| 6 | Victoria and Albert Museum (South Kensington) | Free | 3,432,325 |
| 7 | Science Museum | Free | 3,356,212 |
| 8 | Somerset House | Free | 3,235,104 |
| 9 | Tower of London | Pay to Entry | 2,785,249 |
| 10 | National Portrait Gallery | Free | 2,145,486 |

*Source: Association of Leading Visitor Attractions*

Drawing upon the Annual Survey of Visits to Visitor attractions database compiled by Visit England, there were 94 attractions listed as being within London, however it must be stated that these will not provide a complete database of all attractions in the capital, since many festivals and events take place across the capital throughout the year, catering for communities across the capital. According to these data, the total number of visits to visitor attractions in London was estimated at 61.2 million in 2015, with the top 20 attractions accounting for 85 per cent of all of these visits.

Table 5.50 shows the top 20 attractions in London based on visitor numbers, drawn from the ALVA database, these 20 attractions all sit in the top 30 visitor attractions in the UK.

**Table 5.50: Top 20 attractions in London based on number of visits**

| Rank | Attraction | Borough | Number of Visitors |
|------|-----------|---------|-------------------|
| 1 | British Museum | Camden | 6,820,686 |
| 2 | The National Gallery | Westminster | 5,908,254 |
| 3 | Natural History Museum | Kensington and Chelsea | 5,284,023 |
| 4 | Southbank Centre | Lambeth | 5,102,883 |
| 5 | Tate Modern | Southwark | 4,712,581 |
| 6 | Victoria and Albert Museum | Kensington and Chelsea | 3,432,325 |
| 7 | Science Museum | Kensington and Chelsea | 3,356,212 |
| 8 | Somerset House | Westminster | 3,235,104 |
| 9 | Tower of London | Tower Hamlets | 2,785,249 |
| 10 | National Portrait Gallery | Westminster | 2,145,486 |
| 11 | Old Royal Naval College, Greenwich | Greenwich | 1,676,055 |
| 12 | Westminster Abbey | Westminster | 1,664,850 |
| 13 | Royal Botanic Gardens, Kew | Richmond upon Thames | 1,622,821 |
| 14 | St Paul's Cathedral | City of London | 1,609,325 |
| 15 | British Library | Camden | 1,579,270 |
| 16 | National Maritime Museum | Greenwich | 1,357,663 |
| 17 | Tate Britain | Westminster | 1,284,519 |
| 18 | ZSL London Zoo | Westminster | 1,265,911 |
| 19 | Imperial War Museum, London | Southwark | 1,104,670 |
| 20 | The Royal Academy of Arts | Westminster | 1,096,608 |

*Source: Association of Leading Visitor Attractions*

## Chapter 5 endnotes

1 Note this table provides information on the highest rate of this tax and the actual rate may vary across different regions in certain countries etc.

2 See: http://www.kpmg.com/global/en/services/tax/tax-tools-and-resources/pages/corporate-tax-rates-table.aspx

3 Note this table provides information on the highest rate of this tax and the actual rate may vary across different regions in certain countries etc.

4 France's ranking is based on 2014.

5 See: http://www.kpmg.com/Global/en/services/Tax/tax-tools-and-resources/Pages/individual-income-tax-rates-table.aspx

6 "The changing spatial nature of business and employment in London", GLA Economics Working Paper 73.

7 "City ranking indices – handle with care", GLA Economics Current Issues Note 31.

8 PWC 2016, PWC Cities of Opportunity 7

9 The Economist Intelligence Unit, 2013, 'Hot spots 2025, benchmarking the future competitiveness of cities'. Citi.

10 A. T. Kearney, 2016, Global Cities Index 2016. Rankings include index and outlook.

11 ARCADIS, 2016, 'Sustainable Cities Index'.

12 UN Habitat, 2012, 'State of the World's Cities 2012/2013'.

13 EY, 2016, European Attractiveness Survey 2016

14 Ericsson, 2014, 'Networked Society City Index'.

15 Innovation Cities, 2014, 'Innovation Cities Index 2014'.

16 MasterCard, 2015, Global Destination Cities Index 2015

17 IESE Business School, 2014,'IESE Cities In Motion Index 2014'.

18 The Mori Memorial Foundation, 2014, 'Global Power City Index 2014'.

19 GaWC, 2012, 'The world according to GaWC 2012'.

20 Z/Yen Group, 2016, Global Financial Centres Index 20.

21 See: http://stats.oecd.org//Index.aspx?QueryId=64115#

22 This survey was published in 2015.

23 UBS notes: "gross hourly wages are calculated from the survey's gross annual earnings data divided by the annual number of working hours. Net hourly earnings are calculated by removing taxes, social security and other special deductions from gross annual income for each city, and dividing it by annual working hours. Hourly wages are weighted according to the distribution of our 15 professions.".

24 UBS, September 2015. 'Prices and earnings – Edition 2015: Do I earn enough for the life I want?'.

25 "The Economic Impact of London's International Students", London & Partners. (2015)

26 Imperial (8th), UCL (14th), LSE (23rd), King's College (27th), Queen Mary (98th)

27 UCL (7th), Imperial (9th), King's College (21st), LSE (37th)

28 Imperial (15th), UCL (20th), LSE (24th), King's College (31st), London Business School (81st – 90th)

29 London Business School (24th), Cass Business School (54th)

30 London Business School (3rd), Imperial College Business School (35th), Cass Business School (37th)

31 Based on APS estimates for 2014, 3.08 million London residents were not UK born, equivalent to 36.5 per cent of the total resident London population. These estimates are subject to sample variability which means that the figures are broadly unchanged since the 2011 census.

32 U.S. Census Bureau, 2011, American Community Survey estimates a foreign-born population to be almost 3.1 million in 2011 (equivalent to 38 per cent of the New York resident population), http://factfinder.census.gov/

33 Note: the question allowed respondents to indicate up to five answers. Source: Boston Consulting Group/The Network, decoding global talent, 2014 web survey, available at: https://www.bcgperspectives.com/content/articles/human_resources_leadership_decoding_global_talent/

34 Portes, J., 2014, 'Immigration and the UK economy: interaction between policy and economic research since the mid-1990s'. In 'Migration and London's growth'. LSE London.

35 Data relate to international students defined on the basis of their country of residence. These data exclude students who are under short-term study and exchange programmes that last less than a full school year. See: http://www.uis.unesco.org/Education/Pages/international-student-flow-viz.aspx

36 Notes: 1) A migrant is defined as someone who changes his or her country of usual residence for a period of at least 12 months. 2) Figures for 1980 to 1990 are IPS estimates, 1991 onwards are LTIM estimates. 3) Figures for 2014 are provisional estimates and are represented by a cross. All other figures are final estimates. 4) "Work related" includes "definite job" and "looking for work" in all years, except for 1995 when "looking for work" was included in the other category.

37 Home Office, 'Migrant Journey: fifth report', February 2015.

38 A valid visa does not confirm that a migrant is still in the UK as it is possible that they left prior to the visa's expiry. Equally, a visa with expired leave to remain does not mean that the migrant has necessarily left the UK.

39 Given this propensity to stay for short periods of time, relative to other types of migrant, it is arguable that international students should not be considered to be truly 'long-term' international migrants.

40 Home Office, 'The reason for migration and labour market characteristics of UK residents born abroad', September 2014

41 ONS, 2016, 'The regional value of tourism in the UK: 2013'

42 World Cities Culture Report 2015, available at: http://www.worldcitiescultureforum.com/news/world-cities-culture-report-2015-now-published

# 6: The outlook and risks for London's economy

## 6.1 Key points

- The number of jobs in London is projected to increase from 5.5 million in 2015 to 6.7 million in 2041, equivalent to just over 45,000 net additional jobs per annum. These projections are consistent with the view that London's economy will perform strongly in future years but they are dependent on a range of underlying assumptions, not least future productivity trends. While productivity as measured by GVA per worker is considerably higher in London (£66,638) than the UK average (£48,703), concerns have been raised about weak productivity growth in London (and the UK) since the recession.

- In terms of the future structure of London's economy, GLA Economics' projections suggest that London will continue to specialise in services. Just over a third of all the projected employment is expected to come from the 'Professional, real estate, scientific and technical activities' sector. 'Information and communication', 'Administrative and support services', and 'Accommodation and food' service activities are also expected to see large increases in employment. This suggests a continuation of London's specialisation in these areas while 'Education and health' activities are also expected to grow as London's population grows.

- There are upside and downside risks to these projections which could mean London follows a different growth trajectory. In the near term, risks to global economic growth which could impact on London include the ongoing Eurozone crisis, a slowdown in the Chinese economy and other emerging markets, or geopolitical events. Similarly, London's economy could be affected by events in the UK, most immediately the impact of the decision to leave the European Union (EU) and in the medium-long term, any significant change in monetary policy, reductions in government spending or significant changes in the nature of the UK's trading relationship with the EU.

- Looking longer term, the agglomeration benefits currently enjoyed by firms in London may be tempered by the diseconomies of agglomeration (or so-called 'congestion costs') that are the consequence of a mass of businesses and people competing over scarce resources. If the costs of agglomeration begin to exceed the benefits then future growth and/or wellbeing in London could be undermined. Issues covered in this chapter include:

  ○ The cost of business accommodation - office occupancy costs in prime central markets are higher than many other competing global cities.

  ○ The cost of living and its impact on labour supply – there are high vacancy rates in some lower paid sectors such as health and social care.

  ○ Pressures on the transport network - Londoners spend more time idling in traffic than their European city counterparts; many parts of the tube and rail network suffer from significant crowding at morning peak, and London has limited airport capacity.

  ○ Pressures on infrastructure - the scale of growth expected in London will mean an estimated 20 per cent increase in overall energy demand by 2050.  Moreover, without intervention it is predicted that London will have a deficit in water supply of half a billion litres over this period.

## 6.2 Introduction

London's dynamic economy attracts businesses and skilled workers on a scale like no other city in the UK. The employment projections in this chapter show that there are good prospects for continued growth in London over the next 20 years. In 2015, there were 5.538 million jobs in London and this is projected to reach 6.748 million by 2041, equivalent to just over 45,000 net additional jobs per annum[1].

However, there are both upside and downside risks to this projection which mean London's economy could follow a different growth trajectory. There are global, or 'exogenous', threats to London's growth such as the Eurozone crisis, climate change, or geo-political events that could disrupt world trade. As one of the UK's most open economies, London is arguably more exposed to any slowdown in the global economy, or diminished trading relationships, than other cities in the UK. These global risks are by their nature difficult for policymakers to predict or control.

There are also more localised, 'endogenous', risks to London's growth, many of which are a consequence of its attractiveness as a place to do business and to live. The agglomeration benefits of being based in London are a key feature of its success. Proximity to other firms and access to deep labour markets help to reduce transaction costs, foster collaboration and competition, and support the development of formal and informal networks. This in turn leads to knowledge spillovers, higher productivity and growth. However, there are also costs associated with agglomeration. A growing concentration of businesses and people raises demand for factor inputs which in turn raises prices in these markets. Moreover, population growth places additional demands on local services and transport which may increase the costs and/or affect the quality of service provision. These costs associated with higher densities are the diseconomies of agglomeration or congestion costs.

Businesses make informed decisions about whether the benefits of operating in London (e.g. higher profits) outweigh the costs (e.g. higher rents). Similarly, workers make decisions about whether the benefits of working in London (e.g. higher wages or better career opportunities) are sufficient to compensate for the costs (e.g. higher cost of living or longer commuter journeys). However, the 'hidden' external costs (e.g. air pollution) or benefits (e.g. positive spillovers from agglomeration) of locating in London may not be part of the decision-making process.

Given London's impressive growth performance it would appear that, on aggregate, the agglomeration benefits continue to outweigh the costs – as London's business base continues to grow (see the evidence on firm migration in Chapter 2[2]). But for how long can this be sustained? Growth cannot be taken for granted. It is easy to forget that for much of the period after the Second World War through to the 1980s, London's population was in decline – a consequence of de-industrialisation, suburbanisation and population dispersal policies[3]. If firms find that it becomes more costly to do business due to skills shortages, high rents, transport costs, or barriers to trade, then they may reconsider their location in London and look to alternative cities. For firms operating in international markets this is likely to mean relocating to a global city outside the UK.

From a public policy perspective, the full costs and benefits to society of London's growth need to be considered not just those to private firms and individuals. For example, if workers are forced to make longer and busier commutes, there may be negative impacts on wellbeing or the environment[4]. There are also important equity considerations for policy makers such as the distribution of wealth created by London's growth (see Chapter 10 for more on social inequalities in London).

The degree to which London's competiveness is eroded by rising costs and/or the quality of life of its citizens deteriorates depends to a large extent on London's capacity to accommodate additional growth. In this respect, the public sector has an important enabling role to play through investment in infrastructure, public services, via the planning system and through other policy interventions. London's success needs to be carefully managed if the capital is to remain internationally competitive, if growth is to be sustained, and if all residents are to benefit from London's growth.

## 6.3 The outlook for London's economy

GLA Economics prepares medium-term forecasts of output (GVA) and employment for the London economy which are published every six months in 'London's Economic Outlook'[5]. These forecasts are informed by close monitoring of London's economy using a range of indicators, including among others: the claimant count, house prices, stock market performance, the exchange rate, consumer confidence indices, the Purchasing Managers' Index and various business surveys. Following the outcome of the Referendum on Britain's membership of the European Union (EU), there is considerable uncertainty over the forecasts for economic growth in the UK and London. At the time of writing it is too early to tell what that impact of the Brexit vote will be and so the forecasts have not been revised. GLA Economics will continue to closely monitor London's economy, providing a monthly barometer of performance in London's Economy Today[6], and revise the forecasts if necessary as more official data emerges.

As well as this short- to medium- term perspective, GLA Economics prepares long-run employment projections for London (broken down by sector and London borough) to inform the London Plan, Mayor's Transport Strategy and the Mayor's Economic Development Strategy. The projections are based on historical trends in the share of employment in different sectors extrapolated forwards, the main headlines of which are summarised below. It should be noted that this analysis was undertaken prior to the Referendum result and will be subject to review; a revised set of projections are due to be published in 2017.

### 6.3.1 Long-run projections of employment in London to 2041

Chapter 1 examined the change in London's industrial structure over time, showing that London has become increasingly specialised in services. 'Financial and insurance activities' accounted for the largest share of economic output in London in 2014, around 19.0 per cent, and 'Professional, real estate, scientific and technical activities' provided the largest number of jobs. Between 1971 and 2015, the total number of jobs in London increased by almost 1 million. The number of jobs in 'Manufacturing' fell by 85 per cent, whilst jobs in 'Professional, real estate, scientific and technical activities' more than tripled over the same period .

Since the 2008/09 recession, output growth has been sluggish by historical post-recession standards. However, employment growth has been unexpectedly strong. Following a fall in jobs in 2009/10, jobs growth in the capital has strengthened significantly. In 2015, there were around 5.6 million jobs[7], a 2 per cent increase on 2014, and 12 per cent higher than the pre-recession peak.

Looking ahead, the rate of job creation is expected to slow although employment growth will remain strong over the long term. Projections by GLA Economics indicate that employment will grow by just over 45,000 jobs per year and result in over 1,200,000 more jobs in London by 2041[8] (Figure 6.1).

**Figure 6.1: GLA Economics long-run employment projection to 2041**
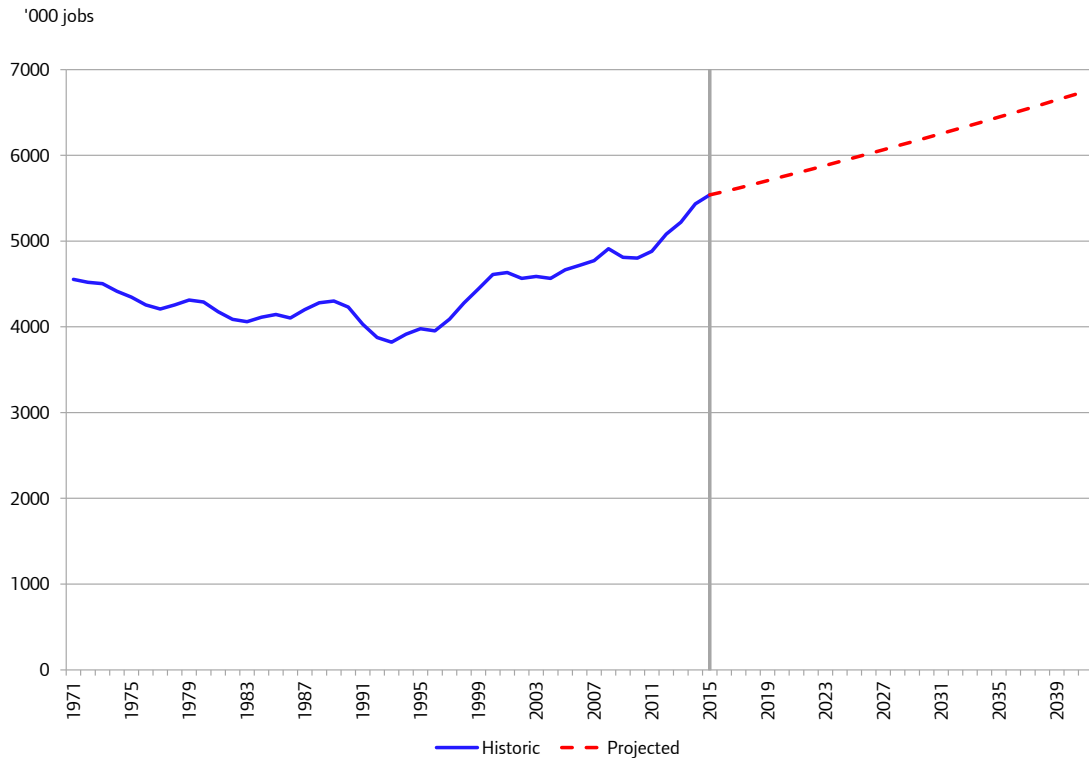


Source: GLA Economics

There are large differences in projected employment for different sectors, ranging from 1.5 per cent year-on-year growth in 'Professional, real estate, scientific and technical activities' to a 2.0 per cent year-on-year decline in 'Manufacturing'. Figures 6.2 and 6.3 also show how projected employment numbers differ across sectors. 'Professional, real estate, scientific and technical activities' are projected to see an increase of 425,000 jobs by 2041. This accounts for a third of all the employment increase expected in London. 'Information and communication', 'Education', 'Health and social work', and 'Administrative and support service activities' are also expected to see large increases in employment.

**Figure 6.2 Employment projections for London's larger sectors**



Professional, Real Estate, Scientific and Technical Activities
Administrative and Support Service Activities
Health and Social Work
Retail
Information and Communication
Education
Financial and Insurance Activities
Accommodation and Food Service Activities
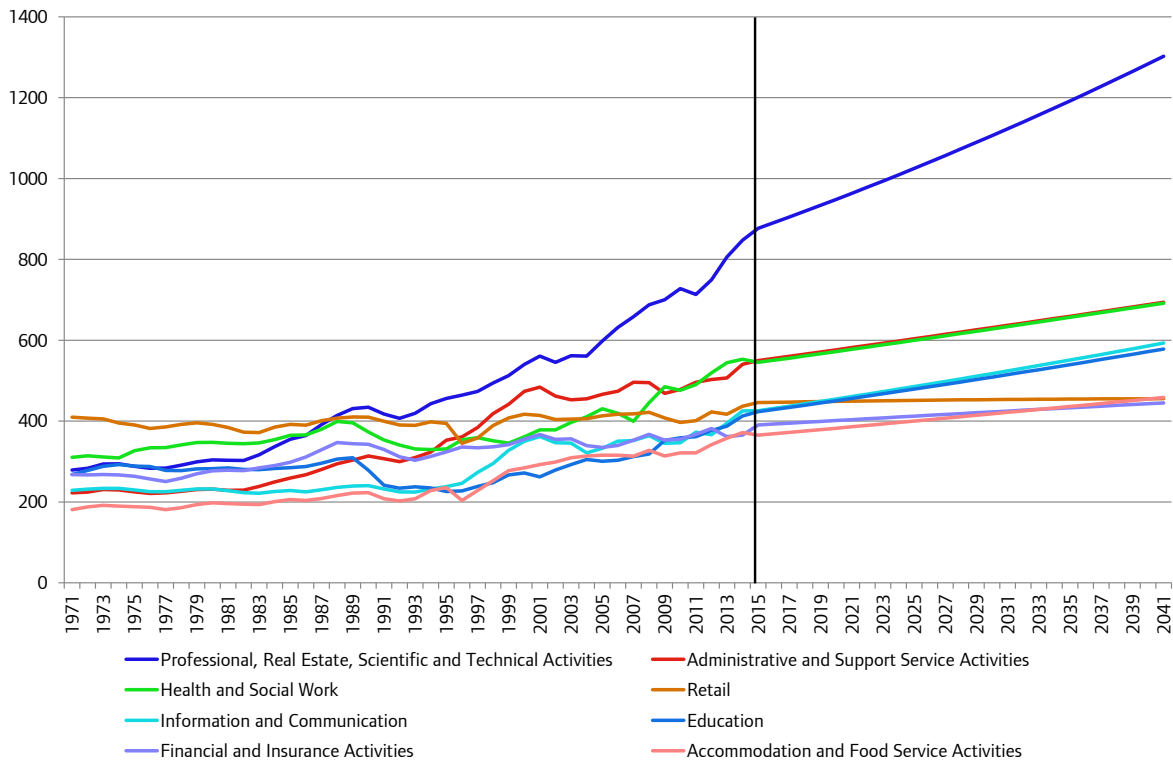
*Source: GLA Economics*

**Figure 6.3: Employment projections for London's smaller sectors**



Construction
Transportation and Storage
Public Administration
Wholesale
Arts, Entertainment and Recreation
Other Services
Manufacturing
Primary & Utilities
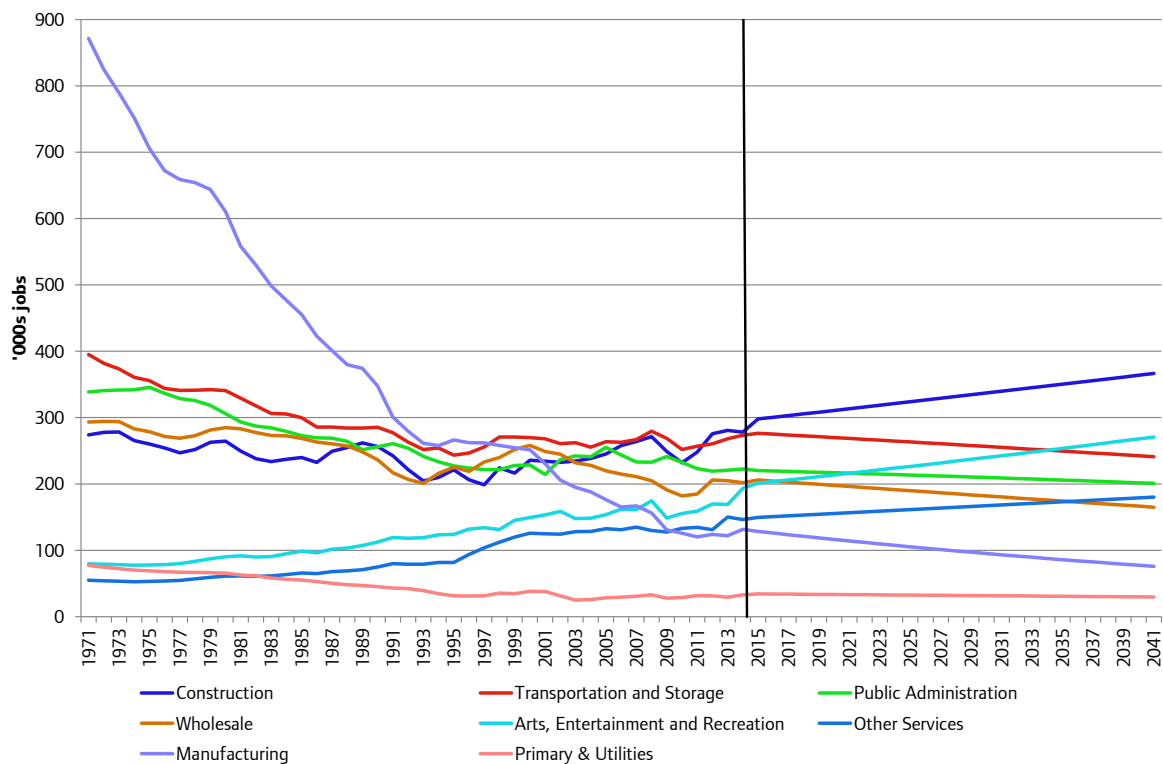
*Source: GLA Economics*

**Box 6.1: Recent productivity performance in London and the UK**

The employment projections discussed above rely on assumptions about the historic and future relationship between output and employment in London's economy, in other words, productivity. Historically, the relationship has been relatively stable but following the 2008 financial crisis there is evidence of a divergence from trend with exceptionally strong employment growth but weak output growth. This poses a dilemma for forecasters in deciding whether to weight in favour of recent years of data or the longer-term trend when projecting forward[9]. Or put another way, whether recent low rates of productivity growth should be deemed a temporary or more permanent phenomenon[10].

Labour productivity often falls in the initial stages of a recession as declining output may not be accompanied by an immediate fall in employment. However, companies then typically shed labour if activity is expected to remain weak thereby boosting productivity. Weak labour productivity several years post-crisis is therefore unusual and has become known in the UK as the 'productivity puzzle'. A number of different explanations have been put forward to try to explain the UK's productivity puzzle, which can broadly be split into two main (not necessarily mutually exclusive) hypotheses[11].

The first hypothesis is that the weakness in productivity is cyclical reflecting lower factor utilisation due to weak demand conditions and is therefore likely to be temporary in nature. One explanation for this is that there was considerable labour hoarding, as firms preferred to hold on to employees rather than make redundancies, aided by more flexible labour markets and falling real wages[12]. Another cyclical explanation is that firms may have diverted resources to less tangible 'business development' activities or R&D which would not necessarily have registered in the National Accounts[13].

The second hypothesis is that more persistent factors are at work affecting the capacity of the economy to supply goods and services. Investment in the physical capital stock was subdued in the aftermath of the crisis, which may have encouraged businesses to switch to more labour-intensive forms of production and reduced the proportion of capital available to each unit of labour[14]. Another structural explanation is that resource allocation has been impaired due to a dysfunctional financial system and high levels of uncertainty in the economy[15]. This includes the observation that there have been higher firm survival rates than would have been expected perhaps due to banks and HMRC relaxing their conditions leading to fewer liquidations and more loss-marking firms (so-called 'zombies').

The UK experienced especially poor productivity growth relative to other developed economies in the OECD (see Figure 6.4). Between 2000 and 2008, UK GDP per hour worked increased on an average annual basis of around 4.2 per cent, virtually identical to the OECD average of 4.3 per cent. However, between 2008 and 2014 the UK's average annual increase in output per hour worked was 0.9 per cent compared to an OECD average of 2.3 per cent. Thus, although productivity declined in both the UK and the OECD the decline was greater in the UK in the post-recession period.

This has exacerbated the longer-term productivity problem facing the UK relative to other developed nations. The ONS has observed that output per hour worked in the UK was 20 percentage points below the average for the rest of the major G7 advanced economies in 2014; the widest productivity gap since comparable estimates began in 1991. On an output per worker basis, UK productivity was also 20 percentage points below the average for the rest of the G7 in 2014[16].

**Figure 6.4: GDP per hour worked in selected countries, 2001 to 2014 (index 2008=100)**



Legend: Canada, France, Germany, Italy, Japan, United Kingdom, United States, OECD, Euro area, Spain, Greece
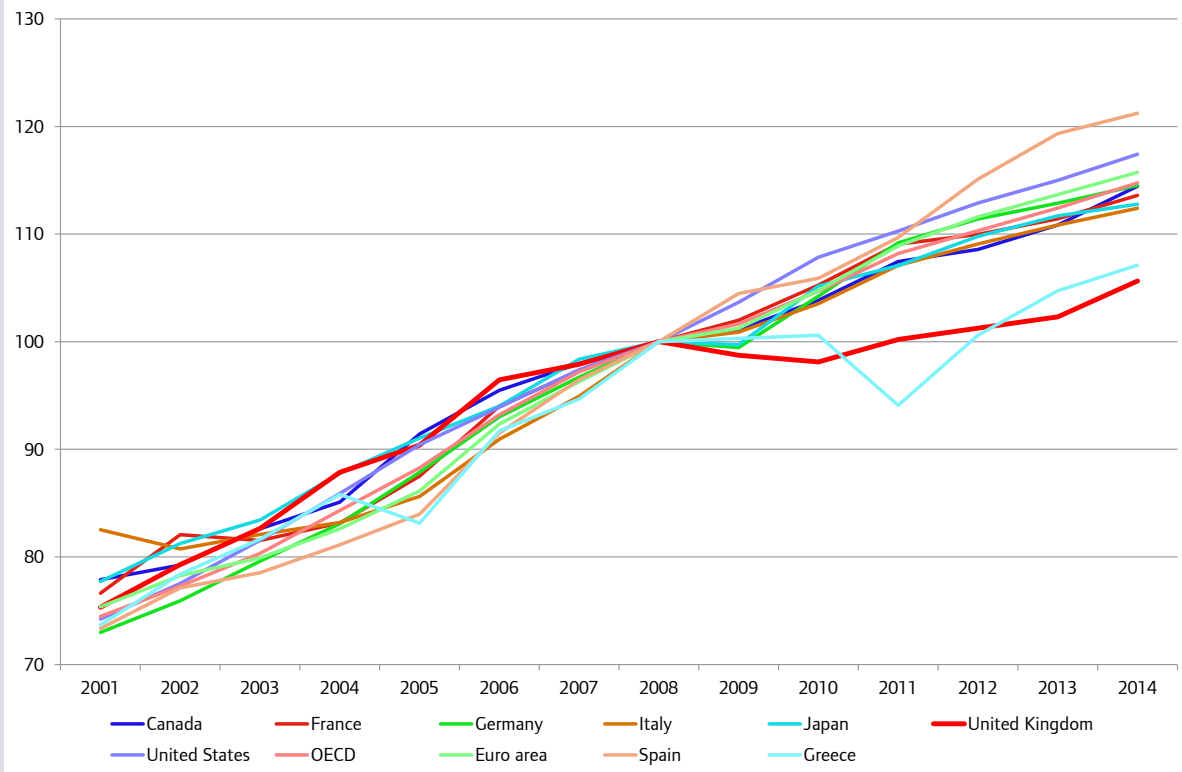
*Source: OECD*

Like the rest of the UK, London has suffered from relatively weak productivity growth since the recession. Before the financial crisis, in the period 1997 to 2008 London's GVA per worker (in nominal terms) grew at an average annualised rate of 4.2 per cent compared to a rate of 4.0 per cent for the UK. However, in the years 2008 to 2014, GVA per worker in London grew at an annualised rate of 2.6 per cent compared to a rate of 2.2 per cent for the UK as a whole. It should be noted that differences in inflation between London and the UK mean the discrepancies in economic performance shown by nominal data should be treated with caution.

**Figure 6.5: Headline GVA per worker and annual percentage change for London and UK 1997-2014[17], current prices**
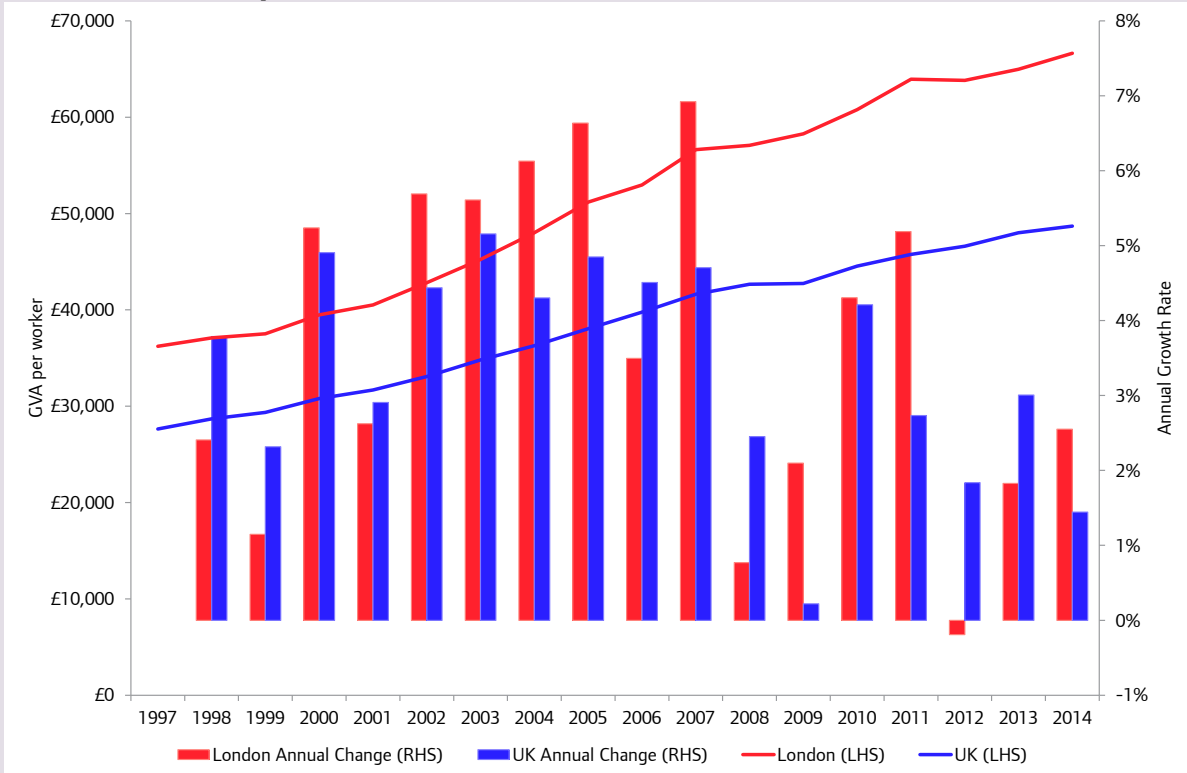


*Source: Regional Accounts, ONS, Nomis and GLA Economics calculations*

GVA per worker (in nominal terms) in London was £66,638 in 2014 compared to £48,703 for the UK as a whole[18]. In the most recent year of data (2014), nominal GVA per worker grew by 2.5 per cent in London compared to 1.4 per cent for the UK[19] (Figure 6.5).

Figure 6.6 shows the change in output per worker in London since 2008 compared to selected European NUTS1 regions. As can be observed, London's output per worker has grown more slowly since the recession compared to other regions such as Paris, Madrid and Stockholm[20]. However, it should be noted that while growth has been sluggish, the level of output per worker remains considerably higher in London than these European regions[21].

**Figure 6.6: Output per worker in selected NUTS1 European regions, 2000 to 2014 (index 2008=100)**
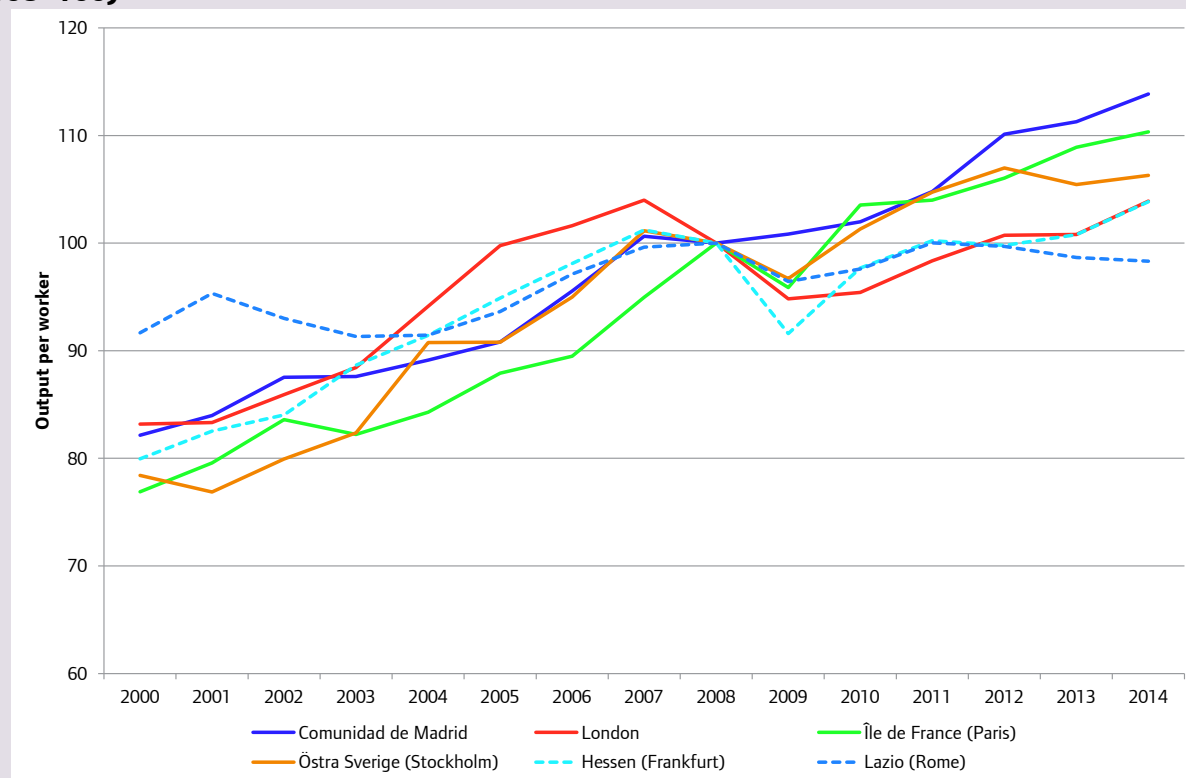


*Source: Eurostat and GLA Economics calculations[22].*

London's growth in (nominal) GVA per hour worked has been slower than a number of other regions of the UK over this period (Figure 6.7). Indexed to 2008, the North East, East Midlands, South East and the West Midlands all saw slightly higher growth in GVA per hour worked compared to London. However, the level of GVA per hour worked in London remains considerably higher than these regions; in 2014 it was £40 per hour compared to £27.50 in the North East, £28 in the East Midlands, £34 in the South East and £27 in the West Midlands. A large part of the fall in the UK's aggregate productivity was in the business services sector[23] and given the concentration of firms in this sector in the capital (see Chapter 1) it may explain why London has performed poorly on this measure.

**Figure 6.7: Nominal (smoothed) GVA per hour worked in London, the UK and its regions 2004-2014 (index 2008=100)**
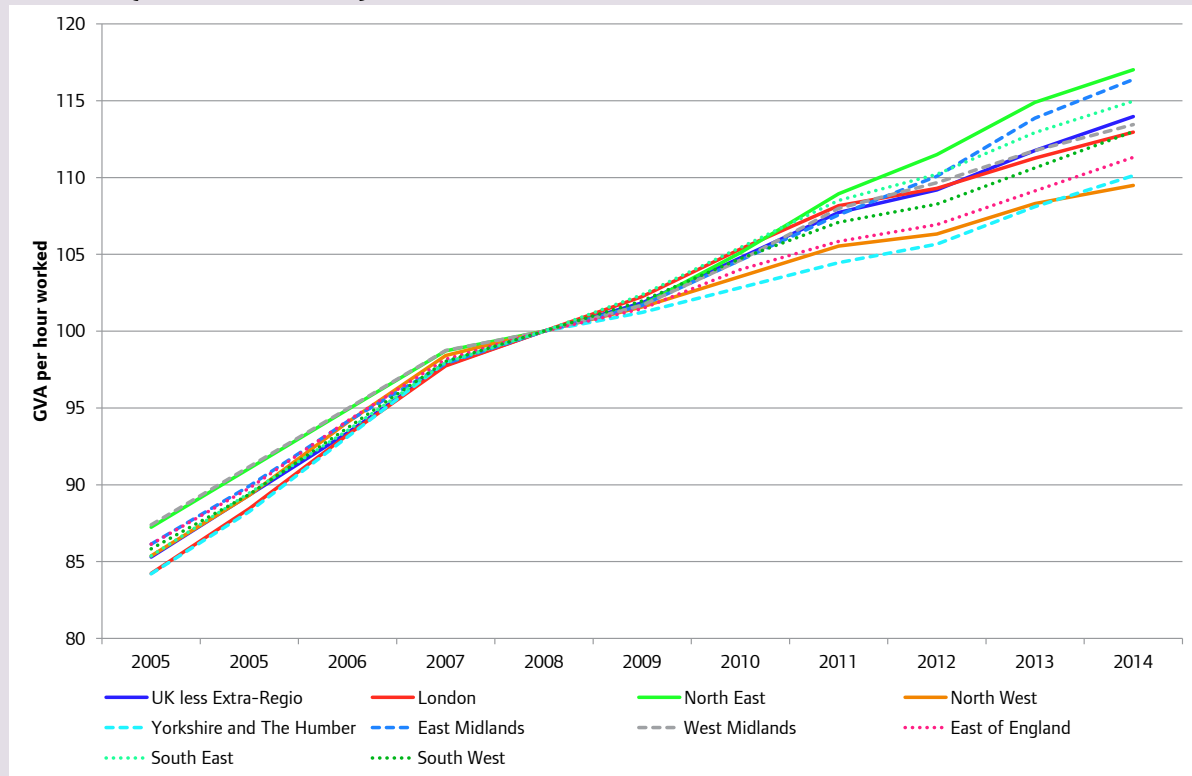


*Source: ONS[24] and GLA Economics calculations*

Differences in performance by sector, both in terms of jobs and productivity growth since the financial crisis, are highlighted in Table 6.1. Sector level productivity estimates based on GLA Economics' GVA per workforce jobs estimates adjusted for CPI inflation[25], suggest that productivity performance across most sectors of the London economy was weak between 2009 and 2012. Five out of 17 sectors of the economy saw productivity growth over the period. In the 'Other service activities' sector, productivity increased by around 20 per cent between 2009 and 2012, while in both 'Construction' and 'Public administration and defence' productivity grew by nine per cent over the same period.

**Table 6.1: Changes in sector level performance in London**

| Industrial sector | Number of London jobs in 2015 (thousands) | London jobs contribution in 2015 (ranked: 1=highest, 17 =lowest) | Percentage growth in jobs 1996 to 2015 | Percentage growth in jobs 2008 to 2015 | Percentage growth in jobs 2010 to 2015 | Percentage change in real wages of employees 2009 to 2015 | Percentage change in productivity 2009-12 |
|---|---|---|---|---|---|---|---|
| Primary and utilities | 34 | 17 | 6 | 6 | 21 | # | -14 |
| Manufacturing | 129 | 15 | -51 | -18 | 2 | -13 | -1 |
| Construction | 298 | 9 | 45 | 10 | 28 | -14 | 9 |
| Wholesale and motor trades | 206 | 12 | -6 | 0 | 13 | # | -7 |
| Retail | 446 | 4 | 29 | 6 | 12 | -3 | -10 |
| Transportation and storage | 276 | 10 | 12 | -1 | 10 | -4 | 0 |
| Accommodation and food service activities | 365 | 8 | 79 | 11 | 13 | -3 | -4 |
| Information and communication | 426 | 5 | 73 | 17 | 23 | -12 | -3 |
| Financial and insurance activities | 390 | 7 | 16 | 6 | 10 | -0 | -11 |
| Real estate | 122 | 16 | 77 | 31 | 13 | -14 | 8 |
| Professional, scientific & technical | 755 | 1 | 91 | 27 | 22 | -11 | -3 |
| Administrative and support service activities | 550 | 2 | 52 | 11 | 15 | -4 | 7 |
| Public administration and defence, compulsory social security | 220 | 11 | -2 | -6 | -5 | -8 | 9 |
| Education | 423 | 6 | 86 | 33 | 18 | -9 | -5 |
| Human health and social work activities | 545 | 3 | 54 | 22 | 14 | -12 | -9 |
| Arts, entertainment and recreation | 201 | 13 | 52 | 15 | 30 | -6 | -16 |
| Other service activities | 150 | 14 | 60 | 15 | 13 | -16 | 20 |
| **ALL INDUSTRIES** | **5,538** | **n/a** | **40** | **13** | **15** | **-11** | **-3** |

Source: ONS: WFJ, APS, ASHE, CPI. GLA Economics: GVA per workforce job modelling.
Cells marked "#" are where published data is not available.

## 6.4 Risks to London's Economy

## 6.4.1 Exogenous risks

### 6.4.1.1 Globalisation and global competition

Globalisation has created vast opportunities for London's businesses to trade with the rest of the world evidenced by the significant growth in exports (see Chapter 1). Not only does globalisation create trading opportunities, it exposes London's businesses to international competition forcing them to be productive and competitive which in turn helps to drive economic growth. As developing countries become wealthier, new trading opportunities will emerge for London's businesses. For example, opportunities may open up to provide financial services to upwardly mobile populations in emerging markets[26]. Figure 6.8 shows the expected size of major global economies in 2050 together with expected average annual GDP growth.

China is expected to be the largest economy in 2050 in purchasing power parity terms (having overtaken the US in 2013/14). There could also be opportunities for London's businesses in emerging economies such as Nigeria, India and Indonesia, which are forecast to experience high rates of annual GDP growth.

**Figure 6.8: Expected size of global economies by 2050 and their expected average annual GDP growth**
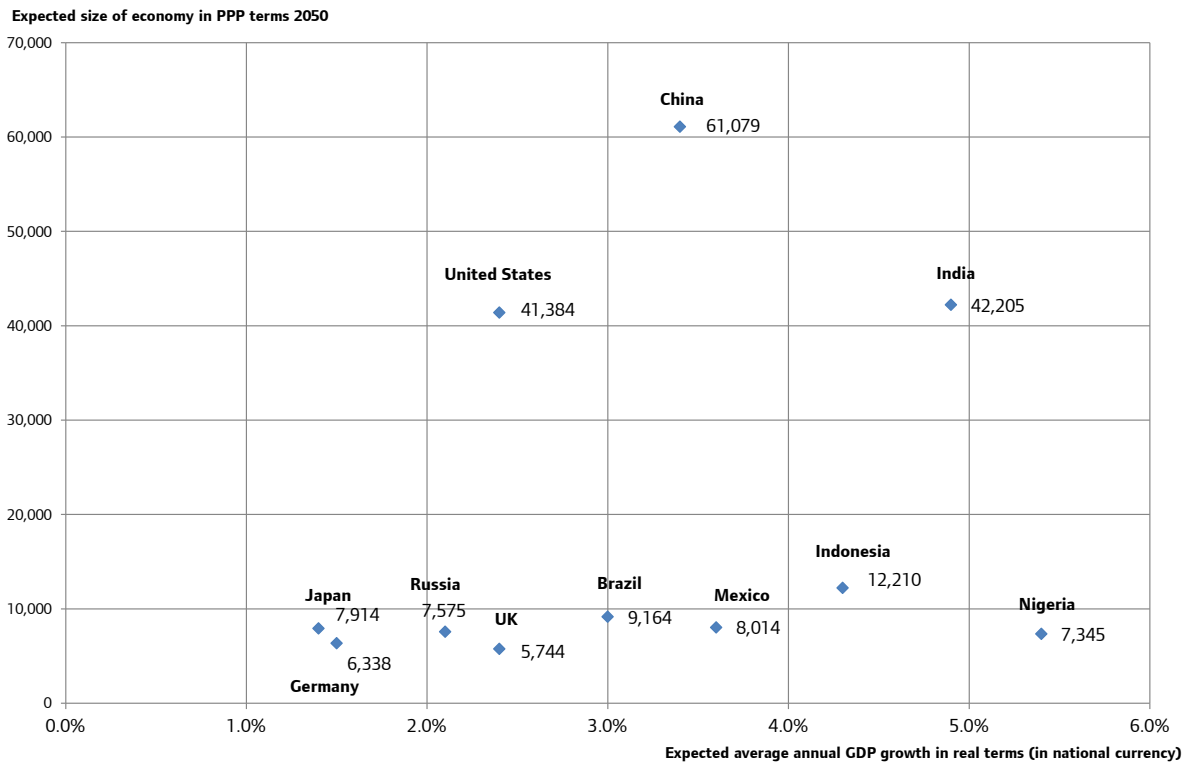


*Source: PWC[27]*

While emerging economies will present new opportunities for London's businesses, developed economies in Europe, Asia and the USA are expected to remain the capital's key trading partners. Figure 6.9 shows that in per capita terms, these economies are expected to remain the largest despite the high rates of GDP growth forecast in developing economies.

**Figure 6.9: Expected size of global economies by 2050 in per capita terms and average annual GDP growth**
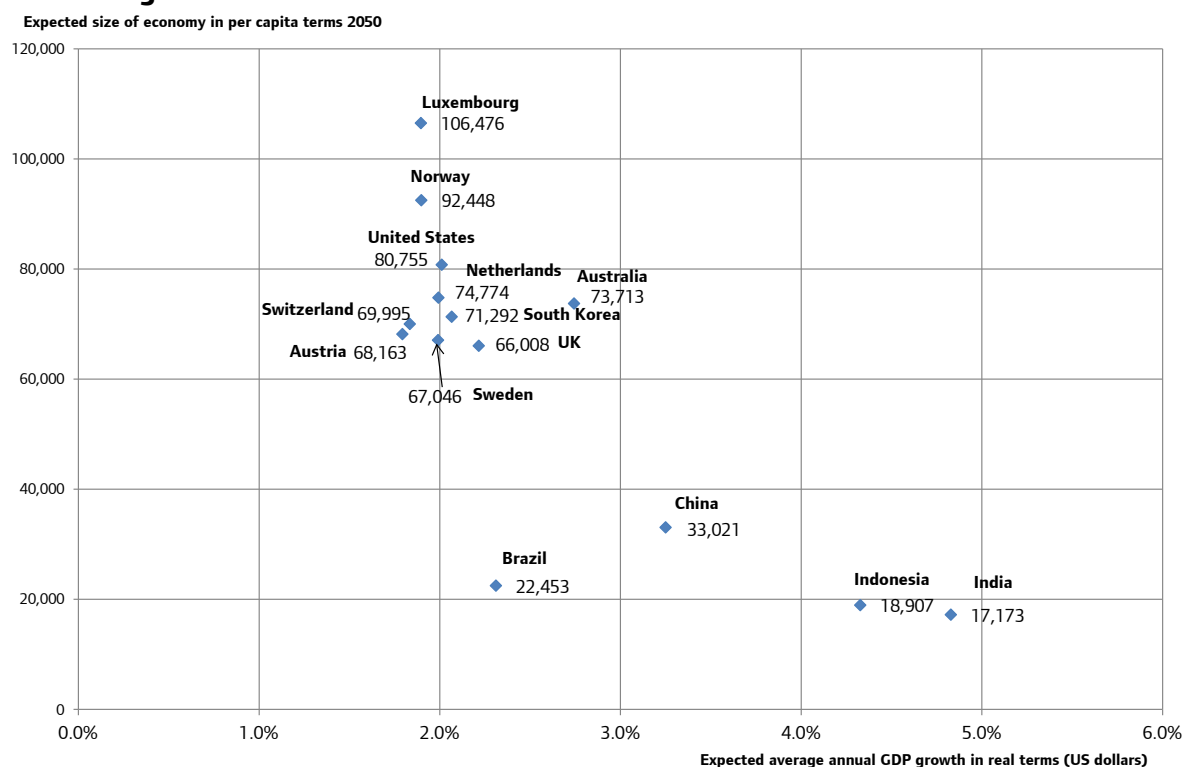


Source: OECD[28]

The downside risk to London's economy is arguably that in markets where London's businesses have enjoyed a comparative advantage, competition will intensify. Firms in emerging economies that have historically competed on cost, specialising in lower skilled activities such as volume manufacturing or low value services, are likely to compete further up the value chain in higher value-added activities[29]. London and New York are typically identified as the dominant global financial services centres[30]. However, cities like Singapore, Hong Kong and Tokyo have similar aspirations. At the same time, rapid economic growth in China over the past three decades has led to Shanghai, Shenzhen and Beijing becoming important financial centres. These centres have moved up the rankings and could compete with London in future years. Following the vote to leave the EU and the uncertainty over the terms of the UK's departure, there is also the threat that London is overtaken by Paris, Frankfurt or another city as the major financial services hub within Europe.

City governments across the globe are aggressively targeting and incentivising businesses to relocate to their area. According to research by Deloitte[31], the Hong Kong and Singapore governments spend significantly more than London does on activities to attract Foreign Direct Investment and on the promotion of tourism. Nevertheless, London is a very attractive proposition for international investors and major flows of foreign capital have helped to fund new investment in London's infrastructure as well as new housing and commercial property. In general, while this investment is to be welcomed it can be more speculative and volatile in nature and any significant withdrawal would represent a downside risk to London's economy.

## 6.4.1.2 The pace of global growth

There is a debate among economists about why growth in advanced economies has continued to stagnate since the financial crisis in 2008. While in the UK, growth rates have improved in recent periods, it is in a policy environment which is far from 'normal' with interest rates at historic lows, quantitative easing (injecting money into the economy) by the Bank of England still in operation, and an expansionary fiscal policy in place[32]. Similar policies are in place across the EU, the USA and in other advanced economies. The World Bank forecasts global growth to remain sluggish at 2.4 per cent

in 2016 rising to 2.8 per cent in 2017 and 3.0 per cent in 2018 identifying a wider range of risks which threaten to derail the recovery[33]. Similarly, the IMF forecasts a relatively slow pickup in global activity, with global growth of 3.4 per cent in 2016 and 3.6 per cent in 2017[34].

Economists have debated whether current low growth rates (principally in developed economies) are a temporary phenomenon or reflective of a more fundamental shift towards lower long-run rates of economic growth. There are three broad pillars to this debate:[35]

● *Diminished long-run growth potential* – this is the argument that the long-run growth potential of the economy has fallen due to a slowdown in the rate of technological progress and innovation relative to previous eras[36]. Other supply side explanations such as the ageing population and fewer gains from education are also put forward to suggest that the gap between actual GDP and potential GDP is in fact narrow and reflects a downward shift in the long-run growth potential of the economy.

● *Persistent GDP gaps* – this is the view that the economy is operating below its long-run potential growth rate due to demand deficiencies, even with interest rates at close to zero (or negative in real terms)[37].

● *One off supply side damage* – the third pillar emphasises one off changes in the *level* of GDP growth and the damage they cause to the economy, for example, by workers becoming unemployed and human capital depreciating off the job[38]. This argument is more relevant to the US economy than the UK where unemployment rates have remained low.

This debate is important because whether or not global growth (and particularly growth in the US) returns to pre-crisis levels will be an important determinant of London's long-run growth trajectory (see also the discussion on the UK's productivity puzzle in Box 6.1).

### 6.4.1.3 Britain's membership of the European Union

On 23rd June 2016, the British people voted to leave the EU by a margin of 51.9 per cent to 48.1 per cent. The outcome of the referendum has already had, and will continue to have, political and economic implications for the United Kingdom and for London. The nature and scale of the impact is unknown and will depend to a large extent on the trade deals that are negotiated with the EU and other non-EU countries. Key aspects of the negotiations with the EU will be around the extent to which the UK is able to access the European Single Market and its four 'freedoms' - the free movement of goods, services, capital and people. The decision to leave the EU could impact on London's economy and its development in a number of ways; the following provides a brief overview of some of the key areas of concern.

London is an open economy with strong trade, investment and labour market links to countries in the EU. The immediate aftermath of the Referendum result saw considerable volatility in financial markets; the value of Sterling fell against the dollar and shares in some banks and property firms fell amid uncertainty about future trading and investment conditions. While this short-term volatility demonstrates the market uncertainty generated by the vote, it is the longer-term impact on the real economy (i.e. jobs, consumption, investment and ultimately GDP) that is of greater importance. That said, an extended period of short-term political and economic uncertainty over Britain's relationship with the EU could impact negatively on the long-term outlook if investments are delayed or cancelled with potential longer-term impacts on growth[39].

**Forecasts of the impact of Brexit on the economy**

Prior to the vote, a number of different organisations attempted to assess the likely impact of a vote for Brexit on the UK economy under different scenarios. Whilst it is difficult to generalise, in broad terms, those organisations finding generally negative effects on the UK economy included: HM Treasury[40]; HM Government (Department for Business, Innovation and Skills) [41]; the Bank of England[42]; the OECD[43]; the International Monetary Fund (IMF)[44]; the London School of Economics Centre for Economic Performance[45]; the Centre for European Reform[46], the Confederation of British Industry (analysis by PWC)[47]; Oxford Economics[48]; and the National Institute of Economic and Social Research[49]. Organisations which suggested there may be benefits to the UK in certain scenarios included: The Institute of Economic Affairs[50] ; Open Europe[51]; and Economists for Brexit'[52]. Within this literature there is significant debate over the magnitude of the short-term economic impact from the uncertainty created by leaving the EU, and the longer-term impacts that may or may not arise from changes in trade, foreign direct investment and migration patterns.

One of the main factors explaining the difference between those forecasts which present a negative outlook for the UK economy and those which show a positive outlook is the assumption made about the future productivity of the economy. This assumption is often linked to the forecasters' views on the potential for the UK to derive trade deals with other countries which are preferential (either in timing or content) to those that would be negotiated by the EU. That is, the more optimistic forecasts tend to place more weight on the potential positive impact of the UK deriving preferential trade deals with other countries.  As all these forecasts make clear, the exact impact will depend on the precise nature of the deals negotiated with the EU and other nations.

Looking at the future trading relationship between the UK and the EU there are a number of potential scenarios which include:

- *Membership of the European Economic* Area (EEA) (like Norway) - leaving the EU and joining the EEA would maintain considerable access to the Single Market but most likely with customs borders reintroduced and the obligation to accept free movement of people, EU regulations and to make financial contributions.

- *A bilateral free trade agreement* (like Switzerland, Turkey or Canada) – this would depend on the agreement but most likely provide less access to the Single Market than the EEA with greater access afforded the more willingness there is to accept EU regulation, free movement of people and to make financial contributions.

- *World Trade Organisation (WTO) rules* – the default option with no free movement or financial contribution, no obligation to apply EU laws although traded goods would still have to meet EU standards. The average tariff rate World Trade Organization (WTO) members apply to imports of countries with which there is no preferential agreement is 9 per cent (although it should be noted there is no obligation to impose this tariff level)[53].

Whatever the scenario, the terms of negotiation are unlikely to be straightforward and the eventual relationship with the EU is uncertain. In a joint statement following the referendum the 27 member states said: "Any agreement…will have to be based on a balance of rights and obligations. Access to the Single Market requires acceptance of all four freedoms."[54] Until the negotiations are complete, which may take several years, the ramifications for firms in different markets will be unknown.

Broadly speaking these three alternative scenarios were considered for the UK's future relationship with the EU in analysis by HM Treasury[55]: i) membership of the European Economic Area (EEA); ii) a negotiated bilateral agreement such as that between the EU and Switzerland, Turkey or Canada; and iii) World Trade Organization (WTO) membership without any specific agreement with the EU. In all three scenarios, the Treasury estimated that productivity and GDP per person would be lower and that the costs would substantially outweigh the benefits of leaving. According to the Treasury analysis the annual loss of GDP per household under the three alternatives after 15 years would range between £2,600 in the case of EEA membership; £4,300 in the case of a negotiated bilateral agreement; and £5,200 in the case of WTO membership. This relates to GDP being lower than a position of remaining in the EU in 15 years time by:

- 3.8 per cent or growing 0.25 per cent per annum slower over the next 15 years in the case of EEA membership.
- 6.2 per cent or growing 0.41 per cent per annum slower over the next 15 years in the case of a negotiated bilateral agreement.
- 7.2 per cent or growing 0.48 per cent per annum slower over the next 15 years in the case of WTO membership[56].

An assessment of the impact on the London economy of a vote to leave was undertaken in 2014 by Volterra for the Mayor of London[57]. This suggested the outcome of leaving the EU for London might be little different from staying in if the right deal could be struck with the EU. The report considered four different scenarios for London's economy that could arise from a changing relationship with the EU: 1) Business as usual – the UK remains within an unreformed EU; 2) 'A brave new world' – the UK stays in the EU but there are substantial reforms; 3) 'One regime, two systems' – the UK withdraws but does so with goodwill on both sides and pursues a pro-growth reform agenda; and 4) 'Inward looking' – the UK leaves the EU and suffers and the relationship with Europe deteriorates. It found that remaining in the EU but with substantial reforms (scenario 2), or an amicable well-planned departure (scenario 3), generated more favourable economic growth outcomes, both of a similar order of magnitude. Some of the sector-specific risks and opportunities were considered in the Appendix to the report[58].

In terms of business sentiment, when firms in London were asked in 2014 about the likely impact on their business of leaving the EU (but not the Single Market), 64 per cent of business units expected the impact to be neither negative nor positive. However, of those that did expect an impact, around three quarters thought it would have a negative or very negative impact.[59]

**Free movement of goods and services**
Free trade is generally considered by most economists to be beneficial for long-run economic growth[60]. Countries find it easier to trade with nations that are close by and any barriers to that trade such as tariffs or quotas are likely to reduce volumes of trade. Openness to trade creates a larger market for firms to access, helps to increase competition and creates incentives for firms to innovate and adopt new technologies - there is good empirical evidence that more trade leads to higher productivity growth[61].

According to ONS data, London's exports (both goods and services) were worth approximately £120 billion[62] in 2014 (see Chapter 1) and analysis from the London Business Survey suggests London ran a significant trade surplus in the year to mid-2014[63]. As discussed in Chapter 1, services exports are particularly important to London in terms of their contribution to economic output and to the UK's balance of payments position[64]. London accounts for a far larger share of service exports than any other region, comprising 43 per cent of the UK total service exports (both EU and non-EU)[65]. If Sterling remains low following the Brexit vote, other things being equal, it should make London's goods and services exports (and its tourism offer) cheaper and raise demand but this could be offset to some extent if there is diminished access to markets in the EU.

In relation to the Single Market, academic studies have found its creation has led to a significant increase in the number of foreign firms in the UK and that the competition induced by this has had a significant positive impact on productivity[66]. The European Single Market removes tariffs and quotas between nations in the European Union and creates a customs union which reduces cross-border administrative costs. This is important for firms in London who account for a significant proportion of UK trade (see Chapter 1). Analysis from the London Business Survey (2014)[67] estimates around 115,000 business units in London exported to the rest of Europe in the 12 months to mid-2014, equivalent to 26 per cent of all London's business units. Around 85,000 (or 19 per cent) of London's business units imported from the rest of Europe.

The European Single Market aims to remove non-tariff barriers within the European Union in various ways, including: common regulatory standards (e.g. safety standards), tackling distortions to competition such as monopolies, and ensuring non-discriminatory access to markets. In other words it attempts to create a 'level playing field' for businesses to operate. Advocates of 'remain' generally considered these to have reduced transaction costs whereas advocates for 'leave' see some of the regulatory aspects as potentially burdensome to business.

Many of the large financial institutions have expressed concerns at the potential loss of the 'passporting' arrangements which enable financial services firms operating in one member state to operate in another without further authorisation[68]. Whilst the future of 'passporting' arrangements is uncertain, one potential alleviating factor is whether the incoming Markets in Financial Instruments Regulation (Mifir) could mean many of the rights accorded to EU 'passporting' organisations under the current regime will be extended to non-EU countries. However, this new regulation does not cover all markets (e.g. insurance) and the UK would need to meet the eligibility criteria[69]. This is just one of the issues facing businesses in London from the decision to leave the EU[70].

By virtue of being a customs union, the European Union imposes a common tariff on imports from the rest of the world. It could be argued that if leaving the EU led to a reduction in this tariff then it may increase trade with the rest of the world – potentially offsetting, to some extent at least, the negative impacts on trade with the EU.

**Foreign direct investment**

Various academic studies have found EU membership to have had a positive impact on Foreign Direct Investment (FDI) to the UK[71]. London has been one of the main beneficiaries, attracting the most Foreign Direct Investment of any city in Europe. In the five financial years to 2014/15, London was the destination for more than double the number of inward investment projects compared to any other European city[72]. Between 2010/11 and 2014/15, over 35 per cent of all inward investments to London originated from Europe, and over a quarter of FDI projects which originated from London went to the European Union[73]. The UK and London have historically been attractive to investors because of the stable economic environment, good prospects for returns, and the access provided to wider EU markets.

The impact of Brexit on FDI is unknown and will vary depending on the type of investment and the investor's position. The picture will become clearer with time but most forecasters prior to Brexit assumed a decline in foreign direct investment. For example, a London School of Economics (LSE) Centre for Economic Performance (CEP) study predicted that, controlling for other factors, FDI would be about 22 per cent lower if the UK left the EU[74]. This is consistent with the centre of the range of the HM Treasury estimates[75].

**Labour market mobility**

The success of London's economy draws in people from across the world for employment. London has a higher proportion of workers born in EU countries than the rest of the UK. Businesses have sought assurance on the status of current EU staff in London and UK staff in the EU. Moving forward, there is a concern that stricter immigration controls limiting the free movement of labour from the EU, which seem likely given the Referendum outcome, may restrict the supply of labour to the London economy. These issues are discussed later in this chapter.

**EU funding for projects and programmes**

London benefits from a number of different European funding streams for a variety of projects and programmes. For example, the London Enterprise Panel was allocated €745 million for the delivery of the European Structural and Investment Funds (ESIF) 2014-2020 which includes the European Social Fund (ESF) and the European Regional Development Fund (ERDF). The potential loss of these funds puts projects and programmes at risk unless alternative funding sources can be found. One such source could be the savings from UK contributions to the EU budget. The UK's gross contributions to the EU in 2014 were £19.1 billion but after the rebate and contributions to the public sector, the net contribution was £9.9 billion[76]. When payments to non-public sector bodies (e.g. research payments to universities) are accounted for, the five year average net contribution to the EU from the UK was £7.1 billion[77].

## 6.4.1.4 The Eurozone crisis

The sovereign debt problems of a number of countries within the Eurozone, notably Greece, remain a downside risk to the economy. The level of risk has reduced compared to the start of 2015 following a series of bailout agreements with the Greek Government. However, there remain doubts over Greece's ability to pay back its debts in the long term and commentators have expressed concern that fundamental structural problems in Greece and the wider Eurozone still remain. In May 2016, the IMF sought reassurances that there was a "clear, detailed Greek debt restructuring plan" before it could approve a further bailout[78].

If Greece were to default on its debt obligations, there is a risk that it could be forced to leave the single currency, a situation narrowly avoided in July 2015. While Greece itself is a relatively small economy in the context of the Eurozone, the concern is that the disruption to financial markets could have contagious effects for other larger economies which would be harder to contain[79]. Of note, the IMF has expressed concern about the fragile state of Italian banks and the Italian economy (the third largest in the Eurozone) which it said was "recovering gradually from a deep and protracted recession" that is likely to be "prolonged and subject to risks"[80]. Unemployment in Italy was 11.6 per cent in April 2016 and youth unemployment was 36.9 per cent[81].

The policy options to stimulate the economy are limited as Italy's debt to GDP ratio is the second highest in the Eurozone (after Greece) and interest rates are already close to their lower bound. The IMF expressed particular concern about the quality of assets held by Italian banks and both the Italian government and the European Commission have taken steps to address this issue[82]. Given the size of Italy's economy any bank rescue package, if required, would need to be on a much larger scale than seen so far in the Eurozone. If the Eurozone were to tip into recession for whatever reason then this would have negative implications for the UK and London in terms of trade and possibly also the financial system.

## 6.4.1.5 Slowdown in China and other emerging markets

For much of 2015 and into 2016, commentators have been predicting a slowdown in emerging markets[83]. Of particular concern, given the size of its economy, is China. Large falls in the Chinese stock market, declining exports and weaker than expected factory output led Chinese authorities to reduce interest rates and devalue the currency in 2015. The slowdown has had knock-on impacts for the economies of those countries that are dependent on exports to China, such as Australia. If this feeds through to slower growth in the global economy then the UK and London would not be immune. The direct impacts on the UK and London may be more muted but any financial market contagion or withdrawal of Chinese investment from key infrastructure projects could potentially dampen economic growth[84]. Conversely, if the slowdown is less severe than predicted and if growth in other countries remains steady or improves, this may act to improve global growth forecasts, feeding through to the UK and London.

## 6.4.1.6 Interest rate rises

Interest rates in the UK remain at historically low levels; the Bank of England kept the base rate constant at 0.5 per cent from March 2009 to August 2016 and then reduced it to 0.25 per cent in response to the EU referendum result. At some point in the future this extremely accommodative monetary policy in the UK, EU and the USA will end, although based on current sentiment this may not be for some time. In December 2015 the Federal Reserve decided to raise the target range for the federal funds rate to 0.25 to 0.5 percent. Forecasters have continually pushed back their expectations about when the Bank of England will tighten monetary policy principally because inflation has remained low and latterly because of the anticipated economic shock of Brexit.

The risks of restoring monetary policy to more historically 'normal' levels arise from moving either too early or too late. Moving too early could risk undermining economic growth by pushing up the costs of borrowing, particularly as household debt remains high by historic standards. Conversely, normalising monetary policy too late and too gradually could also be a risk if ultra-loose monetary policy leads to a misallocation of resources such as allowing asset bubbles to develop.

## 6.4.1.7 Fiscal policy

The current government was elected with a mandate to reduce the budget deficit and set a target to eventually run a budget surplus by 2020. Following Britain's decision to leave the EU the target to run a surplus was dropped, however, the mandate to close the deficit in the longer term remains. Whilst the Government continues to run a budget deficit, the net impact on the economy will be expansionary.

Figure 6.10 shows how government spending as a percentage of GDP has fallen since its peak after the recession in 2009/10 of 45.7 per cent to 40.2 per cent in 2014/15 and on the basis of the Office for Budget Responsibility's (OBR) March 2016 'Economic and Fiscal Outlook' was forecast to fall to 36.9 per cent by 2020/21 – close to its lowest level since the Second World War[85].

**Figure 6.10: Total managed expenditure and public receipts as a per cent of GDP over time**
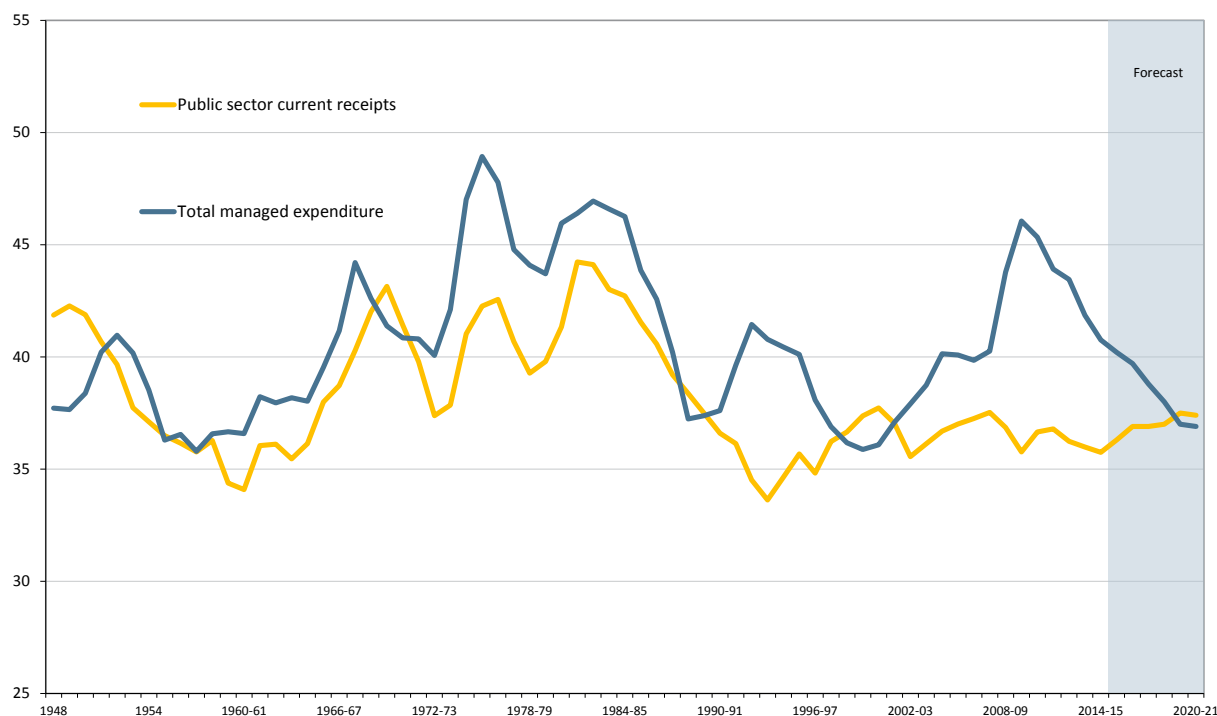


*Source: OBR*

If, in the longer term, the government sought to bring down public spending and run a surplus, it could threaten much needed investment in London's infrastructure and undermine economic performance depending on where the spending cuts fall.

Successive London Mayors have put forward the case for greater fiscal devolution in London. In 2013, the London Finance Commission[86] argued that London should gain control of the full suite of property taxes (including council tax, business rates, stamp duty land tax and capital gains tax) to help fund necessary infrastructure.  Control over these taxes could give London greater borrowing powers and most importantly, greater autonomy over future investment decisions. Fiscal devolution could also potentially enable London to implement reforms to the current system of property taxation to make better use of land across the capital.

## 6.4.1.8 Geopolitical events and terrorism

Ongoing conflict and political uncertainties in parts of the world may have a negative impact on the global economy, which could feed through to the UK and London. Some of the main concerns at the time of writing include Russia's military intervention in the Ukraine, conflict in Syria and the attempted coup in Turkey. It is difficult to predict how and when these situations will be resolved and whether or not a worsening of them would impact on global economic growth and in turn, growth in the UK and London.

The attacks on Paris in 2015 and Nice in 2016 served as a reminder that major European cities like London are targets for terrorist activity. Terrorism is a risk to the safety and security of citizens and this in turn impacts on city economies. It imposes economic costs including: direct costs to human life, damage to property and disruption in the aftermath of the attacks; and indirect costs from changes in behaviour such as discouraged investors, visitors or workers[87]. There are also budgetary costs to government from increased security and anti-terrorism activities. While the short-medium term costs can be substantial, cities such as New York, Madrid, Paris and London have shown their resilience over the long term and an innate ability to bounce back from such attacks.

### 6.4.1.9 Cyber crime

The rise of the digital economy brings new risks to individuals, businesses, and national security from cyber crime. According to the Government's FTSE 350 Cyber Governance Heath Check Report 2015[88], 50 per cent of businesses in the FTSE 350 thought cyber crime was in the top group of risks facing their business, up from 30 per cent in the 2014 survey. The Government's Cyber Security Breaches Survey 2016 found that 65 per cent of firms had suffered a cyber security breach or attack in the last year[89].

Individuals and small and medium-sized enterprises (SMEs) are at particular risk due to a lack of awareness of the severity of the threat. According to research by PWC, 74 per cent of SMEs in the UK reported being attacked by an unauthorised outsider in 2014/15, and 16 per cent had their network attacked, losing both sensitive data and the ability to trade[90]. The number of security breaches continues to rise and the average cost of an attack is between £1.46m – £3.14m for a large company and £75,000 – £311,000 for a small business.

### 6.4.1.10 Regulation of financial markets

London is a global hub for financial services which are exported around the world but regulation of the sector has tightened significantly since 2008 in response to the financial crisis. Well-planned and effective regulation is needed to enable London's financial sector to grow at a sustainable rate whilst remaining internationally competitive. However, if financial regulation became too onerous or excessive, this could damage the competitiveness of what is a critical sector to London's economy. The City of London Corporation has observed that the concentration of financial services activities in London means that regulation of the sector has a disproportionate impact on London's economy[91].

The Bank Levy was raised to 0.21 per cent in April 2015 and while the Government announced in the Summer Budget 2015 that the Levy would be reduced from 2016 onwards to 0.1 per cent by 2021, they also announced the introduction of a supplementary tax of 8 per cent on banking sector profits from January 2016[92]. Alongside this, the Prudential Regulatory Authority (PRA) is implementing 'ring fencing' to separate the investment and retail sides of banking groups as well as imposing more stringent capital requirements to improve their resilience to shocks.[93]

### 6.4.1.11 Climate change

The Stern Review estimated that without intervention, the overall costs and risks of climate change will be equivalent to losing at least 5 per cent of global GDP each year[94]. If a wider range of risks and impacts are taken into account, the estimates of damage could rise to 20 per cent of GDP or more. Every five years the UK Government produces a climate change risk assessment with the next due in 2017. The last assessment identified flood risk and particularly heavy downpours as the key climate threats for the UK, alongside stresses on water resources, threats to biodiversity and natural habitats, and the impact on the UK from extreme weather events abroad[95]. See Chapter 7 for more on the environmental risks in London.

### 6.4.1.12 The growth in robotics and the automation of work

Rapid advances in technology, including ever more powerful silicon chips, digital sensors and high bandwidth communications are leading to more sophisticated robots and technologies capable of automating more of the tasks currently performed by humans[96]. Economists writing on the subject have emphasised the concept of 'skill-biased technical change', the notion that technological change is biased in favour of skilled workers over unskilled workers and that this can explain rising wage inequality[97] (see Chapter 9 for more on changes in the structure of London's labour market and Chapter 10 for more on income inequality).

An MIT paper by Autor, Levy and Mundane in 2003[98] argued that in fact technology was more likely to destroy middling jobs than high–end or low–end ones. Their hypothesis is that low end jobs that are non-routine (i.e. because they require personal interaction, hand eye coordination or more complex reasoning skills) are harder for machines to automate. The implication being that if machines do the routine middling jobs, there will be greater inequality among the jobs that remain. An LSE paper by Goose and Manning finds evidence to support this process of job polarisation in the UK labour market over the period 1975-1999[99].

Other commentators have suggested that high-end 'knowledge' jobs (for example, some surgical procedures) may also be at risk as software becomes ever more advanced[100]. Reviewing the evidence, a Bank of England study suggested that across the spectrum of occupations as many as a third of occupations could be at risk of automation with administration, clerical and production tasks considered most under threat[101]. While these studies indicate that technology will almost certainly change the nature of the labour market in London and have short- to medium- term dynamic effects, there is little evidence to date to suggest technology will lead to lower employment. In the long run, the historical evidence suggests productivity savings from automation have not created mass unemployment but have enabled resources to be re-deployed elsewhere in the economy creating demand and in turn jobs.

## 6.4.2 Endogenous Risks

The following section considers some of the more localised 'endogenous' risks to London's growth, which are largely a product of London's success and the increasing demands on its resources. Risk factors considered include:

- **The supply and affordability of workspace** - including the office and industrial sectors and also affordable workspace.
- **Labour supply** - including skills shortages, controls on migration and the cost of living.
- **Infrastructure** - including congestion on the transport network, the capacity of the water, drainage and energy networks and superfast broadband 'not spots'.

### *6.4.2.1 The supply and affordability of workspace*

It is vital that London has a ready supply of sites and premises to accommodate business growth. A pipeline of different types of commercial floorspace, including offices, shops, industrial and warehousing premises (among others), is needed to keep rents at competitive levels. In the London Business Survey, 32 per cent of business units identified the availability of commercial premises as having a negative or very negative impact on their business[102].

**Office space**

The employment projections discussed above indicate that the service sector will be the main driver of growth in London over the coming years and this will create significant demand for office space. Some of this growth can be accommodated by occupiers making more efficient use of space (see below) but a considerable quantum of new office space will be required. The current London Plan estimates demand for an additional 3.9 million square metres (net) of office floorspace to 2031[103] but the requirement could be as high as 7.5 million square metres depending on the underlying assumptions used regarding the scale of employment growth and occupation densities[104]. Much of the growth is being driven by the professional, scientific and technology sectors.

New office hubs are emerging in London including King's Cross, South Bank and Stratford and there is some evidence of renewed interest in Croydon[105]. Old Oak presents a long-term office development opportunity capitalising on the Crossrail/HS2 interchange. However, according to the most recent London Employment Sites Database (LESD)[106], the longer-term employment projections by GLA Economics now exceed the currently identified employment capacity. In previous iterations of the LESD, capacity has always exceeded the projections. The reverse is thought to be

due to a combination of the employment projections being revised upwards following strong recent employment growth and the supply of employment space in London coming under increasing pressure from higher value residential development.

According to the LESD, there is "no immediate problem that suggests growth will be constrained in the short-medium term through lack of capacity, but this is something that policy makers may need to address for the longer term"[107]. New sites are expected to emerge over the London Plan period in response to demand which will address any potential shortfall but equally some of the longer-term sites and aspirations identified in the current LESD capacity assessment may not come forward. The following considers some of the factors impacting on London's office space requirements and the current position of the office sector relative to world cities.

**Office employment densities**
The office space requirement may be lower if new office floorspace can be occupied at higher densities and the existing stock is used more efficiently. Occupiers have sought to make cost savings by reducing their office footprint, reconfiguring their offices and implementing flexible working practices such as hot-desking and remote working. The overall trend is for offices to be occupied at higher densities and so floorspace per worker is falling[108]. Countering this trend is that modern businesses often require 'break out' and communal space which is seen to be beneficial for the exchange of ideas. There is some evidence that the decline in floorspace per worker may be levelling off, which is understandable given the physical limitations of buildings[109].

According to a survey by the British Council of Offices (one of the few sources of data on this matter) the mean floorspace per worker in the UK is 10.9 square metres. The London ratio was found to be slightly higher at 11.3 square metres per worker. However, the sample includes older properties as well as new and for the purposes of predicting future floorspace requirements in London, consultants PBA recommended using the higher density figure of 10.9 square metres per worker in the London Office Policy Review Update. When a benchmark ratio of 1.2 workers per desk is applied, an overall ratio of 9.0 square metres per worker (Net Internal Area) is derived. This converts to a Gross Internal Area (GIA) figure of 11.3 square metres per worker, the figure adopted in the 2014 London Office Floorspace Projections and the 2016 London Employments Sites Database. This is an average density ratio with densities generally lower in older stock and higher in modern stock which is configured for current occupier requirements.

Table 6.2 shows how a range of different employment density assumptions impact on floorspace requirements. If new stock were occupied at 9 square metres per worker with an 8 per cent vacancy rate then this would require 5.6 million square metres. The requirement falls further if it is assumed that both new and existing stock can be occupied more efficiently. The London Office Policy Review (LOPR) Update modelled the effects of existing stock being occupied at a minimum of 15 square metres per worker and found the requirement could fall to 3.4 million square metres. The figures quoted will be revisited as part of the LOPR 2016 to take account of the most recent employment projections and other factors affecting the office sector.

**Table 6.2: Office floorspace projections with higher stock efficiency**

| | 12 sq.m per worker new stock | 10.8 sq.m per worker new stock | 9 sq.m per worker new stock | 12 sq.m per worker new stock + 15 sq.m per worker existing stock | 9 sq.m per worker new stock + 15 sq.m per worker existing stock |
|---|---|---|---|---|---|
| Office floorspace requirement 2011–2036 | 7.5 million sq.m | 6.7 million sq.m | 5.6 million sq.m | 5.2 million sq.m | 3.4 million sq.m |

Source: PBA (2014).

Note: Assumes 8% vacancy rate.

**Office rents**

London has a large and mature office market with the majority of stock focused in the Central Activities Zone (CAZ) and the North Isle of Dogs (NIOD). The West End with its unique character and prestige remains the hub for head offices of financial and business services companies and this is evident in its high rental values.

Office rental values are significantly higher in central London than the rest of the UK and in the most popular locations they are among the highest in the world. Chapter 4 shows rents and total occupancy costs (which includes business rates, service charges and other fees in addition to rent) in different office markets in London. Looking at how London compares internationally, Table 6.3 shows that the West End is the most expensive office location in the world in terms of total occupancy costs.

**Table 6.3: Top 10 most expensive locations by country, 2015**

| Rank | Country | City | Location | Occupany costs £/sq.m/yr |
|---|---|---|---|---|
| 1 | United Kingdom | London | West End | 2211 |
| 2 | Hong Kong | Hong Kong | CBD | 2185 |
| 3 | China | Beijing | Finance Street | 1549 |
| 4 | China | Beijing | CBD | 1484 |
| 5 | Hong Kong | Hong Kong | West Kowloon | 1314 |
| 6 | India | New Delhi | Connaught Place | 1227 |
| 7 | Japan | Tokyo | Marunouchi Otemachi | 1209 |
| 8 | United Kingdom | London | Central (City) | 1206 |
| 9 | China | Shanghai | Pudong | 1094 |
| 10 | United States | New York | Midtown Manhattan | 1030 |

Source: CBRE[110]

Looking at average rents per annum in prime locations across different global cities, Figure 6.11 shows London is the fourth most expensive city to rent office space behind Hong Kong, Tokyo and New York.

## Figure 6.11: Prime office rents in global cities (£ per sq.m /year)
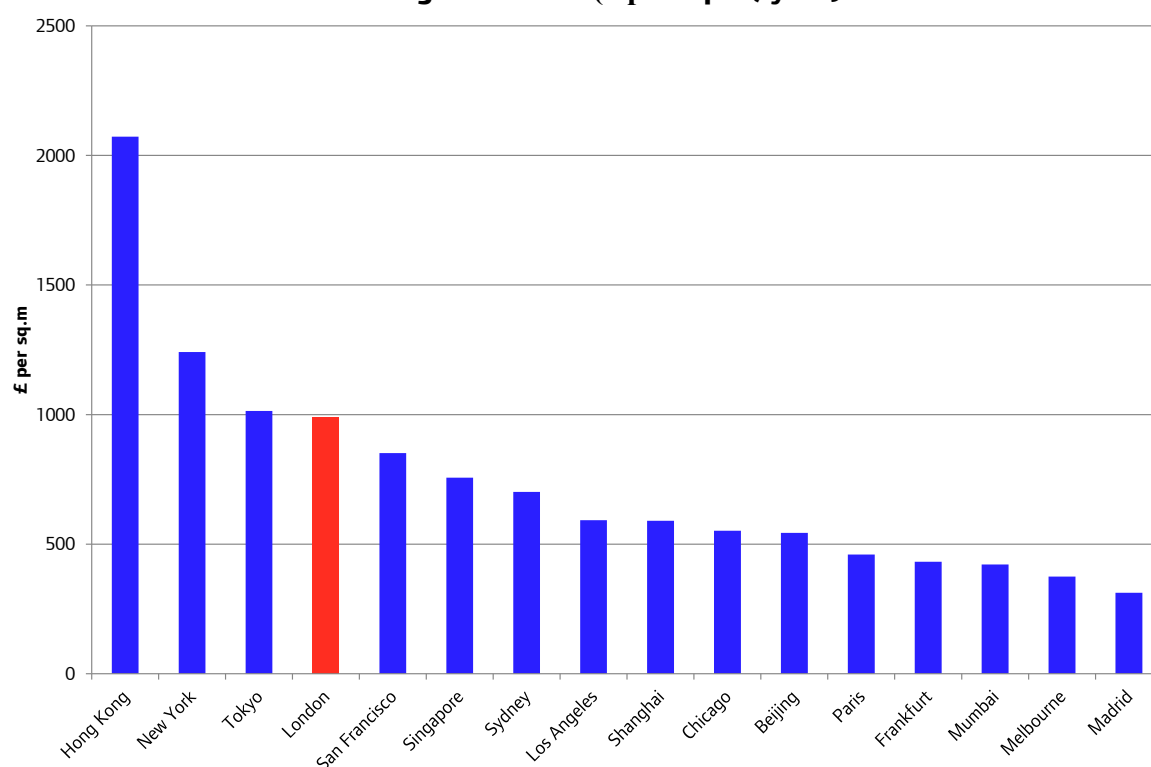
### Office vacancy rates

As the economic recovery has gathered pace, office vacancy rates in London have fallen and are now low by historical standards. Table 6.4 shows data on historic and forecast office vacancy rates for various global cities.

### Table 6.4: Office Vacancy Rate, historic and forecast 2006 - 2019 (per cent of total built stock, ranked on 2013)

|  | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shanghai | 8.2 | 5.5 | 13.5 | 16.7 | 12.0 | 6.6 | 5.1 | 4.3 | 5.9 | 6.4 | 5.9 | 5.6 | 5.4 | 5.1 |
| Hong Kong | 7.7 | 8.9 | 8.4 | 10.3 | 8.0 | 6.5 | 6.0 | 4.9 | 5.2 | 5.3 | 5.0 | 4.8 | 4.6 | 4.5 |
| San Francisco | 9.3 | 8.1 | 11.6 | 14.8 | 14.3 | 9.3 | 7.4 | 6.0 | 5.9 | 5.8 | 5.7 | 5.5 | 5.5 | 5.7 |
| Tokyo | 2.7 | 2.0 | 3.6 | 7.2 | 8.0 | 7.8 | 8.4 | 6.8 | 5.8 | 5.0 | 4.2 | 4.0 | 4.0 | 3.9 |
| London | 6.5 | 6.2 | 8.2 | 10.2 | 8.1 | 7.3 | 7.2 | 7.0 | 6.1 | 5.4 | 5.3 | 4.6 | 4.6 | 4.4 |
| Paris | 4.9 | 4.3 | 4.9 | 7.3 | 7.0 | 6.9 | 7.0 | 8.1 | 8.1 | 7.0 | 6.1 | 6.1 | 5.9 | 5.9 |
| New York | 5.9 | 5.0 | 6.7 | 8.3 | 8.6 | 7.8 | 7.9 | 8.9 | 8.4 | 8.0 | 7.8 | 7.7 | 7.5 | 7.4 |
| Sydney | 7.9 | 3.7 | 5.4 | 8.2 | 8.3 | 9.7 | 7.2 | 9.0 | 8.8 | 10.1 | 12.3 | 11.9 | 11.5 | 11.1 |
| Singapore | 10.3 | 7.3 | 8.8 | 12.1 | 12.1 | 11.3 | 9.4 | 9.9 | 10.3 | 9.8 | 9.3 | 8.8 | 8.4 | 7.7 |
| Madrid | 11.2 | 7.0 | 8.7 | 10.3 | 10.5 | 11.0 | 11.3 | 11.4 | 11.3 | 10.9 | 10.6 | 9.7 | 8.5 | 8.4 |
| Frankfurt | 16.7 | 14.2 | 13.7 | 14.3 | 14.4 | 13.5 | 12.1 | 11.4 | 11.4 | 10.8 | 11.3 | 10.7 | 10.3 | 10.0 |
| Houston | 15.0 | 11.9 | 14.1 | 16.5 | 16.3 | 16.1 | 14.4 | 14.2 | 14.0 | 13.9 | 14.2 | 14.4 | 14.3 | 14.1 |
| Mexico City | 11.1 | 6.8 | 6.1 | 7.7 | 11.3 | 11.4 | 10.4 | 14.6 | 14.3 | 18.5 | 19.0 | 15.0 | 12.0 | 12.0 |
| Washington | 10.5 | 10.0 | 11.9 | 14.1 | 13.7 | 14.3 | 14.6 | 15.4 | 15.8 | 15.7 | 15.4 | 15.1 | 14.9 | 14.8 |
| Mumbai | 4.9 | 2.9 | 4.3 | 12.2 | 14.0 | 19.3 | 23.2 | 23.0 | 23.0 | 18.7 | 16.1 | 15.1 | 14.1 | 13.5 |

These figures suggest that London's vacancy rate in 2015 (5.4 per cent) was relatively low by international standards and relative to the previous ten years. Moreover, vacancy rates are forecast to fall to the second lowest of these major cities by 2019. It is important that office supply in the capital responds to falling vacancy rates otherwise rents could become prohibitively high and businesses may look to other international cities.

## Office supply

Following the 2008 recession, speculative activity in the office market slowed significantly and this has contributed to a relative shortage of supply and historically low vacancy rates. Supply in the office sector tends to lag the economic cycle and as the economic recovery has gathered momentum, supply has started to respond. The level of speculative activity is up on previous years with 800,000 square metres (8.6 million square feet) of floorspace under construction in central London as of Q4 2015[113].

The longer-term question is the extent to which London's office supply can respond to the growing demand such that rents do not become excessive and erode the competitiveness of businesses. Inevitably some businesses will be priced out of central London markets where rents are highest and this is likely to increase demand in fringe locations (see Chapter 2 for trends in firm births and migration).

## Permitted Development Rights

One important factor affecting London's office floorspace requirements is the impact of Permitted Development Rights legislation (PDR) legislation, which allows conversion of business premises for residential use without the need for the normal planning procedures, instead requiring a 'lighter touch' prior approval. PDR was introduced in May 2013 by the coalition Government with the intention of easing the process for bringing underused commercial space back into productive use for housing, in some cases addressing blight caused by vacant office space in town centres. Initially introduced for a fixed period to May 2016, in October 2015, the Government announced that the legislation would be made permanent.

The CAZ, the NIOD, Tech City and the Royal Docks Enterprise Zone have been exempt from the legislation but this exemption will end in May 2019, after which time the relevant authorities will need to have an Article 4 direction in place if they wish to remove the Permitted Development Rights. Article 4 directions are detailed policies to protect certain areas from change of use but the Government has indicated they should not cover the entire borough. This means there remains a risk that some viable and strategically significant office space could be lost.

The theory underpinning the policy is that in the absence of planning controls, there should be an incentive for owners to convert land and property from lower value to higher value uses. In this regard, the hypothesis is that planning restrictions on land use act as an impediment to the market's ability to allocate resources efficiently. The counter argument is that market failures are endemic in land markets, price signals may be distorted and so relaxing planning controls in this way leads to resources being misallocated. One such market failure is the positive externalities from the agglomeration of firms in London, which are not priced into the office rents that firms are willing to pay. These agglomeration benefits are a critical part of London's economic success and the potential loss of office space could undermine them (see Chapter 2 for more on the importance of agglomeration).

The concern in some parts of London is that otherwise viable office space is being lost due to an overheated housing market. In these cases, the retention of office premises and the associated employment floorspace is viewed as important for the long-term health of local economies, particularly where they offer affordable space for start-ups, SMEs and third sector organisations. There are other concerns with PDR in terms of equity; in the absence of the normal planning procedures, councils are unable to secure affordable housing units, Section 106 contributions and there are reports in some boroughs that the dwellings created through PDR can be poor quality[114].

Chapter 4 presents data on the number of conversions showing that as of March 2015, a total of 1.1 million square metres had prior approval for conversion under PDR, of which 310,000 square metres was under construction or completed. If all space were implemented it would add 18,000 dwellings. Due to the 'light touch' nature of the planning requirements, comprehensive data on the details of the conversions being brought forward is unavailable. The only indicator of the likely viability is the occupancy levels of the existing buildings at the time the prior approval was sought. However, this is only one component of the viability equation and moreover, the landlord may have emptied the property in advance of the application. With these caveats, the occupancy status of 804 schemes was known as of March 2015: 307 were occupied (38 per cent); 144 were part occupied (18 per cent); and 353 were wholly vacant (44 per cent)

The extent to which Permitted Development Rights are a risk to London's economy from a strategic perspective is a matter of debate. On the one hand, if the policy is helping to bring underused office space into more productive use for housing and the necessary office space can be re-provided elsewhere in more desirable locations it may have a positive effect. If, on the other hand, viable office space – particularly in areas that benefit from agglomeration economies - is being permanently lost on a scale that potentially threatens long-term office supply and leads to higher rents, then it is a cause for concern. The GLA continues to monitor the impact of Permitted Development Rights and new data on prior approvals for the year 2015/16 will be published in due course.

## Affordable workspace for start-ups and SMEs

London has a high rate of business start-ups and also a high rate of business failures (see Chapter 5). This churn of new businesses starting up, some succeeding, others failing, is generally considered to be a characteristic of a healthy economy. New enterprises bring new ideas and technologies to the market replacing old ones, while unproductive firms are forced to either become more efficient or exit the market. This process of 'creative destruction'[115] is considered to be a factor in productivity growth.

There is a concern that the cost of workspace in London is such that start-ups and small businesses may struggle to find suitable premises. As well as high rents, the lease terms of traditional commercial property may also be a barrier as landlords tend to prefer tenants that can sign longer leases and that offer good covenant strength – characteristics generally not associated with start-ups.  In recent years, the market for flexible workspace in London has grown and caters for both the SME market and large corporates seeking flexible space (for projects or short-term expansion). This has helped to address some concerns about the lack of flexible workspace in more central parts of London[116].

The London Enterprise Panel commissioned research to examine the supply of incubator, accelerator and co-working space (IACs) in London in 2015[117]. Incubator space is typically space designed to support the growth of start-ups or businesses in early stage development with associated business support facilities. Accelerator space tends to refer to space for start-ups or existing businesses with high growth potential with support services provided by investors who may then seek an equity stake or some other financial return. Co-working spaces provide a combination of workplace and support facilities at affordable rates on ad hoc or short-term bases with access to meeting rooms or other shared facilities. The research found there to be 132 incubator, accelerator and co-working spaces in London which accommodate upwards of 3,800 SMEs on a given working day. Over two thirds offered office space, around a quarter offered workshop space, and less than ten IACs providing laboratory space.  Provision was found to be concentrated in the CAZ and CAZ fringe boroughs. Particular clusters were identified in the inner East London area in the boroughs of Islington and Hackney around Old Street roundabout and extending across the Shoreditch area to Farringdon. Clusters were also identified around Camden (around Bedford Square) and the City of Westminster (mainly around Soho).

This research was subsequently updated and expanded in 2016 by the GLA to include artist studios and 'maker spaces' (workshops and studios that tend to have open access) as part of an ongoing effort to monitor and improve awareness of facilities for start-ups and SMEs[118]. Figure 6.12 shows the number of flexible workspaces in London by type of space, the locations of which are shown in Map 6.1.

**Figure 6.12: Flexible workspace in London, 2016**
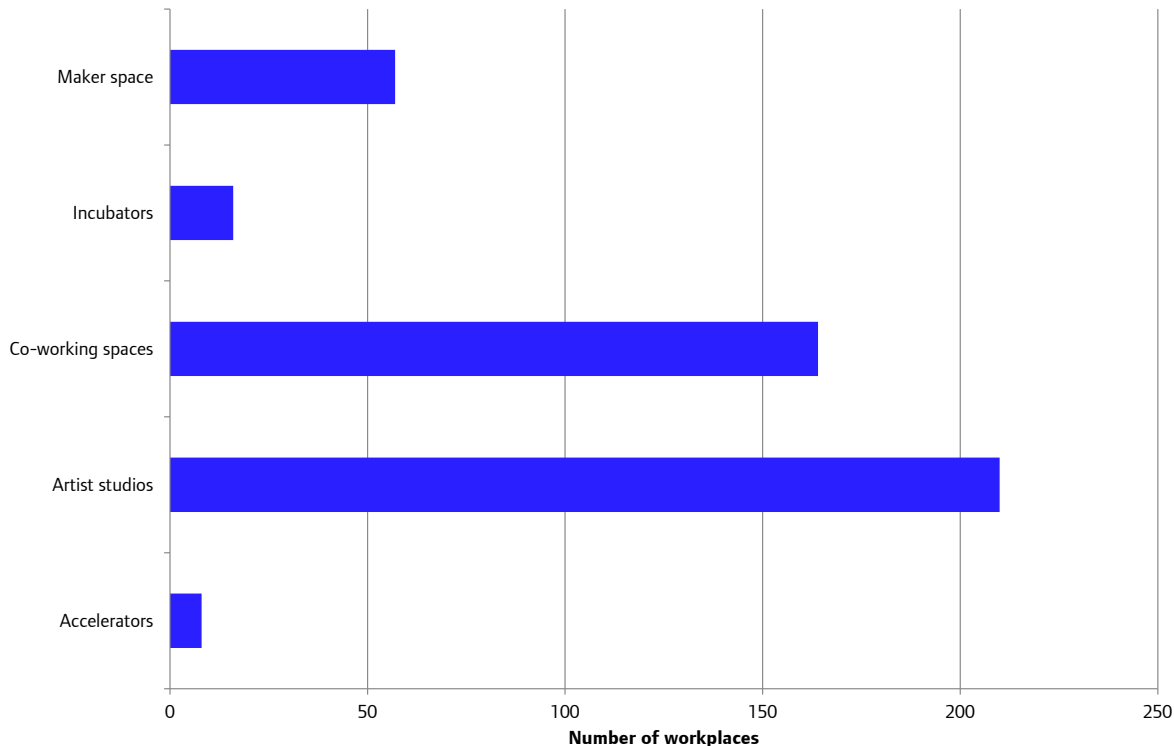


*Source: Greater London Authority*

**Map 6.1: Number of Incubators, Accelerators, Co-working Spaces, Artist Studios and 'Maker spaces' by borough, 2016**
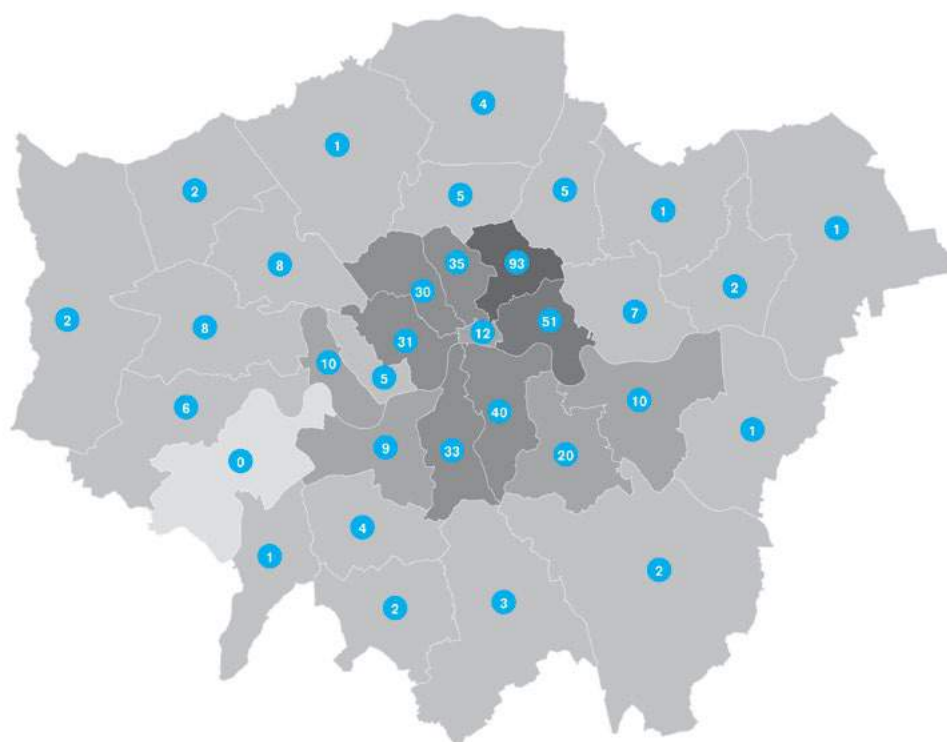


*Source: Greater London Authority*

The most popular locations tend to correlate with high concentrations of businesses in digital technology, communication, and creative sectors, which have a higher incidence of start-up activity. The concentration in central areas is evident while coverage in outer London is much thinner and tends to include facilities with a social focus operating in partnership with local authorities, charities or housing associations. In these locations there has been some limited success in delivering affordable workspace via the planning system through planning obligations[119]. The extent to which the lack of flexible workspace in outer London is a concern depends on whether there is latent demand from small businesses not being realised, which can be difficult to prove until the space has been built.

A further area of concern for some is the lack of commercial laboratory space for start-ups in medical and biological science. Many of these types of companies begin their lives based in university labs where their initial idea is conceived. However, as companies grow, they need to move on from these informal shared facilities. Some commentators have argued that the lack of laboratory start-up and grow-on space is a risk to growth of the science sector[120]. Research by Creative Places found there was latent demand for laboratory space in London based on the volume of enquiries for accommodation received by London and Partners and Med City and the waiting lists at all of London's science innovation centres[121].

**Industrial land supply**

As the balance of employment in London has shifted to become less industrial and more service based, the requirement for industrial land has fallen. The trend decline in manufacturing employment, one of the principal industrial sectors, can be seen in Figure 1.12, Chapter 1. However, there is a concern that the pace at which industrial land supply is being lost is too fast and could risk damaging London's economy[122].

Guidance on the pace of industrial land release is set out in the Land for Industrial and Transport Supplementary Planning Guidance (SPG) [123] and the benchmark will be reviewed as part of the next iteration of the London Plan. To inform the discussion, the GLA commissioned consultants to undertake the Industrial Land and Economy Study, an assessment of London's industrial land supply [124]. Some of the main findings of this study are summarised below. This will be supplemented by evidence in the forthcoming Industrial Land Demand Study.

There is an estimated 6,976ha of industrial land in London. The majority of this land (76 per cent) is in outer London with 547ha (9 per cent) recorded as vacant in 2015. Figure 6.13 shows the distribution of industrial land by borough and the different types of use.

**Figure 6.13: Core, wider and vacant industrial land by borough**
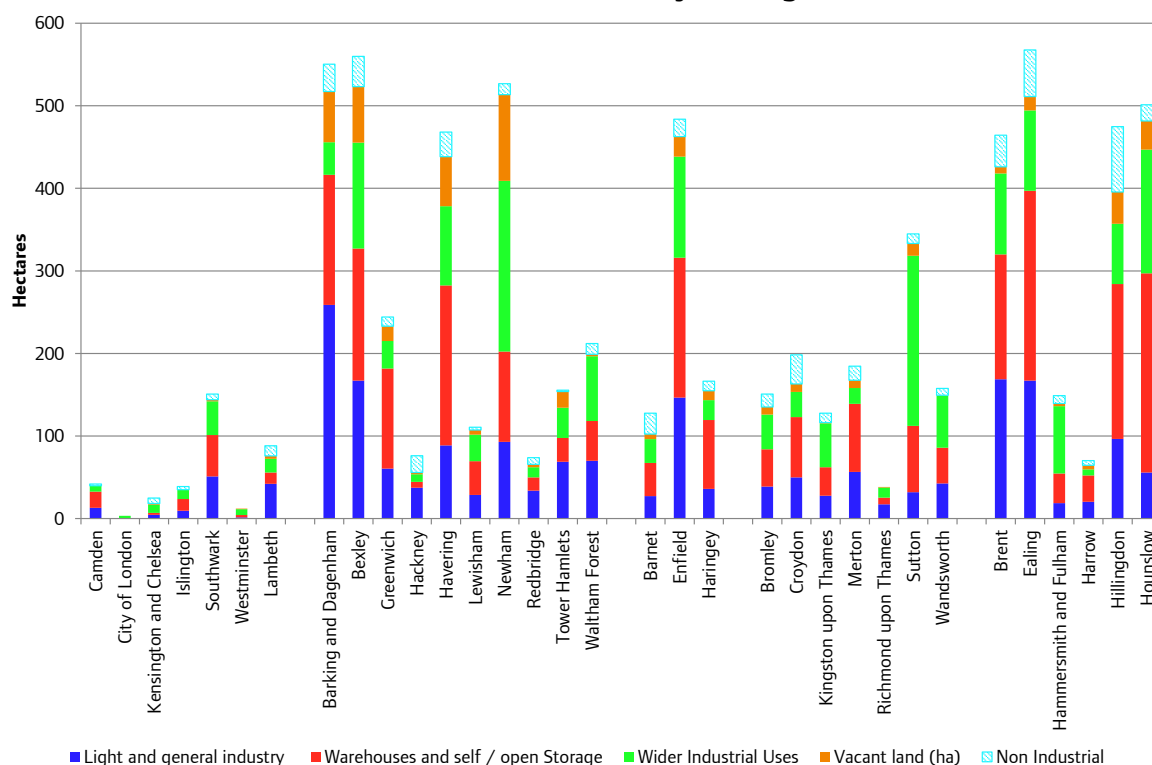


*Source: AECOM, Cushman & Wakefield, in association with We Made That and Maddison Graphics, 2016*

The stock of industrial land in London has declined steadily in recent decades. Looking at the last 15 years, it fell from 8,282ha in 2001 to 6,976ha in 2015. This is a 16 per cent contraction over the period 2001-2015 and a 7 per cent contraction since 2010. There has been a slight acceleration in the rate of losses from approximately 88ha per annum during the period 2001-2005 to 105ha per annum in the period 2010-2015.

In 2012, the Land for Industrial and Transport Supplementary Planning Guidance (SPG) set a benchmark for the managed release of industrial land at 37ha per annum [125]. The Industrial Land and Economy Study found that the actual rate of release over the period 2010-2015 was 105ha per annum, 2.8 times the benchmark. The development pipeline and proposed future industrial land release in Opportunity Area Planning Frameworks (OAPFs), Local Plans and Housing Zones could result in further significant losses suggesting that recent London-wide trend rates of release will persist unless there is a significant change in policy and its implementation. If the London-wide trends continue then according to the research the total stock of industrial land in London will decline to around 4,700 ha in 2041, a 33 per cent fall over this period.

The London-wide industrial land vacancy rate has fallen from around 16 per cent in 2001 to under 11 per cent in 2015 (Figure 6.14). This vacancy rate is above the 5 per cent frictional vacancy rate identified as a benchmark in the SPG. However, there are significant variations by borough. The highest borough level vacancy rate is in Newham (20 per cent) while several boroughs are at or below 5 per cent vacancy rates, especially in central, south and west London.

**Figure 6.14: London-wide industrial land vacancy rate**
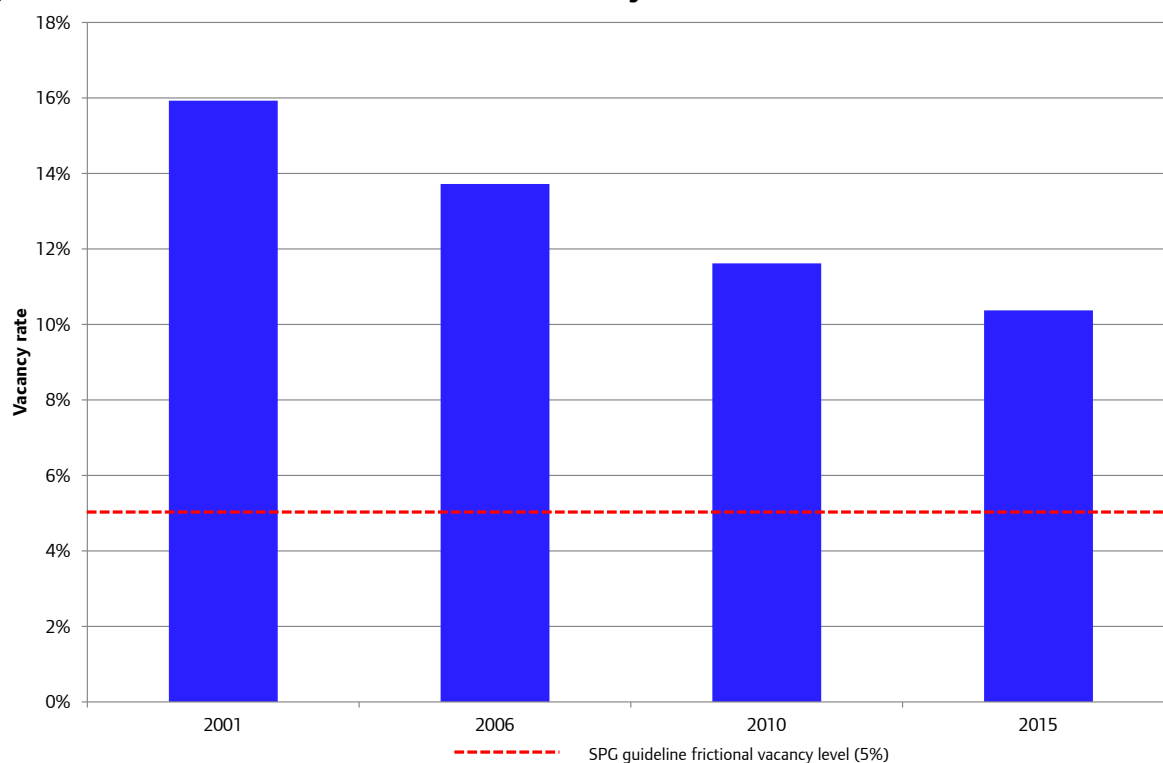


*Source: AECOM, Cushman & Wakefield, in association with We Made That and Maddison Graphics, 2016*

There is intense pressure on industrial land in many parts of London due to the demand for housing. High residential values mean that if planning permission can be secured for conversion to residential or mixed use, the land owner/developer benefits from a significant uplift in land value. Table 4.1 in Chapter 4 showed that on average, residential land values are 3.2 times higher than industrial land values in London with large variations by borough. These land value differentials are viewed by some as a clear price signal that more industrial land should be released for residential use. For others they are the product of high prices in the residential market which leads to property speculation and the erosion of industrial land.

Industrial areas have an important role to play servicing London's businesses and workers, for example as locations for storage and distribution purposes, waste management, repairs and maintenance, or food preparation. There is a strategic question to be debated as part of the London Plan process about the rate of industrial land release. Some commentators suggest industrial land should be retained as the activities above are important to London's economy and its communities. Others suggest the land could be used for other 'higher value' residential or mixed uses.

According to the Industrial Land and Employment Study, there may be potential for the adjacent South East region to accommodate overspill from London (demand transferring to the area as supply contracts in London). The extent to which businesses could relocate to locations further from the centre is uncertain. The additional transport costs and journey times could mean some business models become unviable or the costs to society become too great, if relocations mean longer journeys for goods vehicles and unacceptably high levels of pollution and congestion. Clearly, the costs and benefits of relocation will depend on the type of business in question and its operating model.

Those who advocate greater protection for London's industrial areas point to the diversity and vibrancy of industrial areas which are home to small businesses in a variety of sectors from the traditional ones like manufacturing, construction and logistics to those not generally associated with industrial areas like creative industries, certain business services and charities. These firms benefit from the relative affordability and flexibility of premises. There is evidence of this diversity in two recent case studies - The Park Royal Atlas[126] and the Old Kent Road Employment Study. These studies found that a large proportion of employment (approximately 20 per cent on Old Kent Road and 40 per cent on Park Royal) is in non-industrial activity such as professional services, education, retail, restaurants and cafes, and arts, culture and sport. Moreover, the Industrial Land and Employment Study finds that approximately 129,400 jobs in non-industrial activities are in designated industrial areas, contributing approximately 43 per cent of employment in these locations. The Central sub-region has the greatest concentration of non-industrial jobs, where a majority of employment in designated areas is in non-industrial activities.

The research carried out for the Industrial Land and Employment Study suggests that overall there is some flexibility in the industrial land market and industrial activities to respond to contractions in industrial land supply. Key mechanisms allowing this include potential for some industry to (continue to) relocate to the wider adjacent South East and probably to a lesser degree for some industrial activities to be intensified on existing land[127]. Overall, however, the Study concludes that the "rates of release seen over the last five years appear to be excessive and a more cautious rate of release is probably more appropriate"[128].

**High Streets and town centres**

Town centres and high streets are focal points for the day-to-day lives of many Londoners. They serve as important centres of employment in sectors such as retail, leisure and many local services and play a vital community and civic role. London's town centres and high streets face similar challenges to those affecting regions across the UK. The growth of online retail and smartphone technology has enabled shoppers to compare prices and make purchases from national and international markets at an instant when previously they were confined to local stores. High street retailers continue to grapple with online competition and changing consumer demands and preferences. Alongside this, retailers face competition from large shopping malls which aim to offer shoppers a modern retail and leisure experience.

Growth in population and incomes means there is still a substantial requirement for new retail space. London could need an additional 0.4-1.6 million square metres of comparison floorspace to 2036[129], most of which is likely to be focused on the International, Metropolitan and stronger Major town centres. This requirement will be reviewed in the forthcoming Retail Needs Study. Some of the smaller and medium-sized town centres may face overall surpluses of retail space in the future – which presents both challenges and opportunities for restructuring and redevelopment for commercial, cultural, community and residential space.

Bricks-and-mortar retailing will still be important in London's town centres but probably as part of a wider retailing strategy where on-line and physical stores are complementary and respond to consumer preferences. In addition to changes in the use of shop space by retailers, there are also likely to be changes in the use of warehousing space. Insofar as stores begin to take on more of a 'showroom' function, holding very limited stock for display purposes and relying on stock held elsewhere to fulfil orders, this could increase demand for warehousing space[130].

The GLA supports town centre regeneration through various initiatives such as the Mayor's High Street Fund[131] and through planning policy, most importantly through policies in the London Plan (Policy 4.7) and the Town Centres Supplementary Planning Guidance (SPG)[132]. These policies are designed to promote town centres as vibrant places to live, work and visit.

To conclude this section on workspace, there is significant competition for land in London which makes workspace of all types relatively expensive in the capital. Some of the main risks highlighted in this chapter include the cost of prime office space; the loss of potentially viable office space due to Permitted Development Rights legislation; and the erosion of industrial land at a pace above the benchmark in the London Plan. In terms of the overall impact this is having on businesses, the evidence on firm start-ups and migration[133] (see Chapter 2) suggests that despite these costs, London's business base continues to grow. While more firms migrate out of London than migrate in, this is offset by the high number of business 'births' which exceed the number of 'deaths' so that overall there has been a net gain in businesses.

## *6.4.2.2 Labour supply*

London's ability to attract skilled workers is an important factor in its success but some businesses are concerned that the supply of skilled labour is a potential constraint to future growth. For example, a report for the City of London Corporation highlighted the lack of a suitably skilled workforce as one of the factors that could dampen the City's growth in coming years[134]. Being able to meet the skills needs of London's businesses depends first on a world class education system which maximises the potential of young people; second, on upskilling the existing workforce through ongoing investment in education and training; and third, on being able to attract skilled workers from the UK or internationally.

The following considers evidence on the risks to labour supply in London including:

- skills shortages and gaps reported by employers;
- the relative performance of the education and training system;
- the cost of living including housing costs;
- restrictions to the supply of foreign labour; and
- the supply of public services workers.

A more detailed profile of London's labour market is provided in Chapter 9.

**Skills shortages and gaps**

According to the London Business Survey, 70 per cent of businesses in London rate the capital highly as a place to do business in terms of the availability of skilled staff, and only 5 per cent rate the capital poorly on this measure[135]. There is some variation in perceptions by size of company with larger firms more positive than small ones; 32 per cent of SMEs (0 to 249 employees) rate London as either adequate or poor in terms of the availability of skills compared to 11 per cent of large firms.

Despite these generally positive perceptions of London's labour market, there is evidence of skills shortages, particularly at middle and high skill level occupations. The 2015 UKCES Employer Skills Survey reported just over 182,700 vacancies in London in 2015. As shown in Figure 6.15, the highest proportion of job vacancies were in 'associate professional' (24 per cent) and 'professional' occupations (17 per cent).

**Figure 6.15: Vacancies by occupation and their skills shortage density in London, 2015**
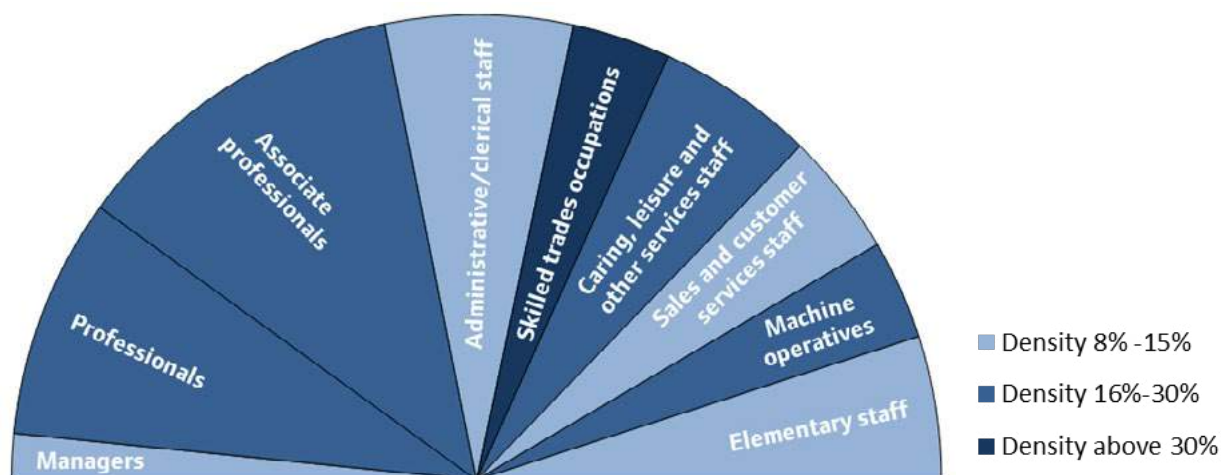


*Source: UKCES Employer Skills Survey 2015, Tables 54/1 and T63A/1*

According to the survey, 27 per cent of vacancies (49,500) were reported by employers as being "hard to fill". Of these vacancies over 75 per cent (around 37,000) were reported as 'skills shortage vacancies' caused by employers being unable to find people with the skills, qualifications or experience for the role. This compares to an estimated 67 per cent of hard to fill vacancies in the rest of the UK.

Figure 6.15 also shows the density of skills shortages defined as the proportion of all vacancies in that occupational category that are skills shortage vacancies. Occupations shaded in darker blue are those with higher densities of skills shortages. As can be seen, the highest densities of skills shortage vacancies are in skilled trades occupations where 42 per cent of vacancies are reported as being due to skills shortages.

Figure 6.16 shows the types of skills found difficult to obtain by London-based employers compared to the England average. The most common types of skills shortages relate to specialist skills or knowledge needed to perform the role - 70 per cent of London-based employers reported this as an issue compared to an average of 66 per cent in England. Indeed, across many of the skills employers were questioned about, a higher proportion of London employers reported them as difficult to obtain compared to the England average.

**Figure 6.16: Skills found difficult to obtain in London and England (%)**
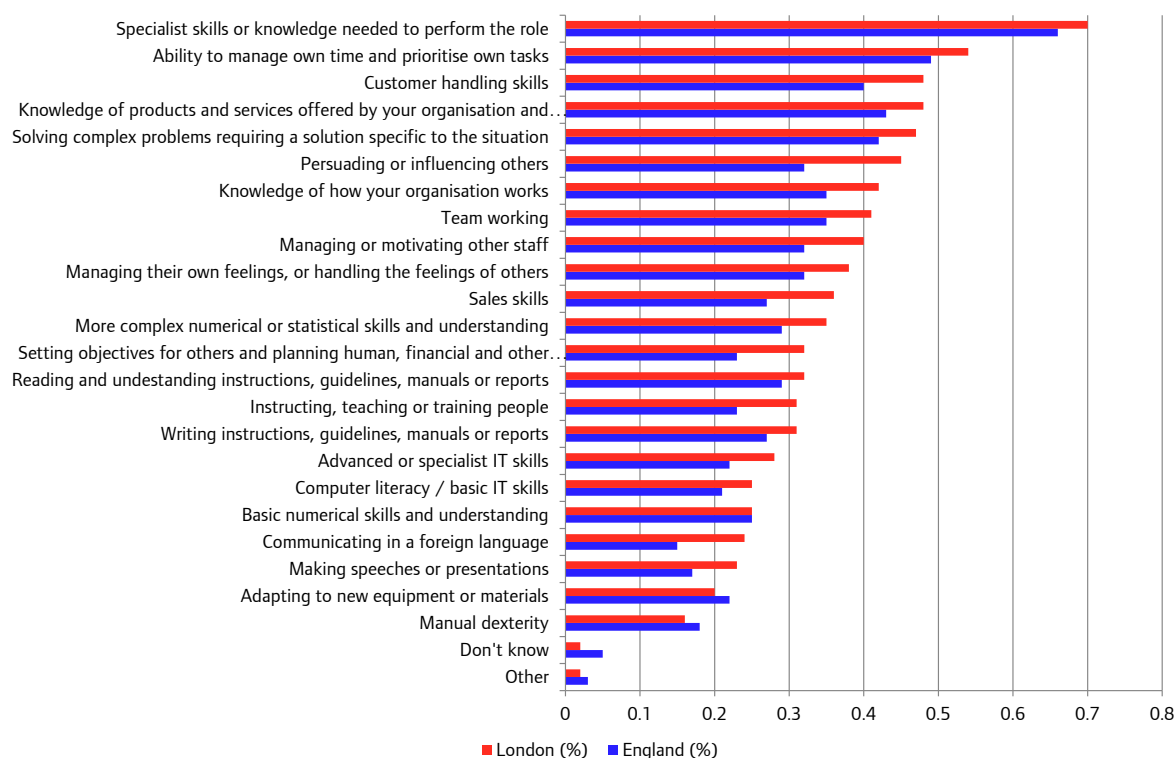


Source: UKCES Employer Skills Survey, 2015, Table 50/1

As a result of skills shortage vacancies, around half of affected employers claim that this has resulted in lost business and 40 per cent said it resulted in difficulties meeting quality standards[136].

Some London employers also experience skills gaps within their existing workforce. While 4 per cent of establishments (11,400) in London reported having a skills shortage vacancy in 2015, 11 per cent (28,300) suffered from skills gaps within their existing workforce. This is in line with the England average where 4 per cent of establishments reported having a skills shortage vacancy and 12 per cent reported having skills gaps among existing staff[137].

In total, there are almost 223,000 cases where London employers considered existing staff not to be fully proficient in their roles (equivalent to 5 per cent of all those employed). As a proportion of all employment, these skills gaps are most prevalent in administrative/clerical, sales and customer service, and elementary occupations[138].

**Education**

London's ability to supply businesses with skilled labour depends on having a first class education system capable of nurturing talent for the future. There is relatively little data comparing the educational performance of global cities. One standard used for international comparisons at a national level is the Programme for International Student Assessment (PISA) which tests 15-year olds' abilities at maths, science and reading. As shown in Figure 6.17, countries in the Far East such as Singapore, Korea, Japan, and China, generally outperform UK students on these international tests[139].

**Figure 6.17: Average performance on international student achievement tests (top 30 ranked countries)**
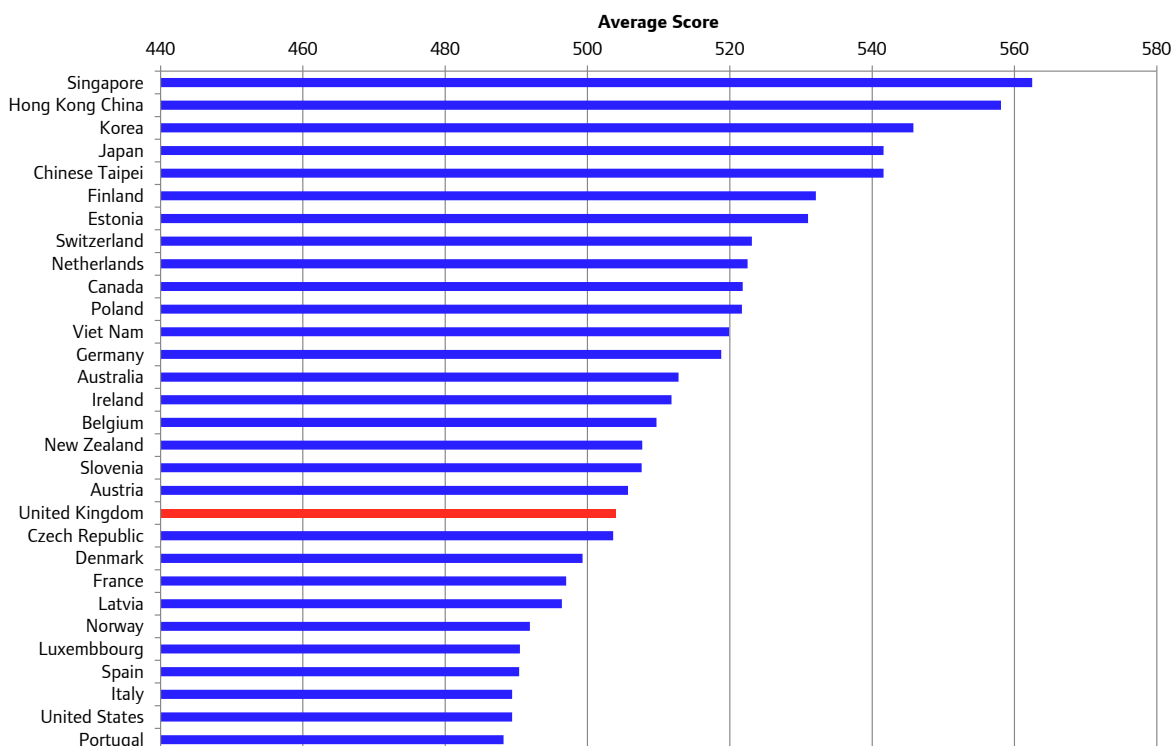


*Source: OECD[140]*

Researchers at UCL[141] have attempted to benchmark London in the PISA rankings to make international comparisons. Using PISA 2009 and 2012 data, they find the average mathematics score in London falls between 462 and 496 test points, reading between 465 and 500 points, and science between 480 and 513 points. Overall, this puts achievement in London behind world leaders such as Massachusetts, New South Wales (Sydney), Ontario and Shanghai[142].

In terms of the level of qualifications of the workforce, the evidence is more positive with workers in London more likely to hold higher degrees than their counterparts in other global cities. Approximately three in every five (60.2 per cent) workers in London had tertiary education[143] as their highest qualification in 2014. This is higher than many other global cities such as New York, Tokyo and Paris as shown in Figure 6.18. A further 25.3 per cent of workers in London had upper secondary or post-secondary education which is the equivalent of GCSE grades A*-C and A Levels. The remaining 14.6 per cent of London's workforce had lower secondary school education (i.e. GCSE grades D-G) or less as their highest qualification[144].

**Figure 6.18: Percentage of employed people by highest qualification achieved in selected global cities, 2014**
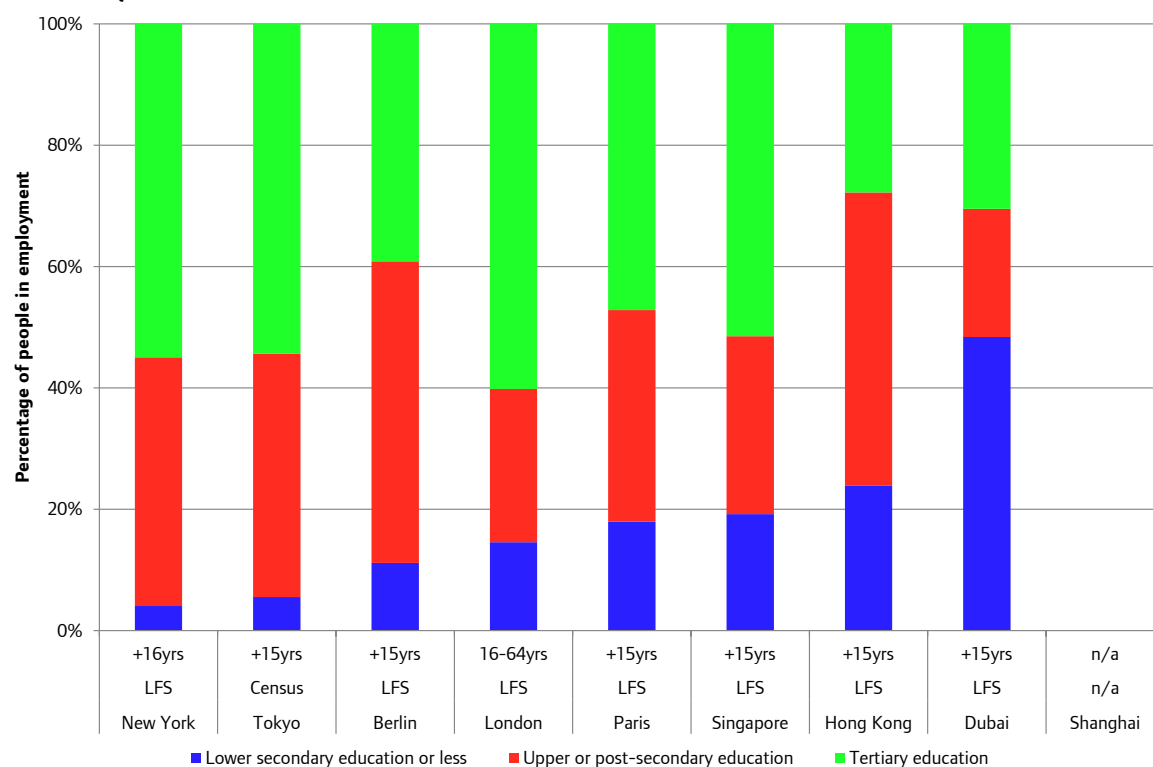


Source: ONS, US Census Bureau, Eurostat, Tokyo General Affairs Bureau of Statistics, Singapore Ministry of Manpower, HK Census and Statistics Department, Dubai Statistics Centre
Note: Data for Tokyo refers to 2012.

## The cost of living

London is also a costly city to live in and there is evidence to suggest this limits labour supply in some occupations (see later section). Table 6.5 shows the relative cost of living in various cities as determined by price levels.  London ranks at number six according to this survey by UBS. Examining the affordability of a number of global cities for graduates - an important demographic for future success of the city – Knight Frank ranked London 13th out of 20 cities, behind cities such as Frankfurt, Berlin, Paris and New York, but ahead of Tokyo, Singapore, Shanghai and Hong Kong[145]. Mercer ranked London as 12th most expensive out of 207 cities in their 2015 cost of living rankings, behind Luanda (Uganda), Hong Kong, Zurich, Singapore, Geneva, Shanghai, Beijing, Bern, N'Djamena (Chad) and Tokyo, but ahead of New York, Dubai and Paris among others[146]. Housing affordability in London is discussed in Chapter 4 and the cost of living in London is discussed further in Chapter 10.

**Table 6.5: Price levels in selected world cities (Index New York = 100)[147]**

| Rank | City | Excl. rent | Incl. Rent | Rank | City | Excl. rent | Incl. Rent |
|------|------|-----------|-----------|------|------|-----------|-----------|
| 1 | Zurich | 108.7 | 92.6 | 26 | Taipeh | 67.3 | 62.7 |
| 2 | Geneva | 106.1 | 91.8 | 27 | Brussels | 67.2 | 57.3 |
| 3 | New York | 100.0 | 100.0 | 28 | Rome | 67.1 | 57.1 |
| 4 | Oslo | 92.9 | 79.9 | 29 | Manama (Bahrain) | 66.6 | 55.4 |
| 5 | Copenhagen | 88.0 | 74.3 | 30 | Frankfurt | 65.8 | 55.1 |
| 6 | London | 84.7 | 79.5 | 31 | Munich | 65.5 | 56.1 |
| 7 | Chicago | 83.5 | 76.7 | 32 | Vienna | 65.4 | 53.4 |
| 8 | Tokyo | 83.1 | 70.6 | 33 | Amsterdam | 65.3 | 55.5 |
| 9 | Auckland | 82.8 | 67.6 | 34 | Shanghai | 64.9 | 54.3 |
| 10 | Sydney | 80.5 | 72.5 | 35 | Istanbul | 64.8 | 53.0 |
| 11 | Seoul | 79.2 | 64.2 | 36 | Doha | 64.8 | 61.4 |
| 12 | Toronto | 78.1 | 63.7 | 37 | Lyon | 64.8 | 51.2 |
| 13 | Milan | 77.9 | 64.5 | 38 | Berlin | 63.3 | 51.3 |
| 14 | Stockholm | 76.9 | 62.8 | 39 | Barcelona | 63.2 | 50.5 |
| 15 | Montreal | 76.2 | 58.9 | 40 | Beijing | 61.4 | 53.2 |
| 16 | Miami | 76.1 | 67.7 | 41 | Madrid | 60.6 | 50.4 |
| 17 | Los Angeles | 76.0 | 67.4 | 42 | Nicosia | 60.3 | 48.4 |
| 18 | Helsinki | 74.3 | 63.2 | 43 | São Paulo | 59.4 | 49.5 |
| 19 | Hong Kong | 72.9 | 76.8 | 44 | Athens | 58.9 | 47.5 |
| 20 | Paris | 72.6 | 63.8 | 45 | Rio de Janeiro | 57.9 | 49.2 |
| 21 | Luxembourg | 72.3 | 66.1 | 46 | Bangkok | 57.5 | 46.4 |
| 22 | Tel Aviv | 72.0 | 61.4 | 47 | Lisbon | 55.5 | 45.3 |
| 23 | Dubai | 71.1 | 66.1 | 48 | Mexico City | 54.7 | 46.2 |
| 24 | Buenos Aires | 70.4 | 56.1 | 49 | Tallinn | 54.4 | 44.0 |
| 25 | Dublin | 70.3 | 63.1 | 50 | Ljubljana | 54.0 | 44.0 |

*Source: UBS[148]*

**Housing costs**

As set out in Chapter 4, housing costs have been rising in London at a faster rate than the rest of the UK. According to Demographia's annual survey of international housing affordability the ratio of median house prices to resident earnings in London is high by international standards[149]. Based on national data from Q3 2015, London is rated the eighth least affordable of 86 major metropolitan markets[150] with an estimated median multiple of 8.5. The data suggests that London is not alone in experiencing issues of affordability, with Hong Kong ranked as the least affordable for the fifth year in a row, with a median multiple of 17.0. These figures should however be treated with caution as they do not account for cross-country differences in the measurement of house prices and incomes, or for differences in the size and quality of housing, or for differences in the way the city region is defined[151].

Rents in London are also relatively high compared to other international cities. Data from a UBS 2015 survey of 71 world cities found that London rent levels were, on average, the third highest in the World behind New York and Hong Kong (Table 6.6).

**Table 6.6: Average monthly rents by selected major city, 2015**

|  | New York | Hong Kong | London | Chicago | Doha | Sydney | Tokyo | Paris | Munich |
|---|---|---|---|---|---|---|---|---|---|
| Normal local rent (£) | £2,530 | £1,680 | £1,530 | £1,440 | £1,330 | £1,160 | £1,120 | £1,050 | £890 |
| UBS rank | 1 | 2 | 3 | 4 | 6 | 11 | 14 | 16 | 21 |

*Source: UBS prices and earnings 2015.*

*Notes: The figures given are values for average rent prices (monthly gross rents) for local households. To capture local standards, the UBS survey asked for the price of a newly built apartment of typical size, location, and amenities for the respective city. US dollar values given in the report have been converted to pound sterling using the exchange rate 1 USD = 0.65 GBP.*

The City of London Corporation has raised concerns about the impact of high house prices on labour supply, observing that "the City and London's ability to continue to expand is dependent on the availability of local labour, and ensuring London remains attractive to the best international talent. Property prices in London have increased at a rapid rate in recent years, reducing affordability for workers on lower or average incomes… London's inflated housing market could be damaging to business in the City if skilled workers are discouraged from living within a reasonable commuting distance from the City through unaffordable rents or house prices"[152].

The relatively high transaction costs in the housing market may also be a deterrent to people moving and therefore be a constraint on labour market flexibility. Stamp Duty Land Tax (SDLT) is levied relative to the sale price as are some other transaction costs such as agency fees. Higher transaction costs in London may therefore limit the willingness, or ability to pay, of workers looking to change jobs[153]. Hilber & Lyytikäinen found that the 2 per cent increase in SDLT at the £250,000 threshold can reduce household mobility by 2-3 per cent[154].

High housing costs can also create inflationary pressures in the economy as workers demand higher wages as compensation for higher rents and house prices. This in turn adds to the cost of doing business in London. In addition, people may be required to take out larger mortgages or other forms of personal debt to pay for housing costs (see Chapter 10). Higher levels of debt mean Londoners are potentially more exposed to increases in interest rates, a property market crash, or changes in personal circumstances such as a loss of employment. Issues in the housing market can therefore feed through to the macroeconomy. Indeed, unsustainable house price rises in the USA played a large part in triggering the global financial crisis in 2008.  See Chapters 4 and 10 for more on the housing affordability challenges in London.

### Demand for public services

As population grows there will be increasing demand for education, healthcare and a range of other public services in London. This will mean providing additional social infrastructure such as schools, hospitals and other facilities. It will also mean ensuring there is the necessary supply of skilled labour to provide public services. In the private sector, price signals help to achieve equilibrium in the labour market - rising demand for labour leads to an increase in wages which in turn increases supply, other things being equal. However, in the public sector, wages are not set by the market and so price signals cannot be relied upon to ensure labour demand is matched by supply.

*Education*

A combination of rising pupil populations, spiralling building costs and lack of available land is putting increasing pressure on central and local government to provide sufficient school places[155]. Table 6.7 shows the net number of additional school-aged children expected over the period to 2050[156]. The total youth population is expected to grow from 1.5 million in 2015 to 1.8 million in 2050.

**Table 6.7: Projected additional number of children by age group**

| | Total population 2015 | Total population 2050 | Changes in five year intervals | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 2016-2020 | 2021-2025 | 2026-2030 | 2031-2035 | 2036-2040 | 2041-2045 | 2046-2050 |
| Age 4-10 | 768,587 | 881,667 | 54,121 | 1,500 | (14,621) | (10,778) | 3,973 | 39,404 | 39,483 |
| Age 11-16 | 539,236 | 687,639 | 60,489 | 55,208 | 11,786 | (11,100) | (10,784) | 21,684 | 21,119 |
| Age 17-18 | 189,909 | 227,913 | (7,479) | 28,155 | 12,730 | 974 | (3,567) | 3,769 | 3,422 |
| Total youth population, ages 4-18 | 1,497,732 | 1,797,220 | 107,131 | 84,863 | 9,894 | (20,904) | (10,378) | 64,857 | 64,024 |

Source: Arup/GLA Intelligence Unit[157].
Note: There is considerable uncertainty over the population projections for later periods.

Demand for both primary and secondary school places is particularly acute at the moment and the demographic projections suggest this will continue to be the case through to the early 2020s before tapering off and then increasing again in the 2040s. According to estimates by Arup for the London Infrastructure Plan 2050, this could mean an additional 330 primary schools, 170 secondary schools and 196 sixth form colleges by 2050[158]. Failure to build sufficient new facilities or expand existing ones could mean larger class sizes and potentially poorer performance.  In addition to new facilities, there will be a need to recruit additional teachers, which could be challenging if the cost of living in London were to rise at a faster rate than teacher pay.

*Health and social care*
Demands on the health and care sectors in London will increase as a result of a growing population that will live longer with more complex health needs than previous generations. Many NHS Trusts are currently running significant budget deficits as they grapple with growing demand for services and tighter budgets[159].  Similarly, an aging population will increase demand for adult social care services at a time when local councils also face significant budgetary pressures[160]. If further efficiency savings cannot be made, or alternative sources of funding found, there is a risk that the quantity and/or quality of services could suffer.

Research by the London Health Commission suggests that recruitment may also be an issue in the health and care sector in London. Figure 6.19 shows that London has high vacancy rates in the nursing profession relative to other regions in the UK[161]. In South London, the vacancy rate was 18 per cent while in North Central and East London it was 14 per cent. These rates are higher than all other regions nationally. The definition of a vacant post in this instance is one that is not permanently occupied so it does not take account of agency or temporary staff filling the posts. When agency staff and temporary workers are accounted for, the vacancy rate was estimated at 14 per cent in South London but only 3 per cent in North Central and East London.

**Figure 6.19: Nursing vacancy rates by region, 2014**
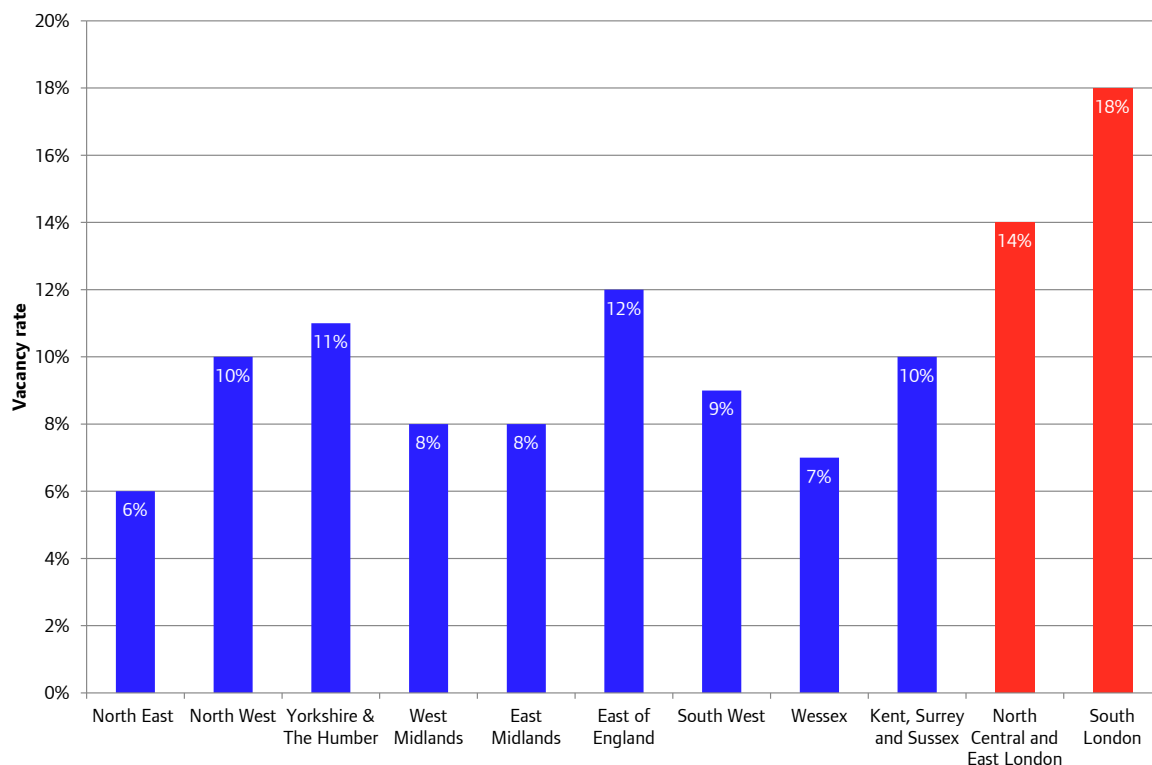


*Source: London Health Commission[162]*
*Note: Regions defined by Local Education Training Board (LETB) boundaries. A vacant post is defined as a post 'not permanently occupied'. Some vacant posts may be filled by agency or temporary staff. The vacancy rate is therefore the percentage of posts not permanently occupied[163].*

Similarly in the social care sector, vacancy rates in all occupations are above the national average as shown in Figure 6.20.

**Figure 6.20: Vacancy rates (%) in the social care sector, London and England**
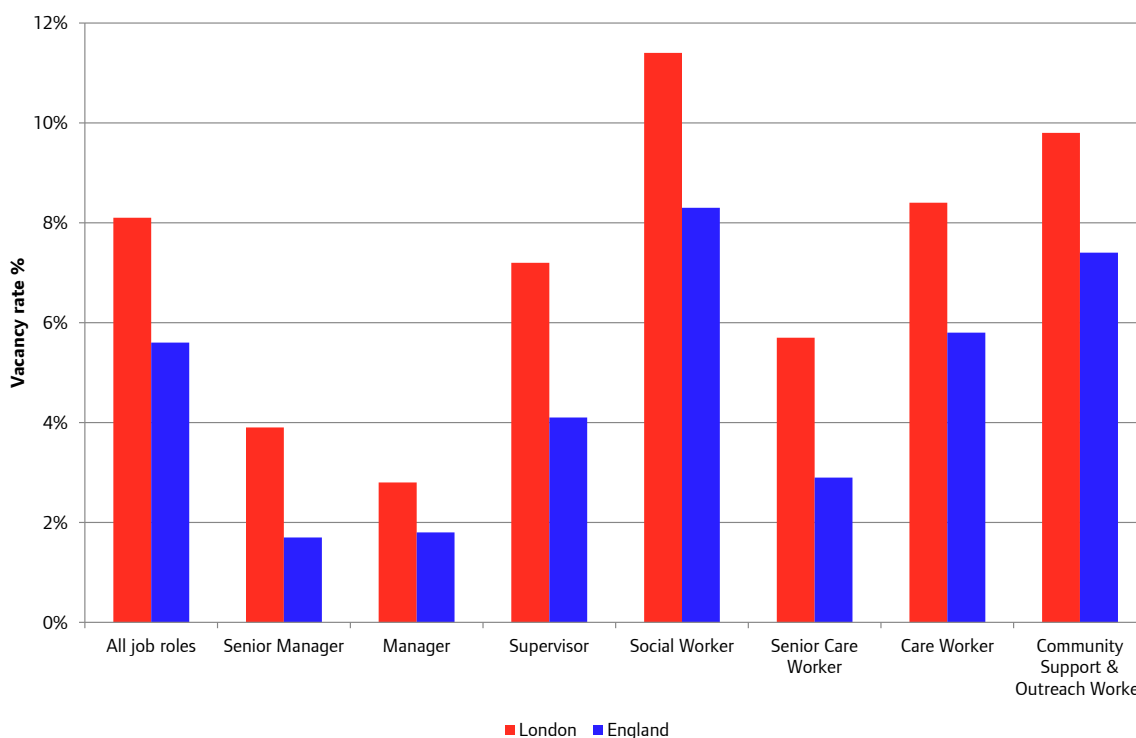


*Source: London Health Commission[164]*

As well as high vacancy rates, the London Health Commission found that the NHS in London has a relatively high turnover of staff which means NHS Trusts in London incur higher recruitment costs. High vacancy rates and low levels of retention are attributed to the high cost of living, in particular the availability of affordable housing, transport costs and the cost of living[165].

*Emergency services*
The Mayor of London is accountable through the Chair of the London Resilience Forum (LRF)[166] for ensuring that London is resilient to major incidents. Concern has been raised that rising housing costs make it increasingly unaffordable for emergency service workers to live in London. Research by the London Chamber of Commerce (LCCI) found that 54 per cent of London's 'blue light' emergency services frontline personnel now live outside London[167]. The risk of emergency services workers living outside London is that it can compromise their ability to respond to a major incident, particularly if the key transport hubs are targeted. If a major incident occurred and London's emergency services were seen as being unable to respond adequately it could lead to loss of life and impact on peoples' willingness to live and/or work in the capital.

**The supply of international migrant labour**
Following the outcome of the EU referendum, the freedom of movement of labour from the EU to the UK is no longer guaranteed. There is a risk that restrictions could impact negatively on the London economy if employers cannot find the skilled labour they need from within the UK and jobs become hard to fill or there are skills gaps. The GLA has for several years expressed concern that tighter controls on immigration from outside the European Union threaten the efficient workings of London's labour market. The implications of Brexit for free movement of labour within the EU heighten these concerns.

There is a broad consensus among economists that labour mobility is welfare-enhancing over the long term although there may be distributional effects[168]. Concerns over immigration tend to focus on these distributional effects such as the potential for downward pressure on the wages of native workers or job displacement. However, most academic research in the UK points to a relatively benign impact on the UK labour market (in terms of both wages and employment rates) from EU migration [169] (see the Appendix to Chapter 8 for more on the impact of migration).

Research by the National Institute of Economic and Social Research (NIESR) found beneficial effects of migration such as higher productivity in industries and sectors with a high concentration of migrant workers[170]. Moreover, there is evidence that immigration has been good for innovation in London. Research by the Spatial Enterprise Research Centre (SERC) found positive links between migrant entrepreneurs and innovation in London, with diverse management teams significantly more likely to innovate than the average company founder[171]. This research also found evidence that firms with migrant entrepreneurs on their management teams are better able to enter international markets due to pre-established networks and them having the necessary language skills which make transaction costs lower.

London's economy is more reliant upon workers from overseas than the rest of the UK. As Figure 6.21 shows, 13 per cent of jobs are filled by people born in the Rest of the European Economic Area (EEA) and 26 per cent of jobs are filled by people from outside the EEA. The equivalent figures for the rest of the UK are 5 per cent from the Rest of the EEA and 7 per cent from non-EEA countries.

**Figure 6.21: Jobs in London and the UK by country of birth (%)**



■ UK or British Overseas Territory   ■ Rest of the EEA (excluding the UK)   ■ Any other country (excluding UK and EEA)
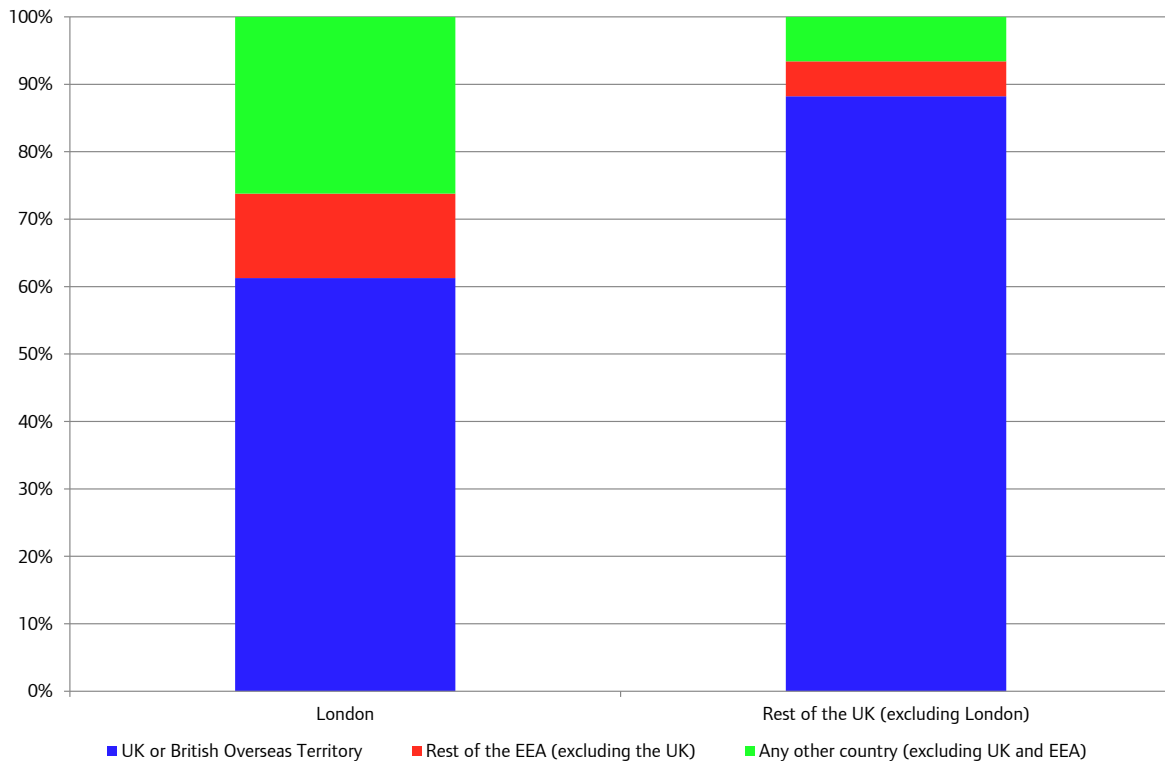
*Source: Annual Population Survey, 2015*

Figure 6.22 shows a breakdown of jobs by industry and country of birth. Sectors particularly reliant on labour from overseas include 'Accommodation and food services' and 'Administrative and support services'. These industries have high proportions of people born in the EEA and also outside the EEA. The construction sector is particularly reliant on people born in the EEA.

**Figure 6.22: Jobs by industry in London by country of birth**



■ Born in the UK or British Overseas Territory   ■ Born elsewhere in the EEA (excluding UK)   ■ Born in any other country (excluding UK and EEA)
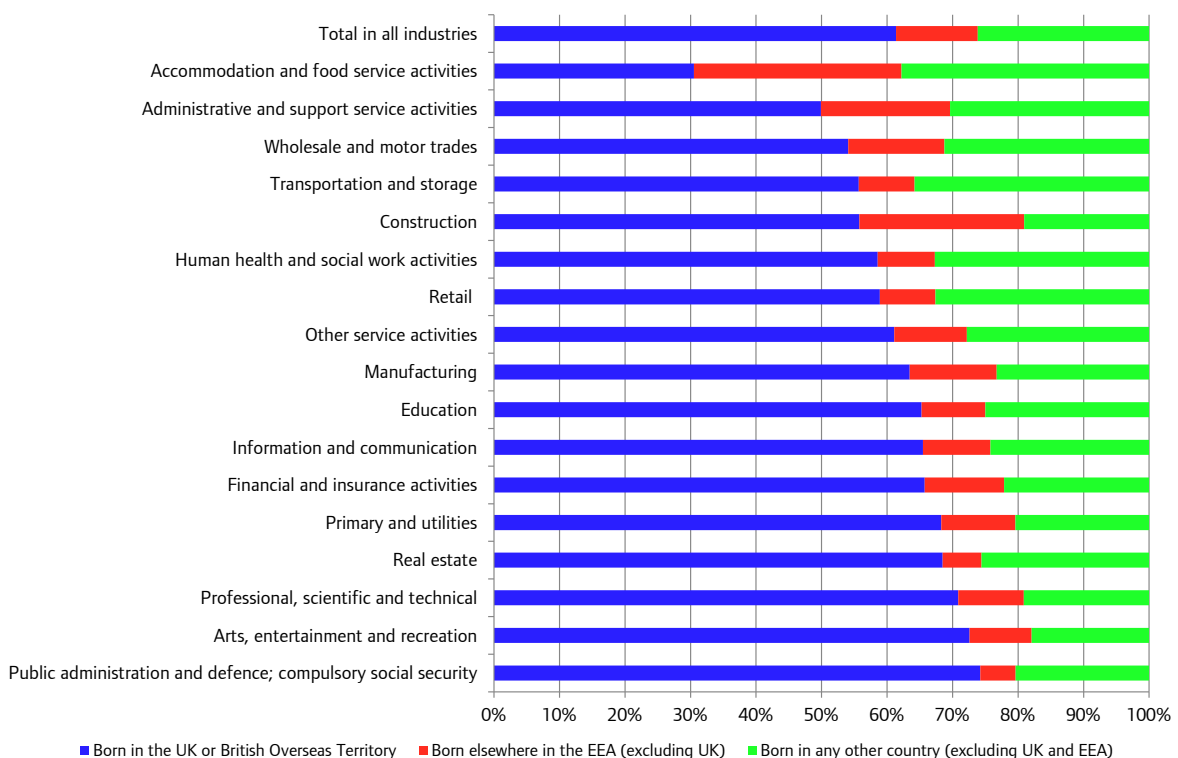
*Source: Annual Population Survey, 2015*

Figure 6.23 shows a breakdown of occupations in London by country of birth. Textiles, printing and elementary trades including administration and service occupations have high numbers of people born overseas. Again, the reliance on labour from the EEA can be seen in construction and building related trades.

**Figure 6.23: Occupations in London by country of birth**
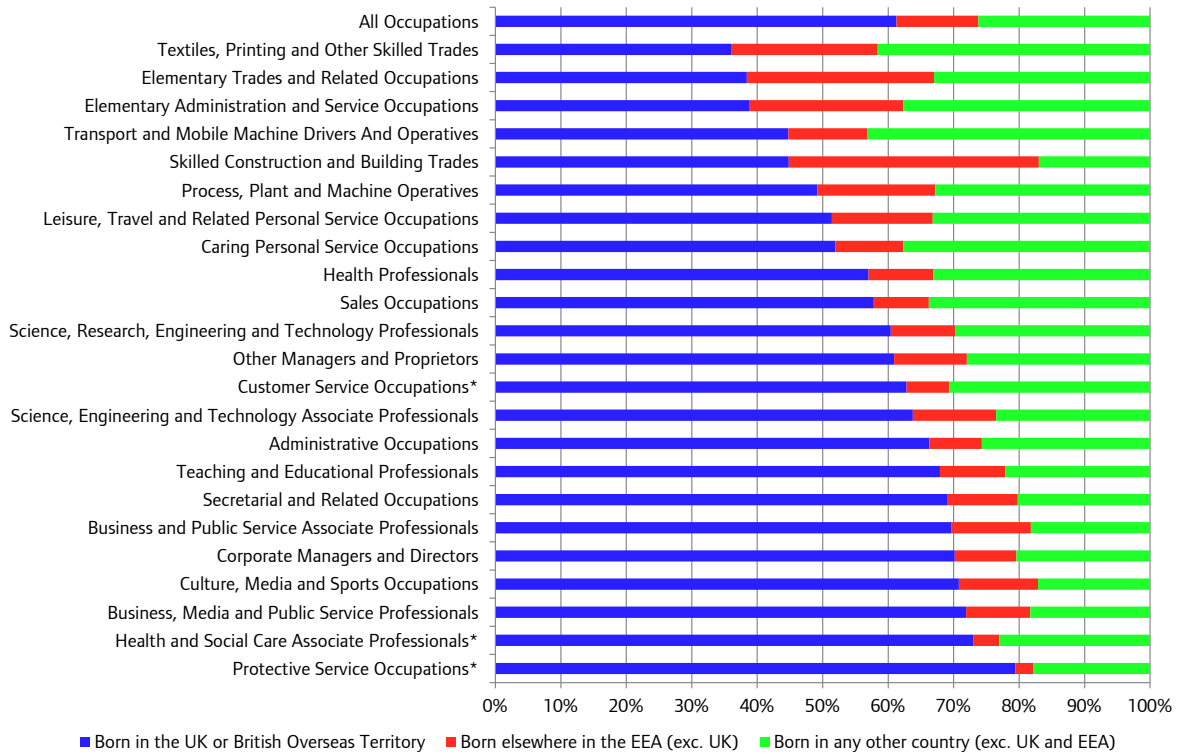


*Source: Annual Population Survey, 2015*
*Note: Occupations marked with an asterisk (\*) symbol are based on very small sample sizes and should therefore be treated with caution as they are not robust.*

In recent years the Government has moved to introduce stricter controls on international migration from outside the European Union. One in four jobs in London in 2015 was filled by someone born outside the UK/EEA[172]. 'Residential care activities' (48 per cent), 'Food and beverage service activities' (38 per cent), and 'Accommodation' (37 per cent) have the highest proportions of jobs filled by people born outside the UK/EEA compared to the average for all sectors (26 per cent).  Looking closer at sub-sectors (see Figure 6.24), some 'high value' activities such as Computer programming, consultancy and information services (32 per cent) have above average proportions of jobs filled by non-EEA residents. These are activities in which London has a particular specialism and which have seen significant growth.

**Figure 6.24: Selected sectors (division-level) with high proportions of jobs filled by people born outside the European Economic Area (% of jobs), 2015**
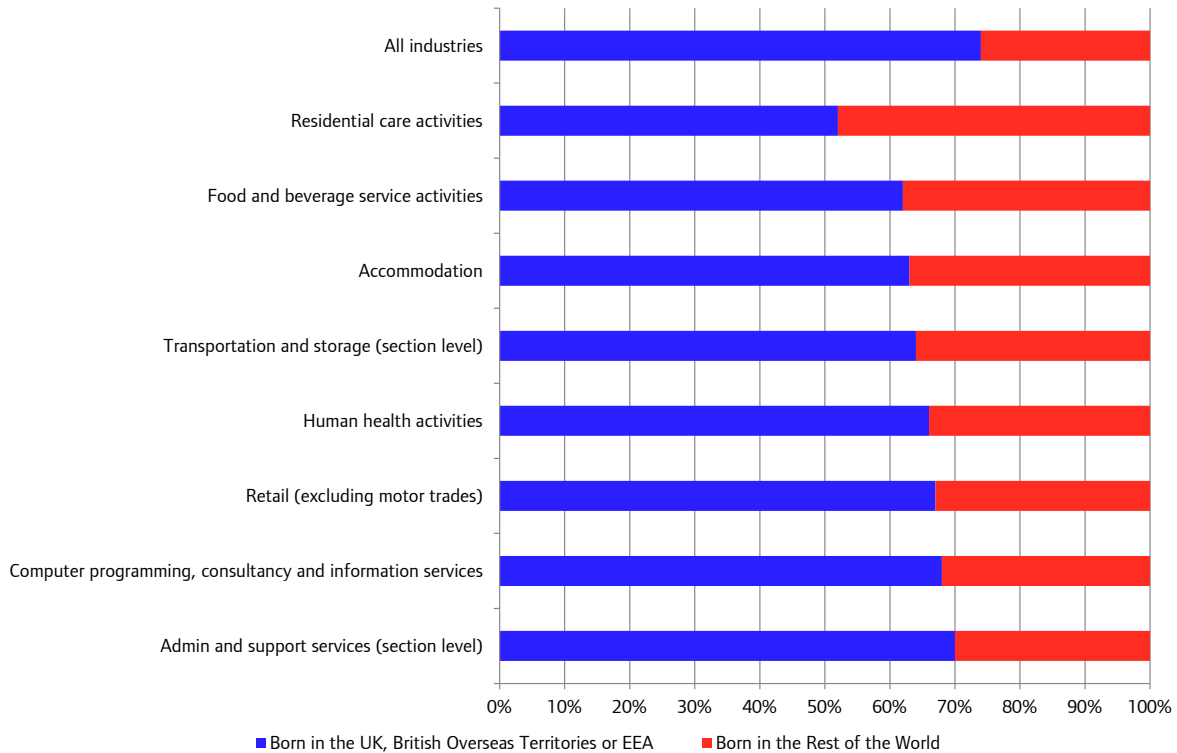
Figure 6.25 shows more detailed set of selected occupations with particularly high proportions of jobs filled by people born outside the EEA. Occupations especially reliant on people born outside the EEA include: carers (53 per cent), process operatives (50 per cent), food preparation and hospitality trades (50 per cent) and elementary cleaning occupations (49 per cent).

**Figure 6.25: Occupations in London with high proportions of jobs filled by people born outside the European Economic Area (% of jobs), 2015**
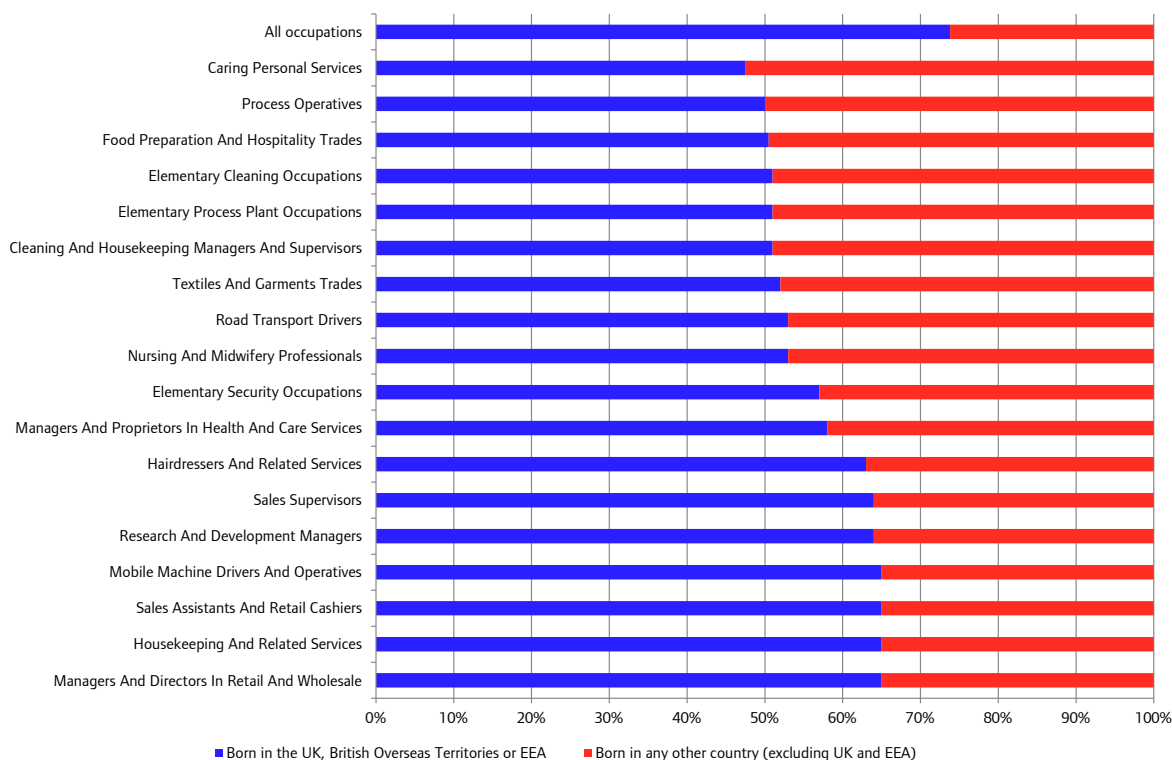


Source: ONS Annual Population Survey, 2015

An important route through which skilled workers from non-EEA countries are permitted to work in the UK is the Tier 2 visa system. Other routes within the system are Tier 1 (investors, entrepreneurs and exceptional talent) and Tier 5 (youth mobility and temporary workers)[174]. Within Tier 2 there are four routes: General, Intra Company Transfer (ICT), Minister of religion and Sportsperson. The Tier 2 route as a whole represented just under half of all entry clearance visas granted for work purposes in 2015. Within the Tier 2 route there is a capped element (see below) which represents a smaller subset of approximately 14 per cent of the total of visas granted[175].

Employers must have a license before they can hire from outside the EU and a Certificate of Sponsorship (CoS) for each foreign worker they employ. All applications must meet a minimum salary threshold of £20,800 with different thresholds for different occupations. The Government announced that this minimum threshold for experienced workers would increase to £30,000 by April 2017. The salary threshold for new entrants (i.e. graduates) will remain at £20,800. From April 2016, Tier 2 migrants applying for Indefinite Leave to Remain in the UK will need to earn a minimum £35,000 per year unless they are on the Tier 2 shortage occupation list[176] or scientists and researchers in a PhD level job.

Under the Tier 2 (General) scheme the number of permits is capped at 20,700 a year (an average of 1,725 per month[177]). When the cap is reached, a points-based system gives priority to certain applications, including those for jobs that cannot be filled from the domestic UK market and which have passed the Resident Labour Market Test; those on the Shortage Occupation List (SOL); and applications for PhD-level jobs. Jobs with higher salaries also score more points. The application must score a minimum of 21 points to be valid.

Figure 6.26 shows how demand for Tier 2 visas for skilled workers has risen since 2011 when the cap was introduced. Around 10,000 permits were allocated in 2011/12 – significantly below the cap - but this has grown year on year to reach the 20,700 limit in the previous two financial years.

**Figure 6.26: The number of restricted certificates allocated to employer sponsors for foreign workers in Tier 2 (General), 2011/12 – 2015/16**

**Annual Tier 2 (General) CoS permits granted**
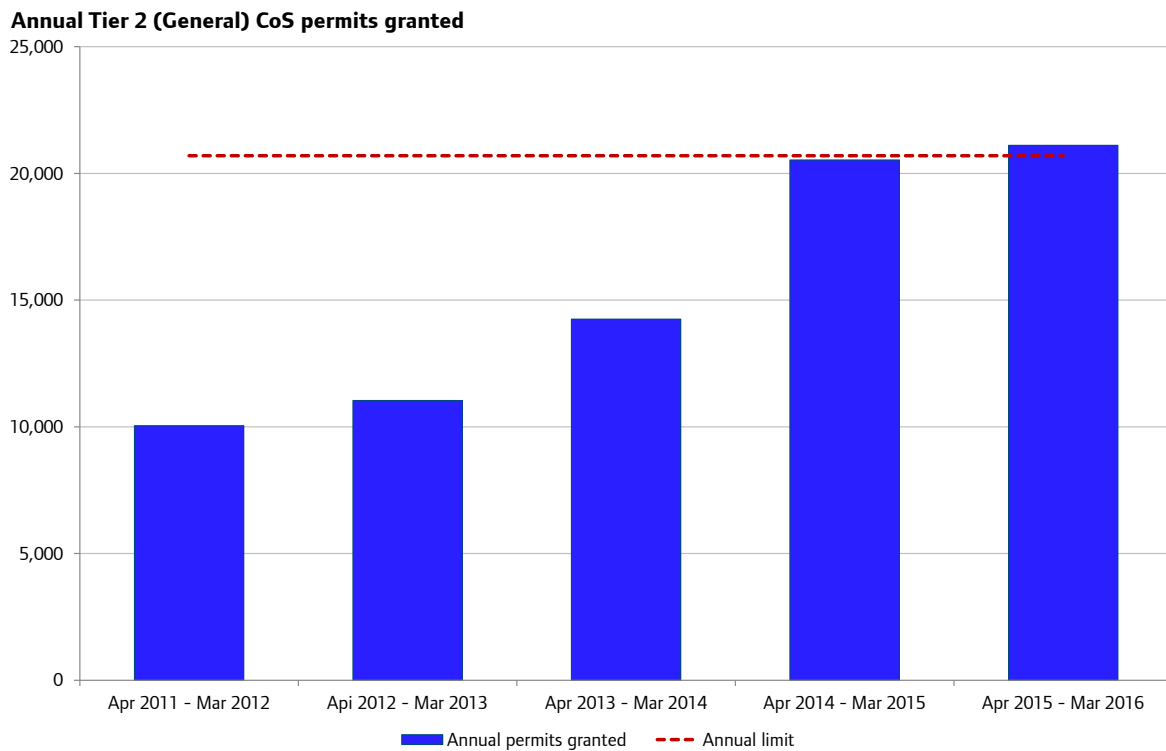


Source: Home Office[178]
Note: In 2015/16, 22,017 certificates were allocated but 2,230 were returned unused.

In a number of months in 2015, the operation of the cap led to much higher points requirements and applications for certificates of sponsorship being refused. Should demand for permits continue to rise and the cap remains the same then increasingly a higher salary will be required for skilled migrants to enter the UK.

**Figure 6.27: The number of restricted certificates allocated to employer sponsors by month, for non-EEA workers in Tier 2 (General)**

Monthly Tier 2 (general) CoS permits granted
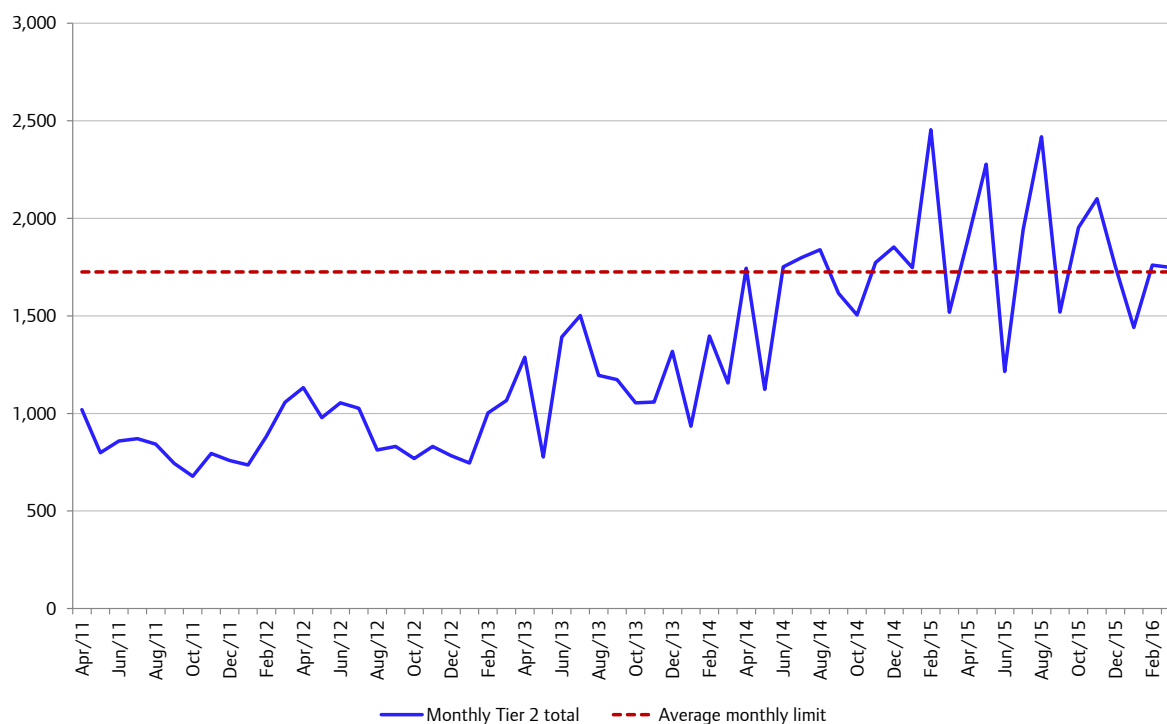


*Sources and notes: Tier 2 allocations Home Office, allocations of restricted certificates of sponsorship from March 2015. Data prior to March 2015 is taken from a Home Office FOI response on 29 April 2015. CoS are allocated on a monthly basis with 2,500 available in April and 1,650 in subsequent months. When this limit is not reached, the number of granted applications for subsequent months can be higher than this limit as CoS are carried over from the previous month.*

A number of commentators have argued that the operation of the cap is potentially damaging to the economy if it prevents employers hiring the skilled labour they need[179]. The breadth and depth of London's international trade and its concentration of knowledge-based firms means that access to international labour is particularly important.

*International students*

International students are part of the immigration debate because those staying for more than 12 months are included in the net migration statistics cited by Government. In the case of non-EEA students, immigration is managed through Tier 4 of the visa system. From 2010 onwards, the Government introduced more stringent regulations to address 'abuse' of the system whereby a student visa had been viewed by some as a backdoor through which to work in the UK. These conditions included: tighter English language requirements, restrictions on dependants coming to the country and rights to work[180]. In April 2012, legislation was introduced which meant non-EEA graduates wishing to stay on to work in the UK after their studies now have four months in which to find a job with a registered sponsor company that will support their application via the Tier 2 visa route. Those switching from a Tier 4 to a Tier 2 visa are not counted in the cap discussed above but they must satisfy the Home Office's criteria including a minimum salary threshold of £20,800. This replaced the automatic two-year post-study work visa to which students were previously entitled.

These stricter conditions have led to a fall in the numbers of some international students enrolling at British universities. Figure 6.28 shows data on inflows of migrants for formal study from the International Passenger Survey (IPS). The number of non-EU students coming to the UK fell from a peak of 180,000 in 2011 to 134,000 in 2014.

**Figure 6.28: Student migration to the UK, EU and non-EU, 1995-2014 (thousands)**
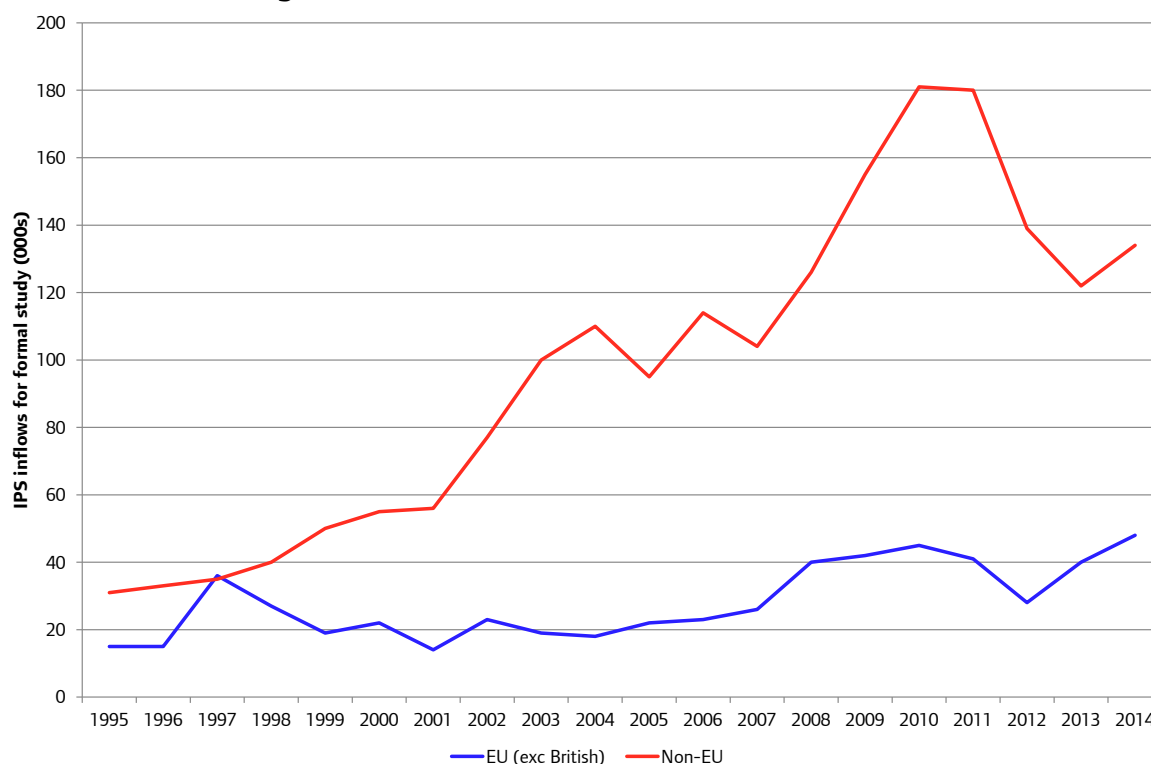


Source: International Passenger Survey (IPS), ONS long-term migration statistics, table 3.08.
Notes: Data is presented for the year-ending in June. IPS estimates are not-adjusted to account for changes in status between visitors and migrants that occur following entry to the UK.

The risk is that talented graduates are lost to competitor universities in the US, Australia, Germany and Canada due to the tighter controls. These countries treat students as temporary even if they stay for more than a year and actively target an increase in international student numbers. Research by PWC and London & Partners found that international (non-EU) students studying at London universities contributed £2.3 billion in net benefits to the UK economy in 2013-14[181]. This impact was principally from subsistence spending and the impact of fees paid directly to London universities. China was London's biggest market in terms of both student numbers and local spend followed by the United States and India.

## 6.4.2.3 Infrastructure

With London's population and workforce projected to grow over the next 20 years, infrastructure will come under increasing pressure. Whilst transport infrastructure is perhaps the most commonly cited area of concern, increases in energy, waste, and water capacity will also be needed to ensure growth is sustainable. Broadband is also increasingly viewed by businesses and residents as an essential utility.

**Transport**

An efficient and reliable transport network is important for the economy in a number of ways. First, there are time savings benefits as workers shift from unproductive time spent travelling to more productive, or valuable, business and leisure activities. Second, there are agglomeration benefits as businesses and people are brought closer together by transport systems. Third, an efficient transport network can help to facilitate firms' access to markets and lower their transaction costs[182].

Some level of congestion and crowding on London's transport network is arguably the inevitable consequence of having to transport a mass of people to and from central London and the surrounding areas. Dispersing economic activity to avoid these congestion costs, while a potentially desirable objective, could mean fewer agglomeration benefits. The question is therefore whether current levels of congestion and crowding in London are sub-optimal and whether future investment in transport

infrastructure can keep pace with rising demand such that London can continue to grow. Improving London's transport network need not be just about investing in new infrastructure, it could also be about demand management such as road pricing and facilitating other active forms of travel like walking and cycling.

*Highways congestion*
London suffers from congestion on its roads at peak periods. During the week, the most significant groups affected by congestion in central London are businesses requiring freight and servicing, bus passengers and people travelling by taxi. Vans are a significant part of traffic in London and made up 14 per cent of vehicle kilometres travelled in 2014[183].

Map 6.2 shows highway congestion at morning peak periods in 2011 measured by the time delay per kilometre. Links on the inner ring road as well as some links inside the Congestion Charging Zone and on key routes such as the Blackwall Tunnel and North and South Circulars show the greatest level of delay. More moderate delays exist across London, particularly on the radial routes.

**Map 6.2: Highway congestion, morning peak 2011**
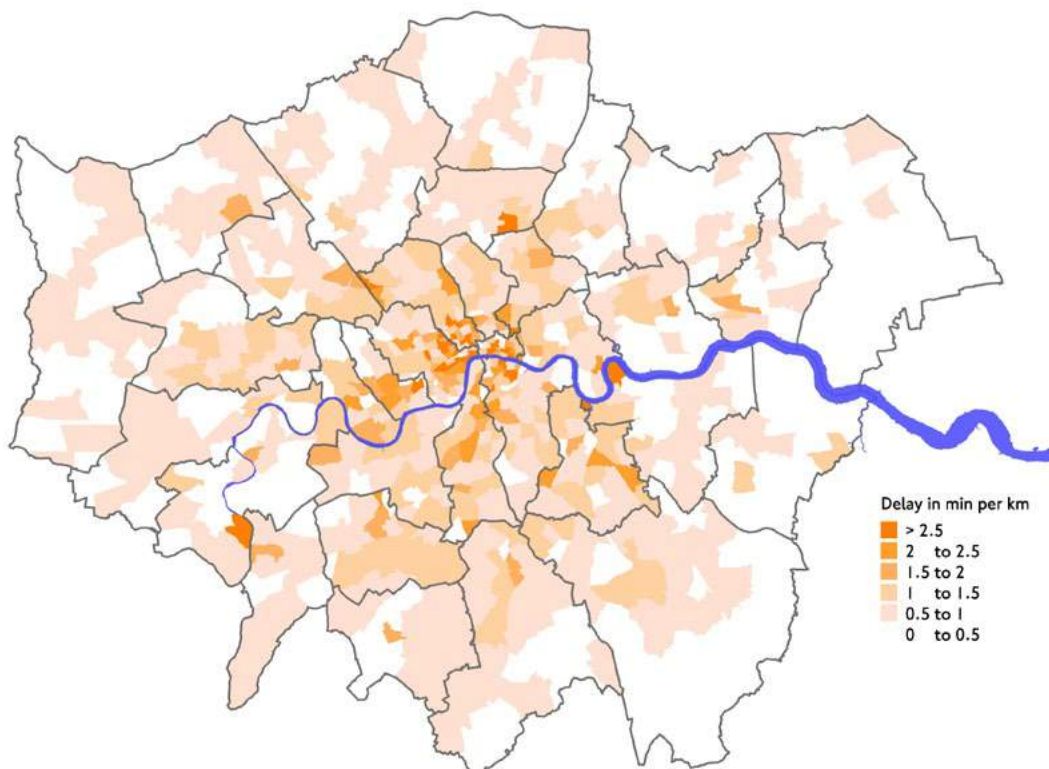


*Source: TfL Planning, Strategic Analysis*

Increasing demand driven by population and employment growth will lead to more congestion on many major roads in the future as shown in Map 6.3 which models congestion in London in 2041. The model shows a general deterioration in congestion in most areas across London with the greatest increase in delays in central areas with problems also emerging in east London (particularly on the A13), as well as other points on the North and South Circulars. It should be noted that while this indicates that journeys made by car in central London will be slower in future, continued investment in public transport and cycling could mean that a greater number of journeys can be made by other modes more efficiently.

**Map 6.3: Highway congestion, morning peak 2041**



Delay in min per km

- \> 2.5
- 2 to 2.5
- 1.5 to 2
- 1 to 1.5
- 0.5 to 1
- 0 to 0.5
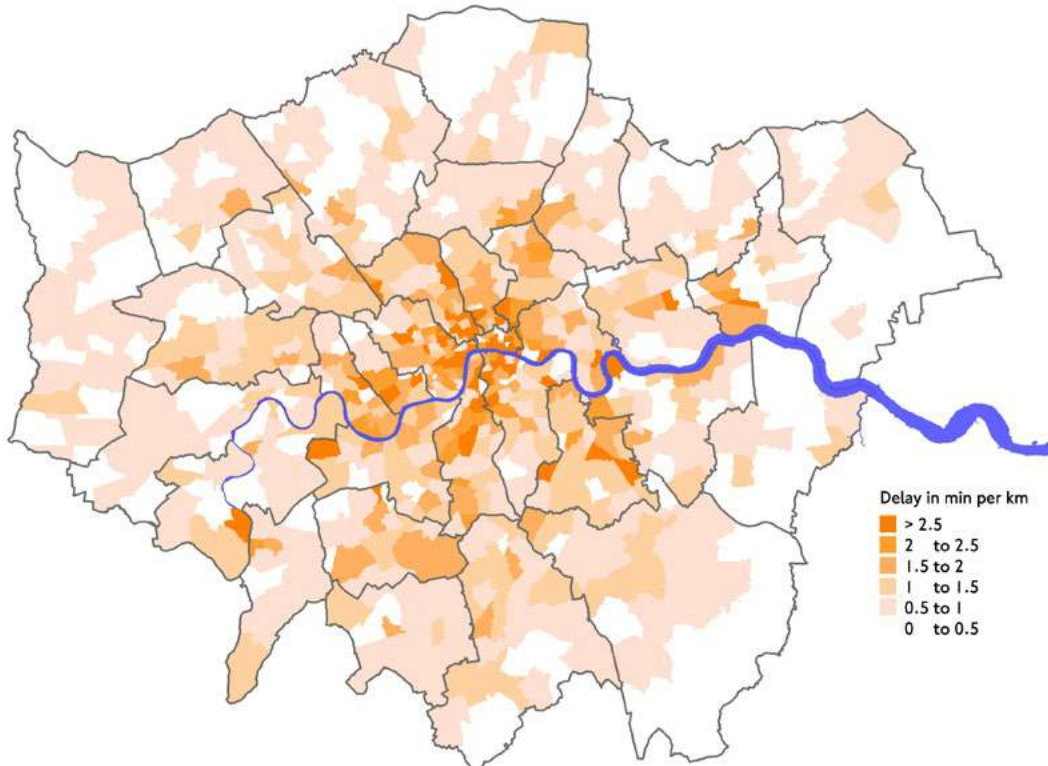
*Source: TfL Planning, Strategic Analysis*[184]

Figure 6.29 shows the number of minutes delay per kilometre in different parts of London at morning peak (07:00-10:00), afternoon peak (16:00-19:00) and inter-peak periods. Central London suffers the most from congestion on this measure and delays are forecast to rise in all areas of London in future years.

**Figure 6.29: Delay by functional sector of London and time period, 12 month rolling average.**
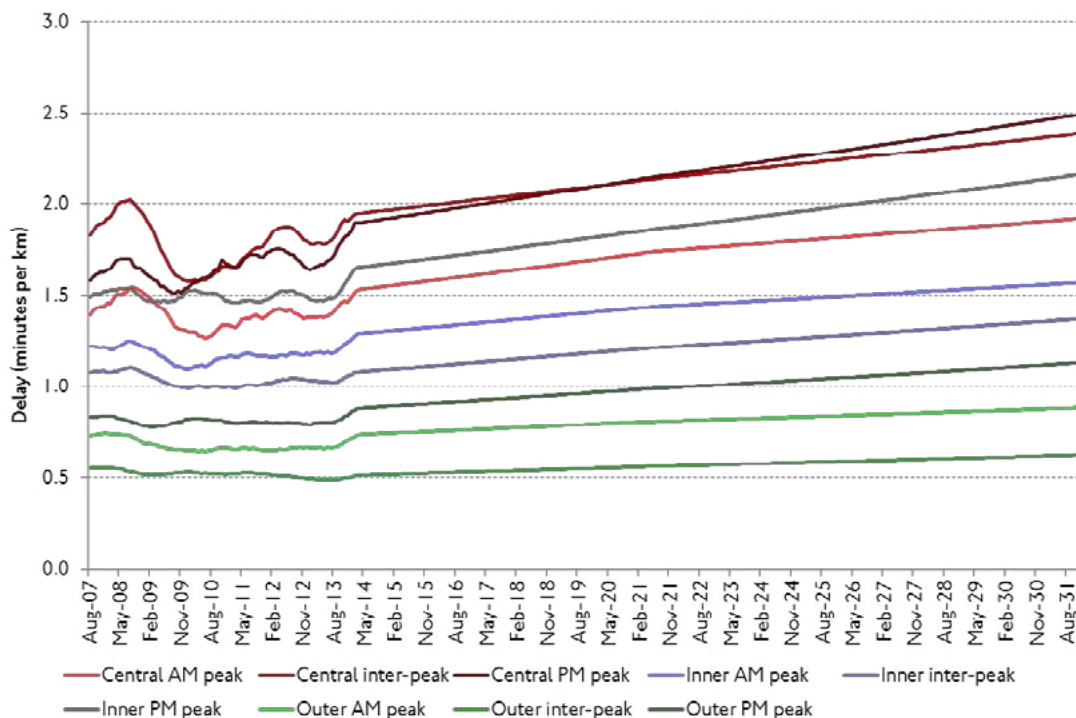


*Source: TfL Planning, Strategic Analysis*[185].

Travel in outer London is more car dependent as trip makers have fewer alternatives and the local economy is therefore more reliant on an efficient road network to transport goods and people. Because of the greater reliance on motor vehicles in outer London, the total time lost to congestion on roads is higher despite it being 'less congested' on a minutes per kilometre basis. Figure 6.30 shows total time lost to congestion each year in central, inner and outer London areas. This is calculated on the basis of total travel time above the time a journey would have taken in uncongested conditions (defined as night time travel conditions). This suggests that the total hours of delay each year for motorists will grow fastest in outer London.

**Figure 6.30: Total delay experienced by motor vehicles in London**
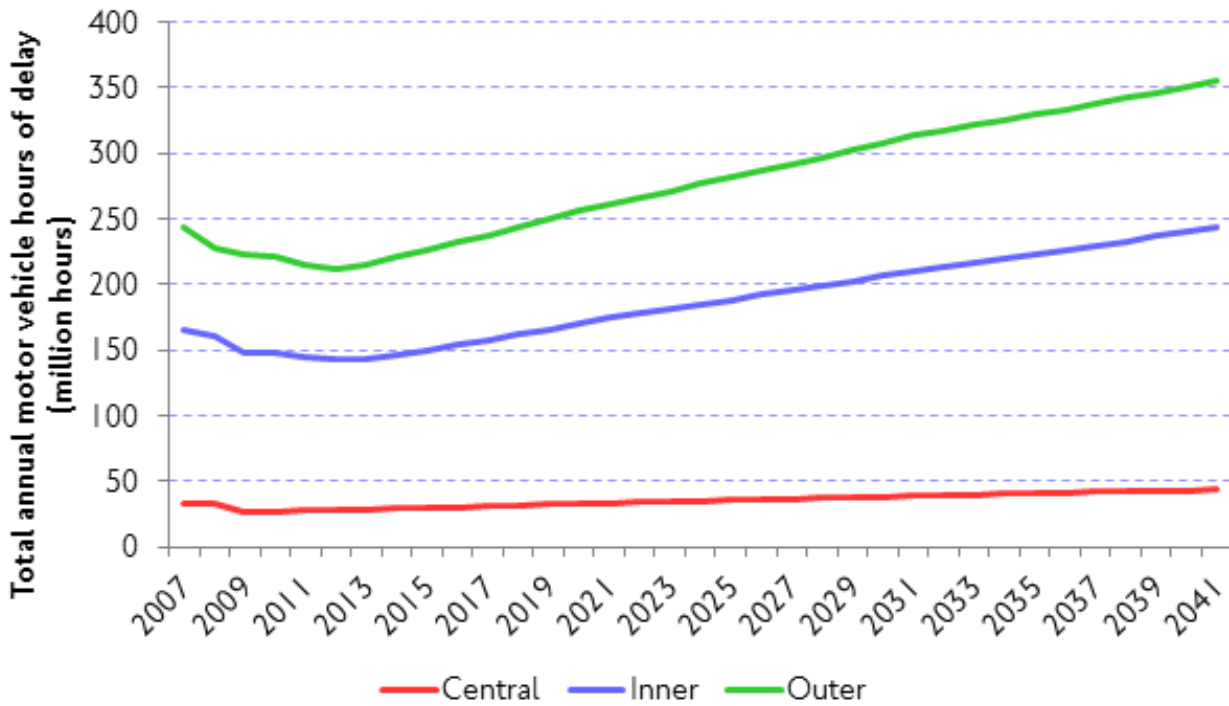


*Source: TfL Planning, Strategic Analysis[186]*

Comparing London with other European cities, Highways in London are among the most congested according to INRIX, a provider of real-time traffic information[187]. London commuter zone drivers wasted an average of 96 hours idling in traffic in 2014 – the highest in Europe (see Table 6.8). Of the 94 European cities analysed in the report, nearly half (48 per cent) experienced an increase in traffic compared to 2013.

**Table 6.8: Europe's most congested cities in 2014 (ranked by annual hours wasted)**

| 2014 Rank | 2013 Rank | Metropolitan area | Hours wasted in traffic 2014 | Difference in comparison to hours wasted in 2013 |
|---|---|---|---|---|
| 1 | 2 | London (commuter zone) | 96 | 14 |
| 2 | 1 | Brussels | 74 | -9 |
| 3 | 6 | Cologne | 65 | 9 |
| 4 | 3 | Antwerp | 64 | -14 |
| 5 | 5 | Stuttgart | 64 | 4 |
| 6 | 10 | Karlsruhe | 63 | 10 |
| 7 | 7 | Milan | 57 | 1 |
| 8 | 13 | Düsseldorf | 53 | 4 |
| 9 | 15 | Utrecht | 53 | 5 |
| 10 | 9 | Ghent | 52 | -2 |
| 11 | 16 | Gr. Manchester | 52 | 6 |
| 12 | 12 | S Gravenhage | 51 | 2 |
| 13 | 14 | Hamburg | 48 | 0 |
| 14 | 17 | Munich | 48 | 4 |
| 15 | 4 | Rotterdam | 48 | -15 |

*Source: INRIX*

Total time wasted in traffic in London is significantly higher than the UK average, which was 30 hours per person in 2014. Indeed, all of the UK's most congested roads, as measured by annual hours wasted, are within London according to INRIX.

**Table 6.9: The UK's most congested roads in 2014 (ranked by annual hours wasted)**

| Rank | Area | Road(s) | From | To | Distance (miles) | Worst peak period | Worst Day/ Hour | Total Delay per Year (hours) |
|---|---|---|---|---|---|---|---|---|
| 1 | London | A217 | Rosehill Roundabout | New Kings Road | 10.37 | AM | Weds 08:00 | 138.6 |
| 2 | London | A215 | Albany Road: Camberwell | Shirley Road: Croydon | 9.55 | PM | Fri 18:00 | 119.72 |
| 3 | London | A4 | Henlys Roundabout: Hounslow | Holborn Circus | 14.68 | AM | Weds 08:00 | 113.44 |
| 4 | London | A4 | Aldwych | Henlys Roundabout: Hounslow | 14.18 | PM | Weds 18:00 | 108 |
| 5 | London | A23 | Thornton Heath | Westminster Bridge | 8.62 | AM | Tues 08:00 | 95.96 |

*Source: INRIX*

The economic cost of congestion is significant. A study by INRIX and Cebr estimated the annual cost of congestion in London to be £5.4 billion in 2013 and they forecast this could rise to £9.3 billion by 2030, a cumulative cost over the period of £130 billion[188]. This includes: direct costs such as the value of fuel and time wasted from workers being stuck in traffic (or having to allow time for this eventuality) rather than being productive at work; and indirect costs such as higher freighting and business costs from company vehicles idling in traffic, which are passed on as additional costs to households.

*Public transport crowding*
There has been progressive modal shift from private forms of transport to public transport in London (see Chapter 3 for more on travel patterns in London), which together with growing population and employment, has contributed to growing pressure on the public transport network. According to TfL eight in ten arrivals to central London in the morning peak are by rail, underground or DLR. These journeys must then disperse by foot, cycle or bus to their final destination. TfL expects a million additional daytime public transport trips to be made by 2041 to, from and within central London.

Crowding on public transport has significant impacts on individuals and the economy. Customers find travelling in crowded conditions uncomfortable and stressful. Research by ONS suggests that other things being equal, commuters have lower life satisfaction, less of a sense that their daily activities are worthwhile, lower levels of happiness and higher anxiety on average than non-commuters.[189] Crowding has economic implications where it increases journey times as trains become delayed or customers have to wait for a less crowded train or find an alternative route. Some groups are particularly affected by crowding such as those with mobility impairments who can find it difficult or impossible to travel in crowded conditions.

The volume of passengers using public transport in London at peak hours far surpasses that of other major cities in England and Wales due to its large commuter population. This can be seen by examining morning peak time rail passenger arrivals across major city centres, as shown in Map 6.4. In 2014 during morning peak, 563,000 passengers arrived by rail into central London (Zone 1 of the travelcard area), a 3 per cent increase on the previous year and just over one million passengers arrived into central London by rail across the whole day[190]. London Bridge station alone has nearly double the number of passenger arrivals in a given day than all Birmingham stations combined and over 3.5 times the number of arrivals at the morning peak[191].

It is therefore perhaps unsurprising that crowding is more of an issue in London. There are a number of different ways of analysing crowding on public transport. One measure used by the Department for Transport (DfT) is 'Passengers in excess capacity' (PiXC) which is the number of standard class passengers on a service that are in excess of the standard class capacity expressed as a percentage[192]. A higher PiXC percentage represents a worse crowding level. DfT[193] indicate that on a typical autumn weekday in 2014 overall peak crowding was higher in London than in all other major UK cities, with 4.1 per cent of passengers in excess of capacity (PiXC) compared to 1.4 per cent PiXC across the other 10 cities. Further detail is provided in Table 6.12 of the appendix to this chapter.

**Map 6.4: Rail passenger numbers and crowding on weekdays in major cities in England and Wales, 2014**

Rail Executive

**Rail passenger numbers and crowding on weekdays in major cities in England and Wales: 2014**

Newcastle
AM peak arrivals: 4,400
Peak PiXC: 0.4%

Manchester
AM peak arrivals: 30,900
Peak PiXC: 3.3%

Leeds
AM peak arrivals: 25,900
Peak PiXC: 1.6%

Liverpool
AM peak arrivals: 20,200
Peak PiXC: 0.2%

Sheffield
AM peak arrivals: 7,200
Peak PiXC: 0.8%

Birmingham
AM peak arrivals: 39,500
Peak PiXC: 1.2%

Nottingham
AM peak arrivals: 4,300
Peak PiXC: 0.6%

Leicester
AM peak arrivals: 5,500
Peak PiXC: 2.0%

Cardiff
AM peak arrivals: 12,400
Peak PiXC: 0.5%

London
AM peak arrivals: 563,400
Peak PiXC: 4.1%

Bristol
AM peak arrivals: 8,000
Peak PiXC: 0.1%

**Key**

**AM peak arrivals** is the number of passengers arriving into the city centre by national rail on a typical autumn weekday in 2014 during the three hour morning peak (7-10am).

**Peak PiXC** is the percentage of passengers in excess of capacity (PiXC) across the morning and afternoon peaks on a typical autumn weekday in 2014. It is the main measure of crowding in these statistics. A higher PiXC percentage represents a worse crowding level.

https://www.gov.uk/government/statistics/rail-passenger-numbers-and-crowding-on-weekdays-in-major-cities-in-england-and-wales-2014

*Source: Department for Transport[194]*

Map 6.5 shows passenger numbers and crowding at London's major national rail terminals. In 2014, the largest numbers of passengers arrived at London Bridge (143,300) and Waterloo (106,000) during morning peak. However, crowding as measured by PiXC was more severe at Paddington (10.1 per cent), Moorgate (8.0 per cent) and Blackfriars (7.6 per cent). Further detail on crowding including the number of passengers standing is provided in Table 6.13 of the Appendix.

**Map 6.5: Rail passenger numbers and crowding on weekdays in London, 2014**



https://www.gov.uk/government/statistics/rail-passenger-numbers-and-crowding-on-weekdays-in-major-cities-in-england-and-wales-2014
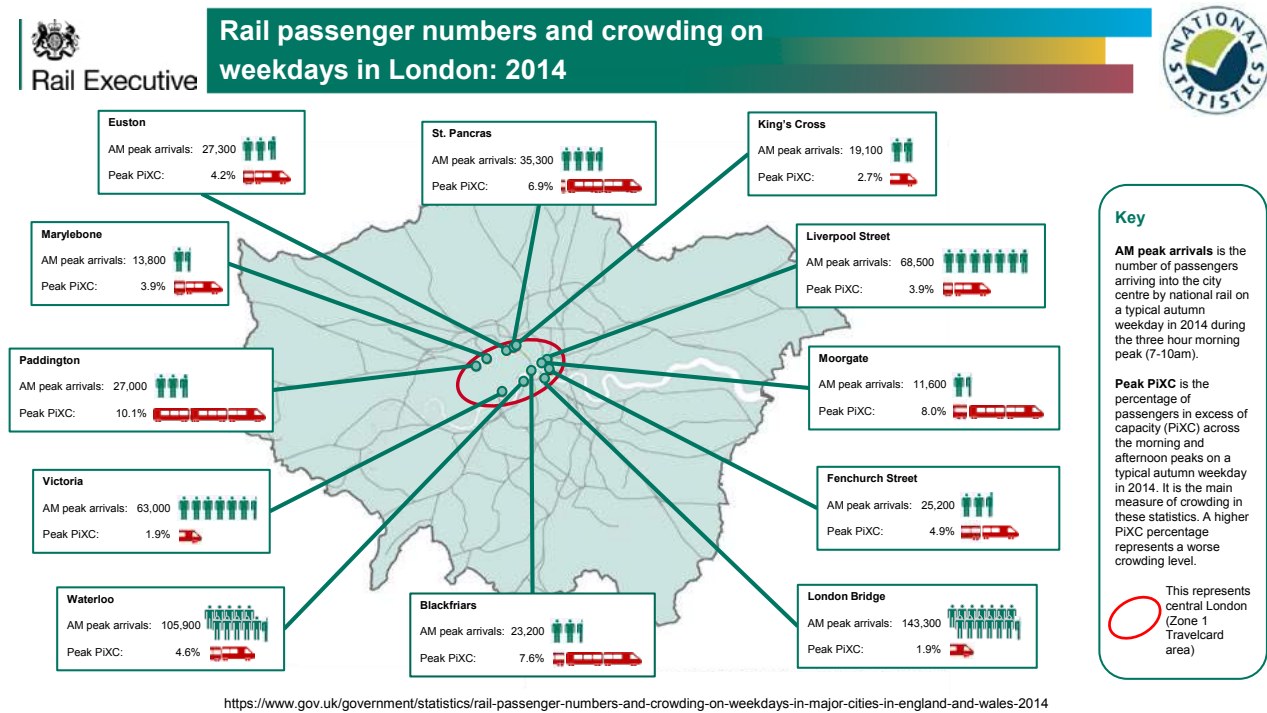
*Source: Department for Transport*

Table 6.10 shows PiXC percentages in London over the period 1990 to 2014. This suggests that crowding on peak time trains has been a persistent problem in London since 1990 but it appears to have worsened in recent years with PiXC reaching its highest level in 2014 at 5.4 per cent.

**Table 6.10: Passengers in excess of capacity (PiXC) on a typical autumn weekday on London & South East train operators' services, annual from 1990**

| Year | AM peak (07:00-09:59) | PM peak (16:00-18:59) | Both peaks |
|---|---|---|---|
| 1990 | 4.3% | 2.2% | 3.3% |
| 1991 | 3.8% | 2.1% | 3.0% |
| 1992 | 3.7% | 1.5% | 2.7% |
| 1993 | 3.3% | 1.4% | 2.5% |
| 1994 | 3.2% | 1.0% | 2.1% |
| 1995 | 3.0% | 1.0% | 2.1% |
| 1996 | 2.6% | 1.2% | 1.9% |
| 1997 | 3.9% | 2.1% | 3.1% |
| 1998 | 3.7% | 1.4% | 2.7% |
| 1999 | 3.8% | 1.6% | 2.8% |
| 2000 | 5.1% | 1.8% | 3.6% |
| 2001 | 5.0% | 1.7% | 3.6% |
| 2002 | 3.7% | 2.1% | 2.9% |
| 2003 | 3.8% | 1.5% | 2.7% |
| 2004 | 4.1% | 1.5% | 2.9% |
| 2005 | 4.0% | 1.6% | 2.9% |
| 2006 | 4.7% | 1.9% | 3.4% |
| 2007 | 4.2% | 1.5% | 3.0% |
| 2008 | 4.0% | 1.8% | 3.0% |
| 2009 | 2.9% | 1.4% | 2.2% |
| 2010 | 4.0% | 1.9% | 3.0% |
| 2011 | 4.0% | 2.2% | 3.2% |
| 2012 | 4.1% | 1.7% | 3.0% |
| 2013 | 4.0% | 2.0% | 3.1% |
| 2014 | 5.4% | 2.5% | 4.1% |

*Source: Department for Transport*

Table 6.11 shows PiXC by train operator indicating that at morning peak in autumn 2014, First Great Western had the highest percentage of passengers in excess of capacity (13.5 per cent) followed by Thameslink (7.4 per cent) and c2c (7.0 per cent).

**Table 6.11: Passengers in excess of capacity (PiXC) on a typical autumn weekday by operator, London & South East train operators, 2014**

| | AM Peak PiXC (7:00 to 9:59) | PM Peak PiCX (16:00 to 18:59) | Overall PiXC |
|---|---|---|---|
| c2c | 7.0% | 2.4% | 4.9% |
| Chiltern Railways[195] | 4.9% | 2.8% | 3.9% |
| First Great Western[196] | 13.5% | 6.0% | 10.1% |
| Govia Thameslink Railway | 7.4% | 5.1% | 6.3% |
| Greater Anglia[197] | 5.5% | 2.1% | 3.9% |
| London Midland | 5.7% | 7.4% | 6.5% |
| London Overground[198, 199] | 0.0% | 0.0% | 0.0% |
| South West Trains | 5.5% | 3.6% | 4.6% |
| Southeastern | 2.8% | 0.3% | 1.6% |
| Southern | 4.9% | 0.7% | 3.0% |
| All London & South East operators | 5.4% | 2.5% | 4.1% |

*Source: Department for Transport*

An alternative measure of crowding is the number of passengers per square metre. Research by the University of Greenwich into crowd behaviour in public spaces more generally suggests that crowds of four people per square metre are relatively low risk but if this climbs to six to ten people per square metre it becomes high risk as people become packed so tightly together they are unable to choose how they move[200]. Map 6.6 shows levels of crowding on the London Underground and DLR network at morning peak periods in 2011 according to this measure. Map 6.7 shows crowding on National Rail routes into London at morning peak in 2011. 'Crowded' parts of the line are defined as those with approximately two to three passengers per square metre and 'very crowded' lines (marked in red) are those with three to four passengers per square metre. Lines in black are where there are four to five people per square metre, and lines in purple are where there are more than five people standing per square metre, considered to be the maximum levels of crowding.

**Map 6.6: London Underground and DLR crowding, morning peak, 2011**
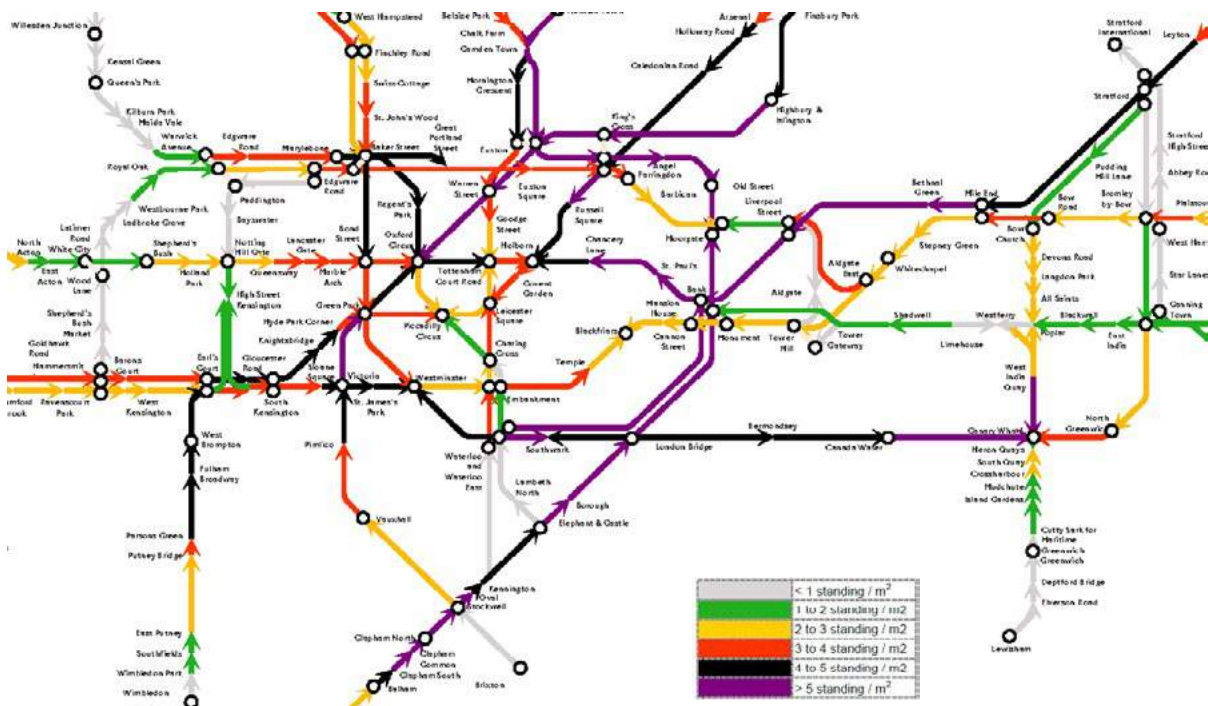


*Source: TfL Planning, Strategic Analysis[201].*

**Map 6.7: Rail crowding, morning peak, 2011**
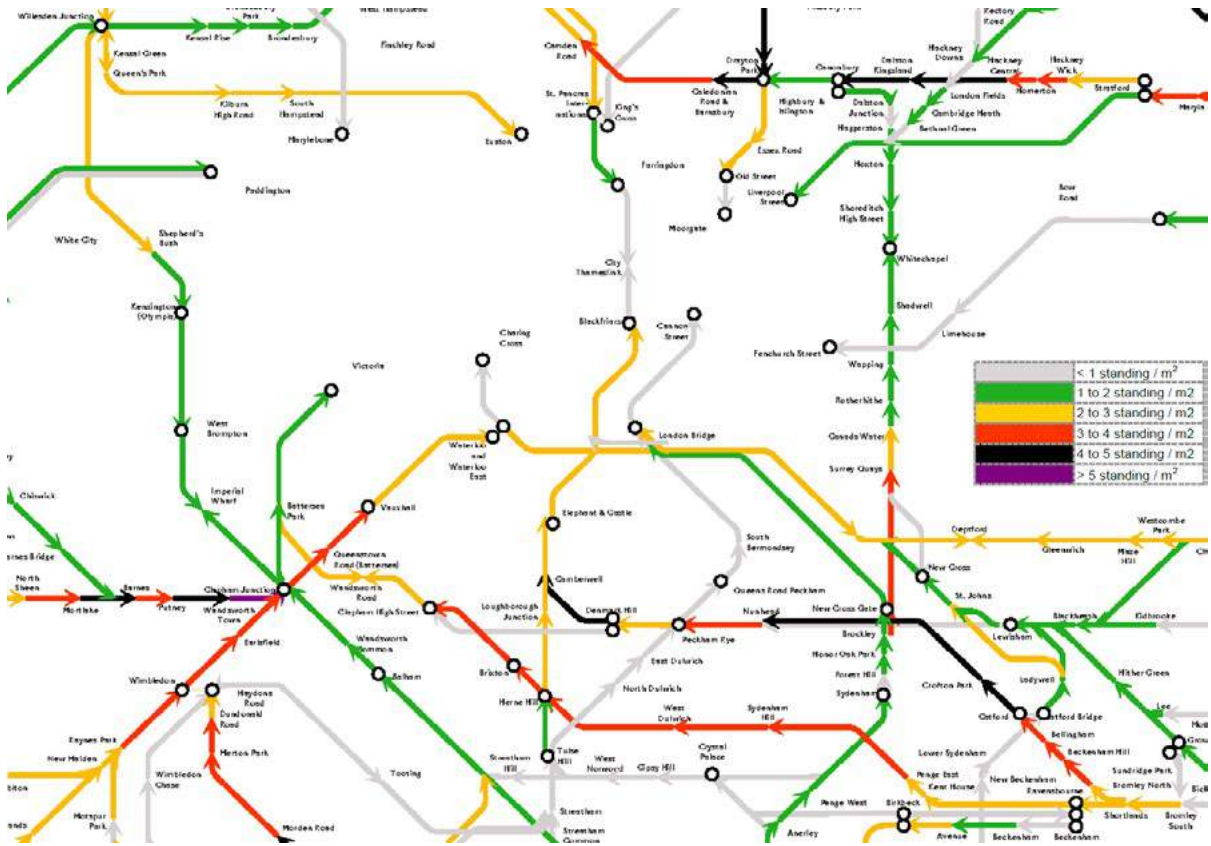


*Source: TfL Planning, Strategic Analysis[202].*

A significant programme of funded rail and underground investment will increase capacity in London. Maps 6.8 and 6.9 show where increases in capacity are expected as a result of new investment. New passenger capacity is created by upgrades to all lines but no significant changes are modelled for the DLR or Tramlink. Thameslink and Crossrail provide new north–south and east–west routes and create significant new capacity at King's Cross, Liverpool Street, London Bridge, Charing Cross, Victoria and Paddington terminals but not at Waterloo.

**Map 6.8: Increase in capacity at morning peak (passenger numbers) from funded schemes on the Underground, 2031**



*Source: TfL Planning, Strategic Analysis.*

**Map 6.9 Increase in capacity at morning peak (additional passengers) from funded schemes on National Rail Networks, 2031**



*Source: TfL Planning, Strategic Analysis.*

Despite this new investment, demand is forecast to increase faster than supply. TfL estimate that by 2041 the number of passenger-kilometres travelled exceeding a standing passenger density of two people per square metre is expected to increase by 60 per cent on London Underground and by 150 per cent on National Rail.

Map 6.10 models crowding levels in 2041 factoring in expected demographic and behavioural changes and committed investment including Crossrail. As can be seen, while Crossrail will provide some relief in Zone 1, many parts of the Underground and DLR network will continue to suffer from significant crowding at morning peak. According to TfL's model, by 2041 only three London Underground lines will experience fewer than two people per square metre when entering Fare zone 1, with nine lines experiencing crowding of more than four people per square metre. Furthermore, some lines will experience crowding far outside the central zone, with the Northern line northbound seeing crowding of more than four people per square metre from Balham to Bank (18 minutes travel) and the Central line crowded to a similar level from Leytonstone to St Pauls (17 minutes travel).

**Map 6.10: London Underground and DLR crowding, modelled morning peak, 2041**



*Source: TfL Planning, Strategic Analysis[203]*

Map 6.11 models crowding on the National Rail network in 2041 accounting for planned TfL investments including Crossrail. On this basis, crowding is expected to be alleviated on some parts of the network where new investment is planned but will worsen on others, for example on trains into Waterloo and Paddington. Crowded travel is expected to increase on most lines between 2011 and 2041 despite upgrades; even new services such as The Elizabeth Line (Crossrail) and Thameslink will experience crowding by 2041. Lines initially relieved by The Elizabeth Line, such as services to Liverpool Street, are expected to experience rapid increases in congestion by 2041. Similarly, whilst Thameslink services are initially relieved by upgrades, crowding then increases rapidly. The exception is that services to Paddington and Euston will be relieved by High Speed 2 over this time period.

Whilst in the short term upgrades provide crowding relief, the substantial rise in demand for travel by 2041, reflecting both population growth and especially the concentration of employment growth in central London, means that crowding will increase considerably. Key areas identified as needing more capacity include:

- North East (Victoria, Piccadilly, Central and Northern lines) – South West corridors (Northern, District, and rail lines to Waterloo)
- DLR (Canary Wharf)
- Tramlink (east of Croydon)
- The Elizabeth Line (Ilford to Liverpool Street)

**Map 6.11: Rail crowding, modelled morning peak, 2041**
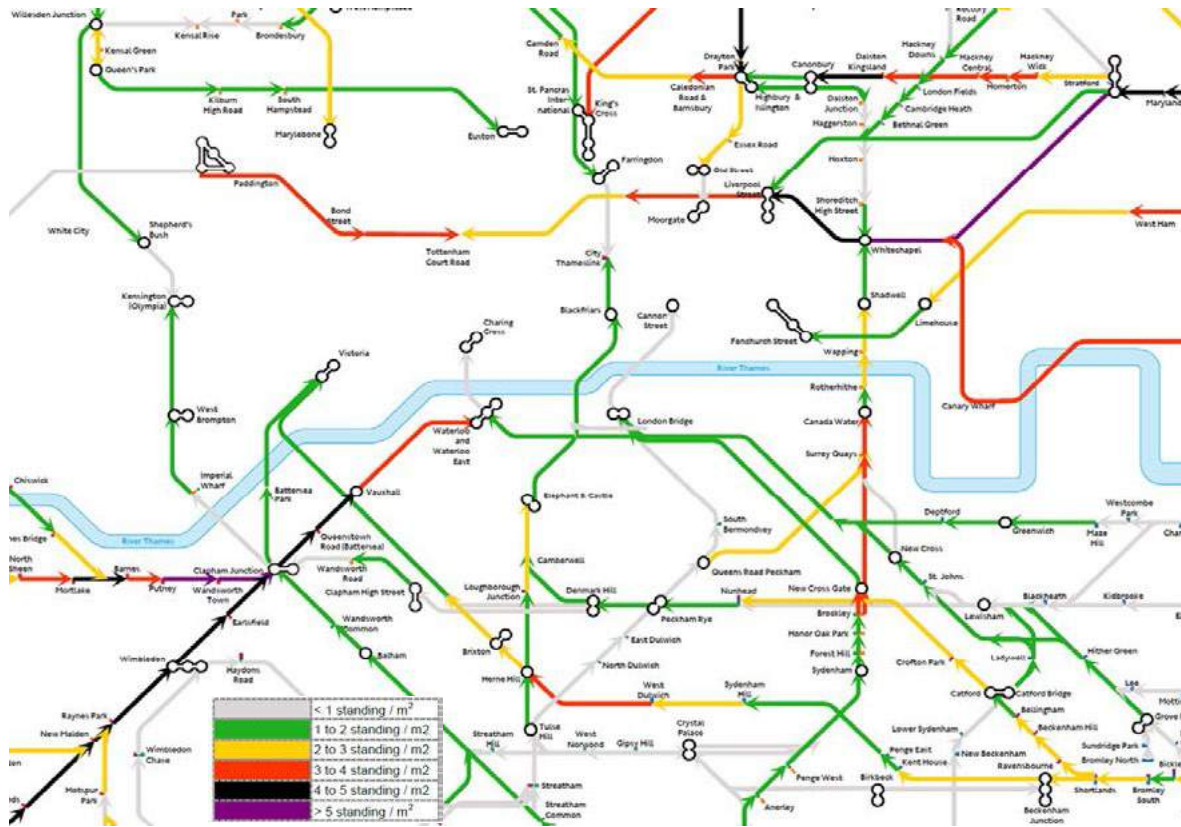


*Source: TfL Planning, Strategic Analysis[204]*

When compared to similar metro systems in Europe and North America, the London Underground and DLR are relatively reliable networks. Figure 6.31 shows incidents causing a five minute delay across Western Europe and North America metro networks[205]. The DLR ranks as the third most reliable and London Underground as the fifth most reliable of the major metro networks in Western Europe and America[206].

**Figure 6.31: Incidents causing a five minute delay per million car kilometre (Western Europe and North America, 2013/14)**
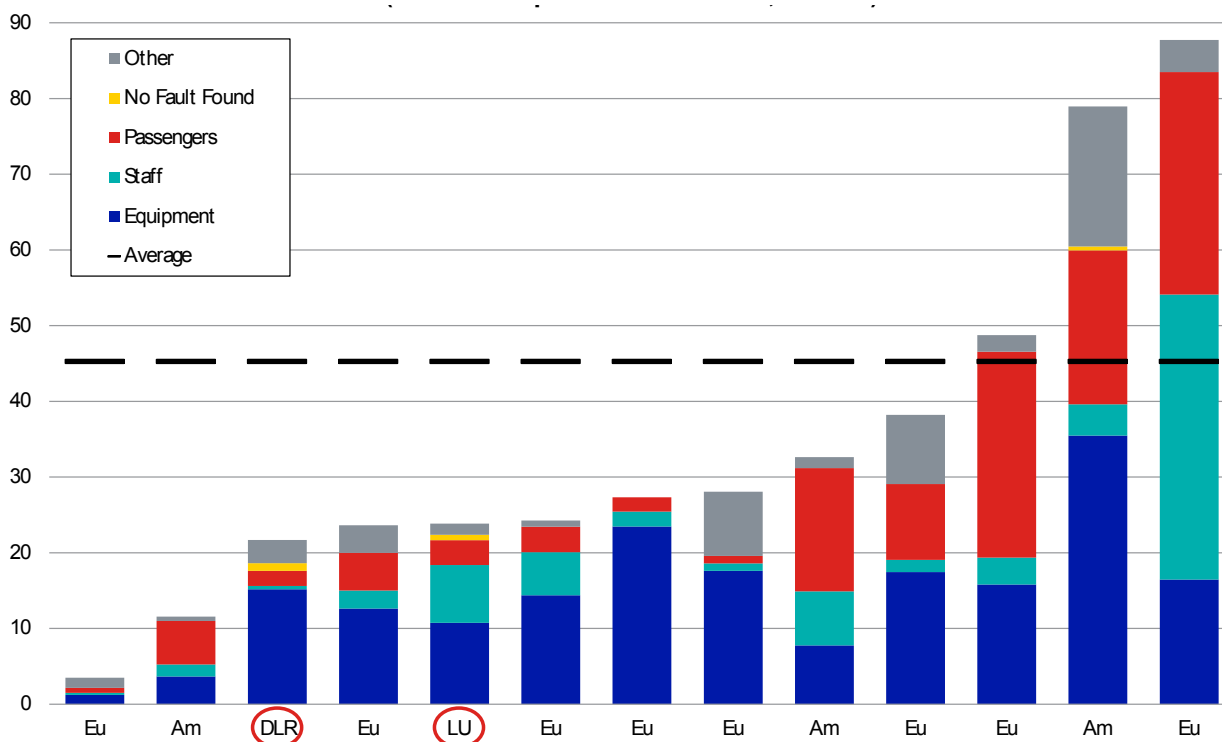


*Source: TfL*

Moreover, despite the level of congestion and crowding on London's transport network, businesses expressed their overall satisfaction with London's transport network in the London Business Survey with 70 per cent of business units saying transport infrastructure within London was good or excellent, 24 per cent saying it was adequate and 4 per cent saying it was poor[207].

## Airport capacity

Good aviation connectivity is vital for a global city like London. It promotes trade and investment and in doing so generates employment and helps to improve productivity. London's strong services sector, which generates significant export earnings for the UK, is particularly reliant on aviation. Air transport links are also important for attracting tourists to London and for Londoners to be able to travel abroad for leisure which is good for health and wellbeing[208].

London's airports are amongst the busiest in the world – Heathrow has been at full capacity for many years while Gatwick is operating at 85 per cent capacity and full capacity during peak periods[209]. Capacity constraints have knock-on impacts in terms of delays and unreliability, making London's airports less resilient to disruptions such as adverse weather. They also mean higher fares, less frequent flights and fewer destinations versus competitor cities[210]. Providing more direct routes, higher frequencies of service and lower fares would have beneficial impacts on businesses by providing time savings and facilitating important connections to export markets.

The Airports Commission carried out a detailed review of the strength of the links to emerging markets from Heathrow compared to other European hubs and Dubai. This showed that Heathrow has comparatively strong links to India (reflecting the UK's historic ties), but poorer links to other emerging economies[211]. A key reason cited by the Commission for the UK's underperformance in terms of its long-haul connectivity is the effect of runway capacity constraints in eroding Heathrow's status as an international hub. The airlines operating at the airport, in particular BA and its partners whose hub operation is based there, find it difficult to expand their current networks due to capacity constraints. By 2040, according to forecasts by the Commission, without expansion London could lose

daily connections with up to 20 international cities that it would otherwise have had. The Commission estimated the potential costs of failing to address capacity constraints over a 60-year time period to be £21-23 billion to users and providers of airport infrastructure and £30-45 billion to the wider economy.

The Commission considered demand management options but found that building new capacity was the only real solution to a growing problem. Their forecasts indicate that demand for aviation in the UK, in the absence of any constraints on capacity, is likely to grow significantly (Figure 6.32). In the carbon-traded forecast[212], shown below, the central estimate is for demand roughly to double between now and 2050 to around 470 million passengers per annum (mppa).

**Figure 6.32: Unconstrained UK air passenger forecasts (carbon-traded), 2008-2050**
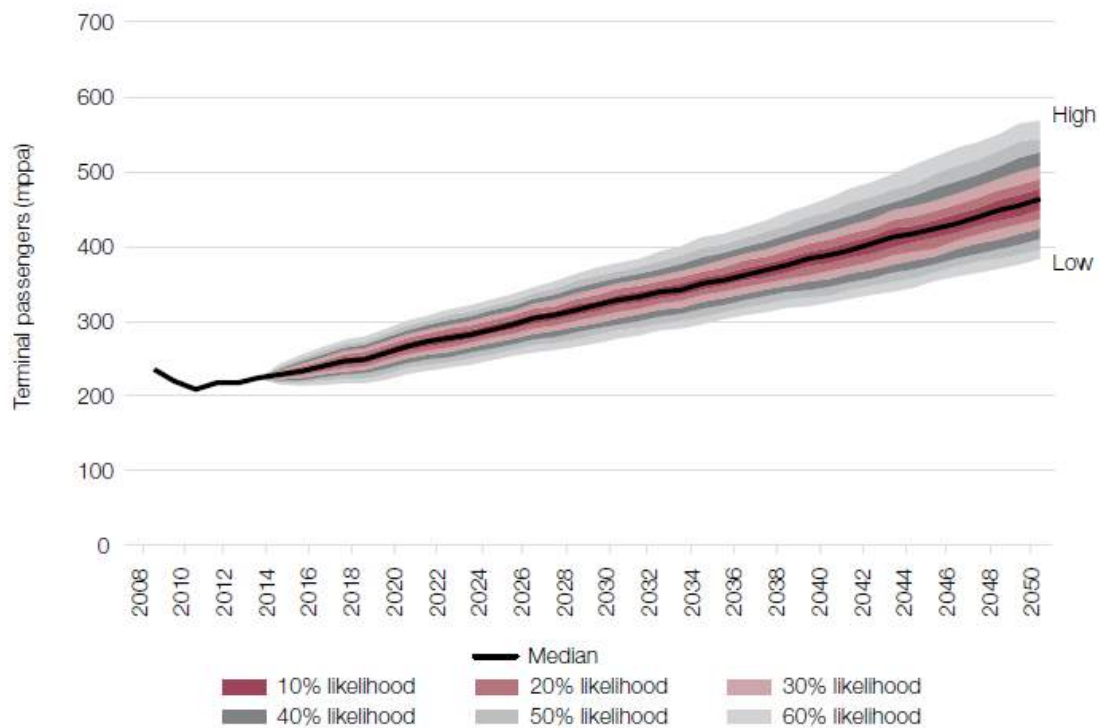


*Source: Airports Commission*

While no new full length runways have been constructed in the South East of England since the 1940s, other international cities are investing heavily in their infrastructure and boosting capacity. Paris has 50 per cent more flights to China with four runways at Charles De Gaulle airport compared to Heathrow's two and Gatwick's one.

**Figure 6.33: Runways across world's major cities, now and in 2036**
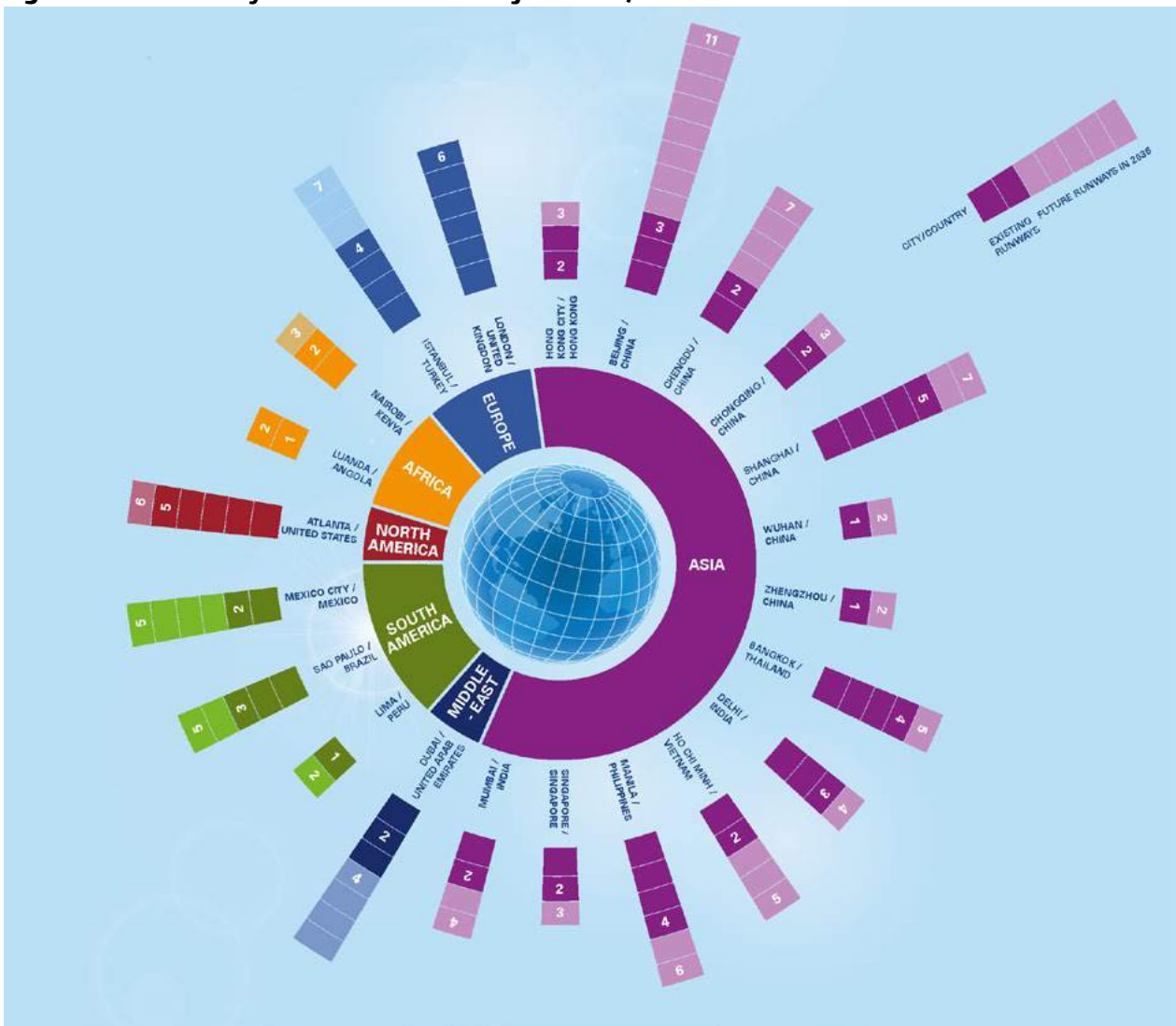


*Source: KPMG (2015)*

Figure 6.33 shows airport expansion plans across the world – darker colours show the current number of runways and light colours show those that are planned[213]. By 2036, China will have built 17 new runways to serve its major cities, providing capacity for around 400 million extra passenger journeys per year. Once complete, the Dubai World Central airport project will provide more passenger capacity than all of London's airports combined. Hong Kong, Singapore, Delhi and Mumbai are also all planning to build new runways to serve growing demand and Istanbul is planning a new six runway airport with almost twice the passenger capacity of London Heathrow.

**Water supply and drainage**

London's Victorian sewerage and water supply network is struggling to cope with the demands being placed on it. Thames Water forecasts that, without significant new investment, demand for water will exceed supply by 10 per cent in London by 2025, rising to 21 per cent by 2040. This will mean a potential deficit of over half a billion litres of water a day (Figure 6.34) by 2050[214]. To address the gap, various supply and demand-side measures will be needed such as improving the water efficiency of existing and new development, better leakage detection and by encouraging people to become more water efficient through public information[215]. The Environment Agency and the water companies are considering options to boost supply including: new reservoirs, using canals to bring water to the South East from other parts of the UK, purifying effluent from sewage treatments works and potentially more desalination[216].

**Figure 6.34: Expected deficit in water supply in London (million litres per day)**
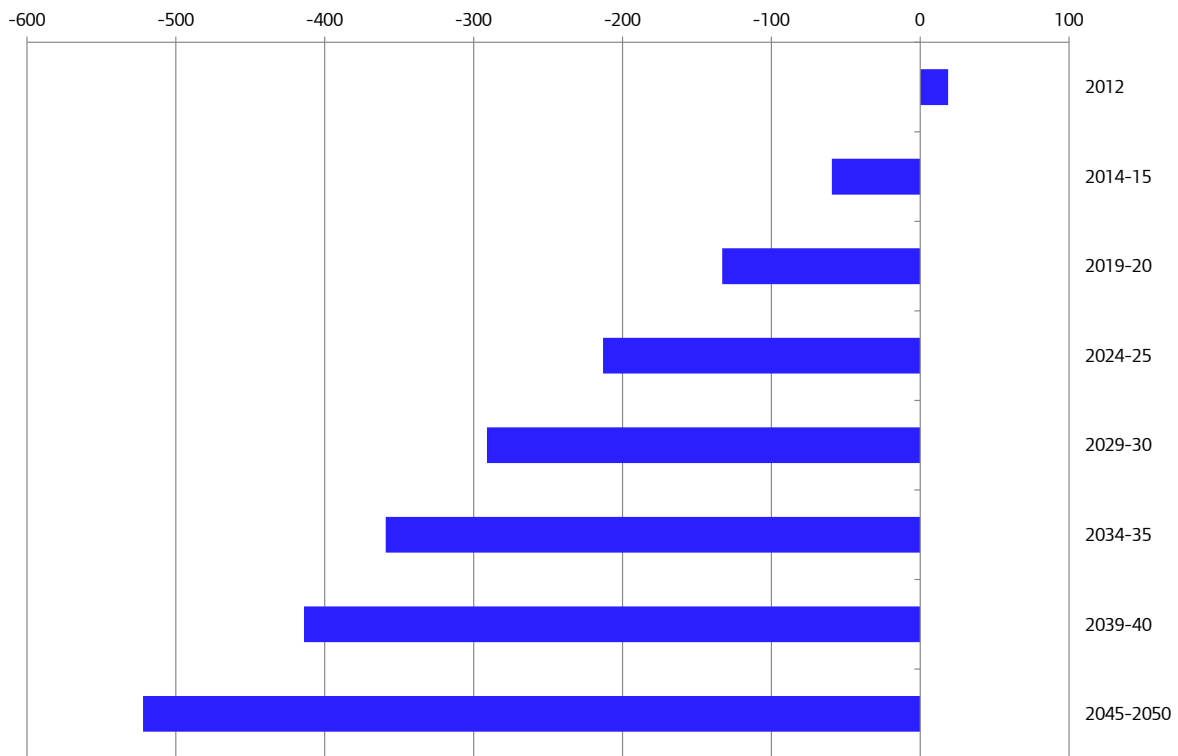


*Source: Thames Water*

London's combined sewer system, built over 150 years ago, was designed for a smaller, more permeable city. The challenges of London's growing population, changing land uses and changing climate mean that London is outgrowing its drains and sewers. This in turn is a contributing factor towards the increasing and potentially unacceptable risk of flooding (see Chapter 7 for more on flooding and environmental risks).

Thames Water has modelled the impact of London's projected population growth and climate change on its drains and sewers to assess capacity to cope with future drainage challenges[217]. The modelling shows that for a relatively common rainfall event (one that would be expected on average once every other year) some parts of London would not have sufficient drainage or sewerage capacity to manage the expected flows, leading to a risk of surface water and sewer flooding. Areas highlighted in red on Map 6.12 are where the projected flows in the system exceed its capacity and therefore where some flooding is to be expected. The London Sustainable Drainage Action Plan proposes ways to address the drainage issues in London.

**Map 6.12: Modelled drainage and sewerage capacity to manage future population growth and climate change in 2050**
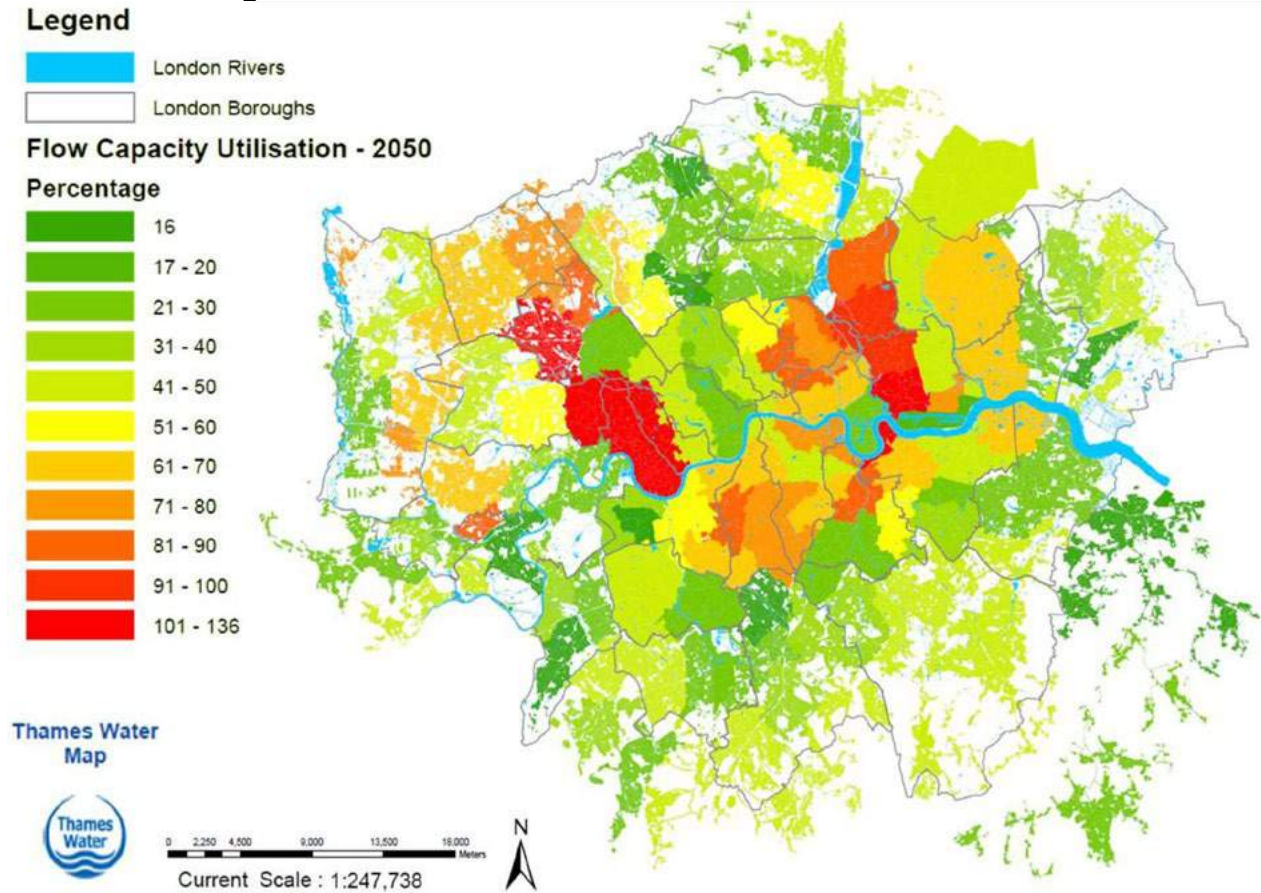


*Source: Thames Water*

**Energy**

As London grows, there will be increasing demand for energy to supply the many new homes, offices and other buildings. By 2050, the scale of population and economic growth expected in London will mean an estimated 20 per cent increase in overall energy demand; and with the expected shift away from gas towards electricity, this is likely to mean a doubling of demand for electricity by 2050[218].

As shown in Map 6.13, many of London's electricity substations are already close to capacity. This can lead to delays and substantial additional costs for developers[219]. Extra capacity will particularly be required around the Opportunity Areas identified in the London Plan (also shown on Map 6.13) where significant numbers of new homes and jobs are planned.

**Map 6.13: Electricity substations currently close to capacity**



Source: Ramboll / GLA London Plan

| | |
|---|---|
| ● | Opportunity areas |
| ● | Electricity substations close to maximum capacity |

1 Bexley Riverside
2 Bromley
3 Canada Water
4 Charlton Riverside
5 City Fringe / Tech City
6 Colindale / Burnt Oak
7 Cricklewood / Brent Cross
8 Croydon
9 Deptford Creek / Greenwich Riverside
10 Earls Court / West Kensington
11 Elephant & Castle
12 Euston
13 Greenwich Peninsula
14 Harrow & Wealdstone
15 Heathrow
16 Ilford
17 Isle of Dogs
18 Kensal Canalside
19 King's Cross - St. Pancras
20 Lewisham, Catford & New Cross
21 London Bridge, Borough & Bankside
22 London Riverside
23 Lower Lee Valley (including Stratford)
24 Old Kent Road
25 Paddington
26 Park Royal
27 Old Oak Common
28 Royal Docks and Beckton Waterfront
29 Southall
30 Thamesmead & Abbey Wood
31 Tottenham Court Road
32 Upper Lee Valley
33 Vauxhall, Nine Elms & Battersea
34 Victoria
35 Waterloo
36 Wembley
37 White City
38 Woolwich

*Source: Ramboll / The London Plan*

As well as a need to increase supply through new forms of energy generation, there is a need to reduce demand through measures such as retrofitting London's ageing building stock, smart metering and controls, and changing behaviour through public information to reduce peak demand.

**Broadband**
Reliable, high quality, fixed and mobile broadband connections are essential to most modern businesses and especially for digital tech and creative companies. High speed internet enables businesses to create new and more efficient business processes, opens up new markets, and supports more flexible working. In future years, demand for high speed connections is likely to grow as firms and households need to transfer ever greater volumes of data.

Ofcom's Infrastructure Report 2014 found that the average download speed for the UK was 23mbps, although speeds available to customers vary considerably. Superfast broadband – speeds greater than 24 mbps – is now available in 75 per cent of UK premises, with take-up of 21 per cent[220]. In London, average speeds were 27.3mbps, the highest of all UK regions.

In general, London provides good access to high speed broadband, however there are some 'not spots' where superfast broadband is unavailable (see Map 6.14). A number of reasons explain these gaps including: the legacy of old infrastructure (notably copper wiring in some industrial areas), planning constraints (road permits for example) and various market failures which make the necessary investment by providers commercially unviable[221]. Using Ofcom postcode data, an estimated 89 per cent of London is able to access Superfast Broadband[222]. However around 6,500 properties can only access speeds of 2Mbps or less (insufficient to run BBC iPlayer for example).

**Map 6.14: Broadband coverage in London, 2013**
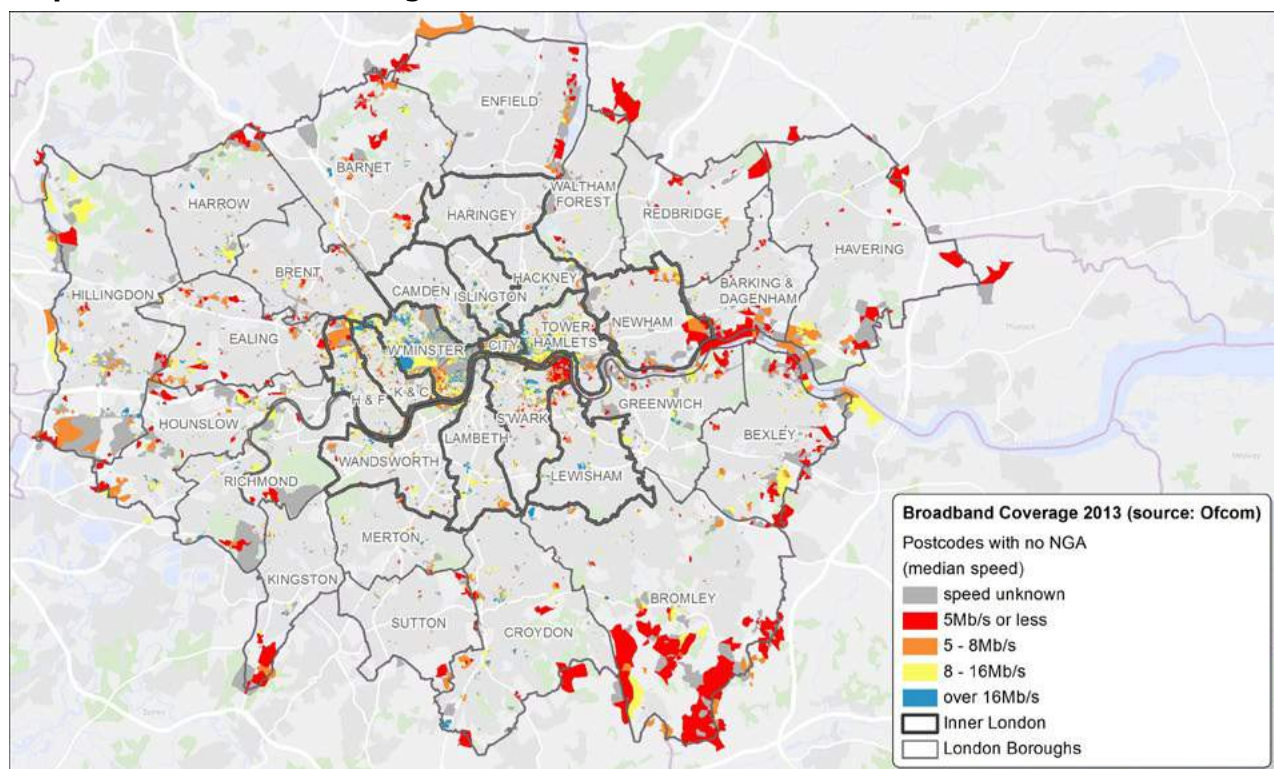


*Source: Ofcom/GLA[223].*
*NOTE: NGA (next-generation) networks consist wholly or in part of optical elements as opposed to those provided over traditional copper networks.*

Gaps in provision are more acute in certain parts of London. A House of Commons research note[224] based on Ofcom data showed that only 32 per cent of properties in the City of London and Westminster constituencies have access to superfast broadband. This ranked the City 612th out of 650 parliamentary constituencies in the UK. In these areas, such is the importance of high speed internet that many firms pay for more secure but costly dedicated leased lines. As a consequence, the market is under-served by more traditional 'fibre to cabinet' services, which is problematic for smaller companies and households in these areas who cannot afford the costs and longer contracts of a dedicated line. Other parts of London have considerably better coverage with 86 per cent of premises connected to superfast broadband in Hackney South and Shoreditch and 93 per cent in Hackney North and Stoke Newington. Bethnal Green and Bow on the other hand have only 56 per cent superfast coverage, which means they rank in the bottom 100 constituencies.

A number of alternative technologies and providers have emerged to fill some of the gaps in London's broadband markets. These include fixed wireless access, satellite and mobile technologies. However, there can be lack of awareness among consumers about these alternative technologies[225].

The Government has set out its ambition of connecting the UK to 'ultrafast' broadband of 100mbps. However, for London to be internationally competitive, gigabit connectivity (1000mbps) is considered to be the gold standard by Tech London Advocates, an industry body[226]. Fibre-to-the-premises (FTTP) is offered by some providers and BT is trialling its G.fast technology which could provide 1000mbps. Gigabit technologies are more widely available in other cities such as Hong Kong, which is due to unveil a 10 gigabit service available to over 80 per cent of households.

As noted in a Culture, Media and Sport Committee report[227], one of the largest 'not spots' is the London Underground, the only one of the top ten metro systems in the world that does not have a mobile infrastructure. While passengers are able to access wi-fi at Tube stations, the costs of installation in a tunnel environment and other concerns currently mean full mobile and internet coverage throughout the network is not possible. The Committee recommended that "Given that London is a world-class city and tourist destination, there must be an expectation now that its principal transport routes have full mobile and internet connectivity"[228].

## Chapter 6 endnotes

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10 See also the discussion on secular stagnation later in this chapter.

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17 2014 data are provisional.

18 The official regional GVA estimates are all in nominal terms, implying that no adjustment has been made for inflation. The ONS also publishes a real GVA measure estimated using the production approach but these are currently experimental statistics.

19 The analysis here looks at GVA per worker, a calculation of nominal GVA (for London and the UK), divided by a four quarter average of workforce jobs. This is one of a number of methods that can be used to assess the relative productivity of regions. GLA Economics has published analysis of GVA per workforce job, which differs from these estimates as it attributes a proportion of headline nominal GVA to that of the workforce (primarily removing rental incomes, since these would not be generated directly from the activity of the workforce). These estimates are provided in GLA Economics, 2015, 'Gross Value Added per Workforce Job in London and the UK'. Working Paper 63.

20 It should be noted that the geography of NUTS1 regions may be wider than the just the city, incorporating parts of the region where economic activity is less dense with the effect of lowering output per worker in the official statistics.

21 Other international comparisons of output per head are provided in GLA Economics, 2016, 'London in comparison with other global cities'. Output per job in this paper is higher in Paris than London due to methodological differences.

22 Based on Eurostat data on GDP and employment in NUTS1 regions.

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24 See Reference tables for: ONS, March 2016, 'Subregional Productivity: Labour Productivity'.

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195 Figures are based on only one manual count per service.

196 Includes Heathrow Connect services.

197 Figures are based on only one manual count per service.

198 Includes services to and from London Euston (Watford DC line services) only and excludes services on other London Overground lines.

199 London Overground, South West Trains and Southeastern use a different standing allowance per passenger to other operators on some or all of their rolling stock.

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202 For notes, see endnote to Map 6.6

203 For notes, see endnote to Map 6.6

204 For notes, see endnote to Map 6.6. TfL Reference Case Forecasts 2014-2041, TfL Planning, see also Chapter 12 in TfL, 2015 ,'Travel in London Report 8'

205 Figures from CoMET (the Community of Metros), a group of 16 of the largest metros from around the world including London Underground and Nova, a group of medium sized metros including DLR. Activities are carried out within a framework of confidentiality and information is therefore anonymised. Metro names have been replaced by codes according to geographical location ("Am" for America, "As" for Asia and "Eu" for Europe).

206 It should be noted that the metros in Asia and South America are not shown on the chart. These metros are the most reliable according to international benchmarks. However, they are newer networks built in recent decades meaning they have fewer legacy challenges then the older networks in Western Europe and North America and therefore not considered to be like for like comparisons.

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# 7: The economics of London's environment

## 7.1: Key points

- Natural capital – those elements of the natural environment which provide goods and services - has declined over time. However, maintaining natural capital is fundamental to ensuring continued economic development for London, given the context of globalisation, projected increases in population and employment, and climate change.

- Poor air quality is a significant environmental and public health issue for London, partly occurring due to the increased economic activity which has taken place in the capital over time. However, policy to improve London's air quality can be expected to lead to health improvements over time. For those born in 2025, exposed to 2025 emission concentrations compared to 2010 concentrations, the life expectancy benefits are modelled as up to 5 months through $NO_2$ reduction, and up to 1.5 months through $PM_{2.5}$ reduction, an annualised economic impact of £2.5 billion for $NO_2$ and £0.7billion for $PM_{2.5}$.

- Noise disturbance directly impacts on people's quality of life and wellbeing. The World Health Organization estimates that across Western Europe, prevailing levels of noise cost between 1.0 and 1.6 million disability-adjusted life years; a social cost of between £60 billion and £100 billion per year across Western Europe. Noise disturbance is a particular concern for London, as a result of increased economic activity in the capital, its major trunk road network, railway networks and airports.

- London's green infrastructure has the potential to lead to significant improvement of the natural capital account. The London i-Tree Eco assessment estimated that London's urban forest provides total benefits of £132.7 million per annum. The natural capital asset value for Beam Parklands, which has been designed to provide flood storage in addition to a healthy space for play and recreation, was estimated at £42 million in present value terms, significantly exceeding the long-term natural capital maintenance costs of £1 million.

- Climate change remains a significant risk to the London economy. Although, London's $CO_2$ emissions have fallen 17 per cent since 1990, global emissions continue to rise rapidly and this presents a risk to both London's economy and environment.

- There are around 570,000 properties in London that are at risk of flooding, however the vast majority of these are at the low risk level. London has a higher proportion of properties with at least a low chance of flooding compared to all other English regions.

- London has lower rates of recycling compared to England as a whole. Around one-third of households recycle, which is approximately 10 percentage points lower than the national average. Movement towards a circular economy in London with greater reuse, recycling and remanufacture can help address negative externalities associated with increased waste and provide opportunity for new economic activity in the capital.

## 7.2: The concept of natural capital accounting

The environment is a fundamental part of London's economy. It impacts upon the health and quality of life of Londoners, but also has an important role in the function of the London economy. Resources are used by people and businesses to produce and provide goods and services; therefore maintaining high environmental standards and ensuring infrastructure meets the needs of London's economy for the future is essential to ensure London's continued competitiveness.

The centrality of the environment in the nation's and London's life is reflected in the recent concern for natural capital. Like other forms of capital (such as manmade physical capital and embodied human capital) it provides a range of services, both directly and through enabling increased productivity on the part of other forms of capital. The goods and services to people include clean air, clean water, food and recreation.[1] Through industrialisation, population change and increased demands for goods and services, the stock of natural capital has declined over time, which could prove detrimental for future economic growth. For example, increased incidence of poor air quality impacts on the health of residents, which potentially causes costs through either lost work time or reductions in productivity.

With population projected to grow in the next 30 years, the pressures on resources and natural capital will continue to grow; therefore to maintain and improve quality of life for Londoners, as well as safeguarding economic growth, interventions to protect the natural environment will need to be undertaken. In addition there is some evidence that the environment is a superior good, increasing in value as income per head rises.[2]

In recent times, exploration of the concept of natural capital has been undertaken by the Natural Capital Committee, with three reports on the 'State of Natural Capital' produced. These reports refined the concept of natural capital and explored valuation methods which can be used as part of project appraisal, to assess the potential value for the natural environment of different measures. Within their analysis, the Committee framed the concept in such a way that the benefits from natural capital are underpinned by the natural capital assets delivering them, as outlined in Figure 7.1. For example, by maintaining the atmosphere (the asset) free of pollution, the benefit that is derived is clean air, thereby mitigating the negative externalities (and hence costs) associated with poor air quality. It can therefore be summarised that elements of natural capital directly or indirectly provide value to society; economic benefits can be obtained from better protecting and improving our natural capital, in order to mitigate potential economic losses from failing to do so. For example, ensuring preservation of bees and other pollinators can mitigate the losses which may occur from reduced agricultural output.

The relationships between different natural capital assets and benefits are described as being "multiple, interacting, complex and evolving, …, but all are mediated both by human management of the assets, and by inputs of other capitals (manufactured and human)". An example given on this point is that the location of woodland determines how much it will be used and the benefits derived from it. However the "contribution of woodland to an equitable climate (via carbon sequestration) is mostly unaffected by its location and will instead be determined largely by its size (quantity) and to some extent by species composition (quality)."[3]

Such an example has particular consequences for the measurement of natural capital, the metrics that are used in assessing this, as well as valuation as part of project appraisal and national capital accounting. This is a point which the Natural Capital Committee advise further expert analysis be undertaken.[4]

**Figure 7.1: Natural capital assets and type of benefits**
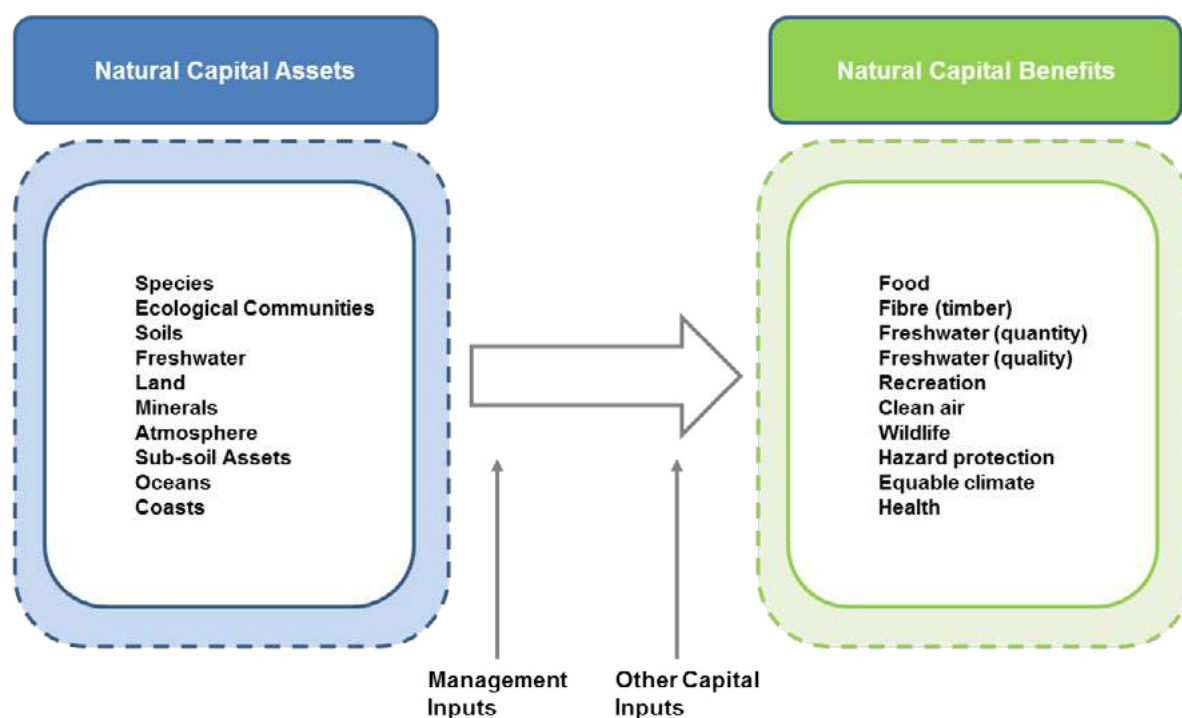
The analysis of the state of London's environment is framed initially in terms of the benefits provided by natural capital in Figure 7.1. Thus, of the natural capital assets identified by the Natural Capital Committee, some are of considerably greater direct importance than others to London. This reflects the greater proportion of land devoted to buildings than is the case for other UK regions, and the absence of coasts except in estuarial form. Evidence of this effect is set out in Chapter 1 where evidence on employee jobs and total economic output from primary sectors reflect the preference of service sector activities in London's economy.

Less obviously from published data, the relative intensity of the built environment in London will imply a high value for the recreation benefits of green space.

The following sections build on these ideas as a basis for providing an outline of the current state of the environment in London across areas such as air quality, carbon emissions, energy usage, noise pollution, water, and climate change; with associated economic costs highlighted.  Many of the areas explored in this chapter reflect the presence of market failure, typically through the existence of negative externalities.

### 7.2.1: Future considerations – in the global context

In a discussion on the environment and natural capital it would be remiss not to consider the potential impact of future population and economic change; for example, how might projected increases in population place additional demands on natural capital? How might planned changes in regulations governing emissions enhance the stock of natural capital? It is likely that exogenous and endogenous changes may have impacts on the natural capital more generally, and would have a mixture of positive and negative impacts.  This section provides an overview of some the key contextual issues before the remainder of the chapter looks at specific environmental areas.

## a) The continued growth of the global and urban populations

In a global context, with population expected to continue to grow (as shown in Figure 7.2), and emerging economies expected to grow strongly; the natural capital account may be in a worse position despite efforts to improve the state of the natural capital in London.

**Figure 7.2: Global and UK population change, indexed to 1950**
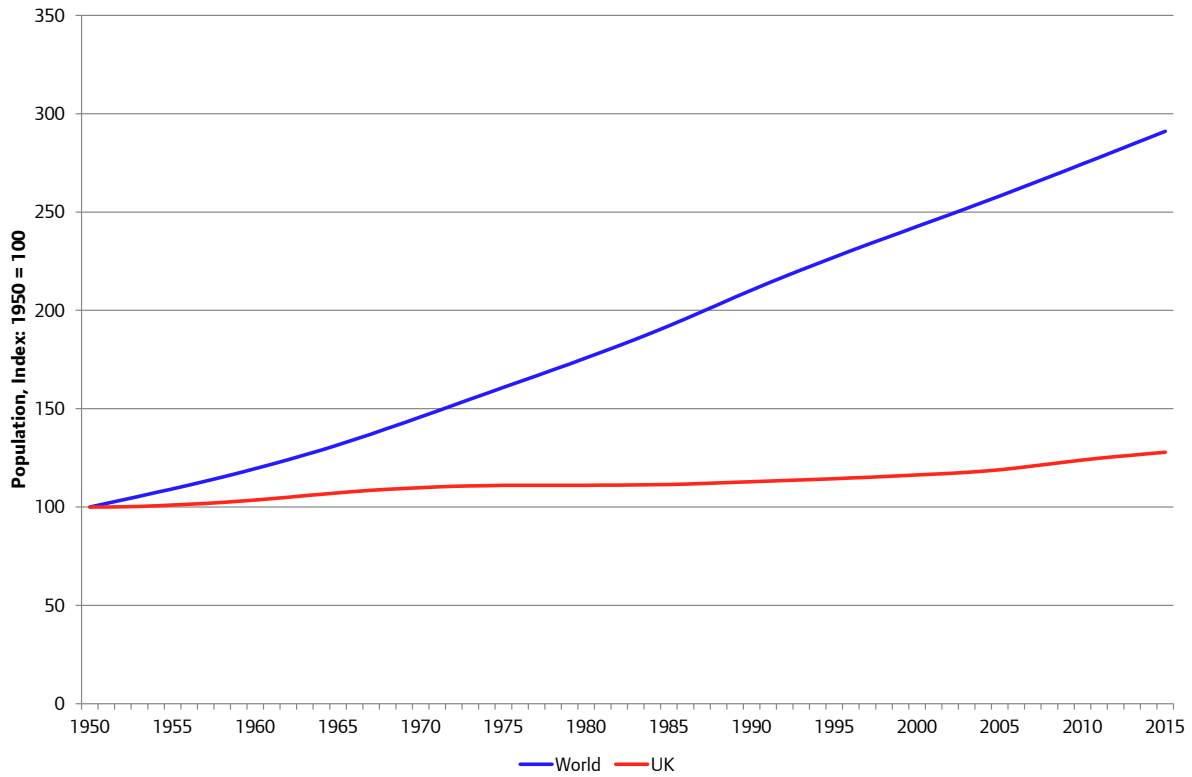


*Source: United Nations*

Increased global industrialisation has seen opposing trends in carbon emissions (Figure 7.3) which could lead to opposing policy positions, varying from stronger calls for international co-operation on the issue, to a more laissez-faire position where there could be limited incentive for major developed economies to act to reduce carbon emissions to address global emission increases.

**Figure 7.3: Global and UK carbon emissions, indexed to 1960**
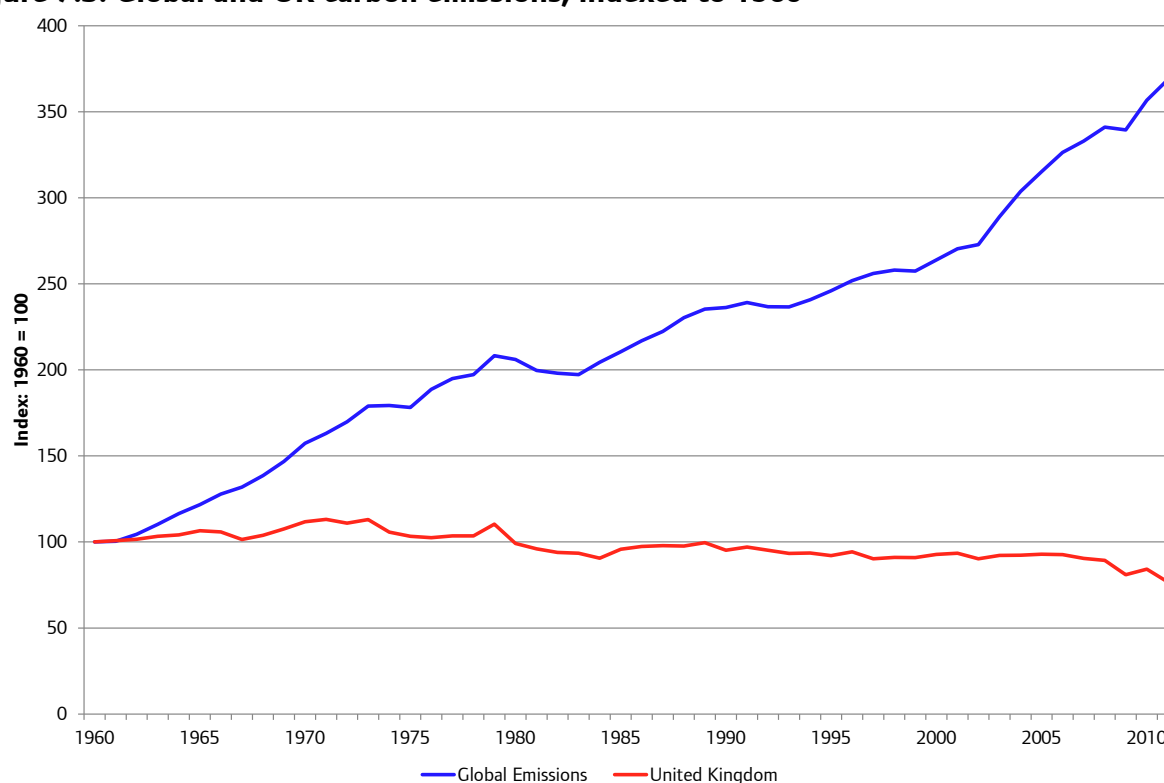


*Source: World Bank*

In the London context, as illustrated in Chapter 8, London's population is projected to grow to over 10 million by 2041; one of the implications of this would be increased demand on services and infrastructure. Within the environmental context, there could be a wide range of impacts.

There will be an increased demand for energy for both businesses and residents. For London to maintain its position as a globally competitive destination, access to energy and infrastructure will be necessary for business, however increased energy production may lead to greater carbon emissions. Additional demands on the energy grid will be placed upon it by a growing population, so energy supply may be compromised. A potential mitigation against this could be the increased provision of decentralised energy, and/or a shift towards other renewable energy generation, and/or increased energy efficiency.

A growing population also increases the need for waste, reuse and recycling services. Positive and negative impacts can occur as a result of this; there is increasing pressure on London's waste sites in competition with other land uses and landfills accepting London's waste expect to close by 2025. Other industry that can treat London's waste may be shifted away from London (exacerbating trends towards increased industrial specialisation in service sector activities). However, increased demands on infrastructure may encourage shifts towards a more circular economy, where more materials are recovered for re-use, recycling or remanufacture. In turn, this may see growth in different areas of London's economy; available land may however be a constraint in the development of such activities going forward (a point referenced within Chapters 4 and 6 of the evidence base).

Issues of land use and its impacts on the natural capital account are relevant. Re-allocation of land towards development may impact upon the supply and quantity of green space available to residents, but can also impact on a wide range of other elements, such as flood protection, clean air, and biodiversity. Increased population, economic activity and trade therefore creates increased pressures on infrastructure and land use which have a potential range of negative environmental impacts (such as the possibility for new developments making London more vulnerable to urban heat island effects). However, through the use of mitigation during development, whether it be a commitment to energy efficiency or increased provision of innovative forms of green space (such as green roofs), impacts on natural capital can be offset and accounted for in future schemes.

Alongside population increase, London's continued economic development and connectivity see London's daytime population increase significantly. As seen in Chapter 3, net in-commuting to London stands at over 500,000, all of which means that there are increased calls on infrastructure, along with increased demand for activity to service the growing economy.

Over the last 30 years, London's economy has seen significant structural and spatial shifts. There has been the move away from manufacturing and primary activities towards the service economy. This potentially could be seen to have offsetting environmental impacts, moving away from higher emission activity in manufacturing, towards lower per capita emission activity within offices. There has been a shift away from more land intensive activity to economic activity that has agglomerated within the centre of London. It is not conclusive however that this has a specific impact on the natural capital balance. For example, increased activity in a particular area may have specific location based impacts on air quality, which in turn could disproportionately impact on more deprived areas or lower income groups.

However, some of London's economic success can enable the capital to be able to adapt to the future needs of the global economy, and also take the lead in areas which could promote the environment. For example, London's specialisation as a financial centre means it is well placed to diversify in areas such as low carbon finance; its status as a legal centre means it can be well placed to develop in areas such as environmental law; and its status as a high skilled location may mean that it can adapt to future economic development, such as in the green economy or circular economy. All of which may mean that London can continue to develop as a globally competitive city, whilst at the same time aid in the preservation of natural capital.

**b) Continued increases in standards of living**
Continued economic development is likely to increase the standards of living of the population. At its simplest level, this would mean that incomes would increase and consumption would increase as a result. To service the demand for increased consumption, more goods and products are manufactured. At face value, this is likely to worsen the current state of natural capital in a global context.

At the London level however, there may be offsetting impacts on the natural capital account. For example, with a growing population and increased disposable incomes, there will likely be a greater demand for goods and services, leading to greater economic activity to service this demand (increasing the call on energy and infrastructure). In addition, it may require increased distribution of goods, potentially having negative environmental impacts through poorer air quality and increased carbon emissions. However in light of these potential negative impacts, there is the potential for a shift towards products which are more energy efficient or environmentally friendly. For example, with higher incomes, households may be more inclined to purchase zero-emission cars, or have an increased demand for recreation activities (hence a need to supply more green space for such activities).

## c) Continued globalisation and increasing travel

The growth in the global economy has led to specialisation from trade (as illustrated in Chapter 1). London in particular has developed into a truly global city, with trade links across the world. This in turn provides potential challenges and opportunities for the capital, and likewise, can potentially positively or negatively impact upon natural capital.

Increased industrialisation in the UK occurred in the 19th century; however it has been in recent times when London has developed as a global city, specialising in professional and business services. As shown in Chapter 2, agglomeration of activities and shared services (for example, a business locating in London may want to take advantage of lawyers, accountants, management consultants etc.) mean that business activity grew sharply, people were attracted to the capital as a place to live and work, and the population of the capital has grown significantly. This, and London's projected population and employment growth into the future, means that there will be greater calls for natural capital assets, increased need for capacity and infrastructure which could lead to a worsening environmental outcome.

However, in light of these concerns, there are incentives and opportunities for London to specialise and develop in areas which could help to mitigate against some of these risks. For example, as mentioned previously, there has been growth in London's low carbon finance sector; growth in low carbon and environmental goods and services; and development in activities relating to the circular economy.

It is clear that connectivity across the world has improved significantly (Figure 7.4), and this, alongside increases in global standards of living, has driven the growth of the tourism sector.

**Figure 7.4: Global air passenger transport trends**
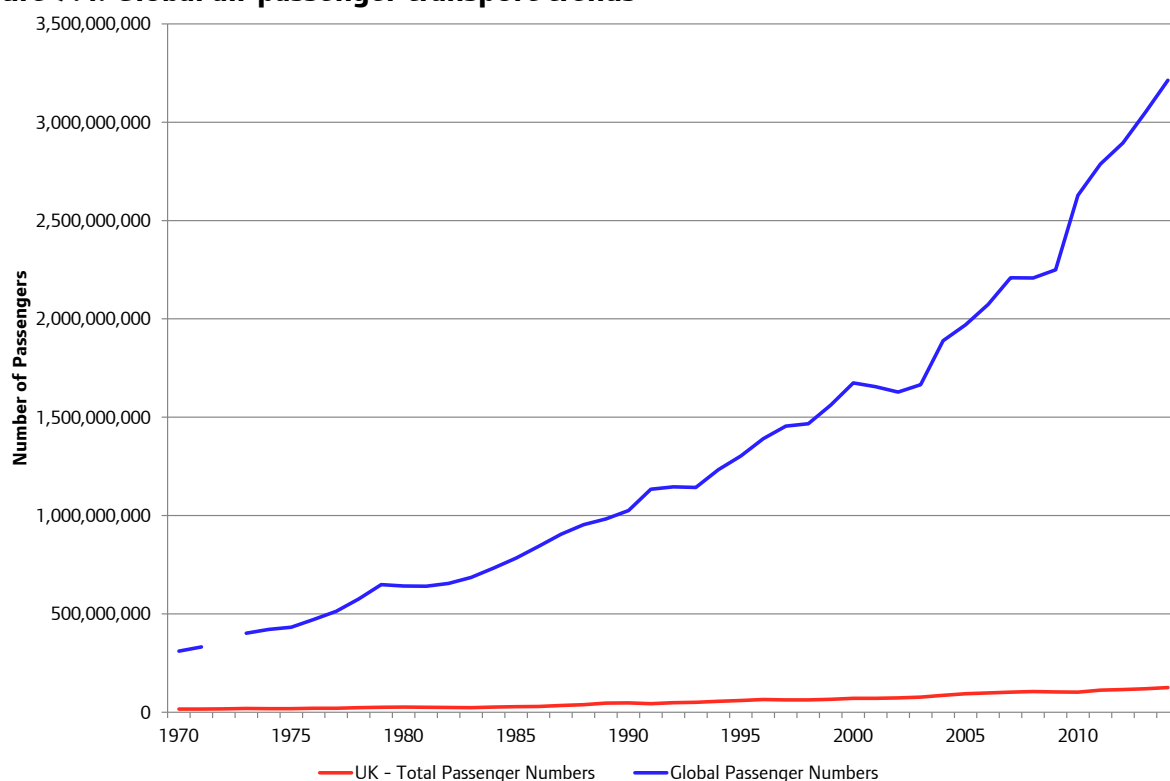


*Source: World Bank. Note: Break in series as data not available for 1972.*

London is one of the most visited cities in world, and has seen growth in international visitor numbers of over 40 per cent in the last ten years as well as increases in domestic overnight and day visit tourism. This growth has two main impacts, firstly it increases the demand for travel services (such as air, railway, and road transport), hence in part leading to increased emissions and impacts on quality of life for residents (such as through increased noise pollution and congestion). Secondly, the tourism economy supports a wide range of business and employment; within London, it is estimated that the tourism economy supports 283,000 jobs and is worth around £10.0 billion of GVA to the economy.[6] This economic activity is likely to negatively impact on the natural capital account; that said, access to green spaces are one of the many contributory factors as to why tourists visit the capital. Therefore development of areas where people can access green space and improved air quality may have positive economic impacts for the capital.

### d) Climate change

As will be shown later in this chapter, the balance of evidence suggests that climate change is occurring and this represents a major economic risk for the global economy. Climate change also has significant impacts on the natural capital account, as a wide range of natural capital assets can be impacted through climate change. For example:

- Changes in ecology and species across areas can disrupt the natural wildlife and potentially have social and economic impacts across areas (e.g., declines in native bee populations impacting upon crop pollination; or more historically, the growth in numbers of grey squirrels compared to the native red squirrel);

- Climate change may mean that some land would become unusable for food production; rising sea levels (Figure 7.5) may impact on available land for economic activity;

**Figure 7.5: Global sea level changes since 1880**
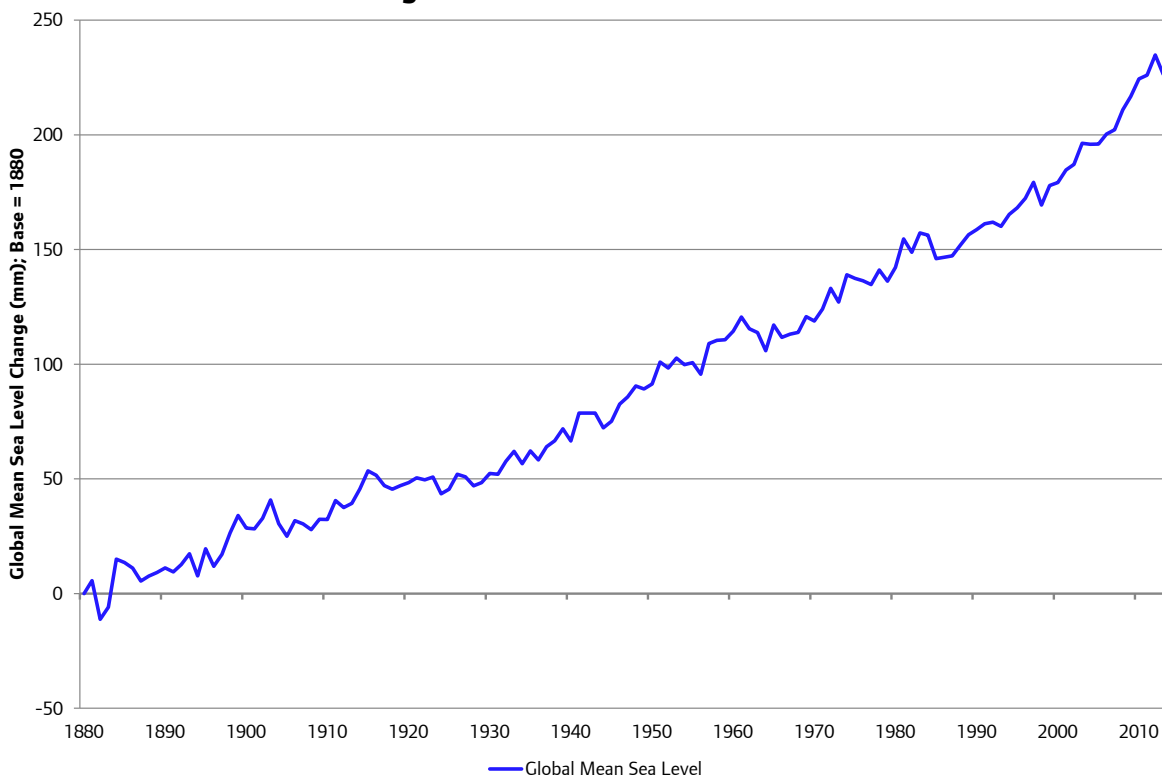


*Source: Adapted from Church, J. A. and White, N. J. (2011), "Sea-level rise from the late 19th to the early 21st Century". Surveys in Geophysics, Volume 32, Issue 4, pp. 585 – 602. Note: Chart does not include uncertainty bars*

- Within the London context, climate change may impact on people's quality of life. A range of measures is likely to be needed to help mitigate the impacts, which could include improved flood risk management, more sustainable drainage, increased tree planting and green cover, measures to conserve water and improved building design.

### 7.2.2: Future considerations – conclusions

This section has sought to highlight the significant interactions between economic activity and natural capital. Changes in both the global and London context has specific impacts on elements of natural capital, it highlights the risks facing the capital but also the potential economic opportunities that could result from London building on its specific industrial specialisations and skill sets to look to balance continued economic development with protection of natural capital. Within later sub-sections of the chapter, some of these points are revisited, bringing together data on the trends on aspects of London's environment, but also drawing upon literature evidence on the economic importance of the environment.

### 7.2.3: The road map of the chapter

The following sections of this chapter look at a range of environmental areas in turn and consider how each relates to natural capital, the market failure underlying the issue, and a summary of the evidence on the economic costs and benefits associated with each issue. The remainder of this chapter considers the following areas:

- Atmosphere
- Noise pollution
- Climate
- Water
- Energy
- Waste
- Green infrastructure

## 7.3: Evidence on the state of London's environment

Within this section, detail on London's (and the UK's) current performance against environmental indicators are considered, as well as articulating the economic importance of each of these areas.

### 7.3.1: London's atmosphere

Clean air is a fundamental part of the natural environment and mitigation against poor air quality can lead to significant benefits to London's and the UK economy. London's air quality has implications for the health of Londoners, and by extension, this can impact on the productivity of London's workers and the potential for sustained economic growth. As with many aspects of the environment, poor air quality can be seen as a negative externality, where external costs are borne by people who are not directly the cause of emissions.

The existence of this can be easily observed. Economic activity within small geographic areas can lead to increased emissions – for example, businesses locating in a confined area all require a supply of goods and services, which may be transported by road; these businesses may also employ staff who travel by car or public transport. This, combined with other activities taking place in localised areas, such as education, healthcare, and leisure activities, can create hotspots of high air pollution. This will impact on the health of Londoners and the attractiveness of the capital as a place to live and work. Evidence on the state of London's air quality and the economic importance of it are provided in this subsection.

Economic development could be seen to have offsetting effects on the extent of emissions (both in terms of air quality and carbon emissions). Although this increased concentration of activity in localised areas can have negative impacts through poorer air quality; for major cities, in light of the benefits that clean air provides, there are incentives and opportunities to look to improve air quality, and opportunities for business to use a location as a hub to innovate in new technologies.

It is clear however that air pollution and carbon emissions are a significant risk to the global economy in the future, with the European Environment Agency stating that "air pollution is the top environmental risk factor for premature death in Europe; it increases the incidence of a wide range of diseases and has several environmental impacts, damaging vegetation and ecosystems".[7] In this context, it is important to distinguish those effects for which the impact is relatively localised and those (such as greenhouse gases) which affect the global (commons) ecosystem.

## 7.3.1.1: Evidence on London's air quality

London has a large air quality monitoring network, funded by London boroughs, the GLA, TfL and Heathrow Airport. Many of these sites are part of the London Air Quality Network (LAQN)[8], managed by King's College London's Environmental Research Group.

Figures 7.6 – 7.9 show that overall, there has been a gradual reduction in all of the major air quality metrics, such as $NO_2$, $PM_{10}$, $PM_{2.5}$ and $NO_x$ concentrations at background sites in inner and outer London and outer London roadside sites. Inner London $NO_2$ roadside sites have a more variable trend but have seen a steeper decline from 2012. This decline is also reflected in the inner London $PM_{10}$ roadside sites.

This is supported by analysis at most individual monitoring sites, although the dynamic nature of air pollution and the way it is affected by multiple factors (temporary issues like construction activity, weather, local road layouts etc.), means concentrations at some sites can go up while the overall trend across the city is improving.

This network gives an opportunity to understand trends in London's air quality. One way to view air quality monitoring data is to group monitors based on their location and distance from the roadside and look at the average concentrations. For example, roadside monitors are within 5m of roads, whilst background sites are away from major sources.

**Figure 7.6: Trends in NO$_x$, 1998 to 2015**
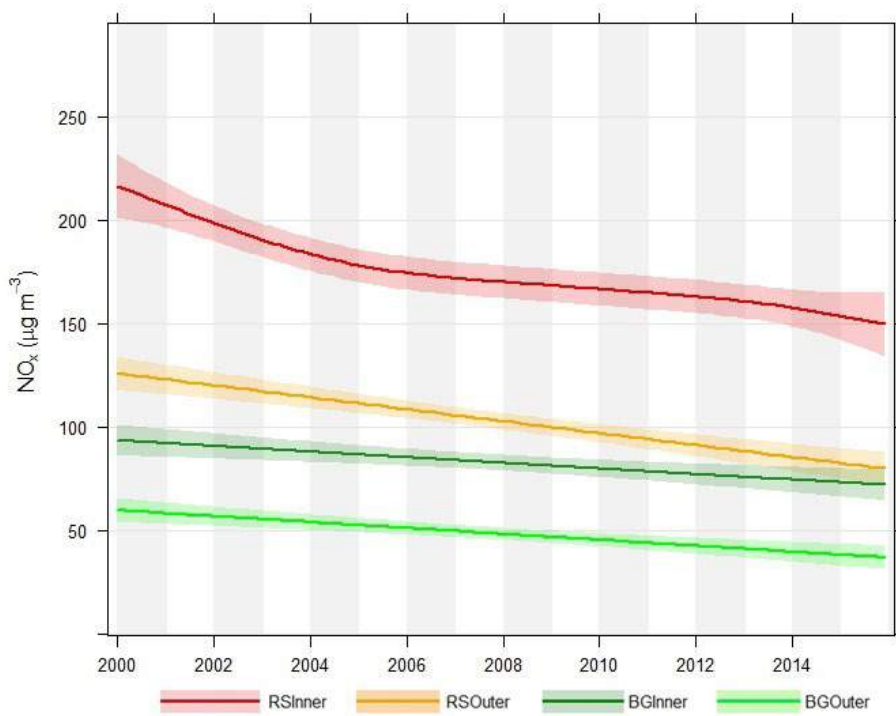


*Source - the London Air Quality Network and analysis by King's College London (BG = "background", not next to a road. RS = "Roadside" and "Inner" and "Outer", refer to Inner and Outer London).*

**Figure 7.7: Trends in PM$_{10}$, 2004 to 2015[9]**
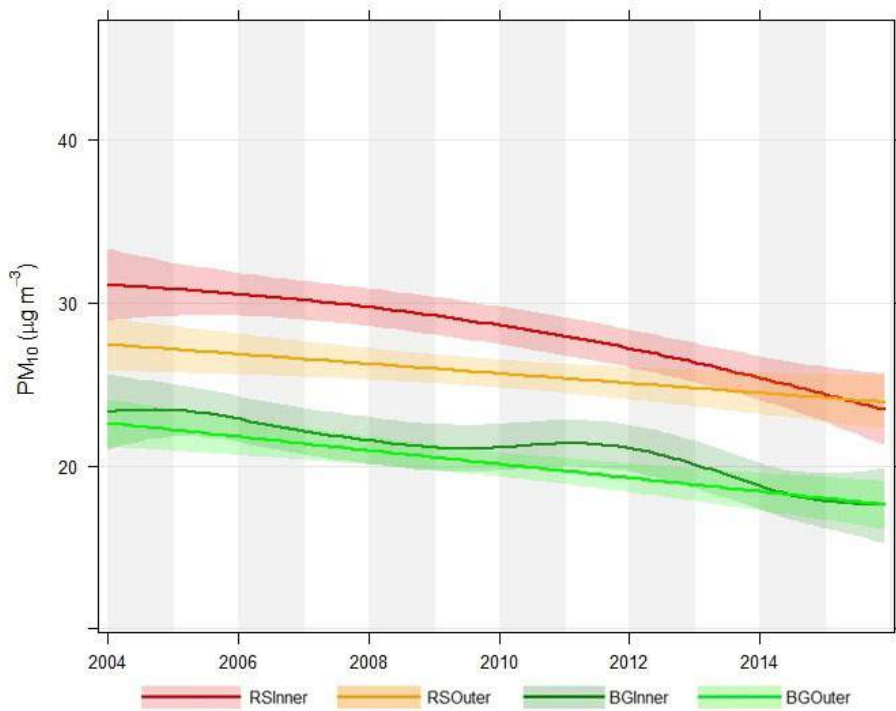


*Source - the London Air Quality Network and analysis by King's College London. (BG = "background", not next to a road. RS = "Roadside" and "Inner" and "Outer", refer to Inner and Outer London).*

**Figure 7.8: Trends in PM$_{2.5}$, 2006 to 2015**
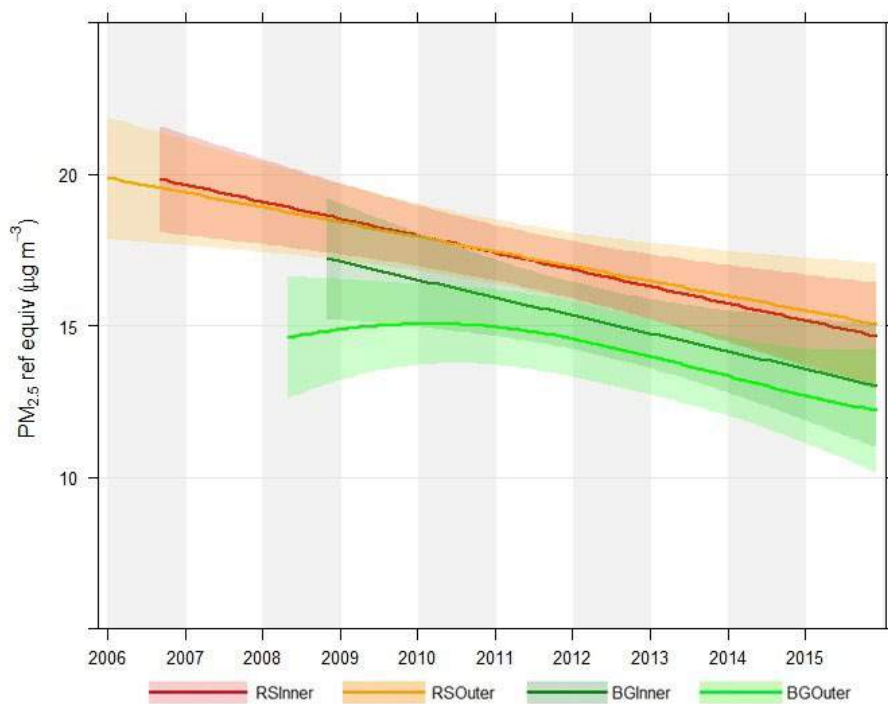


*Source - the London Air Quality Network and analysis by King's College London. (BG = "background", not next to a road. RS = "Roadside" and "Inner" and "Outer", refer to Inner and Outer London).*

**Figure 7.9: Trends in NO$_2$, 2000 to 2015**
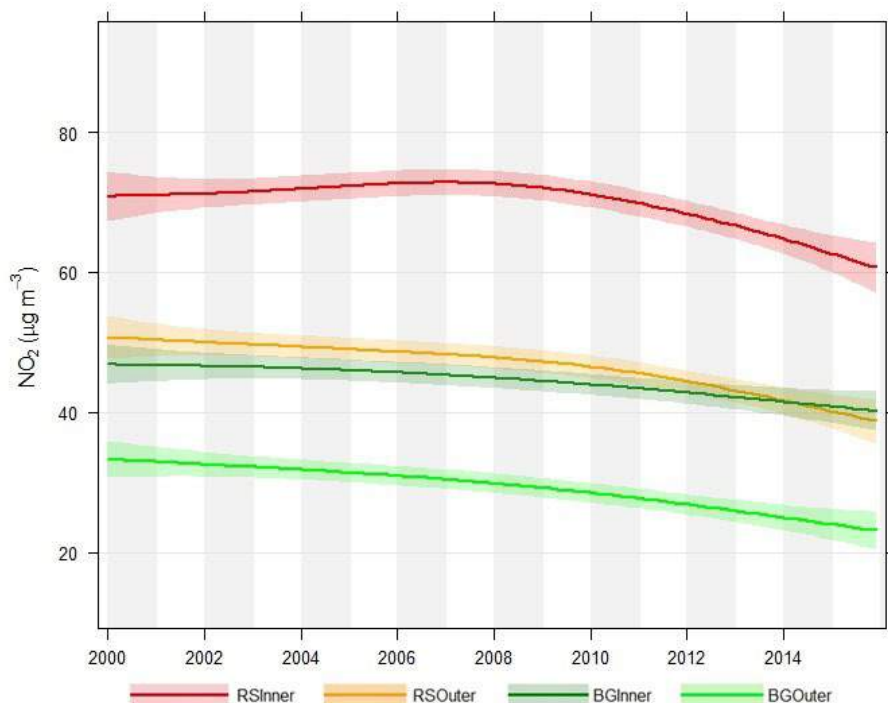


*Source - the London Air Quality Network and analysis by King's College London. (BG = "background", not next to a road. RS = "Roadside" and "Inner" and "Outer", refer to Inner and Outer London).*

These averages do not however reflect the variability between individual site characteristics and trends. They do reflect all pollution sources experienced at a monitoring site and not just locally emitted pollution or road based pollution specifically.

Pollutant concentrations in London are affected by emissions in London, pollution from outside London and the UK, and other factors such as weather. Using sophisticated statistical models it is possible to 'remove' the weather effect from trends in concentrations of the main pollutants monitored at sites in the LAQN. This allows for the production of trends where the impact of variable weather conditions is reduced. This analysis was conducted by the Environmental Research Group at King's College and has shown the following trends from 2008 to 2013:

- $NO_x$ roadside sites show a downward trend of 1.25 per cent per year, equating to a total reduction over the six year period of 7.5 per cent

- $NO_2$ roadside sites show a downward trend of 2.1 per cent per year, equating to a total reduction over the six year period of 12.6 per cent.

- $PM_{10}$ roadside sites show a downward trend of 1.4 per cent per year, equating to a total reduction over the six year period of 8.4 per cent

- $PM_{10}$ background sites show a downward trend of 0.65 per cent per year, equating to a total reduction over the six year period of 3.9 per cent

- $PM_{2.5}$ roadside and background sites show a downward trend of 2.2 per cent per year equating to a total reduction over the six year period of 13.2 per cent.

- Black Carbon[10] (only monitored at three sites) has shown small decreases but these are not considered statistically significant.

While the picture at the London level shows that air quality has improved, incidence of poorer air quality is observed where there is a greater agglomeration of business activity and particularly along transport links. Map 7.1 shows how air quality in general gets relatively poorer in areas closer to the centre of the city.

**Map 7.1: Modelled NO$_2$ annual mean concentrations (µg/m³) for 2015 (baseline)**
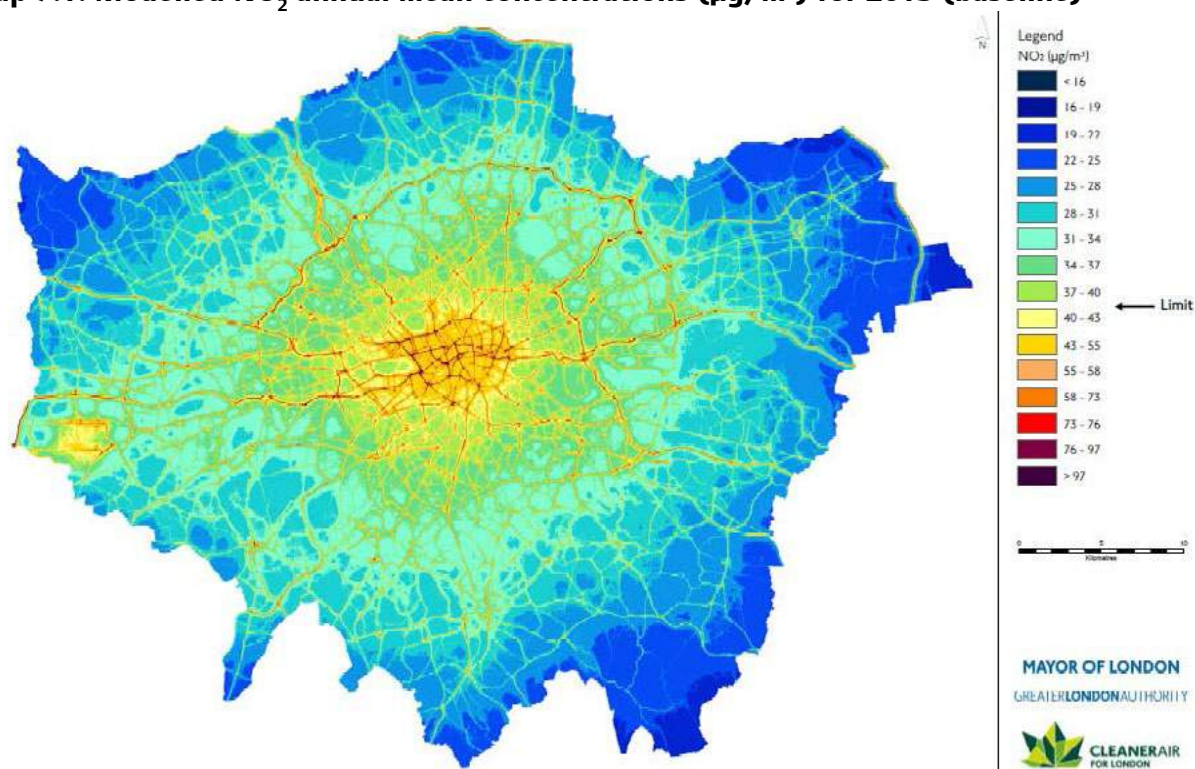


*Source: Cleaner Air for London*

These data also highlight significant variations in pollution at certain times of the day. As would be expected, air quality is generally poorer in the rush hour periods and this may have significant impacts to certain groups, whether it is children walking to school or commuters going to work. Together, Map 7.1 and Figures 7.10 – 7.11 highlight the highly spatial and temporal nature of air quality in London.

**Figure 7.10: Average NO$_2$ pollution by hour, London mean roadside and background, June 2016**
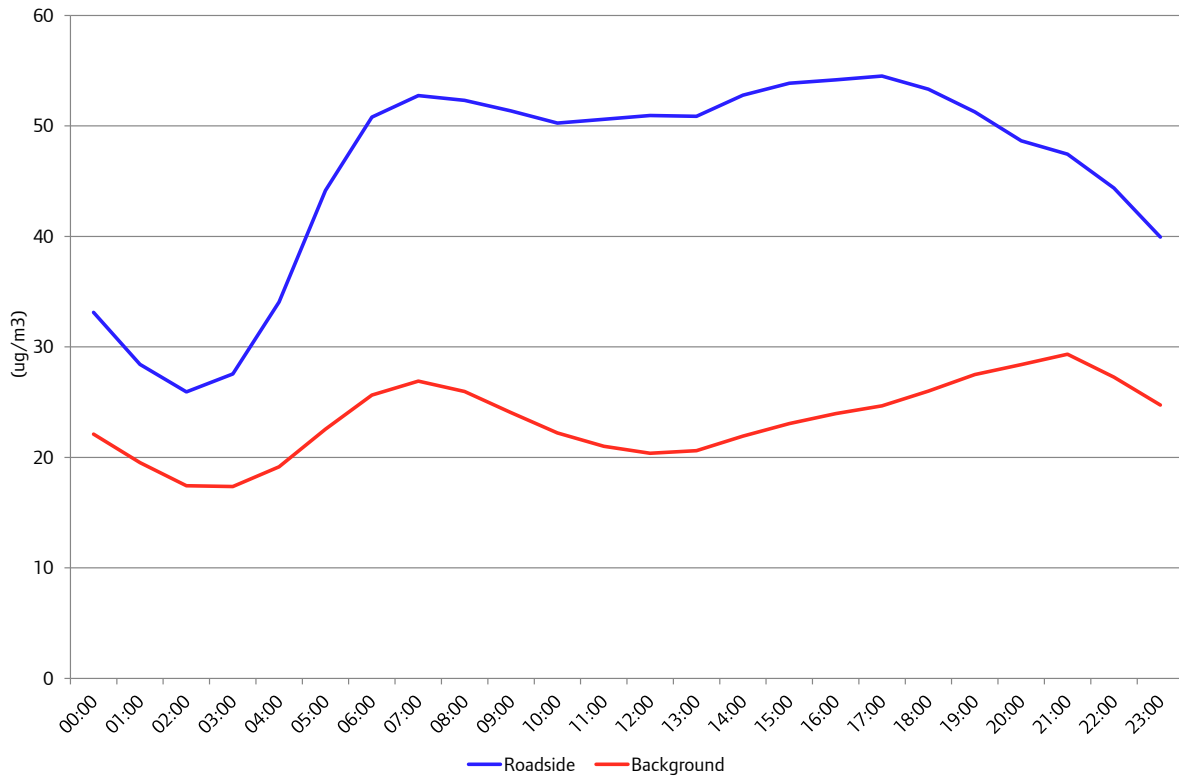


*Source: GLA Economics calculations; King's College London data (accessed at London Datastore)*

**Figure 7.11: Average PM$_{10}$ pollution by hour, London mean roadside and background, August 2015**
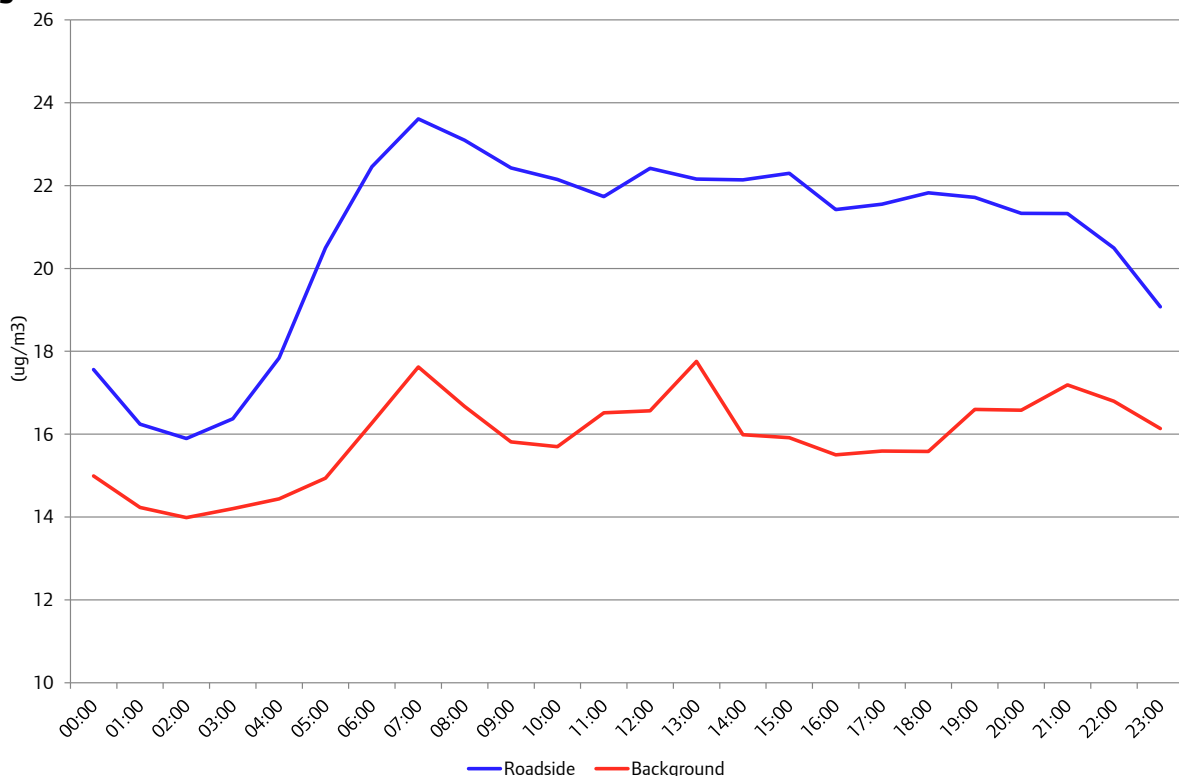


*Source: GLA Economics calculations; King's College London data (accessed at London Datastore)*

Looking forward, there are two offsetting effects which could impact on the environmental, medical and economic effects of air quality in London. While emission standards are more stringent, through implementation of standards such as Euro V and Euro VI[11], population increase and increased business activity may mean that congestion on London's roads could increase. Lower road speeds are associated with higher levels of pollution at traffic hotspots, which could create areas of comparatively poorer air quality.

## 7.3.1.2: Pollutant emissions by source

Data from the London Atmospheric Emissions Inventory (LAEI2013) provides an indication of recent trends in, and future projections of, emissions. A general theme emerges from the data, that much of the projected reductions in emissions will result from road transport and industry. However for individual pollutants, different sources have varying importance in contributing to future reductions in emissions.

It is important to note that future projections of $NO_x$ and PM emissions do not take account of recent policy proposals put forward by the Mayor following the Mayoral election in May 2016, and are therefore subject to change.

### i) $NO_x$ emissions

$NO_x$ emissions are projected to fall considerably through to 2030, with the major driver in both absolute and proportional terms being from road transport – projected to fall by over 80 per cent. The other large absolute and proportional fall comes from "non-road mobile machinery" (NRMM), which comes from construction and industrial off-road machines, projected to fall by over 70 per cent (Table 7.1 and Figure 7.12).

**Table 7.1: $NO_x$ emission projections, London**

| Source | 2008 | 2010 | 2013 | 2020 | 2025 | 2030 | Reduction 2008-2030 |
|---|---|---|---|---|---|---|---|
| Road Transport | 31,774 | 28,049 | 23,853 | 11,995 | 7,535 | 5,018 | -84.2% |
| Aviation | 4,210 | 3,864 | 3,759 | 3,557 | 3,212 | 2,867 | -31.9% |
| River | 825 | 775 | 500 | 573 | 623 | 659 | -20.1% |
| Rail | 1,281 | 1,236 | 1,205 | 861 | 861 | 861 | -32.8% |
| Industry | 3,604 | 3,604 | 3,353 | 3,353 | 3,353 | 3,353 | -7.0% |
| NRMM | 7,625 | 5,638 | 3,571 | 2,117 | 2,057 | 2,057 | -73.0% |
| D&C Gas | 12,178 | 10,712 | 9,397 | 8,171 | 7,994 | 8,690 | -28.6% |
| D&C Other Fuels | 1,863 | 1,553 | 1,363 | 550 | 394 | 343 | -81.6% |
| Other | 599 | 580 | 661 | 676 | 679 | 704 | 17.5% |
| Total | 63,957 | 56,011 | 47,661 | 31,852 | 26,708 | 24,553 | -61.6% |
| Reduction | -- | -12.4% | -25.5% | -50.2% | -58.2% | -61.6% | |

*Source: London Atmospheric Emissions Inventory*

**Figure 7.12: NO$_x$ emission projections, London**
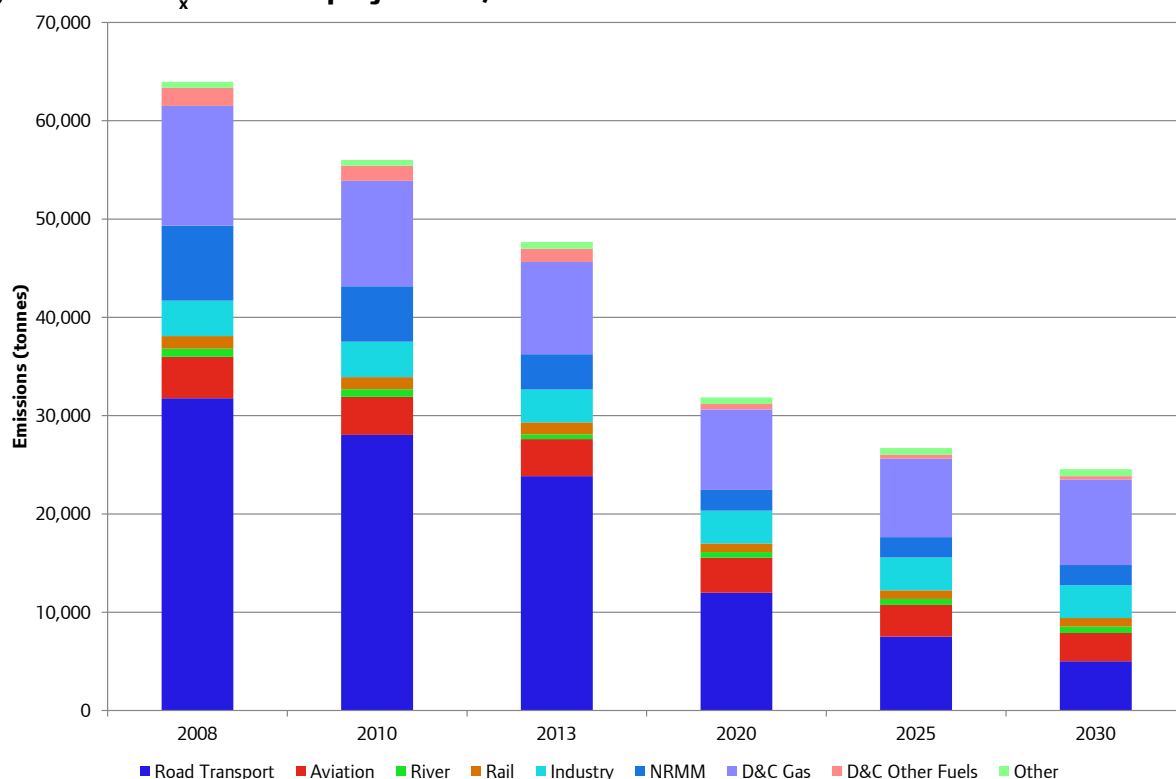


*Source: London Atmospheric Emissions Inventory*

## ii) PM$_{10}$ emissions

In absolute terms, much of the reduction again comes from road transport and NRMM, but proportionally. Table 7.2 and Figure 7.13 show that emissions reductions are projected to occur from a number of sources.

**Table 7.2: PM$_{10}$ emission projections, London**

| Source | 2008 | 2010 | 2013 | 2020 | 2025 | 2030 | Reduction 2008-2030 |
|---|---|---|---|---|---|---|---|
| Road Transport | 2,552 | 2,424 | 2,198 | 1,978 | 1,919 | 1,936 | -24.1% |
| Aviation | 88 | 84 | 66 | 63 | 58 | 53 | -39.8% |
| River | 66 | 50 | 28 | 31 | 35 | 37 | -43.9% |
| Rail | 58 | 58 | 57 | 22 | 22 | 22 | -62.1% |
| Industry | 207 | 210 | 132 | 132 | 132 | 132 | -36.2% |
| NRMM | 755 | 567 | 354 | 139 | 139 | 139 | -81.6% |
| D&C Gas | 154 | 143 | 128 | 110 | 107 | 115 | -25.3% |
| D&C Other Fuels | 254 | 249 | 164 | 82 | 62 | 52 | -79.5% |
| Other | 241 | 225 | 197 | 227 | 240 | 250 | 3.7% |
| Resuspension | 1,057 | 1,051 | 1,031 | 1,048 | 1,062 | 1,078 | 2.0% |
| C&D Dust | 66 | 61 | 65 | 65 | 65 | 65 | -1.5% |
| Total | 5,499 | 5,122 | 4,420 | 3,897 | 3,840 | 3,880 | -29.4% |
| Reduction | -- | -6.9% | -19.6% | -29.1% | -30.2% | -29.4% | |

*Source: London Atmospheric Emissions Inventory*

**Figure 7.13: PM$_{10}$ emission projections, London**
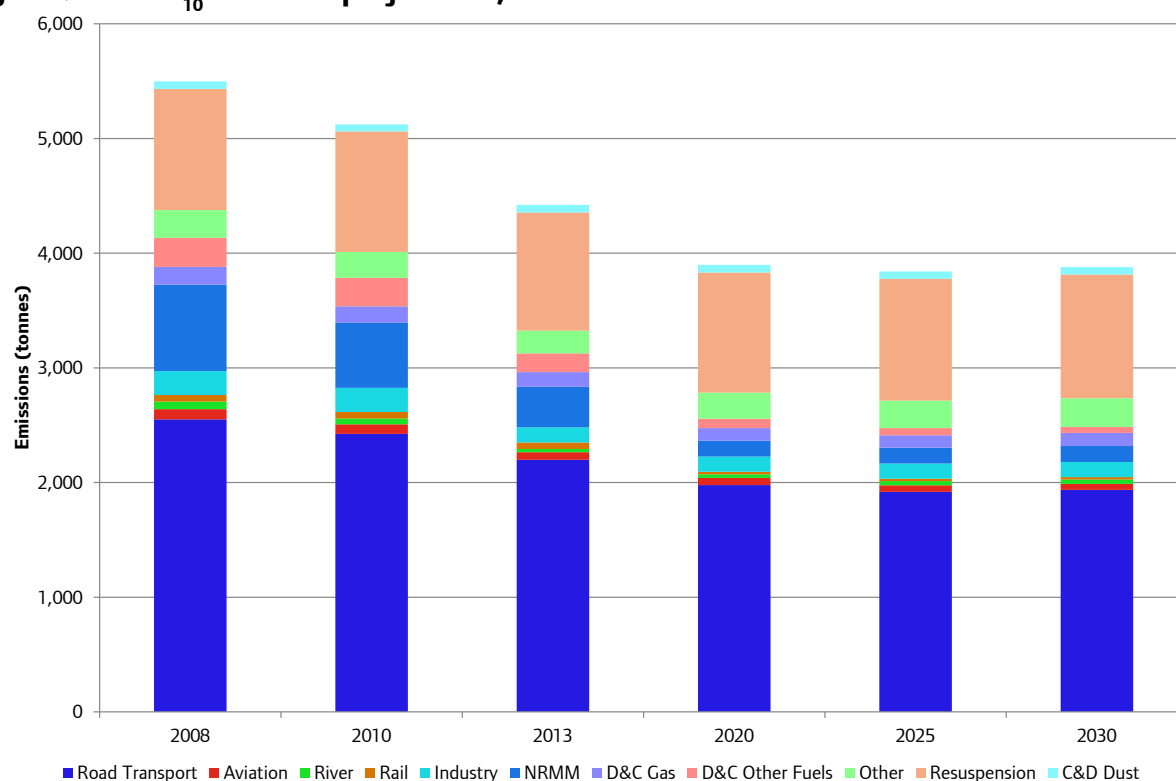


*Source: London Atmospheric Emissions Inventory*

## iii) PM$_{2.5}$ emissions

Major reductions in fine particulates are projected across most sources, with particular importance again in the road transport source. However major emissions reductions are projected across the other main transport types, such as aviation and rail, as shown in Table 7.3 and Figure 7.14).

**Table 7.3: PM$_{2.5}$ emission projections, London**

| Source | 2008 | 2010 | 2013 | 2020 | 2025 | 2030 | Reduction 2008-2030 |
|---|---|---|---|---|---|---|---|
| Road Transport | 1,540 | 1,436 | 1,253 | 1,007 | 926 | 916 | -40.5% |
| Aviation | 77 | 73 | 54 | 52 | 46 | 41 | -46.8% |
| River | 61 | 46 | 26 | 29 | 32 | 34 | -44.3% |
| Rail | 52 | 51 | 51 | 20 | 20 | 20 | -61.5% |
| Industry | 207 | 210 | 132 | 132 | 132 | 132 | -36.2% |
| NRMM | 709 | 533 | 333 | 130 | 130 | 130 | -81.7% |
| D&C Gas | 154 | 143 | 128 | 110 | 107 | 115 | -25.3% |
| D&C Other Fuels | 101 | 115 | 100 | 58 | 45 | 42 | -58.4% |
| Other | 222 | 207 | 181 | 208 | 220 | 230 | 3.6% |
| Resuspension | 39 | 39 | 38 | 39 | 39 | 40 | 2.6% |
| C&D Dust | 7 | 6 | 6 | 6 | 6 | 6 | -14.3% |
| Total | 3,170 | 2,858 | 2,303 | 1,791 | 1,704 | 1,708 | -46.1% |
| Reduction | -- | -9.8% | -27.4% | -43.5% | -46.2% | -46.1% | |

*Source: London Atmospheric Emissions Inventory*

**Figure 7.14: PM$_{2.5}$ emission projections, London**
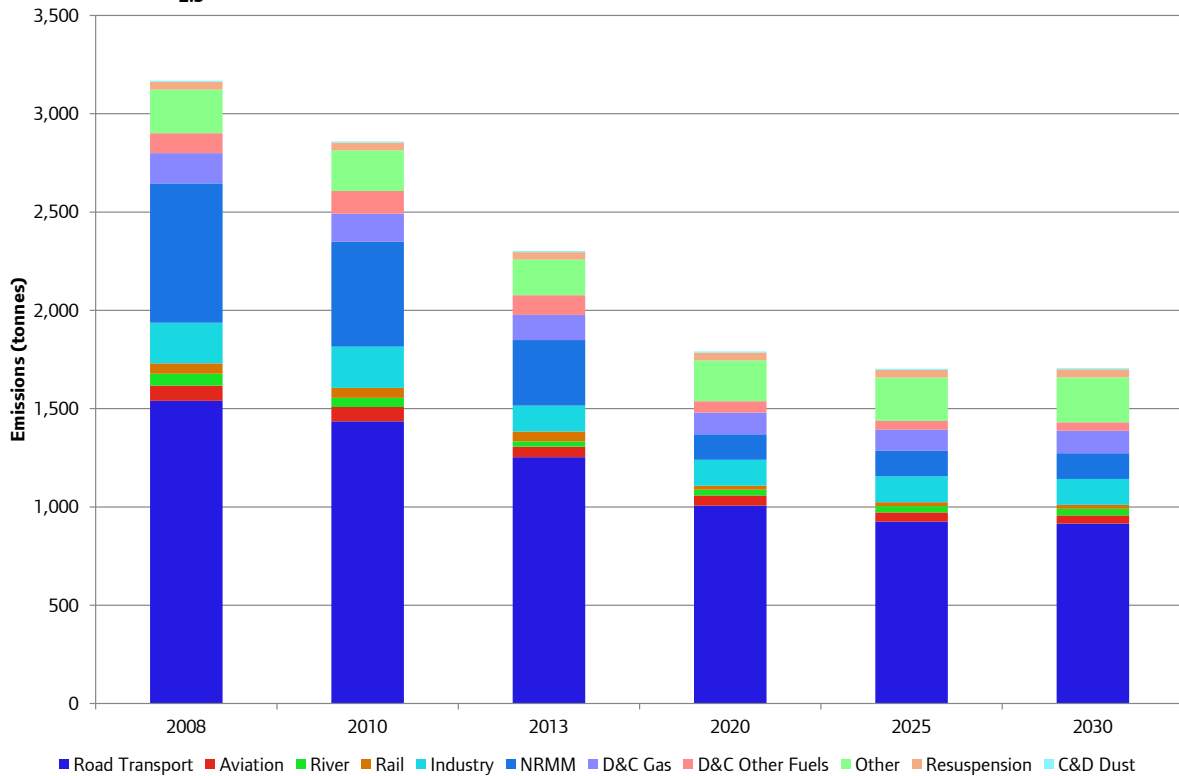


*Source: London Atmospheric Emissions Inventory*

## 7.3.1.3: International comparisons on air quality

Despite the UK being at risk of penalty from the European Commission due to poor air quality[12], London's air quality performs comparatively well compared to other major cities. Data compiled by AMEC Environment & Infrastructure shows that London's air quality is comparatively much better than many non EU cities, with many of the cities shown in Figure 7.15 being within emerging economies.

**Figure 7.15: Five-year annual averages, PM$_{10}$ pollution, 2008 – 2012, London compared to non-EU cities**
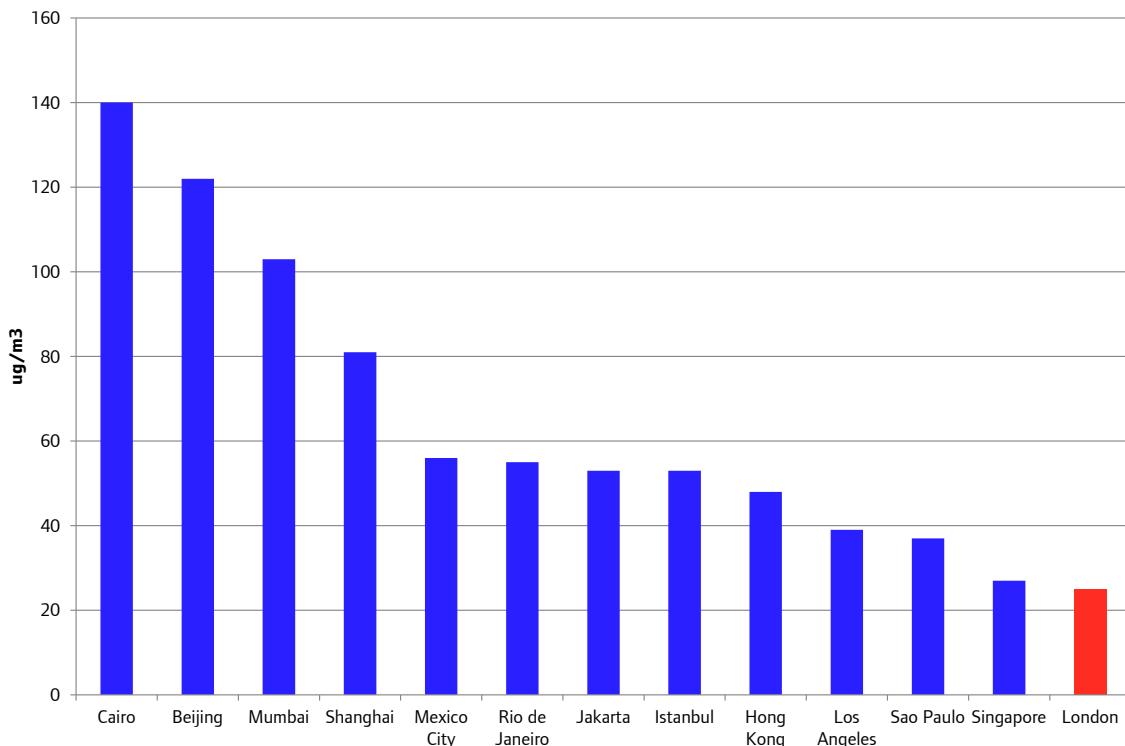


*Source: AMEC Environment & Infrastructure*

Compared to other cities, London's air quality is similar to that of other major non-EU global cities, but does not approach the top of the rankings, as is shown in Table 7.4. This index developed by AMEC Environment & Infrastructure, for the GLA, has two elements; a traffic focussed index which prioritises the two main pollutants related to traffic, those being $NO_2$ and $PM_{10}$; and a health impacts index, which gives a higher priority to particulate emissions due to the severity of impacts from particulates compared to other pollutants. The combination of these two elements is known as the Citywide index.

Within the two components of this ranking, London performs worse on the traffic focussed index (placing 17th out of 36 cities), but performs better on health impacts (9th out of 36). The rankings shown in Table 7.4 are presented as an average of five years (2008 – 2012); for each individual year, London's position has held relatively constant, reaching a high of 12th position in 2012, but placed 17th in both 2010 and 2011.[13]

It should be mentioned that most of the cities which place above London in this ranking tend to have smaller populations and urban areas. When considering London against other major global cities of its size, London's air quality is assessed as poorer than Singapore and Paris, but better than New York, Hong Kong and Shanghai; as shown in Table 7.4.

**Table 7.4: Citywide Index, five-year average 2008-2012**

| Position | City |
|---|---|
| 1 | Vancouver |
| 2 | Sydney |
| 3 | Stockholm |
| 4 | Vienna |
| 5 | Berlin |
| 8 | Singapore |
| 12 | Paris |
| 15 | London |
| 17 | New York |
| 30 | Hong Kong |
| 34 (of 36) | Shanghai |

*Source: AMEC Environment & Infrastructure*

## 7.3.1.4: Health and economic considerations

London's air quality has significant implications for the health and well being of Londoners, and by extension, this can impact on the productivity of London's workers and the potential for sustained economic growth. Air quality and wider environmental aspects such as access to green space are also important factors in attracting (and maintaining) people to live in the capital, as shown in a variety of city ranking indices (as outlined within Chapter 5).

Furthermore, analysis undertaken for the GLA shows populations living in the most deprived areas are on average currently more exposed to poor air quality than those in less deprived areas. Fifty-one per cent of the Lower Super Output Areas (LSOA - i.e. roughly wards) within the most deprived decile in London have average concentrations above the Nitrogen Dioxide ($NO_2$) EU limit value. Within the least deprived decile, only 1 per cent of LSOAs have an average concentrations above the $NO_2$ EU limit value.[14]

Owing to the large number of variables that influence the health impacts of air pollution, scientific understanding of this complex relationship is continually advancing. For this reason, in 2014 the GLA and TfL commissioned a study by King's College London to better understand the health impacts of air pollution in London based on the latest evidence. For the first time, the study included the health impacts of $NO_2$ as well as fine particles[15] ($PM_{2.5}$).

The health impacts were estimated for 2010 as this was the latest available 'base' year for the London Atmospheric Emission Inventory and associated air quality modelling[16]. The report estimated that for fine particles, the total mortality burden from long-term exposure was estimated at 52,630 life-years lost, equivalent to 3,537 deaths at typical ages and an estimated 88,113 life years lost for $NO_2$, equivalent to 5,879 deaths.

Short-term exposure to $PM_{2.5}$ and $NO_2$ were associated with 1,990 and 420 respiratory hospital admissions respectively, and 740 cardiovascular admissions associated with fine particulates. Within the report it is assumed that there is a 30 per cent overlap between $NO_2$ and $PM_{2.5}$ emissions, therefore total impacts of poor air pollution are estimated at 140,743 life-years lost, equivalent to 9,416 deaths at typical ages. To put these estimates in more context, $PM_{2.5}$ exposure is estimated to reduce female life expectancy by 9 months (increasing to 9.5 months for males), and $NO_2$ pollution reduces life expectancy by up to 15.5 months (17 months for males), on average across all of London's population.

Pollution concentrations in London, and therefore the associated health impacts, can be attributed to broad emissions sources. Sources outside London make the largest contribution to the estimated mortality burden from long-term exposure to $PM_{2.5}$ in London as a whole, as well as being responsible for the majority of health effects associated with short-term exposure to air pollution in London. For instance, 75 per cent of the cardiovascular hospital admissions associated with $PM_{2.5}$ result from sources outside London. For $NO_2$, external sources are responsible for just under half of the mortality burden. This underlines the importance of coordinated national and European action to directly address sources of pollution and their transboundary effects.[17]

The estimated annual economic costs of the above health impacts for $PM_{2.5}$ was £1.4 billion, up to £2.3 billion for $NO_2$, and up to £3.7 billion for both pollutants.[18]

Research cited by the Policy Exchange notes the particular vulnerability that children face as a result of air pollution, in part "due to higher exposure" and "partly due to children being more susceptible to the effects of air pollution since they have incomplete metabolic systems, immature immune defences, and higher breathing rates than adults".[19] They also cite that living near main roads could account for 15 – 30 per cent of all new cases of asthma in children.

The risks faced by children from air pollution has been argued to be higher, since there is largely little choice of where children go to school. Schools tend to be located on main roads, therefore they face the risk of higher exposure. The Policy Exchange found that "around 328,000 children attend schools in London where $NO_2$ concentrations exceed the legal limit, representing just under 25 per cent of the total school population in London", (Figure 7.16) which are predominately located in inner London boroughs – where "58 per cent of pupils in Inner London boroughs are in schools in areas with harmfully high $NO_2$ levels".[20]

**Figure 7.16: The number of pupils attending London schools where average NO$_2$ concentrations within a 100 metre radius of the school exceed the EU annual limit.**
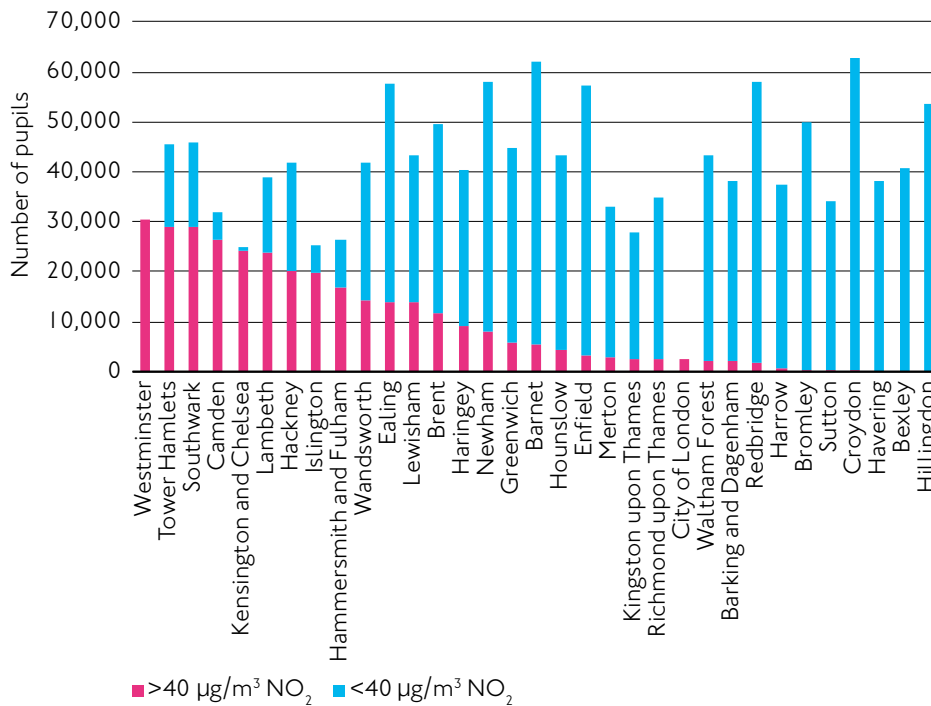


Source: Policy Exchange, drawing up Department for Education and Transport for London data

For the working age population, the Policy Exchange report finds that whilst adults may be less vulnerable than children in their response to air pollution, they can face very high exposure levels. This is especially the case within boroughs located within the CAZ, with Westminster most affected, as shown in Figure 7.17.

**Figure 7.17: Workday population in LSOAs where the average NO$_2$ concentration is above or below EU legal limit**
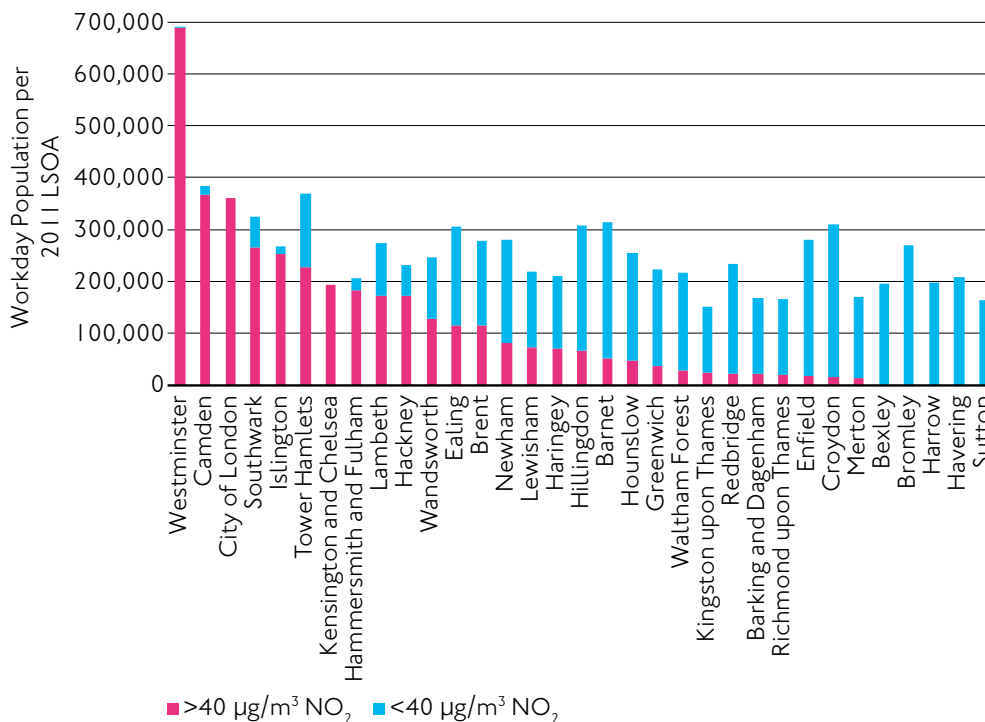


Source: Policy Exchange, drawing upon Office for National Statistics and Transport for London data

King's College London have undertaken analysis estimating the potential health and economic benefits that could result from projected improvements in air quality through to 2025, specifically the changes in life expectancy, total life years saved for the London population, and the annual change in economic costs of air pollution. Table 7.5 provides a summary of the life expectancy benefits that could occur from emissions reductions.

**Table 7.5: Gains in life expectancy for those born in 2025, exposed to 2010 and 2025 emission concentrations for a lifetime**

| Pollutant | Scenario | Impact of life expectancy for those born in 2025 | |
|---|---|---|---|
| | | Males | Females |
| $NO_2$ | 2010 Concentrations | 17.5 months | 16 months |
| | 2025 Concentrations | 12.5 months | 11.5 months |
| | **Potential benefit** | **+5 months** | **+4.5 months** |
| $PM_{2.5}$ | 2010 Concentrations | 9.5 months | 9 months |
| | 2025 Concentrations | 8 months | 7.5 months |
| | **Potential benefit** | **+1.5 months** | **+1 month** |

Source: Policy Exchange and King's College London.
Notes: For $NO_2$, figures are shown as up to a maximum value assuming $NO_2$ (rather than other traffic pollutants) are responsible for all the effects. A 30 per cent overlap with PM2.5 is already taken into account.

Following on from these life expectancy increases, these result in significant life-years gained. These equate to 1.3 million life years through reductions in $PM_{2.5}$ emissions, and 4.5 million life years through reductions in $NO_2$. Using Defra guidance on valuing changes in air quality, based on 2014 prices and an annual decrease in the value of future life years lost of 2 per cent per annum, finds total benefits of £0.7 billion for $PM_{2.5}$ and £2.5 billion for $NO_2$, as outlined in Table 7.6.

**Table 7.6: Gains in life expectancy for those born in 2025, exposed to 2010 and 2025 emission concentrations for a lifetime**

| Pollutant | Scenario | Life Years Lost | Annualised Economic Impact (2010 prices) |
|---|---|---|---|
| $PM_{2.5}$ | 2010 Concentrations | 9.2 million | £5.3 billion |
| | 2025 Concentrations | 8.0 million | £4.6 billion |
| | **Potential benefit** | **+1.3 million gain** | **+£0.7 billion gain** |
| $NO_2$ | 2010 Concentrations | 16.8 million | £9.5 billion |
| | 2025 Concentrations | 12.2 million | £7.1 billion |
| | **Potential benefit** | **+4.5 million gain** | **+£2.5 billion gain** |

Source: Policy Exchange and King's College London.
Notes: For $NO_2$, figures are shown as up to a maximum value assuming $NO_2$ (rather than other traffic pollutants) are responsible for all the effects. A 30 per cent overlap with $PM_{2.5}$ is already taken into account.

## 7.3.2: Noise pollution

Noise pollution can directly impact on people's quality of life, and in economic terms, is another example of a negative externality – such that high levels of ambient and background noise lead to external costs (i.e. on health and wellbeing) being borne by individuals who are not directly the cause of such noise. A practical example of this is that living under the flight path of a major airport would mean that people are exposed to higher levels of disturbance, leading to costs being borne on those who are not directly receiving the benefit (i.e. the flight to a location).

Noise impacts can be quite wide ranging, but the greatest impact is likely to be on people's health, quality of life and wellbeing. The health and wellbeing effects caused by exposure to higher levels of noise may well impact on workers' productivity. On a larger scale, exposure to higher levels of noise is likely to detract from a location's attractiveness as a place to live or work. Alongside other effects, noise pollution can impact on a person's decision to locate in a particular area.

Much attention is placed on air pollution as a negative externality, however noise pollution can be considered in the same way, resulting more generally from increased economic development. Agglomeration of businesses, residential, and public services all lead to specific spatial hotspots of noise pollution, which are considered in the following section.

## 7.3.2.1: Evidence on noise exposure and impacts

Noise can directly impact on people's quality of life and wellbeing, and by extension impact on productivity, the natural environment, and the attractiveness of a location to live and work. The analysis of the impacts of noise is particularly relevant in light of potential airport expansion in the South East.

Analysis undertaken by Defra on the impacts of noise on sleep disturbance, annoyance, hypertension and productivity looked to value each of these areas in turn, as well as providing a review of available literature on the topic. The most prominent of these was on sleep disturbance. The World Health Organization estimated that across Western Europe, prevailing levels of noise cost between 1.0 and 1.6 million disability-adjusted life years lost each year.[21] Using Department of Health estimates, the social cost would therefore be between £60 billion and £100 billion per year across Western Europe[22]. Sleep disturbance was the single biggest health impact (at 903,000 life years), followed by annoyance (654,000) and much smaller impacts on ischaemic heart disease, cognitive impairment of children, and tinnitus.[23]

Data from Defra shows the number of people in London exposed to noise levels beyond 55dB, through to greater than 75dB; by roadside, railway and for industry; and these data are shown in Table 7.7.

**Table 7.7: Number of people exposed to roadside, railway and industrial noise above thresholds, Greater London, 2011**

| Type | >55dB | >60dB | >65dB | >70dB | >75dB |
|---|---|---|---|---|---|
| Roadside | 2,387,200 | 1,426,100 | 1,027,200 | 597,800 | 99,200 |
| Railway | 525,200 | 308,500 | 158,100 | 59,800 | 15,200 |
| Industrial | 23,600 | 13,000 | 7,500 | 4,600 | 3,000 |

| Type | >50dB | >55dB | >60dB | >65dB | >70dB |
|---|---|---|---|---|---|
| Roadside – Night | 1,665,400 | 1,106,500 | 649,400 | 114,500 | 900 |
| Railway – Night | 388,700 | 214,200 | 95,100 | 29,700 | 6,400 |
| Industrial - Night | 20,500 | 11,300 | 6,700 | 4,000 | 2,700 |

*Source: Defra*

A more graphical illustration of noise exposure can be seen through mapping, specifically through the analysis of an open data source using strategic noise mapping exercise undertaken by Defra in 2012. Maps 7.2 to 7.5 are drawn from the open data viewer created by Extrium, and are snapshots of road noise exposure across London and the Greater South East. These maps clearly show the greater levels of exposure around the major trunks of the capital, but also on important routes within the M25 boundary.

**Map 7.2: Noise exposure, Lden, London and the Greater South East**
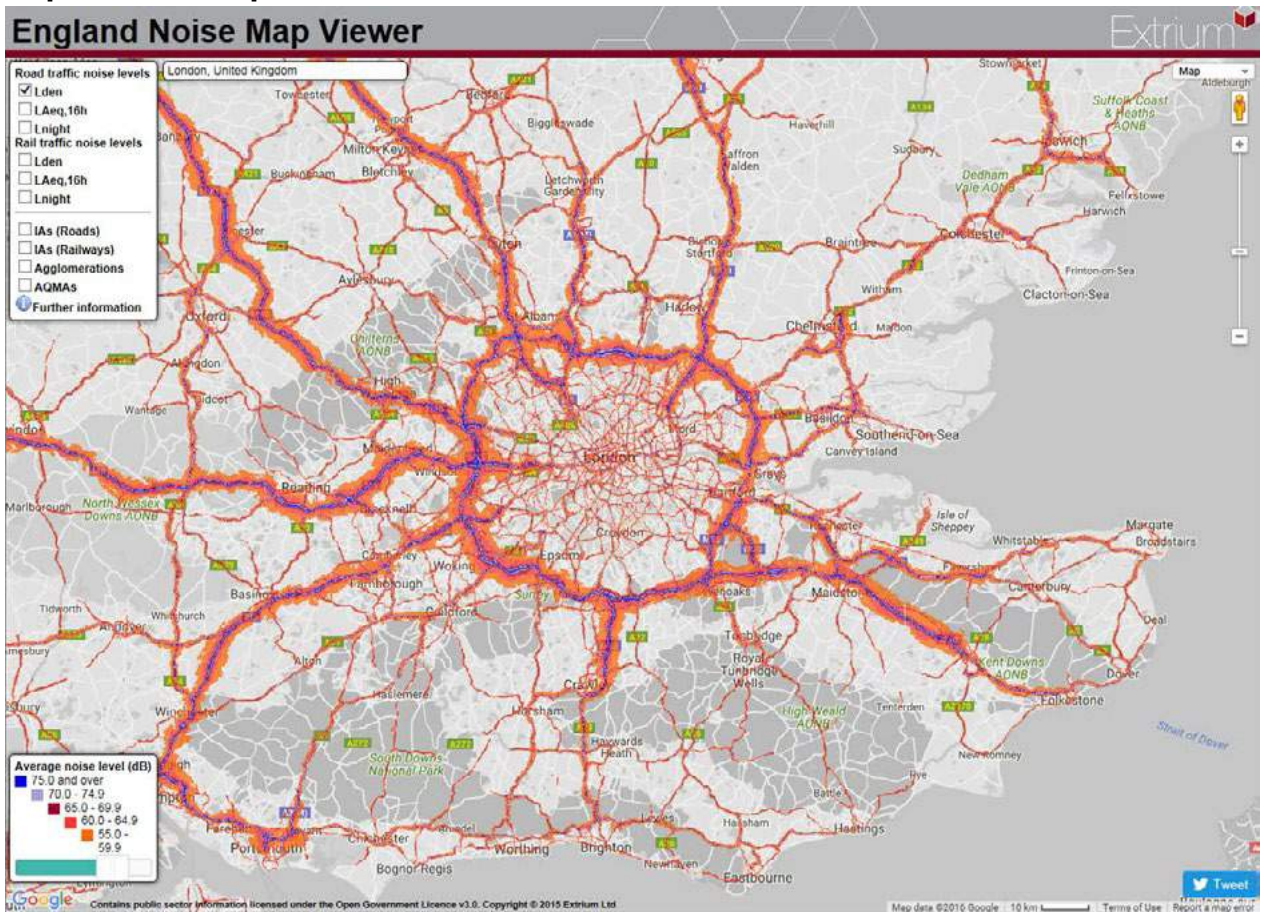


*Source: Extrium, Google Maps; based on Defra data*

**Map 7.3: Noise exposure, Lden, London**
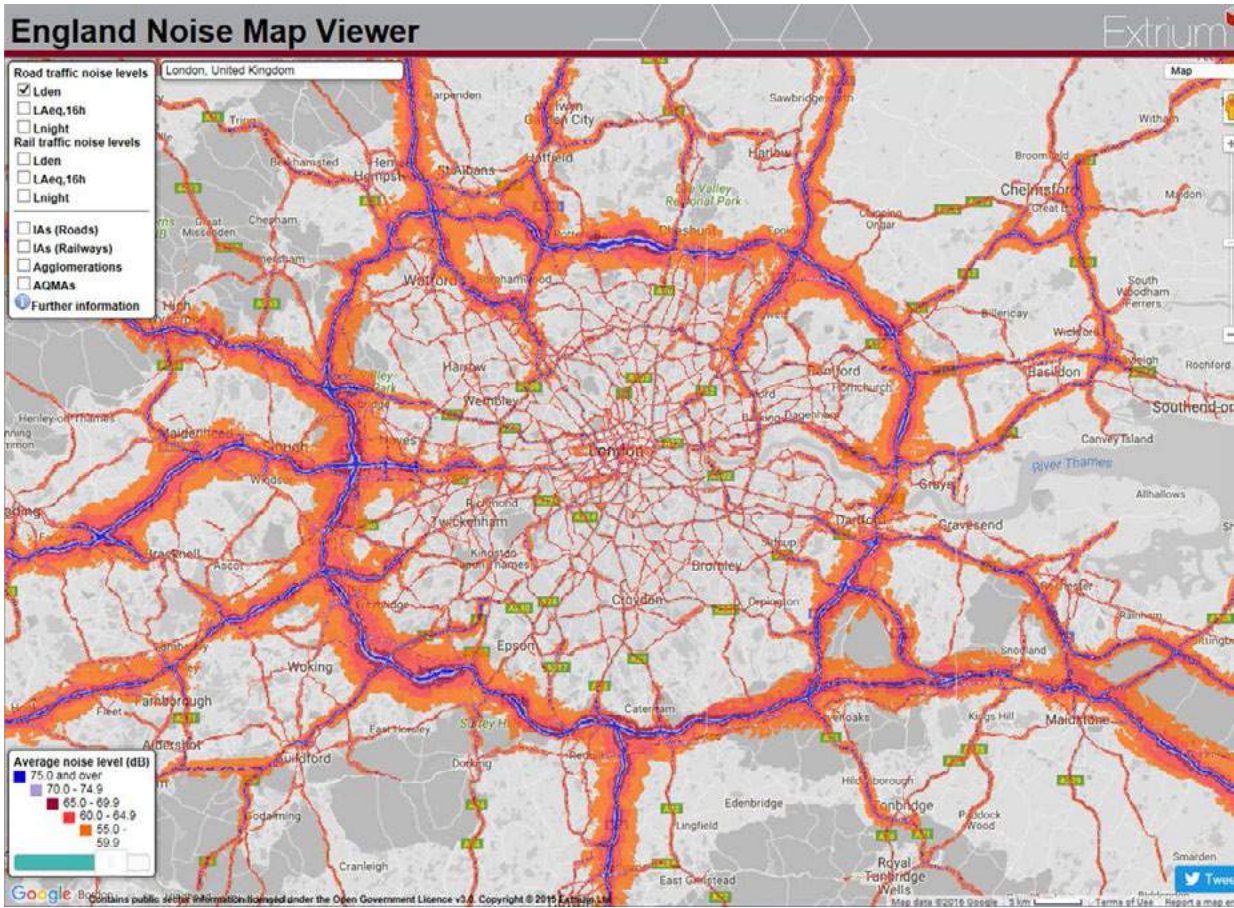


*Source: Extrium, Google Maps; based on Defra data*

## Map 7.4: Night-time noise exposure, London
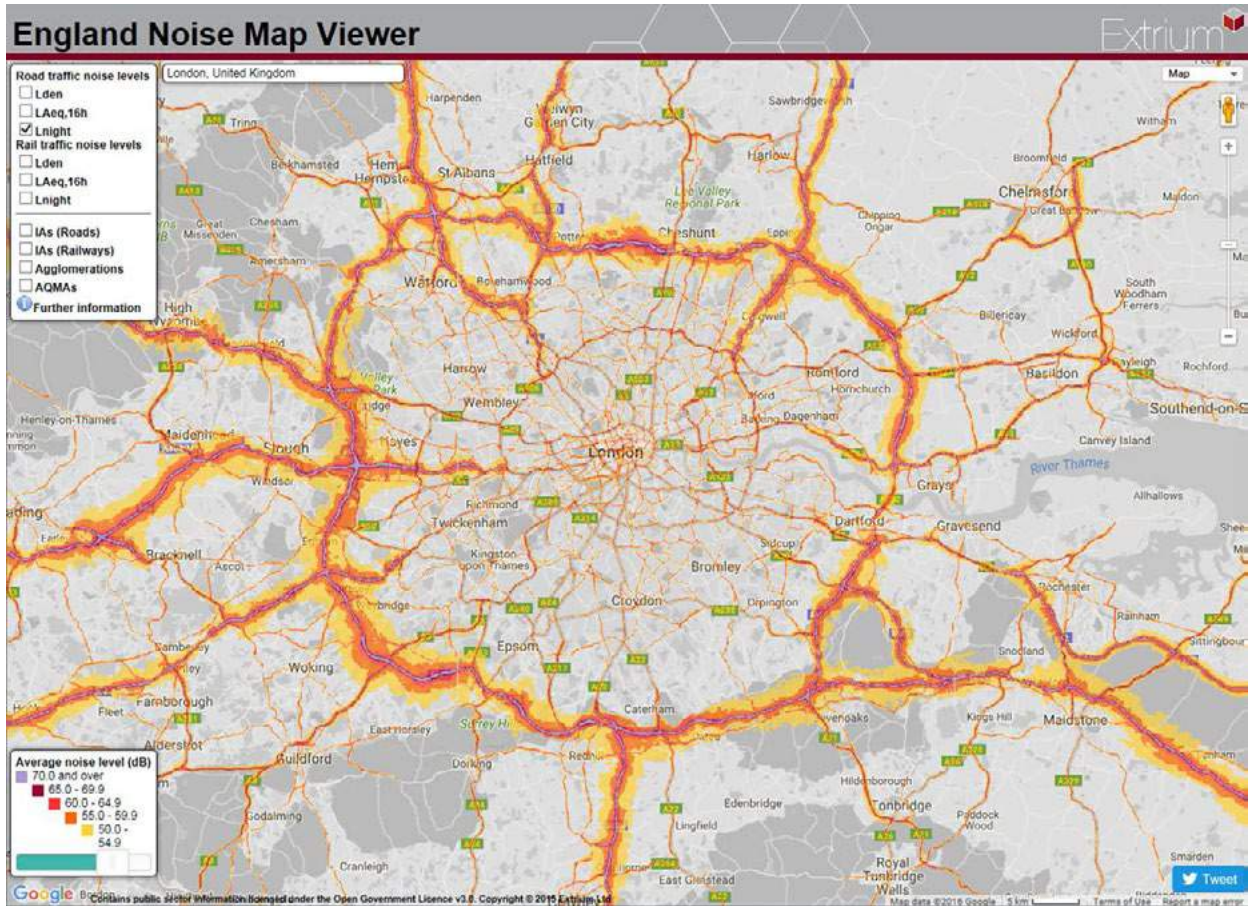


*Source: Extrium, Google Maps; based on Defra data*

**Map 7.5: Noise exposure, Lden, central London**
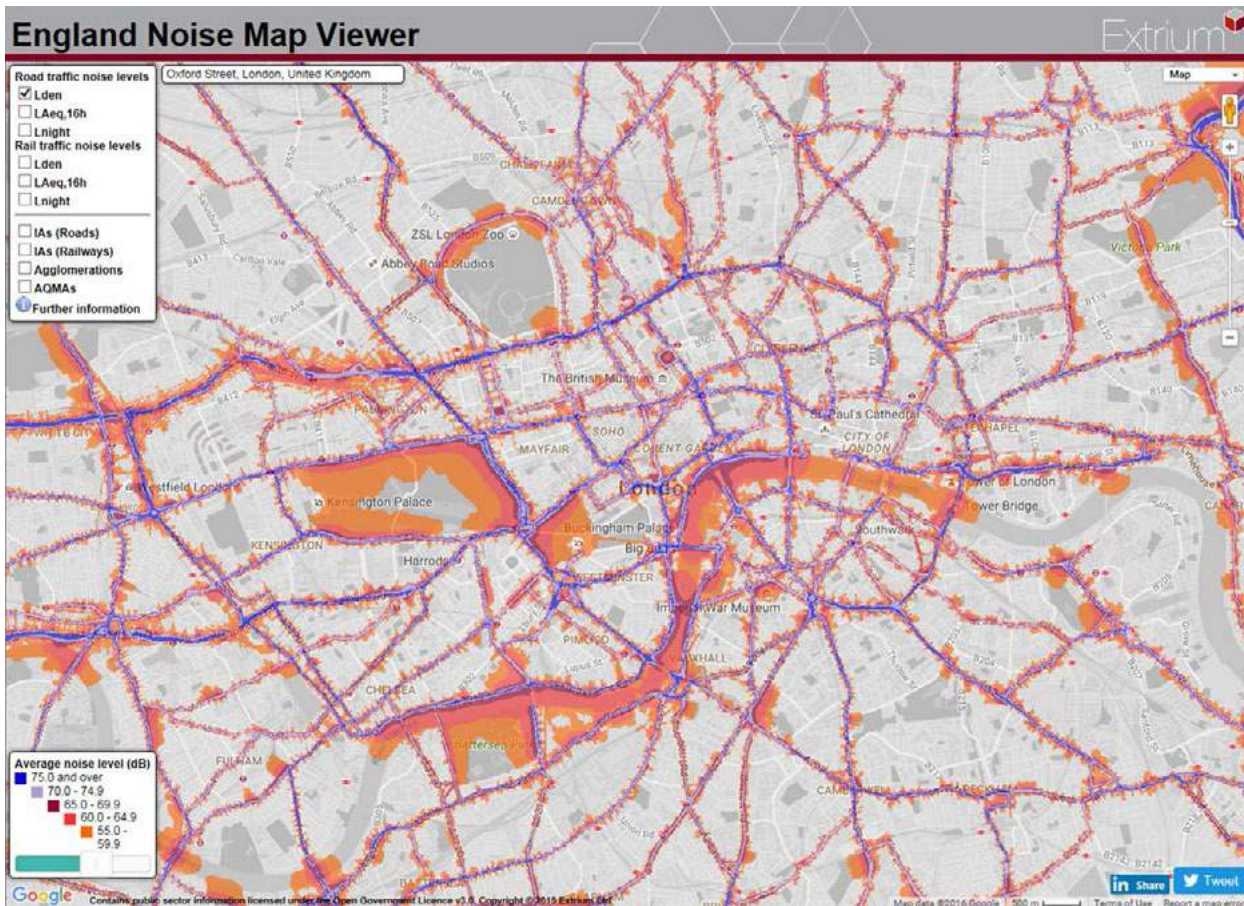


*Source: Extrium, Google Maps; based on Defra data*

Aviation noise also affects many people in London. A 2013 report from TfL noted that 766,100 people lived within the ≥ 55 Lden[24] contour of Heathrow[25]. At least another 17,800 people[26] are living within the ≥ 55 Lden contour of London city airport. This indicates that aviation noise is a significant environmental issue in London, particularly in light of the proposed expansion of Heathrow, which according to TfL could increase the noise exposure impact in London by £300 million per year (or £6.2 billion between 2030 – 2050) after accounting for annoyance, health and productivity impacts.

## 7.3.3: Climate

Changes to the climate represent major environmental and economic risks to the global economy. Similar to that referenced for air and noise pollution, climate change can be seen as examples of negative externality, such that the costs imposed on the population (or certain groups) are not those directly responsible for greenhouse gas emissions. Analysis from the Carbon Disclosure Project outlined six current and anticipated effects of climate change for London, which are shown in Figure 7.18.

**Figure 7.18: Current and anticipated effects of climate change in London**



**Hotter summers**
Increased demand for mechanical cooling leading to increased energy demand; physical impacts on heat-sensitive infrastructure.

**More intense rainfall**
Increased probability and impact of flooding; impact on health, damage to property and infrastructure, and economic losses.

**More frequent and intense heatwaves**
Increase in mortality among heat-vulnerable individuals and the wider population.

**Changes in seasonality of rainfall**
Water supply/demand balance becomes more precarious; more frequent restrictions imposed on use.

**Increased urban heat island effect**
Compounds impact of hotter summers and heatwaves; prevents night-time cooling.

**Sea level rise**
Risk of tidal flooding; low probability due to protection of Thames Barrier and other flood defences.

High risk    Medium risk    Low risk

*Source: Carbon Disclosure Project, data provided for the CDP Cities 2013 report, GLA, 2013[27]*

There are many examples of how climate change can lead to observable negative externalities for the population. Drawing upon the six areas outlined in Figure 7.18, with hotter summers comes the need to draw upon more mechanical cooling (such as air conditioning), however this leads to greater carbon emissions as a result of running these devices and in the increased energy supply requirement in order to manufacture and run them. More frequent and intense heatwaves can lead to health impacts for vulnerable groups, incurring costs on health services. With more intense rainfall there will be increased risks of flooding, leading to costs being incurred on homeowners, businesses and the public purse when these incidents occur. Changes in the seasonality of rainfall will make it harder to capture the water that we need for public supplies, leading to additional investment in large scale water supply infrastructure.

Adaptation against climate change can also allow us to observe the presence of market failures. For example, individuals (and businesses) would not likely be able (or to be inclined) to address issues directly. For instance, if one business sought to instigate extra protection against flooding and sea level rise, other businesses would simply 'free ride' on them.

Each of these effects could be seen to impact on London's economy in different ways. For example, hotter summers and more frequent and intense heatwaves may act to reduce productivity and economic output as a result of heat-related illness, as well as effects on infrastructure, for example through buckling of train tracks or increased call on electricity and energy supplies for air conditioning. Increased rainfall and sea level rise could lead to a greater risk of flooding or a greater area exposed to flood risk (see Chapter 6). Finally, with increased economic activity and associated reductions in green spaces, urban heat island effects may reduce people's quality of life within their homes and on transport and create a greater reliance on household energy usage for air conditioning – the urban heat island effect can result in the centre of London being up to 10ºC warmer than rural areas around London.

**Evidence on climate change in the UK**

The pre-eminent environmental risk to the global economy, and therefore by extension to the UK and London comes from climate change. This links directly to the concept of natural capital, since many of our natural capital assets are directly impacted by climate change. Within the UK, a major study on the potential impacts of climate change was produced by Lord Stern in 2006, where he summarised that "climate change will affect the basic elements of life for people around the world – access to water, food production, health, and the environment. Hundreds of millions of people could suffer hunger, water shortages and coastal flooding as the world warms". His review estimated that if no action was taken to reduce emissions, greenhouse gas concentrations "could reach double its pre-industrial level as early as 2035, virtually committing us to a global average temperature rise of over two degrees Celsius".[28]

The scale of the potential costs of not mitigating against climate change driven by anthropogenic emissions of greenhouse gases is large. The Stern Review estimated that the overall costs of not acting would be equivalent to 5 per cent of global GDP per year; whereas through acting to reduce greenhouse gas emissions, the costs could be limited to 1 per cent of global GDP a year.

To put climate change in context, Figure 7.19 outlines how average temperatures have changed here in the UK. Using historical data from Hadley Centre Central England Temperature (HadCET) dataset, over the course of the last 100 years, temperatures have increased gradually (with the linear trend line showing an increase of just under 1 degree Celsius between 1900 and 2015); and 2014 being the warmest year on record for mean HadCET.[29]

**Figure 7.19: Central England temperature – mean annual data, 1900 – 2015**
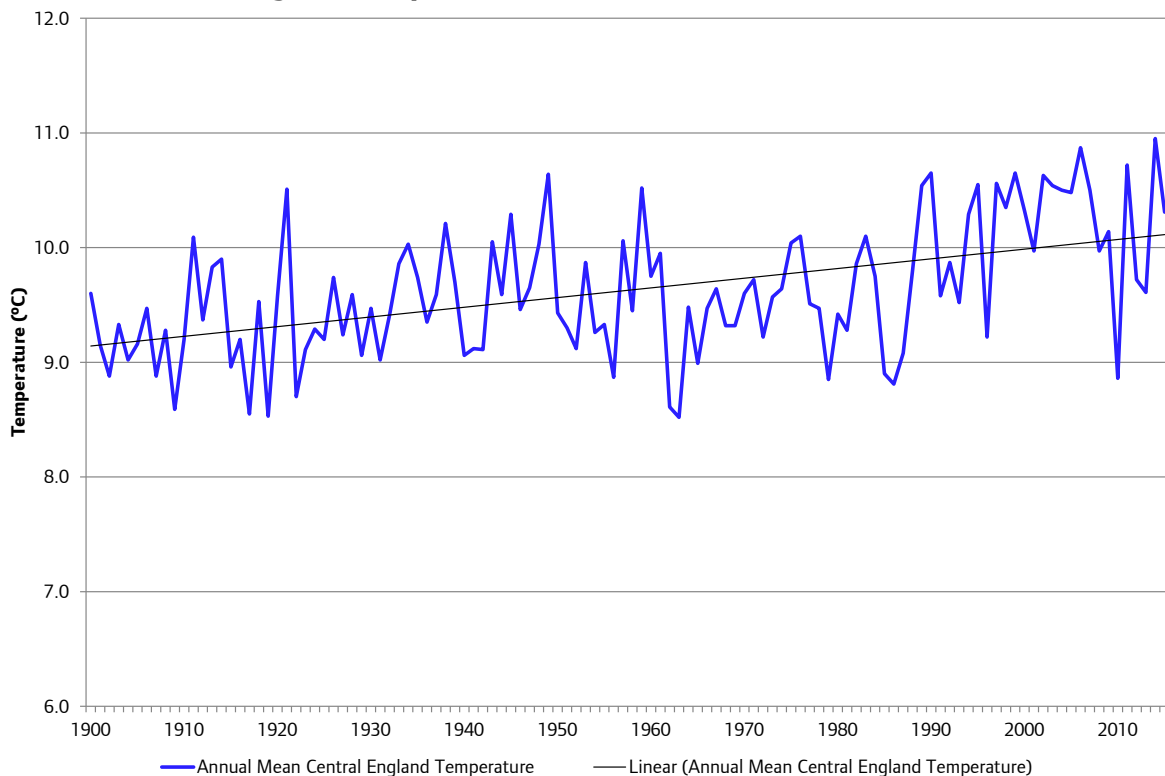


*Source: HadCET, accessed from the Met Office*

**Economic opportunities through climate change mitigation and adaptation**

With an increased risk of climate change, there may be opportunities for London's economy to lead in mitigation. For example, using London's highly skilled workforce to develop specialisation in low-carbon technologies, or building upon its pre-existing specialism for business and professional services (and shown by calculations of the Index of Specialisation, given in Chapter 1) by becoming a centre for low carbon finance and building in the development of the green economy. Research undertaken by kMatrix for the GLA estimated that the low carbon and environmental goods and services sector (LCEGS) in London comprised over 10,900 businesses and employed over 192,000 people, with companies in this sector achieving sales of £30.4 billion. Between 2007/08 and 2014/15, sales of companies in the LCEGS sector have grown by 45 per cent.[30]

Within low carbon finance, the London Stock Exchange hosts the FTSE Environmental Markets Index Series markets; the FTSE Environment Technology Index has constituent companies with a market cap of $296 billion[31], and the FTSE Environmental Opportunities All-Share has a total market cap of $2.50 trillion.[32] It is however an area in which other global cities have looked to specialise, with for example, the growth of New York in green finance, and the Tokyo Stock Exchange being the first location to host a market for carbon trading.

However, as was referenced in the Stern Review, "climate change is the greatest market failure the world has ever seen, and it interacts with other market imperfections".[33] The impacts of climate change are therefore intrinsically linked with the notion of natural capital, since there are a number of natural capital assets which could be impacted through climate change, whether it is in the land, ecology or biodiversity. Also, climate change adaptation builds resilience to longer-term future threats and risks, such as flooding and increased temperature. Timely adaptation measures can reduce future damages to or overload on urban infrastructure such as transport and housing which can reduce costs and ensure that cities are resilient to the impacts of climate change.

**Analysis of carbon emissions data**

One of the major causes of global climate change has been through industrialisation, particularly over the last century. Data from the World Bank for the last 50 years show that global carbon dioxide emissions have more than trebled, due to the rapid industrialisation of developing economies (as well as for more advanced economies). For the United Kingdom, emissions have largely stayed constant and have fallen in recent times, as shown in Figure 7.20.

**Figure 7.20: Comparison of trends in carbon emissions, global and UK emissions**
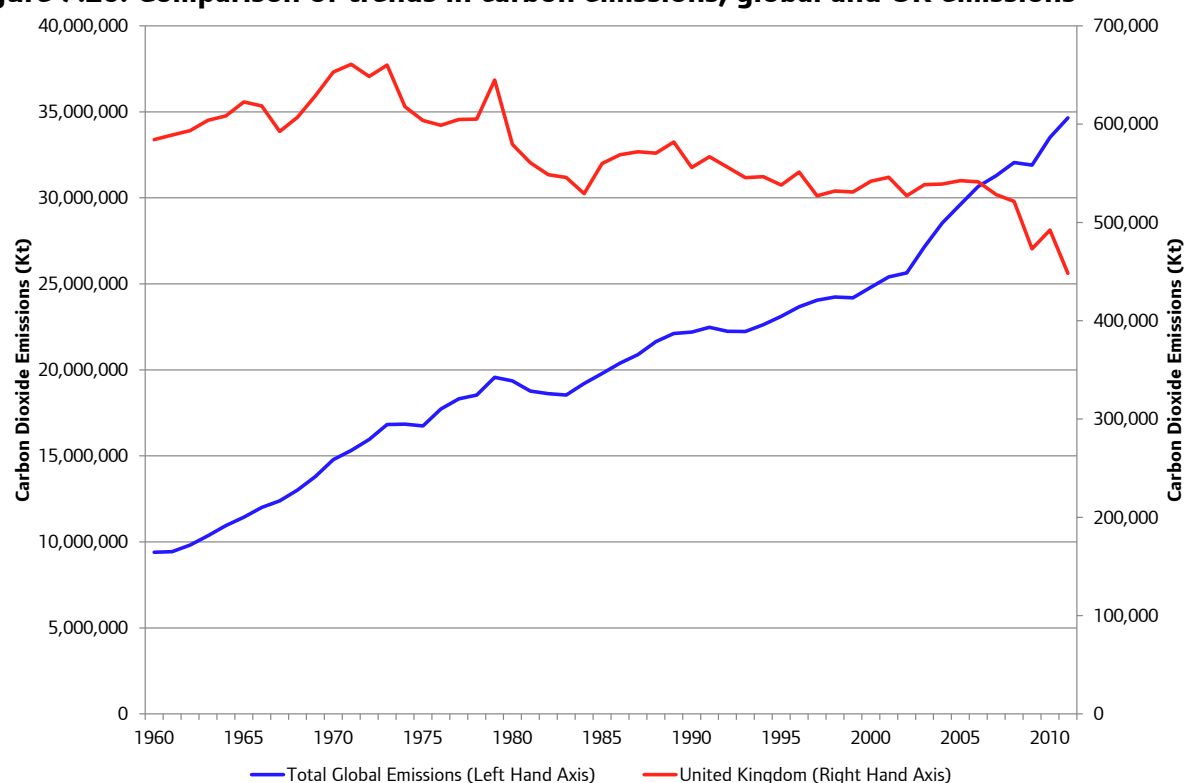


Source: World Bank

Similar to trends for the UK, carbon dioxide emissions in London have been falling in both per capita and absolute terms, as shown in Tables 7.8 and 7.9 and Figure 7.21. Data on $CO_2$ emissions in the capital are drawn from the London Energy and Greenhouse Gas Inventory (LEGGI), which is produced by the GLA, incorporating sub-national energy and $CO_2$ equivalent data published by the Department for Business, Energy and Industrial Strategy (BEIS) for homes and workplaces, and data from the London Atmospheric Emissions Inventory (LAEI) for energy and $CO_2$ equivalent data for transport.

Between 1990 and 2014, total $CO_2$ emissions in London fell by 16.3 per cent; with emissions by industry type falling by 9.5 per cent for transport, 15.5 per cent for domestic, and 20.2 per cent for industrial and commercial.

There are a variety of reasons which could explain the falls in carbon dioxide emissions. These include a less carbon intensive national grid; a decline of capital intensive industries (partially shown by employment data in the manufacturing sector); the impact of energy efficiency programmes (both for industrial and residential property); personal choices in energy use (to become more energy efficient so as to guard against rising energy costs); as well as the improvements in the environmental performance of the transport system (through increased take-up of lower emission vehicles, implementation of emissions standards, and increased modal shift, such as to cycling and walking).

## Table 7.8: Carbon emissions, 1990 – 2014, London

| Year | Domestic | Industrial and Commercial | Transport | TOTAL | CO2 per capita |
|------|----------|---------------------------|-----------|-------|----------------|
| 1990 | 15.84 | 19.74 | 9.47 | 45.05 | 6.63 |
| 2000 | 17.54 | 24.06 | 8.71 | 50.31 | 6.95 |
| 2001 | 17.79 | 21.76 | 9.31 | 48.86 | 6.67 |
| 2002 | 17.95 | 21.10 | 9.88 | 48.93 | 6.63 |
| 2003 | 18.11 | 20.45 | 10.45 | 49.01 | 6.63 |
| 2004 | 16.85 | 20.05 | 9.65 | 46.56 | 6.26 |
| 2005 | 17.31 | 19.23 | 9.86 | 46.40 | 6.17 |
| 2006 | 17.22 | 20.62 | 9.79 | 47.64 | 6.27 |
| 2007 | 16.84 | 19.85 | 9.79 | 46.48 | 6.04 |
| 2008 | 16.93 | 19.85 | 9.90 | 46.67 | 5.97 |
| 2009 | 15.25 | 17.38 | 9.90 | 42.52 | 5.35 |
| GHG Emissions (MtCO$_2$e) | | | | | |
| 2010 | 15.88 | 18.22 | 8.52 | 42.62 | 5.29 |
| 2011 | 13.94 | 16.12 | 8.58 | 38.64 | 4.71 |
| 2012 | 15.34 | 18.40 | 8.58 | 42.32 | 5.09 |
| 2013 | 14.91 | 17.29 | 8.68 | 40.87 | 4.86 |
| 2014 | 13.38 | 15.76 | 8.57 | 37.72 | 4.42 |

| Reductions in emissions compared to baselines | | | | |
|-----------------------------------------------|---|---|---|---|
| 1990 baseline | -15.5% | -20.2% | -9.5% | -16.3% |
| 2000 baseline | -23.7% | -34.5% | -1.6% | -25.0% |

Source: LEGGI.

Notes: Data for 1990, 2000 – 2009 are data on CO$_2$, weather corrected; data for 2010 – 2014 are GHG emissions, non-weather corrected and CO$_2$e. 2014 are interim data.

## Figure 7.21: Trends in UK and London CO$_2$ emissions
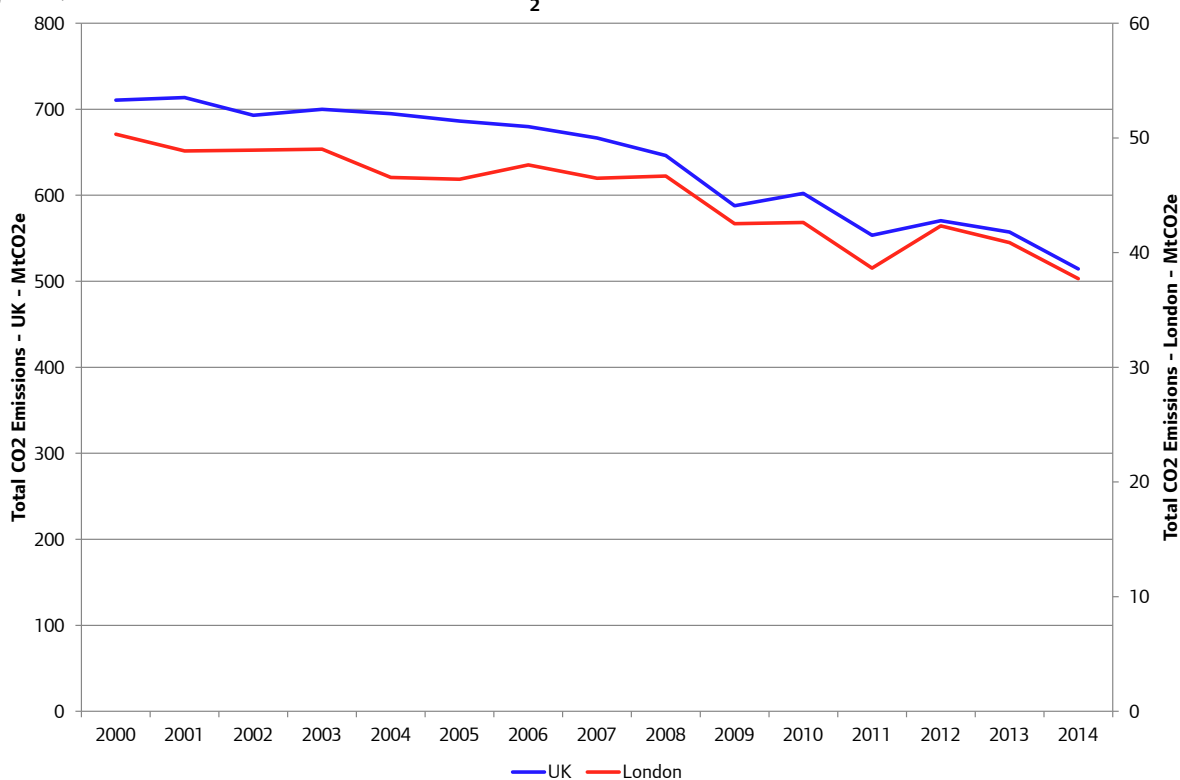


Source: DECC (UK data), LEGGI (London data)

Data from the London Atmospheric Emissions Inventory (LAEI2013) provides an indication of recent trends in, and future projections of, emissions – however it should be noted that the LAEI does not include all the sources of $CO_2$ that are included within the LEGGI. Compared to 2008 levels, $CO_2$ is projected to fall by 30.7 per cent by 2030, with the major contributors in absolute terms being road transport, industry and domestic & commercial gas. In proportional terms domestic & commercial (other fuels), as well as rail, and industry will be major contributors.

**Table 7.9: CO$_2$ emission projections, London**

| Source | 2008 | 2010 | 2013 | 2020 | 2025 | 2030 | Reduction 2008-2030 |
|---|---|---|---|---|---|---|---|
| Road Transport | 7,337,105 | 7,146,030 | 6,651,511 | 6,106,822 | 5,854,313 | 5,728,930 | -21.9% |
| Aviation | 1,150,455 | 1,054,417 | 969,357 | 1,034,119 | 952,887 | 871,654 | -24.2% |
| River | 46,867 | 49,843 | 30,630 | 35,270 | 38,282 | 40,485 | -13.6% |
| Rail | 958,455 | 937,052 | 876,001 | 598,833 | 433,666 | 293,405 | -69.4% |
| Industry | 5,127,617 | 5,127,617 | 1,935,825 | 1,935,825 | 1,935,825 | 1,935,825 | -62.2% |
| NRMM | 700,869 | 550,077 | 521,681 | 309,204 | 300,432 | 300,432 | -57.1% |
| D&C Gas | 12,959,735 | 11,956,119 | 11,186,471 | 9,941,950 | 9,854,826 | 10,777,333 | -16.8% |
| D&C Other Fuels | 878,019 | 738,171 | 657,321 | 281,622 | 207,274 | 184,927 | -78.9% |
| Other | 1,005,118 | 819,657 | 758,308 | 764,539 | 767,830 | 770,637 | -23.3% |
| Total | 30,164,241 | 28,378,985 | 23,587,104 | 21,008,184 | 20,345,335 | 20,903,628 | -30.7% |
| Reduction | -- | -5.9% | -21.8% | -30.4% | -32.6% | -30.7% | |

*Source: London Atmospheric Emissions Inventory*

**Figure 7.22: CO$_2$ emission projections, London**
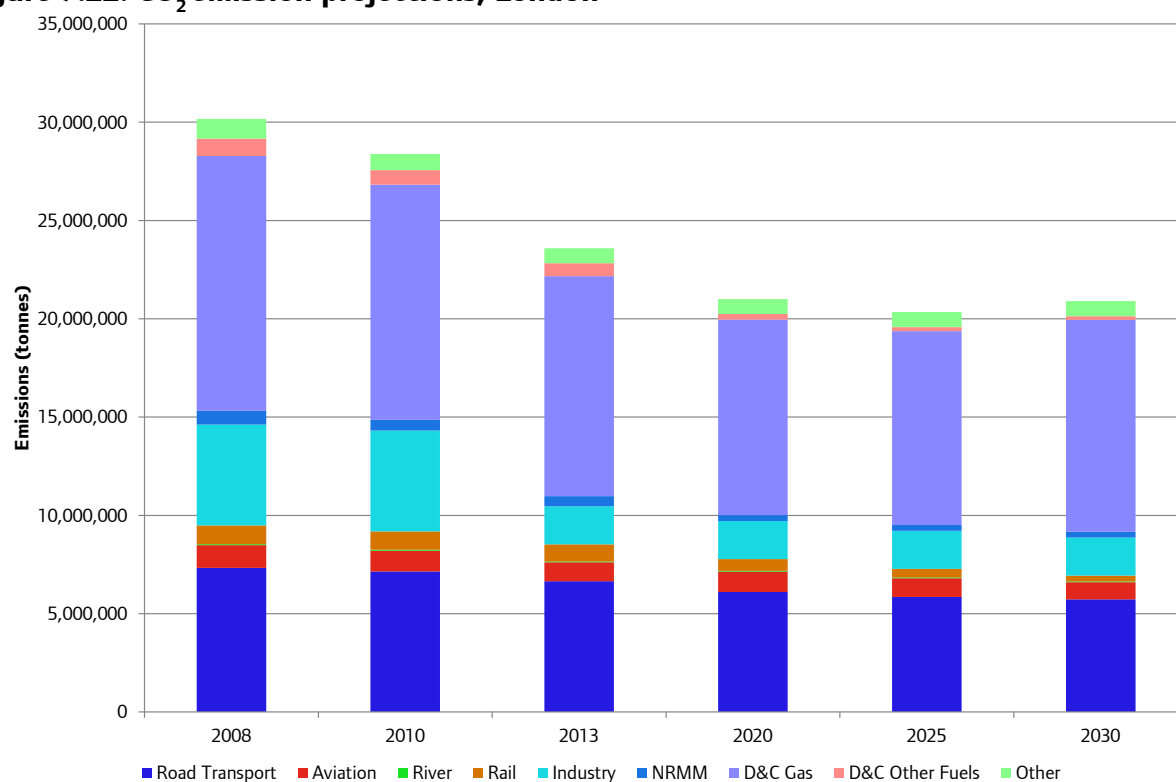


*Source: London Atmospheric Emissions Inventory*

Despite carbon emission reductions over time, for developed nations to meet reduction targets, a variety of programmes and activities are required, each of which will have different capacity to reduce carbon emissions at various levels of cost. The diagram in Figure 7.23 outlines the potential capability of measures to contribute towards emission reduction, comparing the abatement potential with the marginal abatement cost per tonne of carbon dioxide equivalent. However, it should be considered that these estimates were based on research published in 2010, therefore technological improvements could mean that certain measures may be more cost-effective now and potentially in the future. In addition, at a city level, individual measures may be more or less cost effective; for example, through the feasibility of retrofitting the existing housing stock.

**Figure 7.23: Global greenhouse gas abatement costs curve beyond business as usual, 2030**



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €80 per $tCO_2e$ if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.
Source: Global GHG Abatement Cost Curve v2.1
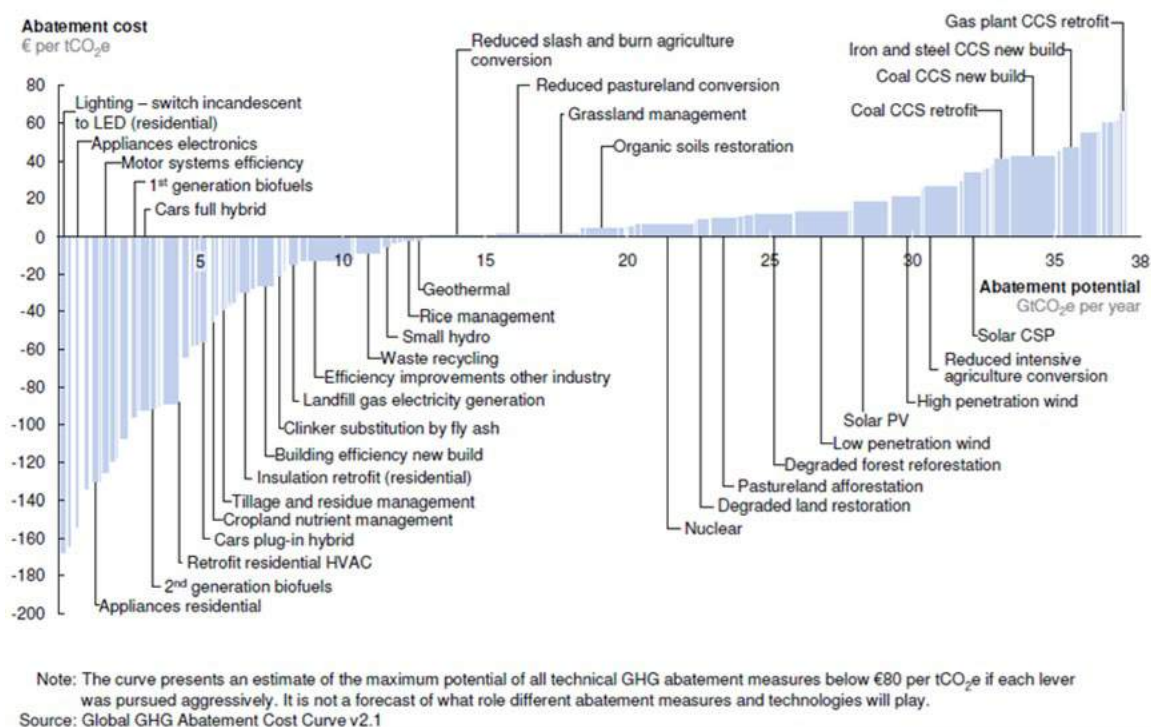
*Source: McKinsey & Company*

## 7.3.4: Water
On topics relating to water, whether it be on water supply or flooding prevention, examples of market failure can vary.

The existence of public goods is not normally cited in the context of water supply, rather water networks currently act as a natural monopoly. It is an industry where there are such high entry costs for potential new suppliers (i.e. the development of infrastructure), that it is most efficient for just one business to operate in supplying water to residents in a particular area. This therefore provides some considerations when looking to address the needs of a growing population – i.e. regulation is put on service providers (and utility companies more generally who work in industries where natural monopolies typically operate) to ensure that the public are adequately served (whether it be in the environmental quality of drinking water, or in the market for private water service supply).

Market failures however may be presented in the choices made by consumers. For example, the presence of information failures are relevant to many domestic energy and water services. People may have a poor understanding of the amount of water that they use (since most customers are billed for their use based on the size of their property, therefore pay the same amount whether they use a little or a lot of water – only around 35 per cent of customers have water meters). Within this context, consumers may not be aware of the need for, or the benefits of, reducing their water usage, i.e. through cost savings through smart metering or ensuring their homes are more water efficient.

As previously referred to within the climate section of this chapter, flooding is an example where market failures can occur. Notwithstanding the importance of negative externalities, where the activities of people and business exacerbate climate change, or the role of development leading to reduced natural defences against all forms of flooding, significant costs can be borne by properties which are impacted.

Another important consideration is the presence of co-ordination failures. Flooding causes direct impacts on households and businesses, but the increased risk of flooding also has the potential impact of raising the costs of insurance against such events. Regulation over land use can help mitigate against the potential risk of flooding; for example, designation of areas as floodplain and the prevention of development may help to alleviate risk of flooding for nearby areas (as a result of an effective run off area for floodwater being maintained).

### Evidence on economic and social impacts

Water is a fundamental part of the natural environment; it services households and industry through consumption and sewerage. The Thames has played an important role in the development of the capital as a centre for trade, through the import and export of goods and services, but also as a means of transport to and within the city.

**i) Water supply**

The South East of England is classified by the Environment Agency (EA) as being in "serious" water stress. This means that in an average year more water is abstracted from the environment to meet our demands than is sustainable in the long term. Many water companies in the South East have been set 'sustainability reduction targets' by the EA to reduce the amount of water they take from the environment. These, together with climate change and population growth, have led Thames Water to estimate that by 2050, without further action, London's demand for water will exceed the available sustainable supply by 522 million litres per day by 2050. Thames Water is therefore working to identify and assess the resilience of long-term water resource options to meet London's growing demand whilst at the same time being affordable and sustainable. These options include a new reservoir near Oxford, transfer of water from the River Severn Catchment to the Thames catchment and effluent reuse (treatment of water from sewage treatment works), and further desalination.

Most of London's water companies have also committed to reduce demand for water through:

- Installing smart meters to incentivise households to be more water efficient (Thames Water plan to install 900,000 meters over the next five years)
- Retrofitting homes to become more water efficient
- Using the new metering capability to better detect leaks
- Investigating 'smart' tariffs to further incentivise water efficiency when water resources are low.

**ii) Sewerage**

London's sewerage system has been developed over the past 150 years. The recent completion of the £650m Lee Tunnel in East London should prevent sewer overflows into the River Lee near Stratford. This will be complemented by the £4bn Thames Tideway Tunnel which is due to complete in 2023. Together these two projects alongside major upgrades at London's sewage treatment works that are either on-going or complete should mean that London's sewerage system can help to reduce pollution in London's waterways.

### iii) Flood risk and drainage

Sixteen per cent of London's land area is within a flood plain and further areas are at risk of surface water flooding. Well over a million people are in these floodplains, although for the majority, the risks are actually low – see Figure 7.24. However, parts of the city are vulnerable to sea level rise. To address this risk, the Thames tidal flood defences protect over £200bn of property from tidal flood risk and the Environment Agency is progressing with the Thames Estuary 2100 project that will ensure this protection is maintained through the rest of the century.

With climate change predicting more intense patterns of rainfall, the risk of surface water and fluvial flooding will also increase. The understanding of the risk of surface water flood risk has improved greatly over the past five years through the Drain London project and updated Environment Agency risk mapping. Each of London's 33 Lead Local Flood Authorities are now exploring ways to manage and reduce surface water flood risk.

**Figure 7.24: Proportions of properties at risk of flooding, by region**
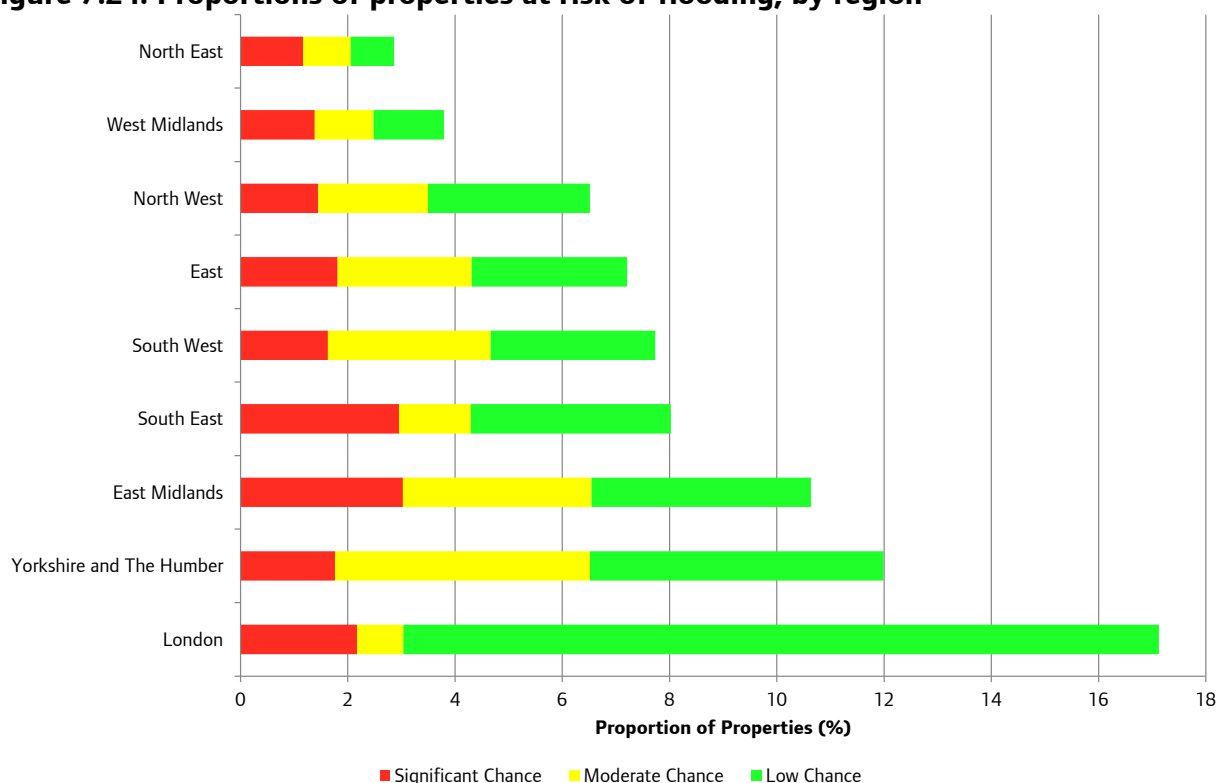


*Source: NaFRA; Environment Agency; accessed on London Datastore*

In terms of absolute number of properties within a floodplain, London has by far the highest number (at over half a million), as shown in Table 7.10.

**Table 7.10: Numbers of properties at risk of flooding, England**

| Region | Significant Chance | Moderate Chance | Low Chance | TOTAL |
|---|---|---|---|---|
| London | 72,000 | 29,000 | 470,000 | 573,000 |
| Yorkshire and The Humber | 48,000 | 129,000 | 149,000 | 327,000 |
| South East | 110,000 | 50,000 | 139,000 | 311,000 |
| North West | 47,000 | 66,000 | 97,000 | 211,000 |
| East Midlands | 60,000 | 69,000 | 81,000 | 211,000 |
| East | 46,000 | 64,000 | 74,000 | 188,000 |
| South West | 39,000 | 72,000 | 73,000 | 187,000 |
| West Midlands | 34,000 | 27,000 | 32,000 | 94,000 |
| North East | 14,000 | 11,000 | 10,000 | 35,000 |

*Source: NaFRA, Environment Agency; accessed on London Datastore. Totals may not sum due to rounding.*

When considering flood risk at a more spatial level, Hammersmith & Fulham, Southwark and Newham all rank within the top ten local authorities in England & Wales with the proportion of properties within a floodplain, as shown in Table 7.11.

**Table 7.11: Ranking of local authorities based on proportion of properties within a floodplain**

| Local Authority | Percentage of properties within a floodplain | Ranking within England & Wales (375 areas) | | Percentage of properties with a significant chance of flooding | Percentage of properties with a moderate chance of flooding | Percentage of properties with a low chance of flooding |
|---|---|---|---|---|---|---|
| Hammersmith and Fulham | 89 | 3 | | 1.3 | 0.8 | 87.2 |
| Southwark | 68 | 5 | | 0.0 | 0.0 | 67.9 |
| Newham | 50 | 8 | | 1.9 | 0.6 | 47.7 |
| Richmond upon Thames | 43 | 11 | | 4.2 | 6.7 | 32.4 |
| Tower Hamlets | 34 | 16 | | 0.7 | 0.0 | 33.3 |
| Wandsworth | 30 | 19 | | 2.4 | 1.9 | 25.8 |
| Barking and Dagenham | 25 | 29 | | 4.1 | 1.7 | 19.3 |
| Hounslow | 25 | 30 | | 2.5 | 1.3 | 21.0 |
| Greenwich | 23 | 33 | | 0.5 | 0.1 | 21.9 |
| Lambeth | 22 | 39 | | 0.5 | 0.0 | 21.2 |
| Lewisham | 17 | 53 | | 2.8 | 0.8 | 13.2 |
| Westminster | 16 | 54 | | 2.6 | 0.1 | 13.8 |
| Enfield | 16 | 56 | | 7.9 | 2.2 | 5.5 |
| Bexley | 13 | 66 | | 0.4 | 0.2 | 11.7 |
| Merton | 13 | 70 | | 6.7 | 1.7 | 3.8 |
| Kingston upon Thames | 10 | 94 | | 4.5 | 1.9 | 3.5 |
| Haringey | 9 | 102 | | 3.9 | 3.3 | 1.8 |
| Havering | 8 | 113 | | 1.2 | 0.4 | 6.5 |
| Waltham Forest | 7 | 132 | | 4.0 | 0.7 | 2.2 |
| Kensington and Chelsea | 6 | 139 | | 1.2 | 0.1 | 5.1 |
| Hillingdon | 6 | 141 | | 3.8 | 1.3 | 1.0 |
| Ealing | 6 | 151 | | 0.2 | 0.1 | 5.6 |
| Bromley | 6 | 158 | | 2.3 | 1.0 | 2.5 |
| Sutton | 5 | 185 | | 1.2 | 1.8 | 1.5 |
| Redbridge | 5 | 198 | | 2.4 | 0.6 | 1.6 |
| Brent | 4 | 206 | | 2.7 | 0.4 | 1.4 |
| City of London | 3 | 265 | | 1.1 | 0.7 | 1.2 |
| Croydon | 3 | 268 | | 1.9 | 0.1 | 1.0 |
| Harrow | 3 | 276 | | 1.5 | 0.3 | 0.7 |
| Hackney | 3 | 285 | | 0.2 | 0.0 | 2.4 |
| Barnet | 2 | 300 | | 1.7 | 0.2 | 0.4 |
| Camden | 0 | 374 | | 0.0 | 0.0 | 0.0 |
| Islington | 0 | 375 | | 0.0 | 0.0 | 0.0 |

*Source: London Datastore*

Maps 7.6 and 7.7 provide an indication of the spatial risks of river/coastal flooding, and surface water flooding, each at MSOA[34] level. Map 7.6 provides data on the proportion of MSOAs covered by moderate or significant flood risk from river and coastal flooding, and Map 7.7 gives an indication of the proportion of the MSOA covered by extents of flood zones associated with a 1 in 30 year flood event.[35]

**Map 7.6: Proportion of MSOA area covered by either moderate or significant flood risk**



Percentage of area at moderate and significant risk of fluvial flooding
- 0%
- 0.1 - 5%
- 5 - 10 %
- 10 - 25%
- Over 25%
- No data

Source: Flood hazard exposure data, Climate Just(http://www.climatejust.org.uk/map)
Contains National Statistics data © Crown copyright and database right 2016
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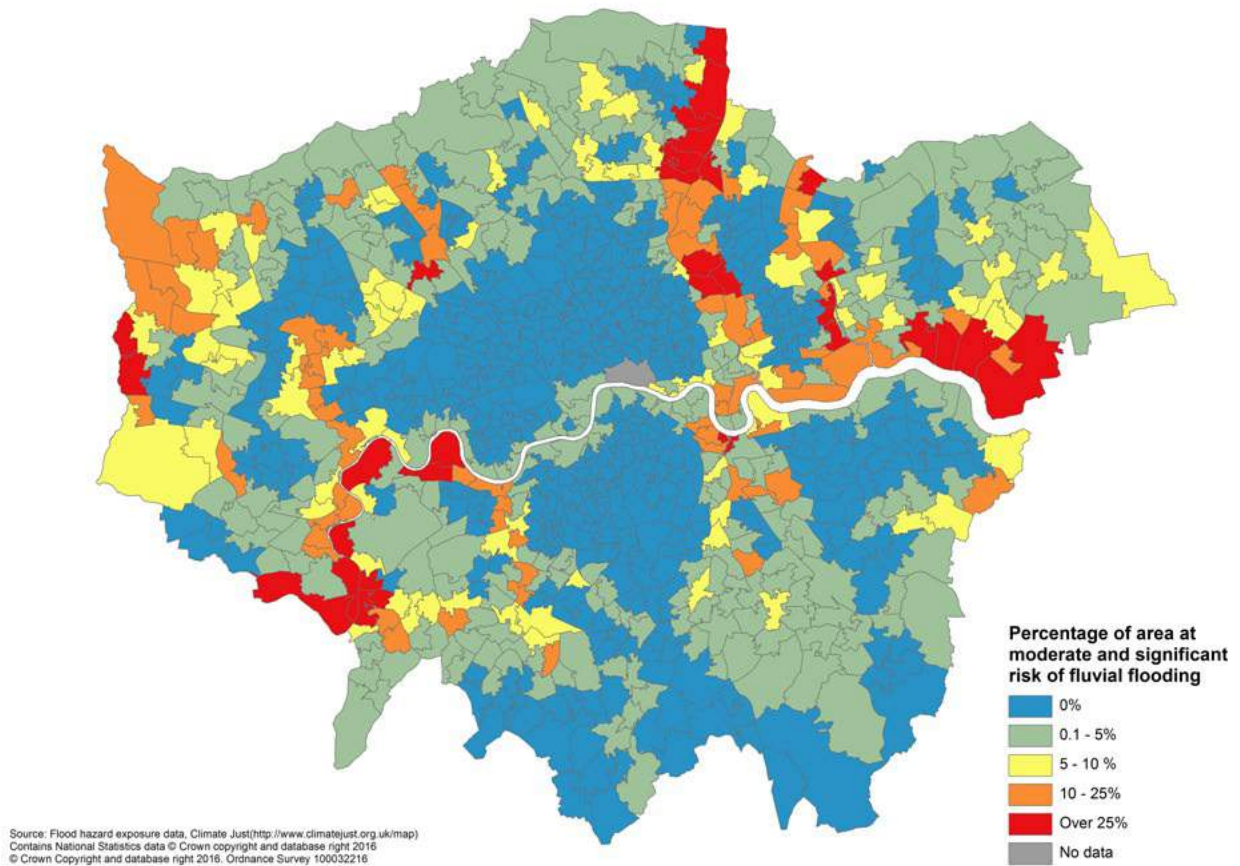
**Map 7.7: Proportion of MSOA area covered by extents of flood zones associated with a 1 in 30 year flood event**



Percentage of area at risk of surface water flooding (1 in 30 years)
- 0%
- 0.1 - 5%
- 5 - 10 %
- 10 - 25%
- Over 25%
- No data

Source: Flood hazard exposure data, Climate Just(http://www.climatejust.org.uk/map)
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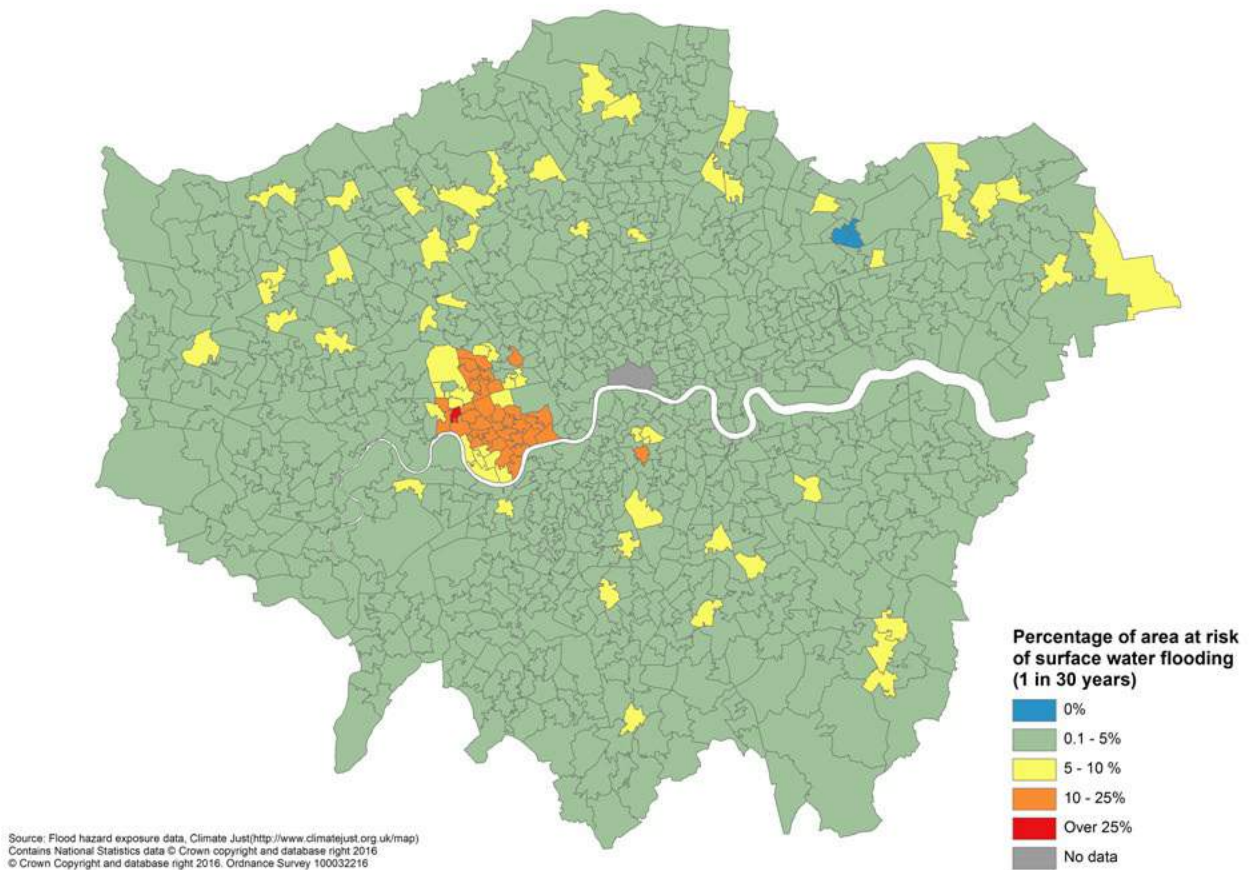
## 7.3.5: Energy

The generation of energy also has wider implications: greater energy generation may lead to increased carbon emissions, and following on from this, the potential for exacerbating climate change. From the consumer perspective, the presence of information failures about the potential financial and environment benefit of (for example) home energy efficiency measures is particularly relevant. Reduced domestic and industrial energy usage is consistent with mitigating against potential negative impacts of climate change. Such concerns, and pressures placed on the energy grid can explain the incentives for decentralised energy programmes for new developments.

Another concern in recent times (such as the last decade) has been trends in energy prices and the associated rises in total household energy costs (Figure 7.25). As a result of this, and other factors such as the rising costs of living more generally, there is a proportion of Londoners who are in fuel poverty (as described in more detail within Chapter 10).

**Figure 7.25: Domestic fuel prices compared to inflation, current prices**
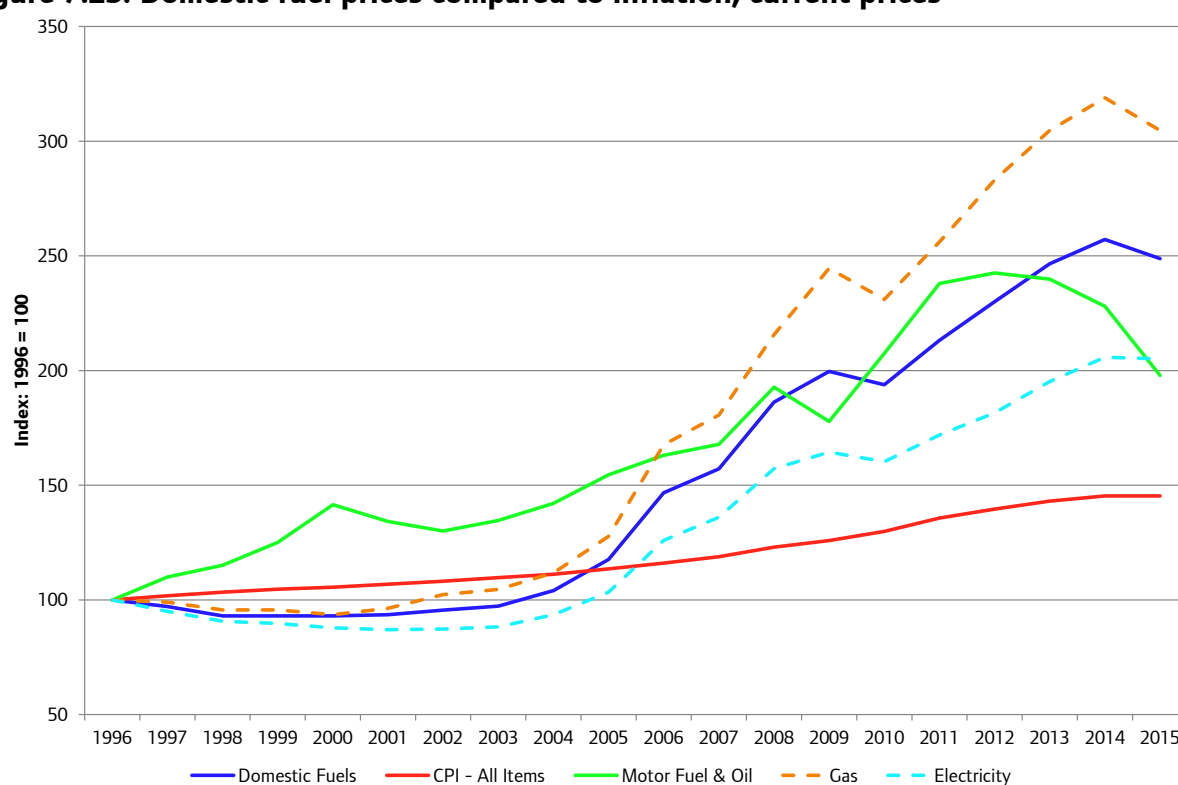


*Source: BEIS and Office for National Statistics; GLA Economics calculations*
*Note: Gas and electricity form part of the domestic fuel component (along with liquid fuels and solid fuels)*

The implications of this can lead to significant impacts on public services. Insufficient heating may lead to an increased call on health services, and households may need to substitute between heating, food consumption, or other consumption. Households with families may be particularly affected, with children's life chances and health outcomes put at risk. Given the context of projected increases in population and employment in the coming decades, sufficient energy provision remains an important concern, especially as an increased call for energy means that the UK will be more reliant on international energy markets, which leads to risks to energy supply – all of which could potentially impact upon London's future competitiveness, but also the cost of energy for households more generally.

## Evidence on energy usage in London

The UK is a net importer of gas and other fuels making London's energy supply reliant upon international energy supplies and markets. Over the last decade energy usage in London has fallen; between 2005 and 2013, total energy consumption in London fell by 11.2 per cent, as shown in Figure 7.26. Table 7.12 shows this decrease in energy consumption was consistent across the domestic, commercial and transport sectors.

**Table 7.12: Energy usage, GWh, 1990 – 2014, London**

| Year | Domestic | Industrial and Commercial | Transport | TOTAL |
|---|---|---|---|---|
| 1990 | -- | -- | -- | 160,431 |
| 2000 | 68,056 | 68,767 | 32,518 | 169,341 |
| 2001 | 78,825 | 62,091 | 31,017 | 171,933 |
| 2002 | *74,248* | *59,332* | *32,830* | *166,409* |
| 2003 | 69,671 | 56,572 | 34,643 | 160,886 |
| 2004 | 69,051 | 58,519 | 35,270 | 162,839 |
| 2005 | 66,433 | 57,366 | 34,193 | 157,991 |
| 2006 | 64,474 | 55,308 | 35,230 | 155,012 |
| 2007 | *64,239* | *54,413* | *34,804* | *153,457* |
| 2008 | 64,005 | 53,518 | 34,379 | 151,902 |
| 2009 | *63,462* | *53,448* | *32,479* | *149,388* |
| 2010 | 62,918 | 53,744 | 32,838 | 149,500 |
| 2011 | 53,800 | 47,614 | *32,838* | 134,252 |
| 2012 | 57,459 | 50,288 | *32,838* | 140,585 |
| 2013 | 58,174 | 50,186 | *31,920* | 140,280 |
| 2014 | 53,490 | 47,747 | 32,829 | 134,066 |

*Source: LEGGI.*

*Notes: Data for 1990, 2000 – 2009 are non-weather corrected. Data for 2010 – 20 14 are weather corrected. Data in italics are estimates.*

**Figure 7.26: Trends in UK and London energy consumption, 2005 – 2013**
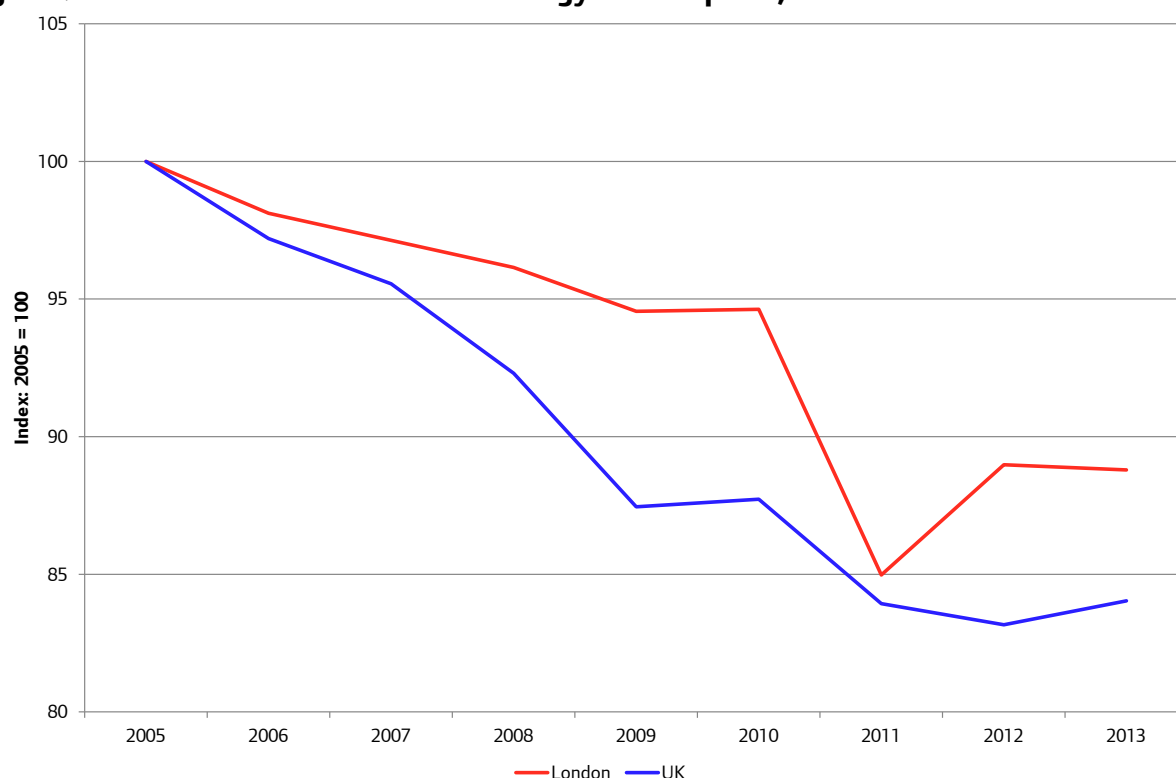


*Source: DECC (UK), LEGGI (London)*

London comprises around 8.9 per cent of the UK's total energy consumption, which is considerably smaller than London's proportion of the UK population[36] (13.3 per cent) and of economic output (22.5 per cent); this is partially explained by density of London, with per capita energy consumption being lower in urban areas.

London's energy system is changing with an increasing demand for electricity and an increasing demand in the Central Activities Zone and during peak times. Currently, higher levels of development and recent increases in London's population are putting more pressure on an already stressed distribution network (40 per cent of London's electricity substations are already under stress). This is resulting in isolated incidents of demand exceeding supply (witnessed by blackouts in the West End for example). It is estimated that the electricity investment requirement to meet short-term new demand is £210 million (over eight to nine substations). The alternative to capital investments is to explore further the role of demand side management and load shifting.[37]

With London's population estimated to increase by around three million people, and add an additional 1.6 million homes by 2050, London's need for energy may increase with an expected 20 per cent increase in demand[38].

In a similar way to carbon dioxide emissions, energy emissions per capita for the United Kingdom have fallen. In contrast, there has been an increase in energy emissions per capita globally, as a result of globalisation and industrialisation. Figure 7.27 shows the trends over the last 40 years.

**Figure 7.27: Energy usage per capita**
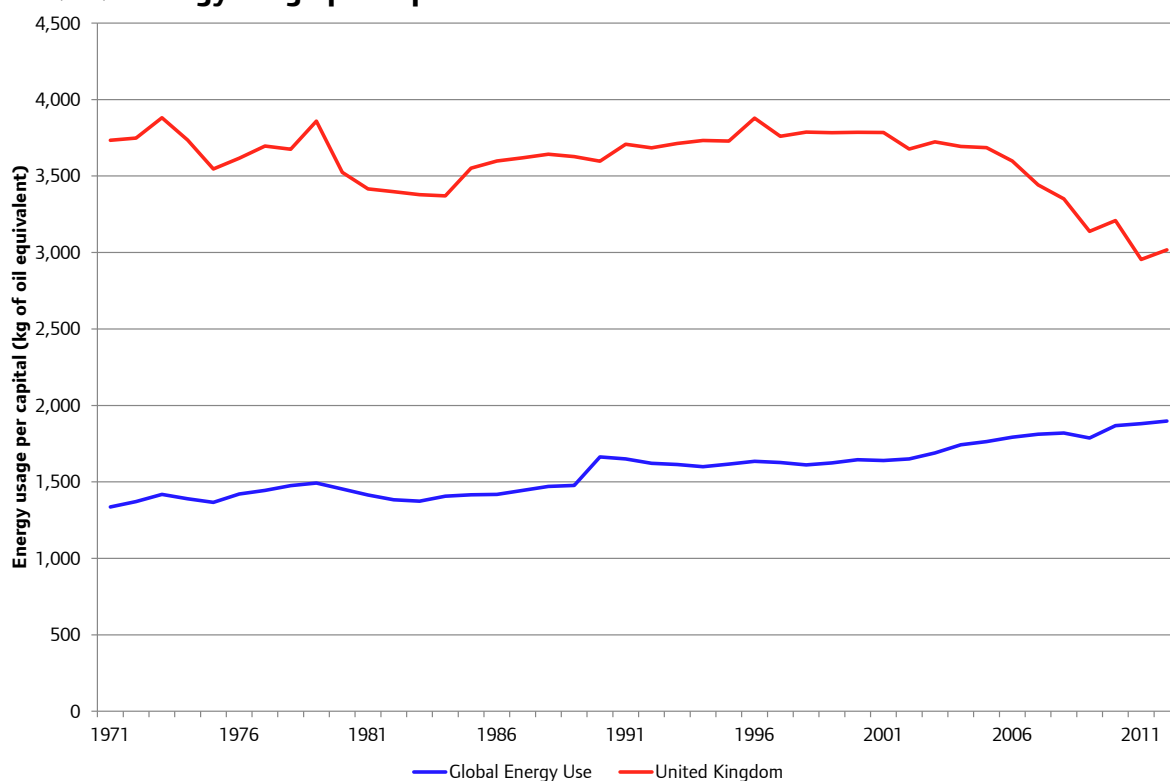


*Source: World Bank*

## 7.3.6: Waste

The treatment of waste and recycling is a topic where different market failures can occur. Two main areas are typically raised; firstly of co-ordination failure and secondly the potential for free riding. If the collection and treatment of waste was borne on the consumer (or business), there may be insufficient provision and treatment of waste, impacting on environmental quality and the perception of a location to live and work.

As important is the presence of negative externalities. Similar to those previously referenced in relation to air quality and noise, negative externalties through waste may have very direct health impacts. Also visual blight through uncollected waste may also have impacts on people's quality of life, wellbeing, and the perception of a location to live, work and visit. For materials and products that may have significant long-term impacts (such as industrial waste), these effects may be very significant.

*Analysis on waste and recycling*

As a major population centre, London produces a significant quantity of waste – around 15 million tonnes per year; including 3.1 million tonnes of household waste and around 4.7 million tonnes of commercial and industrial waste, the latter of which has been in decline with an increasing shift towards a service led economy. The remaining 7 million tonnes of waste generated each year comes from construction, demolition and excavation activities. London manages around half of the waste produced within its boundaries, with the remainder exported to other parts of the UK and beyond.

London comprised 13.3 per cent of the total UK population and 22.5 per cent of total economic output, yet contributed only 7 per cent of total UK waste arisings of 200 million tonnes in 2012. In addition, London only contributed around 10 per cent of the UK's total commercial waste.[39]

How London produces and services waste has significant implications for London's natural environment. Resources (such as land, water etc.) are used in the production of goods and services, therefore consideration needs to be given to how industrial activity impacts upon London's natural capital and achieving higher reuse and recycling performance to reduce reliance on manufacturing

virgin materials. A growing population and increased business activity also has implications in where waste remediation, reuse and recycling activity can take place in the capital, especially in the context of the competition and cost of land (as highlighted in Chapter 4). It may be increasingly common for London's waste to be transported further towards the periphery of the capital or even outside. The implications of this include increased emissions related to the transport of waste via greater distances.

In this regard, there are opportunities for London to change how it treats waste – recovering value from more waste and reducing the scale of waste going to landfill and incineration (therefore depleting London's natural capital), and encouraging other uses of materials. One particular example where London's economy can adapt to changes in land use, business activity and the future needs of London's population is through the movement towards a more circular economy. A circular economy is one that keeps products, components and materials at their highest use and value at all times. It is an alternative to the current linear economy where we take make, use and dispose of product, components and materials. If the costs of materials rise, including the costs of treating or disposing of such materials, then there may be an increased economic incentive to reuse the materials. A circular economy can stimulate innovation in areas like product design, re-use and remanufacturing facilities, business models as well as new forms of finance. In this scenario, the implications are a reduced demand for landfill, an increased demand for repair, re-use, re manufacturing and recycling (and hence infrastructure). Analysis undertaken by WRAP for the London Sustainable Development Commission, the London Waste and Recycling Board, and the GLA[40], estimates that total employment in the circular economy was 46,700 in 2013 (Map 7.8). Modelling from GLA Economics estimates that the total GVA in the circular economy would be approximately £2.8 billion in 2012.[41] In addition, analysis undertaken for LWARB outlines that the movement towards a more circular economy could lead to 12,000 net new jobs in the capital by 2030.[42]

**Map 7.8: Employee jobs in the circular economy, 2013**
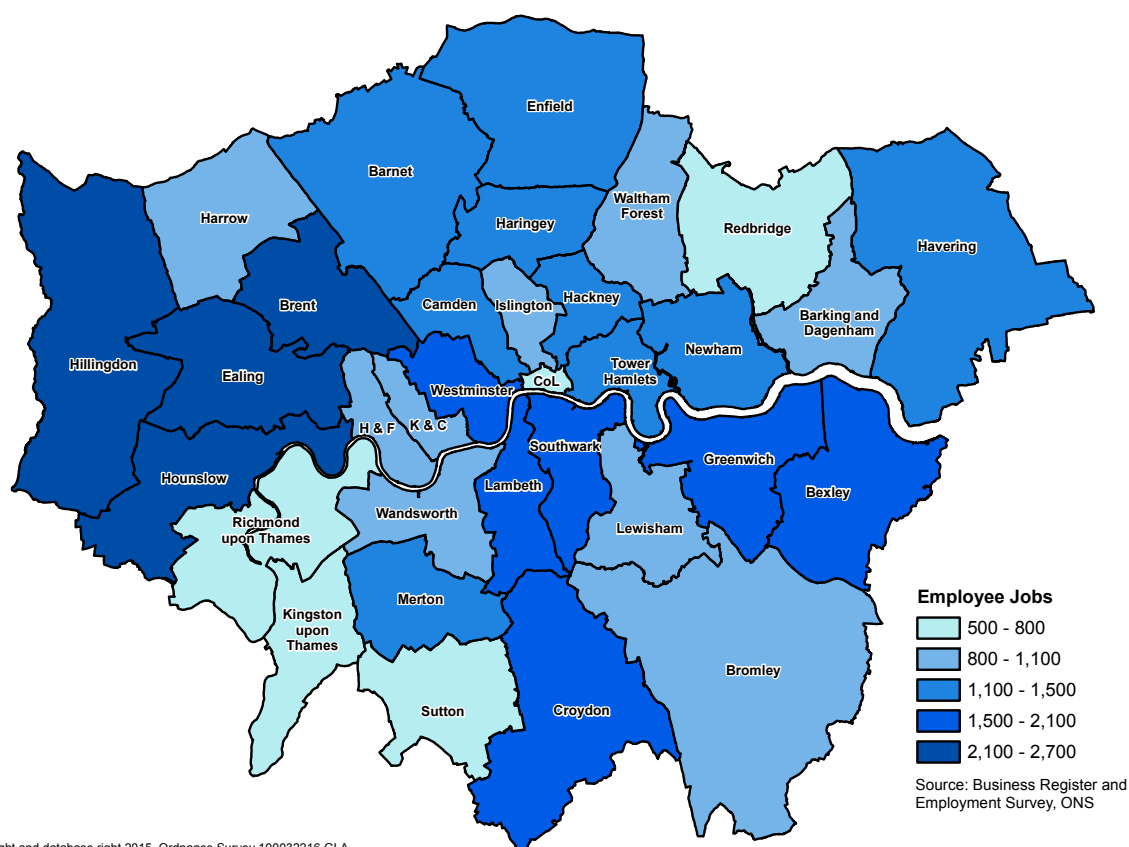


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*Source: Business Register and Employment Survey, ONS*

Data on local authority controlled waste, including household waste, is reported to Defra, verified and published annually. However data on commercial waste is not collected in the same way and therefore for the purposes of modelling and plan making, Defra survey data collected at a London level is used and the latest projections can be found in the London Plan.

Data for 2014/15 shows that 3.66 million tonnes of waste were collected by local authorities in London (about 80 per cent of waste is from households). Total household waste has fallen by 11 per cent in London since 2000/01, and despite a growth in population, total waste arisings have, year-on-year, steadily declined by 18 per cent over the same period except for a slight increase from 2013/14 to 2014/15. London has the lowest waste arisings per head of any region (359kg per person), which has been in steady decline over time.[43] A downward trend is expected to continue due to a mixture of light weighting of goods and packaging, and increased numbers living in houses in multiple occupation.[44]

Data shows that London typically lags behind other regions in the proportions of household waste sent to recycling; in 2014/15, household recycling rates were just over ten percentage points lower than the average for England as a whole (Figure 7.28). At the same time though, London has higher than average levels of household waste per household (Figure 7.29) – despite having the lowest levels of household waste generated per person. A combination of light weighting materials, and measures to encourage households to reduce waste levels have made an impact, with average household annual waste falling by 42 per cent since 2000/01.

**Figure 7.28: Household recycling rates in London and England as a whole; 2000/01 – 2014/15**
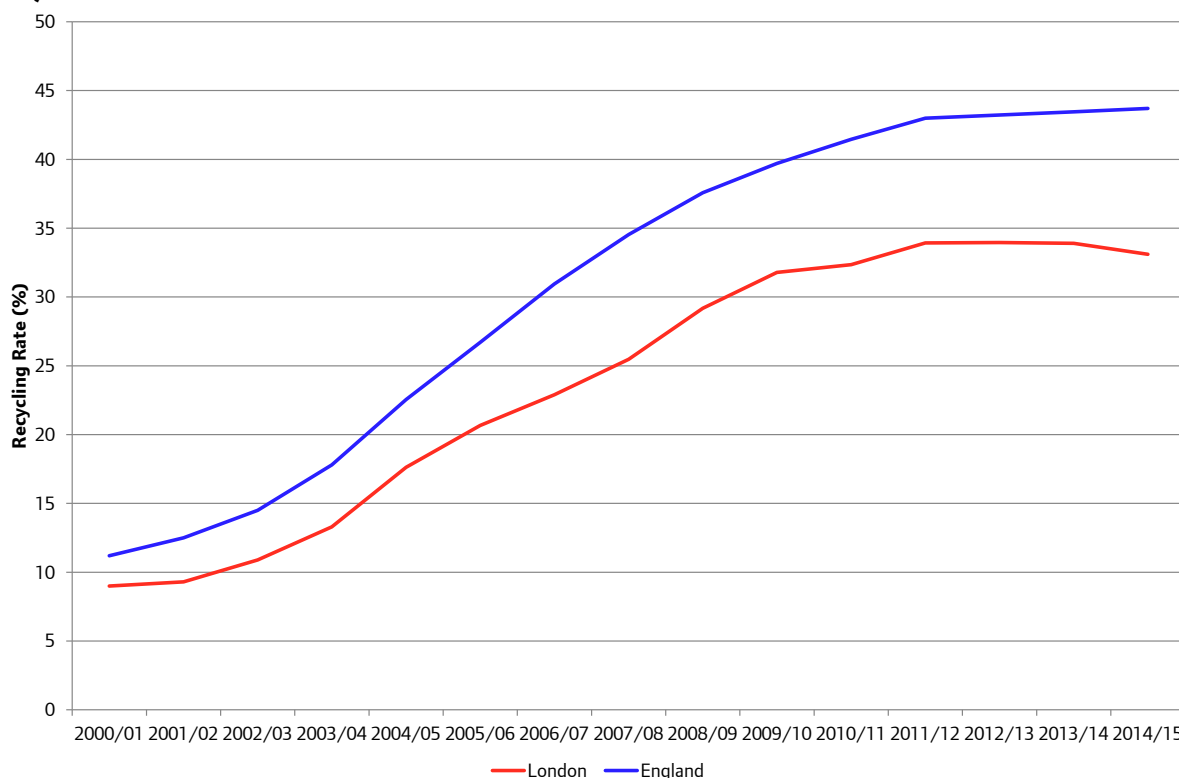


*Source: Defra*

**Figure 7.29: Annual household waste totals per household**
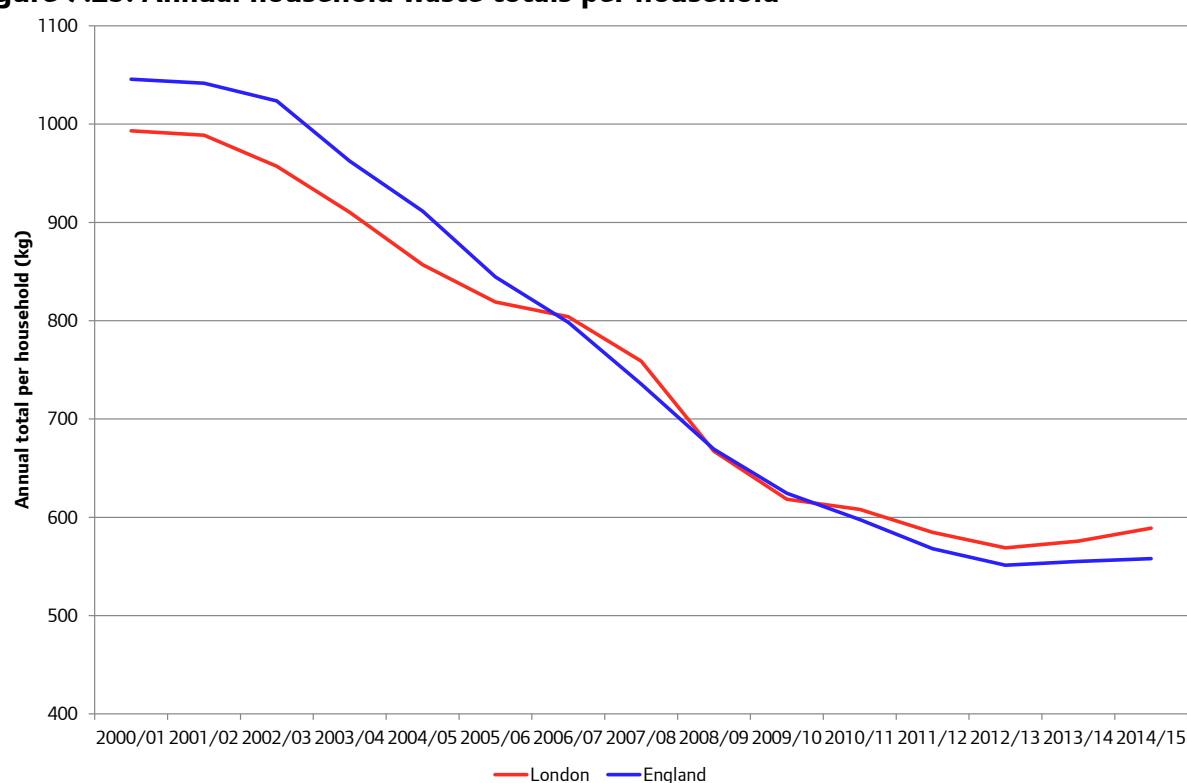


*Source: Defra*

With increasing trends in incineration and recycling flatlining in recent years, there has been a decreasing trend in the amount of waste sent to landfill. This has important implications for London and its infrastructure needs to manage waste. Table 7.13 shows the trends of household recycling, household waste and waste sent to landfill over the last six financial years:

**Table 7.13: Data on household and local authority waste indicators, London**

|  | 2009/10 | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 |
|---|---|---|---|---|---|---|
| Household Recycling Rate | 31.8% | 32.4% | 33.9% | 34.0% | 33.9% | 33.1% |
| Percentage of local authority waste sent to landfill | 48.7% | 44.7% | 30.6% | 25.5% | 24.4% | 20.6% |
| Percentage of local authority waste incinerated | 20.8% | 23.6% | 35.7% | 40.9% | 41.9% | 45.9% |
| Residual household waste per household | 618kg | 608kg | 585kg | 569kg | 576kg | 589kg |

*Source: Defra*

## 7.3.7: Green infrastructure

The previous sections of this chapter have looked at environmental areas where market failures are observed, but an area in which market failures can be mitigated into the future is through the provision of green infrastructure. This can be considered as the network of green spaces (as well as features such as street trees and green roofs) that is planned, designed and managed to deliver a range of benefits, including:

- healthy living;
- mitigating flooding;
- improving air and water quality;
- cooling the urban environment;
- encouraging walking and cycling; and
- enhancing biodiversity and ecological resilience

London is already a green city, with over 47 per cent of its total area classified as green or blue, and has over 8 million trees (Map 7.9 provides an overview of the major green spaces in the capital). As set out by the NCC, green infrastructure is an integral part of the urban environment upon which the prosperity and viability of the capital depends.

**Map 7.9: Major green spaces in London**



Green Belt and Metropolitan Open Land

Greater London Authority
Green Belt
Metropolitan Open Land

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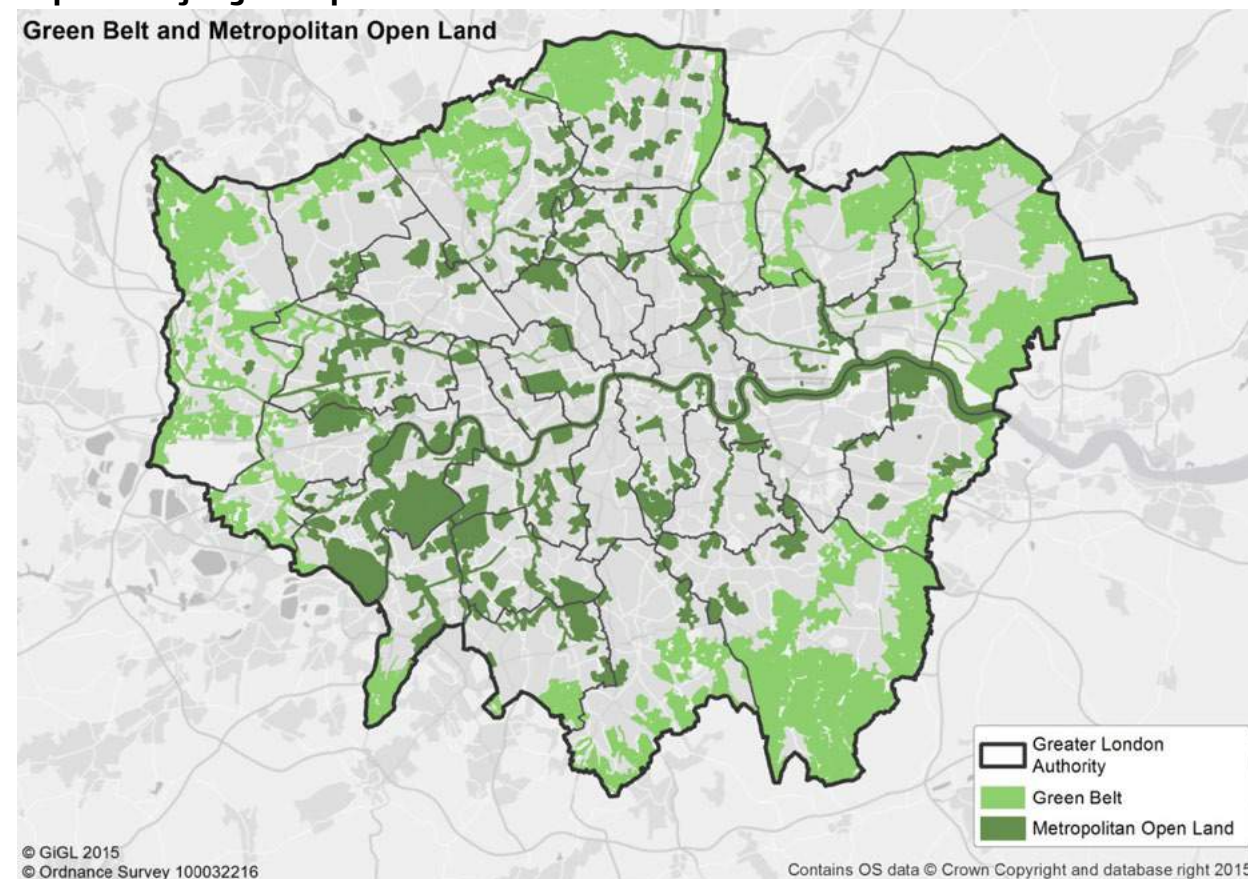
*Source: GLA Intelligence Unit. Note: This map only includes Green Belt and Metropolitan Open Land, not all green spaces in London.*

Activities relating to green infrastructure are designed to provide a range of both environmental and social benefits, and look to address specific market failures. These market failures are more wide ranging than solely negative externalities which are the pre-dominant example of where market failure occurs in the context of air and noise pollution. Focussing on London's population, there are examples of where green space provision provide positive externalities to residents, such as the wellbeing impact that green space can have on quality of life. Access to green spaces also provide a place for health,

fitness and recreation activities (therefore potentially mitigating against the negative externalities resulting from poorer health outcomes), as well as positive impacts on communities (on aspects such as social cohesion – as a place where people can meet).

In addition, green infrastructure can ameliorate a range of potential negative impacts caused by climate change and urban development. For example, trees and vegetation can absorb rainwater and open spaces can store flood water thus reducing damage to buildings and infrastructure during flood events. Tree canopies can have cooling effects for buildings and at ground level. The range of economic impacts is extensive and the following sections explore some of the literature on the economic impacts that green infrastructure can have.

Green infrastructure is also an example of a public good. In economic terms, public goods are example of products which are non-rival and non-excludable.  In the environmental context for example, National Parks are generally considered to be public goods, they are typically non-rival due to their size, such that one person's enjoyment of the park should not impact another person's enjoyment. They are also non-excludable, since access to them is provided free of charge (in part because their geographic scale means that monitoring and charging for entry across the entire border of the park would likely be impractical).

In its intent (to a large extent), green infrastructure is designed to be non-rival and non-excludable. Due to the nature of public goods, these tend to be areas which are provided by the public sector as typically private sector businesses will not invest in public green space provision since they cannot derive profit. However, businesses may well invest in green spaces for their staff as there may be productivity benefits for them by having staff that experience the wellbeing benefits that green spaces provide. Another limiting factor on private sector provision relates to ownership of land; publicly owned land would likely need agreement from local authorities to increase provision (such as planting trees in public spaces).

### Economic and social impacts of green infrastructure

Comprehensively valuing the services and benefits provided by green infrastructure is necessary so that these are properly accounted for when deciding, for example, how to enhance resilience or improve public health.

The economic benefits are wide ranging. A study undertaken by Natural England estimated that the savings to the NHS through having increased access to green space for every household in England equated to £2.1 billion per annum.[45] Access to green space has considerable distributional effects for households and land owners, with previous analysis from GLA Economics modelling that house prices within 600 metres of a regional or metropolitan park were between 1.9 per cent and 2.9 per cent higher[46].

Within an environmental context, the scale of economic impacts is potentially much higher. The natural capital account for Beam Valley Parklands (Box 7.1), for example, indicate that this space (which has been designed to provide flood storage in addition to a healthy space for play and recreation) has a net natural capital asset value of approximately £42 million in present value terms, and it provides £591,000 per annum in flood prevention benefits and £770,000 per annum in community benefits largely related to improved health and well-being[47].

Programmes of planting trees in urban areas provide a range of both environmental and wellbeing benefits. These include aesthetic improvements to areas and these becoming a focal point for residents. They can also act as a means of carbon storage, improve biodiversity, help to reduce localised flooding, and potentially enable reductions in energy usage through helping to cool areas in the summer and provide insulation in the winter. The London i-Tree Eco assessment has looked to provide monetised costs for the environmental benefits and replacement costs of trees currently in the capital, estimating that London's existing urban forest provides total benefits of £132.7 million per annum.[48]

## Box 7.1: Practical application of natural capital accounting – Beam Parklands case study

### Introduction:
One of the aims of the Natural Capital Committee is to encourage the take-up and use of natural capital accounting for individual projects, and more widely, for the UK as a whole. For the GLA, an important concern in decision making is to address the potential negative impacts on the stock of natural capital, resulting from pressures of population increases, economic activity and global warming; net of the possible improvements to natural capital resulting from environmental improve. To improve decision making, it is important to develop a better understanding of the costs associated with degradation of the environment, net of the value resulting from environmental improvements.

To illustrate how natural capital accounting can be used in project appraisal, this box provides a case study of the Beam Parklands in the London Borough of Barking & Dagenham. This appraisal attempted to address both accounting for natural capital assets and estimation of the some of the values required for decision making.

### Natural capital improvements – Valuing environmental services:
As part of the natural capital appraisal, the positive impacts in aspects of the environment are considered; net of the environmental, economic and financial costs. For example, the following environment services were considered:

#### i) Flood regulation
The value generated from flood prevention was calculated by estimating the number of properties at risk of a 1 in 25 year flood event, and estimating the associated damages resulting. The expected value was given by:

Likelihood of flood event * Estimated damage to properties

This was estimated at £591,000 per annum; with a discounted present value of £19 million over a 99 year appraisal period.

#### ii) Local community benefits
In the Beam Parklands, these would be expected to include:

- Recreation and amenity
- Education opportunities
- Improved health outcomes
- Reduced community severance
- Volunteering

The flow of these is underpinned by the site's natural capital assets. In the event, a broad approach to the valuation of the community benefits was adopted. This made use of data on amenity values as reflected by residential and non-residential price uplifts in the vicinity of the site. However, it is important to understand the potential for differing approaches to valuing individual benefit streams and some of the issues associated with them.

The approach adopted to estimate amenity values does not directly reflect health benefits. On health, the physical benefits associated with greenspace are generally well evidenced. However, the link between greenspace and improved mental health is less well established in the empirical evidence. In any case, health effects suffer from one of the common problems with benefit estimation in this context; that of potential overlap and resulting double counting.

Studies assuming the relationship between greenspace and property price in London and the wider UK are generally in the range of 1 per cent to 5 per cent uplift. For the Natural Capital account aspect of this study, a 3 per cent uplift has been used. Local community benefits are calculated by applying the 3 per cent uplift to the estimated number of properties in the vicinity of Beam Parklands.

The number of properties are calculated based on the Access to Natural GreenSpace Standard (ANGSt; Natural England, 2010), but using the more conservative residential property value. This was based on mean property value for dwellings in the wards within the catchment area (ANGSt standard 1 catchment; Land Registry). Non-residential property was calculated on total rateable value in the Middle Layer Super Output Areas contained within the location.

However, net of these benefits, the maintenance costs of physical capital relating to community benefits are also estimated. No baseline information for this is readily available, so a proportion of the valuation estimate for 2014 is allocated to the baseline. Half of the property price uplift (that being 1.5 per cent) is allocated to the baseline; totalling £316,000 per annum. This is reported net of the physical maintenance costs of £19,000; therefore total net benefits sum to £297,000.

Revaluations and adjustments capture the real change in property value between 2011 and 2014 of £184,000 per annum; which accounts for the real increase in the number of residential properties. This calculation also includes a small reduction in the physical maintenance liability of £1,000 per annum.

The present value of local community benefits, discounted over the 99 year appraisal period is estimated at £26 million.

### iii) Caveats in the calculation of local community benefits
The report makes clear that the approach to valuing local community benefits is indicative and assumes a general local amenity benefit provided by Beam Parklands. It requires a number of key assumptions:

- Size of beneficiary population and catchment area
- Property price uplift
- Keeping uplift values constant in catchment area as the distance from the site increases
- Attribution of a proportion of the property price uplift to the baseline value – information to support a more detailed assessment is not available
- The underpinning assumption is that the amenity value of Beam Parklands will be reflected in local property values. This effect is well evidenced in the empirical literature but is deemed to reflect the higher health outcomes and wellbeing improvements that result.

### iv) Liabilities and other costs
The key task for the study was to allocate share of maintenance costs to natural and to physical capital. The key categories included were:

- Staff costs
- Management costs
- Volunteer costs – valued in terms of the hourly wage of equivalent work.[49]

A key assumption was that natural capital maintenance costs are constant in real terms over a 99 year appraisal period.

## Conclusions and lessons for future learning

Through the appraisal, the calculated natural capital asset value for Beam Parklands was estimated at £42 million in present value terms, which significantly exceeds the long-term natural capital maintenance costs of £1 million.

The study has provided important insights into the application of Natural Capital Accounting and the approach to valuing important benefits and costs for decision making on Natural Capital issues. A number of specific lessons emerge:

- The amenity value of green space is extremely context specific: it will reflect the (unique) characteristics and size of the green space itself; the numbers and socioeconomic characteristics of those living and working in the "catchment" of the green space (and by extension, the number and characteristics of "competing" amenity spaces); and, integral to the last, the ease of access for those living or working in the catchment.

- The damage costs of flooding (or benefits of flooding damage avoided) also reflect a number of context specific characteristics, as well as some "exogenous" factors. The characteristics of the immediate area at risk will also have substantial implications for risk and the extent of damage (costs) associated with a flood event. As for amenity, the number and socioeconomic characteristics of residents and dwellings will be very important, and the amount and nature, especially use, of non-residential property will often be highly relevant.

# Chapter 7 endnotes

1 Natural Capital Committee, 2015, "The State of Natural Capital, Protecting and Improving Natural Capital for Prosperity and Wellbeing: Third Report to the Economic Affairs Committee"

2 "Demand for environmental quality is a superior good,…[having] an income elasticity greater than one" See, for example, Beckerman, Wilfred, 1992, "Economic Development and the Environment: Whose Growth? Whose Environment?", World Development 20 (4) pp481-496

3 Natural Capital Committee, 2015, "The State of Natural Capital, Protecting and Improving Natural Capital for Prosperity and Wellbeing: Third Report to the Economic Affairs Committee", page 19.

4 Natural Capital Committee, 2015, page 19 – 20.

5 Natural Capital Committee, 2015, page 19

6 "The Value of Cultural Tourism to London", GLA Economics Current Issues Note 44.

7 Drawn from Natural Capital Committee, State of Natural Capital, 3rd Report

8 www.londonair.org.uk

9 Due to monitoring methodological changes a time series can only be derived for $PM_{10}$ from 2004

10 Black carbon is formed through the incomplete combustion of fossil fuels, biofuels, and biomass. It is emitted directly into the atmosphere in the form of fine particles ($PM_{2.5}$). Source: United States Environmental Protection Agency.

11 Euro V and Euro VI refer to the most recent European emission standards for exhaust emissions of new vehicles sold in EU member states. These apply separately for diesel and petrol engines, as well as for passenger vehicles, commercial vehicles, trucks, and buses

12 The UK was taken to court by the European Commission for persistent air pollution problems: http://europa.eu/rapid/press-release_IP-14-154_en.htm. It is unclear what penalties the UK could receive if found guilty, although they are likely to be financial.

13 "Comparison of Air Quality in London with a number of world and European cities", AMEC Environment & Infrastructure, Table 10.6, page 61.

14 Aether, "Analysing Air Pollution Exposure in London", page 8.

15 $PM_{2.5}$ and $PM_{10}$ refer to particulate matter (PM). This is the term used to describe condensed phase (solid or liquid) particles suspended in the atmosphere. Their potential for causing health problems is directly linked to the size of the particles. $PM_{2.5}$ refer to particles that are smaller than 2.5 micrograms in diameter; these are considered to have more harmful health effects than $PM_{10}$, which refer to particles at 10 micrograms in diameter.

16 As such, the analysis does not reflect the impact of many of the interventions outlined in the Mayor's Air Quality Strategy (published in 2010) and implemented since this date, such as tighter Low Emission Zone standards and age limits for taxis introduced in 2012.

17 Walton, H. et al, (2015), "Understanding the Health Impacts of Air Pollution in London", King's College London for GLA and TfL.

18 The estimated impact for NO2 are stated as "up to £2.3 billion" since the Committee on the Medical Effects of Air Pollutants (COMEAP) are currently considering how best to quantify these impacts. For this referenced study, a previous study from King's College London on the health impacts of air pollution in London from 2010 is cited, where a range of methods were used to estimate the health impacts associated with NO2 pollution in London. Source: Walton, H. et al, (2015) "Understanding the Health Impacts of Air Pollution in London", King's College London for GLA and TfL.

19 Policy Exchange, (2016), "Up in the Air, How to Solve London's Air Quality Crisis: Part 1"

20 ibid

21 "Burden of disease from environmental noise: Quantification of healthy life years lost in Europe", World Health Organisation; Executive Summary page xvii.

22 Calculation on economic impact undertaken by Defra on World Health Organisation analysis of disability-adjusted life years lost through environmental noise "Environmental Noise: Valuing impacts on: sleep disturbance, annoyance, hypertension, productivity and quiet", page 9.

23 "Burden of disease from environmental noise: Quantification of healthy life years lost in Europe", World Health Organisation; Executive Summary page xvii.

24 Lden – is the A-weighted long-term average sound level for the day-evening-night noise indicator in decibels (24 hours).

25 TFL, Airports Commission Discussion Paper 05: The Mayor of London's Response

26 London City Airport, Noise Action Plan, 2010-2015

27 "Weathering the Storm: The Impact of Climate Change on London's Economy", London Assembly, 2015; page 10

28 "Stern Review: The Economics of Climate Change", 2006; page vi

29 Parker, D. E.; Legg, T. P. and Folland, C. K., 1992, "A new daily Central England Temperature Series, 1772-1991"; International Journal of Climatology, Volume 12, pp. 317 – 342. Full dataset for 1659 to 2015 accessed at www. metoffice.gov.uk/hadobs/hadcet. The temperature data are based on a "roughly triangular area of the United Kingdom enclosed by Lancashire, London and Bristol".

30 "London's Low Carbon Market Snapshot 2015", kMatrix, page 4.

31 "FTSE Environmental Technology Index Series", Factsheet, 30 November 2015

32 "FTSE Environmental Opportunities Index Series", Factsheet, 30 November 2015

33 "Stern Review: The Economics of Climate Change", 2006; page viii

34 Middle Super Output Area

35 Full dataset available on the London Datastore: http://data.london.gov.uk/dataset/climate-just-data

36 Based upon 2015 ONS mid-year population estimates.

37 Such examples include the London Energy Plan Tool launching in February 2016 which will look at a number of scenarios that can deal with this issue.

38 https://www.london.gov.uk/what-we-do/business-and-economy/better-infrastructure/london-infrastructure-plan-2050

39 "Digest of Waste and Resource Statistics – 2015 Edition", Defra

40 "Employment and the Circular Economy: Job creation through resource efficiency in London", WRAP.

41 This has been calculated using the methodology established to calculate GVA and GVA per job for specific industries based on the selection of specific SIC codes, first referenced in GLA Economics Current Issues Note 44; alongside the selection of SIC codes relating to the circular economy.

42 LWARB, "London – The Circular Economy Capital: Towards a circular economy – context and opportunities", 2015.

43 'Local Authority Collected Waste Statistics', Department for Environment, Food and Rural Affairs.

44 Definition of houses in multiple occupation available at: https://www.gov.uk/private-renting/houses-in-multiple-occupation

45 Natural England, (2009), "Our Natural Health Service: The role of the natural environment in maintaining healthy lives".

46 Valuing Greenness Green spaces, house prices and Londoners' priorities https://www.london.gov.uk/sites/default/files/valuing_greenness_report.pdf

47 Beam Parklands Natural Capital Account

48 Treeconomics London, (2015), "Valuing London's Urban Forest: Results of the London i-Tree Eco Project" http://www.forestry.gov.uk/pdf/2890-Forest_Report_Pages.pdf/$FILE/2890-Forest_Report_Pages.pdf. Monetised annual benefits outlined on page 10; benefits of tree planting provided on pages 16 and 17.

49 Parish, A., Heath, J., and Hassan, M., 2003.. Changing the face of social services – volunteers adding value in service delivery. The National Centre for Volunteering. Available at: http://centreonphilanthropy.com/files/kb_articles/1250260224Volunteering%20in%20Social%20Services.pdf

# 8: London's people

## 8.1 Key points

- London's population is bigger than ever before with approximately 8.7m residents, exceeding the previous peak seen in 1939. The population is not distributed evenly across the region with more densely populated areas in inner London.

- London has a younger age structure than the UK as a whole. This is driven by the tendency for young adults to flock into London to study and to work.

- Looking to the future, London's population is set to continue to grow and evolve. In fact, it is projected to increase to approximately 10.5m inhabitants by 2041.

- Not only is London's population rising, it is also getting older. By 2041, 16 per cent of London's population is projected to be aged 65 years and above, compared with 11.6 per cent in 2015.

- London's school-age population is also growing and is projected to number nearly 1.4m by 2041, bringing with it its own challenges for London in terms of school place planning.

- London's population is characterised by significant flows. Since 1996, London's population has grown largely as a result of international migration – firstly through its direct impact on flows and, subsequently, through its knock-on impact on the capital's natural population change.

- London's high international inflow means it has become something of a hub for foreign-born communities. Approximately 3.1m people living in London were born abroad (37 per cent of the total population), with just under half having arrived in the UK in the 10 years leading up to the 2011 Census.

- All of the above has made London a city renowned for its diversity. Some 40 per cent of its residents perceived themselves as Black, Asian or Minority Ethnic.

- The average household size for London was 2.47, up from around 2.4 in 2001, and was the largest of any region in England and Wales. The national average was 2.36 in 2011. However, London is a city of contrasts and includes the local authorities with both the lowest and highest average household sizes in the UK.

- Approximately one-in-three households in London (31.6 per cent) were made up of just one person, while 36.7 per cent were couple households.

- Some 30.9 per cent of households contained at least one dependent child. Moreover, 74.4 per cent of parents in couple families were working compared with 53 per cent of lone parents.

- At the time of the 2011 Census, half of households were owner occupied while 26 per cent were private rented and 24 per cent social rented. Comparing this with the national average, owner occupation was much less common in the capital with a higher proportion renting their accommodation than nationally.

- Whilst 8.7m people lived in London in 2015, London's workday population grows as a result of commuters flooding in for work and international and domestic tourists coming to visit. This means that the total number of people in London on any given day could be 10.3m in total.

## 8.2 London's demography

In 2015, approximately 8.7m people were living in London making it larger than ever, exceeding the previous population peak in 1939 (Figure 8.1). To give an idea of the scale, the number of people living in London is of a comparable size to the entire population of Austria or Switzerland[1] (despite Austria and Switzerland being far larger in land terms).

**Figure 8.1: Total population of Greater London, 1911 to 2015**
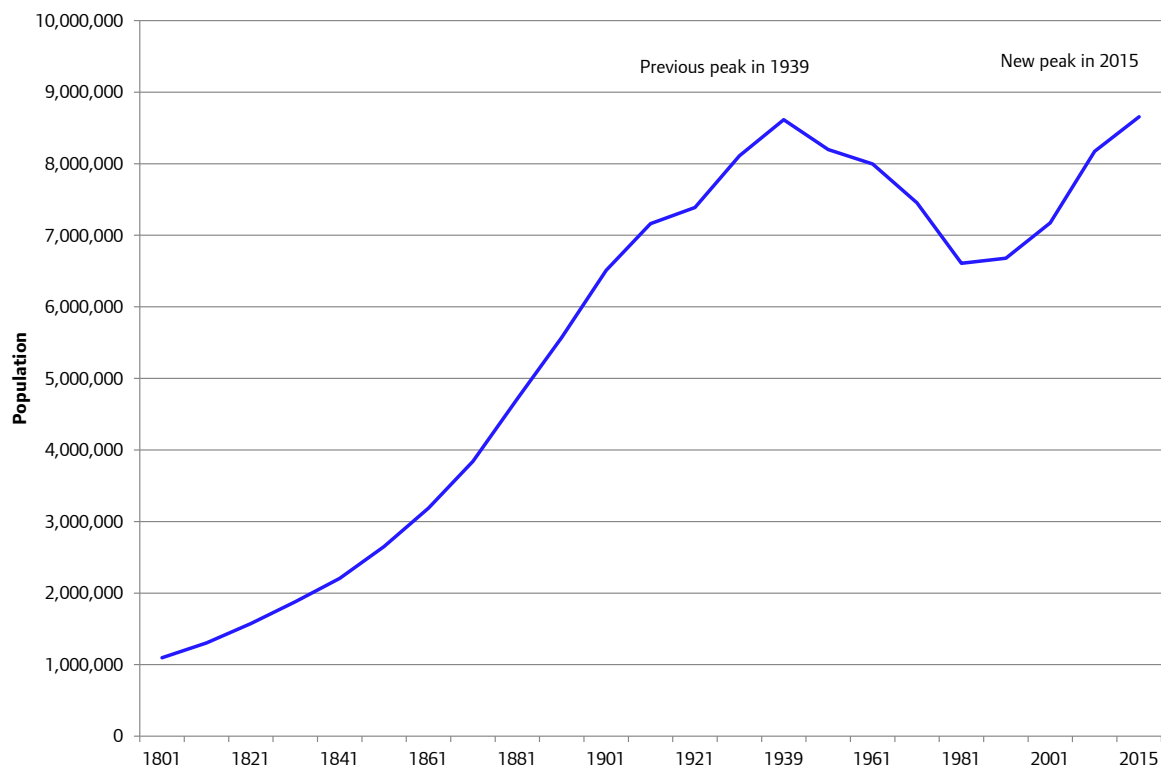


*Source: ONS Census, GLA trend-based population projections (short-term migration scenario)*

Between 1939 and the 1981 there was a fall in the population, driven by policy changes implemented after the Second World War that resulted in people moving out of London into the newly built "New Towns" surrounding London (such as Basildon and Crawley)[2].

However, since the late 1980s, London's population has seen unprecedented growth driven by the city's strong economic performance, an improving image and, most significantly, large inflows of international migrants.

Map 8.1 shows how London's population is distributed across its boroughs. Unsurprisingly, the spatially larger outer London boroughs tend to have the greater number of residents with the notable exception of Newham – an inner London borough with a similar population size to the significantly larger boroughs of Bromley and Ealing.

**Map 8.1 and Figure 8.2: Total population by London borough in 2015**
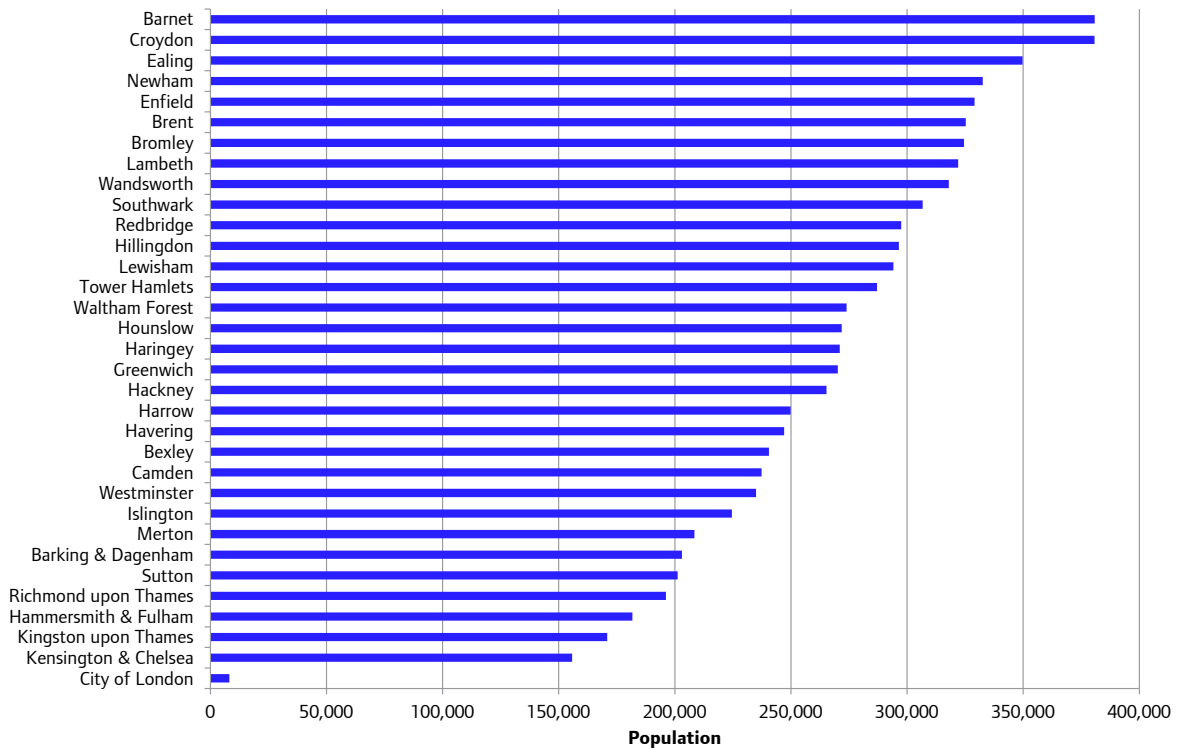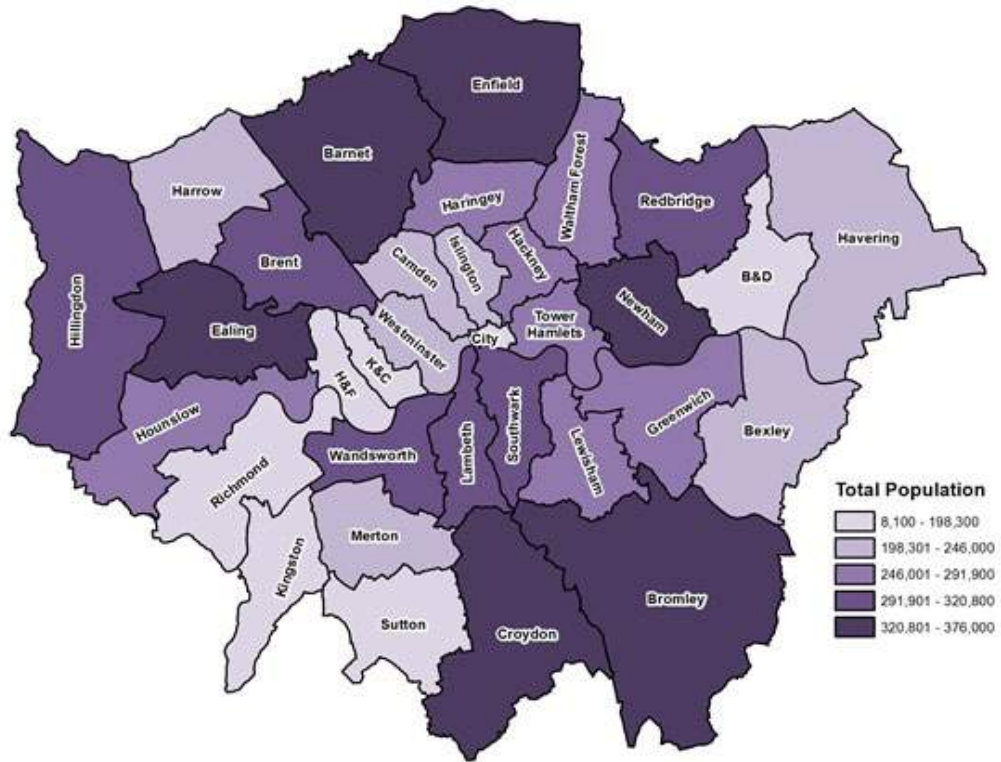


Source: GLA trend-based population projections (short-term migration scenario)

Looking at population density gives us a different picture. Map 8.2 shows that the more densely populated areas tend to be in inner London. The most densely populated boroughs in London are Islington (15,112 persons per square kilometre), Tower Hamlets (14,522 persons per square kilometre) and Hackney (13,918 persons per square kilometre). Across the whole of London the population density is 5,506 persons per square kilometre. For further analysis of population densities, including international comparisons, refer to Chapter 4.

**Map 8.2: Persons per km2 by London ward in 2011**
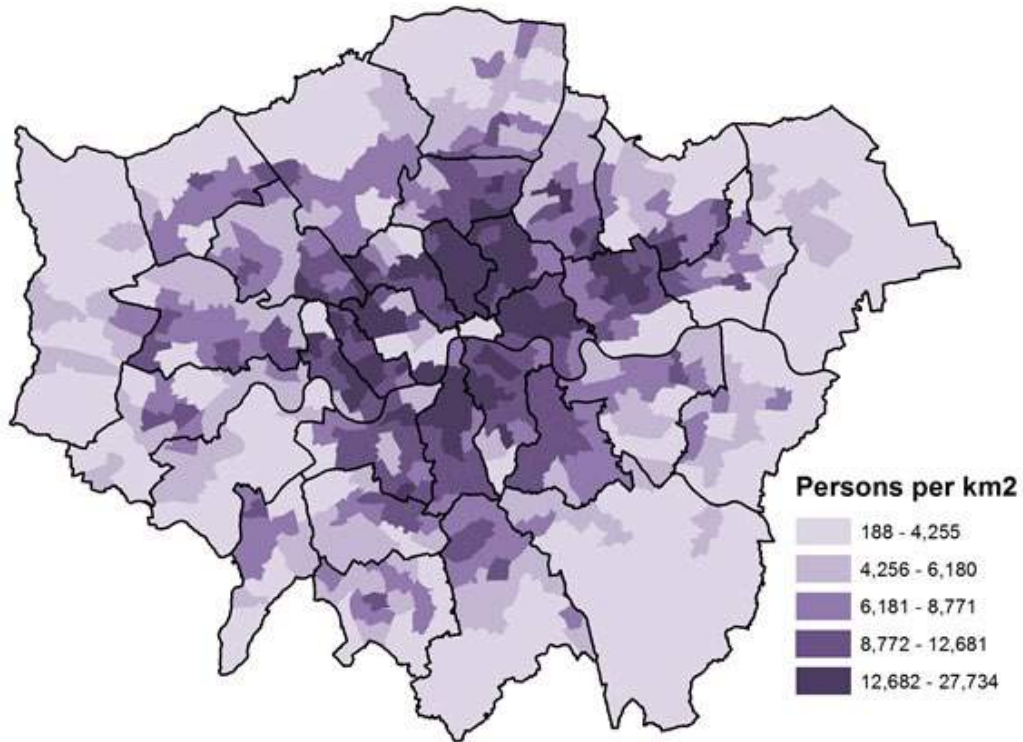


*Source: GLA Ward Population Projections*

**Table 8.1: Total population and density by borough in 2014**

| Borough | Population, 2014 | Area (km2) | Population Density (persons per km2) |
|---|---|---|---|
| Barking and Dagenham | 203,060 | 36 | 5,626 |
| Barnet | 380,778 | 87 | 4,390 |
| Bexley | 240,562 | 61 | 3,972 |
| Brent | 325,257 | 43 | 7,523 |
| Bromley | 324,558 | 150 | 2,161 |
| Camden | 237,364 | 22 | 10,890 |
| City of London | 8,211 | 3 | 2,833 |
| Croydon | 380,749 | 87 | 4,401 |
| Ealing | 349,727 | 56 | 6,299 |
| Enfield | 329,038 | 81 | 4,071 |
| Greenwich | 270,187 | 47 | 5,707 |
| Hackney | 265,317 | 19 | 13,918 |
| Hammersmith and Fulham | 181,718 | 16 | 11,078 |
| Haringey | 270,983 | 30 | 9,158 |
| Harrow | 249,840 | 50 | 4,950 |
| Havering | 247,058 | 112 | 2,199 |
| Hillingdon | 296,490 | 116 | 2,563 |
| Hounslow | 271,843 | 56 | 4,856 |
| Islington | 224,554 | 15 | 15,112 |
| Kensington and Chelsea | 155,739 | 12 | 12,840 |
| Kingston upon Thames | 170,899 | 37 | 4,588 |
| Lambeth | 321,984 | 27 | 12,005 |
| Lewisham | 294,096 | 35 | 8,368 |
| Merton | 208,454 | 38 | 5,543 |
| Newham | 332,583 | 36 | 9,181 |
| Redbridge | 297,447 | 56 | 5,273 |
| Richmond upon Thames | 196,152 | 57 | 3,416 |
| Southwark | 306,745 | 29 | 10,631 |
| Sutton | 201,207 | 44 | 4,589 |
| Tower Hamlets | 287,093 | 20 | 14,522 |
| Waltham Forest | 273,934 | 39 | 7,058 |
| Wandsworth | 318,016 | 34 | 9,282 |
| Westminster | 234,988 | 21 | 10,941 |
| Inner London | 3,439,389 | 319 | 10,772 |
| Outer London | 5,217,240 | 1,253 | 4,164 |
| **London** | **8,656,629** | **1,572** | **5,506** |

*Source: GLA trend-based population projections (short-term migration scenario)*

A more detailed breakdown using output areas is shown in Chapter 4 and highlights the areas of employment, parks and green spaces where no residents live.

## 8.2.1 Age structure

London has a younger age structure than the rest of England and Wales. The median age of Londoners in 2014 was 34 years old compared with the national average of 39 years old. This is driven by the tendency for young adults to flock into London to study and to work.

Figure 8.3 shows that London had a much higher proportion of residents aged between 25 and 45 years old compared with the England and Wales average in 2014.

**Figure 8.3: Age structure of London's population compared to England and Wales in 2014**
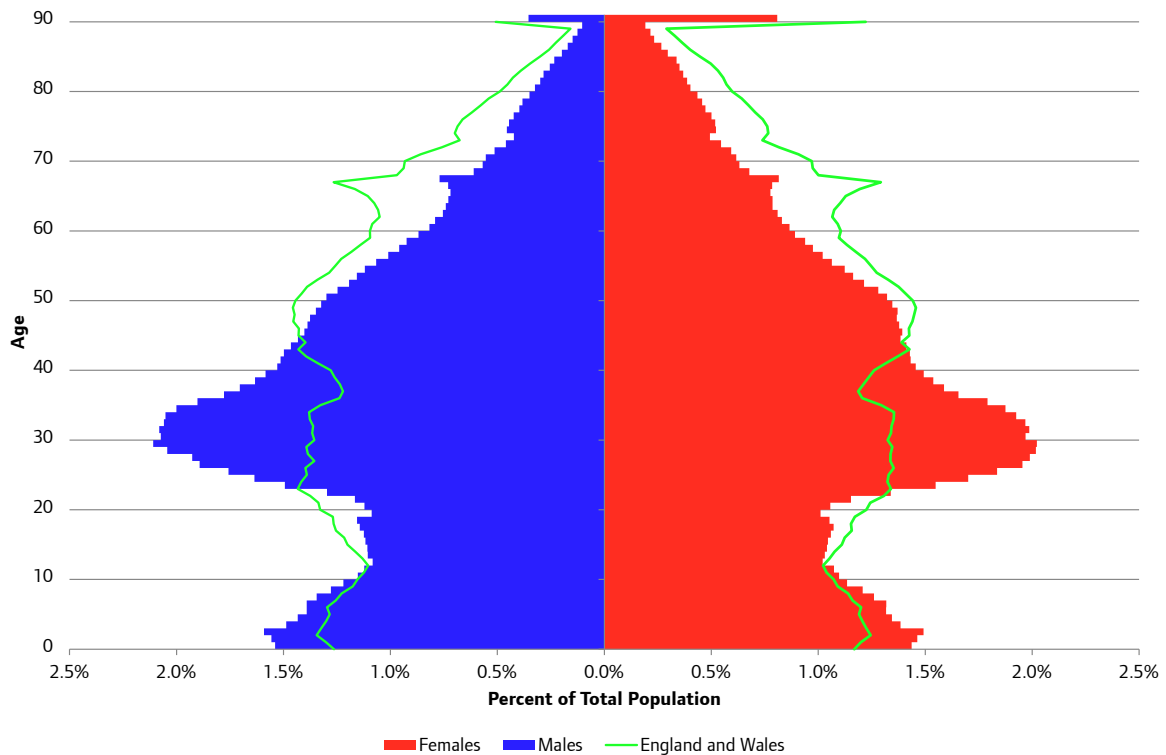
## 8.2.2 Life expectancy

Life expectancy at birth in London has been steadily increasing for both males and females and has risen faster in recent years when compared to life expectancy at birth in England and Wales (Figure 8.4). A baby boy born in London during 2012-2014 could expect to live 80.3 years compared with 79.4 years for a baby boy born in England and Wales. For a new-born baby girl in London this rises to 84.2 years and 83.1 years in England and Wales. That said, the gap between male and female life expectancy has also fallen and females in London are now expected to live only 3.9 years longer than their male counterparts.

However, there is a high level of variation regarding life expectancy within London, which will be covered in Chapter 10.

**Figure 8.4: Life expectancy at birth, London and England & Wales, 2002-2004 to 2012-2014**
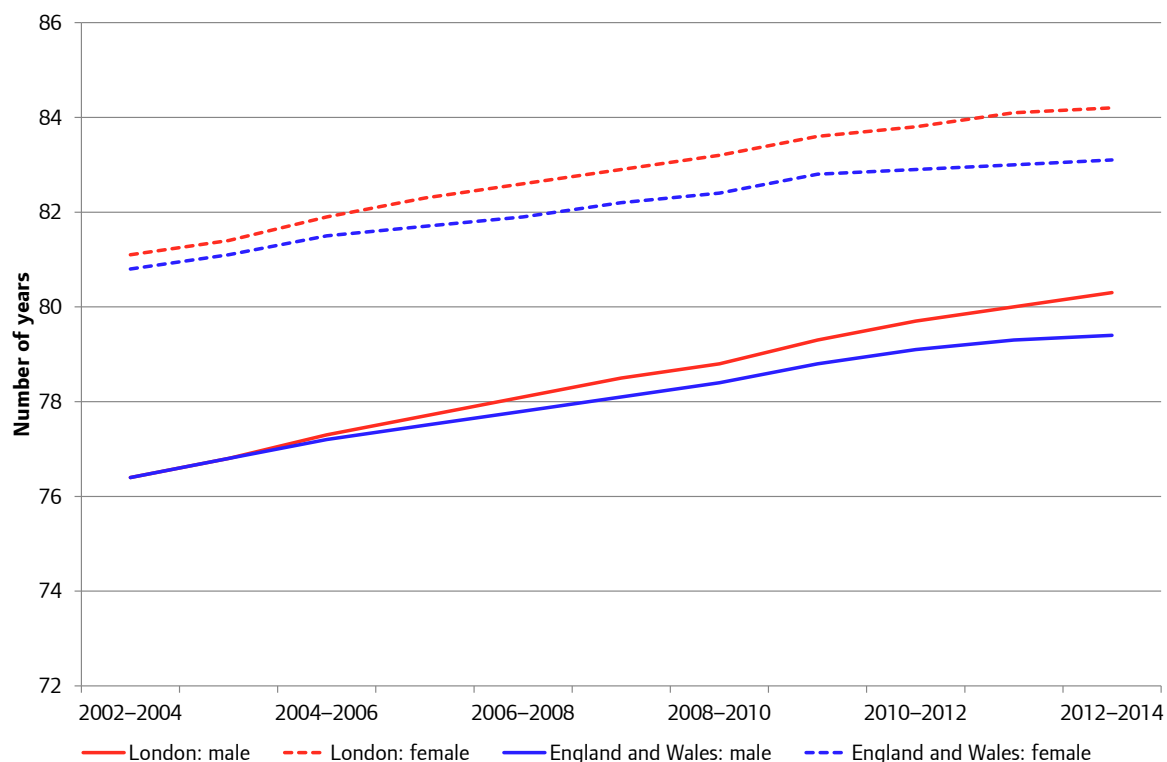


Source: ONS Life Expectancy at Birth

Life expectancy at age 65 for Londoners has also been rising (Figure 8.5). In 2012-2014, females aged 65 could expect to live a further 21.9 years (age 86.9) and males 19.2 years (age 84.2). The difference between the two has also been closing and was 2.7 years in 2012-2014.

There is greater difference in life expectancy at age 65 when comparing London and England and Wales as opposed to life expectancy at birth (in percentage terms).

**Figure 8.5: Life expectancy at age 65 in London and England and Wales, 2002-2004 to 2012-2014**
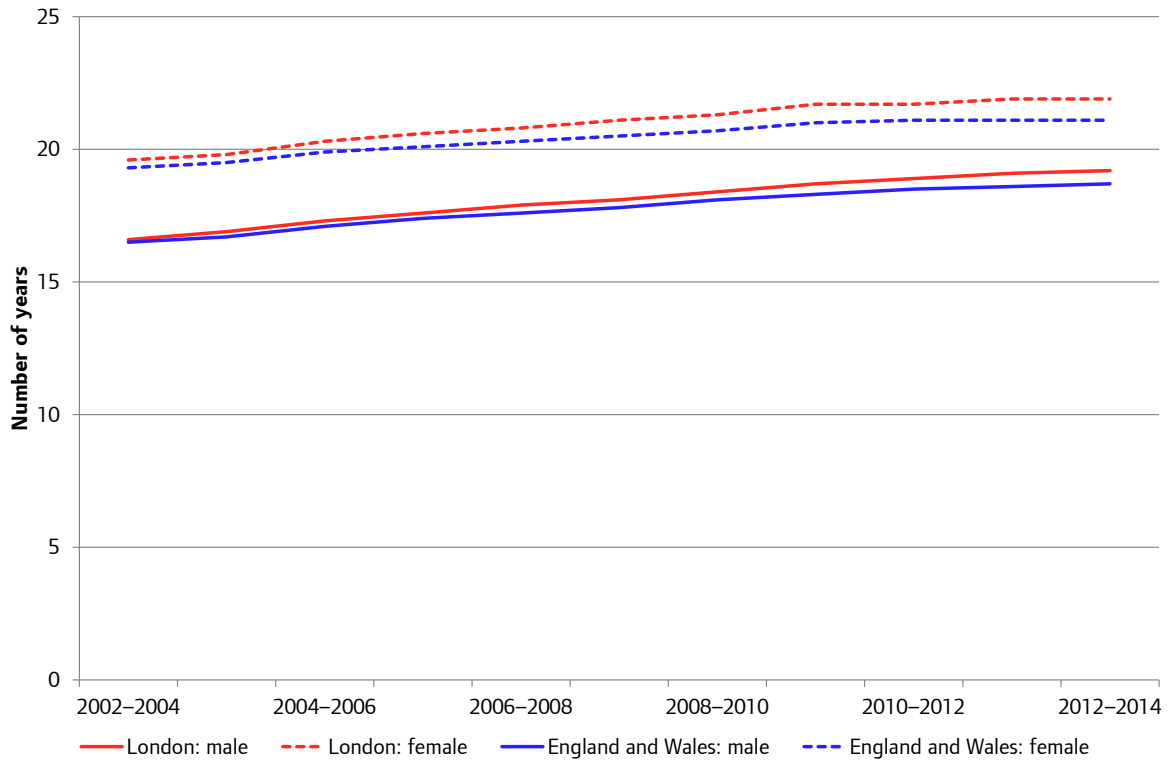


*Source: ONS Life Expectancy at Age 65*

In London, disability-free life expectancy (DFLE)[3] for males at birth was 64.5 years and for females 65.2 years in 2009-2011 (Figure 8.6). Despite having a shorter DFLE, males can expect to spend 81 per cent of their life free from disability compared with 78 per cent for females.

**Figure 8.6: Disability free life expectancy at birth in London, 2006-2008 to 2009-2011**
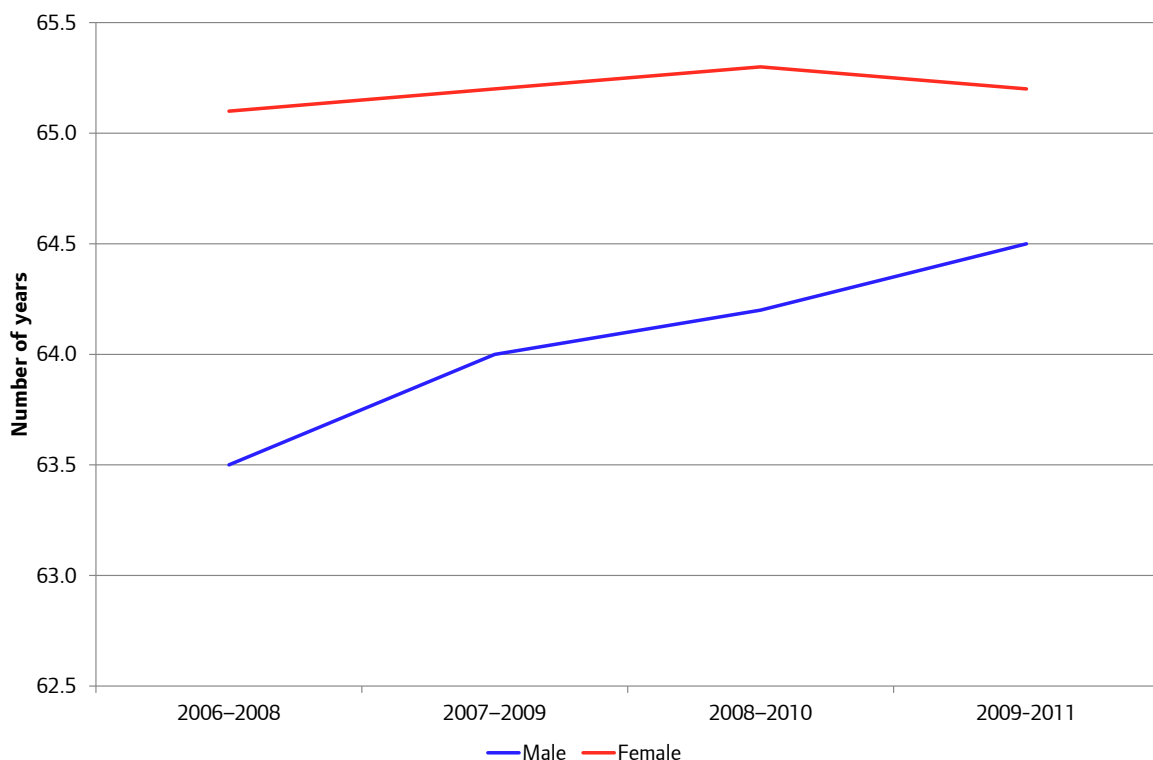


*Source: ONS Disability free life expectancy at birth*

## 8.2.3 Health and disability

London saw 1.16m (14 per cent of residents) reporting that they had a long-term health problem or disability which limited their day-to-day activities. This proportion was below the national average (18 per cent) and was lower than every other region in England and Wales (Figure 8.7).

**Figure 8.7: Percent of usual residents with a limiting long-term health problem or disability by region in 2011**
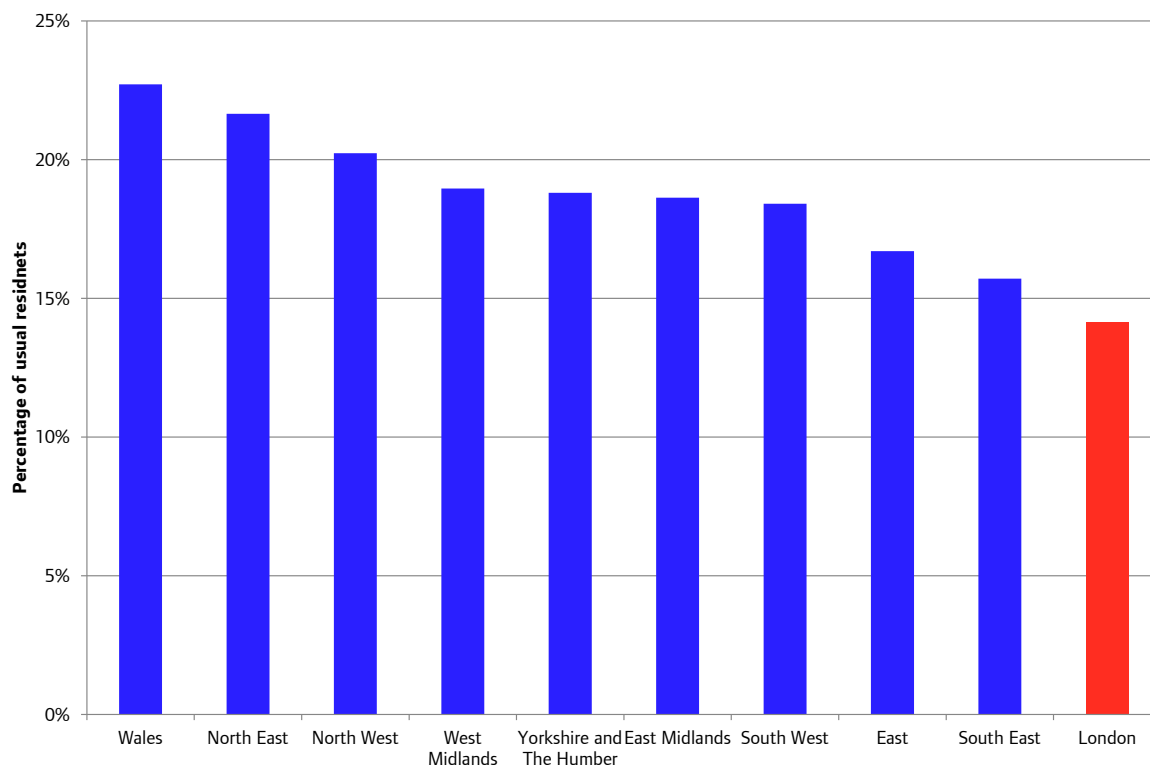


*Source: ONS Census 2011*

This was mostly due to London's comparably younger age structure. When looking at individual age groups the rate of Londoners with limiting long-term health problems did not vary significantly from the national average (Figure 8.8).

**Figure 8.8: Percent with a limiting long-term health problem or disability by age in London and England and Wales in 2011**
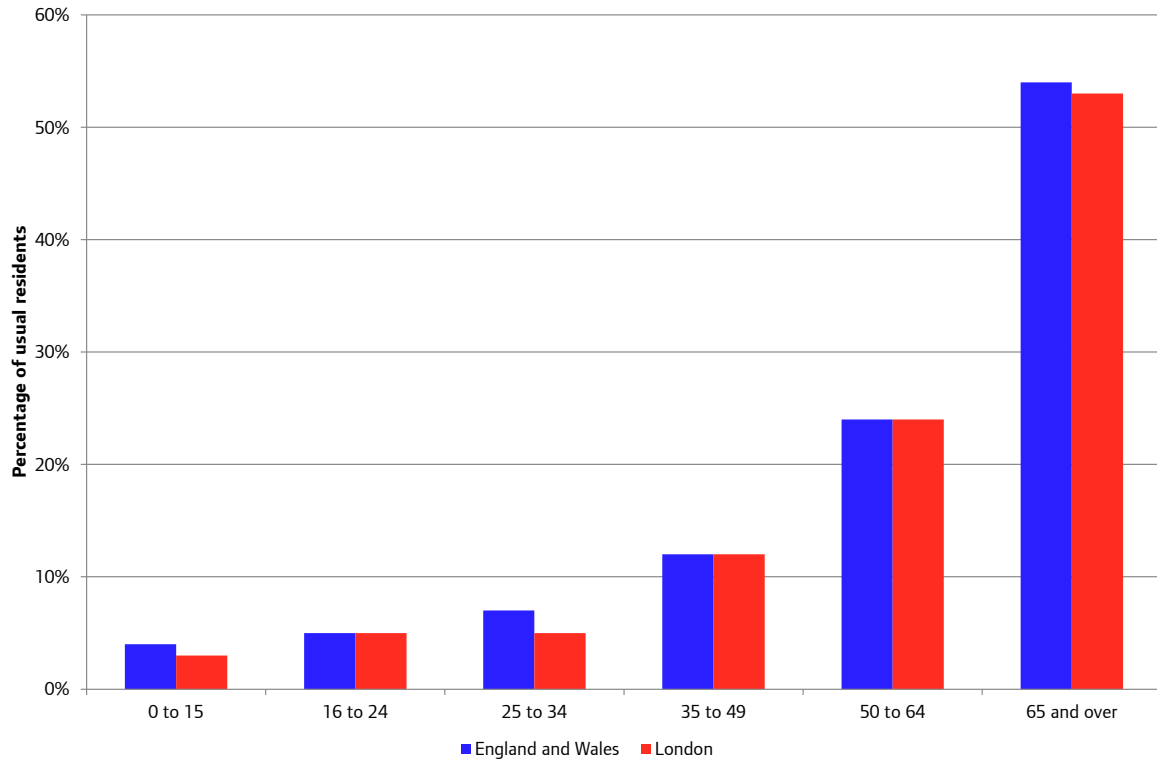


Source: ONS Census 2011

## 8.3 London's future population

Looking to the future, London's population is set to continue growing. In fact, it is projected to increase to approximately 10.5m inhabitants by 2041 (Figure 8.9)[4].

**Figure 8.9: London's projected population, every ten years between 1801 and 2041**
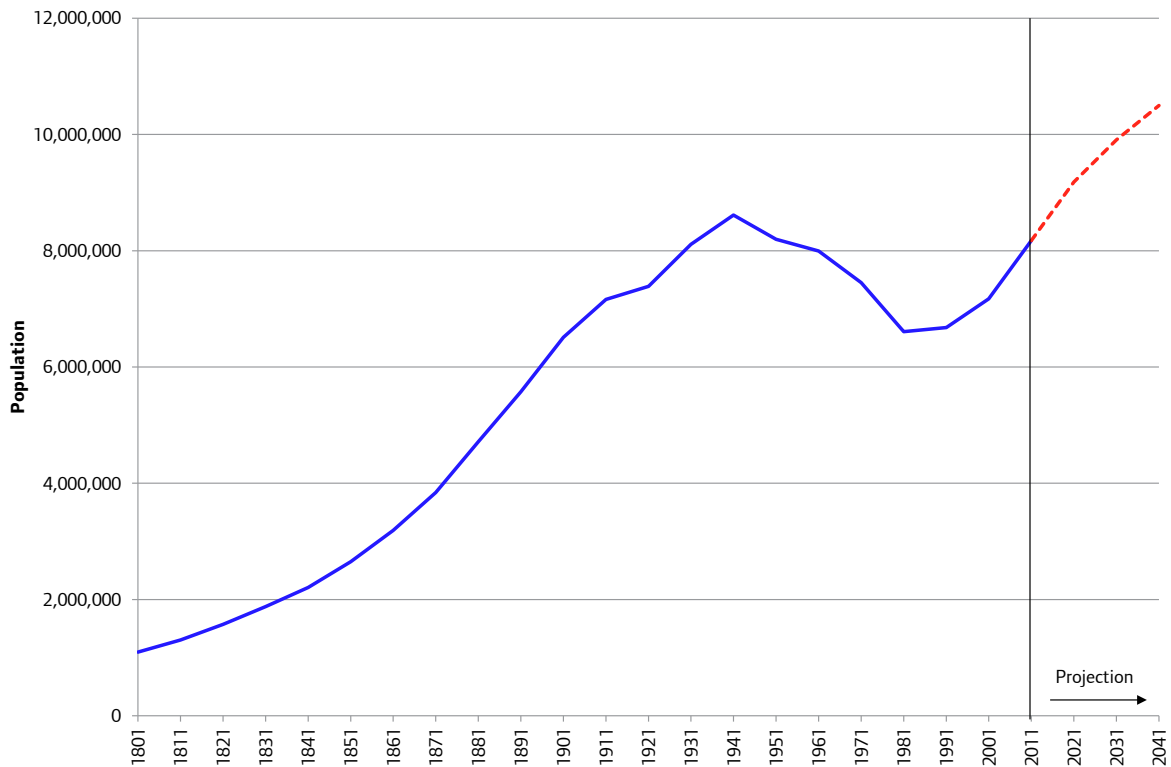


*Source: ONS Census (historic data), GLA 2015 trend-based population projections (long-term migration scenario)*

**Box 8.1: Possible variations to London's population projections**

The population projection discussed in this section is just one possible scenario. However, given the amount and accuracy of currently available information, this could be considered to be the most likely. This box simulates other possible scenarios for London's future population.

Although this is discussed in greater detail in the next section, the main component of London's population growth has historically been net international migration, followed by natural change (i.e. the difference between births and deaths). The latest population projections suggest that this will continue to be the case in the future (Figure 8.10). However, from 2022, natural change will become the biggest component to population growth mainly reflecting an expected fall in the net number of international migrants, down from 107,400 in 2014 to 76,800 in 2041. This, itself, is due to international in-migration expected to remain fixed at 195,400 over the projection period, whereas out-migration is expected to rise from 93,500 in 2014 to 118,600 in 2041.

**Figure 8.10: Components of change for London's population, 1994 to 2041**
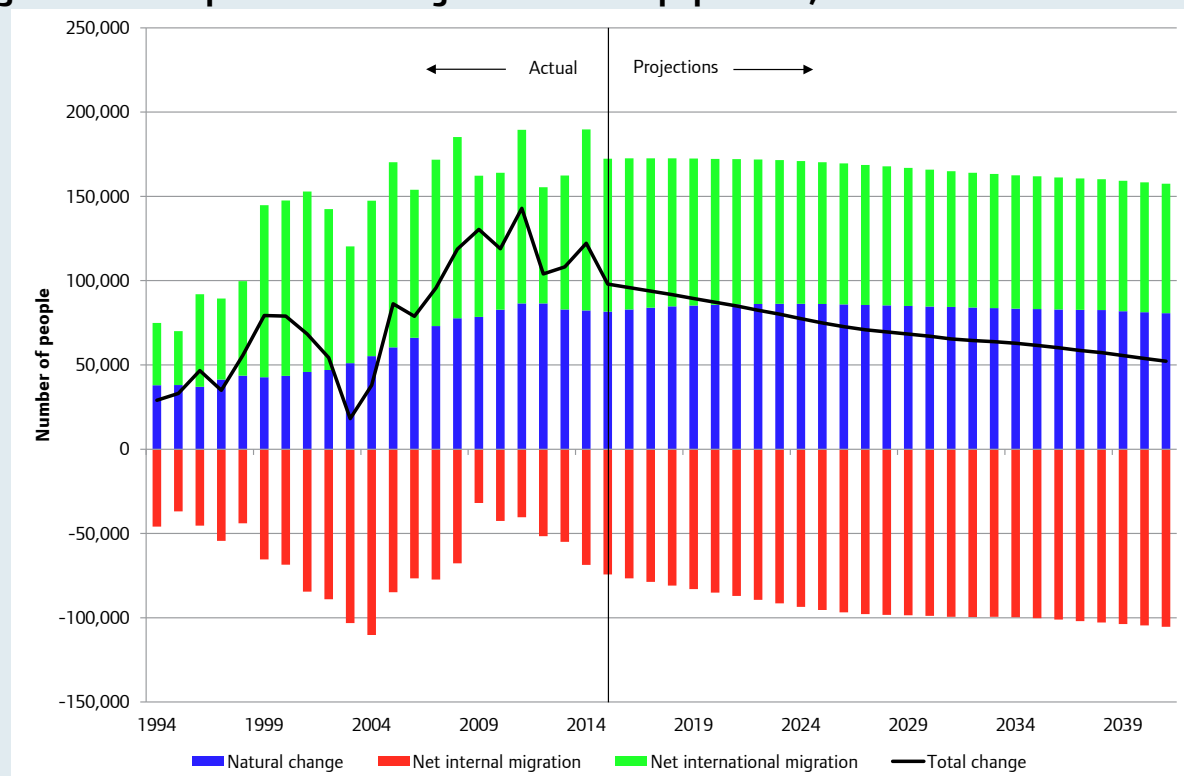


*Source: ONS Mid-Year Estimates, GLA 2015 trend-based population projections (long-term migration scenario)*

Meanwhile, the Government had previously set itself a target of reducing the UK's net international migration to the "tens of thousands" by 2020[5]. Moreover, this target has recently been reconfirmed, though no specific date was given for when it should be achieved[6]. Subsequently, simulations of the population projections can be constructed to show the various ways that this target can impact London.

In creating these scenarios, the GLA 2015 trend-based population projections (long-term migration scenario) are used as the starting point. Within these projections, estimates of natural change and net internal migration remain the same as those in the original projections – that is, they change at the same rates as shown in Figure 8.10 – and only net international migration is changed. Given the uncertainty of the impact of the EU referendum result, this has also not been included in the original projections or scenarios and instead historical trends are assumed to remain true. Three models are constructed whereby it is assumed that:

## Scenario 1
- The Government achieves its target of reducing the UK's net international migration to "tens of thousands" (assumed to be equal to 99,000 pa) by its original target date of 2020.
- London's share of the UK's net international migration remains the same as that for 2014 of 43.1 per cent.
- Subsequently, net international migration to London falls from 107,400 in 2014 to 42,600 in 2020 and remains at this level for the remaining projection period.

## Scenario 2
- The Government achieves its target of reducing the UK's net international migration to "tens of thousands" (assumed to be equal to 99,000 pa) by its original target date of 2020.
- London's share of the UK's net international migration follows the historic (downward) trend between 2002 and 2014.
- Therefore, net international migration to London falls from 107,400 in 2014 to 40,600 in 2020 and 33,300 in 2041.

**Scenario 3**

- The Government achieves its target of reducing the UK's net international migration to "tens of thousands" (assumed to be equal to 99,000 pa) by its original target date of 2020.
- All of the UK's net international migration occurs in London, so net international migration falls from 107,400 in 2014 to 99,000 in 2020 and remains at that level for the remaining projection period.

Given these assumptions, Figure 8.11 shows the various population projections for London up to 2041. The first two scenarios produce lower population estimates than the original projection of around 919,600 and 1.1m respectively. In contrast, the third sees an increase of approximately 461,600. This is mainly a reflection of London's share of the UK total of net international migration remaining broadly the same in the first two, but increases to 100 per cent for the third.

**Figure 8.11: Scenarios of London's population projections, 1994 to 2041**
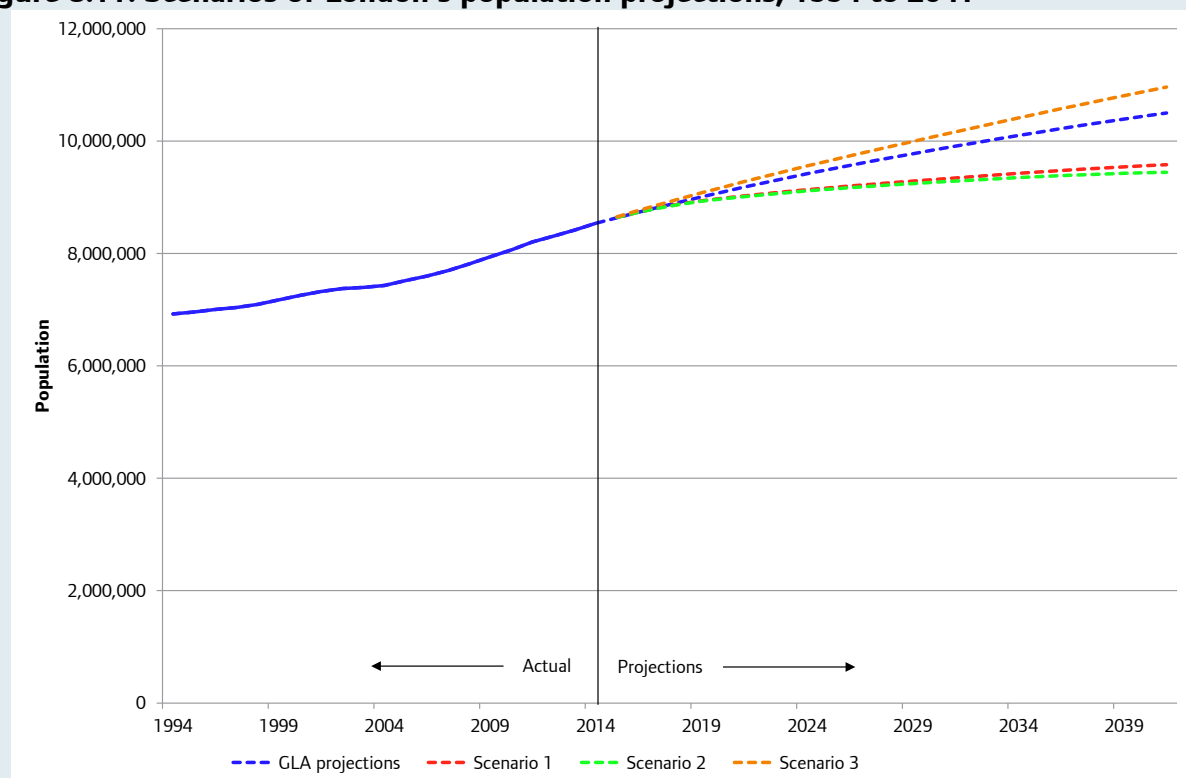


Source: ONS Census, GLA 2015 trend-based population projections (long-term migration scenario)

Not only is London's population rising, it is also getting older. By 2041, 16 per cent of London's population is projected to be 65 and over compared to 11.6 per cent in 2015. This means that the number of over-65s in London will go up by over two-thirds over the period. However, it is the number of over-90s – the so-called 'baby boomers' born post-war – for whom the greatest increases are projected, with the number set to more than double to make-up 1.5 per cent of London's population by 2041.

London's school-age population[7] is also growing and is projected to number nearly 1.4m by 2041, bringing with it its own challenges for London in terms of school place planning. Figure 8.12 show that there are currently 677,250 primary[8] and 393,750 secondary[9] state school places in London during the 2014-15 academic year. However, this would need to rise by 60,000 (8.8 per cent) and 105,000 (26.5 per cent) respectively by the 2024-25 academic year to meet the growth in demand.

**Figure 8.12: Projected additional demand for state school places in London, 2014-15 to 2024-25 academic years**
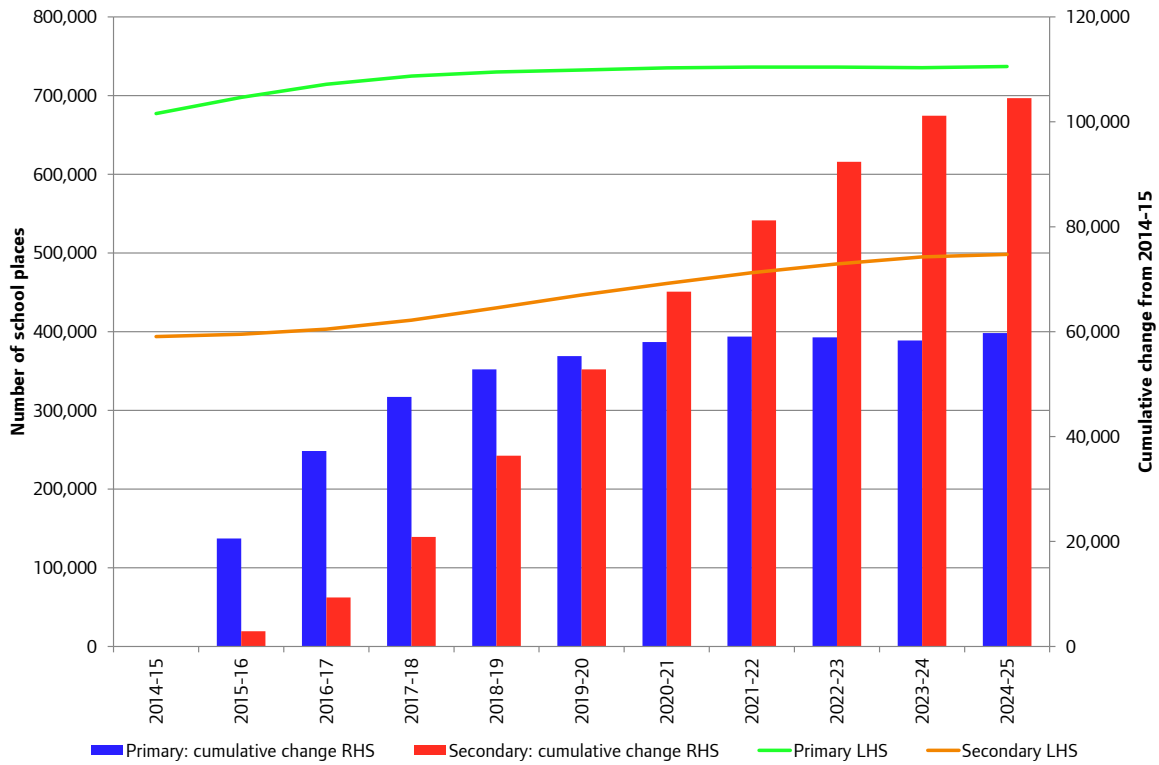


*Source: GLA Pan-London school place demand model (hybrid static population variant)*

London as a major employment centre attracts workers from all over the UK as well as from abroad. Approximately 5.9m of its inhabitants are of working-age[10] and this number is projected to rise to 6.9m by 2041 (Figure 8.13).

**Figure 8.13: Age structure of London's population, mid-2015 and mid-2041**
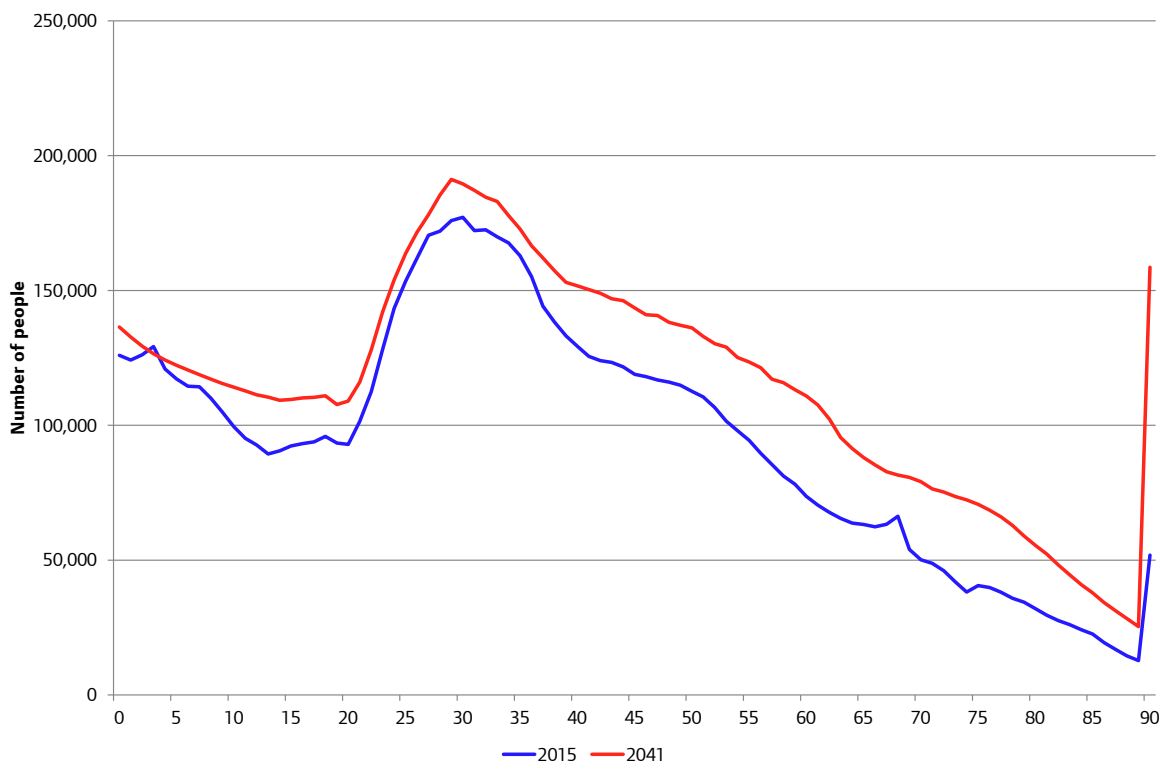


*Source: GLA 2015 trend-based population projections (long-term migration scenario)*

## 8.3.1 Births

One of the drivers in London's recent population growth has been the considerable rise in the number of births during the 2000s and early 2010s.

In 2012, there were over 134,800 births in London, up nearly 30,000 from the number seen in 2002 (Figure 8.14). Births have since fallen to 128,500 in 2015, suggesting that the peak may be over. However, the impact will be seen for many years as these cohorts move first through the education system before entering the world of work.

**Figure 8.14: Births in London, mid-2002 to mid-2014**
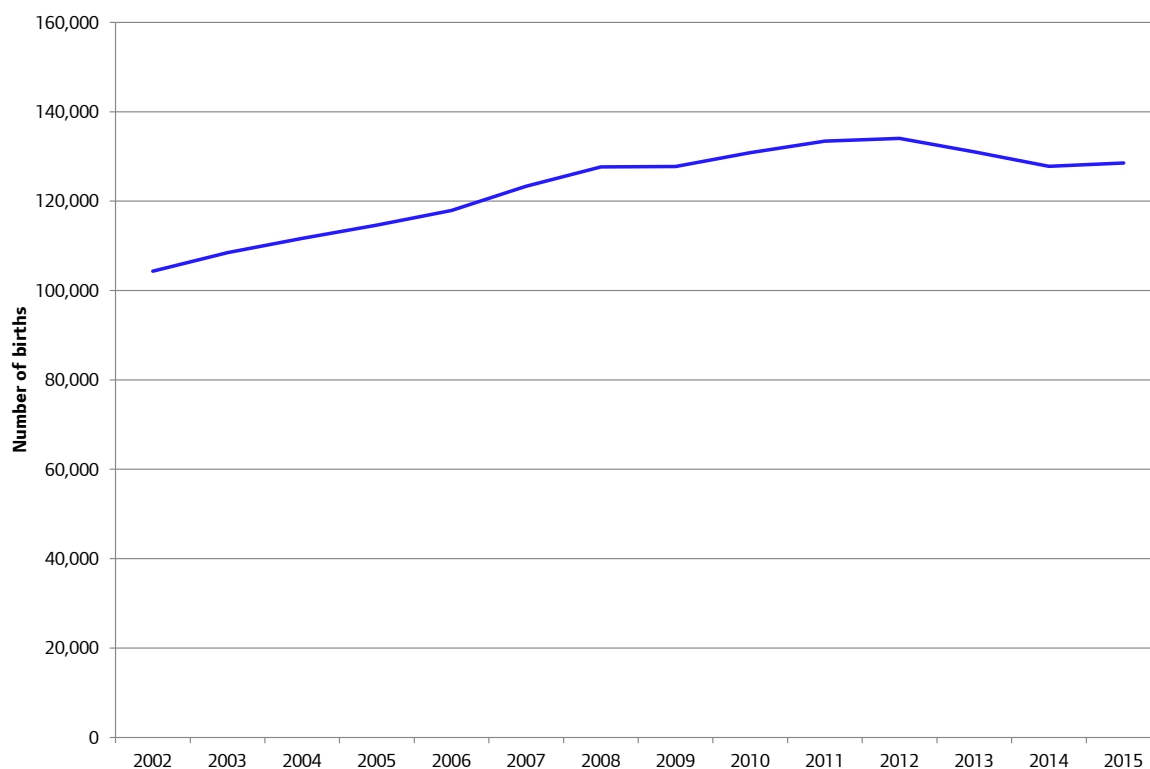


*Source: ONS Mid-year population estimates*

The standardised mean age of mothers giving birth for the first time was 29.8 years in London during 2013. Comparably, the average for England and Wales was 28.1 years suggesting that women in London start having children later than elsewhere. Moreover, data for England and Wales as a whole shows that the average age of mothers at first birth has also increased over time. For example, the mean age was 26.5 years in 2000 and, going further back, it was 25.8 years in 1940.

Approximately 58.1 per cent of births in London during 2014 were by mothers born outside the UK. This was a larger percentage of births by foreign mothers than that for England and Wales as a whole (27 per cent) as shown in Figure 8.15. Interestingly, the percentage of births by foreign-born mothers has been rising since 2001 for both London and England and Wales as a whole.

**Figure 8.15: Births by foreign-born mothers as a percentage of all births in London and England and Wales, 2001 to 2014**
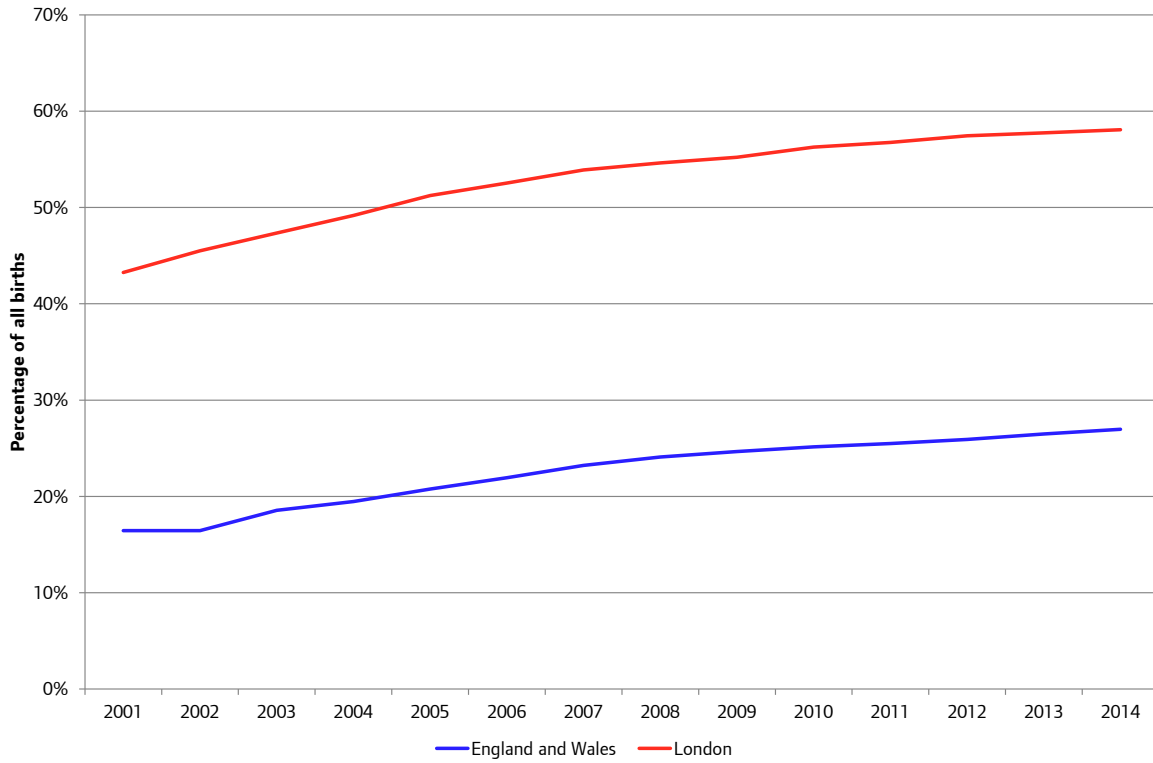


*Source: ONS Parents' Country of Birth*

Of the births by foreign-born mothers in London, a third (33.7 per cent) of mothers were from the Middle East and Asia in 2014. This was followed by the EU (27.5 per cent) and Africa (22.9 per cent).

## 8.4 Migration to London

As noted earlier, migration is a significant component of London's population change. Figure 8.16 shows the pattern of both internal and international migration flows in relation to London (split here by inner and outer London) for mid-2014. Approximately half of all migration to London (49.6 per cent) is from overseas, with the other half from the rest of the UK in 2014. Migrants from overseas tend to go to inner London, whereas there is a roughly even split of migrants from the rest of the UK going to inner and outer London. Meanwhile, the outflow of people from London (which includes migrants who have already arrived in London) shows that they are more likely to go to the rest of the UK. In fact, there is a net outflow of people from London to the rest of the UK, whereas in contrast there is a net inflow of international migrants to London.

Figure 8.16 also shows the internal movement of Londoners between inner and outer London. This similarly includes migrants who have already arrived in London. Here there is a stronger movement from inner to outer London than vice versa. For outer London, the outflows are higher to the rest of the UK.

**Figure 8.16: Migration flows in London in mid-2014**
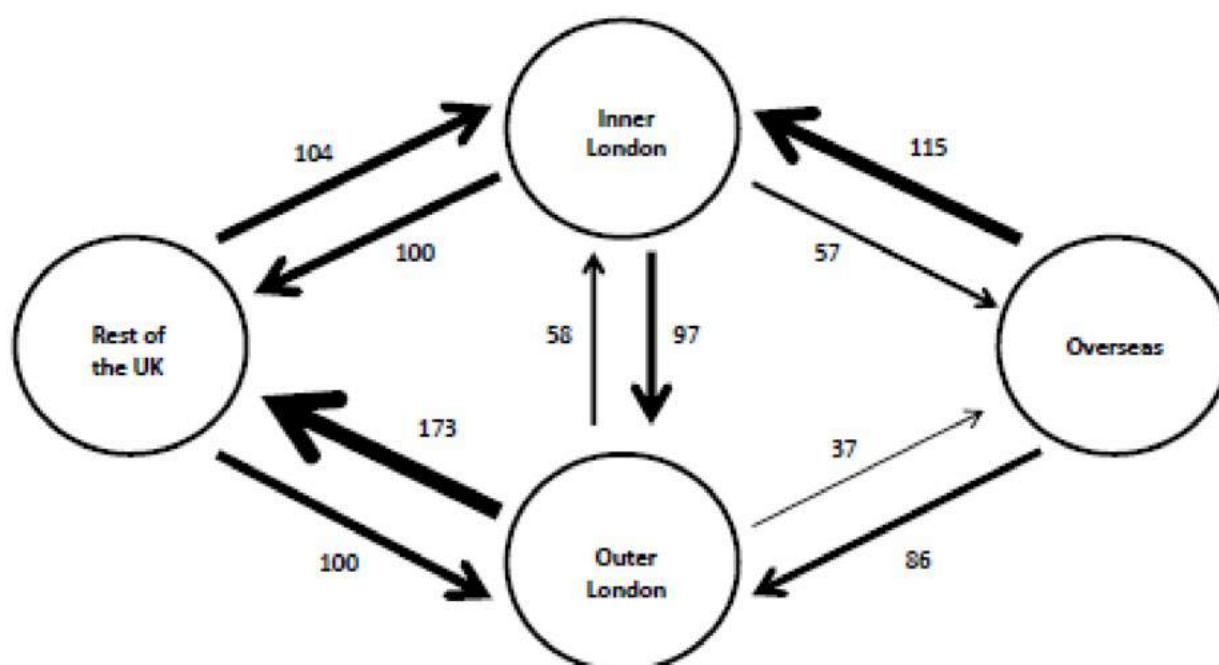


*Source: ONS Mid-year population estimates, ONS internal migration estimates*

This trend of high domestic migration flows from London to the rest of the UK has been present over the long term. In the years 1975 to 2012, domestic migration from the rest of the UK into London averaged 160,000 per annum (Figure 8.17). Over the same period, average annual outward domestic migration from London was 220,000. Thus on average over this period London lost a net 60,000 people to the rest of the UK each year. Noticeably, this trend of net outflow from London would appear to be quite entrenched in the sense that it occurs even when London's population as a whole is growing or falling.

**Figure 8.17: Domestic migration into and out of London, 1975 to 2012**
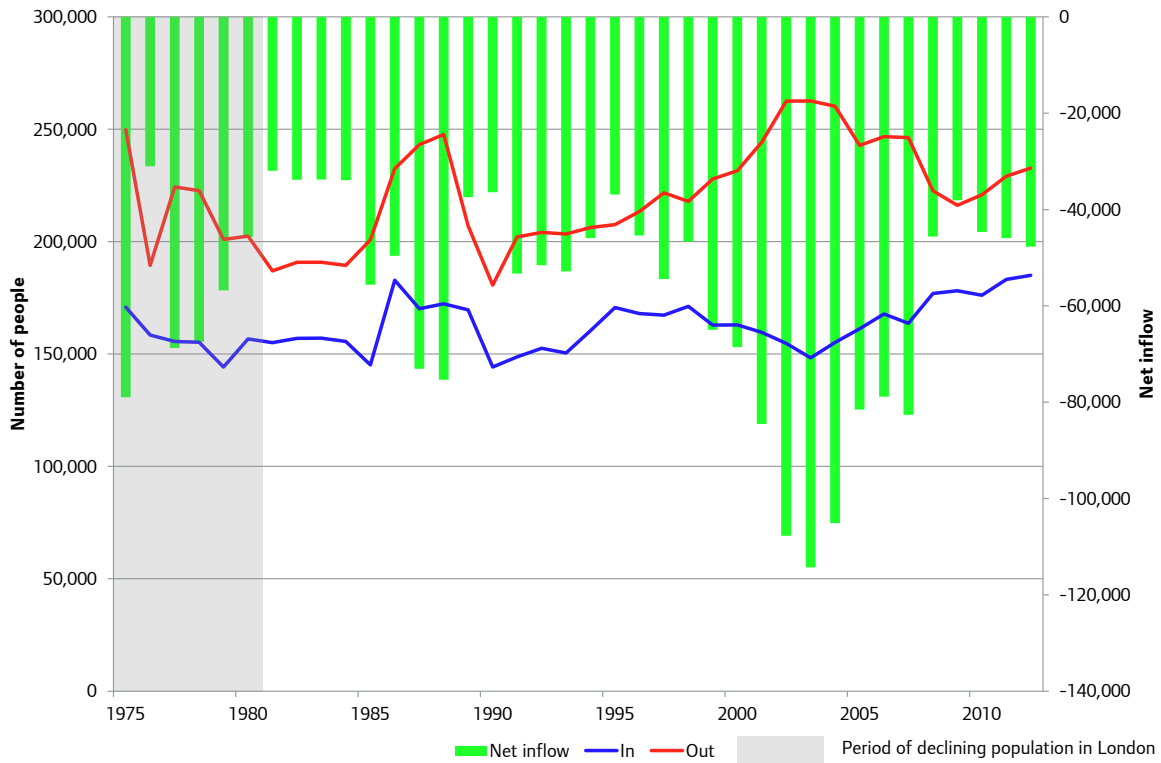


*Source: ONS NHS Registrations*

One possible reason for why London has a net outflow for domestic migration could be because London acts as an 'accelerator region'. This is discussed in greater detail in Chapter 9, though there is evidence to suggest that workers come to London to develop their skills and careers before moving to other parts of the UK as suggested by Fielding[11].

Figure 8.18 shows the age variations in London's domestic migration flows. London attracts students and young adults from other parts of the UK and loses young children, students and those in their 30s to the rest of the UK.

**Figure 8.18: Internal migration flows by age in London in mid-2014**
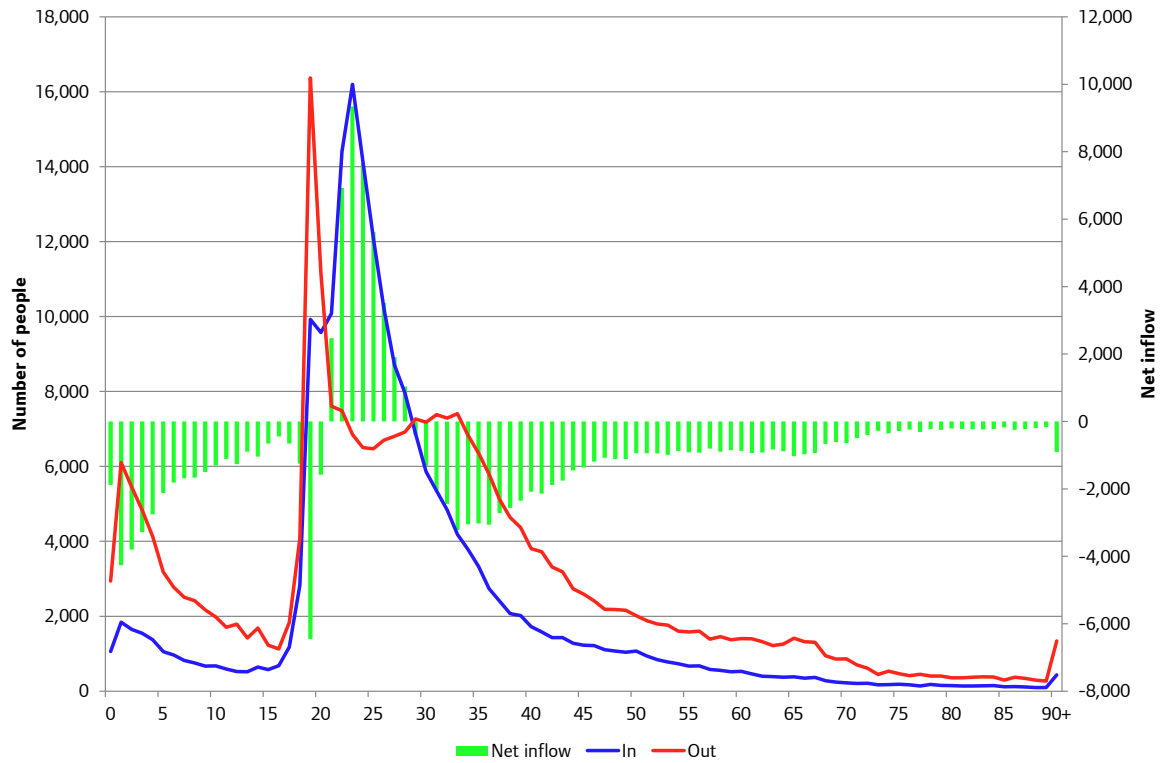


Source: ONS Internal migration estimates

Within London itself, Map 8.3 shows the average annual net migration flows between boroughs for the mid-2009 and mid-2013 period. As shown in Figure 8.16, there was generally a net migration flow from inner London to outer London and this is again shown in this map. Moreover, the largest net migration flows within London was between Haringey to Enfield (an average of 2,320 people) and Newham to Redbridge (an average of 2,252 people).

**Map 8.3: Average annual net migration flow between London boroughs, mid-2009 to mid-2014**
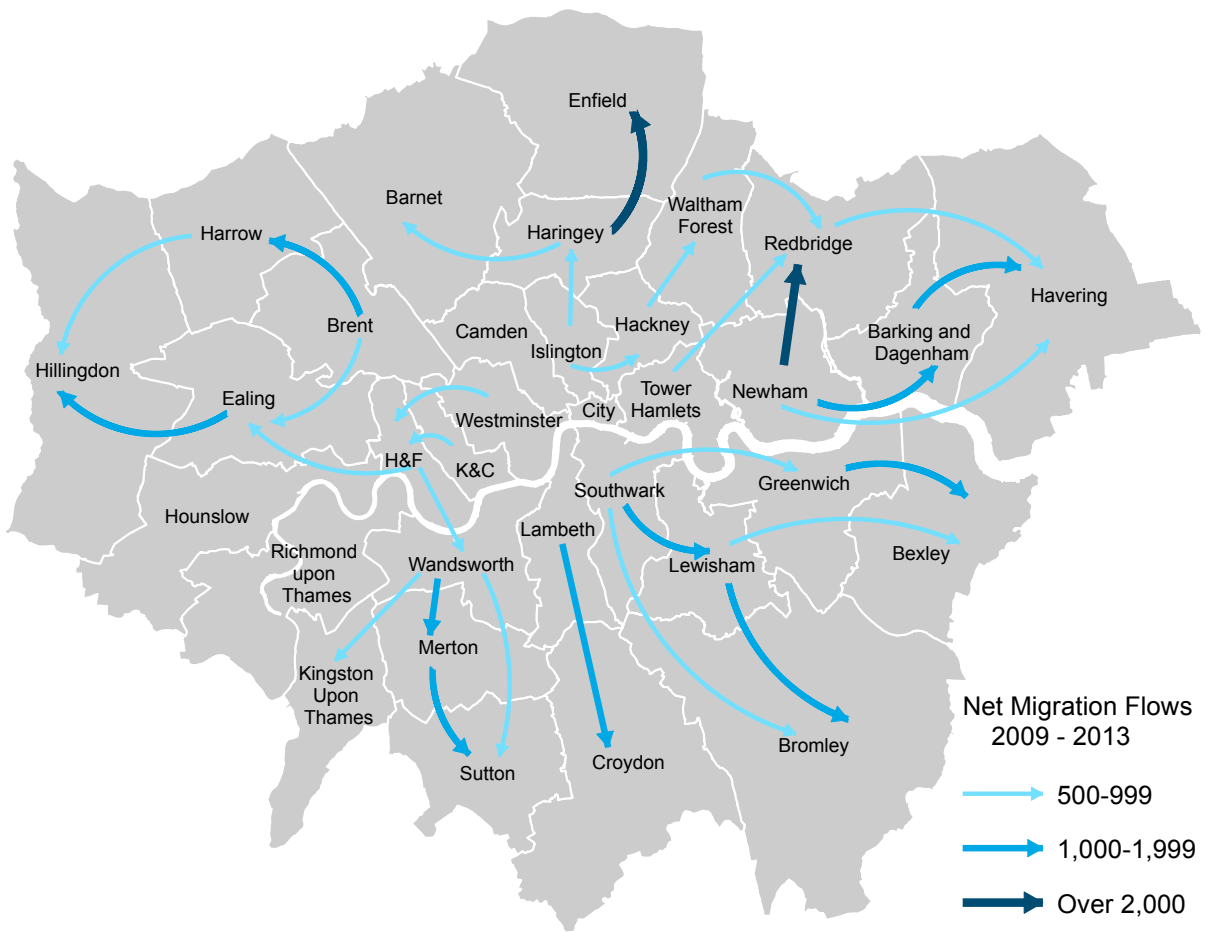


*Source: GLA Ward Population Projections*

As noted earlier, the domestic population net outflow is offset by a net inflow of migrants to London from outside the UK. London attracts over 170,000 international migrants[12] a year and only around 100,000 people per annum leave London to move abroad (Figure 8.19). This difference – known as international net migration – is therefore positive meaning a significant proportion of London's population growth is the result of international migration. In 2014, 35 per cent of international in-migrants to the UK headed to London.

**Figure 8.19: International migration in London, 2004 to 2014**
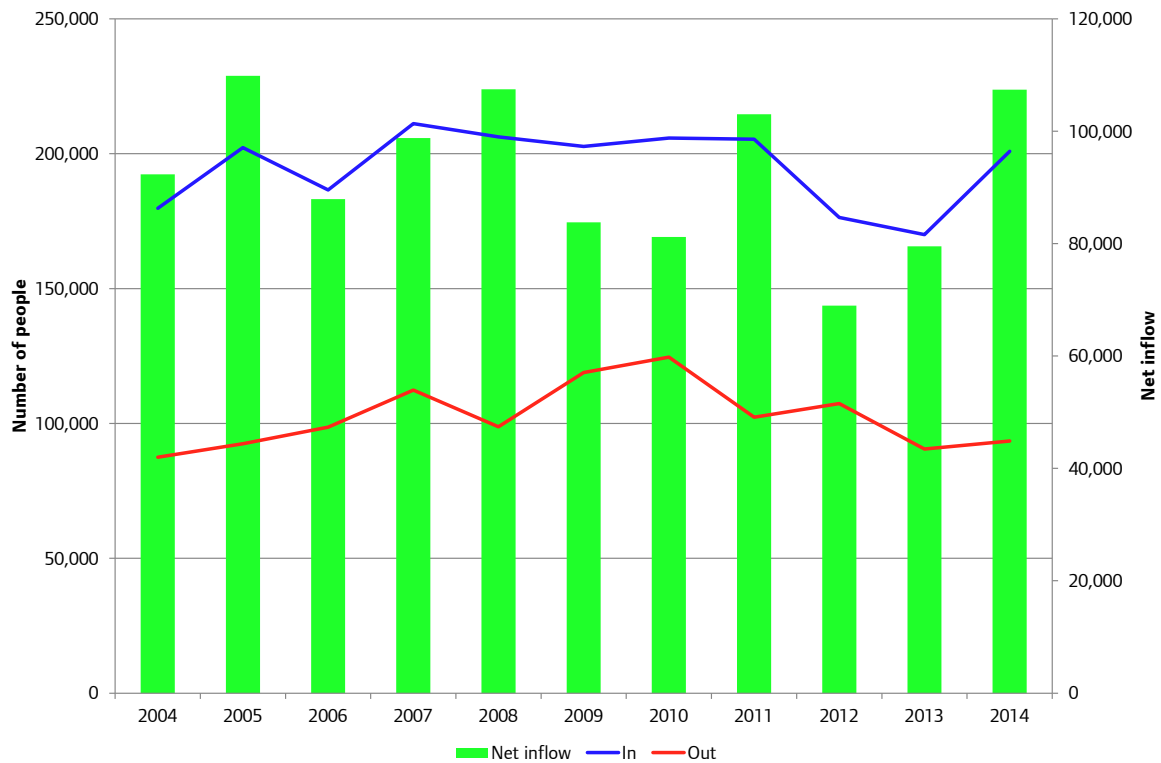


Source: ONS Local Area Migration Indicators

London's appeal – some of which is discussed in Chapter 5 - means that the city attracts people from all over the world. Using estimates from the International Passenger Survey (which means there are slight differences with the long term international migration estimates shown in Figure 8.19), just over half (51.8 per cent) of all international migrants to London were from the EU in 2014. It was only in the previous two years had EU migrants represented more than half of all international migration to London, with this share as low as 22.7 per cent in 2006 (Figure 8.20).

**Figure 8.20: World regional share of international migration to London, 2004 to 2014**
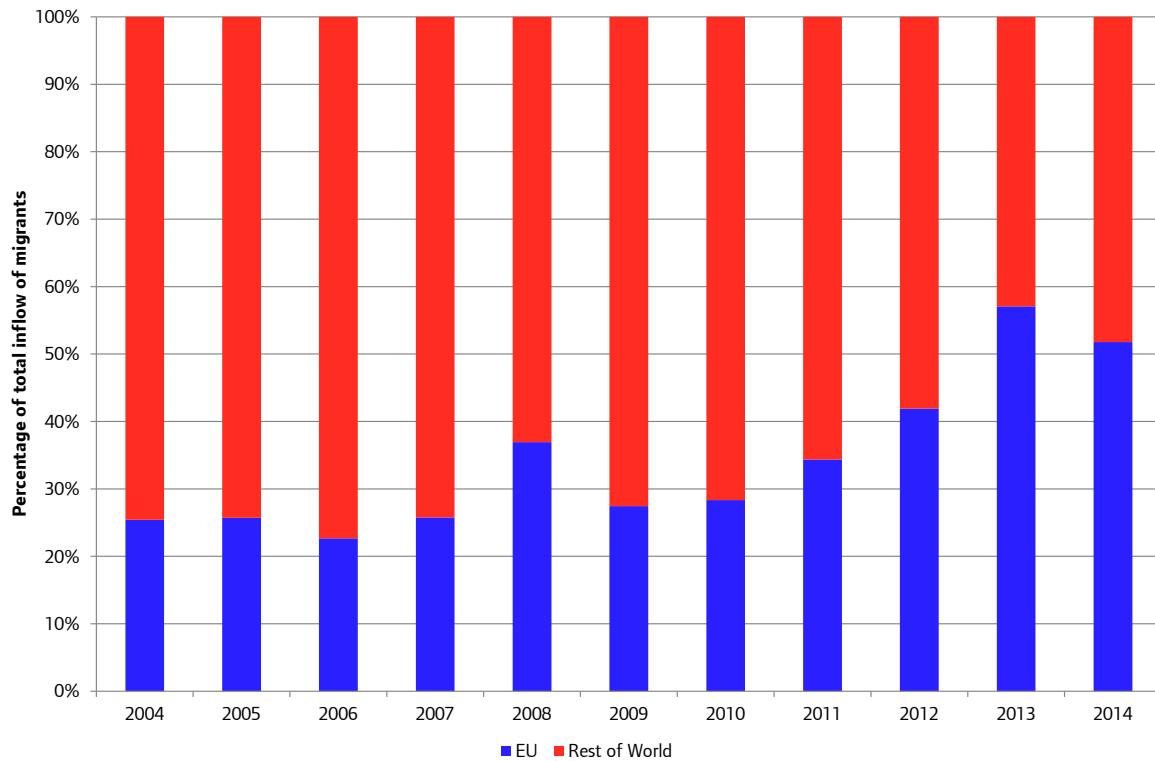


*Source: ONS International Passenger Survey*

A different measure of international migration is National Insurance Number registrations (NINo). This captures long-term migrants as with the above LTIM/IPS statistics, but also short-term migrants. Therefore, whilst NINo is not a good measure of long-term international migration, it is useful for highlighting changes in migration trends[13]. Figure 8.21 shows a more detailed breakdown of international migration by world region in 2005 and 2015. This shows that the largest inflows of international migrants were from Europe, followed by Asia and Africa. Moreover, the share of migrants from Europe has increased from 57.2 per cent in 2005 to 78 per cent in 2015, whilst the percentage for all other world regions has declined.

**Figure 8.21: World region share of international migration flows (NINo) in London, 2005 and 2015**
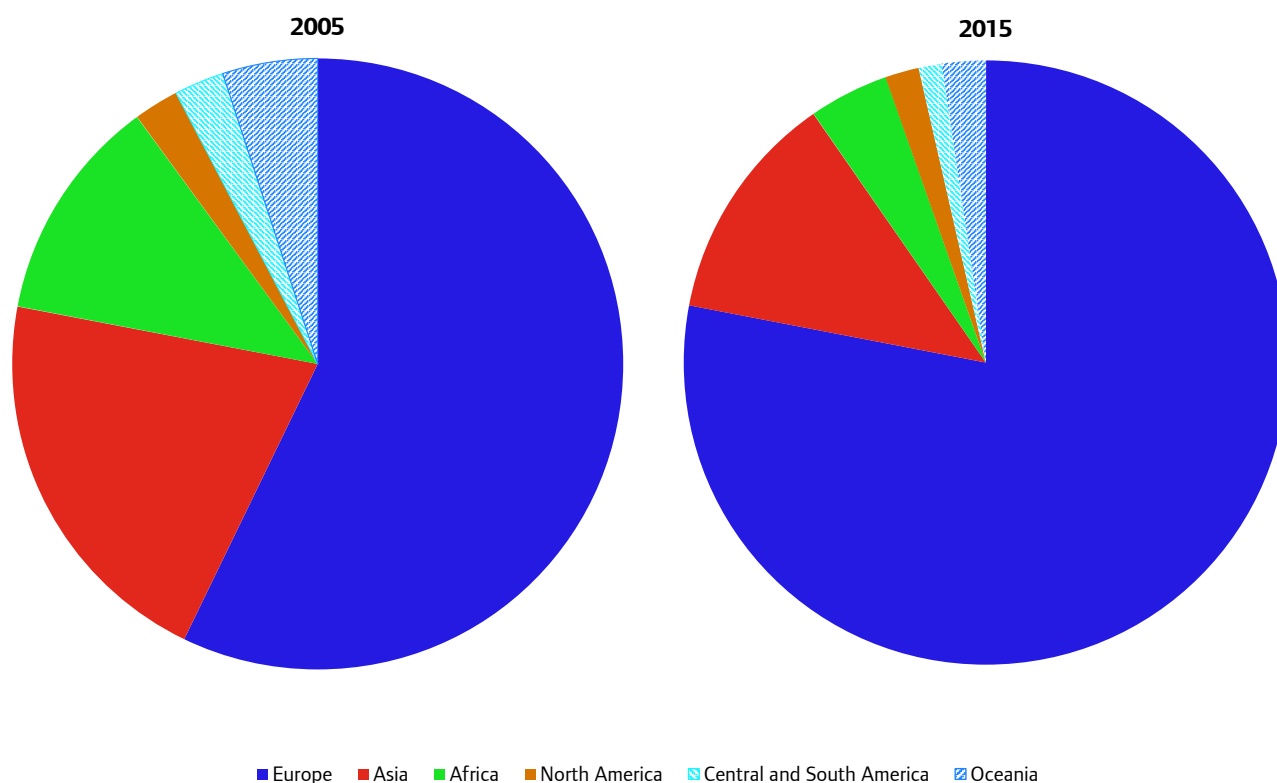


*Source: DWP National Insurance Number Registrations*

All this information can be brought together to show the annual change in London's population between 1982 and 2015 (Figure 8.22). Net international migration is one of the main contributors to London's population growth over this time adding on average 95,200 more people per annum over the past decade. Natural change was also a contributor to population growth, but international migration has exceeded this as the main driver in each year between 1996 and 2009, as well as 2014 and 2015. That means that 2010 was the first year in more than a decade when natural change contributed more to London's population growth than net international migration and mainly a reflection of a drop in migration flows.

Offsetting net international migration and natural change was net internal migration where London has historically seen a net flow of people leaving the capital to other parts of the UK. Therefore, this has a negative effect on London's population. However, there are considerable challenges in distributing long-term migration flows to different areas in the UK as the area of intended or initial arrival can often differ to the area of residence (i.e. secondary migration).

**Figure 8.22: Components of change in London's population, 1982 to 2015**
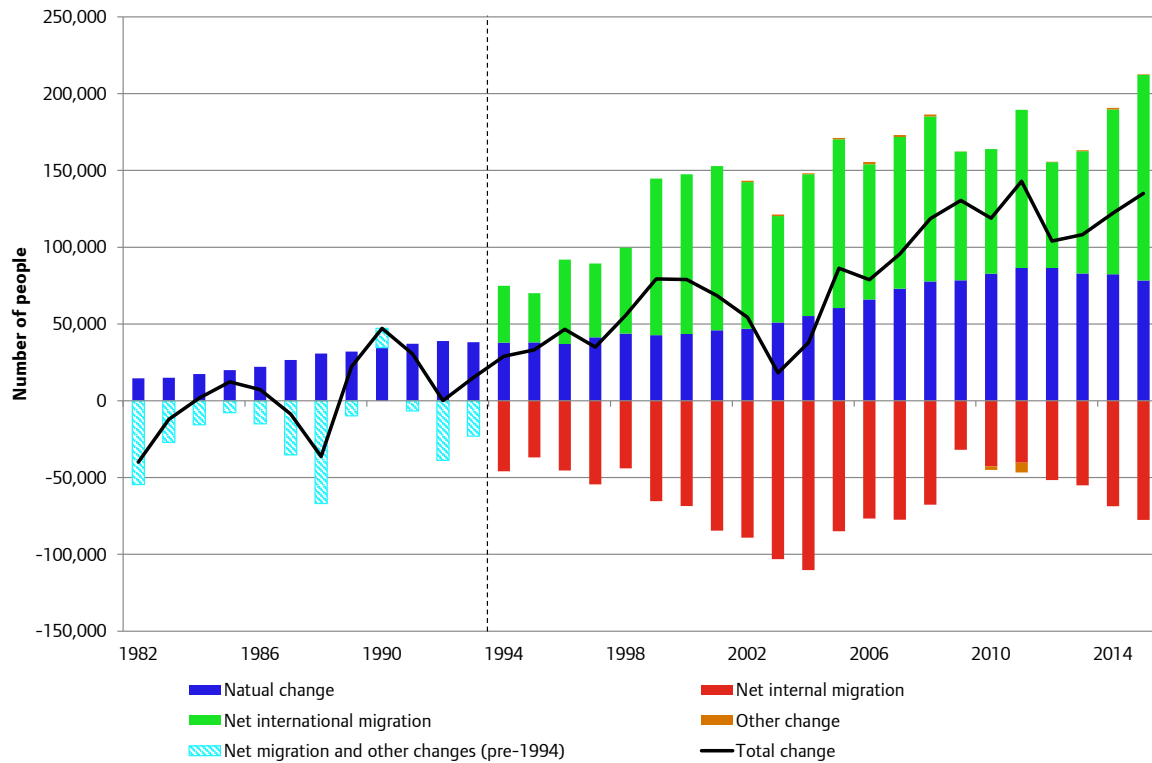


Note: mid-year estimates.
Source: ONS Mid-year population estimates, Office of Population, Census and Surveys

International migration also further contributes to London's population growth through natural change – that is, international migrants also contribute to London's birth and death rates which, as births tends to exceed deaths, adds to the population. Figure 8.15 in the previous section shows that 58.1 per cent of births in London were by foreign-born mothers, but there is no information on the foreign-born share of deaths in London. Consequently, assuming that this proportion is the same as births (i.e. 58.1 per cent), then the number of births exceeds the number of deaths for foreign-born people. Therefore, on top of the number of migrants in a given year, international migration could also contribute a further 44,600 people to London's population through natural change. This is shown in Figure 8.23 that replicates the above information but just for the 2001 to 2015 period.

**Figure 8.23: Components of change in London's population, 2001 to 2015**
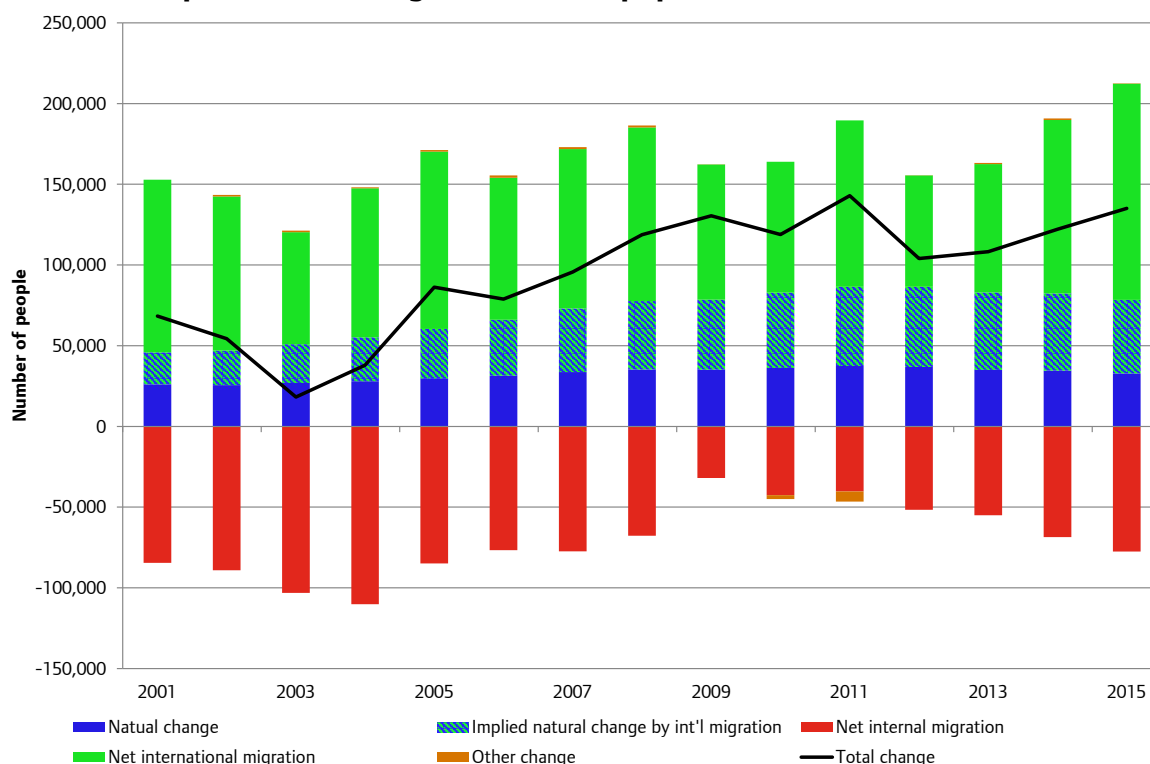


*Note: mid-year estimates.*
*Source: ONS Mid-year population estimates, ONS Parents' Country of Birth*

Some of the reasons for immigrating to the UK are given in Chapter 5. The most common reason for coming to the UK was work-related in all but three of the years between 1995 and 2014; in these three years it was instead formal study. Before 1995, the main reason for migrating to the UK was instead mainly to join family members or other reasons such as asylum.

Chapter 5 also notes that migration for work-related reasons is linked to the relative strength of economic activity in the UK. Subsequently, during the 2008-09 recession, formal study briefly overtook work as the main reason for migrating to the UK. This was similarly the case for London where the proportion of international migrants arriving peaked in 2009 (and the subsequent recovery period). Interestingly, as Figure 8.24 shows, whilst the percentage of migration being for study has fallen back to average levels in London; it still remains elevated for the UK as a whole.

**Figure 8.24: Formal study's share of international migration (inflow) to London and the UK, 1977 to 2014**
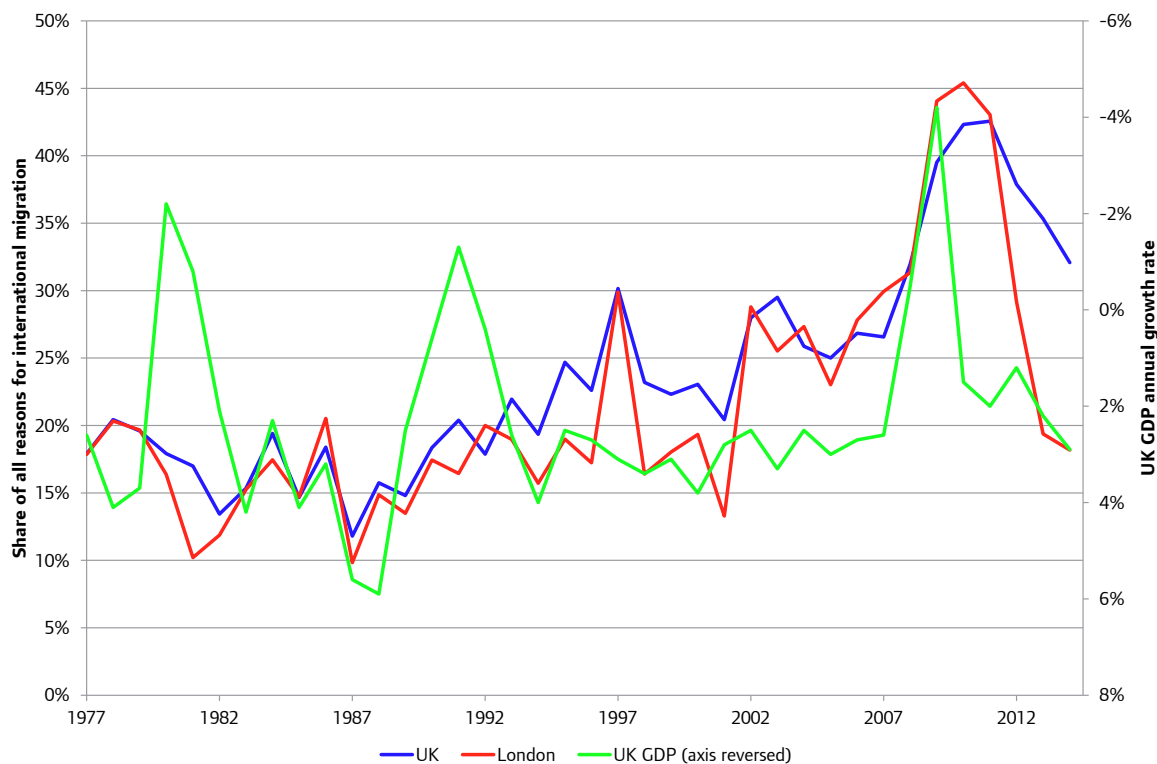


*Source: ONS National Accounts, ONS International Passenger Survey*

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**Box 8.2: Irregular migration**

Whilst the above refers to migrants who have entered the UK with permission to stay, there is a large number of irregular migrants in the UK and London who may not be counted in these statistics. Irregular migrants include:

- Illegal entrants, which includes people who have evaded formal migration control and people who used false papers.
- Migrants who entered the UK lawfully, but have remained beyond their permitted period, such as failed asylum seekers and over-stayers.
- Children born in the UK to irregular migrant couples.

It was previously estimated that there were 442,000 irregular migrants in London during 2007, but it is notoriously difficult in accurately counting irregular migrants so this figure could range from 281,000 to 630,000[14]. Some of these irregular migrants could be eligible for regularisation – that is, legalising the status of irregular migrants – of which, 294,000 were estimated to be eligible in London based on a five-year residence basis.

Meanwhile, a more recent study looking solely at young people estimated that there were 120,000 irregular migrant children living in the UK in 2012[15]. The majority of these were either born in the UK to irregular migrant parents or arrived at an early age.

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The propensity to settle or remain in the UK five years after entering the country also varied by the purpose of visit according to Home Office research[16]. For example, approximately 23.8 per cent of non-EEA migrants with a skilled work visa (with and without a potential path to settlement) left the UK after five years in 2014. This compared with 16.6 per cent for non-EEA migrants with a formal study visa.

There has been much recent debate about the impact of migration. Appendix 8.1 looks into the issue in more detail, but in general the literature finds that:

- Migrants do not reduce the employment chances of UK natives, but there may be an impact on wages at the lower end of the wage distribution though the size of this effect is disputed. They are also, on average, better educated than the UK born population.
- Businesses report that migrants bring new knowledge, skills and ideas which can increase productivity, though some firms noted some challenges with the integration of migrants and language.
- Migrants are more entrepreneurial and minority ethnic led businesses (so this does not solely include migrants) can help support the local economy.
- Consequently, the tax contribution that foreign born individuals make is (on average) broadly in line with the cost of the services and benefits they receive.
- Migrants are no more likely to use local services, like GPs and social housing, than the UK-born population.

## 8.4.1 Country of birth

London's high international inflow means it has become something of a hub for foreign-born communities. Approximately 3.1m people living in London were born abroad (37 per cent of the total population)[17]. The distribution of the foreign born population across London in 2015 and how this has changed since 2005 is shown in Map 8.4.

**Map 8.4: Distribution of foreign born residents across London in 2005 and 2015**
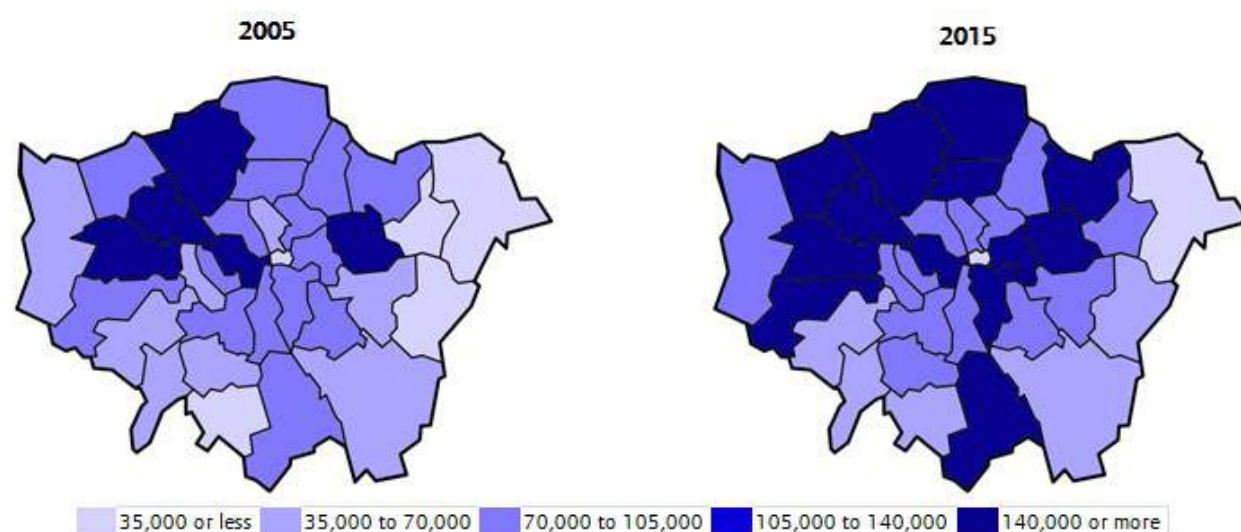


*Note: January to December period.*
*Source: ONS Annual Population Survey*

Just under half (49 per cent) of London's foreign born population had arrived in the UK in the previous ten years of the 2011 Census, while only one-in-five (21 per cent) had been resident in the UK for more than 30 years. This means that one-in-six Londoners had arrived in the UK since 2001 overall. This profile varies considerably between different countries of birth as shown in Table 8.2. For example, more than half of those born in Ireland or countries within the Caribbean arrived in the UK before 1981, whereas 87 per cent of those from Poland had arrived since 2001.

**Table 8.2: London residents with selected countries or regions of birth in 2011, percentages arrived in UK by year**

| Country of birth | Number born outside of the UK | Year of arrival in the UK | | |
|---|---|---|---|---|
| | | Before 1981 | 1981–2000 | 2001–2011 |
| Ireland | 130,000 | 55% | 24% | 21% |
| France | 67,000 | 7% | 27% | 65% |
| Germany | 55,000 | 23% | 25% | 54% |
| Poland | 158,000 | 4% | 10% | 87% |
| Romania | 45,000 | 0% | 1% | 99% |
| India | 262,000 | 32% | 20% | 48% |
| Pakistan | 112,000 | 23% | 29% | 48% |
| Australasia | 83,000 | 9% | 21% | 70% |
| The Caribbean | 144,000 | 59% | 23% | 17% |
| **All born outside the UK** | **2,998,000** | **21%** | **30%** | **49%** |

*Note: percentages may not sum to 100% due to rounding.*
*Source: GLA Intelligence's Londoner's born overseas using ONS Census 2011 data*

Using more timely data (the ONS Annual Population Survey) than the 2011 Census which means these figures do not necessarily match those shown in Table 8.2, the top non-UK country of birth of Londoners in 2014 was India with 290,000 (3.4 per cent of the total London population) residents as shown in Figure 8.25. Poland (2.1 per cent), Pakistan (1.6 per cent), Bangladesh (1.3 per cent) and Ireland (1.2 per cent) also had over 100,000 residents each living in London during 2014.

**Figure 8.25: Largest foreign born populations living in London in 2014**
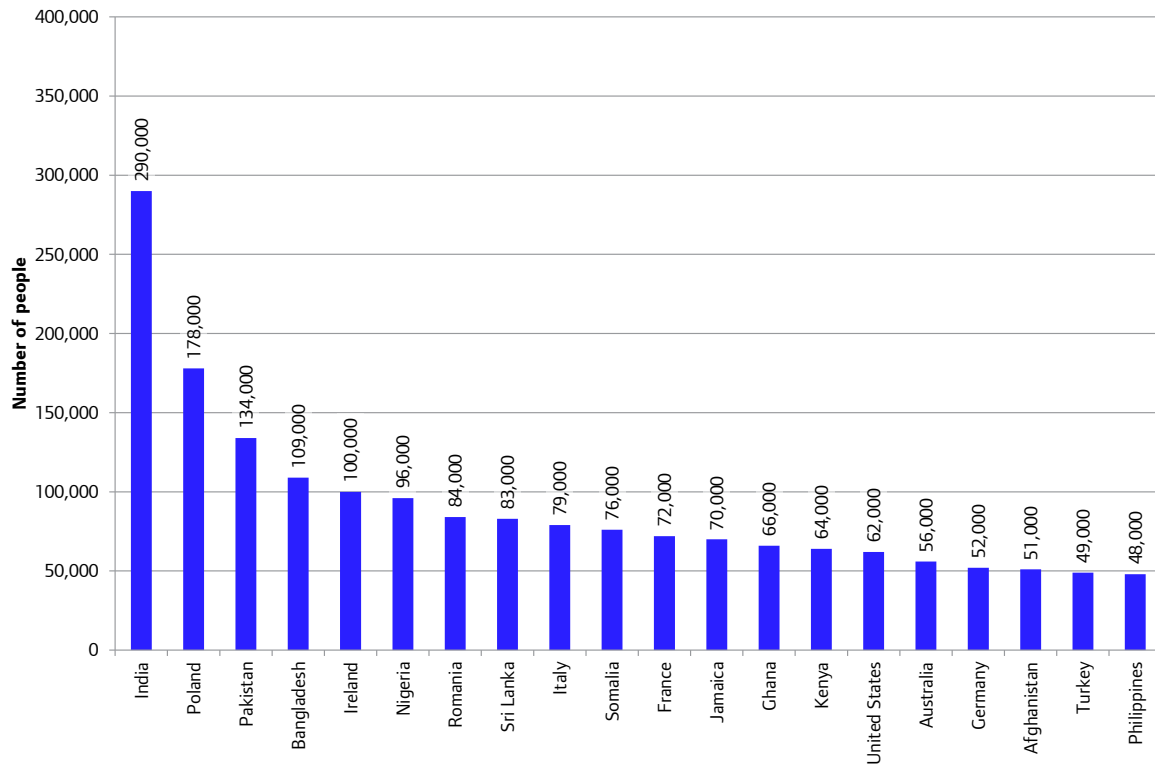


*Source: ONS Annual Population Survey*

Demographic and employment characteristics vary between the different migrant communities as illustrated by the following case studies for those born in India, Poland and EU member countries in 2001. To provide the depth of information needed here, this section uses Census data and thus refers to 2011.

## 8.4.1.1 Born in India

The areas with the highest number of residents born in India were in west London and north-east London in 2011 (Map 8.5).

**Map 8.5: Distribution of Indian born residents across London wards in 2011**
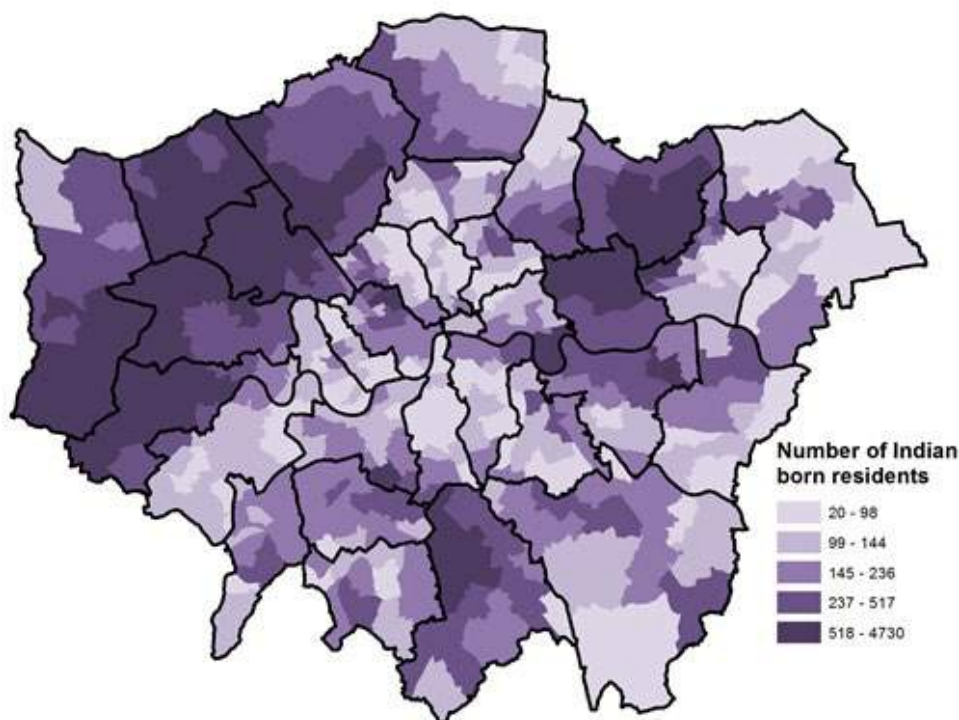


*Source: ONS Census 2011*

The Indian born population is also older than the UK born population, with 18.4 per cent aged 65 and over versus 11.1 per cent for the UK born residents.

Following the trend for all international migrants, half (48 per cent) of the Indian born population arrived in the UK after 2001 according to the Census 2011 (see Table 8.2). A further 20 per cent arrived between 1981 and 2001 and 32 per cent before 1981.

The percentage of people born in India and residing in England and Wales (not just London) who reported that they could not speak English at all or not well was 13.7 per cent according to the Census 2011.

In 2011, 79 per cent of male and 59.1 per cent of female India-born London residents aged 16-64 years were in employment. This compared with 74 per cent and 67.9 per cent respectively for those UK-born.

The top occupations for men were Science, Research, Engineering & Technology Professionals (11 per cent) and Elementary Administration & Service (11 per cent).

The top occupations for women born in India were Administrative (13 per cent), Elementary Administration & Service (11 per cent) and Sales (11 per cent) occupations.

Over half of people born in India (16 years and over) and living in England and Wales were working in the Public Administration, Education & Health (27.3 per cent) and Distribution, Hotels & Restaurants (24.9 per cent) sectors.

There is no country breakdown for the qualifications of foreign-born people. Acknowledging that, 36.5 per cent of residents born in Southern Asia aged 16-64 years and living in London had level 4 qualifications (equivalent to higher education) or higher as their highest qualification. However, at the

other end, 17.1 per cent had no qualifications and 10.1 per cent had a level 1 qualification such as GCSE grades D or below.

## 8.4.1.2 Born in Poland

The areas with the highest number of residents born in Poland form a ring around the central London boroughs as shown in Map 8.6.

**Map 8.6: Distribution of Polish born residents across London wards in 2011**
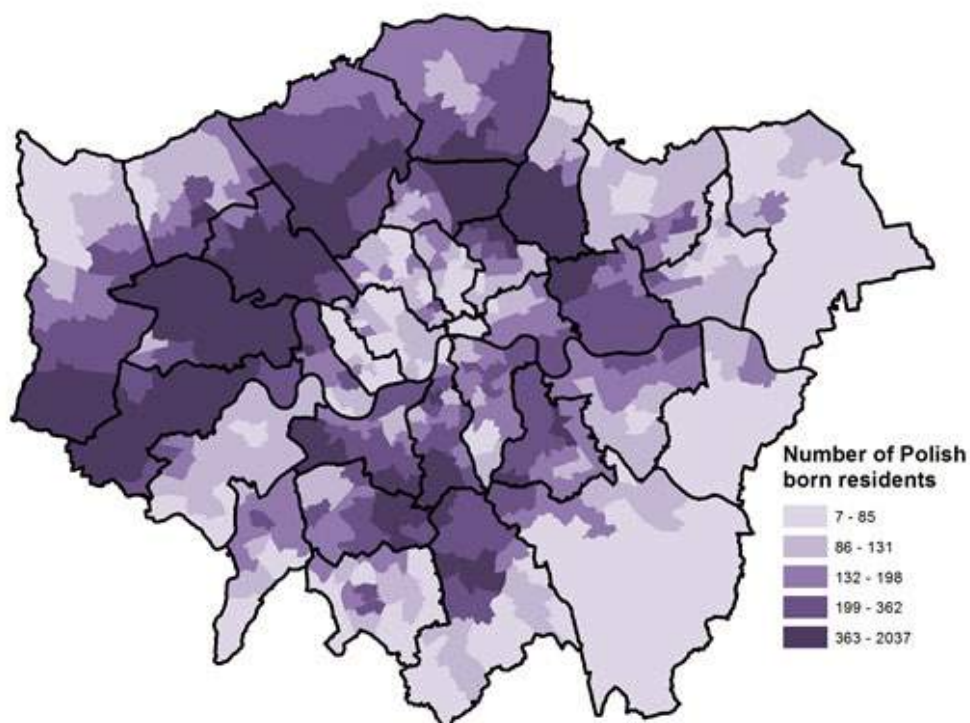


*Source: ONS Census 2011*

The majority (69.2 per cent) of residents born in Poland are aged between 20 and 39 years old and contrasted with 29.5 per cent of UK born residents. Meanwhile, just 3.5 per cent were aged 65 or over in 2011.

The majority of people born in Poland (87 per cent) arrived in the UK between 2001 and 2011, whereas 10 per cent arrived between 1981 and 2001 as shown in Table 8.2.

One-in-four (24.6 per cent) of Polish people in England and Wales (not just London) self-reported that they could not speak English or could not speak English well.

The employment rate for Polish men aged 16-64 years was 87.4 per cent in 2011, which was above that for men born in the UK (74 per cent). The employment rate was lower for women at 77 per cent, but still above that for those born in the UK (67.9 per cent).

The top occupations for men were Skilled Construction & Building Trades (32 per cent), Elementary Administration (11 per cent), and Transport & Mobile Machine Drivers & Operatives (8 per cent) roles.

The top occupations for women born in Poland and residing in London were Elementary Administration & Service (30 per cent), Administrative (8 per cent) and Caring Personal Service (8 per cent) occupations.

Approximately 26.6 per cent of people (16 years and over) born in Poland and living in England and Wales worked in the Distribution, Hotels & Restaurants sector.

Although there is no country breakdown, the percentage of London residents born in EU Accession countries between April 2001 and March 2011 (which includes Poland) with level 4 qualifications was 29.5 per cent in 2011.

### 8.4.1.3 EU member countries in 2001

This group consisted of people born in any country that was a member of the EU in 2001[18]. The majority of those from these countries lived in inner London as shown in Map 8.7.

**Map 8.7: Distribution of pre-2001 EU born residents across London wards in 2011**
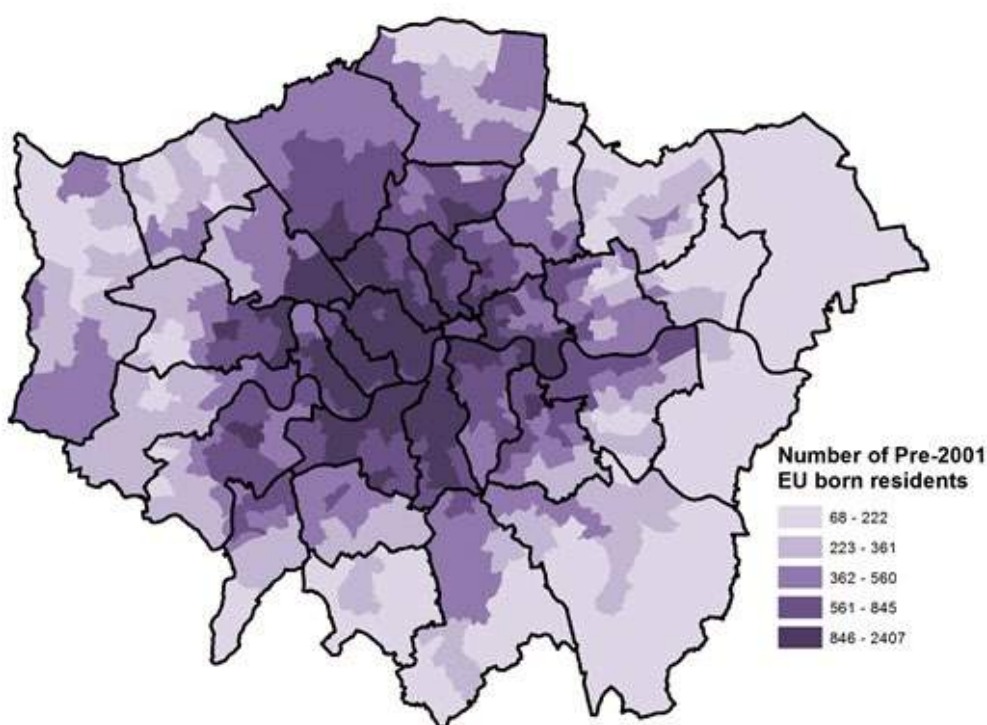


*Source: ONS Census 2011*

The pre-2001 EU born population living in London was predominantly young working people, with 51.3 per cent aged 20 to 39 years. That compared with 29.5 per cent for those born in the UK.

Over half (58 per cent) of people born in pre-2001 EU countries arrived in the UK between 2001 and 2011.

Approximately half (49 per cent) of people born in pre-2001 EU countries and living in England and Wales had English as their main language. In fact, less than 5 per cent self-reported that they could not speak English at all or not well.

In 2011, 79 per cent of men born in pre-2001 EU countries and aged 16-64 years were in employment. The equivalent figure for women was 70.1 per cent.

The top occupations for men were Business, Media & Public Service Professionals (12 per cent) and Corporate Managers & Directors (12 per cent).

The top occupations for women were Elementary Administration (14 per cent) and Business, Media & Public Service Professionals (10 per cent).

There were 26 per cent of people (16 years and over) living in England and Wales born in pre-2001 EU countries working in the Public Administration, Education & Health sectors. A further 24.2 per cent were in the Financial, Real Estate, Professional & Administrative Activities industries.

This is a highly skilled group with over half (50.8 per cent) having level 4 qualifications such as ordinary and higher degrees. By way of comparison, the London average for all countries of birth was 40.4 per cent.

## 8.4.2 Ethnicity

All of the above has made London a city renowned for its diversity. Some 40 per cent of its residents perceived themselves as Black, Asian and Minority Ethnic (BAME) as shown in Figure 8.26. By way of comparison, the figure for the UK as a whole was 13 per cent.

**Figure 8.26: Residents by ethnic group for London and the UK in 2014**
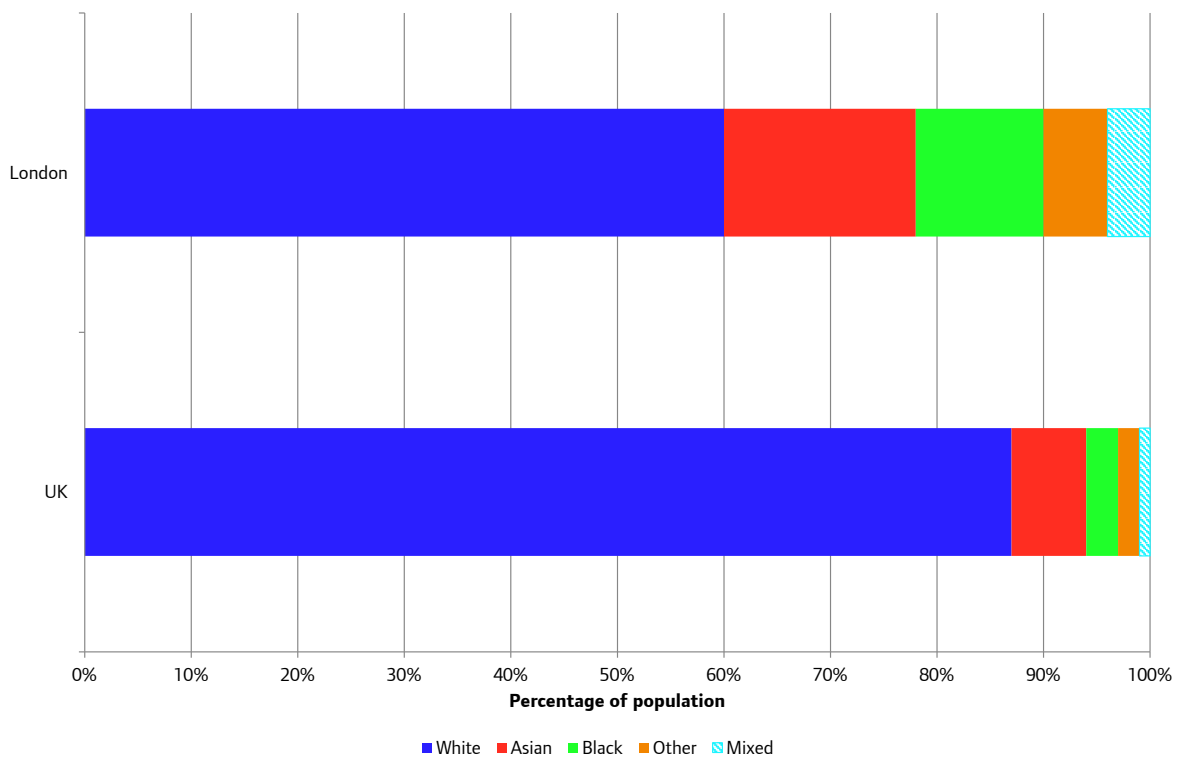


*Source: ONS Annual Population Survey*

Borough breakdowns are possible (Table 8.3), but only using Census data meaning it is not directly comparable with the above.

**Table 8.3: Residents by ethnic group for London boroughs in 2011**

| Borough | White British | White Other | Mixed | Asian | Black | Other |
|---|---|---|---|---|---|---|
| Barking and Dagenham | 49.5% | 8.8% | 4.2% | 15.9% | 20.0% | 1.6% |
| Barnet | 45.5% | 18.6% | 4.8% | 18.5% | 7.7% | 4.9% |
| Bexley | 77.3% | 4.6% | 2.3% | 6.6% | 8.5% | 0.8% |
| Brent | 18.0% | 18.3% | 5.1% | 34.1% | 18.8% | 5.8% |
| Bromley | 77.4% | 6.9% | 3.5% | 5.2% | 6.0% | 0.9% |
| Camden | 44.0% | 22.3% | 5.6% | 16.1% | 8.2% | 3.8% |
| City of London | 57.5% | 21.1% | 3.9% | 12.7% | 2.6% | 2.1% |
| Croydon | 47.3% | 7.8% | 6.6% | 16.4% | 20.2% | 1.8% |
| Ealing | 30.4% | 18.6% | 4.5% | 29.7% | 10.9% | 6.0% |
| Enfield | 40.5% | 20.5% | 5.5% | 11.2% | 17.2% | 5.1% |
| Greenwich | 52.3% | 10.2% | 4.8% | 11.7% | 19.1% | 1.9% |
| Hackney | 36.2% | 18.5% | 6.4% | 10.5% | 23.1% | 5.3% |
| Hammersmith and Fulham | 44.9% | 23.1% | 5.5% | 9.1% | 11.8% | 5.5% |
| Haringey | 34.7% | 25.9% | 6.5% | 9.5% | 18.8% | 4.7% |
| Harrow | 30.9% | 11.4% | 4.0% | 42.6% | 8.2% | 2.9% |
| Havering | 83.3% | 4.4% | 2.1% | 4.9% | 4.8% | 0.6% |
| Hillingdon | 52.2% | 8.4% | 3.8% | 25.3% | 7.3% | 3.0% |
| Hounslow | 37.9% | 13.5% | 4.1% | 34.4% | 6.6% | 3.6% |
| Islington | 47.7% | 20.5% | 6.5% | 9.2% | 12.8% | 3.4% |
| Kensington and Chelsea | 39.3% | 31.4% | 5.7% | 10.0% | 6.5% | 7.2% |
| Kingston upon Thames | 63.1% | 11.4% | 3.9% | 16.3% | 2.5% | 2.7% |
| Lambeth | 39.0% | 18.1% | 7.6% | 6.9% | 25.9% | 2.4% |
| Lewisham | 41.5% | 12.0% | 7.4% | 9.3% | 27.2% | 2.6% |
| Merton | 48.4% | 16.5% | 4.7% | 18.1% | 10.4% | 1.9% |
| Newham | 16.7% | 12.2% | 4.5% | 43.5% | 19.6% | 3.5% |
| Redbridge | 34.5% | 8.0% | 4.1% | 41.8% | 8.9% | 2.7% |
| Richmond upon Thames | 71.4% | 14.5% | 3.6% | 7.3% | 1.5% | 1.6% |
| Southwark | 39.7% | 14.5% | 6.2% | 9.4% | 26.9% | 3.3% |
| Sutton | 70.9% | 7.7% | 3.8% | 11.6% | 4.8% | 1.3% |
| Tower Hamlets | 31.2% | 14.0% | 4.1% | 41.1% | 7.3% | 2.3% |
| Waltham Forest | 36.0% | 16.2% | 5.3% | 21.1% | 17.3% | 4.1% |
| Wandsworth | 53.3% | 18.1% | 5.0% | 10.9% | 10.7% | 2.1% |
| Westminster | 35.2% | 26.4% | 5.2% | 14.5% | 7.5% | 11.1% |
| Inner London | 42.2% | 18.3% | 5.9% | 13.2% | 16.4% | 4.0% |
| Outer London | 46.4% | 13.0% | 4.5% | 21.4% | 11.6% | 3.2% |
| **London** | **44.9%** | **14.9%** | **5.0%** | **18.5%** | **13.3%** | **3.4%** |

*Source: ONS Census 2011*

There are clear spatial trends when looking at London's ethnic groups and these have been changing over time. As shown in Map 8.8, London's White population was most highly concentrated in outer London; its Black population in east London; and its Asian population is west and north-east London.

**Map 8.8: Distribution of ethnic groups across London in 2011**
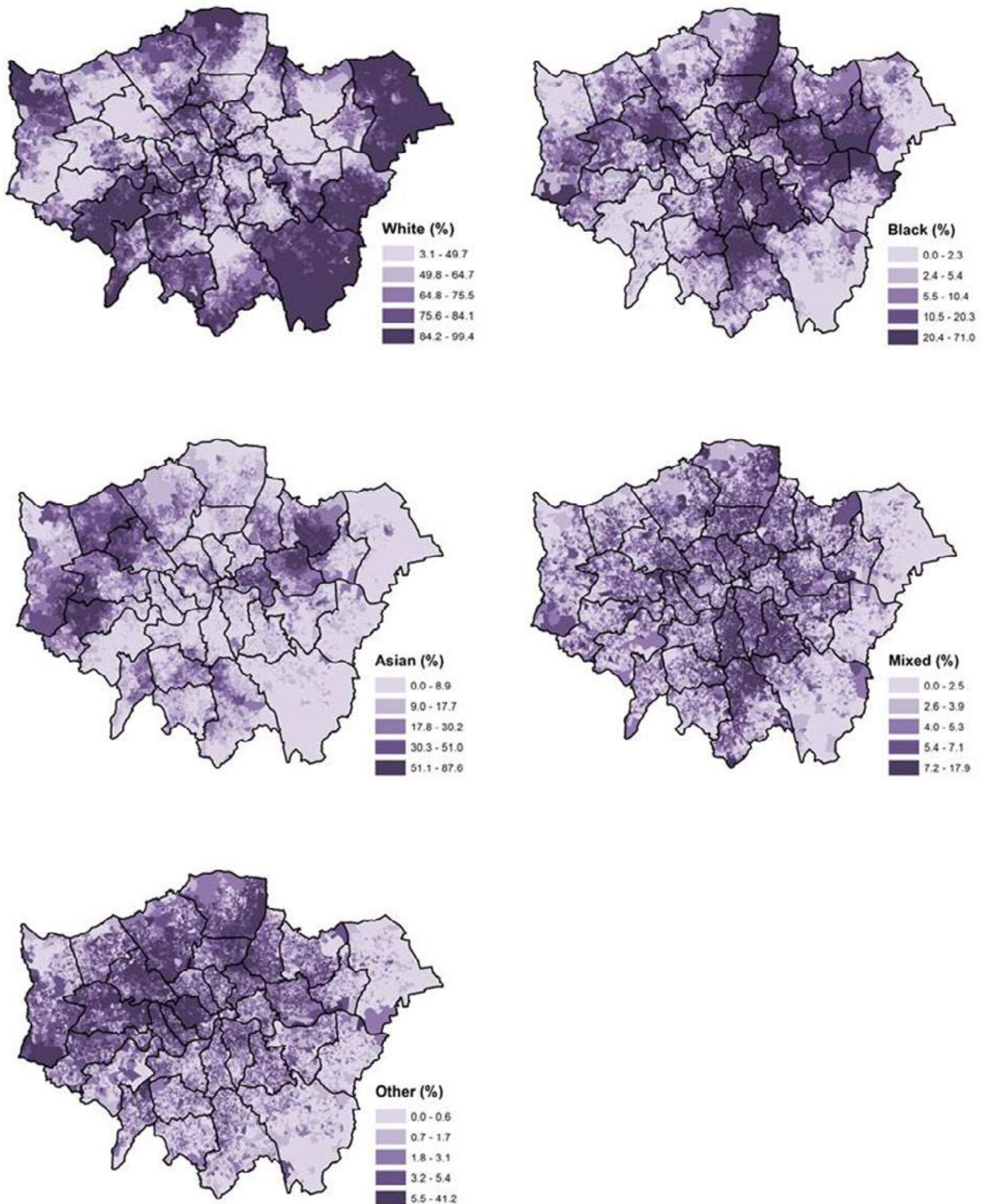


Source: ONS Census 2011

## 8.4.3 Language

In London, 1.7m (or 22 per cent) residents listed a language other than English as their main language. The most common non-English main language was Polish with 148,000 speakers while Bengali, Gujarati, French and Urdu make up the other top five languages (Figure 8.27).

**Figure 8.27: Most spoken non-English main languages in London in 2011**
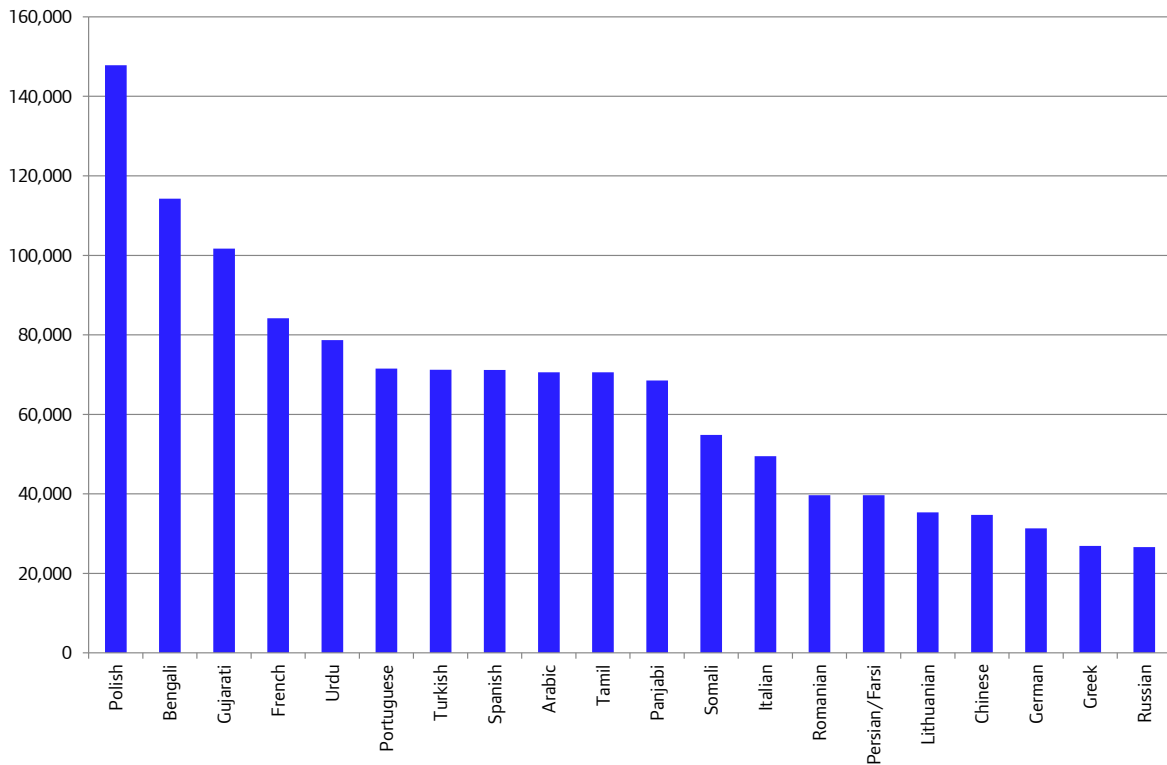


*Source: ONS Census 2011*

The 2011 Census counted that one-in-ten (some 300,000) of London's foreign born population self-reported that they cannot speak English well or at all. An additional 20,000 UK born Londoners also faced this problem meaning 320,000 or 4 per cent of London's population cannot speak English well or at all.

## 8.5 Households

The vast majority of Londoners lived in private households – 8.1m of the total of 8.2m residents counted at the time of the 2011 Census lived in 3.3m households, equivalent to 99 per cent of the population. The remaining 1 per cent of Londoners lived in communal establishments[19].

The average household size for London was 2.47 in 2011, up from around 2.4 in 2001. That was the largest of any region in England and Wales, with the national average at 2.36. However, London is a city of contrasts and includes the local authorities with both the lowest and highest average household sizes in the UK.

The City of London and Kensington & Chelsea were the only two authorities in England and Wales where there were fewer than two residents per household on average (1.64 and 1.99 respectively), while Westminster sat just above at 2.02. At the other end of the scale, Newham was the only local authority where the average was greater than three residents per household at 3.01 (Figure 8.28).

**Figure 8.28: Average household size by London borough in 2011**
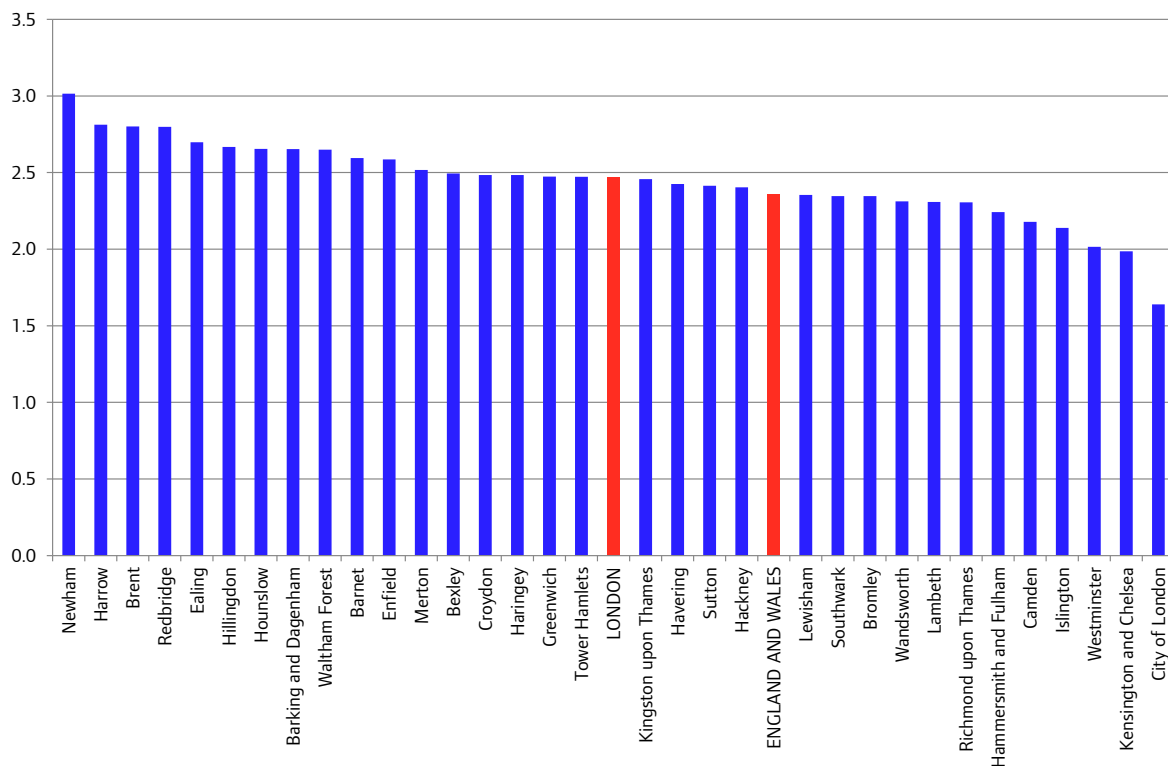


*Source: ONS Census 2011*

## 8.5.1 Household composition

Approximately one-in-three households in London (31.6 per cent) were made up of just one person while 36.7 per cent were couple households (Figure 8.29). The proportion of one person households was similar to the national average (30.2 per cent). However, by age, only 30 per cent of those living alone in London were aged 65 or over compared to the national figure of 40 per cent.

**Figure 8.29: Composition of London households in 2011**



- One person households
- Couple households without dependent children
- Couple households with dependent children
- Lone parent households with dependent children
- Other households with dependent children
- Other
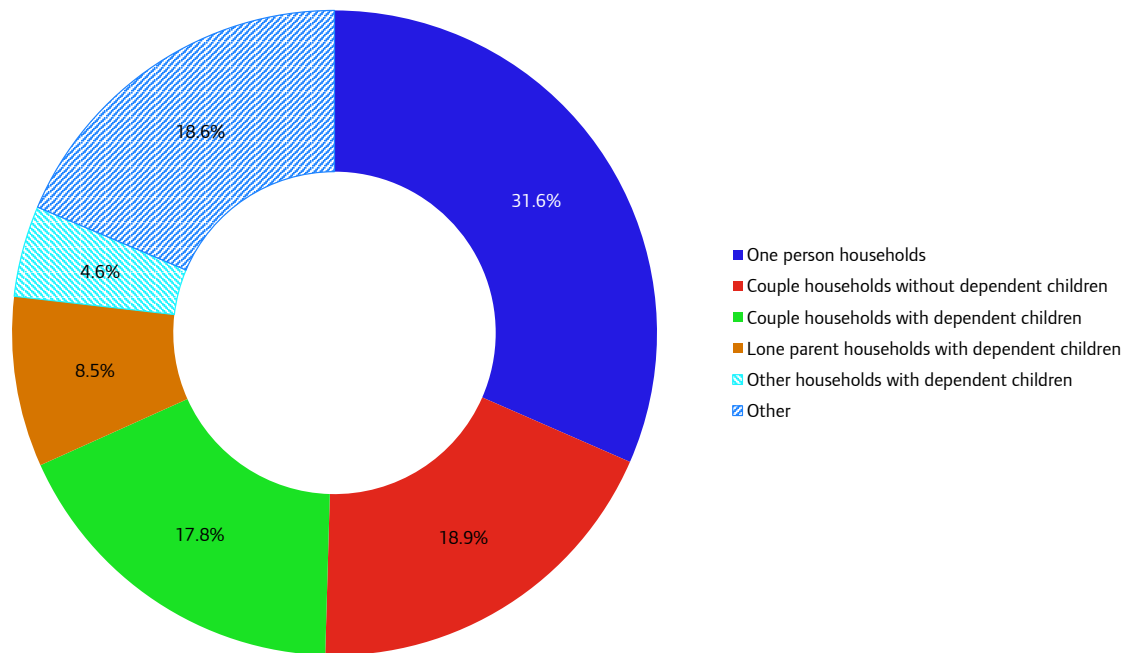
*Source: ONS Census 2011*

Some 30.9 per cent of households contained at least one dependent child. Moreover, 74.4 per cent of parents in couple families were working compared to 53 per cent of lone parents (Figure 8.30). The national figures were 80 per cent for couple families and 59 per cent for lone parents.

Not only were lone parents less likely to be in employment than parents in a couple, but they were less likely to work full-time. For example, 49.3 per cent of lone parents in employment worked full-time compared to 69.9 per cent of parents in couple families. More discussion on the economic activity of parents is given in Chapter 9.

**Figure 8.30: Economic activity of parents by family type for London in 2011**
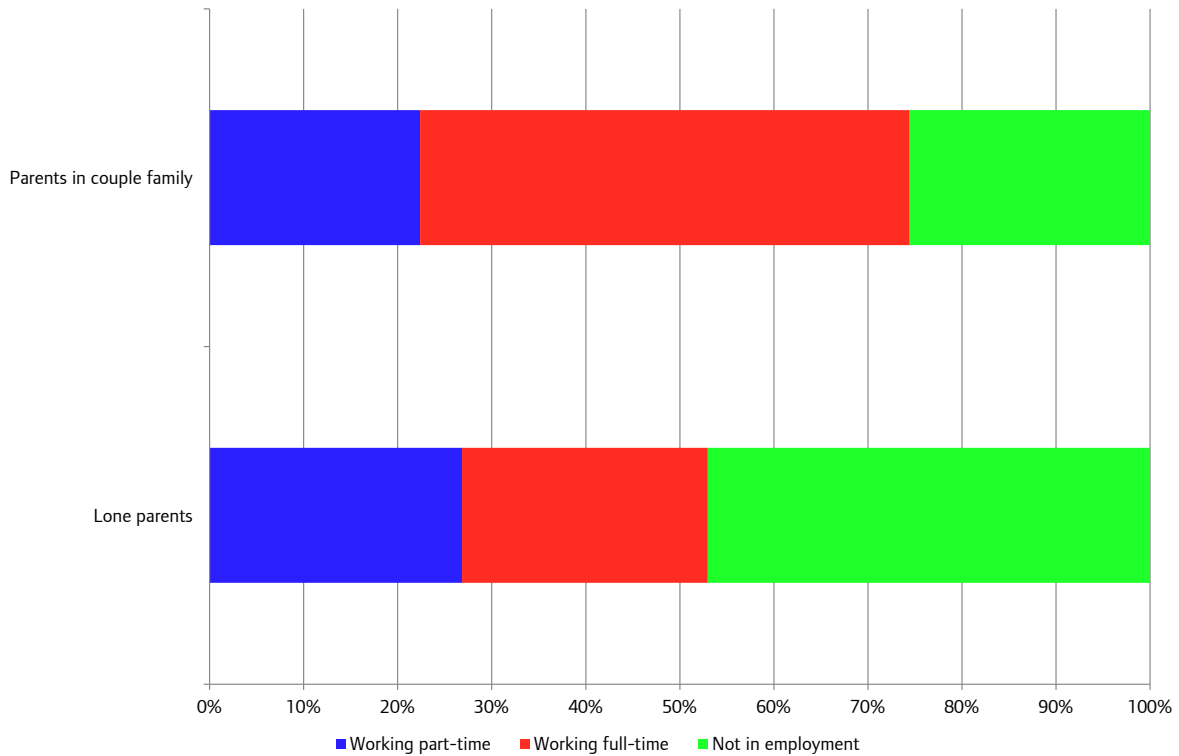


Source: ONS Census 2011

## 8.5.2 Tenure

Figure 8.31 shows that between 1961 and 1981, both owner occupation and social renting were in the ascendency. Because of this, by 1981, private renting was the least common form of housing tenure with just 15 per cent of households in London in private rent. However, since then, the social rented sector has been shrinking while the private rented sector has had a recent resurgence and, in 2011, overtook social rented as the second most common tenure in London.

**Figure 8.31: Housing tenure in London, 1961 to 2011**
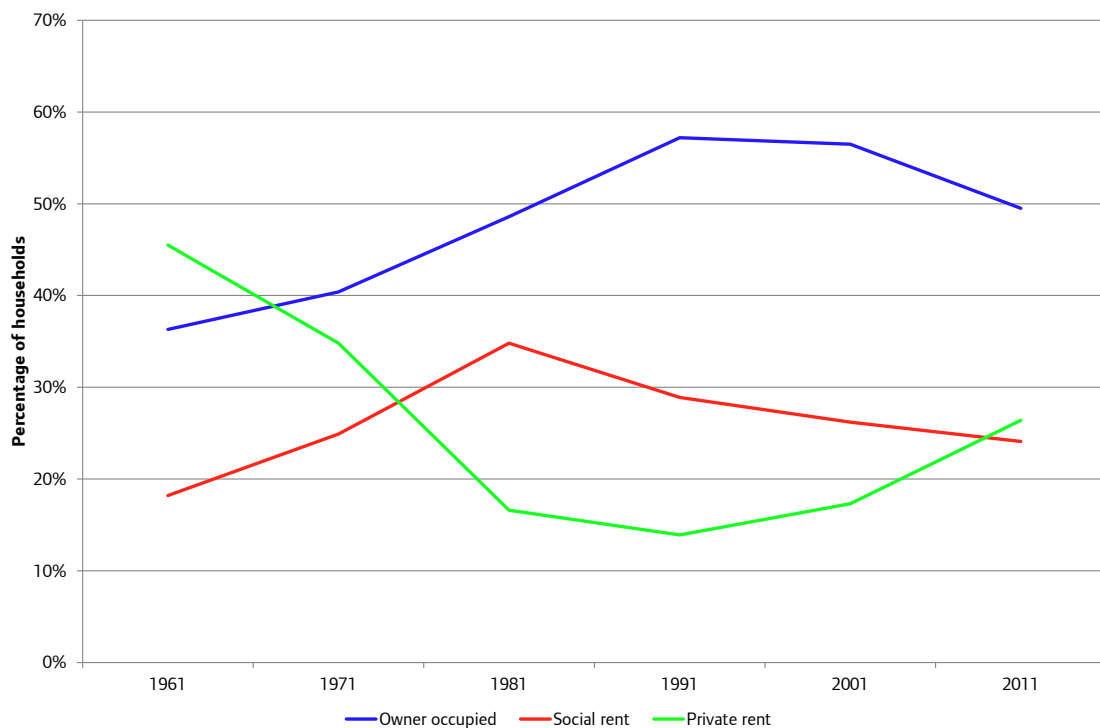


Source: ONS Census 1961 to 2011

Comparing London's most recent Census figures to the national average (Figure 8.32 and Table 8.4); owner occupation was much less common in the capital with a higher proportion renting their accommodation instead.

**Figure 8.32: Housing tenure in London and England & Wales, 2011**
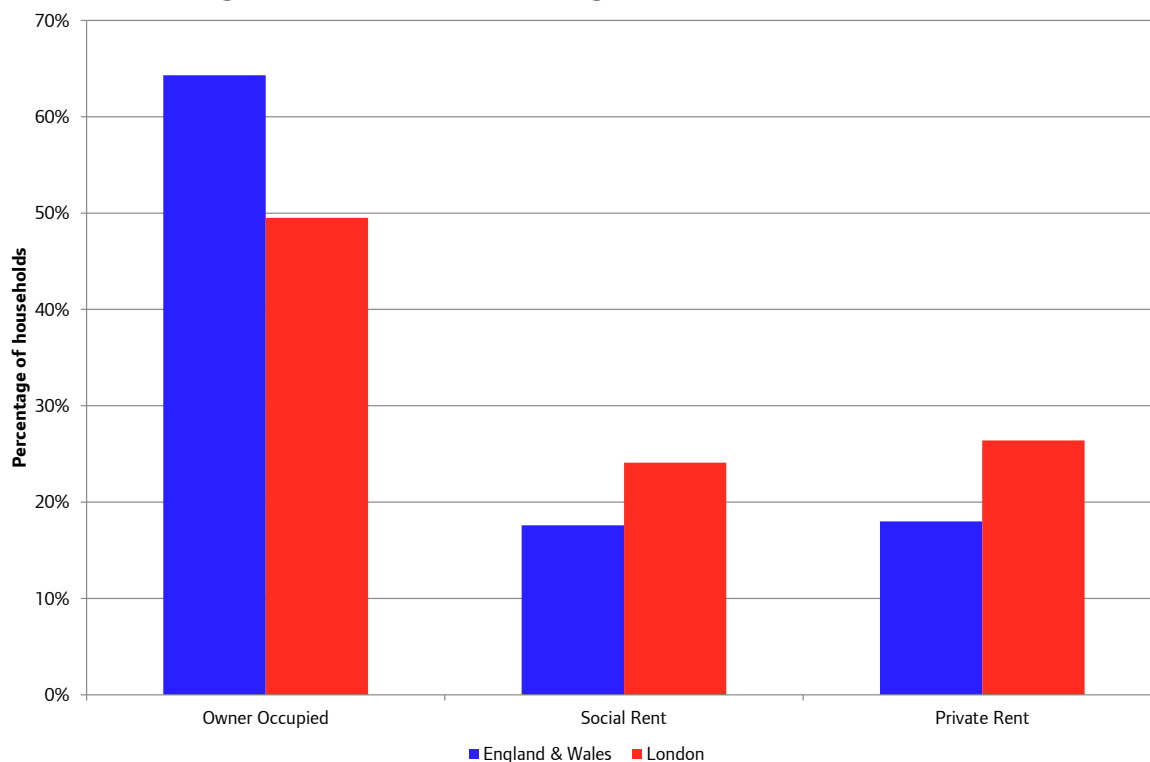


*Source: ONS Census 2011*

**Table 8.4: Housing tenure in London and England and Wales in 2011**

| Area | Total Households | Owner Occupied | | Social Rent | | Private Rent | |
|---|---|---|---|---|---|---|---|
| London | 3,266,173 | 1,618,315 | 50% | 785,993 | 24% | 861,865 | 26% |
| England and Wales | 23,366,044 | 15,031,914 | 64% | 4,118,461 | 18% | 4,215,669 | 18% |

*Source: ONS 2011 Census*

Owner-occupied households were more common in outer London, whilst both private and social rented households were more prevalent in inner London as shown in Map 8.9.

Havering was the borough with the highest proportion of owner-occupied households (74 per cent); Southwark and Hackney were the boroughs with the highest proportion of social rented households (both 44 per cent); and Westminster had the highest proportion of private rented households.

**Map 8.9: Variations in tenure of households across London in 2011**
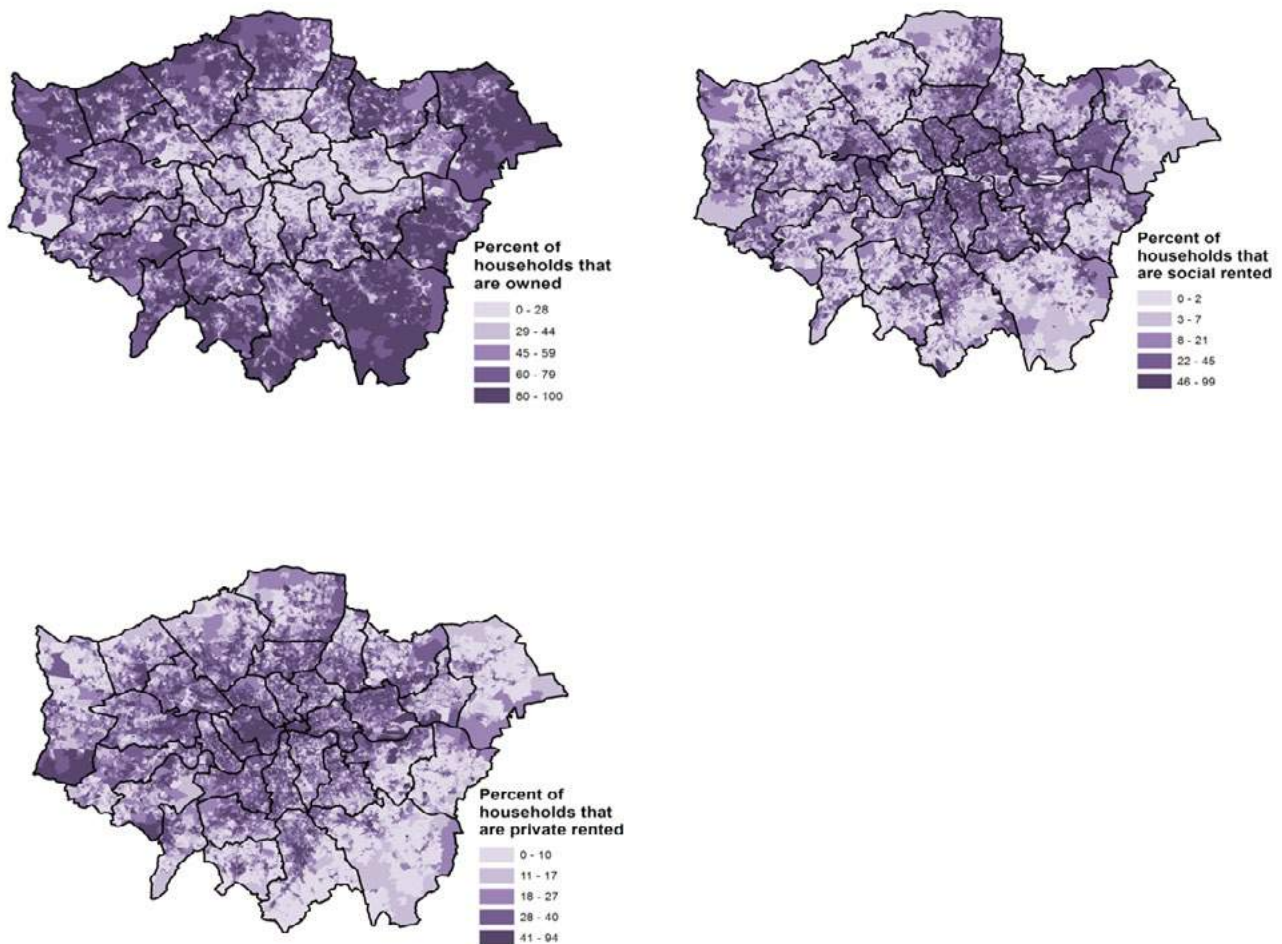


Source: ONS Census 2011

Approximately 12 per cent of households in London moved house within the last year (including those moving to London from elsewhere) according to the English Housing Surveys covering the 2010-11 to 2012-13 periods. A further 18 per cent had lived in their current home for 5-9 years, 20 per cent for 10-19 years and 22 per cent for more than 20 years. The most common reasons given by households in London for moving house were to move to a better area, to a larger home or for job related reasons.

Mobility was far higher in the private rented sector where 33 per cent of households had moved in the past year, compared with 6 per cent of social renting households and 3 per cent of owner occupiers (Figure 8.36). Although London's mobility trends by tenure were similar to that for the rest of England, London had a higher overall mobility rate due to its larger private rented sector.

**Figure 8.33: Length of time in current home by tenure for London in 2012-13, three-year average**
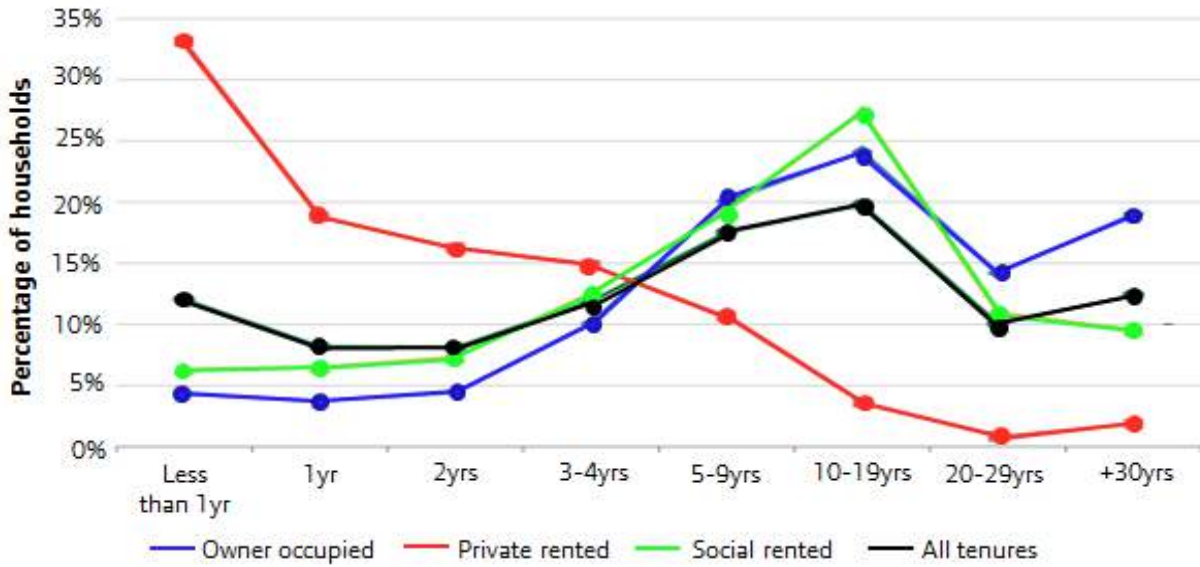


*Source: English Housing Survey. Taken from GLA (2015). Housing in London 2015*

## 8.5.3 Household projections

London's number of total households is projected to grow by 32.6 per cent between 2015 and 2041. This would mean 1.1m more households in the capital bringing the total to 4.6m by 2041 (Figure 8.34).

**Figure 8.34: Total projected households, London, every ten years between 1961 and 2041**
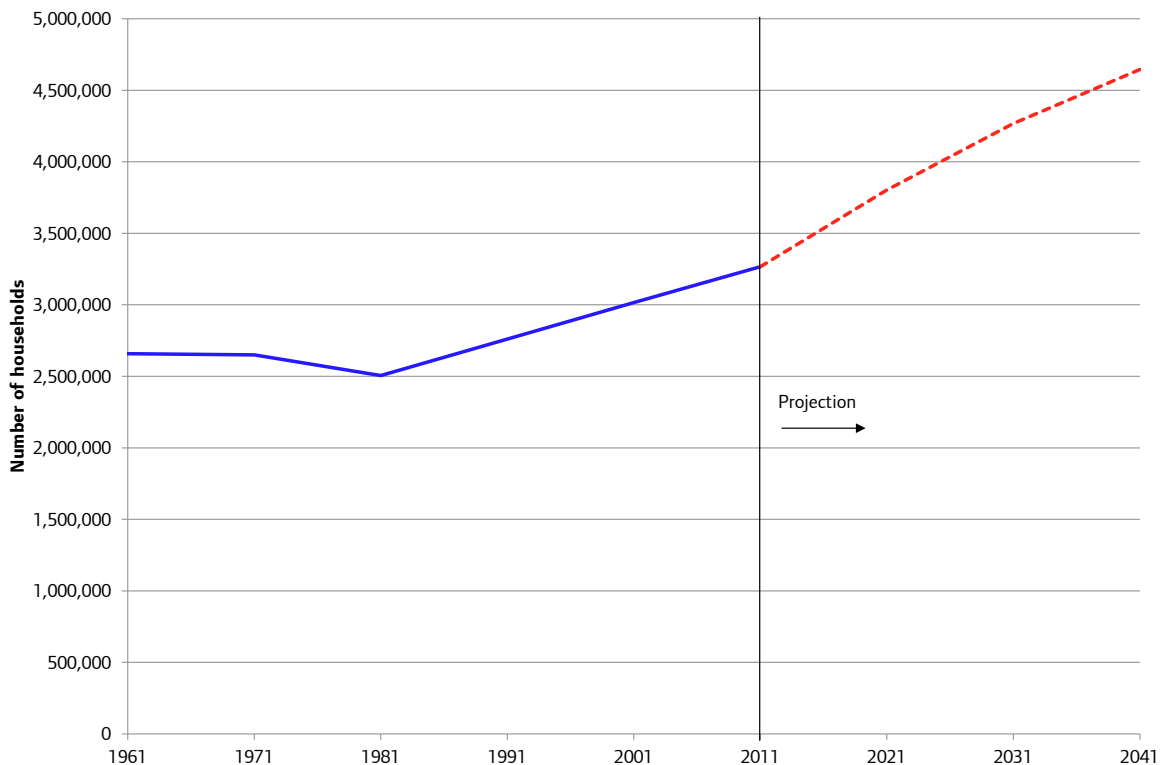


*Source: ONS Census (historic data), GLA 2015 round trend-based household projections (long-term migration scenario)*

The projected increase in household numbers in London is partly due to decreasing average household size. By 2041, it is projected that the average household in London will consist of 2.23 people falling from the 2015 projection of 2.44 (Figure 8.35).

**Figure 8.35: Projected average household size, London, 1961 to 2041**
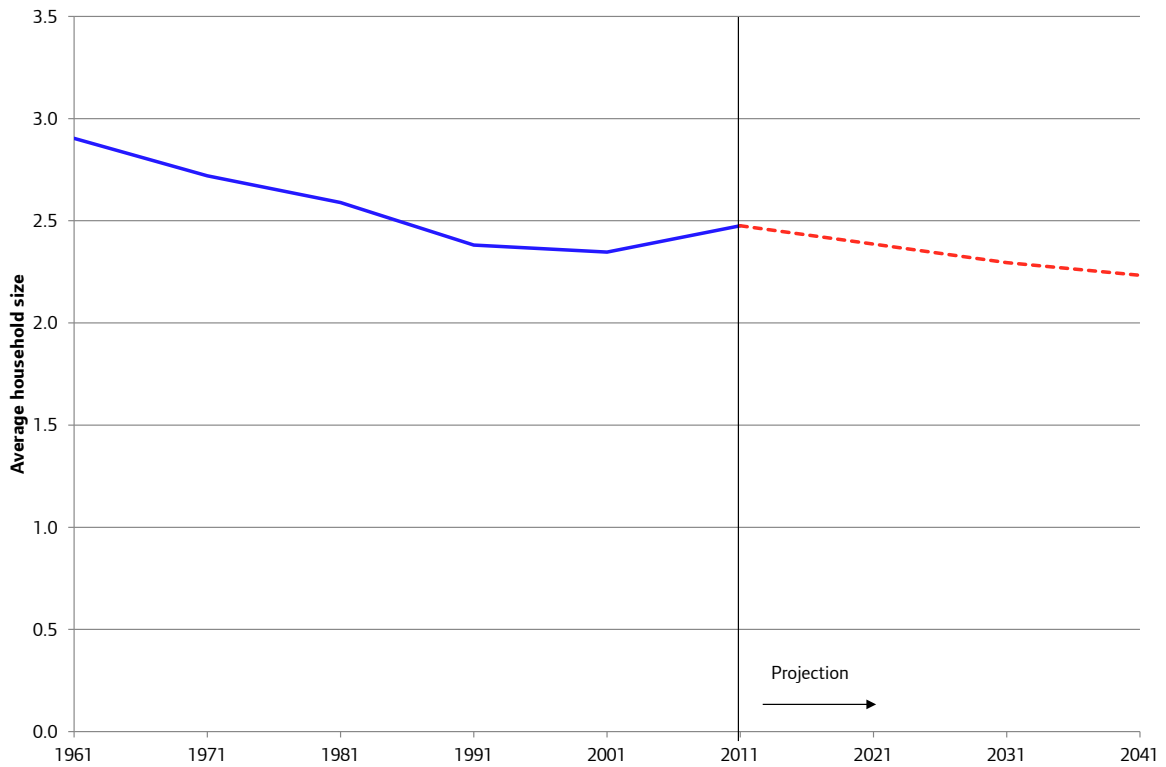


*Source: ONS Census (historic data), GLA 2014 round trend-based household projections (long-term migration scenario)*

## 8.6 Commuters and tourists

Whilst 8.7m people lived in London in 2015, London's workday population grows as a result of commuters flooding in for work and international and domestic tourists coming to visit.

Data from the Census 2011 suggested that 795,100 people aged 16 years and over work – but do not live – in London. Offsetting this are people living in London but working in other parts of the UK, which was estimated at 273,700 in 2011. This means that London sees an overall net inflow of 521,400 commuters. Westminster & City of London (824,500 people) and Camden (164,100 people) see the largest net inflow of commuters. In contrast, Wandsworth sees the biggest net outflow of commuters of around 60,700 people, though this could be to other London boroughs. This can be seen in Figure 8.36 which shows the workplace population and the number of usual residents in employment by borough.

**Figure 8.36: Net commuting by London borough in 2011, 16 years and above**
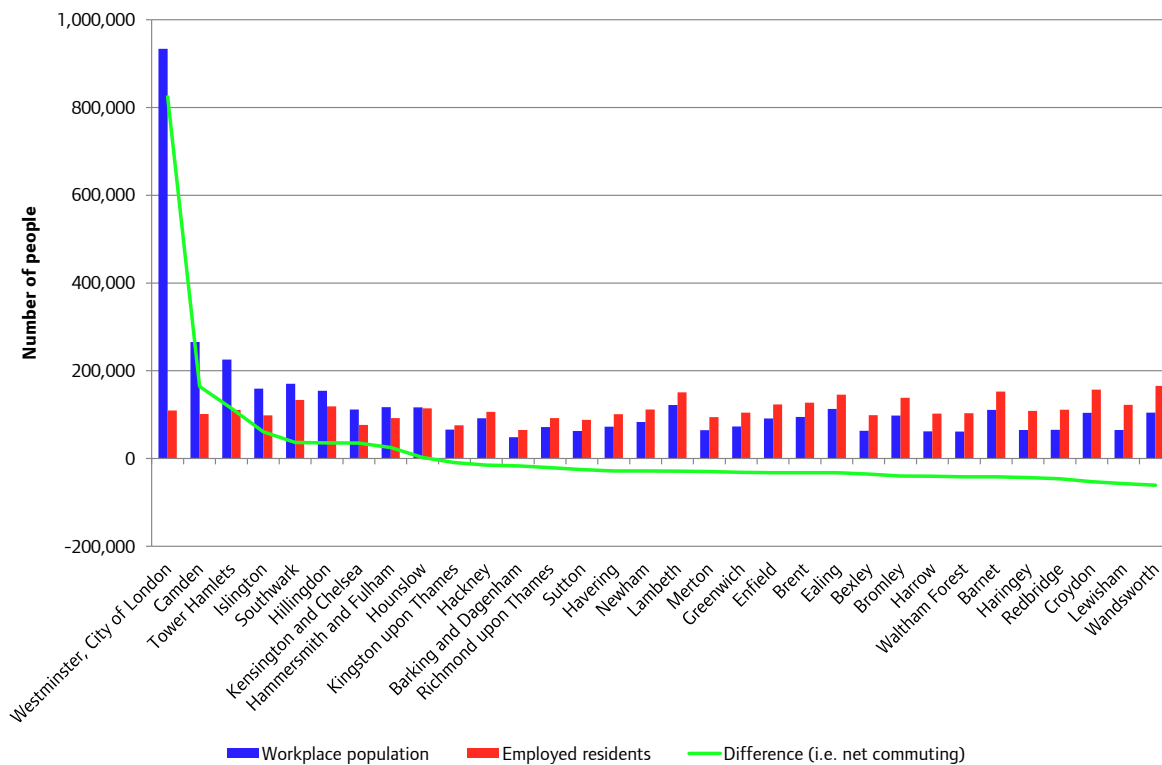


*Source: ONS Census 2011*

Meanwhile, London sees 1.1m tourists[20] – whether they are international, domestic overnight and domestic day visitors – on any given day. Therefore, this all means that the number of people in London could rise from 8.7m residents to 10.3m in total (Figure 8.37).

**Figure 8.37: Estimates of London's workday population in 2015**



Residents ■ Commuters (net) ■ International visitors ■ Domestic overnight visitors ■ Domestic day visitors
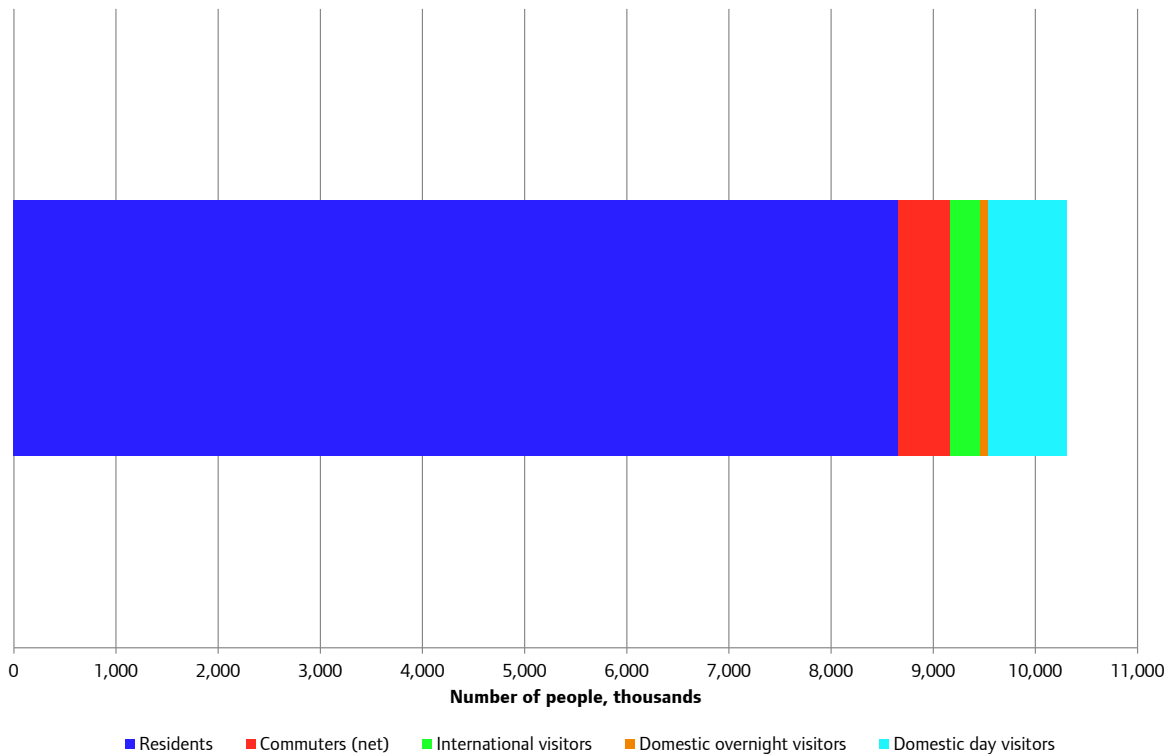
*Source: Note: Commuters refer to 2011.*
*Source: GLA Intelligence 2015 mid-year population estimates, ONS Census 2011, ONS International Passenger Survey, Visit Britain GB Tourism Survey, Visit Britain GB Day Visits*

When looking at the place of usual residence of London workers, one-in-six people working in London actually lived outside of its boundaries in 2011 (Figure 8.38).

**Figure 8.38: Place of usual residence of London workers in 2011**



■ Live & work in same borough ■ Live & work elsewhere in London ■ Live outside London
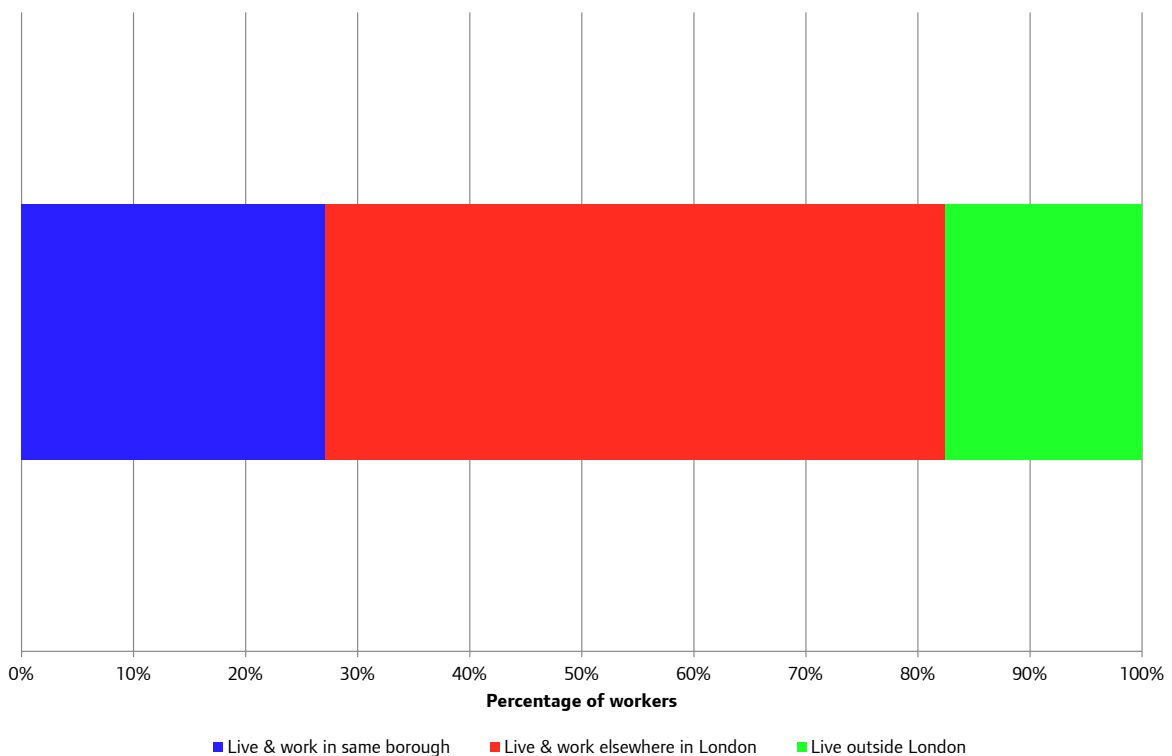
*Source: ONS Census 2011*

There were some significant differences between these populations. For a start, those who lived in London tend to be younger than those who commute in as shown in Figure 8.39.

**Figure 8.39: Age of workers in London by place of residence in 2011**
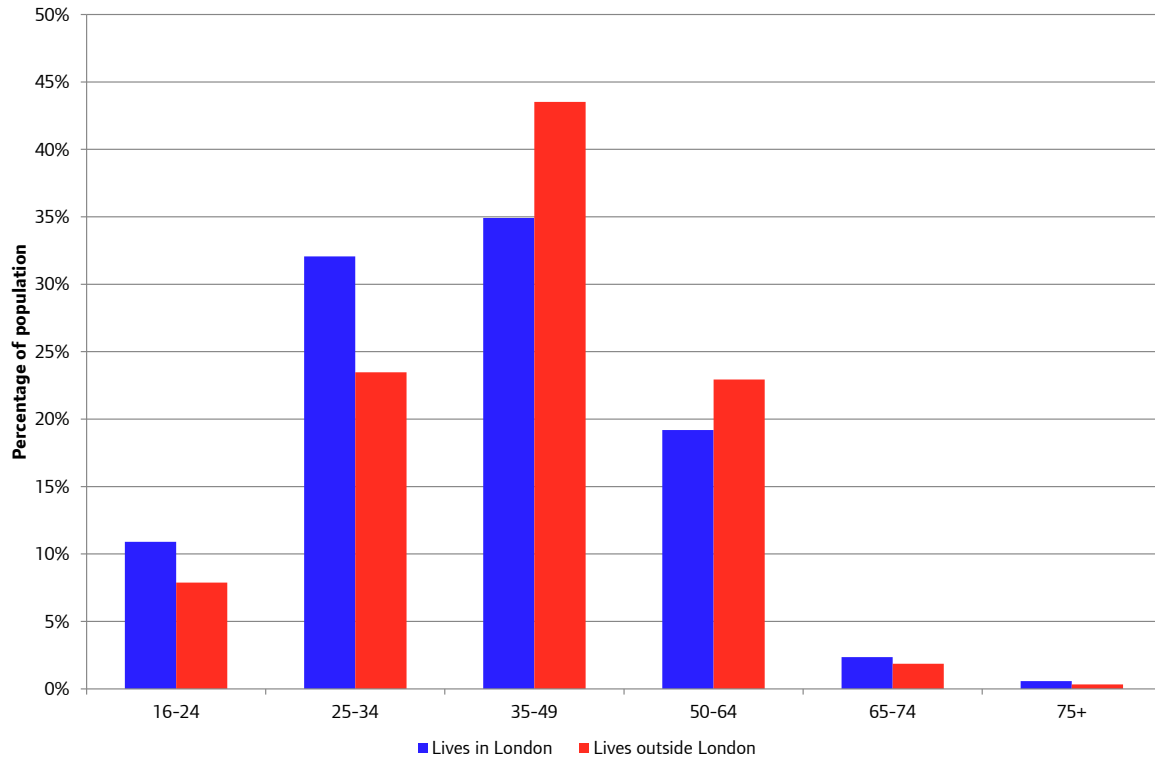


*Source: ONS Census 2011*

Finance & Insurance was the industry with the highest proportion of workers commuting into work from outside London (28.7 per cent) as shown in Figure 8.40. Meanwhile, the Accommodation and Food Services industry had the smallest proportion (7.2 per cent).

The Education industry saw the highest proportion both living and working in the same borough (40.8 per cent), while Finance & Insurance was the least likely industry for people to live and work in the same borough with just 14.4 per cent doing so.[21]

**Figure 8.40: Place of residence of London workers by industry in 2011**
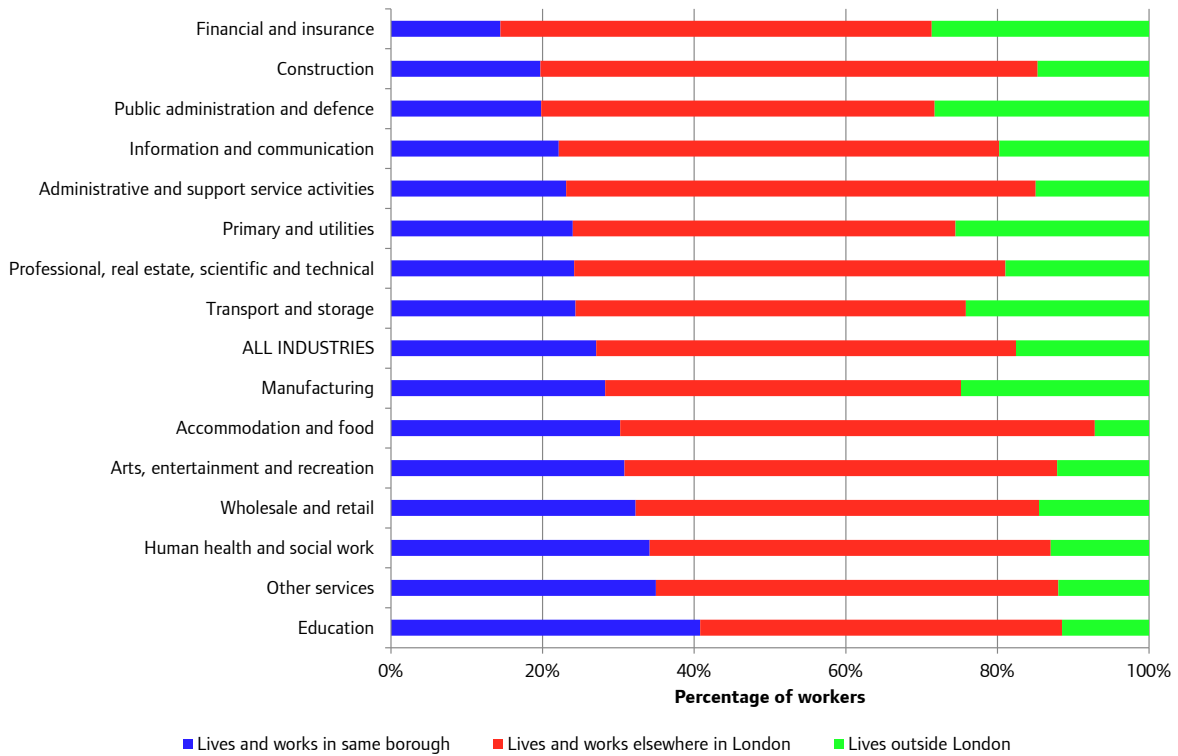


Note: Data includes those working at no fixed point as working elsewhere in London. Similarly, those reported to mainly work from home are assumed to work in the same borough (irrespective of where the employer is based).
Source: ONS Census 2011

Figure 8.41 shows that the workplace populations of Westminster & City of London, Camden and Tower Hamlets were all far larger than their usual resident populations. On the other hand, the workplace populations of outer London boroughs such as Barking & Dagenham, Sutton and Bexley see the opposite trend with comparably larger resident populations.

**Figure 8.41: Workplace and working age resident populations by London borough**
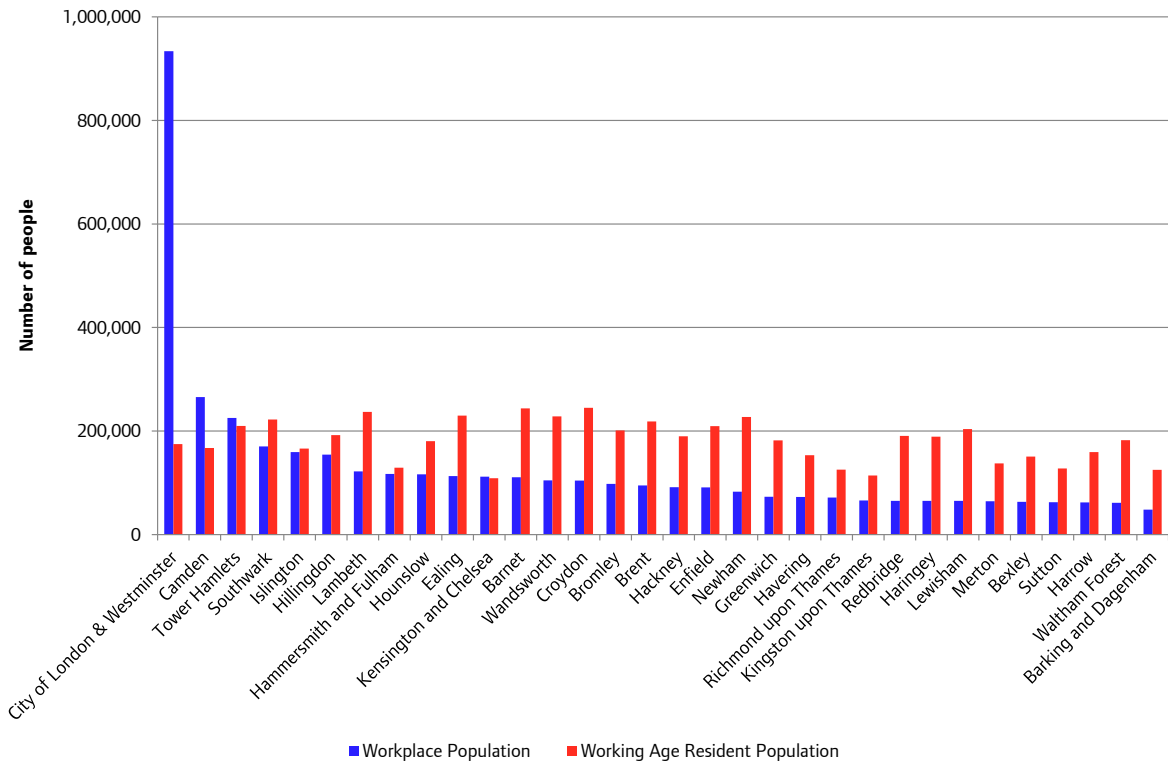


Note: Workplace population refers to 2011 and resident population refers to 2014.
Source: ONS Census 2011, GLA Intelligence 2015 mid-year population estimates

# Chapter 8 endnotes

1 Population of Austria, 2015: 8,623,073 (Source: Statistik Austria)
 Population of Switzerland, 2015: 8,279,700 (Source: Swiss Federal Statistical Office)

2 Greater London Plan 1944, Sir Leslie Patrick Abercrombie

3 Disability-free life expectancy (DFLE) estimates lifetime free from a limiting persistent illness or disability. This is based upon a self-rated assessment of how health limits an individual's ability to carry out day-to-day activities and, therefore, DFLE estimates are in part subjective.

4 Based on the GLA 2015 round trend-based population projections (long-term migration scenario). This bases the volume of migration flows on estimates for the period mid-2003 to mid-2014. Age and sex characteristics of domestic flows are based on a combination of origin-destination data from both the 2001 and 2011 Censuses. The GLA's trend-based projections use a cohort-component model which projects forward on the basis of recent trends in fertility, migration and mortality. It also includes assumptions about how these trends will change in future, e.g. life expectancy will continue to rise. While no development data is used in the model, past development influences the previous migration trends that are used to project forward. As such, this model implicitly assumes that recent development trends will continue in the future. Further details on the methodology can be found in Update 02-2016 http://data.london.gov.uk/dataset/2015-round-population-projections/resource/8cb45509-626e-4845-acb0-f36383fc5704

5 For example, see the Conservatives' manifesto 2015: https://www.conservatives.com/manifesto

6 Prime Minister's Office (2016). PM statement in Berlin, 20 July 2016. Available at: https://www.gov.uk/government/news/prime-minister-theresa-mays-statement-in-berlin-20-july-2016

7 The school-age population is taken to be those age 4 to 15 inclusive.

8 Primary school is taken to be children age 4 to 10 inclusive.

9 Secondary school is taken to be children age 11 to 15 inclusive.

10 The working-age population is taken to be those age 16 to 64 inclusive.

11 Fielding, A (1992). Migration and social mobility: South East England as an escalator region, *Regional Studies*, 26, 1, pg.1-15.

12 These figures are based on Long-Term International migrants who are taken by ONS to be those who change their country of residence for at least one year.

13 For a more comprehensive discussion on the differences between the LTIM and NINo see: http://bit.ly/2cgIA0O

14 GLA Economics (2009). Economic impact of an earned regularisation of irregular migrants.

15 Signoa, N & Hughes, V (2012). No way out, no way in: irregular migrant children and families in the UK, COMPAS Research Report.

16 Home Office Migrant Journey (sixth report).

17 Source: ONS APS 2014

18 This includes France, Germany, Italy, Portugal, Spain, Aland Islands, Austria, Belgium, Denmark, Finland, French Guiana, Gibraltar, Greece, Guadeloupe, Luxembourg, Martinique, Netherlands, Reunion, Sweden.

19 A communal establishment is an establishment providing managed residential accommodation; "managed" in this context means full-time or part-time supervision of the accommodation. Types of communal establishment include hotels, hospitals and student accommodation.

20 This is based on data from the ONS International Passenger Survey and Visit Britain's GB Tourism Survey and GB Day Visits. The 'per day' figures have been calculated by dividing the total annual number of visitors to London with the number of days. However, tourism is seasonal, so the estimate should be treated as an average.

21 This analysis excluded anyone with no fixed place of work as there is no way to know whether or not they work in London or not. A large number working in construction had no fixed place of work.

# 9: London's labour market

## 9.1 Key points

- The percentage of London residents who are in work is at record-levels, with the latest estimates showing over 73 per cent in employment in early 2016. That is over six percentage points higher than the lows recorded in 2011 and 2012. Similar trends were recorded for unemployment which, at under 6 per cent, is also at historically low levels.

- Despite the improvement in London's labour market, the employment rate remains below, and the unemployment rate remains above, that for the UK. Nevertheless, these gaps have narrowed in recent years.

- The employment rate gap between London and the UK is in part due to London's unique characteristics, such as its more ethnically diverse and younger population. Other factors that may influence London's employment rate include its share of full-time and part-time jobs and higher living costs that raise the opportunity cost of working.

- The average (median) gross hourly wage was £17.16 for full-time roles and £9.60 for part-time jobs in London in 2015. These compared to £13.36 and £8.48 respectively for the UK. Men had a higher full-time hourly rate than women in London. This pay gap was larger than that for the UK as a whole and was also wider at higher levels of earnings. In contrast, part-time women in London had a higher hourly wage than their male counterparts.

- The percentage of workers in London who were underemployed – that is, individuals who are in work but want to work more hours – was 8.8 per cent in 2015. Underemployment was more prevalent for part-time workers, low-skilled occupations and younger age groups. In contrast, the overemployment rate – that is, the percentage of people who are in work but want to work fewer hours – was estimated at 8.3 per cent. Generally, underemployment has exceeded overemployment in each year since 2009 suggesting that there is, arguably, more spare capacity in London's labour market than indicated by the official unemployment rates.

- Around one-third of employers in London reported staff skills that were under-used in 2015, which was the third-highest rate among the English regions. This, again, could be due to London-specific characteristics, such as London having a larger proportion of migrant workers than England as a whole. For example, analysis suggests that non-UK born individuals who are equally qualified to UK-born employees are less likely to be in high-skilled roles and instead more likely to be in low-skilled jobs. This could be because of employers not recognising the value of overseas qualifications, though this effect should decrease over time. Others suggest it is because of the lower quality of overseas qualifications and the poor transferability of knowledge.

- London's labour market has seen a change in its occupation structure between 2004 and 2015, with an increase in high-skilled and service-orientated jobs, but a decline in middle-skilled, Secretarial & Admin roles.

- The number of young people aged 16-24 who were not in education, employment or training (NEET) was 89,000 in Q1 2016. London had a lower proportion who were NEET than the England average, which could partially be linked to a higher percentage of students achieving at least five A*-C grade GCSEs including English and Maths (60.9 per cent versus 53.8 per cent in 2014-15) – a risk indicator for being NEET.

- Whilst the majority of older people aged 65 and over were retired and therefore economically inactive, 17 per cent of men and 8.9 per cent of women aged over 65 were still in employment in 2015. Half of these did so as they were not ready to stop work, though one-in-five (18.1 per cent) said it was to pay for essential items such as bills. Moreover, older people also participate in the informal labour market by caring for adults, childcare and volunteering.

## 9.2 London's labour market

London's labour market performance over time is shown in Figure 9.1. The latest estimates from the ONS showed over 73 per cent of London residents aged 16-64 years were in employment during early 2016[1]. That was up over six percentage points from the lows recorded in 2011 and 2012.

**Figure 9.1: London's employment rate, residents aged 16-64 years, three-month rolling average, 1992 to 2016**
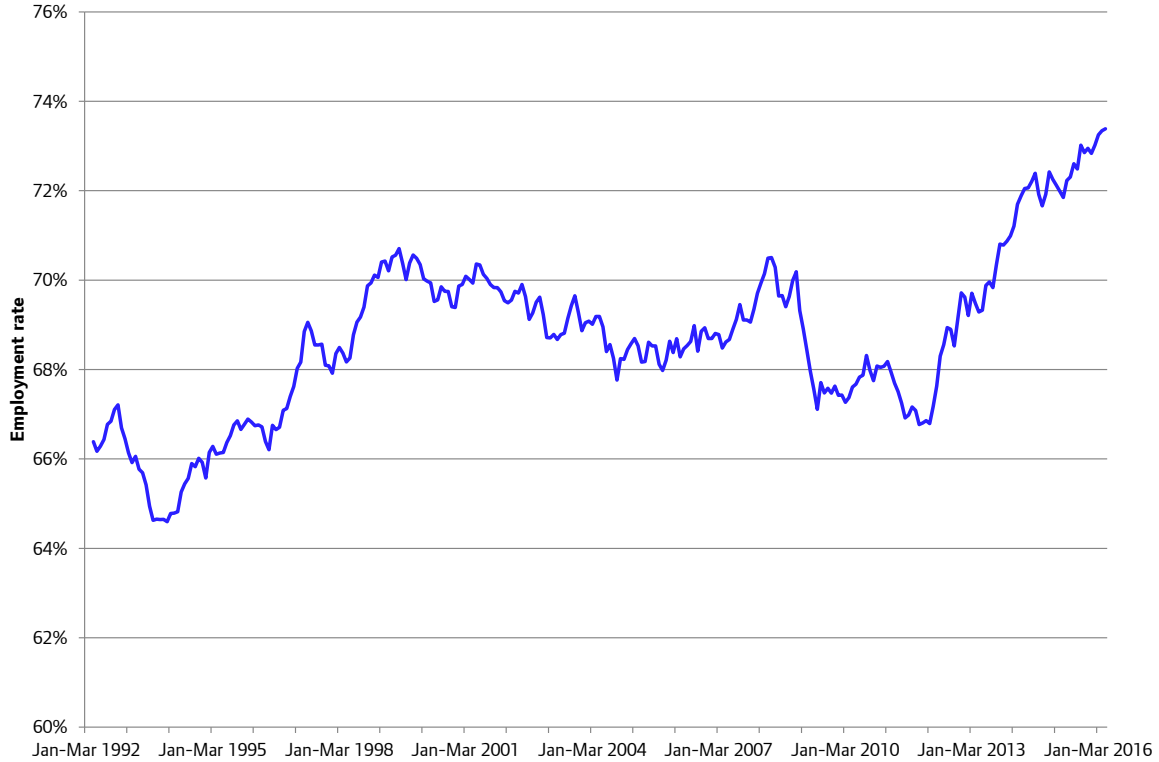


*Source: ONS Labour Force Survey*

Comparably, there were around 277,500 unemployed residents aged 16 years and over[2] in London during early 2016. That gives an unemployment rate of less than 6 per cent, which is at historically low levels for this measure as can be seen in Figure 9.2. The unemployment rate was lower for men (approximately 5.5 per cent) than for women (around 6.4 per cent). Furthermore, by age groups[3], the unemployment rate was highest for the young and generally falls as age increases.

**Figure 9.2: London's unemployment rate, residents aged 16 years and over, three-month rolling average, 1992 to 2016**
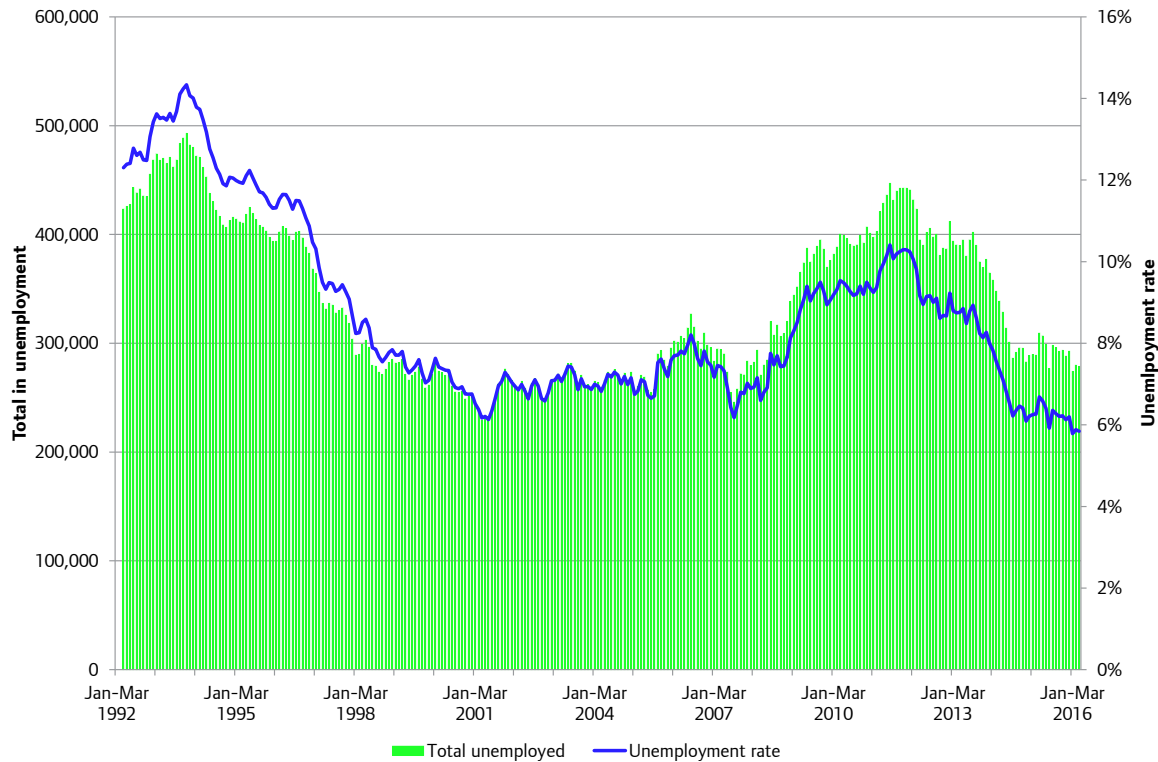


*Source: ONS Labour Force Survey*

A different measure of unemployment is the Claimant count[4]. There were approximately 105,000 people claiming unemployment benefit in London in early 2016. This is the lowest number since the late 1970s. The Claimant count unemployment rate was meanwhile estimated at just under 2 per cent (Figure 9.3). By gender, men had a higher Claimant count unemployment rate than women. Furthermore, approximately one-in-four claimants had been claiming unemployment benefit for more than 12 months[5].

**Figure 9.3: Claimant count unemployment rate in London, seasonally adjusted, 1992 to 2016**
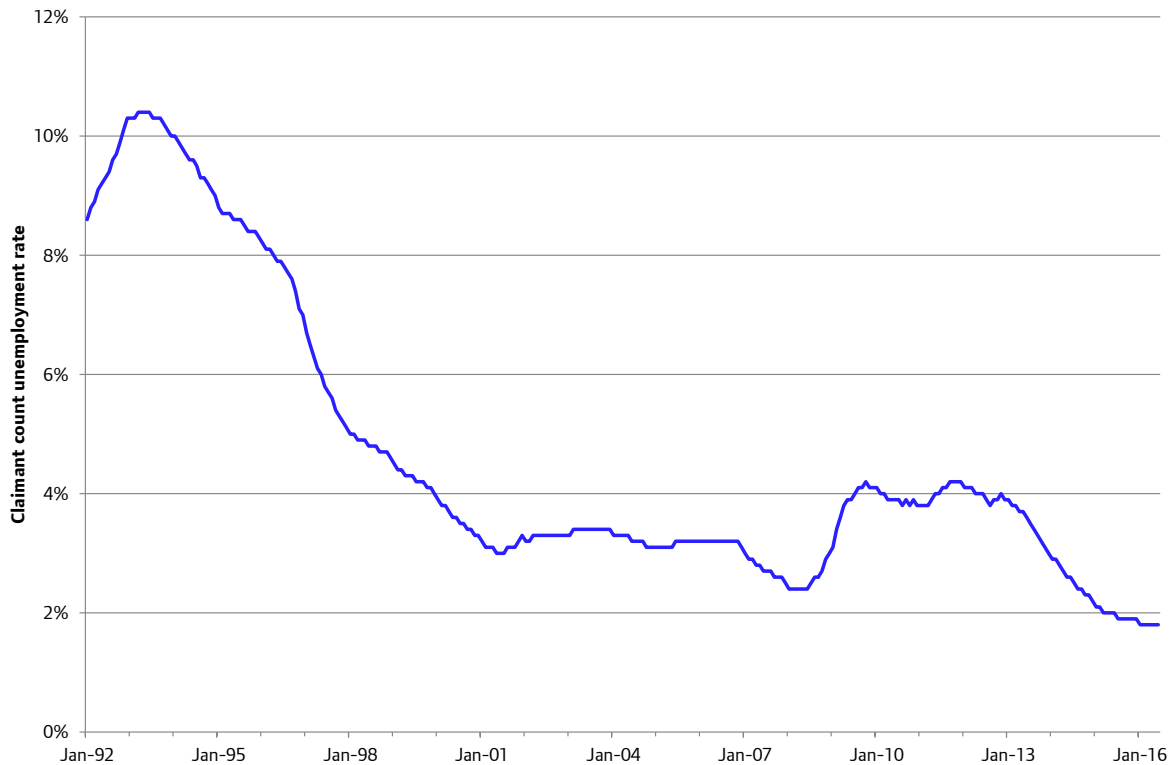


*Note: residence-based proportions*
*Source: ONS Claimant Count*

Another indicator is the number of people who are economically inactive – that is, those who are not seeking or able to start work. In early 2016, the percentage of London residents who were inactive was around 22 per cent (Figure 9.4). The economic inactivity rate has been relatively stable since 1992, although it has fallen in recent years.

**Figure 9.4: Economic inactivity in London, residents aged 16-64 years, three-month rolling average, 1992 to 2016**



*Source: ONS Labour Force Survey*
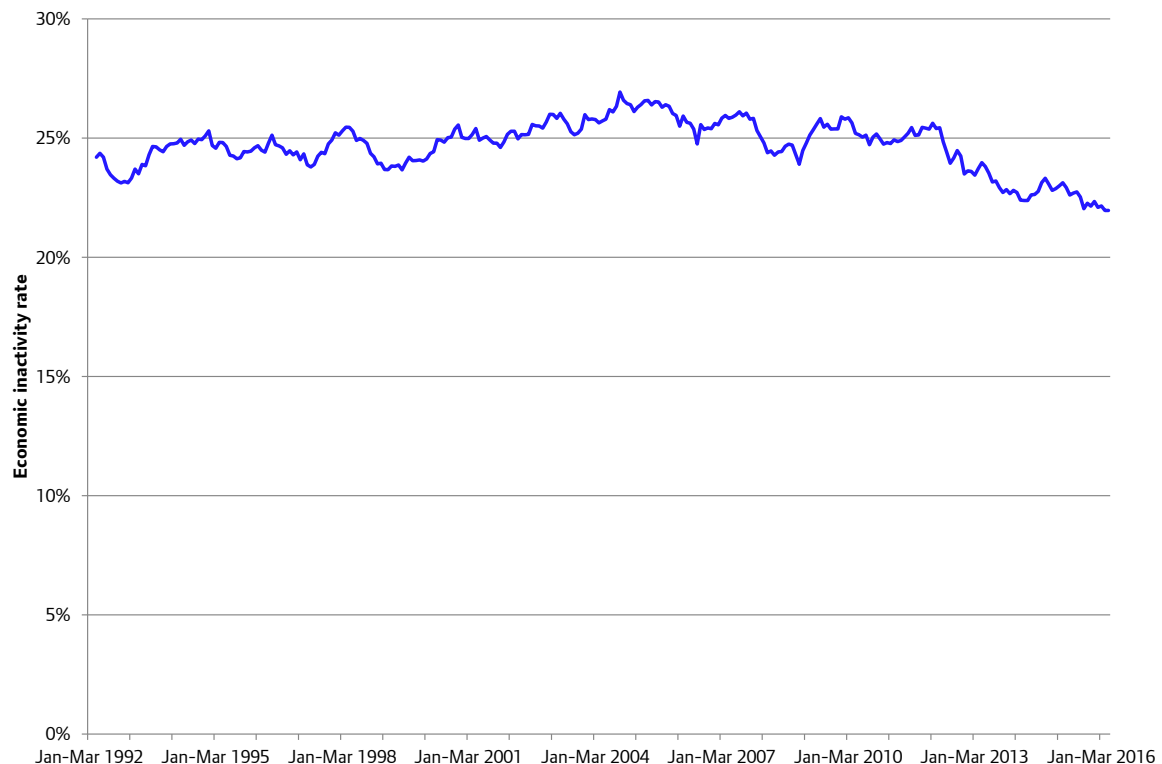
The majority of people of working age (16-64) who were economically inactive in London cited this was because they did not want a job (74.7 per cent)[6]. More detailed breakdowns are shown in Figure 9.5 and indicate that being a student (31.6 per cent) and looking after the family or home (30.3 per cent) were the most commonly reported reasons. Women were more likely to cite looking after the family or home than men (43.3 per cent versus 5.6 per cent).

**Figure 9.5: Reasons for being economically inactive by gender in London, residents aged 16-64 years, January 2015 to December 2015**
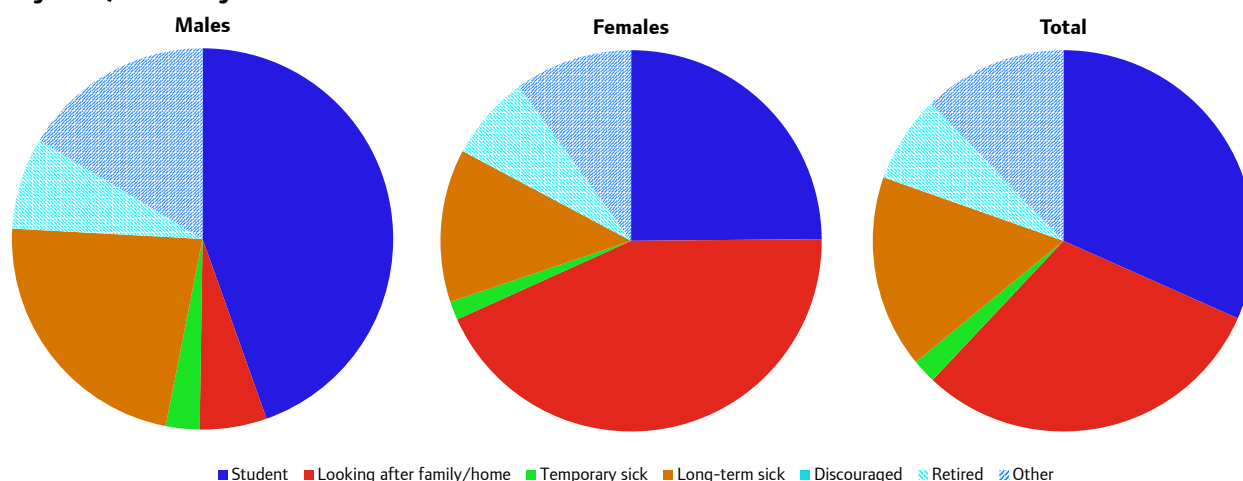


Note: Data has been reweighted in July 2016
Source: ONS Annual Population Survey

When comparing with the year to December 2005, the proportion of economically inactive residents who did not want a job had fallen – 76.4 per cent did not want work in 2005 compared with 74.7 per cent in 2015. Moreover, whilst the most commonly cited reasons for being inactive in 2005 were looking after the family or home (31.1 per cent) and being a student (28.5 per cent), there were proportionally more being either temporarily or long-term sick (19.9 per cent versus 18.3 per cent).

Another labour market breakdown is by employees and those that are self-employed. Most people in London had employee roles (81.4 per cent in 2015), with the remainder largely self-employed (18.1 per cent)[7]. Nonetheless, self-employment has seen a faster rate of growth since 2004 and can partly explain the overall rise in the number in employment in London. For example, whilst employee roles have increased 22.4 per cent since 2004, growth in self-employment has been more than twice as strong at 46.1 per cent (Figure 9.6). At the UK-level, the ONS noted that the rise in self-employment has been greater than that indicated by simple demographics, such as population growth and an aging population[8]. This means that other factors like changes in participation and the propensity of being self-employed have had a bigger impact on self-employment.

**Figure 9.6: Self-employed and employee workers in London, residents, 2004 to 2015**
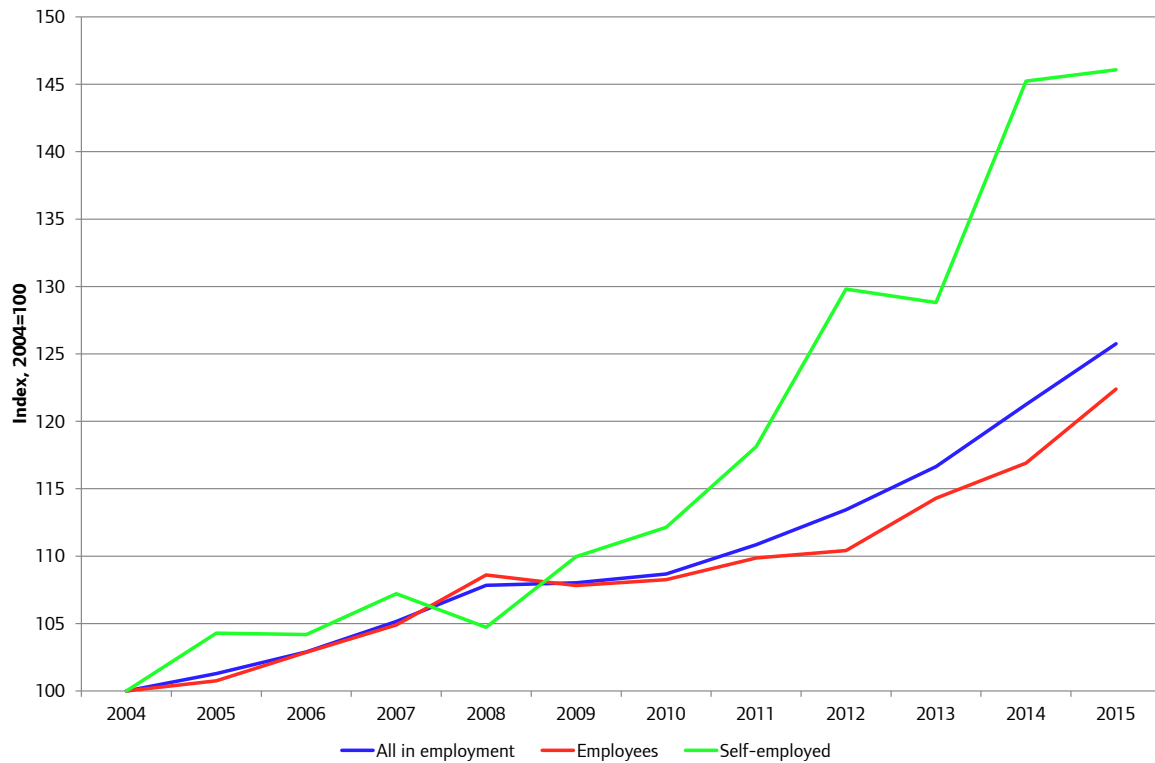


Note: January to December periods and has been reweighted in July 2016
Source: ONS Annual Population Survey

The majority of people who were self-employed in 2015 were aged 25-49 years (64 per cent)[9]. This age group has historically had the largest share of self-employed people. However, in terms of rates of growth, the strongest expansion was for the over 65s with the number of people of this age in self-employment having more than doubled since 2004 (Figure 9.7). Similar trends were observed at the UK-level of which the ONS noted that the increase in self-employment among older workers appears to be related to workers deferring or managing their transition to retirement differently[10].

**Figure 9.7: Self-employment by age groups for London, residents, 2004 to 2015**
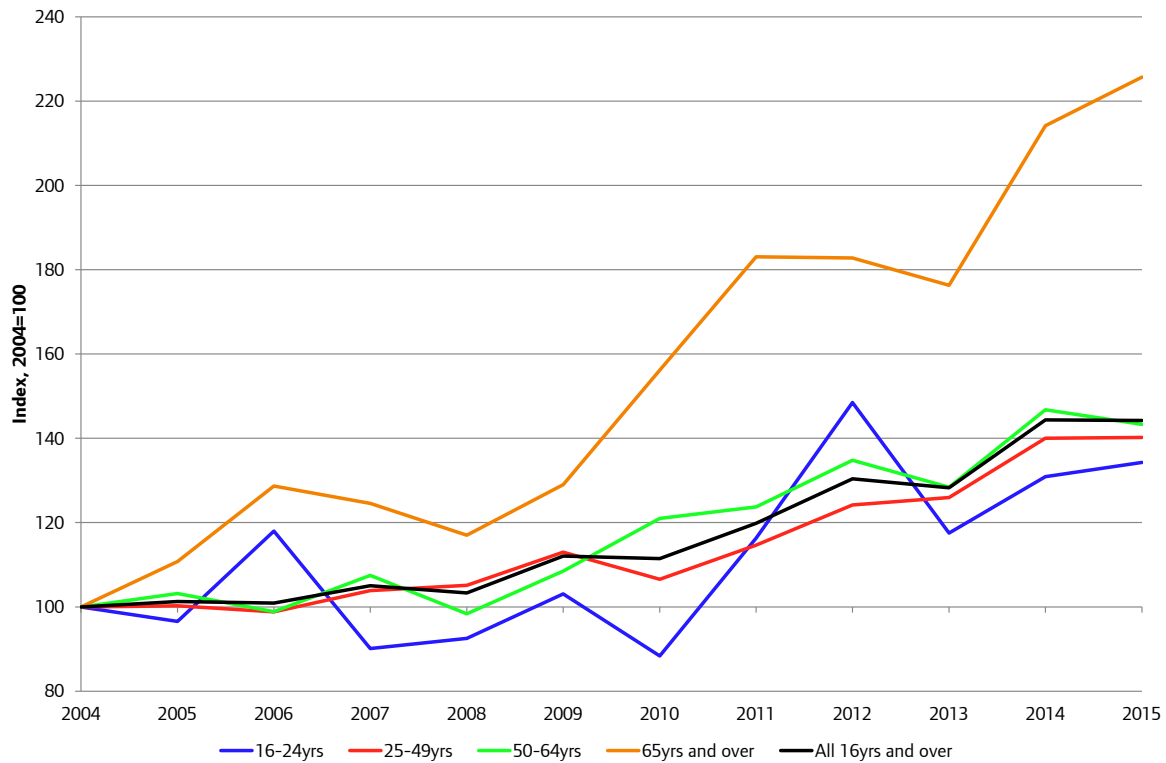


*Note: January to December periods and are not seasonally adjusted or reweighted. Self-employed jobs include both first and second jobs.*
*Source: ONS Annual Population Survey*

In 2015, most self-employed jobs were in the Construction (19.3 per cent) and Professional, Scientific & Technical (17.4 per cent) sectors as shown by Figure 9.8. This compares with data in in Chapter 1, which shows the largest sector in terms of all workforce jobs whether they are self-employed jobs or not as being Professional, Scientific & Technical, Administrative & Support Services and Human Health & Social Work.

**Figure 9.8: Number of self-employed jobs by industry for London in 2015, residents aged 16 years and over**
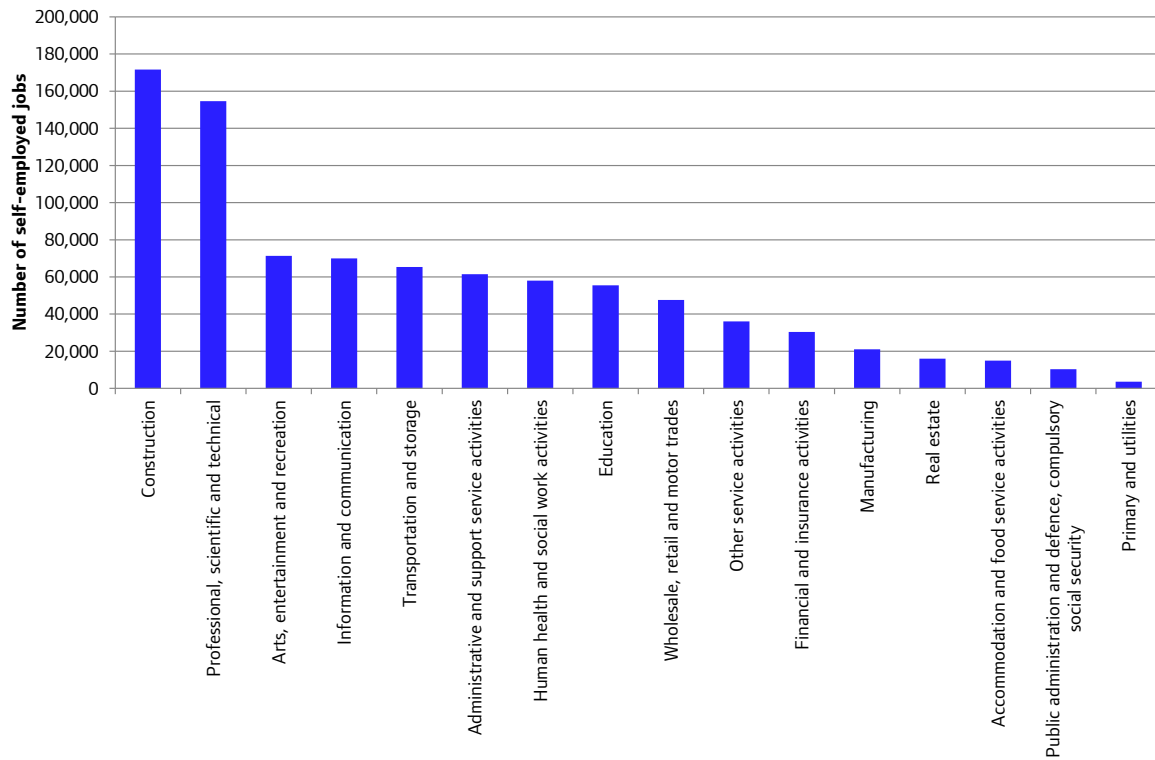


*Note: January to December periods and is not seasonally adjusted or reweighted. Self-employed jobs include both first and second jobs. The figure for Primary & Utilities is based on a small sample size and potentially unreliable.*
*Source: ONS Annual Population Survey*

Almost half of self-employed workers (45.5 per cent) were in Professional and Associate Professional occupations in 2015 (Figure 9.9). In contrast, the smallest proportions were for Sales & Customer Service (1.5 per cent) and Administrative & Secretarial (3 per cent) occupations.

**Figure 9.9: Share of self-employed jobs by occupation in London during 2015, residents aged 16-64 years**
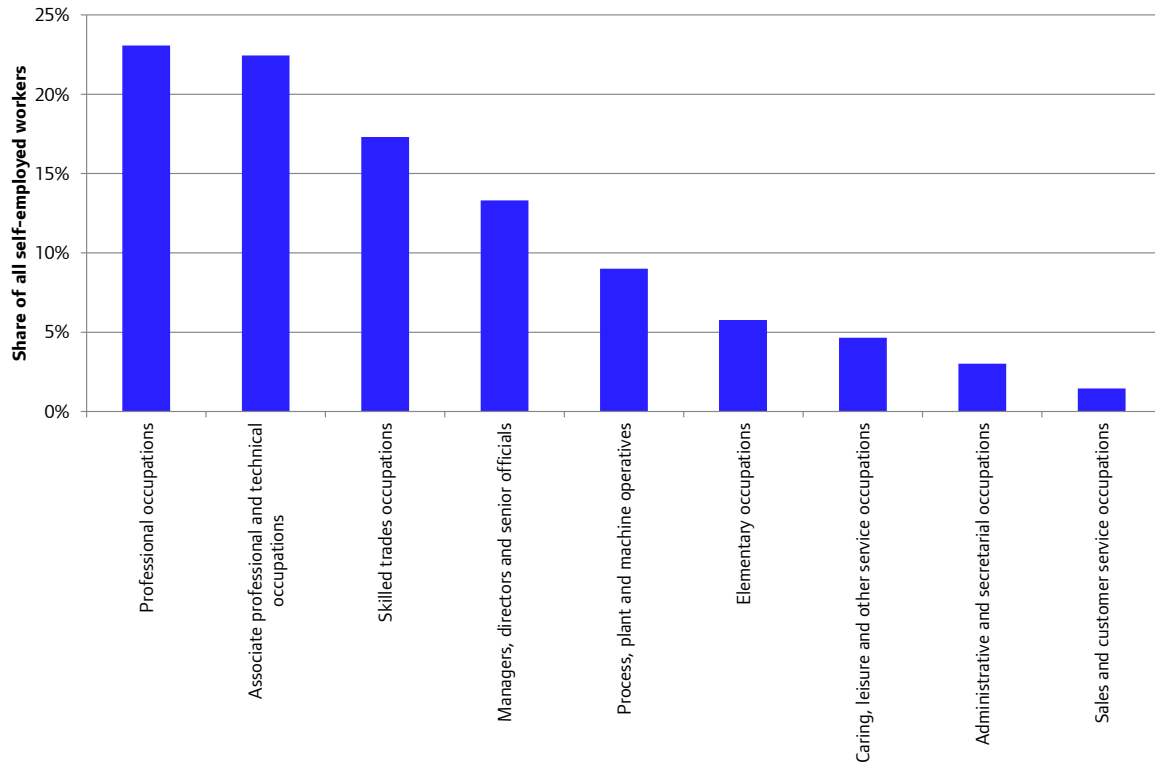


Note: January to December periods and is not seasonally adjusted or reweighted. Self-employed jobs include both first and second jobs.
Source: ONS Annual Population Survey

Over time, labour intensive roles like Process, Plant & Machine Operatives and Elementary occupations have seen the fastest rates of growth in self-employment as shown in Figure 9.10. These occupations are also traditionally low paid as discussed later in this chapter. Overall, Sales & Customer Services was the only group to have seen a decline in the number of self-employed workers in London, down 9.3 per cent between 2008 and 2015.

**Figure 9.10: Percentage change in number of self-employed jobs by occupation in London between 2008 and 2015, residents aged 16 years and over**
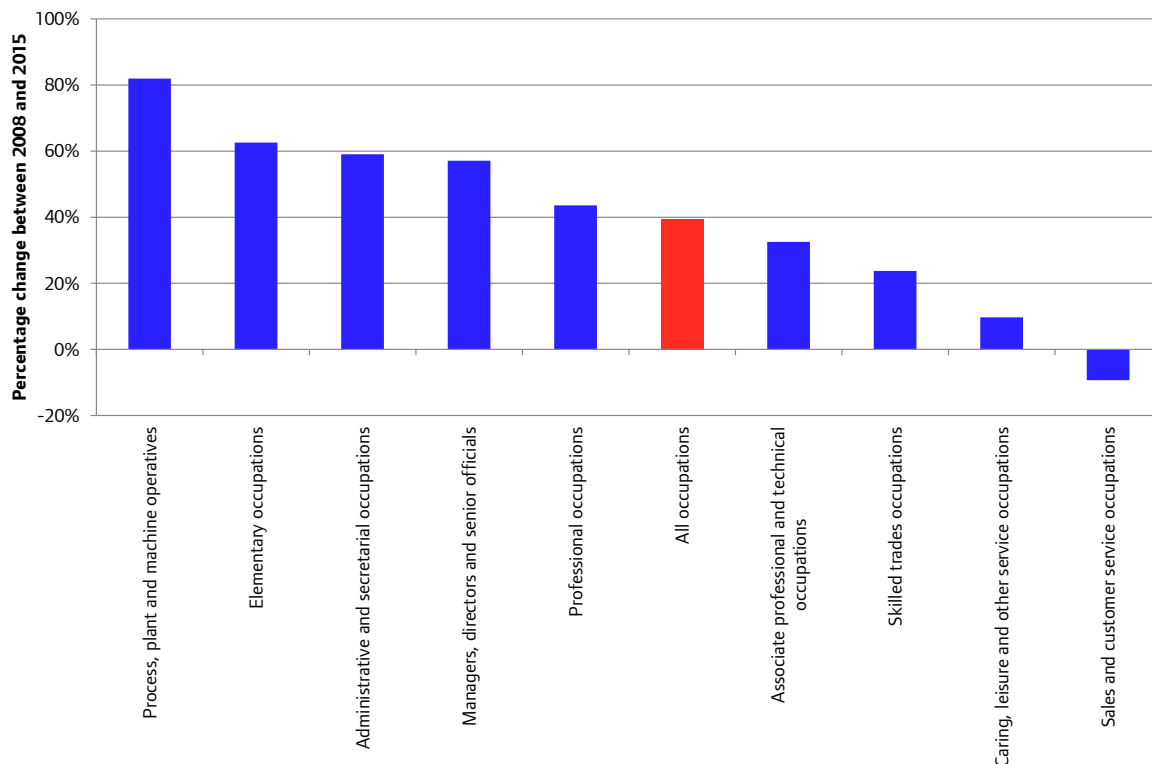


*Note: January to December periods and not seasonally adjusted or reweighted.*
*Source: ONS Annual Population Survey*

A further labour market characteristic is full and part-time employment. The split by full-time and part-time working age employees in 2015 was 77.8 per cent and 21.7 per cent respectively. Of those working part-time, 62.7 per cent reportedly did not want a full-time job, but an additional 20.9 per cent commented that they could not find a full-time position (compared with 9.7 per cent of people citing this reason in 2004)[11]. In particular, the number of part-time workers in London has grown 34.2 per cent since 2004 (compared with 21.6 per cent growth for full-time workers) and can also partly explain the rise in total employment as shown in Figure 9.11.

**Figure 9.11: Full-time and part-time workers in London, residents aged 16-64 years, 2004 to 2015, 2004=100**
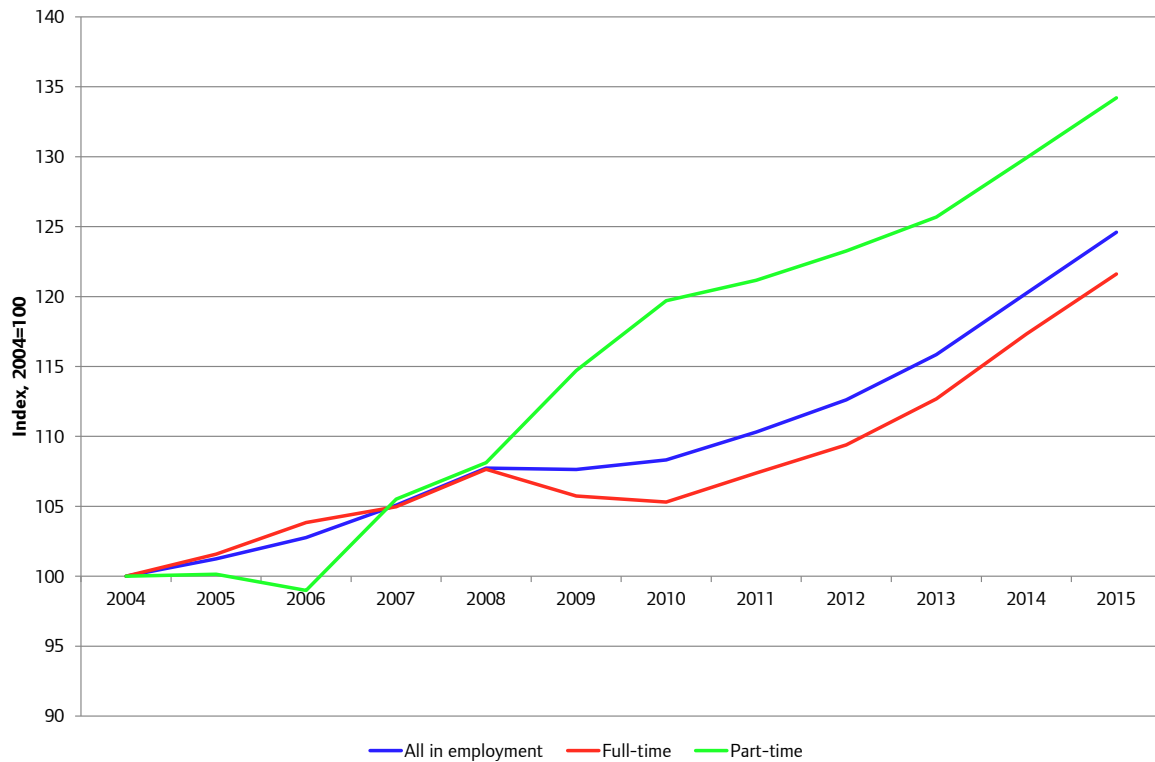


*Note: January to December periods and has been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

Both men and women were more likely to be working full-time in London than to be working part-time.  However, a greater share of men were in full-time work (87.2 per cent of all male workers in 2015) than women (66.5 per cent). Concurrently, 61 per cent of all full-time workers were male, whereas 69.4 per cent of all part-time workers were female (Figure 9.12).

**Figure 9.12: Share of full-time and part-time workers by gender in London, residents aged 16-64 years, 2004 to 2015**
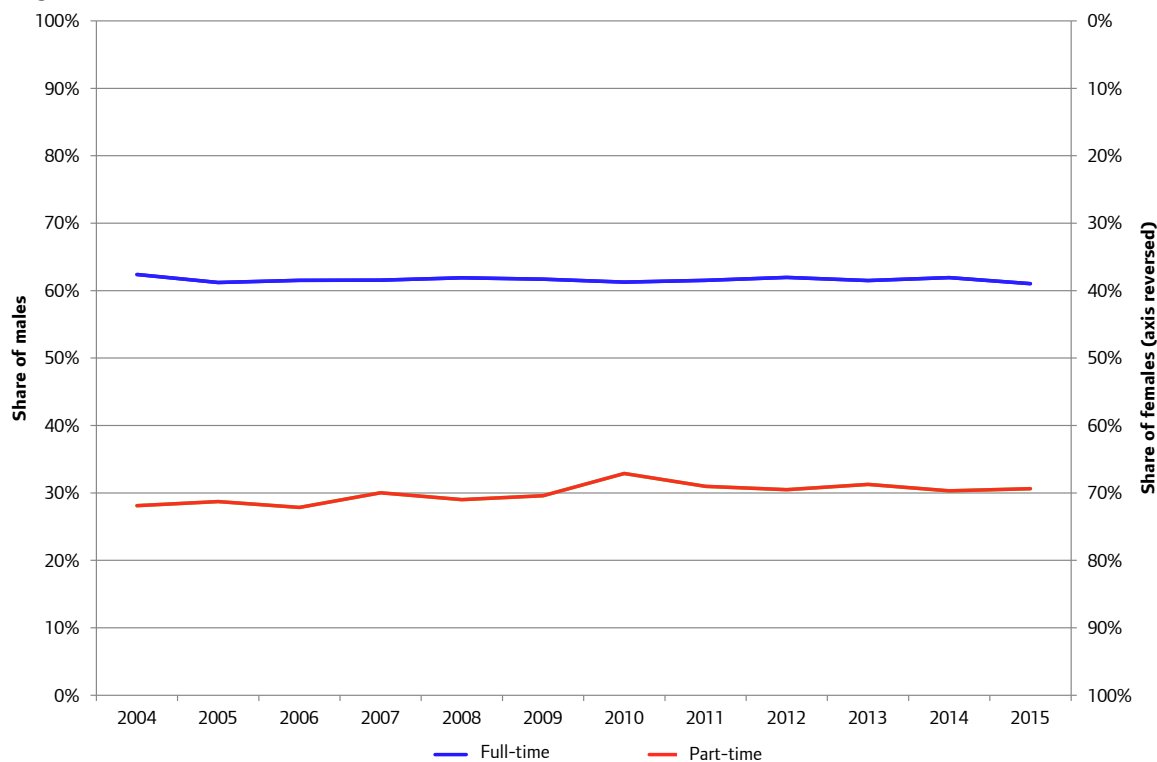


*Note: January to December periods and has been reweighted in July 2016.*
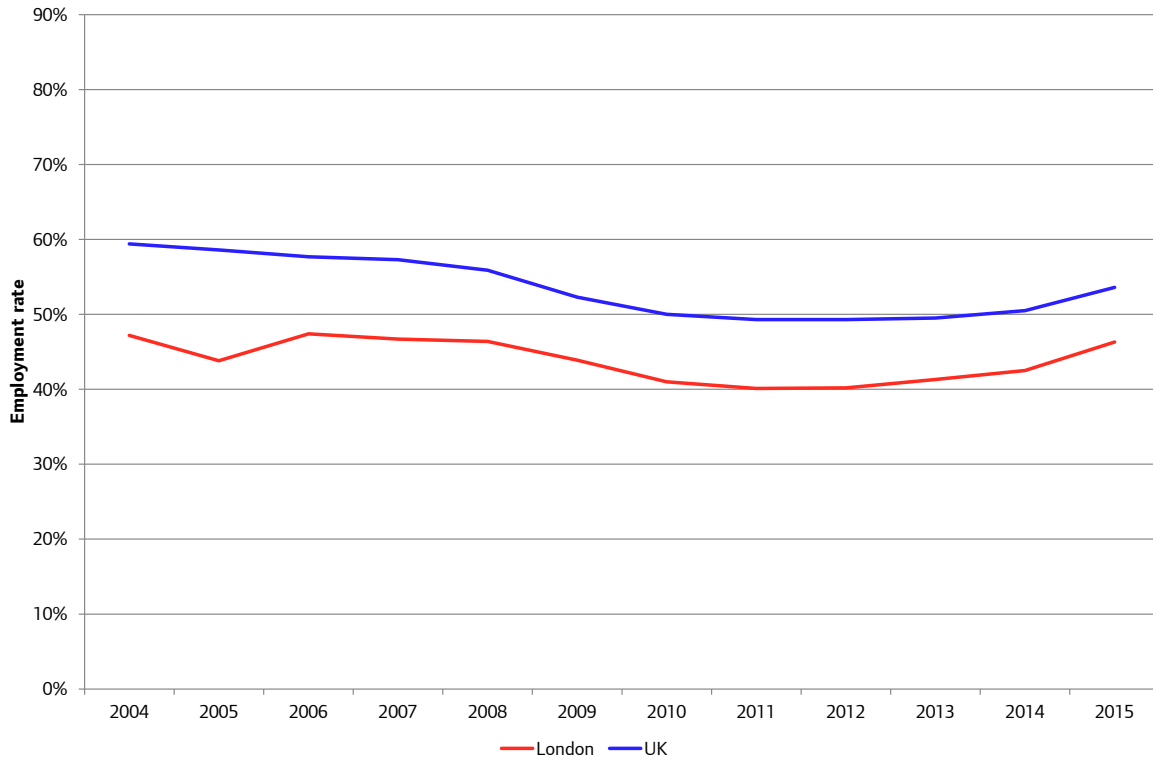*Source: ONS Annual Population Survey*

Table 9.1 shows the share of full and part-time workers by gender and occupation in London during 2015. The majority of full-time workers were in the high-skilled roles of Managers, Directors & Senior Officials, Professional and Associate Professional occupations. There was no noticeable difference between men and women working full-time in these high-skilled roles, though differences do emerge for other occupations – men working full-time were more likely than women to be in middle-skilled and labour-intensive roles, whereas the reverse was true for women working full-time in service-intensive occupations. Similar trends were seen for part-time workers. For example, 30.2 per cent of men working part-time were in labour-intensive roles, in comparison with 18.6 per cent for women. Moreover, 31.4 per cent of women working part-time were in service-intensive roles which was in contrast with 21.8 per cent of men.

**Table 9.1: Share of full and part-time workers by gender and occupation in London during 2015, residents aged 16-64 years**

| Occupation | Full-time | | Part-time | |
|---|---|---|---|---|
| | **Male** | **Female** | **Male** | **Female** |
| Managers, Directors & Senior Officials | 15.5% | 10.9% | 6.4% | 4.2% |
| Professional Occupations | 25.3% | 28.1% | 14.7% | 17.6% |
| Associate Professional & Technical Occupations | 18.3% | 20.3% | 11.0% | 11.2% |
| Administrative & Secretarial Occupations | 5.8% | 15.2% | 5.9% | 15.2% |
| Skilled Trades Occupations | 13.1% | 1.7% | 10.0% | 1.9% |
| Caring, Leisure & Other Service Occupations | 2.7% | 12.6% | 5.2% | 17.0% |
| Sales & Customer Service Occupations | 4.1% | 5.0% | 16.5% | 14.4% |
| Process, Plant & Machine Operatives | 7.0% | 1.0% | 8.9% | 0.9% |
| Elementary Occupations | 8.2% | 5.2% | 21.3% | 17.6% |
| **Total** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

*Note: January to December periods and has been reweighted in July 2016. Figures do not include occupations that are disclosive or are unreliable due to small sample sizes. Source: ONS Annual Population Survey*

**Box: 9.1 Part-time employment in London**

As noted above, the strong growth in the number of part-time workers can partly explain the rise in total employment in London in the past decade or so. Indeed, when comparing with UK trends as shown in Figure 9.13, growth in part-time workers since 2004 was stronger in London (34.2 per cent versus 12 per cent). Despite this, the share of part-time workers in London (21.7 per cent in 2015) is lower than the UK as a whole (25.4 per cent).

**Figure 9.13: Full and part-time workers in London and the UK between 2004 and 2015, residents aged 16-64 years, 2004=100**
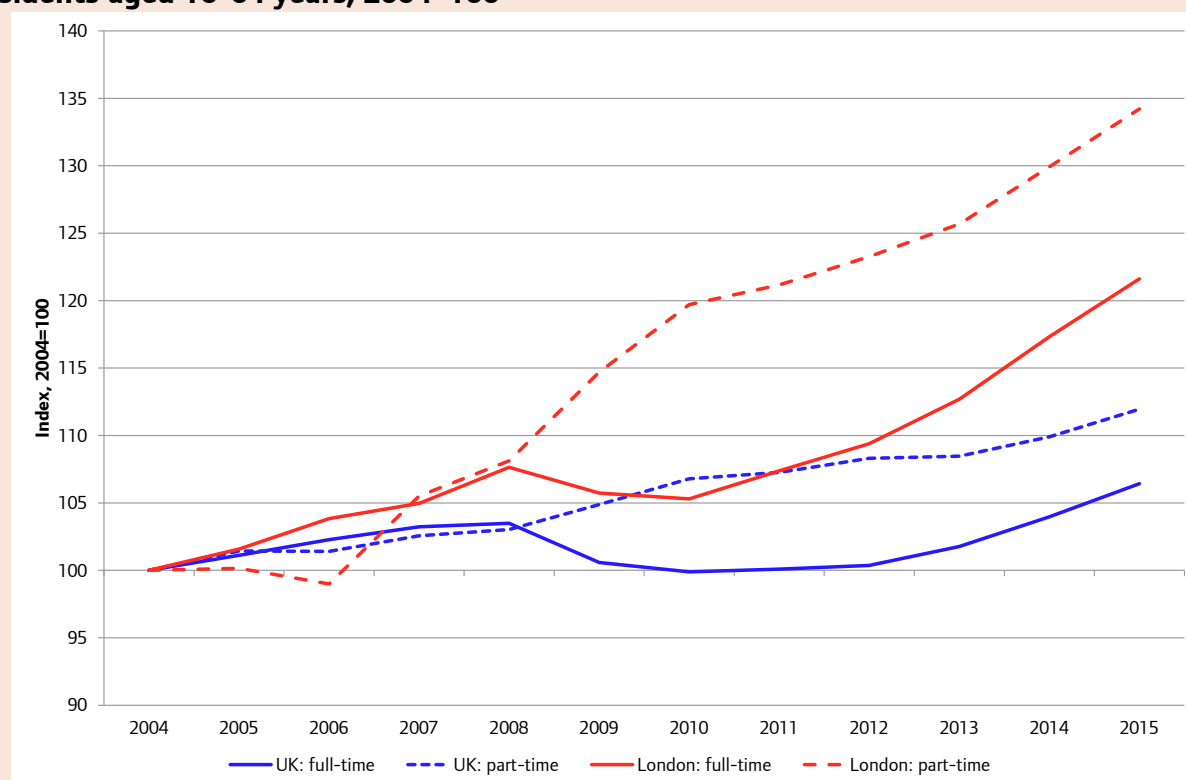


*Note: January to December periods and has been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

The same trends are observed when looking at the number of part-time jobs (instead of people)[12]. When looking at the growth in part-time jobs between Q1 2008 and Q1 2016, the biggest risers were in the Other Service Activities industry. Additionally, the occupations[13] that saw the biggest increases between 2008 and 2015 in part-time roles were in Managerial, Skilled Trades and Process, Plant & Machine Operative occupations.

Therefore, one common explanation for the lower share of part-time jobs in London as compared with the UK is the differing industry and occupational mixes within the respective economies. However, previous analysis by GLA Economics that applied the UK's occupational shares to London and used the London full-time/part-time split across each occupation suggested that this only accounted for 37.2 per cent of the gap[14].

To try to explain the remaining difference, GLA Economics also looked at the gender and parental differences in part-time employment. Generally, female employment rates (both full and part-time) in London have historically been lower than male employment rates as shown in Figure 9.18 in the next section. Moreover, whilst 66.1 per cent of part-time jobs in London were taken by women, this share remains below the 70.6 per cent level for the UK and, since Q3 1996, much of the increase in part-time jobs in London has been amongst men. Consequently, in 2013, 20.8 per cent of women were employed part-time in London compared with 28.7 per cent for the rest of the UK. This difference is emphasised when solely looking at women with dependent children (which is also discussed in greater

depth in the next section) – 27.1 per cent of these women work part-time in London compared with 36.8 per cent for the rest of the UK.

Given this, it is important to understand the reasons why women (with dependent children) have a lower part-time employment rate in London. Some possible reasons include:

- London-specific factors such as the higher costs of living (which are arguably not effectively accounted for by the national tax and benefits system) and higher costs of travelling to work as discussed in Chapter 5;
- Individual characteristics such as ethnicity which is looked at later in this chapter; and
- Factors on the demand side including factors that prevent firms from offering part-time jobs (based on the belief that part-time workers may be more costly to employ and less committed than full-time workers).

There were 247,500 temporary workers[15] in London during 2015 representing 6.9 per cent of all employees. As shown in Figure 9.14, the rate of growth in temporary workers was much the same as for all employees (22.7 per cent versus 22.4 per cent between 2004 and 2015). London also has a slightly larger share of temporary workers than the UK as a whole (6.9 per cent versus 6.1 per cent) and has seen faster rates of growth in temporary workers over the past decade or so.

**Figure 9.14: Index of temporary workers for London and the UK, residents aged 16 years and over, 2004 to 2015, 2004=100**
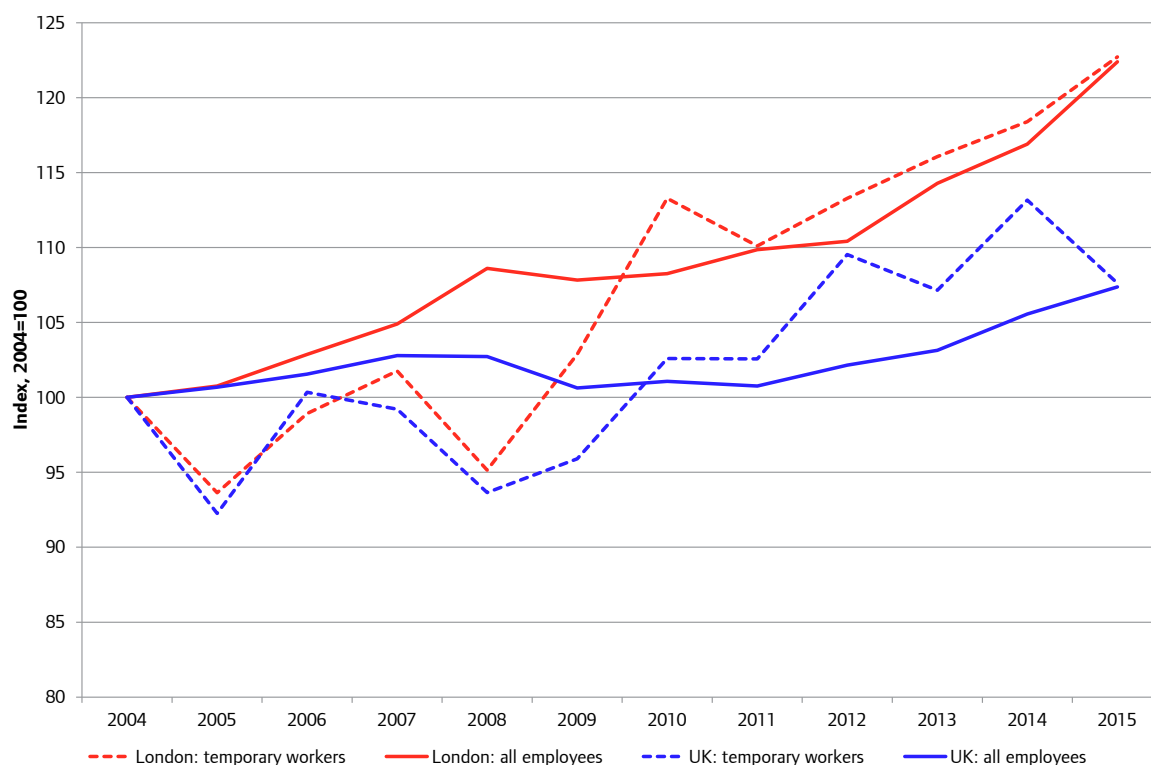


Note: January to December periods for London and October to December periods for the UK and has been reweighted in July 2016.
Source: ONS Annual Population Survey

Almost a third (32.2 per cent) of temporary workers in 2015 said this was because they could not find a permanent job, though a further 20.7 per cent said that they did not want a permanent job[16]. Compared with the reasons given in 2004, there was an 8.8 percentage point rise in those that said they could not find a permanent job (Figure 9.15).

**Figure 9.15: Reason for temporary working in London, residents aged 16 years and over, 2004 to 2015**
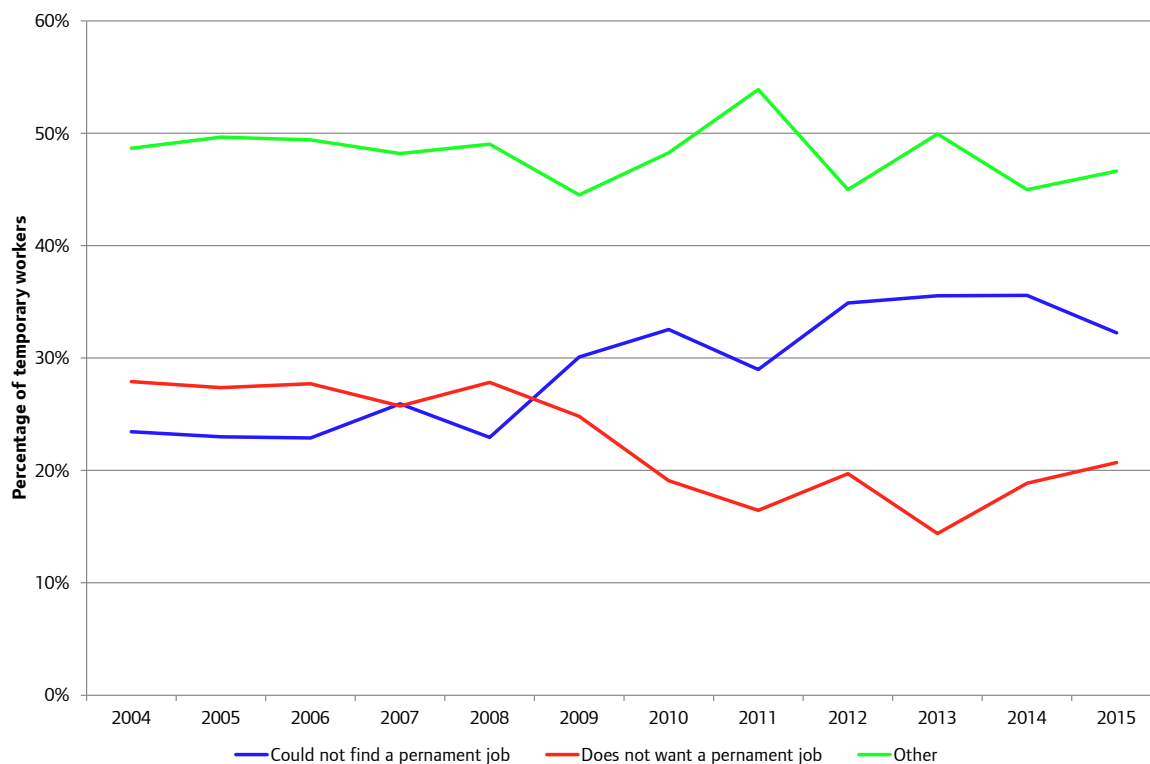


*Note: January to December periods and has been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

London's labour market also varies spatially. Tables 9.28-9.30 in Appendix 9.1 provide details of London's labour market at a borough level.

Figure 9.16 shows that London has had a lower employment rate than the UK since 1992. For example, in the three months to May 2016, the UK's employment was 74.4 per cent – 1 percentage point above London. That said, since late 2013, this difference has not been statistically significant meaning it could instead be due to the measurement approach. This trend has also not always been the case with previous GLA Economics analysis showing London having a higher employment than the UK prior to 1990[17].

**Figure 9.16: Employment rates in London and the UK, residents 16-64 years, three-month rolling average, 1992 to 2016**
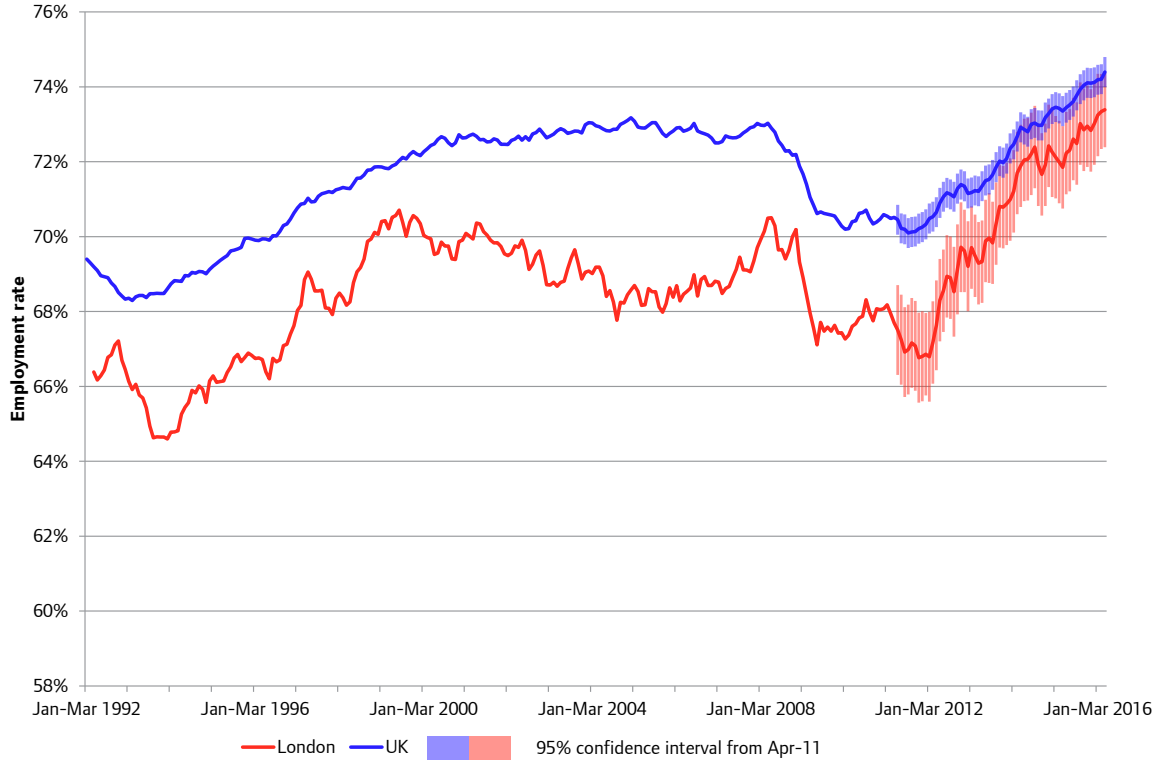


*Source: ONS Labour Force Survey*

London has historically had a higher unemployment rate than the UK and this trend is generally statistically significant (Figure 9.17).

**Figure 9.17: Unemployment rates in London and the UK, residents aged 16 years and over, three-month rolling average, 1992 to 2016**
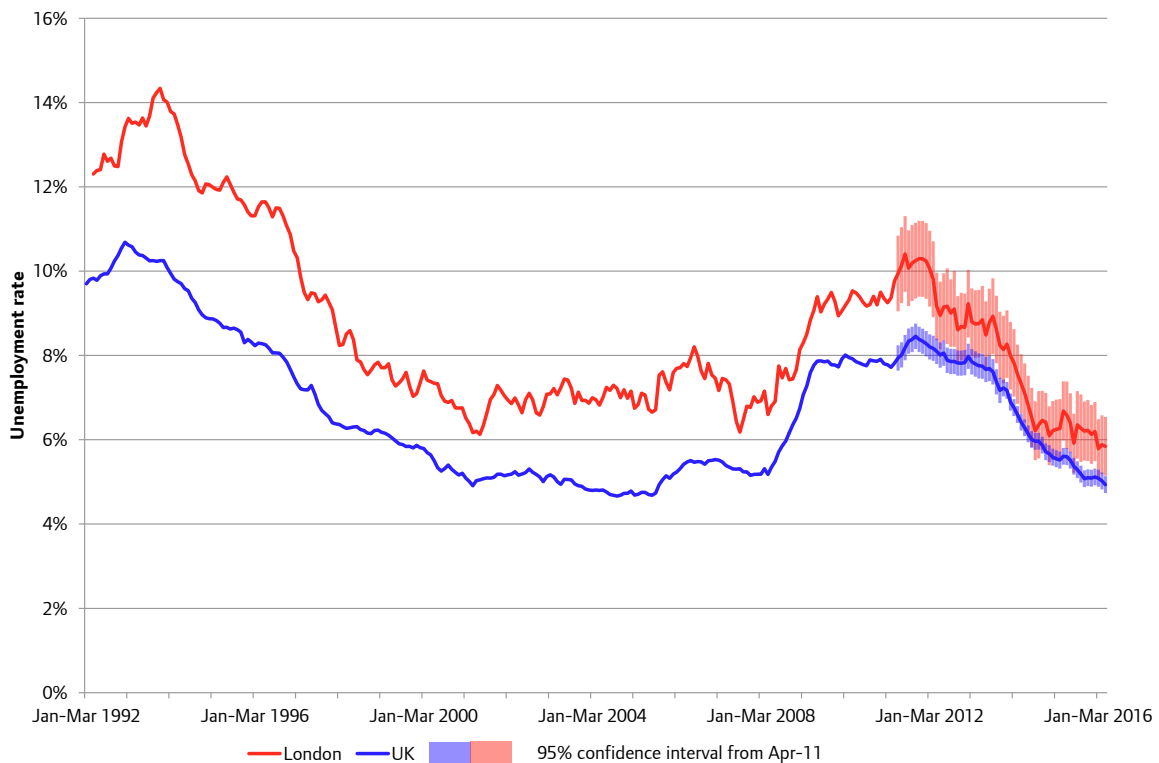


*Source: ONS Labour Force Survey*

More recently, the gap between London and the UK has narrowed which can partly be explained by London having a stronger recovery from the 2008-09 recession. For instance, London's employment rate has risen 6.6 percentage points since its recessionary low compared with a 4.3 percentage point rise for the UK.

Previous analysis by GLA Economics suggested that this difference can be explained by the unique characteristics of London's population[18][19]. For example, London has a higher proportion of Black, Asian and Minority Ethnic (BAME) residents than the UK. The following charts and tables look at the employment rates by demographic breakdowns to see whether London-specific characteristics can still explain this difference.

### 9.2.1 Gender

Figure 9.18 shows the male and female employment rates for London and the UK[20]. The first observation is that the male employment rate has historically been higher than the female employment rate for both London and the UK. Indeed, in 2015, London's male employment rate was 79.5 per cent compared with the female employment rate of 66.5 per cent. The second observation is that the difference between the male employment rates for London and the UK is relatively small and generally not statistically significant, but is larger and significant for females. Other GLA Economics analysis suggested women may appear to be 'disadvantaged' in comparison to men due to individual characteristics and factors which are peculiar to London, such as the higher cost of childcare, transport and, more generally, the cost of living which can influence the opportunity cost of women working[21].

**Figure 9.18: Employment rates by gender in London and the UK, residents aged 16-64 years, 2004 to 2015**
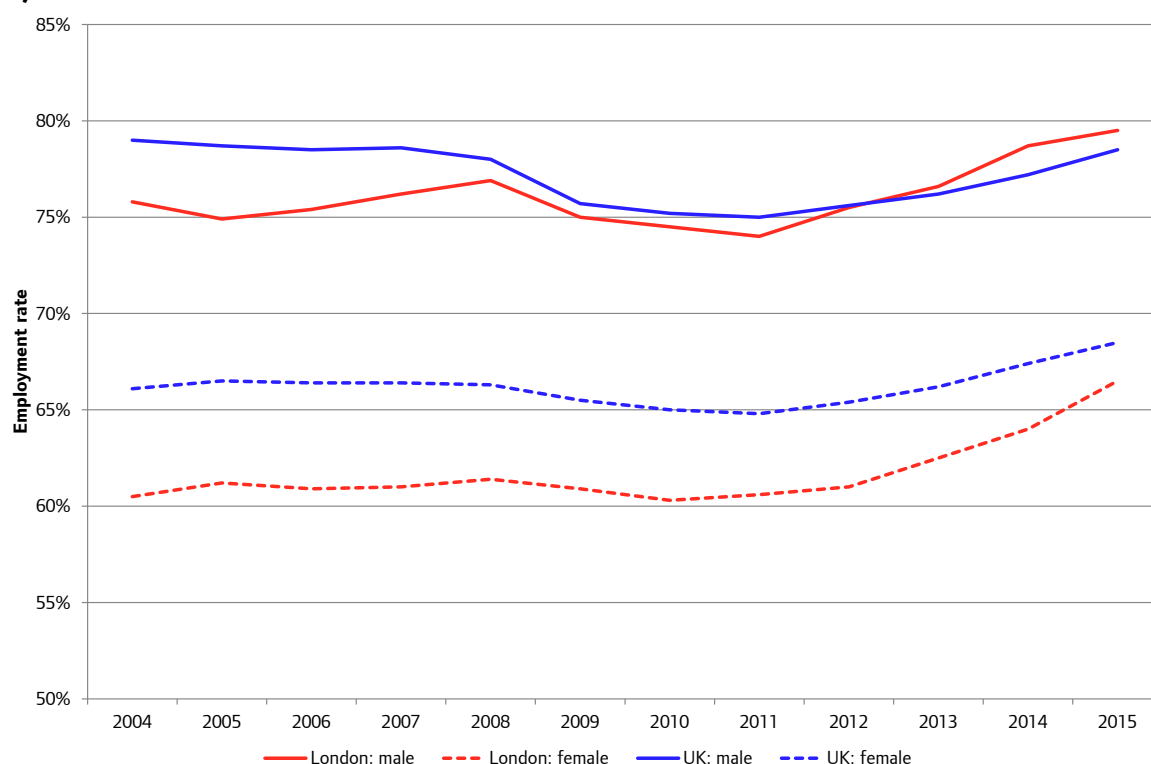


*Note: January to December periods and has been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

Interestingly, the gap between the male and female employment rates for London and the UK has narrowed in recent years, particularly when looking further over time when these gaps widened in the mid-1990s and early 2000s[22]. In fact, the male employment rate for London has been marginally higher than the UK between 2013 and 2015. This suggests that the closing of these gaps could partly explain the convergence of London's and the UK's headline employment rates.

## 9.2.2 Age

Figures 9.19-9.21 plot the employment rates for the 16-24, 25-49 and 50-64 age groups for London and the UK. The largest gap in London and the UK's employment rates is for the 16-24 age group[23] and is statistically significant at the 95 per cent level. That said, this has narrowed from a 12.2 percentage point difference in 2004 to a 7.3 percentage point difference in 2015 and was one of the drivers for the closing of the gap at the headline level.

**Figure 9.19: Employment rates for the 16-24 age group for London and the UK, residents, 2004 to 2015**



*Note: January to December periods and has been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

There has also been a convergence between employment rates for the 25-49 age group to a point where there is little difference between London and the UK.

**Figure 9.20: Employment rates for the 25-49 age group for London and the UK, residents, 2004 to 2015**
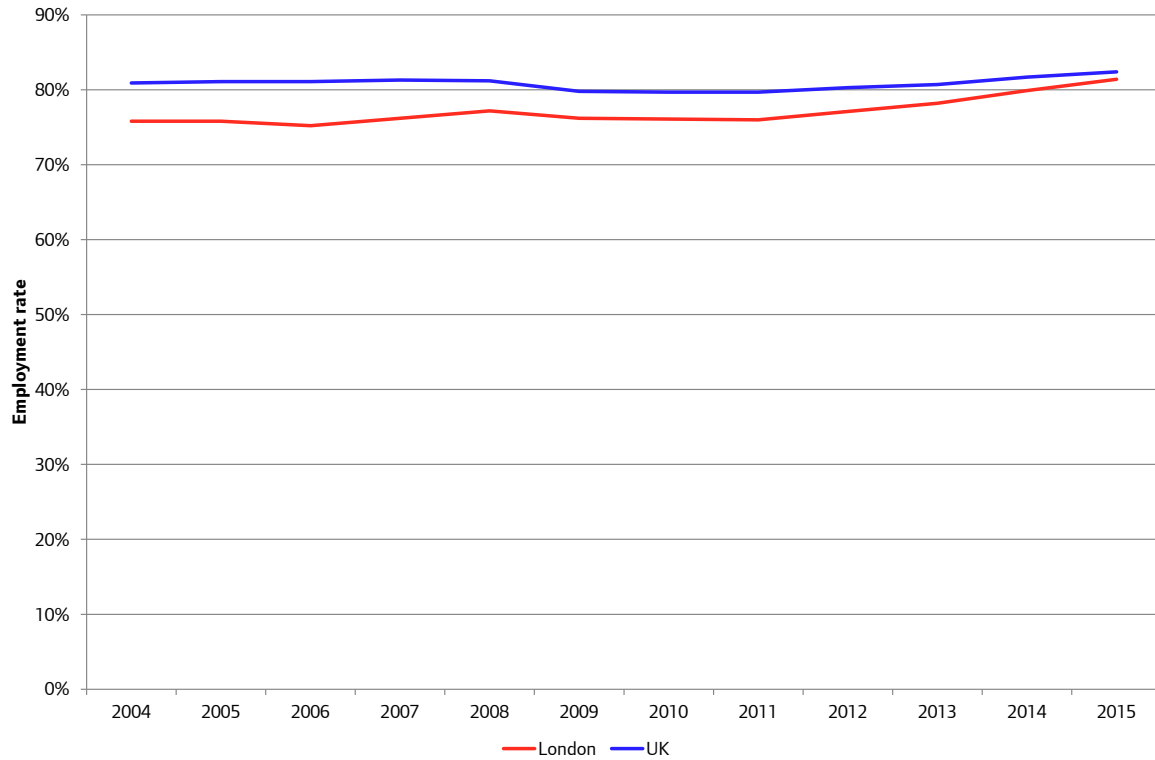


*Note: January to December periods and has been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

The employment rates for the 50-64 age group are broadly the same for London and the UK and have been for the past decade or so.

**Figure 9.21: Employment rates for the 50-64 age group for London and the UK, residents, 2004 to 2015**
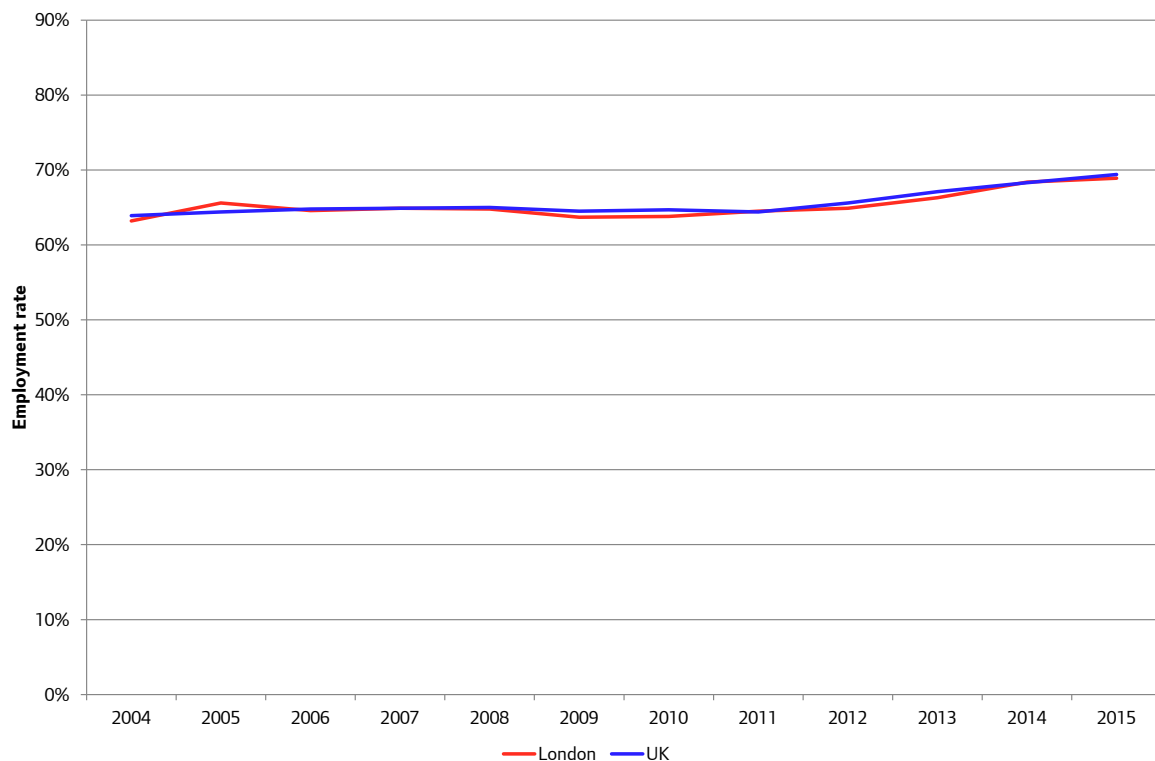


*Note: January to December periods and has been reweighted in July 2016. Source: ONS Annual Population Survey*

**Box 9.2: Employment rates for the 16-24 age group**

As shown by Figures 9.19 to 9.21, the employment rates for the 16-24 age group are below those for the 25-49 and 50-64 age groups. This in part can be attributed to full-time students who would be classed as being economically inactive and affects the 16-24 age group proportionally more.

This can clearly be seen in Figure 9.22 which shows the UK's employment rate for individuals aged 16-24yrs who were in full-time education and for those who were not in full-time education[24]. The employment rate for those not in full-time education was over 74 per cent for the UK in early 2016, compared with approximately 30 per cent for those in full-time education. In fact, the employment rate for the 16-24 age group was comparable to other age groups if full-time students were excluded.

**Figure 9.22: Employment rates for the 16-24 age group by full-time education status for the UK, residents, 1992 to 2016, three month rolling**
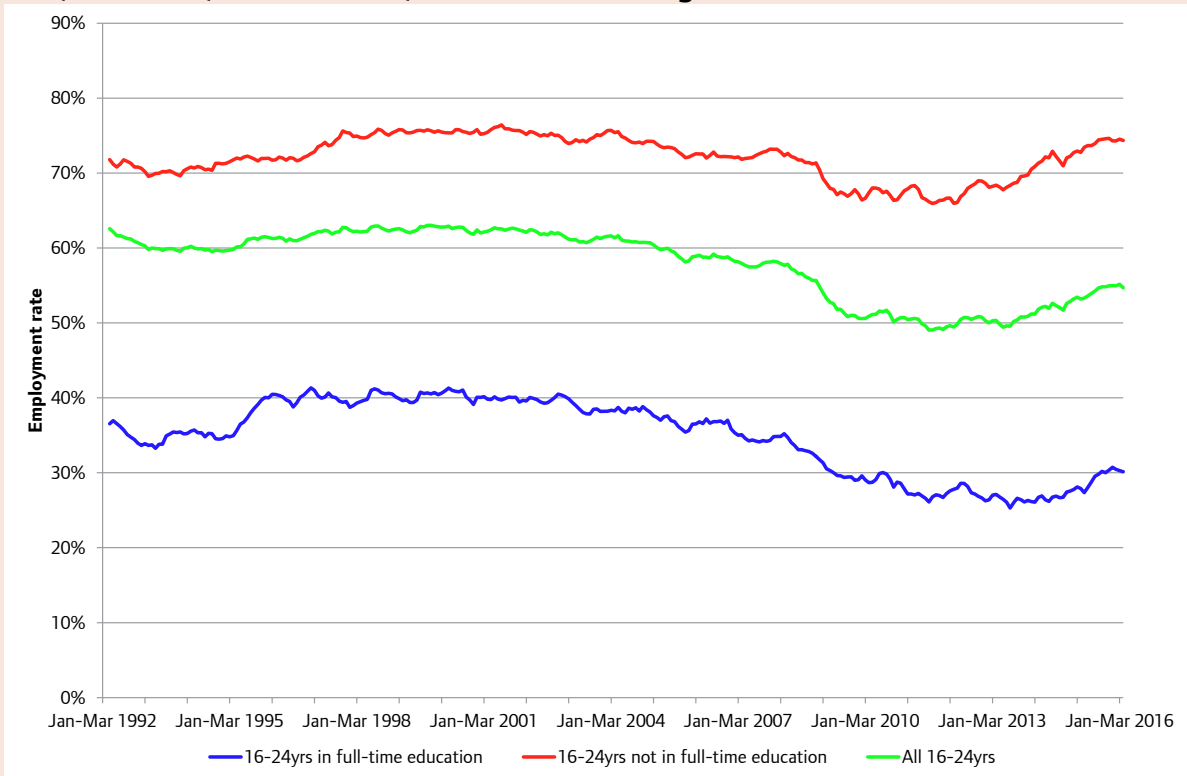


*Source: ONS Labour Force Survey*

Table 9.2 shows the employment, unemployment and economic inactivity rates for full-time students in London and the rest of the UK. This looks at the 18-24 age group to remove individuals in compulsory education. London had a statistically lower employment rate than the rest of the UK for 18-24 year old full-time students. Moreover, London had a higher unemployment rate, but this difference was not statistically significant.

**Table 9.2: Employment, unemployment and economic inactivity rates for full-time students in London and the rest of the UK, residents aged 18-24 years, 2010 to 2014**

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|
| **Employment rate** | | | | | |
| London | 27.9% | 21.2% | 23.9% | 23.2% | 24.3% |
| Rest of the UK | 43.4% | 38.3% | 38.2% | 37.8% | 39.4% |
| **Unemployment rate** | | | | | |
| London | 10.8% | 10.6% | 11.2% | 10.8% | 10.7% |
| Rest of the UK | 8.0% | 8.9% | 10.6% | 9.9% | 6.9% |
| **Economic inactivity rate** | | | | | |
| London | 61.2% | 68.2% | 64.9% | 66.1% | 64.9% |
| Rest of the UK | 48.6% | 52.7% | 51.1% | 52.3% | 53.7% |

Note: July to September periods and not seasonally adjusted. Source: ONS Labour Force Survey.

Employment rates by age groups and gender are also presented in Appendix 9.2. Interestingly, whilst the employment rates for men and women in London were broadly similar for the 16-24 age group, differences emerge for the 25-49 and 50-64 groupings. This gender gap was largest for the 25-49 age group. Moreover, London's male employment rate for the 25-49 age group was broadly in line with that for the UK, but there was a gap for the associated female employment rate. This could partly be due to women with dependent children having a lower employment rate in London than the rest of the UK, which is discussed in greater depth in the following section.

Whilst individuals aged 65 and over are not included in the employment rate statistics as they are outside of the working age population definition (16-64 years), London has consistently had a higher employment rate than the UK as a whole (Figure 9.23). The latest estimates indicate that London's employment rate for the over 65 age group was 12.5 per cent in 2015, compared with 10.3 per cent for the UK.

**Figure 9.23: Employment rates for the over 65 age group for London and the UK, residents, 2004 to 2015**
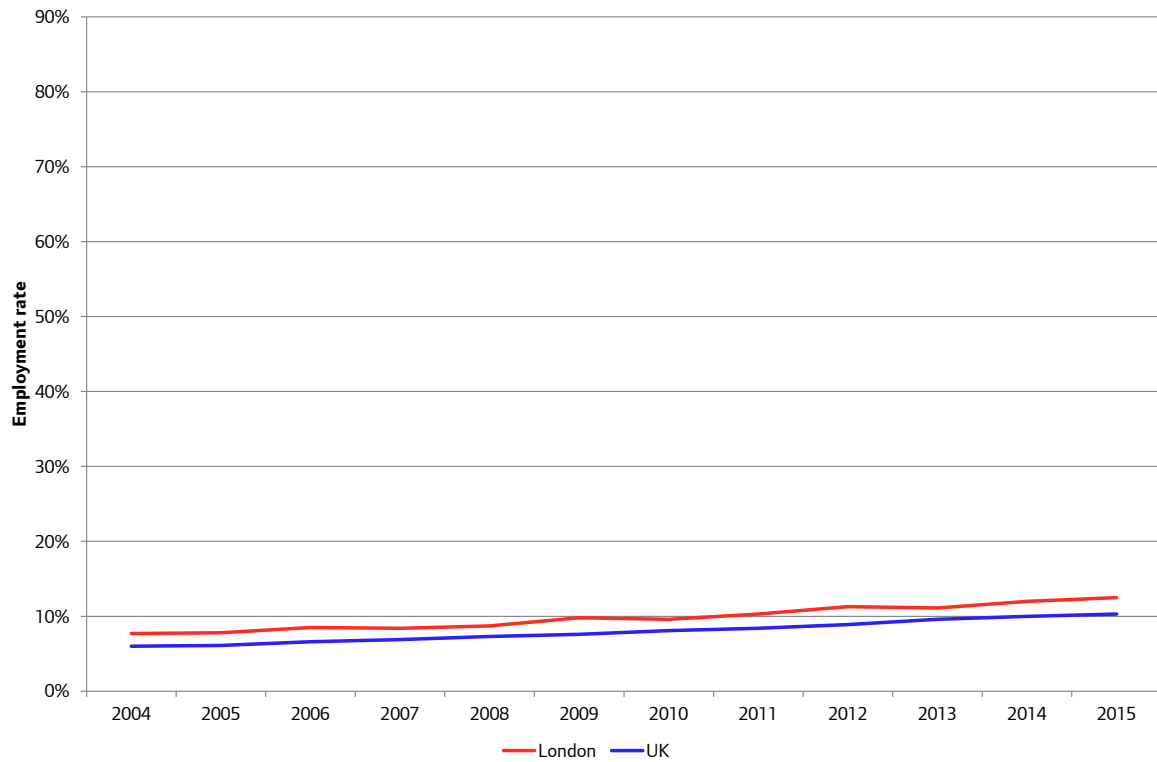


*Note: Janaury to December periods and has been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

In fact, there has been a steady rise in the number of people in employment and aged 65 years and over (Figure 9.24).

**Figure 9.24: Number of people aged 65yrs and over in employment by gender for London, residents, 2004 to 2015**
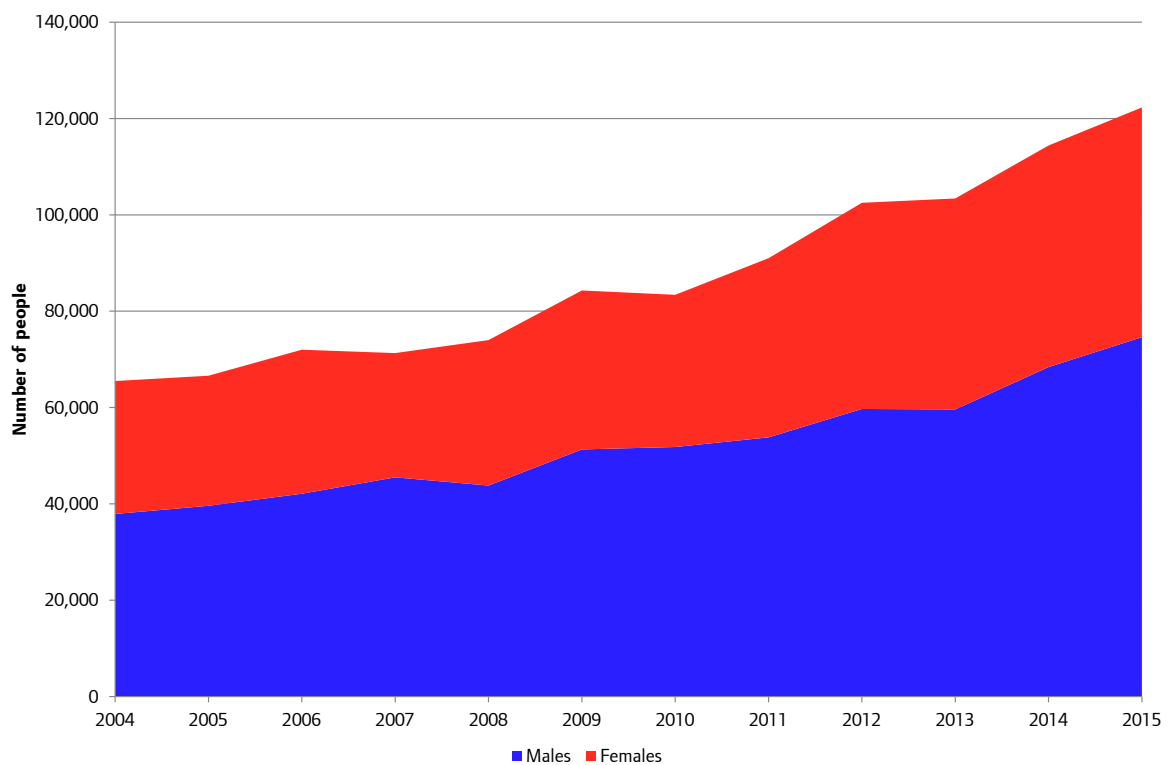


*Note: January to December periods and has been reweighted in July 2016. Source: ONS Annual Population Survey*

## 9.2.3 Ethnicity

An interesting trend emerges when looking at employment rates by ethnicity for London and the UK. Firstly, employment rates are higher for the 'White' grouping than the ethnic minority group as a whole. For example, the employment rate for the White ethnicity group was 78.3 per cent in London during 2015, compared with 65.1 per cent for all ethnic minorities. Secondly, London generally posted higher employment rates than the UK as a whole for the White and all ethnic minority groupings as shown in Figure 9.25. However, this trend is only statistically significant for the White ethnicity group and only from 2013. For instance, the employment rate for the White ethnicity group was 78.3 per cent in London during 2015, which was statistically above the UK estimate of 75.1 per cent. Similarly, the employment rate for all ethnic minorities was 65.1 per cent in London, compared with 63 per cent for the UK, but this was not a statistically significant difference.

**Figure 9.25: Employment rates by ethnicity for London and the UK, residents aged 16–64 years, 2004 to 2015**
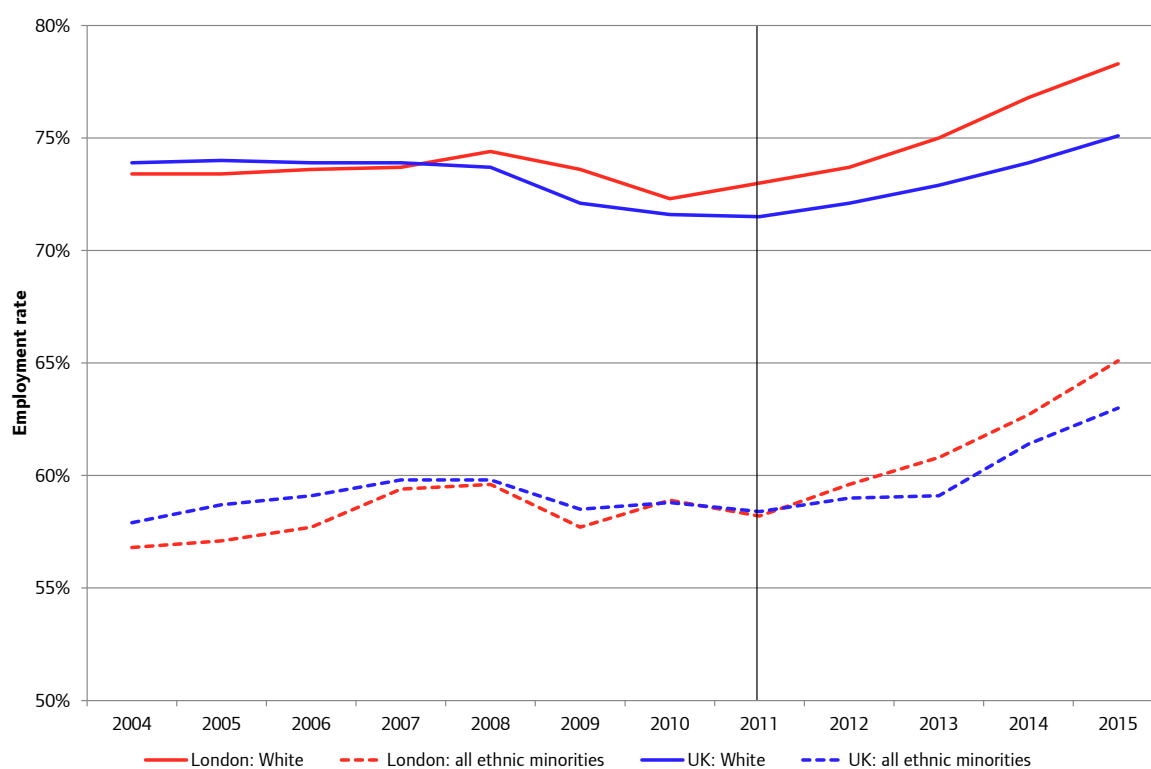


*Note: January to December periods and has been reweighted in July 2016. Due to changes in the ethnicity questions during 2011, estimates from this date should not be compared with its history.*
*Source: ONS Annual Population Survey*

Further breakdowns are provided in Tables 9.3 and 9.4 and suggest that employment rates in London were higher than the UK for the Indian, Pakistani or Bangladeshi, Black or Black British and 'other' ethnicity groups. London only had a lower employment rate for the 'all mixed ethnicities' grouping.

**Table 9.3: Employment rates by detailed ethnicity groups London, residents aged 16-64 years, 2004 to 2015**

| Year | White | Indian | Pakistani or Bangladeshi | Black or Black British | All mixed ethnicities | All other ethnicities |
|------|-------|--------|--------------------------|------------------------|-----------------------|-----------------------|
| 2004 | 73.4% | 67.7% | 43.2% | 57.3% | 59.3% | 54.7% |
| 2005 | 73.4% | 67.6% | 42.8% | 57.7% | 62.1% | 55.2% |
| 2006 | 73.6% | 68.2% | 43.8% | 59.2% | 62.8% | 54.7% |
| 2007 | 73.7% | 69.4% | 43.7% | 61.9% | 59.7% | 57.8% |
| 2008 | 74.4% | 69.4% | 46.0% | 59.0% | 61.5% | 60.2% |
| 2009 | 73.6% | 65.9% | 48.5% | 57.5% | 59.7% | 56.4% |
| 2010 | 72.3% | 69.2% | 48.6% | 58.5% | 60.0% | 56.9% |
| 2011 | 73.0% | 70.1% | 50.4% | 55.0% | 57.9% | 57.5% |
| 2012 | 73.7% | 69.6% | 51.5% | 58.6% | 58.0% | 58.6% |
| 2013 | 75.0% | 69.4% | 51.5% | 60.4% | 61.7% | 60.6% |
| 2014 | 76.8% | 71.4% | 55.2% | 62.3% | 60.5% | 61.8% |
| 2015 | 78.3% | 73.7% | 56.7% | 66.1% | 62.3% | 63.2% |

*Note: January to December periods and has been reweighted in July 2016. Also, due to changes in the ethnicity questions during 2011, these estimates should only be used as a time series before and following this change.*
*Source: ONS Annual Population Survey.*

**Table 9.4: Employment rates by detailed ethnicity groups for the UK, residents aged 16-64 years, 2004 to 2015**

| Year | White | Indian | Pakistani or Bangladeshi | Black or Black British | All mixed ethnicities | All other ethnicities |
|------|-------|--------|--------------------------|------------------------|-----------------------|-----------------------|
| 2004 | 73.9% | 67.9% | 44.4% | 59.9% | 62.0% | 56.9% |
| 2005 | 74.0% | 68.6% | 44.1% | 61.0% | 62.4% | 58.5% |
| 2006 | 73.9% | 69.0% | 44.6% | 62.3% | 64.7% | 57.6% |
| 2007 | 73.9% | 69.5% | 44.8% | 63.3% | 63.5% | 59.4% |
| 2008 | 73.7% | 69.0% | 46.3% | 61.4% | 60.2% | 60.7% |
| 2009 | 72.1% | 68.3% | 46.7% | 58.4% | 59.8% | 59.3% |
| 2010 | 71.6% | 70.0% | 46.4% | 60.1% | 61.3% | 57.5% |
| 2011 | 71.5% | 70.3% | 48.5% | 56.8% | 60.1% | 57.3% |
| 2012 | 72.1% | 69.1% | 48.4% | 60.1% | 59.6% | 58.1% |
| 2013 | 72.9% | 69.0% | 48.5% | 60.7% | 61.4% | 57.7% |
| 2014 | 73.9% | 71.3% | 52.0% | 62.1% | 62.8% | 59.6% |
| 2015 | 75.1% | 71.3% | 53.2% | 65.0% | 64.2% | 61.6% |

*Note: January to December periods and has been reweighted in July 2016. Also, due to changes in the ethnicity questions during 2011, these estimates should only be used as a time series before and following this change.*
*Source: ONS Annual Population Survey.*

Given the employment rate for ethnic minorities is lower than the 'White' group and that London has a larger proportion of ethnic minorities than the UK (see Chapter 8); it could be argued that this is one explanation for London's headline employment rate being below the UK. Indeed, if it is assumed that London's population had the same proportions of ethnic groups as the UK and London employment rates by ethnicity remained the same, London's headline 'adjusted' employment rate[25] would then be above the UK as shown in Figure 9.26.

**Figure 9.26: London adjusted employment rate based on ethnicity groups and the UK employment rate, residents aged 16-64 years, 2004 to 2015**
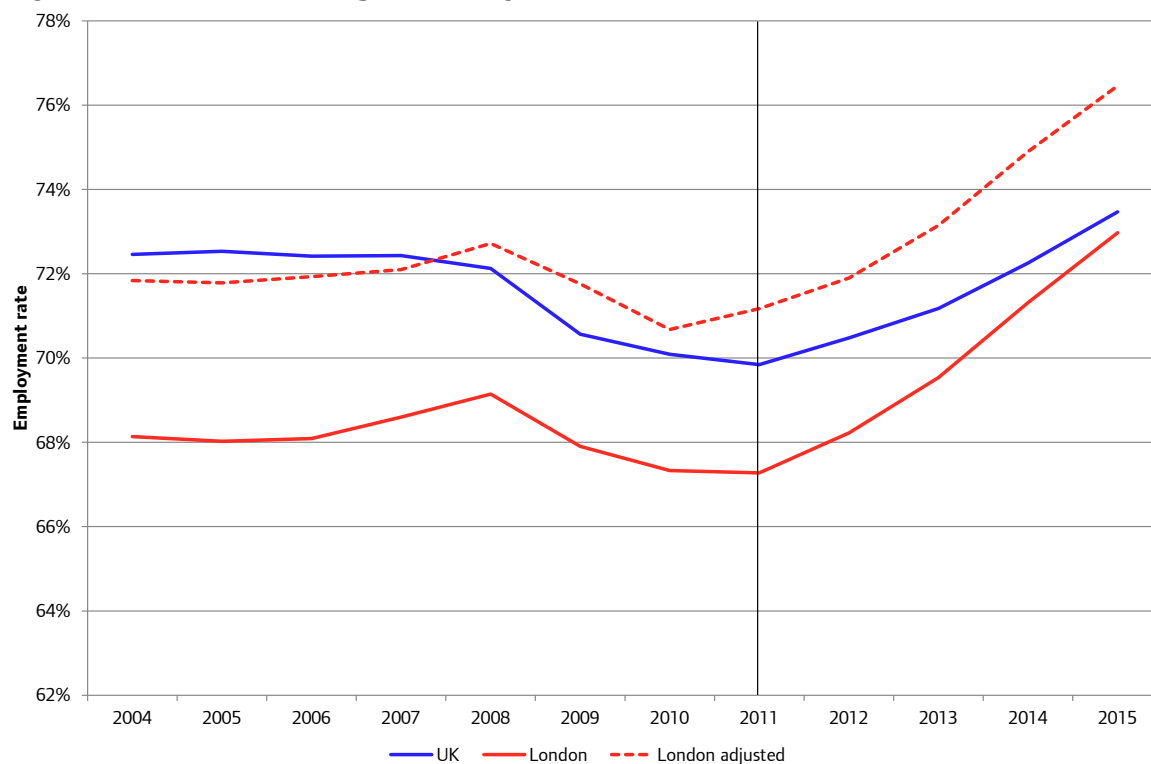


Notes: January to December periods and has been reweighted in July 2016. Due to changes in the ethnicity questions during 2011, these estimates should not be used as a time series.
Source: ONS Annual Population Survey

## 9.2.4 Parents

Figure 9.27 shows the employment rates of parents with dependent children[26] for London and the UK between 2012 and 2015. This shows that parents resident in London and aged 16-64 years are less likely to be in work than parents living in the UK as a whole. For example, the employment rate for parents with dependent children in London was 73.7 per cent in 2015, compared with 79.8 per cent for the UK overall.

**Figure 9.27: Employment rates of parents with dependent children in London and the UK, residents aged 16-64 years, 2012 to 2015**
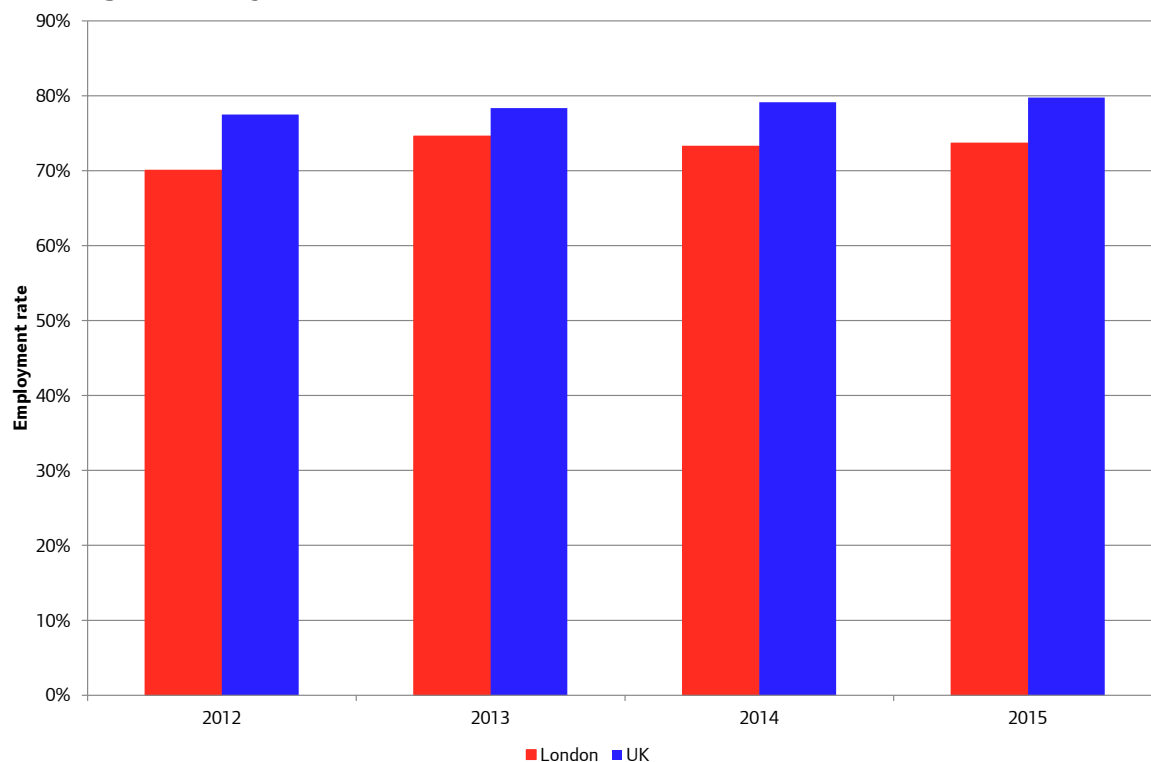


*Note: April to June periods.*
*Source: ONS Labour Force Survey household datasets*

Perhaps unsurprisingly, the employment rates of parents are lowest when their dependent children are youngest (Figure 9.28). For instance, the employment rate for parents with dependent children aged 0-4 years was 72.2 per cent in 2015 for London, but this rises to 74.5 per cent for children aged 16-18 years. This trend is more evidenced for lone parents where the employment rate rises from 49 per cent for children aged 0-4 years to 68.9 per cent for children aged 16-18 years. One possible explanation for this could be due to the cost of childcare. This might also explain why employment rates are lower in London than the UK as a whole as childcare costs are on average higher in London (see Chapter 10) and, assuming all other factors like wages are constant across the country, raises the opportunity cost of being in work.

**Figure 9.28: Percentage of parents in employment by age of youngest dependent child for London and the UK, residents aged 16-64 years, April to June 2015**
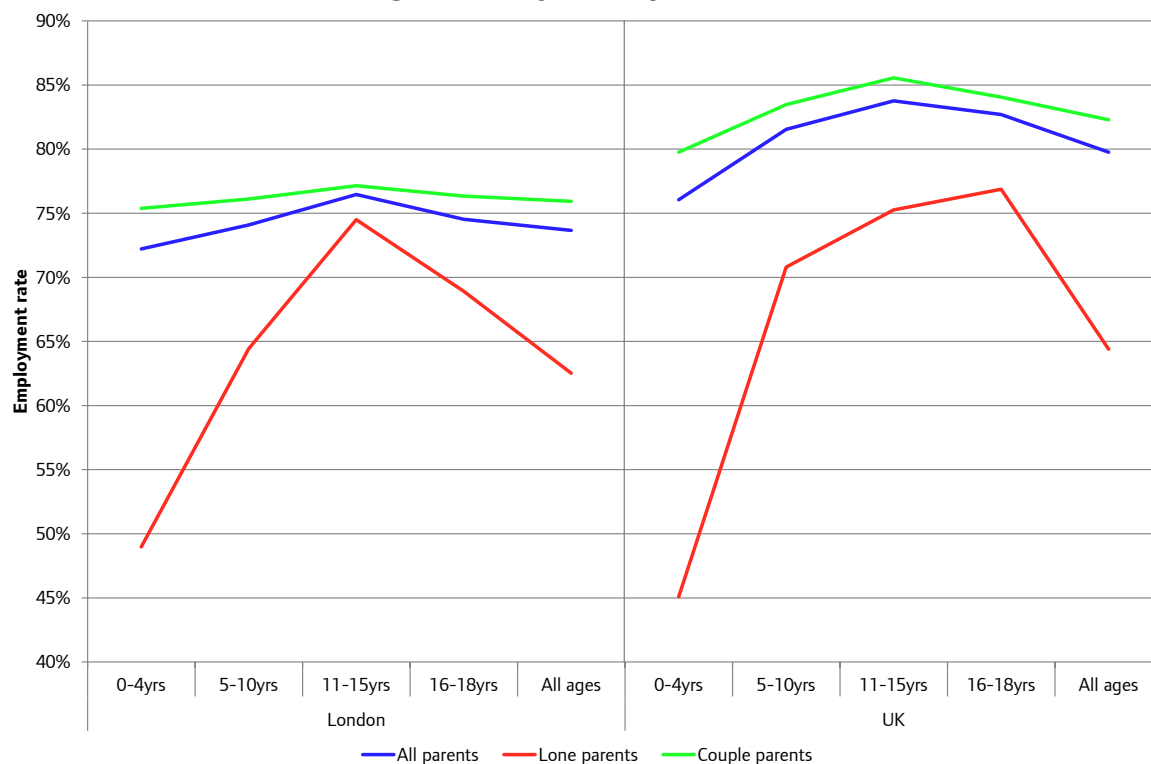


*Note: April to June period.*
*Source: ONS Labour Force Survey households data*

Figure 9.28 also shows the employment rates for lone and couple parents. Here, parents who are part of a couple have higher employment rates than lone parents. For example, the employment rate for couple parents of dependent children of all ages was 75.9 per cent for London in 2015, which was higher than the rate for lone parents of 62.5 per cent.

These employment rates have generally increased since 2012. This can be seen in Figure 9.29 that shows the percentage point change in employment rates between 2012 and 2015. The largest changes were for lone parents and parents with dependent children aged 0-4 years and 5-10 years. Also, London has generally seen a larger increase in employment rates for parents with dependent children as a whole than the UK. Analysis suggests that greater engagement of Jobcentre Plus with single parents in London, dating back to 2008, and the progressive introduction of worksearch conditionality on lone parents are potential explanations for these changes[27].

**Figure 9.29: Percentage point change in employment rates for parents with dependent children in London and the UK, residents aged 16-64 years, 2012 to 2015**
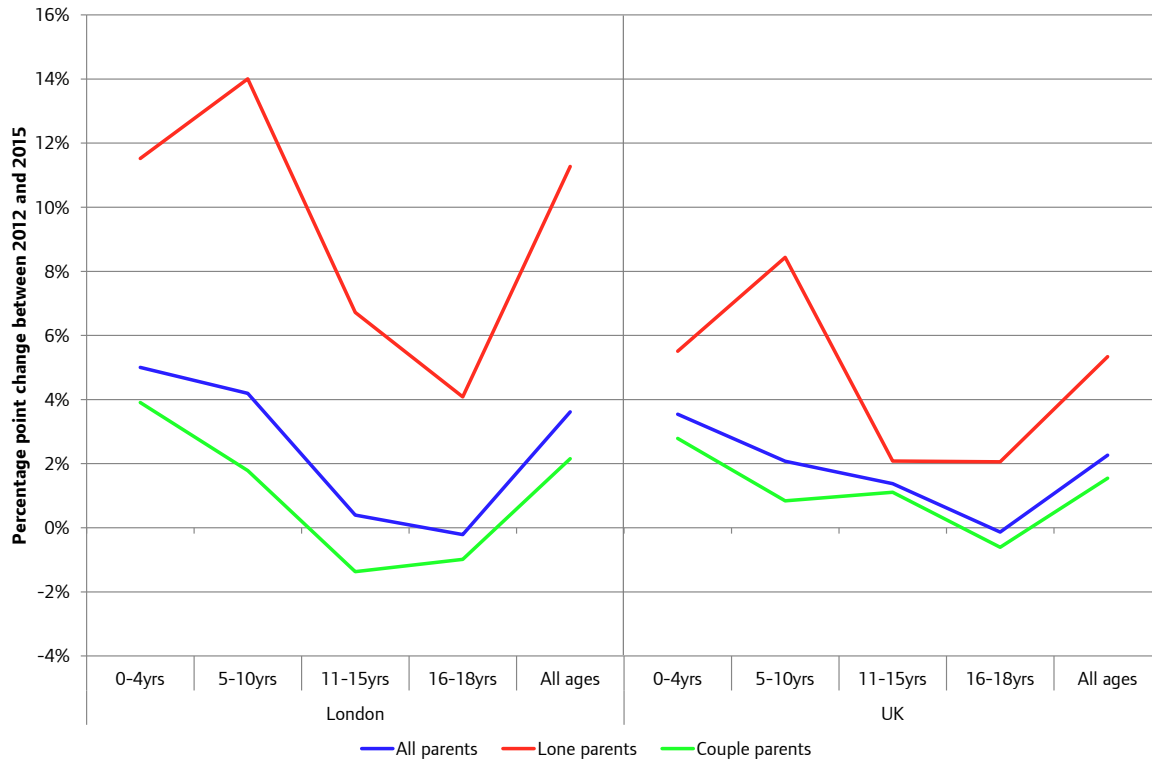


*Note: April to June periods.*
*Source: ONS Labour Force Survey households data*

Alternatively, Figure 9.30 plots the employment rates of parents with dependent children by gender for London and the UK from 2012. Parents in London have a lower employment rate than parents across the UK. This difference is mostly reflective of women with dependent children in London having a lower employment rate than that for the UK as a whole. For example, despite the employment rate for women with dependent children rising 4.6 percentage points between 2012 and 2015 in London, it was still 8.9 percentage points lower than that for the UK as a whole.

**Figure 9.30: Employment rates of parents with dependent children by gender for London and the UK, residents aged 16-64 years, 2012 to 2015**
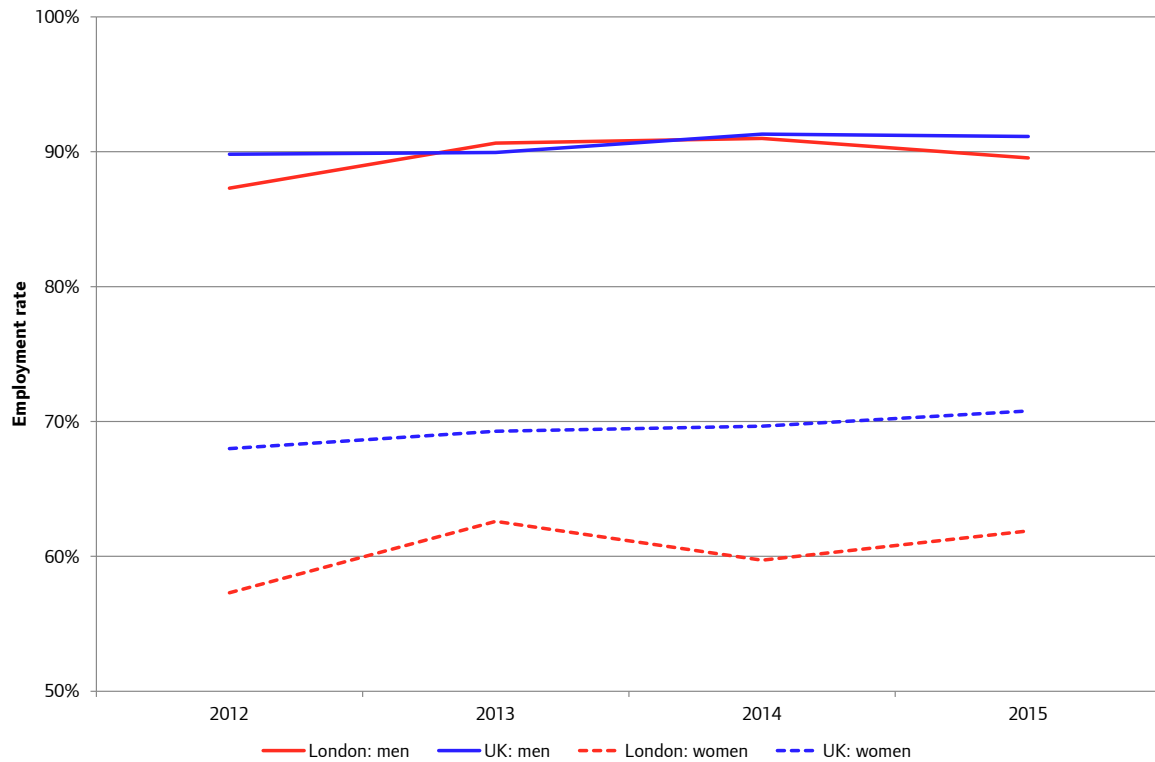


*Note: April to June periods. Source: ONS Labour Force Survey household datasets*

The same information is replicated in Figure 9.31, but for those without dependent children. Women without dependent children in London have a higher employment rate (68 per cent in 2015) than women with dependent children (61.9 per cent). However, the reverse is true for women across the UK where parents have consistently had a higher employment rate than non-parents.

**Figure 9.31: Employment rates of non-parents by gender for London and the UK, residents aged 16-64 years, 2012 to 2015**
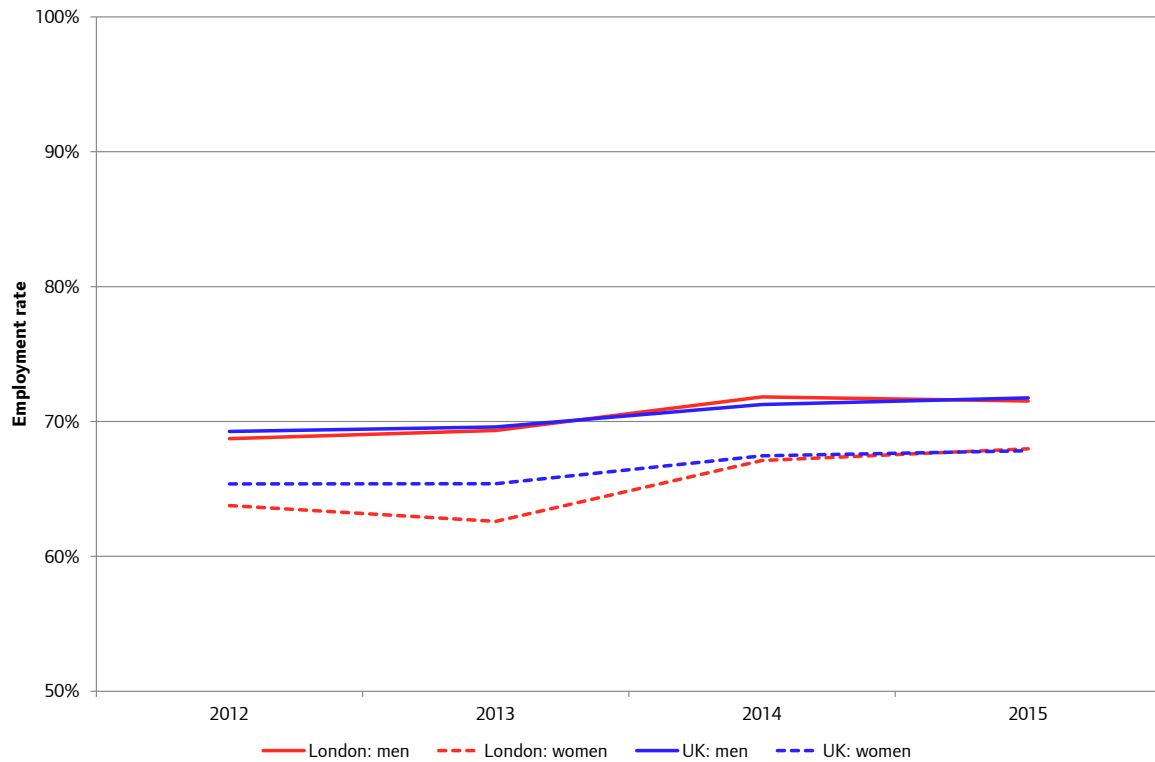


*Note: April to June periods.*
*Source: ONS Labour Force Survey household datasets*

Indeed, whilst the employment rate for women without dependent children in London is broadly the same as the UK, the rate for women with dependent children was much lower than for the UK. The same trend is evident for men, though not to the same degree. This can clearly be seen in Figure 9.32 which shows the information for 2015 only.

**Figure 9.32: Employment rates of parents and non-parents by gender for London and the UK in 2015, residents aged 16-64 years**
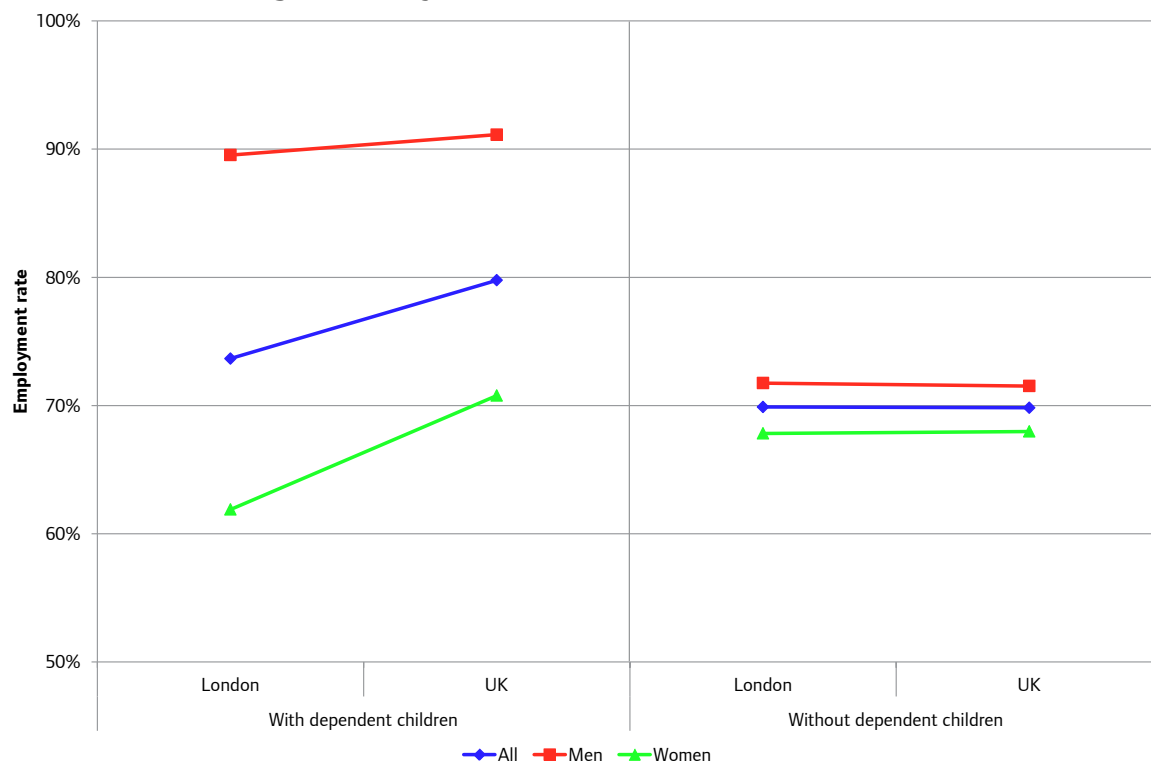


Note: April to June periods.
Source: ONS Labour Force Survey household datasets

One possible explanation as to why women with dependent children are less likely to be in work in London compared with the UK as a whole is the higher cost of living, including childcare[28], though some consideration should be given to the total household income as partners may be earning enough to cover costs and so this could be down to choice. Consequently, this could be a further explanation as to why London's headline employment rate is below that for the UK.

**Box 9.3: Workless households in London**
Data for London shows that it had one of the lowest percentages of working households (53.3 per cent) of all the UK regions in October–December 2015 (Table 9.5). Working households are those where all members aged 16 years and over are in employment. That said, London had a below average percentage of workless households (13.3 per cent versus the UK average of 15.1 per cent) – that is, households where no one aged 16 years or over are in employment, but are instead unemployed or inactive. This was higher in inner London (14.7 per cent) compared with outer London (12.3 per cent).

**Table 9.5: Households by combined economic activity status of household members for the UK regions in October–December 2015, percentage of all households**

| Region | Working households | Mixed households | Workless households | Total |
|---|---|---|---|---|
| North East | 56.1% | 25.1% | 18.9% | 100.0% |
| North West | 57.2% | 25.5% | 17.2% | 100.0% |
| Yorkshire & Humber | 56.5% | 26.3% | 17.2% | 100.0% |
| East Midlands | 57.1% | 27.7% | 15.2% | 100.0% |
| West Midlands | 54.3% | 29.5% | 16.2% | 100.0% |
| East | 61.8% | 26.2% | 12.0% | 100.0% |
| London | 53.3% | 33.4% | 13.3% | 100.0% |
|    Inner London | 54.2% | 31.2% | 14.7% | 100.0% |
|    Outer London | 52.7% | 35.0% | 12.3% | 100.0% |
| South East | 59.9% | 28.2% | 11.8% | 100.0% |
| South West | 60.3% | 26.4% | 13.3% | 100.0% |
| Wales | 55.1% | 27.9% | 17.0% | 100.0% |
| Scotland | 57.7% | 25.3% | 17.0% | 100.0% |
| Northern Ireland | 51.7% | 26.4% | 22.0% | 100.0% |
| **UK** | **57.1%** | **27.7%** | **15.1%** | **100.0%** |

*Notes: this only includes households which have at least one person aged 16-64yrs. Also, mixed households contain both working and workless members.*
*Source: ONS Labour Force Survey household datasets*

One of the key reasons for worklessness in workless households in London is the proportion of students, although unemployment – that is people actively looking for work – is also higher than for most other regions (this refers to the October to December 2014 period - see http://bit.ly/2d584eu). Being sick, disabled or taking early retirement are much less likely as reasons for being workless in London than elsewhere.

The pattern of fewer households with all adults in work and more in mixed households with both working and non-working adults appears even starker when considering the proportion of children in such households (Table 9.6). London (and especially inner London) had a much lower proportion of children in households with all adults in work (i.e. working households).

**Table 9.6: Children in households by combined economic activity status of household members for the UK regions in October–December 2015, percentage of all households with children**

| Region | Working households | Mixed households | Workless households | Total |
|---|---|---|---|---|
| North East | 60.3% | 23.3% | 16.5% | 100.0% |
| North West | 58.0% | 27.6% | 14.4% | 100.0% |
| Yorkshire & Humber | 54.3% | 30.9% | 14.7% | 100.0% |
| East Midlands | 55.8% | 32.4% | 11.8% | 100.0% |
| West Midlands | 53.1% | 34.2% | 12.7% | 100.0% |
| East | 60.2% | 31.4% | 8.5% | 100.0% |
| London | 45.6% | 41.5% | 12.8% | 100.0% |
|   Inner London | 44.8% | 40.9% | 14.3% | 100.0% |
|   Outer London | 46.1% | 42.0% | 11.9% | 100.0% |
| South East | 61.5% | 32.0% | 6.6% | 100.0% |
| South West | 61.2% | 28.6% | 10.2% | 100.0% |
| Wales | 56.0% | 28.1% | 15.8% | 100.0% |
| Scotland | 59.4% | 28.1% | 12.5% | 100.0% |
| Northern Ireland | 59.8% | 24.4% | 15.8% | 100.0% |
| **UK** | **56.3%** | **31.7%** | **12.0%** | **100.0%** |

*Notes: this only includes households which have at least one person aged 16-64yrs. Also, mixed households contain both working and workless members.*
*Source: ONS Labour Force Survey household datasets*

Some workless households include members who have never had a job, though these are rare contributing less than 10 per cent of all workless households in the UK during 2012[29]. The regional distribution of never worked households is shown in Figure 9.33. Overall, London (and, in particular, inner London) had the largest share of never worked households in the UK, though this has fallen since previous years. This in part can be attributed to the difficulty faced by some young people finding their first job after leaving education, as well as the difficulty faced by lone parents, disabled people and ethnic minorities. For example, 44 per cent of never worked households across the UK were lone parents, 65.1 per cent were headed up by women and 34.3 per cent had heads of households that were from ethnic backgrounds.

**Figure 9.33: Regional distribution of never worked households across the UK, 1996, 2005 and 2012**
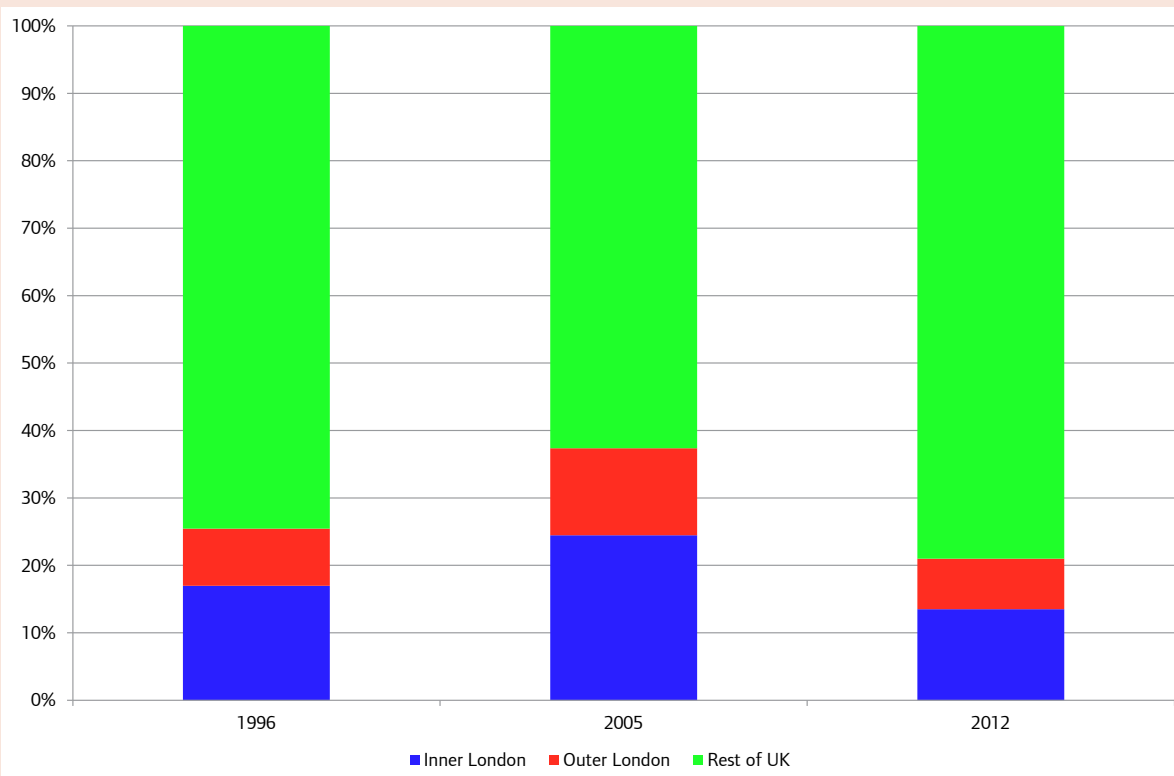


Notes: April to June periods.
Source: Rosso et al. (2015) using ONS Quarterly Households Labour Force Survey data

## Qualifications

In London, 58 per cent of the working age resident population who were in employment had NVQ Level 4 or higher (the equivalent of higher education) in 2015. A further 12.9 per cent had Level 3 (A Levels) and 8.8 per cent had Level 2 (GCSE grade A*-C). Comparably, the UK as a whole had a lower proportion of workers with level 4 than London, but a higher proportion of employees with Level 3 and 2 (Table 9.7)[30].

**Table 9.7: Percentage of those in employment by highest qualification for London and the UK in 2015, residents aged 16-64 years**

| Highest qualification | London | UK |
|---|---|---|
| No qualifications | 4.3% | 5.2% |
| Other qualifications | 8.0% | 6.3% |
| NVQ1 only | 6.6% | 10.1% |
| NVQ2 only | 8.8% | 15.2% |
| Trade Apprenticeships | 1.4% | 3.6% |
| NVQ3 only | 12.9% | 17.1% |
| NVQ4 or higher | 58.0% | 42.4% |
| **Total** | **100.0%** | **100.0%** |

Note: January to December periods and has been reweighted in July 2016.
Source: ONS Annual Population Survey

Employment rates by qualification for London and the UK are shown in Tables 9.8 and 9.9. These show that employment rates in London were generally lower than for the UK as a whole across most qualifications and can therefore not explain the difference between the London and UK headline employment rates. The notable exceptions were for those with either no qualifications or NVQ Level 4 or higher where the employment rates for London were slightly higher than those for the UK in recent years.

**Table 9.8: Employment rates by qualification for London, residents aged 16–64 years, 2004 to 2015**

| Year | No qualification | Other qualifications | NVQ1 only | NVQ2 only | Trade apprentices | NVQ3 only | NVQ4 or higher |
|---|---|---|---|---|---|---|---|
| 2004 | 41.3% | 67.2% | 64.2% | 66.4% | 79.3% | 69.4% | 85.6% |
| 2005 | 42.2% | 66.5% | 65.6% | 62.8% | 80.5% | 67.6% | 85.1% |
| 2006 | 41.5% | 66.1% | 61.5% | 63.4% | 80.0% | 67.2% | 86.0% |
| 2007 | 42.8% | 69.8% | 60.8% | 62.3% | 77.5% | 66.7% | 84.9% |
| 2008 | 39.9% | 68.9% | 58.4% | 63.1% | 83.8% | 65.6% | 84.2% |
| 2009 | 39.6% | 64.9% | 58.3% | 60.2% | 75.7% | 64.6% | 82.8% |
| 2010 | 37.0% | 65.3% | 53.7% | 57.8% | 75.1% | 61.7% | 82.6% |
| 2011 | 39.2% | 61.8% | 55.5% | 56.1% | 72.2% | 62.7% | 80.9% |
| 2012 | 38.0% | 65.0% | 53.0% | 57.8% | 74.0% | 62.4% | 81.5% |
| 2013 | 40.1% | 66.8% | 54.9% | 57.0% | 74.6% | 62.0% | 82.5% |
| 2014 | 38.3% | 68.7% | 56.9% | 58.6% | 73.9% | 66.5% | 83.8% |
| 2015 | 43.1% | 68.8% | 60.1% | 58.4% | 77.6% | 67.0% | 85.0% |

*Note: January to December periods and has been reweighted in July 2016.*
*Source: ONS Annual Population Survey and GLA Economics calculations*

**Table 9.9: Employment rates by qualification for the UK, residents aged 16–64 years, 2004 to 2015**

| Year | No qualification | Other qualifications | NVQ1 only | NVQ2 only | Trade apprentice | NVQ3 only | NVQ4 or higher |
|---|---|---|---|---|---|---|---|
| 2004 | 51.0% | 72.8% | 72.9% | 75.0% | 81.0% | 77.6% | 86.9% |
| 2005 | 49.9% | 73.0% | 72.8% | 74.6% | 81.8% | 77.4% | 87.1% |
| 2006 | 49.6% | 73.9% | 71.6% | 73.9% | 81.9% | 76.8% | 86.8% |
| 2007 | 49.4% | 75.1% | 71.0% | 73.3% | 81.6% | 76.8% | 87.0% |
| 2008 | 44.2% | 72.1% | 67.9% | 71.5% | 80.2% | 75.9% | 84.9% |
| 2009 | 42.2% | 69.1% | 65.2% | 69.0% | 77.5% | 74.0% | 83.6% |
| 2010 | 40.5% | 68.8% | 63.0% | 67.4% | 77.2% | 72.7% | 83.7% |
| 2011 | 40.2% | 68.2% | 62.6% | 66.9% | 77.7% | 72.8% | 82.4% |
| 2012 | 39.7% | 68.5% | 63.0% | 66.9% | 77.0% | 72.3% | 82.8% |
| 2013 | 40.7% | 69.7% | 63.2% | 67.0% | 78.8% | 72.2% | 83.4% |
| 2014 | 41.1% | 71.4% | 64.3% | 67.8% | 79.7% | 73.1% | 83.9% |

*Note: January to December periods and has been reweighted in July 2016. Source: ONS Annual Population Survey and GLA Economics calculations*

**Box 9.4: Hard to fill vacancies in London**

The UKCES Employer Skills Survey showed that 19.7 per cent of all employers in the UK had at least one vacancy in 2015 (Figure 9.34). A larger proportion of employers in London had at least one vacancy (22.7 per cent) and this was statistically higher than most other regions except for the South East. Some of these vacancies were hard to fill. In London, 8 per cent of employers had hard to fill vacancies which was broadly in line with other regions.

**Figure 9.34: Incidence of vacancies and hard to fill vacancies by UK region in 2015, employer base**
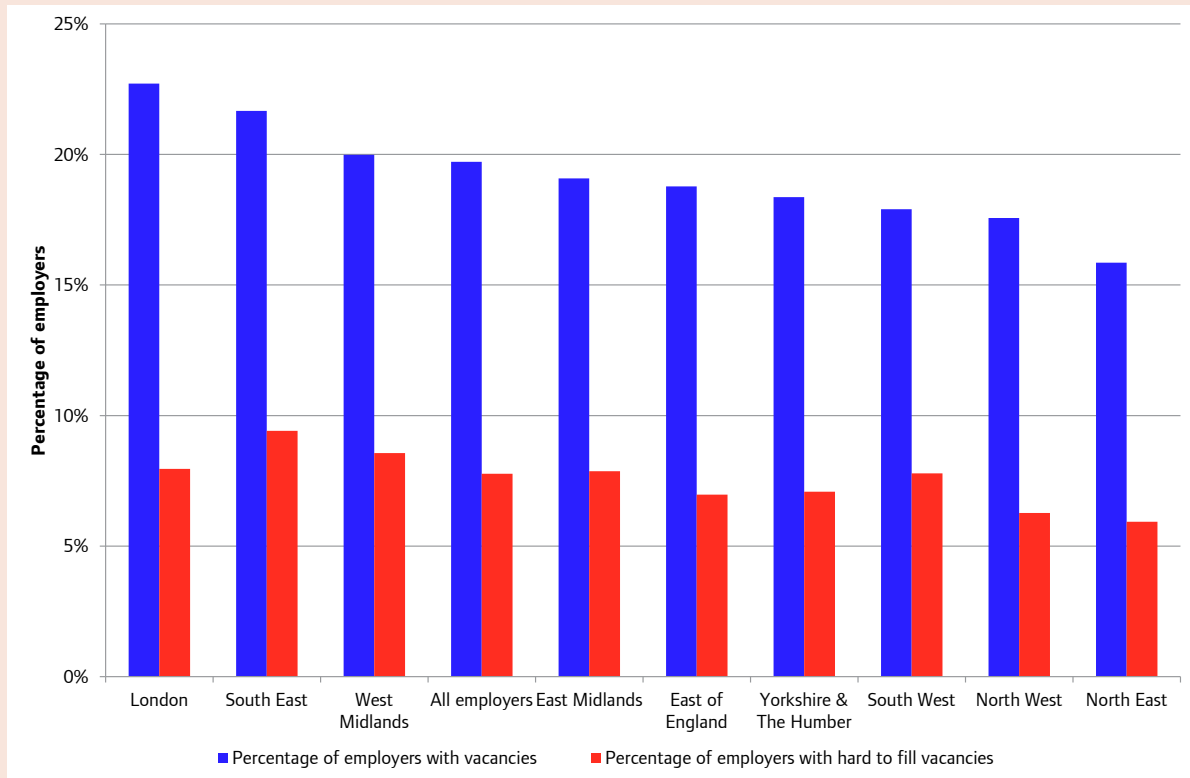


*Source: UKCES Employer Skills Survey*

By occupation, 44.1 per cent of London employers who reported having at least one hard to fill vacancy in 2015 were in Manager, Professional and Associate Professional roles. In fact, London posted the highest incidence of hard to fill Associate Professional vacancies among the UK regions (Table 9.10). In contrast, only 8.3 per cent and 8 per cent of London employers reported hard to fill Sales & Customer Service and Elementary vacancies respectively – that was below average for the UK as a whole. Overall, this suggests that London employers find it relatively easy to fill low-skilled jobs (and in comparison with other regions), but relatively difficult to fill high-skilled roles.

**Table 9.10: Incidence of hard to fill vacancies by occupation and UK region in 2015, employer base**

| Region | Managers | Professionals | Associate Professionals | Administrative/ Clerical staff | Skilled Trades | Caring, Leisure & Other Services staff | Sales & Customer Service staff | Machine Operatives | Elementary | Unclassified |
|---|---|---|---|---|---|---|---|---|---|---|
| East Midlands | 3.6% | 16.1% | 11.5% | 9.4% | 26.3% | 13.9% | 7.5% | 9.6% | 13.4% | 0.8% |
| East of England | 3.1% | 13.9% | 13.2% | 6.0% | 21.7% | 14.5% | 11.7% | 7.9% | 16.9% | 0.0% |
| London | 3.3% | 17.5% | 23.3% | 8.3% | 19.2% | 16.0% | 8.3% | 4.1% | 8.0% | 0.2% |
| North East | 5.4% | 18.0% | 11.9% | 5.5% | 23.1% | 12.5% | 8.1% | 12.1% | 14.0% | 2.0% |
| North West | 3.4% | 13.3% | 14.1% | 8.1% | 20.5% | 15.6% | 11.3% | 7.6% | 19.4% | 0.0% |
| South East | 3.9% | 16.3% | 16.6% | 8.9% | 23.0% | 16.7% | 8.3% | 6.1% | 12.7% | 1.2% |
| South West | 3.3% | 10.7% | 9.7% | 5.3% | 27.1% | 14.5% | 10.6% | 7.2% | 20.1% | 0.0% |
| West Midlands | 4.1% | 15.9% | 13.0% | 3.2% | 27.5% | 12.7% | 10.1% | 7.7% | 13.3% | 2.2% |
| Yorkshire & The Humber | 3.2% | 16.7% | 16.6% | 10.0% | 21.3% | 11.7% | 8.2% | 8.7% | 15.0% | 0.0% |
| **All employers** | **3.6%** | **15.4%** | **15.5%** | **7.4%** | **23.0%** | **14.8%** | **9.3%** | **7.0%** | **14.1%** | **0.6%** |

*Note: May not sum as employers may report more than one vacancy across more than once occupation.*
*Source: UKCES Employer Skills Survey*

This in part is reflective of the structure of London's economy. For example, Chapter 1 shows that London's largest sectors in terms of their output were Financial & Insurance, Real Estate Activities and Professional, Scientific & Technical Activities. These industries had some of the highest incidences of hard to fill high-skilled vacancies and some of the lowest service and labour-intensive hard to fill vacancies as shown for the UK as a whole in Table 9.11.

**Table 9.11: Incidence of hard to fill vacancies by industry for the UK in 2015, employer base**

| Sector | High-skilled | Middle-skilled | Service-intensive | Labour-intensive |
|---|---|---|---|---|
| Agriculture | 4.3% | 21.9% | 15.0% | 61.8% |
| Manufacturing | 27.8% | 52.3% | 4.3% | 23.0% |
| Electricity, Gas and Water | 29.7% | 41.6% | 6.6% | 34.3% |
| Construction | 26.0% | 54.2% | 1.3% | 22.8% |
| Wholesale and Retail | 17.7% | 32.0% | 39.6% | 18.3% |
| Hotels and restaurants | 6.0% | 46.3% | 5.3% | 59.3% |
| Transport, Storage and Comms | 44.7% | 24.7% | 9.5% | 25.5% |
| Financial services | 52.2% | 39.4% | 11.0% | 3.1% |
| Business services | 58.4% | 28.8% | 7.6% | 11.2% |
| Public admin. | 47.6% | 18.5% | 32.9% | 12.5% |
| Education | 54.0% | 9.1% | 34.8% | 8.9% |
| Health and social work | 41.0% | 8.6% | 52.8% | 6.0% |
| Arts and Other Services | 12.4% | 14.5% | 71.3% | 8.7% |
| **All sectors** | **32.9%** | **30.1%** | **24.1%** | **20.8%** |

*Note: Respondents were allowed to select more than one reason.*
*Source: UKCES Employer Skills Survey.*

One possible reason why London employers may find it less difficult to fill low-skilled vacancies is due to the level of labour supply. Although Table 9.12 refers to all vacancies regardless of occupation or skill level and survey respondents can select more than one answer, 67.8 per cent of London employers cited that the main cause of having a hard to fill vacancy was due to the quality of applicants (the highest of any region) compared with 28.2 per cent citing the quantity of applicants (the second-lowest of any region).

**Table 9.12: Percentage of employers citing the main cause of having hard to fill vacancies by UK region in 2015, employer base**

| Region | Quality of applicants | Quantity of applicants | Contextual factors |
|---|---|---|---|
| East Midlands | 63.9% | 34.5% | 45.9% |
| East of England | 59.8% | 27.3% | 33.9% |
| London | 67.8% | 28.2% | 32.9% |
| North East | 58.6% | 31.6% | 44.0% |
| North West | 54.7% | 32.7% | 27.4% |
| South East | 58.7% | 38.8% | 40.4% |
| South West | 47.8% | 29.2% | 38.8% |
| West Midlands | 65.3% | 40.3% | 37.9% |
| Yorkshire & The Humber | 62.2% | 34.2% | 37.3% |
| **All employers** | **60.2%** | **33.3%** | **37.0%** |

*Note: Respondents were allowed to select more than one reason.*
*Source: UKCES Employer Skills Survey.*

## 9.2.5 Disabilities

The percentage of the working age population who were disabled[31] in London was estimated at 16.2 per cent in 2015. In comparison, approximately 19.5 per cent of people aged 16-64 were disabled across the UK.

The employment rates for disabled and non-disabled people for London and the UK are shown in Figure 9.35. In London, the employment rate for disabled people was 50.1 per cent in 2015, compared with 77.4 per cent for non-disabled people. Notably, the employment rate for those who were disabled was broadly the same as the UK (49.2 per cent), but lower for non-disabled individuals (79.5 per cent).

**Figure 9.35: Employment rates by disability for London and the UK, residents aged 16–64 years, 2004 to 2015**
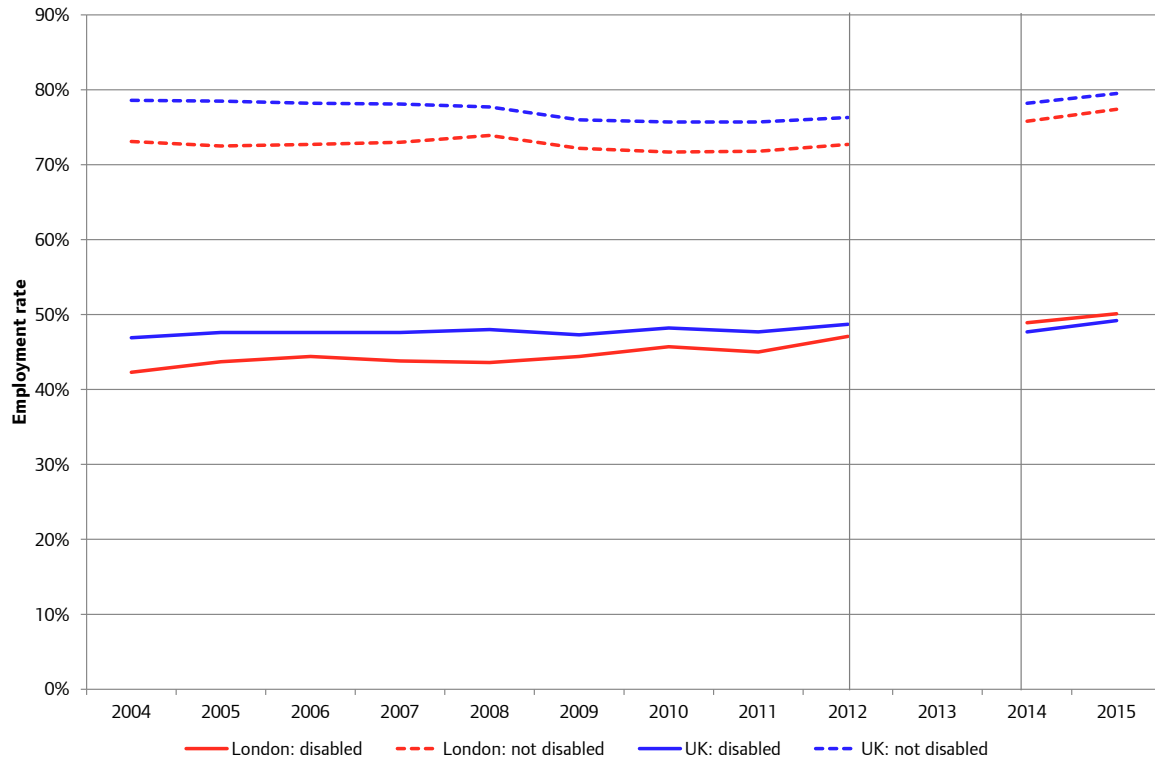


*Note: Data for 2004 to 2012 is based on the Disability Discrimination Act definitions, whilst data for 2014 is based on the Equalities Act definition. The two are inherently different and cannot be compared. January to December periods and has been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

**Box 9.5: International comparisons**

This box compares London's labour market with other global cities. However, from the outset, international comparisons are fraught with difficulty – differences in definitions, geography and data collection methods are well documented[32]. This analysis uses various national definitions and statistics which, as a result, means many of these differences are likely to remain. This means that this analysis needs to be treated with some caution.

Acknowledging the above, Figure 9.36 shows the employment rates for residents aged 16-64 years for several global cities in 2015. London had a higher employment rate than Paris and New York in 2015. It was also broadly in line with Singapore, but below that for Dubai.

**Figure 9.36: Employment rates for the global cities in 2015, residents aged 16-64 years**
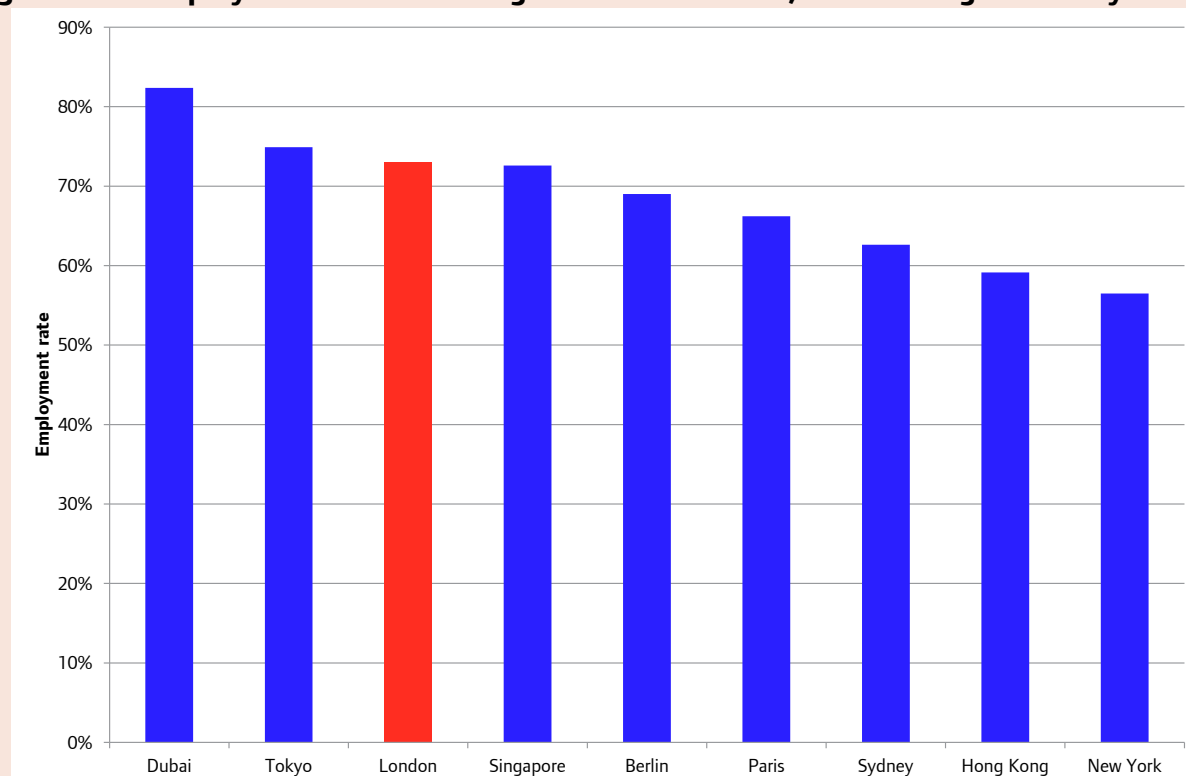


| City | Definition | Source | Notes | Employment rate |
|------|-----------|--------|-------|-----------------|
| Beijing | .. | .. | .. | .. |
| Berlin | Berlin NUTS1 | Eurostat | 1 | 69.0% |
| Dubai | Emirate of Dubai | Dubai Statistics Centre | 1,3 | 82.4% |
| Hong Kong | Hong Kong SAR | HK Census & Statistics Department | 1,3 | 59.1% |
| **London** | **London NUTS1** | **ONS** | **..** | **73.0%** |
| New York | New York City | US Bureau of Labor Statistics | 2,3 | 56.5% |
| Paris | Ile-de-France NUTS1 | Eurostat | 1 | 66.2% |
| Shanghai | .. | .. | .. | .. |
| Singapore | Singapore | SingStat | 1 | 72.6% |
| Sydney | Greater Sydney | Australian Bureau of Statistics | 1,4 | 62.6% |
| Tokyo | Tokyo metro area | Tokyo General Affairs Bureau Statistics Division | 1 | 74.9% |

Notes: (1) Definitions include 15 year olds. (2) Refers to 2014. (3) Refers to residents aged 16 years and over. (4) Annual average. Source: see table.

Meanwhile, London had a lower unemployment rate than Paris, Berlin and New York in 2015, but a higher rate than all other global cities considered (Figure 9.37).

**Figure 9.37: Unemployment rates for the global cities in 2015, residents aged 16 years and over**
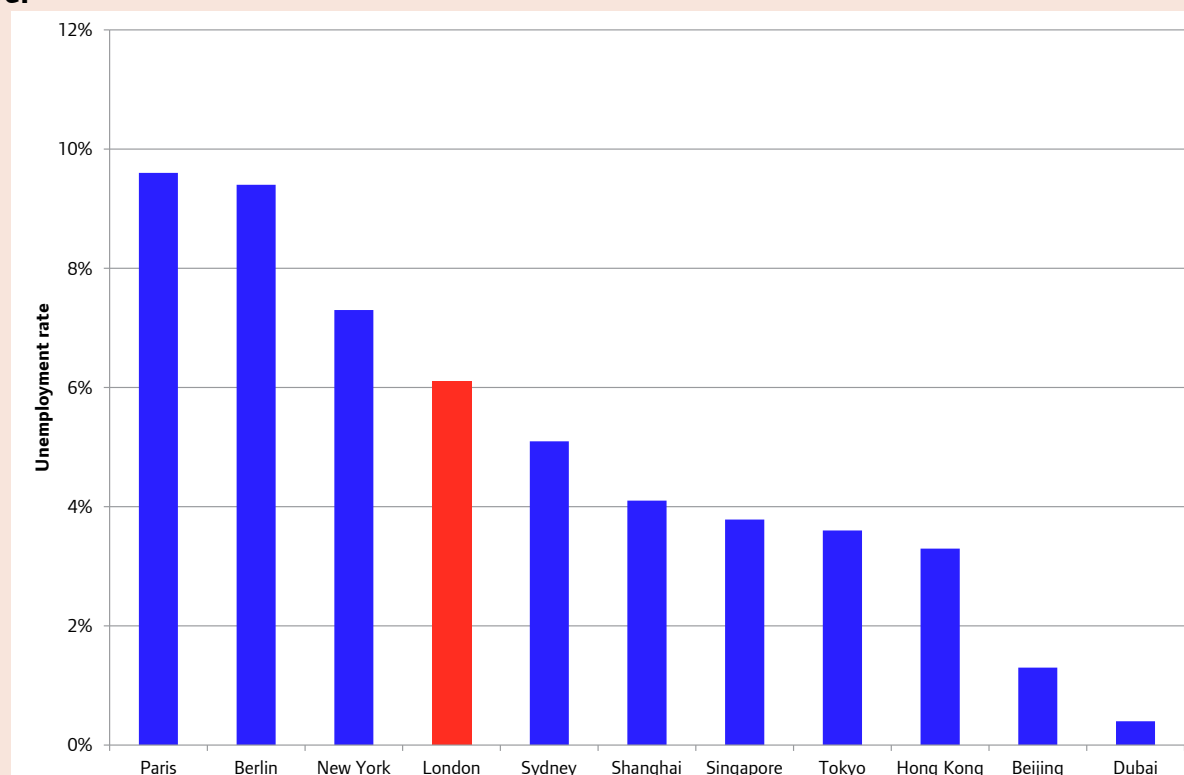


| City | Definition | Source | Notes | Unemployment rate |
|------|-----------|--------|-------|-------------------|
| Beijing | Beijing province | National Bureau of Statistics of China | 2,4 | 1.3% |
| Berlin | Berlin NUTS1 | Eurostat | 1 | 9.4% |
| Dubai | Emirate of Dubai | Dubai Statistics Centre | 1 | 0.4% |
| Hong Kong | Hong Kong SAR | HK Census & Statistics Department | 1 | 3.3% |
| **London** | **London NUTS1** | **ONS** | **..** | **6.1%** |
| New York | New York City | US Bureau of Labor Statistics | 2 | 7.3% |
| Paris | Ile-de-France NUTS1 | Eurostat | 1 | 9.6% |
| Shanghai | Shanghai province | National Bureau of Statistics of China | 2,4 | 4.1% |
| Singapore | Singapore | SingStat | 1 | 3.8% |
| Sydney | Greater Sydney | Australian Bureau of Statistics | 1,3 | 5.1% |
| Tokyo | Tokyo metro area | Tokyo General Affairs Bureau Statistics Division | 1 | 3.6% |

*Notes: (1) Definitions include 15 year olds. (2) Refers to 2014. (3) Annual average. (4) Registered unemployed in urban areas only. Source: see table.*

As noted earlier in this chapter, the employment rate for men is higher than women in London (Figure 9.18). This is similarly the case for all global cities, though the extent of this varies (Figure 9.38). For example, the difference in employment rates for men and women in London was 13 percentage points in 2015. However, this ranged from 44.6 percentage points in Dubai (reflective of near full employment for men) and 5 percentage points in Berlin.

**Figure 9.38: Employment rates by gender for the global cities in 2015, residents aged 16-64 years**
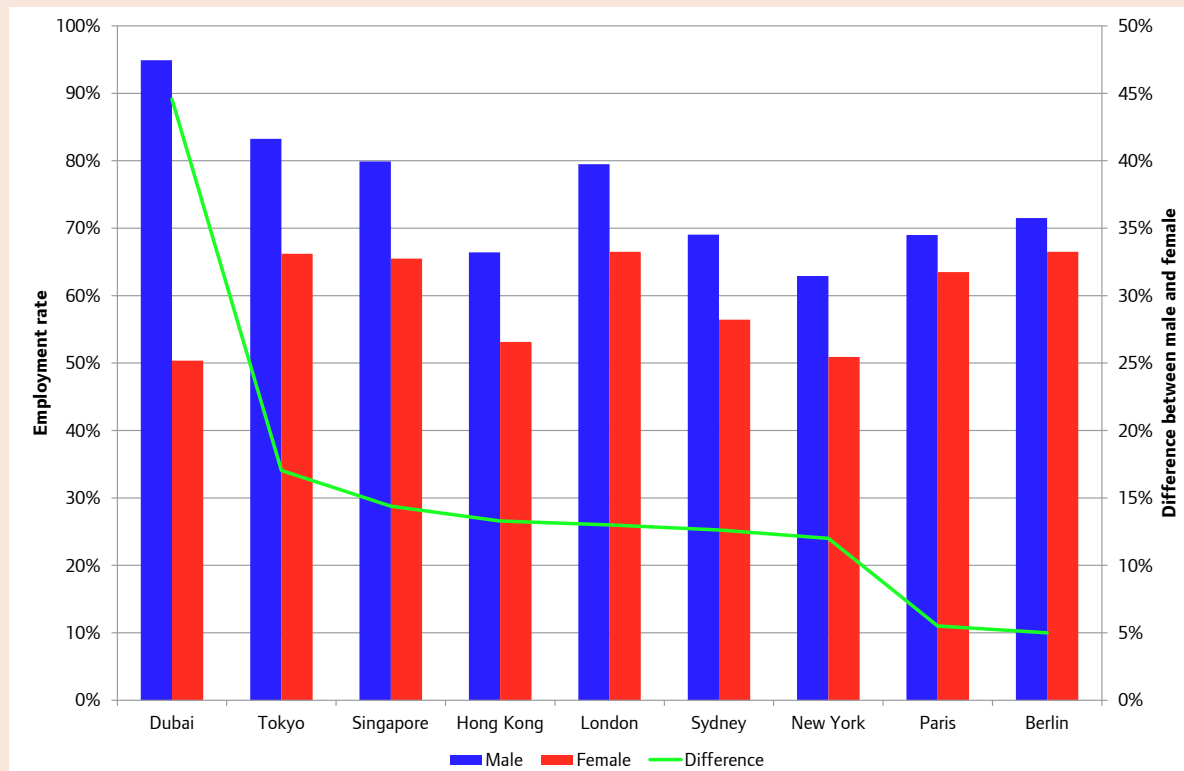


| City | Definition | Source | Notes | Employment rate | | |
|------|-----------|--------|-------|------|--------|-----|
| | | | | Male | Female | All |
| Beijing | .. | .. | .. | .. | .. | .. |
| Berlin | Berlin NUTS1 | Eurostat | 1 | 71.5% | 66.5% | 69.0% |
| Dubai | Emirate of Dubai | Dubai Statistics Centre | 1,3 | 94.9% | 50.3% | 82.4% |
| Hong Kong | Hong Kong SAR | HK Census & Statistics Department | 1,3 | 66.4% | 53.1% | 59.1% |
| **London** | **London NUTS1** | **ONS** | **..** | **79.5%** | **66.5%** | **73.0%** |
| New York | New York City | US Bureau of Labor Statistics | 2,3 | 62.9% | 50.9% | 56.5% |
| Paris | Ile-de-France NUTS1 | Eurostat | 1 | 69.0% | 63.5% | 66.2% |
| Shanghai | .. | .. | .. | .. | .. | .. |
| Singapore | Singapore | SingStat | 1 | 79.9% | 65.5% | 72.6% |
| Sydney | Greater Sydney | Australian Bureau of Statistics | 1,4 | 69.1% | 56.4% | 62.6% |
| Tokyo | Tokyo metro area | Tokyo General Affairs Bureau Statistics Division | 1 | 83.2% | 66.2% | 74.9% |

Notes: (1) Definitions include 15 year olds. (2) Refers to 2014. (3) Refers to residents aged 16 years and over. (4) Annual average. Source: see table.

Similarly, as discussed earlier, employment rates for young (16-24 years) and older people (65 years and over) were lower than for the rest of the labour market (i.e. 25-64 years) in London. This trend can also be seen for other global cities as shown in Table 9.13.

**Table 9.13: Employment rates by age group for the global cities in 2015, residents**

| City | Definition | Source | Notes | Employment rate | | | | | |
|------|-----------|--------|-------|--------|--------|--------|--------|--------|--------|
| | | | | 16-24yrs | 25-34yrs | 35-44yrs | 45-54yrs | 55-64yrs | +65yrs |
| Beijing | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Berlin | Berlin NUTS1 | Eurostat | 1 | 37.1% | 74.4% | 79.7% | 78.4% | 63.3% | 6.1% |
| Dubai | Emirate of Dubai | DSC | 1,3 | .. | .. | .. | .. | .. | .. |
| Hong Kong | Hong Kong SAR | HK C&S Dep. | 1,3 | .. | .. | .. | .. | .. | .. |
| **London** | **London NUTS1** | **ONS** | **..** | **46.3%** | **81.8%** | **76.1%** | | | **12.5%** |
| New York | New York City | US BLS | 2,3 | .. | .. | .. | .. | .. | .. |
| Paris | Ile-de-France | Eurostat | 1 | 24.6% | 76.2% | 83.5% | 82.7% | 57.4% | 3.8% |
| Shanghai | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Singapore | Singapore | SingStat | 1 | 36.8% | 86.6% | 86.1% | 81.7% | 67.2% | 24.7% |
| Sydney | Greater Sydney | ABS | 1,4 | .. | .. | .. | .. | .. | .. |
| Tokyo | Tokyo metro area | TGAB Statistics | 1 | 42.0% | 82.5% | 81.9% | 83.2% | 71.9% | 25.0% |

Notes: (1) Definitions include 15 year olds. (2) Refers to 2014. (3) Refers to residents aged 16 years and over. (4) Annual average. Source: see table.

This table also shows interesting trends for specific age groups. For example, the employment rate for people aged 16-24 years was highest in London, though this could partly be a result of differences in the age of school leavers. Moreover, whilst one-in-eight people aged 65 years and over were in employment in London during 2015, this was one-in-four for Singapore and Tokyo.

More detailed international comparisons looking at the labour market can be found in the GLA Economics Current Issues Note 48[33], whilst comparisons looking at indicators like tourism and city rankings can be found in Chapter 5.

## 9.2.6 Earnings

London's wages are higher than those for the UK as a whole. In 2015, the mean hourly gross wage for a full-time job was £21.07 in London[34] which was 31.4 per cent higher than the UK (£16.03). Meanwhile, the mean hourly wage for a part-time job was £13.45 in London, compared with £11.15 for the UK.

A better measure of average earnings is the median hourly gross wage (Figure 9.39) given the structure of London's labour market where some workers are paid high wages and would therefore affect the mean. On this basis, London's median hourly wage for full-time jobs was £17.16 in 2015, which was 28.4 per cent higher than the UK (£13.36). Even for part-time roles, the hourly wage in London was 13.2 per cent higher (£9.60 versus £8.48).

**Figure 9.39: Gross nominal median hourly earnings in London and the UK, workplace basis, 1997 to 2015**
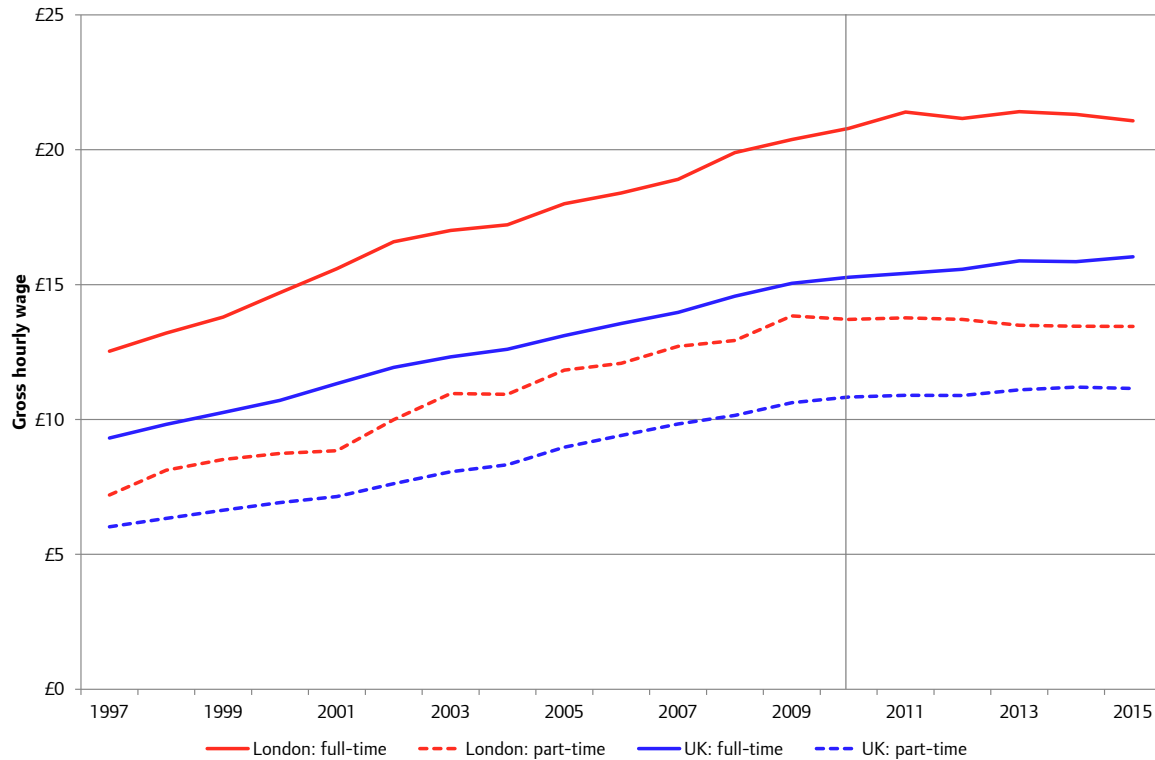


Note: A classification change in 2011 (and subsequent years) means that care should be taken when making comparison with earlier years.
Source: ONS Annual Survey of Hours and Earnings

By gender, the average (median) full-time hourly wage was £18.23 for men and £16.06 for women in London. This suggests that women earn, on average, 13.5 per cent less than men in London. Even using a different approach to calculating the gender pay gap – looking at hourly earnings excluding overtime and using earnings for men as the denominator – suggests that, on average, men earn 11.8 per cent more than women in London. Historically, male full-time workers have been paid more than their female equivalents (using the first approach) as illustrated in Figure 9.40, though the pay gap has reduced slightly in recent years. Moreover, since 2005, this pay gap for full-time workers has been larger in London than the UK as a whole. However, the reverse is true for part-time workers in London. The median hourly wage was £9.14 for men and £9.88 for women in 2015 – a difference of (-) 7.5 per cent. One possible explanation as to why men working part-time have a lower hourly wage than women in London could be due to male part-time workers being in lower skilled jobs as shown earlier – see Table 9.1.

**Figure 9.40: Nominal median pay gap between male and female workers by full-time and part-time for London and the UK, workplace basis, 2006 to 2015**
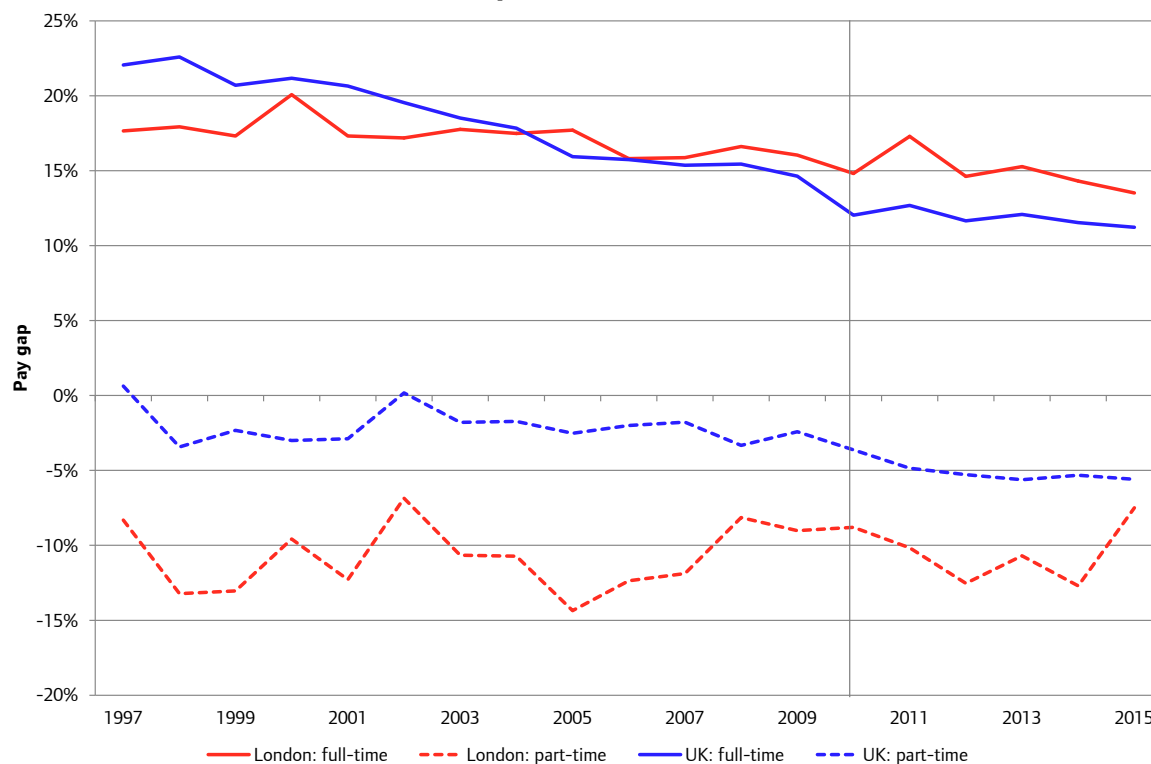


*Note: A classification change in 2011 (and subsequent years) means that care should be taken when making comparison with earlier years.*
*Source: ONS Annual Survey of Hours and Earnings*

Notably, the gender pay gap is larger when looking at mean hourly wages. For example, the pay gap between male and female full-time workers in London during 2015 was 25.3 per cent for mean earnings compared with 13.5 per cent for median wages. This in part can be explained by the gender pay gap being wider at higher rates of hourly earnings which would affect the mean. This can be seen in Figure 9.41 which plots the gross hourly earnings by wage percentile (i.e. the 75th percentile earnings show the wage earned by the person who sits three-quarters along the wage distribution when arranged from lowest to highest). For instance, the gender pay gap for full-time workers in London at the 10th percentile of earnings was 7.1 per cent in 2015, but this was 41 per cent at the 90th percentile. Moreover, London had a larger gender pay gap for high earners than for the UK as a whole – the UK pay gap at the 90th percentile was lower at 22.8 per cent.

**Figure 9.41: Nominal pay gap between full-time male and female workers by wage percentile in London during 2015, workplace basis**
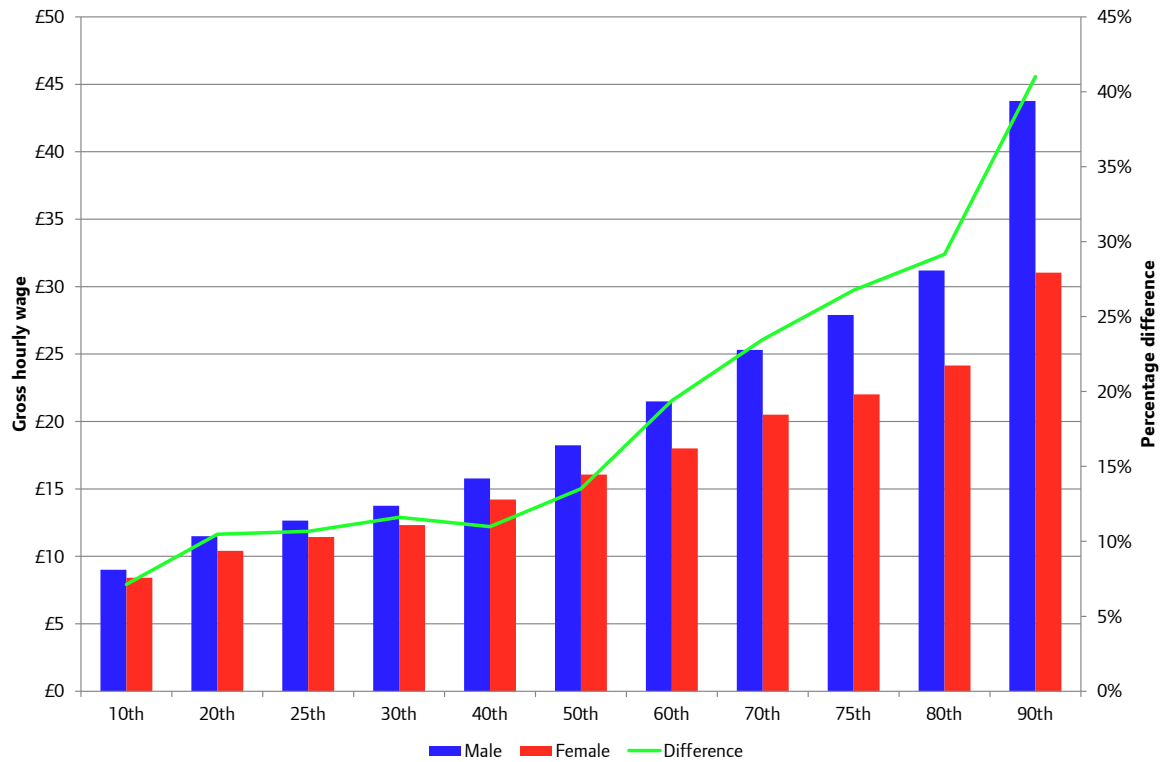
It should be noted that all these are 'simple' comparisons of the wage paid to men and women; they do not attempt to account for differences in characteristics between the two groups. There are a number of reasons why these 'simple' pay gaps exists. For example, factors that could potentially answer why the pay gap is larger in London compared with the UK include age, ethnicity, occupation, employment sector, hours worked and the size of the workplace.

These headline earnings figures mask significant differences between London's industrial sectors as shown in Figure 9.42. This is partly a reflection of the structure of London's economy where there are significant specialisations in certain industries. For example, the median full-time wage in the Financial & Insurance sector was £31.48 in London which was 61.6 per cent larger than that for the UK (£19.48) in 2015. In fact, the median full-time wage in London was almost equivalent to the UK's wage at the 75th percentile. Other notable differences were for the Transportation & Storage (29.8 per cent) and Human Health & Social Work (26.4 per cent) sectors. There was only one industry where London had a lower wage than the UK and this was for the Water Supply, Sewage & Waste Management sector where the average wage was £11.97 in London compared with £12.88 across the UK.

**Figure 9.42: Median gross hourly earnings for full-time jobs by sector in London and the UK during 2015, workplace basis**
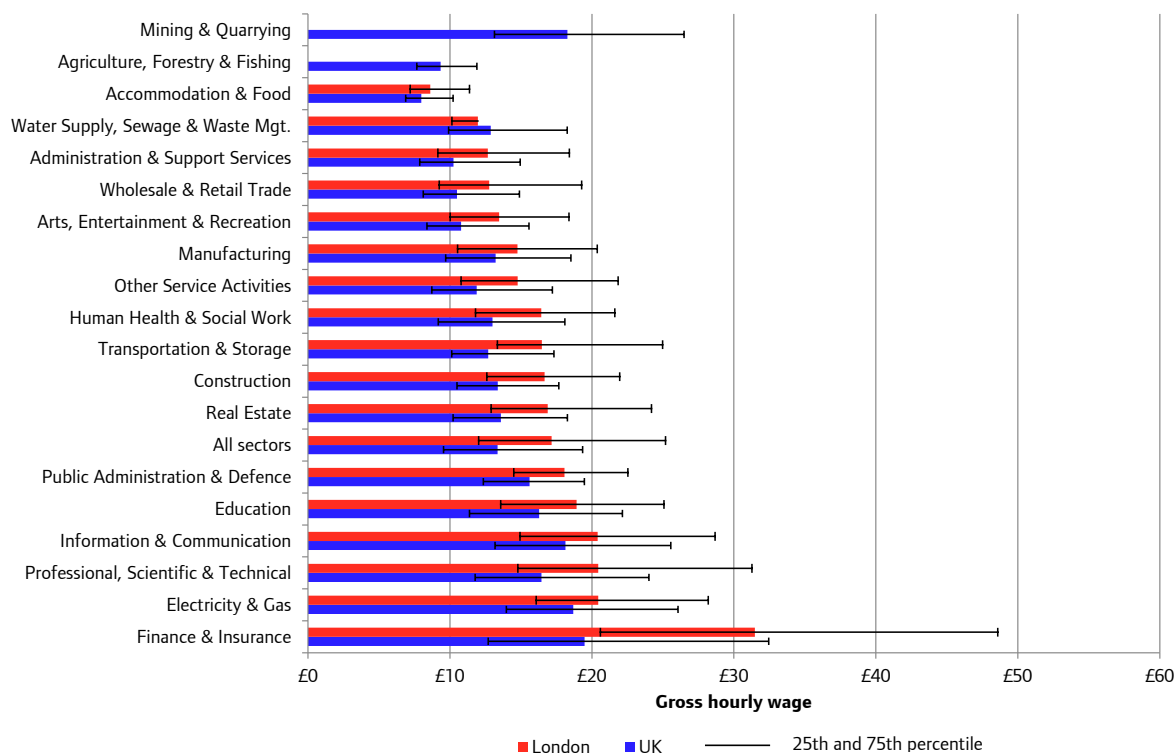


Note: SIC 2007 breakdowns.
Source: ONS Annual Survey of Hours and Earnings

By gender, men and women in London had a higher hourly wage than the UK as a whole for most of the sectors in 2015, with the sole exception of Water Supply, Sewage & Waste Management. That said, this gap was larger for women in percentage terms. The same trend was evident when looking at full and part-time jobs by gender. However, women working part-time in London also had a lower wage than the UK as a whole if they worked in the Construction or Administrative & Support Services sectors (Table 9.14).

**Table 9.14: Nominal pay gap between London and the UK in 2015 by gender and full and part-time jobs, median gross nominal hourly wage, workplace basis**

| Industry | Male | | | Female | | |
|---|---|---|---|---|---|---|
| | Full-time | Part-time | All | Full-time | Part-time | All |
| Agriculture, Forestry & Fishing | x | .. | x | 17.1% | .. | **17.4%** |
| Mining & Quarrying | x | .. | x | 20.0% | .. | **24.8%** |
| Manufacturing | 12.0% | -9.5% | **9.9%** | 10.1% | 2.6% | **12.4%** |
| Electricity & Gas | 6.4% | .. | **6.0%** | x | .. | **x** |
| Water Supply, Sewage & Waste Mgt. | -8.2% | .. | **-6.9%** | x | -4.8% | **x** |
| Construction | 25.0% | x | **23.3%** | 26.7% | -7.3% | **22.0%** |
| Wholesale & Retail Trade | 19.5% | 7.6% | **13.4%** | 25.8% | 8.6% | **18.6%** |
| Transportation & Storage | 29.8% | 13.7% | **32.9%** | 30.1% | 81.5% | **39.6%** |
| Accommodation & Food | 9.1% | 5.7% | **10.3%** | 9.0% | 7.5% | **13.2%** |
| Information & Communication | 15.6% | 2.5% | **15.2%** | 14.3% | 32.8% | **18.5%** |
| Finance & Insurance | 52.3% | x | **54.2%** | 50.5% | 34.9% | **59.5%** |
| Real Estate | 31.0% | x | **28.0%** | 21.6% | 4.0% | **30.1%** |
| Professional, Scientific & Technical | 24.7% | x | **25.9%** | 27.6% | 42.9% | **35.9%** |
| Administration & Support Services | 18.7% | 4.3% | **18.9%** | 31.0% | -1.2% | **20.7%** |
| Public Administration & Defence | 13.8% | x | **15.3%** | 15.3% | 40.7% | **22.8%** |
| Education | 18.4% | 35.9% | **19.7%** | 16.2% | 23.9% | **27.4%** |
| Human Health & Social Work | 23.2% | 35.4% | **24.9%** | 27.5% | 23.5% | **30.0%** |
| Arts, Entertainment & Recreation | 22.9% | 20.7% | **30.1%** | 27.7% | 10.8% | **30.7%** |
| Other Service Activities | 27.5% | 8.8% | **23.1%** | 28.4% | 9.6% | **37.3%** |
| **All sectors** | **30.5%** | **12.7%** | **31.1%** | **27.9%** | **15.0%** | **36.8%** |

*Note: This table shows the percentage difference between the nominal gross hourly wage for London and the UK. This is split by gender, full and part-time jobs, and industry. For example, London's median gross hourly wage for men working full-time in the Finance & Insurance sector was 52.3 per cent higher than that for the UK as a whole. Figures that are unreliable due to small sample sizes are shown by an 'x' and figures that are disclosive are shown by a '..'. Source: ONS Annual Survey of Hours and Earnings.*

Looking over time, the nominal median gross hourly wage has increased 8.4 per cent between 2008 and 2015 in London. That was the slowest rate of increase across all 12 UK regions as shown in Figure 9.43, with the average rate of growth 11.5 per cent for the UK. The same can be said when looking at the mean gross hourly wage where London's growth rate of 5.9 per cent was slower than the UK average rate of 10 per cent. (It should be noted that hourly earnings does not equal household income, which is instead discussed in Chapter 10).

**Figure 9.43: Growth in nominal median gross hourly earnings for full-time jobs between 2008 and 2015 by UK region, workplace basis**
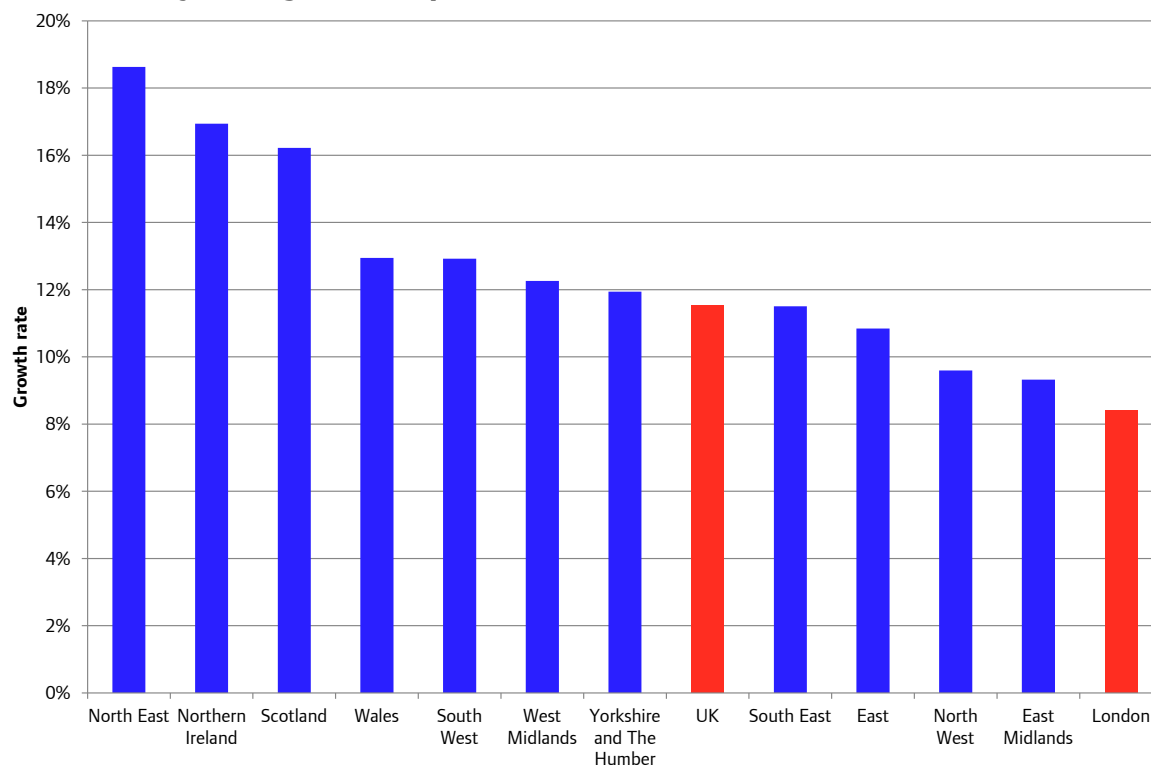


*Source: ONS Annual Survey of Hours and Earnings*

Similar trends are observed when looking at full-time hourly wages by private and public sectors[35]. Figure 9.44 shows the rates of nominal wage growth for the UK regions between 2009 and 2015 (note that this is a slightly different time period to the above analysis[36]). Nominal hourly wages in London's private sector grew 3.4 per cent over this period and this was the slowest rate in the UK and, whilst hourly earnings growth in the public sector was faster at 6.9 per cent, it was nonetheless the second weakest across the UK.

**Figure 9.44: Growth in nominal median gross hourly earnings for full-time jobs between 2009 and 2015 by private and public sector and by UK region, workplace basis**
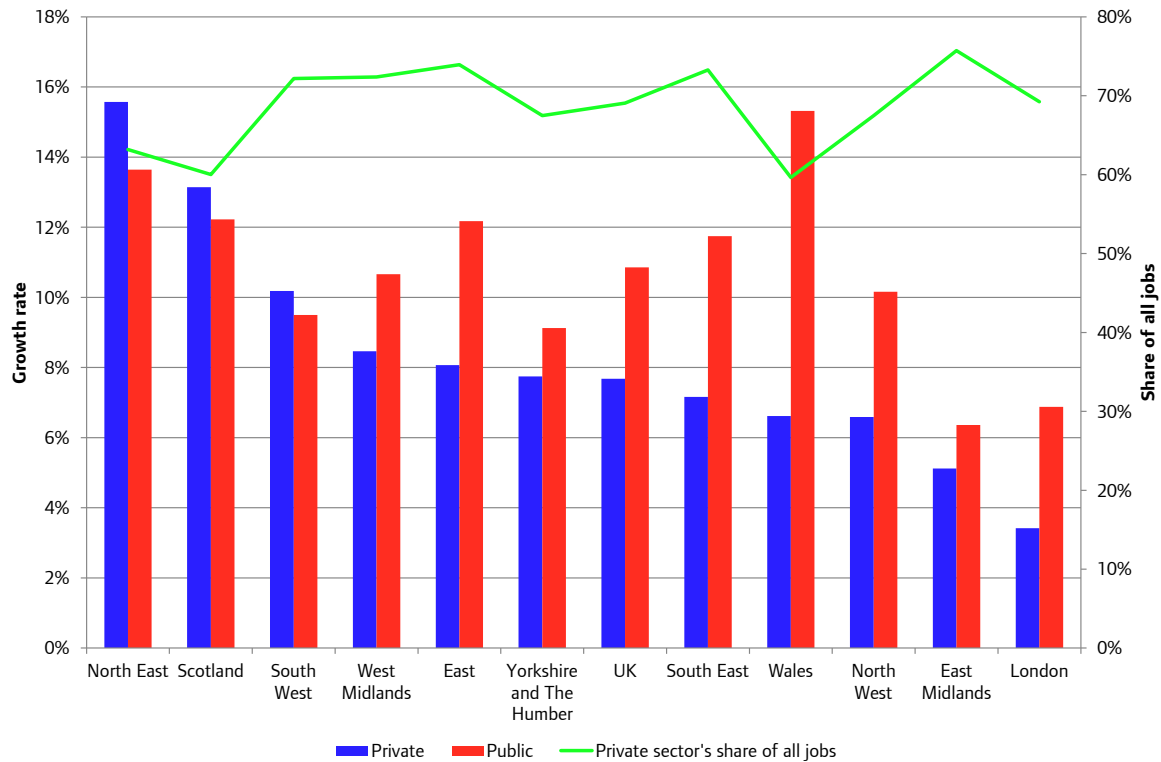


*Note: the number and proportion of jobs is for indicative purposes and not an accurate estimate of employee job counts.*
*Source: ONS Annual Survey of Hours and Earnings*

In fact, consumer prices have largely grown at a faster rate than average (mean) weekly wages across the UK since 2008 to mid-2014 as shown in Figure 9.45. That said, since the second half of 2014, annual average weekly earnings inflation has consistently stood above price inflation, though this is largely a reflection of record-low rates of Consumer Price Index (CPI) inflation due to falling oil prices rather than particularly strong earnings growth.

**Figure 9.45: Average (mean) nominal weekly earnings inflation for the UK and CPI inflation, 2001-2016**
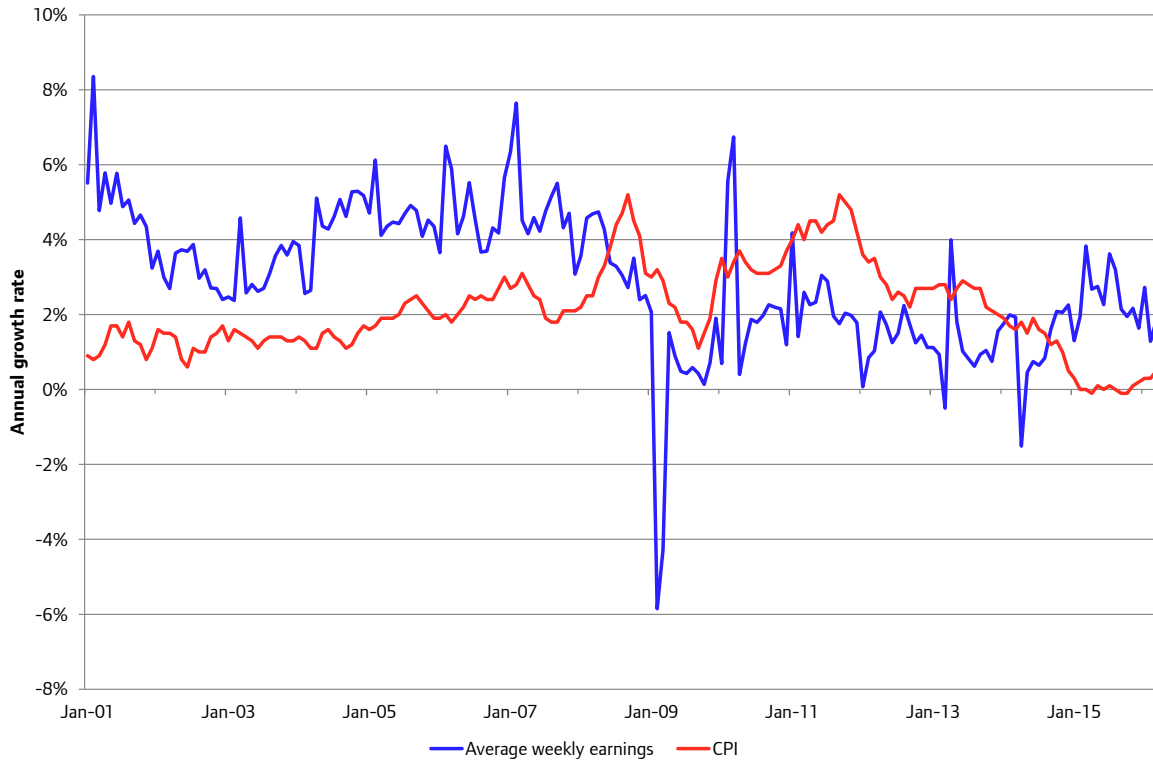


*Note: AWE refers to total pay for the UK's whole economy.*
*Source: ONS Annual Survey of Hours and Earnings, ONS CPI*

Meanwhile, Figure 9.46 shows the gross hourly wage for full-time workers by wage percentile across London and the UK. This chart shows that higher earners earn comparatively more in London than across the UK as a whole. For example, at the 10th percentile, earnings in London were 15.5 per cent higher than the UK in 2015; but at the 90th percentile, this difference was larger at 38.9 per cent.

**Figure 9.46: Average hourly earnings by wage percentiles for London and the UK in 2015, workplace basis, nominal prices**
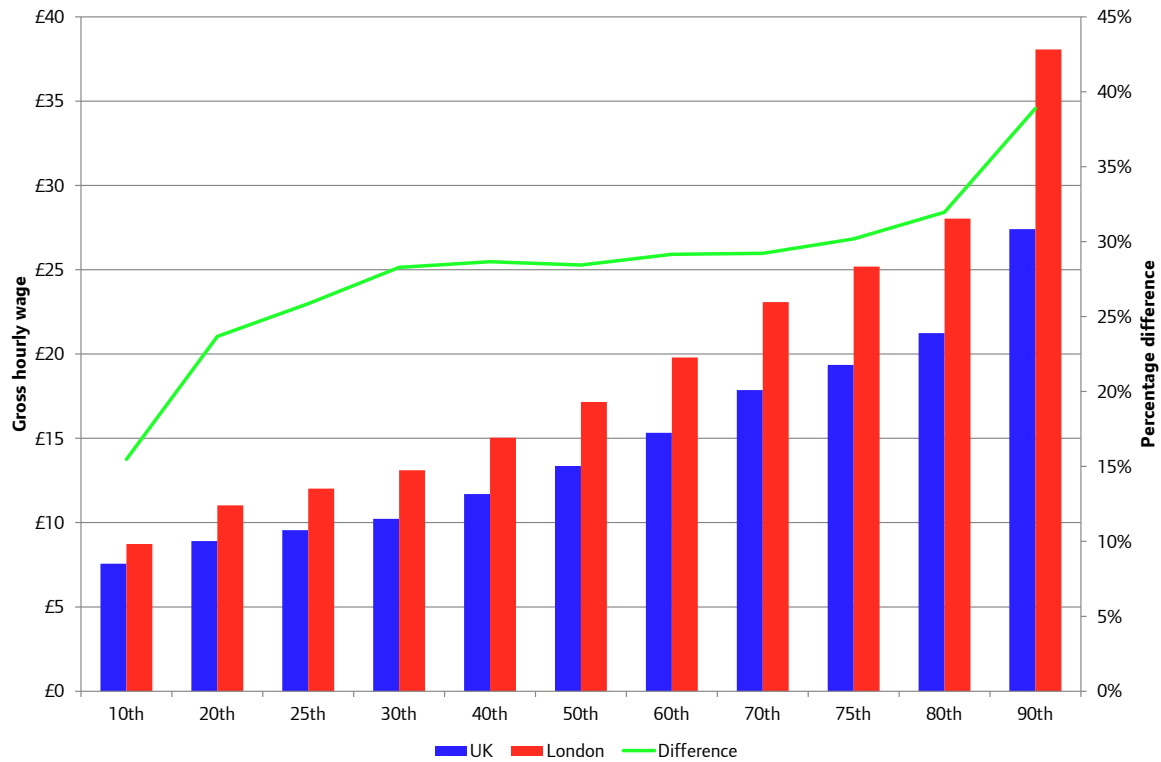


Source: ONS Annual Survey of Hours and Earnings

Overall, the UK has seen faster wage growth than London for all wage percentiles between 2008 and 2015 (Figure 9.47); this was particularly true for those at the higher and lower ends of the wage distribution. Within London (and for the UK as a whole), wage growth was fastest at the bottom end of the scale and slowest at the top.

**Figure 9.47: Growth in average full-time hourly nominal earnings between 2008 and 2015 by wage percentile for London and the UK, workplace basis**
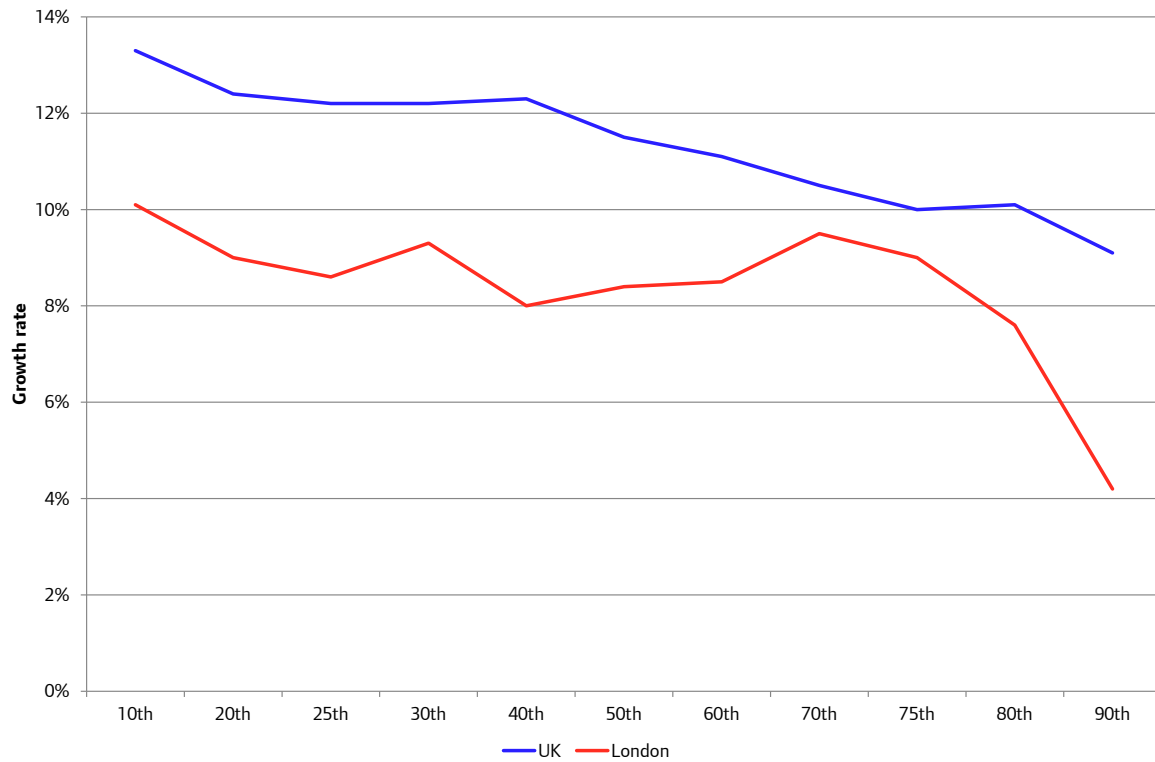


*Note: nominal average hourly earnings.*
*Source: ONS Annual Survey of Hours and Earnings*

This was generally the case when looking at the rates of wage growth by public and private sector as shown in Figure 9.48 (which looks at the change between 2009 and 2015). The sole exception was the 80th percentile in the public sector where London saw a stronger rate of growth than the UK as a whole.

**Figure 9.48: Growth in average full-time nominal hourly earnings between 2009 and 2015 by wage percentile and by private and public sector for London and the UK, workplace basis**
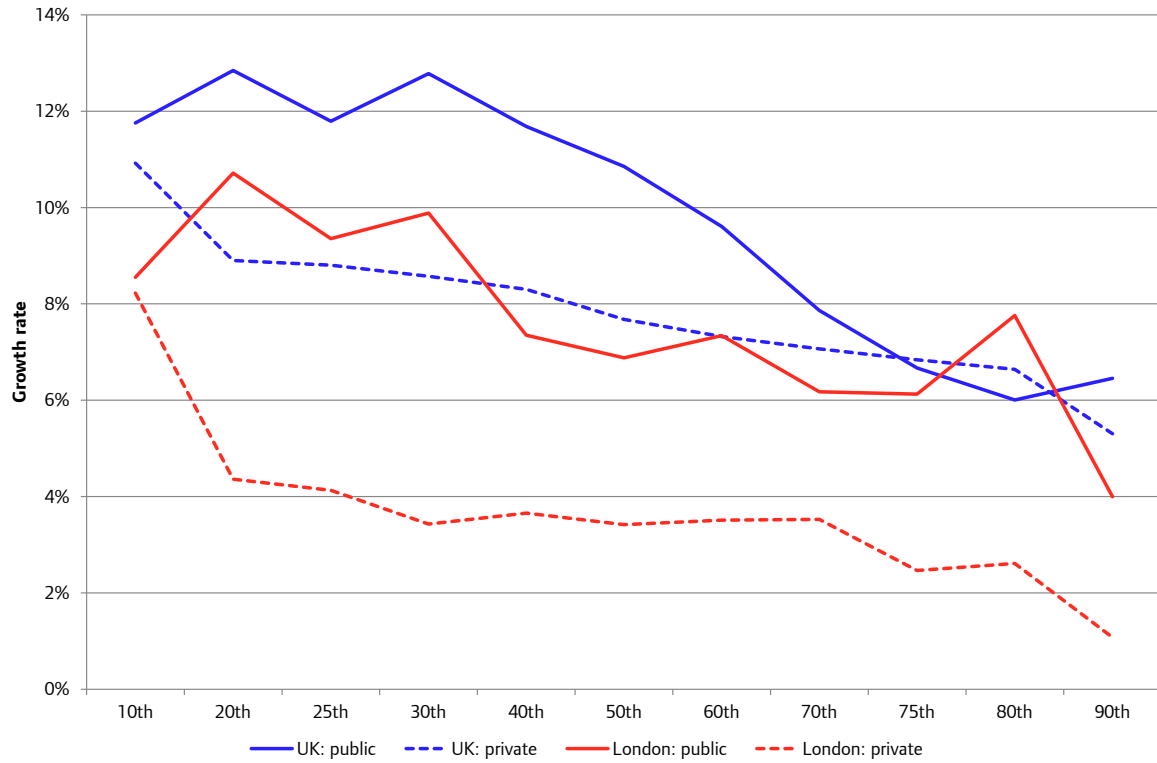


*Note: nominal average hourly earnings.*
*Source: ONS Annual Survey of Hours and Earnings*

## 9.3 Current topics in London's labour market

Having discussed London's labour market characteristics and how this compares with the rest of the UK, this section will explore some of the current topics facing London including the extent of under and overemployment, the underutilisation of labour and the changing labour market structure.

### 9.3.1 Under and overemployment

The previous section focussed on the employment rate to characterise the labour market. However, despite being in employment some individuals want to work more hours than they are employed to do, some less. Subsequently, this section looks at underemployment and overemployment. The former describes individuals who are in work but want to work more hours either in their current job or by switching to a replacement job. In contrast, overemployment describes individuals who want to work fewer hours in their current or in a new job.

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**Box 9.6: Why are people under and overemployed?**

Under and overemployment is generally caused by a mismatch of demand and supply of labour at its most basic level. That is, individuals are willing to accept jobs (such as part-time roles) that do not offer their desired amount of hours if there is no better alternative.

There are also individual factors that can explain under and overemployment. For example, individuals may be underqualified and, so whilst they may want to work more hours, they lack the qualifications and experience to do so. Another illustration is that personal circumstances, such as being close to or beyond retirement or family reasons, may mean that individuals want to work fewer hours without leaving the labour market completely.

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The numbers of people who were under and overemployed in London were 374,000 and 348,000 respectively in 2015. This gives under and overemployment rates[37] of 8.8 per cent and 8.3 per cent, which were both below the UK readings[38] of 9 per cent and 10.4 per cent respectively. London has historically posted lower rates than the UK as can be seen in Figure 9.49, though less so for underemployment.

**Figure 9.49: Percentage of workers who were either underemployed or overemployed in London and the UK, residents aged 16 years and over, 2006 to 2015**
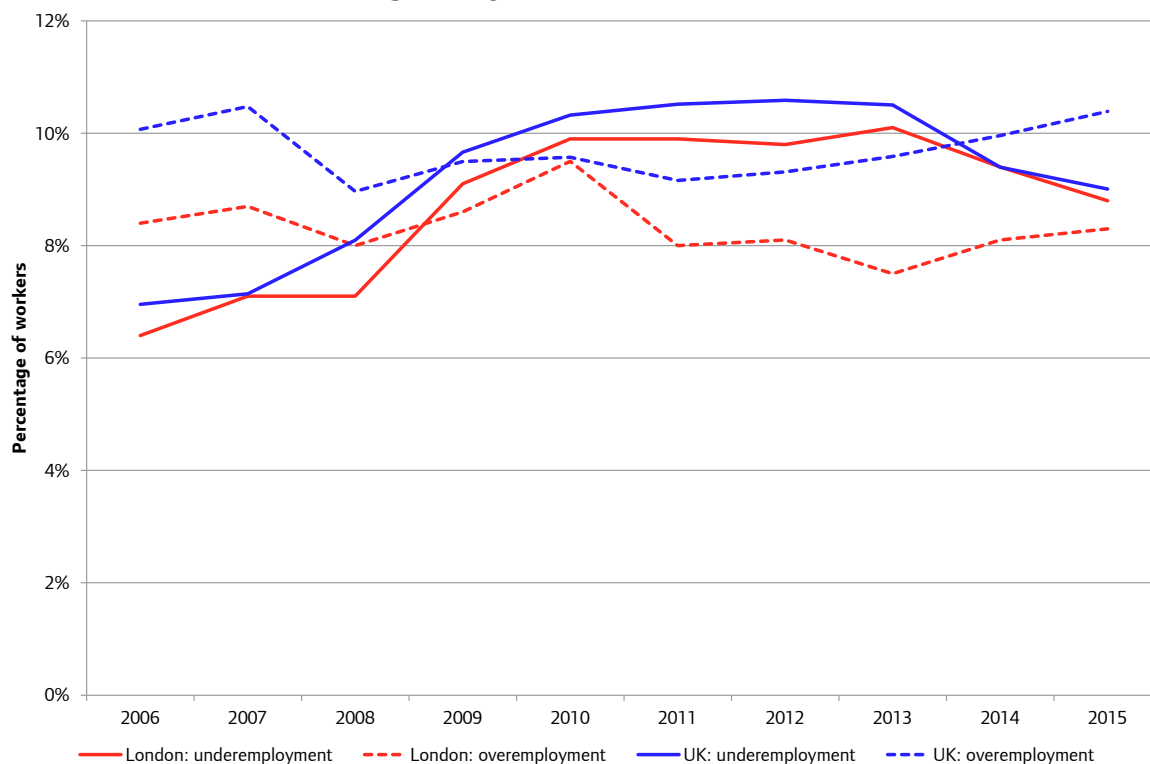


*Notes: January to December periods and has not been reweighted.*
*Source: ONS Annual Population Survey*

The difference between under and overemployment rates can provide an indication as to the efficiency of the labour market at meeting demands for working more and fewer hours. Focussing on London, the underemployment rate has exceeded the overemployment rate in each year since 2009, with this difference peaking at 2.6 percentage points in 2013. This suggests that there has recently been net underemployment in London – that is, there are more workers wanting more hours of work than less – which could be an indication of slack in the labour market. In contrast, there has been net overemployment in 2014 and 2015 across the UK as a whole. An impact of net underemployment is that individuals are not working to their full capacity.

**Box 9.7: Does the rise in zero-hour contracts constitute underemployment?**

Zero hour contracts (ZHC) are employment contracts that offer no guarantee of a minimum number of hours[39]. Given their nature, it can be expected that some individuals on ZHC may be underemployed in the sense that they want to work more hours over and above what is being offered. This box provides a brief overview of the extent and characteristics of those on ZHC and discusses whether underemployment is a common issue.

ZHC in the UK were uncommon prior to the 2008-09 recession, but it was during the recovery that there has been a sharp rise particularly during 2012 and 2015 (Figure 9.50). However, despite these increases, the number employed on a ZHC was 801,000 in the three months to December 2015 and accounted for 2.5 per cent of all employment in the UK. In London, there were approximately 95,000 people on ZHC, equivalent to 2.2 per cent of all those in employment.

**Figure 9.50: Zero-hour contracts rate across the UK, 2000 to 2015**
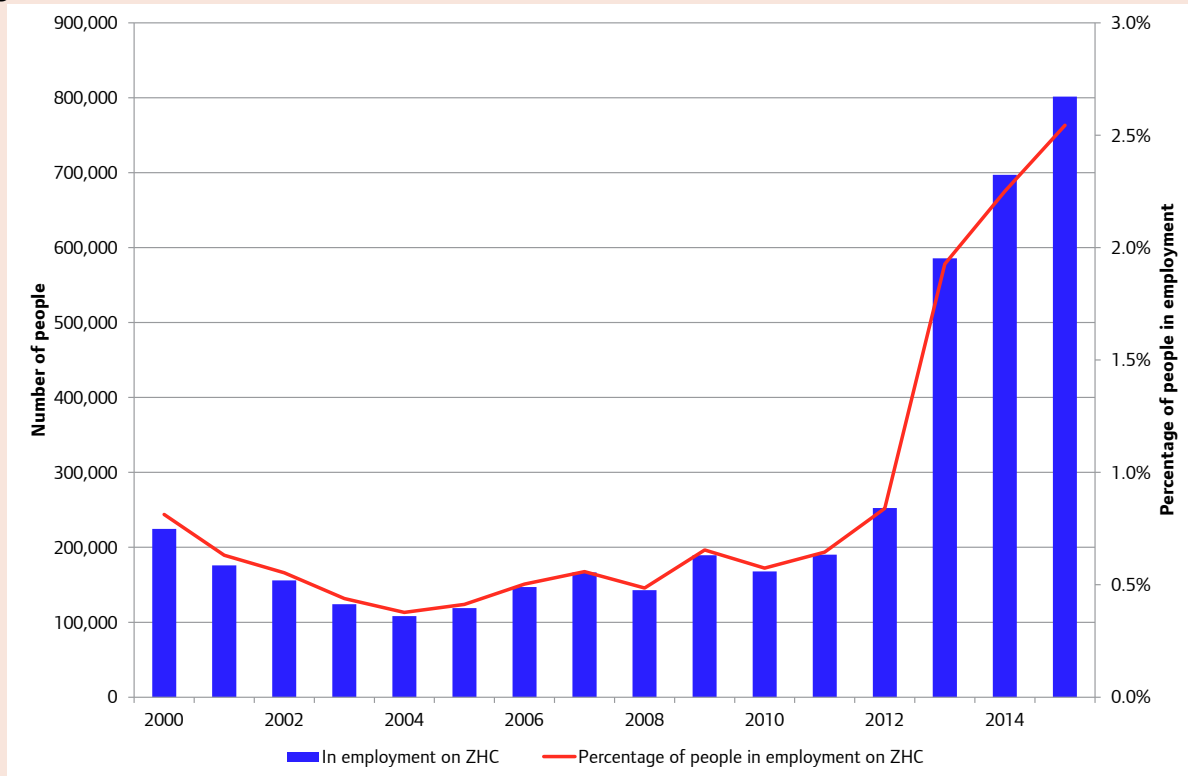


*Note: October to December periods.*
*Source: ONS Labour Force Survey*

People on ZHC were more likely to be female or in young or older age groups. Moreover, employees on ZHC were more likely to be working in the Accommodation & Food and Health & Social Work sectors and be in Elementary and Caring, Leisure & Other Service occupations.

Notably, 36.8 per cent workers on ZHC wanted to work more hours in the three months to December 2015 (Figure 9.51). The comparable figure for all those not on ZHC was 10.4 per cent. This suggests that underemployment is higher among ZHC workers than non-ZHC employees, though this could partially be due to more ZHC being part-time workers.

**Figure 9.51: Percentage of workers on zero-hour contracts that are looking for another job or more hours in the UK, October to December 2015**
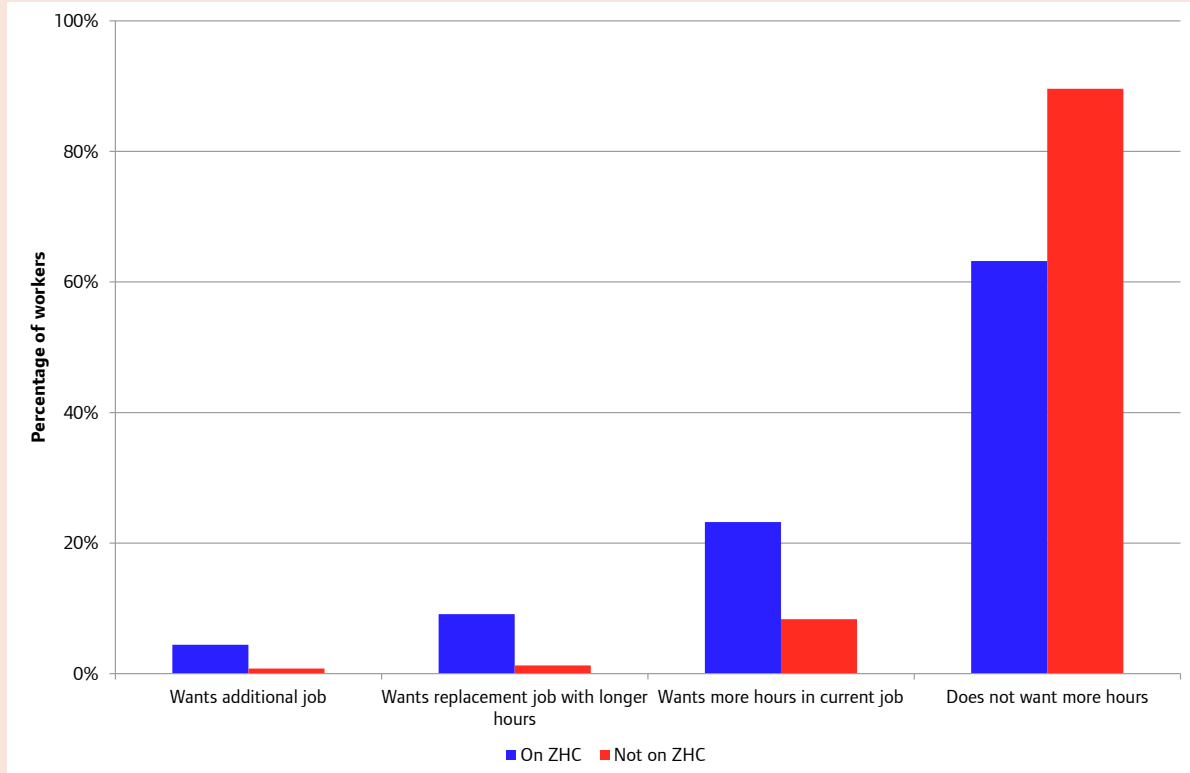


*Note: October to December periods.*
*Source: ONS Labour Force Survey*

Most individuals who were underemployed in London wanted to work more hours in their current role (69.7 per cent), though 19.1 per cent wanted a new job and 11.2 per cent wanted an additional job in 2015. On average, underemployed people wanted to work an additional 11.5 hours a week which was broadly in line with the figure for 2008 (11.7 hours).

Similarly, most overemployed people in London wanted to work less hours in their current job (95.5 per cent) and work on average 11 hours less each week. That was down from 11.4 hours in 2008.

Underemployment was more prevalent for part-time workers in London. Over one-fifth (21.1 per cent) of part-time workers were underemployed in 2015, having fallen from a peak of 25.9 per cent in 2013 (Figure 9.52). The proportion of full-time workers who were underemployed also increased during the 2008-09 recession (a 2010 peak of 5.7 per cent), but has since fallen to 5.2 per cent. The reverse is true for overemployment in that full-time workers were more likely to be overemployed (9.8 per cent in 2015) and this trend has been broadly stable since 2006.

**Figure 9.52: Percentage of full and part-time workers that were either under or overemployed in London, residents aged 16 years and over, 2006 to 2015**
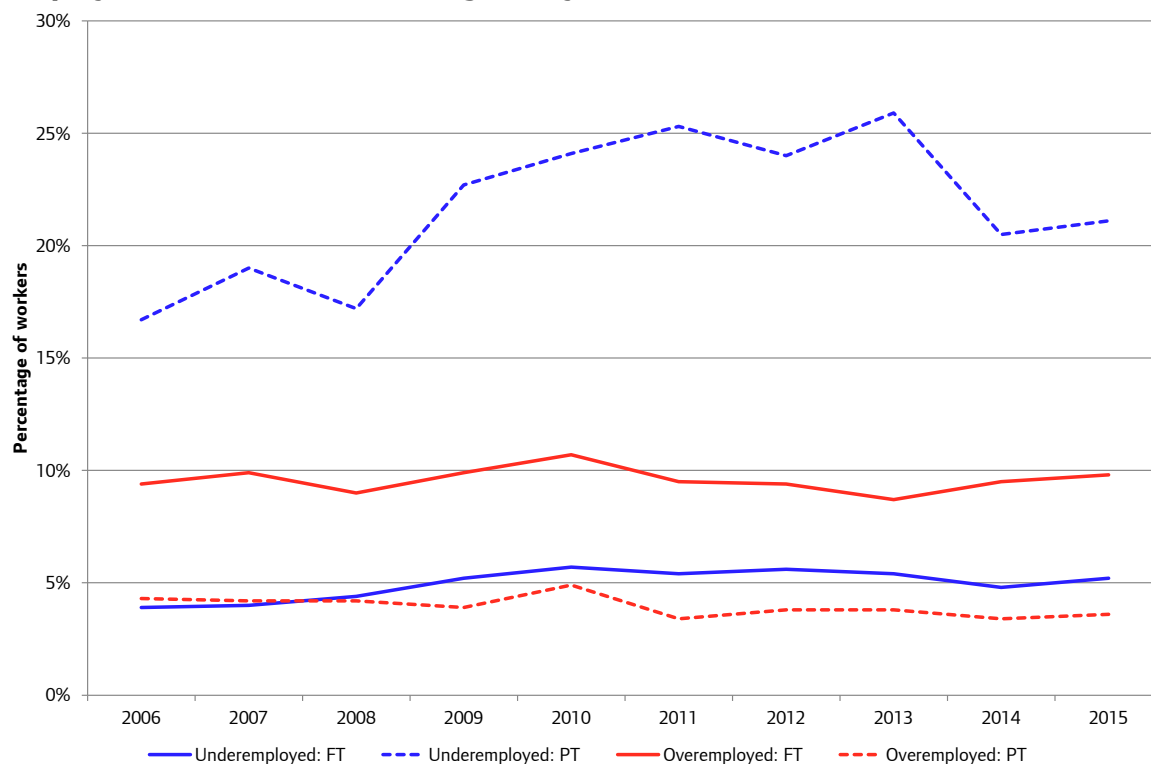


*Note: January to December periods and has not been weighted in July 2016.*
*Source: ONS Annual Population Survey*

By occupation, underemployment was most common in lower skilled occupations such as Elementary (19.5 per cent) and Sales & Customer Service (14.2 per cent) roles as shown in Figure 9.53. However, again, the reverse is true for overemployment where Managers, Directors & Senior Officials (11.8 per cent) and Professional (11.5 per cent) occupations had the highest proportion of workers who wanted to work fewer hours.

**Figure 9.53: Percentage of each major occupations grouping that were either underemployed or overemployed in London during 2015, residents aged 16 years and over**
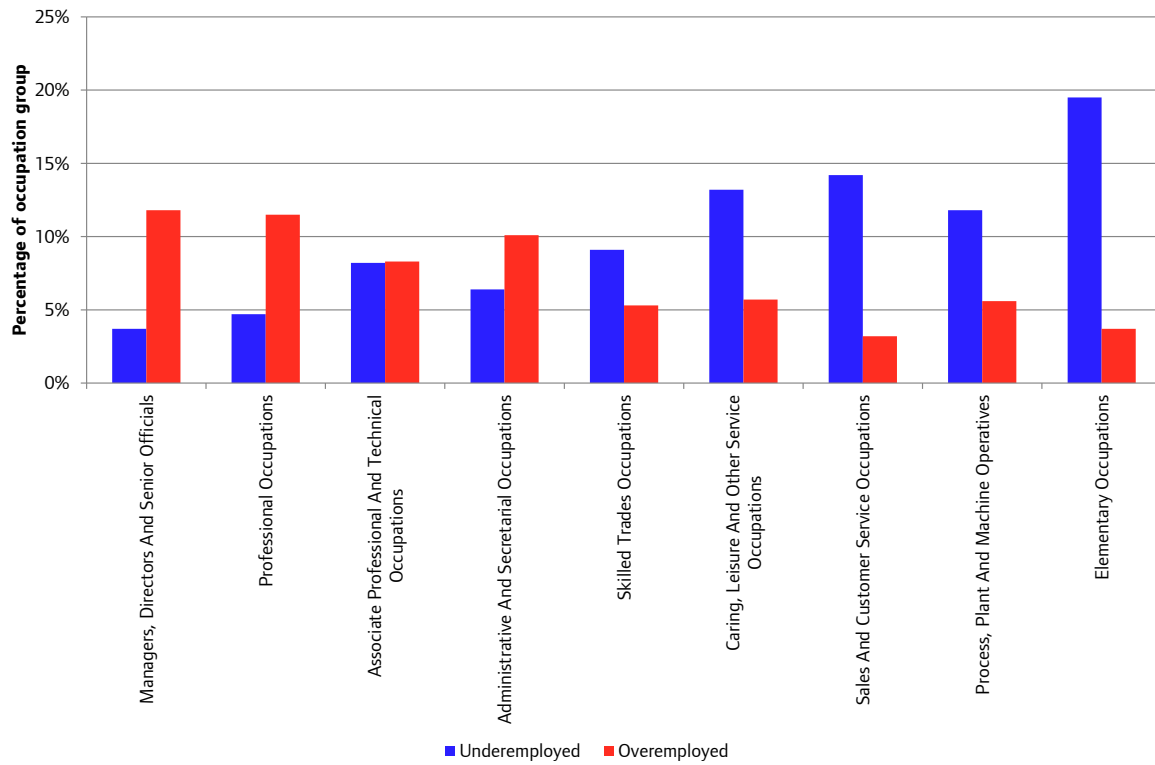


*Note: January to December periods and has not been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

Figures 9.54 and 9.55 show the percentages of each age group that were underemployed and overemployed in London over time. The 16-24 years group historically had the highest concentration of underemployed workers, with this at 13.9 per cent in 2015. In comparison, the lowest underemployment rate was recorded for the over 65 years group at just 4.6 per cent. That said, all age groups had seen an increase in the proportion of underemployed workers since 2006 (though down from the peaks seen during the 2008-09 recession), with the largest rise for the 16-24 and 50-64 years groups.

**Figure 9.54: Percentage of each age grouping that were underemployed in London, residents, 2006 to 2015**
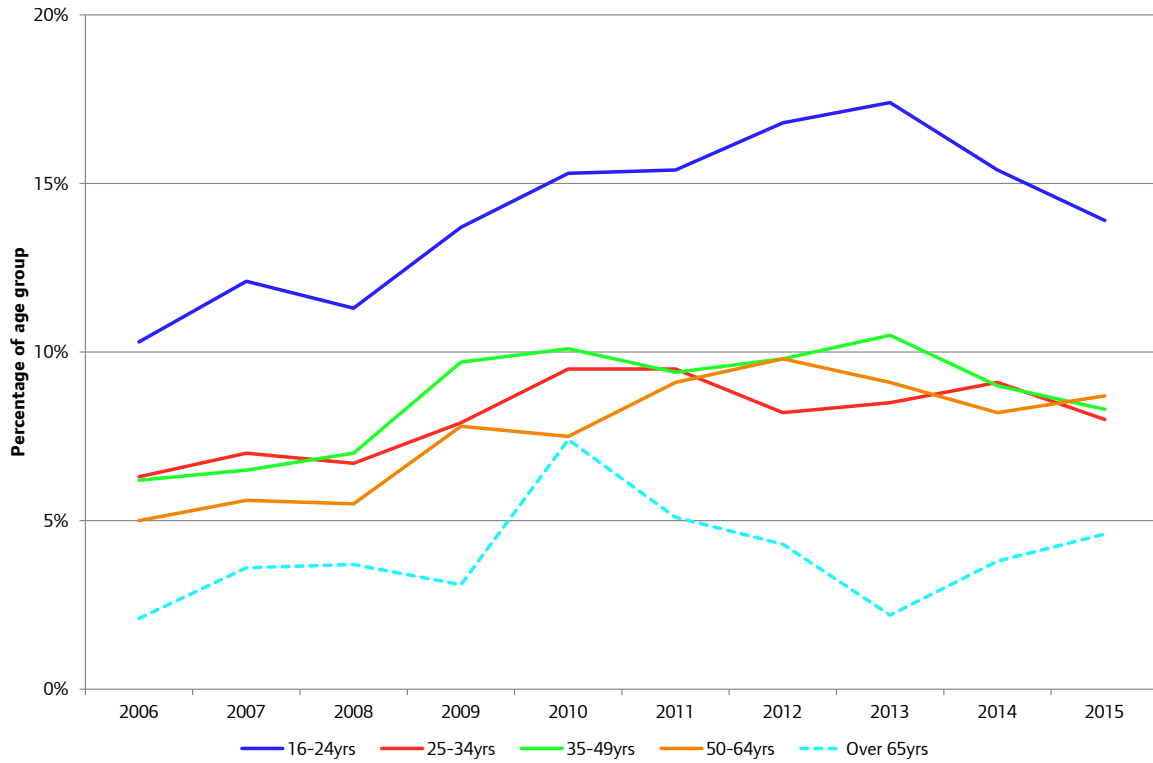


*Note: January to December periods and has not been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

Meanwhile, the 50–64 years and over 65 years groupings had the highest proportion of overemployment at 11.8 per cent and 11 per cent respectively in 2015. In particular, the over 65 years category had seen the percentage of overemployed workers rise from 10.2 per cent in 2006.

**Figure 9.55: Percentage of each age grouping that were overemployed in London, residents, 2006 to 2015**
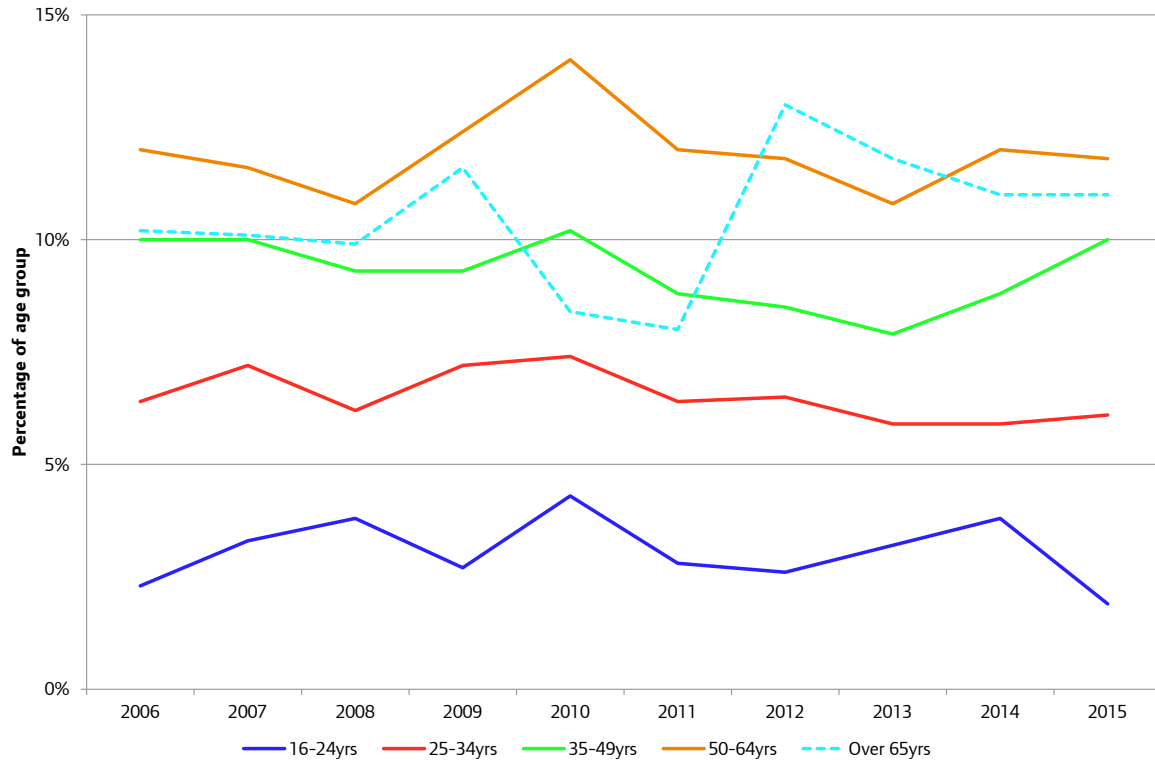


*Note: January to December periods and has not been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

**Box 9.8: A comparison between unemployment and underemployment**
A simple comparison between the unemployment and underemployment rates calculated by ONS is shown in Figure 9.56. Underemployment has historically been higher than unemployment and, in fact, the difference between the two has been increasing since 2010. The latest estimates for which a comparison can be made is for the three months to March 2016. During this period, unemployment across the UK was reported at 5.1 per cent, whilst comparably the underemployment rate was 9 per cent – a difference of 3.9 percentage points.

**Figure 9.56: Underemployment and unemployment rates for the UK, residents aged 16 years and over, 2002 to 2016**
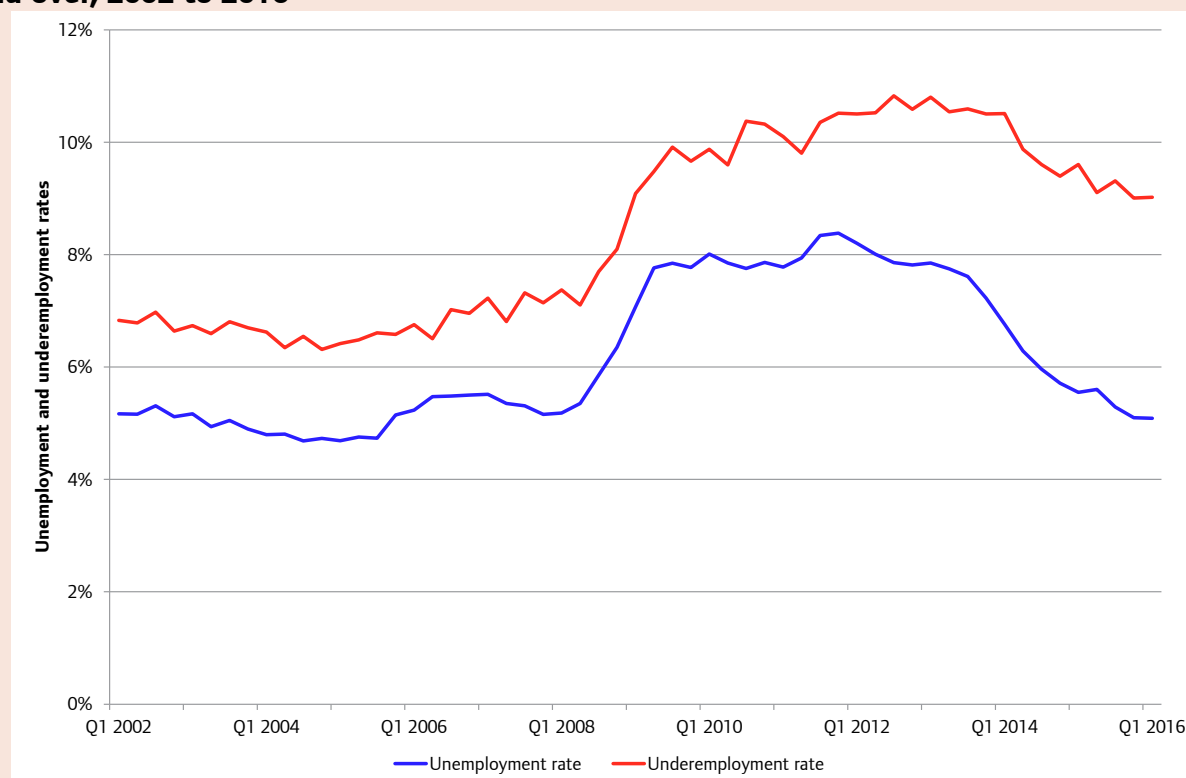


*Notes: quarterly periods.*
*Source: ONS Labour Force Survey*

One potential issue with the underemployment rate used above is that it merely counts the number of workers who want more hours (as a percentage of total number of workers), but this does not take into consideration the extent of excess capacity in terms of both the number of jobs and hours. Alternatively, Bell & Blanchflower constructed an index of underemployment which takes into account the number of hours workers say they want to work[40]. This is presented in Figure 9.57 and shows that unemployment and underemployment were closely matched between 2001 and 2008. However, since then, there has been a much larger divergence which the authors attribute to increasing numbers of workers wishing to work more hours and a fall in the number wishing to work less. This suggests that there may well be spare capacity in the labour market allowing for an increase in demand for workers to be met internally (i.e. employers could offer existing workers more hours to avoid recruitment costs) without, necessarily, a reduction in unemployment.

**Figure 9.57: Index of underemployment and unemployment rate for the UK, residents aged 16 years and over, 2001 to 2015**
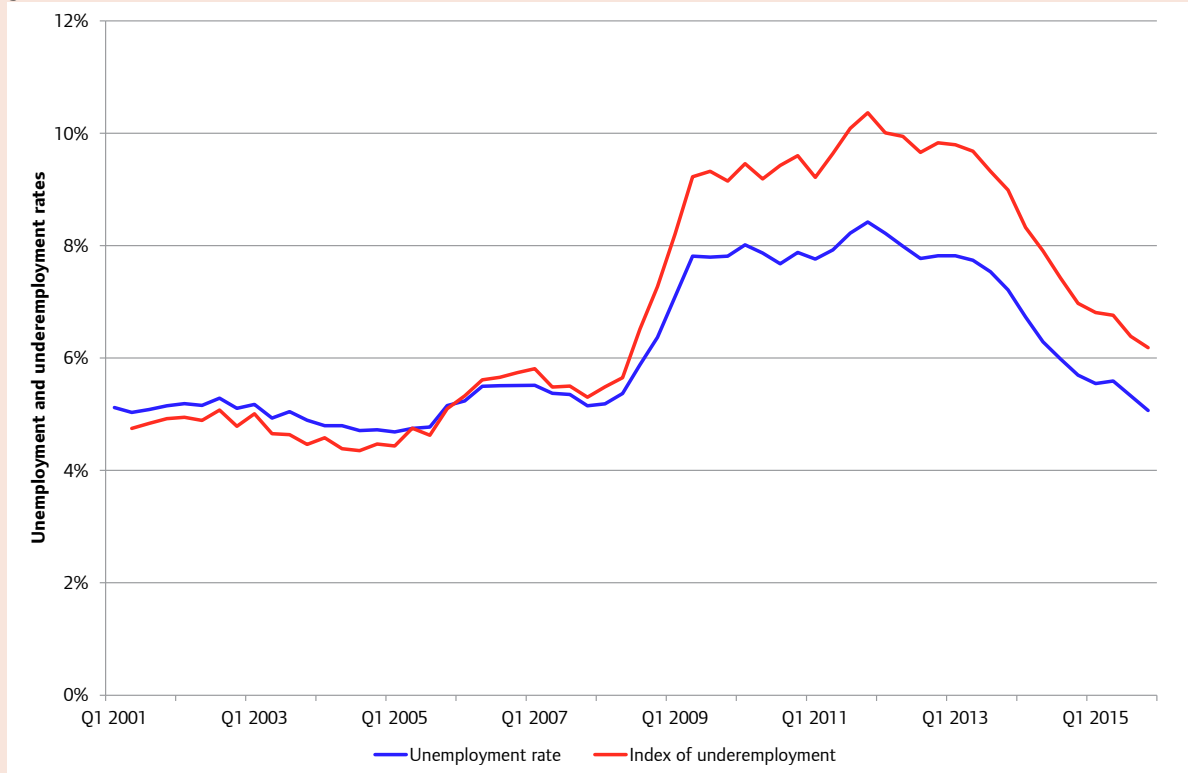


Notes: quarterly periods.
Source: ONS Labour Force Survey, Bell & Blanchflower

## 9.3.2 Underutilisation of labour

Another aspect of the labour market is whether the skills of employees are being fully utilised in their role. In 2015, 29.6 per cent of employers reported skills that were under-used by employees in England according to the UKCES Employer Skills Survey[41]. There was no significant difference between firms of different sizes, but there was greater variance across different sectors. For example, reports of underutilisation was highest in the Hotels and Restaurants sector at 39.7 per cent, whilst the lowest were generally recorded in the primary and manufacturing sectors such as Agriculture at 19 per cent.

Underutilisation was slightly higher in London with 31.8 per cent of employers reporting staff skills that were under-used. That was the third-highest rate among the nine English regions behind the North East and Yorkshire & Humber (Figure 9.58). Therefore, this section will investigate two potential explanations for why underutilisation is more common in London than England as a whole, namely whether this is affected by the higher proportions of migrant and graduate workers respectively.

**Figure 9.58: Proportion of enterprises reporting underutilisation of staff skills by English region in 2015**
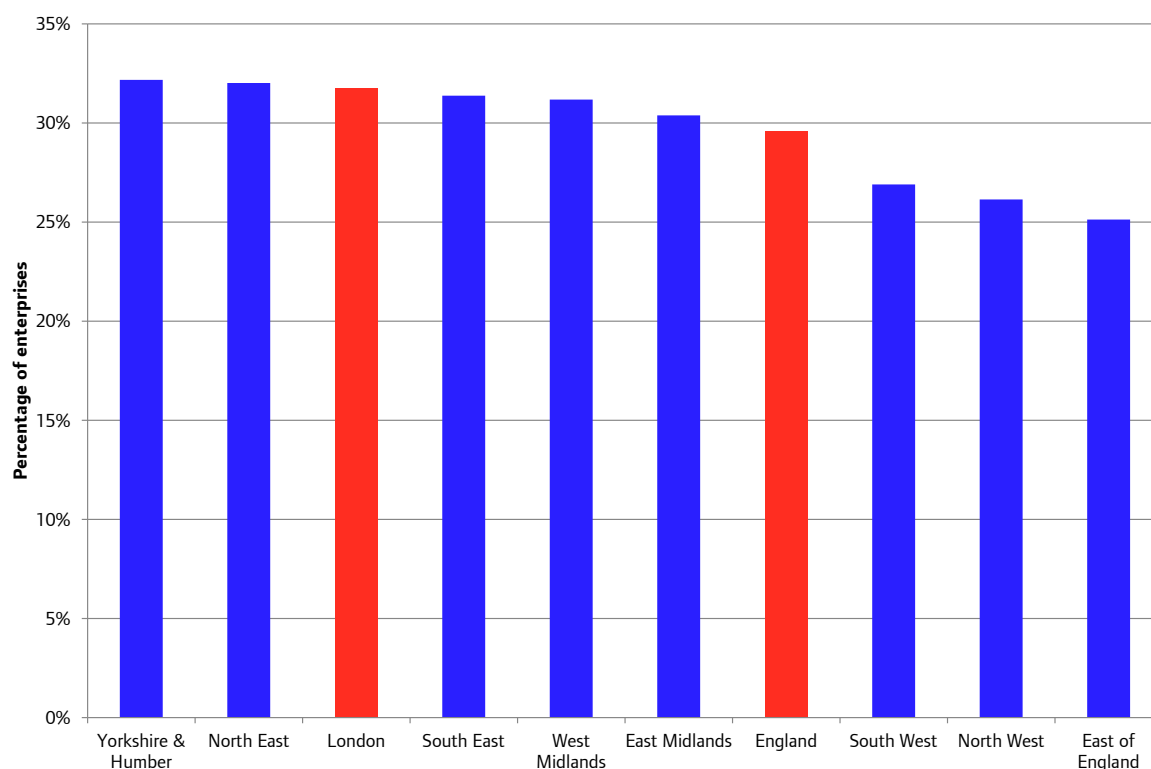


*Source: UK Commission's Employer Skills Survey 2013*

## 9.3.2.1 Underutilisation of migrant workers

One potential explanation for why underutilisation of skills is more prevalent in London compared with the UK could be due to migrant workers, of which London has a higher proportion than the UK. This can be assessed by comparing qualifications with occupations for both UK born and non-UK born employees working in London. However, there are some caveats with such simplistic analysis. For example, it does not take into consideration years in the labour market and the experience this brings. Similarly, it does not consider where individuals were educated as it could be possible that some non-UK born workers were educated and now work in the UK.

Acknowledging the above points, Figures 9.59 and 9.60 plot the percentage of employees by occupation and country of birth for each qualification using data from the ONS Annual Population Survey for 2015. Due to sample size, country of birth has only been split into whether an employee was born in the UK including British Overseas Territories or the rest of the world.

Figure 9.59 shows workers who have higher education or above (i.e. higher education, ordinary degree and higher degree) as their highest qualification. This shows that non-UK born workers are less likely to be in high-skilled jobs than UK born workers even though both groups are equally qualified. Instead, non-UK born workers were more likely to be in lower skilled occupations such as Caring, Leisure & Other Services and Sales & Customer Service roles. This trend is also evident for workers with either GCE, A Levels or GCSE grades A*-C as their highest qualification as shown in Figure 9.60.

**Figure 9.59: Percentage of workers with higher education as their highest qualification by occupation and country of birth in London during 2015, residents**
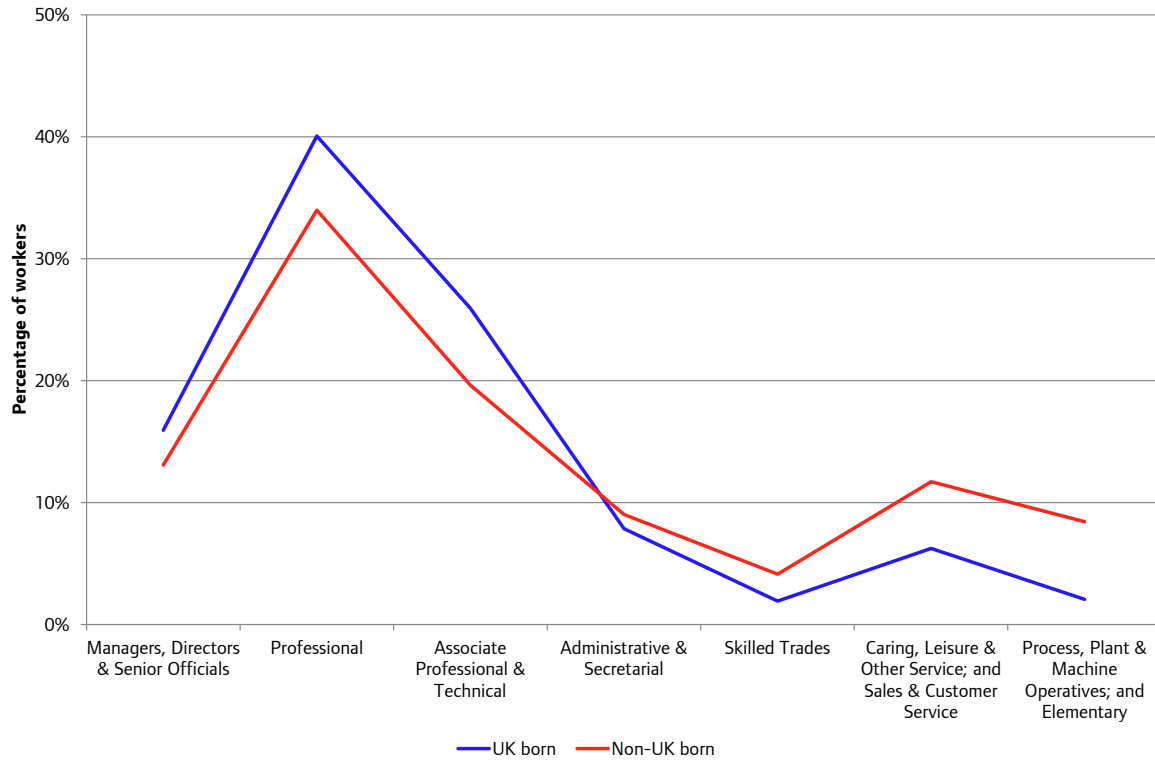


Note: January to December periods and has not been reweighted in July 2016.
Source: ONS Annual Population Survey

**Figure 9.60: Percentage of workers with GCE, A-Level or GCSE grade A\*-C as their highest qualification by occupation and country of birth in London during 2015, residents**
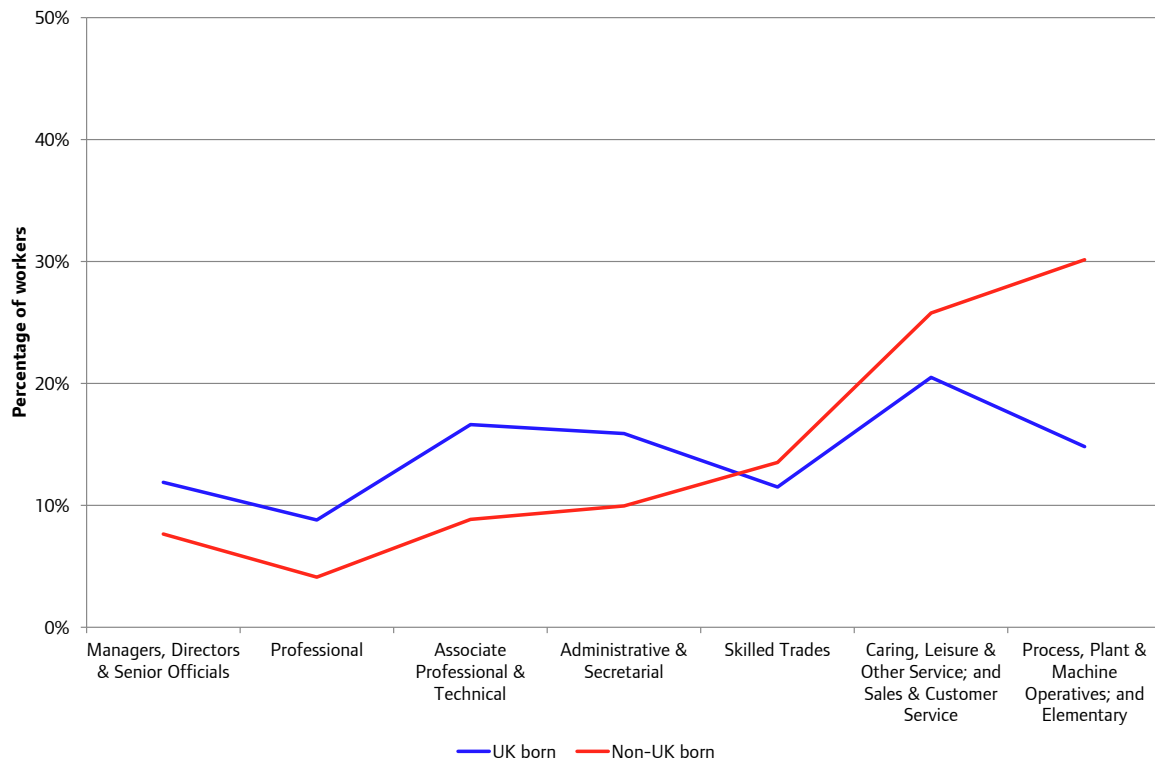


Note: January to December periods and has not been reweighted in July 2016.
Source: ONS Annual Population Survey

There are several explanations as to why migrant workers are seemingly underutilised in terms of their skills. The ESRC Centre on Migration suggested that this could be due to employers not recognising the value of overseas qualifications, but noted that this effect should decrease over time[42]. Rosso alternatively proposed that the issue could be due to the lower quality of overseas qualification and the poor transferability of knowledge[43]. Meanwhile, Stirling suggested that pay differentials between country of origin and the destination country can partly explain the greater willingness of migrants to work in lower-level jobs[44].

### 9.3.2.2 Underutilisation of graduates

A similar argument can be made for graduates where some may be working in positions that do not necessarily require higher education. For example, the Chartered Institute of Personnel and Development (CIPD) found that 58.8 per cent of graduates in the UK were in non-graduate roles, which was one of the highest rates among the EU countries[45].

Indeed, analysis by the ONS showed that the percentage of recent graduates across the UK who were in non-graduate roles had increased from 36.8 per cent in Q2 2001 to 47.1 per cent in Q2 2013 (Figure 9.61)[46]. Here a non-graduate role has been defined as one which is associated with tasks that do not normally require knowledge and skills developed through higher education to enable them to perform these tasks in a competent manner. The same trend can be seen for those who graduated more than five years previously (non-recent graduates), rising from 28.7 per cent to 34.1 per cent.

**Figure 9.61: Percentage of recent graduates and non-recent graduates in non-graduate roles across the UK, residents aged 16-64 for men and 16-59 for women, 2001 to 2013**
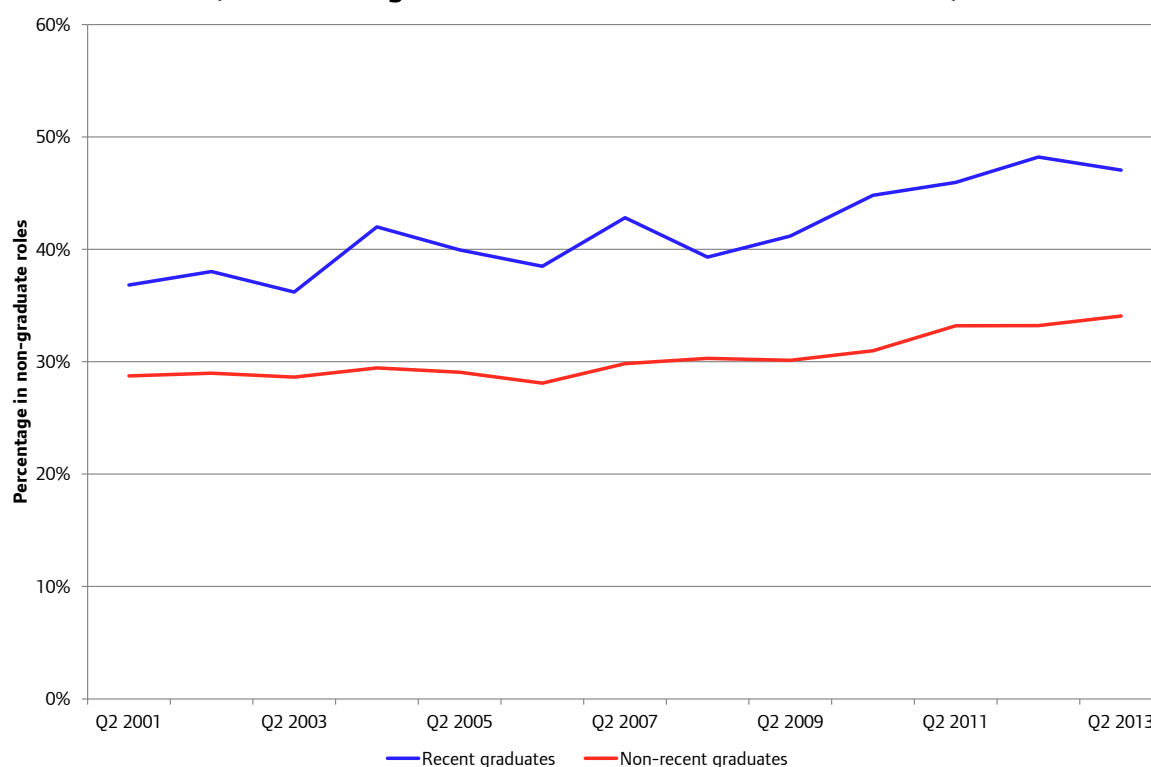


*Notes: April to June periods. Non-recent graduates are those who have left full-time education more than five years from the survey date Non-graduate roles are those which are not associated with tasks that require knowledge and skills developed through higher education.*
*Source: ONS Labour Force Survey Persons Datasets*

More recent data is shown in Table 9.15 for the UK as well as for London. The first thing to note is that the extent of graduates working in non-graduate roles is less acute in London compared with the UK. The second thing is that, whilst the percentage of recent graduates in non-graduate roles has dropped since 2011, the proportion of non-recent graduates has increased.

**Table 9.15: Percentage of recent and non-recent graduates in non-graduate roles in London and the UK, residents aged 21-64 years for men and 21-59 years for women, 2011 to 2015**

| Year | London | | UK | |
|------|--------|--------|--------|--------|
| | Recent graduates | Non-recent graduates | Recent graduates | Non-recent graduates |
| 2011 | 42.4% | 28.7% | 47.4% | 32.6% |
| 2012 | 42.8% | 29.5% | 48.8% | 33.3% |
| 2013 | 41.4% | 31.4% | 47.2% | 33.7% |
| 2014 | 41.6% | 31.7% | 46.7% | 34.2% |
| 2015 | 41.0% | 31.9% | 45.8% | 35.5% |

*Notes: January to December periods. Non-recent graduates are those who left full-time education more than five years from the survey date. Non-graduate roles are those which are not associated with tasks that require knowledge and skills developed through higher education. Source: ONS Annual Population Survey*

There can be a number of explanations for why a large proportion of graduates were in non-graduate roles and remained so after five years (i.e. non-recent graduates). For example, CIPD argued that this was due to growth in graduates exceeding growth in graduate roles[47]. However, CIPD also noted that the presence of graduates being in non-graduate roles does not necessarily mean an underutilisation of graduates' skills[48]. Instead they suggested that non-graduate roles may have been upgraded to better utilise their skills, or that graduates have similar skills to non-graduates with sufficient work experience.

### 9.3.3 The changing labour market structure

Figure 9.62 shows the UK labour market's occupation structure since 1992[49]. Generally, there has been an increase in high-skilled and service-intensive roles over time, but a decline in middle-skilled and labour-intensive positions[50]. This trend was emphasised by the 2008-09 recession where job losses were concentrated in middle-skilled and labour-intensive roles, whilst the recovery since has been mostly in high-skilled and service-intensive jobs. For example, between Q1 2008 and Q4 2014, the number of high-skilled and service-intensive jobs across the UK had increased by 1.3m and 0.3m respectively, whilst declines of 0.5m and 0.2m were recorded for middle-skilled and labour-intensive roles. This in part is in response to the economy becoming increasingly specialised in service sectors as discussed in Chapter 1.

**Figure 9.62: Cumulative change in employment by broad occupation group for the UK, aged16 years and over,1992 to 2015**
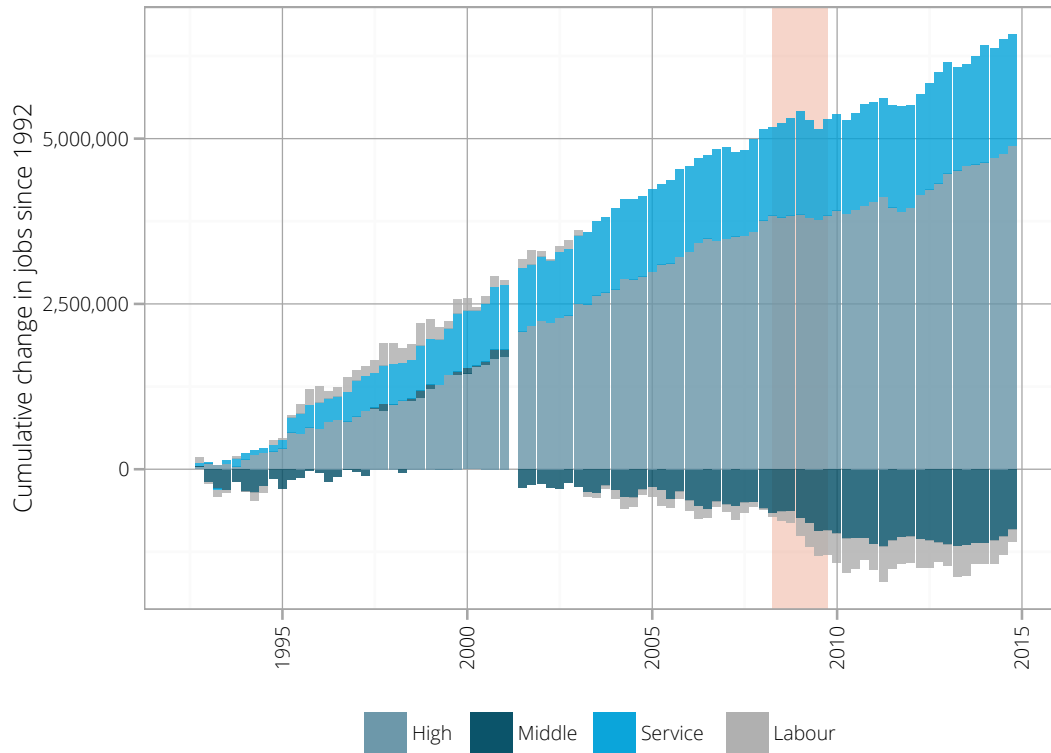


*Note: There is a gap in 2001 due to a break in the occupational coding.*
*Source: Office of National Statistics Labour Force Survey, UKCES analysis. Taken from UKCES (2015).*

Figure 9.63 replicates this analysis for London[51] using the same broad occupation group definitions as above. This shows that there has similarly been a very large increase in high-skilled roles within London (+701,000 jobs between 2004 and 2015), whilst middle-skilled jobs has declined slightly (–10,100 jobs). Interestingly, the number of labour-intensive occupations in London has also increased, which is in contrast to falls across the UK as a whole.

**Figure 9.63: Cumulative change in employment by broad occupation group for London, workplace basis aged 16 years and over, 2004 to 2015**
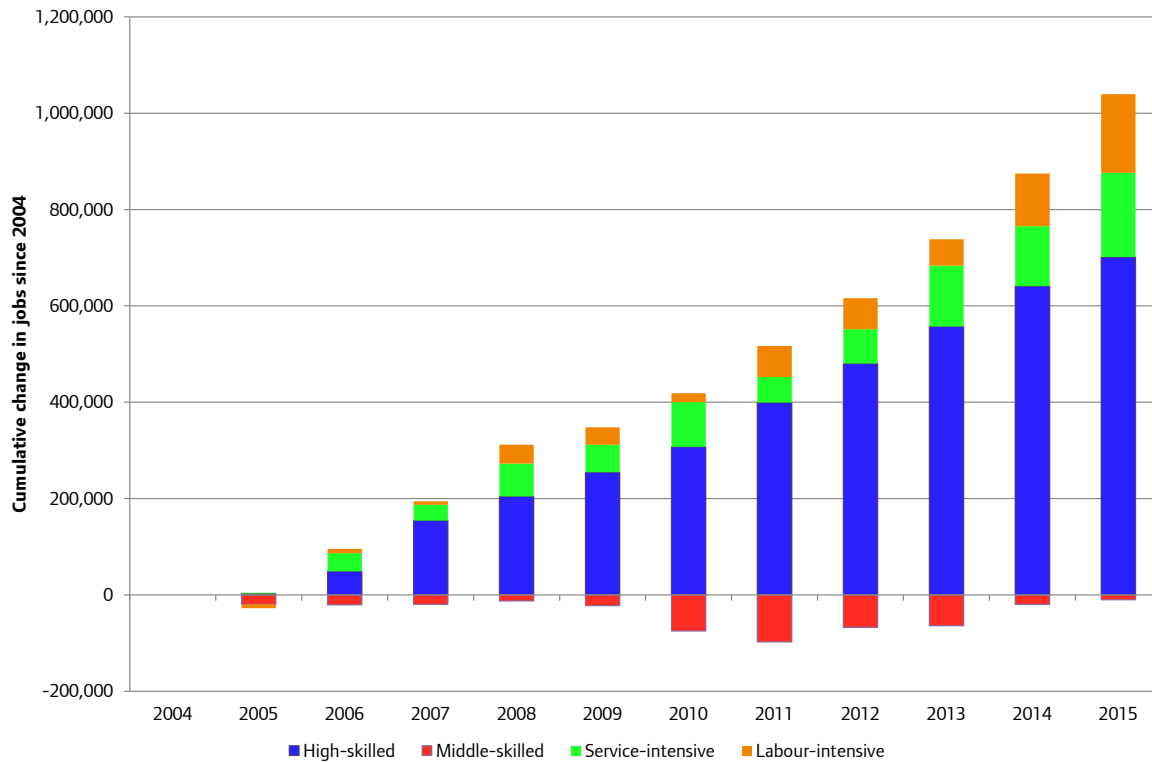


Notes: January to December periods and has been reweighted in July 2016. Broad occupation group definitions consistent with UKCES (2015).
Source: ONS Annual Population Survey

The entire decline in middle-skilled jobs in London over this period was because of a fall in Administrative & Secretarial occupations (though this was, in part, offset by a rise in Skilled Trades) as shown by Figure 9.64. In particular, it was due to a decline in the number of Secretarial & Related occupations (down 32.3 per cent) as Administrative jobs were broadly stagnant between 2004 and 2015 (Figure 9.65). At this finer level of occupations, the only other occupation to see a fall in the number of jobs was for Science, Engineering & Technology Associate Professionals roles (down 5.6 per cent). All other occupations saw an increase between 2004 and 2015, with the strongest rates of growth for Caring Personal Service (67.4 per cent) and Health Professionals (44.3 per cent) roles.

**Figure 9.64: Growth in employment by occupation between 2004 and 2015 for London and the UK, workplace basis aged 16 years and over**
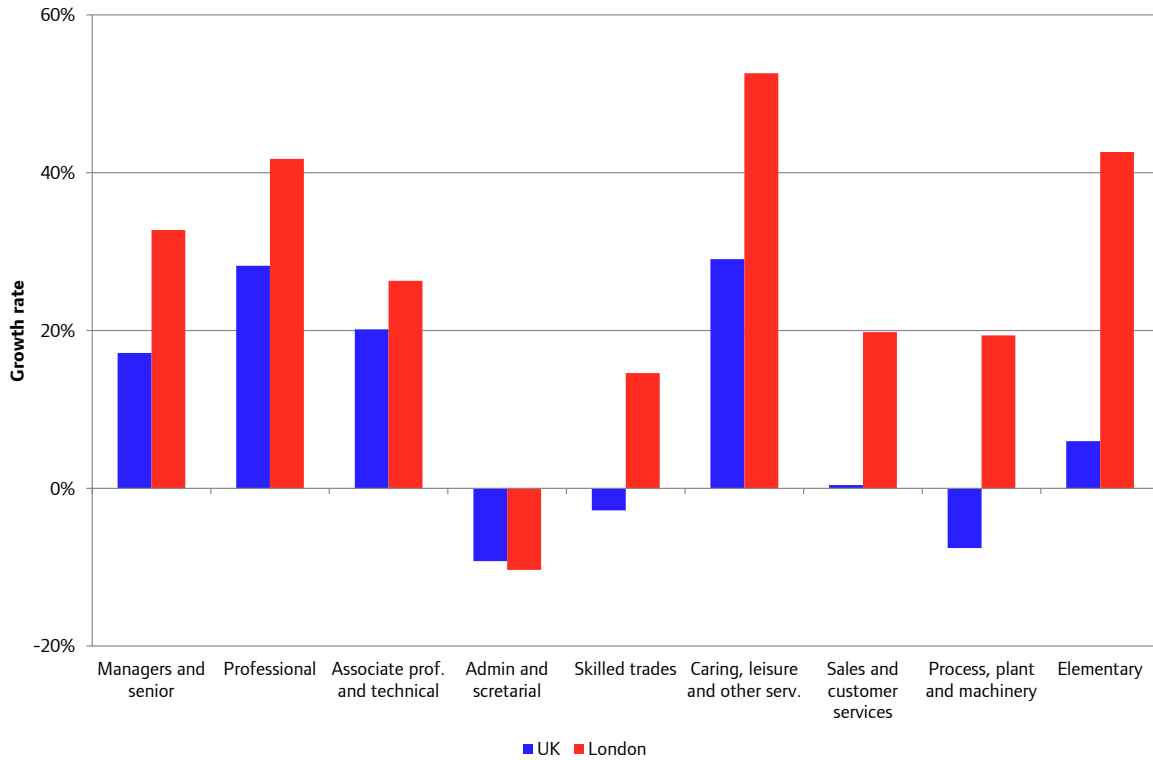


Notes: January to December periods and has been reweighted in July 2016.
Source: ONS Annual Population Survey

**Figure 9.65: Growth in employment by detailed occupation between 2004 and 2015 for London, workplace basis aged 16 years and over**
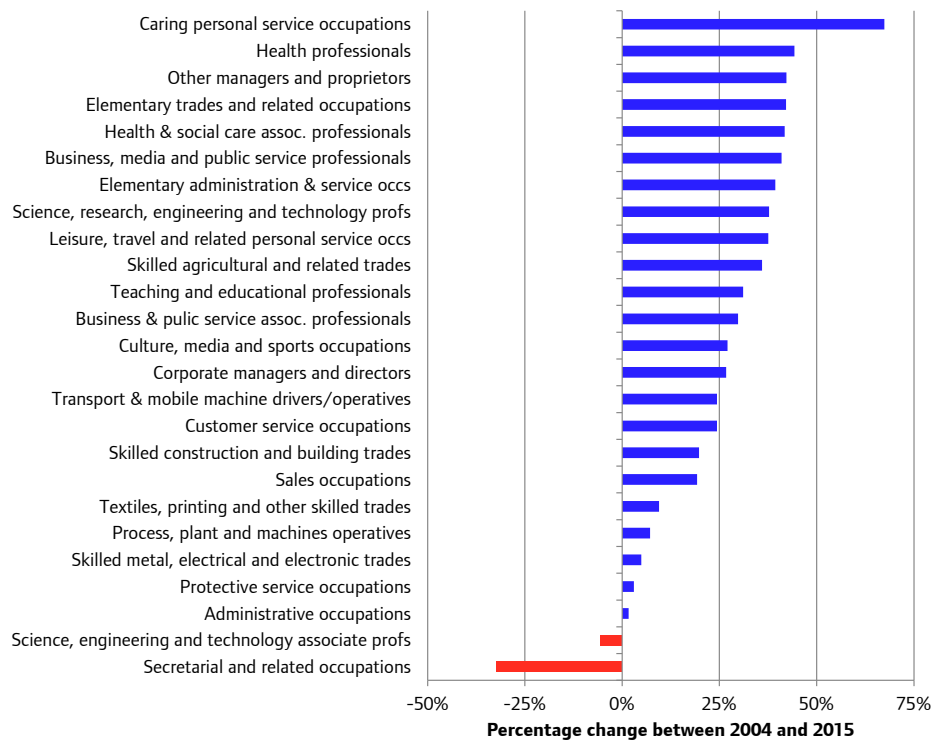


Notes: January to December periods and has been reweighted in July 2016.
Source: ONS Annual Population Survey

## 9.4 The supply of labour

Having discussed the characteristics of London's labour market, this section will focus on the supply of labour. In particular, it will look at three broad groups of labour: young people who are the future workforce, the current workforce, and the over 65s who are either approaching retirement or have already left the labour force. It does not look at commuting which is another aspect of London's labour supply which is instead discussed in Chapters 2 and 8.

### 9.4.1 Young people

A key aspect of the supply of labour is young people and whether they are equipped with the right qualifications and skills in order to successfully transition from education to work. Therefore, this section will look at education attainment and the destinations of students in London.

In 2014-15, the percentage of pupils at state-funded schools who achieved at least five GCSEs including English and Maths that were A*-C grade was 60.9 per cent in London – above the England average of 53.8 per cent. Although performance varied across London boroughs, almost all were above the England average, with Kingston-upon-Thames recording the highest success rate overall in London (Figure 9.66).

**Figure 9.66: Percentage of students achieving at least five A*-C grade GCSEs (including English and Maths) by borough in 2014-15, state-funded schools only**
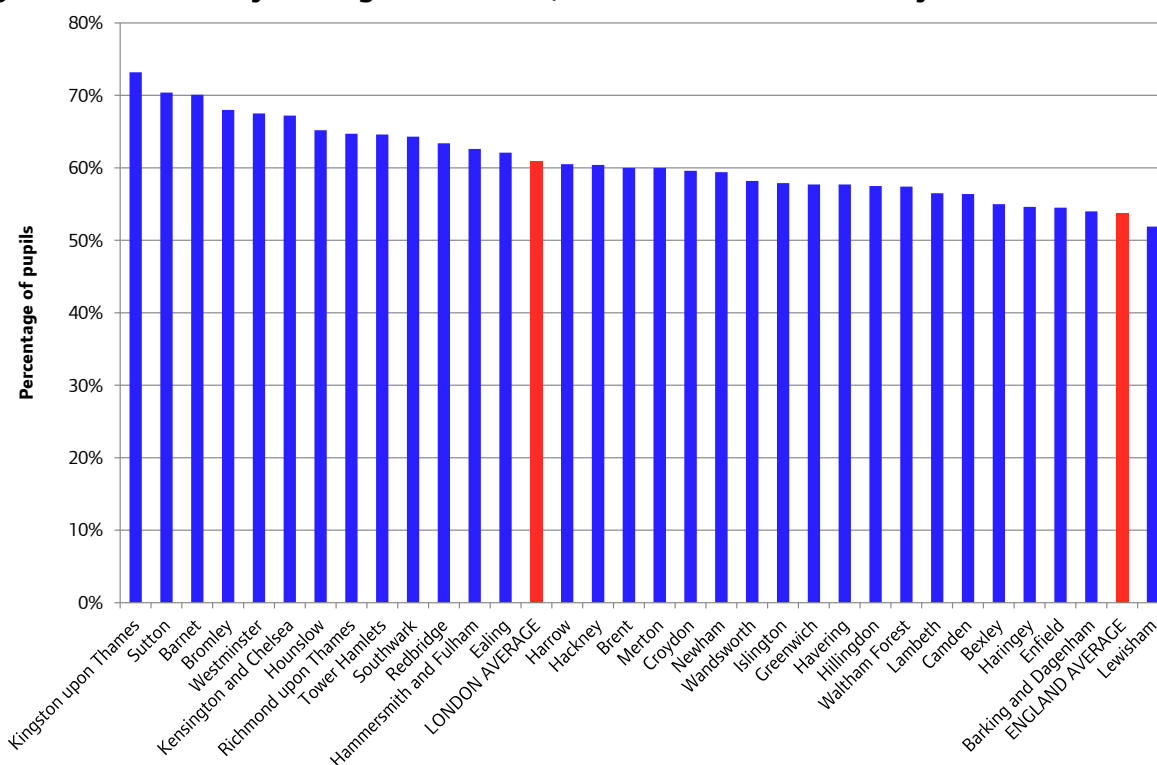


*Source: Department for Education KS4 attainment statistics, 2014-15 revised*

Girls tended to do better at GCSEs than boys (Figure 9.67). For example, 65.5 per cent of girls achieved five A*-C grades including English and Maths compared with 57.5 per cent of boys. Moreover, both boys and girls in London did better than England as a whole.

**Figure 9.67: Percentage of students achieving at least five A\*-C grade GCSEs (including English and Maths) by gender, 2009-10 to 2013-14, state-funded schools only**
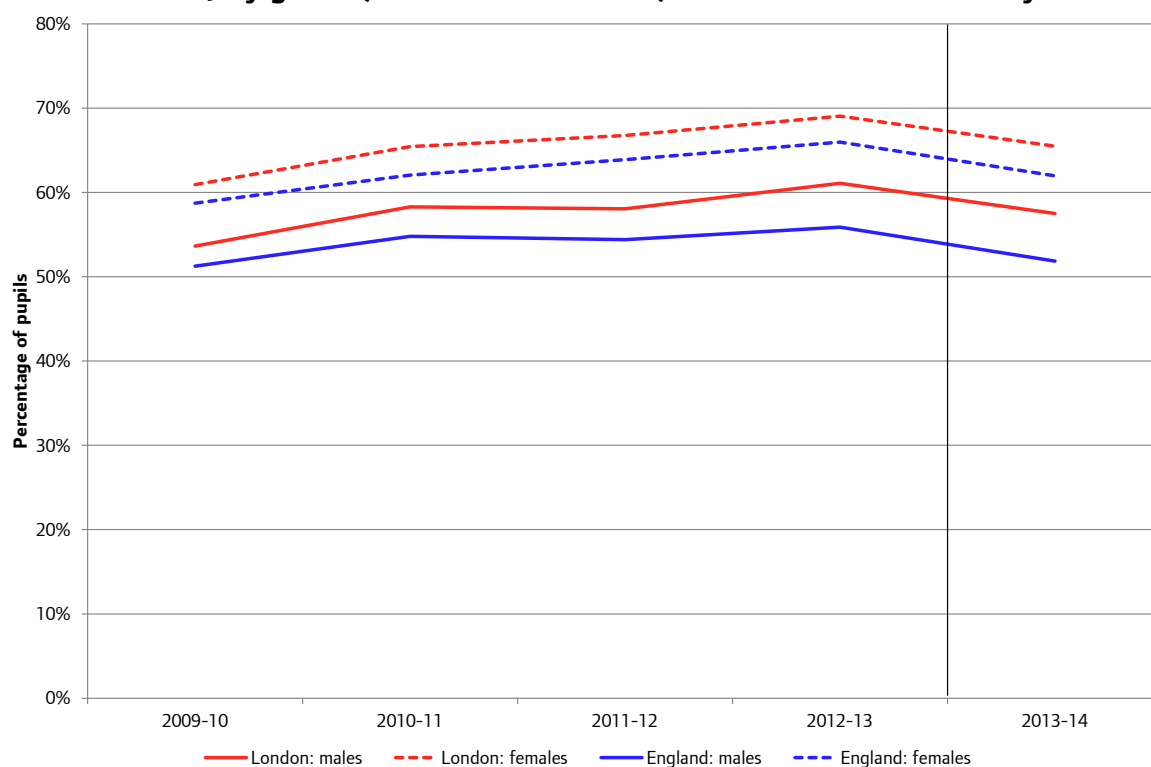


*Note: methodology changes means that the 2013-14 academic year cannot be compared with previous years.*
*Source: Department for Education KS4 attainment statistics*

Education attainment in London was generally higher than England as a whole when looking at pupils by ethnicity (Table 9.16). Broadly speaking, the percentage of pupils achieving five or more A\*–C grade GCSEs including English and Maths was higher for the Chinese and Asian ethnicity groups; the Black ethnicity group generally had the lowest rates of achievement.

**Table 9.16: Percentage of pupils achieving at least five A\*-C grade GCSEs (including English and Maths) by region and ethnicity group in 2014-15**

| Region | White | Mixed | Asian | Black | Chinese | All pupils |
|--------|-------|-------|-------|-------|---------|-----------|
| North East | 57.0% | 58.3% | 61.9% | 52.6% | 78.3% | **57.3%** |
| North West | 56.0% | 54.5% | 56.9% | 46.7% | 79.4% | **55.9%** |
| Yorkshire & Humber | 56.2% | 52.8% | 49.9% | 47.8% | 71.2% | **55.1%** |
| East Midlands | 55.2% | 52.2% | 58.3% | 47.1% | 79.4% | **55.1%** |
| West Midlands | 53.9% | 53.0% | 59.7% | 47.5% | 70.1% | **54.2%** |
| East | 57.8% | 60.9% | 61.9% | 58.7% | 80.7% | **58.2%** |
| London | 59.9% | 61.2% | 69.2% | 54.0% | 79.4% | **60.9%** |
| South East | 59.2% | 62.6% | 68.5% | 54.5% | 82.8% | **59.9%** |
| South West | 57.9% | 59.9% | 61.3% | 44.4% | 69.9% | **58.0%** |
| England | 57.0% | 58.3% | 61.9% | 52.6% | 78.3% | 57.3% |

*Source: Department for Education KS4 attainment statistics, 2014-15 revised*

There are variations in GCSE outcomes by ethnicity by London borough. For example, GCSE performance for the White ethnicity group varied from 73.7 per cent in Westminster to 45.3 per cent in Newham as shown in Table 9.17.

**Table 9.17: Percentage of pupils achieving at least five A\*-C grade GCSEs (including English and Maths) by London borough and ethnicity group in 2014-15**

| Region | White | Mixed | Asian | Black | Chinese | All pupils |
|---|---|---|---|---|---|---|
| Barking and Dagenham | 47.1% | 48.3% | 65.7% | 59.7% | (D) | **54.0%** |
| Barnet | 70.3% | 71.0% | 83.1% | 57.4% | 88.5% | **70.1%** |
| Bexley | 53.5% | 61.1% | 58.1% | 57.5% | 75.0% | **55.0%** |
| Brent | 51.9% | 58.7% | 66.6% | 52.1% | 100.0% | **60.0%** |
| Bromley | 68.5% | 68.5% | 82.8% | 63.1% | (D) | **68.0%** |
| Camden | 59.8% | 59.2% | 53.8% | 50.5% | (D) | **56.4%** |
| City of London | .. | .. | .. | .. | .. | **..** |
| Croydon | 61.7% | 55.0% | 70.2% | 53.4% | 82.4% | **59.6%** |
| Ealing | 63.0% | 63.8% | 65.7% | 53.3% | 100.0% | **62.1%** |
| Enfield | 53.6% | 58.6% | 77.8% | 47.8% | 76.5% | **54.5%** |
| Greenwich | 51.3% | 63.5% | 69.3% | 61.7% | 71.0% | **57.7%** |
| Hackney | 62.7% | 65.3% | 68.4% | 56.3% | 78.6% | **60.4%** |
| Hammersmith and Fulham | 69.4% | 58.3% | 64.8% | 51.0% | (D) | **62.6%** |
| Haringey | 60.7% | 55.0% | 60.8% | 44.8% | 20.0% | **54.6%** |
| Harrow | 59.0% | 57.2% | 67.3% | 49.4% | (D) | **60.5%** |
| Havering | 56.9% | 48.9% | 77.4% | 60.5% | 72.2% | **57.7%** |
| Hillingdon | 54.3% | 59.8% | 68.0% | 47.4% | (D) | **57.5%** |
| Hounslow | 63.9% | 71.2% | 69.0% | 56.5% | (D) | **65.2%** |
| Islington | 50.9% | 58.9% | 73.5% | 56.3% | (D) | **57.9%** |
| Kensington and Chelsea | 69.3% | 60.3% | 83.9% | 59.0% | (D) | **67.2%** |
| Kingston upon Thames | 70.5% | 74.2% | 81.7% | 56.1% | (D) | **73.2%** |
| Lambeth | 58.2% | 61.3% | 69.1% | 51.9% | 64.7% | **56.5%** |
| Lewisham | 55.2% | 53.7% | 61.3% | 48.3% | 45.5% | **51.9%** |
| Merton | 60.7% | 64.6% | 67.8% | 49.4% | (D) | **60.0%** |
| Newham | 45.3% | 58.5% | 66.3% | 56.1% | 60.0% | **59.4%** |
| Redbridge | 60.0% | 58.9% | 69.9% | 49.7% | (D) | **63.4%** |
| Richmond upon Thames | 65.9% | 58.6% | 64.4% | 50.7% | (D) | **64.7%** |
| Southwark | 65.2% | 64.2% | 71.8% | 61.4% | 87.5% | **64.3%** |
| Sutton | 63.6% | 77.4% | 90.2% | 67.2% | 100.0% | **70.4%** |
| Tower Hamlets | 54.2% | 52.1% | 68.1% | 62.2% | (D) | **64.6%** |
| Waltham Forest | 57.9% | 57.6% | 62.7% | 48.8% | 71.4% | **57.4%** |
| Wandsworth | 61.5% | 65.7% | 66.1% | 45.6% | (D) | **58.2%** |
| Westminster | 73.7% | 57.8% | 75.9% | 58.5% | 80.0% | **67.5%** |
| **London** | **59.9%** | **61.2%** | **69.2%** | **54.0%** | **79.4%** | **60.9%** |
| **England** | **57.0%** | **58.3%** | **61.9%** | **52.6%** | **78.3%** | **57.3%** |

*Note: ".." means not applicable and (D) means that the figures are disclosive. Source: Department for Education KS4 attainment statistics, 2014-15 revised*

**Box 9.9: Factors that indicate educational performance**

There are a number of factors that can influence educational attainment, such as whether pupils have English as an additional language, are eligible for free school meals or are from disadvantaged backgrounds. As can be seen from Table 9.18, pupils who are eligible for FSM or from disadvantaged backgrounds are less likely to achieve at least five good GCSEs than those without these characteristics. Interestingly, those for which English is not their first language did slightly better than those pupils for whom English is their first language in London – the reverse was true for England as a whole.

**Table 9.18: Percentage of pupils achieving at least five A\*-C grade GCSEs (including English and Maths) by London borough and different characteristics in 2014–15**

| Region | English as an additional language | | Known to be eligible for free school meals | | Disadvantaged pupils | |
|---|---|---|---|---|---|---|
| | Not EAL | EAL | Not FSM | FSM | Not disadvantaged | Disadvantaged |
| Barking and Dagenham | 59.0% | 54.1% | 62.0% | 43.7% | 68.0% | 47.4% |
| Barnet | .. | .. | .. | .. | .. | .. |
| Bexley | 61.1% | 59.4% | 65.4% | 50.8% | 69.3% | 52.6% |
| Brent | 64.3% | 61.0% | 68.6% | 44.3% | 75.5% | 48.4% |
| Bromley | 59.5% | 50.4% | 60.7% | 41.5% | 65.9% | 43.8% |
| Camden | 52.2% | 63.0% | 66.2% | 47.1% | 68.4% | 52.7% |
| City of London | 66.1% | 68.2% | 69.1% | 59.2% | 75.7% | 57.0% |
| Croydon | 54.6% | 58.9% | 62.3% | 41.9% | 67.7% | 47.6% |
| Ealing | 51.9% | 52.0% | 56.7% | 34.7% | 60.3% | 41.0% |
| Enfield | 57.7% | 60.0% | 62.0% | 52.7% | 66.5% | 54.5% |
| Greenwich | 62.4% | 67.2% | 68.2% | 54.4% | 71.5% | 57.3% |
| Hackney | 57.8% | 67.1% | 69.0% | 60.0% | 72.3% | 61.5% |
| Hammersmith and Fulham | 57.6% | 58.9% | 61.7% | 44.0% | 68.2% | 46.1% |
| Haringey | 66.9% | 67.8% | 71.9% | 58.4% | 76.3% | 61.2% |
| Harrow | 51.7% | 57.9% | 58.2% | 39.4% | 61.9% | 44.0% |
| Havering | 71.7% | 68.0% | 73.6% | 48.0% | 77.8% | 50.5% |
| Hillingdon | 55.2% | 53.8% | 57.3% | 35.9% | 60.6% | 36.2% |
| Hounslow | 63.7% | 57.1% | 61.9% | 48.5% | 65.0% | 50.6% |
| Islington | 68.6% | 69.2% | 71.0% | 37.8% | 74.2% | 47.3% |
| Kensington and Chelsea | 59.7% | 59.1% | 63.3% | 41.5% | 68.2% | 42.9% |
| Kingston upon Thames | 62.8% | 61.6% | 65.9% | 47.3% | 70.3% | 49.8% |
| Lambeth | 57.7% | 50.7% | 58.8% | 36.6% | 62.8% | 41.4% |
| Lewisham | 53.9% | 64.2% | 61.2% | 42.6% | 66.8% | 47.6% |
| Merton | 60.9% | 60.2% | 63.5% | 42.3% | 67.5% | 43.6% |
| Newham | 57.2% | 64.3% | 59.9% | 36.3% | 63.1% | 38.1% |
| Redbridge | 55.5% | 61.4% | 61.7% | 36.1% | 65.4% | 39.4% |
| Richmond upon Thames | 65.5% | 64.8% | 68.0% | 50.2% | 71.9% | 51.0% |
| Southwark | 72.5% | 74.8% | 76.3% | 35.8% | 79.0% | 45.6% |
| Sutton | 57.7% | 64.2% | 63.6% | 43.8% | 67.9% | 44.6% |
| Tower Hamlets | 62.6% | 64.0% | 68.1% | 43.3% | 71.1% | 44.3% |
| Waltham Forest | 64.7% | 65.2% | 68.7% | 35.0% | 73.2% | 39.1% |
| Wandsworth | 68.8% | 77.5% | 73.7% | 40.4% | 75.8% | 44.9% |
| Westminster | 57.9% | 56.7% | 60.5% | 43.1% | 65.4% | 45.8% |
| **London** | **60.7%** | **61.3%** | **64.7%** | **45.8%** | **68.8%** | **48.3%** |
| **England** | **57.5%** | **56.5%** | **65.1%** | **36.8%** | **65.1%** | **36.8%** |

*Note: ".." means not applicable and (D) means that the figures are disclosive. Source: Department for Education KS4 attainment statistics, 2014-15 revised*

Interestingly, these characteristics are more common in London than England as a whole as shown in Figure 9.68. For example, approximately 16.8 per cent of pupils in state-funded nursey or primary schools and 18.1 per cent in state-funded secondary schools were eligible for and claiming free school meals in London as at January 2016. That compared with 14.5 per cent and 13.2 per cent nationally.

**Figure 9.68: Percentage of primary and secondary school pupils by ethnicity, EAL, FSM eligibility and SEN for London and England in 2016**
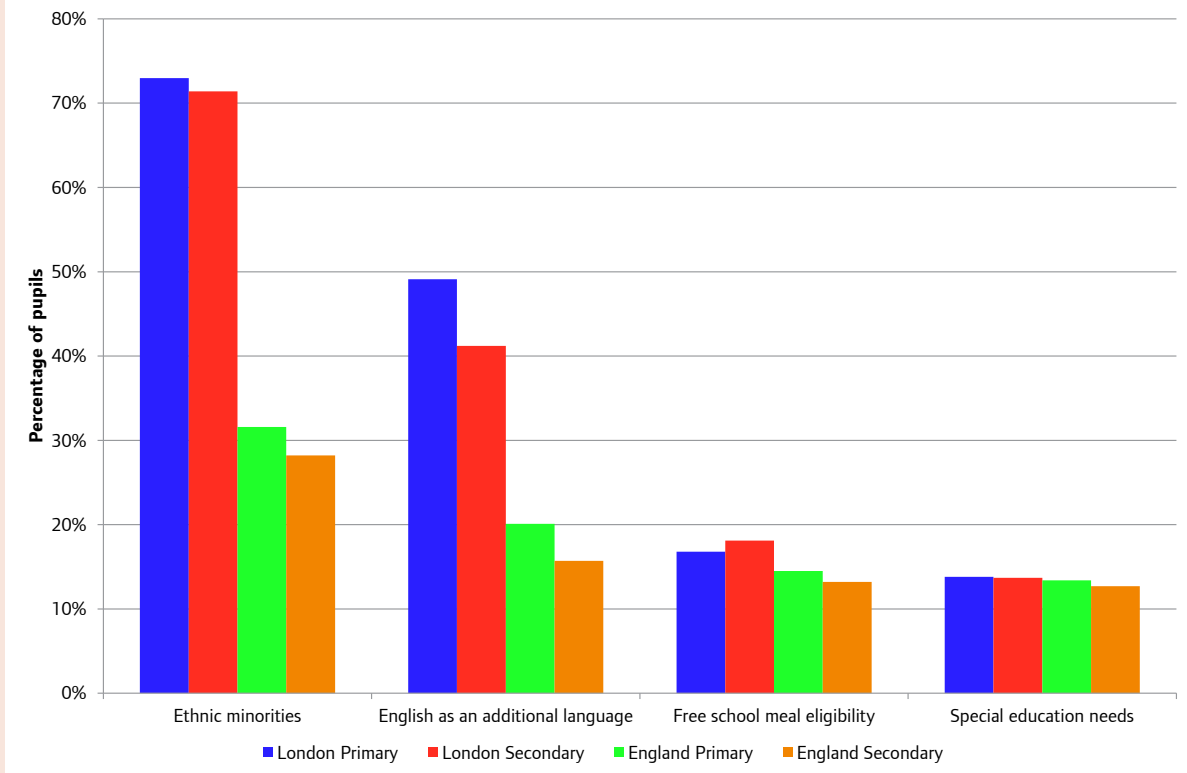


Note: all state schools.
Source: Department for Education School Census

Historic comparisons in educational attainment cannot easily be made due to methodology changes in 2013-14 and 2014-15 but, prior to this, London had generally seen an increase in the percentage of pupils achieving at least five good GCSEs and had tended to outperform England as a whole since 2005 (Figure 9.69).

**Figure 9.69: Percentage of pupils achiveing at least five A\*-C grade GCSEs for London and England, 2005-06 to 2014-15, state-funded schools only**
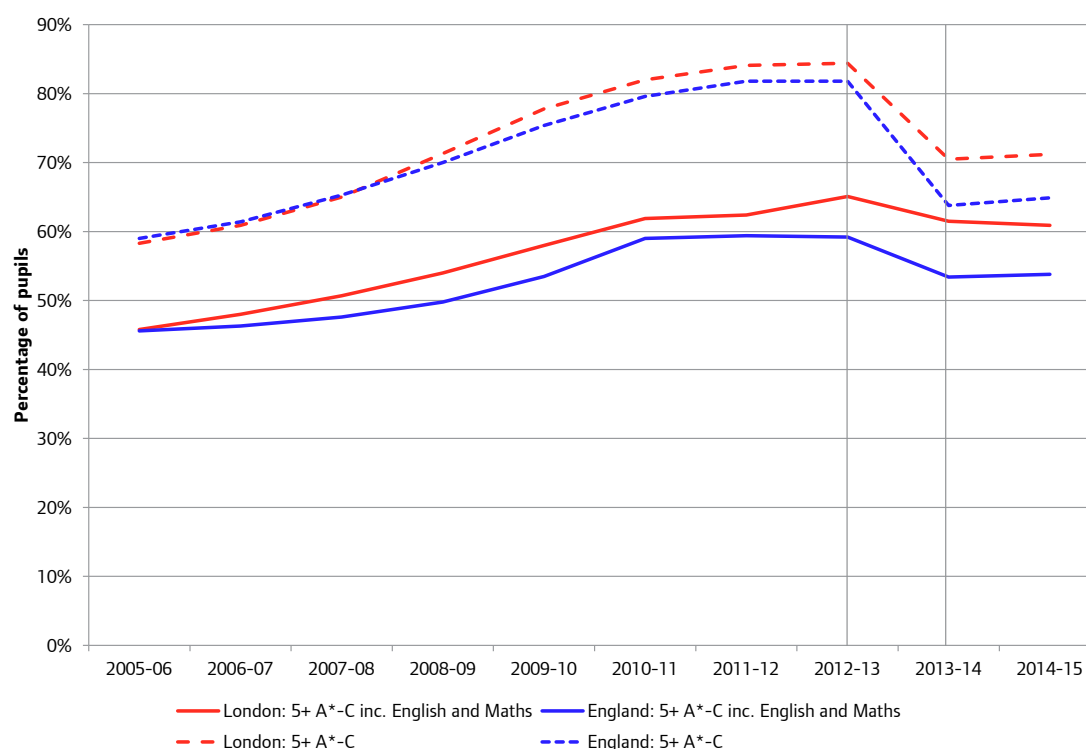


Note: methodology changes in 2013-14 and 2014-15 means that they cannot directly be compared with previous years.
Source: Department for Education Key Stage 4 Attainment data

Following GCSEs (or Key Stage 4 more generally) most students remain in education (approximately 93 per cent) in London as shown in Table 9.19. A further 5 per cent did not sustain any particular destination, but 1 per cent was recorded as not being in education, employment or training (NEET).

**Table 9.19: Percentage of key stage 4 pupils by destination for London and England in 2013-14**

| Destination | London | England |
|---|---|---|
| **All education, employment or training destinations** | **93%** | **92%** |
| Education destination | 93% | 90% |
| Employment or training destination | .. | 1% |
| Combined education and employment/training destination | .. | 1% |
| **Destination not sustained** | **5%** | **5%** |
| **Destination not sustained/NEET** | **1%** | **2%** |
| **Activity not captured** | **2%** | **1%** |

Note: ".." means the percentage is less than 0.5 per cent but greater than 0 per cent. Data reported to zero decimal places.
Source: Department for Education National Pupil Database

**Box 9.10: International comparisons of education**
Comparisons between London's education system and other international cities can be made for the student/teacher ratio and the average expenditure per student. Further international comparisons looking at qualifications achieved can be found in Chapter 5.

Firstly, Figure 9.70 shows the student/teacher ratio in London and other global cities. London's situation (20.9) is relatively good when compared with Barcelona (22.7) and Los Angeles (22.6), but had larger class sizes than Shanghai (15.8), Melbourne (14.7) and Helsinki (11.6). Note, that there is some information on school places in London in Chapter 8.

**Figure 9.70: Primary education student/teacher ratio in selected world cities**
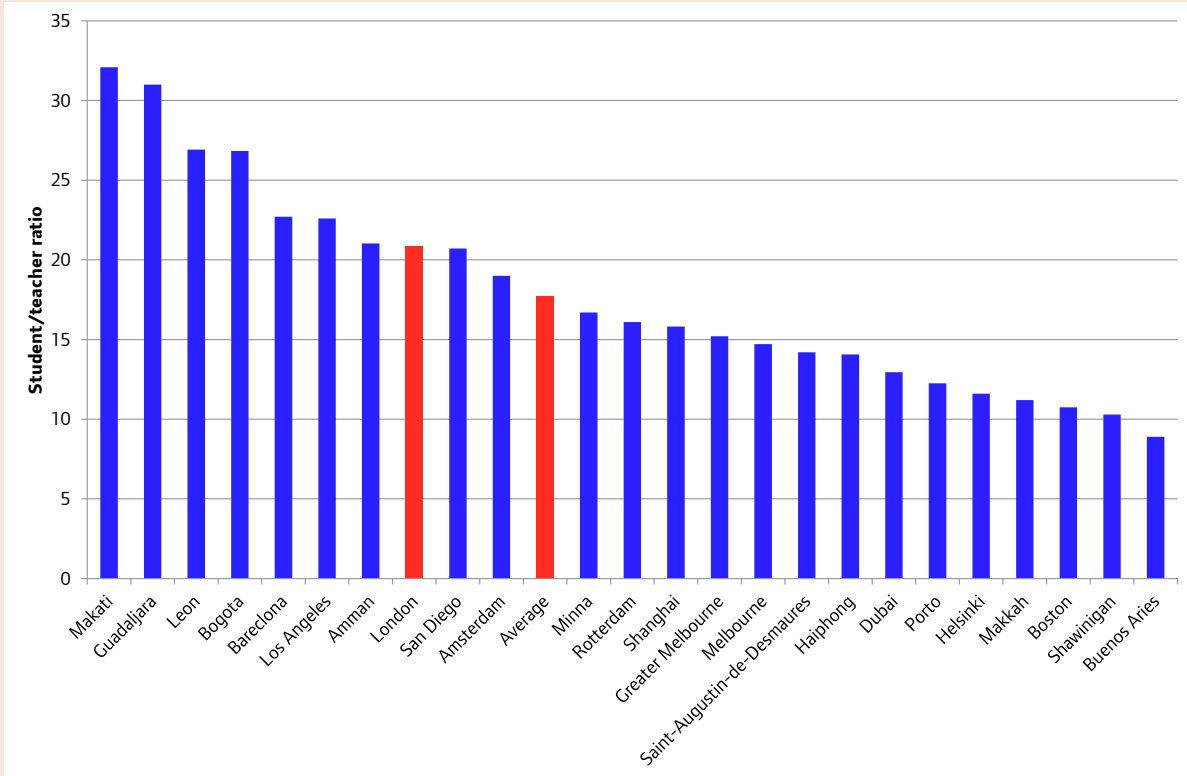


*Source: World Council for City Data*

Data for expenditure per student is only available at the national level as shown in Table 9.20. The UK ranks well on expenditure per primary education student, but less well on other measures such as spending on tertiary education.

**Table 9.20: Annual expenditure per student at different education levels, converted into US$ using PPP**

| Country | Pre-primary education | Primary education | Secondary education | Tertiary education (including R&D) |
|---|---|---|---|---|
| Argentina | $19,788 | $21,673 | $30,337 | .. |
| Australia | $107,341 | $86,712 | $103,544 | $162,673 |
| Austria | $89,330 | $105,997 | $136,073 | $148,949 |
| Belgium | $63,329 | $92,809 | $117,325 | $154,204 |
| Brazil | $23,486 | $26,735 | $26,623 | $109,019 |
| Canada | .. | $92,321 | .. | $232,258 |
| Chile | $50,831 | $45,511 | $44,950 | $83,328 |
| Colombia | $34,910 | $20,410 | $22,070 | $68,820 |
| Czech Republic | $43,023 | $45,870 | $72,701 | $93,919 |
| Denmark | $141,475 | $94,335 | $109,372 | $212,538 |
| Estonia | $26,181 | $53,282 | $63,887 | $78,679 |
| Finland | $56,998 | $81,593 | $97,918 | $180,016 |
| France | $66,151 | $69,170 | $111,091 | $153,748 |
| Germany | $83,507 | $75,789 | $102,752 | $167,228 |
| Greece | .. | .. | .. | .. |
| Hungary | $45,636 | $45,664 | $45,741 | $92,097 |
| Iceland | $91,382 | $103,387 | $84,696 | $86,121 |
| Indonesia | $2,048 | $5,869 | $5,216 | $11,732 |
| Ireland | .. | $85,200 | $115,018 | $160,951 |
| Israel | $40,579 | $68,226 | $57,118 | $115,537 |
| Italy | $78,680 | $84,485 | $85,848 | $99,900 |
| Japan | $55,912 | $82,803 | $98,857 | $164,460 |
| Korea | $68,606 | $69,759 | $81,988 | $99,265 |
| Latvia | $43,589 | $49,818 | $49,982 | $75,516 |
| Luxembourg | $250,742 | $238,712 | $161,820 | .. |
| Mexico | $25,679 | $26,220 | $29,434 | $78,891 |
| Netherlands | $80,204 | $80,359 | $121,001 | $175,494 |
| New Zealand | $110,884 | $80,841 | $93,117 | $105,822 |
| Norway | $67,297 | $124,588 | $139,387 | $188,402 |
| Poland | $64,094 | $62,334 | $58,702 | $96,589 |
| Portugal | $56,736 | $58,654 | $86,758 | $96,398 |
| Russia | .. | .. | $44,704 | $74,242 |
| Slovak Republic | $46,528 | $55,169 | $49,382 | $81,773 |
| Slovenia | $81,357 | $92,601 | $85,675 | $104,135 |
| Spain | $67,254 | $72,876 | $96,147 | $131,729 |
| Sweden | $69,147 | $102,951 | $109,384 | $208,183 |
| Switzerland | $52,675 | $129,074 | $158,913 | $228,817 |
| Turkey | $24,120 | $22,176 | $27,360 | $81,931 |
| **United Kingdom** | **$96,916** | **$98,573** | **$96,488** | **$142,229** |
| United States | $100,104 | $109,585 | $127,306 | $260,213 |
| **OECD average** | **$74,281** | **$82,958** | **$92,805** | **$139,577** |
| Highest | $250,742 Luxemburg | $238,712 Luxemburg | $161,820 Luxemburg | $260,213 United States |
| Lowest | $2,048 Indonesia | $5,869 Indonesia | $5,216 Indonesia | $11,732 Indonesia |

*Source: OECD*

As noted in Table 9.19 above, most young people continue on to Key Stage 5. Popular subjects in London for the 2014-15 academic year included English (7.9 per cent), Biological Sciences (7.8 per cent) and Mathematics (6.9 per cent). In fact, 35.7 per cent of A Level entries were in STEM subjects[52].

The percentage of students at state-funded schools achieving AAB or better in their A Levels was 17.7 per cent in 2014-15. Males performed slightly better than females (18.4 per cent versus 17.2 per cent). Moreover, London performed slightly above the England average of 17 per cent.

Figure 9.71 shows the percentage of students achieving AAB or better at A Level for London and England over time. Historically, London has performed marginally better than England when solely looking at state-funded schools[53]. However, if colleges were also included, then London performed below the England average. For example, the percentage of students achieving AAB or better in London state-funded schools and colleges[54] was 15.9 per cent in 2014-15, compared with 19.2 per cent for England as a whole. This implies that London colleges do not perform as well as London state-funded schools. Potential reasons for this include London colleges having higher proportions of students from ethnic backgrounds with lower GCSE attainment compared to state-funded schools, as well as colleges taking on students that may have left their school sixth form[55].

**Figure 9.71: Percentage of students achieving AAB or better at A Level for London and England, 2010-11 to 2014-15**
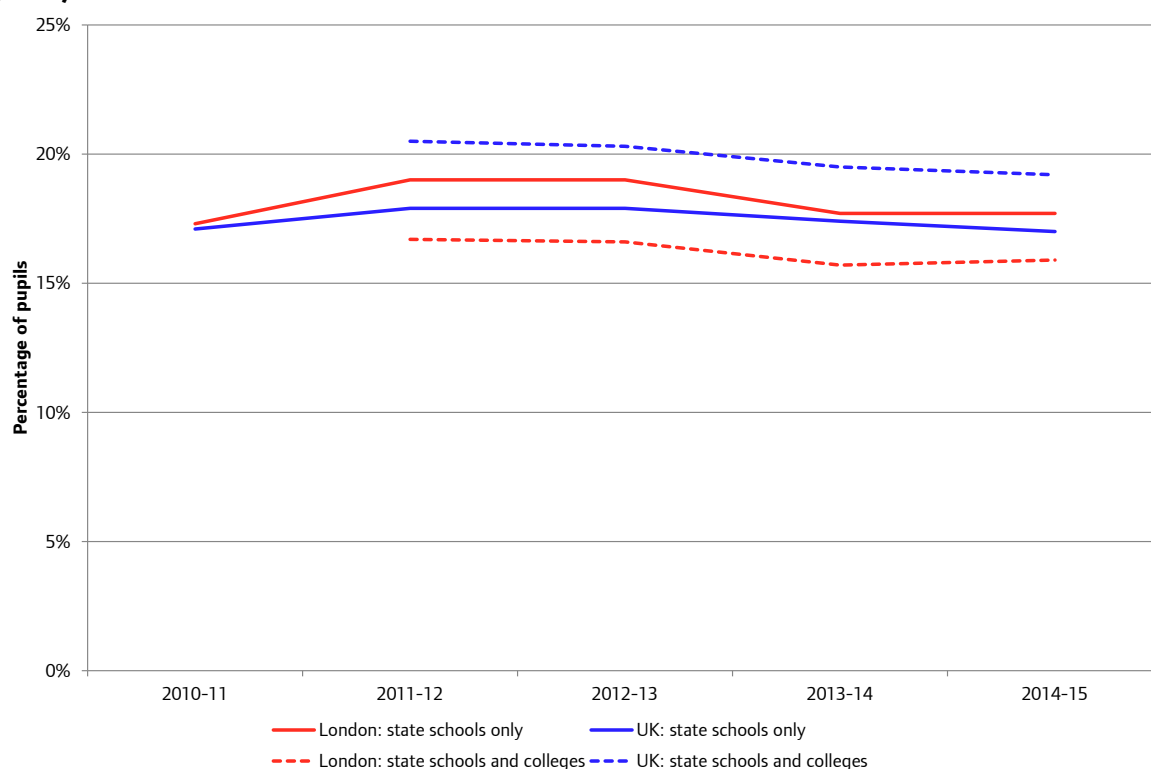


*Source: Department for Education 2014/15 16-18 attainment data*

There were quite significant differences by borough when looking at the percentage of students getting AAB or better at A Level from state funded schools and colleges (Figure 9.72). For example, Sutton had 33.1 per cent of students getting these grades, compared with 6.2 per cent for Waltham Forest.

**Figure 9.72: Percentage of students achieving AAB or better at A Level by London borough in 2014-15, state-funded schools and colleges**
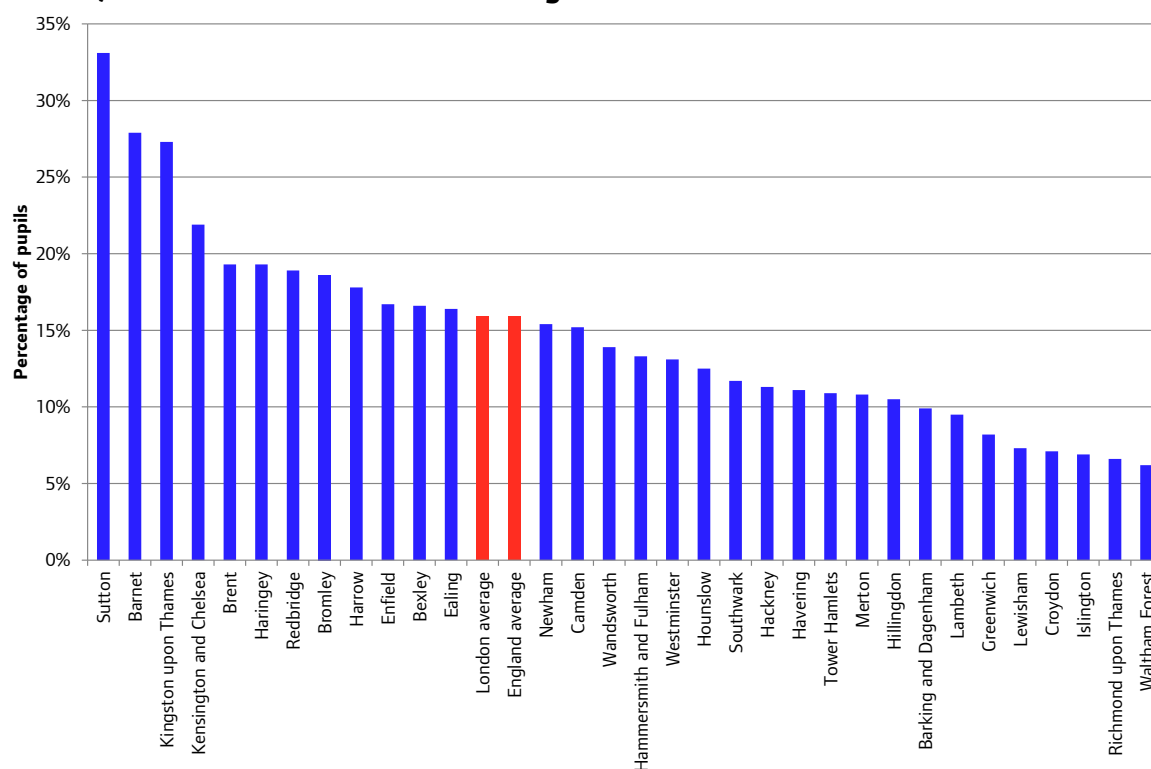


*Note: City of London is excluded for disclosure reasons.*
*Source: Department for Education 2014/15 16-18 attainment data*

Following A Levels, most young people at state-funded schools remain in some form of education, employment or training (79 per cent). As Table 9.21 shows, the most popular destination was education with 75 per cent attending university or other education destinations. Although continued education was also the most popular destination for young people across England, the proportion was lower at 72 per cent. Interestingly, the percentage of young people entering any type of employment or training destination was approximately 4 per cent in London – half the proportion for England as a whole. Moreover, the percentage of students who were NEET after leaving school was only 2 per cent in 2013-14, on par with the England average.

**Table 9.21: Percentage of key stage 5 pupils by destination for London and England in 2013-14**

| Destination | London | England |
|---|---|---|
| **All education, employment or training destinations** | **79%** | **79%** |
| Education destination | 75% | 72% |
| Employment or training destination | 3% | 7% |
| Combined education and employment/training destination | 1% | 1% |
| **Destination not sustained** | **6%** | **7%** |
| **Destination not sustained/NEET** | **2%** | **2%** |
| **Activity not captured** | **14%** | **13%** |

*Note: figures refer to state-funded schools only.*
*Source: Department for Education National Pupil Database*

**Box 9.11: NEETs in London**

Whilst most successfully move into sustained work, some young people find themselves not in education, employment or training (NEET). There were approximately 89,000 individuals aged 16–24yrs who were NEET in London in Q1 2016, equivalent to 9.3 per cent of the population (Figure 9.73). Of this, 76,000 were aged 19–24yrs (11.1 per cent) implying that 13,000 were aged 16-18yrs. However, it should be noted that this data is seasonal in that it reflects the academic year.

**Figure 9.73: Percentage of individuals aged 16-24 who were NEET in London and England as a whole, residents, 2000 to 2016**
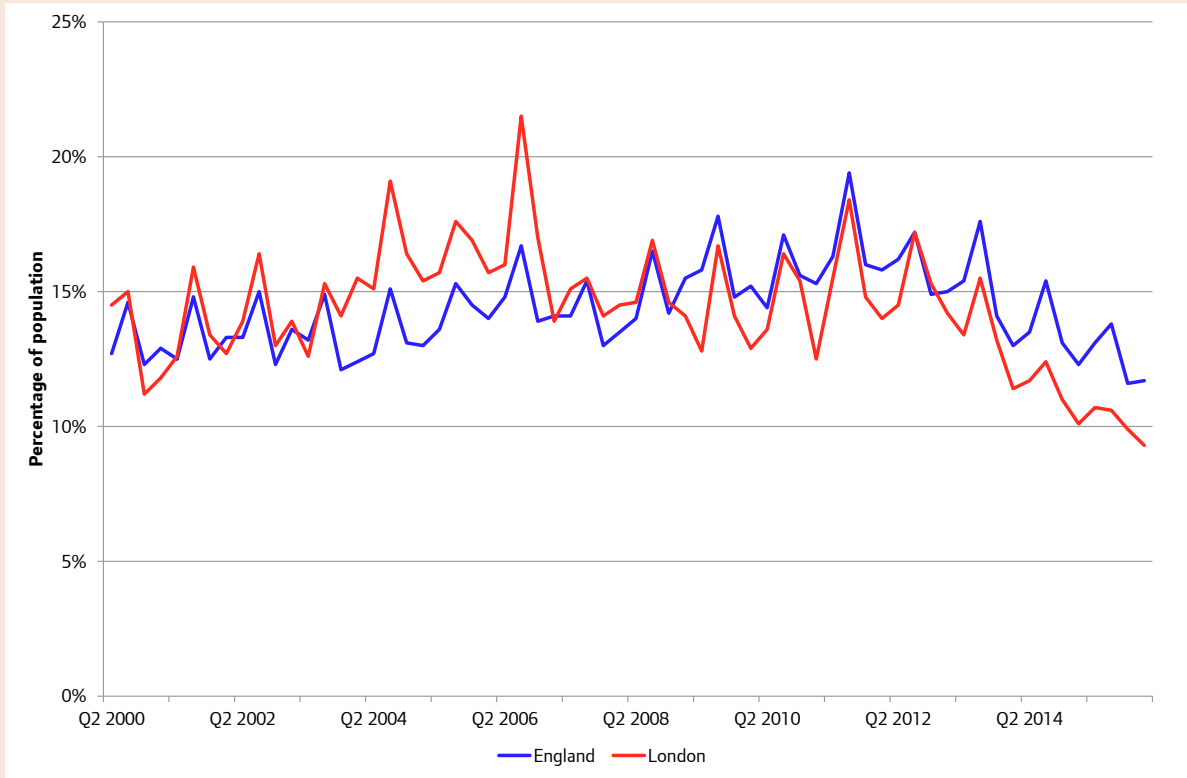


*Source: ONS Labour Force Survey*

London has seen a lower percentage of people aged 16-24 years who are NEET than England as a whole, and differences emerge when looking at the age breakdowns. For example, the NEET rate for those aged 16-18yrs for London was broadly the same as for England as a whole (until recently where the rate for London is now below that for England), and was below for the 19-24yrs age group (Figure 9.74).

**Figure 9.74: Percentage of individuals who were NEET in London and England as a whole, residents, January to March periods, 2000 to 2016**
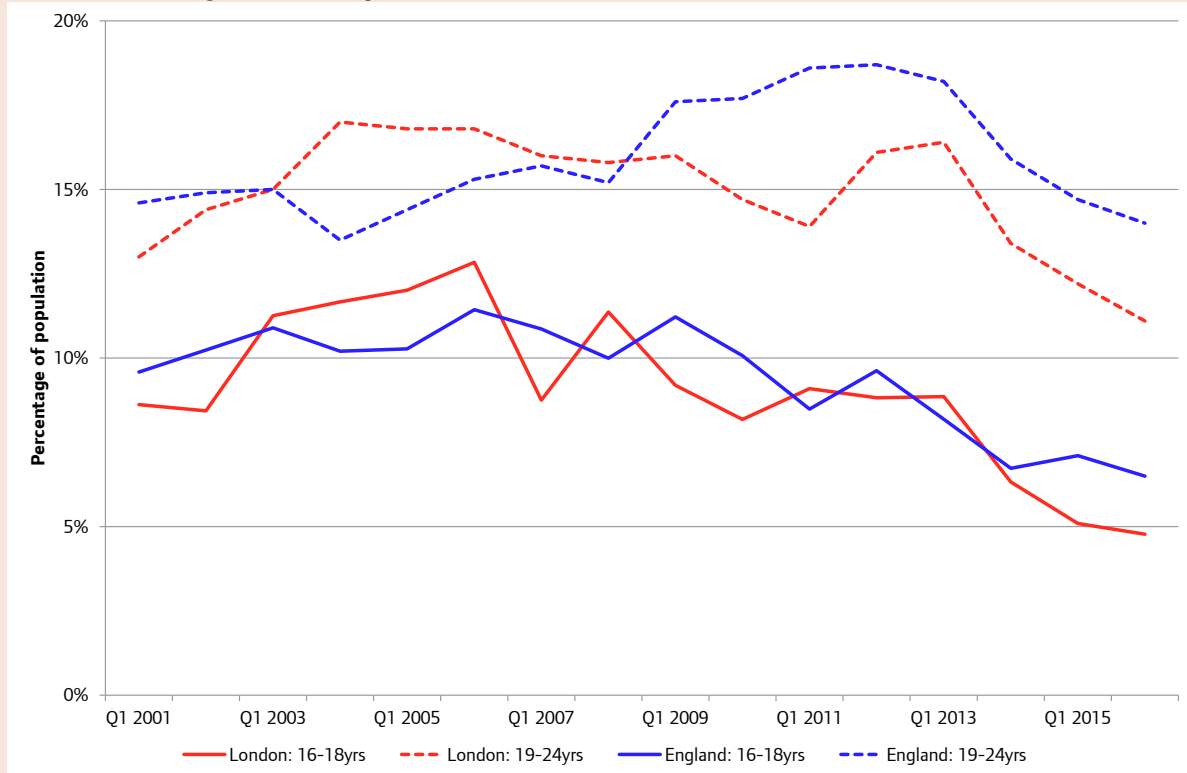


Note: the data for the 16-18yrs group is implied from the 16-24yrs and 19-24yrs groups. Also, January to March periods.
Source: ONS Labour Force Survey

**Box 9.12: Apprenticeships in London**

The number of apprenticeship starts in London was 45,550 in the 2014-15 academic year. That was up from 40,050 in 2013-14, though the trend had been declining since 2011-12[56] (Figure 9.75). There are in fact four levels of apprenticeships that vary in skills and qualifications: intermediate, advanced, higher and degree. Although there is no information on the number of degree level apprenticeships, almost six in every ten (58.5 per cent) apprenticeship starts in London during 2014-15 were for the intermediate level, which is the equivalent of achieving five A*-C grades at GCSE. A further 37.4 per cent were at the advanced level (the equivalent of A Levels), but only 4 per cent were at the higher level (the equivalent of higher education). These trends by level were broadly similar for England as a whole.

**Figure 9.75: Number of apprenticeship starts by level in London, 2005-06 to 2014-15 academic years**
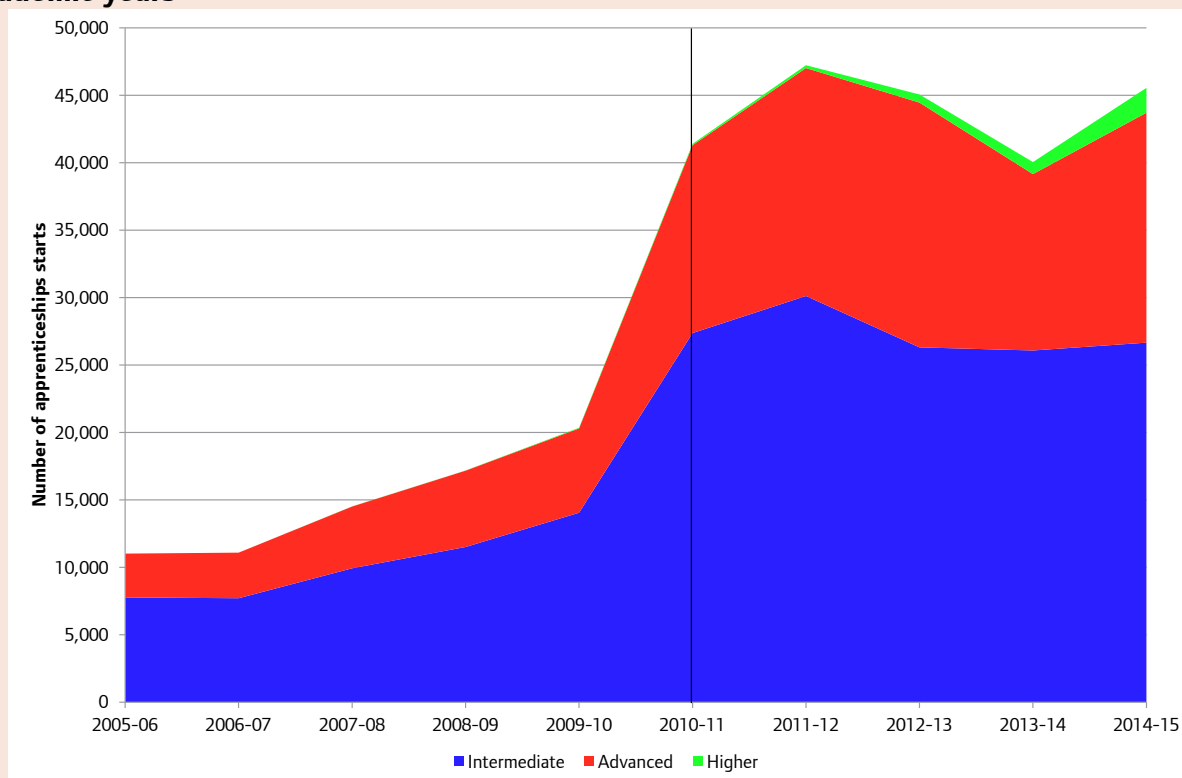


*Note: Figures for 2011-12 onwards not directly comparable to earlier years.*
*Source: Skills Funding Agency*

By age, almost half of starts were by individuals aged 25 years and over (47 per cent), with the 'under 19 years' and 19-24 age groupings representing 21.9 per cent and 31 per cent respectively. All age groups were most likely to start apprenticeships at the intermediate level, though the proportions doing advanced or higher level apprenticeships increased for the older age groups (Table 9.22).

**Table 9.22 Apprenticeship starts by level and age group for London in 2014-15 academic year**

| Apprenticeship level | Under 19 years | 19-24 years | 25 years and over | All ages |
|---|---|---|---|---|
| Intermediate level | 13.8% | 17.7% | 27.0% | **58.5%** |
| Advanced level | 7.8% | 12.3% | 17.3% | **37.4%** |
| Higher level | 0.3% | 1.1% | 2.7% | **4.0%** |
| **All levels** | **21.9%** | **31.0%** | **47.0%** | **100.0%** |

*Source: Skills Funding Agency*

Table 9.23 shows the sector subject that the apprenticeship starts were in during 2014-15. The most popular areas were Business, Administration & Law (34.2 per cent) and Health, Public Services & Care (26.1 per cent). Concurrently, Construction, Planning & the Built Environment saw the largest percentage rise since 2011-12.

**Table 9.23: Apprenticeship starts by sector subject area in London in 2014-15 academic year**

| Sector subject area | Number | Percentage | Change since 2011-12 |
|---|---|---|---|
| Agriculture, Horticulture and Animal Care | 570 | 1.3% | 7.5% |
| Arts, Media and Publishing | 300 | 0.7% | -18.9% |
| Business, Administration and Law | 15,580 | 34.2% | -4.8% |
| Construction, Planning and the Built Environment | 1,260 | 2.8% | 48.2% |
| Education and Training | 920 | 2.0% | -17.1% |
| Engineering and Manufacturing Technologies | 4,420 | 9.7% | -7.5% |
| Health, Public Services and Care | 11,870 | 26.1% | 14.9% |
| Information and Communication Technology | 1,940 | 4.3% | 1.0% |
| Languages, Literature and Culture | .. | .. | .. |
| Leisure, Travel and Tourism | 1,340 | 2.9% | -54.4% |
| Preparation for Life and Work | .. | .. | .. |
| Retail and Commercial Enterprise | 7,350 | 16.1% | -8.4% |
| Science and Mathematics | 10 | 0.0% | 0.0% |
| Unknown | .. | .. | .. |
| **Total** | **45,550** | **100.0%** | **-3.6%** |

*Source: Skills Funding Agency*

By region, London had one of the lowest shares of all apprenticeship starts in England (9.2 per cent). In fact, only the North East posted a lower proportion in 2014-15 (Figure 9.76). This was particularly true for the 'under 19' and 19-24 age groups, though London performed slightly better for the 25 years and over group (fifth out of the nine regions).

**Figure 9.76: Regional share of total apprenticeship starts for England in 2014-15 academic year**
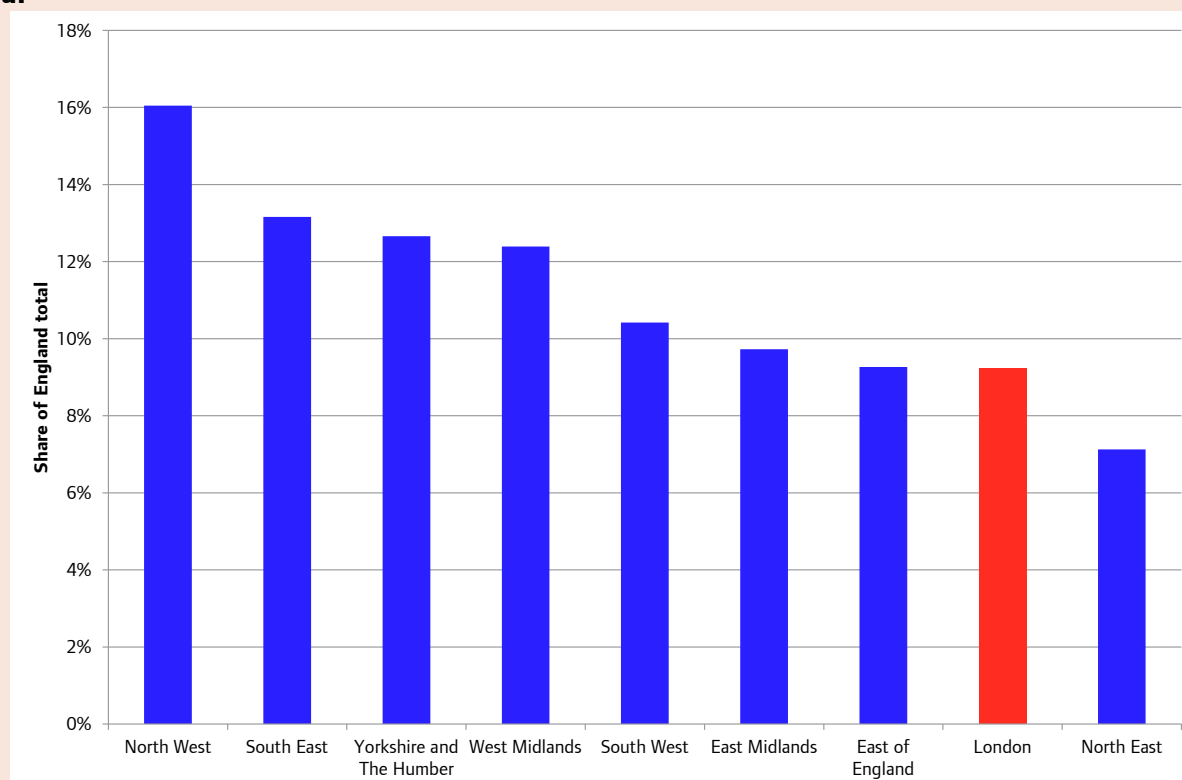


*Source: Skills Funding Agency*

There were approximately 1.7m undergraduate and 0.5m postgraduate students in the UK during 2014-15 (Figure 9.77). That was the lowest student population in ten years and partly a reflection of a drop in the number of students that were from the UK. For example, the number of undergrads from the UK was 1.5m in 2014-15, which was down from 1.7m in 2009-10. The number of undergrads from the rest of the EU (excluding the UK) was broadly stagnant over this period, whilst the number from other countries outside of the EU had increased. Similar trends were observed for postgraduates.

**Figure 9.77: Number of undergraduate and postgraduate students in the UK, 2004-05 to 2014-15 academic years**
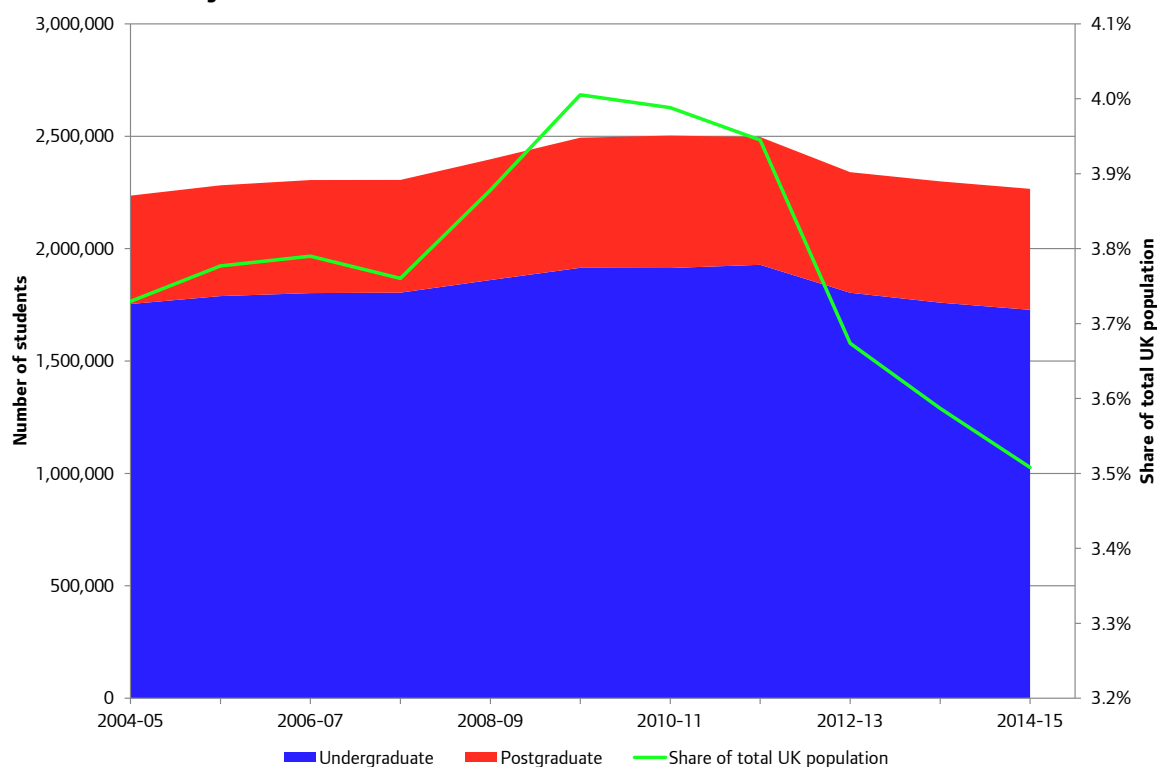


*Source: Higher Education Statistics Agency, ONS Mid-Year Estimates*

The number of undergraduate and postgraduate students at London higher education providers was 241,800 and 118,200 respectively in the 2014-15 academic year. London had the second-highest share of undergraduates in the UK at 14 per cent, behind the South East. However, it attracts more postgraduate students, with its share rising to 22 per cent.

As Figure 9.78 shows, the most popular degree subject was Business & Administrative Studies and was true for both undergraduate (13 per cent) and postgraduate (19.2 per cent) levels. The next most popular subject for undergraduates was Subjects Allied to Medicine representing 12.3 per cent; the most popular for postgraduates was Education (15.1 per cent).

**Figure 9.78: Number of undergraduates and postgraduates by degree subject in the UK during the 2014-15 academic year**
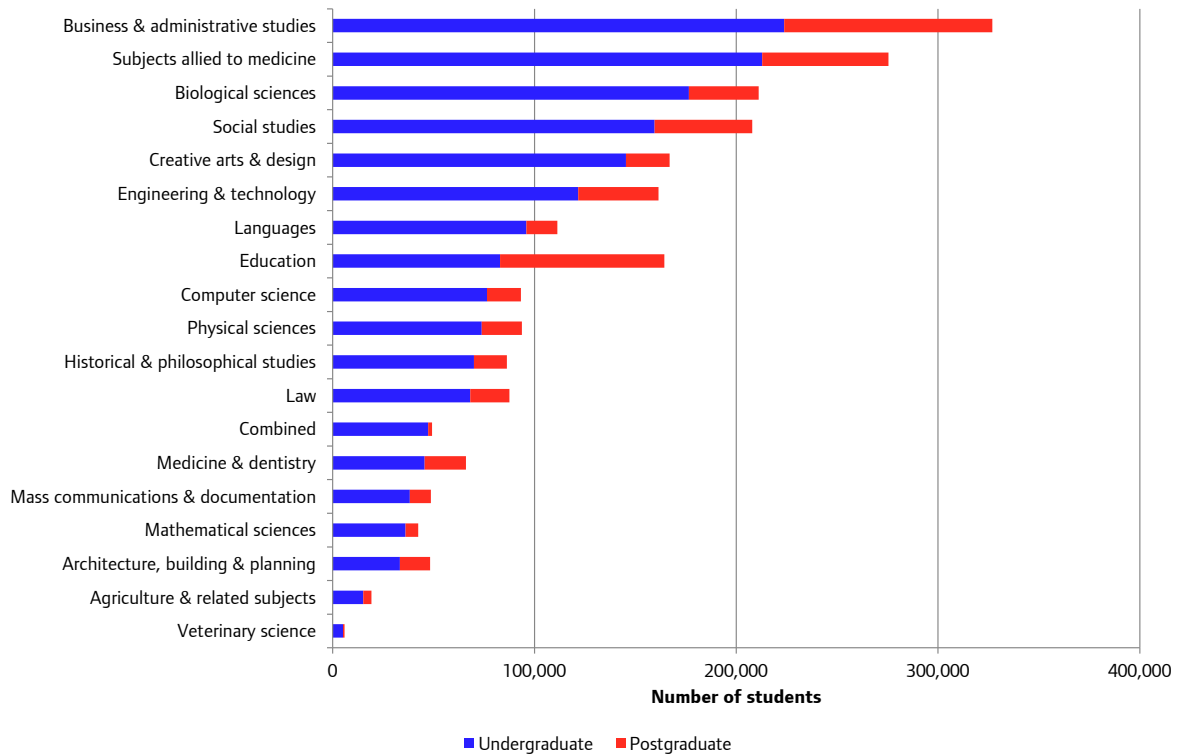
Around three-quarters (74.9 per cent) of UK graduates entered employment after completing their degree in 2013-14, whilst a further 15 per cent went on to further study. Only 4.7 per cent were reportedly unemployed. Employment rates were higher for those completing postgraduate degrees in comparison with undergraduate degrees, though this partly reflects fewer people moving on to further study.

London data is available for 2012-13 and showed that 49.3 per cent of London resident graduates were in full-time work after graduation (Figure 9.79). That was a 2 percentage point increase from the 2011-12 class. A further 15.1 per cent were in part-time work. Overall, the proportion of London resident graduates who were in some sort of work or due to start work was 70.7 per cent. Meanwhile, unemployment stood at 8.7 per cent in 2012-13, an improvement on 11 per cent in 2011-12.

**Figure 9.79: Destinations of graduates who were resident in London before attending HE in the 2012-13 academic year**
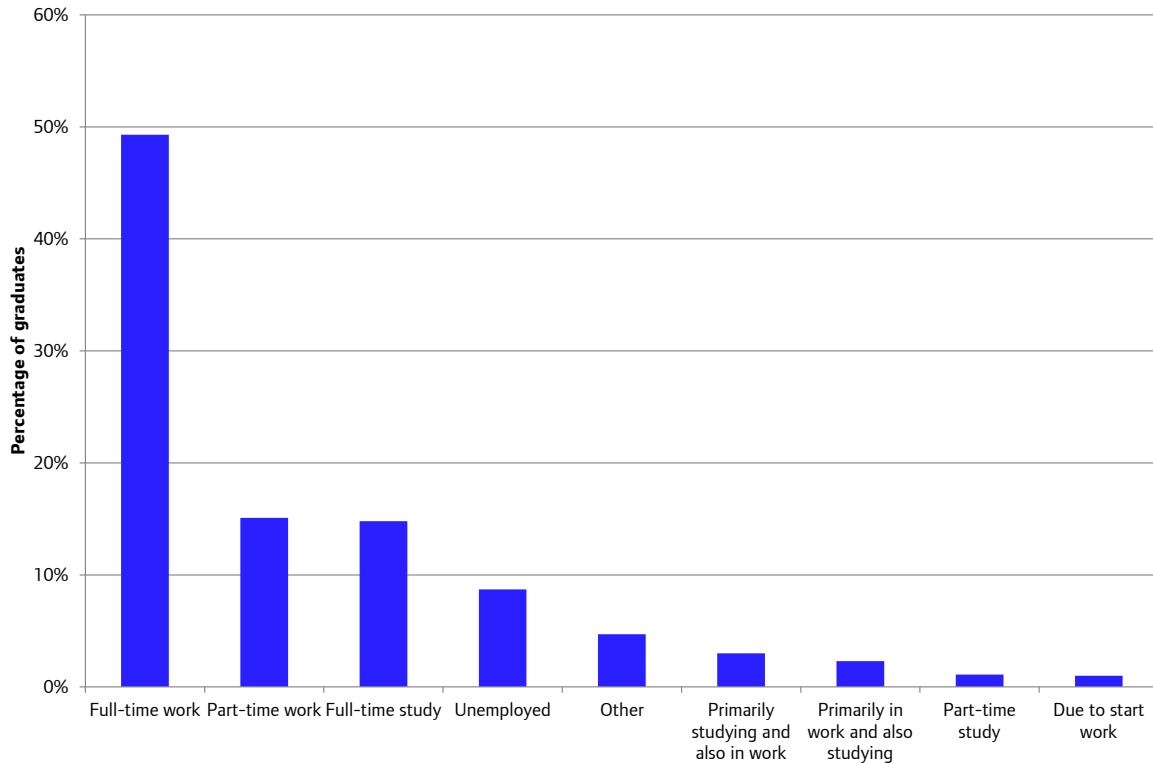


*Source: Higher Education Statistics Agency. Taken from London Councils (2015). The higher education journey of young London residents.*

Most of the London resident graduates entered professional occupations, with 29.5 per cent and 28.6 per cent entering Professional and Associate Professional & Technical roles respectively (Figure 9.80).

**Figure 9.80: Occupations of graduates who were resident in London before attending HE who were in employment in the 2012-13 graduate year**
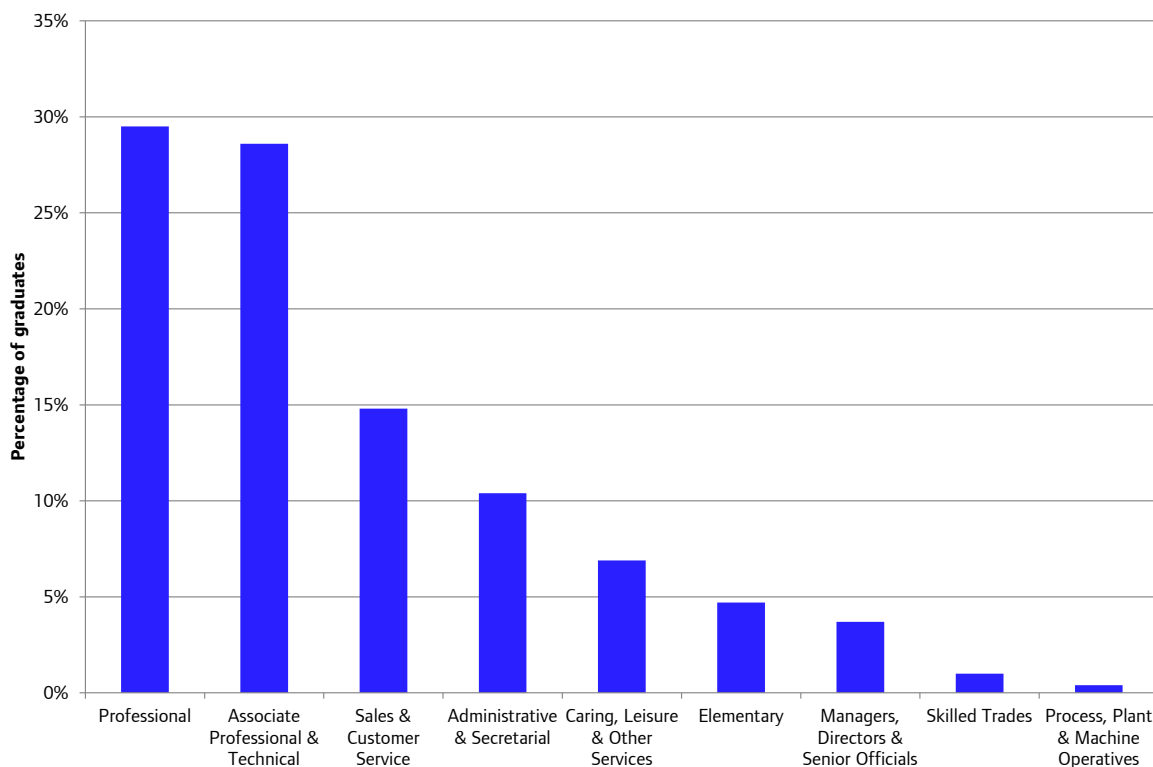


*Source: Higher Education Statistics Agency. Taken from: London Councils (2015). The highere education journey of young London residents.*

Similar information is available on what sectors London resident graduates were working in as shown in Figure 9.81. The top sectors were Wholesale & Retail Trade (18.2 per cent) and Human Health & Social Work (15.1 per cent).

**Figure 9.81: Industry of graduates who were resident in London before attending HE who were in employment in the 2012-13 academic year**
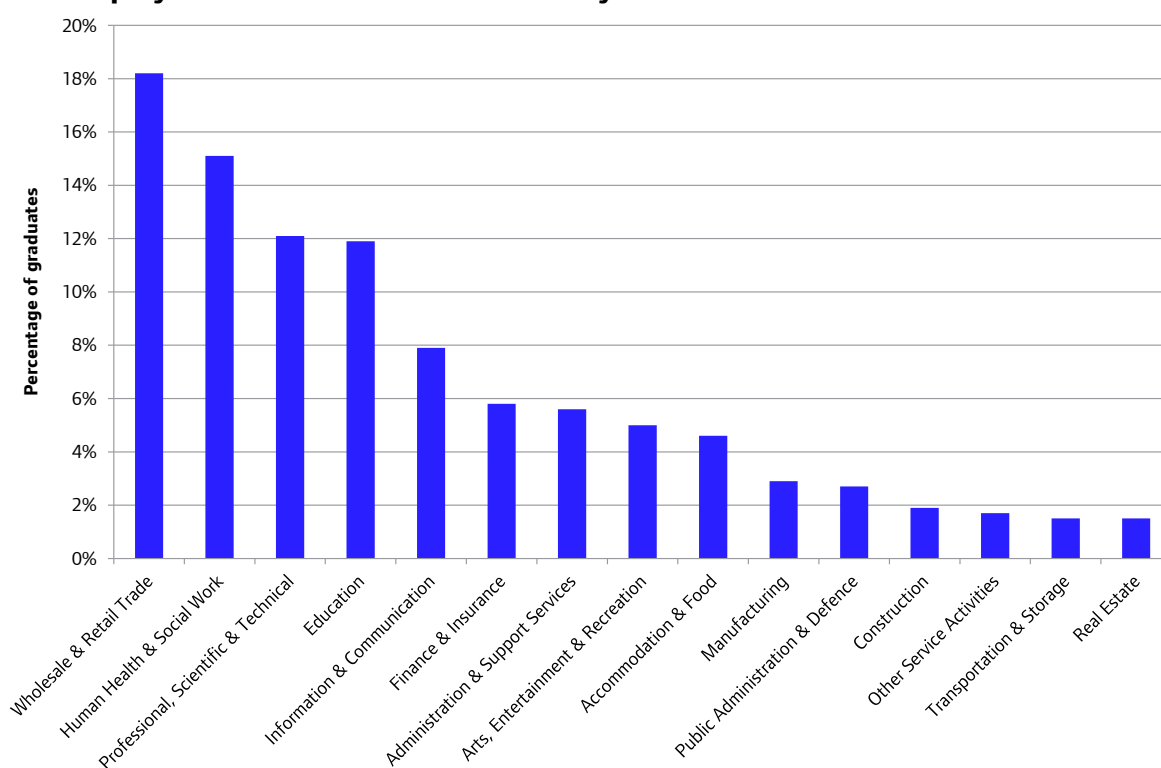


Source: Higher Education Statistics Agency. Taken from: London Councils (2015). The higher education journey of young London residents.

**Box 9.13: Career progression of graduates**
The Higher Education Statistics Agency performs a longitudinal survey of UK graduates to assess their career progression three-and-a-half years after leaving university. The latest findings for graduates in 2010-11 showed that a greater proportion of graduates were in employment after three-and-a-half years (87.9 per cent) than six months after graduation (76.6 per cent). This in part can be explained by those who previously entered further study entering work at a later stage, although there was also a fall in unemployment (Figure 9.82).

**Figure 9.82: Activities of UK domiciled leavers from HE six months and three-and-a-half years after graduating in the 2010-11 academic year**
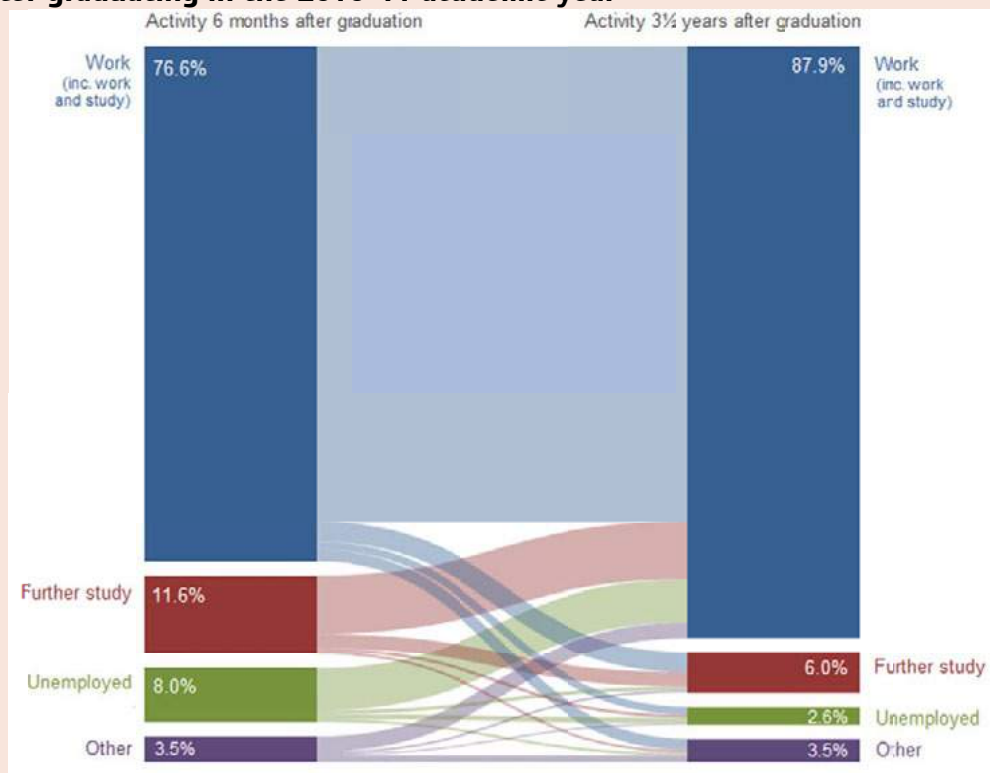


*Source: Higher Education Statistics Agency Destinations of Leavers from Higher Education Longitudinal Survey. Taken from HESA press release 221.*

As discussed in Chapter 5, London is an attractive place to work. For example, the HESA longitudinal survey showed that 23.1 per cent of all UK graduates were working in London after three-and-a-half years. This in part can be attributed to those previously living in London returning back home, but also graduates who studied at London HE providers remaining afterwards. For example, 82.1 per cent of graduates resident in London before university and 70.4 per cent of graduates of London HE providers were working in London three-and-a-half years after graduating.

It could be the case that London acts as an 'accelerator region' for workers in that they develop their skills and careers in London before moving to other parts of the UK as originally suggested by Fielding[57]. For example, there is evidence outlined in the Future of Cities report that graduates from UK regions move to London to work in the finance, professional and other knowledge-intensive services sectors in the first period of their careers[58]. There they develop their skills at an accelerated pace before choosing to move to other parts of the UK perhaps as their priorities move from their career to starting a family.

Figure 9.83 provides a summary of the education journeys taken by students in London – from key stage 4 to university – which has been discussed separately above. When combining the various destinations data, 58.7 per cent of key stage 4 students could eventually move on to key stage 5 and then on to university. That is, almost six in every ten students studying their GCSEs could eventually have a degree (either ordinary or higher degree) as their highest qualification. Other key stage 4 pupils may not go to university and consequently have different education journeys. As such, a further 10.8 per cent could alternatively go on to higher education and 23.2 per cent might achieve GCE, A-level or equivalent as their highest qualification.

**Figure 9.83: Education pathways for London students in 2014**
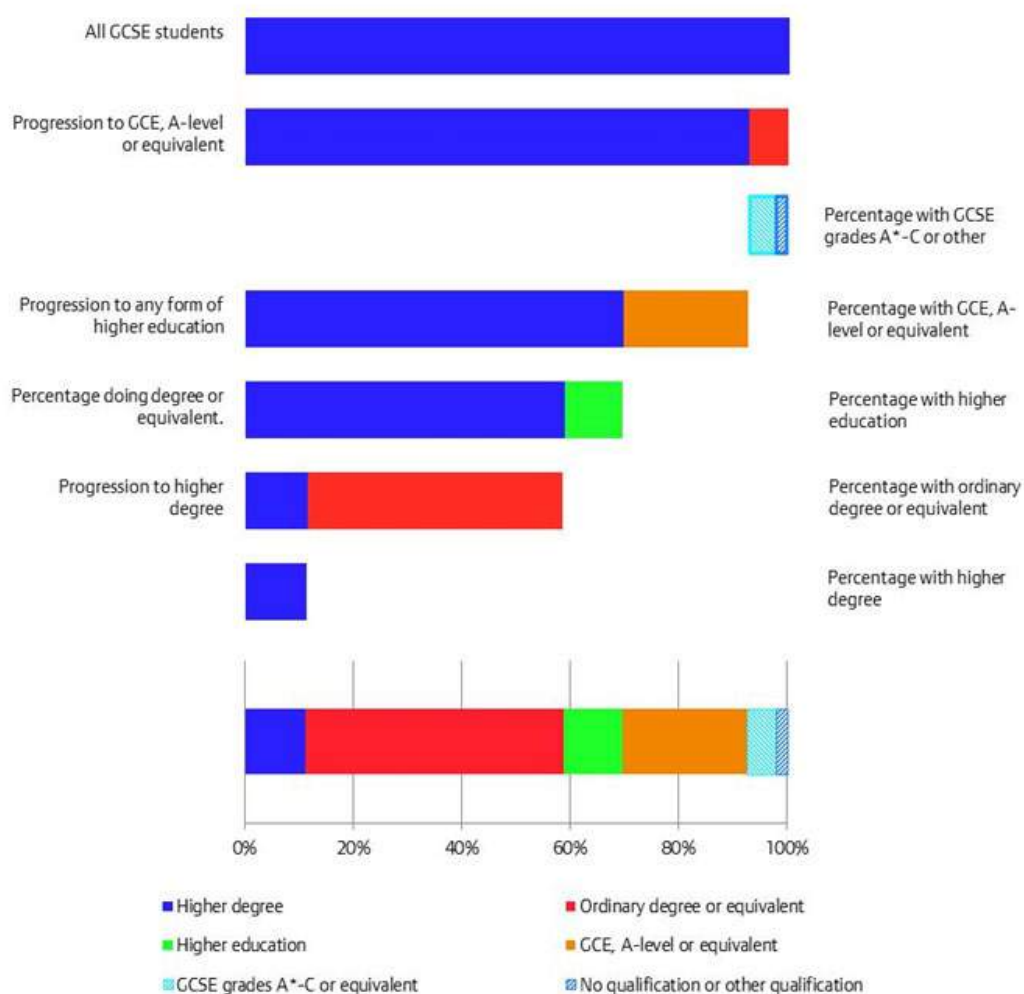


*Note: It has not been possible to track the same year group through their entire education pathway due to data limitations. Instead, this analysis is based on the latest destinations data from various sources. In reality, destinations may be affected by both endogenous (i.e. characteristics of the year group itself) and exogenous (i.e. economic conditions) factors and may not be reflective of future cohorts. Furthermore, KS4 destinations by attainment are not available meaning the proportions achieving GCSE grades A\*-C or equivalent and no or other qualifications are based on Department for Education attainment data that showed 71.2 per cent of students achieving at least five A\*-C grade GCSEs in London. Source: Department for Education National Pupil Database, Higher Education Statistics Agency, GLA Economics calculations*

Table 9.24 presents this information as well as the proportion of jobs[59] in London by highest qualification in 2015 and the projected number of jobs in 2041[60]. Comparing these with the education pathways, students are likely to be equally qualified as those currently in work in London. The exception is for higher degrees where the expected pathways suggest there would be less people at this level (11.2 per cent versus 18.4 per cent). The same can be said when looking at the projected number of jobs in 2041 – although people are expected to be better qualified in the future, based on the current education pathways there is still likely to be a shortfall for higher degrees.

**Table 9.24: Students and jobs in London by highest qualification**

| Highest qualification | Proportion of students in 2014 based on expected education pathways | Proportion of jobs in 2015 | Projected proportion of jobs in 2041 |
|---|---|---|---|
| No qualification | 2.1% | 4.1% | 2.7% |
| Other qualification | | 9.4% | 8.0% |
| GCSE grades A*-C or equivalent | 5.2% | 12.1% | 11.3% |
| GCE, A-level or equivalent | 23.2% | 15.9% | 15.3% |
| Higher education | 10.8% | 7.8% | 8.5% |
| Ordinary degree or equivalent | 47.6% | 32.4% | 37.5% |
| Higher degree | 11.2% | 18.4% | 16.6% |
| **Total** | **100.0%** | **100.0%** | **100.0%** |

Note: The approach taken to estimate the education pathways means it has not been possible to disaggregate the percentages of no and other qualifications. Source: ONS Annual Population Survey, Department for Education National Pupil Database, Higher Education Statistics Agency, GLA Economics calculations

The future demand for skills is also illustrated in Table 9.25. These projections of qualifications held by those working in jobs in London suggest that the largest increases will be for higher degrees (1.4 per cent between 2014 and 2041) and ordinary degrees or equivalent (1.1 per cent). Moreover, all types of occupations will see a rise in graduate jobs except for Administrative & Secretarial occupations.

**Table 9.25: Projected annual change in qualification employment by occupations for London, 2014 to 2041**

| Occupation | Higher degree | Ordinary degree or equivalent | Higher education | GCE, A level or equivalent | GCSE grades A*-C or equivalent | Other qualifications | No qualification | Total |
|---|---|---|---|---|---|---|---|---|
| Managers, Directors & Senior Officials | 2.0% | 1.9% | 2.4% | 1.2% | 1.8% | 0.7% | -1.8% | **1.7%** |
| Professional Occupations | 1.4% | 1.4% | 1.3% | 1.1% | 1.0% | 0.3% | 1.3% | **1.3%** |
| Associate Professional & Technical Occupations | 0.6% | 0.4% | 0.6% | 0.1% | 0.3% | -1.2% | -1.5% | **0.3%** |
| Administrative & Secretarial Occupations | -0.8% | -0.8% | -1.3% | -2.0% | -2.1% | -4.3% | -5.5% | **-1.6%** |
| Skilled Trades Occupations | 1.5% | 1.7% | 0.8% | -0.1% | 0.8% | 1.1% | -0.7% | **0.6%** |
| Caring, Leisure & Services, and Sales and Customer Service Occupations | 1.9% | 1.6% | 1.2% | 0.9% | -0.1% | -0.5% | -1.8% | **0.7%** |
| Process, Plant & Machine Operatives and Elementary Occupations | 2.2% | 1.5% | 1.9% | 0.9% | 1.2% | 0.9% | -0.5% | **1.0%** |
| **Total** | **1.4%** | **1.1%** | **1.1%** | **0.5%** | **0.4%** | **0.4%** | **-1.0%** | **0.8%** |

Source: GLA Economics calculations. Taken from GLA Economics London labour market projections 2016 report (Table 2.6).

## 9.4.2 Current workforce

The following maps (Map 9.1) show the concentration of residents in employment by qualification across London[61]. These show that inner London boroughs had a greater proportion of employed residents with Level 4 qualifications or above (i.e. higher education) in 2011, whilst outer London boroughs were more likely to have workers with Levels 1-3 qualifications. Indeed, Barking & Dagenham and Havering were the only two boroughs to have more than half of employed residents in this group. They were also the only boroughs to have more than 10 per cent of workers with no qualifications.

Generally, workers have higher qualifications than in 2001. For example, whilst nine boroughs had less than 30 per cent of employed residents with Level 4 or 5 qualifications in 2001, there were only three in 2011. Similarly, only inner west London had less than 10 per cent of employed residents with no qualifications in 2001 but, in 2011, this was the case for the majority of boroughs.

**Map 9.1: Percentage of employed residents by qualification in 2001 and 2011**



*Source: ONS Census 2001 and 2011*

## 9.4.3 The over 65s

This section is focussed on people aged 65 and over[62]. As shown in Figure 9.23 in the earlier section, the employment rate for this age group was 12.5 per cent in 2015, having increased from 7.7 per cent in 2004. When looking across more detailed age bands using Census data, the employment rate drops suddenly for the 60-64 and 65-69 age groups (Figure 9.84). This mostly reflects the fact that the vast majority of older people are economically inactive and in retirement. For example, in London, 78 per cent of men aged 65 and over and 85.9 per cent of women were retired in 2015[63].

**Figure 9.84: Employment rates by detailed age groups for London, residents, 2001 and 2011 (Census data)**
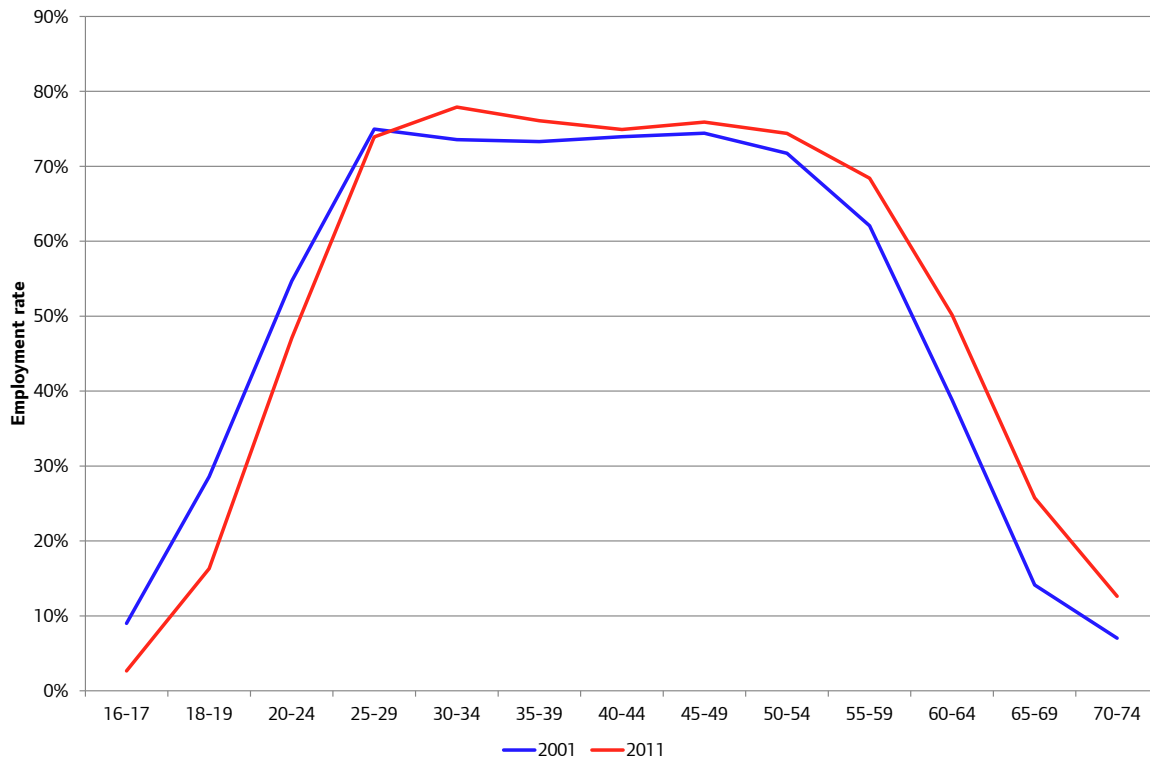


*Source: ONS Census 2001 and Census 2011*

These trends are evident for both men and women in London as shown in Figures 9.85 and 9.86 which alternatively uses ONS Annual Population Survey data. For example, the employment rate for men and women aged 55-59 was 74.4 per cent and 67.8 per cent respectively in 2015, but this dropped to 58.4 per cent and 44.6 per cent for the 60-64 age group.

**Figure 9.85: Economic activity by age groups for men in London during 2015, residents**
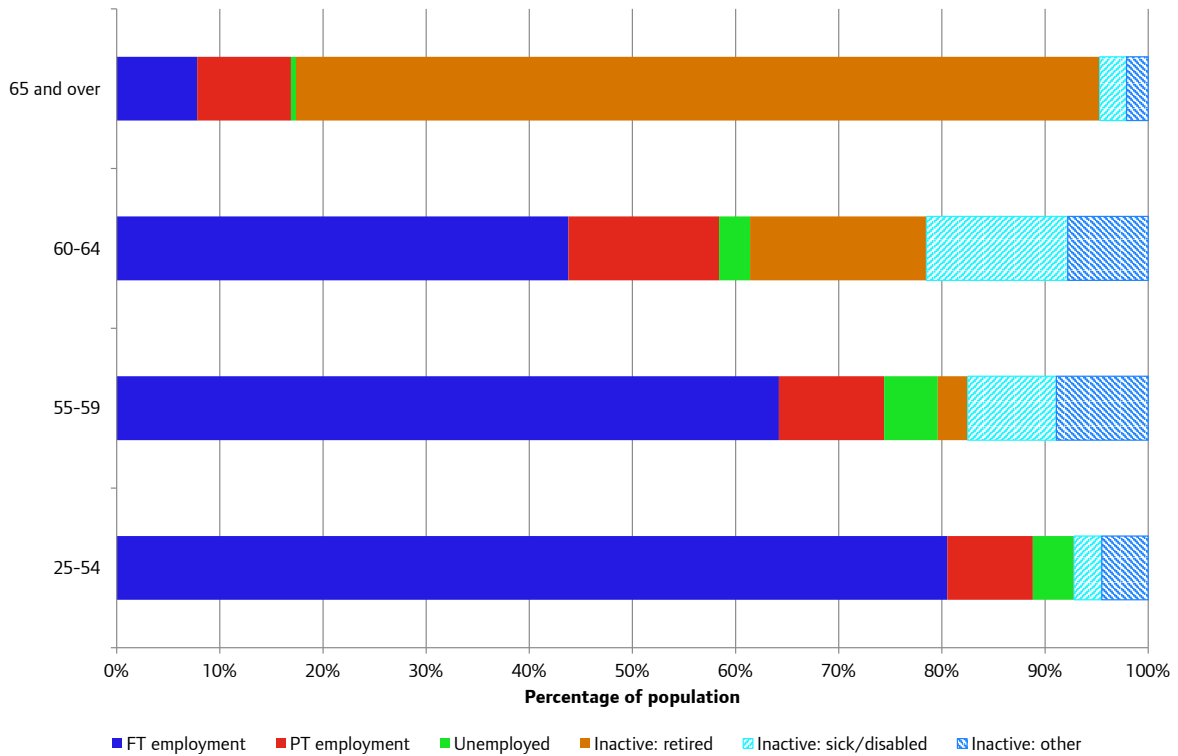


Source: Office for National Statistics Annual Population Survey

**Figure 9.86: Economic activity by age groups for women in London during 2015, residents**
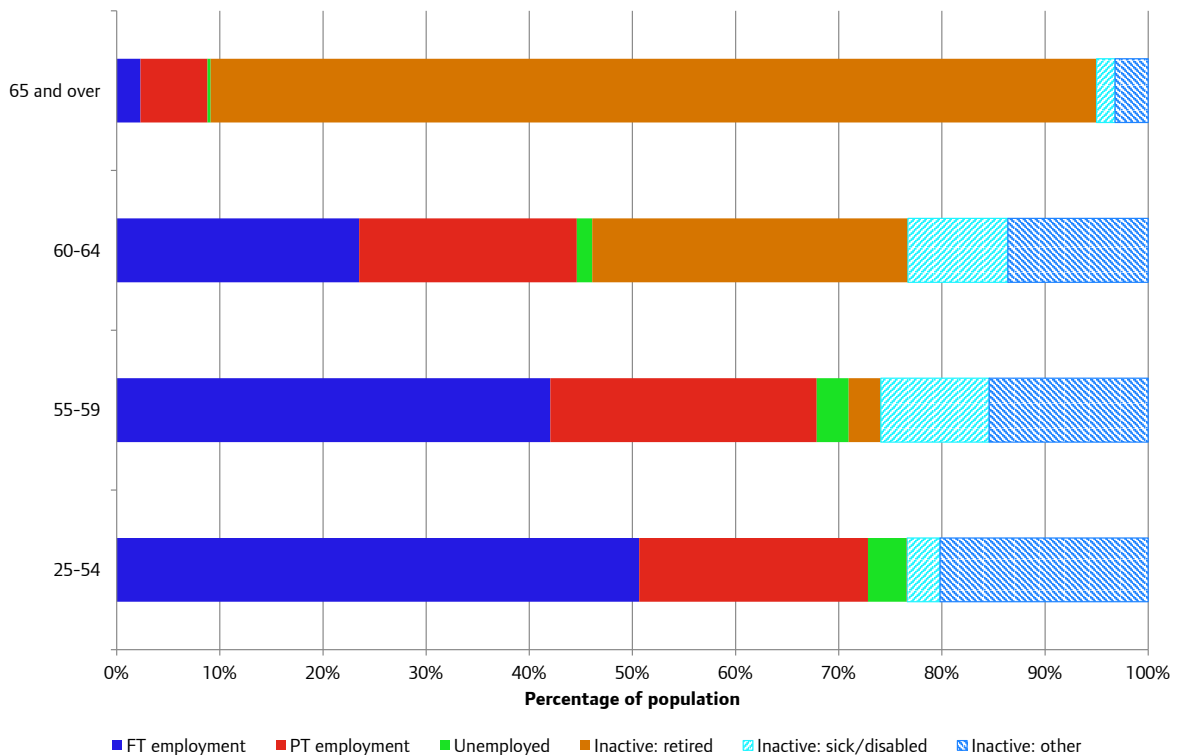


Source: Office for National Statistics Annual Population Survey

Interestingly, men were increasingly more likely to be working part–time as they approached the age of 65. For example, the percentage of men who were part-time workers and aged 25-54 was 8.3 per cent, but this increased to 14.6 per cent for the 60-64 age group. This could suggest that older workers are seeking more flexible working arrangements, which the ONS also links to the rise in the

number of older workers choosing (part-time) self-employment (see Figure 9.7)[64]. For example, Table 9.26 shows the average number of hours worked by full-time and part-time main jobs generally declining as people get older though, interestingly, people aged 65 years and over working full-time across the UK as a whole worked the most hours in 2015.

**Table 9.26: Mean actual weekly hours of work (including overtime) by full-time and part-time main jobs for London and the UK in 2015, residents**

| Age group | Full-time main job | | Part-time main job | | All jobs | |
|---|---|---|---|---|---|---|
| | London | UK | London | UK | London | UK |
| 16–24 | 37.1 | 36.4 | 14.6 | 14.6 | 29.3 | 28.4 |
| 25–54 | 37.8 | 37.4 | 17.5 | 17.5 | 34.3 | 33.4 |
| 55–64 | 36.5 | 36.8 | 15.4 | 15.9 | 30.7 | 30.5 |
| 65 and over | 34.9 | 38.6 | 12.2 | 12.5 | 21.3 | 21.4 |
| **All ages** | **37.6** | **37.3** | **16.3** | **16.3** | **33.0** | **31.9** |

*Source: ONS Annual Population Survey*

As Table 9.27 illustrates, the main reason that older people provided for working past the state pension age in 2015 was that they were not ready to stop work (50 per cent). Paying for essential items such as bills was cited by 18.1 per cent of older people in London, which was a higher proportion than UK (15.2 per cent). In contrast, 6.5 per cent said it was to pay for desirable items such as holidays and that was lower than 8.1 per cent for the UK.

**Table 9.27: Main reason for working past state pension age for London and the UK in 2015, residents and for both sexes**

| Main reason | London | UK |
|---|---|---|
| To pay for essential items (such as bills) | 18.1% | 15.2% |
| To pay for desirable items (such as holidays) | 6.5% | 8.1% |
| To boost pension pot | 6.4% | 7.0% |
| Not ready to stop work | 50.0% | 52.3% |
| Employer needs your experience or you are needed in the family business | 7.6% | 7.2% |
| Due to opportunities to work more flexible hours | 1.4% | 1.4% |
| Other | 10.0% | 8.8% |

*Source: ONS Annual Population Survey*

Aside from participating in the labour market, older people may instead participate in the informal labour market by caring for adults, childcare, or volunteering[65]. Approximately 16 per cent of older people aged 50 or over in London provided care to other adults – 1,700 hours of care per year on average – and 39 per cent are regular volunteers. Moreover, around 85,000 families in London receive childcare from grandparents aged 50 or over amounting to approximately 760 hours per year, but this represents less than 10 per cent and was the lowest rates among the English regions[66].

One key factor that could affect labour market participation for older people is changes to the state pension age (SPA). There have been a number of proposed changes to the SPA which aim to have the same retirement age for both men and women as well as raise this to 68 between 2044 and 2046[67]. Research by the Department for Work and Pensions (DWP) suggested that raising the SPA by one year would lead to a smaller increase in the labour force than the increase in the working age population itself as some would choose to leave the labour market[68]. Other effects might also include increased consumer spending and business investment (to go alongside an increase in workers).

Another way to illustrate the change in the working age population is through the old age dependency ratio (OADR). Figure 9.87 shows a gradual decline in the OADR since 2001 to around 180 older people per 1,000 people who are working age for London[69]. This was mainly a result of faster growth for

the 16-64 age group than the over 65 years. Without the planned SPA changes, current population projections suggest that the OADR would rise to 260 by 2041. However, the changes to the SPA between 2015 and 2041 could reduce this to 210 per 1,000 people working age.

**Figure 9.87: Old age dependency ratio per 1,000 people working age for London, with and without planned SPA changes, residents, 2001 to 2041**
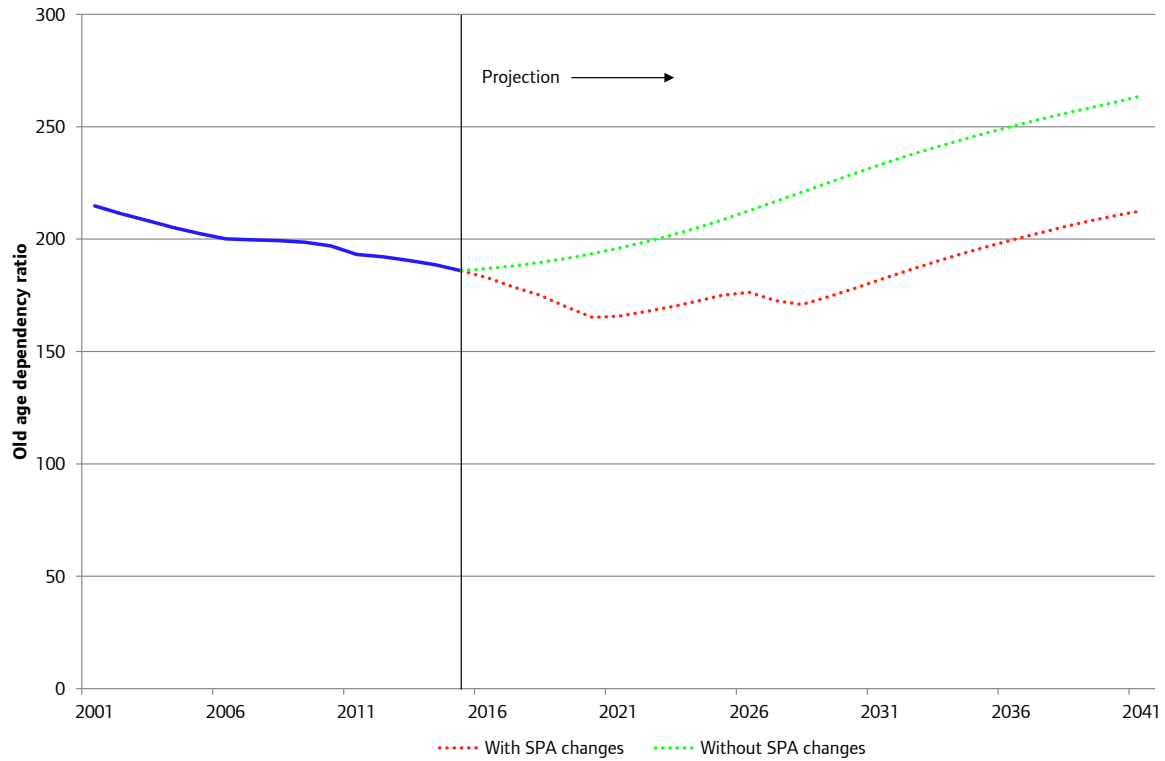


*Source: GLA Intelligence 2014 round population projections (long-term migration), ONS 2014 round population projections, GLA Economics calculations*

# Chapter 9 endnotes

1 ONS Labour Force Survey.

2 This is consistent with the International Labor Organisation (ILO) definition of unemployment. This is those aged 16 years and over who are out of work, have been seeking work in the last four weeks and are able to start work in the next two weeks.

3 This covers the year to December 2015.

4 This is the number of people claiming Jobseeker's Allowance and out-of-work Universal Credit.

5 This is for all claimants aged 16 years and over and not seasonally adjusted.

6 For the January 2015 to December 2015 period.

7 The remainder includes HM Forces jobs and Government-support trainees.

8 ONS (2016). Trends in self-employment in the UK: 2001 to 2015, July 13, 2016. Available at: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/trendsinselfemploymentintheuk/2001to2015

9 Here the definition of self-employed jobs includes first and second jobs.

10 ONS (2016). Trends in self-employment in the UK: 2001 to 2015, July 13, 2016. Available at: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/trendsinselfemploymentintheuk/2001to2015

11 All part-time workers aged 16 years and over.

12 This is based on workforce jobs.

13 The ONS Workforce Jobs series does not provide a breakdown by occupation. Therefore, data for jobs by occupation are taken from the ONS Annual Population Survey. In this case, both the number of main jobs and second jobs are included.

14 GLA Economics (2015). Part-time employment in London, GLA Economics, Current Issues Note 42. Available at: https://www.london.gov.uk/what-we-do/business-and-economy/business-and-economy-publications/cin-42-part-time-employment-london

15 A temporary worker is an employee who says that their main job in not permanent in one of the following ways: fixed period contract, agency temping, casual work, seasonal work or other temporary work. This is also based on the survey respondent's self-assessment.

16 Total includes those who did not give a reason for working temporarily.

17 GLA Economics (2008). The evolution of UK and London employment rates, GLA Economics Working Paper 33. Available at: https://www.london.gov.uk/business-and-economy-publications/working-paper-33-evolution-uk-and-london-employment-rates

18 GLA Economics (2006). Worklessness in London: explaining the difference between London and the UK, GLA Economics, Working Paper 15. Available at: https://www.london.gov.uk/what-we-do/business-and-economy/business-and-economy-publications/working-paper-15-worklessness

19 Other research also point to certain demographic and environmental characteristics as factors in explaining regional differences in employment and unemployment rates including López-Bazo, E & Motellón, E (2013). The regional distribution of unemployment: what do micro-data tell us, Papers in Regional Science, 92, 2, pg. 5-21 and HM Treasury (2007). Employment opportunities for all: tackling worklessness in London, March 2007.

20 This uses ONS Annual Population Survey data of which the latest estimates refers to 2015.

21 GLA Economics (2015). Part-time employment in London, GLA Economics, Current Issues Note 42. Available at: https://www.london.gov.uk/what-we-do/business-and-economy/business-and-economy-publications/cin-42-part-time-employment-london

22 GLA Economics (2008). The evolution of UK and London employment rates, GLA Economics Working Paper 33. Available at: https://www.london.gov.uk/business-and-economy-publications/working-paper-33-evolution-uk-and-london-employment-rates

23 Full-time students are classed as being economically inactive and can partly explain why the employment rate for the 16-24 age group is lower than the other age groups.

24 The 'not in full-time education' group includes people in part-time education or some form of training and does not refer to the number of people not in employment, education or training (NEET).

25 Here it is argued that London-specific characteristics such as a larger proportion of ethnic minorities mean that London's employment rate is not necessarily comparable with the UK's. The adjustment process will instead allow for like-for-like comparisons and is done in a two-step process. First, it is assumed that London has the same proportion of ethnic minorities as the UK as a whole – for example, in 2014, the proportion of the population that were from ethnic minorities was assumed to be 13.4 per cent (the same as the UK), down from its actual figure of 39.6 per cent. The second step is applying the actual employment rates for the various ethnic groups in London to the population estimates, so the actual employment rate of ethnic minorities in London of 65.1 per cent is applied to 13.4 per cent of the population. Overall, this means that the only change during the adjustment process is the percentage of the population who were from ethnic minorities.

26 Dependent children are children aged under 16 years and those aged 16 to 18 years that have never married and are in full time education.

27 Gaffney, D & Aldridge, H (2015). Trends in parental employment in London. Available at:: http://npi.org.uk/files/1514/4109/3538/Parental_employment.pdf

28 GLA Economics (2015). Part-time employment in London, GLA Economics, Current Issues Note 42. Available at: https://www.london.gov.uk/what-we-do/business-and-economy/business-and-economy-publications/cin-42-part-time-employment-london

29 Rosso, A et al. (2015). What explains the growth in 'never-worked' households, Joseph Rowntree Foundation. Available at: https://www.jrf.org.uk/report/what-explains-growth-never-worked-households

30 Prior to 2011, there was limited information on non-UK qualifications which meant that a large number of respondents were classed as having 'other' qualifications. To correct for this, a proxy for education attainment has been used to improve these classifications and have been retrospectively applied to historical estimates.

31 Both core and work-limiting disabilities in line with the Equalities Act.

32 See GLA Economics Working Papers 9, 13 and 21 as well as Current Issues Note 17.

33 GLA Economics (2016). London in comparison with other global cities, Current Issues Note 48.

34 Workplace basis.

35 The private sector is comprised of organisations whose legal status is defined as Company, Sole Proprietor or Partnership. The public sector is comprised of those defined as Public Corporation/Nationalised Body, Central Government or Local Authority.

36 The 2009 Annual Survey of Hours and Earnings was the first to publish regional breakdowns of private and public sector pay. This excluded Northern Ireland.

37 These rates are calculated by dividing the total number of under/overemployed workers by the total number of people in employment that have a known under/overemployment status.

38 All UK data refers to the October to December periods instead of the January to December periods for London data.

39 This definition may also include other contracts which are not explicitly zero-hours, but ZHC is used here to describe this broad category.

40 Bell & Blanchflower (2013). Underemployment in the UK revisited, National Institute Economic Review, 224.

41 UK Commission for Employment and Skills 2015 (2016). UKCES Employer Skills Survey 2015. Available at: https://www.gov.uk/government/collections/ukces-employer-skills-survey-2015

42 ESRC Centre on Migration (2009). An evidence base on migration and integration in London. Available at: https://www.london.gov.uk/sites/default/files/an_evidence_base_on_migration_and_integration_in_london.pdf

43 Rosso, A (2013). Skill premia and immigrant-native wages gap, Centre for Learning and Life Chances in Economies and Societies, Research paper 45. Available at: http://www.llakes.org/wp-content/uploads/2013/10/45.-Rosso.pdf

44 Stirling, A (2015). Migrant employment outcomes in European labour markets, Institute for Public Policy Research. Available at: http://www.ippr.org/files/publications/pdf/migrant-employment-outcomes-in-europe-labour-markets_April2015.pdf?noredirect=1

45 CIPD (2015). Over-qualification and skills mismatch in the graduate labour market, Policy report, August 2015. Available at: http://www.cipd.co.uk/publicpolicy/policy-reports/overqualification-skills-mismatch-graduate-labour-market.aspx

46 ONS (2013). Graduates in the UK labour market, 2013. Available at: http://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/graduatesintheuklabourmarket/2013-11-19

47  CIPD (2015). Over-qualification and skills mismatch in the graduate labour market, Policy report, August 2015. Available at: http://www.cipd.co.uk/publicpolicy/policy-reports/overqualification-skills-mismatch-graduate-labour-market.aspx

48  This is supported by other research including: Green, F & Zhu, Y (2010). Over-qualification, job dissatisfaction, and increasing dispersion in the returns to graduate employment, Oxford Economic Papers, 62, 4, pg.740-763; Chevalier, A (2003). Measuring over-education, Economica, 70, 279, pg.509-531; and Chevalier, A & Lindley, J (2010). Work-readiness: what employers really want from graduate employees. Paper presented at the International Labour Process Conference 2010, Rutgers University, New Jersey.

49  This is taken from UKCES (2015). Growth through people: evidence and analysis. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/410289/GTP_EA_final_v8.pdf

50  The definitions used here are consistent with those used by UKCES and are: high-skilled occupations – SOC 1-3; middle-skilled occupations – SOC 4 and 5; service-intensive occupations – SOC 6 and 7; and labour-intensive occupations – SOC 8 and 9.

51  Workplace basis.

52  This is defined as Physics, Biology, Chemistry, Other Science, Mathematics and Further Mathematics, Design & Technology, Computing and ICT.

53  A state-funded school covers all state-funded mainstream schools, academies, free schools, city technology colleges and state-funded special schools. Excludes pupil referral units (PRUs), alternative provision, hospital schools, non-maintained special schools, other government department funded colleges, independent schools, independent special schools and independent schools approved to take pupils with special education needs.

54  A college refers to FE sector colleges.

55  Hodgson, A & Spours, K (2014). What is happening with 17+ participation, attainment and progression in London? Paper 3: colleges in London. Institute of Education, University of London, September 2014. Available at: http://www.londoncouncils.gov.uk/our-key-themes/children-and-young-people/14-19-young-people-education-and-skills/publications/what

56  This is the first year of comparable data.

57  Fielding, A (1992). Migration and social mobility: South East England as an escalator region, *Regional Studies*, 26, 1, pg.1-15.

58  Future of Cities (2016). Future of cities: graduate mobility and productivity – an experiment in place-based open policy-making. Available at: https://www.gov.uk/government/publications/future-of-cities-graduate-mobility

59  This is the number of jobs in London for all ages and people using the ONS Annual Population Survey

60  This projection is based on those outlined in the GLA Economics London labour market projections 2016 report. Available at: https://www.london.gov.uk/business-and-economy-publications/london-labour-market-projections-2016

61  This is based on Census 2001 and 2011 data.

62  This definition reflects the timetable that the state pension age will be 65 for men both men and women in April 2016 and also data limitations.

63  ONS Annual Population Survey.

64  ONS (2016). Trends in self-employment in the UK: 2001 to 2015, July 13, 2016. Available at: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/trendsinselfemploymentintheuk/2001to2015

65  GLA Economics (2013). The economic contribution of older Londoners, GLA Economics, July 2013. Available at: https://www.london.gov.uk/what-we-do/business-and-economy/business-and-economy-publications/economic-contribution-older

66  See footnote 64.

67  These are covered under the Pensions Acts 1995, 2007, 2011 and 2014.

68  Barrell, R et al. (2011). The macroeconomic impact from extending working lives, Department for Work and Pensions, Working Paper 95. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/214392/WP95.pdf

69  The working age population is defined as 16 years to SPA; older people are conversely defined as being the SPA or older.

# 10: London's socio-economic issues

## 10.1 Key points

- London is a thriving and highly prosperous city. It is one of the richest cities in the world, with a growing economy. But not everyone benefits equally from this prosperity, and London is also home to some of the poorest communities in the UK.

- Nationally, 10 per cent of households have gross incomes (before tax) below £215 per week, while the figure is only slightly higher in London at £231. At the other end of the scale, the top 10 per cent of households in the UK have income above £1,454 per week, compared to the higher figure of £1,945 per week in London. On this measure, London is the most unequal region in the country.

- After taking into account the higher costs of housing in London, the medians for the UK and London are close (£390 and £398 respectively). This means that almost half of London households have less disposable income after paying the essential costs for housing, than equivalent households in the rest of the UK.

- The income constraint on where to live facing Londoners can have knock-on implications for the quality of the local environment, local amenities, schools, and transport they have access to. This may in turn exacerbate the challenges of life for those on low incomes, and the opportunities to escape from poverty through social mobility.

- Poverty levels among London's population after taking account of housing are much higher in London than the UK as a whole. Up to a third of all inner London residents are in poverty by this measure and nearly a quarter of outer London residents, which is also higher than for any other UK region.

- Around 300,000 children in inner London are living in poverty (after housing costs), with a further 400,000 in outer London. The child poverty rate in inner London remains particularly high, at 46 per cent, and although the outer London child poverty rate is lower, at 33 per cent it is still higher than for any other UK region.

- Areas of Barking & Dagenham, Brent, Croydon, Ealing, Enfield, Hackney, Haringey, Islington, Kensington & Chelsea, Croydon, Lambeth, Lewisham, Newham, Tower Hamlets, Waltham Forest and Westminster fall within the 5 per cent most deprived areas of England. The City of London and Richmond are the only local authority areas within London with no areas in the most deprived 20 per cent of England.

- The wealthiest 10 per cent of London households own more than 50 per cent of total household wealth (£775 billion), and the bottom 50 per cent own less than 10 per cent of London's total wealth (£80 billion). This is slightly more skewed than in Great Britain as a whole where the richest 10 per cent own 45 per cent of total wealth. As with the distribution of income, there are also extreme differences in wealth among the top 10 per cent. According to the 2016 Sunday Times Rich List, 77 of the UK's 120 billionaires live in London.

- A slim majority of Londoners (53 per cent) consider the capital to be a 'fair city', and there is some evidence that London performs relatively better in terms of educational attainment among disadvantaged groups.

- There is a correlation between socio-economic inequalities and health inequalities in London; health outcomes differ between different population groups and by location as well as when broken down by educational attainment, housing tenure and employment status.

- Average life expectancy at birth in London is slightly higher than the English average for both males (80.3 vs. 79.5) and females (84.2 vs. 83.2), and rates of mortality from preventable causes are declining, albeit more slowly than in earlier periods. London however faces certain health issues that are unique in England. Around two fifths (43 per cent) of all people living with diagnosed HIV in the UK live in London, and London accounts for two in every five cases of tuberculosis in England. Many Londoners are also affected by a mental health disorder, with two million people in the capital estimated to experience some form of mental ill health every year.

- On average, Londoners also reported the lowest levels of life satisfaction, worthwhileness and happiness and the highest anxiety rating of any UK region. In 2015/16, London's average anxiety rating was 3.04, in statistical terms - significantly higher than the England average of 2.87. Londoners rated themselves as feeling relatively less satisfied with their life nowadays – giving an average score of 7.51 out of 10, again statistically speaking - significantly lower than the UK average of 7.65. These average figures can however mask differences in the share of respondents who report low levels of personal wellbeing (or high levels of anxiety) that may be of particular concern.

- Nationally, the likelihood of being a victim of a crime, as measured by the Crime Survey for England and Wales, has fallen significantly over time. The overall levels of victim-based crime in London have also been falling in the last seven years, indicating a shift in criminality towards online and other electronic crimes. Particular areas of London are more vulnerable to crime and issues of community cohesion.

## 10.2 Introduction

London is a thriving and highly prosperous city. It is one of the richest cities in the world, with a growing economy (see Chapter 1). But not everyone benefits equally from this prosperity, and London is also home to some of the poorest communities in the UK. Chapter 8 highlights the diversity of London's population, and Chapter 9 draws out issues of labour market exclusion: higher rates of unemployment, inactivity and worklessness among different groups and communities, while also highlighting the divergences in educational attainment.

Analysis for the Joseph Rowntree Foundation[1] provides a composite measure of prosperity and inclusion across the country's local enterprise partnership (LEP) areas. This takes account of measures of output, earnings and growth (prosperity) and charts this alongside measures of income, living costs and labour market exclusion (inclusion indicators). Across the country, Figure 10.1 shows that – on the whole – there is a general trend whereby increased economic prosperity is associated with better economic outcomes for its residents. London instead appears as an outlier: scoring highly in terms of prosperity but relatively low in terms of inclusion.

**Figure 10.1: Inclusive growth monitor by Local Enterprise Partnership area**
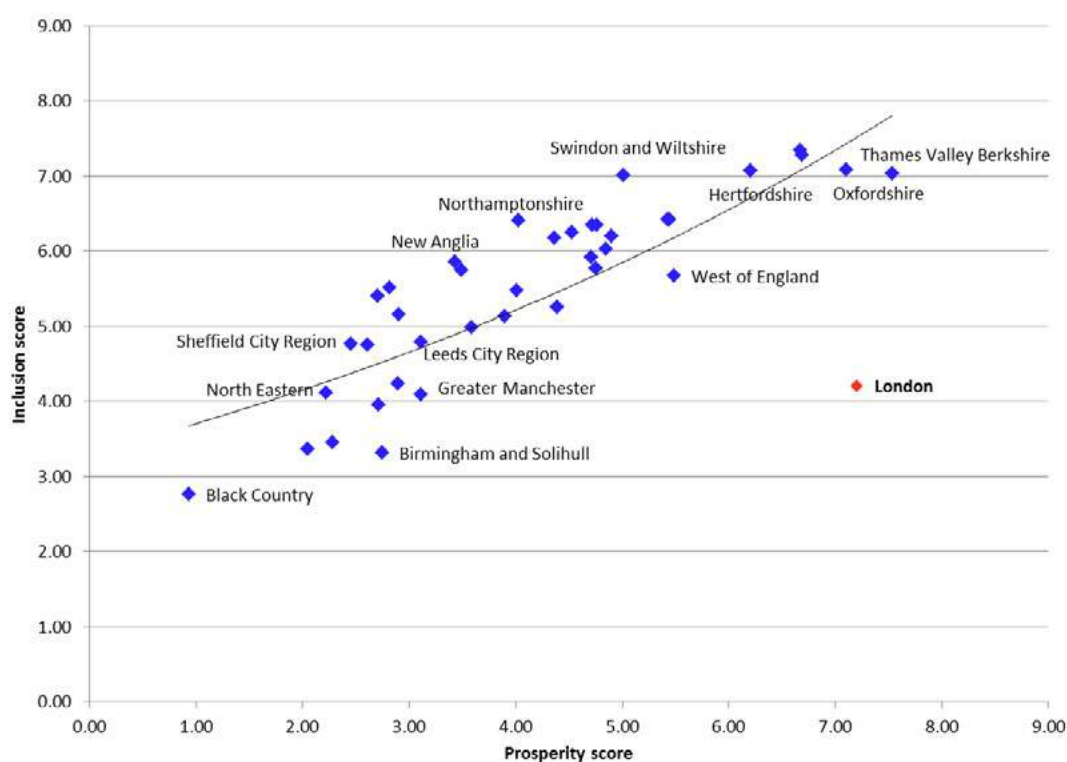


*Source: Joseph Rowntree Foundation, Inclusive Growth Monitor, 2015*

Londoners' unease about a number of issues has recently been raised in GLA polling and although a number of these issues are dealt with elsewhere in the report, some of these are socio-economic and have yet to be examined. This chapter provides a brief overview of some of London's socio-economic characteristics that were not covered elsewhere in this report. The main focus is on those factors that impact directly on individual Londoners, their families or groups of Londoners, beyond the aggregate impact these issues may have on the London economy as a whole.

Based on a survey of 3,861 London adults, the 2015 Annual London Survey[2] found that a majority of Londoners surveyed (75 per cent) were either 'satisfied' or 'very satisfied' with London as a place to live, with 13 per cent 'dissatisfied' or 'very dissatisfied'. In terms of the local area, Londoners were also largely positive with 72 per cent satisfied or very satisfied (Figure 10.2).

**Figure 10.2 Satisfaction ratings among adult Londoners**
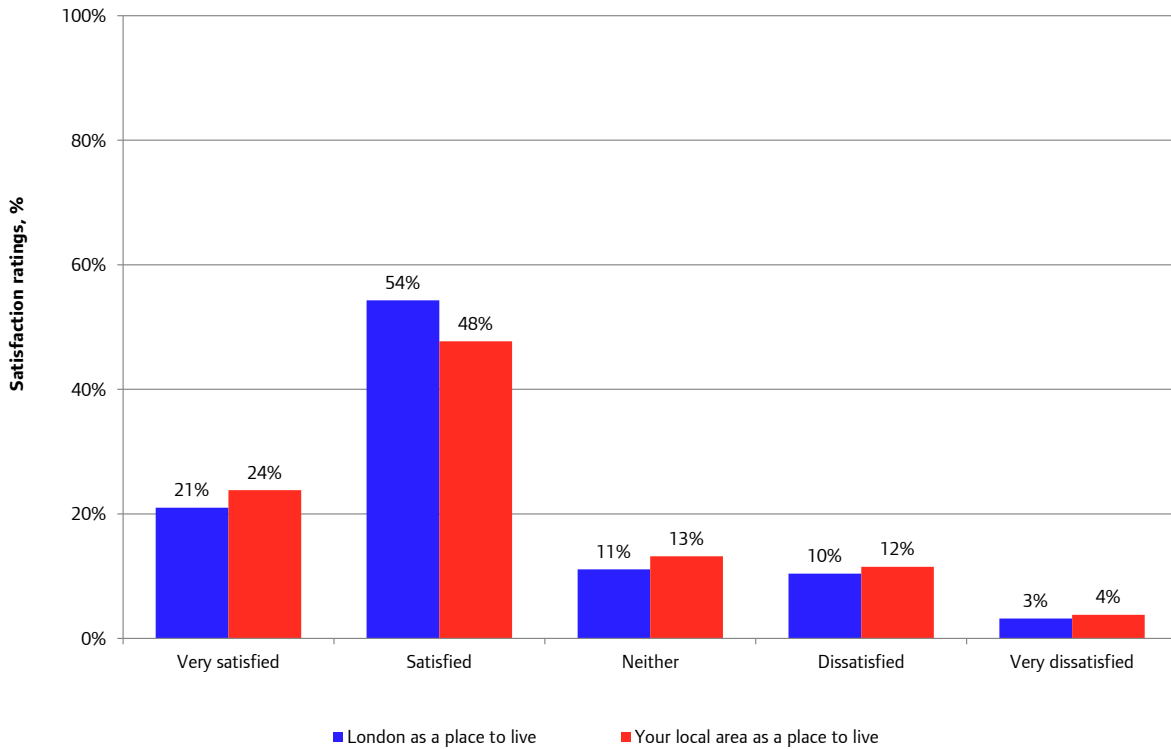


Source: GLA Intelligence Unit, Annual London Survey 2015

London's population growth (reported in Chapter 8) is one area in which London residents may have concerns. Based on a poll of 1,003 Londoners in March 2015, the top areas of concern in this regard related to pressure on infrastructure – particularly housing, health services and transport (Figure 10.3). Evidence on transport overcrowding has been presented in Chapter 6, along with other pressures considered in relation to risks for businesses.

**Figure 10.3: Londoners' top areas of concern regarding population growth**[3]
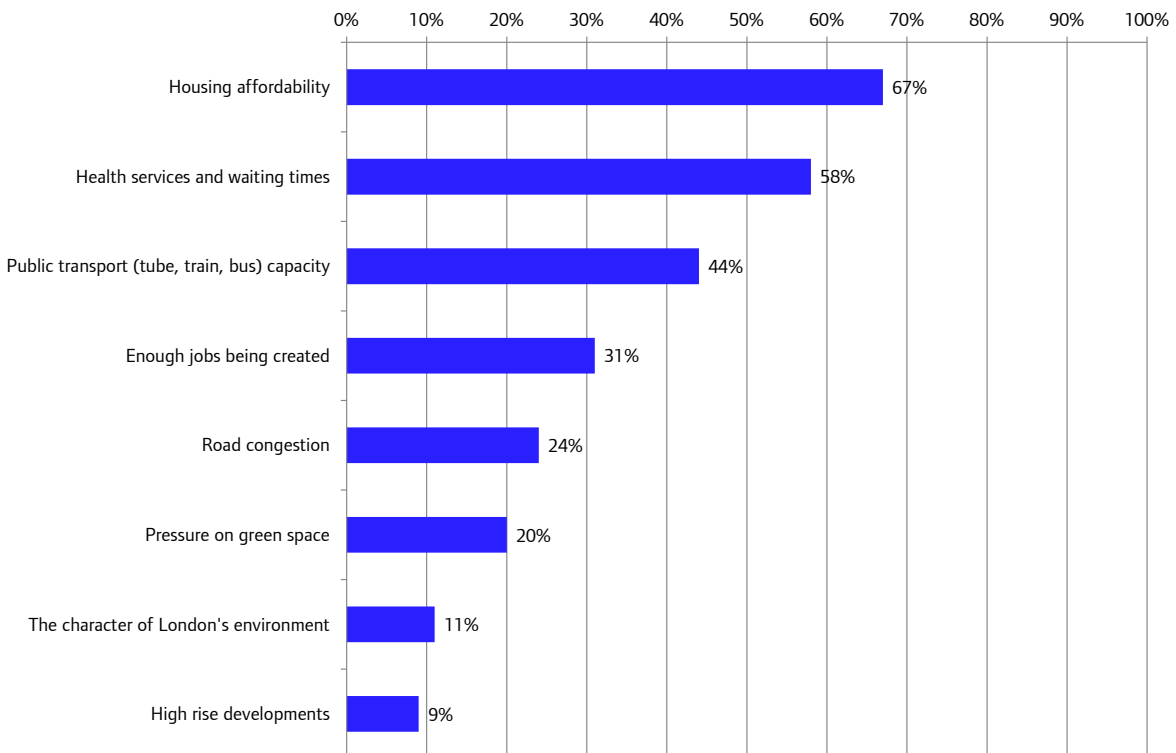


Source: GLA Intelligence Unit polling, March 2015[4]

This chapter looks further into the socio-economic outcomes for Londoners, and the issues they face in more detail.

## 10.3 Affordability and the costs of living

This section looks at issues around the affordability of living and working in London. Concerns about the affordability of London often revolve around London's economic competitiveness which is then linked to a number of policy priorities. Many of these policies have an underlying objective of achieving sustained economic growth, both in absolute terms and per capita. The other major basis for policy is derived from equity concerns and the potential for ever increasing income and/or wealth inequality being perceived as a source of reputational risk to London. Equally important is the impact on the individual, families or communities directly affected.

Affordability is, for most purposes, dependent on the resources available (usually measured in terms of income) and the costs of the good or service. It is often contingent on a complex balance of resources and needs. Affordability can also be considered from different aspects – business, the overall economic viewpoint or from the household perspective. This section of the chapter looks at the last of these, with the other aspects being covered elsewhere in the report.

### 10.3.1 Household incomes

Household income is itself a difficult concept. Generally it includes income for all individuals within the household from all sources: earnings (including from self-employment); pensions and investments (including property); benefits and other sources such as maintenance payments; educational grants; and ad hoc income, for example, royalties, income from odd jobs such as babysitting, etc. The total may also include the value of certain payments in kind, such as free school meals, or free TV licences for those aged over 75. This is further complicated by whether this is calculated before deductions such as taxes, pension contributions, and maintenance payments are made.

In addition to variation around sources of income, household characteristics make a big contribution to affordability issues, as the necessary costs vary. To measure the potential living standard of a household, the number and age of the individuals within that household are incorporated with the income information through a process called equivalisation. This makes it possible to compare incomes of individuals living alone with larger households on a consistent basis.

For this analysis, various definitions are therefore used:

- Gross income is all income from all sources, including the value of state-funded payments in kind (but not including the "subsidised" element of social rent).

- Net income before housing costs (BHC) is the gross income as above, less direct taxes, including council tax, pension contributions, housing benefit payments and also deducting transfer payments made, such as maintenance for children or support for students living elsewhere.[5]

- Net income after housing costs (AHC) is the net income BHC less certain housing costs including rent, mortgage interest payments (but not capital repayment), water charges, service charges and structural insurance premiums.

The last of these measures captures both living standards and the question of affordability, with households occupying different types of accommodation depending on their resources. For the most part, people with higher incomes live in better quality accommodation, with more space, in areas considered more desirable, all of which tends to make housing more expensive while those on lower incomes have much reduced options in terms of housing. To the extent that households exercise a degree of choice over housing cost and quality, BHC income measures can be used to understand changes in living standards across the population as a whole.[6]

## 10.3.1.1 Income distribution

Table 10.1 shows the average figures (mean and median) for gross household income in London and the UK, along with distributional figures for each decile. Nationally, 10 per cent of households have gross incomes (before tax) below £215 per week, while the figure is only slightly higher in London at £231. At the other end of the scale, the top 10 per cent of households in the UK have income above £1,454 per week, compared to the higher figure of £1,945 per week in London. On this measure, London is the most unequal region in the country.

**Table 10.1: The distribution of household income in London and the UK, £ per week**

| | London | | | | UK | | | |
|---|---|---|---|---|---|---|---|---|
| | Gross household income | Equivalised gross household income | Equivalised net household income BHC | Equivalised net household income AHC | Gross household income | Equivalised gross household income | Equivalised net household income BHC | Equivalised net household income AHC |
| Mean | 1,035 | 942 | 677 | 557 | 787 | 726 | 549 | 484 |
| Median | 679 | 620 | 508 | 398 | 568 | 543 | 447 | 390 |
| Deciles | | | | | | | | |
| 1 | 231 | 270 | 230 | 113 | 215 | 259 | 227 | 154 |
| 2 | 334 | 350 | 304 | 193 | 294 | 328 | 289 | 226 |
| 3 | 428 | 427 | 367 | 250 | 372 | 390 | 339 | 277 |
| 4 | 548 | 522 | 433 | 316 | 461 | 459 | 390 | 330 |
| 5 | 679 | 620 | 508 | 398 | 568 | 543 | 447 | 390 |
| 6 | 850 | 778 | 600 | 491 | 694 | 641 | 513 | 457 |
| 7 | 1,071 | 972 | 718 | 602 | 850 | 770 | 595 | 537 |
| 8 | 1,358 | 1,216 | 878 | 759 | 1,067 | 950 | 707 | 646 |
| 9 | 1,945 | 1,690 | 1,163 | 1,049 | 1,454 | 1,264 | 910 | 846 |

*Source: DWP Family Resources Survey, 2011/12-2013/14 (three year average)[7], all households, adjusted for inflation using ONS RPI All Prices Index*

After equivalisation, the disparities in the gross household incomes between the UK and London figures are smaller, reflecting the fact that London households generally have more people. Once taxes and transfer payments are taken into account (in the net income measure BHC) differences at the lower end of the distribution between London and UK have all but disappeared. The average net income figures for London remain higher than those in the UK however as a result of the number of very high earners in the capital.

After taking into account the higher costs of housing in London, the medians for the UK and London are close (£390 and £398 respectively). This means that almost half of London households have less disposable income after paying the costs for housing, than equivalent households in the rest of the UK. Figure 10.4 shows the evolution of London and the UK's median and mean AHC incomes overtime and highlights the convergence that has occurred with median incomes. The mean for London however remains considerably higher than the UK average due to the greater levels of income inequality in London.

**Figure 10.4:  Mean and median equivalised household income AHC, London and UK**
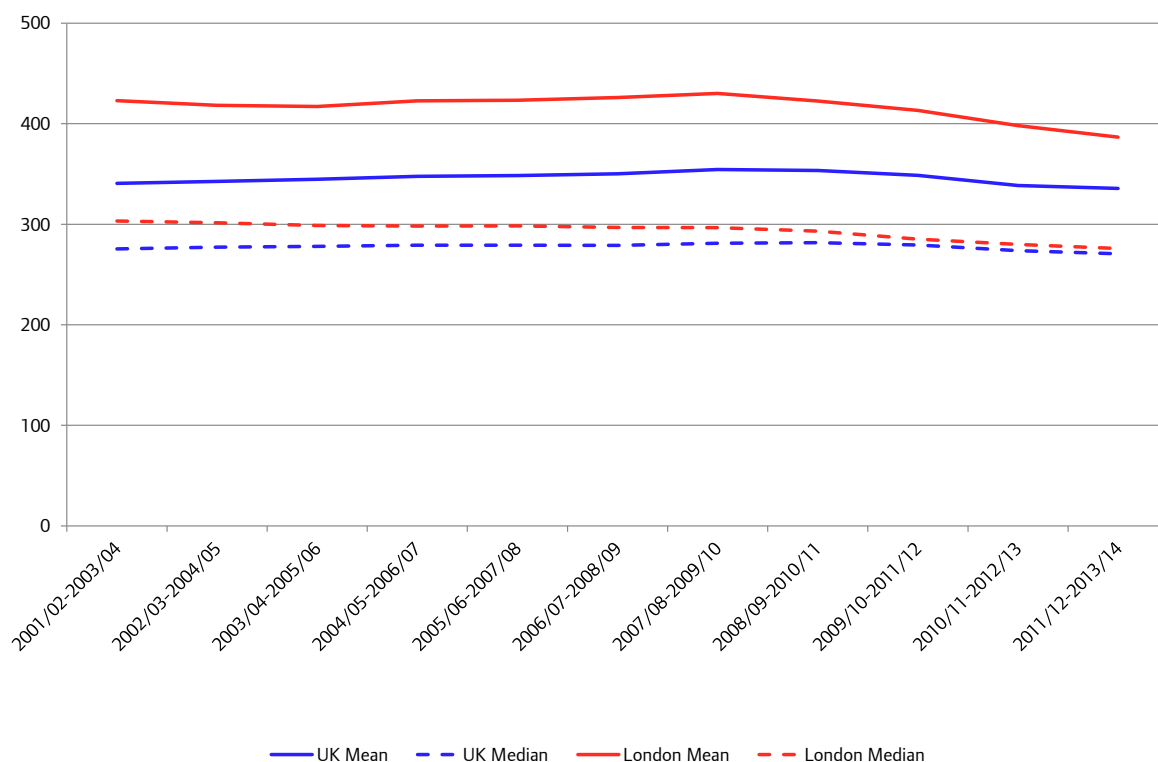


*Source: Family Resources Survey (3-year averages), net household income adjusted for inflation using ONS RPI all prices index, and equivalised to account for household size.*

Table 10.1 also shows that London households below the median have lower disposable incomes than their counterparts in the UK as a whole. Disposable income levels (after housing costs) in the bottom decile within London is less than three quarters of the figure for the whole of the UK. Ten per cent of households have net incomes AHC of less than the equivalent of £113 per week, compared to £154 per week among the bottom decile in the UK as a whole.

Across London, there is also considerable disparity in income levels across local areas. Map 10.1 shows how the mean equivalised net income varies across London, before housing costs. This shows that although the areas that are richer on average, are generally in the west of London, the pattern is dispersed. Several boroughs, such as Wandsworth, Kensington and Chelsea, Lambeth and Southwark, each include small areas with average net income of over £1,000 per household per week, as well as areas where the average net income is less than £500 per household per week. In contrast, there are few areas in east London with high average incomes. No areas in Barking & Dagenham have an average net equivalised income above £600, with only five of the 22 areas in the borough exceeding average incomes of £525 per week.

**Map 10.1: Mean equivalised household income (BHC) within London (MSOAs)**



**Mean net equivalised household income (BHC) (£)**

| | | |
|---|---|---|
| ■ | 870 to 1,120 | (79) |
| ■ | 760 to 870 | (105) |
| ■ | 690 to 760 | (118) |
| ■ | 640 to 690 | (135) |
| ■ | 580 to 640 | (176) |
| ■ | 520 to 580 | (197) |
| ■ | 440 to 520 | (173) |
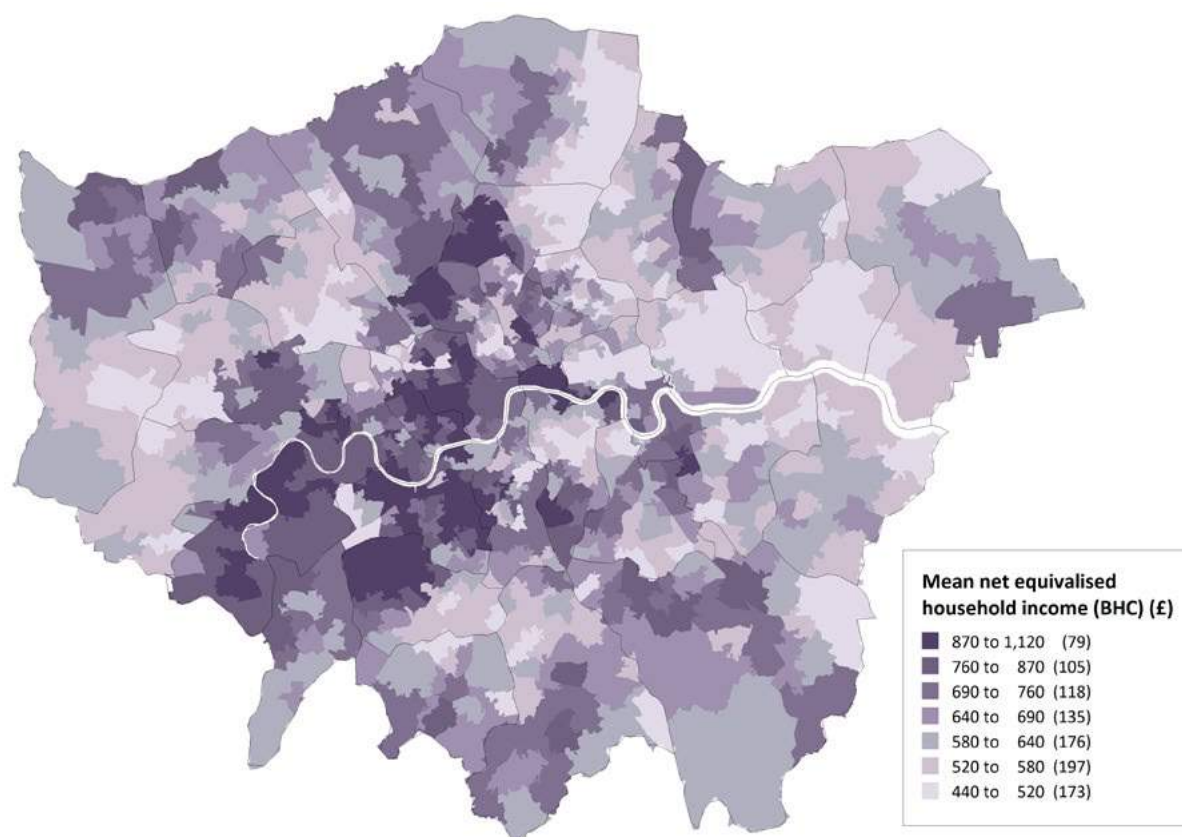
*Source: ONS Small Area Income Estimates 2011/12*

The inequality of income levels across London is further illustrated by the change over time. Figure 10.5 shows that the absolute gap between incomes for the top and bottom 10 per cent of London's income distribution (BHC) has increased from the early 2000s to the start of this decade. The relatively faster rate of incomes growth among the lowest decile however means that this gap has decreased in percentage terms, as increases in weekly incomes at the top of the distribution seem to have stalled since around 2009/10. As a result, the 90:10 ratio (the ratio of income at the 90th percentile to income at the 10th percentile), has fallen from 5.7 to 5.0.

While this measure takes account of overall increases in the price level (measured here in terms of the retail price index, RPI)[8], the living standards of low income households over this period may have been adversely affected by increases in the costs of living, over and above the rate of inflation. For example, sections 10.3.2 and 10.3.3 highlight that the costs of certain essentials such as housing and energy, which have seen fast price rises, tend to make up a greater proportion of low income households' spending.

This measure is also insensitive to changes in inequality between those with the very highest incomes and the rest of the population. Due to limitations in the data, it is not possible to observe the changes in very high incomes in London. However evidence from the Institute for Fiscal Studies shows that incomes among the top 1 per cent (or 99th percentile) in the UK have grown much faster than the rest of the population over the last 25 years.[9] This is compatible with the trends towards a greater concentration of wealth in London among extremely high net worth individuals observed in section 10.5.1.

**Figure 10.5: The distribution of nominal household income (BHC) in London, 2001-2014**
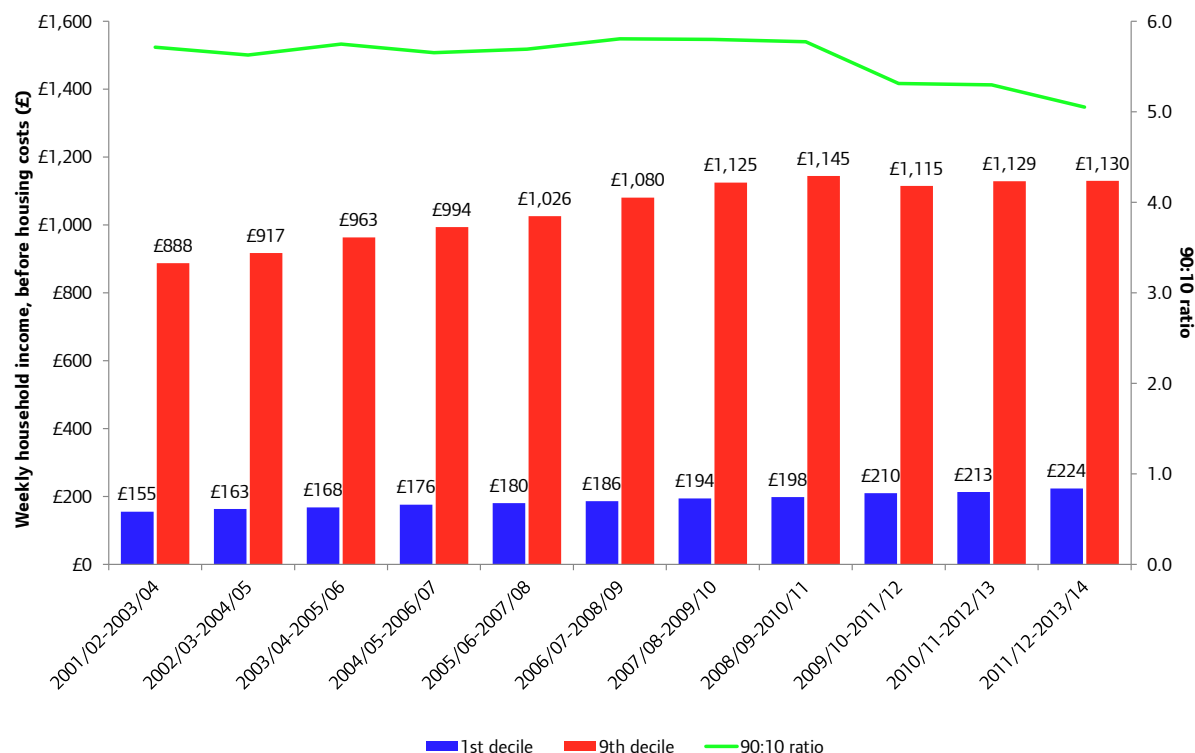


*Source: Family Resources Survey (3-year averages), net household income (before housing costs) equivalised to account for household size.*

There is also vast inequality within the top 10 per cent of incomes that is not fully captured by the household survey data. Data for the UK as a whole on taxpayers' income from HMRC[10] reveals, for example, that those taxpayers in the 99th percentile of incomes (the top 1 per cent) had gross incomes more than three times greater (£159,000) than those at the 90th percentile (£50,600). This is more than seven times that of the median taxpayer (£21,900).

## 10.3.1.2 Sources of income

On average across all of London's households, earnings made up 78 per cent of gross income in 2011/12-2013/14, making this by far the largest source of income. This compares to 70 per cent across the UK as a whole, where there are more retired households. In London, a further 11 per cent comes from state support in the form of state pension, child benefit, means-tested support for those who are out of work or on low incomes, disability and other welfare benefits. Investments and occupational pensions accounted for a further 8 per cent of the total (see Figure 10.6).

This distribution varies widely by household type and by income level. Nationally, income for households with children comes overwhelmingly from earnings (over 80 per cent), with less than 15 per cent from state support. Households with pensioners but no children have a much higher proportion of income from state support, occupational pensions and investments; though around 20 per cent of income of all households with pensioners was from earnings, with a quarter of income deriving from occupational pensions and over 10 per cent from other investments. Among pensioner households in the lowest fifth of the income distribution, close to 80 per cent of income was from state support, whereas in the highest income category, this made up less than 20 per cent of their total income.

Figure 10.6 looks at income sources among equivalised London households. This shows that those in the two lowest national income quintiles have roughly equal amounts coming from earnings (46 per cent) as they do from state support (45 per cent). Since London has fewer households at the lower end of the income scale compared to other parts of the country, each of these national quintiles accounts for 16 per cent of all London's households. As incomes rise, earnings account for an increasingly larger share, with 87 per cent of gross incomes coming from earnings among those in the top income quintile and 2 per cent from state support. This reflects both the relatively high proportion of London's households in this highest quintile nationally (29 per cent) and the very high earnings of some households at the highest end of the income distribution.

**Figure 10.6: Sources of gross income by quintiles in London, 2011/12 – 2013/14**
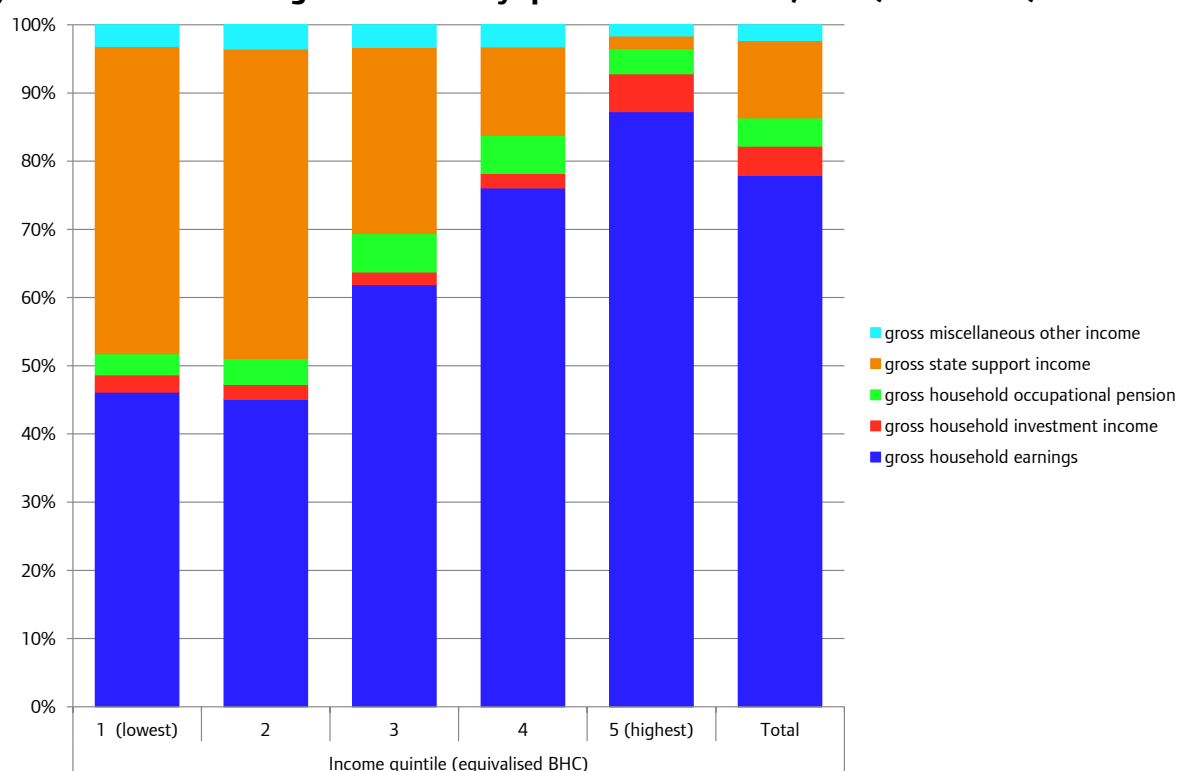


*Source: Family Resources Survey 2011/12-2013/14, Department for Work and Pensions*

Different rates of real income growth from these sources will have different impacts across different groups. Research for the UK as a whole from the Institute for Fiscal Studies[11], for example, shows that real median incomes (AHC), among those aged 22-59 years old, remained below their 2007/08 pre-recession levels in 2014/15. This trend is identified as being worst among the youngest adults (aged 22 to 30), for whom median incomes are still 9 per cent below their 2007/08 level, as a result of 'weaker labour market outcomes' for this age group since the recession. Real median incomes (AHC) among those aged 60 and over have instead risen by around 9 per cent. Growth in incomes among older households has instead been driven by 'strong growth in pensioner benefits… real growth in private pensions, as well as increases in employment among older people'.

## 10.3.1.3 Changes in gross disposable household income
In order to understand how changes in taxation, national insurance and benefits have impacted on the amount of money that is available for spending or saving by Londoners, we can look at the official measures of Gross Disposable Household Income (GDHI).[12]

Based on the provisional ONS estimates for 2014, London had the highest GDHI per head of population, with each person on average having £23,607 available to save or spend. This amounted to 17.4 per cent of total UK GDHI, up from 14.7 per cent in 1997. The equivalent figure for the UK as a whole in 2014 was an average of £17,965 per head. Figure 10.7 shows that the gap in average GDHI per head between London and the UK as a whole has grown larger in each year since 1997, with the exception of 2011.

It also shows an increasingly wide range of GDHI per head values across different NUTS3 areas of London. The London areas with the highest GDHI per head (Camden and City of London until 2010, Kensington and Chelsea and Hammersmith and Fulham thereafter) had between 2 and 2.5 times the incomes available than those in the areas with the lowest GDHI per head (Lewisham and Southwark until 2005, Barking and Dagenham and Havering thereafter).

**Figure 10.7: Changes to gross disposable household income per head, 1997-2014**
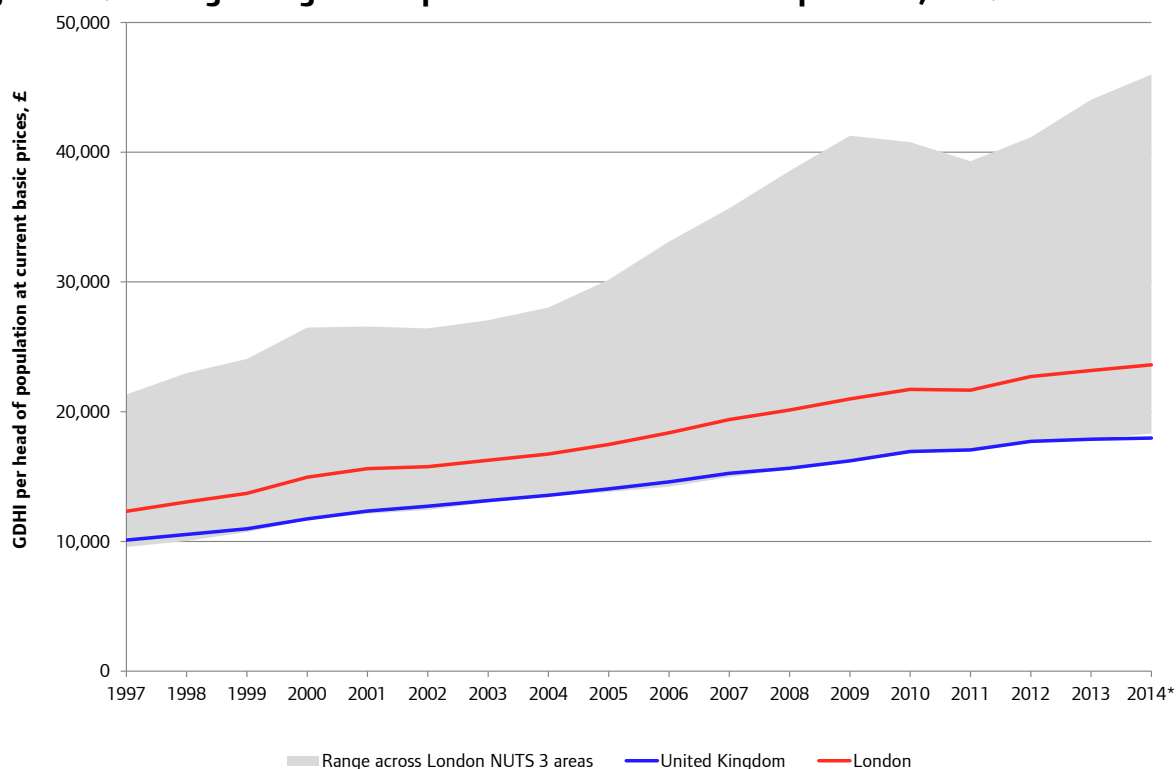


Source: ONS Regional GDHI 1997-2014. Notes: data for 2014 are provisional.

## 10.3.2 Housing affordability

Housing typically represents the largest expense for households in London, either through the costs of a mortgage, rent or the costs of its upkeep and servicing. If housing is unaffordable for many, this can negatively affect London's ability to attract workers. This may be a particular concern for those on fixed incomes or performing public service duties. Long-term trends in the price of housing and the risks to London's economy associated with high housing costs are considered separately in Chapters 4 and 6 respectively.

From a socio-economic perspective, the income constraint on where to live facing Londoners (and its would-be residents) can also have knock-on implications for the quality of the local environment, local amenities, schools, and transport they have access to. This may in turn exacerbate the challenges of life for those on low incomes, and the opportunities to escape from poverty through social mobility.

## 10.3.2.1 Owner occupation

As already highlighted in Chapter 4, house prices in London are high and have been rising. This means rising costs for the majority of households. The median house price for property sold in London in 2015 was £400,000, compared to £212,000 across England as a whole.[13] This compares to full time median earnings of around £35,000 for workers in London, compared to a median of £28,000 across England.[14]

While earnings for full-time workers in London have increased by an average of 3 per cent per year since 1997, house prices have increased by almost 10 per cent per year in the same period. As a result, Figure 10.8 shows that the ratio of median house prices to earnings in London has been steadily increasing over time – with house prices around 11 times median earnings in London in 2015, compared to about 4 times earnings in 1997. In England as a whole, house prices have instead remained at around 7 times earnings over the past 10 years.

Lower quartile price to earnings ratios can instead provide an indication of the entry level house price, typically purchased by first-time buyers. Affordability on this measure is broadly similar, with house prices at this level also around 11 times earnings of those earning at the 25th percentile in London. Previous research by GLA Economics to investigate affordability for residents, higher earners or those with joint incomes, also echoes these findings that those seeking to live or work in London are required to increasingly spend more as a multiple of their income on housing than elsewhere.[15]

**Figure 10.8: Median and lower quartile house price to earnings ratio, 1997 - 2015**
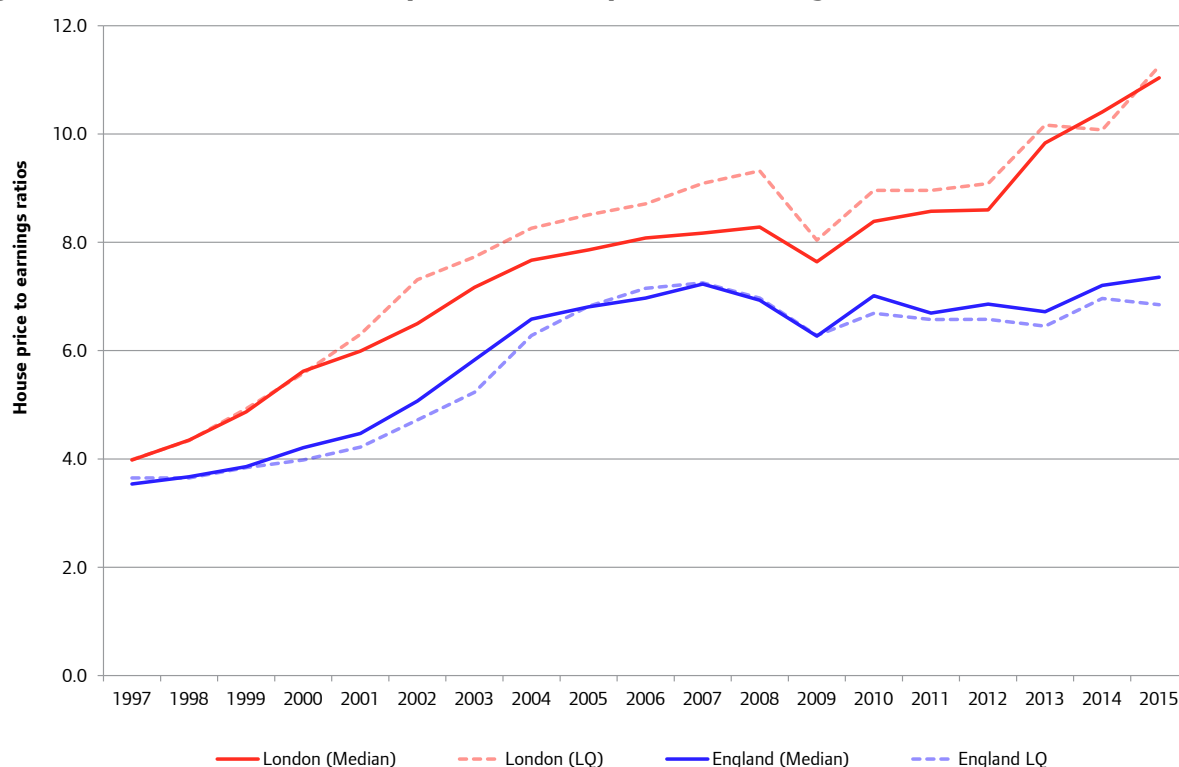


*Sources: HM Land Registry price paid data, and ONS Annual Survey of Hours and Earnings. Notes: data on earnings are workplace-based for full-time workers.*

Looking at affordability ratios using historic data, Figure 10.9 shows that London's house prices are much less affordable than the previous peak in the mid-1970s. The measure here however relies on simple average house prices which tend to be skewed by extreme high values, resulting in a likely over-estimate of the ratio throughout the period. In line with Figure 10.8, the overall trends still point to an issue of increasing unaffordability of house purchases in London.

**Figure 10.9: House price to earnings ratio in London, 1969 - 2015**
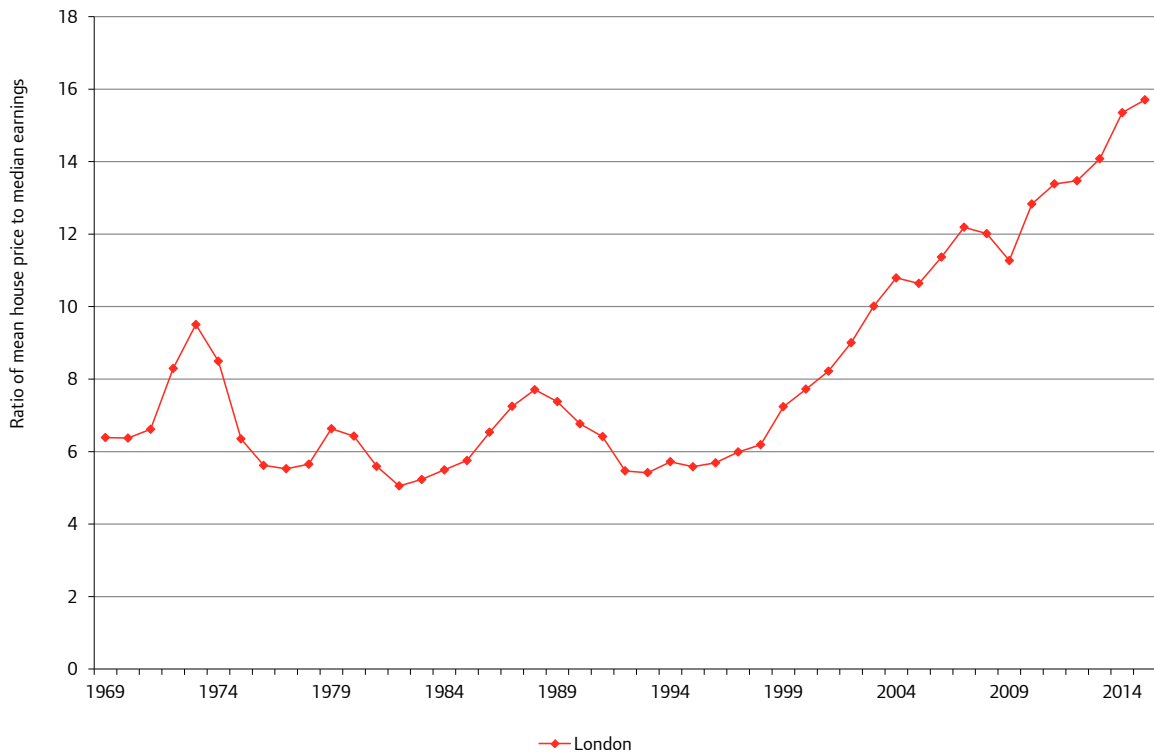


*Sources: New Earnings Survey (NES) prior to 1997 and ASHE workplace-based earnings from 1997 to 2015.[16] ONS simple average house prices, 1969-2015.*

Map 10.2 illustrates a similar issue for the Greater South East as a whole. This shows that while high house price to income ratios are particularly acute in areas of Central and West London, this also extends beyond London's boundaries to its surrounding areas within commuting distance. These spatial differences in house prices across the UK are sometimes referred to as a 'ripple effect'.[17]

This is a very crude indicator of housing affordability, since household income includes elements that would not be relevant for house purchase, such as housing benefit. It nevertheless shows how much more difficult it may be to access owner occupation in particular parts of Central London, West London and the Greater South East.

**Map 10.2: Housing affordability in the Greater South East**



**House price to income ratio**

- 3.7 - 6.0
- 6.1 - 8.0
- 8.1 - 10.0
- 10.1 - 12.0
- 12.1 - 20.0
- 20.1 - 78.4
- Greater London Authority

Note: MSOA denotes Middle-layer Super Output Areas
Contains National Statistics data © Crown copyright and database right 2016
© Crown Copyright and database right 2016. Ordnance Survey 100032216
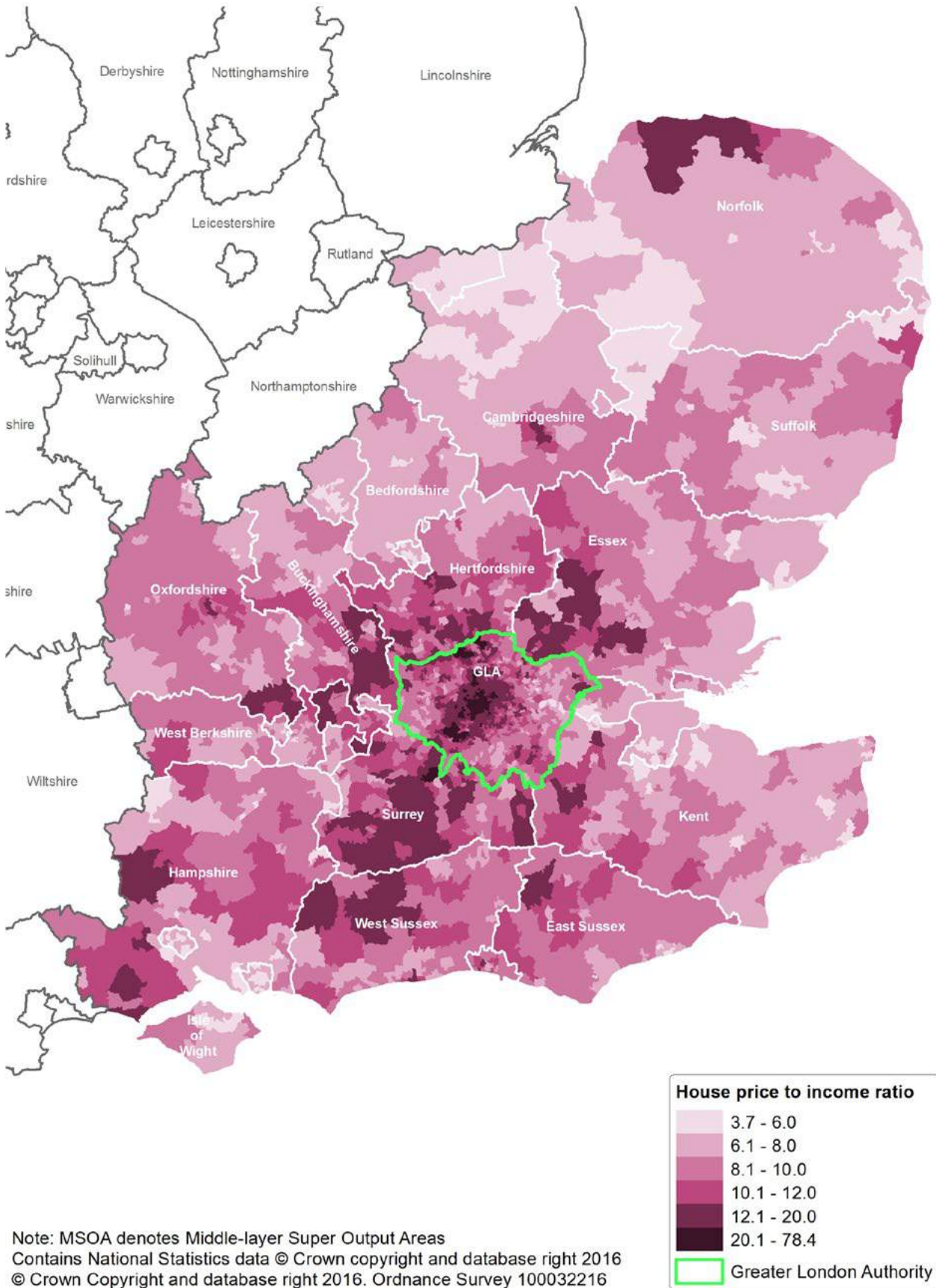
*Source: GLA Intelligence Unit mapping of ONS and Land Registry data. Notes: net weekly household income and median house price (2014) by middle layer super output area (MSOA), England and Wales, 2011/12 (£)*

Among owner-occupiers, the problem of affordability has partly been masked by low mortgage rates, as a result of high levels of competition amongst lenders and expectations of low interest rates continuing. For these reasons, the portion of income allocated to a mortgage payment for first-time buyers and home movers has remained at or below historic averages. This has been helped further by borrowers taking out longer-term mortgages and spreading the payments.[18] The higher house prices in London may however leave households with mortgages vulnerable to increases in interest rates. Forty-four per cent of London households say that they are concerned about their level of debt, compared to 37 per cent in the rest of England.[19]

For buyers, and particularly first-time buyers, there are also significant upfront costs to buying a house associated with the value of the deposit needed to secure mortgage finance, as well as the costs of stamp duty tax on house purchases. Figure 10.10 compares the estimated size of a median deposit for first-time buyers against the median borrower(s) income based on CML regulated mortgage survey data. This shows that the average deposit to income ratio for first time buyers has increased at a rapid rate in London since 2008, reaching an estimated high of 130 per cent of average borrowers' income in early 2016. This is considerably above its long-run trend in the previous three decades, with deposits averaging 30 per cent of incomes from 1980-2007. The rapid deterioration in the affordability of home purchases, on this measure, is driven by a post-recession shift towards lower loan to value (LTV) rates for mortgages (down to 75 per cent) that have meant that first-time buyers have had to raise larger deposits.

**Figure 10.10: Deposit to income ratio, first-time buyers**
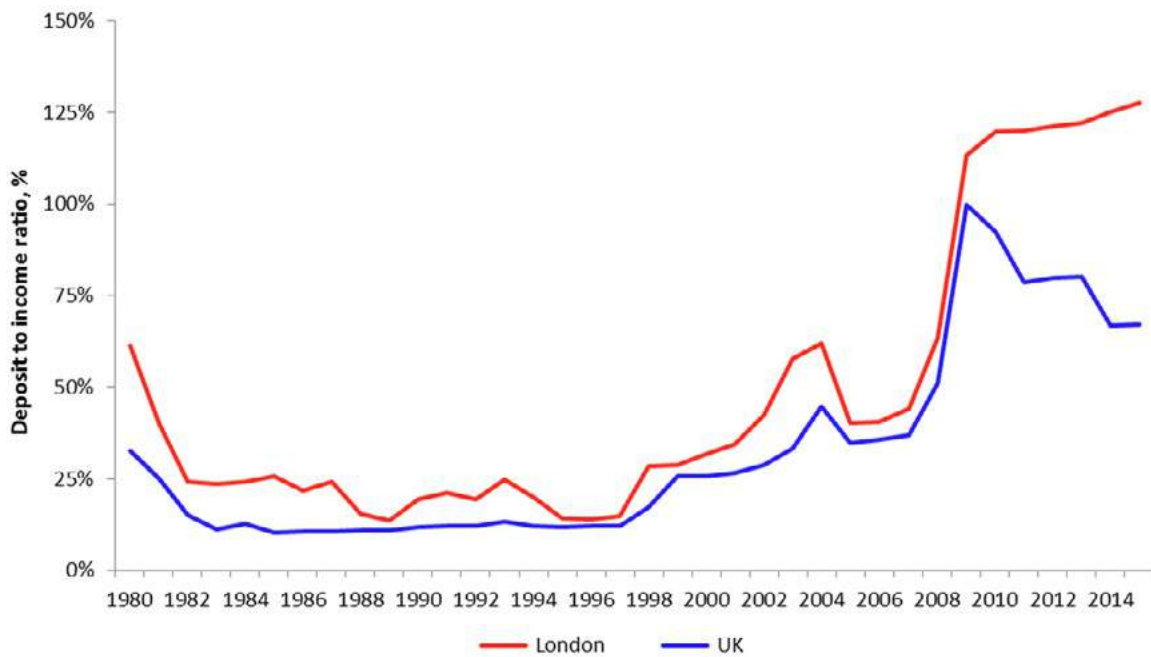


*Source: GLA Economics estimates based on data from the Council for Mortgage Lenders (CML). Notes: median deposit value is calculated based on CML data on the size of the advance and its proportion as a share of the total purchase price.*

So from a range of statistics it is clear that house purchases in London are expensive and have become increasingly so in recent years.

## 10.3.2.2 Housing tenure

The proportion of London households who own their own home peaked in the early 1990s, but had fallen to 49.5 per cent by the time of the 2011 Census. This is the first time that owner occupiers have been in the minority since the early 1980s. They still make up the majority among those residing in outer London boroughs, though there are more social renters and private renters living in inner London. Owner occupation is more prevalent in the outer London boroughs, particularly in Havering, Bexley and Bromley where almost three quarters of households own their property (see Map 10.3).

**Map 10.3: Housing tenure by local authority, 2011**
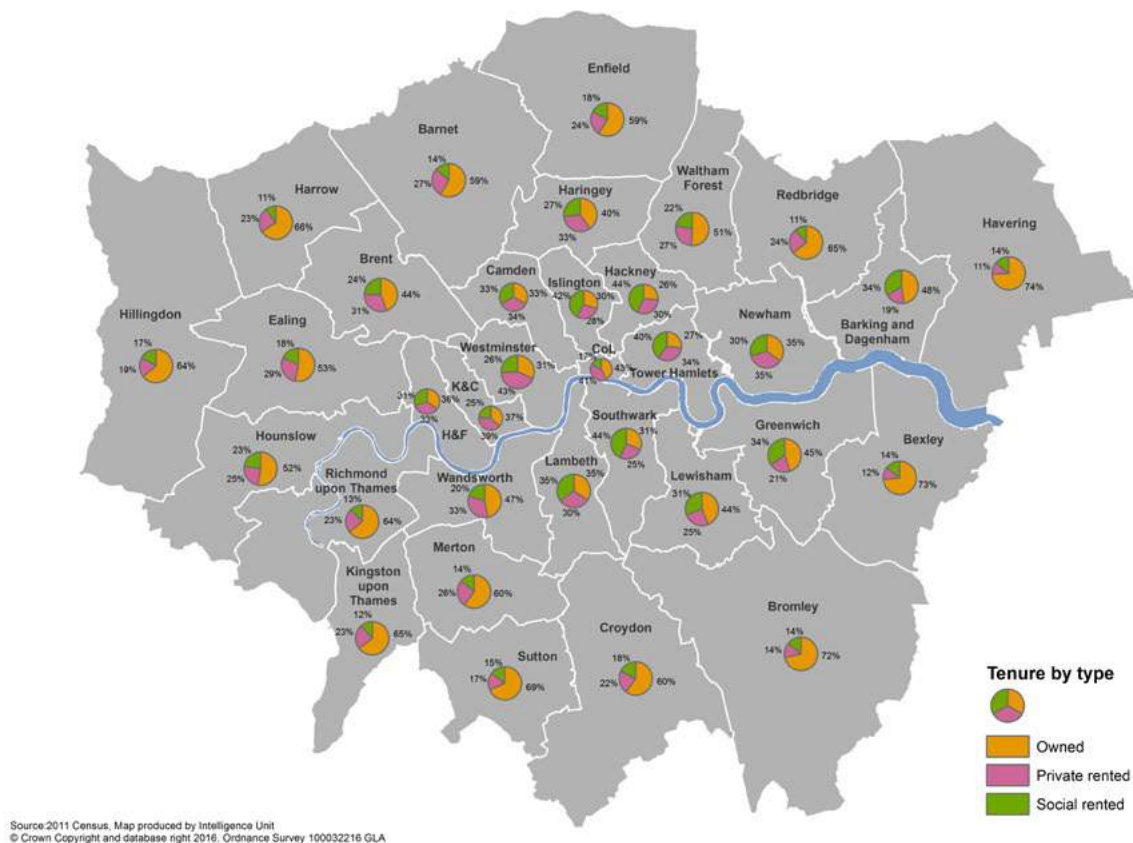


*Source: ONS 2011 Census*

The private rented sector was once the largest tenure in London but shrank from 46 per cent of households in 1961 to 14 per cent in 1991, before rapid growth brought it back up to 26 per cent in 2011, making it the second largest tenure. In contrast, social renting grew rapidly between the 1960s and 1980s, accommodating 35 per cent of London households in 1981, before falling to 24 per cent in 2011 (Figure 10.11). In England as a whole, 64 per cent of households owned their home in 2011, with 18 per cent each in social and private rented accommodation.

**Figure 10.11: Long-term trends in household tenure, London, 1961–2011**
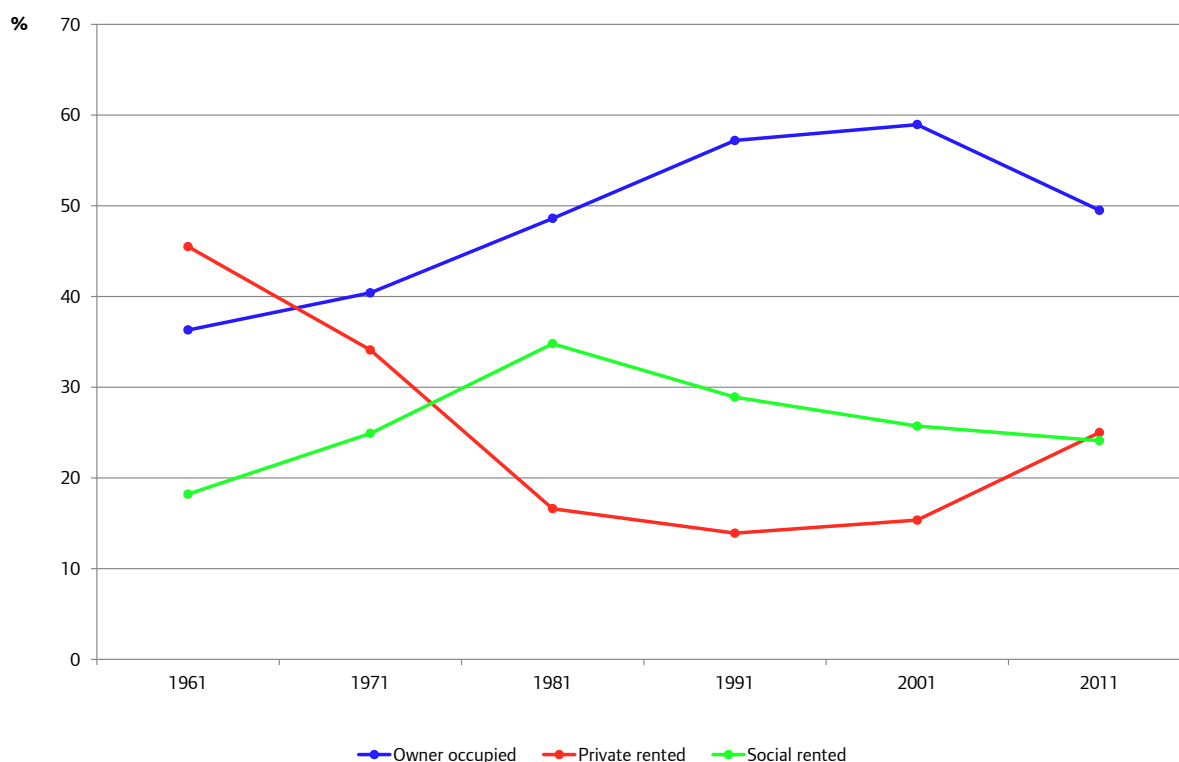


*Source: ONS Census, 1961-2011*

The combination of rising house prices and falling rates of home ownership can also affect wealth inequality, considered in section 10.4.1. Another associated effect of the fall in rates of home ownership and the decline of social housing, has been the rise in families living in private rented accommodation. The number of households with dependent children that are privately renting in London has trebled in a decade, rising from 96,000 in 2004 to 284,000 in 2014.[20]

## 10.3.2.3 Private renting

The affordability of private rents is however also an issue for Londoners. The cost of renting is shown to be increasingly high in London (see Chapter 4), and higher than in any other English region. From 2012 to 2015, annual average rents in London increased 3.3 per cent per year. This far outpaced annual increases in average full-time earnings for London residents of 0.4 per cent in this time.[21] Figure 10.12 shows that London has the highest proportion of disposable household income accounted for by rentals across the UK. Average rents in London accounted for more than a third (34 per cent) of average disposable household income in 2014, up from 30 per cent in 2013. This compares to a UK average in 2014 of 25 per cent.

**Figure 10.12: Proportion of household disposable income accounted for by rentals by region, private renters 2014, UK[22]**



Proportion of household disposable income accounted for by rentals, %
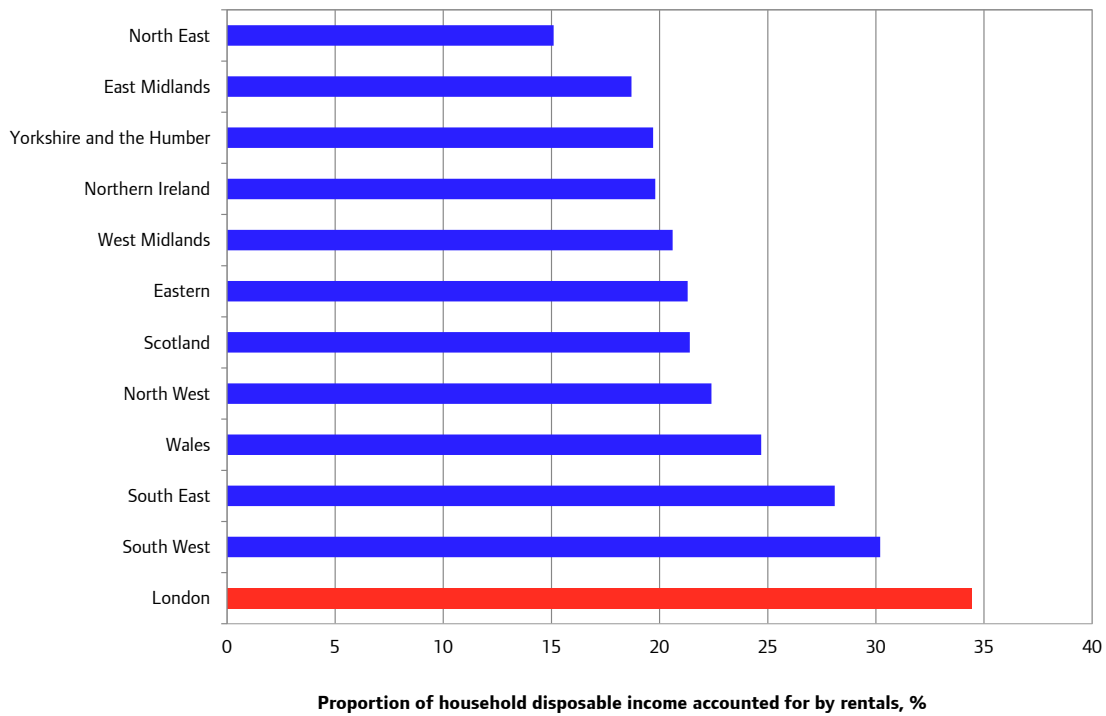
*Sources: ONS Living Costs & Food Survey, Expenditure & Food Survey, National Food Survey.*

Looking instead at the individual earnings of workers, average private rental values in London make up almost half (49 per cent) of median earnings. This varies across London with private rents amounting to as much as 94 per cent of median earnings in Kensington and Chelsea, with a low of 39 per cent in Havering. This compares to an average of 28 per cent across England as a whole (Map 10.4).

**Map 10.4: Private rental values as a proportion of median earnings, 2015**
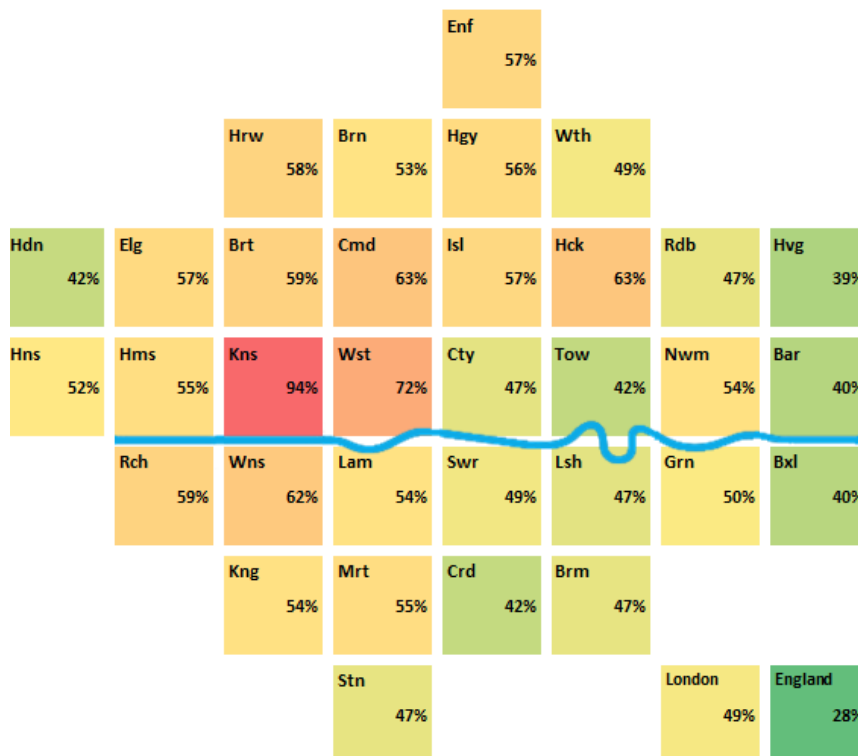


*Sources: VOA private rentals 2015/16, ONS annual survey of hours and earnings (workplace basis)*

High and rising rents reduce the disposable income of Londoners, and may mean that households are required to cut back on spending in other areas. It also makes it more difficult for London's tenants to save. Already, 63 per cent of privately renting households in London say they have no savings or money invested[23], while 82 per cent of 'would-be homeowners' in London report being worried that they 'will never be able to afford to buy'. This is the highest proportion of any English region.[24]

A possible response to a lack of affordable housing is for tenants to group together to share the costs or live with their parents and other relatives. This can lead to increased over-crowding of housing in London, considered in Chapter 4. The high costs of housing space may also delay some Londoners from starting a family. Forty-two per cent of all Londoners in their twenties who responded to an Opinium survey in early 2016 said that if the cost of homes stays at current levels or rises they will be less likely to raise their children in London, rising to 46 per cent of women in their twenties.[25]

There has long been concern that lower income households could be displaced from London (or from inner to outer London) as a result of rising costs. There is as yet little evidence of this happening on a significant scale.[26] It however remains possible that many renting households who are currently 'hanging on' despite rising housing costs may decide to move in the near future if housing costs continue to increase.

## 10.3.2.4 Homelessness

Homelessness is a particular problem in London and has been so for some time. The number of households accepted as statutorily homeless in London has gone up year on year since 2010/11, after a previous downward trend from 2004/05. The number of households accepted as homeless by London boroughs in 2015/16 was 19,180, up 9 per cent from 2014/15 but still well below the peak of 26,700 in 2004/05. Homeless acceptances in London as a proportion of the national total rose slightly to 33 per cent in 2015/16.

As a proportion of the household population, Figure 10.13 shows that the number of homeless acceptances per 1,000 households in London is higher than in England as a whole. This figure has risen to 5.5 per 1,000 in London, while the figure for England has been relatively stable in comparison. A large proportion of the recorded increase in statutory homelessness over the past five years is attributable to the insecurity of private rental tenancy, with the ending of a private tenancy accounting for 39 per cent of homelessness acceptances in London in 2014/15.[27]

Figure 10.13 also shows that London also has relatively high numbers of households in temporary accommodation. This has risen to 51,940 at the end of March 2016, up 8 per cent on the previous year. Of these 42,950 households contained children (amounting to 87,010 children). For the purpose of comparison with England as a whole, this is equivalent to 14.9 out of every 1,000 households in London (around 1 in 70)[28], compared to 3.1 per 1,000 households in England (around 1 in 320). The number of households in temporary accommodation in London though remains below its historic peak of 63,800 in the 4th quarter of 2005.

**Figure 10.13: Homelessness acceptances per 1,000 households and households in temporary accommodation per 1,000 in London and England, 2004/05 – 2015/16**
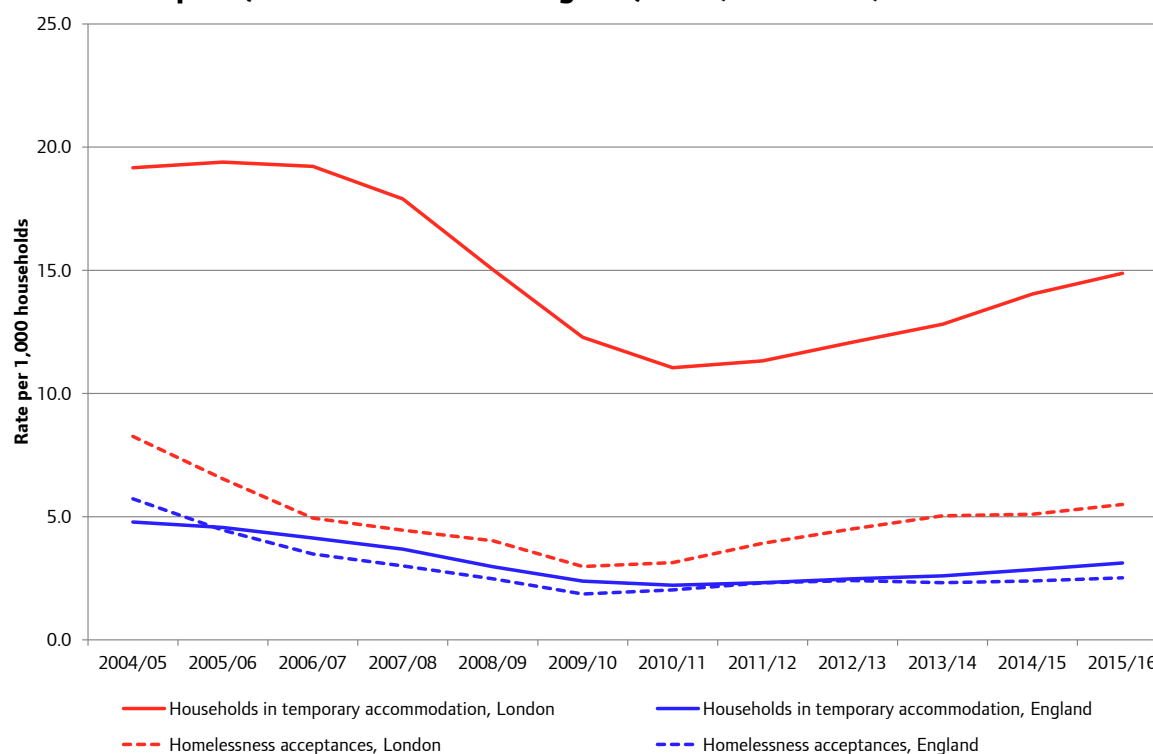
Accurate data on rough sleeping as a further indicator of homelessness is understandably difficult to collect. This is highlighted by a survey by Crisis[29], which reported that 44 per cent of rough sleepers had had no contact with a rough sleepers' team in the last six months. Still, in London, any individual in contact with outreach teams or other services working with rough sleepers has their details entered onto the Combined Homelessness and Information Network (CHAIN) database. Some of CHAIN's findings are reproduced in Table 10.2.

The number of people seen sleeping out in London has increased year on year from 2,807 people in 2005/06 to 8,096 in 2015/16. Rough sleepers in London are more likely to be aged between 26 and 45 years old (58 per cent), and/or to be male (85 per cent), while 40 per cent are UK born and 36 per cent were from Central and Eastern Europe (CEE).

Homelessness is also associated with a number of other complex needs including issues of ill health, unhealthy behaviours and offending (discussed in sections 10.6 and 10.7). These are linked to high levels of demand and costs for public services, including repeated contact with the police and criminal justice system.[30]

**Table 10.2: Characteristics of Rough Sleepers in London, 2015-16**

| History | New | For 2+ years | Return after 1+ years | Total |
|---|---|---|---|---|
| Count | 5,276 | 1,828 | 992 | 8,096 |
| | | | | |
| Age | 18-25 | 26-45 | 46-55 | 55+ |
| | 10% | 58% | 21% | 11% |
| | | | | |
| Support needs* | Alcohol | Drugs | Mental health | None |
| | 43% | 31% | 46% | 26% |

*Source: CHAIN Annual Bulletin Greater London, 2015-16. *Note: An individual rough sleeper may exhibit more than one of these support needs.*

## 10.3.3 The costs of living

As Chapter 6 highlights, London is also a costly city to live in, with London ranking at number 6 according to a survey by UBS on the relative cost of living in various global cities.

### 10.3.3.1 Basic living costs

Expenditure may be considered as relating to either essential or non-essential spending items. The essentials would cover things like housing, food and clothing, transport, fuel and for some, the costs of childcare. For most (even essential) expenditure there is a balance between cost and quality in some way, which may also factor in time spent. For housing, for example, there is for many people a compromise between what they can afford, where they want to be, and the attributes of the actual property.

In the calculation of the London Living Wage[31] it is accepted that a certain level of income is necessary to cover the costs of essential items to households, these costs are called basic living costs and are divided into the following sub-categories:

- Housing
- Council tax
- Transport
- Childcare
- All other costs (a 'regular shopping basket').

The London Living Wage undertook estimates of basic living costs for four family types:

- a two adult household with two children aged ten and four
- a one adult household with two children aged ten and four
- a couple without children
- a single person without children.

Tables 10.3 and 10.4 show the calculations of basic living costs in London for these families given different employment patterns.

**Table 10.3: Basic Living Costs for typical families living in London (£ per week), households with children**

| Cost category | Couple with children | | | | | Lone parent | |
|---|---|---|---|---|---|---|---|
| | 2 full time workers | 1 full time, 1 part time | 2 part time | 1 full time | 1 part time | Full time | Part time |
| Shopping basket | 216.40 | 216.40 | 216.40 | 216.40 | 216.40 | 164.10 | 164.10 |
| Housing | 122.40 | 122.40 | 122.40 | 122.40 | 122.40 | 122.40 | 122.40 |
| Council tax | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 18.70 | 18.70 |
| Transport | 66.80 | 66.80 | 66.80 | 33.40 | 33.40 | 33.40 | 33.40 |
| Childcare | 308.00 | 149.60 | 149.60 | 0.00 | 0.00 | 308.00 | 149.60 |
| Total costs | 738.70 | 580.30 | 580.30 | 397.20 | 397.20 | 646.70 | 488.30 |

*Source: GLA Economics, 2015 Living Wage*

**Table 10.4: Basic Living Costs for typical families living in London (£ per week), households without children**

| Cost category | Couple with no children | | | | | Single no children | |
|---|---|---|---|---|---|---|---|
| | 2 full time workers | 1 full time, 1 part time | 2 part time | 1 full time | 1 part time | Full time | Part time |
| Shopping basket | 129.80 | 129.80 | 129.80 | 129.80 | 129.80 | 101.90 | 101.90 |
| Housing | 209.00 | 209.00 | 209.00 | 209.00 | 209.00 | 134.10 | 134.10 |
| Council Tax | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 18.70 | 18.70 |
| Transport | 66.80 | 66.80 | 66.80 | 33.40 | 33.40 | 33.40 | 33.40 |
| Childcare | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total costs | 430.60 | 430.60 | 430.60 | 397.20 | 397.20 | 288.20 | 288.20 |

*Source: GLA Economics, 2015 Living Wage*

Thus, it can be observed that different types of households require different levels of weekly income to cover their basic costs. For families or households with more than two children, or having also adult care responsibilities, it is likely that these average costs are higher still.

## 10.3.3.2 Costs of childcare

Childcare affordability is a cause of concern for a number of reasons. The costs of raising children also affect decisions on labour supply, as parents/guardians seek to reconcile working and family life. It also affects the decision on whether to have a child in the first place, when to have children, and tends to also affect decisions on where to live. These choices are affected both by the costs and availability of formal childcare, as well as the availability of informal childcare, including family support.

The take-up of childcare is however particularly low in London. A 2013 survey for the Department for Education found that only one-in-nine children (11 per cent) received informal childcare in London, which was almost three times lower than the average for England (31 per cent). This places a greater need on formal childcare, imposing relatively greater costs on families. London was however also one of the regions with the lowest take-up of formal childcare (49 per cent), although this was close to the national average (53 per cent).[32]

Data from the Childcare Costs Survey 2015[33] finds that the cost of formal childcare is higher in London than in any other region. Comparing London to the average costs across English regions, Figure 10.14 shows that childcare in London for those under the age of two is 34 per cent more expensive than the England average, at an average cost of £158.73 for 25 hours of care compared to the England average of £118.13. The survey also found that between 2011 and 2016, these costs increased by 29.2 per cent in London, compared to a 23.7 per cent increase for England as a whole.

As a result, childcare can represent a significant proportion of household income, with the survey estimating that the annual cost of a nursery place for a child under the age of two would be around £8,254 in 2016, equivalent to almost 25 per cent of median full-time earnings. This leaves many parents in London, and particularly mothers, needing to earn relatively more to pay for it, acquire debts or cut back on other spending, or else forgo work to care for their children.

**Figure 10.14: Weekly costs of childcare, London and England, 2016**
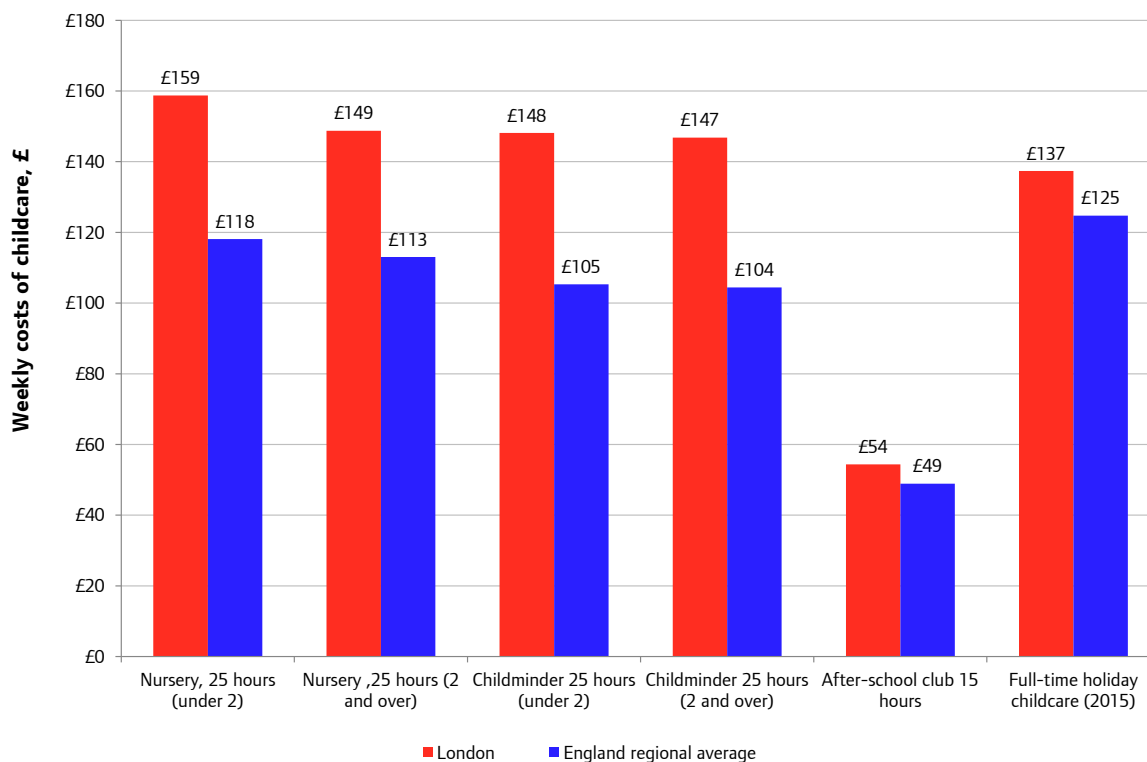


Source: Family and Childcare Trust, 2016 Childcare survey. Note: the survey of all local authority Family Information Services, requests details on the average prices charged to parents for different types of childcare.

Empirical studies for the UK[34] have found that the higher the costs of childcare, the lower the labour force participation rate of women with pre-school children. This is since the higher costs of childcare raise the wage rate at which they would be willing to accept a particular job, or further hours of work. The analysis in Chapter 9 also finds evidence of lower employment rates and higher inactivity rates among mothers and lone parents in London.

While this may reasonably result from a choice in light of the costs of working and constraints that face them, such decisions may not however take account of the full value to the economy (and society) of women's labour force participation, the potential knock-on impacts on their lifetime earnings and pensions, or the full social benefits of access to good quality childcare for children's development in early years.[35] If parents do not return to work after having children, employers can no longer benefit from their skills and experience, and families may depend on benefits and contribute less to the economy through taxes than they otherwise would.

For those families already lacking opportunities for well-paid work, the high costs of childcare may also raise issues of inequality of opportunity associated with poor care in early years. The role of early year development towards social mobility is considered later in section 10.5.3.

## 10.3.3.3 Energy costs and fuel poverty

Other essential costs may be a significant strain on households. Fuel poverty continues to be an issue in London, with 348,000 households (10.6 per cent) meeting the Government's 'low income high cost' definition of fuel poverty.[36] This is in line with the figure of 10.6 per cent in England as a whole. There are likely to be a further number of households, particularly in smaller properties, that may still be struggling to pay their fuel bills despite not meeting the definition.

The fuel poverty rate peaked at 12 per cent in 2009 in both London and England as whole. Across London, this varies with areas in inner London and North East London with worse rates than the England average, with highs of 14.3 per cent in Kensington and Chelsea, and 13.6 per cent in Newham and Hammersmith and Fulham.[37]

Data from the ONS Family Spending shows that London households spent an average of £24.60 per week on fuel costs in 2012 to 2014, equivalent to 4 per cent of total expenditure. This is slightly less than the UK average of £25.80 per week in the UK as a whole. For those with household incomes in the lowest 20 per cent in the UK, fuel costs instead accounted for an average of 7 per cent of weekly spend.

High energy needs and high costs of servicing these are strongly related to the size of households, the price of fuels used and the energy efficiency of the home. As a result, while single parent households have the highest levels of fuel poverty, it is the elderly (in relatively large homes) which tend to be most deeply affected.[38]

As of the 2011 Census, there also remained 2.8 per cent of households (92,400) without central heating. This was down from 7.8 per cent (234,600 households) in 2001. The likelihood of living in a household without central heating was greatest in private rented accommodation, where 4.4 per cent of households were without central heating in London.

London homes also remain relatively inefficient. In 2011 around 32 per cent of homes in London were in the lowest bands of efficiency (from E to G). This proportion varied widely by tenure, from 13 per cent of housing association homes to 39 per cent of owner occupied homes, as owner occupied homes tend to be older and more likely detached or semi-detached, which are usually less energy efficient. The environmental impact of energy consumption is considered separately in Chapter 7.

If people are unable to achieve affordable warmth, then this can be detrimental to their health.[39] Across England and Wales in 2014/15 there were an estimated 44,000 more deaths during winter months (December to March) than expected from deaths in the rest of the year, around two thirds of which can be attributed to the effects of cold. In London, 26.3 per cent more people died in the winter months compared with the non-winter months in 2014/15. This was equivalent to 4,000 excess winter deaths.[40] Health concerns are considered further in section 10.6.

## 10.3.3.4 Household spending

Affordability affects different groups of people in different ways – different factors and different things are important. For many households, income is their most important economic resource for meeting everyday living expenses. However, it is the consumption of goods and services (best reflected by expenditure) that are most important in meeting a household's requirements.

ONS Family Spending[41] cites evidence suggesting that 'income and expenditure together represent a better determinant of economic well-being than income alone' – since expenditure can be 'smoothed' by adjusting savings, drawing on wealth or borrowing, whereas incomes may be more volatile.

Data on household spending shows that London residents tend to spend more on housing services (such as rent and energy costs), but less on transport than the UK average. This is related to the relatively low levels of car purchases and private vehicle running costs in London (£67.30 per week compared to the UK average of £69.80, see Table 10.5). This reflects the greater availability and use of public transport in London as well as shorter distances to travel, which may make walking or cycling more feasible options. The 2011 Census shows that London residents travel 11.2km to work on average, whereas across the whole of England and Wales, the average distance is 15.0km.

On average, Londoners also tend to spend relatively more on eating out and trips away; spending on restaurants and hotels in London averaged £53.90 per week, compared to the UK average of £41.10. On average, London households also spend higher amounts on education fees than the UK average (£15.40 compared to £8.40 per week). Table 10.6 shows that this is largely a reflection of the number of high income households in London, which also spend considerable sums on 'other expenditure items' including mortgage interest payments, holiday spending, cash gifts and donations.

**Table 10.5: Household expenditure by UK countries and regions, 2012 to 2014**

| Commodity or service | North East | North West | Yorkshire & the Humber | East Midlands | West Midlands | East | London | South East | South West | England | Wales | Scotland | Northern Ireland | United Kingdom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average weighted number of households (thousands) | 1,110 | 3,010 | 2,300 | 1,960 | 2,350 | 2,530 | 3,220 | 3,580 | 2,220 | 22,290 | 1,270 | 2,310 | 740 | 26,620 |
| Total number of households in sample (over 3 years) | 770 | 1,800 | 1,440 | 1,290 | 1,510 | 1,560 | 1,380 | 2,200 | 1,390 | 13,340 | 730 | 1,330 | 470 | 15,870 |
| Total number of persons in sample (over 3 years) | 1,760 | 4,130 | 3,350 | 3,020 | 3,670 | 3,690 | 3,450 | 5,260 | 3,230 | 31,550 | 1,710 | 2,980 | 1,180 | 37,420 |
| Total number of adults in sample (over 3 years) | 1,380 | 3,230 | 2,600 | 2,360 | 2,790 | 2,860 | 2,560 | 4,060 | 2,540 | 24,370 | 1,350 | 2,380 | 890 | 29,000 |
| Weighted average number of persons per household | 2.2 | 2.3 | 2.3 | 2.3 | 2.4 | 2.3 | 2.6 | 2.4 | 2.4 | 2.4 | 2.4 | 2.3 | 2.5 | 2.4 |
| Average weekly household expenditure (£) | | | | | | | | | | | | | | |
| Food & non-alcoholic drinks | 49.80 | 53.60 | 51.30 | 56.80 | 55.50 | 61.30 | 63.20 | 63.80 | 61.00 | 58.30 | 54.10 | 56.90 | 64.00 | 58.10 |
| Alcoholic drinks, tobacco & narcotics | 11.60 | 13.30 | 12.50 | 12.50 | 11.40 | 11.50 | 10.50 | 12.90 | 11.20 | 12.00 | 10.20 | 15.60 | 14.90 | 12.30 |
| Clothing & footwear | 20.90 | 22.40 | 21.20 | 20.60 | 19.60 | 22.10 | 27.40 | 25.20 | 22.40 | 22.90 | 22.80 | 23.10 | 35.90 | 23.20 |
| Housing(net), fuel & power | 61.40 | 64.20 | 62.20 | 65.10 | 63.90 | 73.30 | 109.00 | 78.90 | 69.10 | 74.30 | 60.00 | 58.20 | 56.10 | 71.70 |
| Household goods & services | 32.70 | 33.70 | 28.50 | 33.60 | 28.60 | 31.20 | 34.90 | 37.40 | 34.20 | 33.10 | 29.40 | 27.90 | 30.10 | 32.40 |
| Health | 3.10 | 5.10 | 5.80 | 6.40 | 5.30 | 8.30 | 6.80 | 9.30 | 9.20 | 6.90 | 4.70 | 4.50 | 5.40 | 6.60 |
| Transport | 50.90 | 59.10 | 61.80 | 69.50 | 63.50 | 78.90 | 67.30 | 88.00 | 76.80 | 70.20 | 60.60 | 73.30 | 64.40 | 69.80 |
| Communication | 12.80 | 13.80 | 13.10 | 14.90 | 14.00 | 14.80 | 16.70 | 15.30 | 14.70 | 14.70 | 13.50 | 13.70 | 16.10 | 14.60 |
| Recreation & culture | 57.70 | 64.10 | 59.80 | 66.80 | 56.70 | 68.90 | 65.20 | 76.30 | 68.40 | 65.90 | 58.00 | 60.40 | 56.50 | 64.80 |
| Education | 5.60 | 4.20 | 5.10 | 17.00 | 4.60 | 7.70 | 15.40 | 7.30 | 10.60 | 8.70 | 11.10 | 6.50 | 3.20 | 8.40 |
| Restaurants & hotels | 34.10 | 38.10 | 38.40 | 34.60 | 35.80 | 41.40 | 53.90 | 46.20 | 41.20 | 41.60 | 33.20 | 39.00 | 46.30 | 41.10 |
| Miscellaneous goods & services | 30.50 | 35.30 | 35.10 | 37.70 | 36.20 | 45.40 | 43.20 | 47.90 | 40.80 | 40.20 | 30.70 | 34.20 | 38.40 | 39.20 |
| Other expenditure items | 56.30 | 60.30 | 55.80 | 59.00 | 59.30 | 75.80 | 102.90 | 86.10 | 73.50 | 72.80 | 56.00 | 61.10 | 52.90 | 70.50 |
| Total expenditure | 427.40 | 467.10 | 450.60 | 494.70 | 454.50 | 540.60 | 616.30 | 594.80 | 533.00 | 521.40 | 444.50 | 474.40 | 484.10 | 512.60 |
| Average weekly expenditure per person (£) | 192.20 | 201.80 | 196.20 | 214.90 | 188.60 | 232.50 | 241.40 | 247.50 | 224.90 | 219.80 | 186.30 | 210.10 | 197.30 | 216.70 |

*Source: ONS, Family Spending 2012 to 2014 (3-year averages). Notes: This table is based on a three year average. Housing (net) excludes mortgage interest payments and council tax.*

**Table 10.6: Household expenditure in London, by disposable income decile group, 2012 to 2014**

| | Lowest 10 per cent | 2nd decile | 3rd decile | 4th decile | 5th decile | 6th decile | 7th decile | 8th decile | 9th decile | Highest 10 per cent | All households |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lower boundary of group (£ per week) | | 188 | 273 | 358 | 442 | 535 | 635 | 765 | 931 | 1,210 | |
| Weighted number of households (thousands) | 320 | 280 | 260 | 300 | 290 | 270 | 310 | 270 | 370 | 540 | 3,220 |
| Total number of households in sample (over 3 years) | 140 | 130 | 120 | 140 | 130 | 110 | 130 | 110 | 150 | 220 | 1,380 |
| Total number of persons in sample (over 3 years) | 220 | 250 | 270 | 340 | 320 | 280 | 370 | 300 | 420 | 680 | 3,450 |
| Total number of adults in sample (over 3 years) | 180 | 180 | 180 | 240 | 230 | 210 | 270 | 230 | 330 | 500 | 2,560 |
| Weighted average number of persons per household | 1.5 | 1.9 | 2.2 | 2.5 | 2.5 | 2.6 | 2.8 | 2.7 | 2.9 | 3.2 | 2.6 |
| **Commodity or service** | | | | | | Average weekly household expenditure (£) | | | | | |
| Food & non-alcoholic drinks | 38.70 | 47.00 | 47.80 | 52.10 | 53.90 | 66.60 | 59.50 | 72.20 | 74.10 | 94.70 | 63.20 |
| Alcoholic drinks, tobacco & narcotics | 10.40 | 6.40 | 4.50 | 8.30 | 6.80 | 8.60 | 11.40 | 10.80 | 11.20 | 18.50 | 10.50 |
| Clothing & footwear | 10.80 | 14.20 | 15.60 | 18.70 | 15.70 | 31.80 | 31.00 | 25.20 | 29.70 | 57.50 | 27.40 |
| Housing(net), fuel & power | 70.90 | 70.90 | 84.80 | 97.00 | 112.20 | 130.40 | 102.00 | 119.30 | 139.60 | 137.70 | 109.00 |
| Household goods & services | 10.20 | 13.40 | 14.90 | 18.20 | 16.20 | 34.90 | 31.90 | 40.20 | 44.80 | 80.40 | 34.90 |
| Health | 2.50 | 2.70 | 3.90 | 2.70 | 2.50 | 6.00 | 15.00 | 7.80 | 7.50 | 12.00 | 6.80 |
| Transport | 18.10 | 21.90 | 30.20 | 47.50 | 44.60 | 66.20 | 63.70 | 66.60 | 93.60 | 143.90 | 67.30 |
| Communication | 7.70 | 10.50 | 13.50 | 15.70 | 14.60 | 14.90 | 17.90 | 18.80 | 22.40 | 23.40 | 16.70 |
| Recreation & culture | 16.90 | 20.80 | 29.10 | 29.00 | 32.80 | 49.10 | 53.40 | 65.10 | 83.20 | 171.10 | 65.20 |
| Education* | 13.30 | 1.00 | 8.00 | 2.30 | 14.10 | 6.90 | 10.70 | 2.10 | 21.90 | 43.70 | 15.40 |
| Restaurants & hotels | 17.20 | 17.00 | 23.00 | 28.90 | 25.90 | 38.80 | 45.30 | 49.10 | 83.80 | 135.20 | 53.90 |
| Miscellaneous goods & services | 13.40 | 23.10 | 24.90 | 26.20 | 31.40 | 38.60 | 47.10 | 43.60 | 48.90 | 91.40 | 43.20 |
| Other expenditure items | 20.60 | 32.00 | 29.60 | 50.00 | 66.80 | 87.10 | 107.80 | 72.60 | 125.20 | 272.10 | 102.90 |
| Total expenditure | 250.70 | 281.10 | 329.80 | 396.60 | 437.40 | 580.00 | 596.60 | 593.50 | 786.00 | 1281.40 | 616.30 |

Source: ONS, Family Spending 2012 to 2014 (3-year averages). Notes: Housing (net) excludes mortgage interest payments and council tax. London households have been allocated to deciles based on the UK income distribution. *Figures in italics should be used with caution as they are based on fewer than 20 reporting households.

In contrast, as noted in section 10.3, lower income households tend to spend a disproportionate amount of disposable income on what may be considered as 'essential' items. Figure 10.15 shows that those in the lowest income group with less than £188 per week disposable income spent an average of 15 per cent of their total weekly spend on food and non-alcoholic drinks (£38.70 per week), and a further 28 per cent on rent and energy bills (£70.90 per week). In contrast, those households in the highest income group, with disposable income of more than £1,210 per week, spent an average of 7 per cent on food and drink (£94.70 per week) and 11 per cent on rent and energy bills (£137.70 per week).

**Figure 10.15: Household expenditure in London by disposable income decile group**
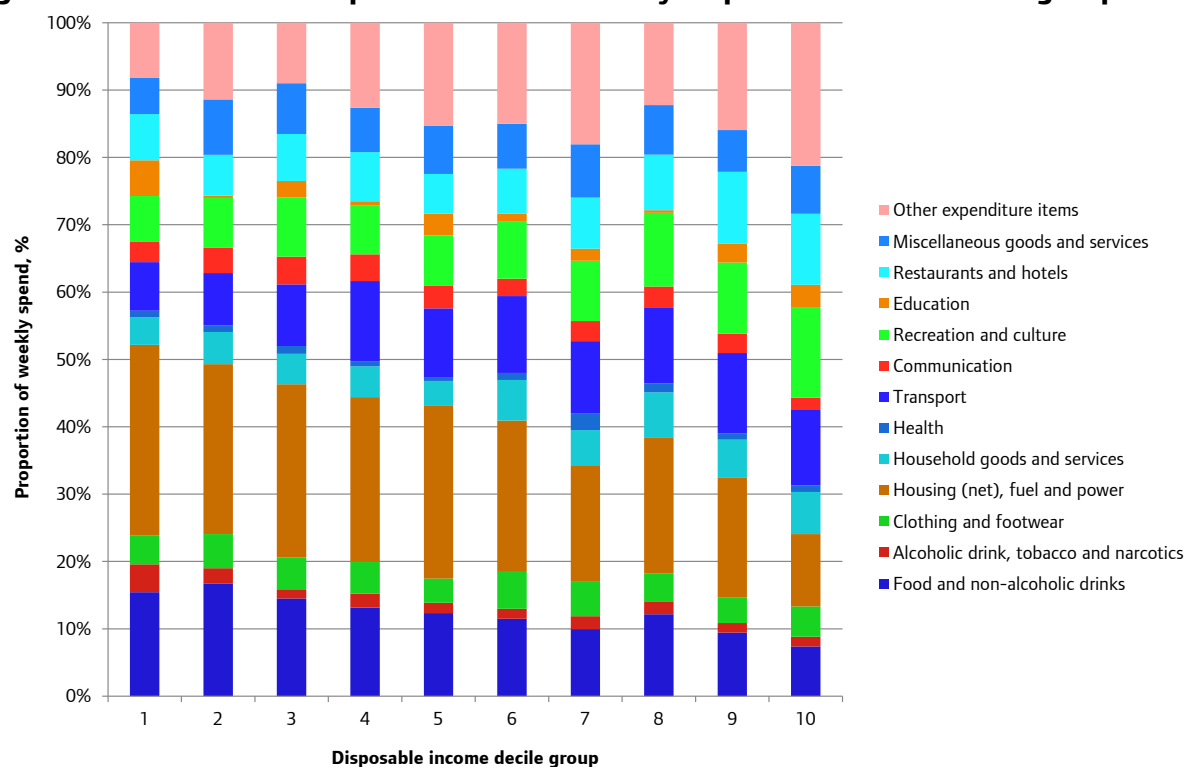


*Source: ONS Family Spending 2012 to 2014 (3-year averages), Note: London households have been allocated to UK income decile groups. As such, roughly 16 per cent of London households are in the highest (10th) decile group.*

## 10.3.3.5 Problem debt and food poverty

For low income households, since spending is concentrated on many of what may be considered essential items, it follows that unexpected changes in income (following for example job loss, reductions in working hours or welfare benefits) – coupled with a lack of savings and difficulties in accessing affordable credit – may lead to situations of financial distress.

A 2015 London Assembly report[42] found that around 500,000 Londoners have problems servicing their debts, and that there has been a reported increase in households seeking advice about arrears in household debts. Londoners are also reported to be more likely to feel that their financial debts were a heavy burden or somewhat of a burden than households in the country as a whole.

Alongside the risks of fuel poverty highlighted above, low income households – given the higher spending on food as a proportion of their income – may also only be a small crisis away from being unable to afford an adequate diet. While there are no official measures of food poverty or food insecurity in the UK, the Trussell Trust estimates that its foodbanks gave Londoners 110,000 emergency food supplies in 2015/16, up from 105,000 in 2014/15.[43] Inadequate diet can create additional challenges for the poorest and their families, such as issues of ill health considered in section 10.6.

On the basis of many competing indicators reported elsewhere in this Evidence Base (see Chapter 5), London is consistently highly placed as a good place to live. However, London is also an expensive city, and is in many respects increasingly less affordable. The economic prosperity and benefits of living in the capital may also not extend to all who reside here. The next section considers the different measures of low income and poverty in London.

## 10.4 Living standards, poverty and deprivation

Issues relating to living standards and poverty impact on equity, but also can impact on the perception of the capital as a place to live and work. This section analyses evidence on poverty, deprivation and the numbers of households in receipt of welfare support or on low pay.

There is a large degree of overlap between the issues of affordability discussed in the sections above, and the concerns around living standards, poverty and inequality. Both rely on estimates of income and need to adjust for the number and characteristics of individuals in the household which vary substantially. Housing costs, particularly in areas of high housing costs such as the vast majority of London, are inevitably instrumental in determining living standards and need to be taken into account when considering poverty. This wide variation in spending patterns, living standards and inequality is revealed in the levels of poverty in London.

Poverty can cause material and psychological harm to those who experience it. As noted in section 10.3.3.5, the associated financial distress may also lead to the accumulation of problem debts that are linked with other harmful events affecting the entire family, such as losing a home or relationship breakdown.[44]

Poverty is also associated with wider social consequences that place additional demands on public services. These include services related to: schooling; health inequalities; police and criminal justice; children's services; and housing and social care. Poverty, and the lower incomes or unemployment associated with it, is also reflected in lower tax revenues, and the need for support from the state through welfare benefits such as income and employment support, housing benefit and pension credits. A 2016 study for the Joseph Rowntree Foundation estimates that the total cost of poverty to the UK public purse is around £78 billion, equivalent to more than 4 per cent of UK GDP.[45]

## 10.4.1 Poverty

There are a number of different definitions of low income that are used to measure poverty. One measure commonly used by Government is to consider those in households whose (equivalised) household income is below 60 per cent of the median for the UK population as a whole. This is a relative measure of low income in comparison to other residents in the country, and may not necessarily imply a low standard of living. As seen in section 10.3.1, disposable household income can be measured either before or after housing costs are deducted (BHC or AHC).

Taking the BHC measure of poverty, the proportion of Londoners in poverty is close to the national average. This measure however includes housing benefits in the net income figures that are necessarily higher in London as a result of the higher costs of housing (seen in 10.3.2). Housing costs are important in determining living standards, and are particularly relevant for those in the lowest income groups, which tend to draw on housing benefits and necessarily spend a high proportion of their income on housing.

After taking account of housing costs in the capital, poverty rates among London's population are much higher than for the UK as a whole. On average over the period between 2012 and 2014, 2.2 million Londoners were in relative poverty (below 60 per cent of the national median), equivalent to 27 per cent of the population. This includes a third (33 per cent) of all inner London residents, and nearly a quarter (24 per cent) of outer London residents, which is still a higher rate than for any other region. This compares to an average poverty rate of 20 per cent in the rest of England (Figure 10.16).

**Figure 10.16: All individuals in households with income below 60 per cent of median**
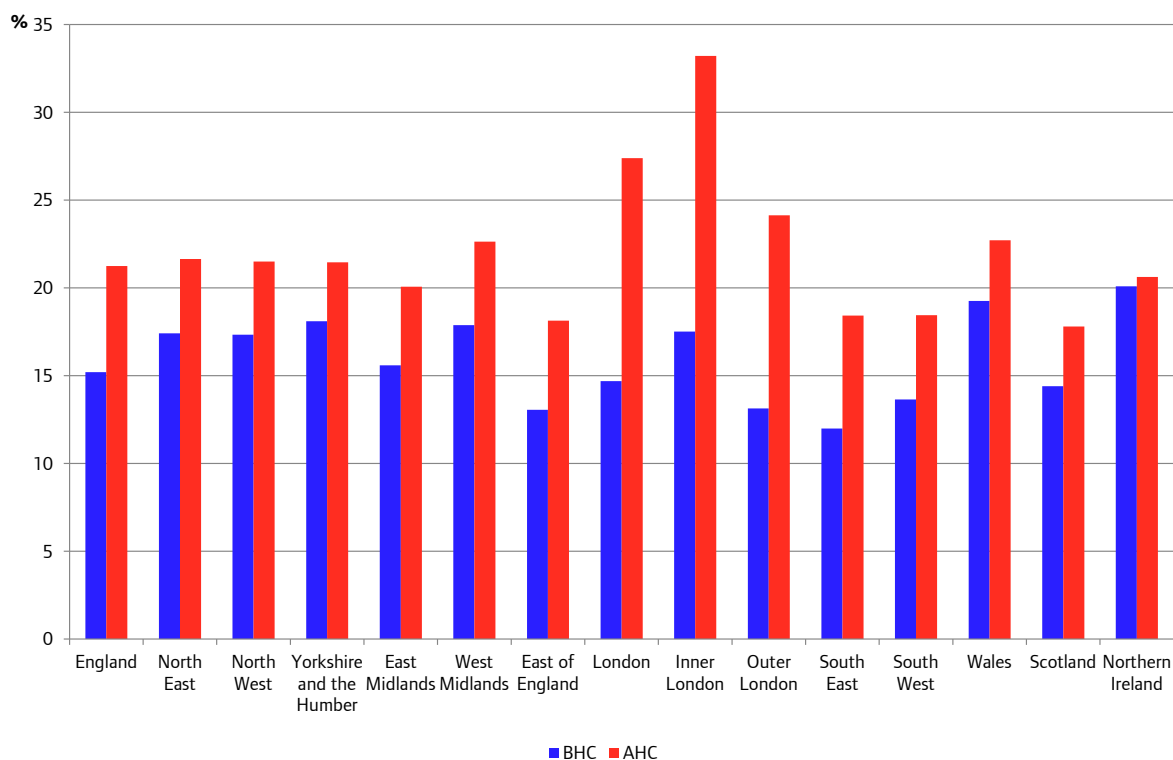
There has been little change in relative poverty rates over the past five years. The time series for all individuals in poverty in London and the UK, after housing costs, are illustrated in Figure 10.17. The latest figure of 27 per cent AHC (2011-14) in London shows a slight decrease on the previous non-overlapping period from 2008-2011 of 29 per cent. The rate of poverty in inner London has been higher than outer London over the past 15 to 20 years. While this gap had fallen in the lead up to the economic recession (to 4 percentage points), poverty rates in inner London have been consistently 9 percentage points higher than outer London since 2008.

**Figure 10.17: Percentage of individuals living in households with less than 60 per cent of median household income (AHC), 1994 –2014**
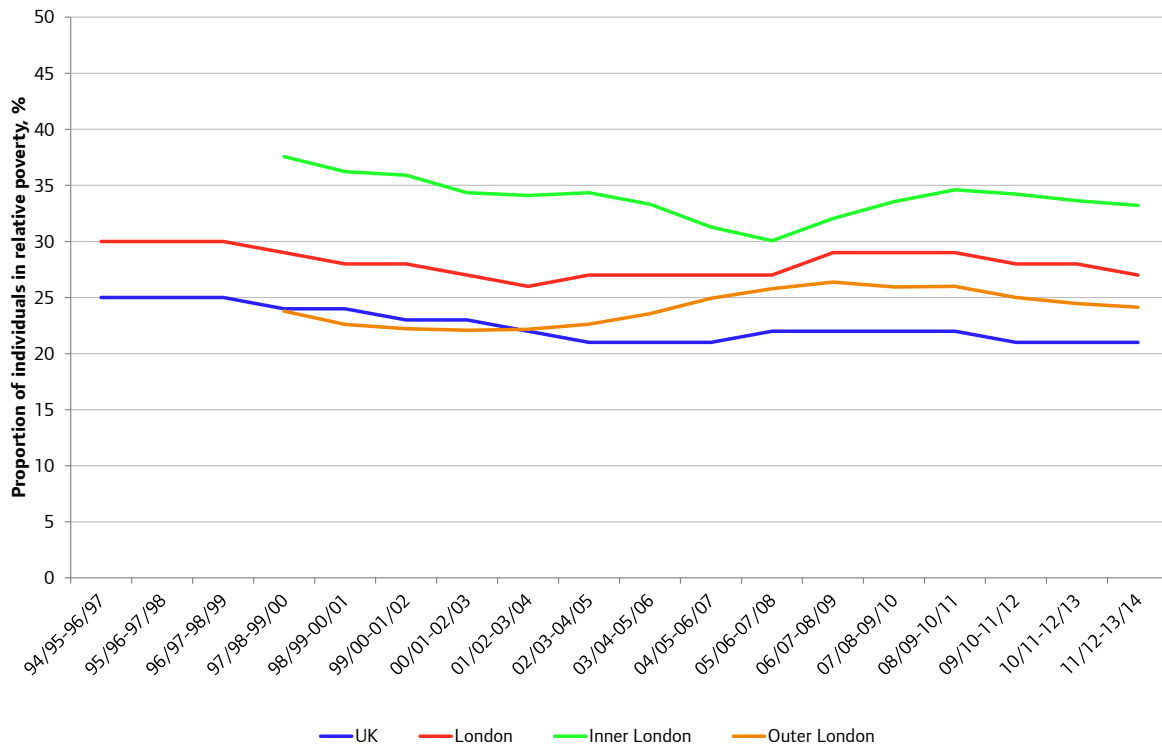


*Source: FRS 1994/95-2013/14, DWP (3-year rolling averages), after housing costs measure.*

Looking at the 60 per cent of contemporary median income measure, the poverty rate in London also varies by household characteristics; with some groups of the population having higher poverty rates than others. For example, London households with children are more likely to be in poverty than those with only working age adults. Still, as Figure 10.18 shows, by both (BHC and AHC) measures child poverty rates for London and for the UK as a whole have fallen slightly over the last two decades. However, the rates of child poverty in London remain well above those of the population as a whole, with 37 per cent of London's children living below the poverty line after housing costs.

**Figure 10.18: Percentage of children living in households with less than 60 per cent of median household income (AHC), 1994 –2014**
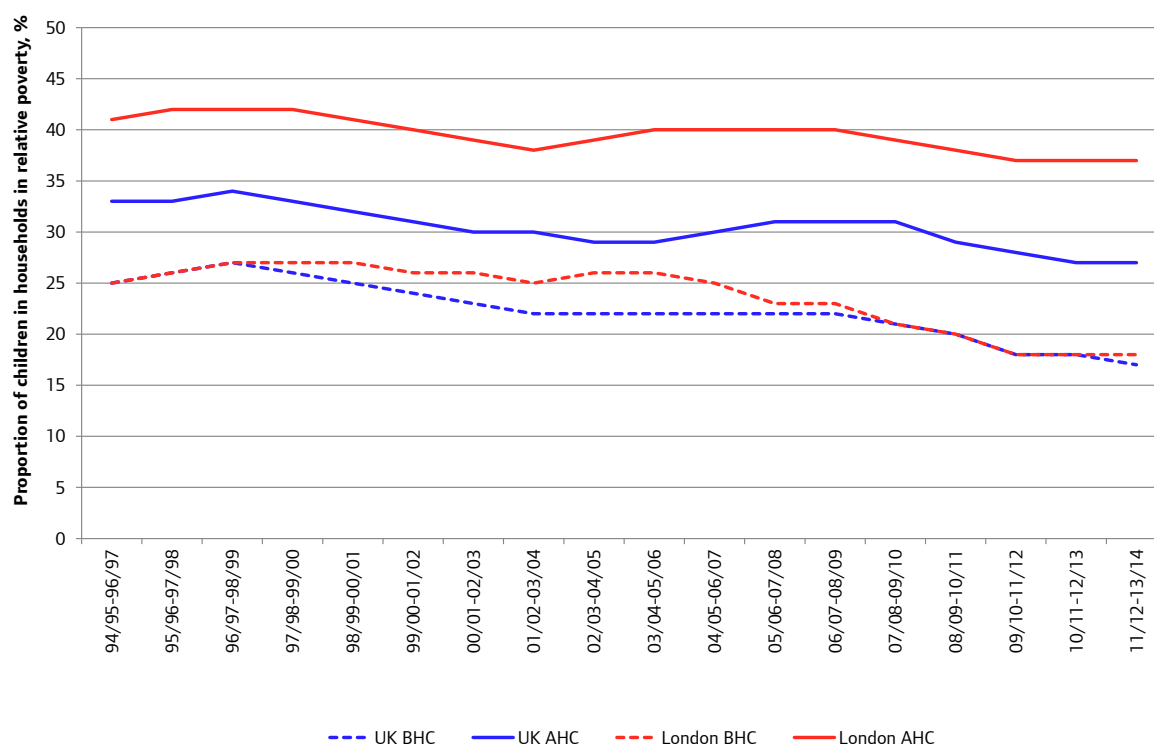


*Source: FRS 1994/95 - 2013/14 (3-year rolling averages), after housing costs measure.*

There is a variation in poverty levels within London, as well as between London and other regions. Around 300,000 children in inner London are living in AHC poverty, with a further 400,000 in outer London. The inner London child poverty rate remains particularly high, at 46 per cent; while the outer London child poverty rate is lower, at 33 per cent, it is still higher than for any other region.

However, the relative income poverty measure used in the above analysis is a somewhat arbitrary measure, and other income levels can be used alongside to give a broader picture. For example, a quarter of London's children live in households earning less than half of the national median income, and nearly half are in households with less than 70 per cent of the median.

ONS analysis highlights that characteristics associated with an increased risk of such 'persistent poverty' include long-term worklessness (particularly for households claiming unemployment benefits), living in either social or private rented housing, single parent households, disability and a lack of formal qualifications. For example, an estimated 43 per cent of people in the UK who left education without any formal qualifications experienced poverty at least once between 2011 and 2014, twice the percentage of those with a degree or higher qualification.[47]

Another way of measuring poor living standards is used in the Family Resources Survey and looks at material deprivation. By this measure, a family is 'materially deprived' if it is unable to afford a certain (weighted) number of items or activities that taken together are widely viewed as proxy measures for an acceptable living standard in the UK.[48]

Figure 10.19 illustrates the regional differences in the levels of material deprivation for children, combined with two alternative measures of low income. This shows that 12 per cent of children in outer London were living on low incomes – below 50 per cent of median BHC incomes – without the essentials. In contrast, more than one fifth (21 per cent) of children in inner London could not afford such necessities. This compares to an England average of 13 per cent. On the measure of severe low incomes – where the household income is below 70 per cent of median BHC – this pattern of greater levels of material deprivation among children in inner London still holds.

**Figure 10.19: Low income and material deprivation levels among children by region**
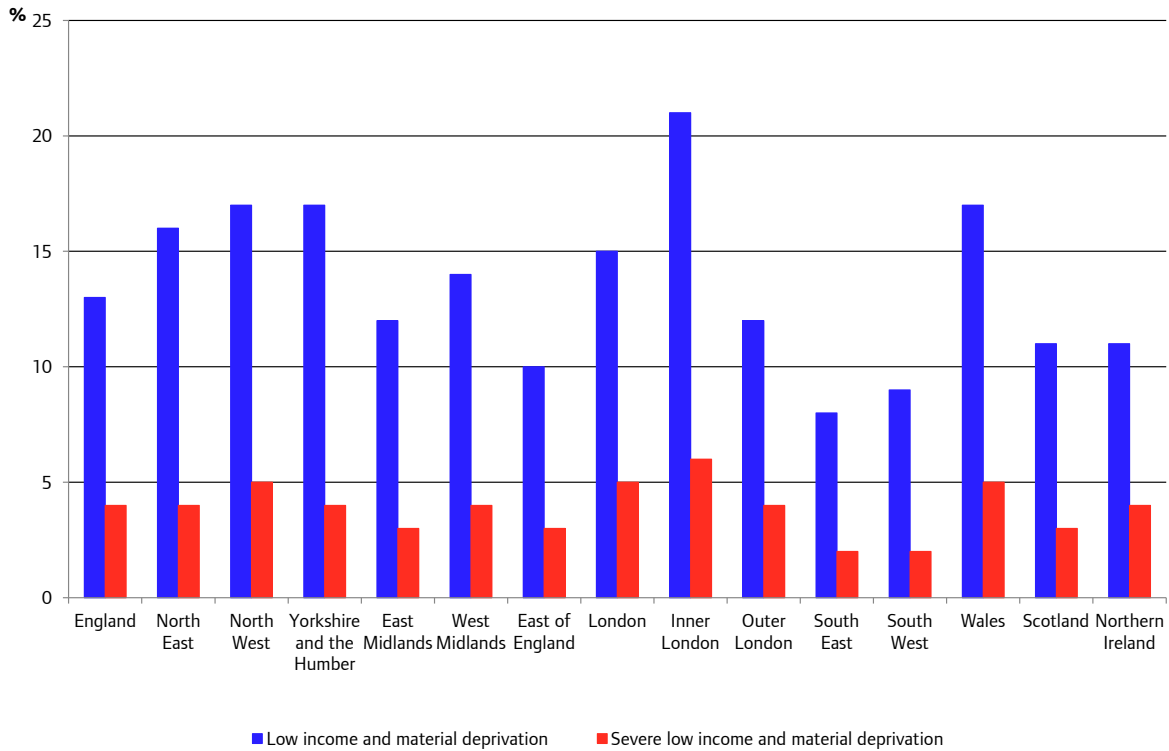


Source: FRS 2011/12 - 2013/14 (3-year average).

Figure 10.20 shows that low incomes and material deprivation among pensioners in London is much higher than elsewhere. In inner London, this affects more than a quarter of all pensioners (26 per cent) – more than twice the proportion in any other UK region. While even in outer London, the 11 per cent rate of material deprivation is higher than any other English region.

Evidence on income poverty among those of pensionable age (65+) is less clear cut, with more pensioners in poverty by the BHC measure than the AHC measure in most areas, although in inner London (where relatively fewer pensioners live), this is not the case. The likelihood of living in poverty as a pensioner is stronger for those living in rented accommodation, particularly social housing. It is stronger still for those reliant on state pension and welfare benefits, without income derived from an occupational or private pension.

**Figure 10.20: Material deprivation levels among people of pensionable age by region, 2011/12 to 2013/14**
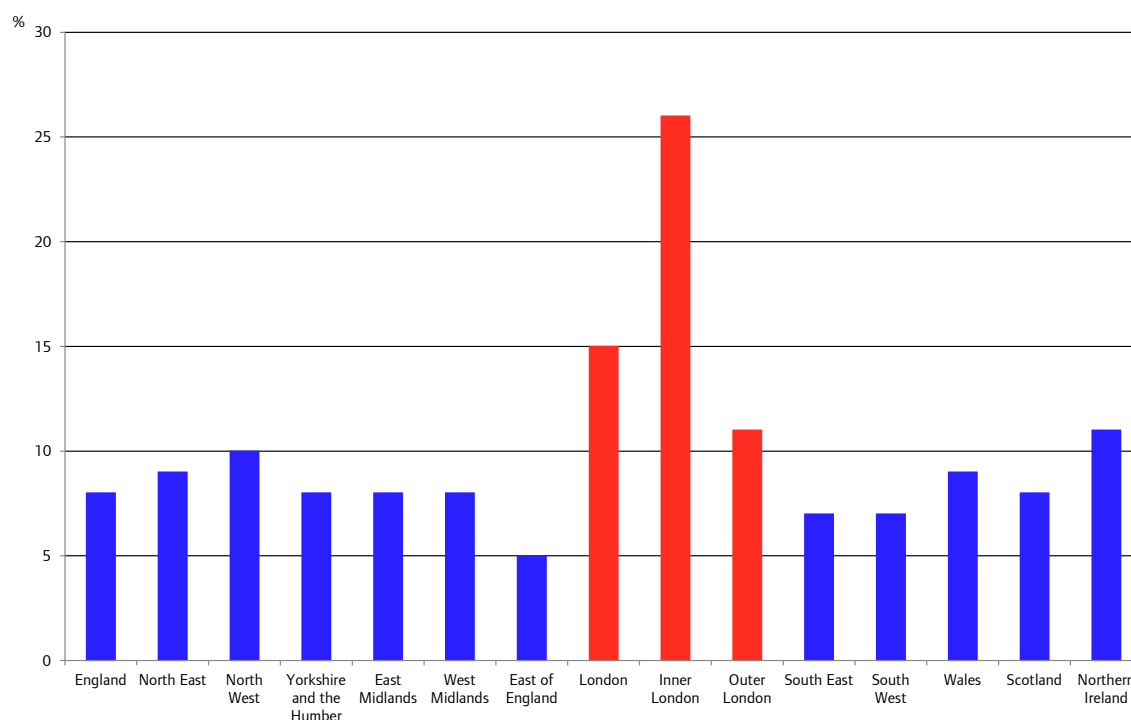


*Source: FRS 2011/12 - 2013/14 (3-year average)*

The above measures of poverty and low income however only provide a series of snapshots, and cannot tell us whether it is the same households which remain in poverty from year to year. National evidence from the ONS[49] shows that, across the UK as a whole, fewer than 4 in 10 people in poverty in 2014 were also in poverty in at least two out of the three preceding years. The analysis also identifies an average annual rate of exit from poverty of 48.6 per cent from 2011 to 2014, indicating that slightly more than half of those in poverty were in the same situation the following year. This suggests that periods of low income can afflict a large number of people from year-to-year, and between 2011 and 2014, it is estimated that almost a third (32.5 per cent) of the UK population experienced poverty at least once.

Getting a job is considered to be one of the best ways of moving out of poverty. Between 2007 and 2012, the ONS[50] estimates that 70 per cent of those aged 18 to 59 in the UK who were out of work and then moved into employment left poverty, with the other 30 per cent remaining in poverty despite having entered employment. While worklessness continues to be associated with the risk of poverty, the rising employment rates seen in Chapter 9 mean that this is increasingly less of a factor.

Indeed, most Londoners in poverty are in working families – equivalent to an estimated 1.2 million individuals, or 21 per cent of working families. For those in in-work poverty, ONS analysis at the UK level suggests that increases in earnings are the main route out. Between 2007 and 2012, 70 per cent of individuals leaving in-work poverty did so following an increase in their hourly earnings of 5 per cent or more, including as a result of moving to a new job. An increase in average hours that somebody works was also a factor in 38 per cent of exits from in-work poverty.[51]

Chapter 9 considered the levels and growth in earnings for males and females, while the incidence of low pay and the role of the national minimum wage and the London living wage are considered below in section 10.4.3. The other major source of incomes, particularly for those in lower income households, is income from welfare benefits. These can support both those out of work, and those on low pay in meeting the costs of living, and are considered below.

## 10.4.2 Income support from welfare benefits

Another indicator of living standards, only indirectly related to low income, is the number of Londoners dependent on various benefits. Some, but not all benefits are means-tested and each benefit has different qualifying criteria, such as job seeking requirements, or certain circumstances that do not require the recipient to be looking for work due to caring responsibilities or disability. Some welfare benefits are available for people who are either out of work or in work in low paid jobs and some are available for people in households where others may be in well-paid work. Interpretation of benefit statistics is therefore not straightforward. Still, recipients of certain benefits in London as a percentage of London's working age population are shown in Figure 10.21.[52]

**Figure 10.21: London's working age population dependent on certain benefits**
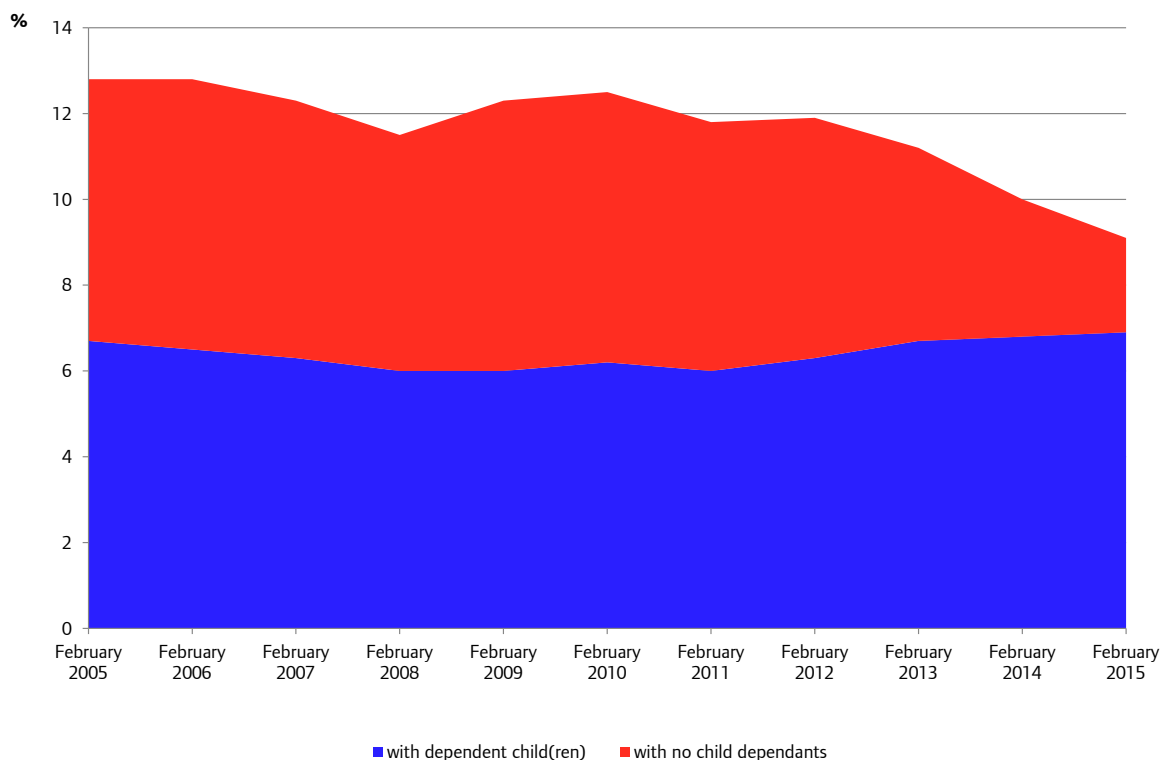


Source: Department for Work and Pensions (DWP) Longitudinal Study (aggregate statistics published via NOMIS). Notes: The benefits are primarily for those out of work, though some people working limited hours are included. Individuals may be receiving more than one benefit. The benefits included are: job seekers, ESA and incapacity benefits, lone parents and others on income related benefits.

The percentage of London's working age residents claiming out-of-work benefits is slightly higher than that for neighbouring regions but lower than for the Midlands, the northern regions or other countries of Great Britain. Recent changes in London's economy, such as job creation along with changes in the welfare system have combined to result in a reduction in the overall number of working age adults claiming out-of-work benefits. The overall decrease in the number of working age residents in families receiving these mainly out-of-work benefits is a product of a small increase in the proportion with dependent children receiving them and a clear reduction in the number with no dependent children over the last few years. This overall picture masks decreases in the numbers of those receiving benefits because of job seeking and because of being a lone parent; the overall numbers receiving a benefit because of a health issue or disability have remained fairly stable.

These data provide only a partial picture of the working age population receiving welfare assistance from the state. Figure 10.22 shows, alongside those receiving the main out-of-work benefits (in blue), families in low paid work receiving tax credits (in red). This provides a crude approximation of the number of benefit claimants in the working age group (aged 16-pensionable age) based on the available data.

The year-on-year reductions in the number of in-work families claiming tax credits since 2011 are likely to be partly due to changes in the benefit entitlement rules, and partly due to changes in the level of earnings. The reduction in the numbers claiming out of work benefits is also at least partially due to changes in the eligibility criteria, particularly around disability benefits and lone parent support where the requirements have become more stringent.[53] Some of these claimants became in-work claimants of tax credits.

**Figure 10.22: Working age benefit claimants in London**
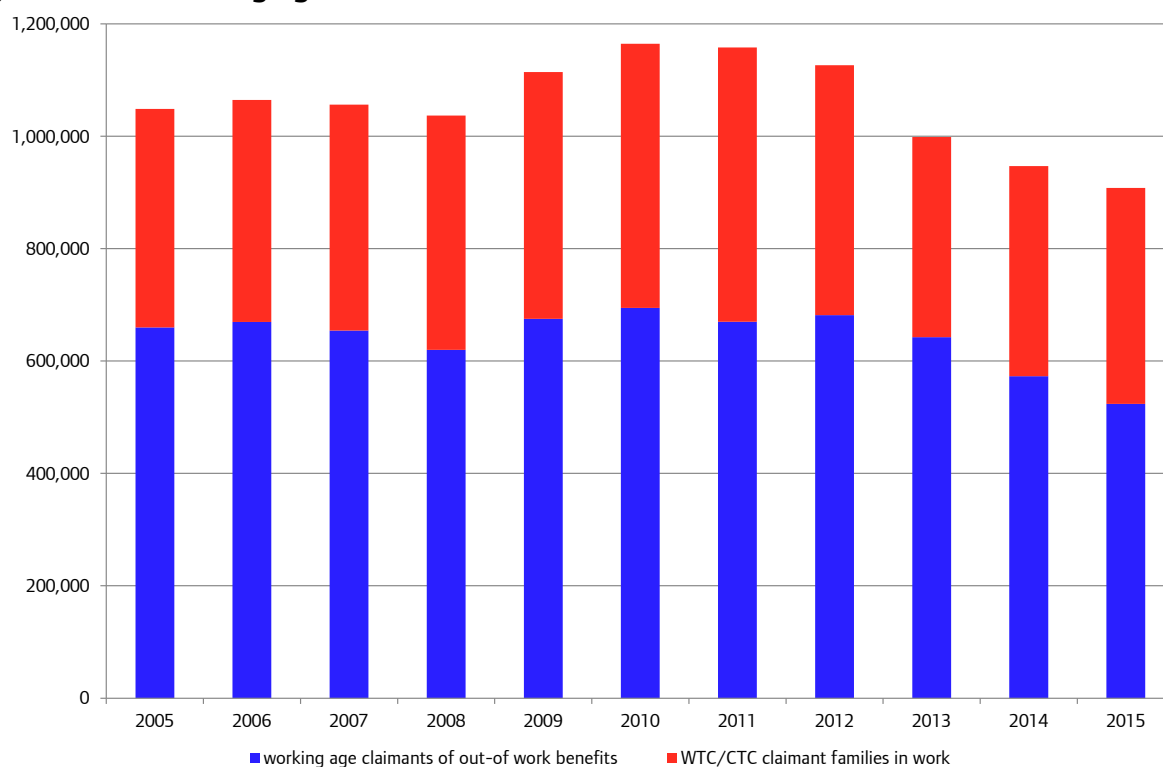


*Sources: DWP Longitudinal Study (aggregate statistics published via NOMIS); HMRC Personal Tax Credit Statistics. Notes: WTC refers to Working Tax Credit; CTC refers to Child Tax Credit. Notes: These figures may include people of pensionable age where one partner is below pensionable age or in the case of Child Tax Credit, the adult(s) claiming may be of pensionable age. Claimant numbers for Universal Credit are not included in the chart.*

Figure 10.23 shows that, on the current DWP measure, the number of children in London in out-of-work households receiving benefits has fallen in each year since 2010. This is a result of a fall in the number of workless households (see Chapter 9 for further details on workless households). This continues the trend seen in the previous indicator on children in low income households since 2009, with the difference between the two data series mainly due to the former measure's inclusion of children in households receiving child tax credit, where the household income falls below a threshold calculated to represent a 60 per cent median figure nationally.[54] However, some children in families not receiving child tax credit may have incomes below this threshold and be excluded while some children in households receiving out of work benefits may have incomes above this threshold.[55]

**Figure 10.23: Children in families receiving benefits in London**



■ Children in Out of Work Benefit Households    ■ Children in Low Income Households
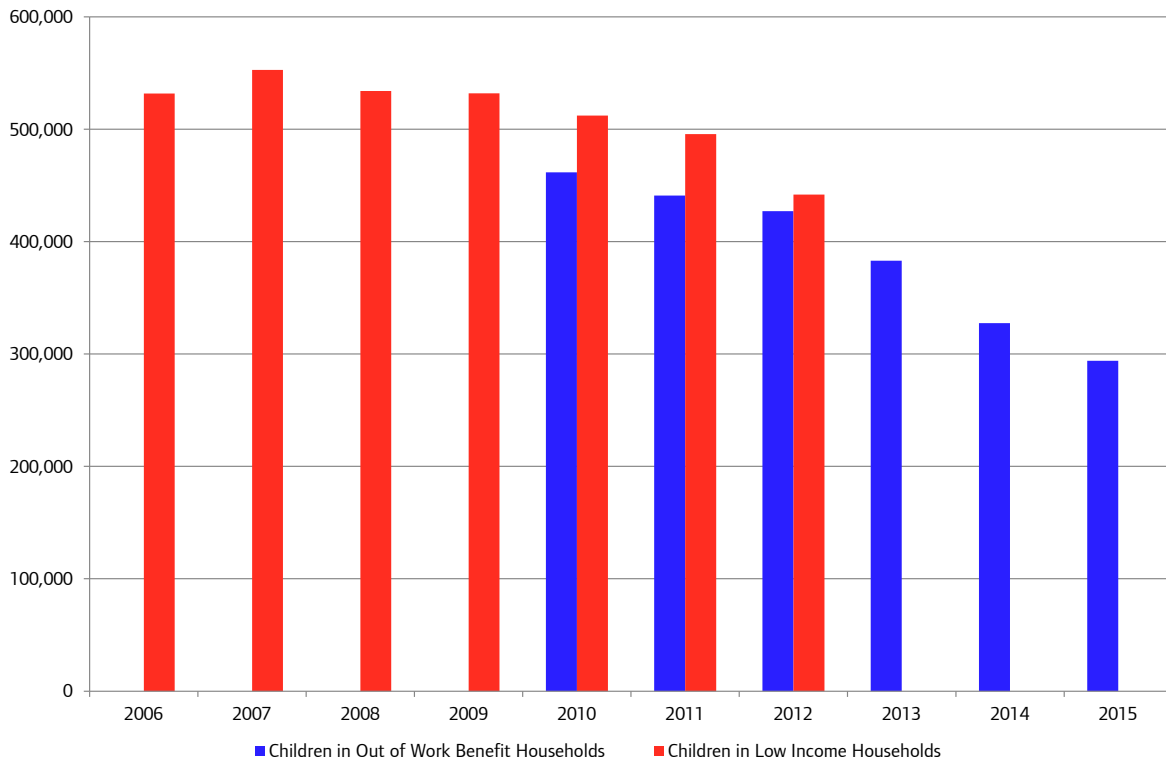
*Sources: DWP Longitudinal Study and HMRC Child Benefit Statistics, published as data series: Children in Out of Work Benefit Household; DWP Longitudinal Study and Family Resources Survey, published as data series: Child Poverty Statistics (formerly known as National Indicator 116)*

Map 10.5 shows the distribution of children (aged under 16) living in families in receipt of out of work benefits as at May 2014. This shows that many of these children are in North East London, with particular concentrations in areas within Enfield, Tower Hamlets and Newham.

**Map 10.5: Children in out of work benefit households**



**Legend**

- ☐ Greater London Authority
- ☐ Local Authority boundary
  lowest 30% of areas
- 60 - 70%
- 50 - 60%
- 40 - 50%
- 20 - 30%
- 10 - 20%
- highest 10% of areas
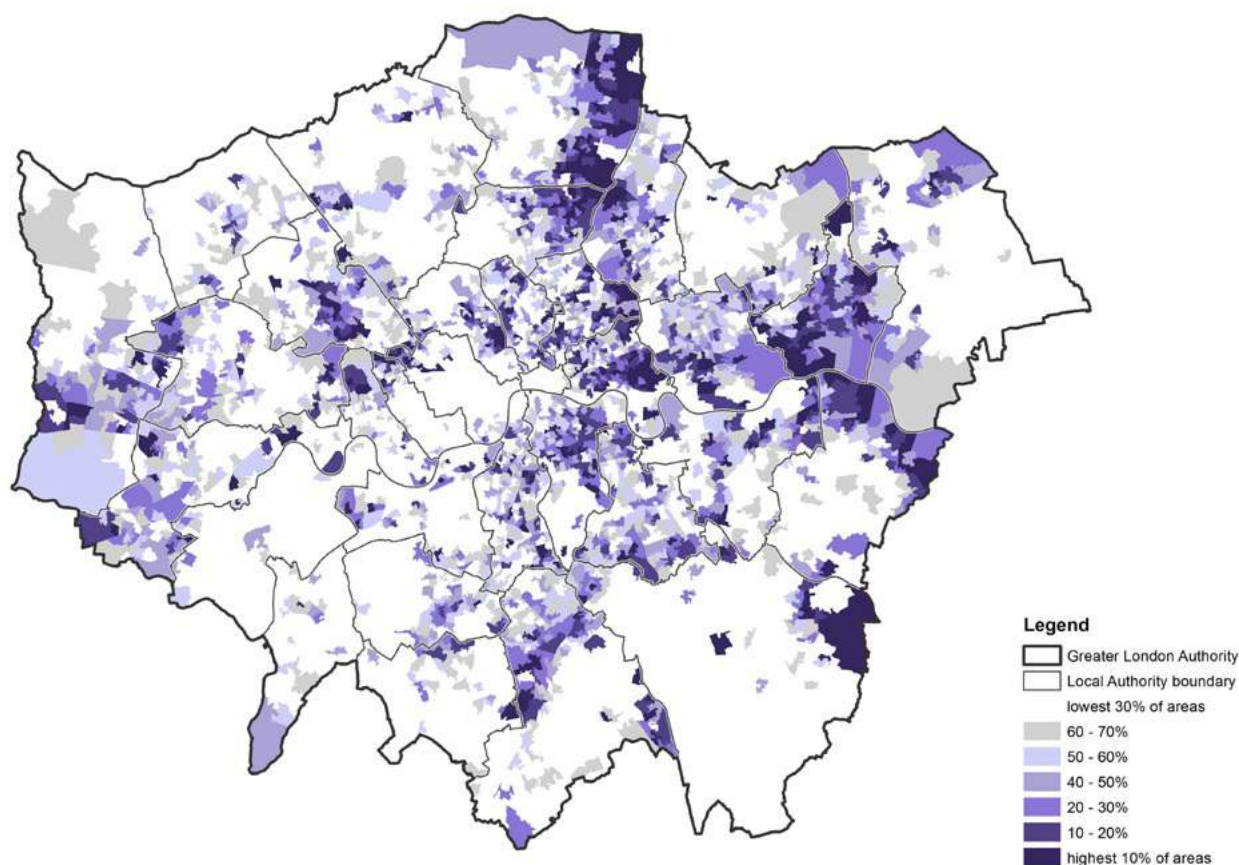
*Source: Children in out-of-work benefit households data series, May 2014, DWP*

In 2013-14, London was the English region with highest number of claims for child benefit, child tax credit and working tax credit for the number of registered children (550,000), entitled non-recipient children (50,000), expenditure (£3.98 billion) and amount unclaimed (£410 million).[56]

While many in low pay do not receive any of these benefits, they may still receive help with paying rent through housing benefit. Less than half of London renters claim housing benefit, among the lowest proportions for any UK region. The total value of housing benefit support tends to be higher in London, however, as it directly relates to the costs of housing. In February 2016 there were 807,024 housing benefit claimants in London; this has risen from 712,000 in 2008.  Of the total, 550,000 were in the social rented sector and 250,000 in the private rented sector, the highest number of claimants were in Hackney and the lowest in Kingston upon Thames.[57]

A benefit cap was introduced in 2013 which aimed to limit the amount that could be claimed in benefits by households who were not in work to the earnings level of the average household in the UK. This has impacted more on households in London where housing costs, and therefore the amount payable in housing benefit, are higher. Nearly half (45 per cent) of all households in Great Britain receiving reduced amounts because of the cap on the total payable were in London. However, not every household subject to the cap continues to be affected by it, with London households no longer subject to the benefit cap more likely to have moved into work than those in other British regions.[58]

Map 10.6 illustrates the variation across the regions of England in levels of renting (the blue shading), and in the proportion of renters claiming housing benefit (the size of the circle), as well as the percentage of those claimants whose payments are capped (the red shading in the circle) and the overall number of households whose payments were capped as of June 2015. It shows that London actually has among the lowest proportion of renters claiming housing benefit, but since a much higher proportion of all households rent, the overall impact of the benefit cap is more widespread in London than in any other region.[59]

**Map 10.6: Households renting in England, claiming benefit and with capped benefit payments by region, February 2015**
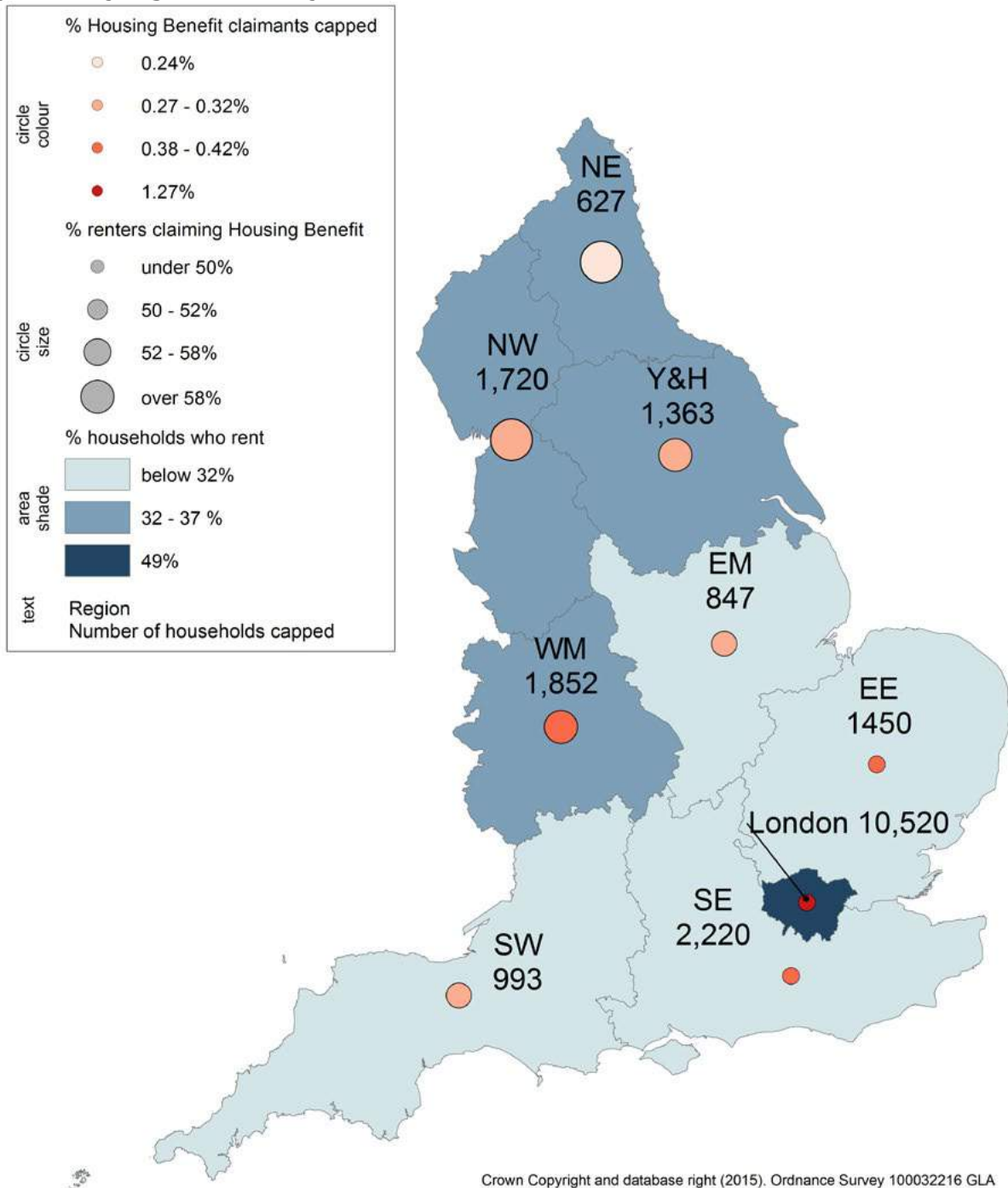


*Sources: GLA calculations using 2011 Census and DCLG 2012 based Household projections; Housing Benefit Statistics, DWP; Benefit Cap Statistics for February 2015, DWP.*

## 10.4.3 Low pay: minimum wage and living wage

In its exploration of the lower earnings for females, and part-time workers, Chapter 9 also highlighted the low levels of pay for full-time workers in the 10th percentile, with earnings of less than £9.00 per hour. GLA Economics has previously investigated low pay, defined as being 'hourly pay excluding overtime below the 20th percentile point in the pay distribution for all London employees'.[60] This research also found that 'part time employees are much more likely to be low-paid than full-time employees' and highlighted that this is true for half of all part-time workers in London with around half earning less than the London living wage.

The research also looked at pay in four sectors of London's economy that are thought of as generally having 'low pay': the cleaning sector; the retail sector; the social care sector; and the hospitality and catering sector – sectors that also have a relatively high proportion of female workers.[61] This found that since 1997 the proportion of employees in low pay working in social care has been 40-50 per cent. For the retail sector, the proportion has been even higher at 50-60 per cent. For the hospitality and catering sector the proportion in low pay has been higher still at 60-70 per cent and for the cleaning sector, 75-85 per cent of employees have been in low pay. Moreover in three of the four 'low pay' sectors, the proportion of 'low paid' employees was at a peak in 2012 (or equal to a previous peak in the case of hospitality and catering). This suggests that the difference between these sectors and the non-'low pay' sectors may be increasing.[62]

Voluntary and statutory measures have been attempted to support those on low wages in London. These measures include the statutory National Minimum Wage, the statutory National Living Wage and the voluntary London Living Wage. It is however important to differentiate between these schemes.

The new National Living Wage was set at £7.20 from April 2016 for workers aged 25 and over. This represents an increase from the previous National Minimum Wage of £6.70 (which still stands for those aged between 21 and 24). This new hourly minimum wage for those over 24 is expected to increase to 60 per cent of median UK earnings by 2020 (around £9.00). In comparison, for 2015 the London Living Wage was set at £9.40 per hour. It should also be noted that the National Living Wage has some other significant differences from the London Living Wage (see Table 10.7)[63], and its counterpart the out-of-London Living Wage.

**Table 10.7: Comparing the London Living Wage to the National living wage**

| London Living Wage | National living wage |
| --- | --- |
| Participation by employers is voluntary | Participation by employers is compulsory |
| Payable to employees 18 and over | Payable to employees 25 and over |
| Calculation based on household living standards | Calculation based on individual earnings |

For those that are employees, employers may voluntarily opt in to pay the London Living Wage. This is set at a rate which takes account of household composition and the changing costs of living. For 2015 this was set at £9.40 per hour for employees in London.

As of 2015, there were 700 accredited firms that had registered to become Living Wage employers, employing 30,000 workers. Comparing hourly wages in 2015 with the London Living Wage, 20.0 per cent (up from 18.3 per cent in 2012) of employees earned less than the 2015 London Living Wage – 16.6 per cent of men and 23.7 per cent of women. This is higher than in 2012, when 18.3 per cent of employees in London earned less than the 2012 London Living Wage of £8.55.[64]

## 10.4.4 Deprivation

A lack of income, employment and earnings is often associated with a wider range of other socio-economic issues, such as poor health (see section 10.6), poor quality housing (10.3) and schooling (10.5), as well as vulnerability to crime (10.7) and local air pollution (see Chapter 7).

The UK Government measures relative deprivation via its qualitative Index of Multiple Deprivation (IMD), a relative measure of deprivation for small areas across England. Map 10.7 shows how the 2015 IMD ranks the areas within London, with the darker shades representing the most deprived areas. This shows that London has a large number of areas across the capital among the most deprived in the country. London has improved on this measure to become less deprived relative to the rest of the country between 2010 and 2015, despite persistently high levels of poverty. The areas of deprivation have also become more dispersed over time. It is important to note though that not every person in a highly deprived area will themselves be deprived. Likewise, there will be some deprived people living in the least deprived areas.

**Map 10.7: Index of Multiple Deprivation 2015**



Source: Department for Communities and Local Goverment, Indices of Deprivation 2015
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Of LSOAs in England
In 5% most deprived (52)
In 5-10% most deprived (222)
In 10-20% most deprived (815)
In 20-50% most deprived (1,964)
In 50% least deprived (1,782)
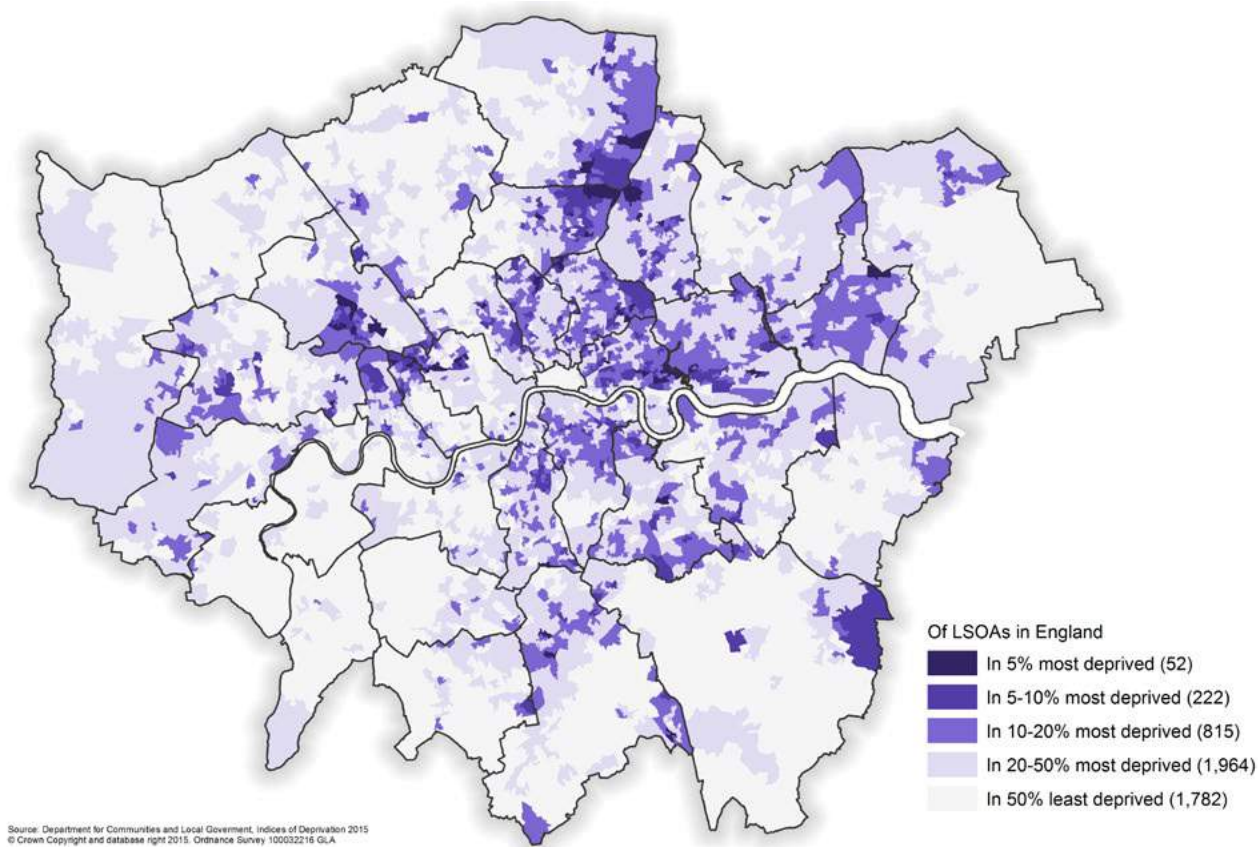
*Source: GLA Intelligence Unit mapping of Indices of Deprivation 2015, DCLG*

Deprivation is measured across seven different areas or domains: such as income; employment; health; education; living environment; crime; and barriers to services, using a wide range of indicators. The methods used show how each area compares with other areas across England using a combination of all these indicators. None of the very worst areas (the most deprived one per cent of nearly 33,000 areas in England) are within London, and only three are in the next percentile – one in each of Hackney, Islington, and Westminster. Falling within the most deprived five per cent of areas are also parts of Haringey, Tower Hamlets, Croydon, Brent, Newham, Kensington & Chelsea, Barking & Dagenham, Enfield, Lewisham, Waltham Forest, Lambeth, and Ealing. The City of London and Richmond are the only local authority areas within London with no areas in the most deprived 20 per cent of England.[65]

Summary measures for local authorities look at different aspects, such as how the borough performs on average (average rank and score); the extent to which people are most affected by deprivation (extent); and how bad the deprivation is in the worst parts (local concentration and proportion of LSOAs in most deprived 10 per cent nationally). Figure 10.24 shows how the London boroughs fare out of the 326 local authority areas in England in each of the five measures. As each of these measures is important, there is no borough that stands out as being "the most deprived". Barking & Dagenham, Hackney, and Tower Hamlets are each ranked in the 20 most deprived local authorities in England on three of the five measures. Islington, Newham and Waltham Forest also rank in the top 20 most deprived on one of the five measures.

**Figure 10.24: Summary measures of the Index of Multiple Deprivation 2015 across London Boroughs**
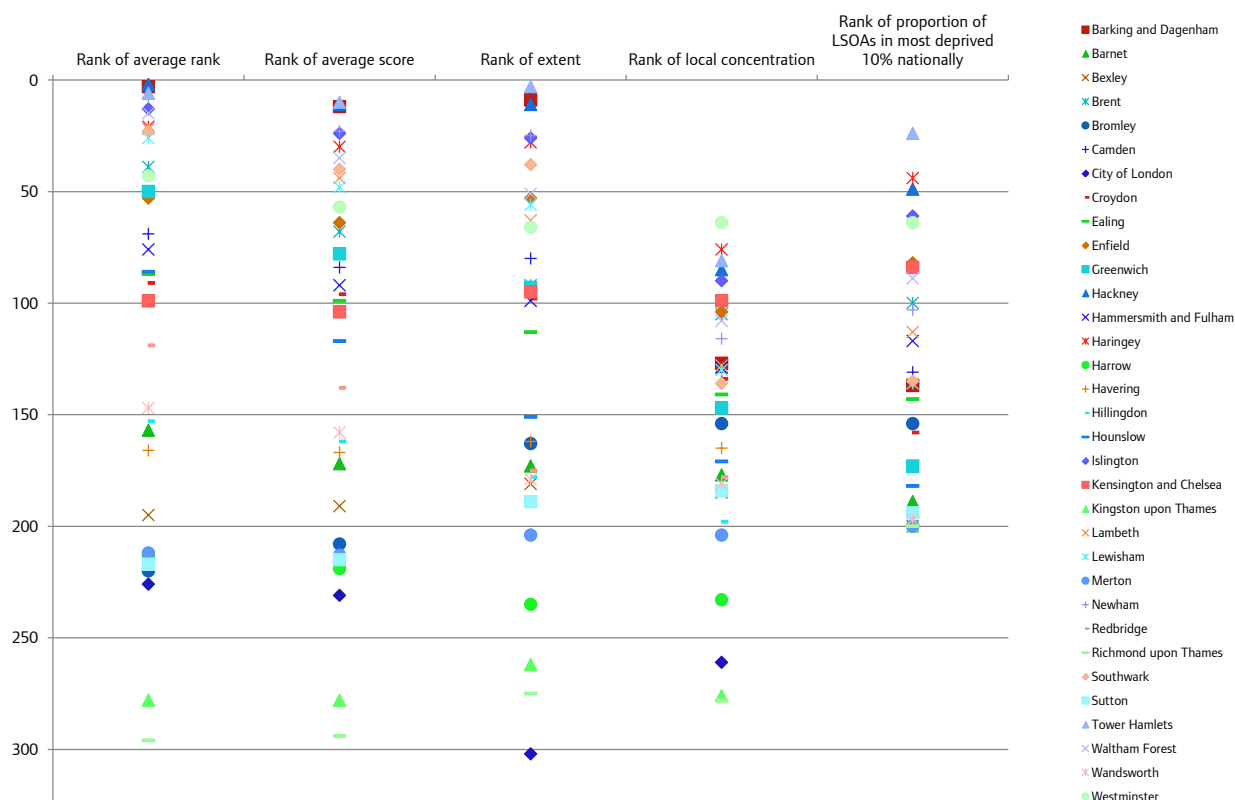


*Source: Indices of Deprivation 2015, DCLG. Note: A rank of 200 on the proportion of LSOAs in the most deprived 10 per cent nationally means there are no LSOAs in the highest ten per cent.*

Comparison over time is difficult as changes to indicators and the areas used mean that strict comparability is not possible, but broadly speaking Newham appears far less deprived than it did under the previous IMD in 2010 (see Map 10.8). This is at least partly due to an improved population estimate, where a previous under-estimate in the number of residents probably overstated the degree of deprivation. Conversely, an over-count of Westminster's population previously tended to understate its deprivation levels.

Map 10.8 shows the 2010 IMD for London, and it is clear that the general pattern of deprivation is similar, with a broad crescent from Enfield down through Haringey, Islington, and Hackney, to Tower Hamlets, Newham, and Barking & Dagenham still apparent, though slightly less marked than previously. This is almost mirrored south of the river from Greenwich to Lambeth and down into Croydon, although it is dispersed a little more sparsely. Other notable pockets of deprivation remain evident, such as around Stonebridge/Harlesden through to Paddington and in the River Brent area.

**Map 10.8: Index of Multiple Deprivation 2010**



Of LSOAs in England
- In 5% most deprived (112)
- In 5-10% most deprived (290)
- In 10-20% most deprived (848)
- In 20-50% most deprived (1,928)
- In 50% least deprived (1,587)

Source: Department for Communities and Local Goverment, Indices of Deprivation 2010
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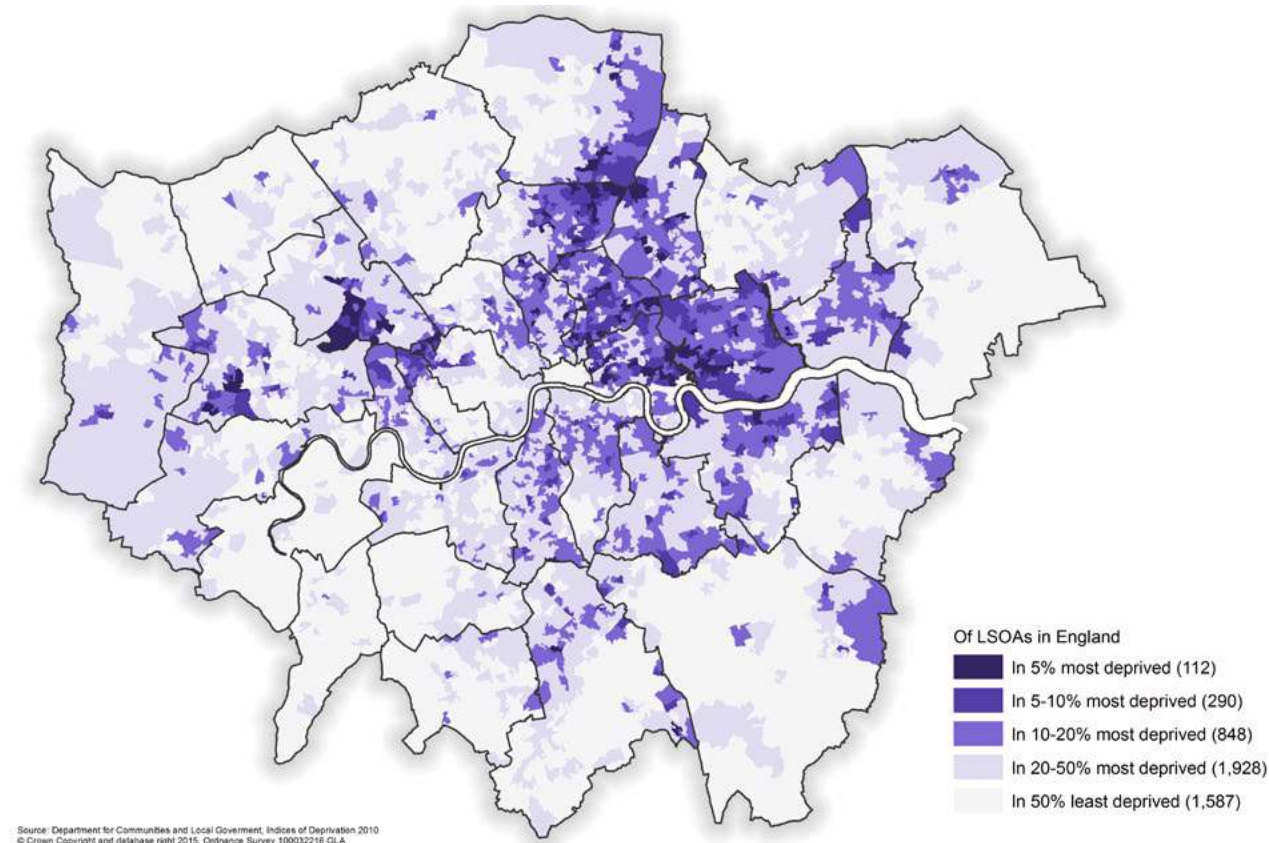
*Source: GLA Intelligence Unit mapping of Indices of Deprivation 2010, DCLG*

The supplementary indices, measuring the extent of income deprivation among children and among older people, show that areas in inner London such as Tower Hamlets have high levels of older people living in income deprivation, while more areas within Enfield have high levels of income deprivation affecting children (see Maps 10.9 & 10.10). Overall, around 14 per cent of London LSOAs are among the ten per cent with the highest levels of income deprivation affecting children, while more than 20 per cent of London LSOAs are among the ten per cent with the highest levels of income deprivation affecting older people.

**Map 10.9: Income deprivation affecting children, 2015**



Source: Department for Communities and Local Goverment, Indices of Deprivation 2015
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Of LSOAs in England

- In 5% most deprived (234)
- In 5-10% most deprived (435)
- In 10-20% most deprived (820)
- In 20-50% most deprived (1,829)
- In 50% least deprived (1,517)
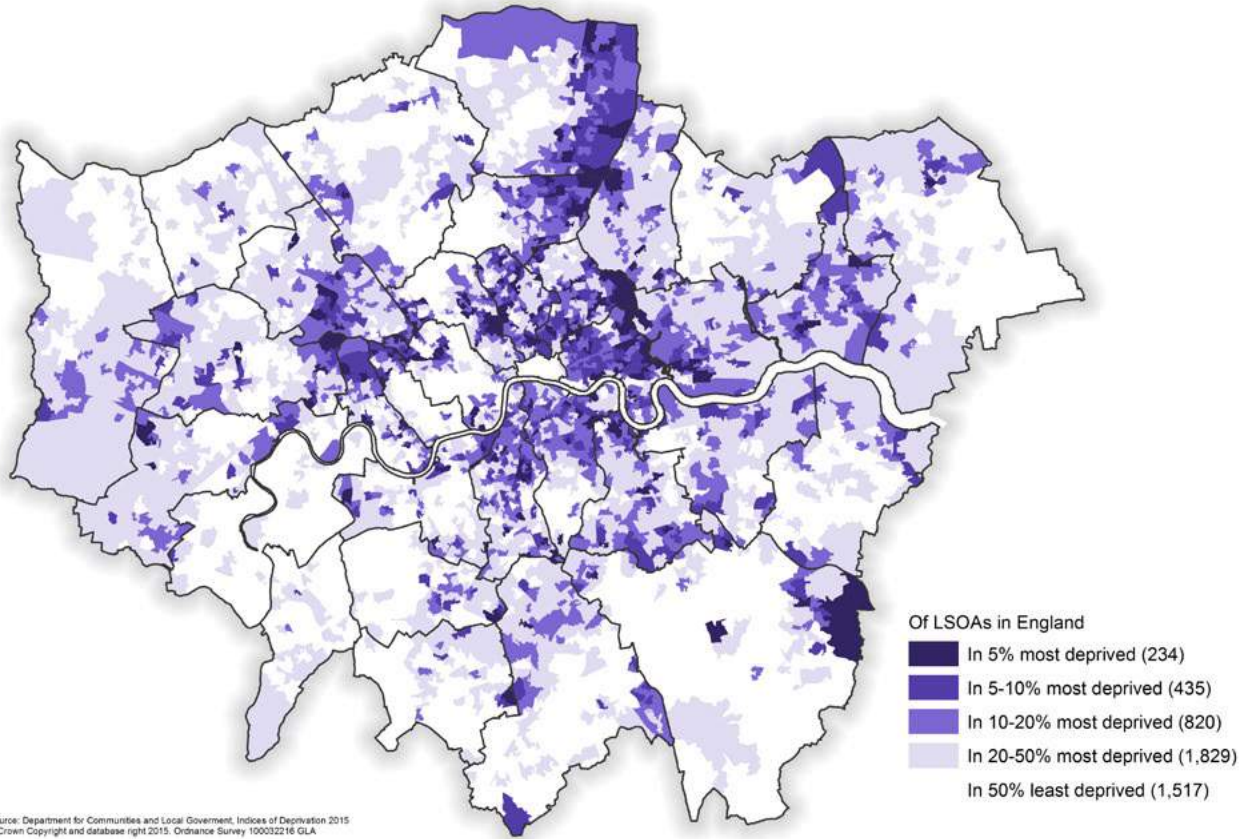
*Source: GLA Intelligence Unit mapping of Indices of Deprivation 2015, DCLG*

**Map 10.10: Income deprivation affecting older people, 2015**
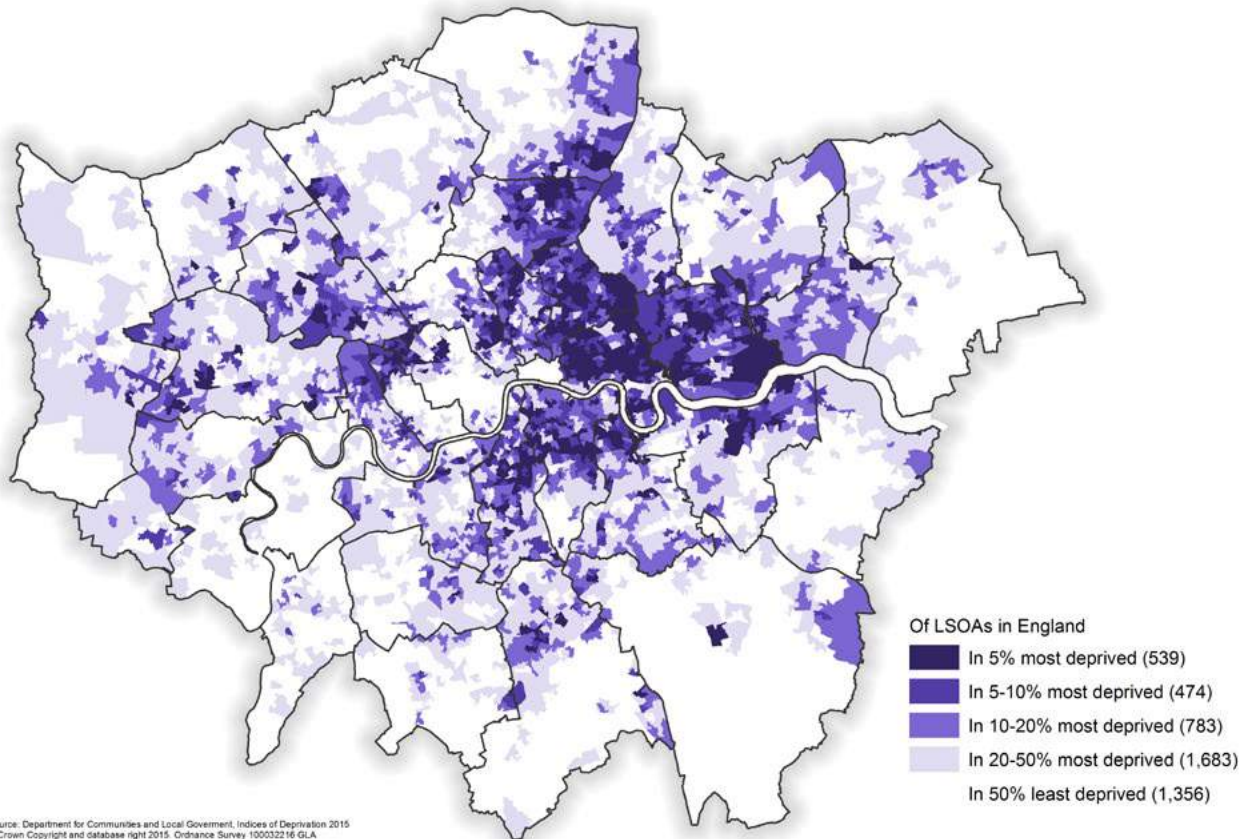


Source: Department for Communities and Local Goverment, Indices of Deprivation 2015
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Of LSOAs in England

- In 5% most deprived (539)
- In 5-10% most deprived (474)
- In 10-20% most deprived (783)
- In 20-50% most deprived (1,683)
- In 50% least deprived (1,356)

*Source: GLA Intelligence Unit mapping of Indices of Deprivation 2015, DCLG*

## 10.5 Wealth, fairness and social mobility

### 10.5.1 Wealth

Wealth is much more unequally distributed than income (see section 10.3.1). The wealthiest 10 per cent of London households own more than 50 per cent of total household wealth (£775 billion), and the bottom 50 per cent own less than 10 per cent of London's total wealth (£80 billion).[66] This is slightly more skewed than in Great Britain as a whole where the richest 10 per cent own 45 per cent of total wealth.

For the top 10 per cent of London households this is comprised of £283 billion in net property wealth (46 per cent of all property wealth in London), £261 billion of net financial wealth (79 per cent of all London's financial wealth), £198 billion of private pension wealth (51 per cent of all London's private pension wealth), and £34 billion of physical wealth (28 per cent of all London's physical wealth). The largest component of wealth among poorer households tends to be physical wealth, made up of private household possessions, such as jewellery or motor vehicles (see Figure 10.25).

In London property wealth is an important component of London's unequal wealth distribution, accounting for almost 40 per cent of total wealth among the wealthiest 20 per cent of households. Property ownership rates are lower for Londoners than elsewhere, but the net property wealth is higher. Housing wealth is also an important source of inheritance. During 2010-12, it is estimated that 168,000 individuals in London received some form of inheritance in the preceding two years. Of these, 40,800 included a "house, flat, land, or share in property", accounting for 24 per cent of all inheritances within London. Such transfers of wealth may serve to perpetuate inequality across generations.

**Figure 10.25: Distribution of wealth in London by deciles and type of wealth, 2010–12**
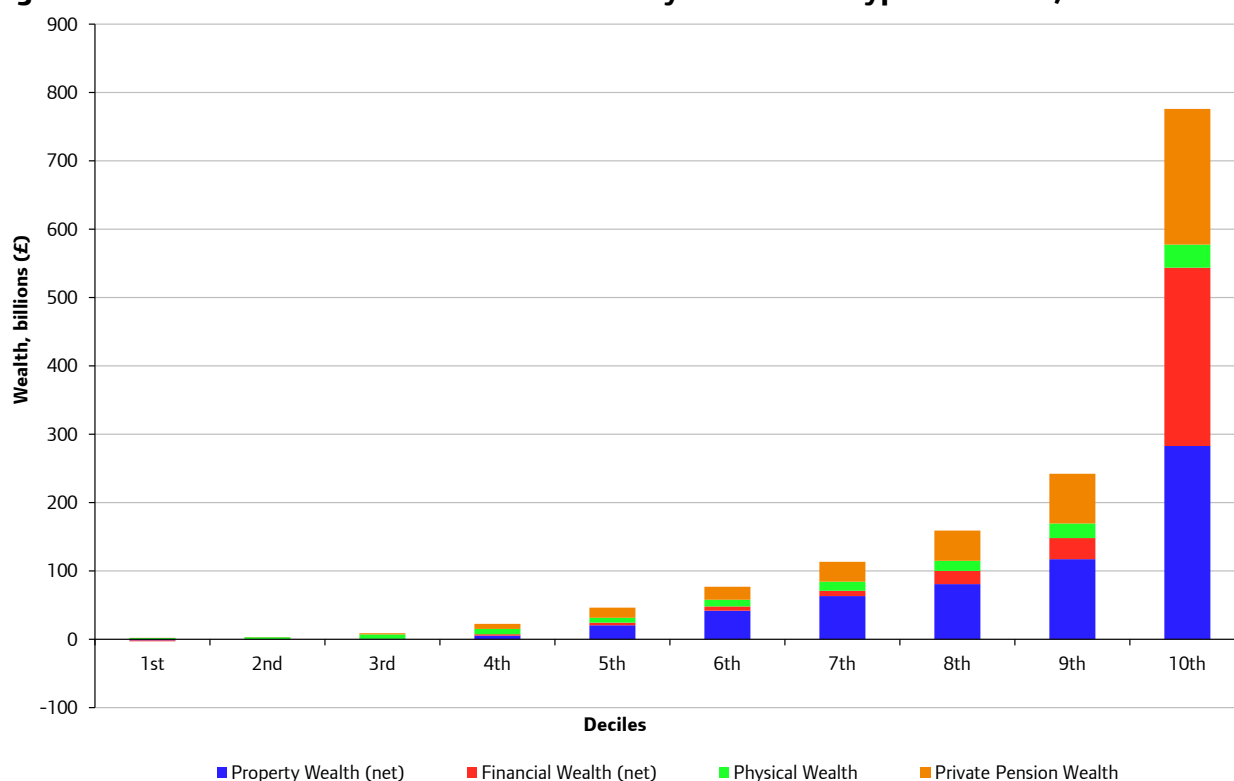


*Source: ONS Wealth and assets survey, 2010–2012*

As with the distribution of income, there are also extreme differences in wealth among the top 10 per cent. At the extreme, London is home to a relatively high number of very high net worth individuals. According to the 2016 Sunday Times Rich List, 77 of the UK's 120 billionaires live in London. This marks three fewer than in 2015, but more than any other city in the world. Taking account of property wealth and other assets, UK-based billionaires held an estimated combined wealth of £344 billion.[67]

Homeowners with a high percentage of their property mortgaged are more likely to view it as a burden, and Londoners have much higher mortgage debt than elsewhere – more than half of those with a mortgage in London owed more than £130,000. The ONS Wealth and Assets Survey find that more than a quarter of Londoners with financial debt (including household bills, credit cards or loans etc.) found it a heavy burden.[68]

Still, there is some evidence that some of the property debt may be in the form of re-equity release arrangements, rather than a mortgage to purchase a property. UK equity release schemes allow individuals aged 55 and over to release money from the property they live in without having to make any monthly repayments. Data from the Equity Release Council presented in Figure 10.26 show that some older people are releasing substantial sums from their properties. Although the proportion of the property value varies little across the country (from 18 to 21 per cent), there is a substantially larger sum released in London than elsewhere, averaging more than £133,000.

The reasons for the equity release are not available, but could include provision for long-term care, cash to cover essential spending costs or maintaining a lifestyle, or helping a younger generation fund a deposit for their own home.

**Figure 10.26: Regional trends in equity release, 2014**
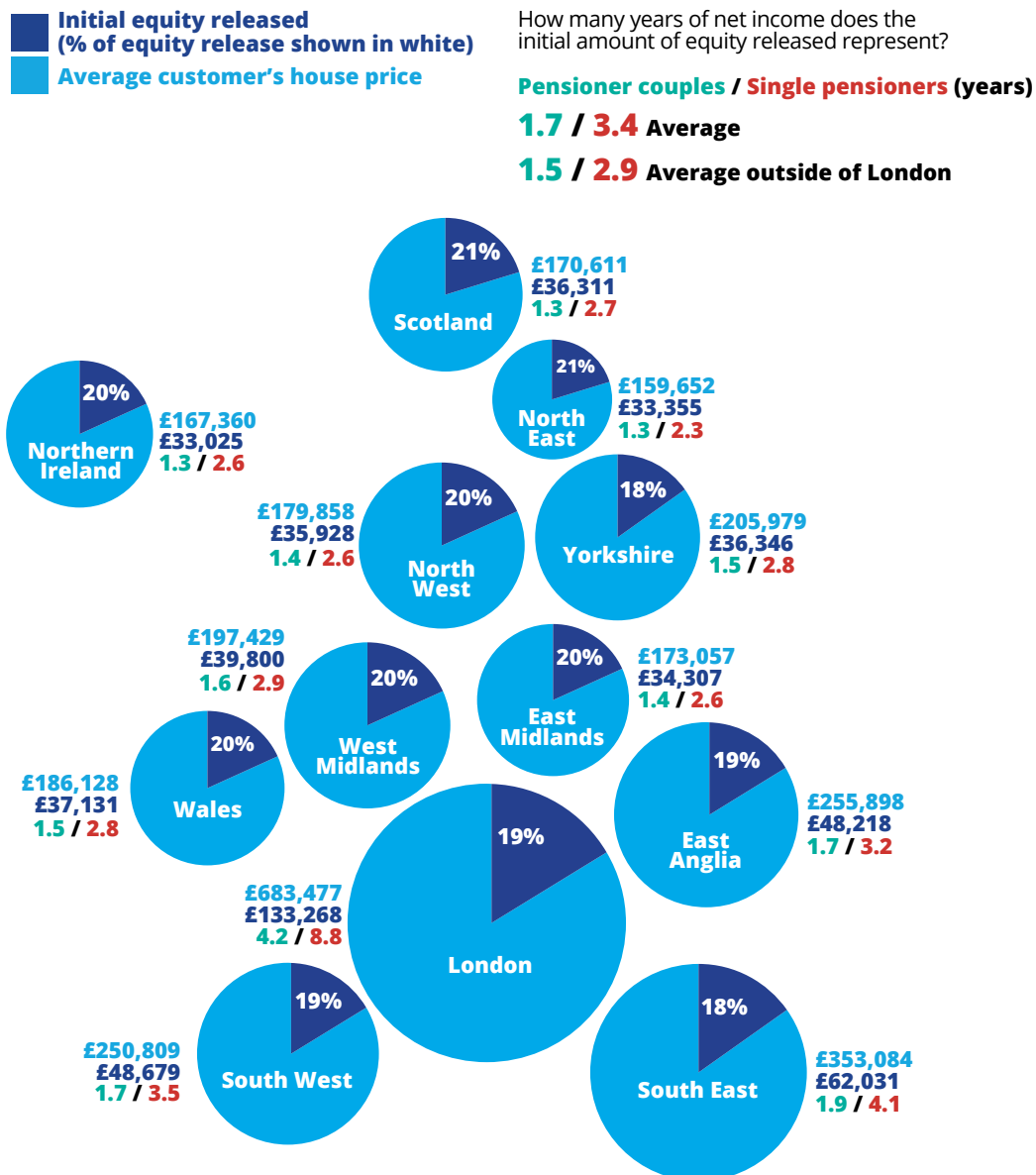


Source: Equity Release Market Report, autumn 2014

## 10.5.2 Fairness and equity in London

In many ways London's economy has recovered well from the 2008/09 recession, with levels of employment not seen since records began in 1992 (see Chapter 9). However, as noted in Chapters 1 and 6, productivity has lagged behind. Although the city offers opportunities that draw people from across the world (see Chapter 5), issues around the cost of housing and concentrated levels of deprivation (amongst other factors) have led some to question whether these opportunities are available to all.

Recent research by the London Fairness Commission has begun to examine this issue in some detail.[69] Based on a survey of 2,000 adult Londoners, it found that a slim majority agreed with the statement that "London is a fair city", with 51 per cent of women and 56 per cent of men agreeing. A substantial minority (31 per cent) however feel instead that "London is not a fair city", while the remaining 16 per cent of Londoners do not know either way. However, there were variations based on age with 51 per cent of 18-54 year olds agreeing while 60 per cent of those aged over 55 agreed. Further, a minority of those who rented their housing agreed standing at 48 per cent, compared to 61 per cent of owner occupiers. There were also variations based on household income levels with 52 per cent of households with incomes less than £50,000 agreeing, this rose to 60 per cent for households with incomes between £50,000 and £70,000, before dropping to 55 per cent for households with incomes over £70,000 per year.

The Commission also found that two thirds of Londoners believe that their wages have not kept pace with the increased costs of living, with this being felt particularly strongly for households earning less than £50,000 per year. Furthermore, just over half of Londoners do not believe that their wage is a fair reflection of their work. Fifty-seven per cent of Londoners think that it is unfair for top earners in London to be paid very high salaries as others in London struggle to get by. There is also a strong call for a higher minimum wage in London with 78 per cent of Londoners supporting this.

## 10.5.3 Social mobility and life chances

Inequality is not only a matter of incomes (see section 10.3.1) or wealth (see section 10.5.1); there is also great divergence in outcomes across a broad range of dimensions: from health, to education and job opportunities. A key concern for individuals and families is the educational outcomes of their children throughout their school career, as high educational attainment is seen as one way in which individuals can improve their lot; and become more socially mobile.

However, combinations of low incomes, poor housing, ill health, a lack of work and low education attainment tend to feed off each other, and may limit the ability of part of the population to fulfil their productive potential and improve their quality of life. The accumulation of disadvantages, unchecked, also risks perpetuating lost potential across generations; from parents to their children.

Preliminary research by the OECD[70] finds that throughout developed countries 'the better-off can expect their children to attain better educational performance and acquire higher levels of skills, including social and emotional skills, that put them in a better position to interact with a demanding work environment'. Education, in its broadest sense, is therefore seen as an important component influencing social mobility.

Chapter 9 highlighted that there are a number of factors that can impact educational attainment at age 16, such as whether pupils have special education needs, English as an additional language, as well as other factors such as their gender and ethnicity. This finds that London's pupils from a range of backgrounds tend to achieve better GCSE results than other areas.

Issues with child development that may affect later life chances may also appear earlier.[71] For instance, Ofsted found that only a little more than a third of children from low income backgrounds reached what is considered 'a good level of development'[72] before entering primary school, and the expected level in the phonics screening test by year 1.

Due to a lack of data combining information on household incomes and child development, the association between low income backgrounds and these two measures is often captured by using information on children's free school meal status as a proxy measure.[73] Figure 10.27 shows that, although London children receiving free school meals perform better than the English average at the start of their formal school career, there are still many who do not.

**Figure 10.27: Early years' development of children with free school meal status in London and England, 2014/15**
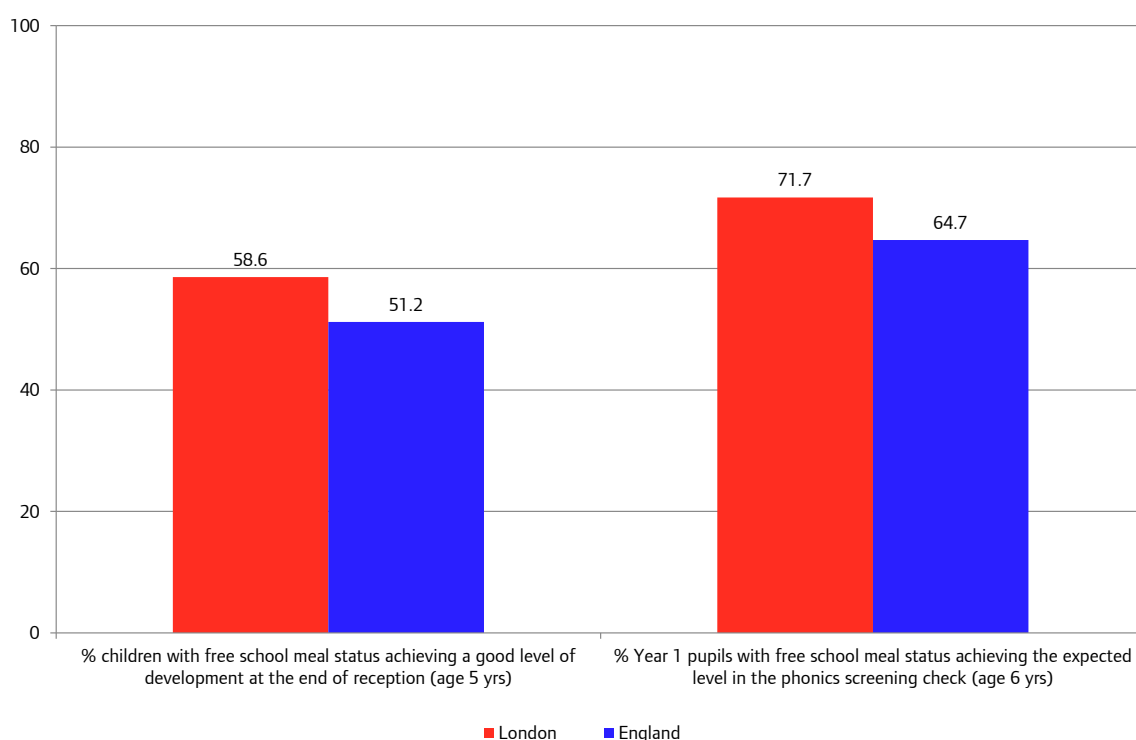


*Source: Public Health England, Public Health Outcomes Framework*

There was also a variety of outcomes across London with Ofsted further noting that when looking at 'the proportion of children from low income families achieving a good level of development in each local authority… children are being failed in very different areas. Gateshead, Leicester and Richmond upon Thames serve very different communities and yet all have similar poor performance'.[74]

Although often of high importance to families, some children or parents can still misperceive the importance of formal educational attainment and less formal skills for life chances. The failure of young people to realise their potential may make them more prone to develop into NEETs (those aged 16 to 24, not in education, employment or training).

There is evidence that unemployment early in life can have a 'scarring' effect on individual life chances, with youth unemployment associated with lower life satisfaction, ill-health, and wages more than 20 years later.[75] Other studies have also identified associations with alcohol consumption, crime, civil unrest and antisocial behaviour;[76] issues which may in turn further impact on individuals' health and wellbeing (investigated in section 10.6), and the quality of life in London, while unemployment is also associated with costs to the public finances (in terms of spending on public services and the tax revenues foregone).

There is also a further issue around equity. There is evidence of a vicious circle, particularly amongst London's white, low income families. LSE research for the Trust for London has found that across the UK, 'educational inequalities between those from different backgrounds declined for those born after 1980. However, when focussing on the highest levels of attainment, gaps have persisted'. It also notes that, 'there is clear evidence that initially high-attaining poorer children fall behind richer but lower-attaining children between 11 and 16. Much of this is attributable to differences between the secondary schools attended by richer and poorer children, and some of it to differences in educational values, aspirations and expectations of pupils'.[77]

Further, 'children with lower attainment at age five but coming from more privileged backgrounds suggests that there is a 'glass floor', protecting them from the downward social mobility that might have been predicted. Protective factors include higher parental education, higher maths attainment by age 10, enrolment in private or grammar secondary schools, and reaching university'.

In its analysis of the educational backgrounds of business, political and public sector leaders in the UK, the UK Government's social mobility commission identified substantial over-representation of those educated privately at independent schools. This found that 71 per cent of senior judges, 62 per cent of senior armed forces officers, 53 per cent of senior diplomats, and 44 per cent of the Sunday Times Rich List, attended independent schools – compared to 7 per cent of the UK public as a whole.[78] As of January 2016, London had more independent schools (551) than any other English region, and a higher proportion of London's children are privately educated (10.5 per cent) than the England average (6.8 per cent).[79] To the extent that the prospects of making it to the very top are limited for those who begin their career without those advantages, this may serve to maintain the social gap.

Following compulsory schooling, the ONS reports that the UK has a low level of earnings mobility across the generations.[80] This means that there is a strong relationship between the economic position of parents and that of their children. The Government's State of Britain 2015 report[81] states that 'young people from poor families are far less likely to go to university, attend a top institution or access certain elite professions'.

In London, while data is limited, evidence on the situation in terms of access to university suggests that this may be slightly less stark. Analysis of the progress of children in receipt of free schools meals (FSM) into higher education shows that 40 per cent of those receiving FSM in London at age 15 in 2009/10 went on to Higher Education by age 19 (in 2013/14). This compares to 49 per cent of non-recipients of free school meals (non-FSM) in London. While still sizeable, this 9 percentage point gap compares favourably to the 17 percentage point gap in progression for England as a whole, with average figures of just 22 per cent for FSM, and 39 per cent for non-FSM.[82]

In London's demanding labour market (see Chapter 9), being highly qualified is increasingly important for being in work – such that gaps in education attainment at school can reduce opportunities for work thereafter.

## 10.6 Health and wellbeing

Health and wellbeing also represent measures of the quality of life in London for its residents. Chapter 6 cites lower levels of personal wellbeing as having a possible negative impact on the ability to attract (and retain) people to work and study in the capital. Health outcomes in London may also be directly affected by economic decisions on how much to work or exercise, as well as what, and how much, to consume. As seen in Chapter 7, health status is also shaped by economic activity affecting the quality of the local environment – with exposure to air pollutants in 2010 estimated to reduce life expectancy by between 9 and 17 months, on average across all of London's population.[83]

Ill-health is also linked to high levels of demand and costs for public services. It can also represent costs for businesses in terms of lost hours or days of work, while also presenting a barrier to education and employment for those affected. As Chapter 9 noted, long-term sickness is one of the main reasons for economic inactivity in London (behind study and caring for the home/family).

### 10.6.1 Life expectancy and premature mortality

Most developed countries have enjoyed large gains in life expectancy over the past decades, thanks to improvements in living conditions, public health interventions and progress in medical care. For the UK as a whole life expectancy at birth stands at 81 years. This is one year above the OECD average, ranking 18th out of 38 countries. When asked "how is your health in general?" 74 per cent of adults in the UK reported to be in good health, ranking 14th out of 38 OECD countries, and above the OECD average of 69 per cent.[84]

London's health performance with respect to the rest of the country is however mixed. In analysis of London's people in Chapter 8, it was shown that London has a slightly higher life expectancy at birth than the England average for both females and males. In line with the rest of the country, women also tend to live an average of around four years longer. Table 10.8 shows however that while women could expect to live significantly longer in good health based on current rates (around half a year longer) than men across England as a whole, men and women born in London have a similar 'healthy life expectancy'.[85] As a result this means that males in London can expect to spend 80 per cent of their life in good health, compared with 76 per cent for females.

Evidence at a national level, has highlighted that differences in both life expectancy and healthy life expectancy show a clear social gradient, with the most deprived groups having shorter lives and living a greater proportion of them in ill health. As pension ages rise, health may have an increasing impact on more deprived groups' ability to be economically active as a result, further exacerbating existing inequalities.[86]

**Table 10.8: Life expectancy (LE) and healthy life expectancy (HLE) for males and females at birth by English region, 2012 to 2014**

|  | Life expectancy | | Healthy life expectancy | |
| --- | --- | --- | --- | --- |
|  | Males | Females | Males | Females |
| South East | 80.5 | 84.0 | 65.9 | 66.6 |
| South West | 80.2 | 83.9 | 65.1 | 65.6 |
| East | 80.4 | 83.8 | 65.0 | 66.0 |
| London | 80.3 | 84.2 | 64.0 | 64.1 |
| East Midlands | 79.4 | 83.0 | 62.7 | 63.5 |
| West Midlands | 78.9 | 82.9 | 62.4 | 62.5 |
| Yorkshire and the Humber | 78.7 | 82.4 | 61.4 | 61.8 |
| North West | 78.1 | 81.9 | 61.1 | 61.8 |
| North East | 78.0 | 81.7 | 59.7 | 59.8 |
| England | 79.5 | 83.2 | 63.4 | 64.0 |

*Source: ONS healthy life expectancy, 2012-14*[87]

Average HLE varies significantly across local authorities, as shown in Maps 10.11 and 10.12 for males and females respectively. For those born in Barking and Dagenham, Hackney, Southwark and Tower Hamlets, both females and males can expect to live significantly less time in good health than the London average. In contrast, residents of Barnet and Harrow in North West London, and those of Kensington and Chelsea, Kingston upon Thames and Richmond upon Thames in the South West can expect to live significantly longer in good health than the London average. Due to the small size of the reporting samples, there are however no significant differences in HLE for males and females within local authorities. It is not possible to analyse HLE by ethnicity because ethnicity is not requested on registration of death.

**Map 10.11: Average healthy life expectancy for males by local authority, 2012-2014**
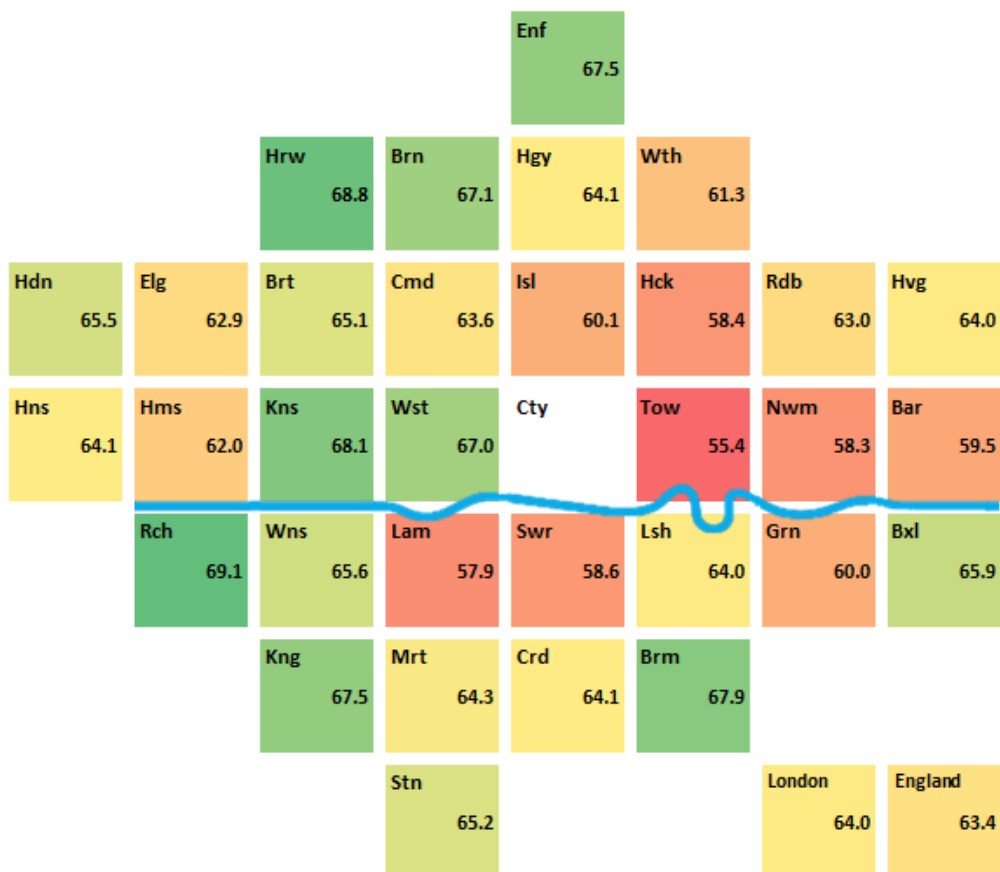


*Source: ONS healthy life expectancy 2012-14. Note: data for the City of London is not available.*

**Map 10.12: Average healthy life expectancy for females by local authority, 2012-2014**

| | | | Enf | | | | |
|---|---|---|---|---|---|---|---|
| | | | 65.0 | | | | |

| | Hrw | Brn | Hgy | Wth | | | |
|---|---|---|---|---|---|---|---|
| | 69.6 | 69.1 | 61.5 | 59.4 | | | |

| Hdn | Elg | Brt | Cmd | Isl | Hck | Rdb | Hvg |
|---|---|---|---|---|---|---|---|
| 63.2 | 62.6 | 66.0 | 65.9 | 61.3 | 58.1 | 63.0 | 66.4 |

| Hns | Hms | Kns | Wst | Cty | Tow | Nwm | Bar |
|---|---|---|---|---|---|---|---|
| 62.3 | 62.2 | 70.2 | 63.6 | | 56.5 | 61.0 | 54.6 |

| | Rch | Wns | Lam | Swr | Lsh | Grn | Bxl |
|---|---|---|---|---|---|---|---|
| | 72.2 | 63.9 | 62.5 | 59.7 | 62.4 | 63.5 | 65.1 |

| | Kng | Mrt | Crd | Brm | | | |
|---|---|---|---|---|---|---|---|
| | 69.3 | 66.4 | 63.9 | 66.2 | | | |

| | Stn | | | London | England |
|---|---|---|---|---|---|
| | 65.4 | | | 64.1 | 64.0 |

*Source: ONS healthy life expectancy 2012-14. Note: data for the City of London is not available.*

Based on analysis of 2009-2013 data, the ONS notes that healthy life expectancies in London can also vary depending on where people live even within boroughs. Highlighting the impact of the level of deprivation on health, the ONS states that 'men who live in the least deprived part of Kensington and Chelsea can expect almost a quarter of a century (24.6 years) more of good health than their male counterparts in the most deprived part of the borough'. For females at birth across Kensington and Chelsea, the equivalent difference during the same period was 21.2 years. In contrast, the ONS finds low levels of health inequality in Newham at 3.8 years for men, and 3.1 years for women. This is however largely because most of the areas within the borough have a similarly low HLE.[88]

Mortality, or the rate at which people are dying in a given year, provides an alternative measure of healthcare need reflecting the overall burden of disease and ill health on the population, both in terms of the incidence and prevalence of diseases and the ability to treat them. Figure 10.28 shows that, in recent years, London's mortality rates from causes considered preventable have been falling, and is on average performing slightly better than England as a whole.[89] It also shows that the rate of mortality from communicable diseases (transmissible from person to person) – some of which may also be considered preventable[90] – has also fallen in the past 15 years. It however remains significantly higher than the England average (65.8 per 100,000 compared to 62.8 per 100,000).

**Figure 10.28: Mortality rate from causes considered preventable and from communicable diseases, 2001–2014**
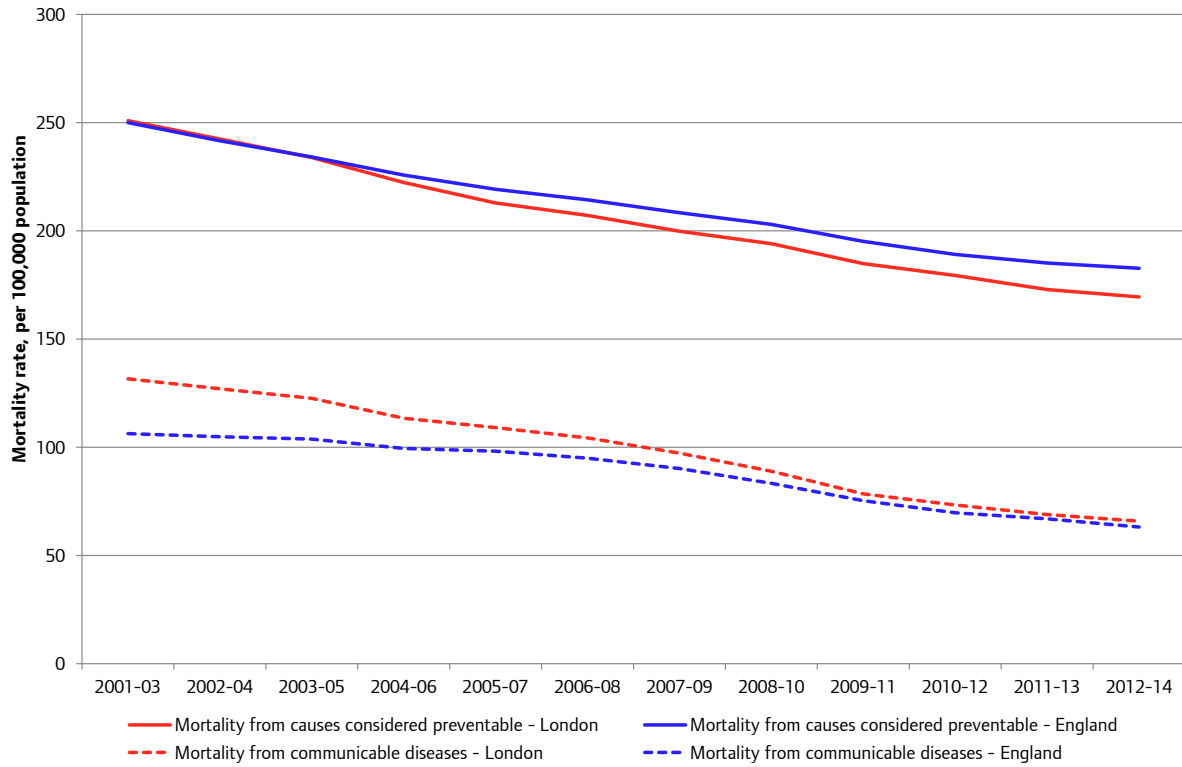


Source: Public Health England, three-year averages, standardised by age.

Figure 10.29 shows that this improvement in performance is also seen for two of the leading causes of potentially avoidable deaths: cardiovascular diseases and cancer. Looking back over a longer period from 1961 to 2011, a report by the British Heart Foundation highlights the role of changes in lifestyle, such as the fall in levels of smoking, in reducing mortality rates.[91] The relationship between lifestyle and health is considered further in section 10.6.3.

**Figure 10.29: Under 75 mortality rate from cardiovascular diseases and cancer considered preventable, London and England**
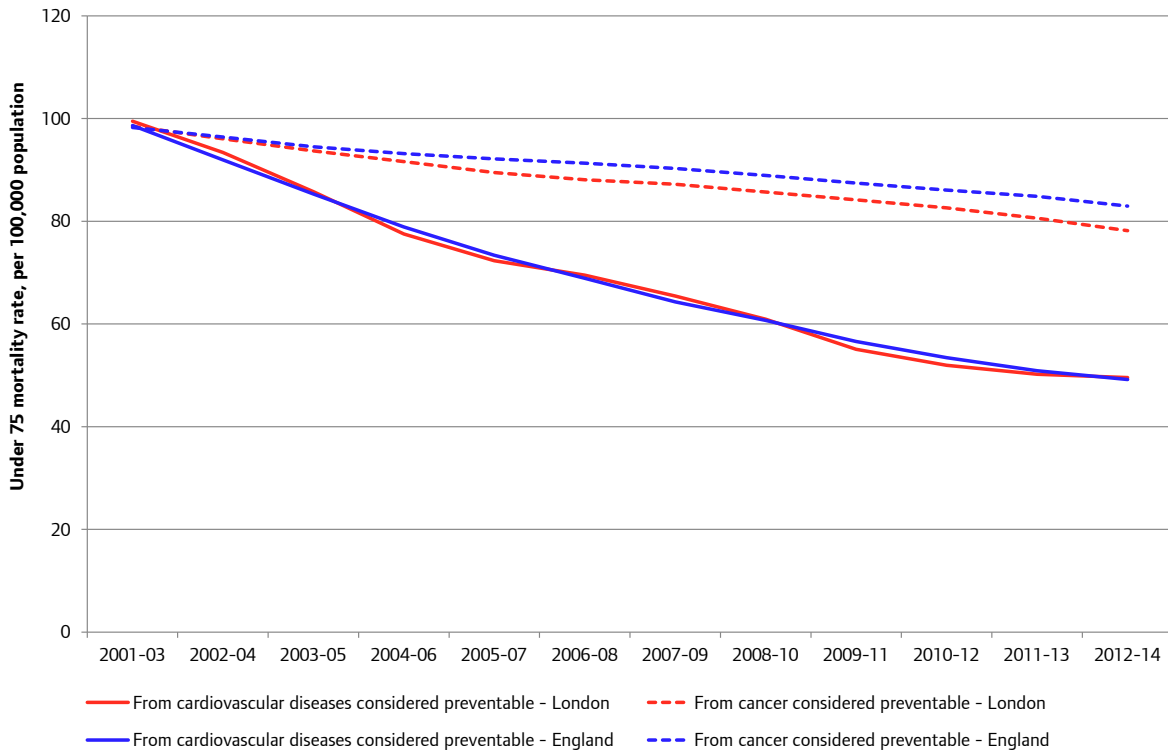


*Source: Public Health England, three-year averages, standardised by age.*

The infant mortality rate for London, measured as the rate of deaths in infants under one year old per thousand live births, was slightly lower than that for England on average (3.6 compared to 4.0) in the period 2012 to 2014. Figure 10.30 shows that there is however a degree of variation across London with rates of infant mortality significantly worse in the Borough of Hackney (highlighted in red).

**Figure 10.30: Infant mortality (under 1 year old), per 1,000 live births, 2012 - 2014**

| Area | Value | | Lower CI | Upper CI |
|---|---|---|---|---|
| England | 4.0 | | 3.9 | 4.1 |
| London region | 3.6 | | 3.4 | 3.8 |
| Hackney | 5.6 | | 4.4 | 7.0 |
| Hammersmith and Fulham | 4.7 | | 3.3 | 6.5 |
| Lewisham | 4.7 | | 3.7 | 5.9 |
| Barking and Dagenham | 4.4 | | 3.3 | 5.8 |
| Kingston upon Thames | 4.3 | | 2.9 | 6.2 |
| Tower Hamlets | 4.3 | | 3.3 | 5.5 |
| Harrow | 4.2 | | 3.1 | 5.6 |
| Greenwich | 4.2 | | 3.1 | 5.4 |
| Brent | 4.1 | | 3.2 | 5.2 |
| Enfield | 4.0 | | 3.1 | 5.2 |
| Croydon | 4.0 | | 3.1 | 5.0 |
| Hounslow | 3.9 | | 2.9 | 5.1 |
| Southwark | 3.9 | | 2.9 | 5.1 |
| Waltham Forest | 3.8 | | 2.9 | 5.0 |
| Wandsworth | 3.7 | | 2.8 | 4.8 |
| Lambeth | 3.7 | | 2.7 | 4.8 |
| Newham | 3.6 | | 2.8 | 4.5 |
| Ealing | 3.4 | | 2.6 | 4.4 |
| Hillingdon | 3.3 | | 2.4 | 4.4 |
| Westminster | 3.3 | | 2.2 | 4.8 |
| Havering | 3.2 | | 2.1 | 4.6 |
| Merton | 3.1 | | 2.1 | 4.3 |
| Haringey | 3.0 | | 2.1 | 4.1 |
| Camden | 2.9 | | 1.8 | 4.2 |
| Bexley | 2.8 | | 1.8 | 4.1 |
| Sutton | 2.7 | | 1.7 | 4.1 |
| Kensington and Chelsea | 2.7 | | 1.5 | 4.4 |
| Islington | 2.6 | | 1.7 | 4.0 |
| Richmond upon Thames | 2.6 | | 1.7 | 4.0 |
| Redbridge | 2.6 | | 1.8 | 3.5 |
| Barnet | 2.2 | | 1.6 | 3.1 |
| Bromley | 1.6 | | 0.9 | 2.4 |
| City of London | * | | - | - |

Source: *Public Health Outcomes Framework*, accessed on 26 July 2016

If we examine London in relation to UK and EU regions with regard to indicators of life expectancy, mortality and morbidity, the picture becomes more mixed. Based on an assessment in 2010, Table 10.9 shows that for some health indicators, London performed well compared to the UK and EU, with it having relatively low rates of mortality from circulatory diseases, cancer and external causes, and relatively high levels of life expectancy at birth. In other indicators, such as the incidence of AIDS, London performed less well – having among the highest levels across EU regions.

**Table 10.9: Health summary for London against UK and EU rankings**

| Domain | Indicator | Rank of London in the UK/EU | |
| --- | --- | --- | --- |
| | | UK | EU |
| Mortality | Life expectancy at birth: Female | 4/12 | 90/189 |
| | Life expectancy at birth: Male | 4/12 | 51/189 |
| | Infant mortality | 7/12 | 78/248 |
| | Perinatal death rate | 2/12 | 40/227 |
| | Mortality all causes: Female | 9/12 | 172/265 |
| | Mortality all causes: Male | 4/12 | 214/265 |
| | Premature mortality <65: Female | 9/12 | 126/265 |
| | Premature mortality <65: Male | 7/12 | 189/265 |
| | Mortality circulatory diseases: Female | 9/12 | 191/244 |
| | Mortality circulatory diseases: Male | 9/12 | 177/244 |
| | Mortality cancers: Female | 10/12 | 82/235 |
| | Mortality cancers: Male | 9/12 | 184/235 |
| | Mortality external causes: Female | 10/12 | 212/244 |
| | Mortality external causes: Male | 12/12 | 240/244 |
| Morbidity | AIDS incidence | 1/12 | 19/168 |
| | Low weight births | 5/12 | 27/169 |
| | Road injuries and deaths | 9/12 | 206/212 |

*Source: I2sare project, 2010.[92] Rankings are based on 12 UK regions, and those EU regions for which data was available. In the table, the region with the rank 1 is the region with the highest value of the indicator.*

Evidence from indicators on life expectancy and the rates of mortality from some of the major causes of premature or preventable death suggest that Londoners are, on the whole, becoming healthier (or at least dying later). The average figures may however disguise higher levels of incidence in particular areas or among particular communities, shown to be associated with deprivation.

## 10.6.2 Issues of health and wellbeing

London's residents also face several specific health issues. These relate to physical illnesses, mental health, personal wellbeing, as well as issues of access to healthcare and health protection that result in inequalities in the uptake of vaccines and health appointments.

### 10.6.2.1 Physical illness

London is disproportionately affected by communicable diseases compared to the rest of the UK, with London Medicine noting that this is 'particularly symptomatic of its highly mobile population'.[93] In particular, London has a significantly higher incidence of tuberculosis (TB)[94], human immunodeficiency virus (HIV)[95] and sexually transmitted infections (STIs) than the rest of the country.

Figure 10.31 shows that average TB incidence from 2012-2014 in London was 35.4 per 100,000 of population, slightly down from its 2005 to 2007 peak at 43.9 per 100,000. This is however more than double the England average of 13.5 per 100,000 of population, which means that London accounted for roughly two in every five cases of TB in England. There is also considerable variation in TB incidence between London boroughs associated with their demographic differences: 83 per cent of TB patients were born outside the UK; men are more likely to be affected and 30 per cent of TB patients are resident in the most deprived quintile. The case rate is highest among Indian, Pakistani and Black African ethnic groups.[96] In a 2015 report the London Assembly Health Committee identified rough sleepers and those living in overcrowded and poorly ventilated living conditions as being more susceptible to TB.[97]

**Figure 10.31: Reported new cases of TB per year per 100,000 in London and England**
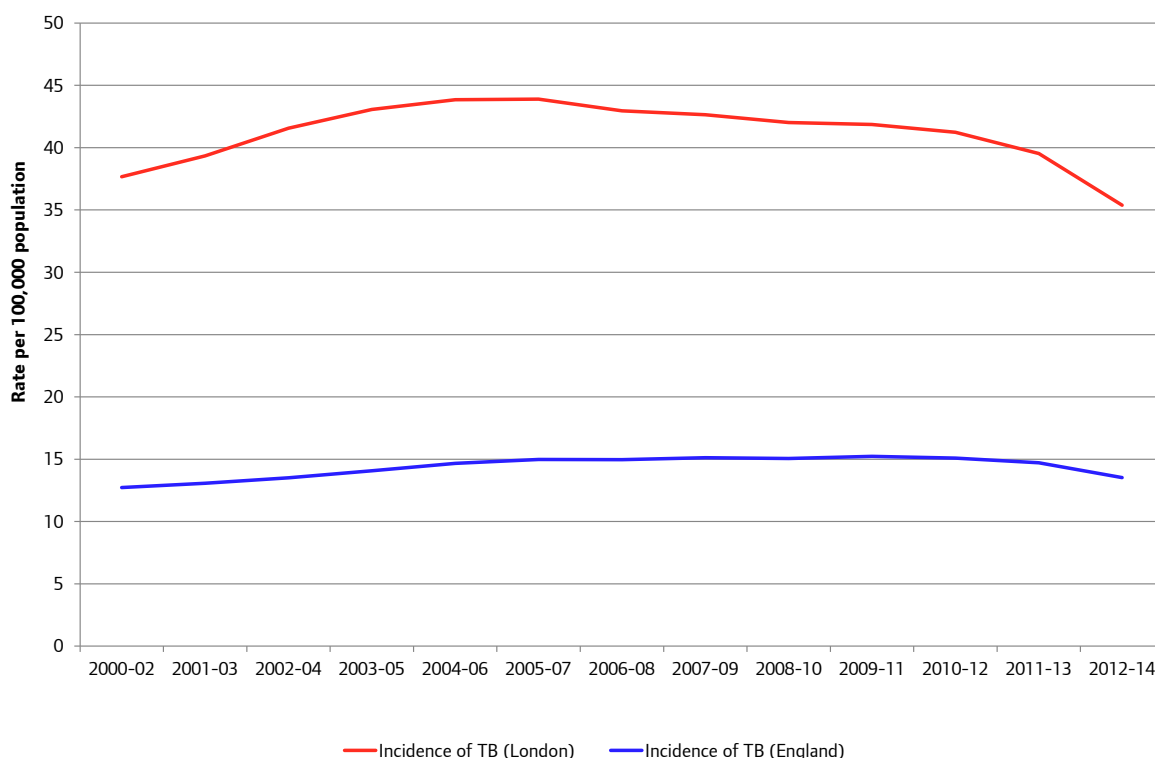


*Source: Public Health England, three-year averages based on case notifications.*

Further, there are an estimated 103,700 people in 2014 living with HIV in the UK, with around two fifths (43 per cent) of all those living with diagnosed HIV living in London.[98] The rate of new HIV diagnoses is also higher in London with 36.5 per 100,000 – three times the England average (12.3 per 100,000). However it should be noted that many of those estimated to be living with HIV may be undiagnosed and unaware of their infection.

London also has a higher proportion of people affected by the five main Sexually Transmitted Infections (STIs) - chlamydia, gonorrhoea, syphilis, herpes and genital warts - than elsewhere in England. In 2015, new STI diagnosis rates in London were significantly higher than any other region at 1,391 per 100,000 people. This compares to an average of 768 per 100,000 across England as a whole. The diagnosis rates of syphilis and gonorrhoea are particularly high in London, with 33 people per 100,000 diagnosed with syphilis in London in 2015, compared to an England average of 9 per 100,000. Similarly, the diagnostic rate for gonorrhoea in London was 222 people per 100,000 in 2015, compared to an England average of 71 per 100,000.[99]

### 10.6.2.2 Mental ill health
Alongside (and sometimes overlapping with) physical health conditions, mental ill health is increasingly recognised as an important issue for ensuring the health of the population. In London, it is estimated that over 900,000 adults and over 100,000 children in London are affected by a mental health disorder, while a reported two million Londoners will experience some form of mental ill health every year.[100]

It is also closely connected with other problems, including poor physical health and nutrition as well as damaging consequences in other areas in terms of quality of life, relationships, education and employment. A GLA report also notes that "mental health issues may also prevent physical health conditions from being addressed properly[101], estimating that one in three people with long-term physical health problems also have a mental health problem.[102]

A health committee report by the London Assembly in 2015[103] identified a wide range of factors beyond health that may contribute to an individual's predisposition to mental ill-health, including a lack of access to good housing, education and employment. The 2014 Cavendish Square Group report[104] also finds Londoners are more likely than residents in other parts of the UK to suffer mental health problems as a result of unemployment or debt. As a result, the incidence of mental illness varies sharply between boroughs with some mental illnesses reportedly twice as common in deprived parts of London compared with the least deprived areas.[105]

NHS England highlights that suicide is often associated with mental health with an estimated 90 per cent of people who attempt or die by suicide having one or more mental health conditions.[106] London however has the lowest rate of deaths by suicide of any region in the UK at 7.8 per 100,000 of population in 2014, up slightly from 7.4 per 100,000 in 2013. This compares to an average of 10.8 deaths per 100,000 in the UK as a whole, and is the second lowest rate of any region since the series began in 1981. In line with the rest of the country, suicide rates of London males (12.4 per 100,000) are around three times higher than that of females (3.5 per 100,000).[107] Rates of self-harm (measured by hospital stays) are also lower than the England average and have been falling in London since 2012. The 2014/15 rate is 97.3 per 100,000 residents, compared to the English average of 191.4 per 100,000.[108]

A 2012 review by the Samaritans[109] emphasised that middle-aged men in lower socioeconomic groups are at particularly high risk of suicide. This review points to evidence that suicidal behaviour results from the interaction of complex factors such as unemployment and economic hardship, lack of close social and family relationships, the influence of a historical culture of masculinity, personal crises such as divorce, as well as a general 'dip' in subjective wellbeing among people in their mid-years.

## 10.6.2.3 Personal wellbeing

Mental health is not only an issue of mental illness and diagnosable health conditions. In response to survey questions from the ONS on subjective wellbeing, Londoners reported the lowest average life satisfaction, worthwhileness and happiness and the highest anxiety of any UK region. Londoners rated themselves as feeling relatively less satisfied with their life nowadays – giving an average score of 7.51 out of 10. Figure 10.32 shows that this is, in statistical terms, significantly lower than the UK average of 7.65.

These average figures can however mask differences in the share of respondents who report low levels of personal wellbeing (or high levels of anxiety) that may be of particular concern. In 2015/16, around 8.3 per cent of Londoners reported feeling low levels of happiness (defined as a rating of 0-4 out of 10), compared with around 8.8 per cent for the UK.

Similarly, Londoners average anxiety rating[110] was also the highest of any region at 3.04 (out of 10), and, statistically speaking, significantly higher than the UK average of 2.87. However, Londoners (20.0%) were no more likely than people across the UK as a whole (19.5 per cent) to report high levels of anxiety (a rating of 6-10 out of 10). Employed people and people in good health are less likely to report high anxiety.

**Figure 10.32: Measures of personal wellbeing in London and the UK, 2015/16**
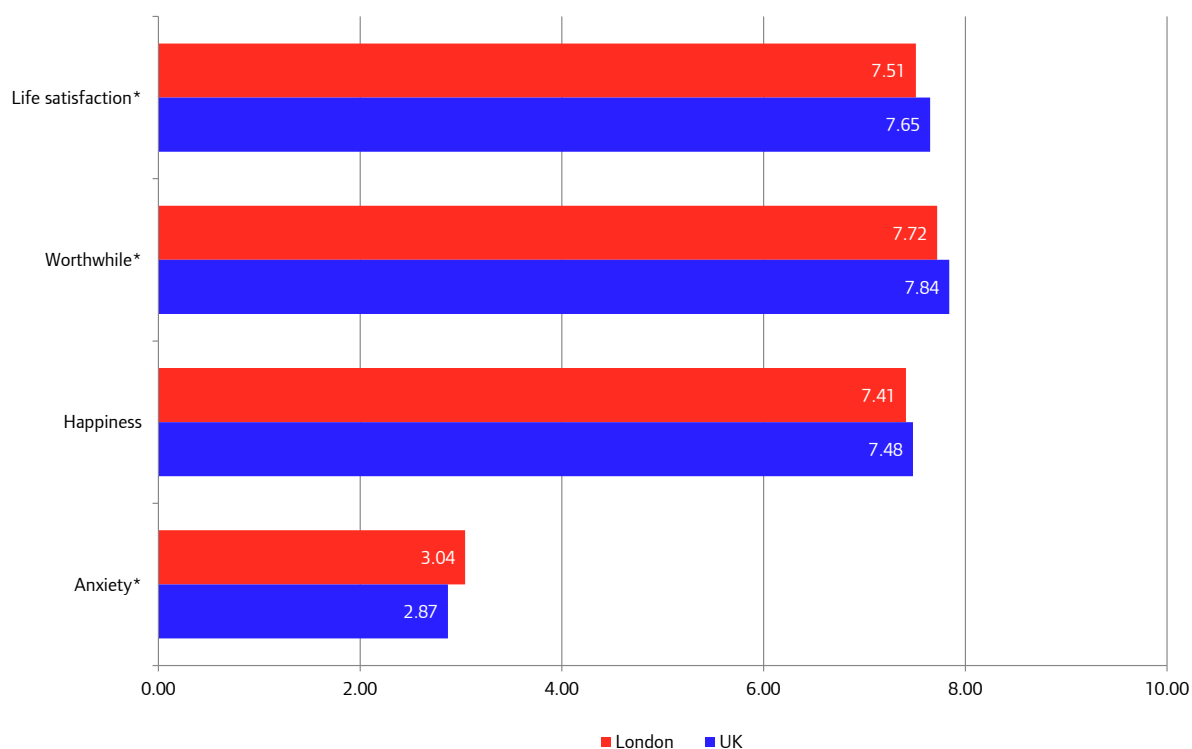


*Source: ONS APS, April 2015 to March 2016. *Denotes significant difference from the UK*

Looking at reported levels of life satisfaction and anxiety in more detail in Figures 10.33 and 10.34, we can see that part of this difference may be explained by London's demographic profile. In particular, as explored in Chapter 8, London has a lower proportion of older people aged between 60 and 89 – age groups which tend to report greater levels of life satisfaction and lower levels of anxiety. However, it is also the case that those living in London aged between 50 and 74 report significantly lower levels of life satisfaction than their counterparts in the rest of the UK. Londoners in their early 50s, 60s and 70s also report significantly higher levels of anxiety on average than those in the UK as a whole.

**Figure 10.33: Life satisfaction in London and the UK by age group, 2015/16**
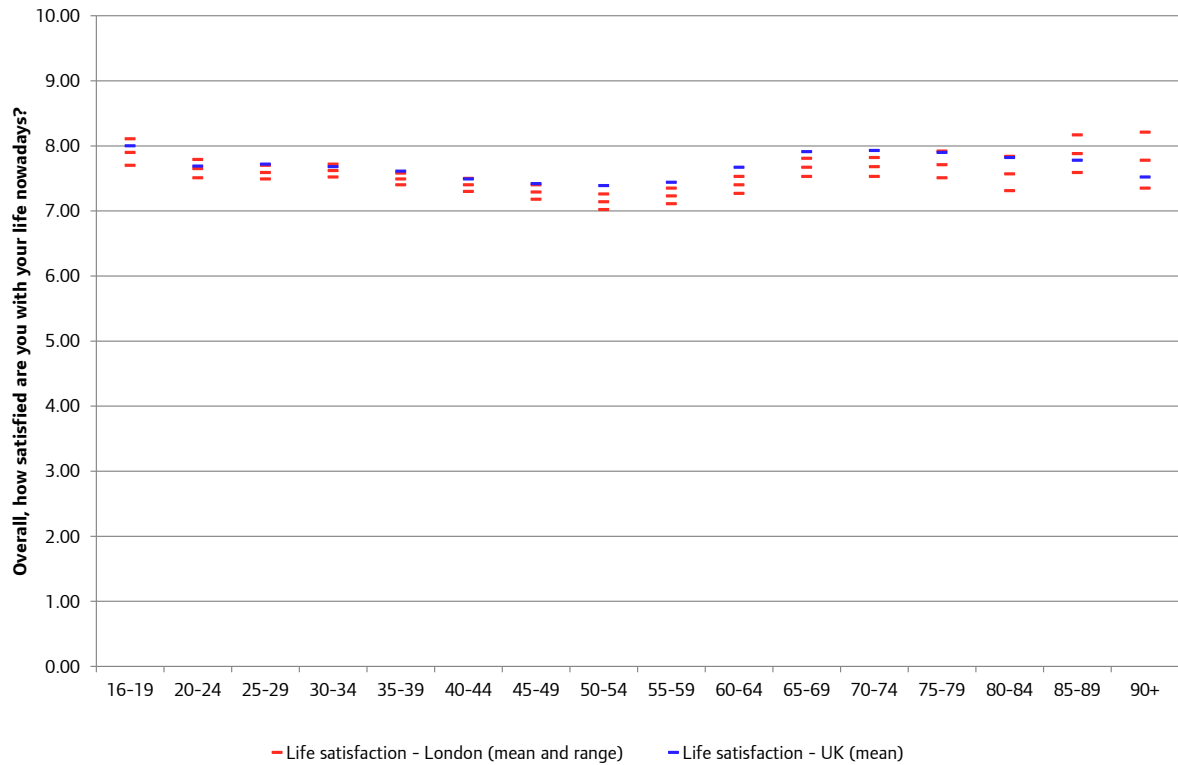


*Source: ONS APS, April 2015 to March 2016. \*Upper and lower limits of confidence interval shown.*

**Figure 10.34: Anxiety in London and the UK by age group, 2015/16**
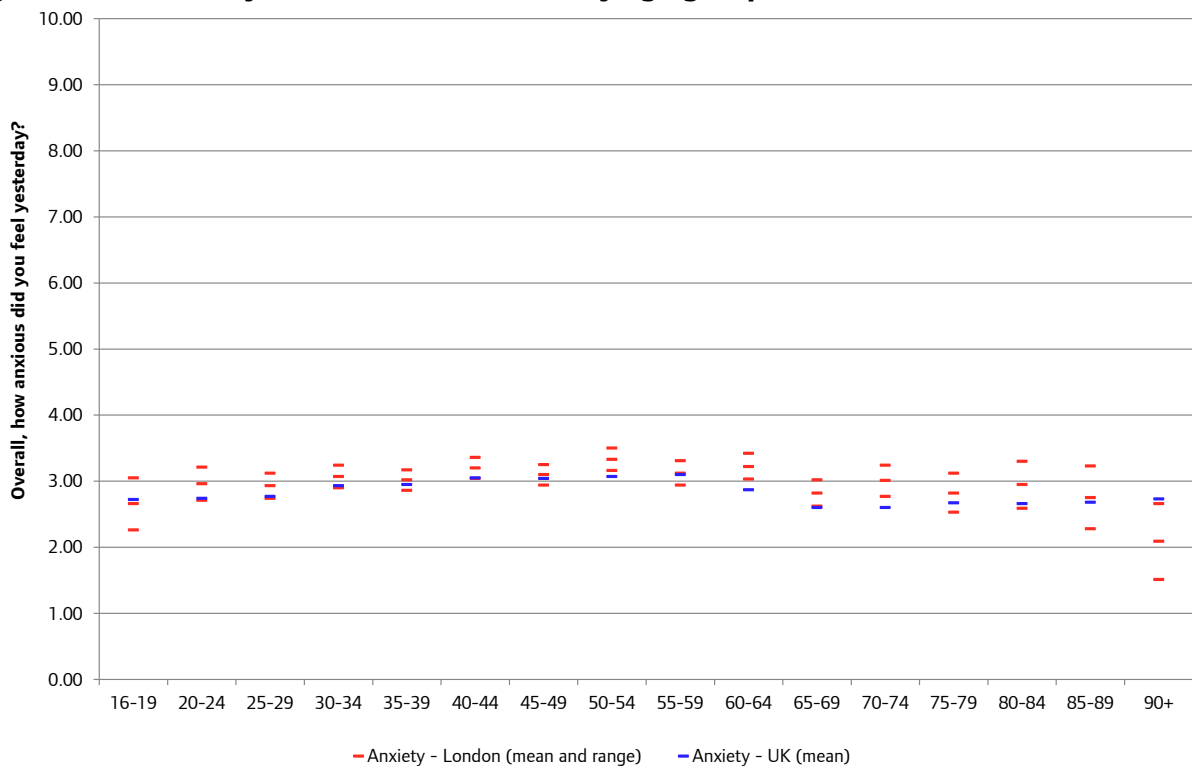


*Source: ONS APS, April 2015 to March 2016. \*Upper and lower limits of confidence interval shown.*

Within London it is also notable that those from black and mixed/multiple ethnic groups report significantly lower average levels of life satisfaction and happiness than the London average. In contrast, those from Indian ethnic backgrounds have significantly higher ratings of personal wellbeing. When all other factors are held equal, the evidence for the UK as a whole suggests that people's assessment of their health is the factor that is most closely linked to their overall levels of personal wellbeing.[111]

### 10.6.2.4 Health protection

Take up of vaccination and screening programmes can help to reduce inequalities in health outcomes between different groups of people and between areas; it can also highlight inequalities in access to such services. Another identified risk in London is the relatively low coverage of nationwide vaccination programmes to protect against ill health. This may be the result of either low provision or low levels of take-up.

In 2014/15, London had the lowest vaccination coverage against influenza (seasonal flu) among those aged 65 and over in any region.[112] Across London on average 69.2 per cent of eligible adults aged 65 and over had received the flu vaccine in 2014/15, compared to an average of 72.7 per cent for England as a whole. With the exceptions of Enfield, Greenwich, Newham and Tower Hamlets, every other borough in London had significantly lower coverage than the England average. NHS immunisation data shows that vaccination coverage among children aged 2 against measles, mumps and rubella (MMR) is also significantly lower in London (87.3 per cent), with only Islington having a higher proportion of children immunised by their second birthday (93.6 per cent) than the England average (92.3 per cent).[113]

London also has lower cancer screening cover than the rest of England. Breast cancer screen coverage for 50 -70 year olds in London is lower than the England average, with a three-year average of 64.2 per cent compared to the England average of 72.2 per cent. The case is similar for screening of cervical cancer and bowel cancer (among those aged 60-67 years old).

## 10.6.3 Lifestyle and health

Many studies have shown that environmental and 'lifestyle' risk factors and exposures contribute greatly to the incidence and severity of disease and ill health. Five 'modifiable lifestyle factors' are often particularly noted to be related to early death: smoking, alcohol consumption, obesity, poor diet and low levels of physical activity. Each of these risk factors is associated with a series of economic decisions as to how people use their scarce resources and allocate their time. The co-occurrence of multiple unhealthy behaviours has also been shown to have a cumulatively negative impact on health and tends to be driven by other social factors.[114]

### 10.6.3.1 Smoking and alcohol

A major lifestyle factor impacting on the risk of ill-health is smoking. A report by the Department for Health considers that 'smoking is the biggest preventable cause of death in England, resulting in nearly 80,000 premature deaths each year, and is a direct cause of several diseases often co-existing together – co-morbidities'.[115] In London it is estimated that tobacco is responsible for the death of around 8,500 Londoners each year.[116] Smoking is also an addiction associated with poverty which itself is a driver of health inequalities. Research for Action on Smoking and Health in 2015 estimated that around 46,000 London households would be considered to be in poverty after spending on tobacco is taken into account.[117]

There are an estimated 1.2 million smokers in London, equivalent to 17.0 per cent of the total adult population in 2014. This is down from 19.4 per cent in 2010, and is slightly lower than the average for Great Britain as a whole (19.0 per cent). This continues the downward trend seen across Great Britain since its peak of 46 per cent of adults in 1974.[118] Some London boroughs have significantly higher smoking rates, with 22 per cent of adults smoking in Barking and Dagenham, Hammersmith and Fulham, Islington and Tower Hamlets (as shown in Map 10.13).

**Map 10.13: Prevalence of smoking among persons aged 18 and over, 2014**

| | | | Enf 13.6 | | | |
|---|---|---|---|---|---|---|
| | Hrw 13.1 | Brn 13.2 | Hgy 20.7 | Wth 20.7 | | |
| Hdn 17.1 | Elg 16.4 | Brt 13.6 | Cmd 16.9 | Isl 22.2 | Hck 20.0 | Rdb 14.2 | Hvg 18.4 |
| Hns 12.3 | Hms 22.2 | Kns 18.7 | Wst 20.0 | Cty | Tow 22.1 | Nwm 20.6 | Bar 21.7 |
| | Rch 11.2 | Wns 14.4 | Lam 18.1 | Swr 16.5 | Lsh 20.6 | Grn 17.3 | Bxl 16.6 |
| | | Kng 13.5 | Mrt 15.5 | Crd 17.1 | Brm 14.0 | | |
| | | | Stn 15.3 | | | London 17.0 | England 18.0 |
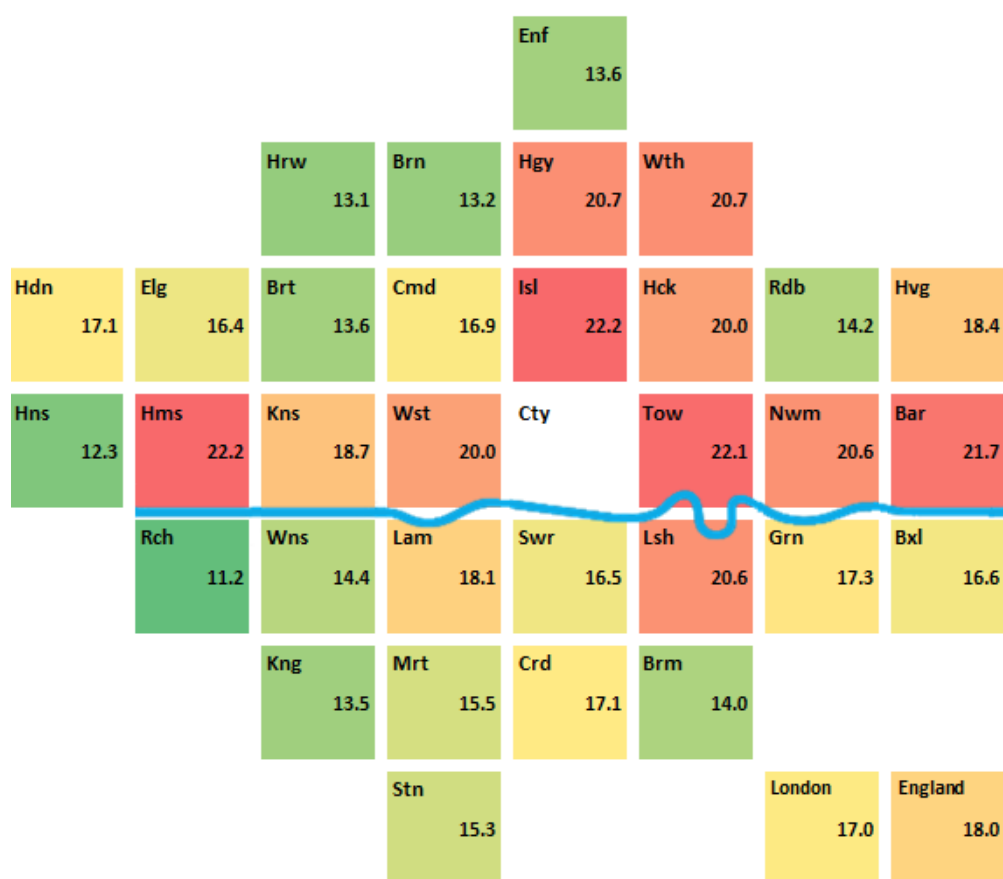
*Source: Integrated Household Survey, analysed by Public Health England.*

Public Health England also notes a strong relationship between smoking and socio-economic status (measured by occupation), with smoking rates much higher among people in routine and manual occupations (25 per cent) than the London average (18 per cent).

As well as being a major cause of preventable morbidity and premature death, Public Health England notes that 'there is a large body of evidence relating smoking behaviour in early adulthood with health behaviours later in life'.[119] Smoking prevalence at the age of 15 is however generally lower in London than England as a whole as shown in Figure 10.35. This gap is particularly pronounced among regular smokers – having at least one cigarette per week.

**Figure 10.35: Smoking prevalence in 15 year olds, London and England in 2014/15**
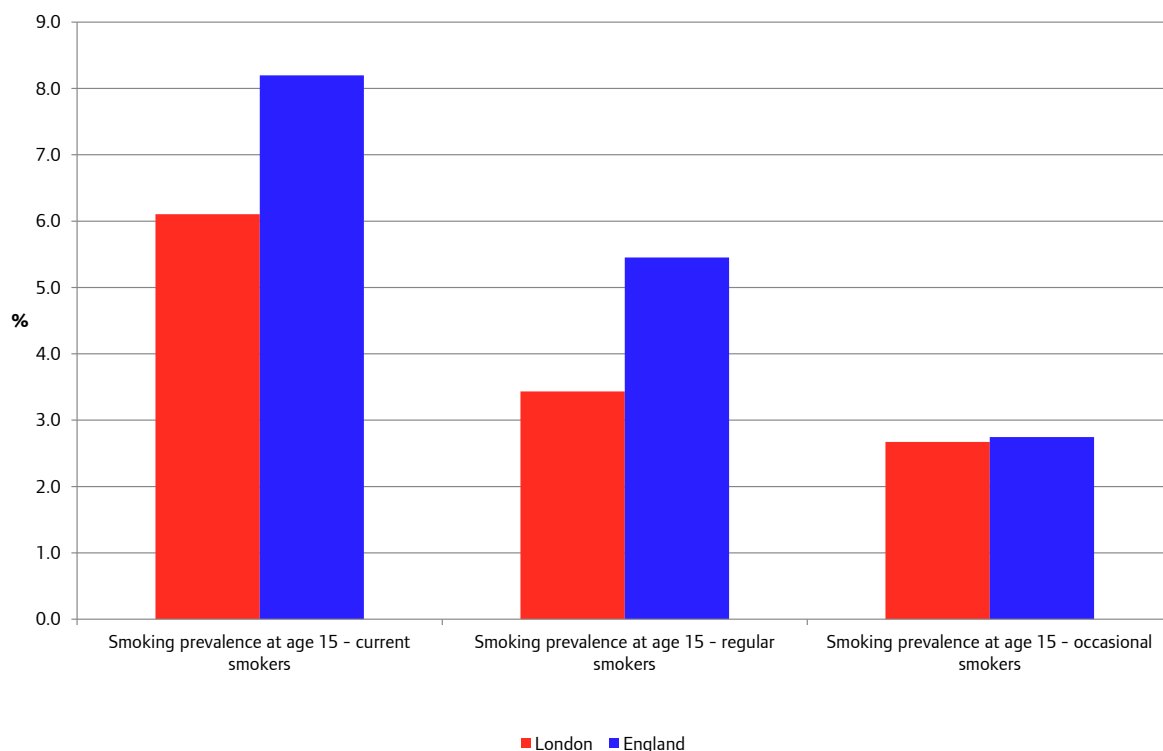


*Source: What about Youth (WAY) survey, 2014/15*

A particularly vulnerable group to smoking are new born children and their mothers. In 2015/16, 4.9 per cent of mothers in London were recorded as smokers at the time of delivery, which is lower than the England average (10.6 per cent) and the lowest proportion among the NHS commissioning regions in England. The proportion in London has also been declining over time. In 2010/11, 2012/13 and 2014/15 it was recorded as 6.3 per cent, 5.7 per cent and 4.8 per cent respectively.[120]

Alcohol consumption represents another lifestyle factor associated with ill health. Across England, there were 6,831 alcohol-related deaths in 2014, up from 6,592 in 2013 and higher than in any previous year since data was collected in 2001.[121] While it is not known how many of these relate to London residents, in 2014/15, there were 137,250 hospital admissions related to alcohol consumption in London (12.6 per cent of the almost 1.1 million admissions across England).[122] Of these 65 per cent related to hospital admission of males.

Londoners are, on average, less likely to be prescribed (and dispensed) items for the treatment of alcohol dependence. Among adults in London in 2015, 194 out of every 100,000 people were prescribed such items, compared to the England average of 348 per 100,000.[123] This may relate to London's lower proportion of regular drinkers (defined as those who drink on at least five days in the last week) than other parts of the country; with an estimated 10 per cent of London adults drinking 'regularly', compared to 12 per cent across England as a whole.[124] London is also home to a higher than average proportion of teetotallers with 29 per cent of adults (over 16) not drinking alcohol at all. This compares to an England average of 21 per cent.

## 10.6.3.2 Excess weight, diet and nutrition

A further, but very important, lifestyle factor is the incidence of overweight and obese people in the population and specifically children, with this being linked to incidence of diabetes and other medical issues. When comparing London's proportion of overweight and obese adults to ten world cities it is exceeded only by Johannesburg. London's performance in terms of obesity alone is a little better and is shown in Figure 10.36.

**Figure 10.36: Proportion of overweight and obese adults in ten world cities, 2012**
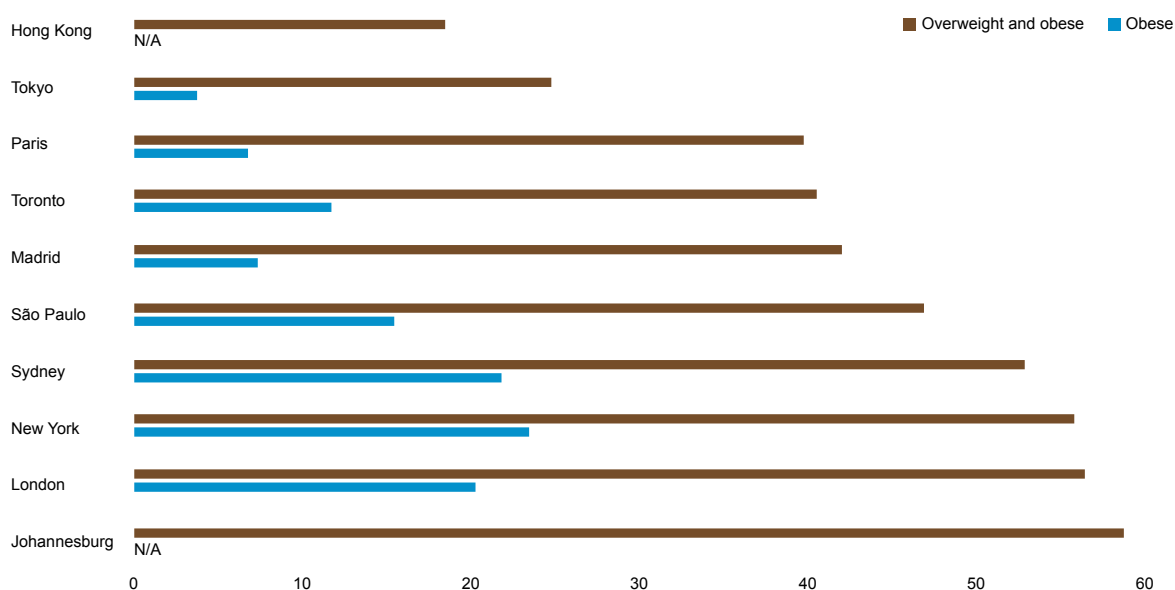


*Source: Better Health for London, and Global Cities Analysis; London Health Commission, October 2014.*[125]

Nevertheless, Map 10.14 shows that the prevalence of being overweight or obese in London is lower compared to the England average[126], with 58.4 per cent of the adult population in London with excess weight, compared to 64.6 per cent in England as a whole. However, proportions vary significantly between London's boroughs, with average rates of excess weight of over 65 per cent in Barking and Dagenham, Bexley and Havering, while less than 50 per cent of adults in Camden and Kensington and Chelsea are classified as overweight (or obese).

**Map 10.14: Proportion of adults classified as overweight or obese, 2012 - 2014**
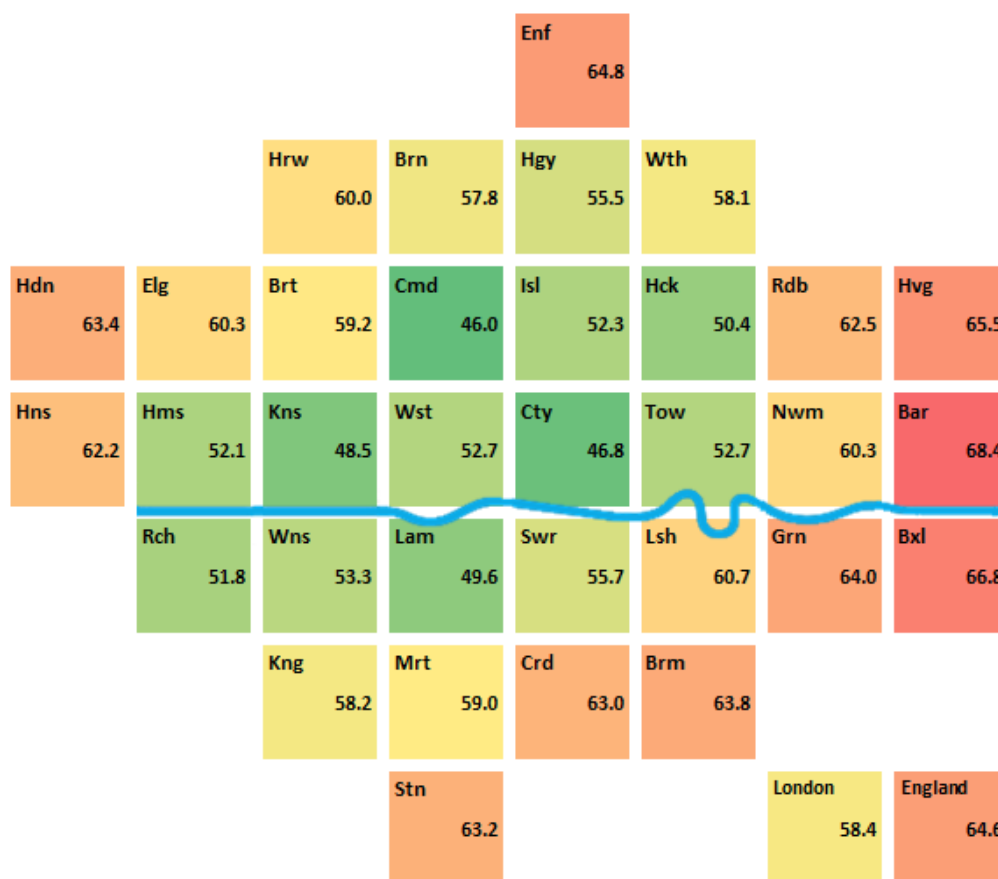


*Source: Active People Survey, Sport England. Data are from mid-January 2012 to mid-January 2015.*

Excess weight is associated with type 2 diabetes.[127] The lower prevalence of excess weight among adults in London may therefore help to explain why the rate of recorded diabetes is lower in London than England as a whole. However, as Figure 10.37 shows the prevalence of recorded diabetes has been rising in recent years in London and across England as a whole.

**Figure 10.37: Recorded diabetes as a percentage of the population, 2010-2014**
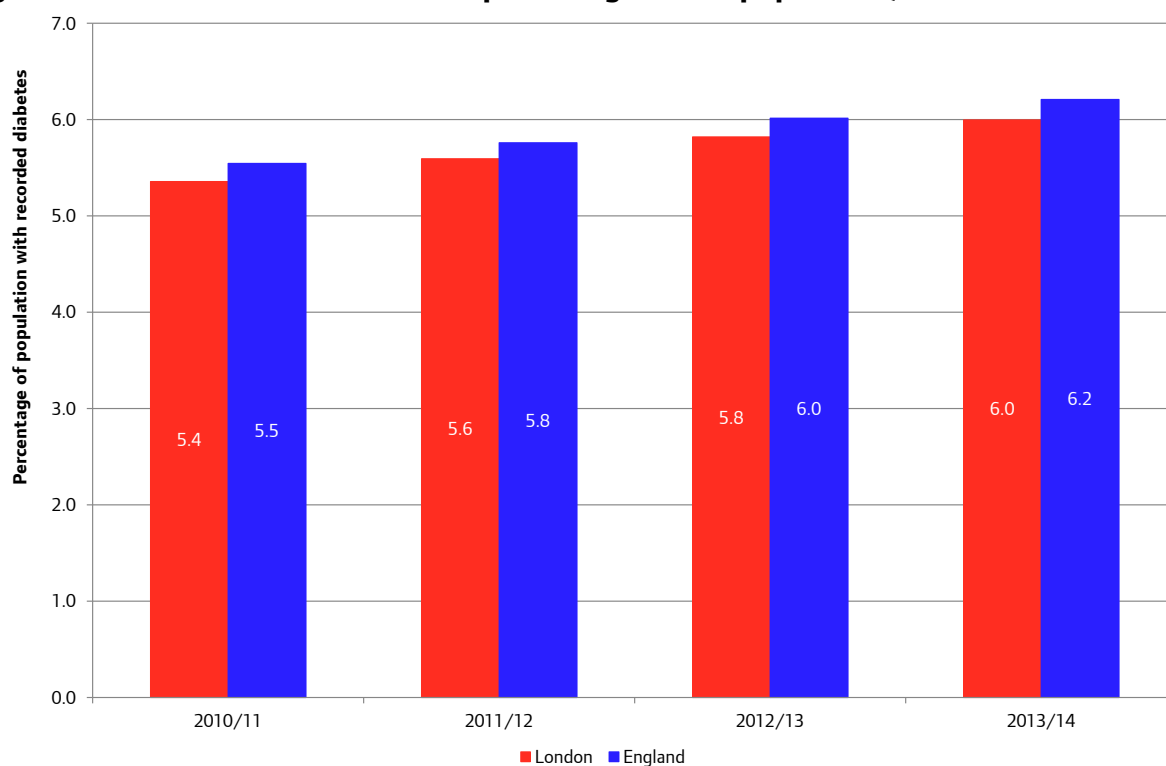


*Source: Public Health England, Outcomes Framework*

Obesity amongst children in London is also an acute issue. The London Health Commission reports that "London has the highest rate of childhood obesity among peer global cities.[128] In all the regions of England, London also has the highest proportion of obese children. Figure 10.38 shows how the London rates have exceeded the England averages since 2006/07.

**Figure 10.38: Percentage of children who have excess weight in London and England**



- - - - Excess weight in 4-5 year olds (London)    ———— Excess weight in 10-11 year olds (London)
- - - - Excess weight in 4-5 year olds (England)    ———— Excess weight in 10-11 year olds (England)
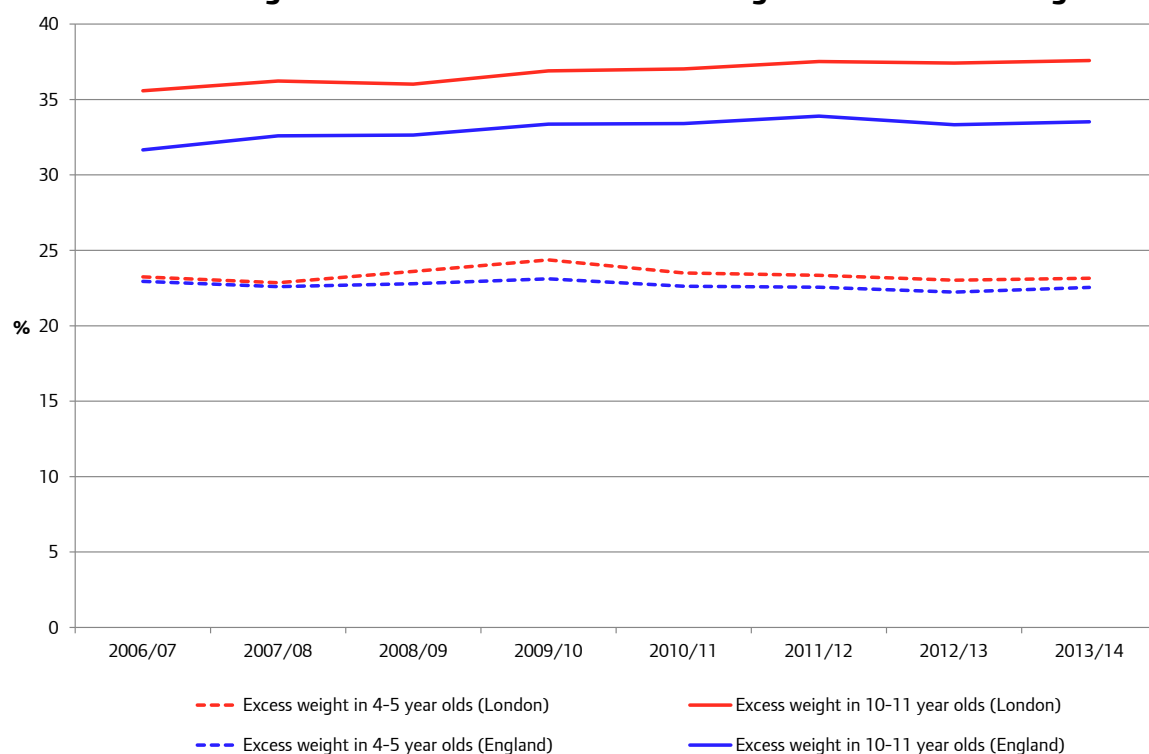
*Source: Health and Social Care Information Centre, National Child Measurement Programme*

Excess weight among children is significantly higher than the London average across many parts of North and East London, where residents are also most affected by deprivation (see section 10.4.4). In Barking and Dagenham, Southwark, Hackney and Newham, more than 25 per cent of children aged 4-5 and more than 40 per cent of children aged 10-11 were deemed to have excess weight, with Enfield, Tower Hamlets and Lambeth also having a relatively high prevalence of obesity (over 40 per cent) among children aged 10-11 and Greenwich and Bexley also having a relatively high prevalence of obesity (over 25 per cent) among children aged 4-5. Maps 10.15 and 10.16 provide a picture of childhood obesity for these two age groups.

## Map 10.15: Excess weight in 4-5 year olds, 2014/15
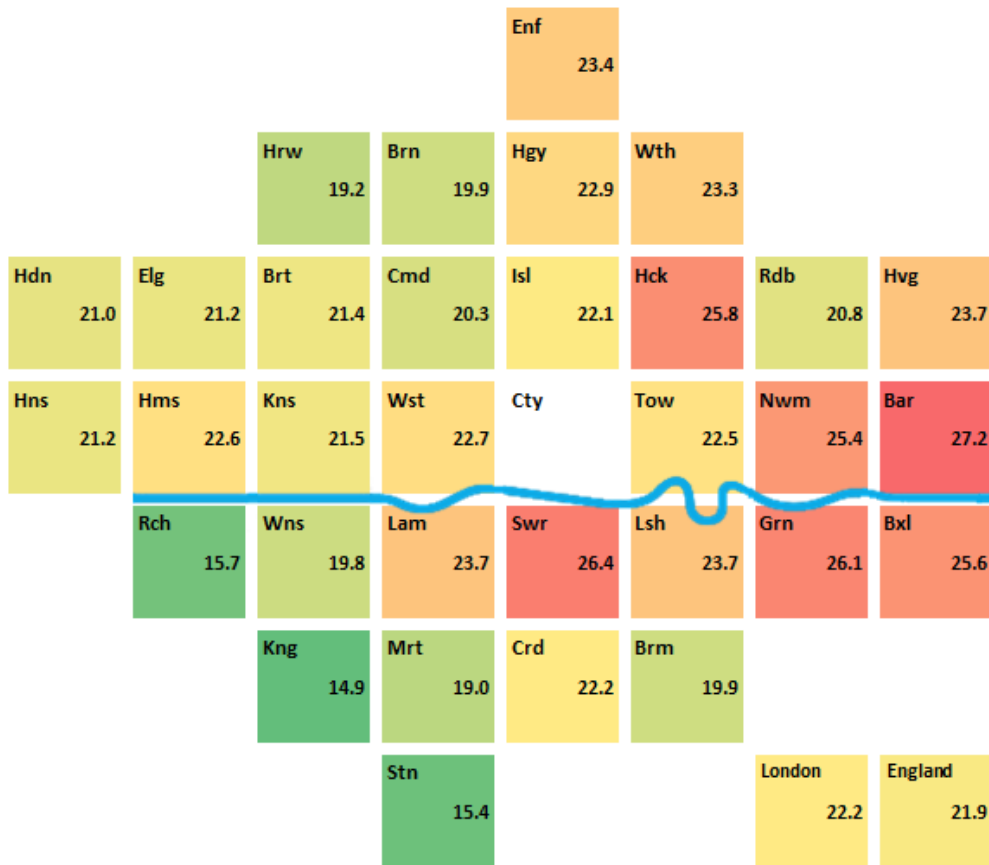
| | | | Enf 23.4 | | | |
|---|---|---|---|---|---|---|
| | Hrw 19.2 | Brn 19.9 | Hgy 22.9 | Wth 23.3 | | |
| Hdn 21.0 | Elg 21.2 | Brt 21.4 | Cmd 20.3 | Isl 22.1 | Hck 25.8 | Rdb 20.8 | Hvg 23.7 |
| Hns 21.2 | Hms 22.6 | Kns 21.5 | Wst 22.7 | Cty | Tow 22.5 | Nwm 25.4 | Bar 27.2 |
| | Rch 15.7 | Wns 19.8 | Lam 23.7 | Swr 26.4 | Lsh 23.7 | Grn 26.1 | Bxl 25.6 |
| | | Kng 14.9 | Mrt 19.0 | Crd 22.2 | Brm 19.9 | |
| | | | Stn 15.4 | | London 22.2 | England 21.9 |

*Source: Health and Social Care Information Centre. Note: value for Hackney and City of London combined.*

## Map 10.16: Excess weight in 10-11 year olds, 2014/15
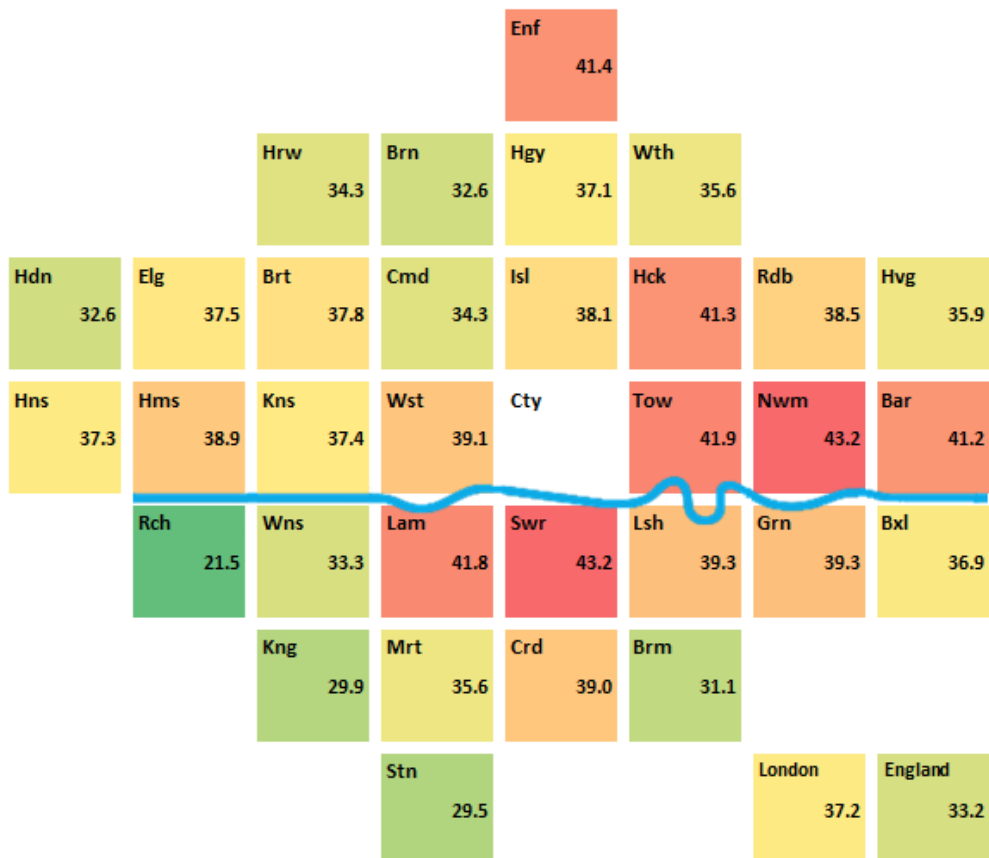
| | | | Enf 41.4 | | | |
|---|---|---|---|---|---|---|
| | Hrw 34.3 | Brn 32.6 | Hgy 37.1 | Wth 35.6 | | |
| Hdn 32.6 | Elg 37.5 | Brt 37.8 | Cmd 34.3 | Isl 38.1 | Hck 41.3 | Rdb 38.5 | Hvg 35.9 |
| Hns 37.3 | Hms 38.9 | Kns 37.4 | Wst 39.1 | Cty | Tow 41.9 | Nwm 43.2 | Bar 41.2 |
| | Rch 21.5 | Wns 33.3 | Lam 41.8 | Swr 43.2 | Lsh 39.3 | Grn 39.3 | Bxl 36.9 |
| | | Kng 29.9 | Mrt 35.6 | Crd 39.0 | Brm 31.1 | |
| | | | Stn 29.5 | | London 37.2 | England 33.2 |

*Source: Health and Social Care Information Centre. Note: value for Hackney and City of London combined.*

Obesity is related to eating a poor diet, food poverty (seen in section 10.3.3.5), physical inactivity, and 'obesogenic environments' that encourage people to eat unhealthily and not do enough exercise.[129] In 2015, the London Health Commission reported however that the 'research on obesity gives a clear message: physical activity levels – though important for fitness and wellbeing – are weakly related to obesity, and are therefore not the main priority'. It is therefore claimed that 'the obesity crisis can only be solved by eating less food. The doubling of serving sizes means that people eat 22 per cent more on average – and portion sizes have increased greatly in the last 30 years'.[130]

Analysis by the National Obesity Observatory also shows a strong association between deprivation and the density of fast food outlets, with more deprived areas having more fast food outlets per 100,000 of the population.[131] A large number of these outlets are also located near to schools. This is likely to have an impact on the food choices young people make and affect levels of obesity within this age group.

In 2015, just under half (49.4 per cent) of Londoners were meeting their recommended 5-a-day of fruit and vegetable portions on a 'usual day', below the England average (52.3 per cent)[132]. It remains possible though that such survey responses on diet may suffer from bias resulting in understating unhealthy eating patterns. For example, 2016 analysis by the Government's Behavioural Insights team found evidence that daily calorie intake is increasingly under-reported through similar surveys.[133]

Poor diet and nutrition are also associated with a number of other health issues including: high blood pressure and high cholesterol associated with an increased risk of heart disease and stroke, osteoporosis and tooth decay. Despite tooth decay being almost entirely preventable, children aged five in London have significantly higher levels of decayed, missing or filled teeth on average (1.00) than in England as a whole (0.84), with more than 1 in 4 London five-year olds (27 per cent) having at least one decayed tooth.[134]

## 10.6.3.3 Physical inactivity

A further modifiable risk factor associated with ill health is a lack of physical activity. The World Health Organization (WHO) for example, reports that insufficient physical activity is a leading risk factor for many preventable, non-communicable diseases (NCDs) including heart disease, cancer and diabetes.[135]

Moderate or Vigorous intensity Physical Activity (MVPA) is calculated in terms of the minutes of moderate to vigorous intensity activity undertaken per week.[136] Inactivity is defined as an MVPA of less than 30 minutes per week, physically active is 150 minutes or more, with anything in between deemed insufficiently active.

Inactivity rates are significantly lower in London men than women, with 23.0 per cent of London men inactive compared to 30.9 per cent of London women. These rates are slightly lower than the England averages of 23.8 per cent and 31.5 per cent respectively. The incidence of inactivity among adults in London increases with age with the highest levels of inactivity found among those aged 65 and over (49 per cent). This compares to 16 per cent among those aged 16 to 19 years old.[137]

Map 10.17 looks at the number and proportion of Londoners who do less than 30 minutes of moderately intense physical activity each week. This shows significant variation in inactivity, with more than one in three adults classed as inactive in Barking and Dagenham and Newham, compared to one in five in Richmond and Islington.

The UK Government's Marmot review team in 2010 identified that 'people from lower socioeconomic groups tend to have poorer access to environments that support physical activity such as parks, gardens or safe areas for play; and are more likely to live close to busy roads'.[138] These may in turn creates additional issues such as noise and poor air quality, seen in Chapter 7.

**Map 10.17: Physical inactivity in London**



| Borough | % inactive adults |
|---|---|
| Barking and Dagenham | 35 |
| Newham | 35 |
| Greenwich | 33 |
| Merton | 32 |
| Bexley | 31 |
| Havering | 30 |
| Hackney | 30 |
| Brent | 30 |
| Croydon | 30 |
| Hillingdon | 30 |
| Redbridge | 30 |
| Camden | 29 |
| Hounslow | 29 |
| Lewisham | 29 |
| Ealing | 29 |
| Tower Hamlets | 29 |
| Westminster | 28 |
| Waltham Forest | 28 |
| Haringey | 26 |
| Southwark | 26 |
| Enfield | 26 |
| Barnet | 26 |
| Harrow | 25 |
| City of London | 24 |
| Bromley | 24 |
| Sutton | 23 |
| Kingston upon Thames | 23 |
| Wandsworth | 23 |
| Lambeth | 22 |
| Hammersmith and Fulham | 21 |
| Kensington and Chelsea | 21 |
| Islington | 20 |
| Richmond upon Thames | 20 |

London (27)
England (28)

As proportion of population
20%      35%

Number of inactive adults, thousands

Across London **1.8 million** adults are classified as inactive

Source: *Better Health for London, London Health Commission, October 2014*

## 10.6.4 The impacts and economic costs of ill-health

As noted above ill-health often disproportionately affects individuals in lower socio-economic or lower income groups. There is also evidence of a geographic dispersion of ill health across London, which often overlaps with areas of income deprivation in the capital (seen in section 10.4.4). It is likely that this relationship works in both directions with ill-health limiting employment prospects and income potential on the one hand, and a lack of employment and income having a negative impact on people's health on the other.

As Chapter 9 showed, the employment rate for disabled people is significantly lower (50.1 per cent) than that for non-disabled people (77.4 per cent), in line with the country as a whole. Among those Londoners outside of the workforce, long-term sickness is cited as the reason for inactivity by 16.0 per cent of the economically inactive.

For those in the workforce, ill-health can also result in lost productivity with 1.5 per cent of working hours lost due to sickness absence in London in 2012/13, equivalent to an average of 3.5 days lost per worker.[139] This compares to a UK average of 4.5 days lost per worker. Based on 2012 data, the cost of working hours lost for the average London firm of 250 employees was equivalent to around £4,800 per week (or around £250,000 a year).[140]

In a 2014 report on mental health in London, GLA Economics identified that there are costs for individuals affected associated with reduced quality of life (valued at around £6.5 billion per year), as well as wider impacts through the costs of informal care (£1.2 billion), as well as impacts on crime – in terms of victims' wellbeing (£340 million) and other costs related to crime (£530 million).[141] There are also wider economic and social costs with the total cost of output losses associated with mental ill-health estimated to be over £10 billion per year (based on various data sources from 2007-2013). This estimate includes the costs of increased worklessness and sickness absence, reduced productivity, and lost output due to premature death. Taken together this amounts to an estimated total economic and social cost of mental ill health of around £26 billion in London each year, equivalent to an average of around £3,000 per head of population.[142]

Ill health and inequalities in ill-health also have a direct impact on demand for and spending on public services. Based on an assessment of the cost of risk factors for chronic disease, for example, research for the UK as a whole in 2011 estimated that in 2006/7, poor diet-related ill health cost the National Health Service (NHS) £5.8 billion. Smoking-related and alcohol-related ill health each cost an estimated £3.3 billion, overweight/ obesity-related ill health cost an estimated £5.1 billion.[143] The cost of physical inactivity-related ill health was £0.9 billion.

The NHS budget for the UK a whole was £116.4 billion in 2015/16,[144] and in London the NHS spends around £17 billion each year on healthcare.[145] Taken as a whole, NHS Trusts in London overspent by £567 million in 2015/16, and 24 out of 37 providers ended the year in deficit.[146]

## 10.7 Crime

Another aspect that affects the liveability of London is crime, and this section considers the crime experienced by London's residents, its impacts on the economy and the role of the socio-economic factors that shape the trends in crime we observe. Crime and the perception of London as a safe place to live and do business will also affect its ability to attract businesses, workers and tourists.

Figures from the Crime Survey for England and Wales (CSEW) show that since the mid-1990s, there have been falling incidents of crime experienced by adults aged 16 and over. In the survey year ending March 2016, there were an estimated 6.3 million incidents, down from a 1995 peak of 19.1 million incidents. These estimates cover crimes against the person (e.g. violence or theft from the person) and crimes against households (e.g. domestic burglary or criminal damage). As a result, the likelihood of being a victim of CSEW crime has fallen significantly over time; to around 15 per cent of adults in 2016 compared with around 40 per cent in 1995.

Figure 10.39 plots the overall trends in CSEW crime figures alongside police recorded offences. This shows little relationship between the two sets of indicators since recorded crimes are also influenced by the quality of crime recording by police, and police recording practices, while the CSEW measures adults' experiences of crime (irrespective of whether these were reported). As a result, the increase in recorded crime across England and Wales in 2016 to 4.5 million, up 8 per cent from 4.1 million in 2015 'is thought [to be] principally owing to the renewed focus on the quality of crime recording, rather than a genuine increase in crime'.[147]

**Figure 10.39: Trends in Crime Survey for England and Wales and police recorded crime, 1981 to 2016**
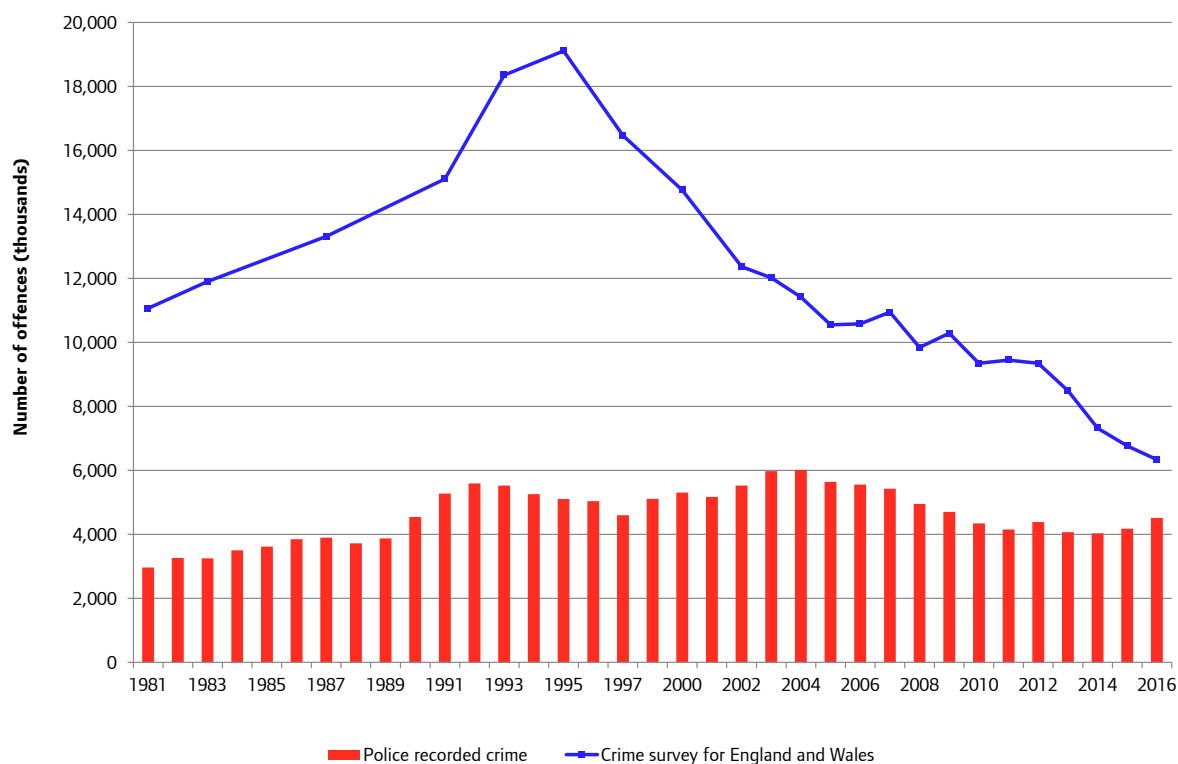


Sources: ONS Crime Survey for England and Wales (CSEW), and Home Office, Police recorded crime statistics. Notes: data is for the calendar year prior to the year ending March 2002, and the financial year thereafter.

## 10.7.1 Crime in London

Crime, although generally declining in recent years, still risks making London a less-appealing place to live. London is relatively safe by global comparisons - placed 5th on Economist Intelligence Unit 'safe cities index' based on cities of a similar size with a score of 73.83 out of 100, its placed behind Tokyo and Singapore and comes 18th when compared to other cities in general (not accounting for population size). However, crime remains a worry for many Londoners. Based on a survey of 3,861 Londoners aged 18 and older, 36 per cent indicated that they were 'worried' or 'very worried' about crime in their local area.[148]

In London, it is not possible to obtain regional data from the CSEW on adults' experiences of crime due to issues of sample size. Instead, we can look at the recorded crime statistics published by the Metropolitan Police Service (MPS) website each month. These are broken down into 32 different crime types: including violence with injury, robbery, theft from person, burglary, theft of motor vehicle, theft from motor vehicle and criminal damage, reflecting their policing priorities.

On this measure, levels of recorded crime in London have fallen consistently since 2008. Notably, the volume of victim based crimes has decreased over time, with over 53,000 fewer offences in the most recent year compared to 2008/09. This is a result of considerable reductions in 'traditional' victim based crimes, such as Robbery and Burglary, over the last seven years, indicating a shift in criminality across London, and indeed across England and Wales, away from these crime classifications. These shifts are highlighted by the changing shares of recorded crimes by different offence categories in Figure 10.40.

An exception to this downward trend in victim based crimes is the number of recorded sexual offences which have increased dramatically. In the year to February 2016 the number of recorded sexual offences is 91 per cent higher than in 2008/09. This represents an increase of over 7,000 offences, many of which may relate to historic crimes occurring more than one year prior to reporting. Outside of this data, there is likely to have also been a shift towards fraud, online and other electronic crimes. ONS data on fraud estimates that during the period April 2015 to March 2016 there were approximately 5.8 million incidents of fraud nationally. While fraud is not a new offence, methods of committing it have evolved a great deal[149], with the London Assembly reporting that 'around 70 per cent of frauds are now "cyber-enabled", up from 40 per cent a few years ago.[150]

**Figure 10.40: Recorded crime as a share of total offences, MPS**
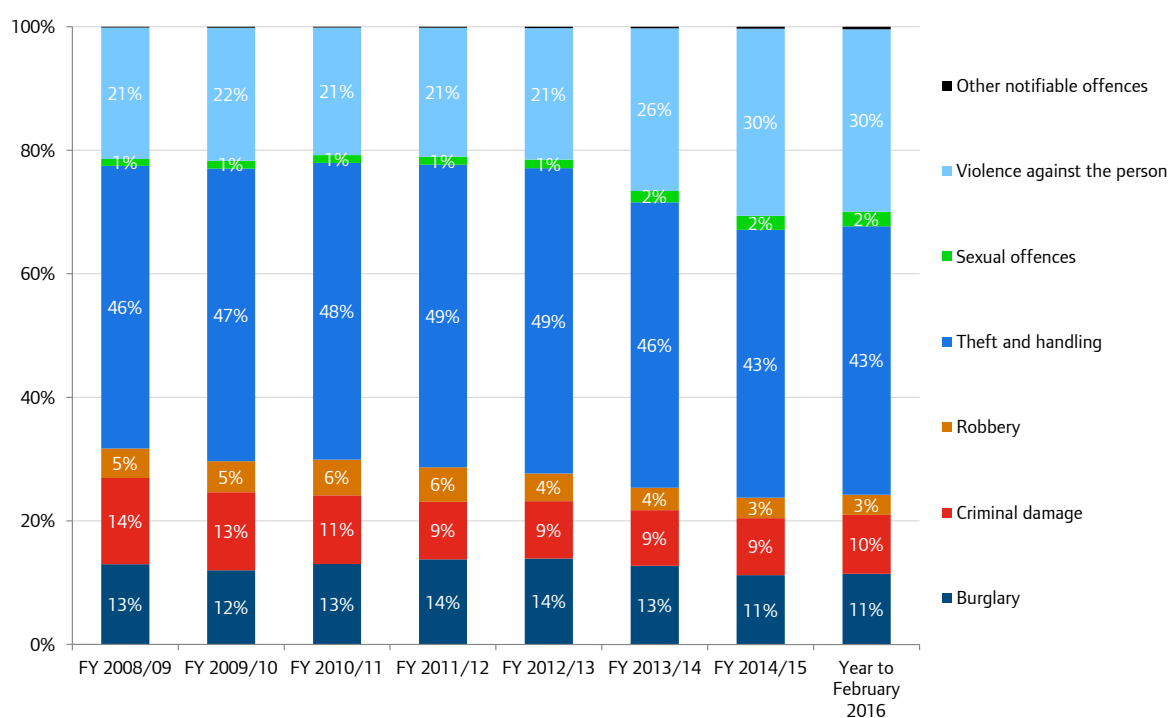


Source: MOPAC recorded crime. Note: data for the metropolitan police service (MPS) only, and does not include the City of London.

Compared with England as a whole, Table 10.10 shows that the total recorded crime in London per 1,000 of resident population was higher in the year to March 2016 (87.1 per 1,000 vs. 67.3 per 1,000). However, this did not hold for all offending in London, with, for instance, sexual offences and possession of weapons offences being at similar rates. These figures however include crimes recorded in London by non-residents so may also partly reflect London's high number of non-residents (such as commuters and tourists) on any given day, and may also be affected by different forces' recording practices.

**Table 10.10: Police recorded crime by offence group, year ending March 2016**

| | Rate per 1,000 of the population | | |
|---|---|---|---|
| | MPS | London | England |
| Total recorded crime - excluding fraud | 86.6 | 87.1 | 67.3 |
| Violence against the person | 21.8 | 21.8 | 17.2 |
| Homicide | 0.0 | 0.0 | 0.0 |
| Violence with injury | 8.6 | 8.7 | 7.5 |
| Violence without injury | 13.1 | 13.2 | 9.7 |
| Sexual offences | 1.9 | 1.9 | 1.8 |
| Robbery | 2.5 | 2.5 | 0.9 |
| Theft offences | 41.7 | 42.0 | 30.6 |
| Burglary | 8.2 | 8.2 | 7.1 |
| Domestic burglary* | 5.1 | 5.1 | 3.4 |
| Domestic burglary (households)* | 13.3 | 13.3 | 8.4 |
| Non-domestic burglary | 3.0 | 3.0 | 3.6 |
| Vehicle offences | 9.7 | 9.7 | 6.5 |
| Theft from the person | 4.0 | 4.0 | 1.4 |
| Bicycle theft | 1.9 | 2.0 | 1.5 |
| Shoplifting | 5.1 | 5.2 | 5.8 |
| All other theft offences | 12.7 | 12.9 | 8.4 |
| Criminal damage and arson | 7.2 | 7.3 | 9.3 |
| Drug offences | 4.6 | 4.7 | 2.5 |
| Possession of weapons offences | 0.6 | 0.6 | 0.4 |
| Public order offences | 5.1 | 5.1 | 3.4 |
| Miscellaneous crimes against society | 1.2 | 1.2 | 1.1 |

*Source: ONS police recorded crime statistics. Notes: London includes data from the City of London Police as well as the MPS. *Domestic burglary rates are shown both by rate per 1,000 of population and rate per 1,000 households. Household population figures are from the 2012 mid-year estimate.*

The perpetrators of crime in London are also often re-offenders; 77 per cent of adult offenders convicted or cautioned in London from June 2013 to June 2014 were reoffenders. Among offenders, the proven adult reoffending rate in London is similar to the levels in England and Wales, at around 26 per cent. Based on the criminal history of a sample of around 2,000 of London's high risk and prolific offenders the Mayor's Office for Policing and Crime (MOPAC) reported that this group of offenders were responsible for around 53,000 offences over a three year period, at a cost to society of £163 million.[151]

London also had relatively higher rates of first time offenders with 28,100 such offenders in 2014, equivalent to 334 per 100,000 of population. This compares to a rate of 263 per 100,000 in England as a whole.[152] Public Health England notes that a person's offending behaviour is often intrinsically linked to their physical and mental health, and particularly any substance misuse issues. It also highlights the inter-generational issues of families with multiple needs managed through the criminal justice system.

Children and young people in London, aged between 10 and 17, are also slightly more likely to receive their first reprimand, warning or conviction than the England average. In 2014, 3,130 young Londoners were first time entrants to the youth justice system at a rate of 426 per 100,000 of population, compared to an average rate of 409 per 100,000 of population across England.[153] It is also noted that children within the youth justice system often have more unmet health needs than other children, while having a criminal conviction is also associated with lower incomes, and worse employment outcomes that can impact on young Londoners' life chances (explored in section

10.5.3).[154] Children in care are particularly at risk, with the rate of offending for looked after children in England six times higher than the offending rate of than children in the general population, which was 1 per cent. Therefore, while most children in care do not get in trouble with the law, they are six times more likely than children in the general population to be convicted of a crime or receive an out of court disposal[155].

## 10.7.2 Vulnerability to crime and community safety

Using London-specific data covering issues of deprivation, population, crime, and educational attainment, the Vulnerable Locality Profile (VLP) maps the relative safety of locations in London to identify wards in London most at risk from issues of community cohesion.[156] This identifies a 'central cross' of vulnerability in London and classifies a top 10 per cent of wards as of being of most concern. In this group, several wards are located in Haringey (7), Enfield (7), Newham (6), Barking and Dagenham (5), Southwark (5), Lewisham or Brent (both 4), with Northumberland Park in Haringey assessed to be the 'most vulnerable' ward in London. In contrast, over 70 per cent of the least vulnerable wards are located in South London, in the boroughs of Richmond, Bromley, Wandsworth, Sutton, Merton, Bexley, Kensington and Kingston (see Map 10.18).

Within the most vulnerable areas, there are higher rates of crime, particularly violence against the person, and there are also much higher rates (compared to the group of least vulnerable wards) of unemployment, deprivation, residents of BAME ethnicity, and deliberate fires[157].

**Map 10.18: Vulnerability locality profile at ward level, 2016**



Legend
**Vulnerable Locality Profile 2016**
- Minimal concern (lower)
- Minimal concern (upper)
- Below average (lower)
- Below average (upper)
- Around average (lower)
- Around average (upper)
- Above average (lower)
- Above average (upper)
- Maximal concern (lower)
- Maximal concern (upper)
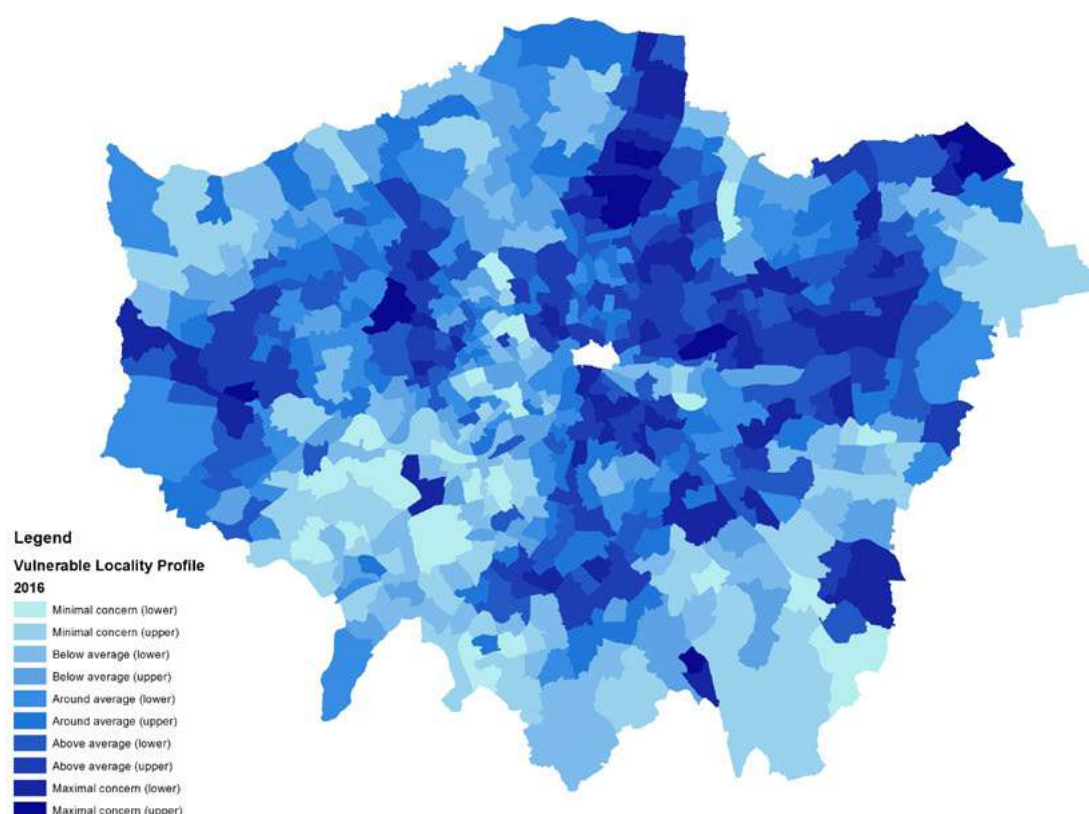
*Source: GLA London Landscapes, derived from data provided by GLA population projections, the Metropolitan Police Service, and Department for Education via ONS Neighbourhood Statistics.*

Another measure of community safety, relates to confidence or trust in local policing. Based on the latest results from the MPS/MOPAC Public Attitudes Survey, around two thirds of Londoners (67 per cent) think that the police do a good or excellent job in their area.[158] While not directly comparable, the proportion of adults across England and Wales as a whole who gave their local police a positive rating in 2013/14 was similar – at 63 per cent.[159]

Levels of public confidence in local policing on this measure vary considerably across ward areas, ranging from 53 per cent of respondents in North East Croydon to 84 per cent in Kensington (see Map 10.19). Those living in more deprived areas in London consistently report more negative views towards the police.

Attitudes towards the police also vary according to an individual's socio-demographic characteristics, with young BAME respondents in particular tending to hold more negative views than the rest of the population. However, whilst there are differences at a spatial and individual level, the traditional drivers of public confidence, namely: police-community engagement; fair treatment; police effectiveness; and alleviating local anti-social behaviour remain the main vehicles for improvement, and this applies to all communities regardless of age or ethnicity.

**Map 10.19: Neighbourhood confidence in local policing, July 2014–June 2016**[160]



Neighbourhood Confidence
- Highest
- (London)
- Lowest

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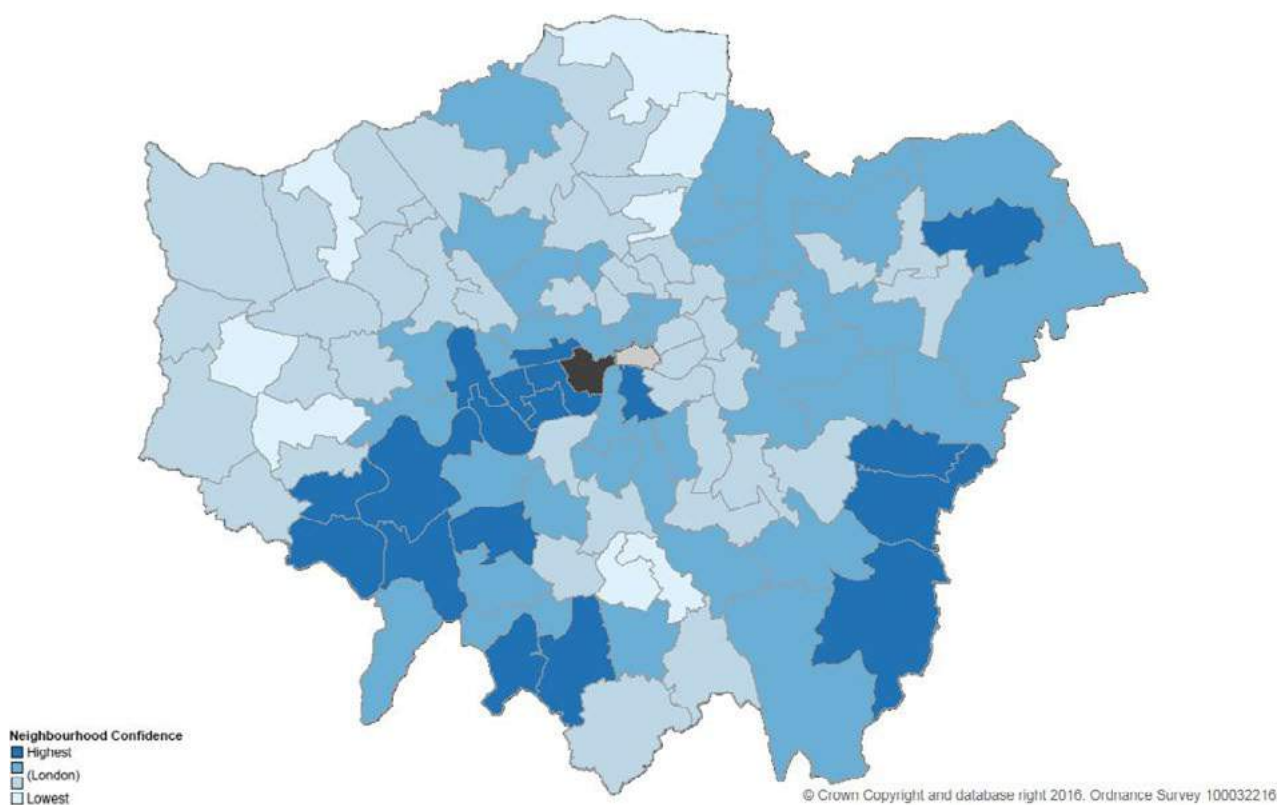
*Source: MPS/MOPAC Public Attitude Survey. Data for the West End (shown in black) are not available due to small sample sizes, and the City of London (shown in grey) was not covered by the survey.*

### 10.7.3 Business crime

Crime and the perception of London as a safe place to do business can also affect its ability to attract businesses, workers and tourists (other factors are considered in Chapter 5). MOPAC data indicates that while business crime has consistently accounted for 15 per cent of all crime, measured by total notifiable offences (TNOs), the volume of offences has fallen from 2011 to 2016.[161]

Comparisons of crime against businesses at a national level are limited to shoplifting and commercial robbery only. This shows that while the MPS contributed the largest percentage of recorded offences for these two types of crime than any other force in England and Wales (13.3 per cent in 2015), the MPS records a lower rate of offending (per 1,000 business premises) than many forces, including the three most similar: Greater Manchester, West Midlands and West Yorkshire police.

Looking at the levels of business crime across London, Westminster consistently records a high volume of business crime, as there are more business premises in Westminster. However, controlling for the number of premises, Map 10.20 shows that the rates of business crime varies considerably, with Newham having the highest rate of business crime in the year to June 2015.

**Map 10.20: Offences per 1,000 business premises, July 2014 to June 2015**
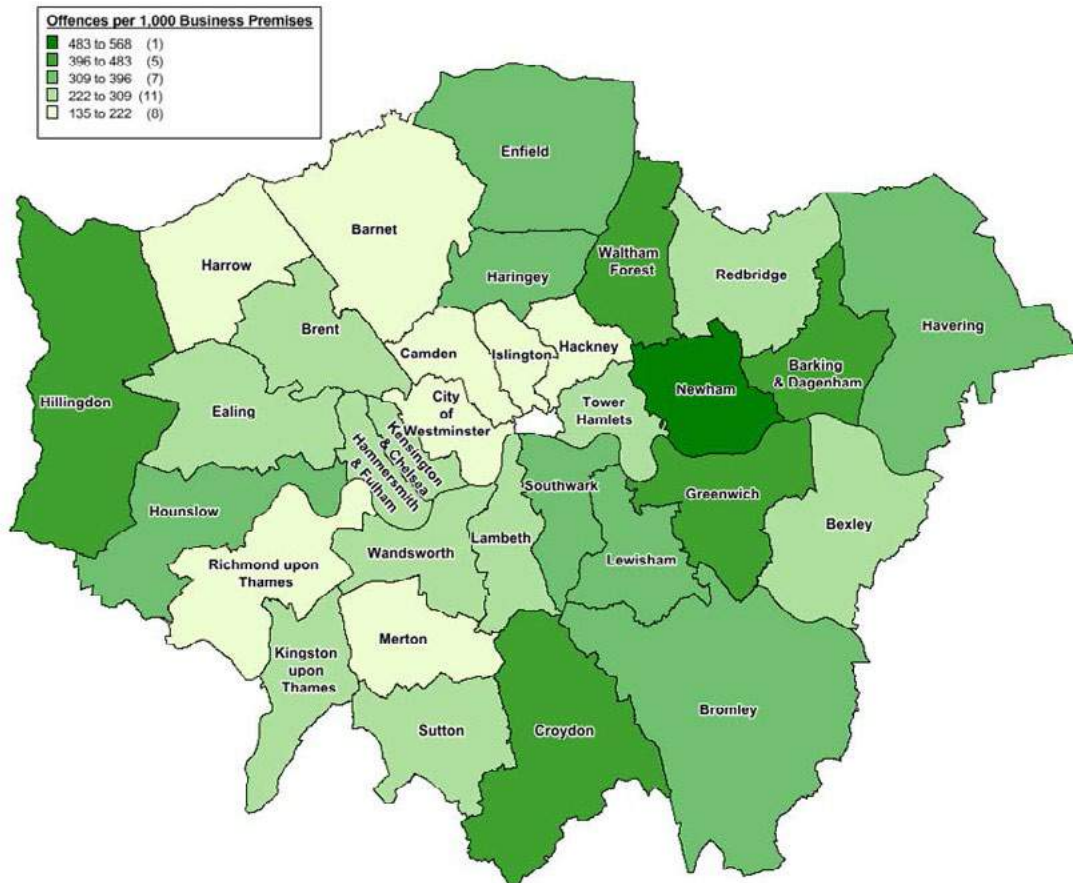


*Source: MOPAC, business crime statistics*

Businesses in London also vary in the extent to which they have confidence in local policing. Analysis of the MOPAC Business Attitudes Survey finds that engagement with the business community and the effectiveness in dealing with crime are the two most important drivers of business confidence. In particular, those businesses that have high levels of engagement with the police tend to be more confident in policing, than those who have low levels of engagement.[162]

The majority of boroughs which score low for business confidence in policing (such as Newham, Tower Hamlets, Brent and Enfield) are also vulnerable to issues of community cohesion, as measured via the VLPs seen in section 10.7.2. Personal characteristics such as age, gender and ethnicity of the respondent, and business characteristics, including location, nature of business, sector and size are however not significant drivers of confidence in policing. The policing response may therefore be seen as crucial to improving business confidence in policing across all parts of the capital.

# Chapter 10 endnotes

1 Joseph Rowntree Foundation, 'Inclusive Growth Monitor', 2015

2 Results are based on interviews with 3,861 London residents aged 18+. Participants were not randomly sampled, but self-selecting via a number of known databases. This achieved a non-representative sample of Londoners. The data has been weighted by age, gender and ethnicity to reflect that of the London population.

3 The interview question asked 1,003 adult Londoners: "There are currently over 8.5 million people living in London. By 2030 the population is expected to grow to 10 million people. Bearing this in mind, which two or three of the following are you most concerned about?"

4 Results are based on interviews with 1,003 London residents aged 18+. Interviews were carried out by telephone on 20-26th March 2015. A representative sample was interviewed, with quotas set by age, gender and borough. For this and other GLA poll results see: http://data.london.gov.uk/dataset/gla-poll-results

5 This net measure does not include the effects of indirect taxes (for example VAT and duties) or benefits in kind (for example health and education). The amount of indirect tax each household pays is determined by their expenditure, considered in section 10.3.3, rather than their income. Further information is available at: ONS, 'The effects of taxes and benefits on household income: financial year ending 2015', 24 May 2016.

6 See for example, Institute for Fiscal Studies, 'Living standards, poverty and inequality in the UK: 2016', July 2016

7 DWP data on household incomes for 2014/15 was released in July 2016. This latest data will be reported on separately in a forthcoming release from the Intelligence Unit.

8 DWP households below average income statistics for the period 2001/02 to 2013/14 were adjusted for inflation using the retail price index (RPI). From 2016, the consumer price index (CPI) will be used.

9 Institute for Fiscal Studies, 'Living standards, poverty and inequality in the UK: 2016, July 2016, pp.32-33

10 Source: HMRC, Survey of Personal Incomes 2013-14

11 Institute for Fiscal Studies, 'Living standards, poverty and inequality in the UK: 2016, July 2016, pp.12-13

12 GDHI is the amount of money that all of the individuals in the household sector have available for spending or saving after income distribution measures (for example, taxes, social contributions and benefits) have taken effect. Source: ONS, 'Gross disposable household income' [website], accessed on 17 August 2016

13 ONS house price statistics for small areas, June 2016

14 Earnings data are gross annual earnings excluding incentive pay for full-time workers, taken from the ONS annual survey of hours and earnings 2015. This is slightly higher than residents' earnings, which in 2015 were £33,200 in London. This is a result of the relatively higher earnings of commuters.

15 For more information on this see: Marsden, J., November 2015, 'Working Paper 72: House prices in London – an economic analysis of London's housing market'. GLA Economics

16 For consistency with ASHE data, median annual earnings from 1969-1997 are based on weighted estimates of work-based weekly earnings from NES data.

17 See for example, Meen, G. 'Regional house prices and the ripple effect: a new interpretation', Housing Studies 14(6), pp. 733-753,1999

18 Data from the Council for Mortgage Lenders has revealed that mortgage terms are, on average, getting longer with 60 per cent of first time buyer mortgages on deals longer than 25 years in 2015.

19 Bank of England (2014), 'Financial position of British households survey, 2014'

20 GLA, analysis of data from the Labour Force Survey

21 Average private rentals taken from the Index of Private Housing Rental Prices, and wage growth reflects the growth of average full-time earnings from the Annual Survey of Hours and Earnings on a residency basis. The figures are presented as compound average growth rates. Source: ONS, April Economic Review 2016

22 Disposable income is measured after benefits and direct taxes are paid. This is consistent with the DWP Effects of Taxes and Benefits publication.

23 GLA, analysis of English Housing Survey 2013/14

24 Halifax, Generation Rent 2015

25 Opinium (2016), 'Housing costs driving out Londoners'

26 New Policy Institute (2016), 'Movements of housing benefit claimants in London'

27 DCLG, Homelessness statistics

28 *ibid*

29 Crisis: About Homelessness – Rough Sleeping, [webpage], accessed on 14 July 2016

30 More than 7,000 individuals in London are identified as experiencing a combination of substance misuse, offending, and homelessness across London each year, with a further 31,900 Londoners facing two of these needs at once. Source: Revolving Door, 'London Together**: t**ransforming services for the most excluded in the capital', 2016

31 GLA Economics, 2 November 2015, 'A Fairer London: The 2015 Living Wage in London'

32 Department for Education, January 2014, 'Childcare and early years survey of parents 2012-2013'

33 Family and Childcare Trust, 'Childcare Costs Survey 2015'

34 OECD, 'Balancing work and family life: helping parents into paid employment', Chapter 4 in OECD Employment Outlook 2001

35 Duncan, A., Paull, G., and Taylor, J. 'Mother's employment and the use of childcare in the United Kingdom', Institute for Fiscal Studies, October 2001

36 Under the Low Income High Costs (LIHC) definition, a fuel poor household is one in which: A household has required fuel costs that are above the median level; and were the household to spend that amount, they would be left with a residual income below the official poverty line.

37 Department of Energy and Climate Change (DECC), Fuel poverty sub-regional statistics, June 2016

38 DECC, 'Annual fuel poverty statistics report, 2016 England', 30 June 2016

39 Boardman, B. 'Fixing Fuel Poverty: Challenges and Solutions', 2010

40 ONS, Excess winter mortality data, England and Wales, 2014/15 provisional figures

41 ONS, 'Income, expenditure and wellbeing', Chapter 3 in Family Spending 2015.

42 London Assembly, 'Final demand: personal problem debt in London', 2015

43 Note: this is a measure of volume, - showing the number of people the foodbanks have given emergency food to. These are not necessarily unique users. Source: The Trussell Trust, 'Latest stats: number of 3 day emergency food supplies given in 2015-2016' [webpage], accessed on 10 August 2016

44 StepChange, 'London in the red: a briefing on problem debt in London', 2015

45 Bramley, G., Hirsch, D., Littlewood, M., and Watkins, D. 'Counting the cost of UK poverty', Joseph Rowntree Foundation, August 2016

46 DWP data on household incomes for 2014/15 was released in July 2016. This latest data will be reported on separately in a forthcoming release from the GLA Intelligence Unit.

47 ibid

48 These include items such as being able to afford birthday and other celebrations for children, a warm winter coat, managing to pay bills/debt repayments, having household contents insurance, and having a week-long holiday each year; for pensioners, this may include items such as having a damp-free home, access to a telephone when needed, and having their hair done or cut regularly.

49 ONS, 'Persistent poverty in the UK and EU', 16 May 2016

50 ONS,' Poverty and employment transitions in the UK and EU: 2007-2012', 10 March 2015

51 The percentages add up to more than 100 per cent as it is possible for an individual to experience more than one of these events.

52 The welfare system is administered by different departments and branches of government, including local authorities. It is therefore not possible to simply combine data from the different sources. Some of the figures included here are individual benefits, while others may be for entire families. Nor are these comprehensive counts, since some benefits are not included, including some disability-related benefits and some housing-related benefits. The published statistics do not allow comprehensive counts to be derived.

53 Further details on changes to welfare benefit since 2011 are available at: https://www.turn2us.org.uk/Benefit-guides/Benefit-Changes/Benefit-Changes-Timetable-2016, accessed on 24 August 2016.

54 This is defined to match the specific information in the benefit system, excluding both Housing Benefit income and housing costs, rather than the usual published 60 per cent median statistics.

55 In earlier years, rates were produced for using the total number of children receiving child benefit as the denominator. In most areas, with a few notable exceptions in Central London, this was a good proxy for the total number of children in families receiving benefits. However, with the changes to the Child Benefit system, this is no longer possible.

56 HMRC, Personal tax credit statistics

57 DWP, Housing benefit caseload data 2016

58 Further analysis is available in: GLA Intelligence Update, 'Benefit Cap in London', July 2015.

59 ibid

60 Hoffman, J., February 2014, 'Working Paper 59: Low pay in London'. GLA Economics

61 The differences in earnings between male and female workers are considered separately in Chapter 9.

62 ibid

63 For more information on the London Living Wage see: GLA Economics, 2 November 2015, 'A Fairer London: The 2015 Living Wage in London'.

64 ONS, 'Estimates of employee jobs paid less than the living wage in London and other parts of the UK', 12 October 2015

65 Further analysis is available in: GLA Intelligence Briefing, 'English Indices of Deprivation', May 2016

66 ONS Wealth and Assets survey, 2012 - 2014

67 Sunday Times Rich List 2016

68 ONS, Wealth and Assets Survey 2008/10 and 2010/12

69 London Fairness Commission, 'Is London a Fair City?', March report 2016

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157 Based on simple comparisons between Ward level data via the GLA ward profiles and atlas (2014 boundaries), available at: http://data.london.gov.uk/dataset/ward-profiles-and-atlas, accessed on 8 August 2016

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# Appendix to Chapter 1

## Appendix 1.1: London's industrial specialisations

An index of specialisation is a calculation which looks at the relative importance of a sector based on the number of jobs in one area as compared to another geographic area. For this analysis London is compared to the rest of Great Britain. Any score over 1 indicates that London is more specialised in terms of jobs than the rest of Great Britain; a score less than one indicate the opposite.

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| A,B,D,E: Primary and Utilities | 28,700 | 0.6% | 535,400 | 5.1% | **0.26** |
| C : Manufacturing | 113,300 | 2.4% | 2,241,200 | 4.8% | **0.25** |
| F : Construction | 144,800 | 3.1% | 1,102,100 | 11.6% | **0.64** |
| G : Wholesale and retail trade | 594,700 | 12.6% | 3,815,600 | 13.5% | **0.76** |
| H : Transportation and storage | 227,300 | 4.8% | 1,025,000 | 18.2% | **1.09** |
| I : Accommodation and food service activities | 358,000 | 7.6% | 1,614,600 | 18.1% | **1.09** |
| J : Information and communication | 372,800 | 7.9% | 769,700 | 32.6% | **2.38** |
| K : Financial and insurance activities | 351,900 | 7.4% | 681,400 | 34.1% | **2.53** |
| L : Real estate activities | 107,600 | 2.3% | 345,900 | 23.7% | **1.53** |
| M : Professional, scientific and technical activities | 613,900 | 13.0% | 1,638,900 | 27.3% | **1.84** |
| N : Administrative and support service activities | 490,600 | 10.4% | 1,942,300 | 20.2% | **1.24** |
| O : Public administration and defence | 220,000 | 4.6% | 1,064,600 | 17.1% | **1.01** |
| P : Education | 385,700 | 8.1% | 2,191,800 | 15.0% | **0.86** |
| Q : Human health and social work activities | 483,700 | 10.2% | 3,257,700 | 12.9% | **0.73** |
| R : Arts, entertainment and recreation | 125,200 | 2.6% | 558,100 | 18.3% | **1.10** |
| S : Other service activities | 114,600 | 2.4% | 433,700 | 20.9% | 1.30 |

### Detailed Index of Specialisation calculations

The following tables provide more detailed information on particular specialisms for London, broken down further to industry division, group and class (up to 4 digit SIC2007 level). Here sectors which have component sub-sectors with an index of specialisation score of above 1.4 and employment over 4,000 are included. Within the tables, the bold row are data for the 1 digit SIC section, the blue rows are for 2 digit SIC divisions, the orange rows are for 3 digit SIC groups, and the unshaded rows are for 4 digit SIC classes.

## Manufacturing

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **C : Manufacturing** | **113,300** | **2.4%** | **2,241,200** | **4.8%** | **0.25** |
| 14 : Manufacture of wearing apparel | 7,900 | 0.2% | 24,600 | 24.3% | 1.58 |

## Construction

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **F : Construction** | **144,800** | **3.1%** | **1,102,100** | **11.6%** | **0.64** |
| 41.1 : Development of building projects | 21,500 | 0.5% | 52,900 | 28.9% | 1.99 |

## Wholesale and retail trade

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **G : Wholesale and retail trade** | **594,700** | **12.6%** | **3,815,600** | **13.5%** | **0.76** |
| 46.34 : Wholesale of beverages | 9,300 | 0.2% | 21,500 | 30.2% | 2.12 |
| 46.42 : Wholesale of clothing and footwear | 12,200 | 0.3% | 30,900 | 28.3% | 1.94 |
| 46.45 : Wholesale of perfume and cosmetics | 11,000 | 0.2% | 19,600 | 35.9% | 2.75 |
| 47.29 : Other retail sale of food in specialised stores | 7,100 | 0.2% | 21,300 | 25.0% | 1.64 |
| 47.4 : Retail sale of information and communication equipment in specialised stores | 11,700 | 0.2% | 38,700 | 23.2% | 1.48 |
| 47.42 : Retail sale of telecommunications equipment in specialised stores | 6,600 | 0.1% | 20,900 | 24.0% | 1.55 |

## Transportation and storage

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **H : Transportation and storage** | **227,300** | **4.8%** | **1,025,000** | **18.2%** | **1.09** |
| 49.1 : Passenger rail transport, interurban | 11,600 | 0.2% | 35,200 | 24.8% | 1.62 |
| 49.3 : Other passenger land transport | 68,200 | 1.4% | 160,500 | 29.8% | 2.08 |
| 49.31 : Urban and suburban passenger land transport | 55,200 | 1.2% | 81,300 | 40.4% | 3.33 |
| 50 : Water transport | 4,100 | 0.1% | 13,600 | 23.2% | 1.48 |
| 51 : Air transport | 37,200 | 0.8% | 35,100 | 51.5% | 5.20 |
| 51.1 : Passenger air transport | 36,900 | 0.8% | 32,800 | 52.9% | 5.52 |
| 52.2 : Support activities for transportation | 49,600 | 1.0% | 169,500 | 22.6% | 1.44 |
| 52.23 : Service activities incidental to air transportation | 15,000 | 0.3% | 33,200 | 31.1% | 2.22 |
| 52.29 : Other transportation support activities | 15,600 | 0.3% | 48,500 | 24.3% | 1.58 |

## Accommodation and food

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **I : Accommodation and food service activities** | **358,000** | **7.6%** | **1,614,600** | **18.1%** | **1.09** |
| 56.2 : Event catering and other food service activities | 64,800 | 1.4% | 177,800 | 26.7% | 1.79 |
| 56.21 : Event catering activities | 33,100 | 0.7% | 87,900 | 27.4% | 1.85 |
| 56.29 : Other food service activities | 31,800 | 0.7% | 89,800 | 26.2% | 1.74 |

## Information and communication

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **J : Information and communication** | **372,800** | **7.9%** | **769,700** | **32.6%** | **2.38** |
| 58 : Publishing activities | 53,900 | 1.1% | 78,100 | 40.8% | 3.39 |
| 58.1 : Publishing of books, periodicals and other publishing activities | 49,700 | 1.1% | 70,600 | 41.3% | 3.45 |
| 58.11 : Book publishing | 11,000 | 0.2% | 13,400 | 45.1% | 4.03 |
| 58.13 : Publishing of newspapers | 13,300 | 0.3% | 25,900 | 33.9% | 2.52 |
| 58.14 : Publishing of journals and periodicals | 19,800 | 0.4% | 19,400 | 50.5% | 5.01 |
| 58.19 : Other publishing activities | 5,500 | 0.1% | 11,300 | 32.7% | 2.39 |
| 58.2 : Software publishing | 4,100 | 0.1% | 7,600 | 35.0% | 2.65 |
| 59 : Motion picture, video and television programme production, sound recording and music publishing activities | 58,400 | 1.2% | 40,500 | 59.0% | 7.07 |
| 59.1 : Motion picture, video and television programme activities | 52,700 | 1.1% | 38,100 | 58.0% | 6.79 |
| 59.11 : Motion picture, video and television programme production activities | 35,900 | 0.8% | 20,300 | 63.9% | 8.68 |
| 59.12 : Motion picture, video and television programme post-production activities | 8,600 | 0.2% | 2,700 | 76.1% | 15.63 |
| 59.13 : Motion picture, video and television programme distribution activities | 4,500 | 0.1% | 900 | 83.3% | 24.53 |
| 59.2 : Sound recording and music publishing activities | 5,700 | 0.1% | 2,400 | 70.4% | 11.65 |
| 60 : Programming and broadcasting activities | 29,400 | 0.6% | 10,100 | 74.4% | 14.28 |
| 60.1 : Radio broadcasting | 7,300 | 0.2% | 4,500 | 61.9% | 7.96 |
| 60.2 : Television programming and broadcasting activities | 22,100 | 0.5% | 5,600 | 79.8% | 19.36 |
| 61 : Telecommunications | 46,000 | 1.0% | 153,300 | 23.1% | 1.47 |
| 61.2 : Wireless telecommunications activities | 5,100 | 0.1% | 11,100 | 31.5% | 2.25 |
| 61.9 : Other telecommunications activities | 37,500 | 0.8% | 129,200 | 22.5% | 1.42 |
| 62 : Computer programming, consultancy and related activities | 160,700 | 3.4% | 444,200 | 26.6% | 1.77 |
| 62.0 : Computer programming, consultancy and related activities | 160,700 | 3.4% | 444,200 | 26.6% | 1.77 |
| 62.01 : Computer programming activities | 39,900 | 0.8% | 107,800 | 27.0% | 1.82 |
| 62.02 : Computer consultancy activities | 88,500 | 1.9% | 244,800 | 26.6% | 1.77 |
| 62.09 : Other information technology and computer service activities | 31,900 | 0.7% | 90,200 | 26.1% | 1.73 |
| 63 : Information service activities | 24,600 | 0.5% | 43,300 | 36.2% | 2.79 |
| 63.1 : Data processing, hosting and related activities; web portals | 14,000 | 0.3% | 36,100 | 27.9% | 1.90 |
| 63.11 : Data processing, hosting and related activities | 9,600 | 0.2% | 33,100 | 22.5% | 1.42 |
| 63.12 : Web portals | 4,400 | 0.1% | 3,000 | 59.5% | 7.20 |
| 63.9 : Other information service activities | 10,600 | 0.2% | 7,200 | 59.6% | 7.22 |
| 63.91 : News agency activities | 7,700 | 0.2% | 1,800 | 81.1% | 20.99 |

## Financial and insurance activities

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **K : Financial and insurance activities** | **351,900** | **7.4%** | **681,400** | **34.1%** | **2.53** |
| 64 : Financial service activities, except insurance and pension funding | 169,300 | 3.6% | 339,800 | 33.3% | 2.44 |
| 64.1 : Monetary intermediation | 143,800 | 3.0% | 260,600 | 35.6% | 2.71 |
| 64.19 : Other monetary intermediation | 140,300 | 3.0% | 260,400 | 35.0% | 2.64 |
| 64.3 : Trusts, funds and similar financial entities | 6,900 | 0.1% | 5,800 | 54.3% | 5.84 |
| 64.99 : Other financial service activities, except insurance and pension funding, n.e.c. | 13,200 | 0.3% | 29,400 | 31.0% | 2.20 |
| 66 : Activities auxiliary to financial services and insurance activities | 164,100 | 3.5% | 260,800 | 38.6% | 3.09 |
| 66.1 : Activities auxiliary to financial services, except insurance and pension funding | 75,300 | 1.6% | 103,600 | 42.1% | 3.57 |
| 66.12 : Security and commodity contracts brokerage | 25,500 | 0.5% | 13,700 | 65.1% | 9.13 |
| 66.19 : Other activities auxiliary to financial services, except insurance and pension funding | 46,000 | 1.0% | 89,200 | 34.0% | 2.53 |
| 66.2 : Activities auxiliary to insurance and pension funding | 60,600 | 1.3% | 145,700 | 29.4% | 2.04 |
| 66.22 : Activities of insurance agents and brokers | 32,500 | 0.7% | 76,700 | 29.8% | 2.08 |
| 66.29 : Other activities auxiliary to insurance and pension funding | 24,700 | 0.5% | 56,700 | 30.3% | 2.14 |
| 66.3 : Fund management activities | 28,200 | 0.6% | 11,500 | 71.0% | 12.03 |

## Real estate activities

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **L : Real estate activities** | **107,600** | **2.3%** | **345,900** | **23.7%** | **1.53** |
| 68 : Real estate activities | 107,600 | 2.3% | 345,900 | 23.7% | 1.53 |
| 68.3 : Real estate activities on a fee or contract basis | 66,500 | 1.4% | 167,500 | 28.4% | 1.95 |
| 68.31 : Real estate agencies | 38,300 | 0.8% | 105,900 | 26.6% | 1.77 |
| 68.32 : Management of real estate on a fee or contract basis | 28,200 | 0.6% | 61,600 | 31.4% | 2.25 |

## Professional, scientific and technical activities

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **M : Professional, scientific and technical activities** | **613,900** | **13.0%** | **1,638,900** | **27.3%** | **1.84** |
| 69 : Legal and accounting activities | 173,400 | 3.7% | 385,000 | 31.1% | 2.21 |
| 69.1 : Legal activities | 86,400 | 1.8% | 179,100 | 32.5% | 2.37 |
| 69.2 : Accounting, bookkeeping and auditing activities; tax consultancy | 87,000 | 1.8% | 205,900 | 29.7% | 2.07 |
| 70 : Activities of head offices; management consultancy activities | 221,700 | 4.7% | 494,400 | 31.0% | 2.20 |
| 70.1 : Activities of head offices | 75,100 | 1.6% | 184,200 | 29.0% | 2.00 |
| 70.2 : Management consultancy activities | 146,700 | 3.1% | 310,200 | 32.1% | 2.32 |
| 70.21 : Public relations and communication activities | 11,500 | 0.2% | 8,200 | 58.4% | 6.88 |
| 70.22 : Business and other management consultancy activities | 135,100 | 2.9% | 302,100 | 30.9% | 2.19 |
| 71.11 : Architectural activities | 23,500 | 0.5% | 47,000 | 33.3% | 2.45 |
| 73 : Advertising and market research | 69,700 | 1.5% | 86,100 | 44.7% | 3.97 |
| 73.1 : Advertising | 49,900 | 1.1% | 57,500 | 46.5% | 4.26 |
| 73.11 : Advertising agencies | 42,400 | 0.9% | 50,300 | 45.7% | 4.14 |
| 73.12 : Media representation | 7,500 | 0.2% | 7,200 | 51.0% | 5.11 |
| 73.2 : Market research and public opinion polling | 19,800 | 0.4% | 28,600 | 40.9% | 3.40 |
| 74 : Other professional, scientific and technical activities | 48,700 | 1.0% | 119,400 | 29.0% | 2.00 |
| 74.1 : Specialised design activities | 17,300 | 0.4% | 30,500 | 36.2% | 2.78 |
| 74.2 : Photographic activities | 5,600 | 0.1% | 11,800 | 32.2% | 2.33 |
| 74.9 : Other professional, scientific and technical activities n.e.c. | 24,600 | 0.5% | 74,200 | 24.9% | 1.63 |

## Administrative and support service activities

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **N : Administrative and support service activities** | **490,600** | **10.4%** | **1,942,300** | **20.2%** | **1.24** |
| 78.1 : Activities of employment placement agencies | 32,700 | 0.7% | 101,300 | 24.4% | 1.58 |
| 79 : Travel agency, tour operator and other reservation service and related activities | 26,300 | 0.6% | 66,700 | 28.3% | 1.93 |
| 79.1 : Travel agency and tour operator activities | 23,900 | 0.5% | 59,900 | 28.5% | 1.96 |
| 79.11 : Travel agency activities | 15,300 | 0.3% | 40,100 | 27.6% | 1.87 |
| 79.12 : Tour operator activities | 8,600 | 0.2% | 19,800 | 30.3% | 2.13 |
| 80 : Security and investigation activities | 55,700 | 1.2% | 135,600 | 29.1% | 2.02 |
| 80.1 : Private security activities | 54,000 | 1.1% | 125,800 | 30.0% | 2.11 |
| 81.2 : Cleaning activities | 105,200 | 2.2% | 351,400 | 23.0% | 1.47 |
| 81.21 : General cleaning of buildings | 93,100 | 2.0% | 292,300 | 24.2% | 1.56 |
| 82.1 : Office administrative and support activities | 9,200 | 0.2% | 24,000 | 27.7% | 1.88 |
| 82.11 : Combined office administrative service activities | 5,800 | 0.1% | 14,400 | 28.7% | 1.98 |
| 82.3 : Organisation of conventions and trade shows | 7,700 | 0.2% | 12,900 | 37.4% | 2.93 |
| 82.9 : Business support service activities n.e.c. | 64,800 | 1.4% | 204,400 | 24.1% | 1.56 |
| 82.99 : Other business support service activities n.e.c. | 60,800 | 1.3% | 168,000 | 26.6% | 1.78 |

## Education

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **P : Education** | **385,700** | **8.1%** | **2,191,800** | **15.0%** | **0.86** |
| 85.6 : Educational support activities | 7,800 | 0.2% | 12,100 | 39.2% | 3.16 |

## Arts, entertainment and recreation

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **R : Arts, entertainment and recreation** | **125,200** | **2.6%** | **558,100** | **18.3%** | **1.10** |
| 90 : Creative, arts and entertainment activities | 35,000 | 0.7% | 51,400 | 40.5% | 3.34 |
| 90.0 : Creative, arts and entertainment activities | 35,000 | 0.7% | 51,400 | 40.5% | 3.34 |
| 90.01 : Performing arts | 16,400 | 0.3% | 25,800 | 38.9% | 3.12 |
| 90.03 : Artistic creation | 10,800 | 0.2% | 13,500 | 44.4% | 3.92 |
| 90.04 : Operation of arts facilities | 4,600 | 0.1% | 8,600 | 34.8% | 2.62 |
| 91.02 : Museum activities | 8,500 | 0.2% | 18,300 | 31.7% | 2.28 |
| 93.13 : Fitness facilities | 10,200 | 0.2% | 30,700 | 24.9% | 1.63 |

## Other service activities

| Sector | London – employee jobs | Share of total London employee jobs | Rest of GB employee jobs | London's share of total GB employee jobs | Index of Specialisation |
|---|---|---|---|---|---|
| **S : Other service activities** | **114,600** | **2.4%** | **433,700** | **20.9%** | **1.30** |
| 94 : Activities of membership organisations | 65,200 | 1.4% | 168,500 | 27.9% | 1.90 |
| 94.1 : Activities of business, employers and professional membership organisations | 23,900 | 0.5% | 19,900 | 54.6% | 5.89 |
| 94.11 : Activities of business and employers membership organisations | 7,800 | 0.2% | 6,300 | 55.3% | 6.07 |
| 94.12 : Activities of professional membership organisations | 16,100 | 0.3% | 13,500 | 54.4% | 5.85 |
| 94.91 : Activities of religious organisations | 16,300 | 0.3% | 46,000 | 26.2% | 1.74 |

Economic Evidence Base for London 2016

# Appendices to Chapter 2

## Appendix 2.1: Development Areas

This section of the Appendix to Chapter 2 examines other geographies of interest in London, this time in terms of areas that have been highlighted for future development and uses Census data to illustrate the population and employment concentration that stood in these areas at the time of the 2011 Census. It should however be noted that **the scale used in each map is not necessarily consistent across the various maps** in order to better highlight variations in employment and population densities in each individual development area.

### A1: Bexley Riverside

In 2011 it can be seen from Maps A1 and A2 that both employment and population where both relatively dispersed in the Bexley Riverside area.

**Map A1: Employment density in 2011 in Bexley Riverside (workers per hectare)**[1]
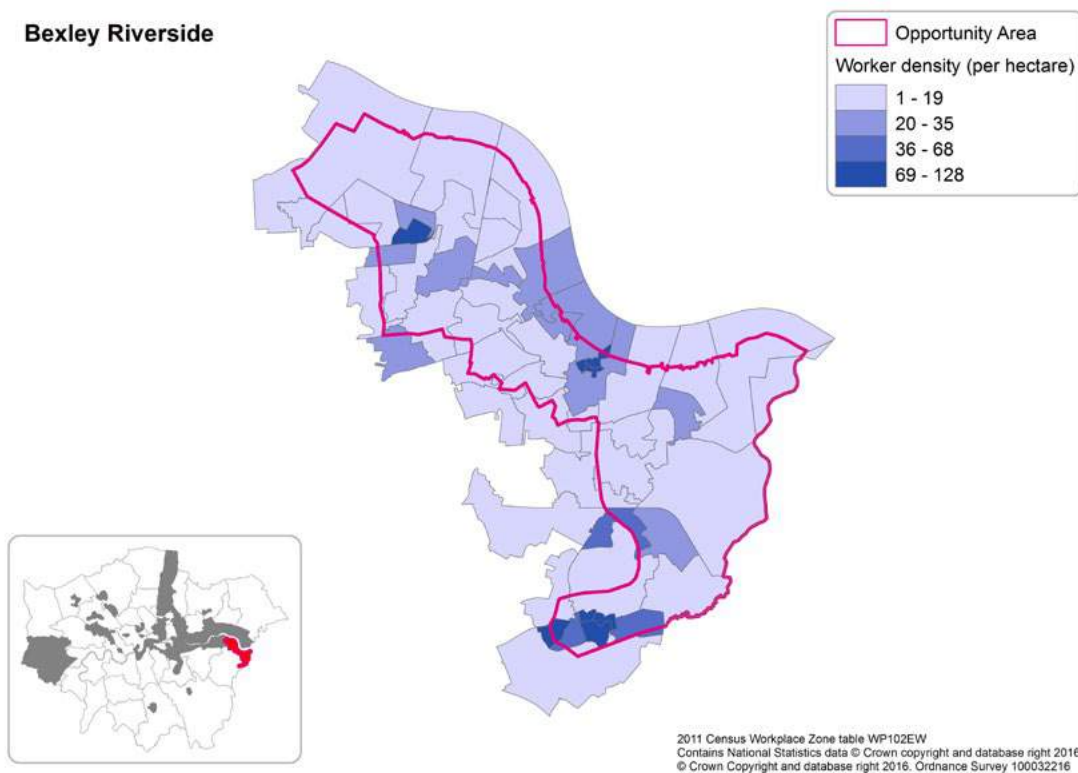


Source: Census and GLA Intelligence Unit analysis

**GLA Economics**

**Map A2: Population density in 2011 in Bexley Riverside (residents per hectare)**
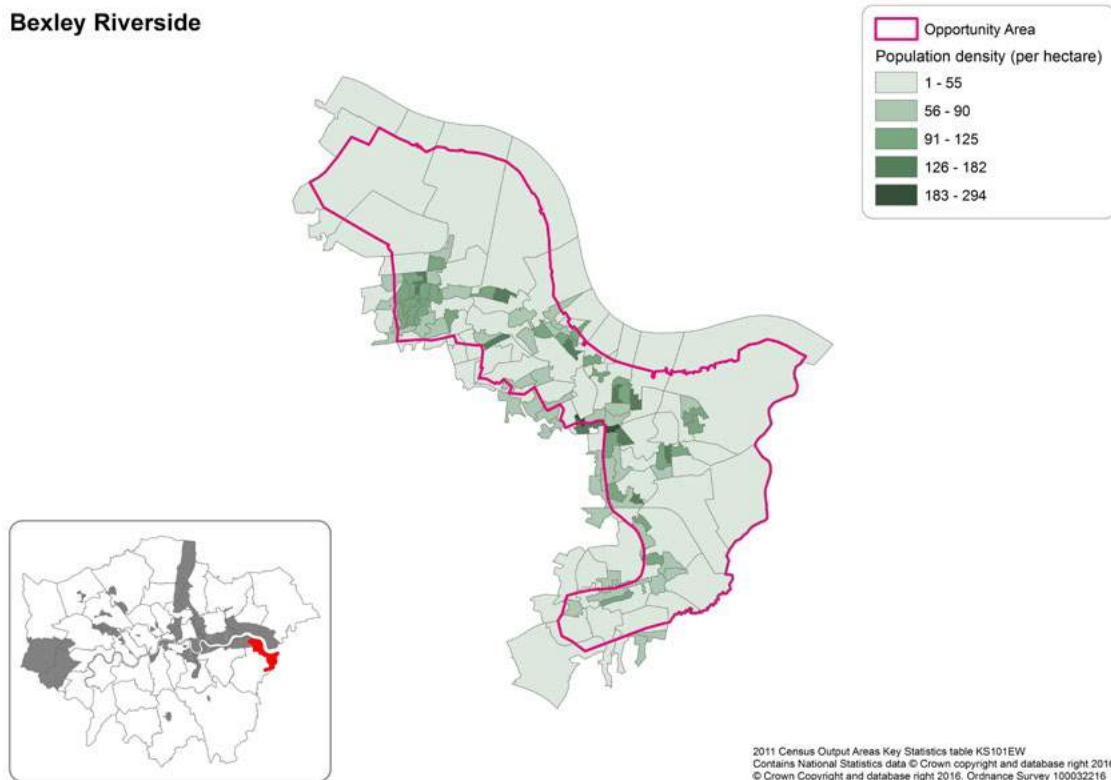


*Source: Census and GLA Intelligence Unit analysis*

## A2: Bromley

In 2011 it can be seen from Map A3 that employment was quite concentrated in the Bromley area while Map A4 shows that population density was relatively low.

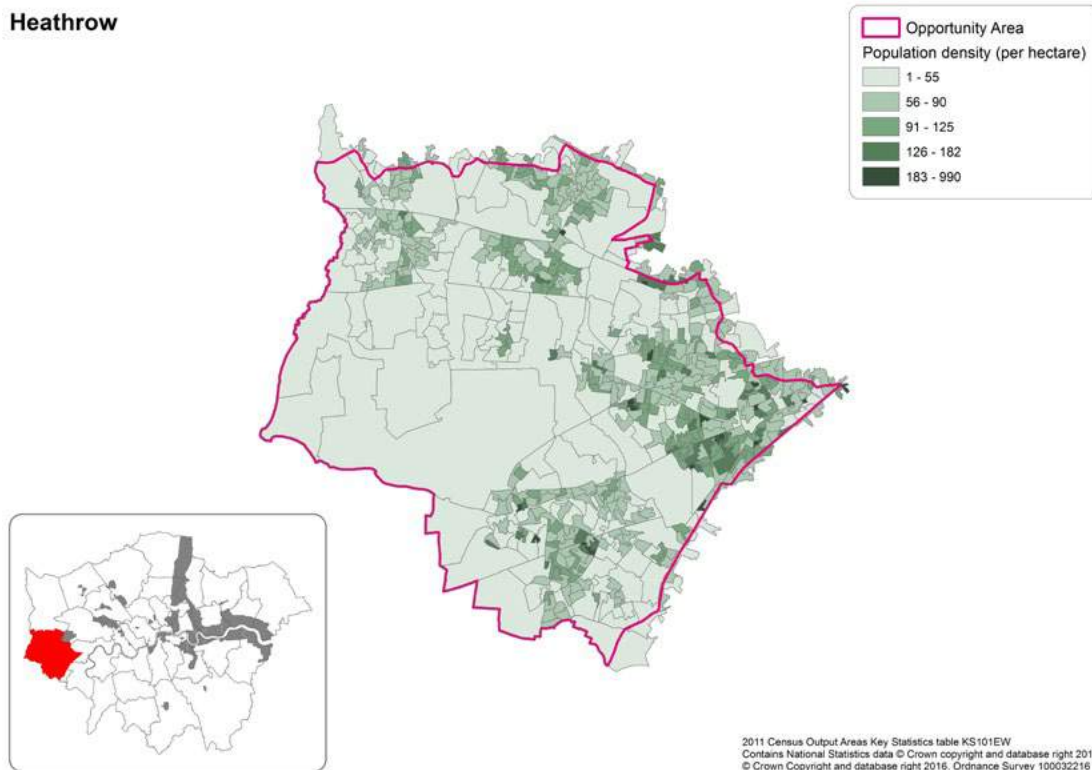**Map A3: Employment density in 2011 in Bromley (workers per hectare)**
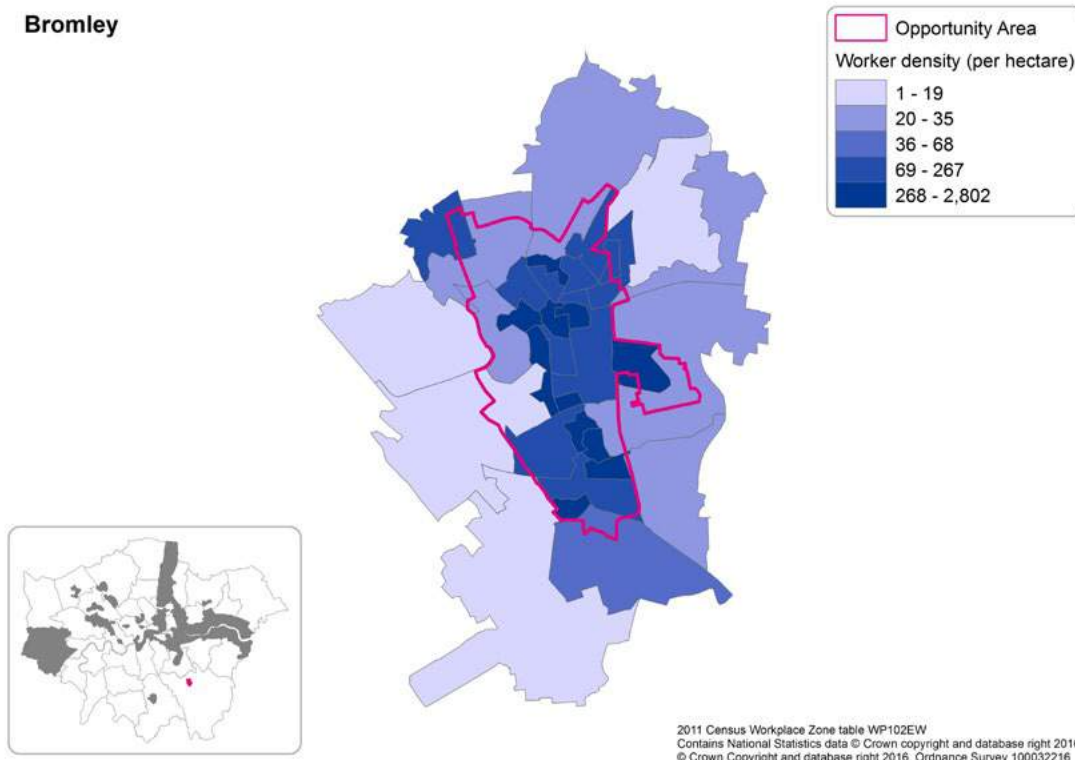


*Source: Census and GLA Intelligence Unit analysis*

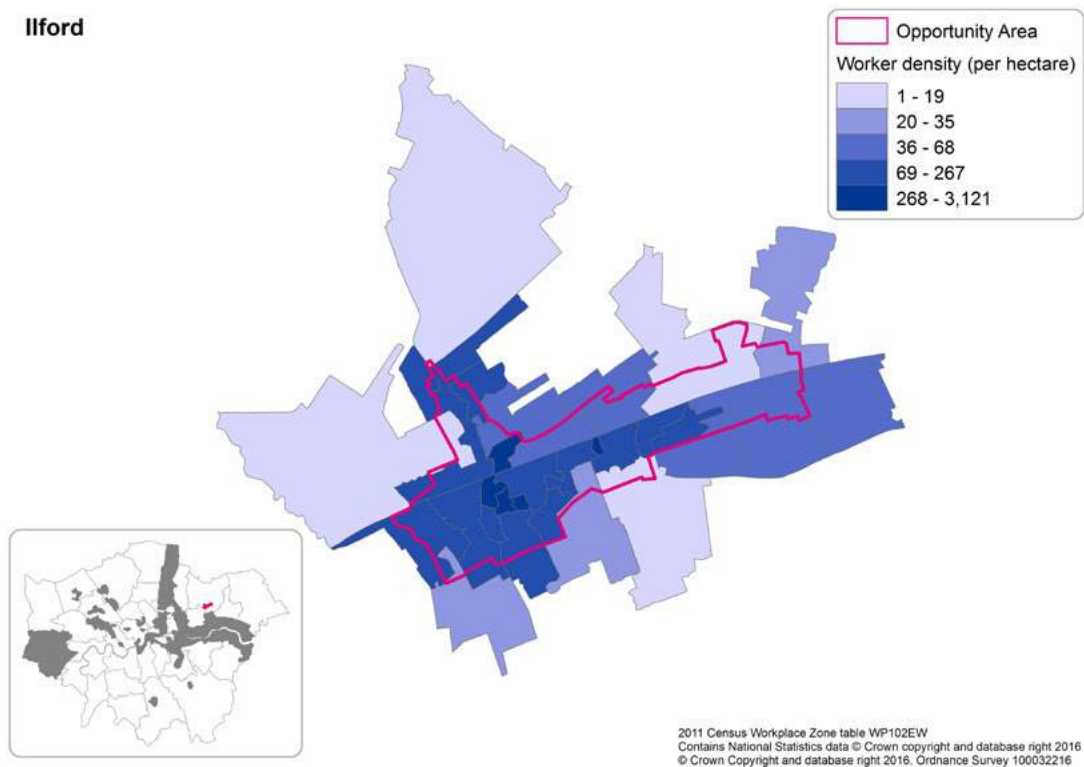**Map A4: Population density in 2011 in Bromley (residents per hectare)**
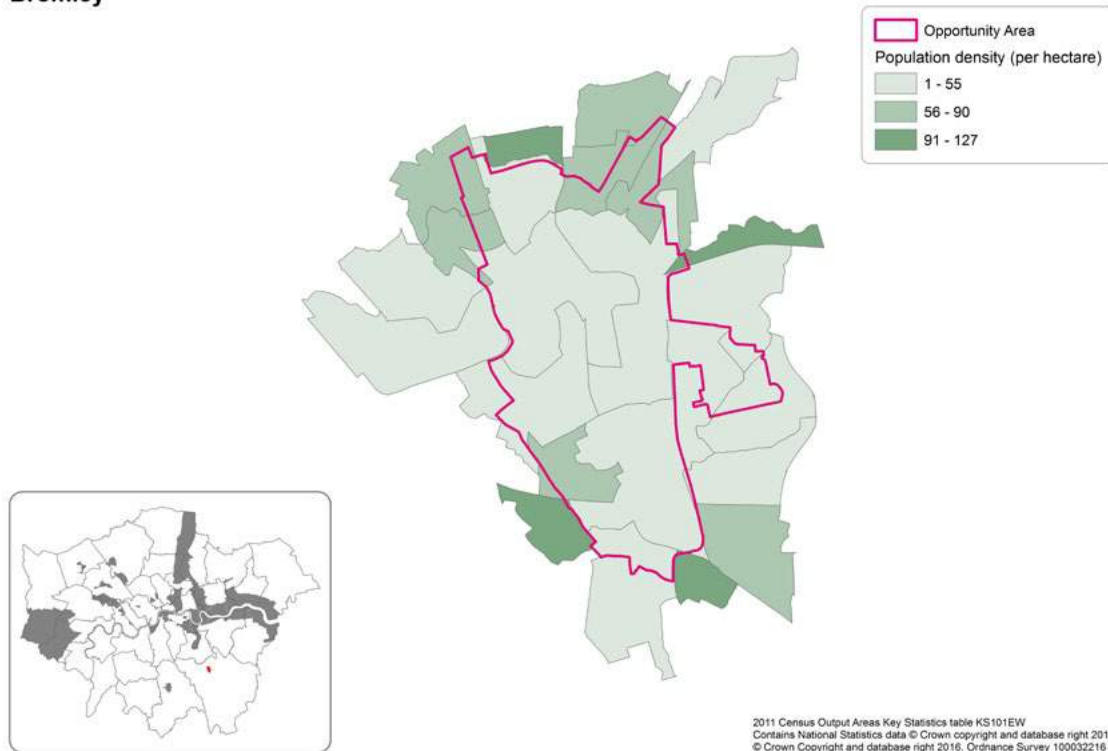


*Source: Census and GLA Intelligence Unit analysis*

## A3: Canada Water

In 2011 it can be seen from Map A5 that employment was more concentrated in the middle of the Canada Water area while Map A6 shows that population was concentrated to the north of this geography.

**Map A5: Employment density in 2011 in Canada Water (workers per hectare)**
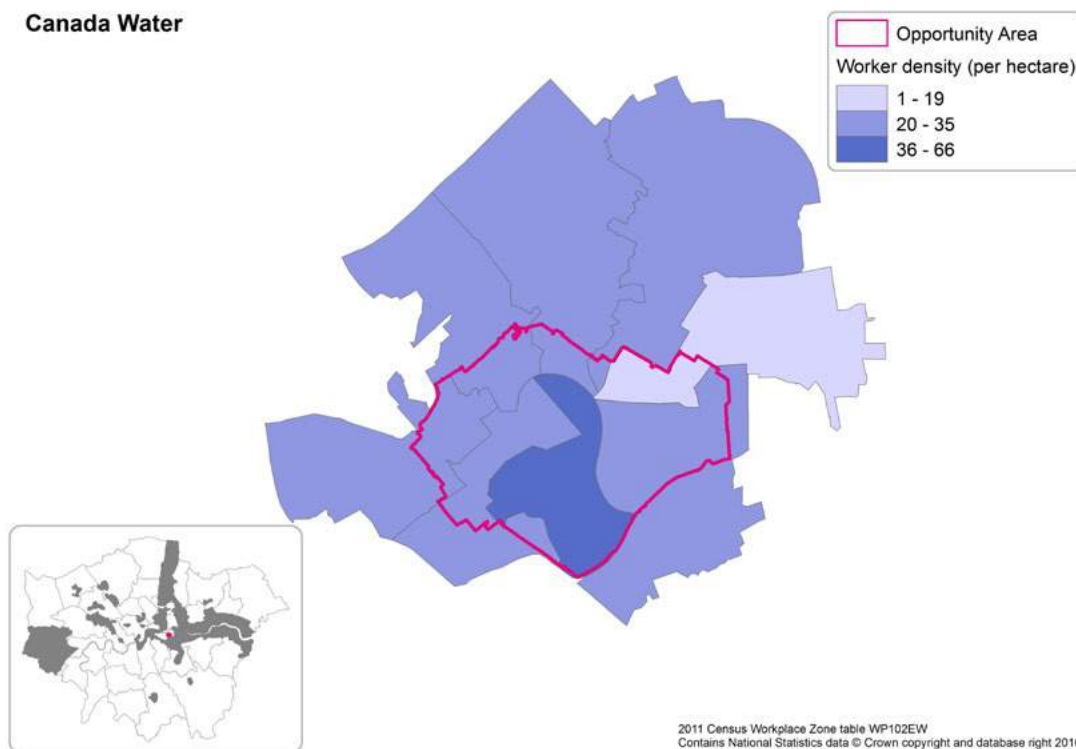


*Source: Census and GLA Intelligence Unit analysis*

**Map A6: Population density in 2011 in Canada Water (residents per hectare)**
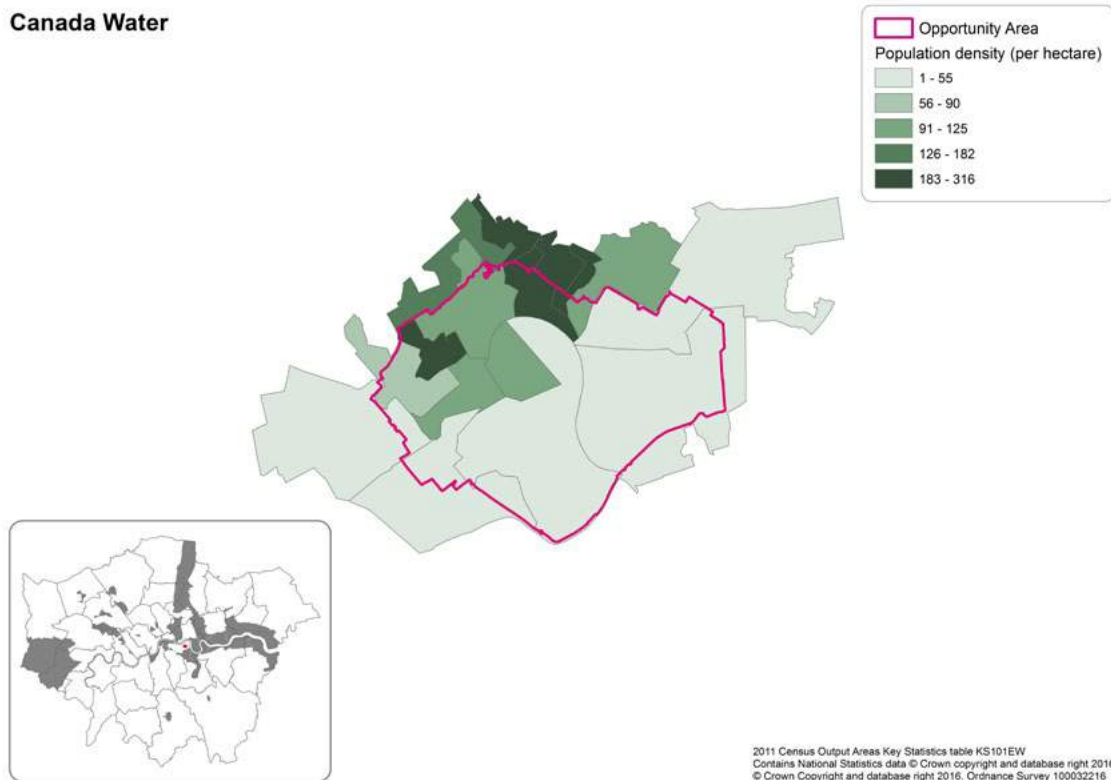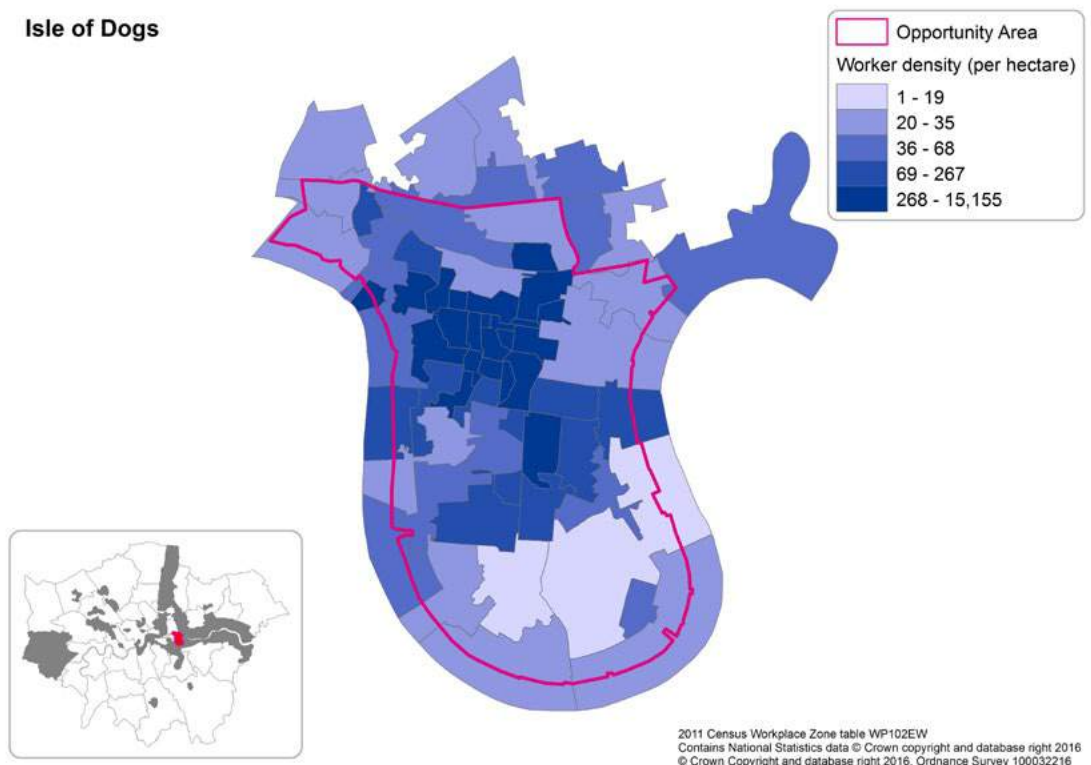


*Source: Census and GLA Intelligence Unit analysis*

## A4: Charlton Riverside

Map A7 shows that in 2011 employment was relatively evenly distributed in the Charlton Riverside area while Map A8 shows that the population was relatively low apart from along its southern fringe.

**Map A7: Employment density in 2011 in Charlton Riverside (workers per hectare)**
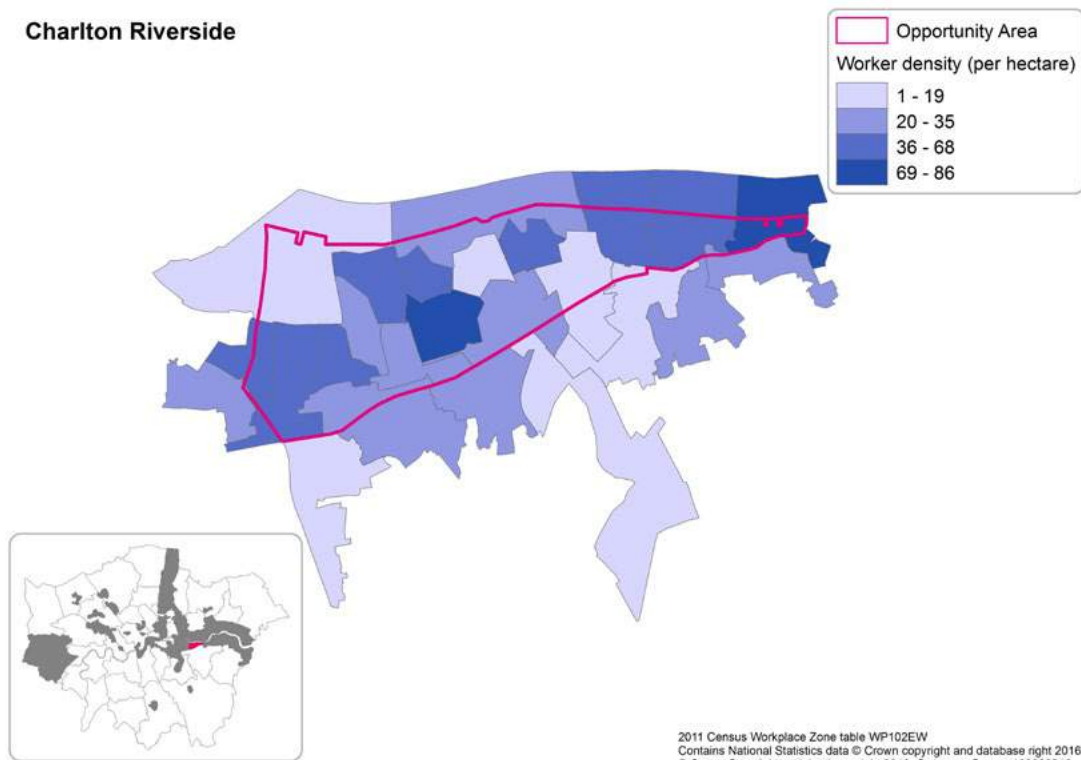


*Source: Census and GLA Intelligence Unit analysis*

**Map A8: Population density in 2011 in Charlton Riverside (residents per hectare)**
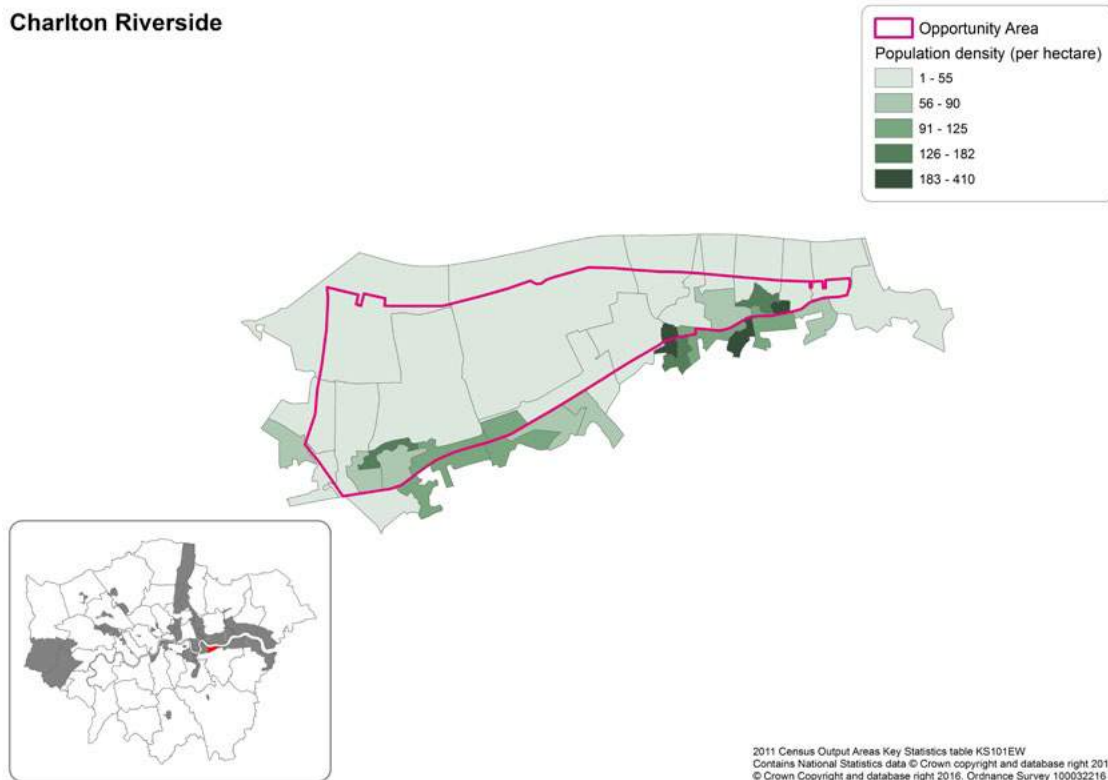


*Source: Census and GLA Intelligence Unit analysis*

## A5: The City Fringe/Tech City

Map A9 shows that in 2011 employment was heavily distributed throughout the City Fringe/Tech City area, while Map A10 shows that this also generally holds for population too.

**Map A9: Employment density in 2011 in the City Fringe/Tech City (workers per hectare)**
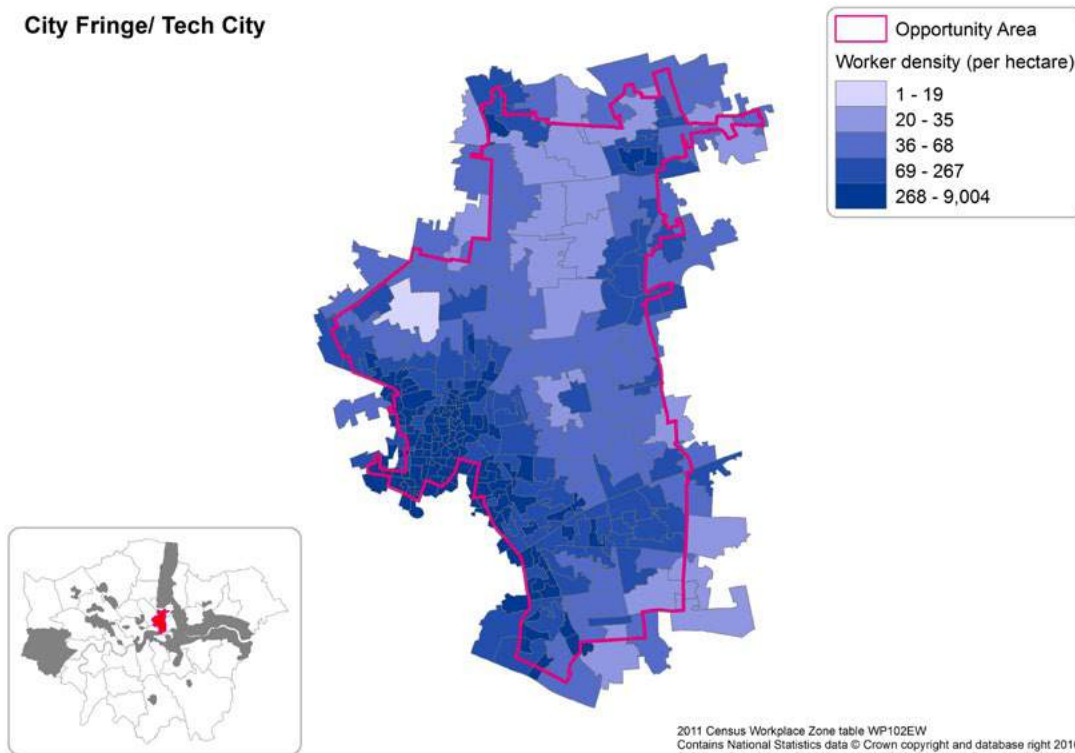


*Source: Census and GLA Intelligence Unit analysis*

**Map A10: Population density in 2011 in the City Fringe/Tech City (residents per hectare)**
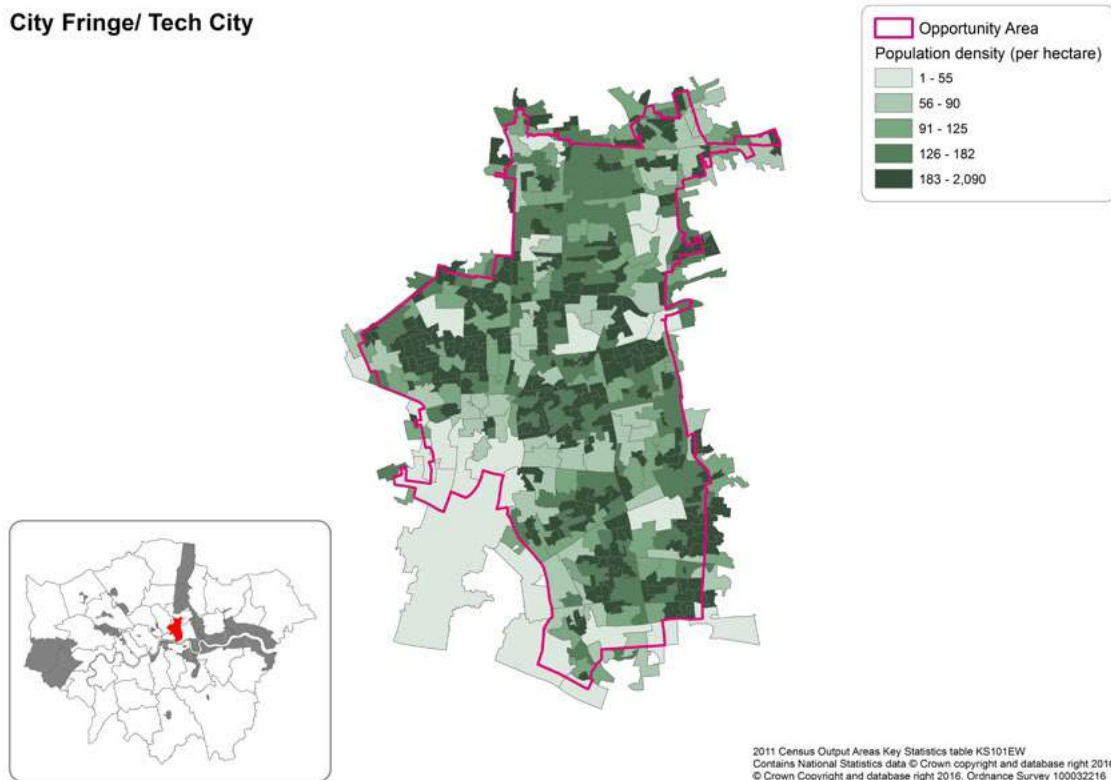


*Source: Census and GLA Intelligence Unit analysis*

## A6: Colindale/Burnt Oak

Map A11 shows that in 2011 the Colindale/Burnt Oak area had employment that was more concentrated in the north and south ends of this geography, while Map A12 shows that population was more concentrated in the centre and north.

**Map A11: Employment density in 2011 in Colindale/Burnt Oak (workers per hectare)**
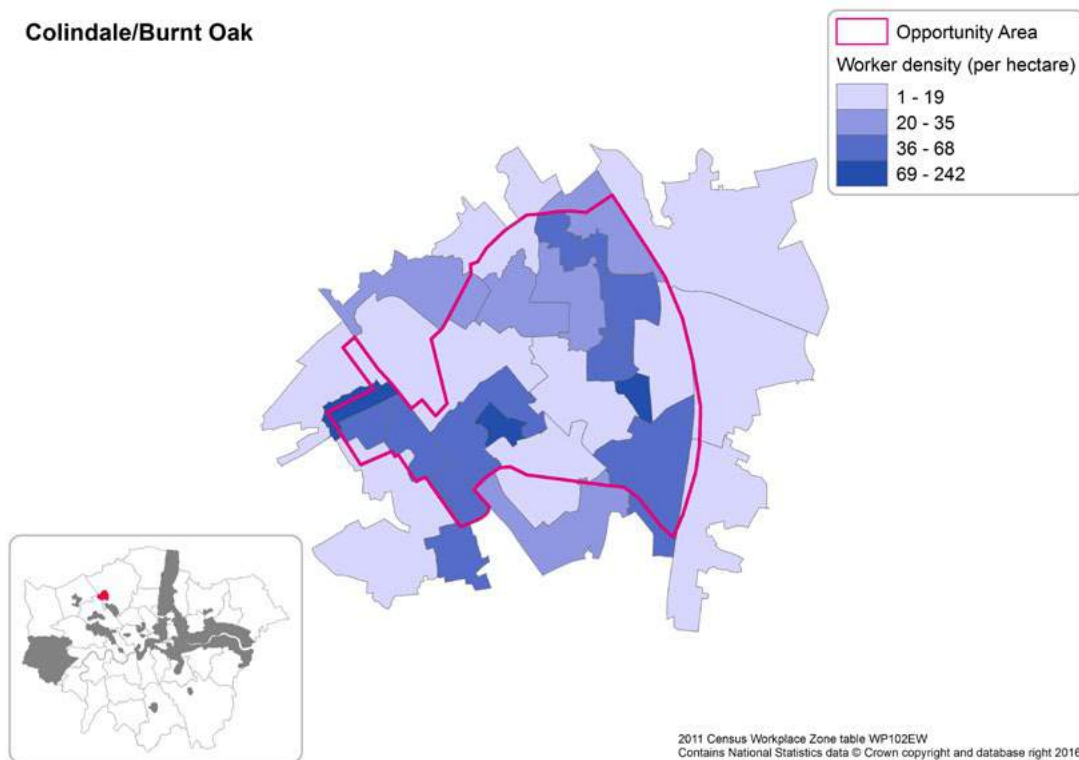


*Source: Census and GLA Intelligence Unit analysis*

**Map A12: Population density in 2011 in Colindale/Burnt Oak (residents per hectare)**
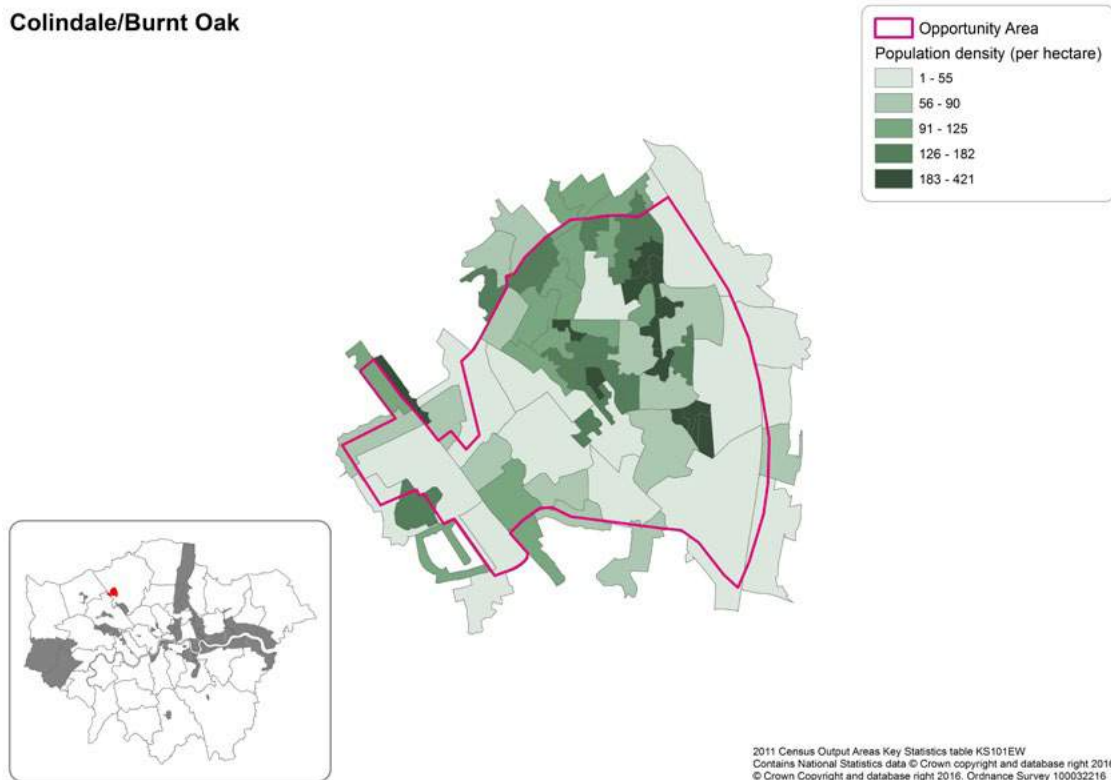


*Source: Census and GLA Intelligence Unit analysis*

## A7: Cricklewood/Brent Cross

Map A13 shows that in 2011 the Cricklewood/Brent Cross area had employment that was more concentrated in the north and centre of this geography, while Map A14 shows that population was more concentrated in the northern and southern ends.

**Map A13: Employment density in 2011 in Cricklewood/Brent Cross (workers per hectare)**
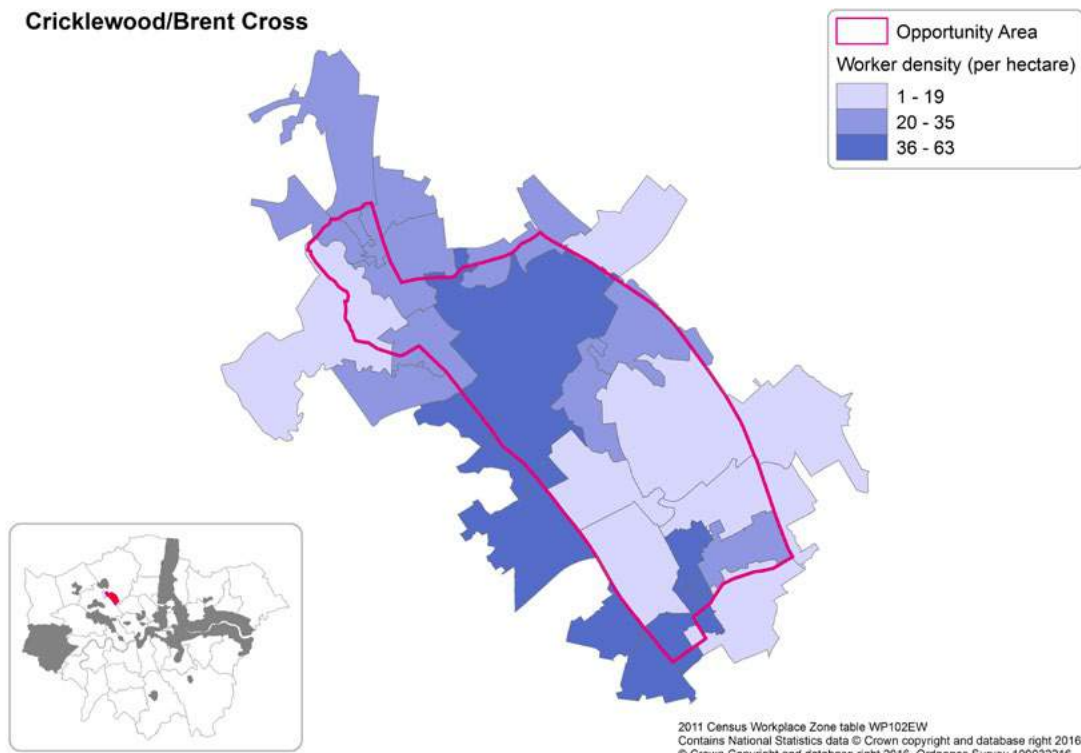


*Source: Census and GLA Intelligence Unit analysis*

**Map A14: Population density in 2011 in Cricklewood/Brent Cross (residents per hectare)**
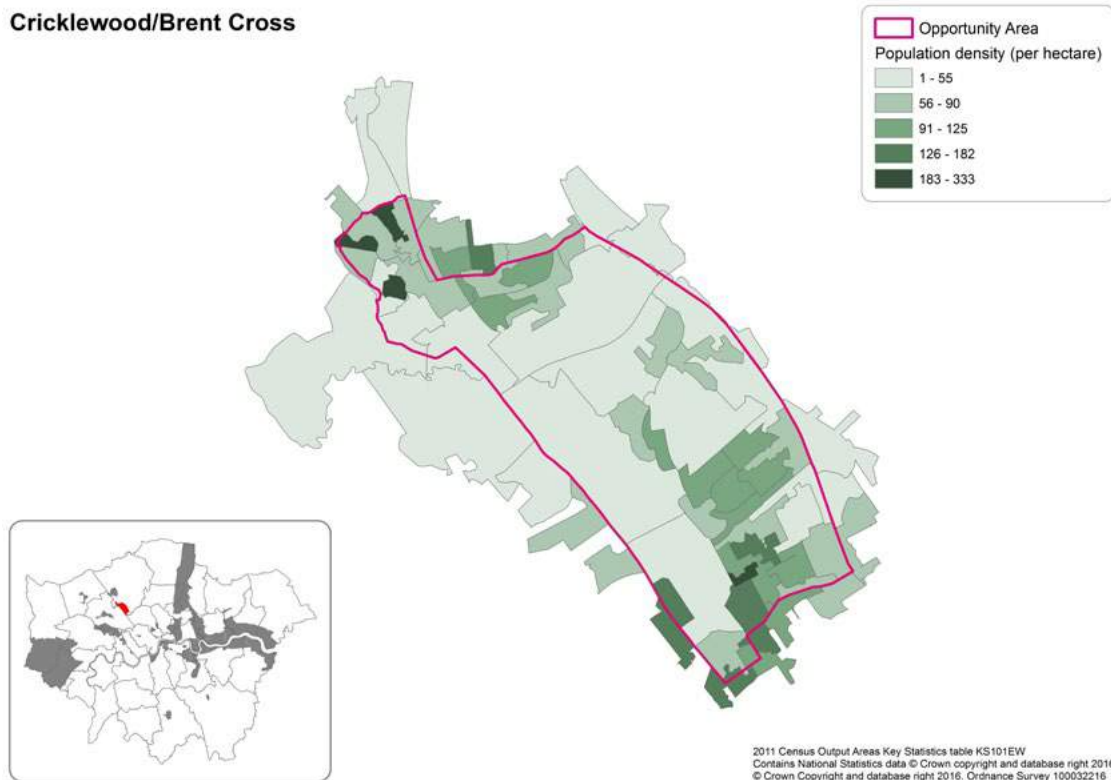


*Source: Census and GLA Intelligence Unit analysis*

## A8: Croydon

Map A15 shows that employment in the Croydon area in 2011 had a stronger concentration north to south within the central section of the area, while Map A16 shows that population was more clustered around the edge of this geography.

**Map A15: Employment density in 2011 in Croydon (workers per hectare)**
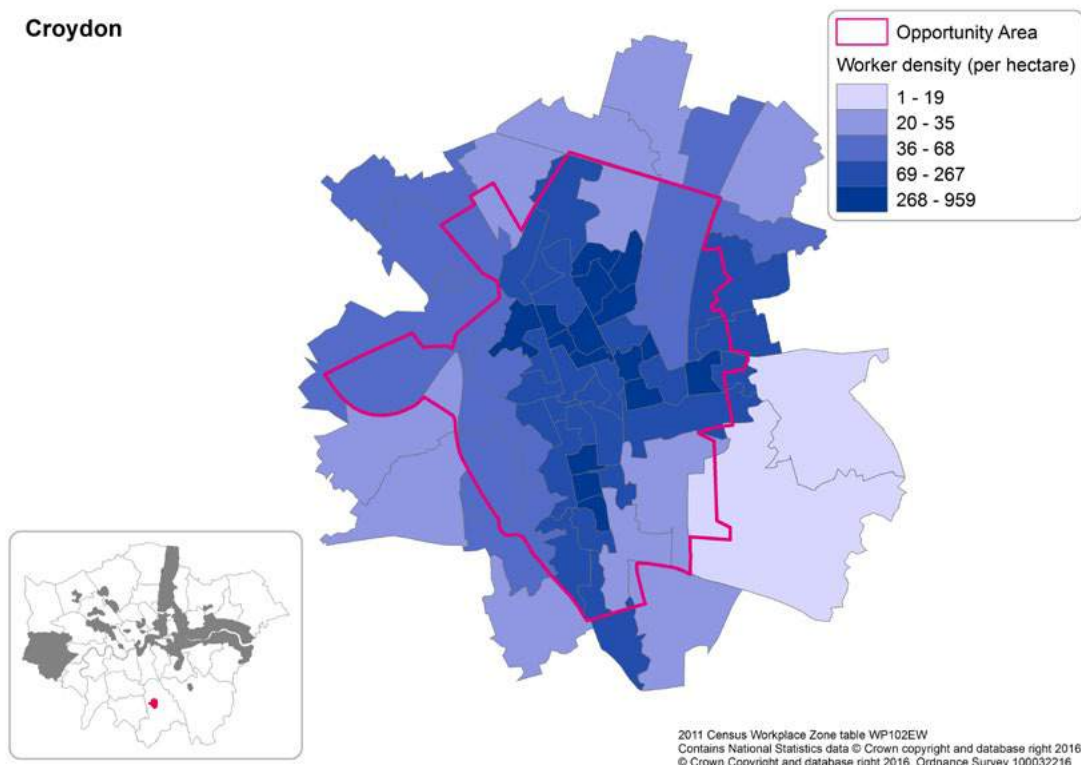


*Source: Census and GLA Intelligence Unit analysis*

**Map A16: Population density in 2011 in Croydon (residents per hectare)**
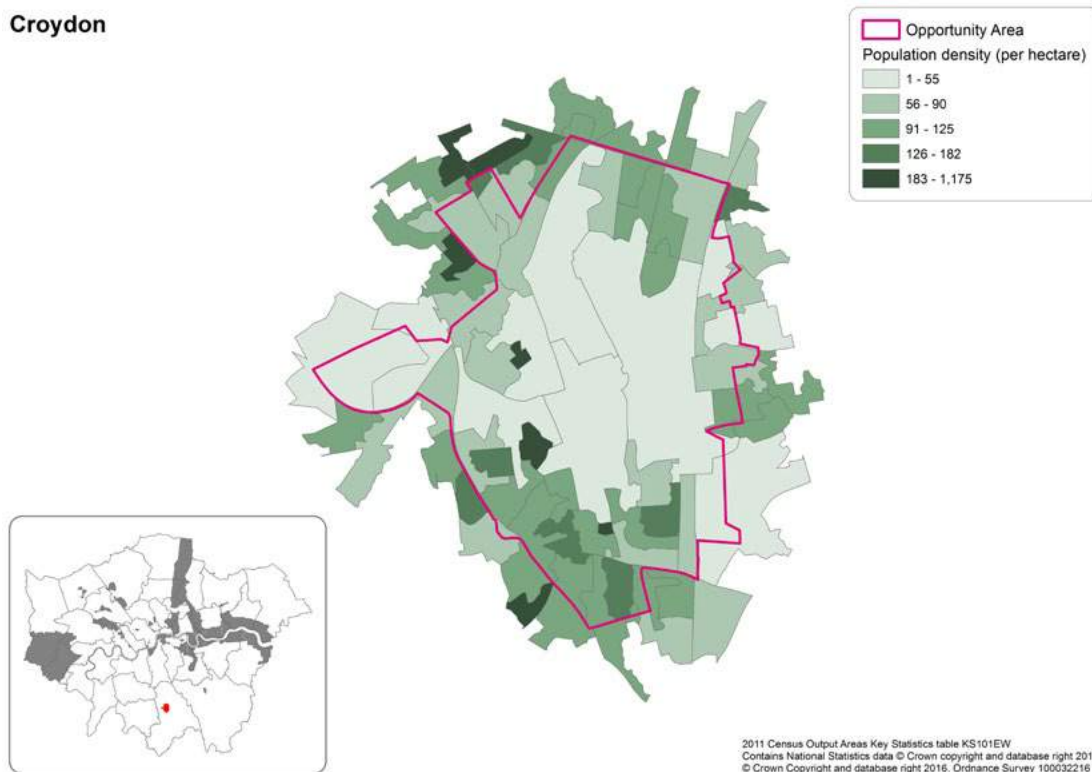


*Source: Census and GLA Intelligence Unit analysis*

## A9: Deptford Creek/Greenwich Riverside

In 2011 Map A17 shows that employment in the Deptford Creek/Greenwich Riverside area was slightly more concentrated in the east of the geography, while Map A18 shows that population was generally spread across the area although with patches of low population density.

**Map A17: Employment density in 2011 in Deptford Creek/Greenwich Riverside (workers per hectare)**
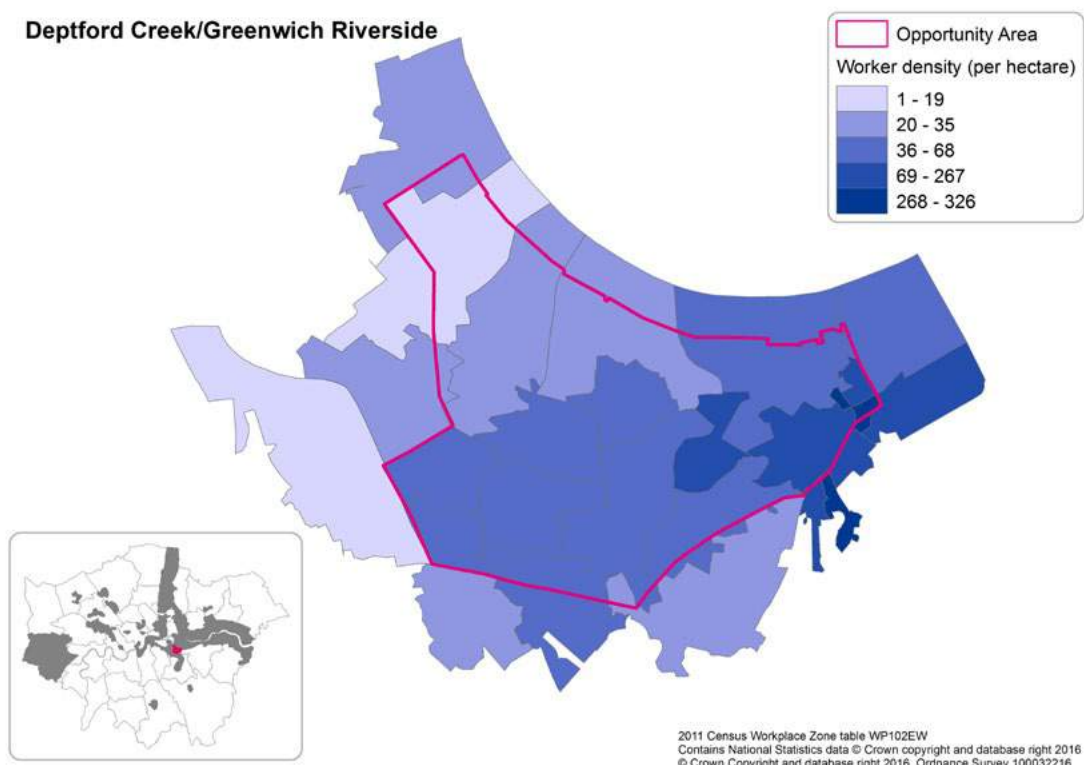


*Source: Census and GLA Intelligence Unit analysis*

**Map A18: Population density in 2011 in Deptford Creek/Greenwich Riverside (residents per hectare)**
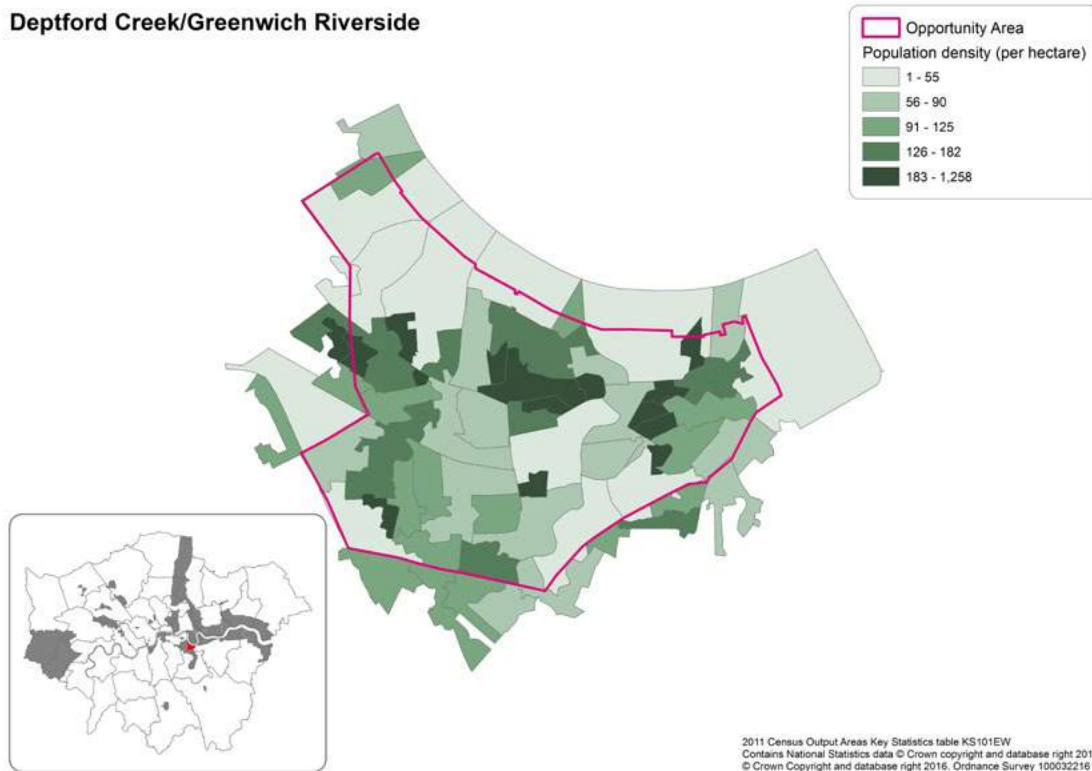


*Source: Census and GLA Intelligence Unit analysis*

## A10: Earls Court and West Kensington

In 2011 Map A19 shows that employment in the Earls Court and West Kensington area was quite evenly distributed but stronger in the centre of the area, however Map A20 shows that population was more concentrated to the west of the geography.

**Map A19: Employment density in 2011 in Earls Court and West Kensington (workers per hectare)**
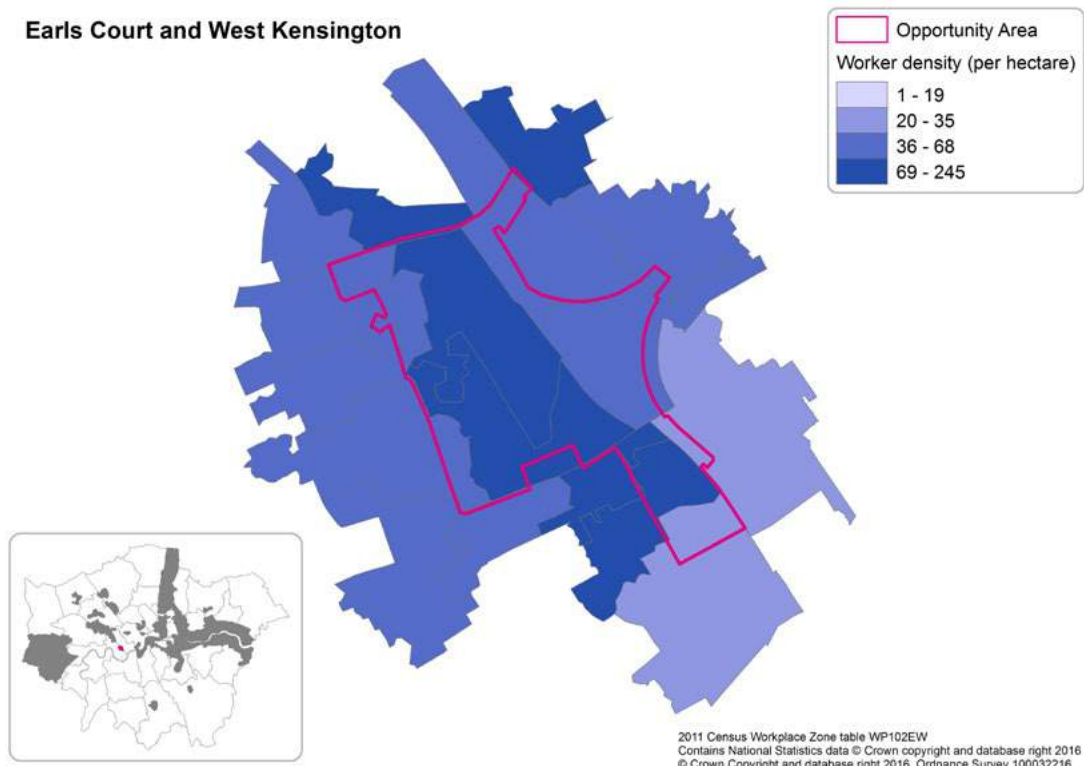


*Source: Census and GLA Intelligence Unit analysis*

**Map A20: Population density in 2011 in Earls Court and West Kensington (residents per hectare)**
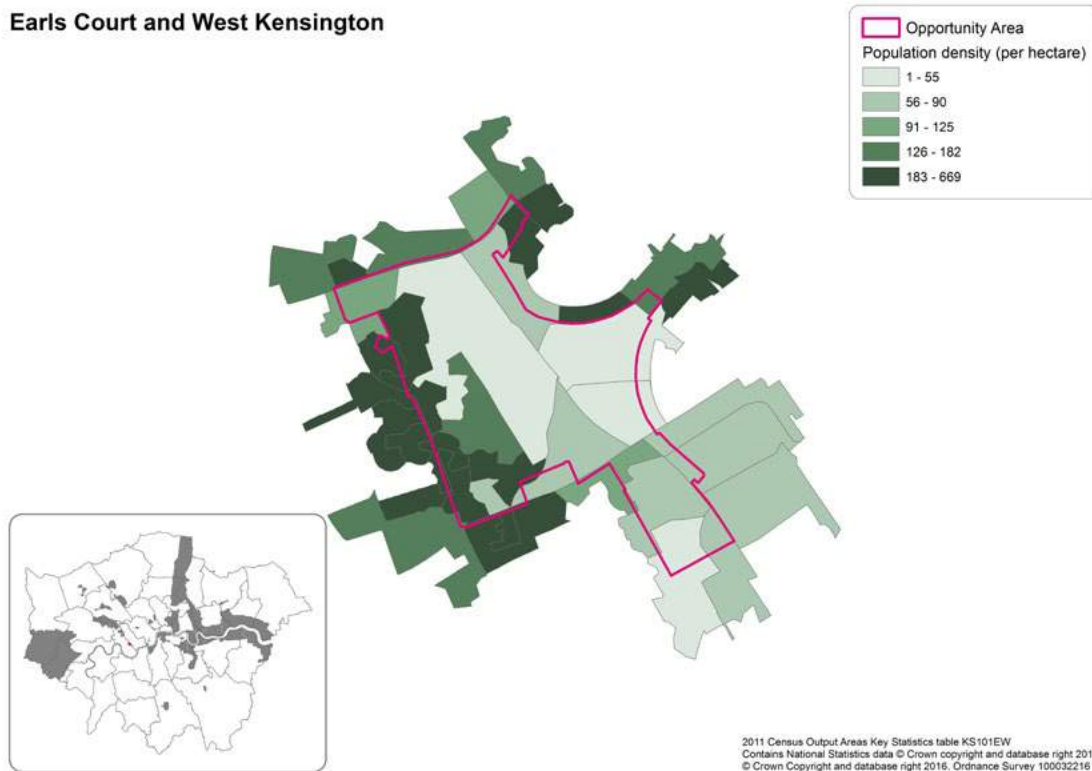


*Source: Census and GLA Intelligence Unit analysis*

## A11: The Elephant and Castle

Map A21 shows that employment in the Elephant and Castle area in 2011 was quite evenly distributed but with higher concentrations in the central north and to an extent central and central south areas, while for population Map A22 shows the central, north central, and north west parts of the area had lower population densities than elsewhere in this geography.

**Map A21: Employment density in 2011 in the Elephant and Castle (workers per hectare)**
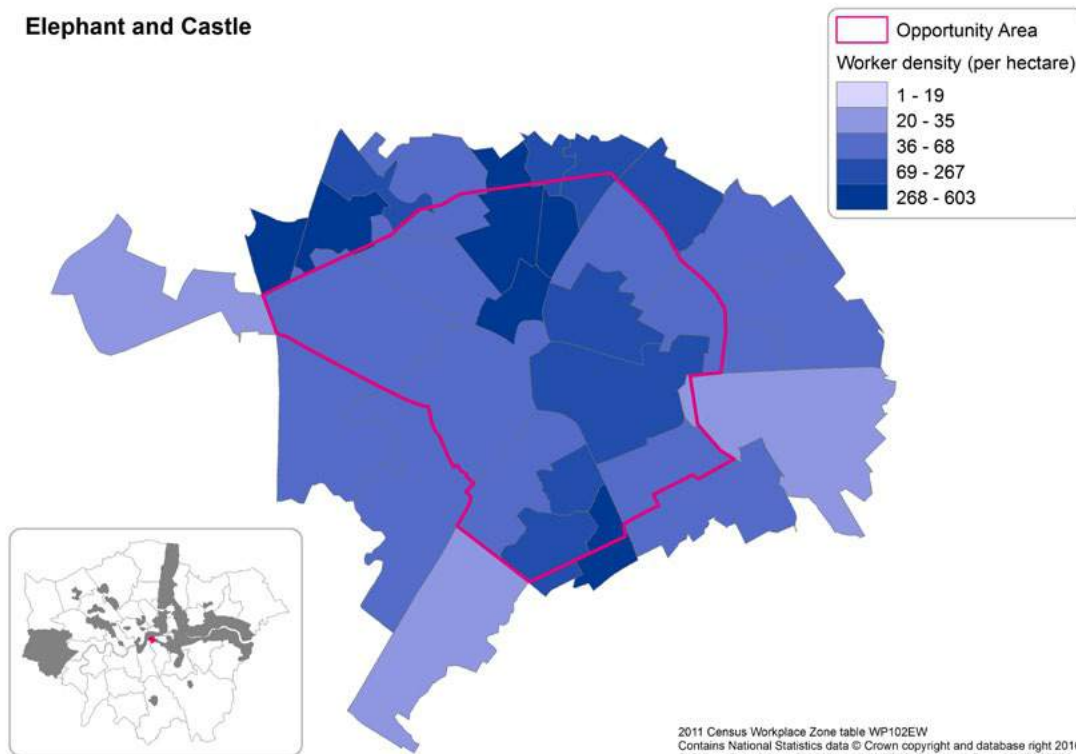


*Source: Census and GLA Intelligence Unit analysis*

**Map A22: Population density in 2011 in the Elephant and Castle (residents per hectare)**
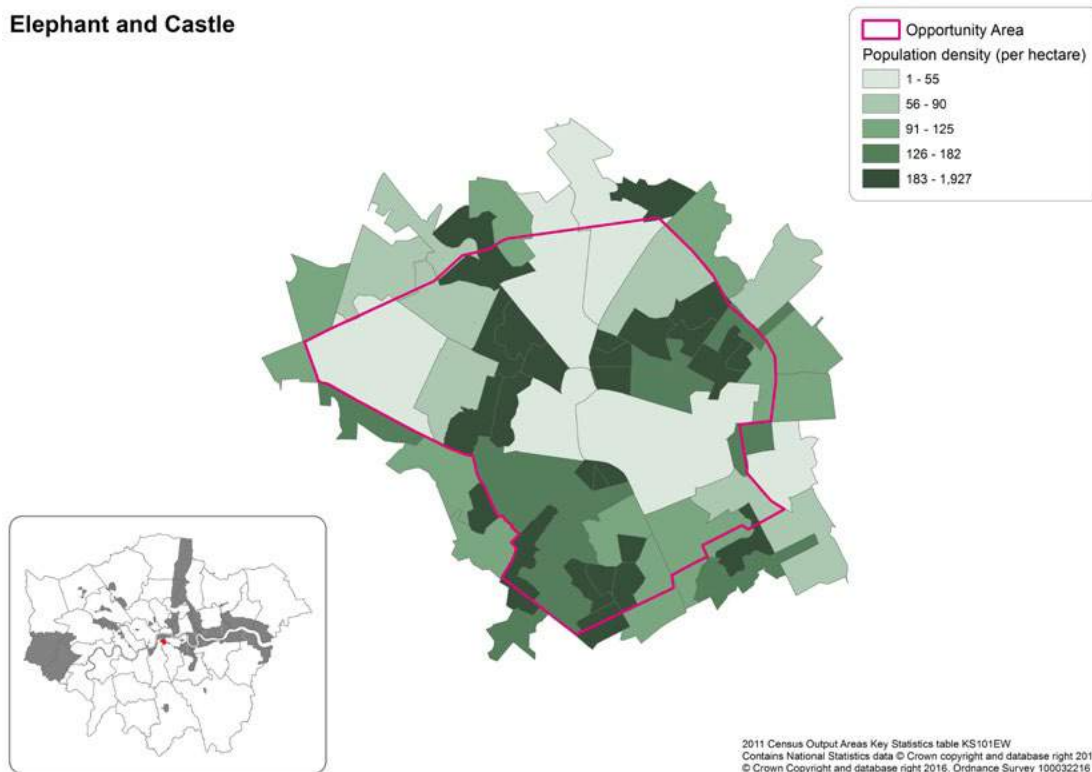


*Source: Census and GLA Intelligence Unit analysis*

## A12: Euston

In 2011 Map A23 shows that employment density in the Euston area was strongest in the south of the area, while Map A24 shows that population density was generally strongest in the west and east central areas of this geography.

**Map A23: Employment density in 2011 in Euston (workers per hectare)**
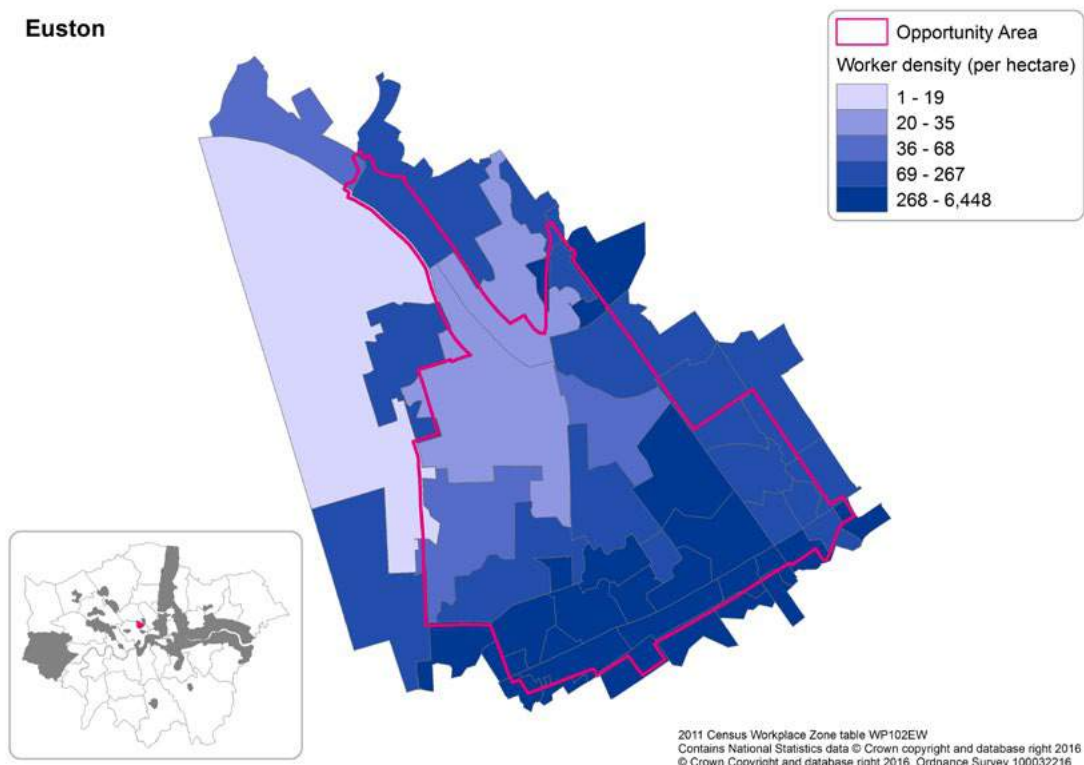


*Source: Census and GLA Intelligence Unit analysis*

**Map A24: Population density in 2011 in Euston (residents per hectare)**
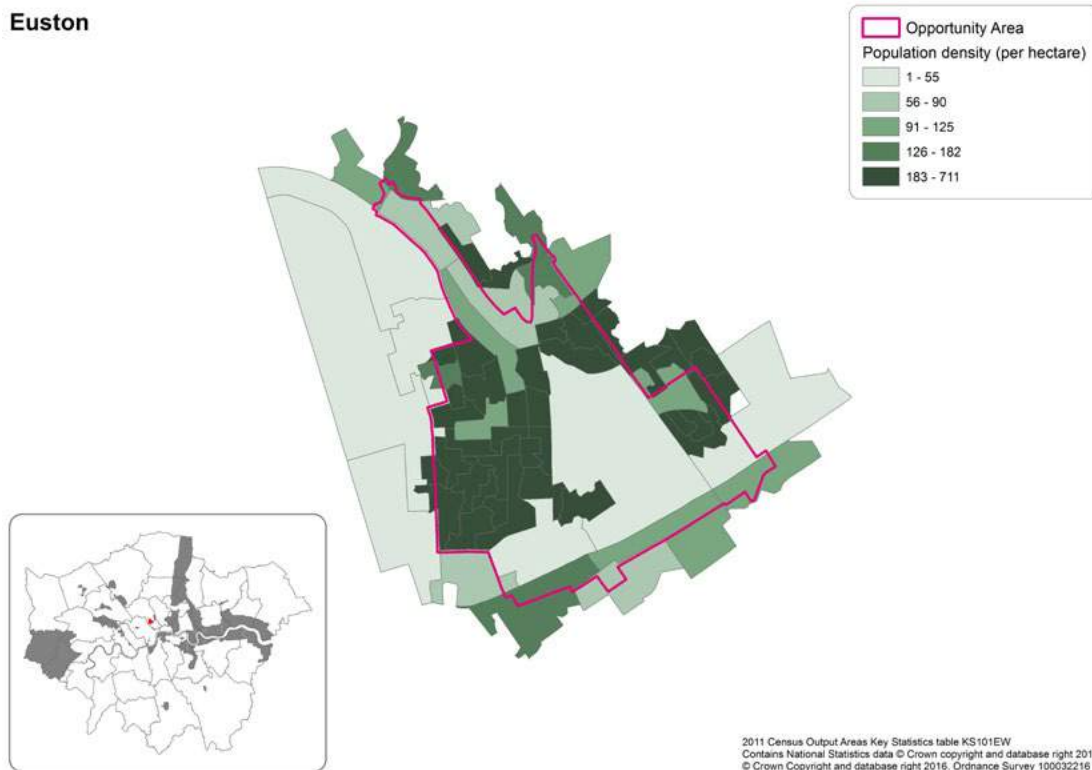


*Source: Census and GLA Intelligence Unit analysis*

## A13: The Greenwich Peninsular

In 2011 Map A25 shows that employment density in the Greenwich Peninsular area was generally higher in the north of the area and around its south eastern and western fringes, while Map A26 shows that population density was generally higher in the south of this geography with a further area also showing in its mid-east area as well.

**Map A25: Employment density in 2011 in the Greenwich Peninsular (workers per hectare)**
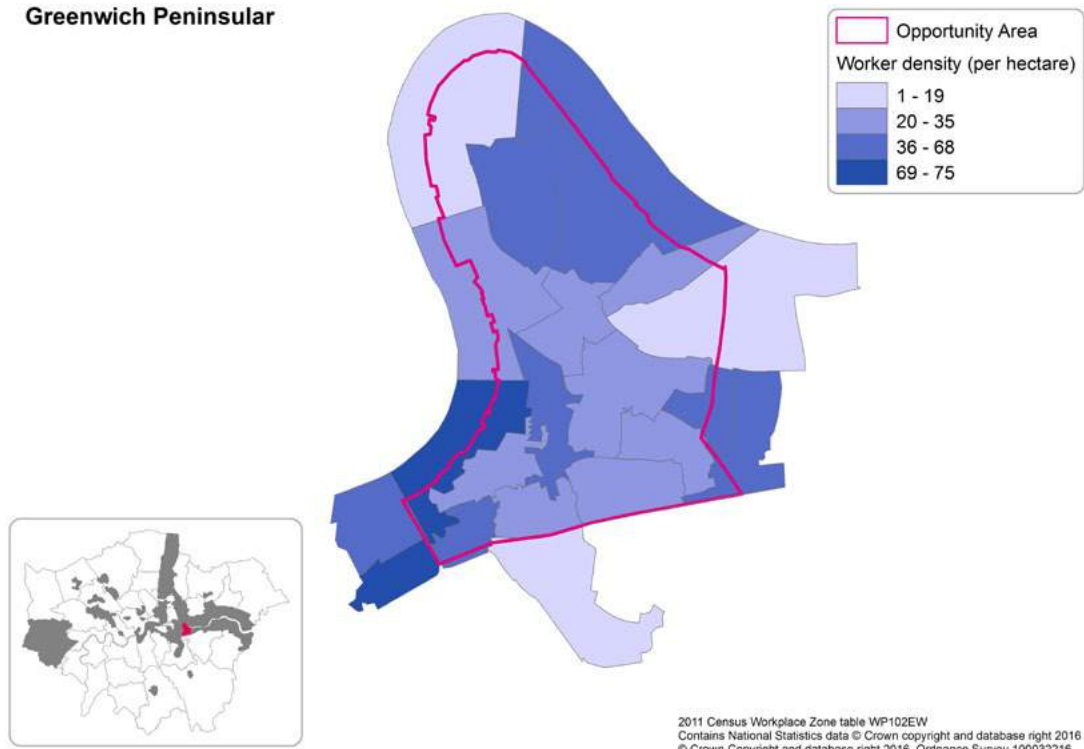


*Source: Census and GLA Intelligence Unit analysis*

**Map A26: Population density in 2011 in the Greenwich Peninsular (residents per hectare)**
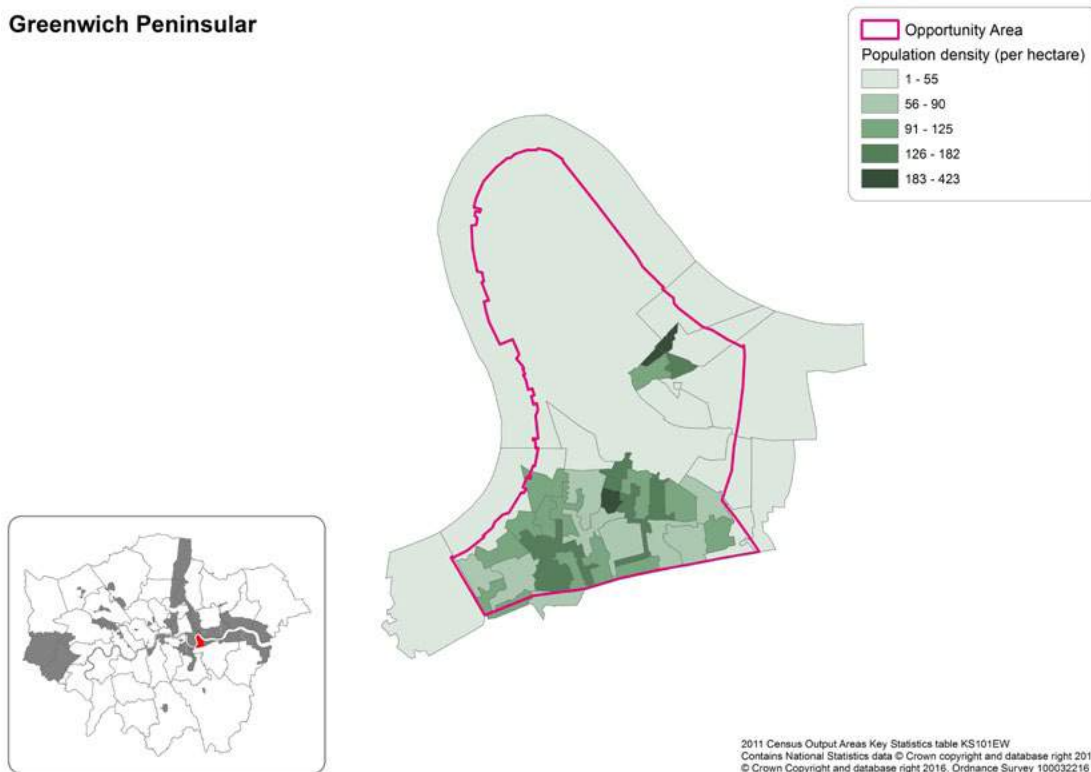


*Source: Census and GLA Intelligence Unit analysis*

## A14: Harrow and Wealdstone

In 2011 Map A27 shows that employment density in the Harrow and Wealdstone area was fairly evenly distributed but slightly higher in the south of the geography, while Map A28 shows that population density was generally higher in the north of this geography.

**Map A27: Employment density in 2011 in Harrow and Wealdstone (workers per hectare)**
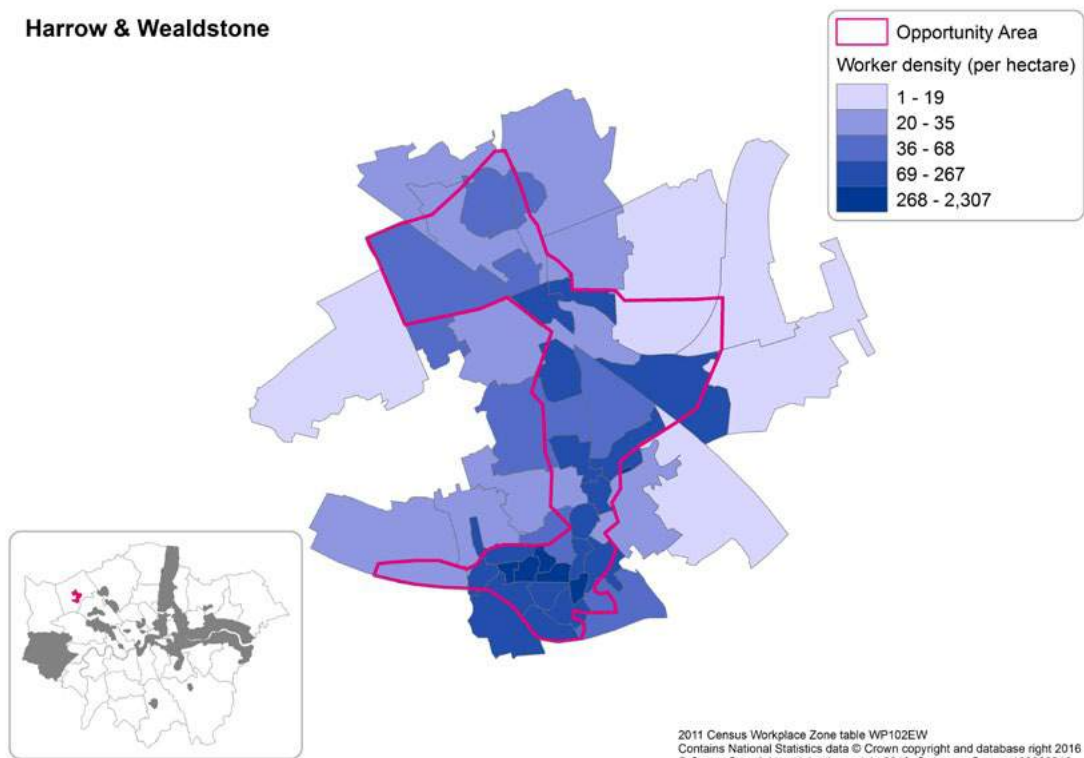


*Source: Census and GLA Intelligence Unit analysis*

**Map A28: Population density in 2011 in Harrow and Wealdstone (residents per hectare)**
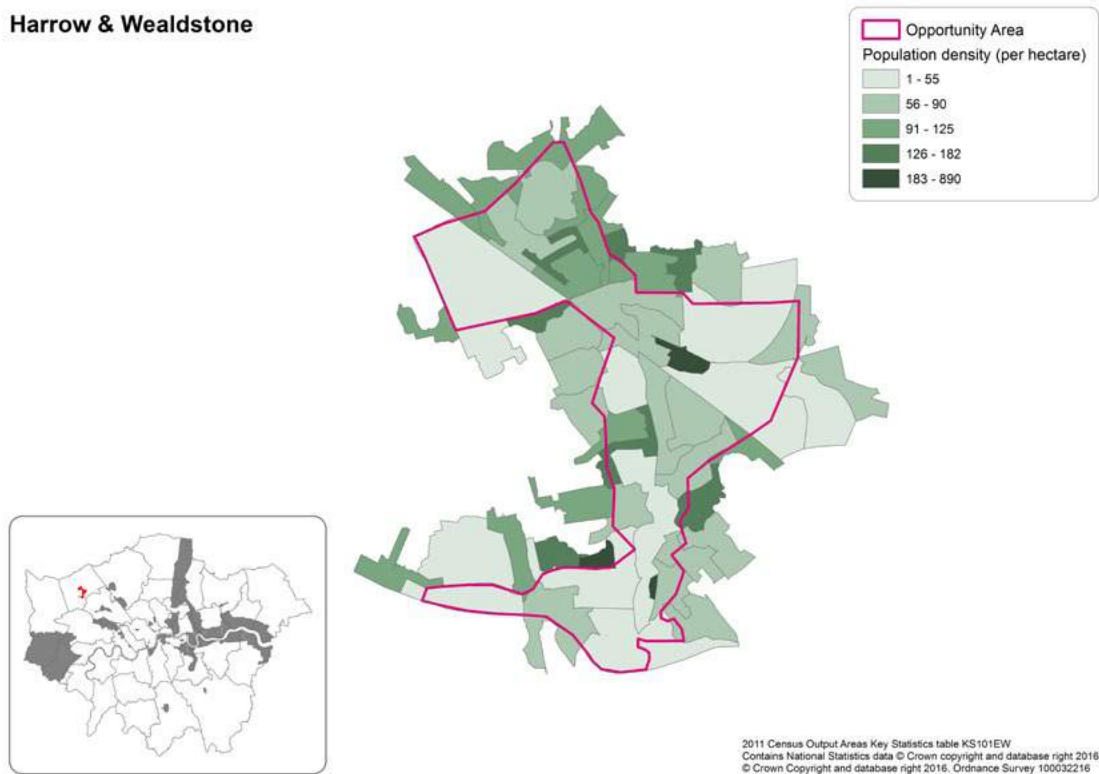


*Source: Census and GLA Intelligence Unit analysis*

## A15: Heathrow

In 2011 Map A29 shows that employment density in the Heathrow area was scattered across the geography, while Map A30 shows that population density was concentrated around the northern, eastern and south eastern edges of this geography.

**Map A29: Employment density in 2011 in Heathrow (workers per hectare)**
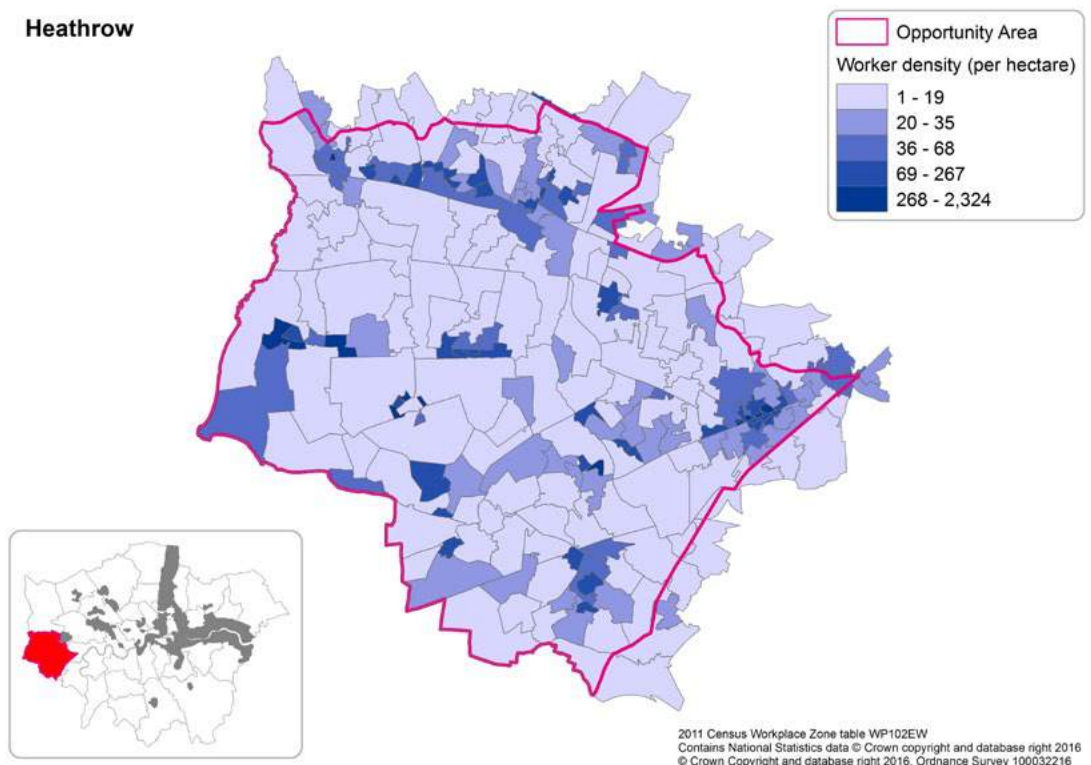


*Source: Census and GLA Intelligence Unit analysis*

**Map A30: Population density in 2011 in Heathrow (residents per hectare)**



Source: Census and GLA Intelligence Unit analysis

## A16: Ilford

Map A31 shows that in the Ilford area in 2011 employment was fairly evenly distributed, while Map A32 shows that the population density was generally higher around the edges of this geography.

**Map A31: Employment density in 2011 in Ilford (workers per hectare)**



Source: Census and GLA Intelligence Unit analysis

**Map A32: Population density in 2011 in Ilford (residents per hectare)**



*Source: Census and GLA Intelligence Unit analysis*

## A17: The Isle of Dogs

Map A33 shows that in the Isle of Dogs area in 2011 employment was very highly concentrated in the north central part of this geography, while Map A34 shows that the population density of this area was generally higher its northern edge and in the southern part of this geography.

**Map A33: Employment density in 2011 in the Isle of Dogs (workers per hectare)**



*Source: Census and GLA Intelligence Unit analysis*

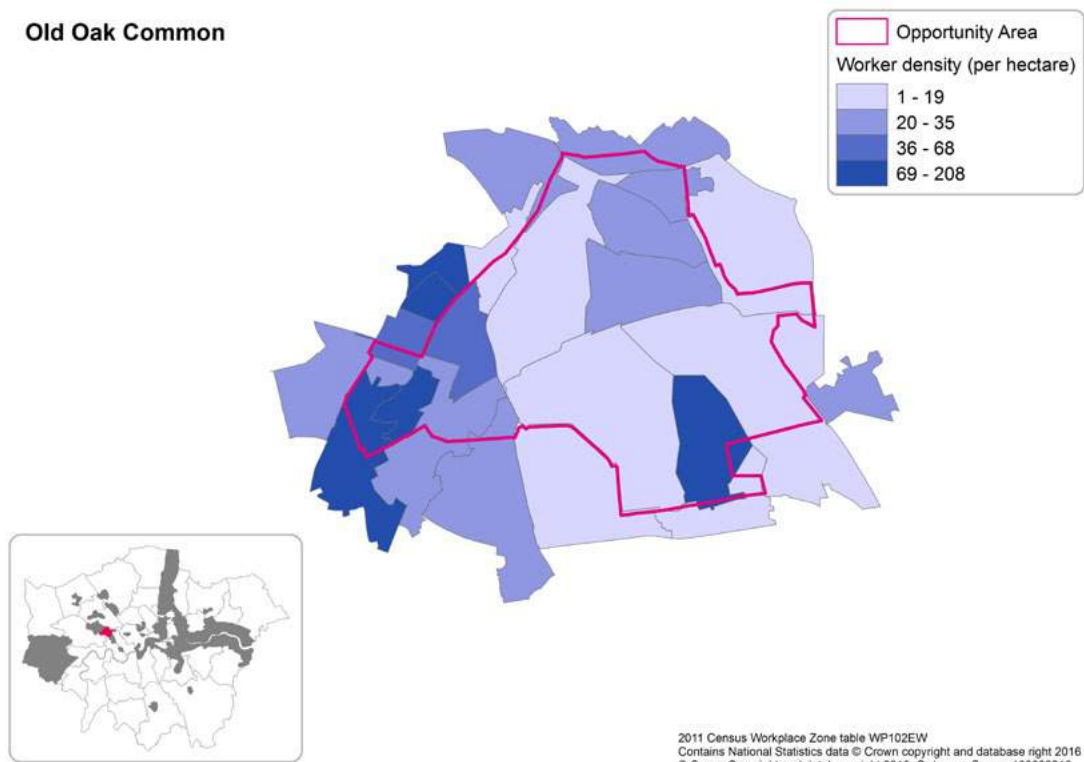**Map A34: Population density in 2011 in the Isle of Dogs (residents per hectare)**
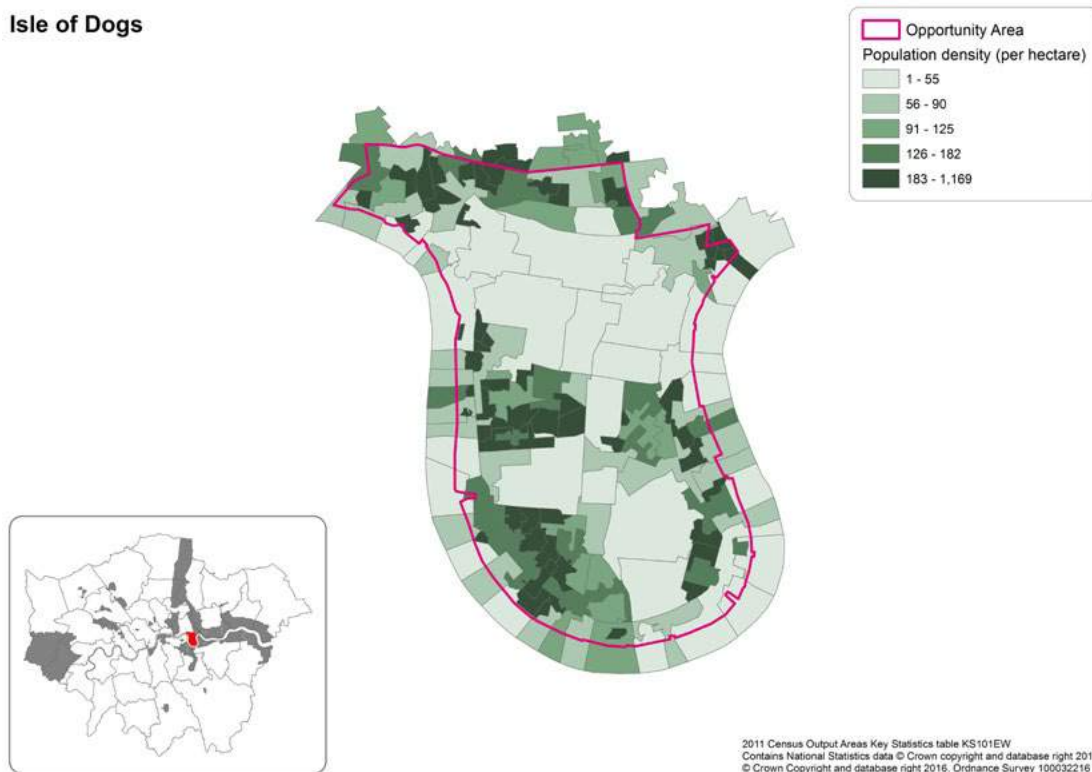


*Source: Census and GLA Intelligence Unit analysis*

## A18: Kensal Canalside

In 2011 Map A35 shows that the employment density in Kensal Canalside area was relatively low, while Map A36 shows that the population density was also generally low although slightly higher along its southern edge.

**Map A35: Employment density in 2011 in Kensal Canalside (workers per hectare)**
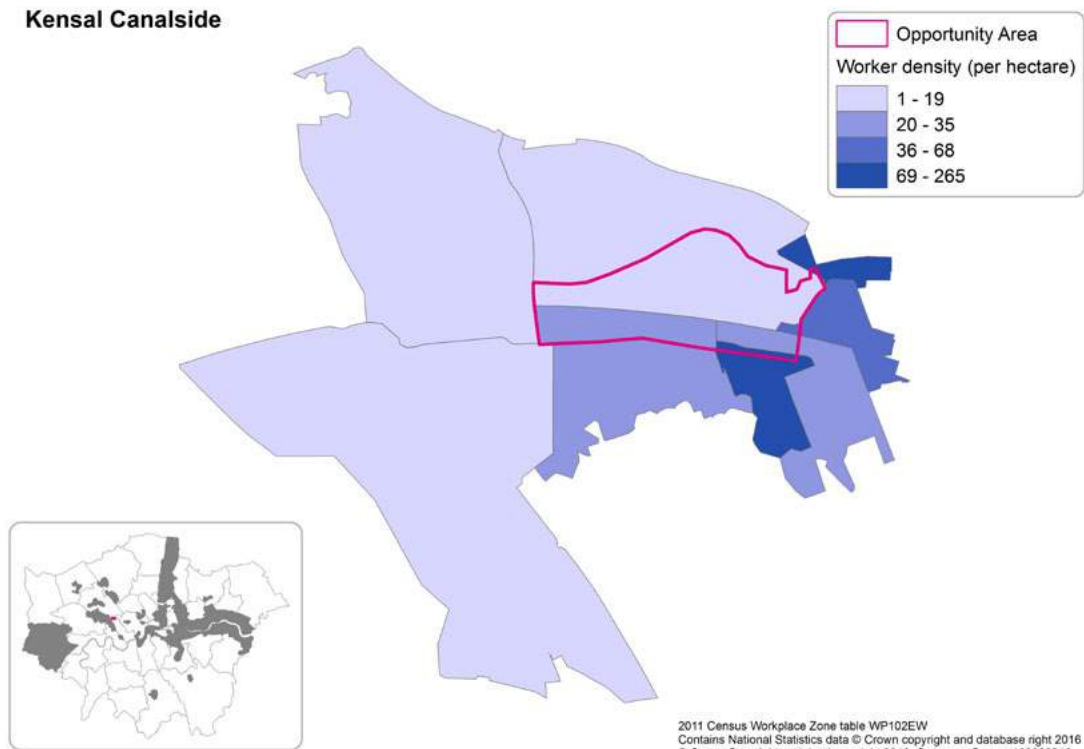


*Source: Census and GLA Intelligence Unit analysis*

**Map A36: Population density in 2011 in Kensal Canalside (residents per hectare)**
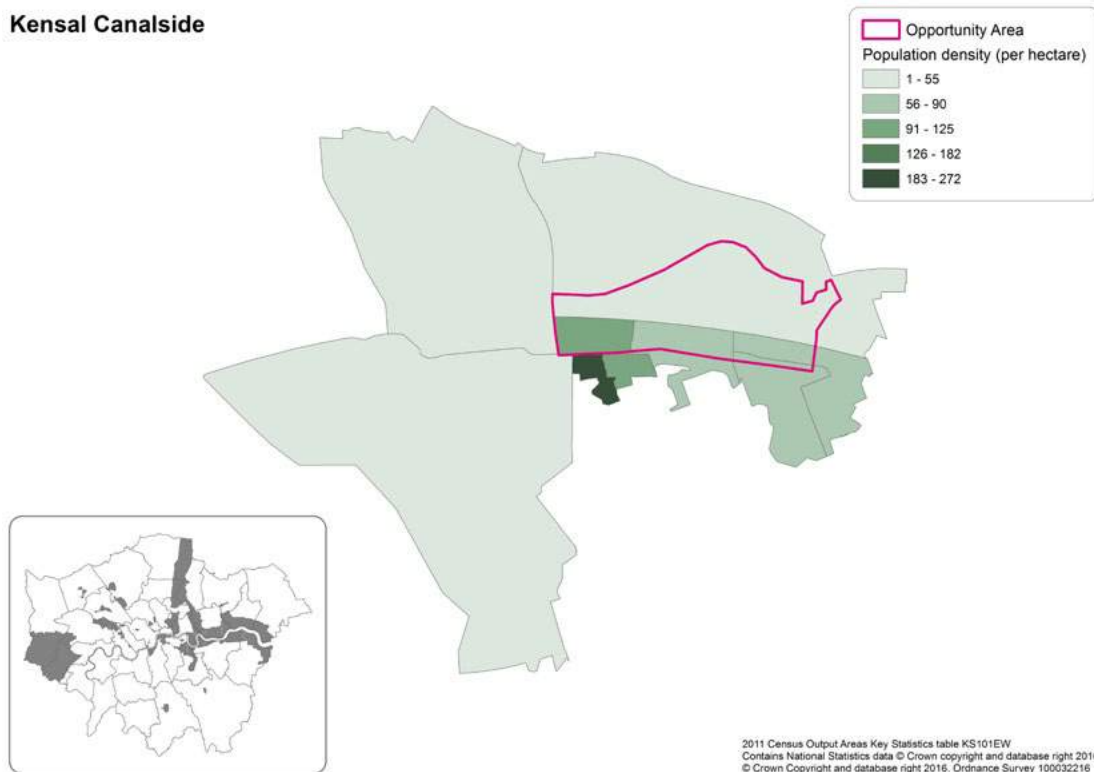


*Source: Census and GLA Intelligence Unit analysis*

## A19: King's Cross – St Pancras

In 2011 as shown by Map A37 employment density was highest in the south of the King's Cross – St Pancras area, while Map A38 shows that the population density of this geography was low.

**Map A37: Employment density in 2011 in King's Cross – St Pancras (workers per hectare)**
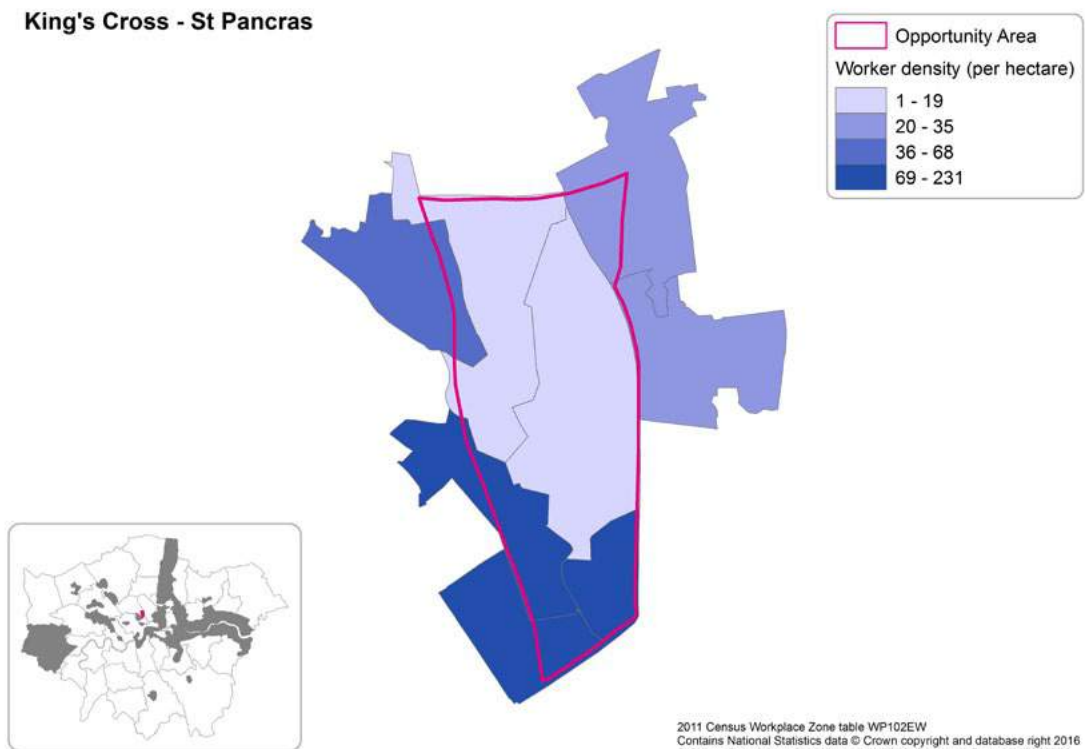


*Source: Census and GLA Intelligence Unit analysis*

**Map A38: Population density in 2011 in King's Cross – St Pancras (residents per hectare)**
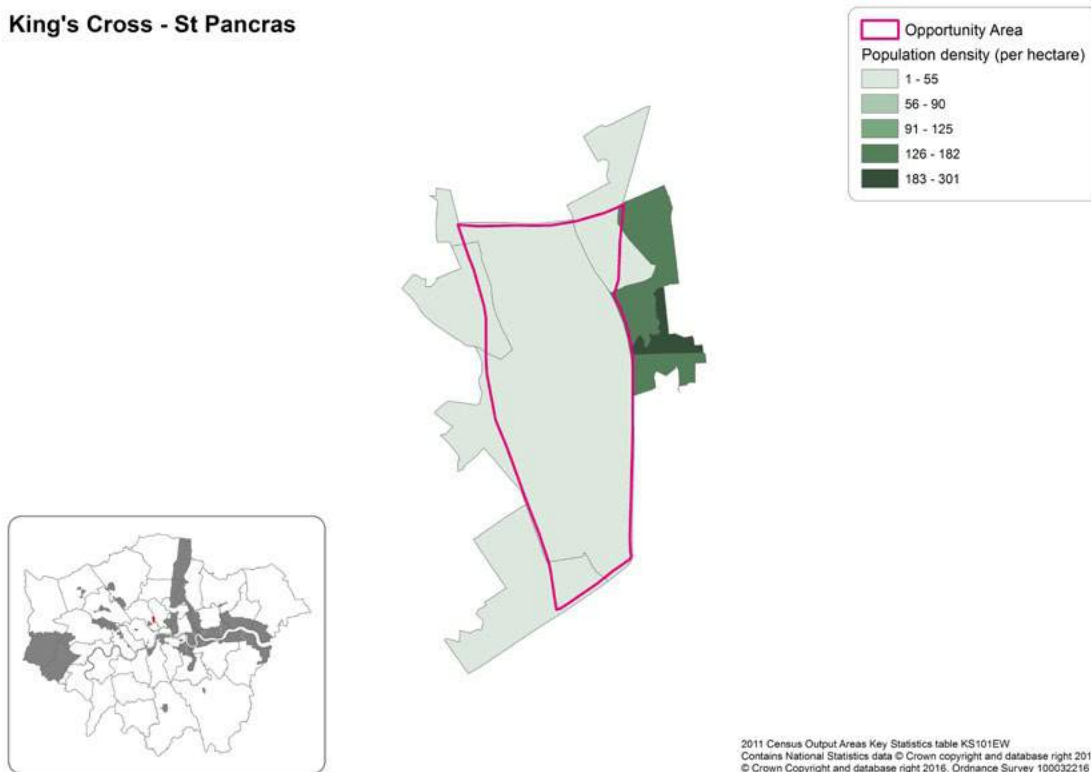


*Source: Census and GLA Intelligence Unit analysis*

## A20: Lewisham, Catford and New Cross

Map A39 shows that in 2011 the employment density in the Lewisham, Catford & New Cross area was slightly higher in the middle and south of this geography, while Map A40 shows that the population density of this area was generally more evenly distributed but lower in the south western part of this area.

**Map A39: Employment density in 2011 in Lewisham, Catford and New Cross (workers per hectare)**
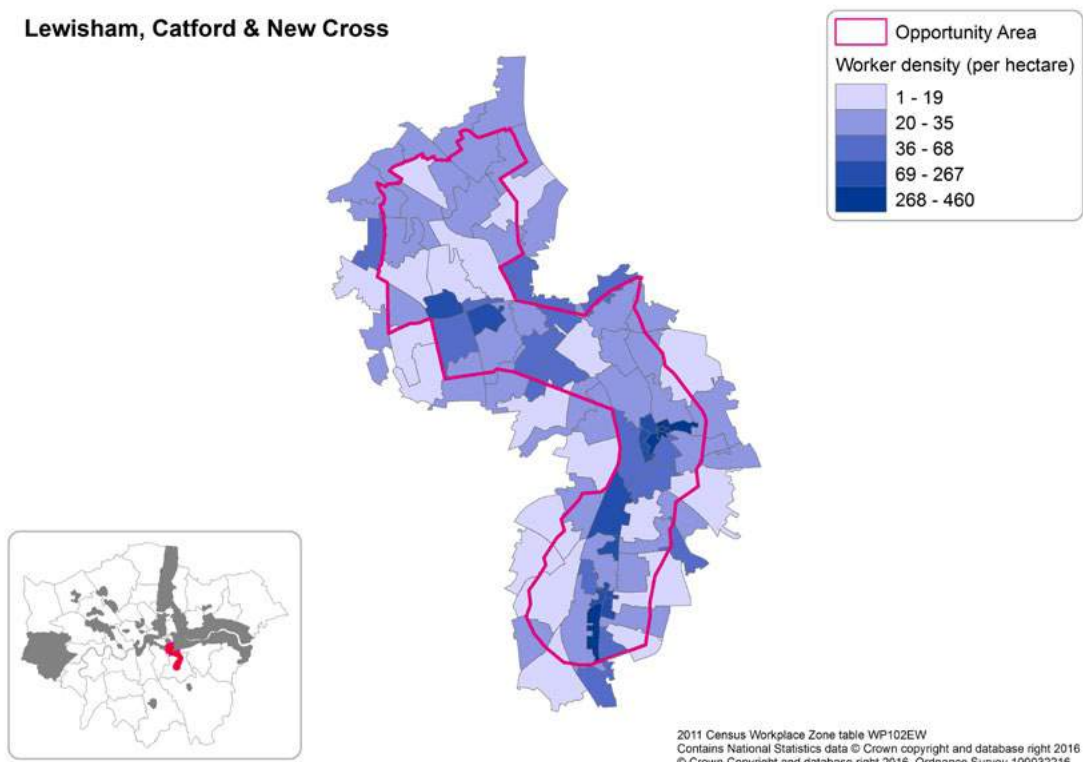


*Source: Census and GLA Intelligence Unit analysis*

**Map A40: Population density in 2011 in Lewisham, Catford and New Cross (residents per hectare)**
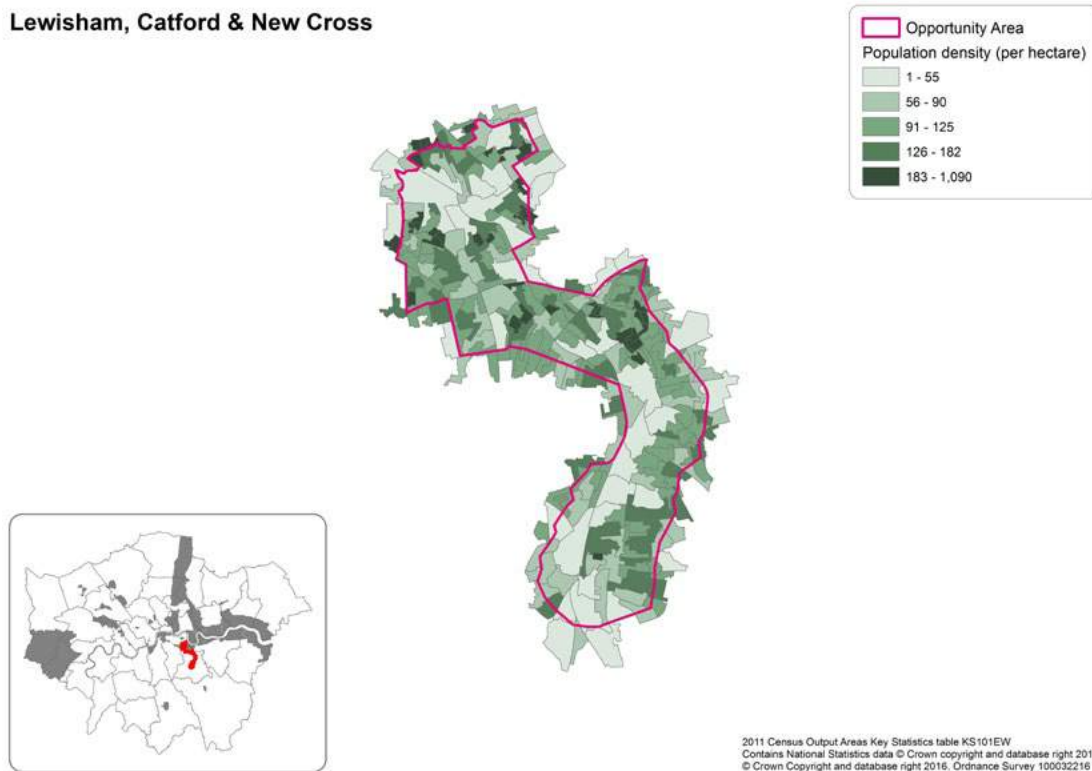


*Source: Census and GLA Intelligence Unit analysis*

## A21: London Bridge, Borough and Bankside

In 2011 Map A41 shows that employment density was quite high across all of the London Bridge, Borough and Bankside area, while Map A42 shows that population density was generally highest in the south of this area with the exception of one area in the north east of the geography.

**Map A41: Employment density in 2011 in London Bridge, Borough and Bankside (workers per hectare)**
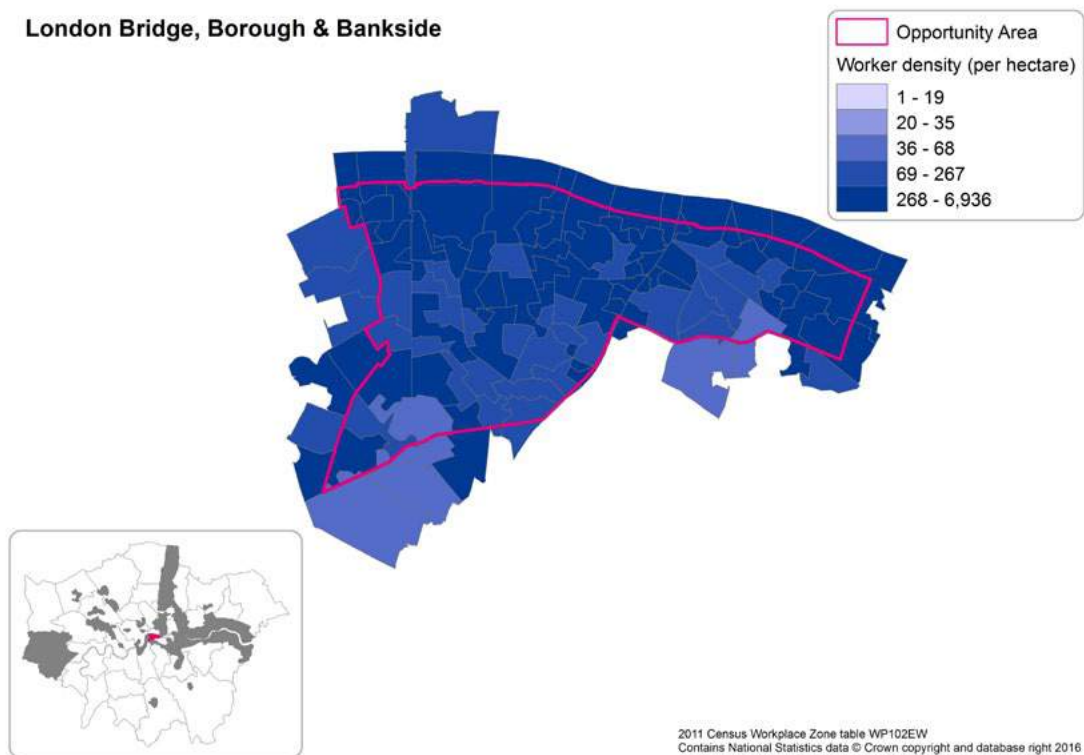


*Source: Census and GLA Intelligence Unit analysis*

**Map A42: Population density in 2011 in London Bridge, Borough and Bankside (residents per hectare)**
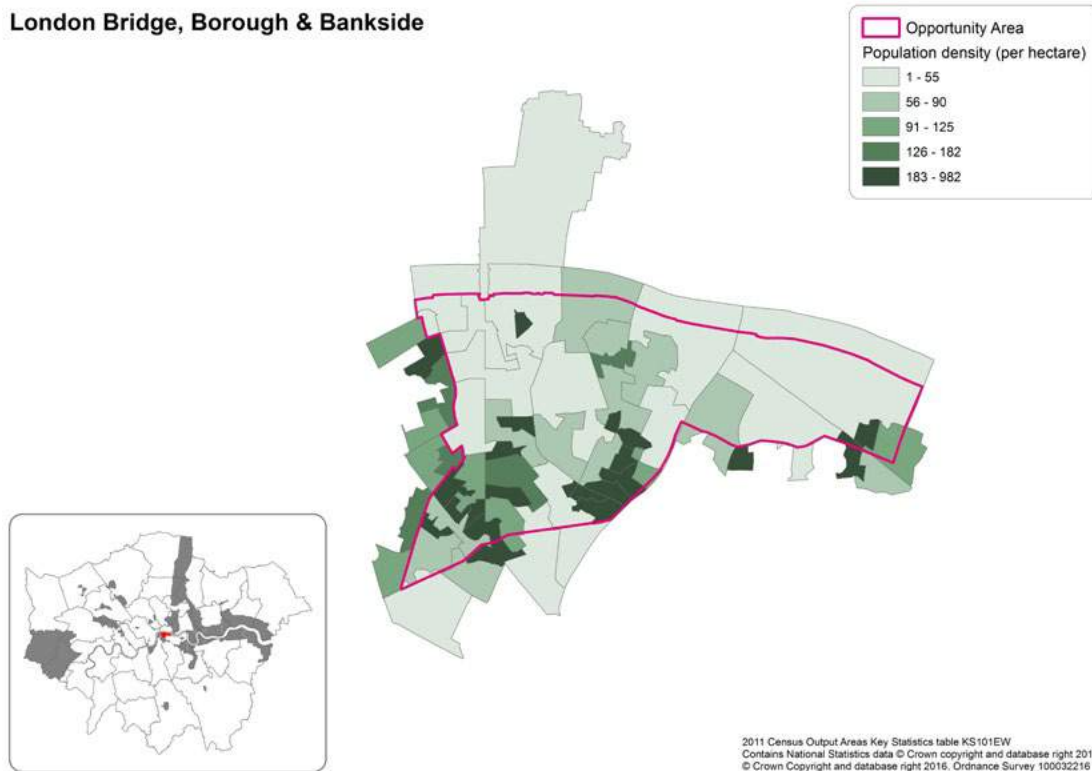


*Source: Census and GLA Intelligence Unit analysis*

## A22: London Riverside

Map A43 shows that in 2011 London Riverside had a relatively low employment density although with a higher density to its east and in its centre, while Map A44 shows that its population per hectare was more concentrated to its north west and along its northern fringe.

**Map A43: Employment density in 2011 in London Riverside (Barking) (workers per hectare)**
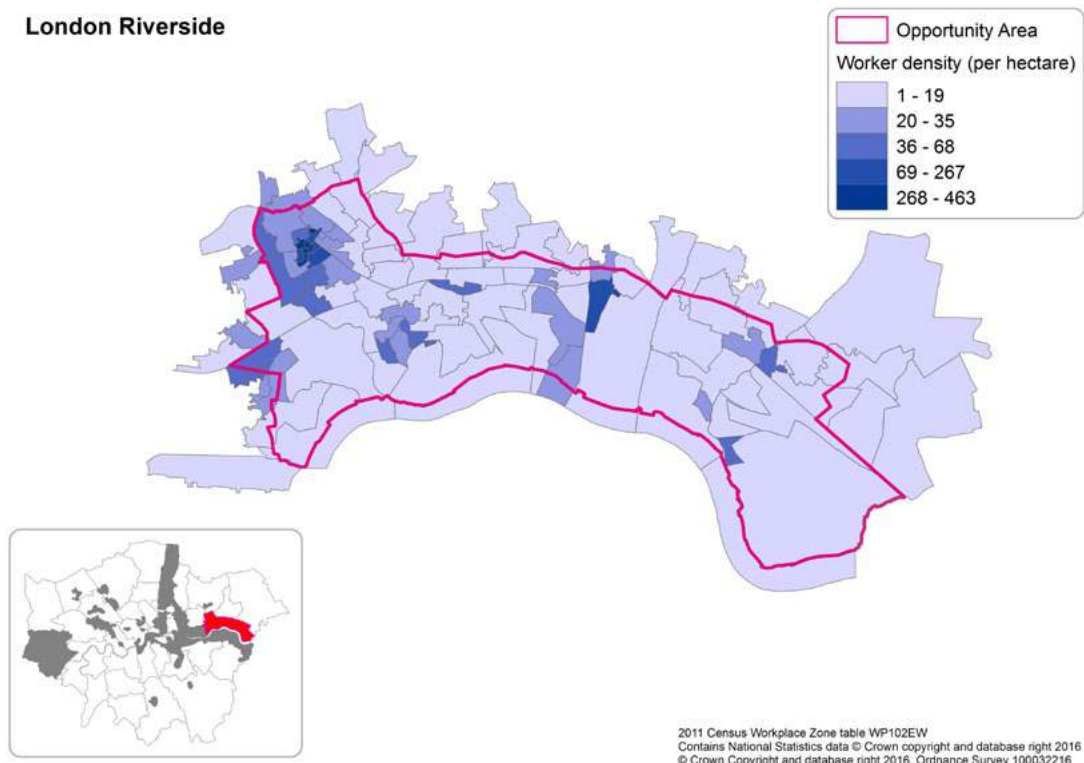


*Source: Census and GLA Intelligence Unit analysis*

**Map A44: Population density in 2011 in London Riverside (Barking) (residents per hectare)**
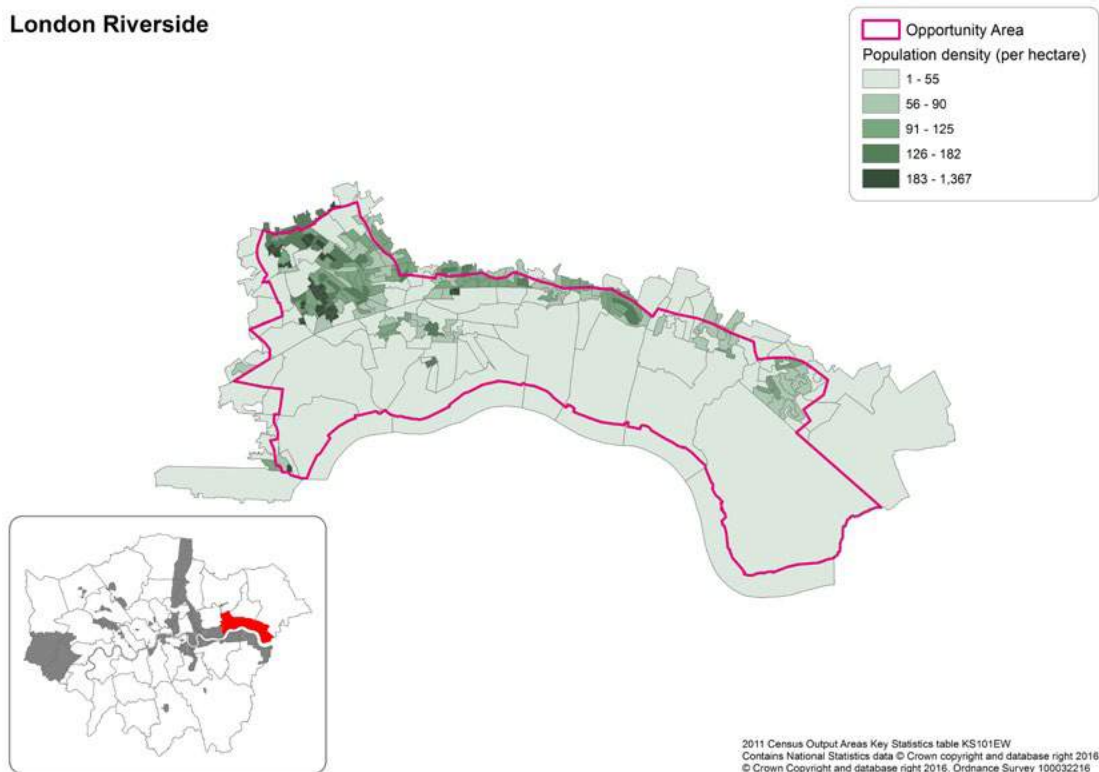


*Source: Census and GLA Intelligence Unit analysis*

## A23: The Lower Lea Valley

In 2011 employment was most densely concentrated around the edges of the Lower Lea Valley area as shown by Map A45, while this also held for population as shown by Map A46.

**Map A45: Employment density in 2011 in the Lower Lea Valley (workers per hectare)**
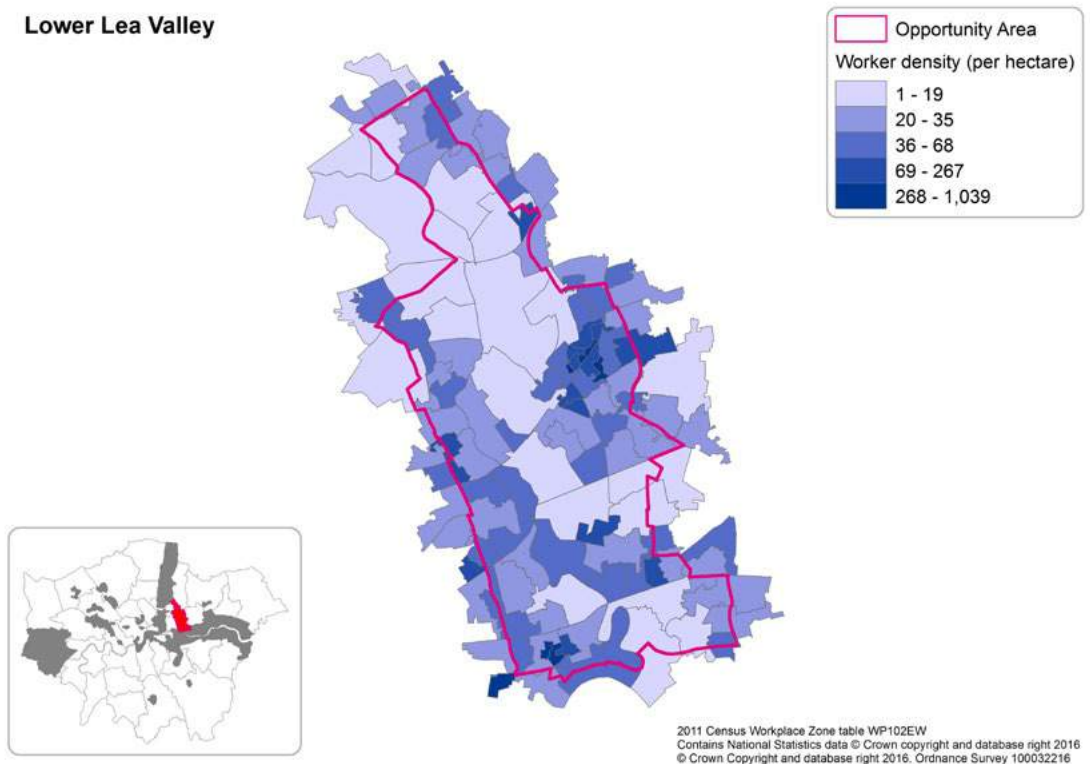


*Source: Census and GLA Intelligence Unit analysis*

**Map A46: Population density in 2011 in the Lower Lea Valley (residents per hectare)**
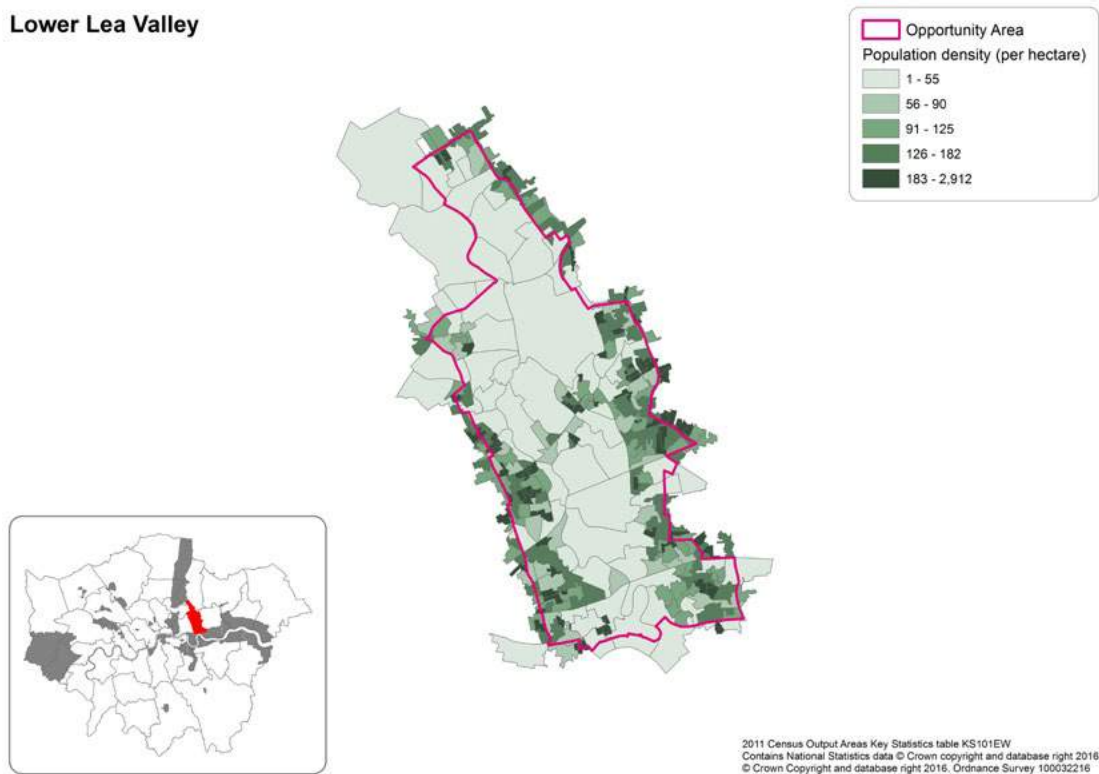


*Source: Census and GLA Intelligence Unit analysis*

## A24: The Old Kent Road

Map A47 shows that in 2011 employment density was highest in the middle part of the Old Kent Road area, while Map A48 shows that the population density of this geography was highest in its north, central and bottom south parts.

**Map A47: Employment density in 2011 in the Old Kent Road (workers per hectare)**
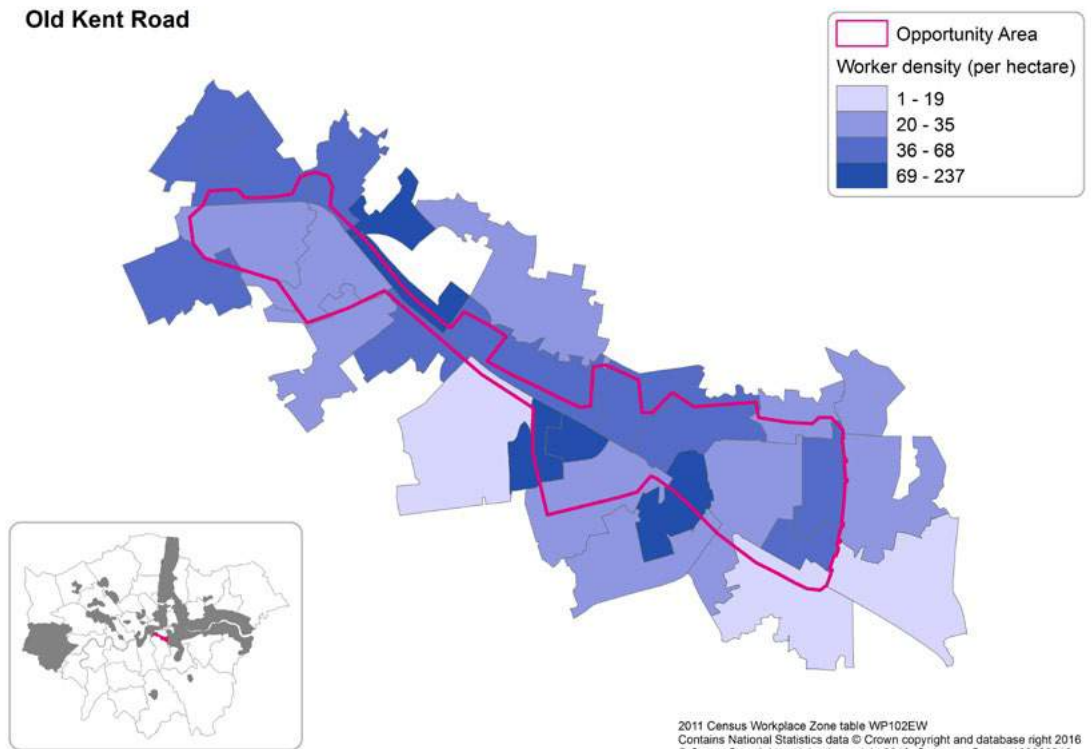


*Source: Census and GLA Intelligence Unit analysis*

**Map A48: Population density in 2011 in the Old Kent Road (residents per hectare)**
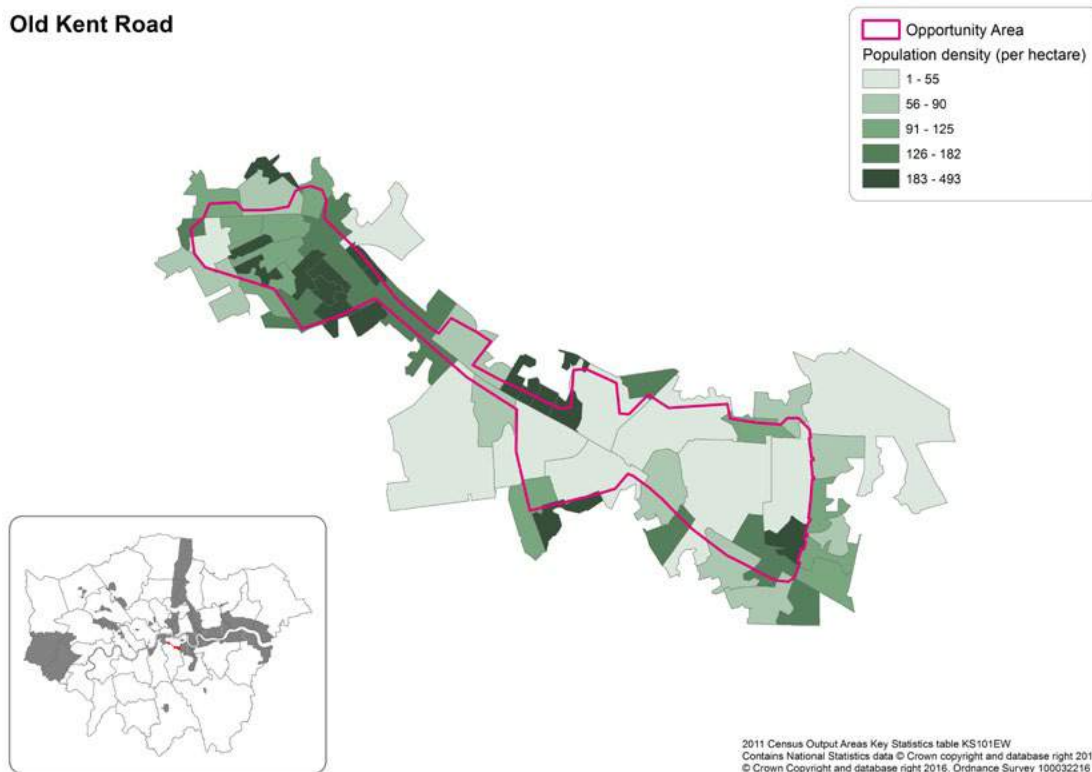


*Source: Census and GLA Intelligence Unit analysis*

## A25: Old Oak Common

In 2011 it can be seen from Maps A49 and A50 that both employment and population where both relatively low in Old Oak Common, although with a slightly more heavy concentration of employment in its north eastern and south eastern and western corners.

**Map A49: Employment density in 2011 in Old Oak Common (workers per hectare)**



*Source: Census and GLA Intelligence Unit analysis*

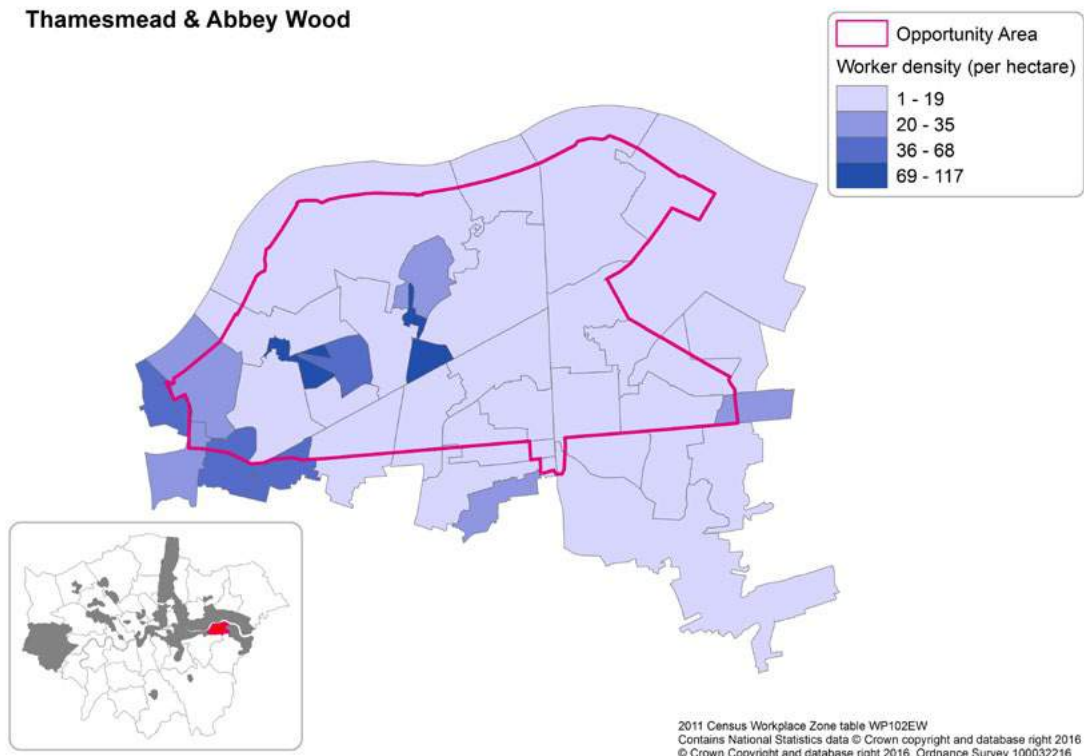**Map A50: Population density in 2011 in Old Oak Common (residents per hectare)**
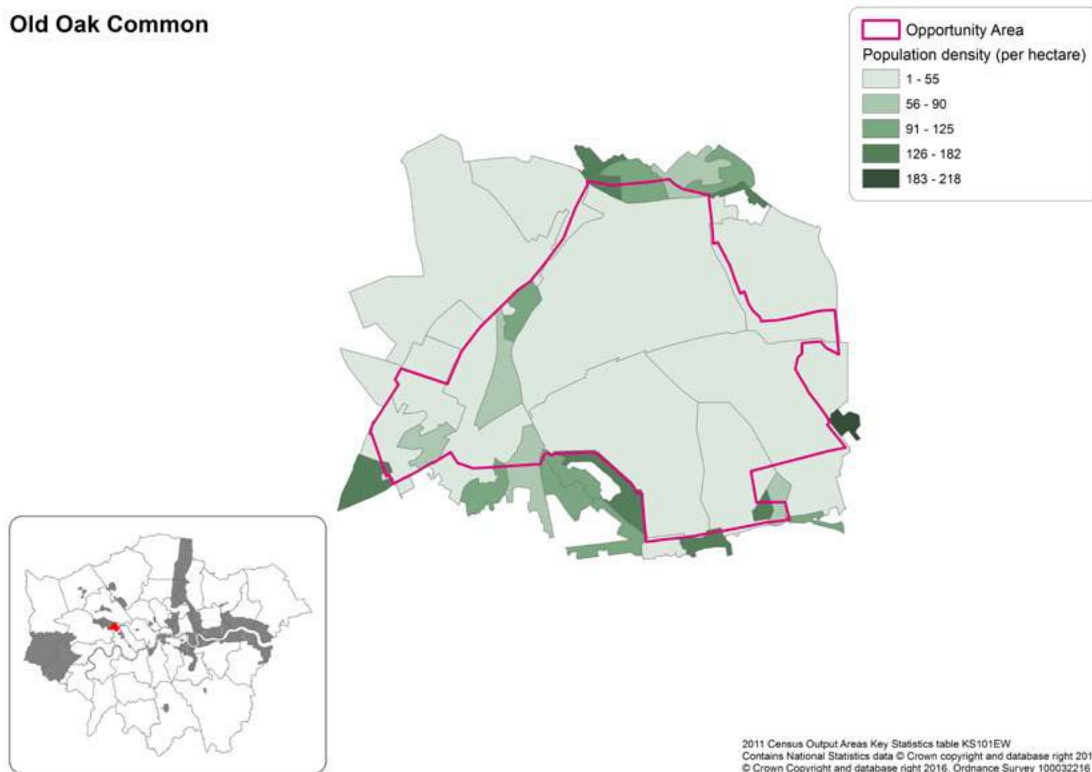


*Source: Census and GLA Intelligence Unit analysis*

## A26: Paddington

Map A51 shows that in 2011 the employment density in the Paddington area was generally quite high, while Map A52 shows that the population density was generally on the whole quite low with the exception of an area to the north east of this geography.

**Map A51: Employment density in 2011 in Paddington (workers per hectare)**
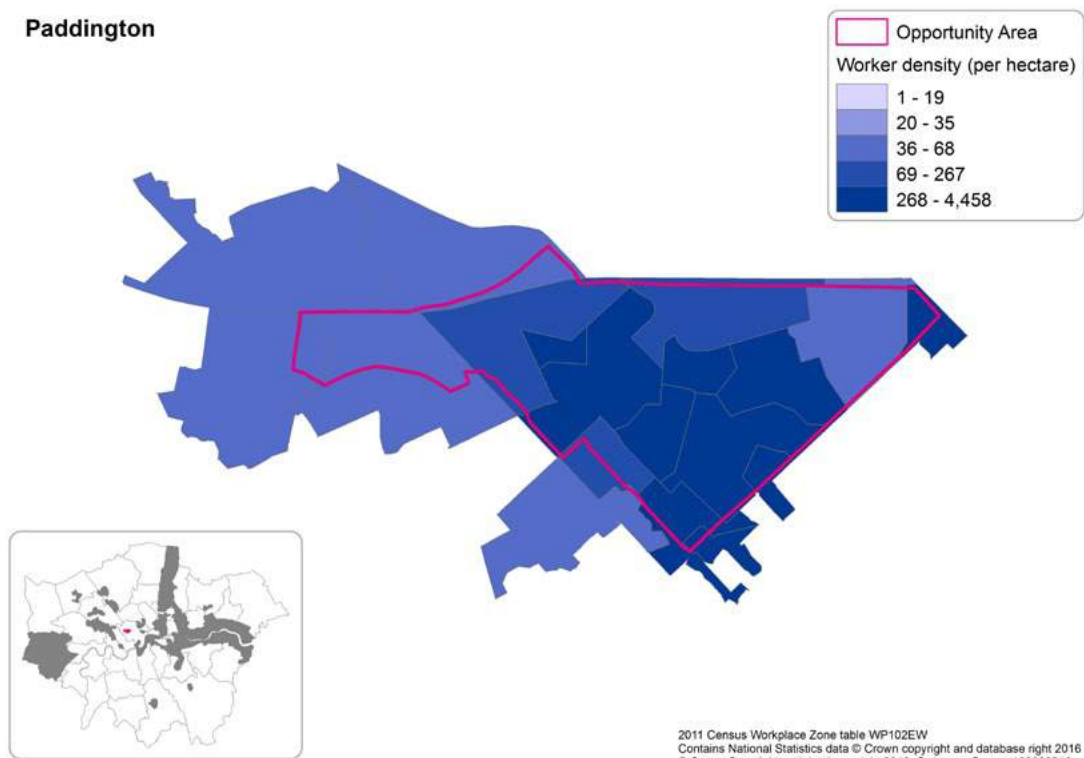


*Source: Census and GLA Intelligence Unit analysis*

**Map A52: Population density in 2011 in Paddington (residents per hectare)**
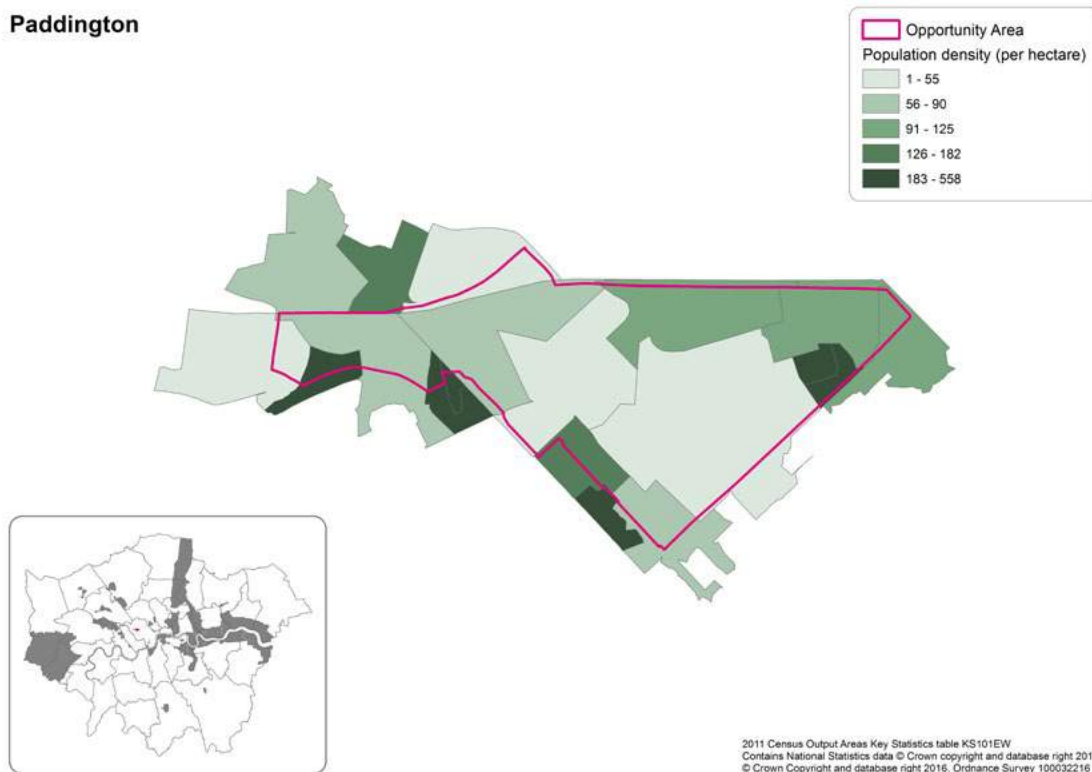


*Source: Census and GLA Intelligence Unit analysis*

# A27: Park Royal

In 2011 Map A53 shows that employment density in the Park Royal area was generally high, while the population density was on the whole quite low.

**Map A53: Employment density in 2011 in Park Royal (workers per hectare)**
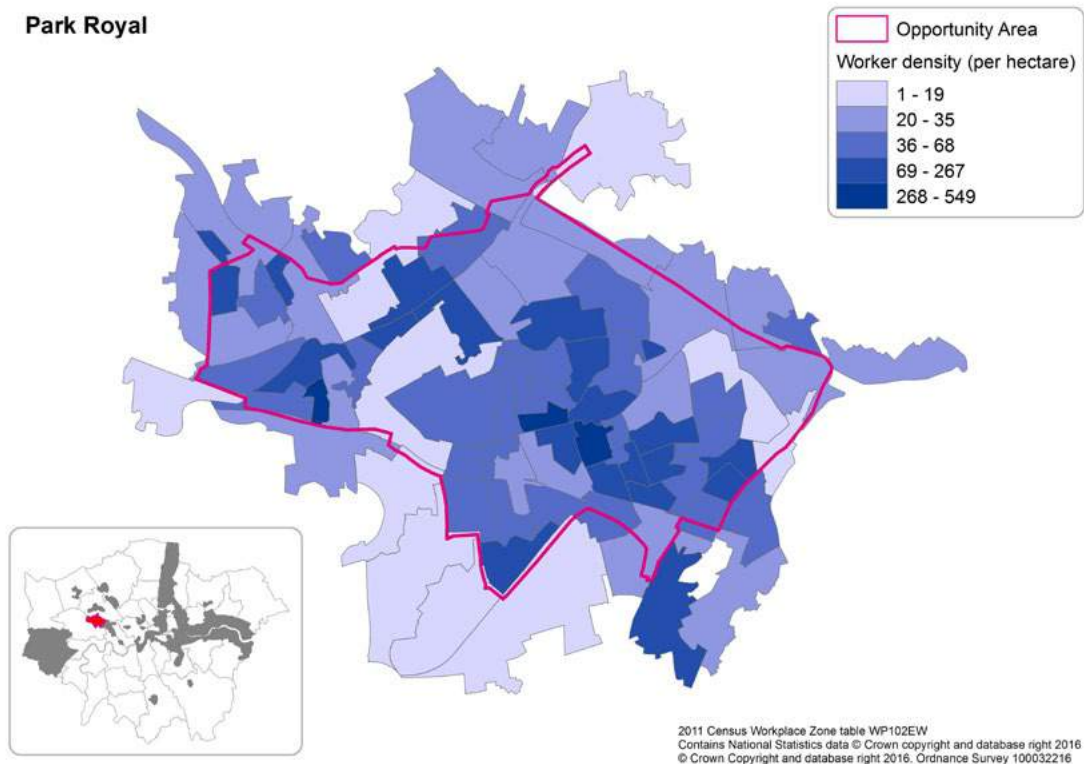


*Source: Census and GLA Intelligence Unit analysis*

**Map A54: Population density in 2011 in Park Royal (residents per hectare)**
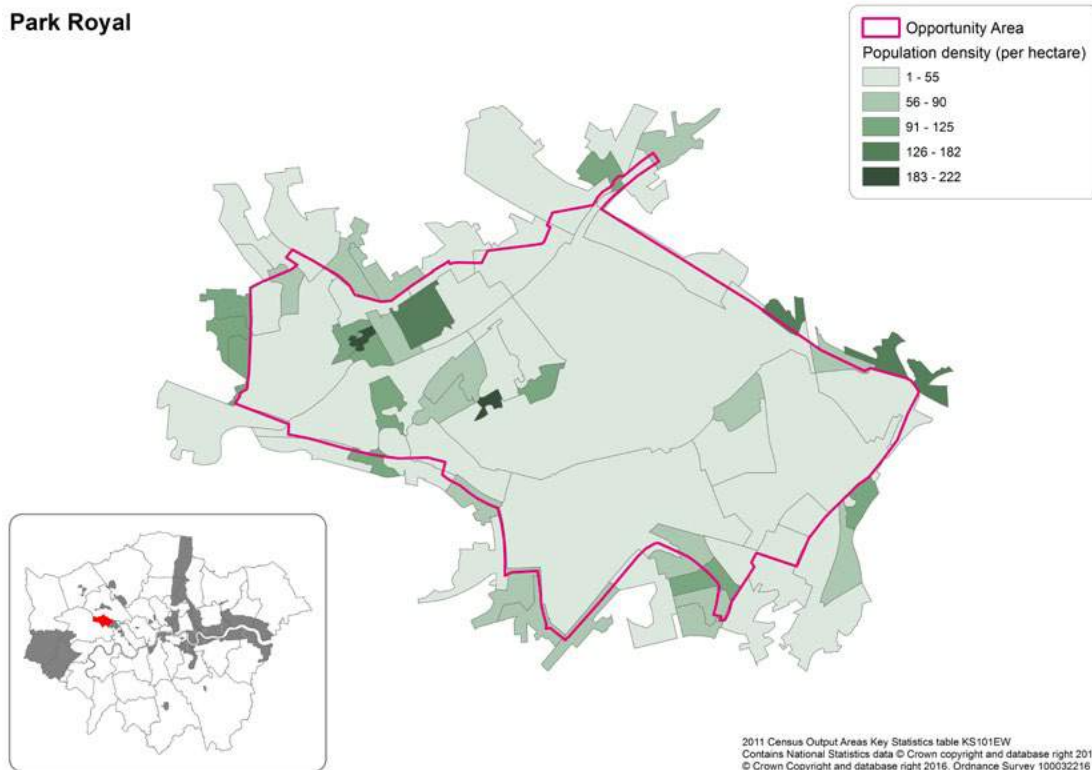


*Source: Census and GLA Intelligence Unit analysis*

## A28: The Royal Docks and Beckton Waterfront

It can be seen from Map A55 that employment in the Royal Docks and Beckton Waterfront area in 2011 was generally more concentrated around its edge, while for population (Map A56) the situation is similar in the centre of the area with relatively little population but more varied around the edges.

**Map A55: Employment density in 2011 in the Royal Docks and Beckton Waterfront (workers per hectare)**
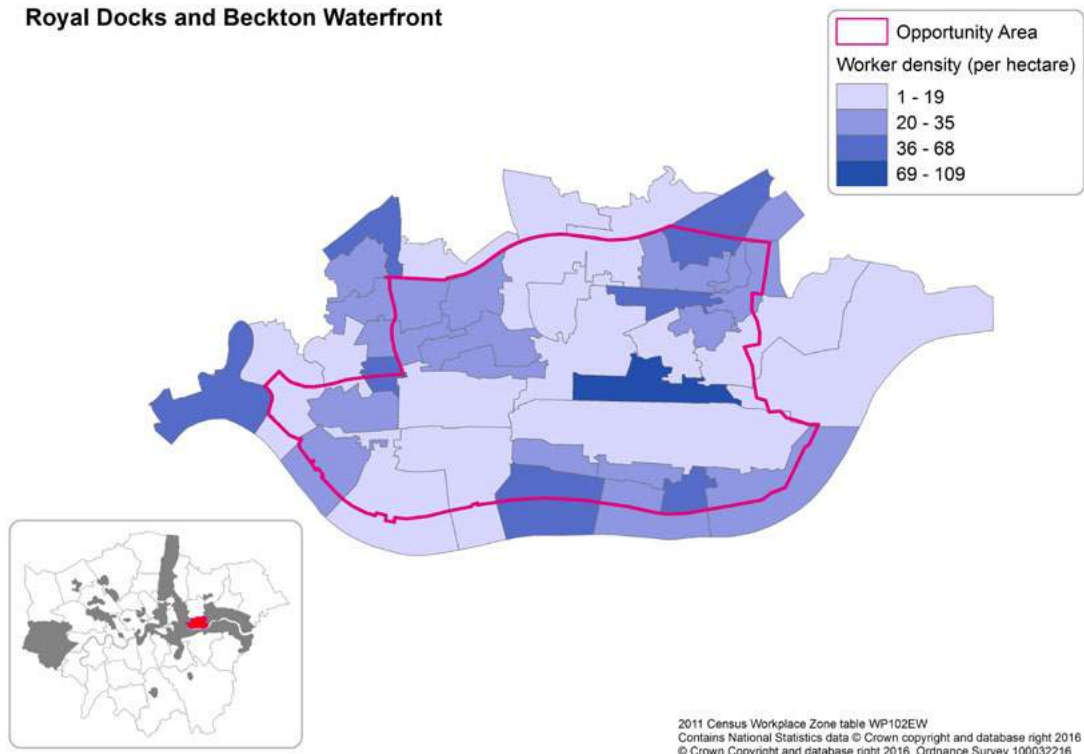


*Source: Census and GLA Intelligence Unit analysis*

**Map A56: Population density in 2011 in the Royal Docks and Beckton Waterfront (residents per hectare)**
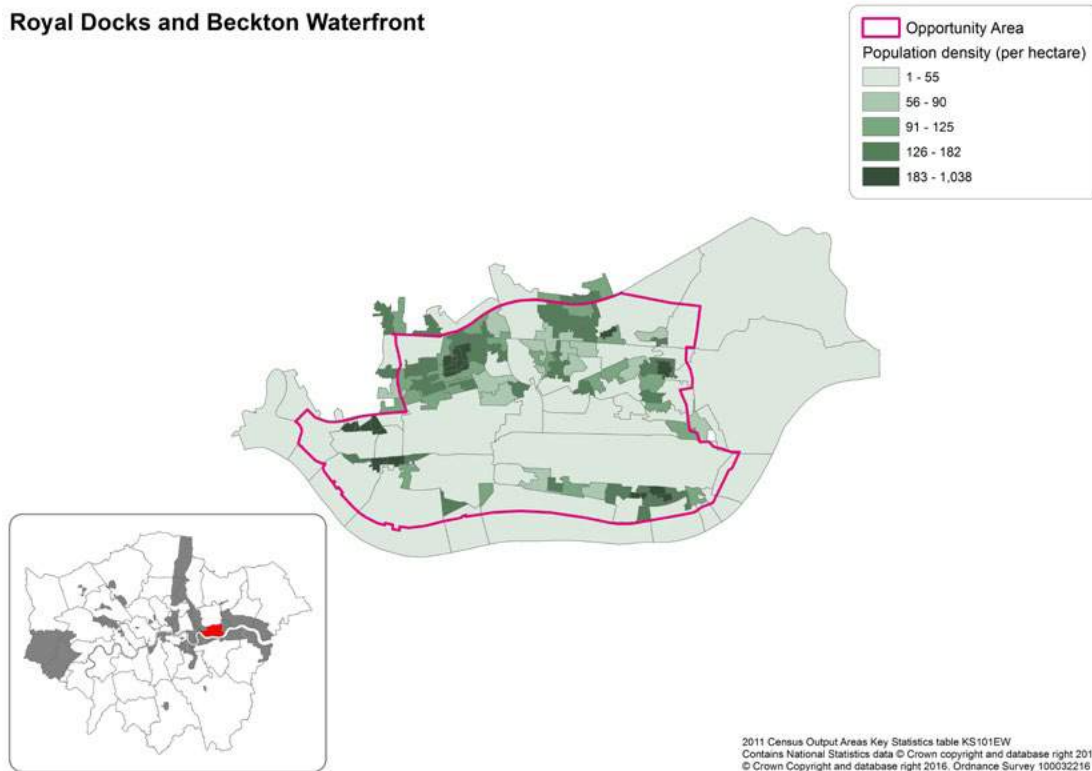


*Source: Census and GLA Intelligence Unit analysis*

## A29: Southall

In 2011 Map A57 shows that employment was most densely concentrated in the south and central parts of the Southall area, while Map A58 shows that population was lowest in a central band of this geography.
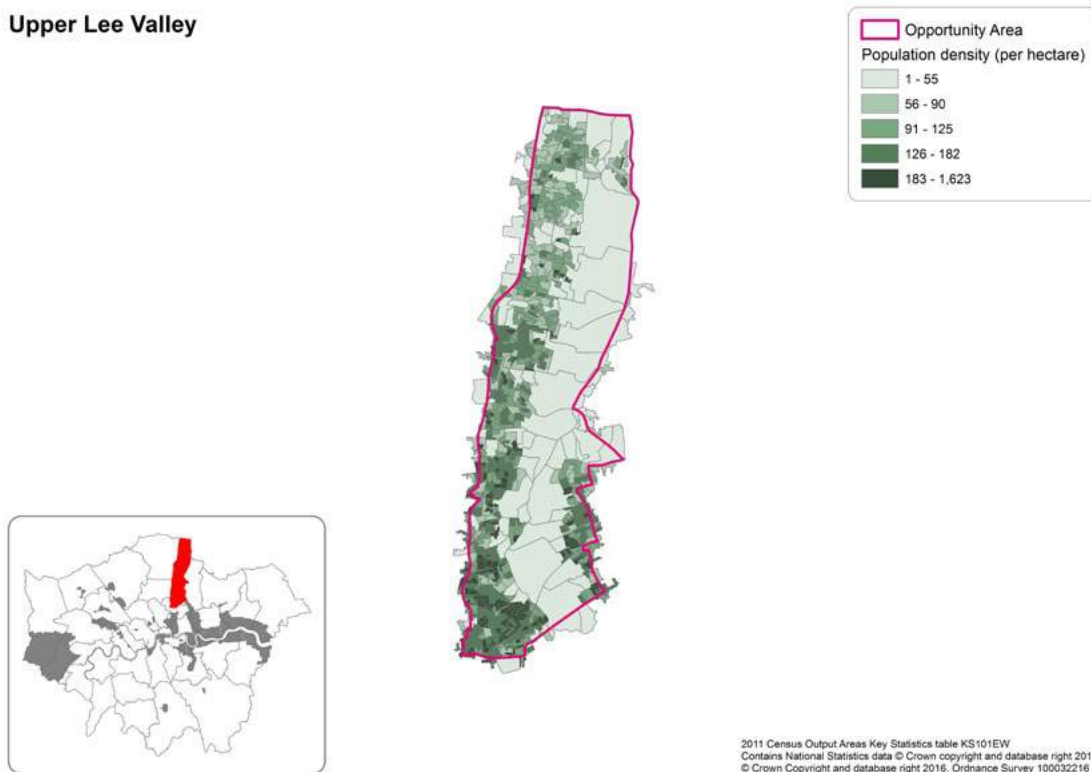
**Map A57: Employment density in 2011 in Southall (workers per hectare)**
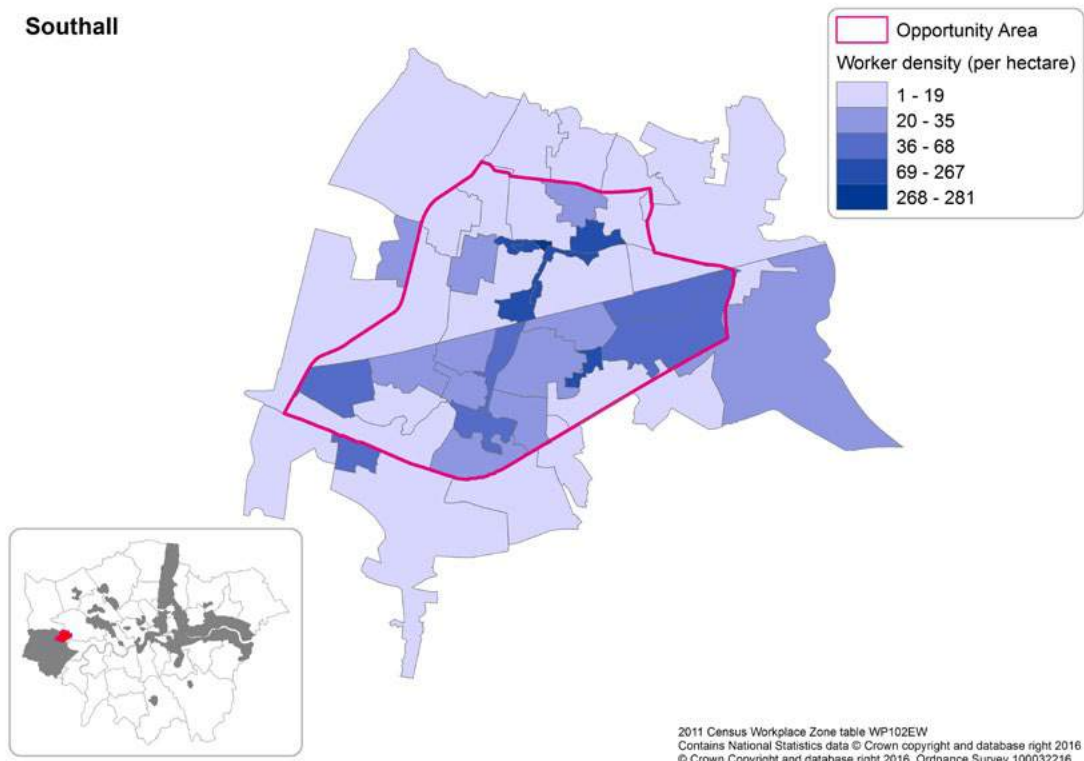


*Source: Census and GLA Intelligence Unit analysis*

**Map A58: Population density in 2011 in Southall (residents per hectare)**
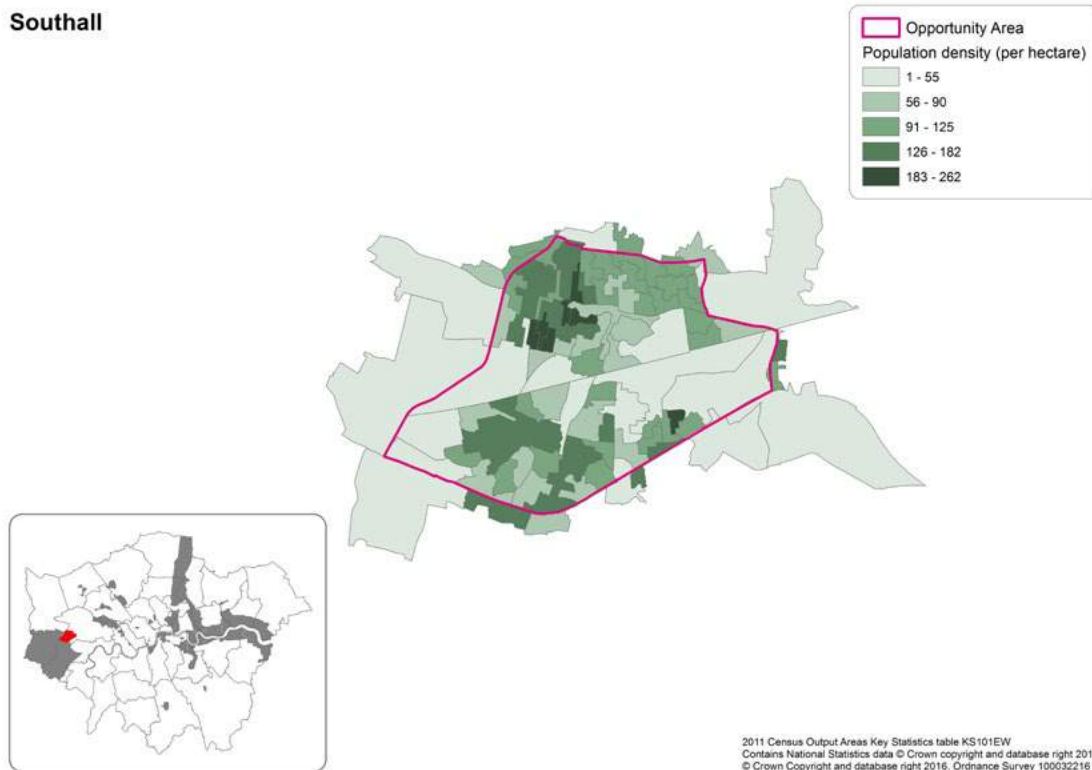


*Source: Census and GLA Intelligence Unit analysis*

## A30: Thamesmead and Abbey Wood

Map A59 shows that in 2011 employment density was relatively low in the Thamesmead and Abbey Wood area, while Map A60 shows that population density was higher in the north east and south east and south west parts of this geography.

**Map A59: Employment density in 2011 in the Thamesmead and Abbey Wood (workers per hectare)**



*Source: Census and GLA Intelligence Unit analysis*

**Map A60: Population density in 2011 in Thamesmead and Abbey Wood (residents per hectare)**
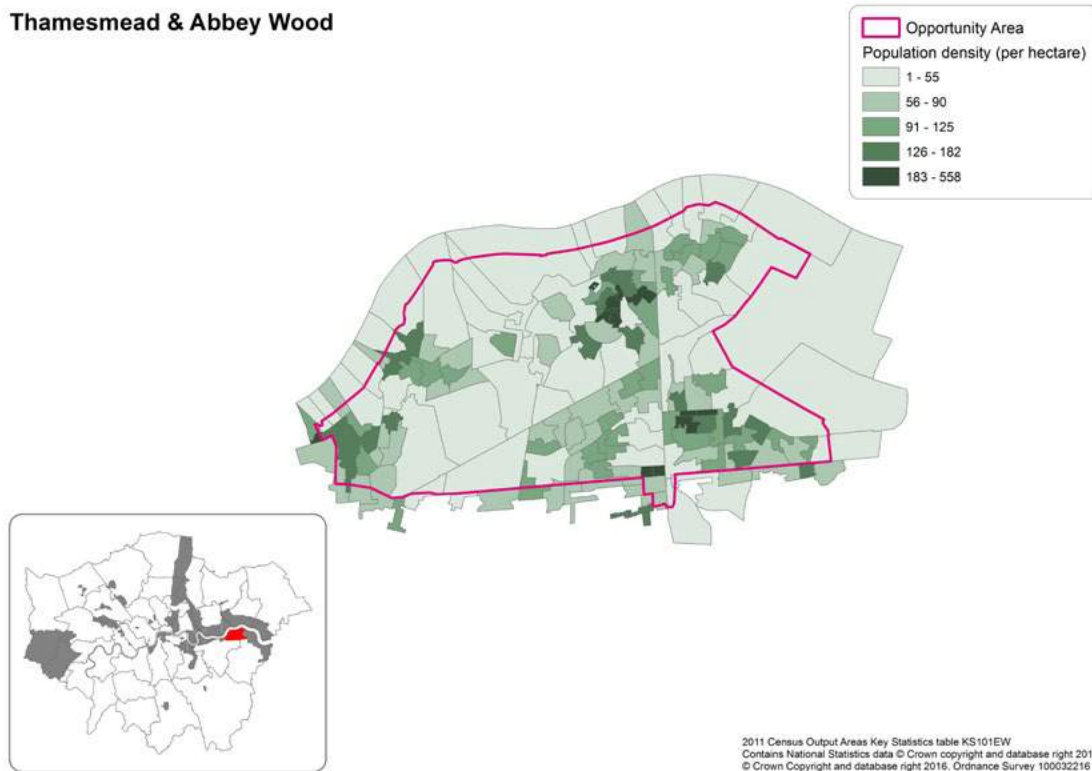


*Source: Census and GLA Intelligence Unit analysis*

## A31: Tottenham Court Road

As shown by Map A61 employment was heavily concentrated across all of the Tottenham Court Road area in 2011, while Map A62 shows that this was not the case for population with it being greatest on the geographies eastern edge.

**Map A61: Employment density in 2011 in the Tottenham Court Road (workers per hectare)**
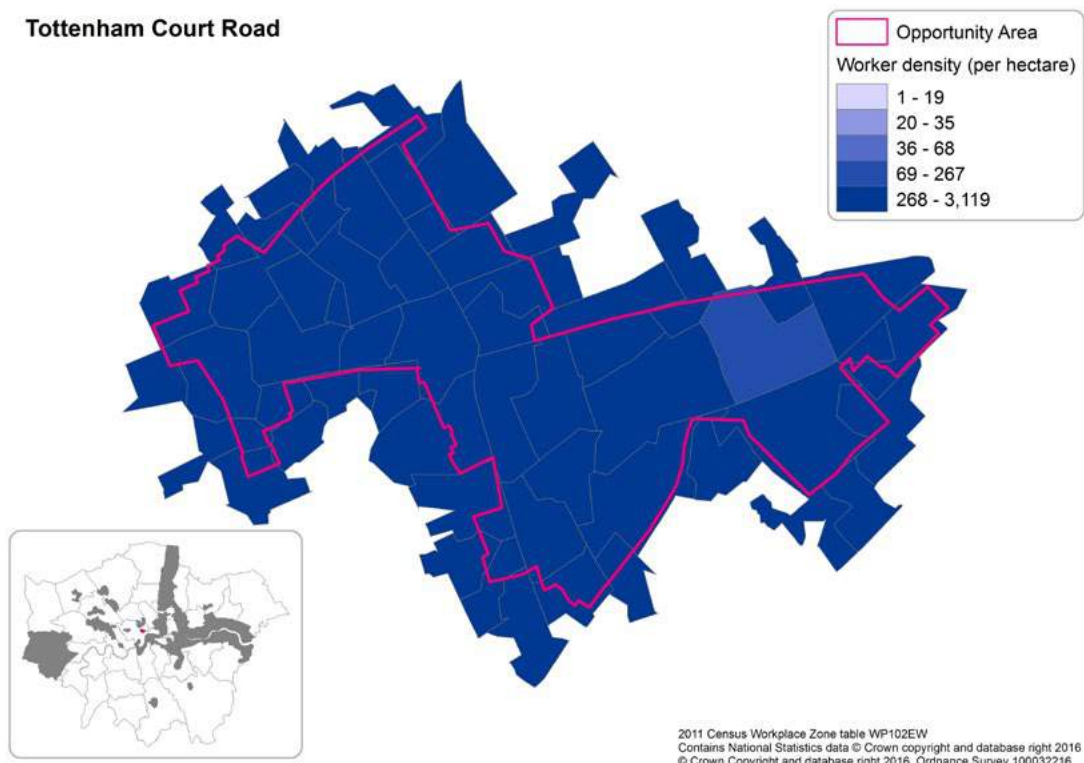


*Source: Census and GLA Intelligence Unit analysis*

**Map A62: Population density in 2011 in Tottenham Court Road (residents per hectare)**
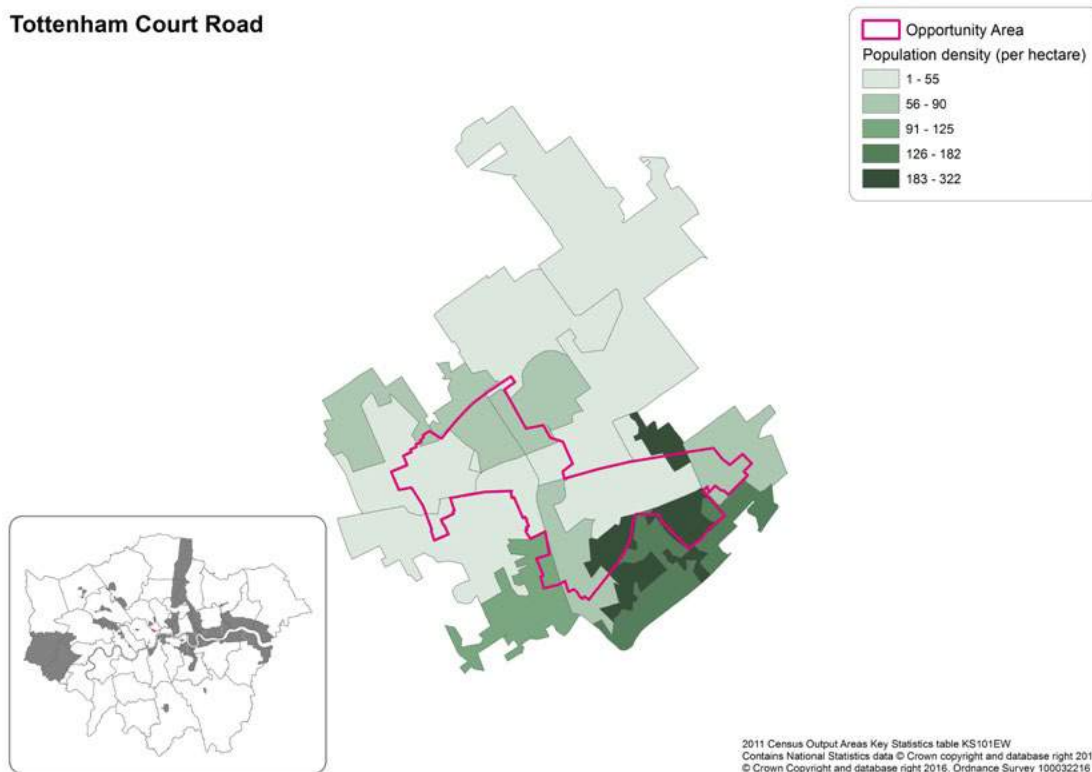


*Source: Census and GLA Intelligence Unit analysis*

## A32: The Upper Lee Valley

Map A63 shows a vein of moderately concentrated employment running through the Upper Lee Valley area in 2011, while Map A64 shows a generally similar population density pattern, with the population density being more intense on the eastern and bottom western edge of the area.

**Map A63: Employment density in 2011 in the Upper Lee Valley (workers per hectare)**
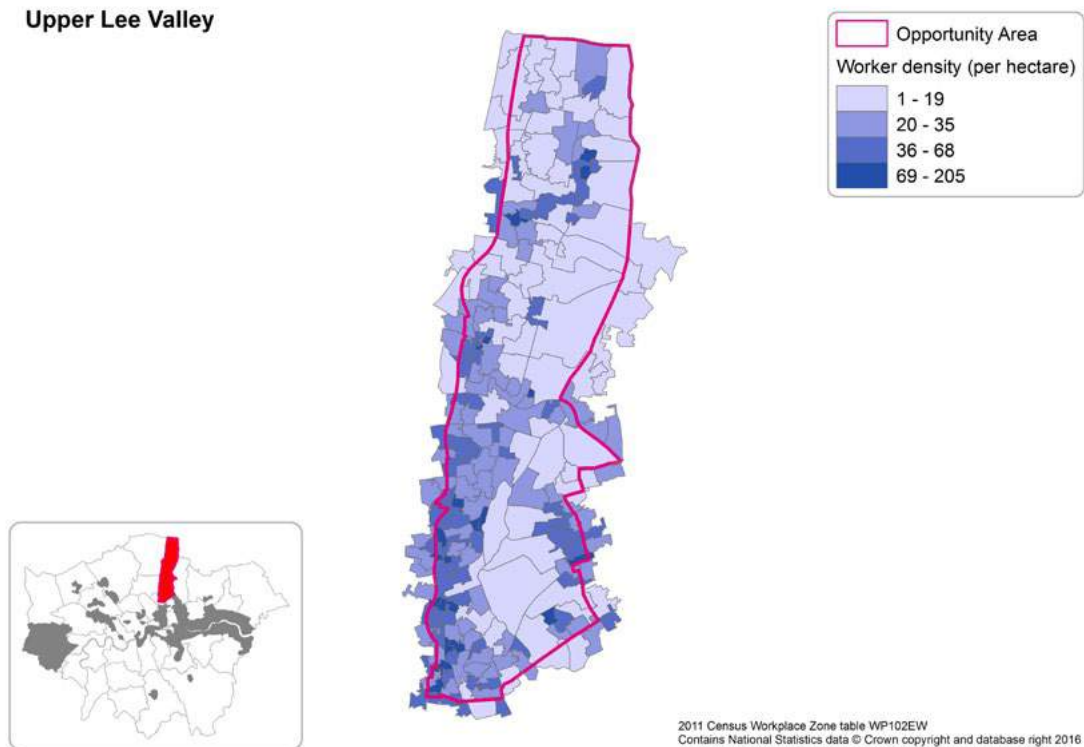


*Source: Census and GLA Intelligence Unit analysis*

**Map A64: Population density in 2011 in the Upper Lee Valley (residents per hectare)**



*Source: Census and GLA Intelligence Unit analysis*

## A33: Vauxhall, Nine Elms & Battersea

Map A65 shows that in 2011 employment density was moderately high across the Vauxhall, Nine Elms & Battersea area, while population density was relatively low apart from in the eastern fringe and south eastern part of the geography.

**Map A65: Employment density in 2011 in Vauxhall, Nine Elms & Battersea (workers per hectare)**
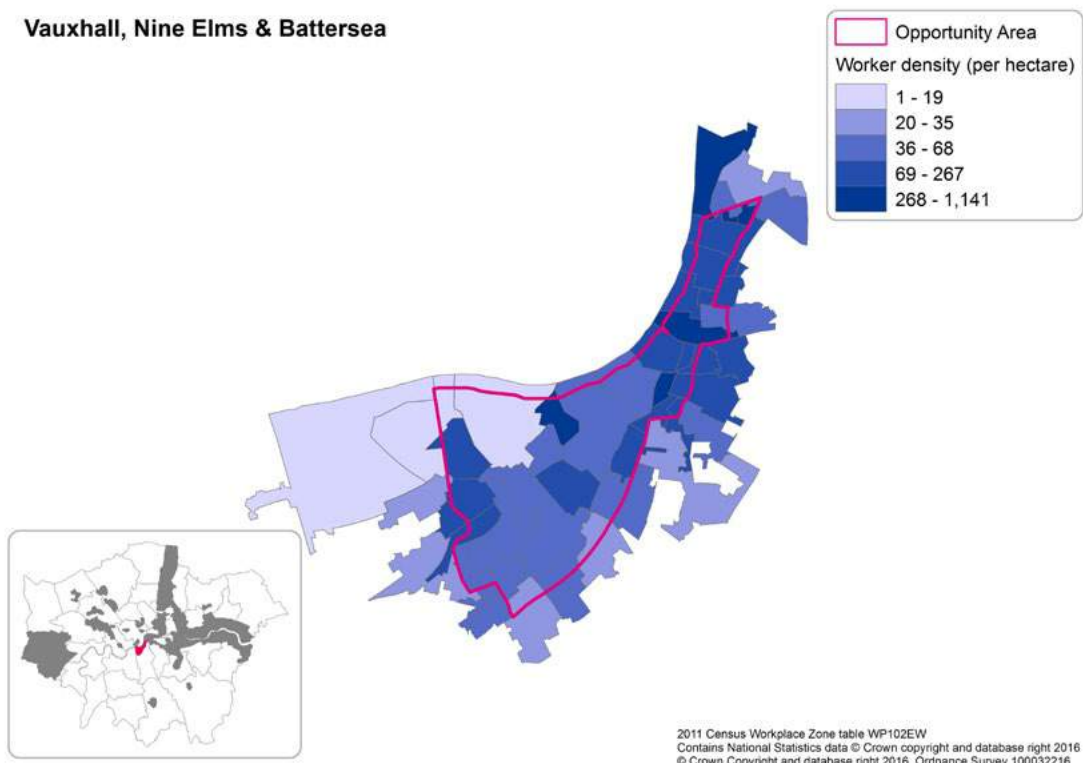


*Source: Census and GLA Intelligence Unit analysis*

**Map A66: Population density in 2011 in Vauxhall, Nine Elms & Battersea (residents per hectare)**
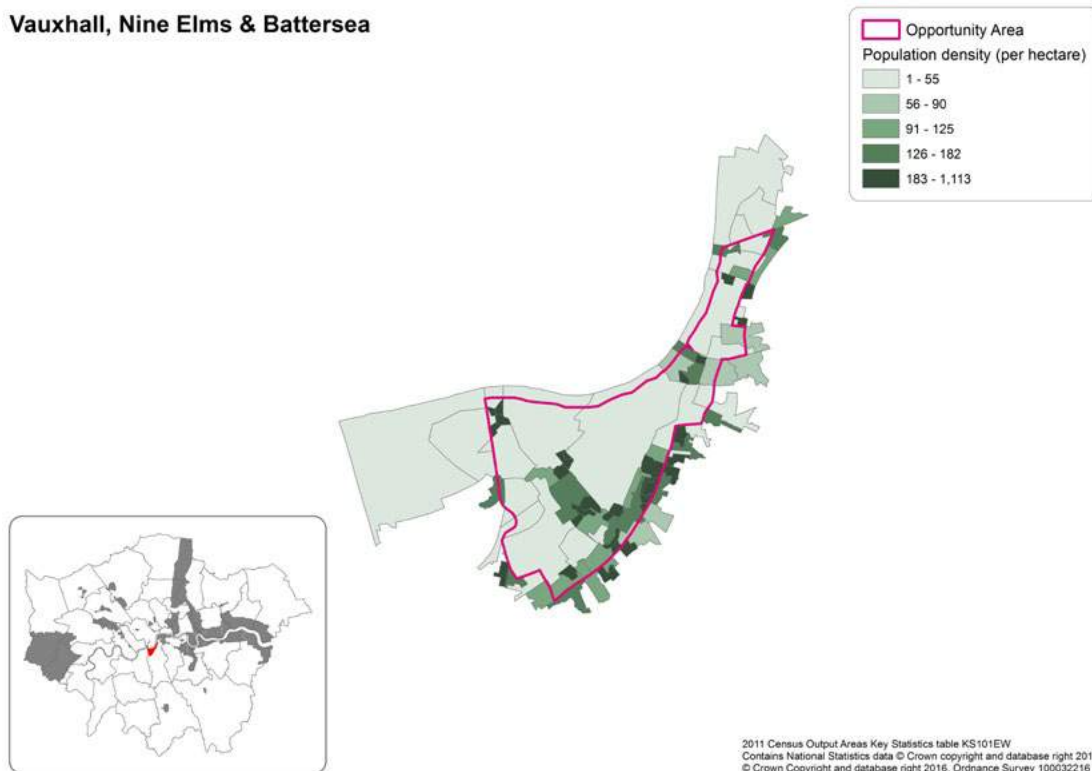


*Source: Census and GLA Intelligence Unit analysis*

## A34: Victoria

In 2011 as shown by Map A67 employment density was relatively high in the Victoria area especially in its northern section, while Map A68 shows that population was most concentrated in the south and mid-east of the area.

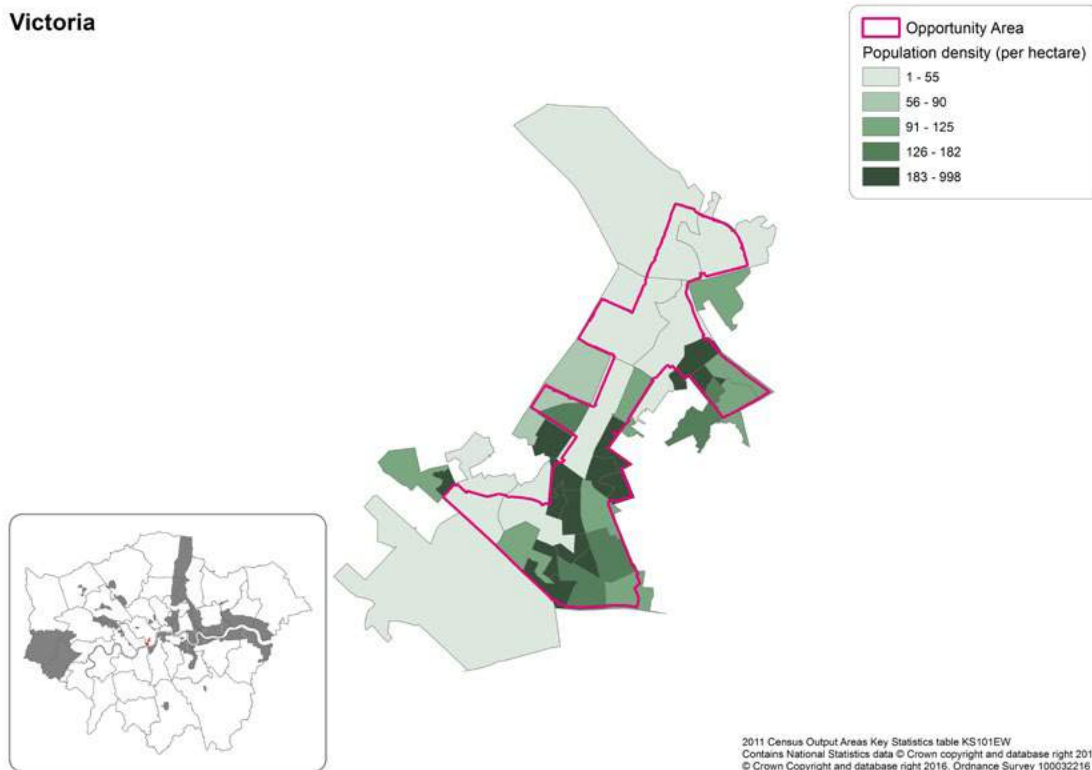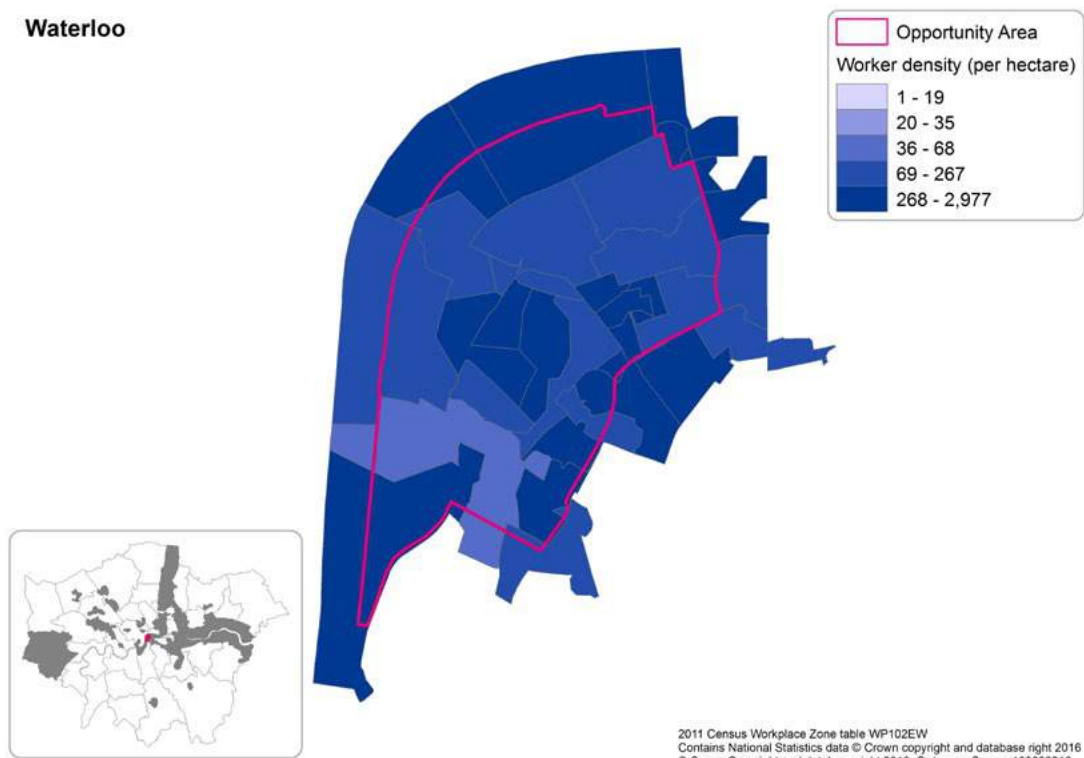**Map A67: Employment density in 2011 in Victoria (workers per hectare)**
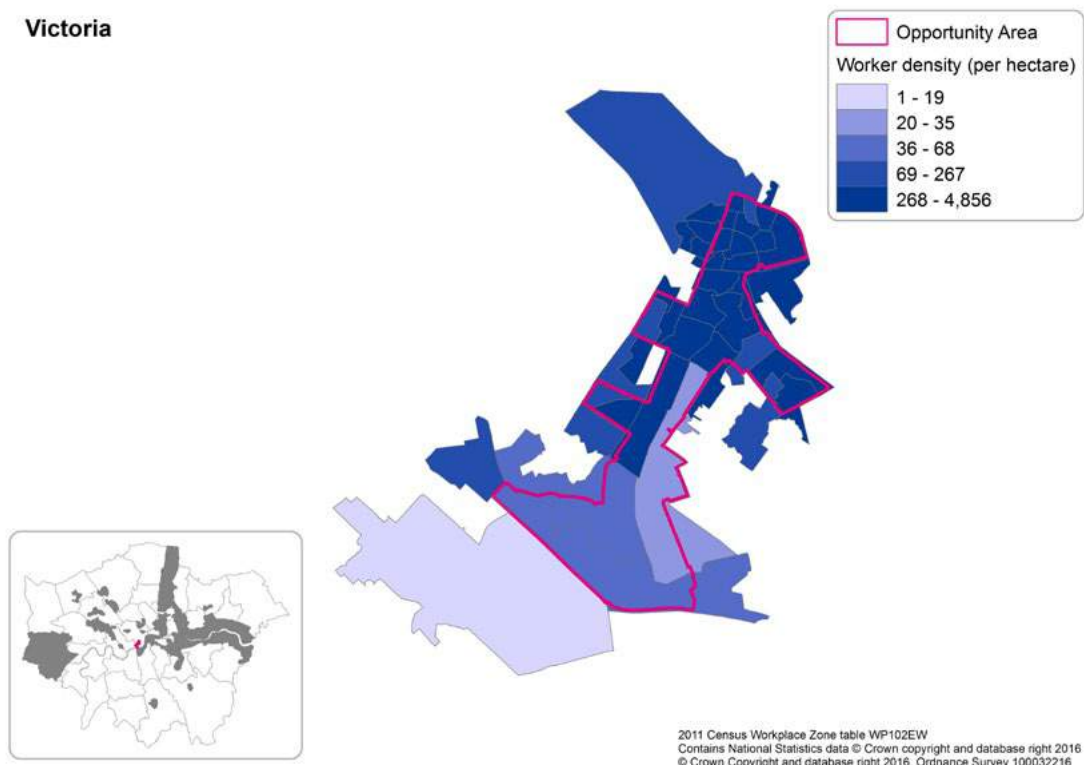


*Source: Census and GLA Intelligence Unit analysis*

## Map A68: Population density in 2011 in Victoria (residents per hectare)



*Source: Census and GLA Intelligence Unit analysis*

# A35: Waterloo

In 2011 as shown by Map A69 employment density was relatively high in the Waterloo area, while Map A70 shows that population was generally low apart from at its eastern end and a couple of points at its mid-west.

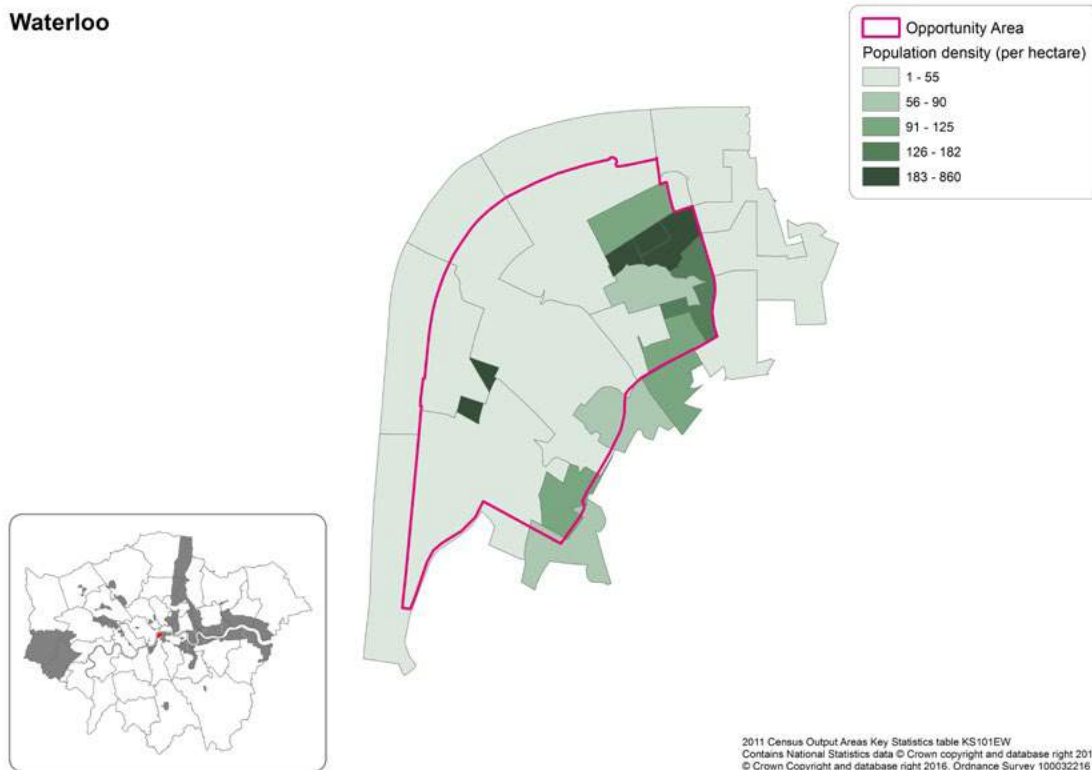## Map A69: Employment density in 2011 in Waterloo (workers per hectare)



*Source: Census and GLA Intelligence Unit analysis*

**Map A70: Population density in 2011 in Waterloo (residents per hectare)**
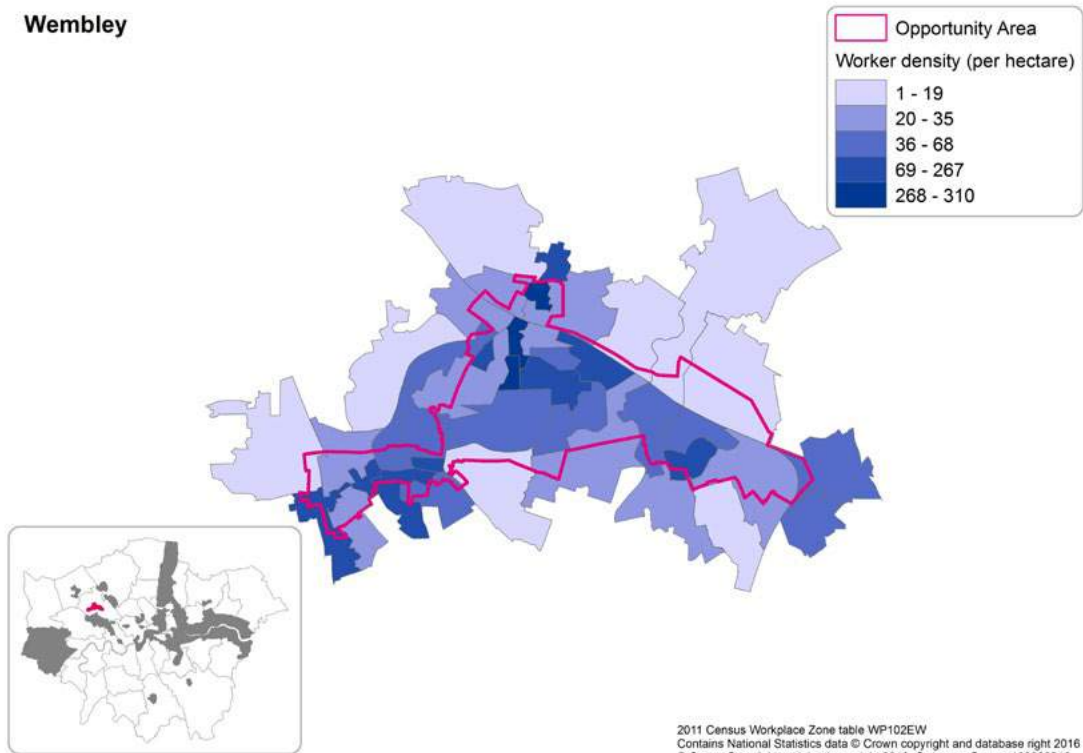


*Source: Census and GLA Intelligence Unit analysis*

## A36: Wembley

In 2011 as shown by Map A71 employment density was relatively evenly spread in the Wembley area, while Map A70 shows that population was generally low apart from at its western end.

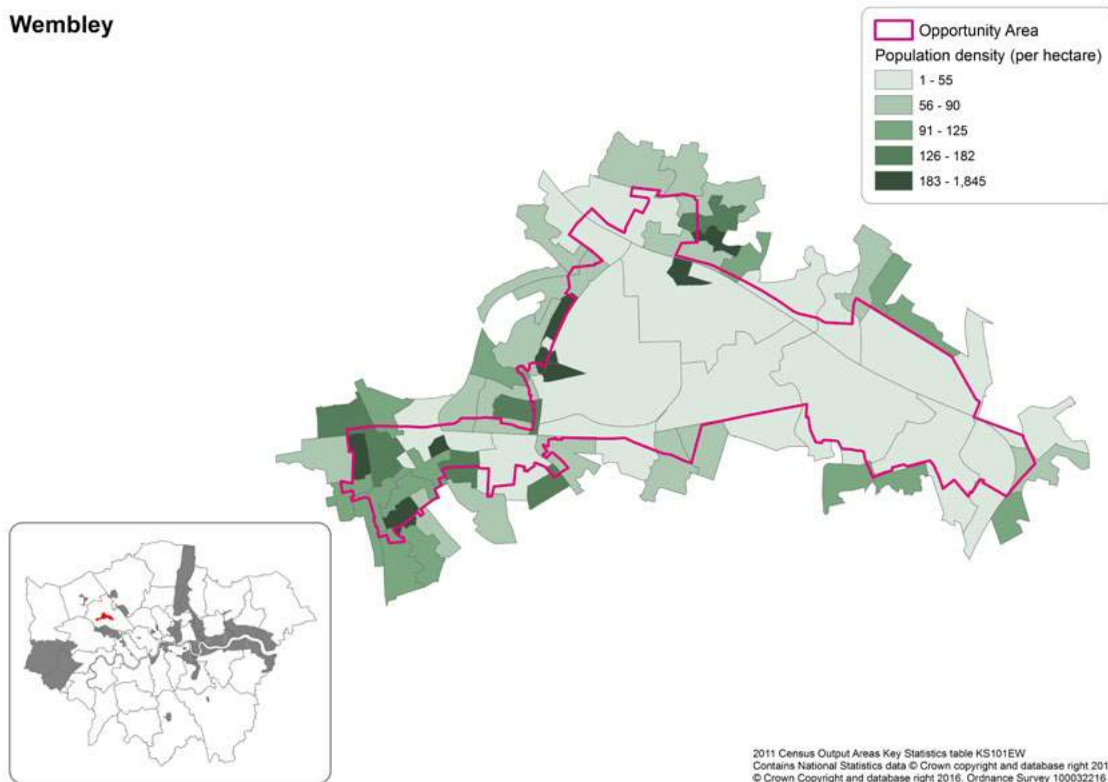**Map A71: Employment density in 2011 in Wembley (workers per hectare)**



*Source: Census and GLA Intelligence Unit analysis*

**Map A72: Population density in 2011 in Wembley (residents per hectare)**
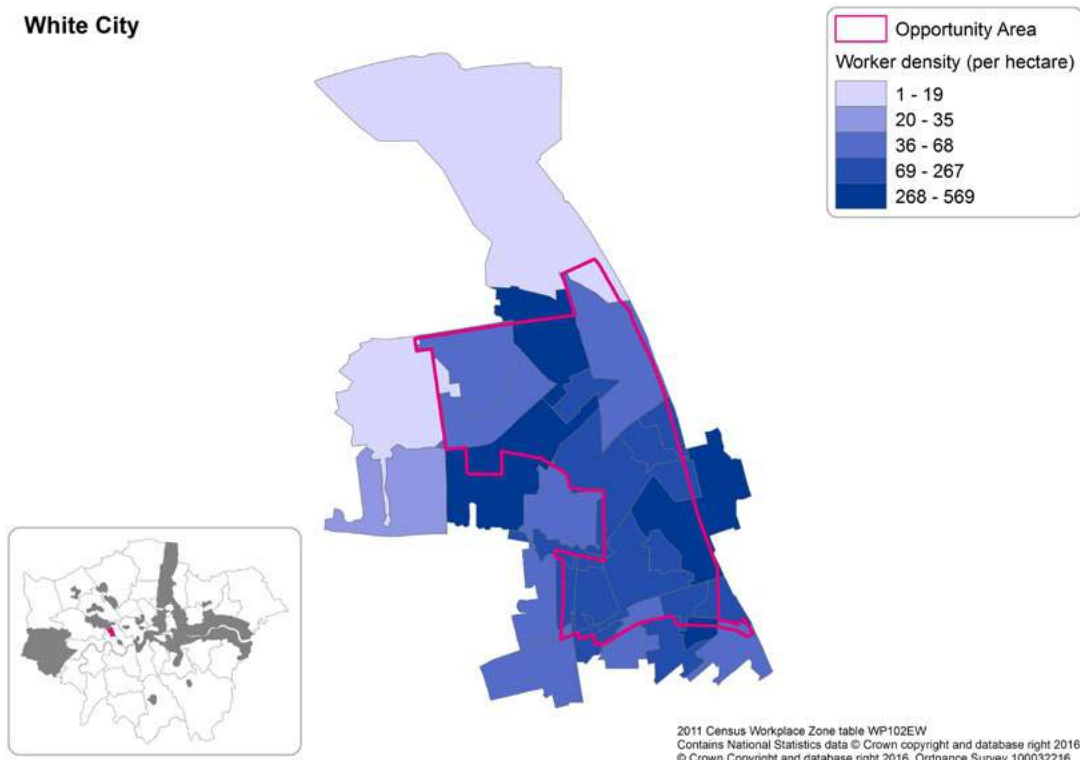


*Source: Census and GLA Intelligence Unit analysis*

## A37: White City

In 2011 Map A73 shows that employment density was relatively high in the White City area, while Map A74 shows that population was more concentrated around its western and southern edges.

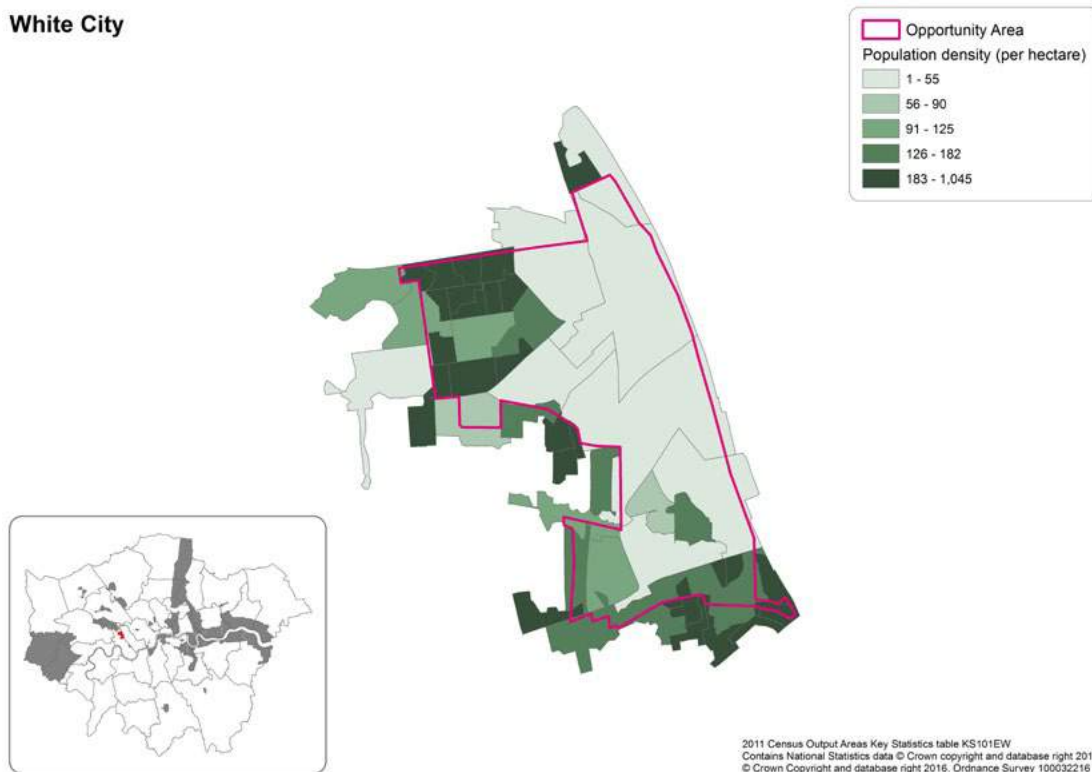**Map A73: Employment density in 2011 in White city (workers per hectare)**



*Source: Census and GLA Intelligence Unit analysis*

**Map A74: Population density in 2011 in White City (residents per hectare)**
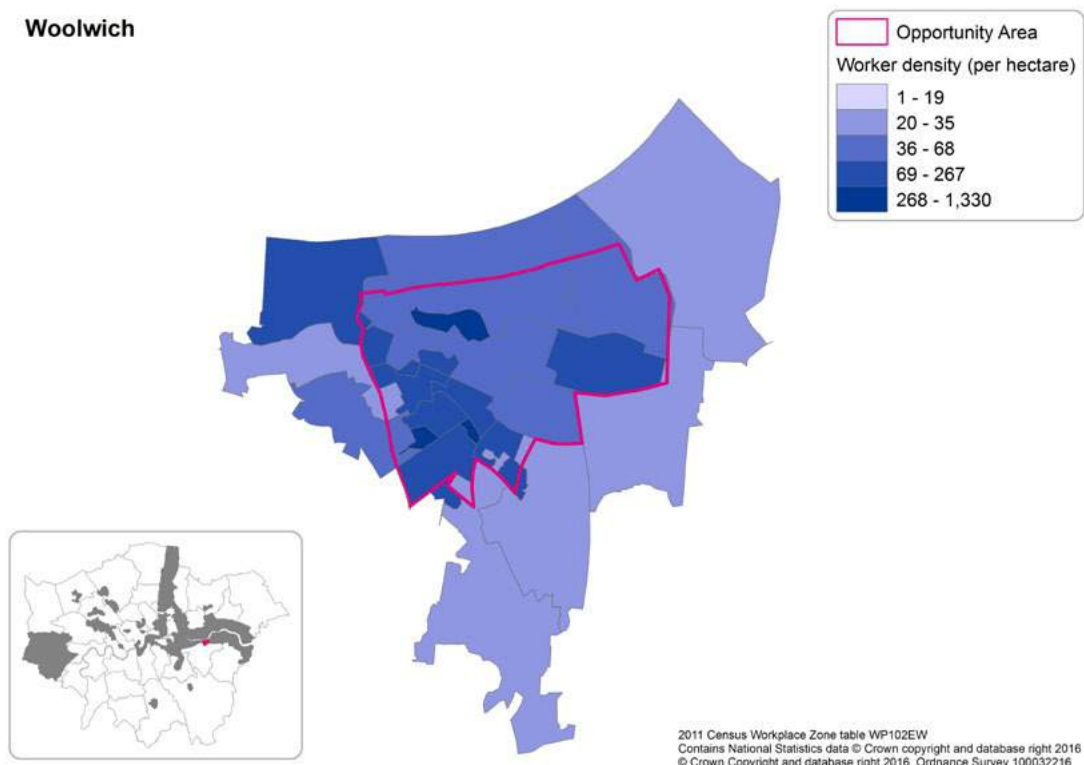


*Source: Census and GLA Intelligence Unit analysis*

## A38: Woolwich

Map A75 shows that in 2011 employment density was relatively constant in the Woolwich area, while Map A76 shows that population was generally low apart from in a few scattered areas and its north eastern corner.

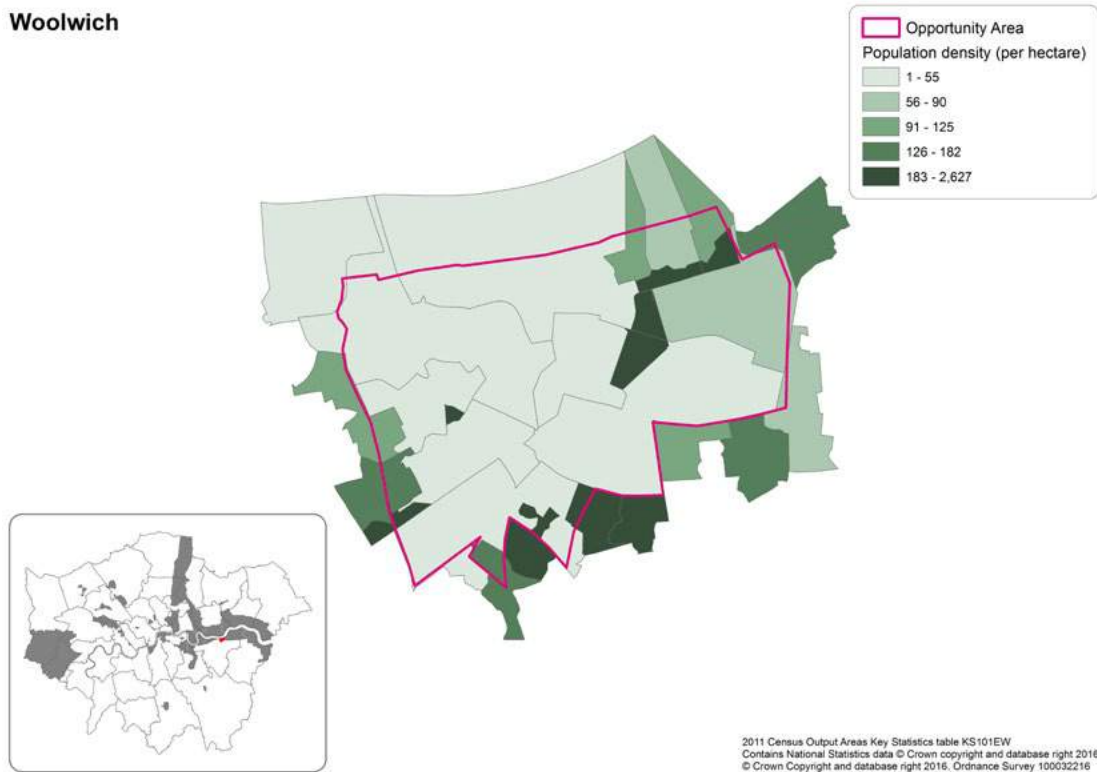**Map A75: Employment density in 2011 in Woolwich (workers per hectare)**



*Source: Census and GLA Intelligence Unit analysis*

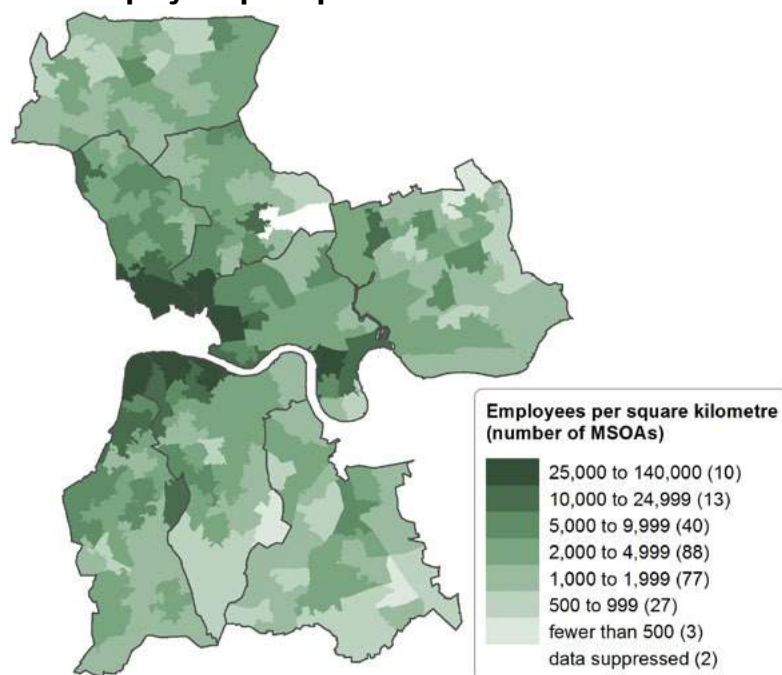## Map A76: Population density in 2011 in Woolwich (residents per hectare)



*Source: Census and GLA Intelligence Unit analysis*

# Appendix 2.2: Sub regional employee jobs locations in London

This section of the Appendix to Chapter 2 examines employee density in London at the NUTS2 geography and thus provides a more disaggregated picture than that shown and examined in the main text. It also provides maps examining employee density at the workplace zone level in London in order to provide a different view on employment in London.

Map B1 shows that the strongest concentration of employees in Inner London – East in 2015 was in the NIOD and a fringe to the north and south of the City.

**Map B1: Number of employees per square kilometre in 2015 in Inner London - East**



Employees per square kilometre (number of MSOAs)

25,000 to 140,000 (10)
10,000 to 24,999 (13)
5,000 to 9,999 (40)
2,000 to 4,999 (88)
1,000 to 1,999 (77)
500 to 999 (27)
fewer than 500 (3)
data suppressed (2)

Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: BRES*

Map B2 shows that in 2015 in Inner London – West employees were heavily concentrated in an area running from the City to a broad area going westward towards Paddington, northward up Tottenham court road and south from Victoria and also into the Knightsbridge area and with another couple of areas near Hammersmith Bridge and Wandsworth Bridge.

**Map B2: Number of employees per square kilometre in 2015 in Inner London - West**



Employees per square kilometre
(number of MSOAs)

25,000 to 140,000 (16)
10,000 to 24,999 (22)
5,000 to 9,999 (36)
2,000 to 4,999 (40)
1,000 to 1,999 (17)
500 to 999 (5)
fewer than 500 (0)
data suppressed (0)

Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
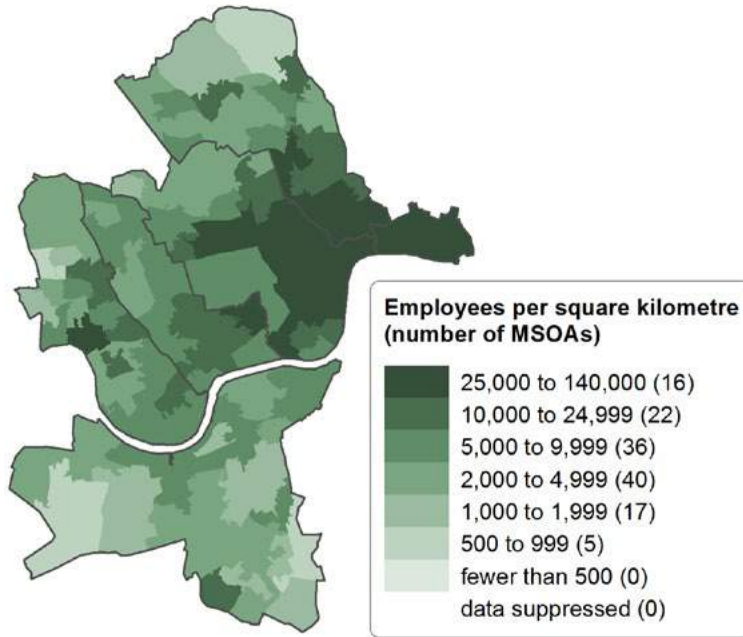Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: BRES*

Map B3 shows employees in 2015 in Outer London – East & North East were less heavily concentrated in most areas compared to the Inner London NUTS2 areas but with distinct areas of higher employee concentration shown throughout the geography.

**Map B3: Number of employees per square kilometre in 2015 in Outer London – East & North East**



Employees per square kilometre
(number of MSOAs)

25,000 to 140,000 (0)
10,000 to 24,999 (0)
5,000 to 9,999 (9)
2,000 to 4,999 (38)
1,000 to 1,999 (68)
500 to 999 (60)
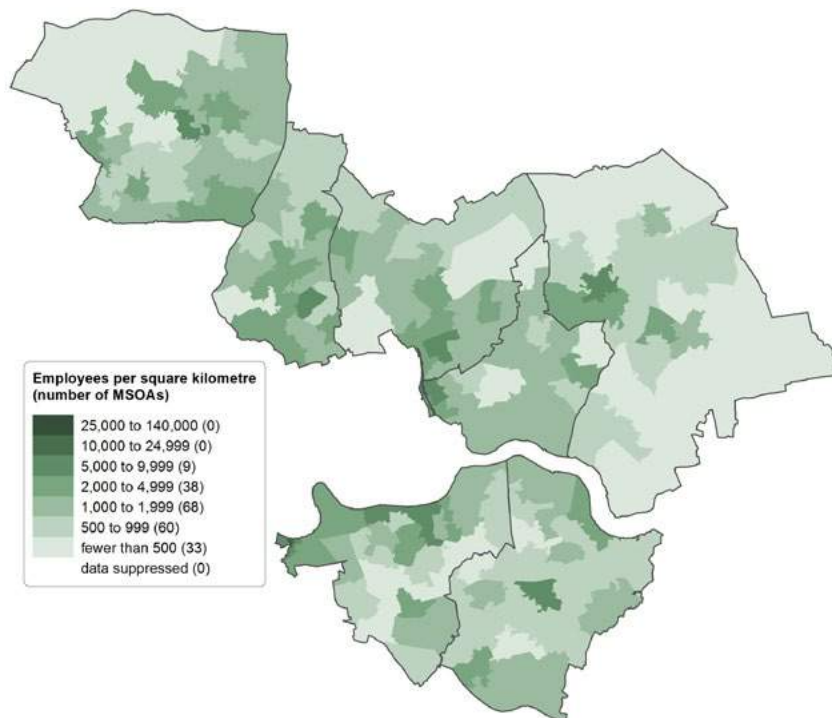fewer than 500 (33)
data suppressed (0)

Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
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*Source: BRES*

Map B4 shows areas of high concentration of employees in Outer London – South in 2015 associated with the town centres of Croydon, Kingston upon Thames and Sutton.

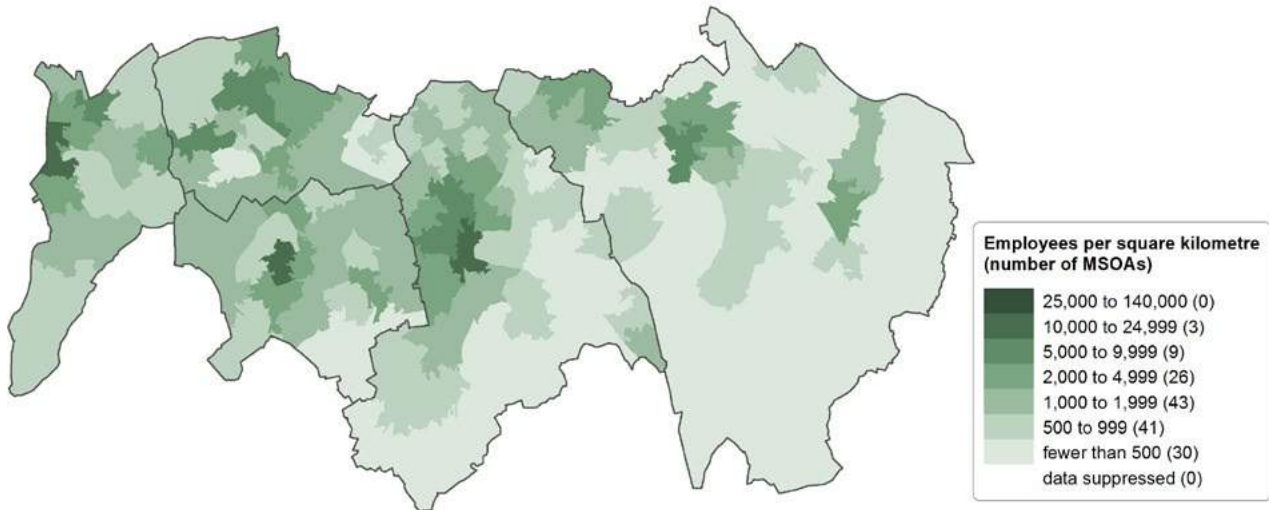**Map B4: Number of employees per square kilometre in 2015 in Outer London – South**



Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: BRES*

Map B5 shows that employees were concentrated in a number of areas of Outer London – West & North West in 2015 most likely associated with Heathrow Airport and various town centres.

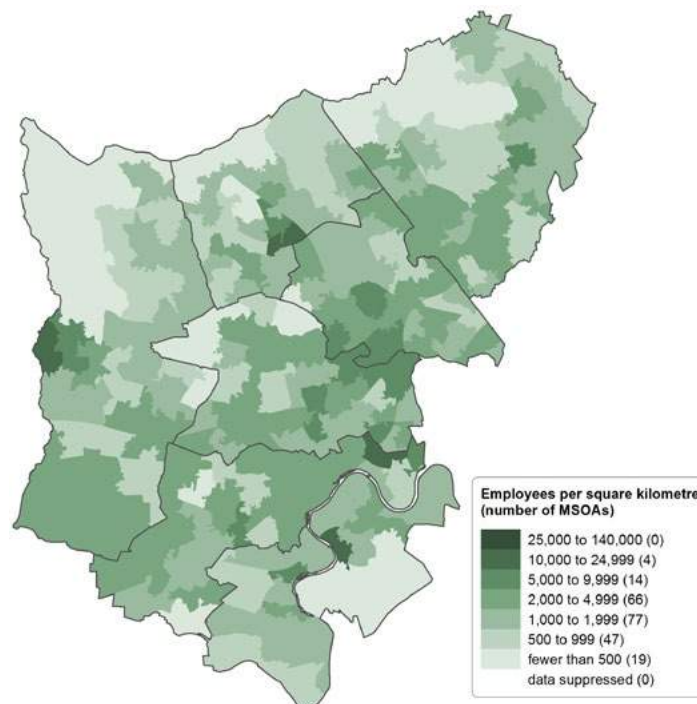**Map B5: Number of employees per square kilometre in 2015 in Outer London – West & North West**



Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: BRES*

Finally, Maps B6 & B7 examines employee concentration in London using a different methodology than employees per square kilometre, in this case by employees per workplace zone between 2009 and 2015. As can be seen from Maps B6 & B7 there appears to have been some deepening in the number of employees in Central London workplace zones between 2009 and 2015. With, Map B7 again showing that in 2015 employees are heavily concentrated in Central London workplace zones, however a number of Outer London workplace zones can also be seen to have heavy concentrations of employees.

**Map B6: Number of employees in London Workplace Zones, 2009**
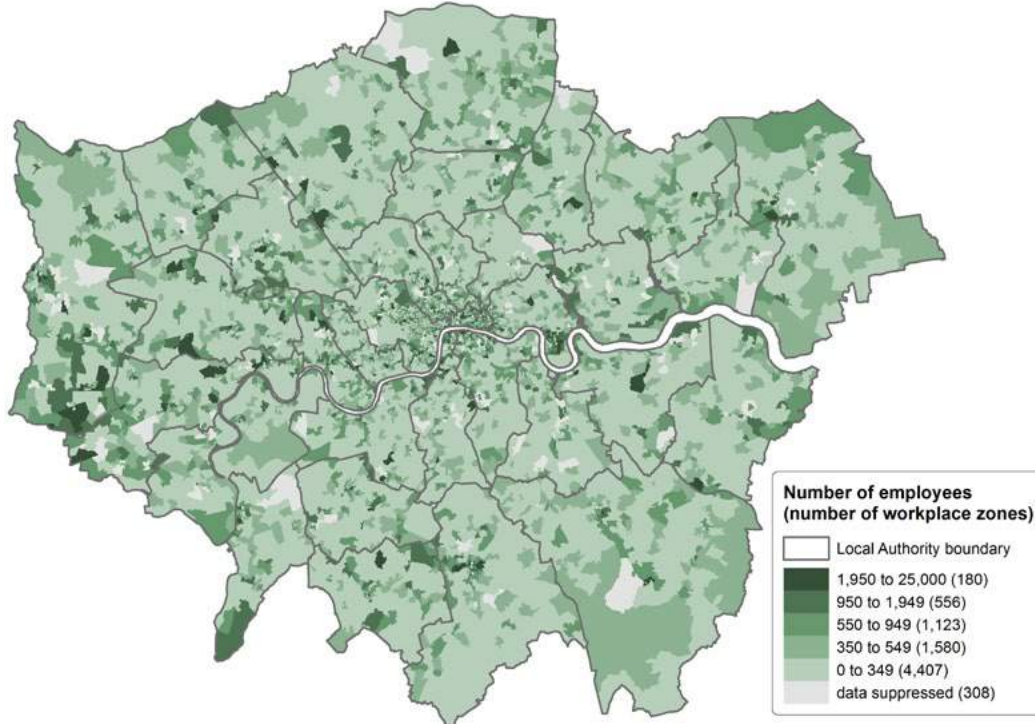


Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: IDBR*

**Map B7: Number of employees in London Workplace Zones, 2015**
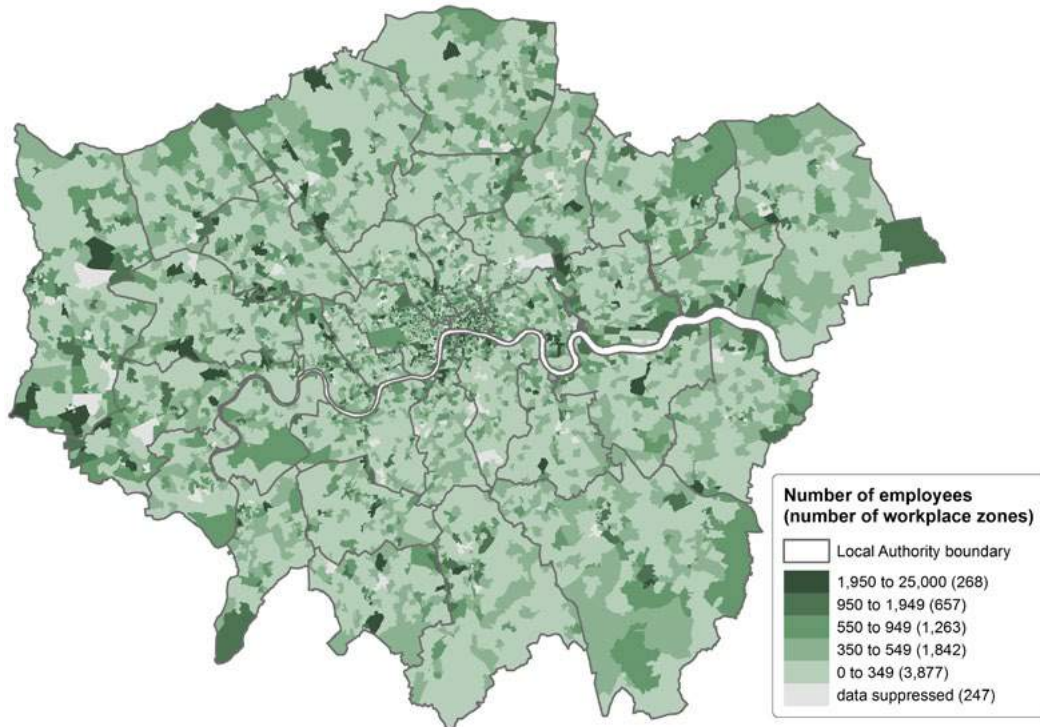


Number of employees
(number of workplace zones)

Local Authority boundary
1,950 to 25,000 (268)
950 to 1,949 (657)
550 to 949 (1,263)
350 to 549 (1,842)
0 to 349 (3,877)
data suppressed (247)

Source: Inter-Departmental Business Register, Office for National Statistics
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*Source: IDBR*

# Appendix 2.3: Output by sector in London's boroughs

This section of the appendix to Chapter 2 first looks at the evolving importance of London's LA's to London's total output in various broad sectors of the economy and thus highlights for instance the importance of Outer London to London's output in the Production sector in 2014, while Inner London has become more important to London's output in the Financial and insurance activities sector. It then moves on to look at the evolving importance of various broad sectors of the economy to the total output of London's various individual LA's. And as can be seen certain sectors such as Production have generally declined in importance to the total output of individual LA's between 1997 and 2014, while others such as Real estate activities have generally increased in importance as a percentage of total output in the individual London LA's. It should however be noted that **the scale used in each map is not consistent across the various maps** thus a sector shown to be of importance in one map may on the scale used in another map be of middling rank. This varying scale was used however in order to better highlight the sectorial differences between London's LA's.

## The varying importance of London's LA's to output in the broad sectors of London's economy

Map C1 shows the importance of a number of Outer London boroughs to London's output in the Production sector over time, although the Inner London boroughs of Camden and Westminster were also important to this sector however the importance of Tower Hamlets to this sector has declined slightly between 1997 and 2014.

**Map C1: Contribution of London's LA's to total output in Production in London in 1997 and 2014**[2]
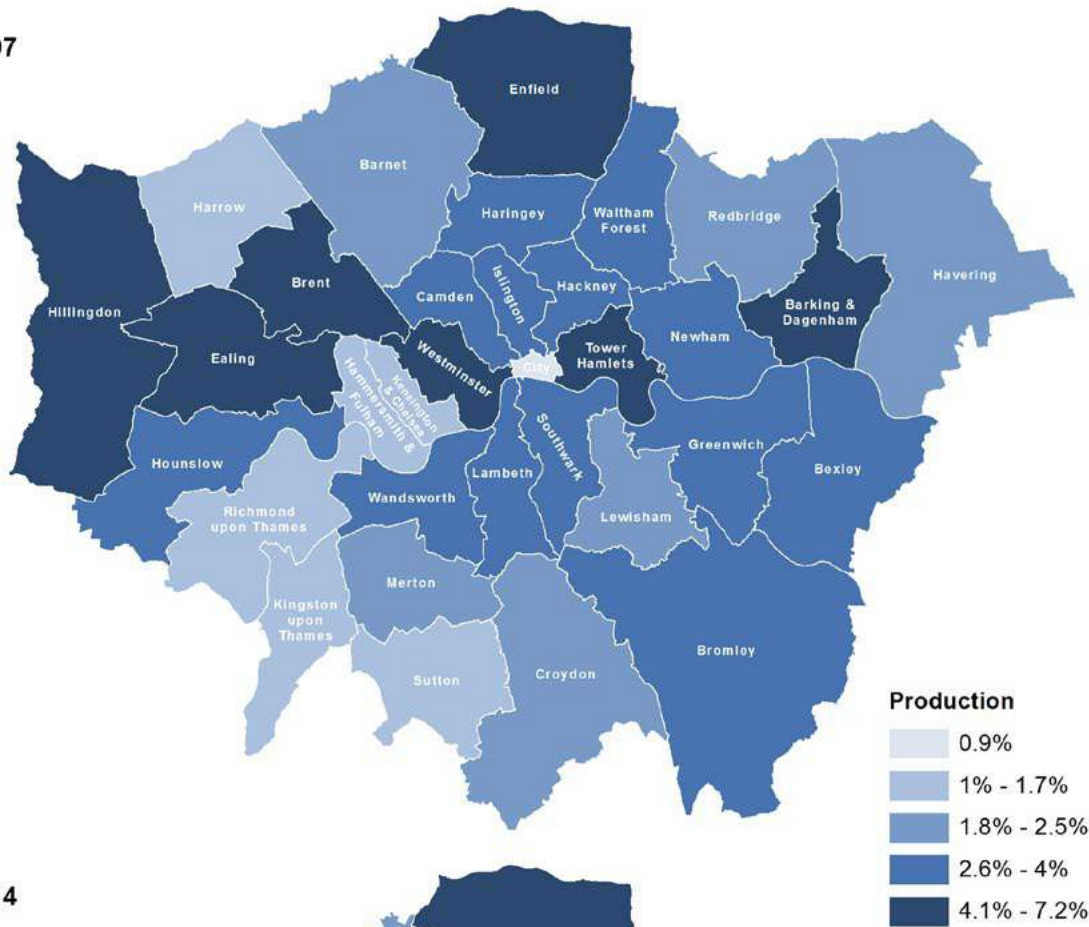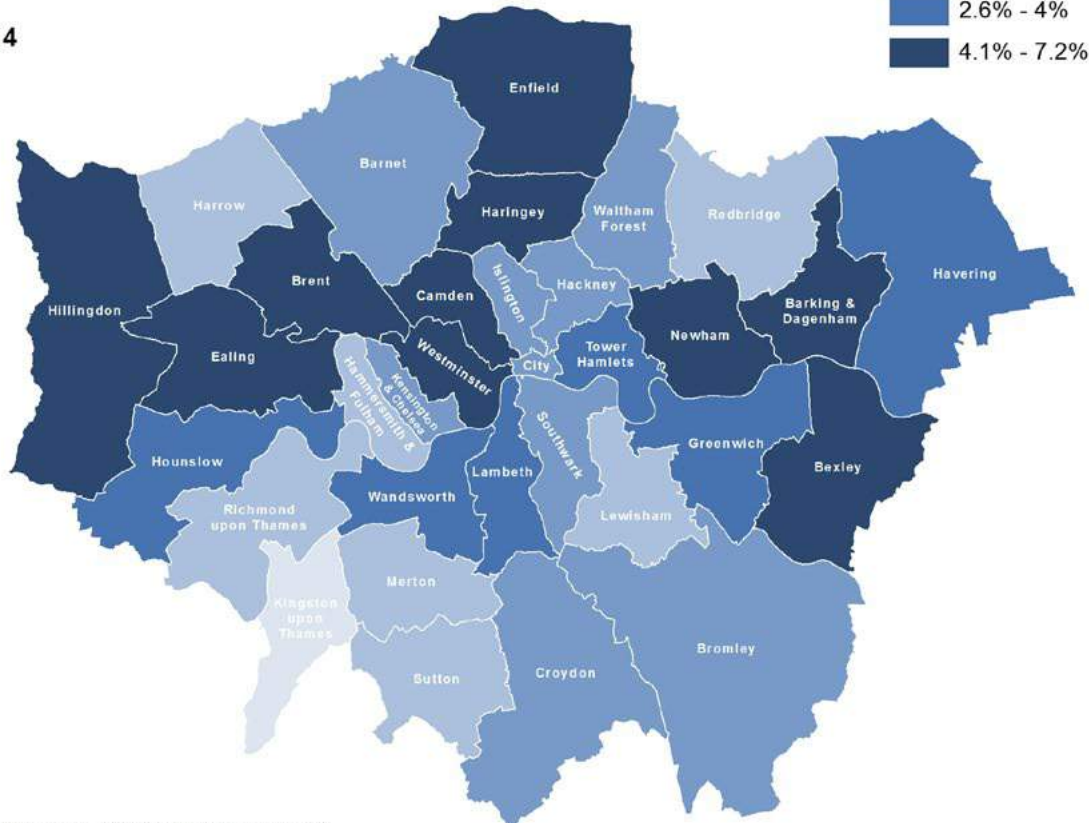


Source: ONS & GLA Economics calculations

Map C2 shows the reduced importance of Brent, Harrow, Southwark, and Tower Hamlets to the total London output in the Construction sector, while the boroughs of Bromley, Camden, Enfield, Havering, Hillingdon and Westminster continue to contribute significantly to London's output from this sector.

**Map C2: Contribution of London's LA's to total output in Construction in London in 1997 and 2014**



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*Source: ONS & GLA Economics calculations*

Map C3 shows the generally steady importance of the LA's most responsible for London's output in Distribution, transport, accommodation and food over time, although Brent and Kensington and Chelsea have become more important over time and Islington less so.

**Map C3: Contribution of London's LA's to total output in Distribution, transport, accommodation and food services in London in 1997 and 2014**
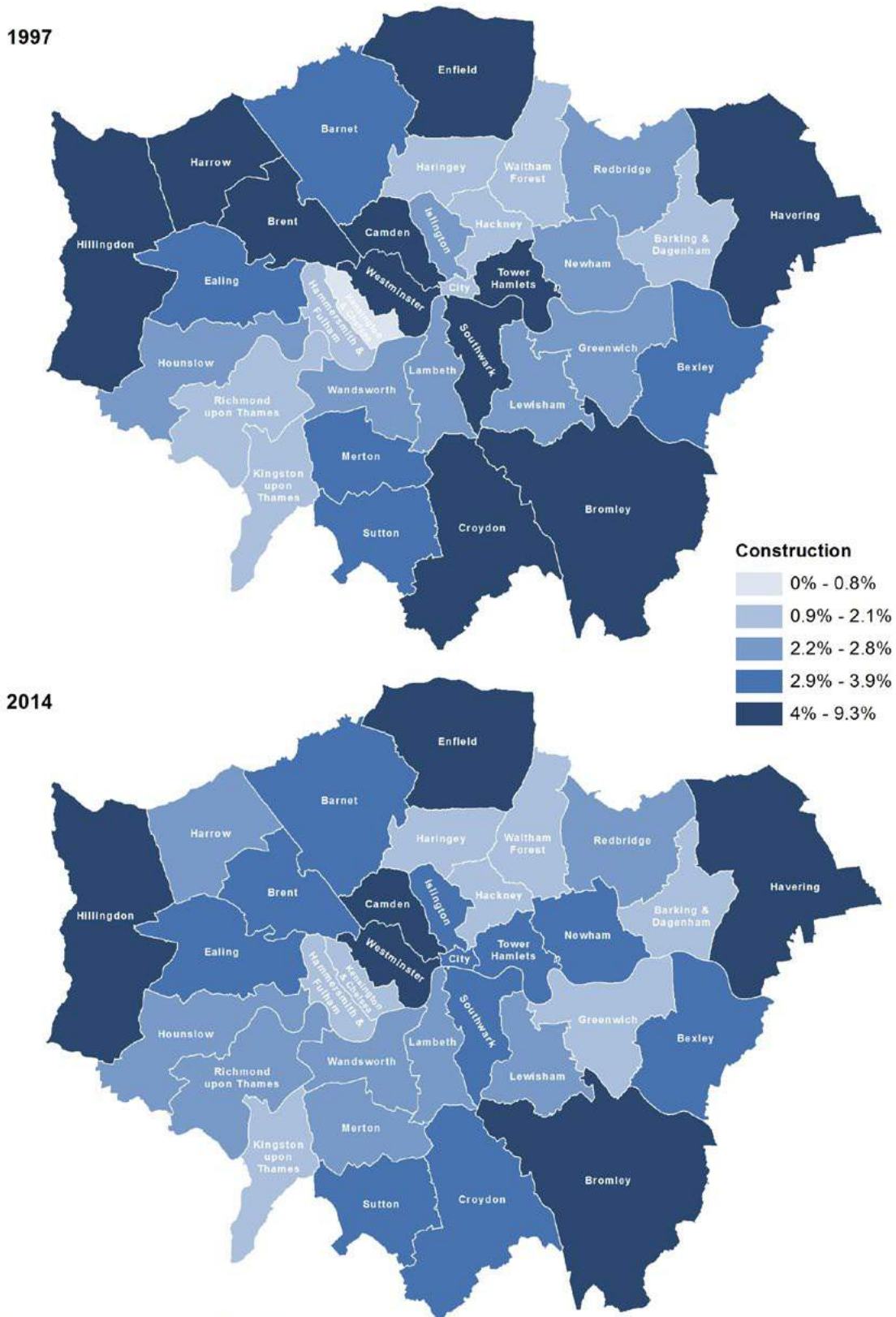


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*Source: ONS & GLA Economics calculations*

Map C4 shows that apart from a decline in the relative contribution of Hammersmith and Fulham the LA's most responsible for output in Business services in London have remained relatively stable between 1997 and 2014.

**Map C4: Contribution of London's LA's to total output in Business Services in London in 1997 and 2014**



*Source: ONS & GLA Economics calculations*

Map C5 shows the increasing concentration of London's output in Financial and insurance activities in Inner London over time with to an extent the exception of Croydon.

**Map C5: Contribution of London's LA's to total output in Financial and insurance activities in London in 1997 and 2014**
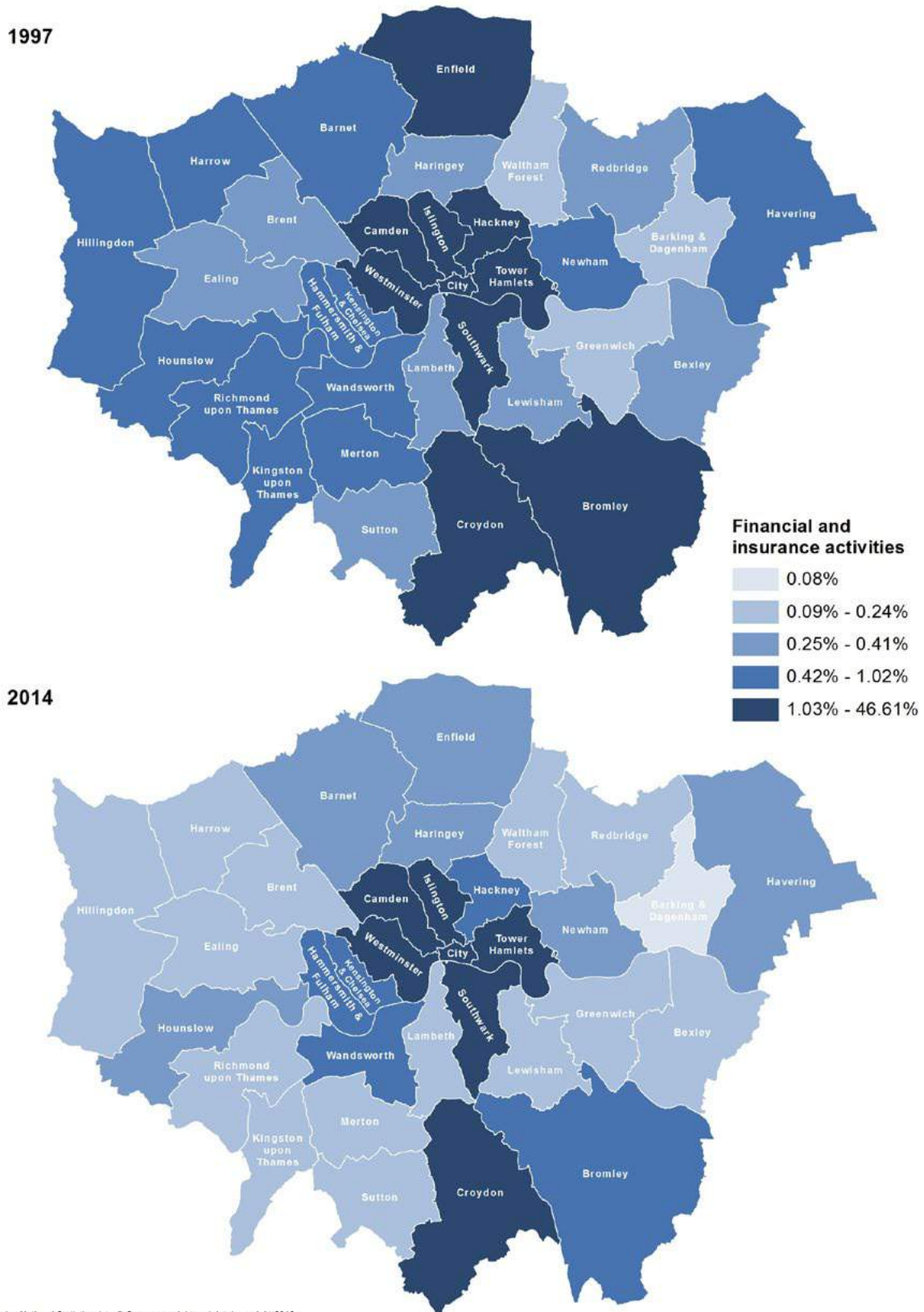


*Source: ONS & GLA Economics calculations*

Map C6 shows that the LA's most responsible for output in Information and communication in London has been fairly stable between 1997 and 2014 although Lambeth's contribution to London's total output in this sector has increased.

**Map C6: Contribution of London's LA's to total output in Information and communication in London in 1997 and 2014**
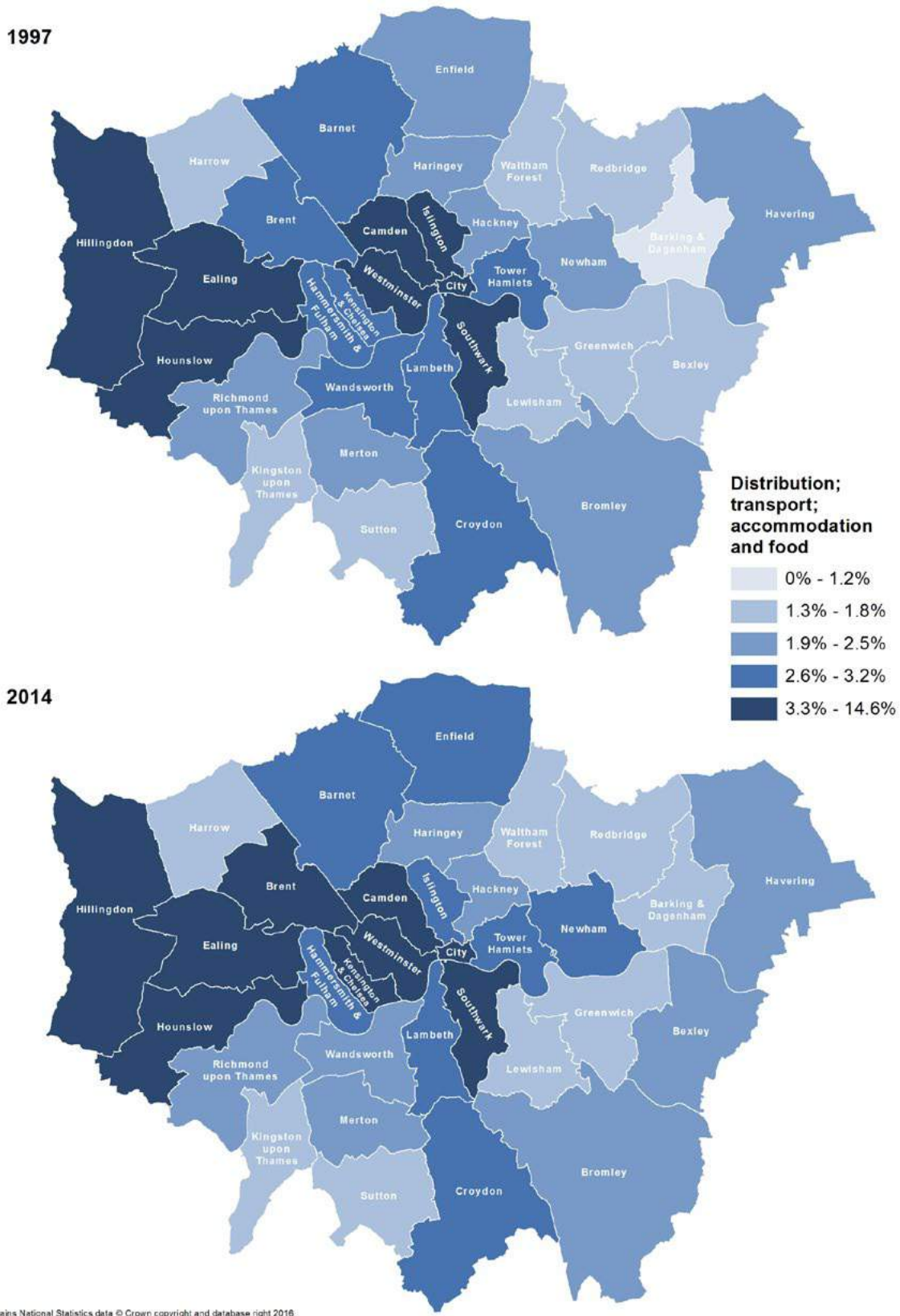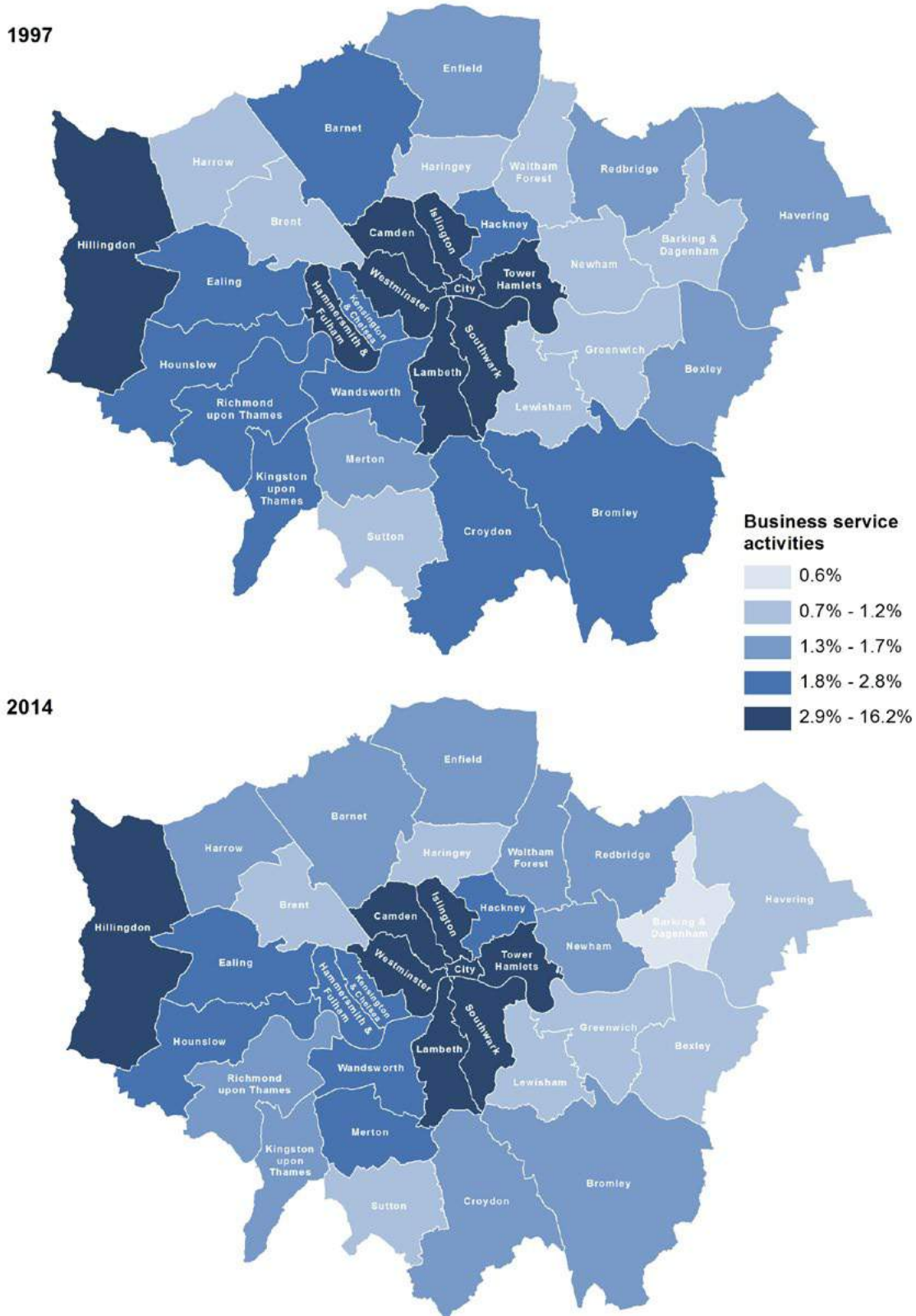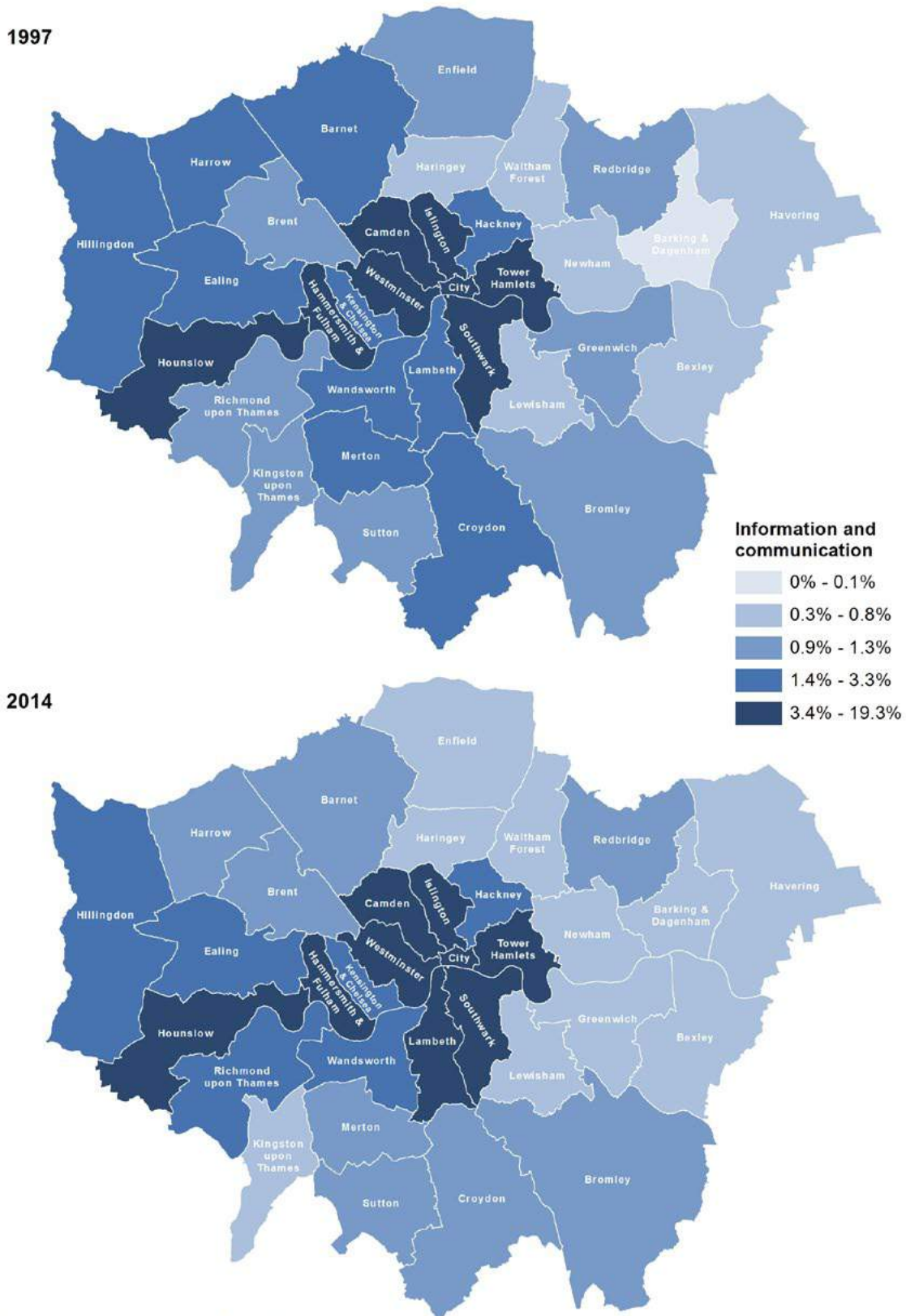


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*Source: ONS & GLA Economics calculations*

Map C7 shows that Inner London has generally become more important to the production of London's total output in the Other services and household activities sector over time.

**Map C7: Contribution of London's LA's to total output in Other services and household activities in London in 1997 and 2014**



Source: ONS & GLA Economics calculations

Map C8 shows that outside of Inner London Barnet has become more important to London's total output in Public administration, education and health, while Bromley and Croydon have become less important between 1997 and 2014.

**Map C8: Contribution of London's LA's to total output in Public administration, education and health in London in 1997 and 2014**
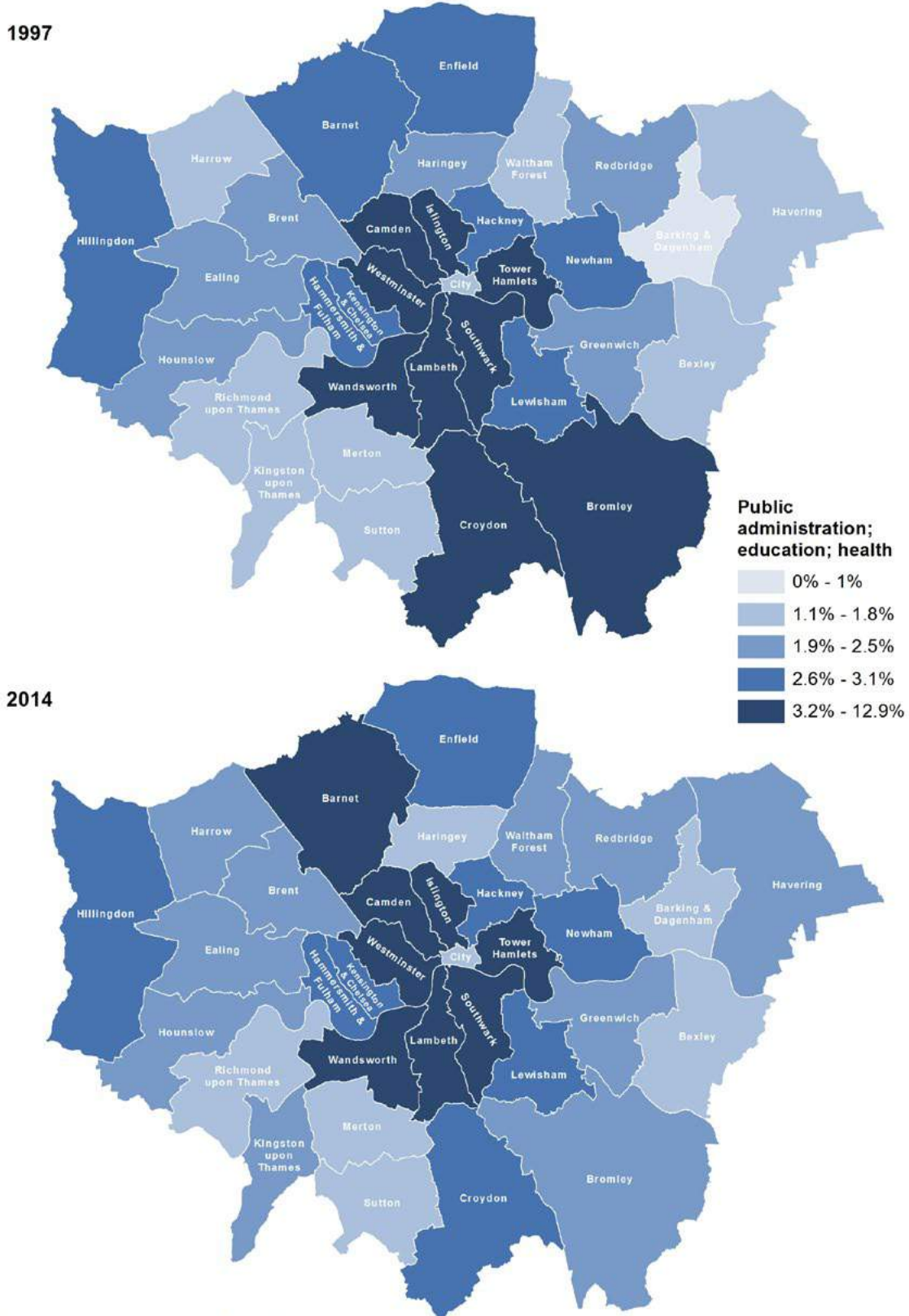


Source: ONS & GLA Economics calculations

Finally, Map C9 shows that Bromley, Croydon and Hounslow have declined in importance in terms of their contribution to total London output in Real estate activities over time.

**Map C9: Contribution of London's LA's to total output in Real estate activities in London in 1997 and 2014**
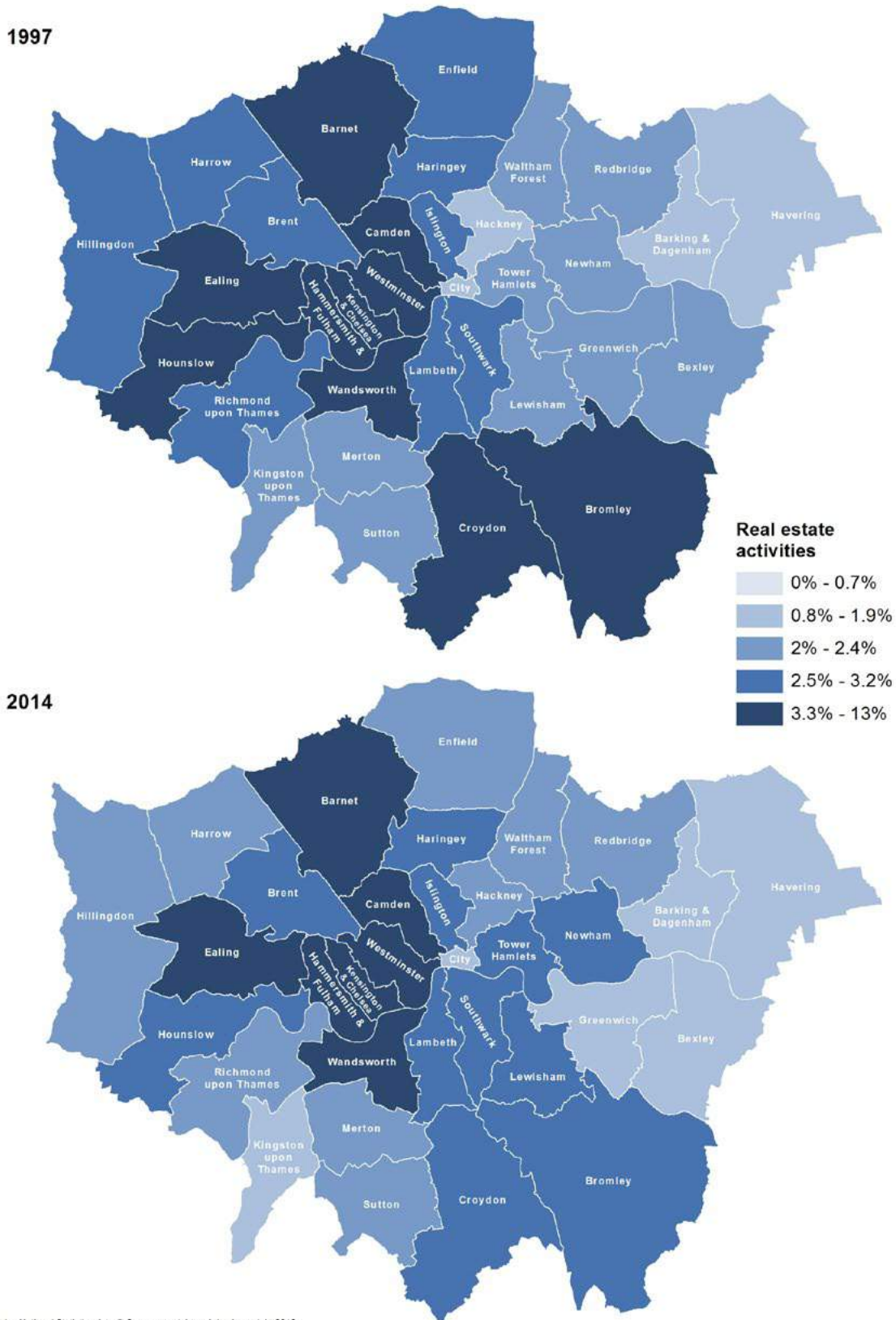


Source: ONS & GLA Economics calculations

## The varying importance of the broad sectors of economy to total output in London's LA's

Map C10 shows the general decline in importance of Production to the total output of individual LA's in London between 1997 and 2014, except for in part in Barking and Dagenham and Bexley. It should however be noted that the nominal value of output in Production may well have increased over this period in the given LA's, this result could therefore just reflect that total output in these LA's may have increased at a faster rate leading to a relative decline in the importance of this sector in certain LA's.

**Map C10: Output in Production by LA as percentage of LA GVA in 1997 and 2014**[3]



Source: ONS & GLA Economics calculations

Map C11 shows that in general Construction has become less important to the total output of Harrow and more important in Bexley between 1997 and 2014.

**Map C11: Output in Construction by LA as percentage of LA GVA in 1997 and 2014**
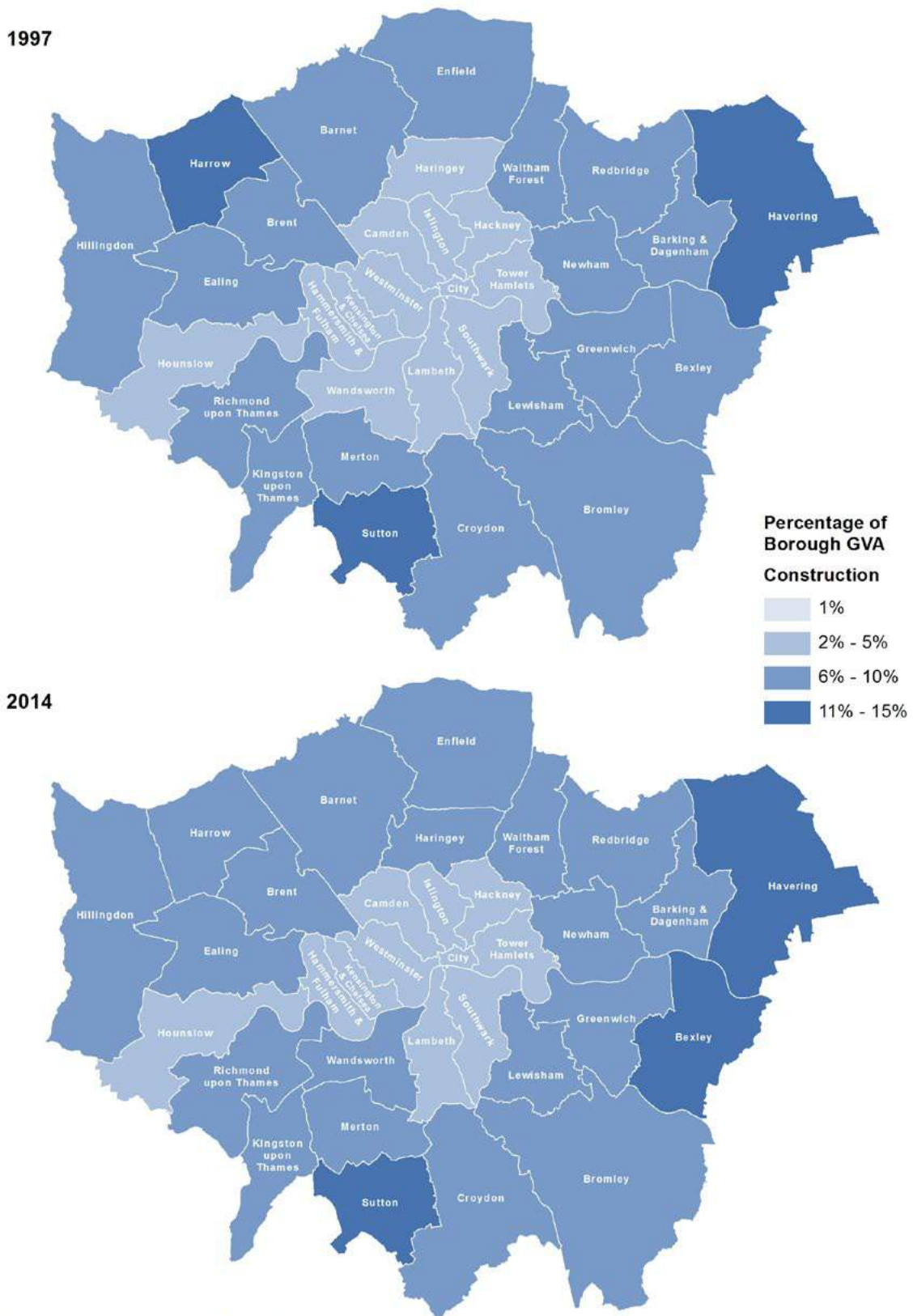


*Source: ONS & GLA Economics calculations*

Map C12 shows Distribution, transport, accommodation and food has generally become less important to London's LA's total output over the recent past with a couple of exceptions.

**Map C12: Output in Distribution, transport, accommodation and food by LA as percentage of LA GVA in 1997 and 2014**
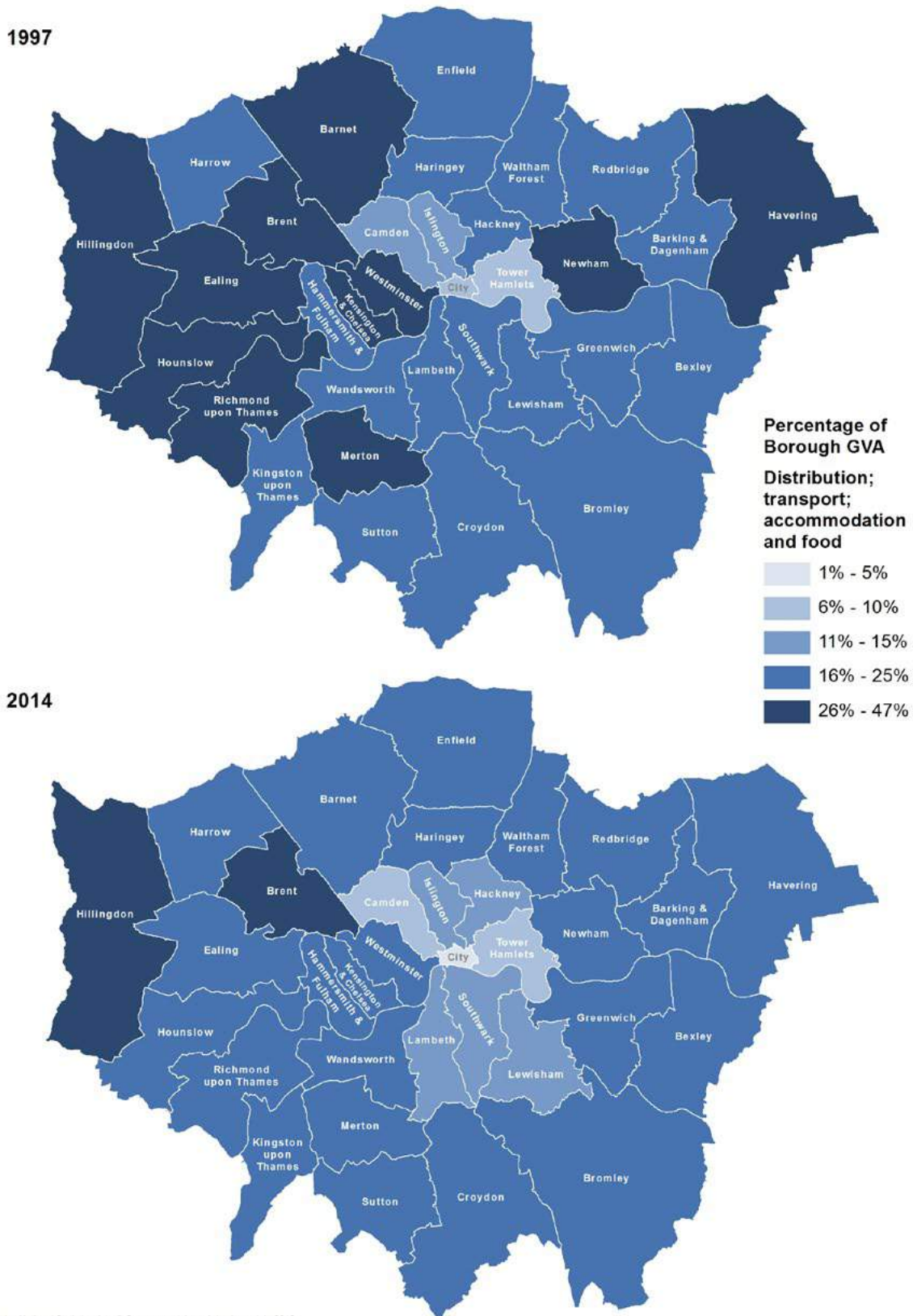


*Source: ONS & GLA Economics calculations*

Map C13 shows that Business services have generally maintained their importance or become more important to the total output of London's individual LA's between 1997 and 2014.

**Map C13: Output in Business services by LA as percentage of LA GVA in 1997 and 2014**
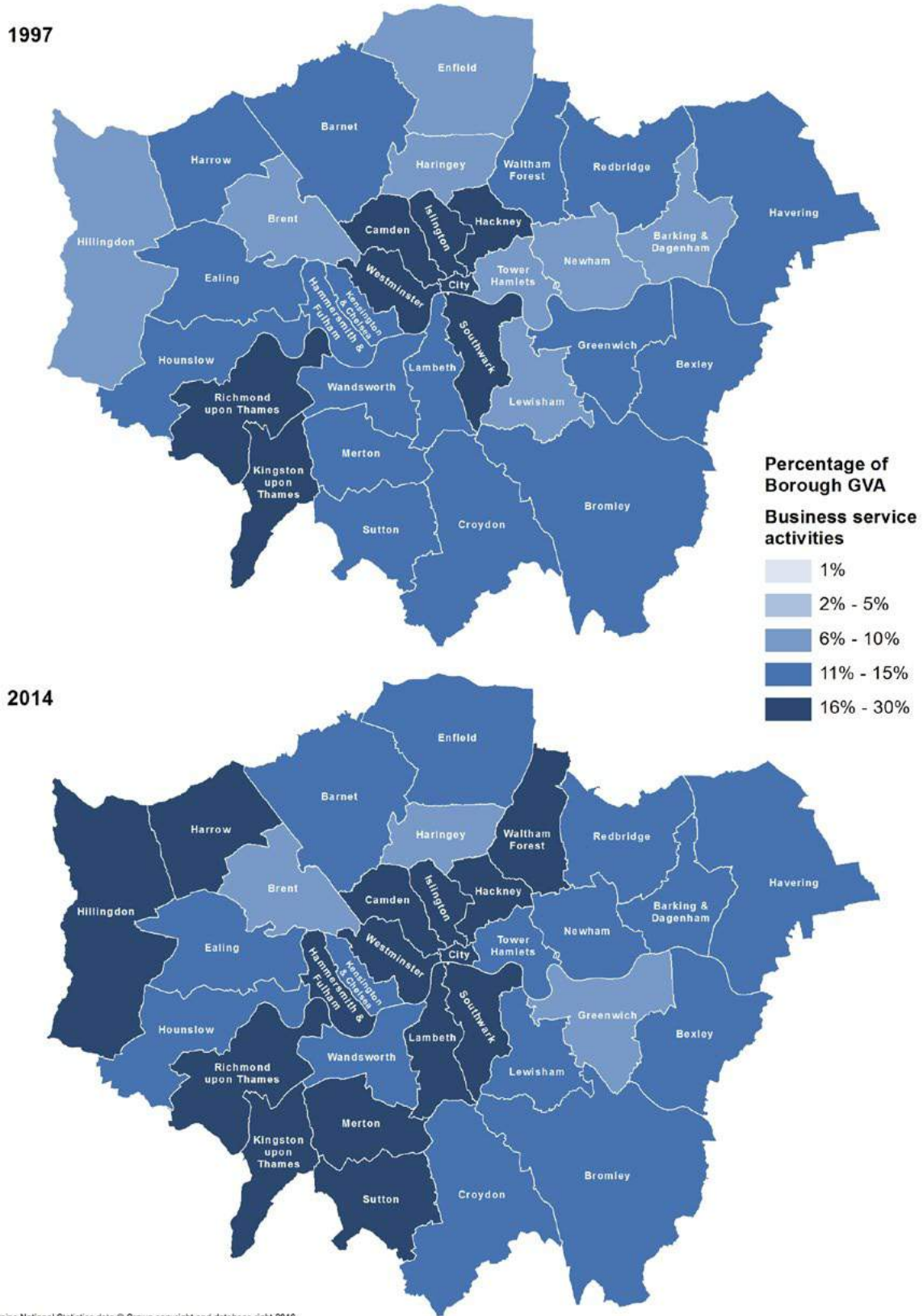


*Source: ONS & GLA Economics calculations*

Map C14 shows that Financial services has become more important to the total output of Islington and Westminster over the period between 1997 and 2014.

**Map C14: Output in Financial and insurance activities by LA as percentage of LA GVA in 1997 and 2014**
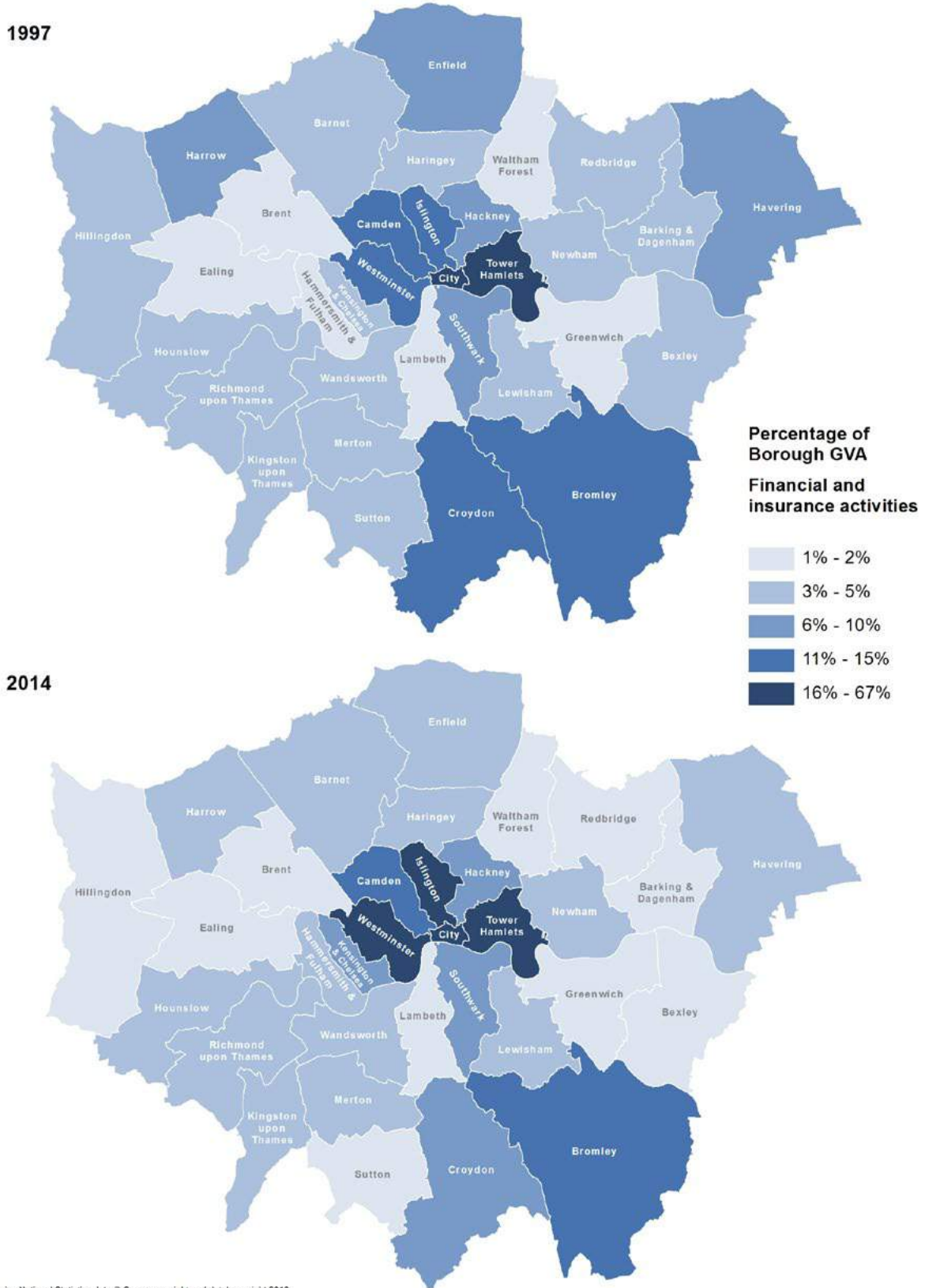


*Source: ONS & GLA Economics calculations*

Map C15 shows the continuing importance of Information and communications to output in Hammersmith and Fulham, Hounslow, and Islington.

**Map C15: Output in Information and communication by LA as percentage of LA GVA in 1997 and 2014**
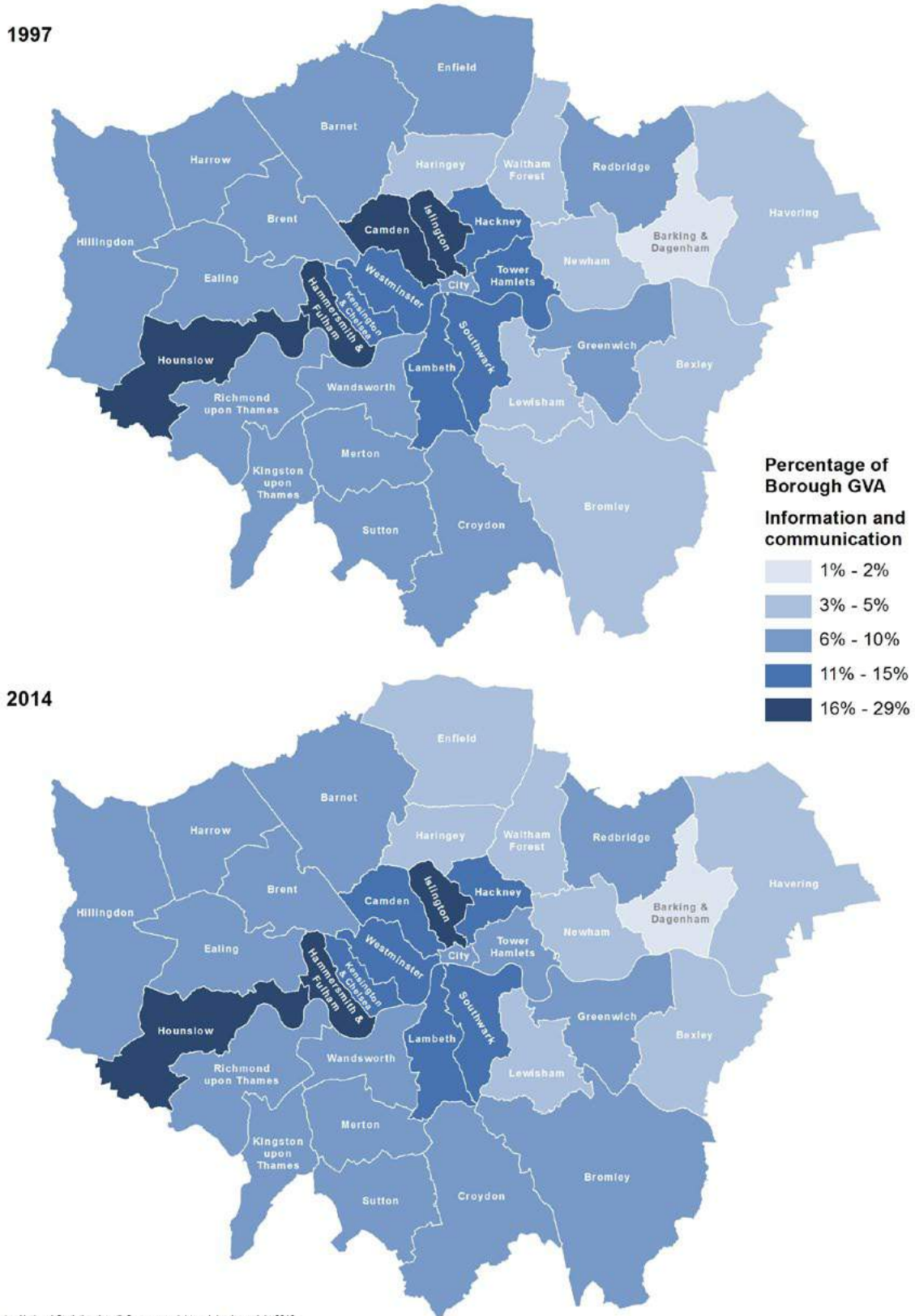


*Source: ONS & GLA Economics calculations*

Map C16 shows that the importance of Other services and household activities to total output in London's LA's over time has been variable depending on the given LA.

**Map C16: Output in Other services and household activities by LA as percentage of LA GVA in 1997 and 2014**
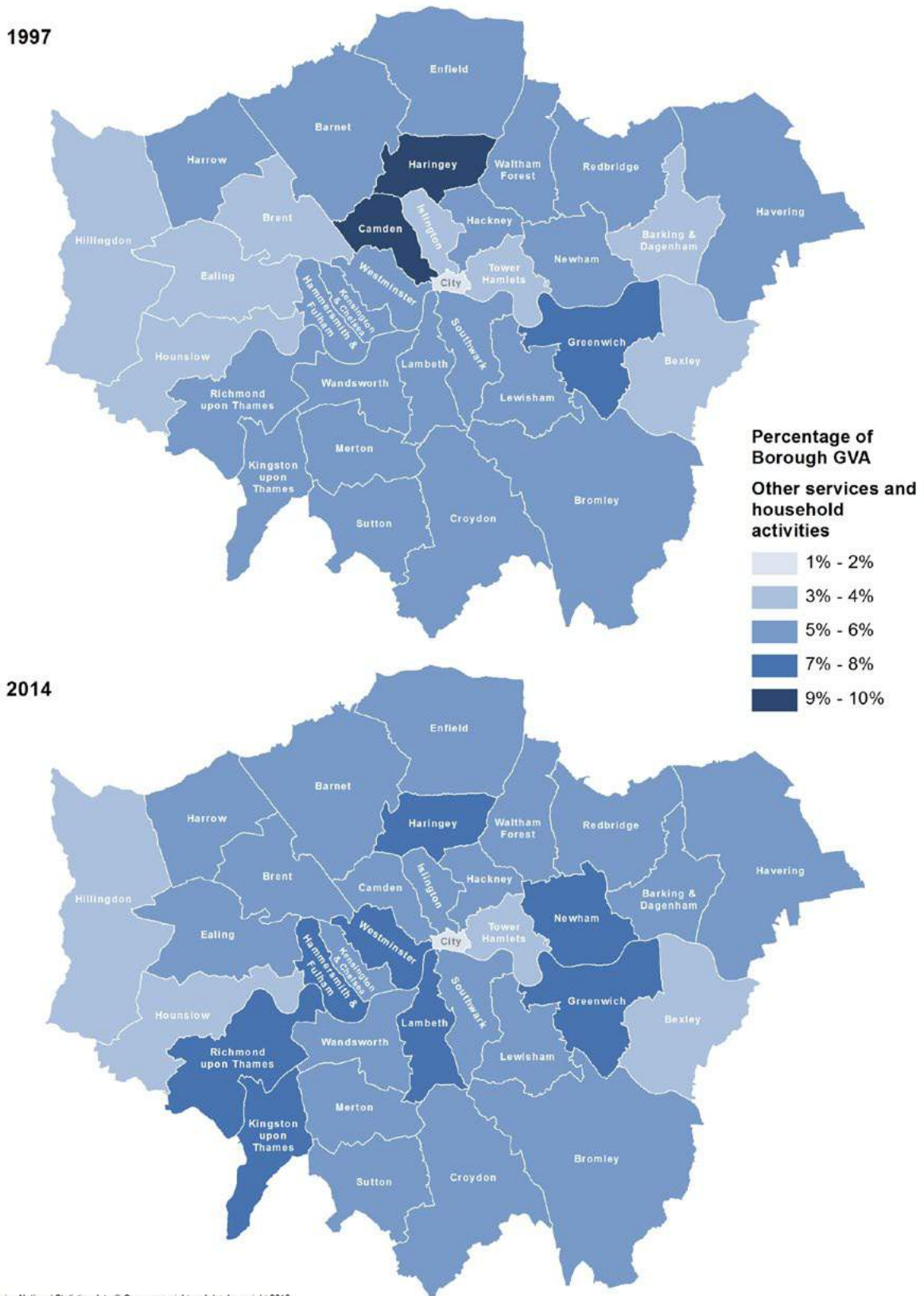


*Source: ONS & GLA Economics calculations*

Map C17 shows the relative continued importance of Public administration, education and health to total output in most of London's LA's over the recent past.

**Map C17: Output in Public administration, education and health by LA as percentage of LA GVA in 1997 and 2014**
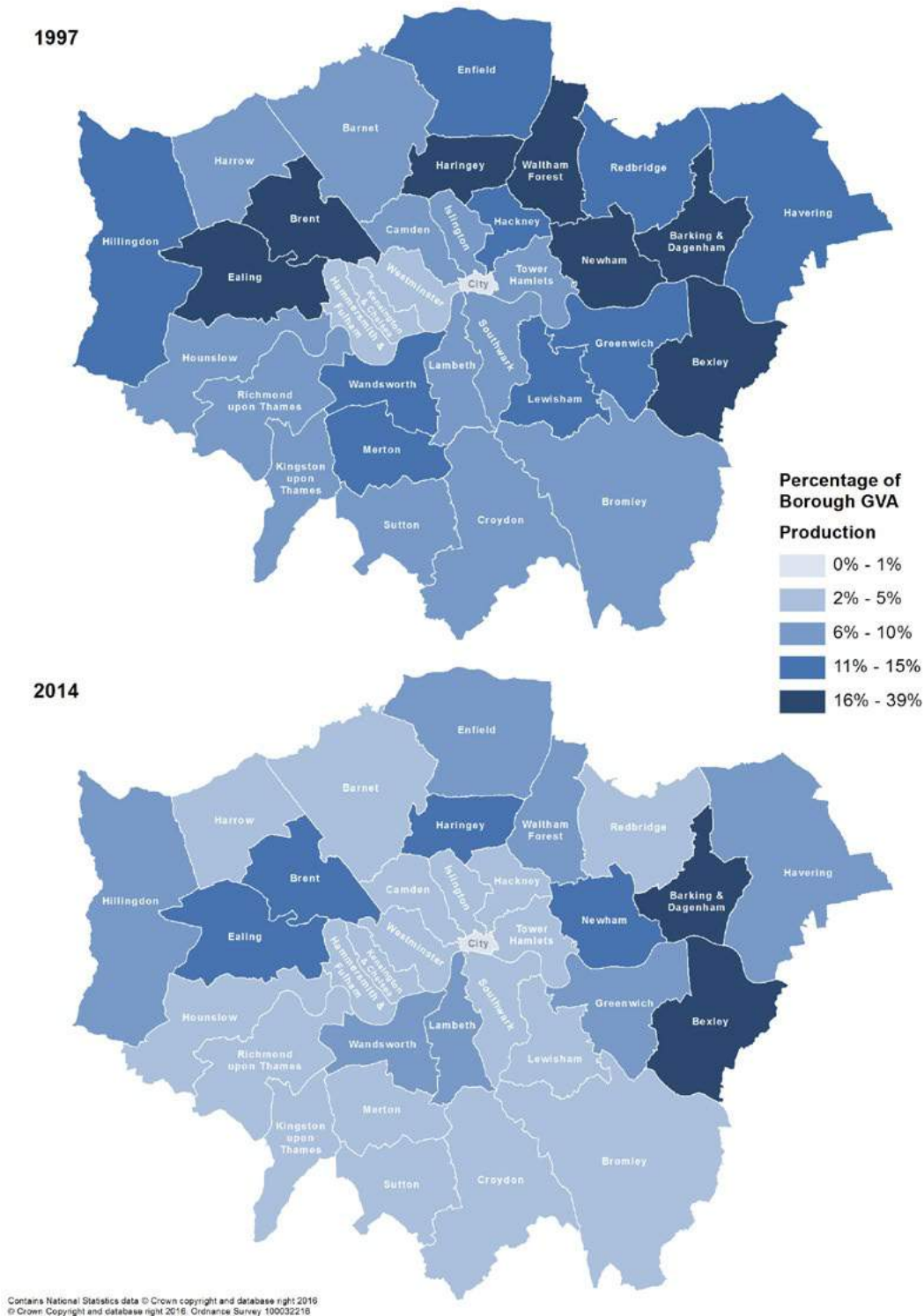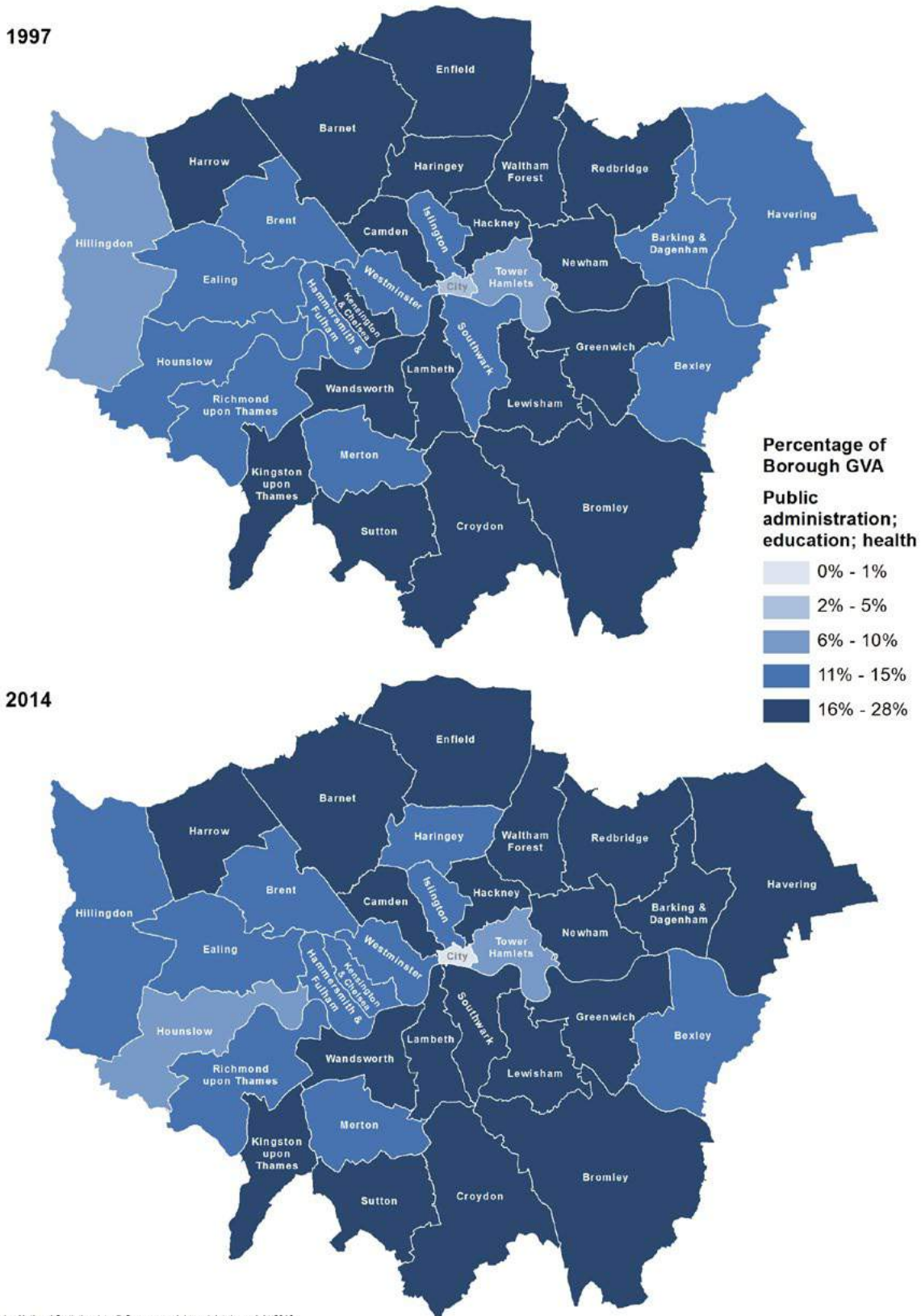


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*Source: ONS & GLA Economics calculations*

Finally Map C18 shows the growing importance of Real estate activities to the total output of a number of London's LA's.

**Map C18: Output in Real estate activities by LA as percentage of LA GVA in 1997 and 2014**
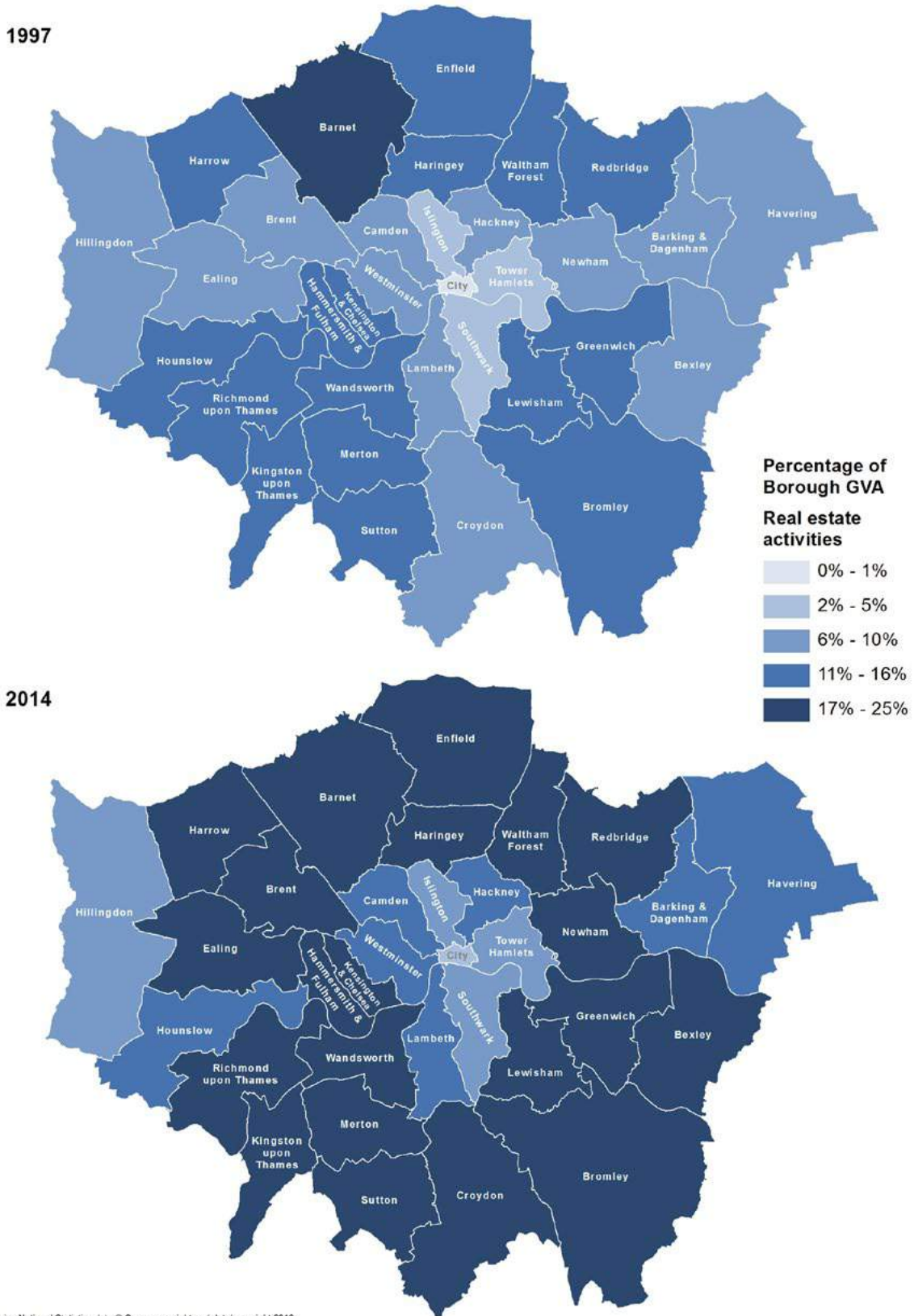


*Source: ONS & GLA Economics calculations*

# Appendix 2.4: The science and technology category and creative industries

This section of the Appendix to Chapter 2 provides updates to analysis that GLA Economics has previously undertook for 2 non-standard sectors of the economy.

### The science and technology category[4]

The Science and Technology category (STC) is heavily represented in fast growing sectors in the capital. While London has particular strengths in the Digital technologies sub-category: with research carried out in 2012 suggesting there are over 23,000 Information and Communications Technology (ICT) and software companies based in London, the highest of any European city[5]. Further, in the years between 2003 and 2015, there was a rise of 13.2 per cent in the number of employee jobs in the Science and Technology category in the Greater South East. However, the rise in the number of these jobs in London alone - at 25.2 per cent – was nearly twice as great, accounting for around 75 per cent of the total rise of 270,300 in the Greater South East (see Table D1).

**Table D1: Employee jobs in the STC**

|  | London | East | South East | Greater South East |
|---|---|---|---|---|
| 2003 | 786,700 | 450,000 | 805,800 | 2,042,500 |
| 2008 | 810,400 | 446,700 | 790,100 | 2,047,200 |
| 2013 | 901,900 | 449,200 | 821,200 | 2,172,300 |
| 2014 | 943,100 | 466,800 | 839,900 | 2,249,700 |
| 2015 | 985,400 | 476,600 | 850,800 | 2,312,800 |
| Change 2015/2003 | 198,700 | 26,600 | 34,100 | 270,300 |
| % change 2015/2003 | 25.2 | 5.9 | 5.5 | 13.2 |

*Source: ONS - IDBR[6] and GLA Economics calculations*

As a proportion of total employee jobs, Table D2 shows that the number in London in Science and Technology has been broadly constant over the period under consideration. In the East it has fallen by around 2 percentage points, in the South East by just under 2 percentage points and in the Greater South East as a whole it has also fallen by around 1 percentage point.

**Table D2: Employee jobs in Science and Technology as % of Total Employee Jobs**

|  | London | | East | | South East | | Greater South East | |
|---|---|---|---|---|---|---|---|---|
|  | Science and Tech | % of Total | Science and Tech | % of Total | Science and Tech | % of Total | Science and Tech | % of Total |
| 2003 | 786,700 | 20.8% | 450,000 | 20.8% | 805,800 | 23.6% | 2,042,500 | 21.8% |
| 2008 | 810,400 | 20.4% | 446,700 | 19.3% | 790,100 | 21.9% | 2,047,200 | 20.7% |
| 2013 | 901,900 | 20.6% | 449,200 | 18.8% | 821,200 | 22.3% | 2,172,300 | 20.8% |
| 2014 | 943,100 | 20.8% | 466,800 | 18.9% | 840,000 | 22.3% | 2,249,800 | 20.9% |
| 2015 | 985,700 | 20.7% | 476,600 | 18.9% | 850,800 | 21.9% | 2,312,800 | 20.7% |

*Source: ONS - IDBR and GLA Economics calculations*

Maps D1 to D3 below show the spatial characteristics of STC jobs, in the Greater South East, London and Inner London in detail. Map D1 shows a concentration of Science and Technology employee jobs along the M4 Corridor and around Southampton, Norwich, and Cambridge.

**Map D1: Employee jobs in the STC in the Greater South East, 2015**
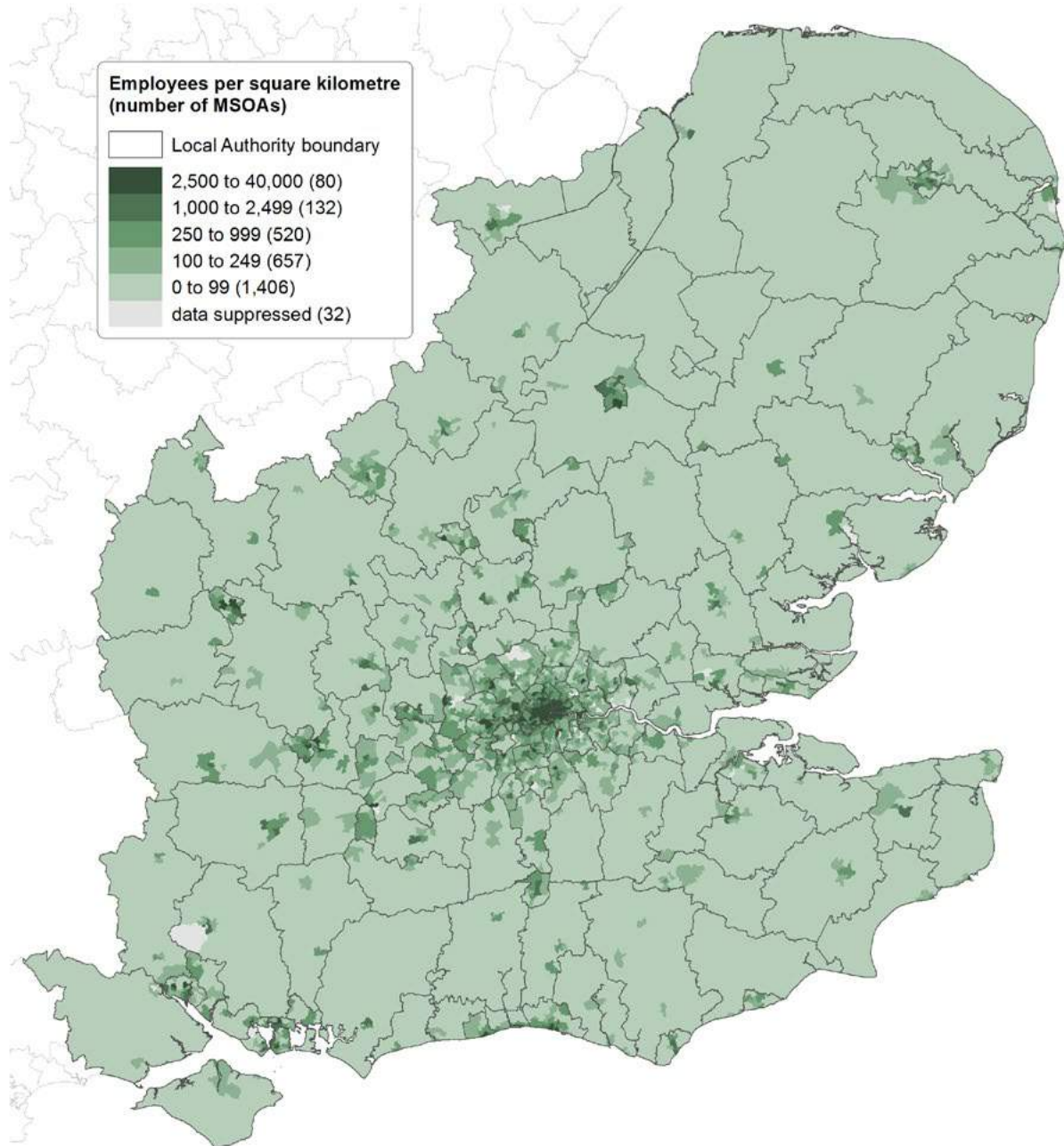


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
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Map D2 shows a concentration of Science and Technology employee jobs in central and western London.

**Map D2: Employee jobs in the STC in London, 2015**
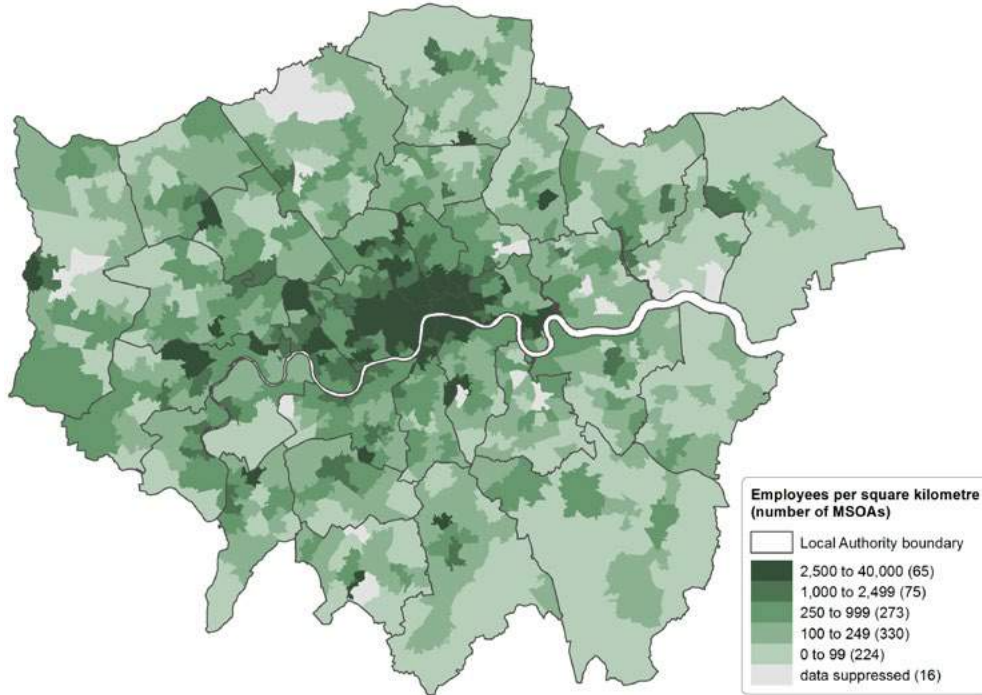


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
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Map D3 shows a concentration of Science and Technology employee jobs bordering each other in the LA's of Camden, Islington, City, Tower Hamlets and Westminster, while also stretching slightly across the river towards Lambeth and Southwark, with a further concentration in northern and central Hammersmith and Fulham.

**Map D3: Employee jobs in the STC in Inner London, 2015**
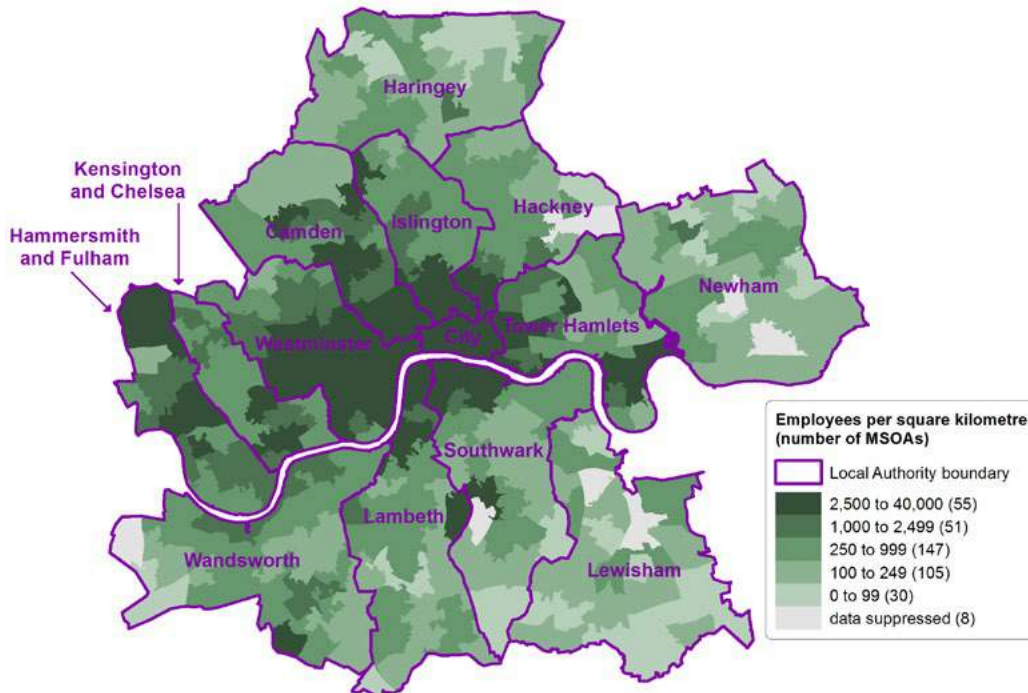


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
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Turning to the London Boroughs, Figure D1 shows the boroughs of London with Science and Technology category jobs in 2015 numbering over 30,000. As can be observed Westminster and Camden are pre-eminent in Science and Technology category jobs in London with over 100,000 such jobs in each borough. However, Islington, Hillingdon and Southwark all showed strength in employment in this category with over 50,000 jobs in each of these boroughs.

**Figure D1: London Boroughs with the highest number of Science and Technology jobs in 2015**
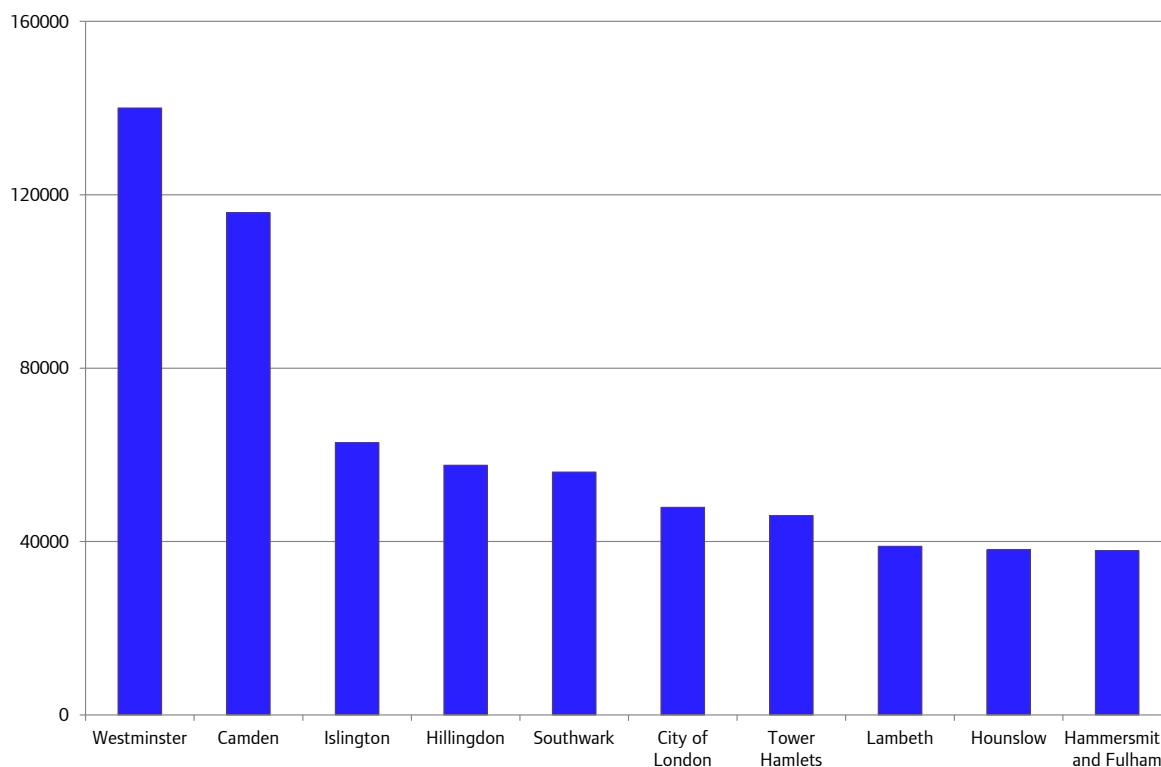


*Source: ONS - IDBR*

Table D3 shows there has been a rise of over 47 per cent in the number of workplaces[7] in the Science and Technology category in the years 2003 to 2015 in the Greater South East, a much bigger rise than the noted above rise for the number of employees (up 13.2 per cent), implying a fall in the average number of employees per workplace. As with employees, the rise in workplaces in London (up 65.3 per cent) was stronger than the rise in either the Eastern region or South East.

**Table D3: Workplace units in the STC**

|                      | London  | East    | South East | Greater South East |
|----------------------|---------|---------|------------|--------------------|
| 2003                 | 67,845  | 36,635  | 64,920     | 169,400            |
| 2008                 | 75,685  | 39,755  | 69,905     | 185,345            |
| 2013                 | 92,965  | 43,035  | 77,980     | 213,980            |
| 2014                 | 102,105 | 46,245  | 82,785     | 231,135            |
| 2015                 | 112,120 | 49,260  | 87,810     | 249,190            |
| Change 2015/2003     | +44,275 | +12,625 | +22,890    | +79,790            |
| % change 2015/2003   | +65.3   | +34.4   | +35.3      | +47.1              |

*Source: ONS – IDBR and GLA Economics calculations*

## Creative industries[8]

The creative industries[9] are a significant part of London's economy as well as significant part of the creative industries in the UK as a whole. Organisations operating in the creative economy are thus important employers in London. In 2015, there were 815,500 jobs in the creative economy in London, equivalent to 16.3 per cent of total jobs in the capital (compared to standing at 7.7 per cent of the total number of jobs in the Rest of the UK)[10]. As can be seen from Maps D4 and D5 creative jobs are clustered heavily in London compared to the wider Greater South East although as more clearly shown in Map D6 they tend to cluster within Central London, with a corridor into West London.

**Map D4: Number of employees in the Creative industries in the Greater South East, MSOAs (per sq. km), 2015**
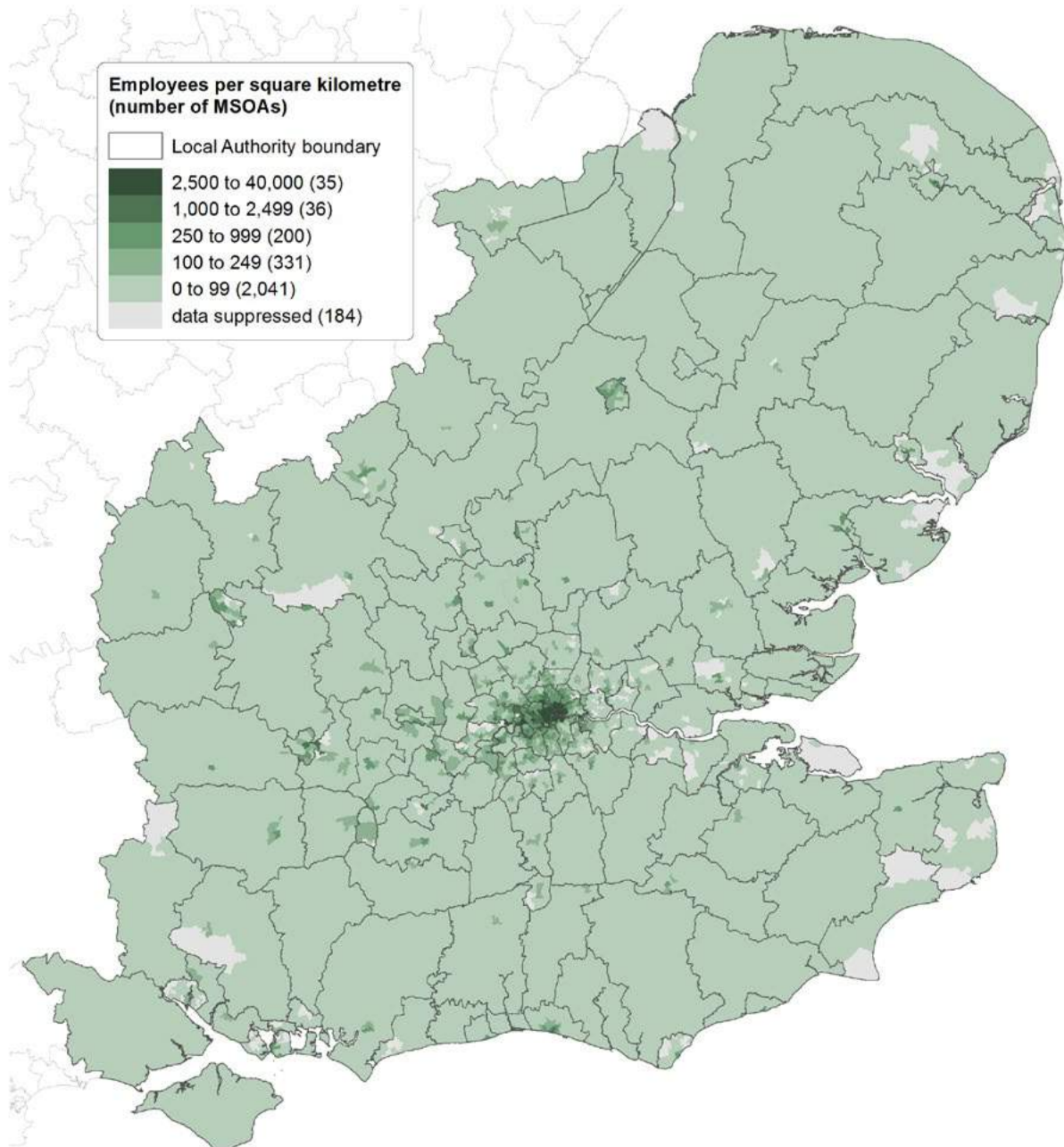


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
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**Map D5: Number of employees in the Creative industries in London, MSOAs (per sq. km), 2015**
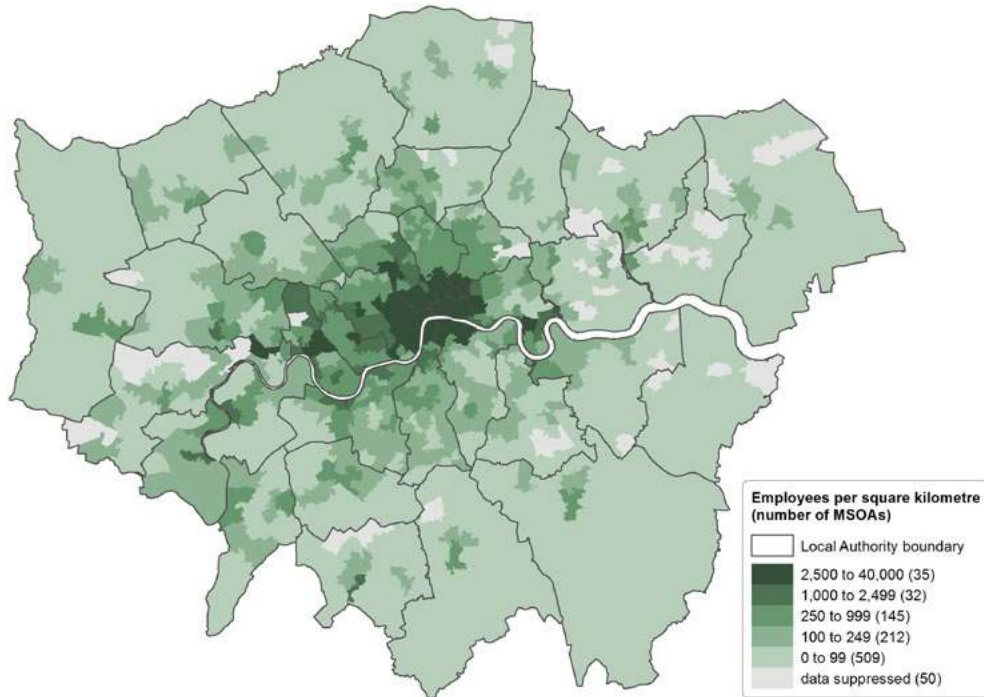


**Employees per square kilometre (number of MSOAs)**

Local Authority boundary

2,500 to 40,000 (35)
1,000 to 2,499 (32)
250 to 999 (145)
100 to 249 (212)
0 to 99 (509)
data suppressed (50)

Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
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**Map D6: Number of employees in the Creative industries in Inner London, MSOAs (per sq. km), 2015**
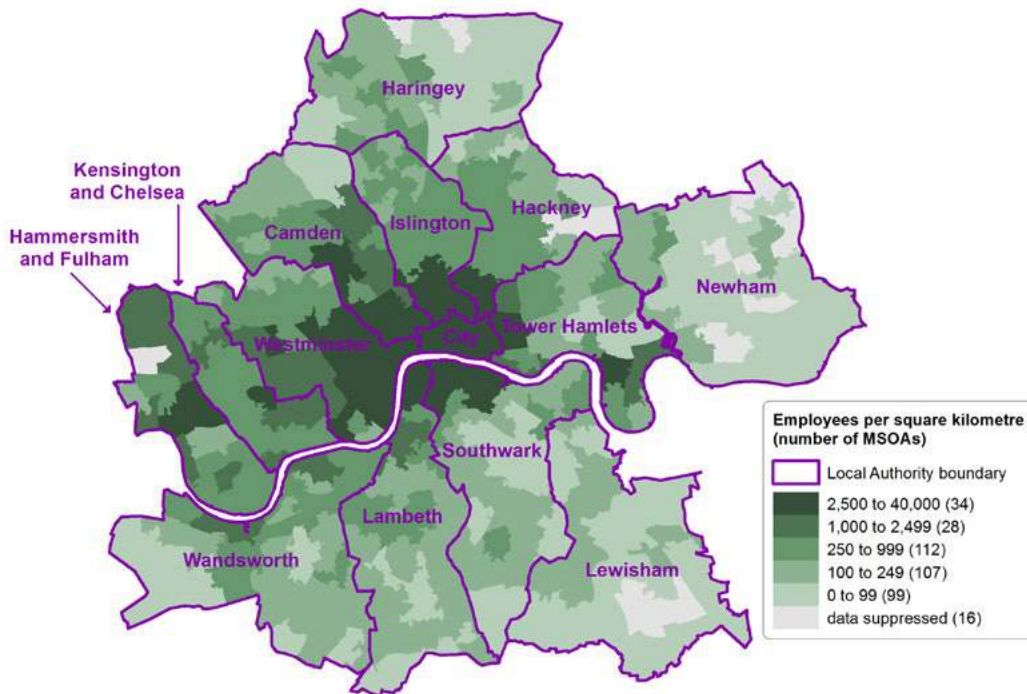


**Employees per square kilometre (number of MSOAs)**

Local Authority boundary

2,500 to 40,000 (34)
1,000 to 2,499 (28)
250 to 999 (112)
100 to 249 (107)
0 to 99 (99)
data suppressed (16)

Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
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# Appendix 2.5: Various clustering analyses for sectors across London and the Greater South East

This section of the Appendix to Chapter 2 provides the results of further broad industrial cluster analysis using a couple of statistical methodologies for both London and the Greater South East as a whole. A variety of methodologies are used in this section because as was noted in the main body of Chapter 2 using just one clustering methodology can lead to a skewed picture of London's and the Greater South East's economies.

## K mean analysis[11]

This sub-section provides maps of individual dominant employment clusters by selected broad industrial sectors using the same clustering methodology used in Map 2.21 for both London and the Greater South East. These clusters were produced by K mean analysis applied to employment data from the Census for the workplace zones of London and the Greater South East.

### London

Map E1 shows that in 2011 employment clusters in Distribution, hotels and restaurants could be found throughout London.

**Map E1: Dominant employment clusters in Distribution, hotels and restaurants in London by workplace zones in 2011**
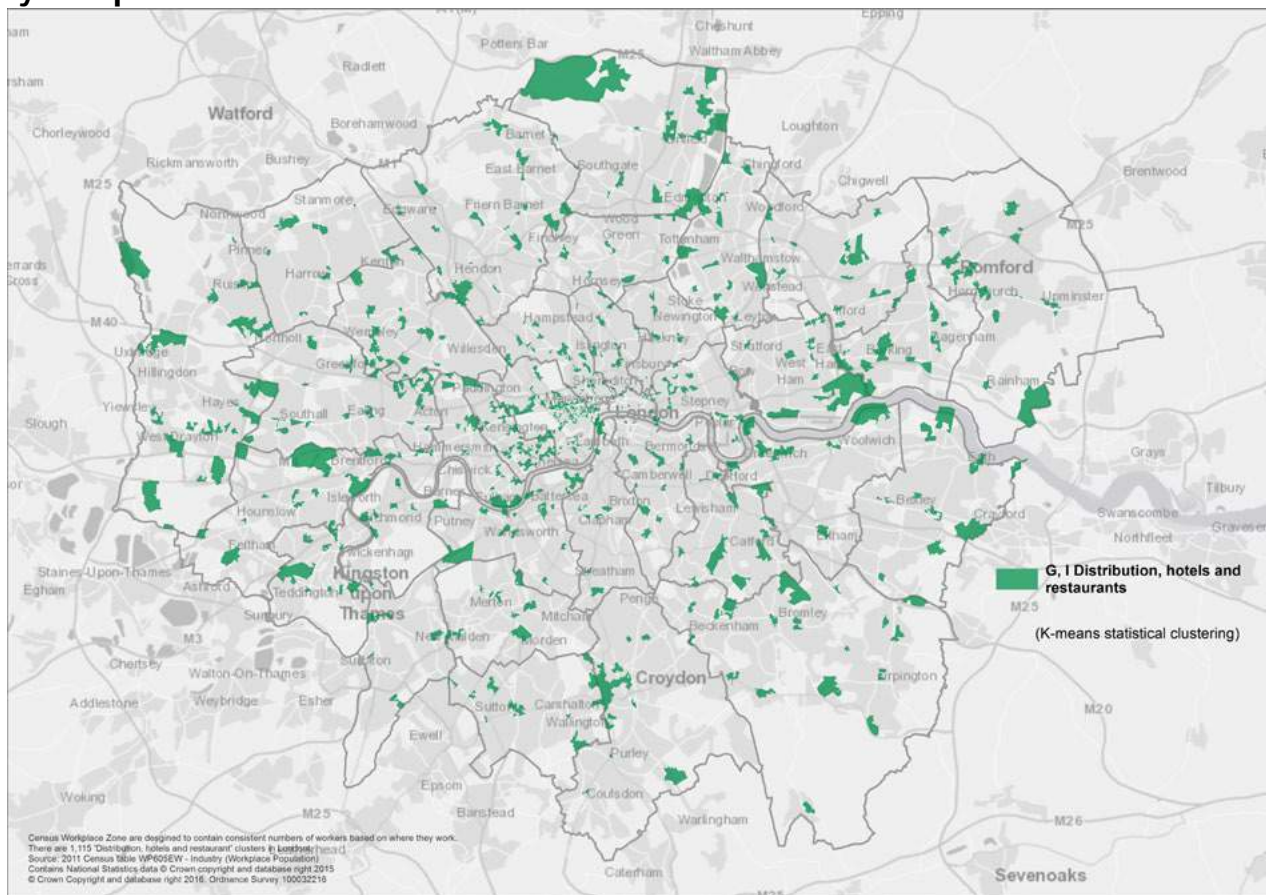


*Source: Census and GLA Intelligence Unit Analysis*

Map E2 shows clustering in employment in Financial and insurance activities in London in 2011 and highlights the importance of Inner London for this sector.

**Map E2: Dominant employment clusters in Financial and insurance activities in London by workplace zones in 2011**
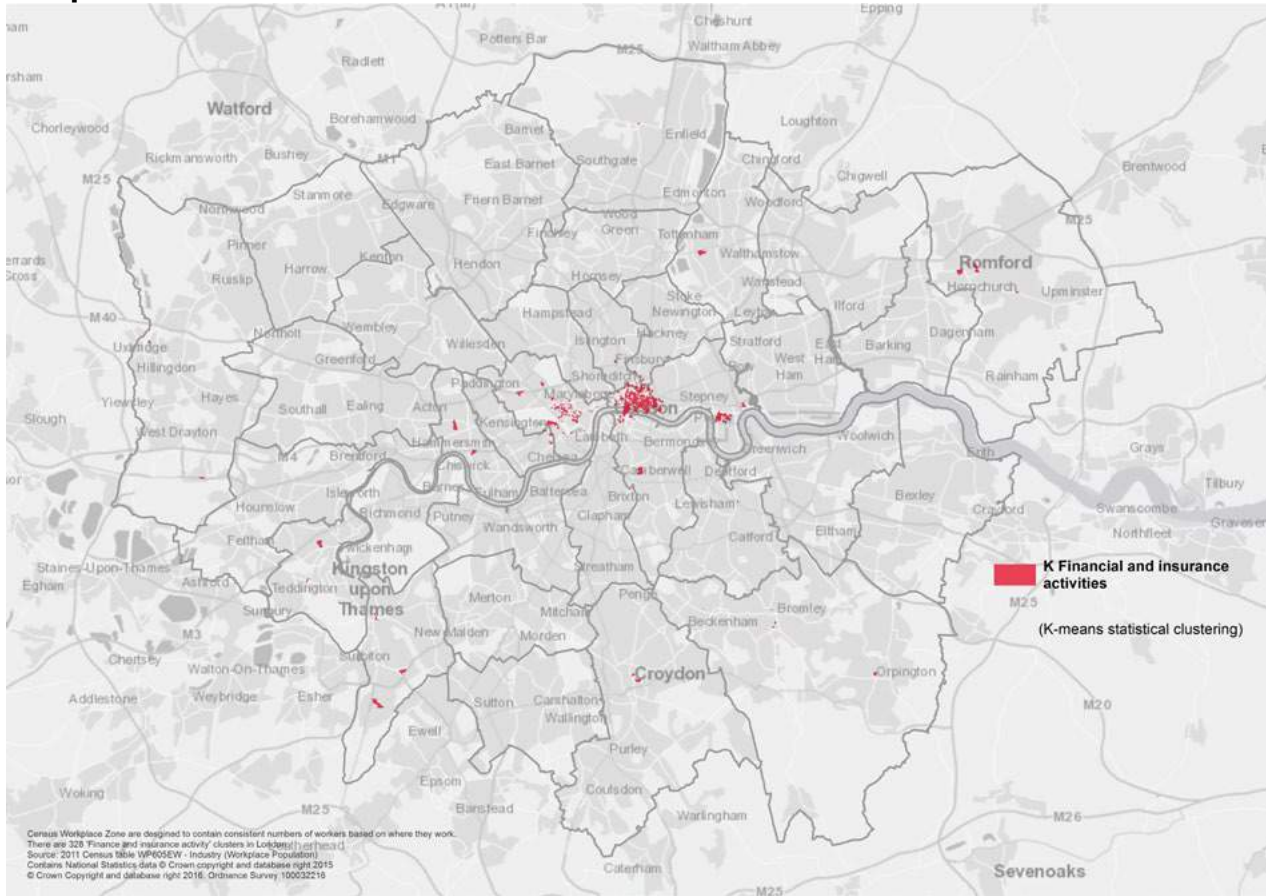


*Source: Census and GLA Intelligence Unit Analysis*

Map E3 shows that employment in Professional, scientific and technical activities in London in 2011 formed a number of clusters in Central London but with a number of further clusters seen in West and North London as well.

**Map E3: Dominant employment clusters in Professional, scientific and technical activities in London by workplace zones in 2011**
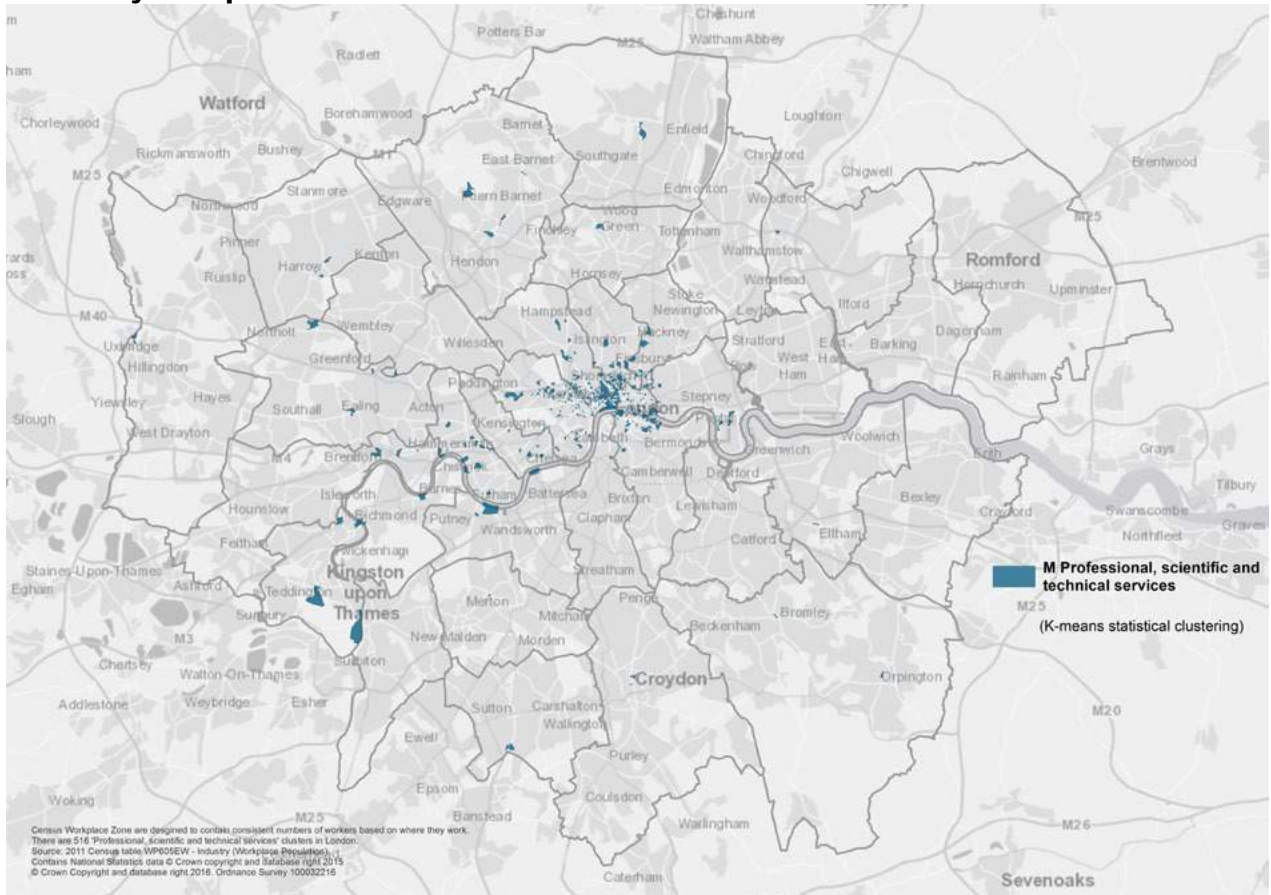


*Source: Census and GLA Intelligence Unit Analysis*

Map E4 shows that in 2011 employment in Public administration, education & health formed broad clusters across London.

**Map E4: Dominant employment clusters in Public administration, education & health in London by workplace zones in 2011**



*Source: Census and GLA Intelligence Unit Analysis*

Map E5 shows a number of clusters of employment in the Transportation and communication sector in 2011 in London especially around the Heathrow area but with City Airport also clearly visible.

**Map E5: Dominant employment clusters in Transport and communication in London by workplace zones in 2011**
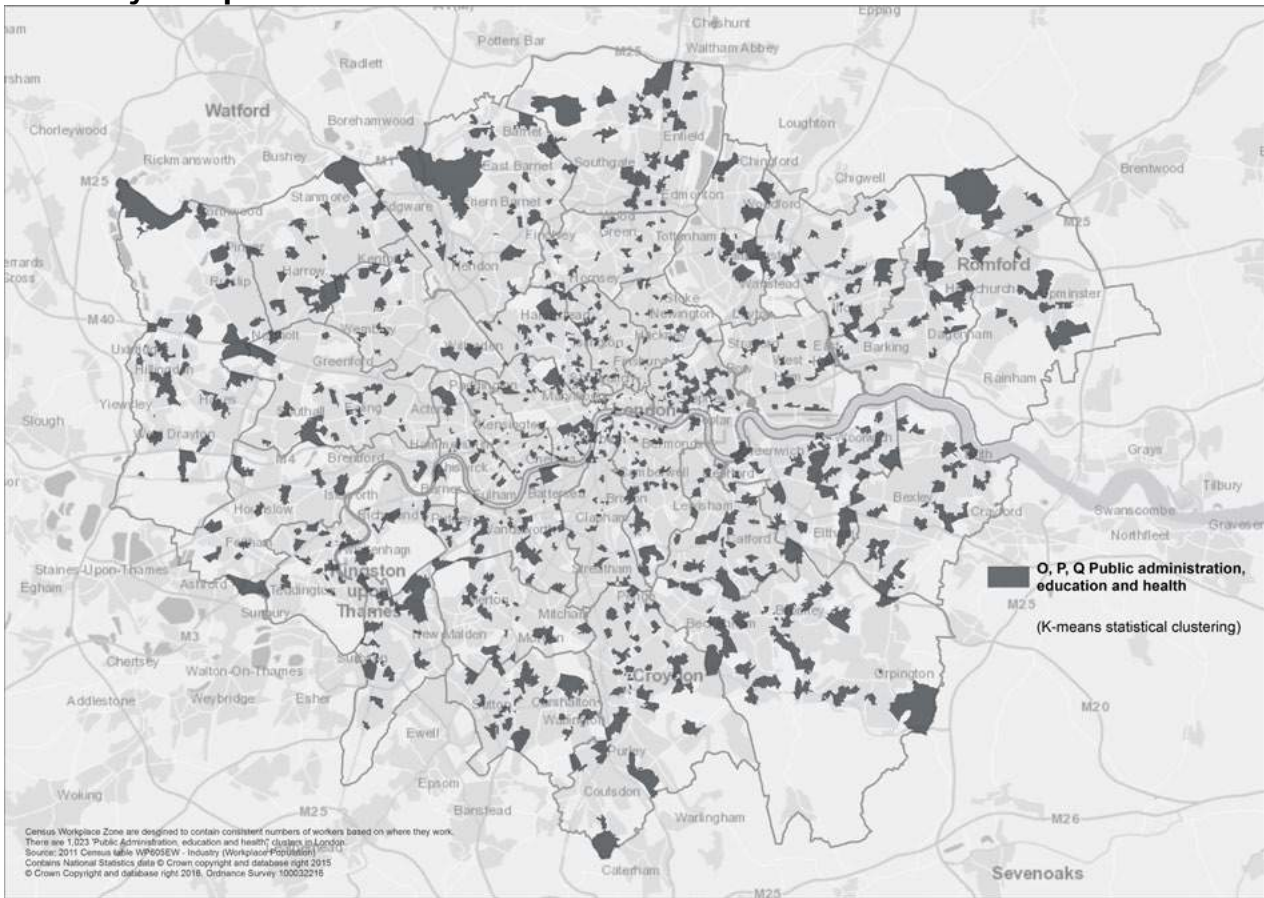


*Source: Census and GLA Intelligence Unit Analysis*

**The Greater South East**

Map E6 shows that in 2011 employment clusters in the Distribution, hotels and restaurants sector could be found throughout London and in many areas of the Greater South East.

**Map E6: Dominant employment clusters in Distribution, hotels and restaurants in the Greater South East by workplace zones in 2011**
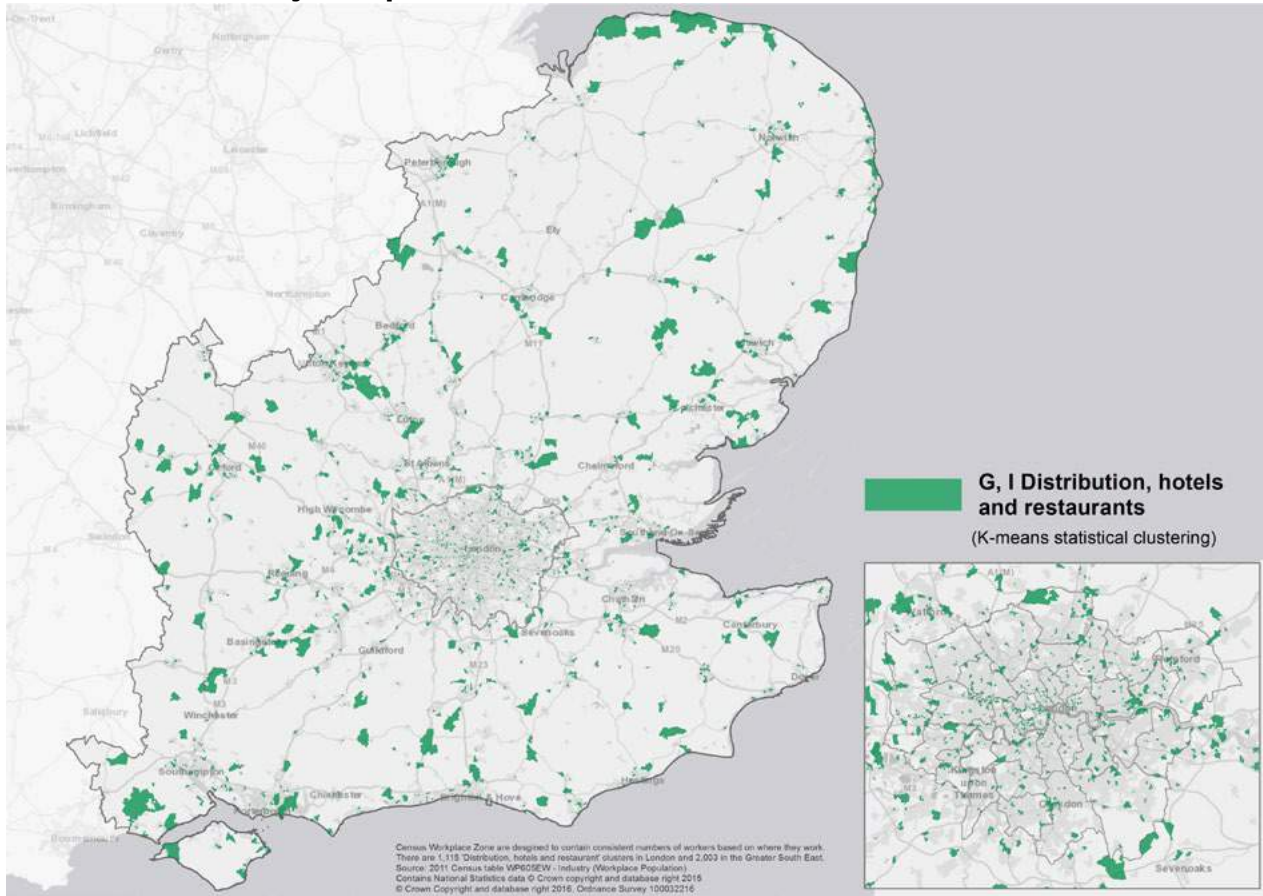


*Source: Census and GLA Intelligence Unit Analysis*

Map E7 shows clustering in employment in Financial and insurance activities in Inner London in 2011 but also in other areas of the wider South East such as around Norwich.

**Map E7: Dominant employment clusters in Financial and insurance activities in the Greater South East by workplace zones in 2011**
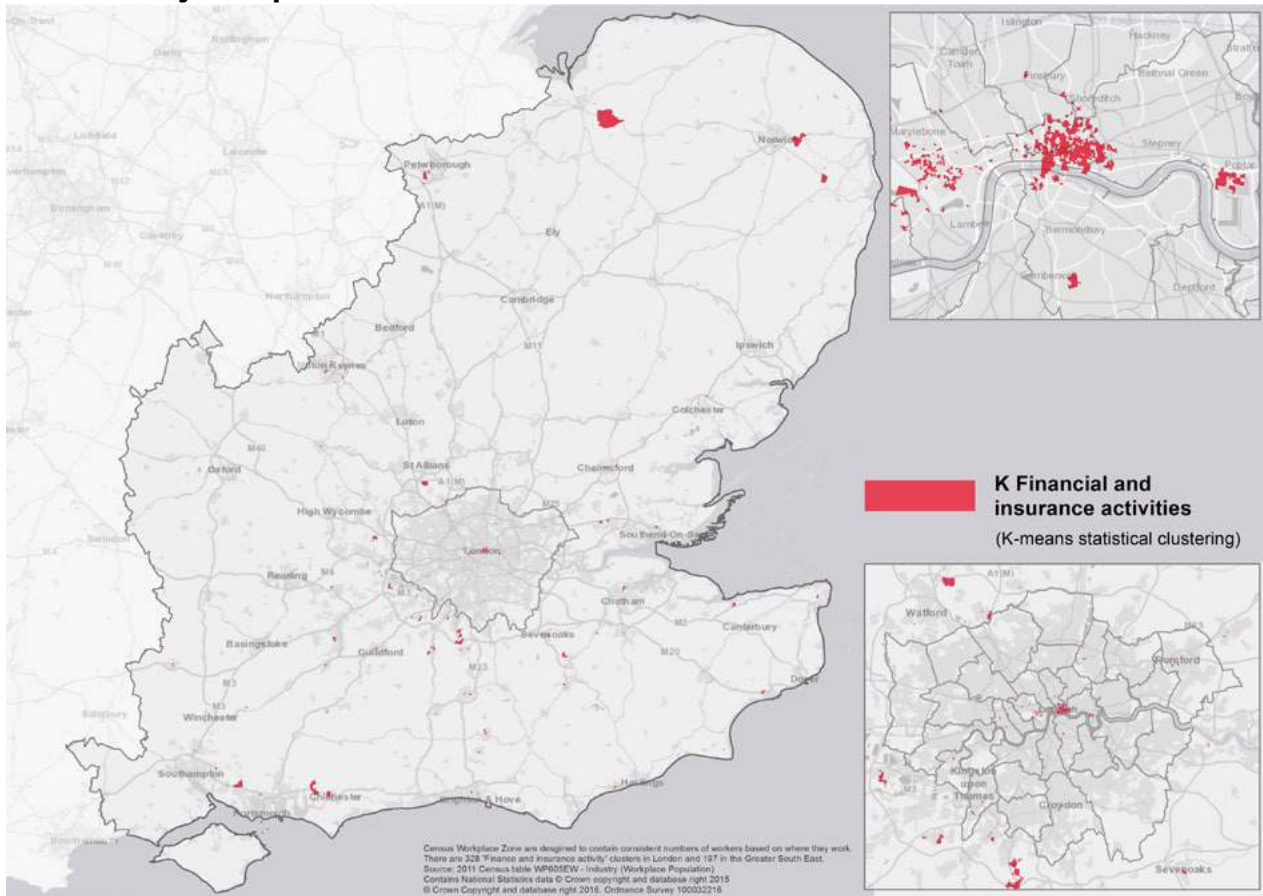


*Source: Census and GLA Intelligence Unit Analysis*

Map E8 shows that employment in the Professional, scientific and technical activities sector in the Greater South East in 2011 formed a number of clusters in Central London but with a number of further clusters seen such as around Cambridge and Oxford.

**Map E8: Dominant employment clusters in Professional, scientific and technical activities in the Greater south East by workplace zones in 2011**
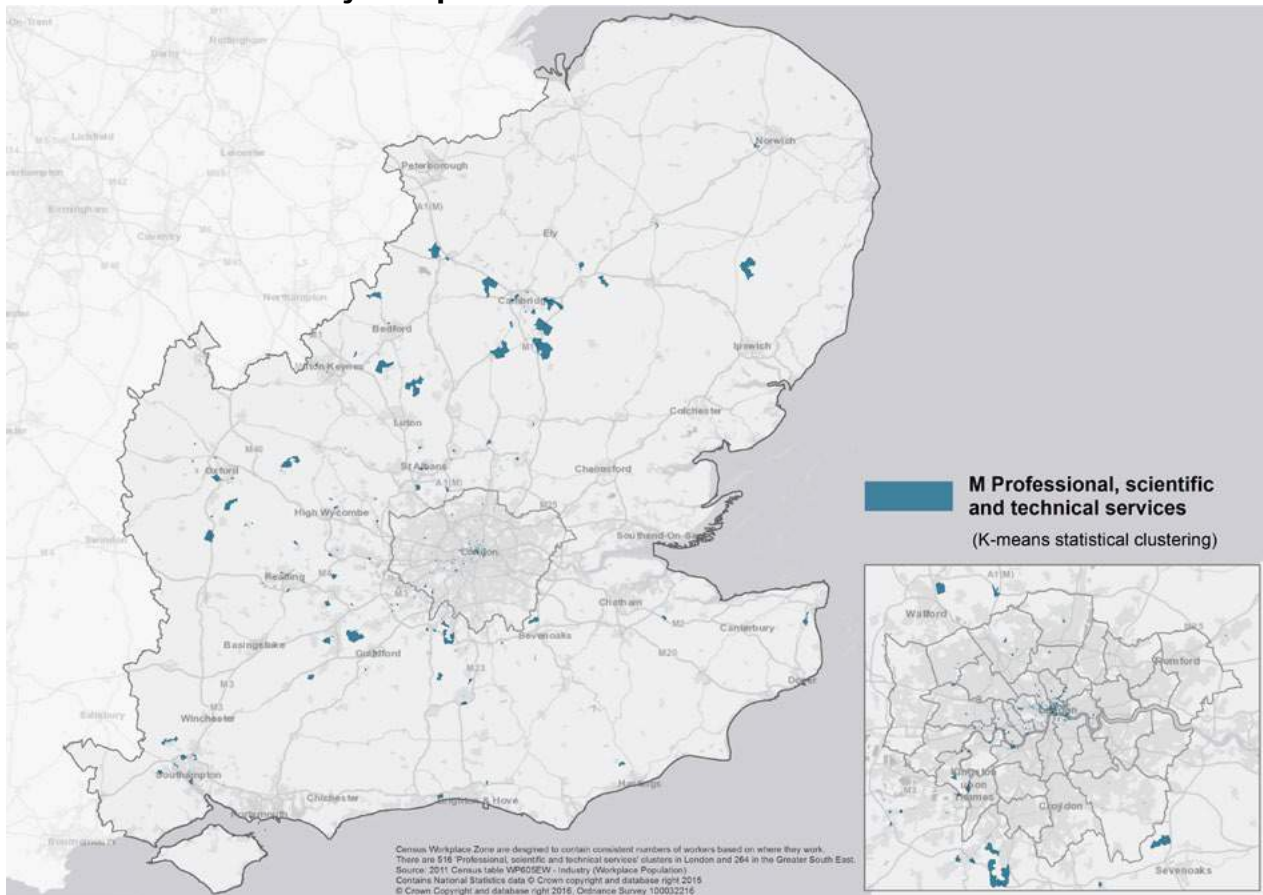


*Source: Census and GLA Intelligence Unit Analysis*

Map E9 shows that there was a number of clusters in employment in Public administration, education & health in the Great South East in 2011 generally associated with the major urban areas.

**Map E9: Dominant employment clusters in Public administration, education & health in the Great South East by workplace zones in 2011**
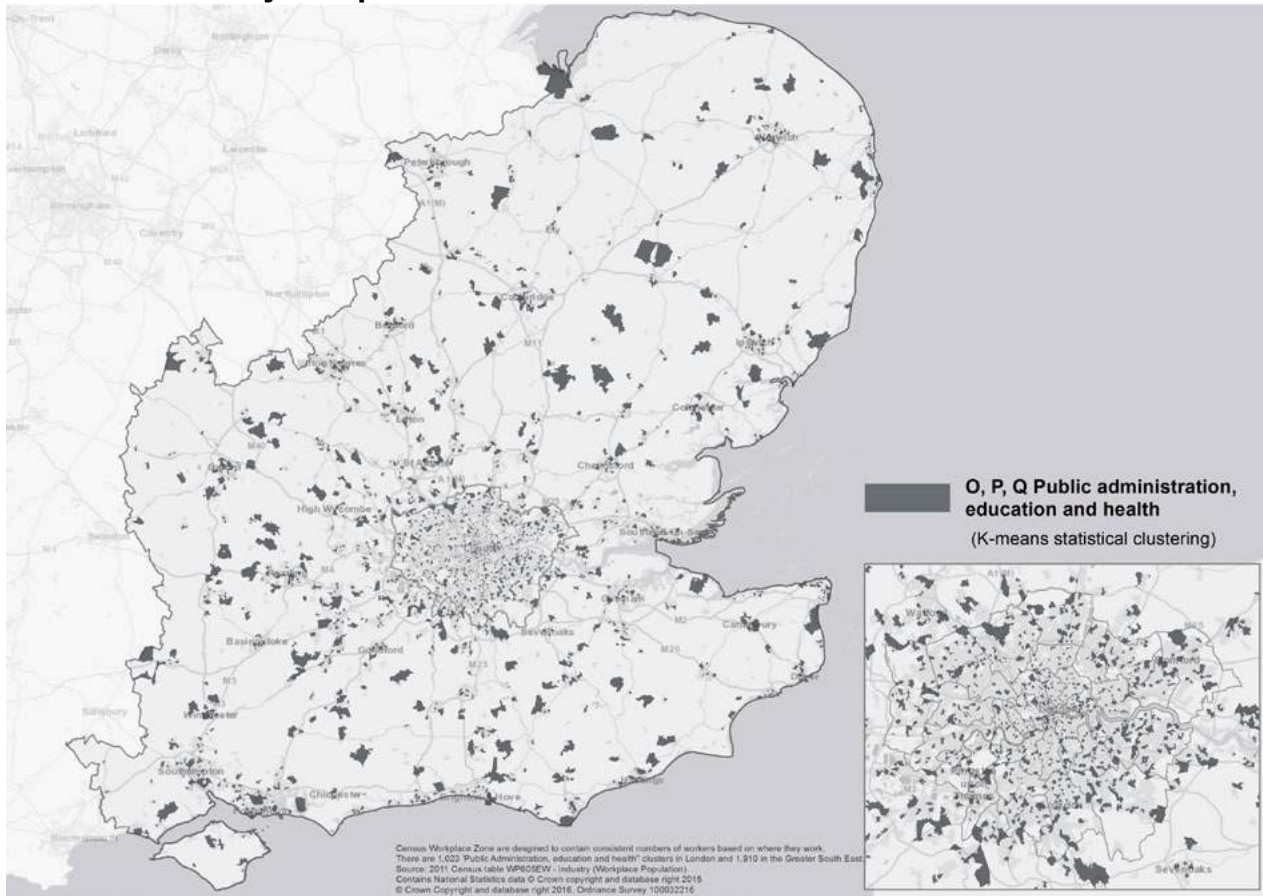


*Source: Census and GLA Intelligence Unit Analysis*

Map E10 shows clusters of employment in the Transportation and communication sector in 2011 in the Greater South East especially around the Heathrow area but with a number of other clusters clearly visible mostly associated with various transport hubs.

**Map E10: Dominant employment clusters in Transport and communication in the Greater South East by workplace zones in 2011**
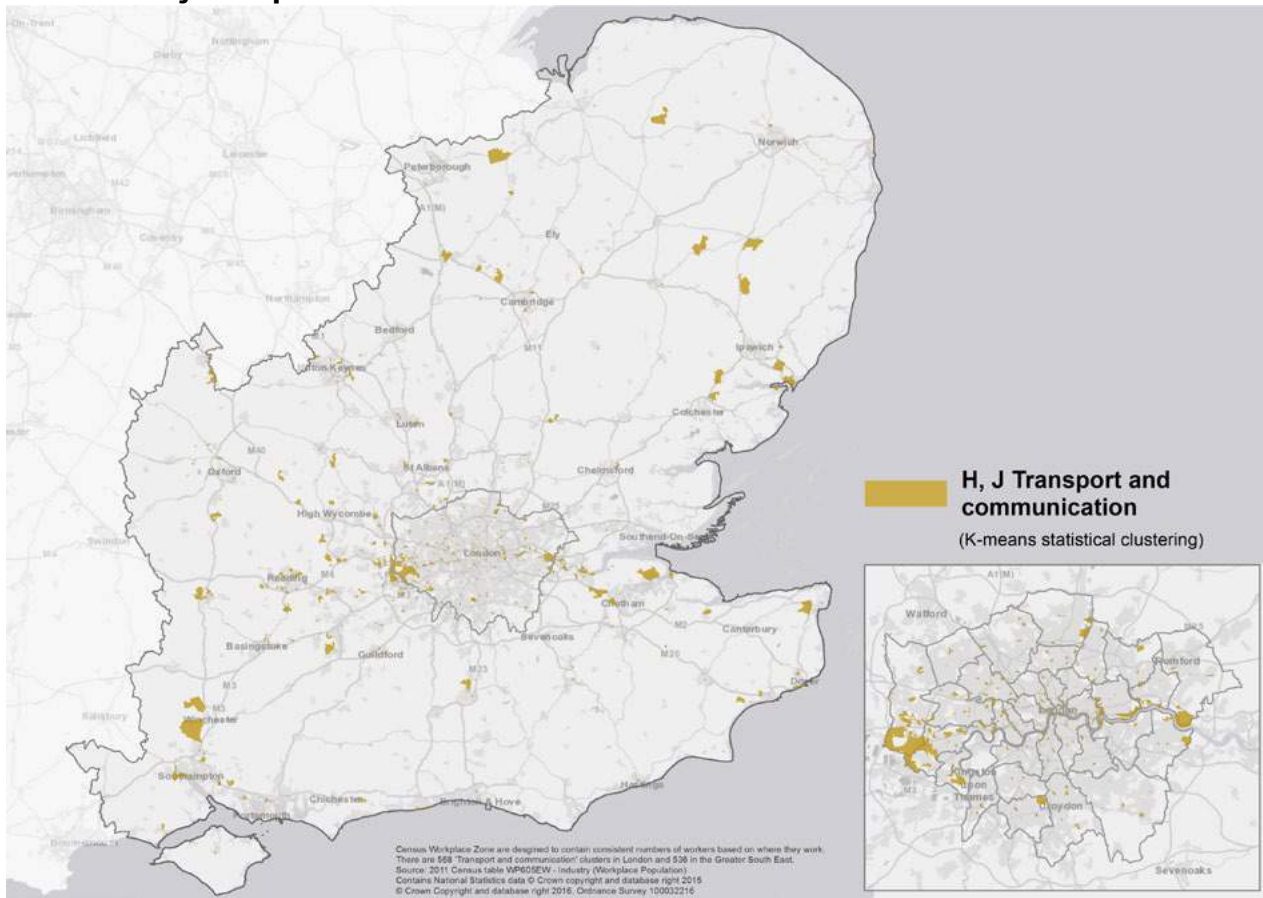


*Source: Census and GLA Intelligence Unit Analysis*

## Hot spot analysis

This section of the Appendix to Chapter 2 examines employment clustering in London and also the Greater South East using the same methodology used to generate Map 2.8 but a different methodology than that used in Section 2.6.1 of Chapter 2. From this methodology certain clusters of employment can be seen across London and the Greater South East. It should be noted that the maps for London do still generally highlight the importance of the CAZ as a location for business for most sectors, with maps E11 to E20 showing clusters for a number of industrial sectors[12]. At this level of geography these clusters highlight the dominate areas of employment for these sectors in London and the Greater South East but do not necessarily include every small area of high employment concentration in a given sector in London and the Greater South East.

### London

Map E11 examines employment concentration in Manufacturing in London in 2011 and shows that this sector is more clustered in Outer London.

**Map E11: Clustering in Manufacturing employment in London in 2011**



*Source: Census and GLA Intelligence Unit analysis*

Map E12 shows employment clustering in Construction in London in 2011and shows significant clustering in Outer East London with areas also seen in Outer North, North West and South London as well.

**Map E12: Clustering in Construction employment in London in 2011**
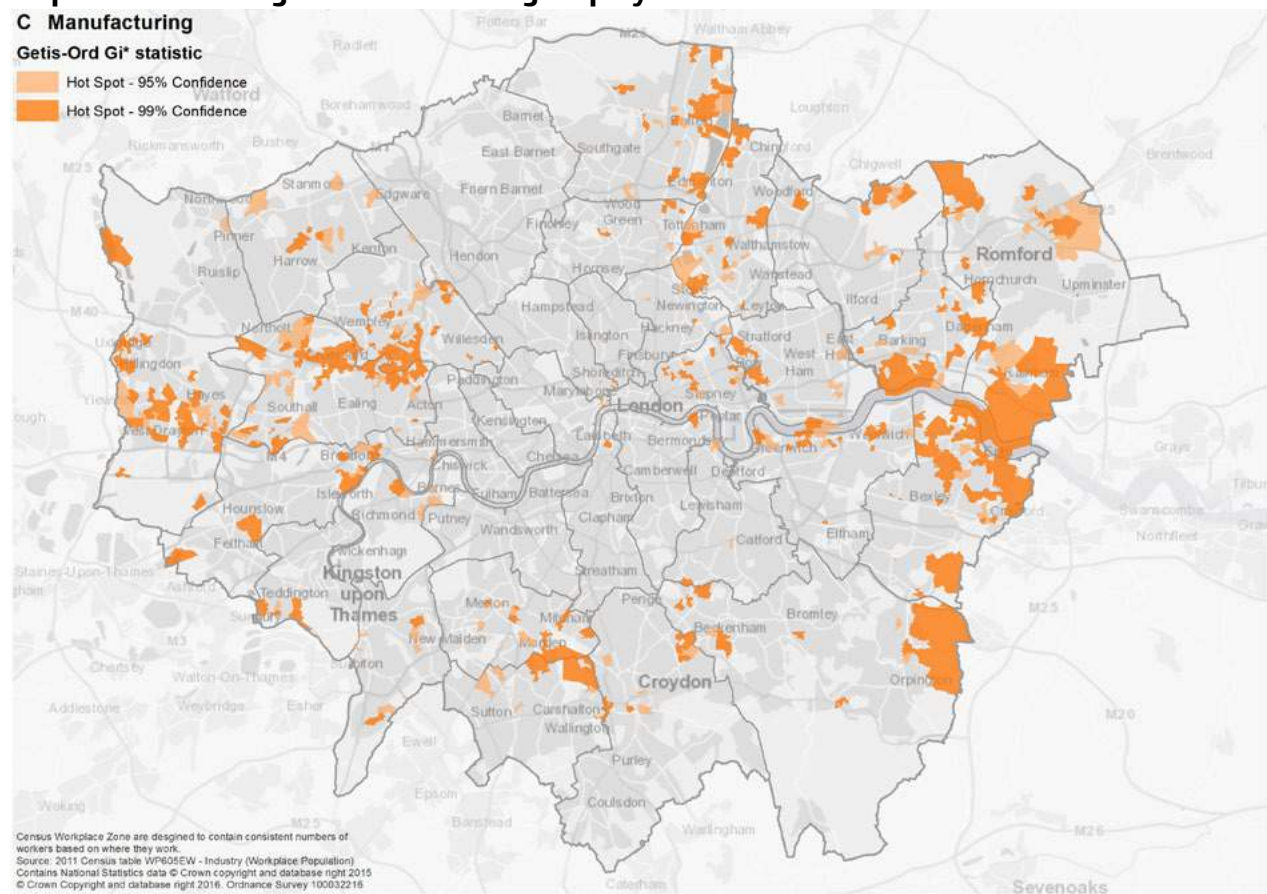


*Source: Census and GLA Intelligence Unit analysis*

Map E13 shows employment clustering in the Distribution, hotels and restaurants sector in London in 2011 in Central London but also across many other areas of the capital as well.

**Map E13: Clustering in Distribution, hotels and restaurants employment in London in 2011**
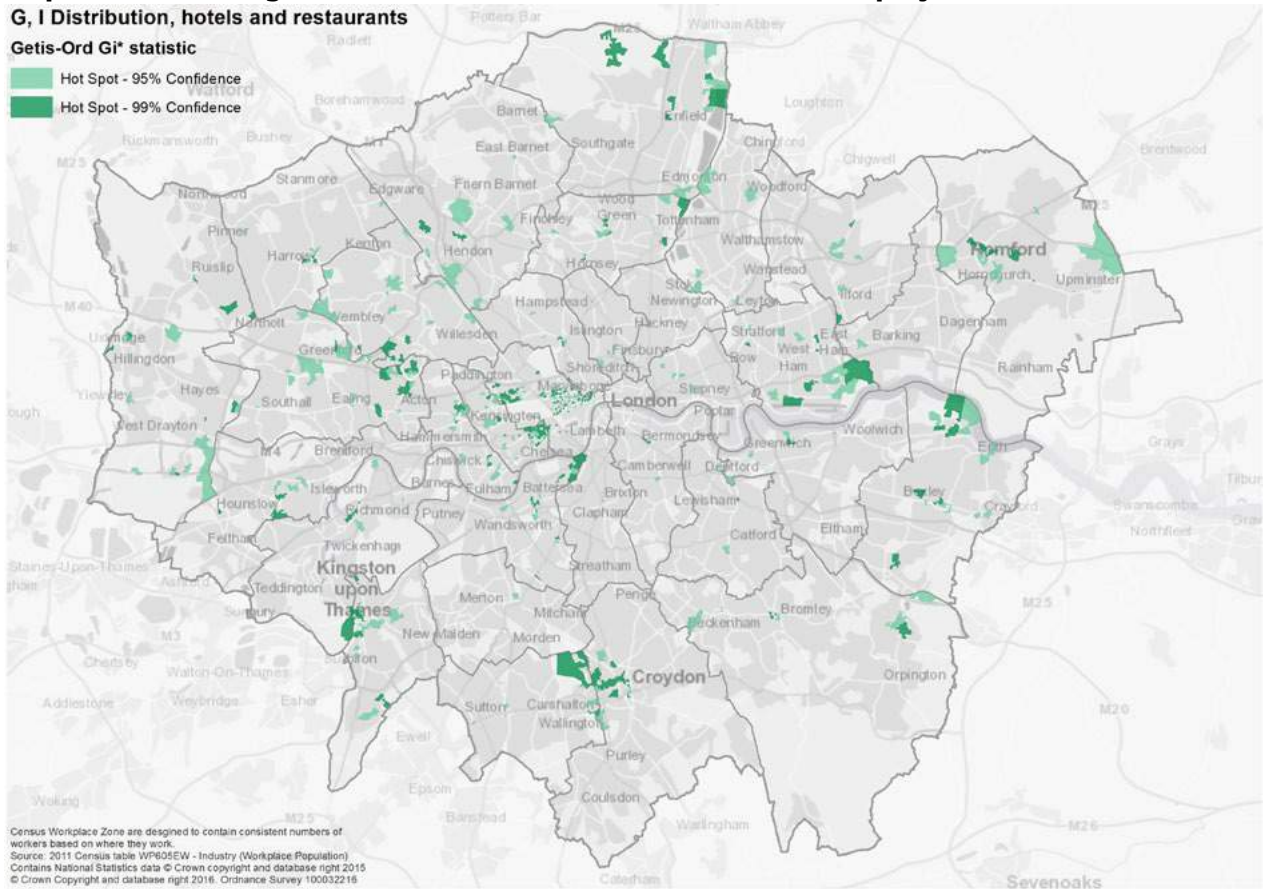


*Source: Census and GLA Intelligence Unit analysis*

In 2011 in London Map E14 highlights clustering in employment in the Transport and communication sector around Heathrow but also in a swathe across the middle of London.

**Map E14: Clustering in Transport and communication employment in London in 2011**
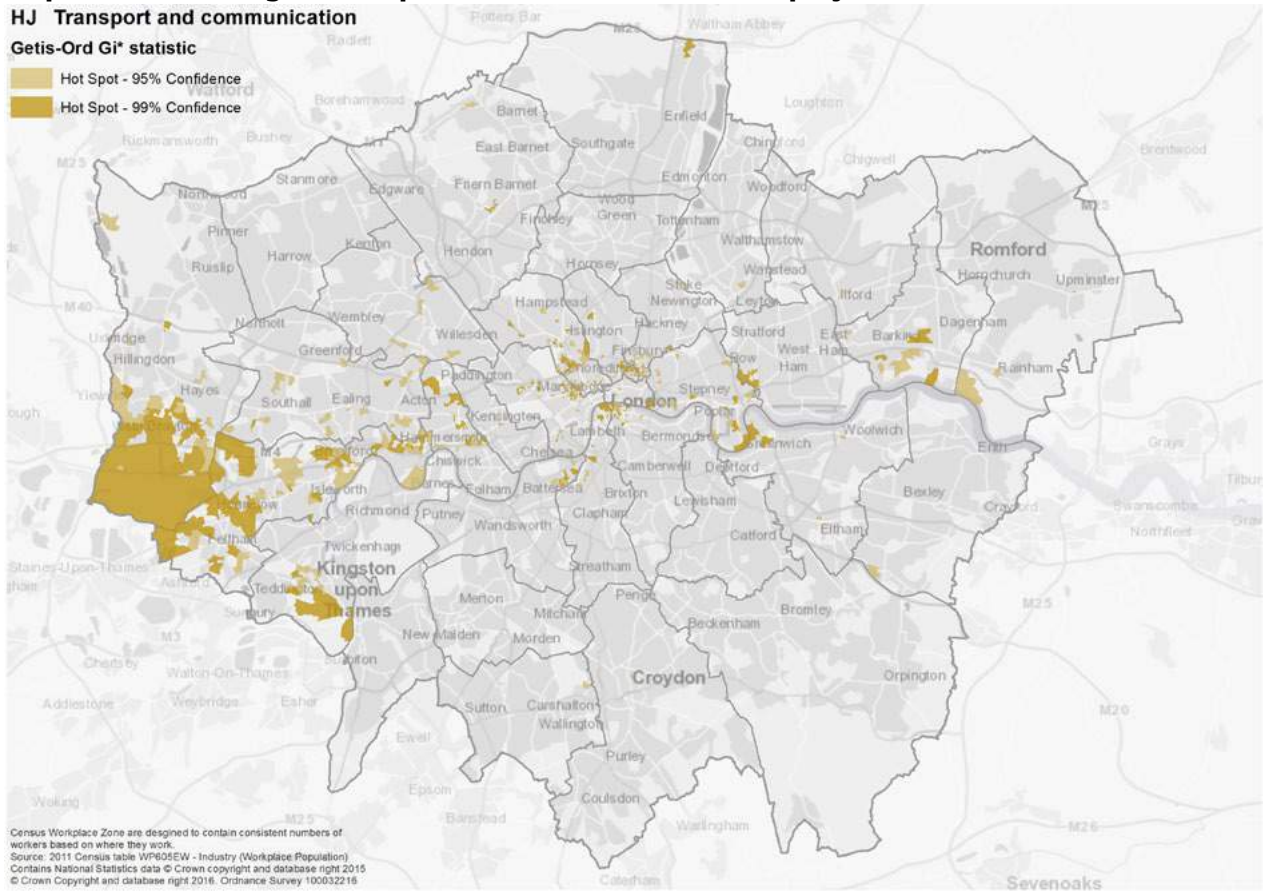


*Source: Census and GLA Intelligence Unit analysis*

Map E15 shows that Finance and insurance activities employment was generally clustered around the CAZ, NIOD and Mayfair area in London in 2011.

**Map E15: Clustering in Finance and insurance activities employment in London in 2011**
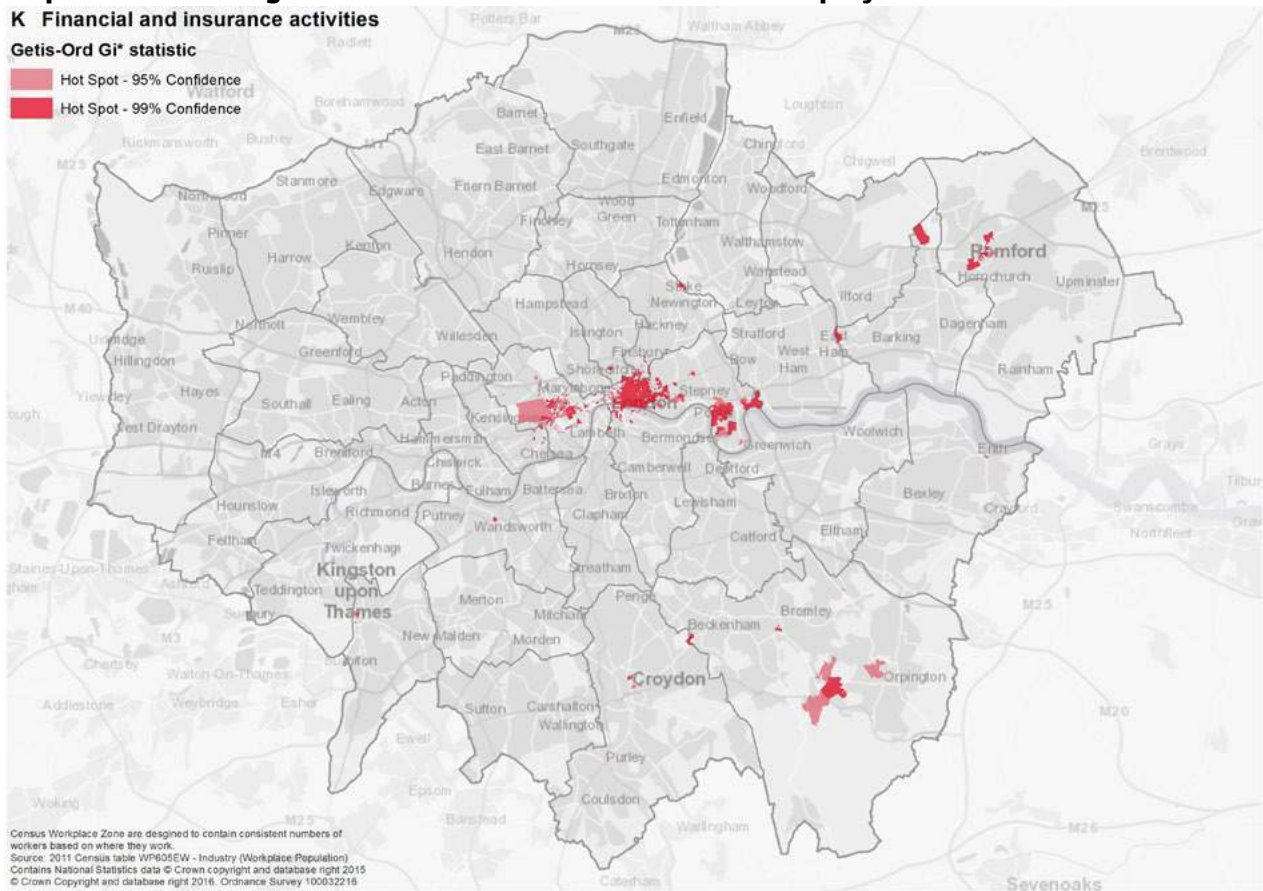


*Source: Census and GLA Intelligence Unit analysis*

Map E16 shows that in 2011 clusters of employment in Real estate activities could be found in many areas of London.

**Map E16: Clustering in Real estate activities employment in London in 2011**
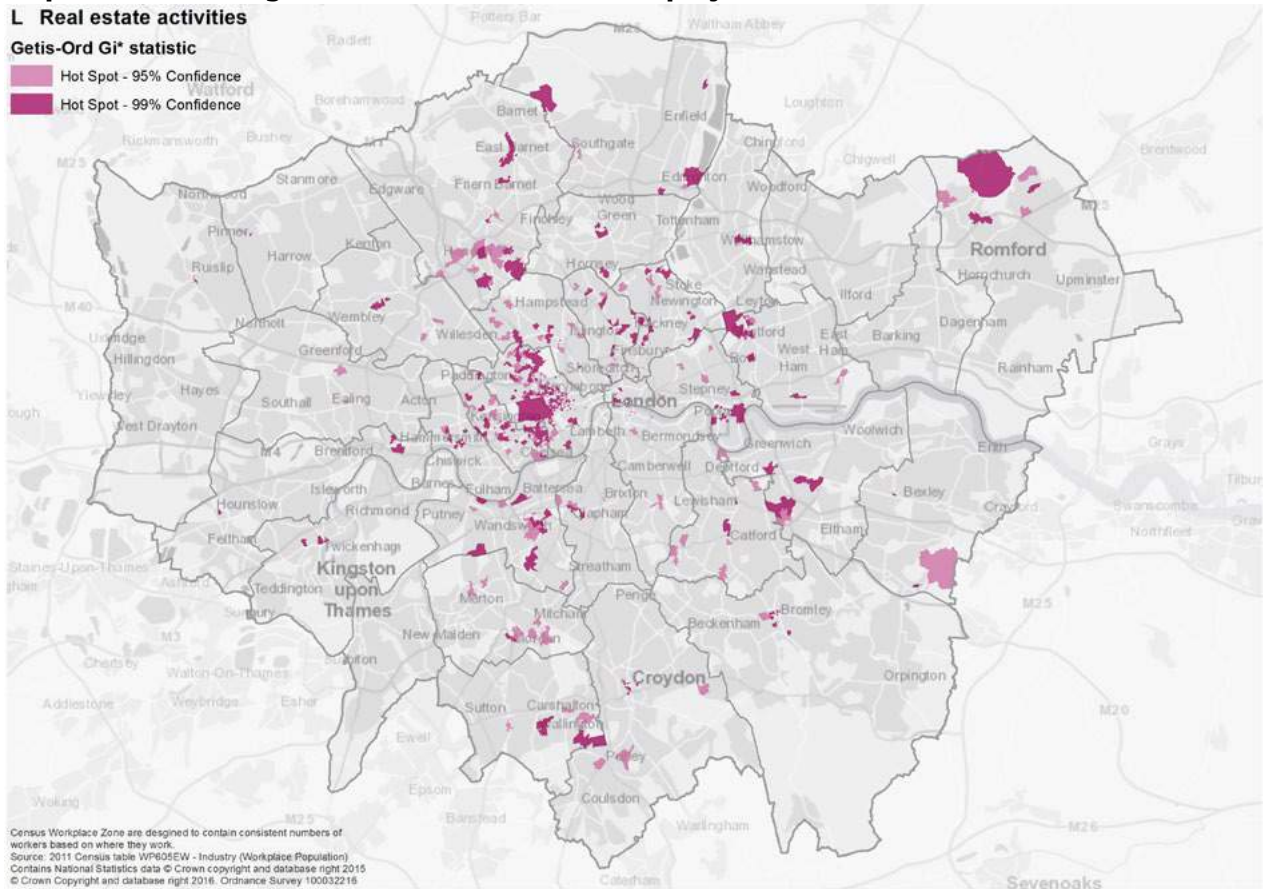


*Source: Census and GLA Intelligence Unit analysis*

In 2011 Map E17 shows there was a cluster of employment in Professional, scientific and technical activities in Central London but with a few other clusters also visible.

**Map E17: Clustering in Professional, scientific and technical activities employment in London in 2011**
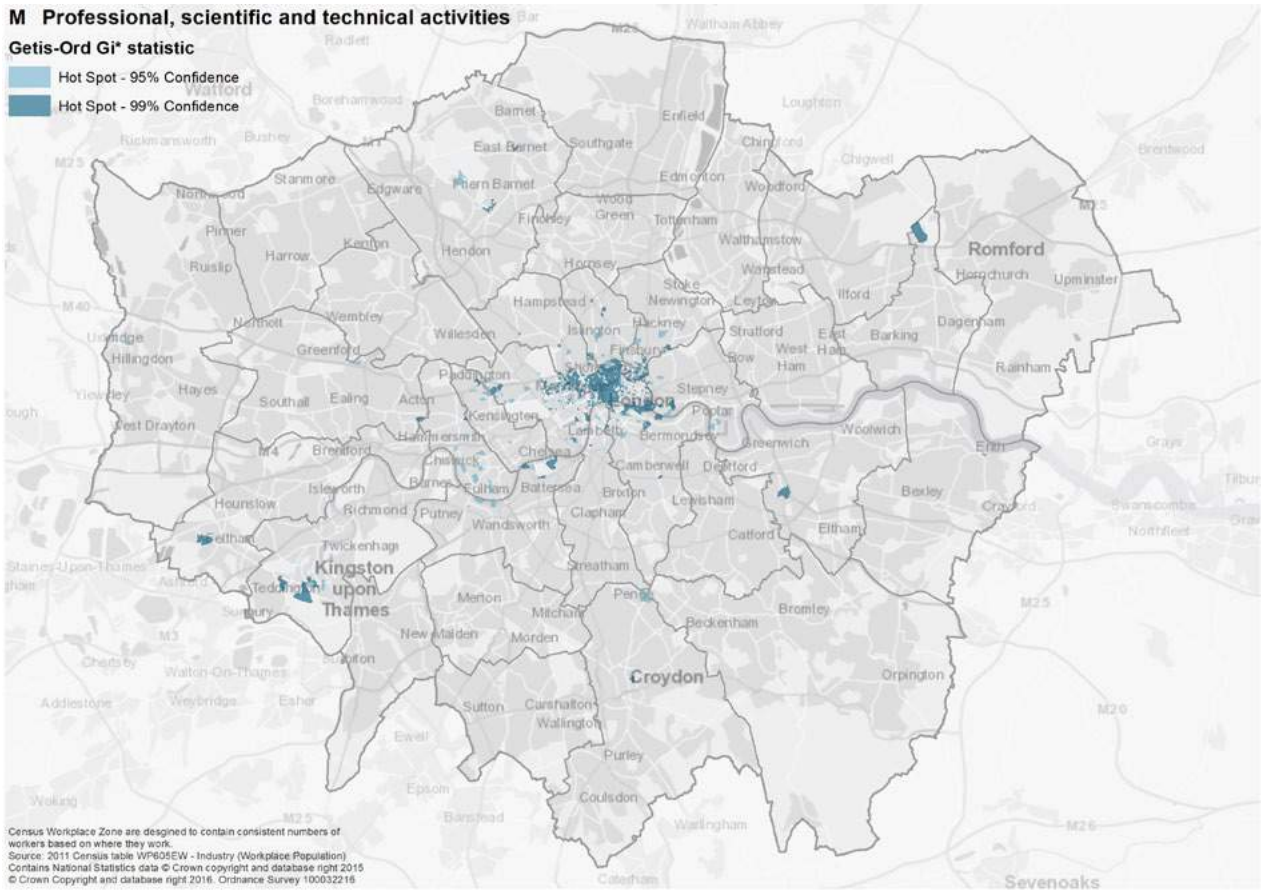


*Source: Census and GLA Intelligence Unit analysis*

Map E18 highlights a number of clusters of employment in the Administrative activities sector spread across London in 2011.

**Map E18: Clustering in Administrative activities employment in London in 2011**
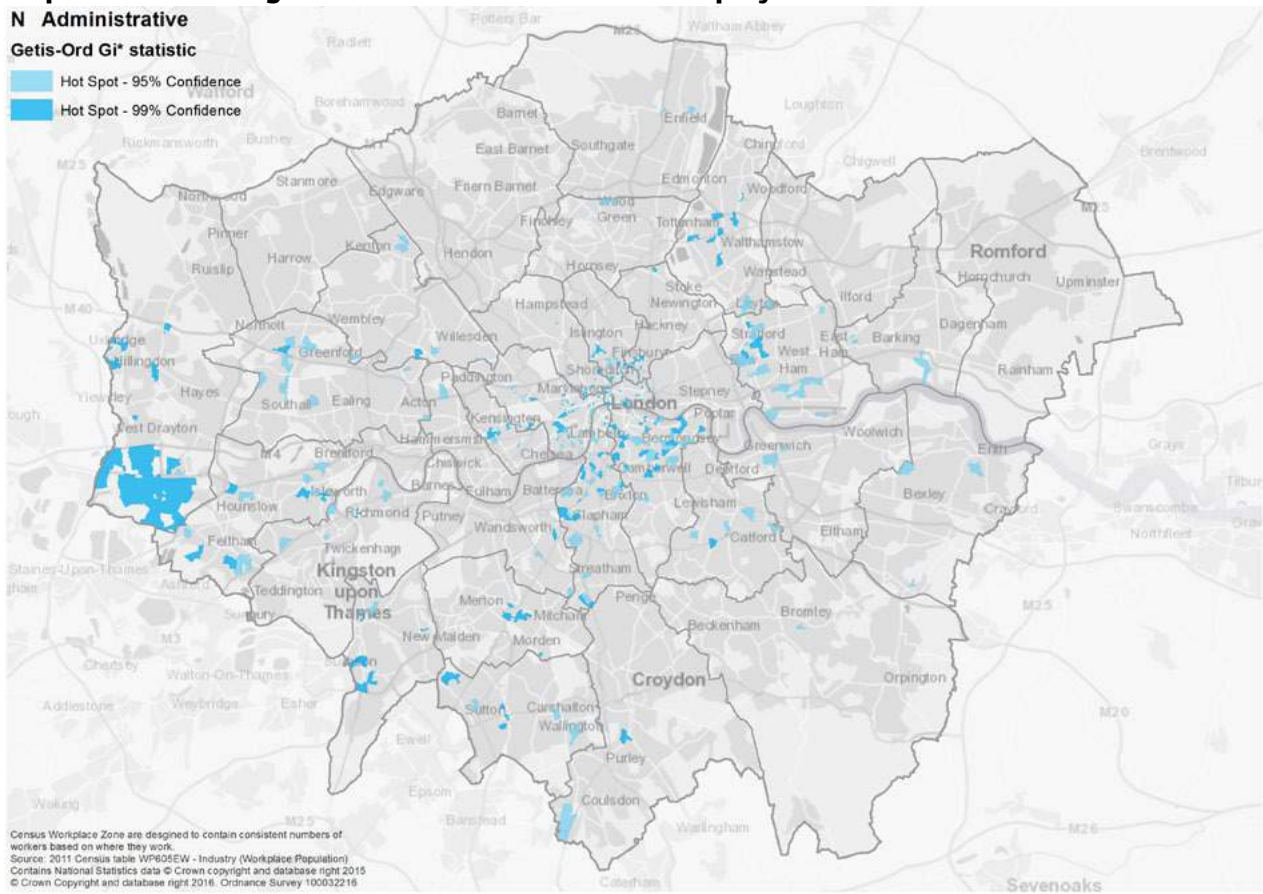


*Source: Census and GLA Intelligence Unit analysis*

Map E19 highlights a number of clusters of employment in Public administration, education and health in London in 2011.

**Map E19: Clustering in Public administration, education and health activities employment in London in 2011**
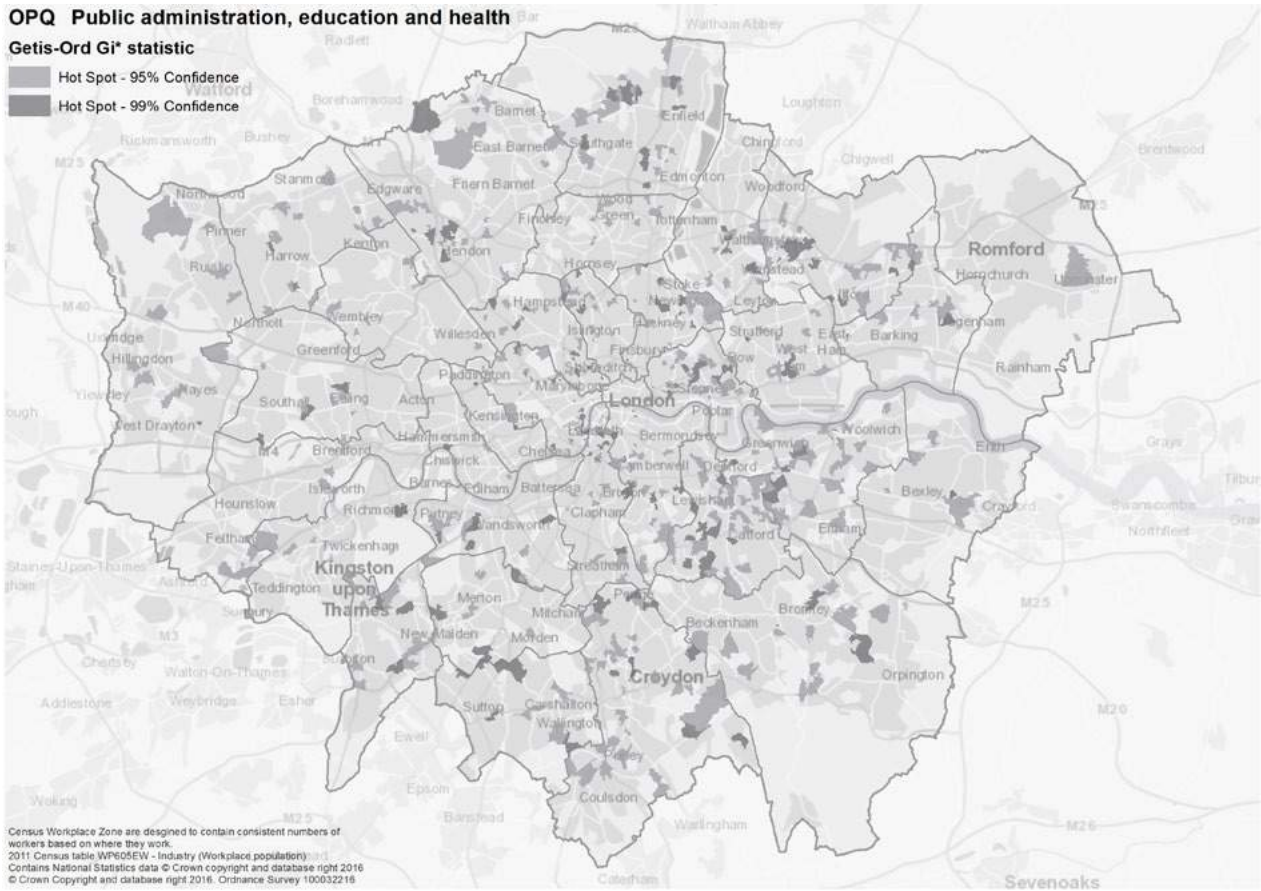


*Source: Census and GLA Intelligence Unit analysis*

Map E20 highlights a number of clusters of employment in the Other sector in London in 2011.

**Map E20: Clustering in the Other sector employment in London in 2011**
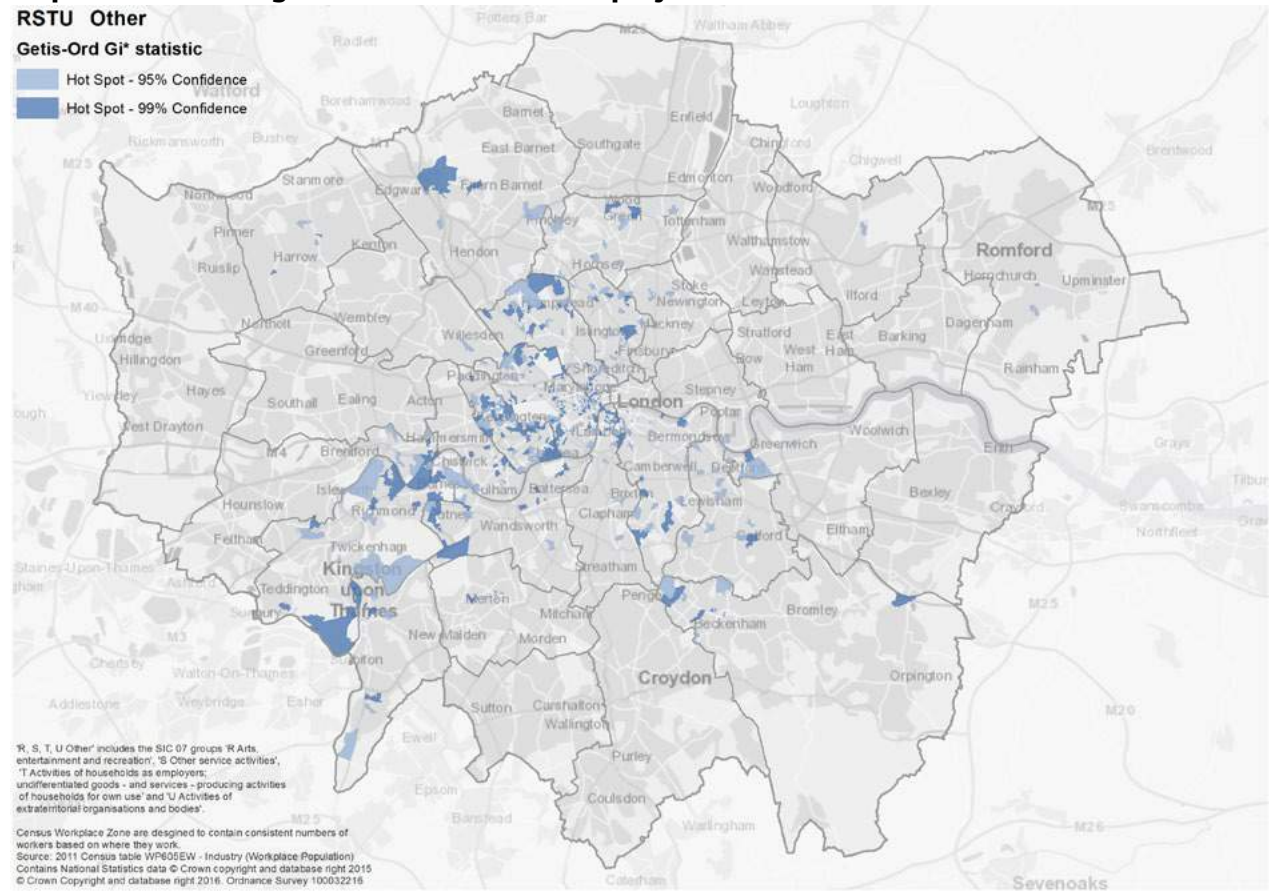


*Source: Census and GLA Intelligence Unit analysis*

**The Greater South East[13]**

Map E21 examines employment concentration in Manufacturing in the Greater South East in 2011 and shows that this sector has a number of clusters outside of London.

**Map E21: Clustering in Manufacturing employment in the Greater South East in 2011**
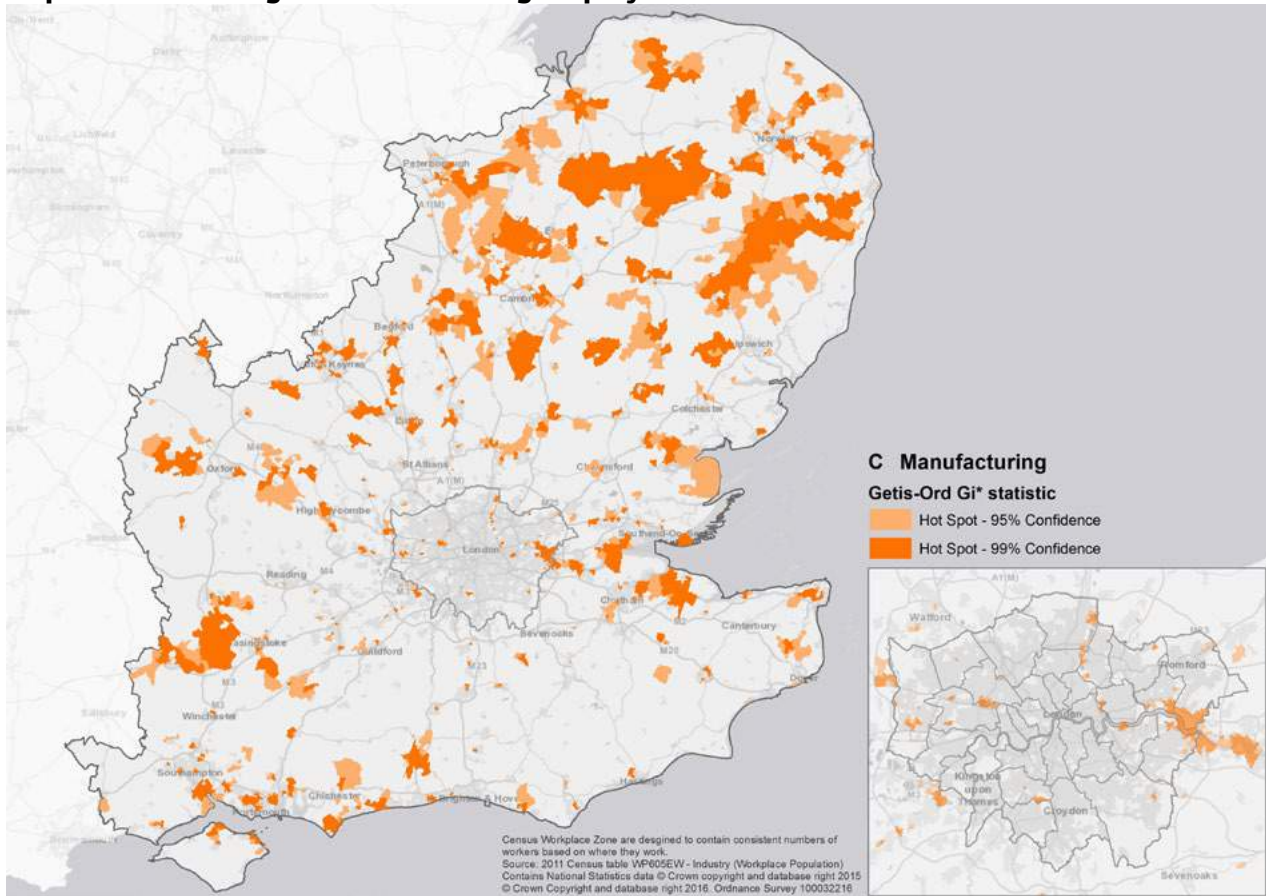


*Source: Census and GLA Intelligence Unit analysis*

Map E22 shows employment clustering in Construction in the Greater South East in 2011and shows significant grouping to the east of London but with clustering seen in a number of other areas of this geography as well.

**Map E22: Clustering in Construction employment in the Greater South East in 2011**
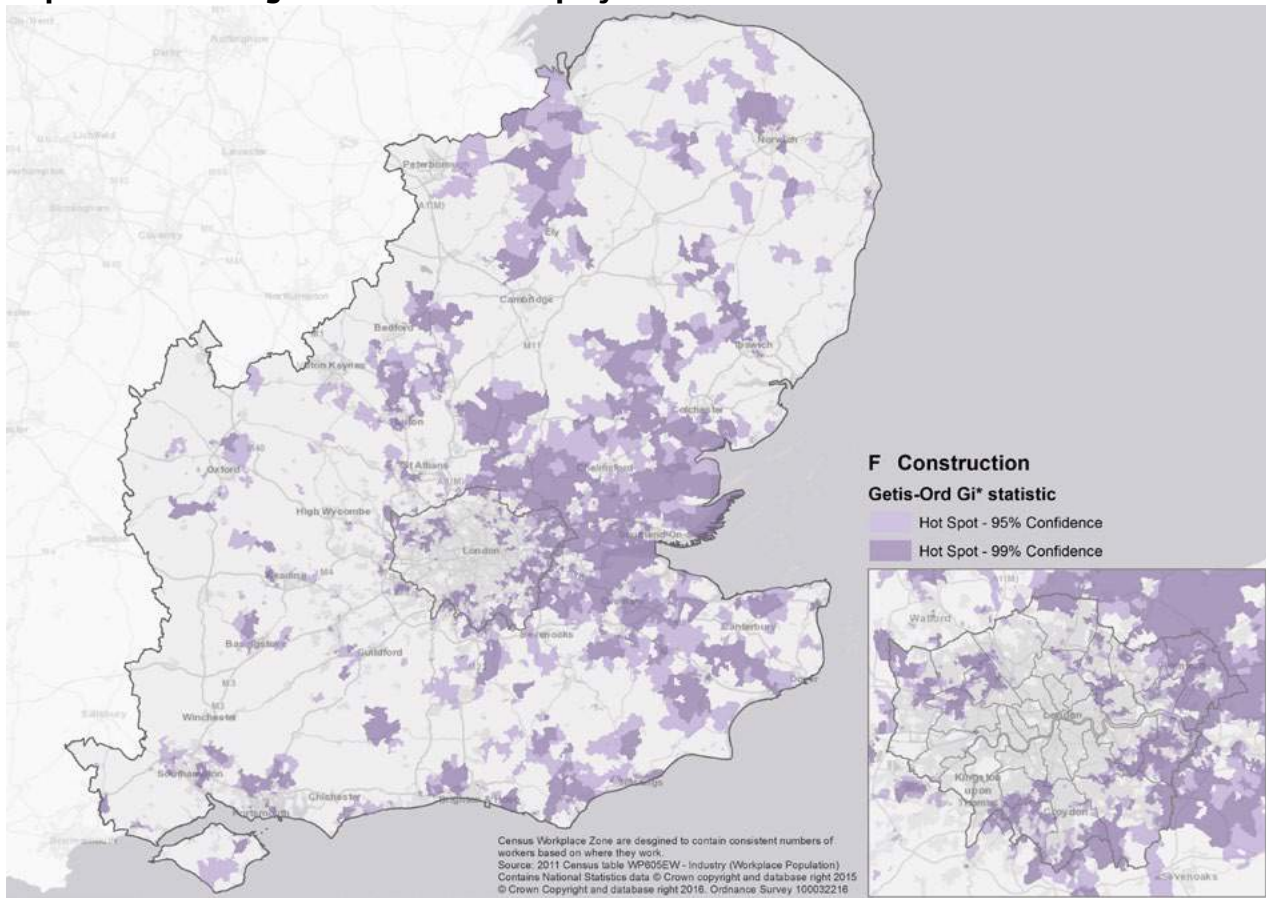


*Source: Census and GLA Intelligence Unit analysis*

Map E23 shows employment clustering in the Distribution, hotels and restaurants sector in the Greater South East in 2011 with a number of clusters visible in London but also a few in the wider South East as a whole as well.

**Map E23: Clustering in Distribution, hotels and restaurants employment in the Greater South East in 2011**
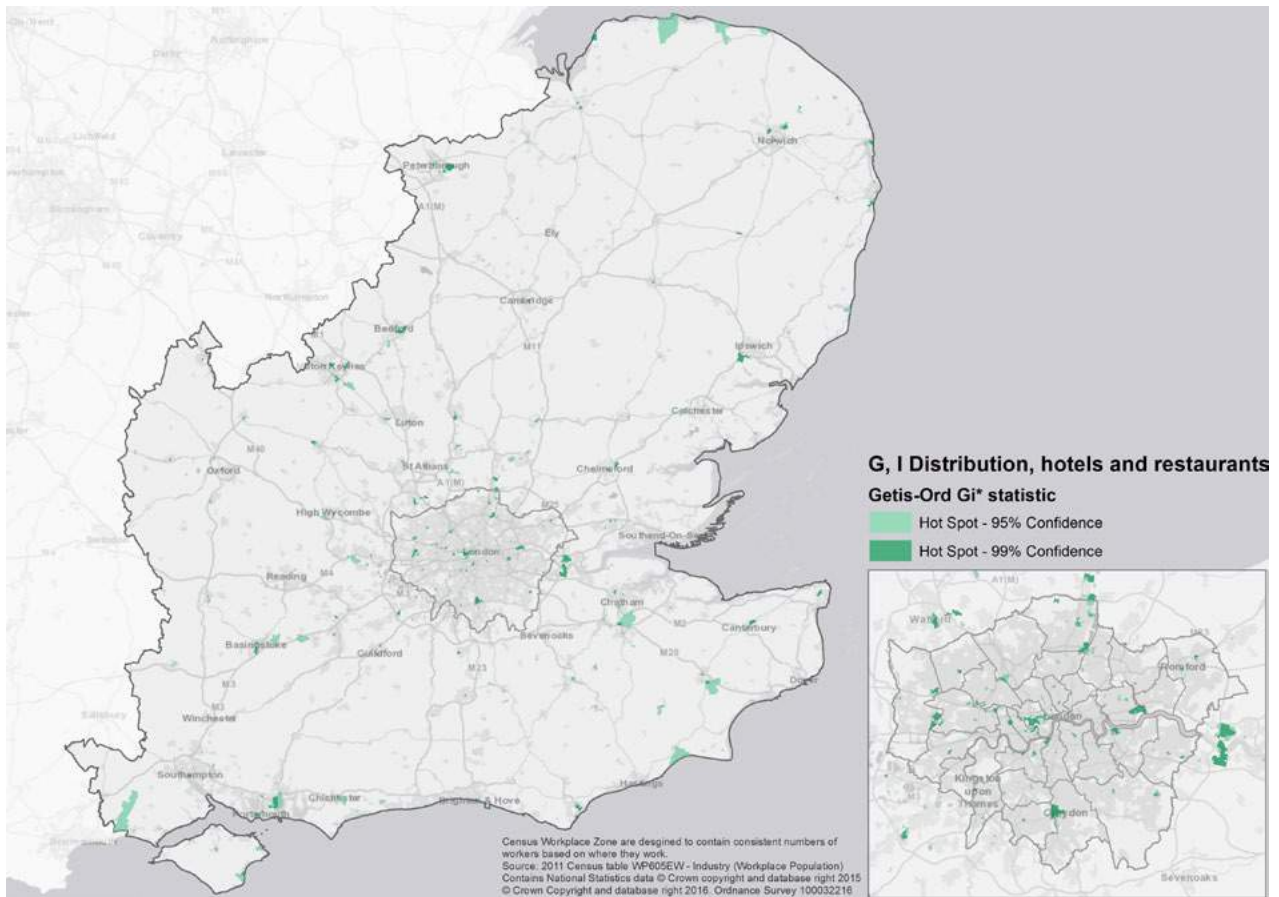


*Source: Census and GLA Intelligence Unit analysis*

In 2011 in the Greater South East Map E24 highlights clustering in employment in the Transport and communication sector around Heathrow and to the west and east of London with other clusters visible in the wider South East such as near Luton most likely associated with the airport.

**Map E24: Clustering in Transport and communication employment in the Greater South East in 2011**
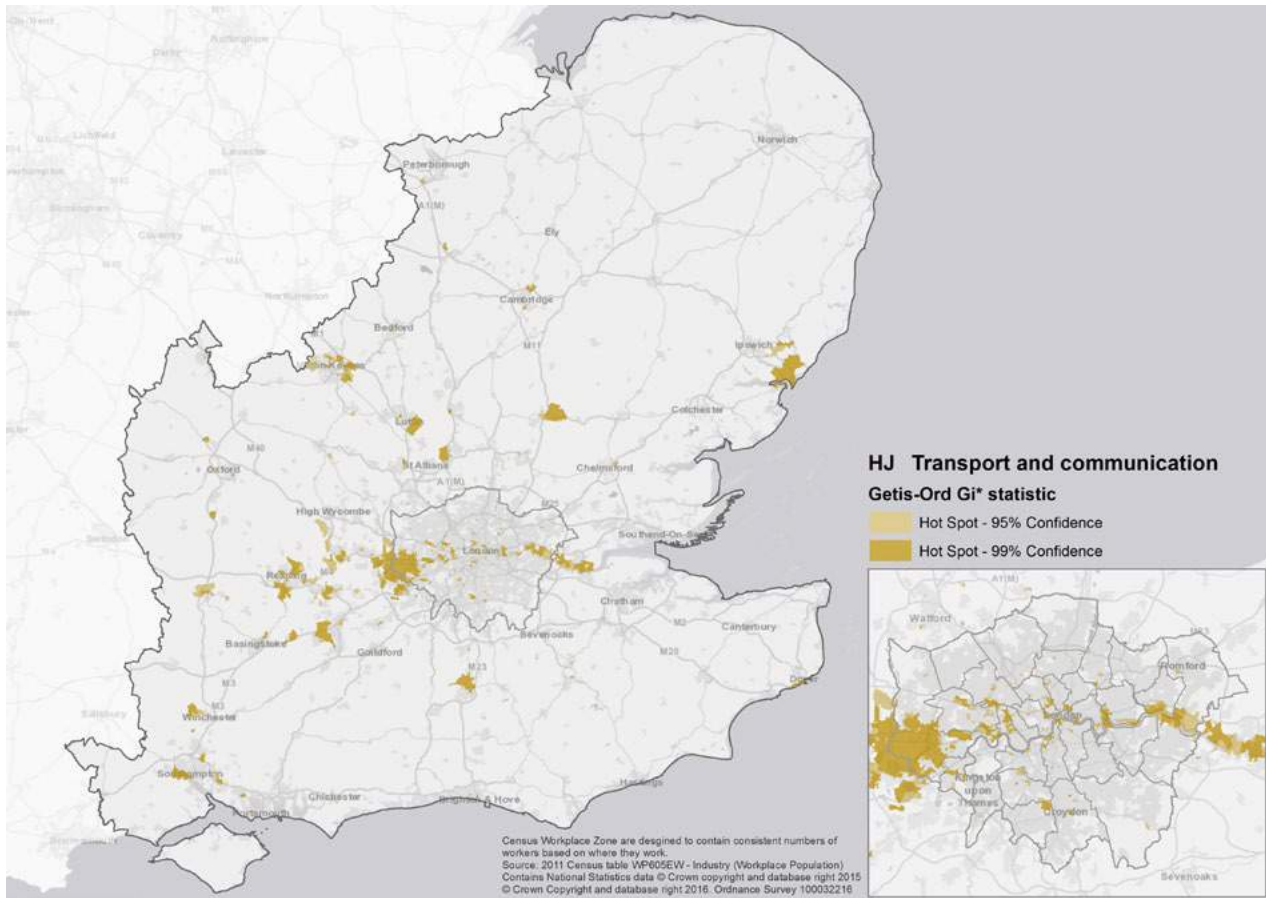


Source: Census and GLA Intelligence Unit analysis

Map E25 shows that Finance and insurance activities employment had a few clusters in Central London in 2011, with a few other clusters visible in the wider South East such as one associated with Peterborough.

**Map E25: Clustering in Finance and insurance activities employment in the Greater South East in 2011**
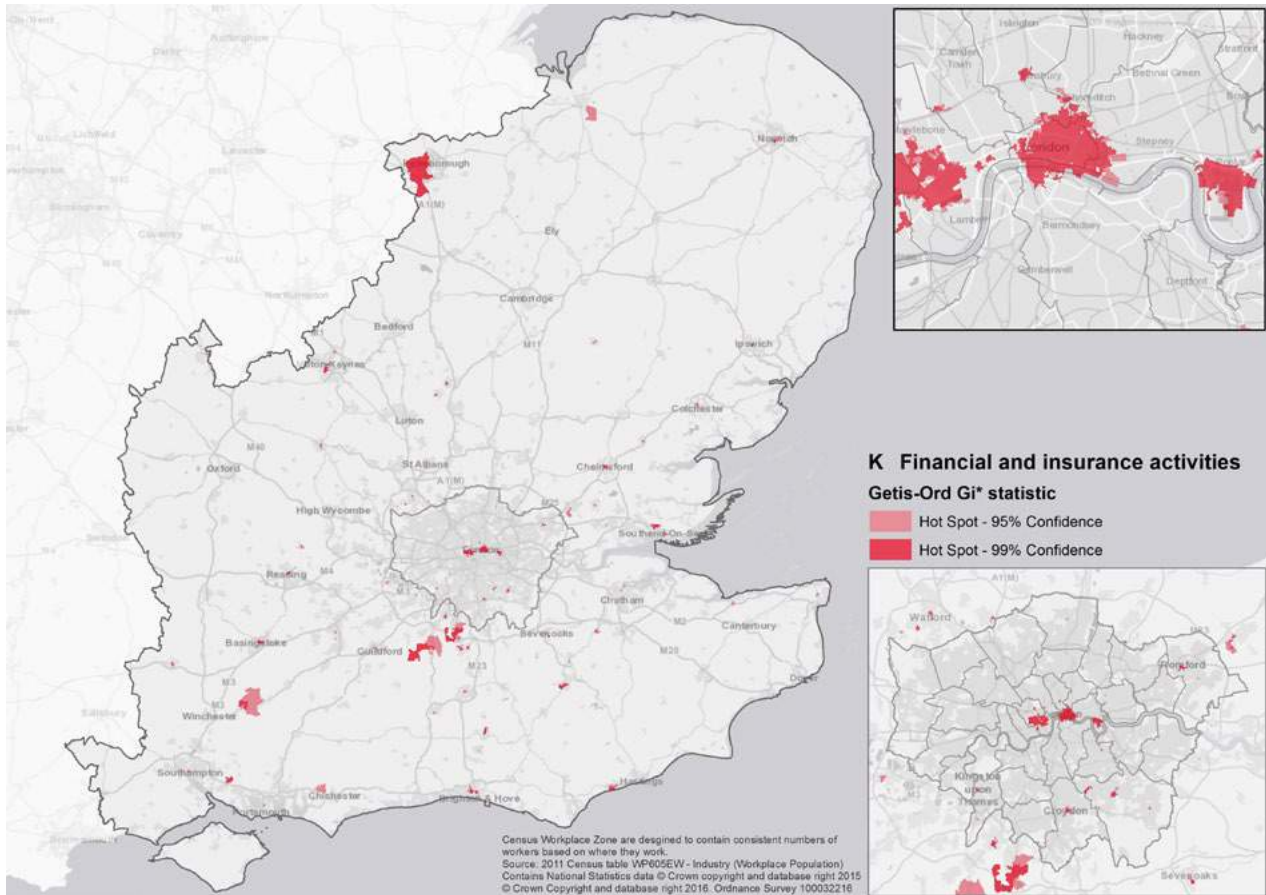


Source: Census and GLA Intelligence Unit analysis

Map E26 shows that in 2011 clusters of employment in Real estate activities could be found in many areas of London and also doted across the wider South East.

**Map E26: Clustering in Real estate activities employment in the Greater South East in 2011**
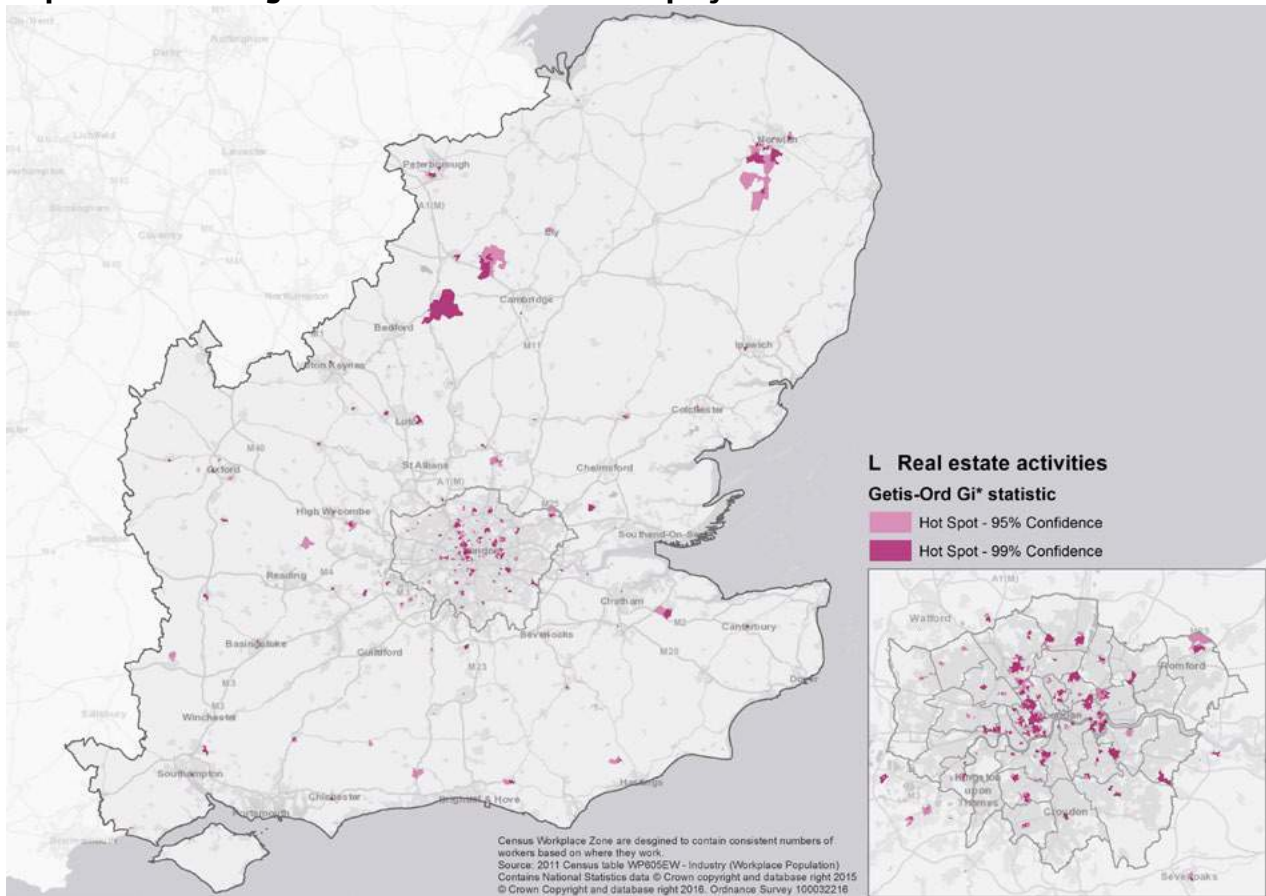


*Source: Census and GLA Intelligence Unit analysis*

In 2011 Map E27 shows there was a cluster of employment in Professional, scientific and technical activities in Central London and the south western area of London and its surroundings with other prominent clusters visible in the wider South East such as around Cambridge and Oxford.

**Map E27: Clustering in Professional, scientific and technical activities employment in the Greater South East in 2011**
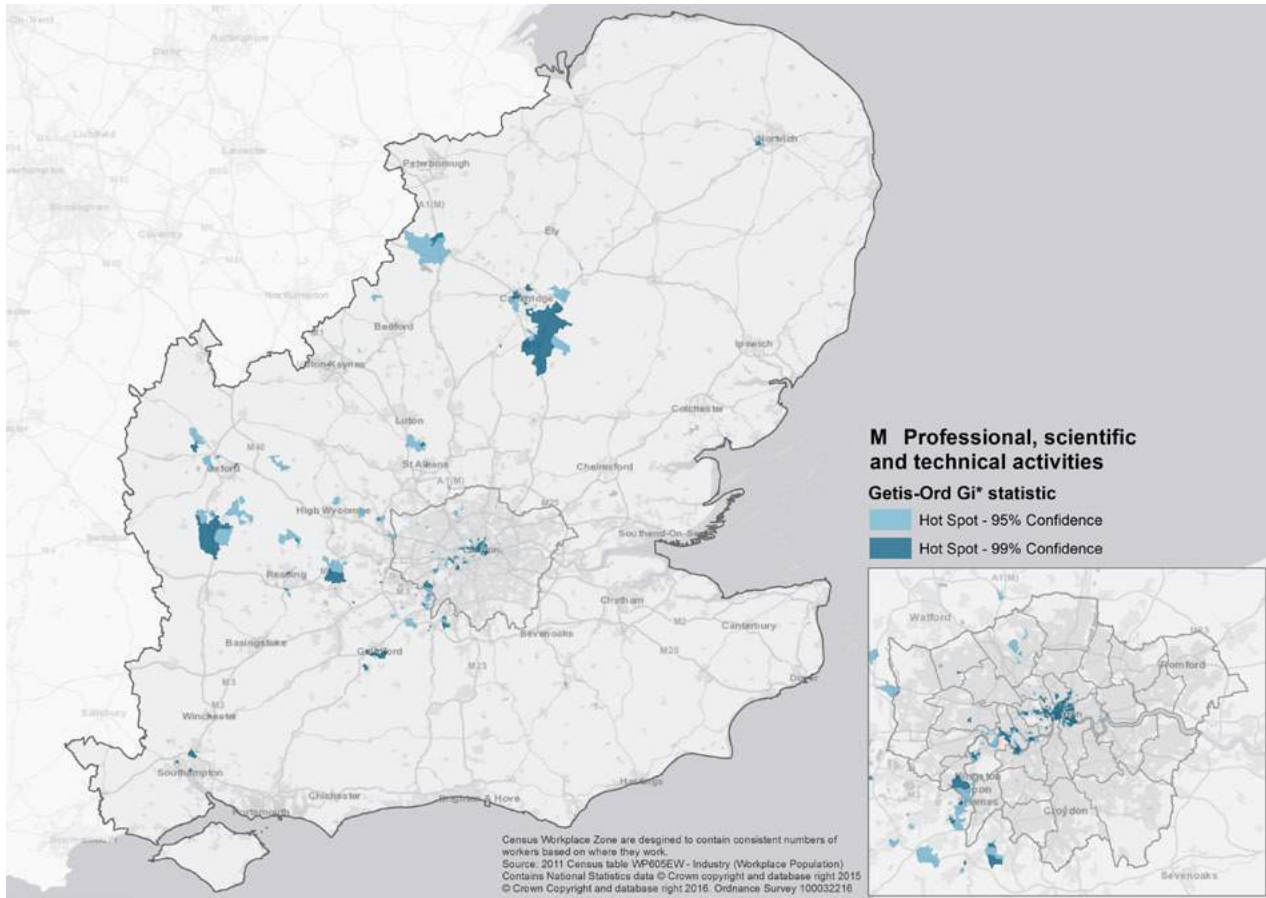


*Source: Census and GLA Intelligence Unit analysis*

Map E28 highlights a number of clusters of employment in the Administrative and support service activities sector across the Greater South East in 2011.

**Map E28: Clustering in Administrative activities employment in the Greater South East in 2011**
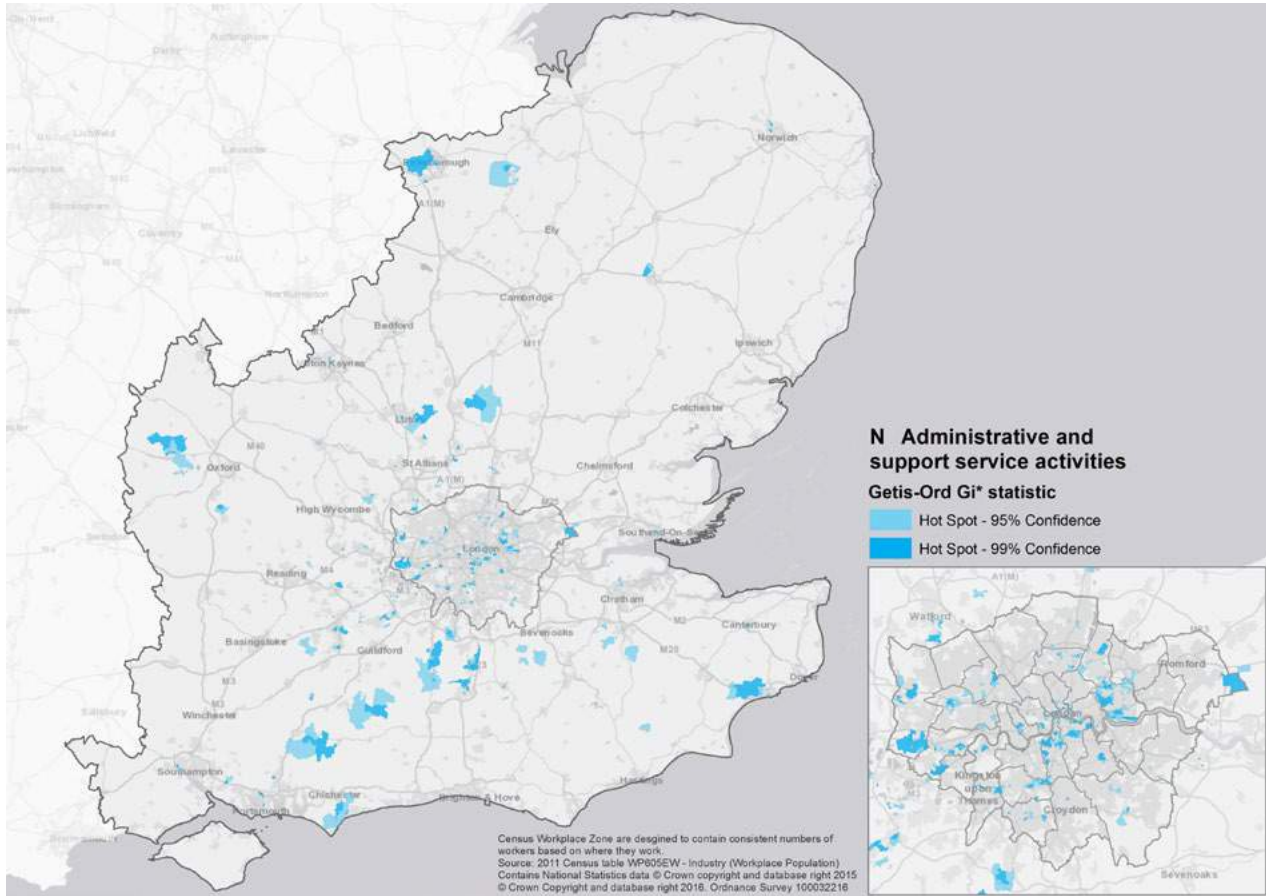


*Source: Census and GLA Intelligence Unit analysis*

Map E29 highlights a number of clusters of employment in Public administration, education and health across the Greater South East in 2011 generally associated with various urban areas.

**Map E29: Clustering in Public administration, education and health activities employment in the Greater South East in 2011**
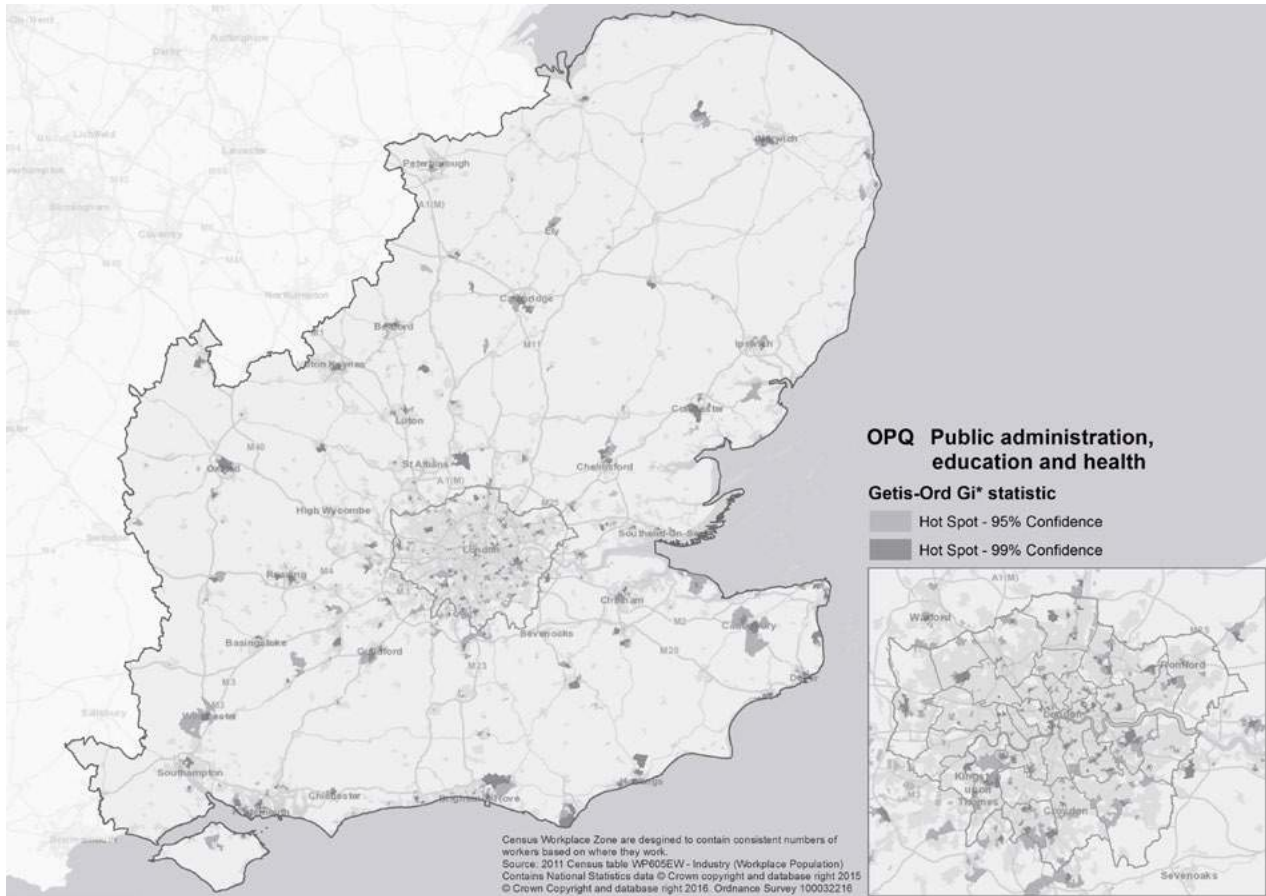


Source: Census and GLA Intelligence Unit analysis

Map E30 highlights a number of clusters of employment in the Other sector across the Greater South East in 2011.

**Map E30: Clustering in the Other sector employment in the Greater South East in 2011**
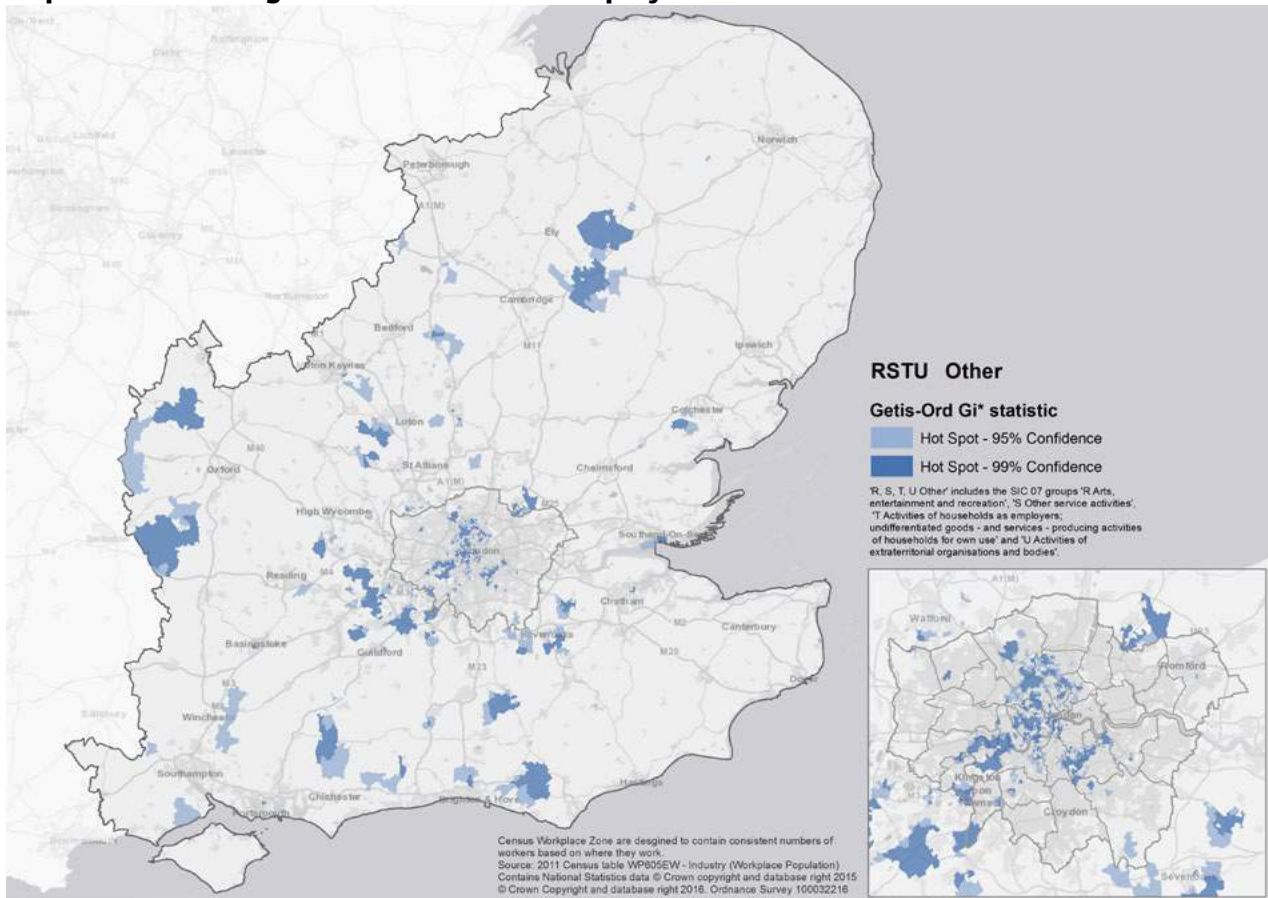


*Source: Census and GLA Intelligence Unit analysis*

## Appendix to Chapter 2 endnotes

1 Note that the scale used for these maps varies between maps.

2 As above.

3 As above.

4 For further details on the STC in London and the Greater South East please see: Douglass, G. & Hoffman, J., March 2015, 'Working Paper 64: The science and technology category in London'. GLA Economics.

5 Theseira, M. January 2012, 'London's Digital Economy', GLA Intelligence Unit.

6 The raw data used in this analysis can be found at: ONS, Published ad hoc data and analysis: Business and Energy, requests during October 2015: Reference 004794, 26 October 2015 and ONS, 19 May 2016, Breakdowns of business activity in the Greater South East: 2015.

7 Workplaces here do not include workplaces of just the self employed as only employee jobs are examined in this paper.

8 For further details on the creative industries in London and the Greater South East please see: Togni, L., October 2015, 'Working Paper 70: The creative industries in London'. GLA economics.

9 The analysis presented in here adopts the definitions of the creative economy and creative industries developed by the Department for Culture, Media & Sport, further details can be found GLA Economics Working Paper 70.

10 ONS, 25 May 2016, 'Jobs in the Creative Economy in London and the rest of the UK: 2015'.

11 Cluster analysis (K-means) was undertaken to classify areas in London that display similar characteristics of workers based on their Industrial class from the 2011 Census. A pattern recognition method called k Nearest Neighbour Analysis (KNN) was then used to estimate areas in the Greater Southeast that displayed similar characteristics to the classes found in London (during the initial K-means analysis).

12 It should be noted that the key thing with hot spot analysis compared with the K-means clustering approach is that this is spatial analysis, looking at each industrial sector dataset (such as sectors RSTU, OPQ, K, L etc.) in isolation; therefore values of other employment industry types will not be considered or have any influence over the result presented here.

This works well for most of the industry types, but does produce a fairly undefined and cluttered map for sectors F - Construction, C - Manufacturing, and RSTU - Other. These also didn't come out of the K-means clustering as dominant clusters but when compared to the raw data as seen on the DataShine map then similar patterns can be seen. Also it should be noted that the geographic area of a WPZ increases with distance from Central London.

This 'hot spot' analysis was carried out in ArcGIS using the Hot Spot Analysis (Getis-Ord Gi*) tool. For each Workplace Zone (WPZ) the Gi* statistic (Z score) was calculated, where a higher Z score indicates more intense clustering of high values (hot spot). This tool looks at each feature against neighbouring features. For a statistically significant hot spot, a WPZ must have a high value and be surrounded by other WPZs with high values.

The local sum for a feature and its neighbours is compared proportionally to the sum of all features; when the local sum is much different than the expected local sum, and that difference is too large to be the result of random chance, a statistically significant Z score results.

A spatial weights matrix was generated using 'Polygon Contiguity Edges and Corners' as the conceptualisation of spatial relationships. This approach means that a neighbourhood is created using neighbours that share an edge or corner with the WPZ. In this analysis each WPZ was required to have a neighbourhood of at least 8 neighbours. If this minimum number of neighbours was not met, then additional neighbours would be added according to proximity of the feature centroid.

Note that further, detail on the clustering methodology used for these maps can be found in: Douglass, G., August 2015, 'Working Paper 68: Work and life in the Central Activities Zone, the northern part of the Isle of Dogs and their fringes'. GLA Economics.

13 Note as all workplace zones in the Greater South East were used to generate these maps there may be slight differences between the clustering shown in London in these maps and the clustering shown in London in section E2.1 as only London based workplace zones were used in that analysis.

# Appendix to Chapter 3

## Appendix 3.1: The geography of the central cordon

Map A1 sets out the geography of the central cordon as defined by TfL. It should be noted that this geography, while overlapping in many parts, is different to the geography of the CAZ.

**Map A1: The central cordon**



*Source: TfL*

# Appendices to Chapter 5

## Appendix 5.1: SMEs in London

The following appendix provides background data on small businesses in London – their number, the turnover associated with them, and employment. These data are drawn from the Department for Business, Energy and Industrial Strategy (BEIS) Business Population Estimates, and are a snapshot for the start of 2015 (i.e. 1 January 2015). Data used to develop these estimates are drawn from the Interdepartmental Business Register, the Labour Force Survey (both ONS), and HMRC self-assessment data. Where the tables refer to employees, these will not necessarily match other sources of employment by sector used within Chapter 1, which uses Business Register and Employment Survey, and Workforce Jobs data.

### 1. Number of SMEs in London, broken down by size:

The following table gives the number of businesses and employees by business size:

| Business Size Group | Number of businesses | Number of employees (thousands) |
|---|---|---|
| 0 employees (unregistered) | 544,920 | 589 |
| 0 employees (registered) | 216,125 | 224 |
| 1 | 18,050 | 39 |
| 2-4 | 116,035 | 321 |
| 5-9 | 41,680 | 279 |
| 10-19 | 21,435 | 293 |
| 20-49 | 10,570 | 322 |
| 50-99 | 3,590 | 249 |
| 100-199 | 1,595 | 222 |
| 200-249 | 375 | 84 |
| 250-499 | 700 | 245 |
| Over 500 employees | 760 | 2,209 |

| | | |
|---|---|---|
| All businesses | 975,835 | 5,076 |
| All employers (at least 1 employee) | 214,790 | 4,264 |

**Headlines:**

- There were 974,375 SMEs in London, accounting for 99.85 per cent of all businesses in London
- SMEs account for 51.8 per cent of all employment in London
- There are 214,790 businesses in London with at least one employee, 22.0 per cent of all businesses in London
- 4.264 million people are employed in businesses in London, of which 2.622 million are employed in SME's

## 2. Employment in SMEs by size – All sectors:

| Business Size Group | Number of businesses | Number of employees (thousands) |
|---|---|---|
| Micro (0 to 9) – inc. unregistered | 936,810 | 1,452 |
| Micro (0 to 9) – only registered | 391,890 | 863 |
| Small (10 to 49) | 32,005 | 615 |
| Medium (50 to 249) | 7,020 | 555 |

## 3. Turnover of businesses:

The following tables provide detail of the turnover of businesses in London, however there are some important caveats to this data – where we would recommend that care is used in presenting these statistics:

- Total turnover of all businesses in London was estimated at £1.09 trillion. It should be noted that this is not the same as GVA. The total GVA of London's economy was £364 billion in 2014. London's economy accounts for 22.5 per cent of the total UK economy.
- SMEs account for around 48.1 per cent of all business turnover in London (£525.0 billion)
- These estimates are of private sector businesses and do not include the output of the public sector.
- Estimates of business turnover do not include the Financial and Insurance Activities sector, due to the way that business turnover is calculated in this sector (being inconsistent with other sectors). This is a particular issue for London since Financial and Insurance activities is the largest individual sector of London's economy in terms of output, producing £68.7bn of GVA, accounting for 18.9 per cent of London's total economic output.

| Business Size Group | Number of businesses | Turnover (£ millions) |
|---|---|---|
| 0 employees (unregistered) | 544,920 | 21,936 |
| 0 employees (registered) | 216,125 | 39,678 |
| 1 | 18,050 | 3,576 |
| 2-4 | 116,035 | 51,872 |
| 5-9 | 41,680 | 55,128 |
| 10-19 | 21,435 | 69,941 |
| 20-49 | 10,570 | 111,650 |
| 50-99 | 3,590 | 57,193 |
| 100-199 | 1,595 | 94,325 |
| 200-249 | 375 | 19,750 |
| 250-499 | 700 | 175,596 |
| Over 500 employees | 760 | 389,930 |

| | Number of businesses | Turnover (£ millions) |
|---|---|---|
| All businesses | 975,835 | 1,090,576 |
| All employers (at least 1 employee) | 214,790 | 1,028,962 |

| Business Size Group | Number of businesses | Turnover (£ millions) |
|---|---|---|
| Micro (0 to 9) – inc. unregistered | 936,810 | 172,190 |
| Micro (0 to 9) – only registered | 391,890 | 150,254 |
| Small (10 to 49) | 32,005 | 181,591 |
| Medium (50 to 249) | 7,020 | 171,268 |

## 4. Sectoral breakdown of SMEs

The BIS statistics provide detail of the number of businesses, employment and business turnover for SMEs across business sectors.

**Notes:**
- Some sectors are grouped together for the analysis, such as those in primary activities (mining, quarrying, oil and gas, waste & recycling etc.), however these represent only a small proportion of London's economy, so are not included
- Turnover data for Financial and Insurance activities are not included within this dataset
- Not all sectors are included here
- Sectors are based on the Standard Industrial Classification (SIC2007) sections – i.e. major industrial sections. Data are not broken to any lower industrial classification within the BIS statistics; however are available using the ONS UK Business Counts dataset.
- Data on employment by sector will not correlate with Workforce Jobs data by industry, since these are point in time estimates, and only account for private sector businesses.

**Industry Sector: C: Manufacturing**

| Business Size Group | Number of businesses | Employment (thousands) | Turnover (£ millions) |
|---|---|---|---|
| 0 employees (unregistered) | 11,535 | 12 | 321 |
| 0 employees (registered) | 5,045 | 5 | 621 |
| 1 | 450 | 1 | 62 |
| 2-4 | 3,520 | 10 | 1,078 |
| 5-9 | 1,645 | 11 | 1,306 |
| 10-19 | 930 | 13 | 1,425 |
| 20-49 | 515 | 16 | 2,409 |
| 50-99 | 170 | 12 | 1,792 |
| 100-199 | 80 | 11 | 2,030 |
| 200-249 | 15 | 3 | 845 |
| 250-499 | 25 | 8 | 2,224 |
| Over 500 employees | 30 | 81 | 63,129 |

| | | | |
|---|---|---|---|
| All businesses | 23,960 | 183 | 77,241 |
| All employers | 7,380 | 165 | 76,299 |
| Micro (excluding unregistered) | 10,660 | 27 | 3,067 |
| Micro (inc. unregistered) | 22,195 | 39 | 3,388 |
| Small | 1,445 | 29 | 3,834 |
| Medium | 265 | 26 | 4,467 |
| **All SMEs** | **23,905** | **94** | **11,889** |
| **SME: Proportion of all businesses** | **99.8%** | **51.4%** | **15.4%** |

## Industry Sector F: Construction

| Business Size Group | Number of businesses | Employment (thousands) | Turnover (£ millions) |
|---|---|---|---|
| 0 employees (unregistered) | 132,070 | 133 | 5,288 |
| 0 employees (registered) | 21,385 | 22 | 5,094 |
| 1 | 1,245 | 3 | 262 |
| 2-4 | 12,265 | 32 | 6,838 |
| 5-9 | 2,945 | 19 | 4,946 |
| 10-19 | 1,210 | 16 | 3,604 |
| 20-49 | 405 | 12 | 3,150 |
| 50-99 | 115 | 8 | 1,957 |
| 100-199 | 45 | 7 | 2,308 |
| 200-249 | 15 | 4 | 1,076 |
| 250-499 | 25 | 8 | 3,050 |
| Over 500 employees | 15 | 45 | 8,351 |

| | | | |
|---|---|---|---|
| All businesses | 171,740 | 309 | 45,924 |
| All employers | 18,285 | 153 | 35,542 |
| Micro (excluding unregistered) | 9,460 | 76 | 17,140 |
| Micro (inc. unregistered) | 169,910 | 209 | 22,428 |
| Small | 1,615 | 28 | 6,754 |
| Medium | 175 | 19 | 5,341 |
| **All SMEs** | **171,700** | **256** | **34,523** |
| **SME: Proportion of all businesses** | **99.98%** | **82.9%** | **75.2%** |

## Industry Sector G: Wholesale and Retail

| Business Size Group | Number of businesses | Employment (thousands) | Turnover (£ millions) |
|---|---|---|---|
| 0 employees (unregistered) | 24,370 | 28 | 1,288 |
| 0 employees (registered) | 21,520 | 23 | 3,844 |
| 1 | 3,170 | 7 | 869 |
| 2-4 | 18,420 | 55 | 15,749 |
| 5-9 | 8,175 | 54 | 21,457 |
| 10-19 | 3,540 | 48 | 40,281 |
| 20-49 | 1,515 | 45 | 67,830 |
| 50-99 | 430 | 29 | 23,217 |
| 100-199 | 180 | 25 | 59,949 |
| 200-249 | 45 | 10 | 6,386 |
| 250-499 | 70 | 24 | 142,219 |
| Over 500 employees | 110 | 569 | 103,010 |

| | | | |
|---|---|---|---|
| All businesses | 81,545 | 917 | 486,097 |
| All employers | 35,655 | 867 | 480,965 |
| Micro (excluding unregistered) | 51,285 | 139 | 41,919 |
| Micro (inc. unregistered) | 75,655 | 167 | 43,207 |
| Small | 5,055 | 93 | 108,111 |
| Medium | 655 | 64 | 89,552 |
| **All SMEs** | **81,365** | **324** | **240,870** |
| **SME: Proportion of all businesses** | **99.8%** | **35.3%** | **49.6%** |

## Industry Sector I: Accommodation and Food Services

| Business Size Group | Number of businesses | Employment (thousands) | Turnover (£ millions) |
|---|---|---|---|
| 0 employees (unregistered) | 2,990 | 4 | 98 |
| 0 employees (registered) | 2,100 | 2 | 391 |
| 1 | 1,340 | 3 | 123 |
| 2-4 | 8,160 | 27 | 1,204 |
| 5-9 | 4,685 | 31 | 1,369 |
| 10-19 | 2,595 | 35 | 1,698 |
| 20-49 | 1,545 | 46 | 2,496 |
| 50-99 | 440 | 30 | 1,722 |
| 100-199 | 190 | 26 | 1,469 |
| 200-249 | 35 | 8 | 483 |
| 250-499 | 70 | 24 | 1,410 |
| Over 500 employees | 80 | 204 | 9,566 |

| | | | |
|---|---|---|---|
| All businesses | 24,230 | 441 | 22,027 |
| All employers | 19,140 | 435 | 21,539 |
| Micro (excluding unregistered) | 16,285 | 63 | 3,087 |
| Micro (inc. unregistered) | 19,275 | 67 | 3,185 |
| Small | 4,140 | 81 | 4,194 |
| Medium | 665 | 64 | 3,674 |
| **All SMEs** | **24,080** | **212** | **11,053** |
| **SME: Proportion of all businesses** | **99.4%** | **48.1%** | **50.2%** |

## Industry Sector J: Information and Communication

| Business Size Group | Number of businesses | Employment (thousands) | Turnover (£ millions) |
|---|---|---|---|
| 0 employees (unregistered) | 34,670 | 40 | 1,425 |
| 0 employees (registered) | 37,510 | 38 | 6,222 |
| 1 | 255 | 1 | 43 |
| 2-4 | 13,815 | 33 | 3,980 |
| 5-9 | 2,820 | 19 | 3,203 |
| 10-19 | 1,575 | 21 | 3,997 |
| 20-49 | 1,020 | 31 | 11,022 |
| 50-99 | 380 | 26 | 6,596 |
| 100-199 | 180 | 25 | 7,048 |
| 200-249 | 35 | 7 | 1,213 |
| 250-499 | 60 | 21 | 5,576 |
| Over 500 employees | 75 | 206 | 50,229 |

| | | | |
|---|---|---|---|
| All businesses | 92,395 | 468 | 100,554 |
| All employers | 20,215 | 390 | 92,907 |
| Micro (excluding unregistered) | 54,400 | 91 | 13,448 |
| Micro (inc. unregistered) | 89,070 | 131 | 14,873 |
| Small | 2,595 | 52 | 15,019 |
| Medium | 595 | 58 | 14,857 |
| **All SMEs** | **92,260** | **241** | **44,749** |
| **SME: Proportion of all businesses** | **99.9%** | **51.5%** | **44.5%** |

## Industry Sector K: Financial and Insurance Activities

| Business Size Group | Number of businesses | Employment (thousands) | Turnover (£ millions) |
|---|---|---|---|
| 0 employees (unregistered) | 7,000 | 15 | - |
| 0 employees (registered) | 6,155 | 4 | - |
| 1 | 110 | 0 | - |
| 2-4 | 2,555 | 7 | - |
| 5-9 | 1,225 | 8 | - |
| 10-19 | 755 | 10 | - |
| 20-49 | 495 | 16 | - |
| 50-99 | 235 | 17 | - |
| 100-199 | 155 | 22 | - |
| 200-249 | 35 | 8 | - |
| 250-499 | 75 | 26 | - |
| Over 500 employees | 90 | 266 | - |

| | | | |
|---|---|---|---|
| All businesses | 18,885 | 400 | - |
| All employers | 5,730 | 381 | - |
| Micro (excluding unregistered) | 10,045 | 19 | - |
| Micro (inc. unregistered) | 17,045 | 34 | - |
| Small | 1,250 | 26 | - |
| Medium | 425 | 47 | - |
| **All SMEs** | **18,720** | **107** | **-** |
| **SME: Proportion of all businesses** | **99.1%** | **26.8%** | **-** |

## Industry Sector M: Professional, scientific and technical activities

| Business Size Group | Number of businesses | Employment (thousands) | Turnover (£ millions) |
|---|---|---|---|
| 0 employees (unregistered) | 70,850 | 81 | 4,612 |
| 0 employees (registered) | 64,240 | 66 | 11,856 |
| 1 | 3,740 | 8 | 668 |
| 2-4 | 23,520 | 62 | 7,495 |
| 5-9 | 6,825 | 46 | 6,709 |
| 10-19 | 3,415 | 47 | 6,789 |
| 20-49 | 1,710 | 53 | 9,491 |
| 50-99 | 565 | 40 | 6,583 |
| 100-199 | 250 | 36 | 6,610 |
| 200-249 | 65 | 15 | 3,575 |
| 250-499 | 120 | 43 | 9,145 |
| Over 500 employees | 95 | 155 | 27,797 |

| | | | |
|---|---|---|---|
| All businesses | 175,395 | 652 | 101,331 |
| All employers | 40,305 | 505 | 84,862 |
| Micro (excluding unregistered) | 98,325 | 182 | 26,728 |
| Micro (inc. unregistered) | 169,175 | 263 | 31,340 |
| Small | 5,125 | 100 | 16,280 |
| Medium | 880 | 91 | 16,768 |
| **All SMEs** | **175,180** | **454** | **64,388** |
| **SME: Proportion of all businesses** | **99.9%** | **69.9%** | **63.5%** |

## Industry Sector N: Administrative and Support Services

| Business Size Group | Number of businesses | Employment (thousands) | Turnover (£ millions) |
|---|---|---|---|
| 0 employees (unregistered) | 41,985 | 45 | 1,539 |
| 0 employees (registered) | 20,940 | 22 | 3,831 |
| 1 | 3,240 | 7 | 809 |
| 2-4 | 10,400 | 29 | 6,601 |
| 5-9 | 3,565 | 24 | 4,703 |
| 10-19 | 2,010 | 27 | 4,479 |
| 20-49 | 1,125 | 35 | 6,534 |
| 50-99 | 510 | 36 | 6,899 |
| 100-199 | 225 | 31 | 3,241 |
| 200-249 | 70 | 15 | 3,386 |
| 250-499 | 135 | 47 | 4,976 |
| Over 500 employees | 115 | 325 | 20,992 |

| | | | |
|---|---|---|---|
| All businesses | 84,320 | 641 | 67,990 |
| All employers | 21,395 | 574 | 62,619 |
| Micro (excluding unregistered) | 38,145 | 82 | 15,944 |
| Micro (inc. unregistered) | 80,130 | 127 | 17,483 |
| Small | 3,135 | 62 | 11,013 |
| Medium | 805 | 82 | 13,526 |
| **All SMEs** | **84,070** | **271** | **42,022** |
| **SME: Proportion of all businesses** | **99.7%** | **42.3%** | **61.8%** |

## Industry Sector R: Arts, entertainment and recreation

| Business Size Group | Number of businesses | Employment (thousands) | Turnover (£ millions) |
|---|---|---|---|
| 0 employees (unregistered) | 61,880 | 65 | 2,381 |
| 0 employees (registered) | 9,940 | 11 | 1,353 |
| 1 | 610 | * | * |
| 2-4 | 2,990 | 8 | 1,003 |
| 5-9 | 945 | 6 | 859 |
| 10-19 | 520 | 7 | 787 |
| 20-49 | 185 | 6 | 613 |
| 50-99 | 85 | 6 | * |
| 100-199 | 30 | * | 1,662 |
| 200-249 | 5 | * | * |
| 250-499 | 20 | 7 | 993 |
| Over 500 employees | 20 | 49 | 32,977 |

| | | | |
|---|---|---|---|
| All businesses | 77,230 | 170 | 43,492 |
| All employers | 5,410 | 95 | 39,758 |
| Micro (excluding unregistered) | 14,485 | * | * |
| Micro (inc. unregistered) | 76,365 | * | * |
| Small | 705 | 13 | 1,400 |
| Medium | 120 | * | * |
| **All SMEs** | **77,190** | **(114)** | **(9,522)** |
| **SME: Proportion of all businesses** | **99.9%** | **(67.1%)** | **(21.9%)** |

Note: * = that data are not statistically significant, i.e. data not available. Data in brackets are calculated given available data

# Appendix 5.2: Detailed analysis of business churn in London

| Sector | 1998-2001 | 2001-2004 | 2004-2007 |
|---|---|---|---|
| Science/Tech | 12.2% | 13.7% | 13.0% |
| Creative Industries | 11.3% | 14.6% | 12.9% |
| Construction | 11.2% | 12.2% | 14.2% |
| Manufacturing | 10.6% | 10.7% | 9.4% |
| Retail Trade | 11.2% | 10.2% | 9.2% |
| Transportation and storage | 11.0% | 11.4% | 10.6% |
| Accommodation and food service activities | 10.8% | 10.7% | 10.0% |
| Information and communication | 14.5% | 18.4% | 16.7% |
| Financial and insurance activities | 10.4% | 10.1% | 9.6% |
| Real estate activities | 8.9% | 9.7% | 10.2% |
| Professional, scientific and technical activities | 12.3% | 14.0% | 13.8% |
| Administrative and support service activities | 15.9% | 18.6% | 15.6% |
| Public administration and defence | 15.4% | 8.9% | 7.0% |
| Education | 9.3% | 8.5% | 8.9% |
| Human health and social work activities | 9.9% | 8.7% | 10.4% |
| Arts, entertainment and recreation | 10.4% | 12.5% | 10.0% |
| Other services activities | 12.0% | 10.2% | 9.9% |

| Sector | 2007-2008 | 2008-2009 | 2009-2010 |
|---|---|---|---|
| Science/Tech | 17.5% | 21.4% | 20.8% |
| Creative Industries | 19.0% | 23.0% | 21.2% |
| Construction | 15.7% | 21.6% | 19.8% |
| Manufacturing | 13.6% | 17.1% | 16.5% |
| Retail Trade | 14.3% | 17.7% | 20.5% |
| Transportation and storage | 16.7% | 18.0% | 18.9% |
| Accommodation and food service activities | 16.2% | 18.6% | 19.7% |
| Information and communication | 21.7% | 25.2% | 24.2% |
| Financial and insurance activities | 15.9% | 15.0% | 13.2% |
| Real estate activities | 20.3% | 13.4% | 9.2% |
| Professional, scientific and technical activities | 18.8% | 20.7% | 22.0% |
| Administrative and support service activities | 21.0% | 31.3% | 23.3% |
| Public administration and defence | 13.4% | 15.3% | 10.2% |
| Education | 13.3% | 15.7% | 15.5% |
| Human health and social work activities | 13.1% | 20.2% | 18.5% |
| Arts, entertainment and recreation | 20.0% | 18.0% | 15.7% |
| Other services activities | 15.9% | 20.6% | 19.1% |

| Sector | 2010-2011 | 2011-2012 | 2012-2013 |
|---|---|---|---|
| Science/Tech | 19.8% | 20.7% | 19.6% |
| Creative Industries | 19.0% | 20.4% | 18.5% |
| Construction | 16.3% | 22.7% | 23.2% |
| Manufacturing | 18.7% | 18.4% | 15.8% |
| Retail Trade | 23.6% | 23.8% | 19.3% |
| Transportation and storage | 20.5% | 22.7% | 19.1% |
| Accommodation and food service activities | 23.7% | 23.3% | 19.3% |
| Information and communication | 22.2% | 22.2% | 22.1% |
| Financial and insurance activities | 23.4% | 20.2% | 19.6% |
| Real estate activities | 12.0% | 15.0% | 16.2% |
| Professional, scientific and technical activities | 17.9% | 21.3% | 23.0% |
| Administrative and support service activities | 23.6% | 25.3% | 20.7% |
| Public administration and defence | 32.2% | 13.7% | 14.6% |
| Education | 15.4% | 16.8% | 13.5% |
| Human health and social work activities | 26.1% | 24.2% | 29.5% |
| Arts, entertainment and recreation | 17.8% | 22.6% | 19.7% |
| Other services activities | 22.2% | 23.4% | 19.4% |

*Source: TBR*

# Appendix to Chapter 6

## Appendix 6.1: Public transport crowding

Table 6.12 examines train overcrowding at peak times in London and other English and Welsh cities as well as London rail terminals in more detail. These data show that London is more congested than other rail destinations, with most of London's terminals suffering from significant overcrowding.

**Table 6.12: Passengers in excess of capacity (PiXC) by city, 2014, and percentage point change from 2013**

| City | AM Peak (7:00 to 9:59) | | PM Peak (16:00 to 18:59) | | Both Peaks | |
|---|---|---|---|---|---|---|
| | PiXC | Change from 2013 | PiXC | Change from 2013 | PiXC | Change from 2013 |
| Birmingham | 1.6% | 0.8% | 0.8% | -0.1% | 1.2% | 0.4% |
| Bristol | 0.0% | -1.2% | 0.2% | -0.6% | 0.1% | -0.9% |
| Cardiff | 0.5% | -0.4% | 0.5% | 0.1% | 0.5% | -0.1% |
| Leeds | 1.8% | 0.2% | 1.4% | -0.1% | 1.6% | 0.0% |
| Leicester | 1.0% | -0.1% | 2.9% | 2.0% | 2.0% | 1.0% |
| Liverpool | 0.0% | -0.3% | 0.4% | 0.4% | 0.2% | 0.1% |
| Manchester | 4.3% | 1.8% | 2.3% | 1.6% | 3.3% | 1.7% |
| Newcastle | 1.0% | 1.0% | 0.0% | 0.0% | 0.4% | 0.4% |
| Nottingham | 0.2% | 0.2% | 1.0% | 1.0% | 0.6% | 0.6% |
| Sheffield | 1.1% | -2.9% | 0.6% | -0.9% | 0.8% | -1.8% |
| **Total for cities outside London** | **1.7%** | **0.4%** | **1.1%** | **0.4%** | **1.4%** | **0.4%** |
| Blackfriars (via Elephant and Castle) | 10.6% | 0.4% | 3.2% | 1.8% | 7.6% | 0.9% |
| Euston | 3.6% | -0.9% | 4.7% | -0.6% | 4.2% | -0.8% |
| Fenchurch Street | 7.0% | 1.0% | 2.4% | 0.8% | 4.9% | 0.9% |
| King's Cross | 2.7% | 1.3% | 2.8% | 0.8% | 2.7% | 1.0% |
| Liverpool Street[1] | 5.5% | 2.0% | 2.1% | 0.6% | 3.9% | 1.3% |
| London Bridge[2] | 3.1% | 1.0% | 0.5% | 0.0% | 1.9% | 0.5% |
| Marylebone[3] | 4.9% | 1.3% | 2.8% | 1.7% | 3.9% | 1.5% |
| Moorgate | 10.6% | 8.6% | 5.4% | 5.2% | 8.0% | 6.8% |
| Paddington[4] | 13.5% | 3.7% | 6.0% | -2.6% | 10.1% | 0.8% |
| St. Pancras International | 7.2% | 4.0% | 6.6% | 4.9% | 6.9% | 4.4% |
| Victoria[5] | 3.3% | -0.1% | 0.3% | 0.3% | 1.9% | -0.2% |
| Waterloo[6] | 5.5% | 0.5% | 3.6% | 0.6% | 4.6% | 0.6% |
| **London** | **5.4%** | **1.4%** | **2.5%** | **0.6%** | **4.1%** | **1.0%** |
| **Total for all cities** | **4.6%** | **1.2%** | **2.2%** | **0.5%** | **3.5%** | **0.9%** |

*Source: Department for Transport*

Table 6.13 shows the busyness of London stations with, for instance, London Bridge station having nearly double the number of passenger arrivals in a given day than all Birmingham stations combined and over 3.5 times the number of arrivals at the morning peak. It also highlights the lack of seating on a number of trains entering London in relation to the number of passengers on these trains with numbers at some London stations such as Vauxhall (for Waterloo) and London Bridge being particularly unfavourable and shows the capacity constraints some London train services are facing. Finally, the size of train usage in London compared to elsewhere in Britain has also been highlighted by national rail statistics which show that "in 2012/13, 62 per cent of all rail journeys in Great Britain started or finished in London", while in the Greater South East London dominates as a starting point or terminus with "66 per cent of journeys in the South East and 76 per cent in the East of England start[ing] or finish[ing] in London"[7].

**Table 6.13: City centre[8] (London Zone 1) peak and all day arrivals and departures by rail on a typical autumn weekday, by city, 2014**

| | AM peak arrivals (07:00–09:59) | | | PM peak departures (16:00–18:59) | | | All day arrivals | | | All day departures | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of services | Total seats | Passengers | Number of services | Total seats | Passengers | Number of services | Total seats | Passengers | Number of services | Total seats | Passengers |
| Birmingham[9] | 179 | 51,826 | 39,473 | 186 | 51,668 | 40,489 | 960 | 269,019 | 115,769 | 953 | 265,941 | 112,304 |
| Bristol[10] | 52 | 14,349 | 8,036 | 51 | 13,071 | 9,600 | 267 | 70,179 | 28,138 | 259 | 68,251 | 28,461 |
| Cardiff[11] | 114 | 20,453 | 12,423 | 116 | 20,631 | 12,952 | 619 | 109,621 | 34,821 | 621 | 109,259 | 35,778 |
| Leeds | 120 | 29,370 | 25,897 | 123 | 30,444 | 26,885 | 617 | 145,063 | 70,819 | 607 | 143,380 | 70,042 |
| Leicester | 37 | 10,908 | 5,472 | 37 | 10,518 | 6,619 | 202 | 56,551 | 25,641 | 200 | 56,507 | 25,909 |
| Liverpool[12] | 128 | 30,599 | 20,155 | 139 | 30,646 | 21,792 | 712 | 153,095 | 65,832 | 712 | 150,865 | 62,765 |
| London[13] | 1,027 | 566,089 | 563,354 | 1,004 | 546,699 | 475,540 | 4,708 | 2,223,651 | 1,032,610 | 4,727 | 2,210,144 | 1,019,261 |
| Manchester[14] | 186 | 40,625 | 30,907 | 193 | 43,100 | 33,703 | 962 | 207,396 | 92,929 | 961 | 206,919 | 93,217 |
| Newcastle | 34 | 9,863 | 4,447 | 38 | 9,750 | 5,860 | 199 | 54,009 | 22,420 | 195 | 53,318 | 22,517 |
| Nottingham | 34 | 7,084 | 4,287 | 40 | 7,498 | 4,775 | 211 | 43,590 | 14,239 | 208 | 42,271 | 13,977 |
| Sheffield | 58 | 12,049 | 7,224 | 63 | 12,425 | 9,088 | 345 | 67,633 | 30,892 | 345 | 68,613 | 31,829 |
| London by station[15] | | | | | | | | | | | | |
| Elephant and Castle (for Blackfriars) | 34 | 18,655 | 23,211 | 30 | 16,040 | 15,167 | 134 | 71,085 | 32,613 | 134 | 68,737 | 26,257 |
| Euston | 61 | 30,678 | 27,289 | 66 | 32,616 | 26,360 | 318 | 129,336 | 73,304 | 319 | 129,578 | 75,394 |
| Fenchurch Street | 48 | 26,508 | 25,194 | 44 | 25,380 | 21,014 | 172 | 75,294 | 34,641 | 169 | 72,474 | 33,781 |
| King's Cross | 47 | 27,122 | 19,098 | 50 | 27,695 | 17,822 | 220 | 103,673 | 50,000 | 226 | 102,065 | 48,760 |
| Liverpool Street[16] | 153 | 95,383 | 68,545 | 148 | 92,565 | 59,382 | 657 | 351,404 | 106,652 | 643 | 340,145 | 109,160 |
| London Bridge[17] | 200 | 124,710 | 143,343 | 189 | 116,115 | 116,138 | 850 | 451,076 | 229,610 | 871 | 459,481 | 222,175 |
| Marylebone[18] | 44 | 13,824 | 13,793 | 44 | 12,932 | 11,876 | 174 | 44,832 | 24,953 | 180 | 45,456 | 24,818 |
| Old Street (for Moorgate) | 31 | 13,920 | 11,647 | 33 | 14,384 | 11,100 | 113 | 46,168 | 16,687 | 113 | 45,936 | 18,971 |
| Paddington[19] | 65 | 28,207 | 27,034 | 60 | 27,515 | 22,169 | 295 | 116,637 | 67,829 | 293 | 116,519 | 57,644 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Pancras International | 68 | 34,622 | 35,265 | 70 | 34,537 | 31,625 | 342 | 149,045 | 67,556 | 345 | 152,063 | 70,837 |
| Victoria[20] | 125 | 70,217 | 63,040 | 121 | 68,701 | 53,377 | 679 | 323,019 | 124,781 | 681 | 321,924 | 119,388 |
| Vauxhall (for Waterloo) | 151 | 82,243 | 105,896 | 149 | 78,219 | 89,509 | 754 | 362,082 | 203,984 | 753 | 355,766 | 212,075 |
| London total | 1,027 | 566,089 | 563,354 | 1,004 | 546,699 | 475,540 | 4,708 | 2,223,651 | 1,032,610 | 4,727 | 2,210,144 | 1,019,261 |

*Source: Department for Transport*

Table 6.14 examines crowding at London's stations in more detail, looking at the 1 hour and 3 hour am and pm peak based congestion and standing on trains arriving in various cities and individual London stations.

**Table 6.14: Peak crowding on a typical autumn weekday in London by terminal (2014)**

| AM peak arrivals (07:00-09:59)[21] | | Passengers in excess of capacity (PiXC) | | Passengers standing | | Services with PiXC | | Services with passengers standing | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | %[22] | Number | %[23] | Number | %[24] | Number | %[25] |
| Blackfriars (via Elephant and Castle)[26] | 1 hour peak | 2,076 | 17% | 4,530 | 37% | 11 | 79% | 13 | 93% |
| | 3 hour peak | 2,461 | 11% | 6,200 | 27% | 15 | 44% | 24 | 71% |
| Euston | 1 hour peak | 475 | 4% | 1,750 | 15% | 3 | 13% | 11 | 46% |
| | 3 hour peak | 918 | 4% | 3,931 | 16% | 10 | 16% | 27 | 44% |
| Fenchurch Street | 1 hour peak | 1,653 | 10% | 5,467 | 32% | 13 | 68% | 19 | 100% |
| | 3 hour peak | 2,439 | 7% | 9,855 | 28% | 23 | 48% | 43 | 90% |
| King's Cross | 1 hour peak | 419 | 4% | 717 | 7% | 3 | 15% | 5 | 25% |
| | 3 hour peak | 516 | 3% | 1,009 | 5% | 5 | 11% | 10 | 21% |
| Liverpool Street[27] | 1 hour peak | 3,355 | 7% | 9,908 | 21% | 23 | 37% | 43 | 69% |
| | 3 hour peak | 5,280 | 5% | 15,839 | 16% | 39 | 25% | 75 | 47% |
| London Bridge[28] | 1 hour peak | 2,950 | 4% | 22,360 | 32% | 29 | 37% | 66 | 85% |
| | 3 hour peak | 4,375 | 3% | 35,043 | 25% | 43 | 22% | 127 | 64% |
| Marylebone[29] | 1 hour peak | 615 | 9% | 1,018 | 15% | 9 | 60% | 13 | 87% |
| | 3 hour peak | 679 | 5% | 1,384 | 10% | 14 | 32% | 23 | 52% |
| Moorgate | 1 hour peak | 1,556 | 18% | 3,206 | 37% | 9 | 75% | 11 | 92% |
| | 3 hour peak | 1,714 | 11% | 4,371 | 27% | 12 | 39% | 18 | 58% |
| Paddington[30] | 1 hour peak | 1,981 | 16% | 2,868 | 24% | 11 | 46% | 12 | 50% |
| | 3 hour peak | 3,824 | 13% | 5,893 | 21% | 26 | 40% | 29 | 45% |
| St. Pancras International[31] | 1 hour peak | 1,564 | 9% | 4,519 | 25% | 12 | 44% | 19 | 70% |
| | 3 hour peak | 2,668 | 7% | 8,254 | 22% | 21 | 31% | 39 | 57% |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Victoria[32] | 1 hour peak | 1,207 | 3% | 9,601 | 27% | 14 | 31% | 36 | 80% |
| | 3 hour peak | 2,563 | 3% | 16,305 | 21% | 26 | 21% | 74 | 59% |
| Waterloo[33] | 1 hour peak | 3,853 | 8% | 17,909 | 37% | 21 | 38% | 54 | 98% |
| | 3 hour peak | 5,760 | 5% | 30,632 | 29% | 36 | 24% | 122 | 81% |
| London total | 1 hour peak | 21,703 | 7% | 83,854 | 28% | 158 | 40% | 302 | 76% |
| | 3 hour peak | 33,198 | 5% | 138,716 | 22% | 270 | 26% | 611 | 59% |
| PM peak departures (16:00-18:59)[34] | | | | | | | | | |
| Blackfriars (via Elephant and Castle) | 1 hour peak | 459 | 6% | 1,292 | 17% | 6 | 46% | 11 | 85% |
| | 3 hour peak | 505 | 3% | 2,332 | 15% | 10 | 33% | 17 | 57% |
| Euston | 1 hour peak | 554 | 6% | 1,562 | 17% | 4 | 17% | 9 | 39% |
| | 3 hour peak | 1,170 | 5% | 3,381 | 14% | 9 | 14% | 25 | 38% |
| Fenchurch Street | 1 hour peak | 148 | 1% | 2,352 | 16% | 4 | 20% | 16 | 80% |
| | 3 hour peak | 718 | 2% | 5,305 | 18% | 11 | 25% | 34 | 77% |
| King's Cross | 1 hour peak | 9 | 0% | 316 | 4% | 1 | 6% | 5 | 28% |
| | 3 hour peak | 637 | 3% | 1,266 | 6% | 7 | 14% | 15 | 30% |
| Liverpool Street | 1 hour peak | 865 | 2% | 3,318 | 9% | 5 | 8% | 22 | 37% |
| | 3 hour peak | 1,756 | 2% | 7,337 | 9% | 14 | 9% | 51 | 33% |
| London Bridge | 1 hour peak | 107 | 0% | 8,690 | 18% | 3 | 4% | 41 | 60% |
| | 3 hour peak | 551 | 0% | 16,510 | 14% | 9 | 5% | 86 | 45% |
| Marylebone | 1 hour peak | 117 | 3% | 166 | 4% | 3 | 20% | 5 | 33% |
| | 3 hour peak | 342 | 3% | 761 | 6% | 9 | 20% | 17 | 39% |
| Moorgate | 1 hour peak | 718 | 11% | 1,771 | 26% | 5 | 42% | 8 | 67% |
| | 3 hour peak | 871 | 5% | 3,011 | 19% | 8 | 24% | 18 | 55% |
| Paddington | 1 hour peak | 313 | 4% | 879 | 10% | 5 | 23% | 8 | 36% |
| | 3 hour peak | 1,459 | 6% | 3,052 | 13% | 16 | 27% | 22 | 37% |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| St. Pancras International | 1 hour peak | 870 | 7% | 2,051 | 17% | 7 | 27% | 11 | 42% |
| | 3 hour peak | 2,120 | 7% | 5,745 | 18% | 20 | 29% | 32 | 46% |
| Victoria | 1 hour peak | 74 | 0% | 4,180 | 16% | 1 | 2% | 24 | 59% |
| | 3 hour peak | 210 | 0% | 9,136 | 14% | 5 | 4% | 65 | 54% |
| Waterloo | 1 hour peak | 1,918 | 6% | 7,972 | 24% | 15 | 29% | 42 | 81% |
| | 3 hour peak | 3,216 | 4% | 20,052 | 22% | 27 | 18% | 107 | 72% |
| London total | 1 hour peak | 6,151 | 3% | 34,548 | 16% | 59 | 16% | 202 | 55% |
| | 3 hour peak | 13,554 | 3% | 77,887 | 15% | 145 | 14% | 489 | 48% |

*Source: Department for Transport*

## Appendix 6.1 endnotes

1 Figures are based on only one manual count per service. Includes services that terminate at Stratford (AM) and services that start at Stratford (PM).

2 Services to and from Charing Cross and Cannon Street are included in the London Bridge figures.

3 Figures are based on only one manual count per service.

4 Includes Heathrow Connect services.

5 Includes Gatwick Express services.

6 Southeastern services calling at Waterloo East are not included in the Waterloo figures as they are included in the figures at London Bridge.

7 Rail Executive, 15 October 2014, 'Rail Trends, Great Britain 2013/14'.

8 Arrivals and departures at the city centre station. For cities with more than one station in the city centre, arrivals are counted at the first station a service calls at and departures on departure from the last station called at.

9 Moor Street, New Street and Snow Hill.

10 Temple Meads.

11 Cardiff Central and Queen Street.

12 Liverpool Central, Lime Street, Moorfields and James Street.

13 All stations in Zone 1 of the Transport for London (TfL) travelcard area on routes into major terminals.

14 Oxford Road, Piccadilly and Victoria.

15 Central London is defined as all stations in Zone 1 of the Transport for London (TfL) travelcard area on routes into major terminals. The stations listed are the first station on each route within Zone 1. Where this is not a terminal, the terminal on that route is listed in brackets.

16 Figures are based on only one manual count per service.

17 Services to and from Charing Cross and Cannon Street are included in the London Bridge figures.

18 Figures are based on only one manual count per service.

19 Includes Heathrow Connect services.

20 Includes Gatwick Express services.

21 The 3 hour AM peak is between 07:00 and 09:59. The 1 hour AM peak is the high peak hour between 08:00 and 08:59.

22 As a percentage of standard class critical load.

23 As above.

24 As a percentage of total number of services.

25 As above.

26 For Thameslink services travelling through London, arrivals are included in the figures for the first terminal a service calls at and departures in the figures for the last terminal called at.

27 Figures are based on only one manual count per service. Includes services that terminate at Stratford (AM) and services that start at Stratford (PM).

28 For Thameslink services travelling through London, arrivals are included in the figures for the first terminal a service calls at and departures in the figures for the last terminal called at. Services to and from Charing Cross and Cannon Street are included in the London Bridge figures.

29 Figures are based on only one manual count per service.

30 Includes Heathrow Connect services.

31 For Thameslink services travelling through London, arrivals are included in the figures for the first terminal a service calls at and departures in the figures for the last terminal called at.

32 Includes Gatwick Express services.

33 Southeastern services calling at Waterloo East are not included in the Waterloo figures as they are included in the figures at London Bridge.

34 The 3 hour PM peak is between 16:00 and 18:59. The 1 hour PM peak is the high peak hour between 17:00 and 17:59.

# Appendix to Chapter 8

## Appendix 8.1: The impact of migration

As noted earlier, people from across the world have migrated to London to work, to study and to be with other members of their family. More recently, there has been some debate as to the overall impact of migration on the UK. The main points focus around the labour market, businesses, the Exchequer and local services including housing and schools, though other impacts include culture and international relations (these are not discussed in any great detail here). This appendix brings together some of the existing evidence and research on the matter and, although these findings may potentially differ in the future particularly as a result of the EU Referendum result, is based on the available information to date.

### Labour market

Migrants from the EEA who are resident in London had a higher employment rate (80.3 per cent) in 2015 than the UK-born population (74.4 per cent) as shown in Table 8.5. This is in line with the reasons for international migration discussed in Chapter 5; the main reason for coming to the UK cited by all migrants in all but three years since 1995 were work related and reflects the employment opportunities and wages in the UK/London compared with their previous country. Interestingly, the employment rates for migrants were slightly higher for those residents in London than for migrants resident in the UK as a whole.

**Table 8.5: Employment and unemployment rates by country of birth for London and UK residents in 2015, 16-64yrs**

| Country of birth | London | | UK | |
|---|---|---|---|---|
| | Employment rate | Unemployment rate | Employment rate | Unemployment rate |
| UK or British Overseas Territory | 74.4% | 6.4% | 74.0% | 5.2% |
| Rest of the EEA (excluding the UK) | 80.3% | 4.3% | 79.2% | 4.9% |
| All other countries (excluding the UK and EEA) | 67.4% | 6.6% | 66.3% | 7.2% |

*Source: ONS Annual Population Survey*

A common argument against migration is that migrants could reduce the employment chances of UK natives. However, there is a clear consensus in the literature that this is not the case[1]. This, in part, can be due to migrants consuming goods and services themselves, which increases demand and also the number of jobs that produces these goods and services. Nevertheless, some studies have found an impact on wages at the lower end of the wage distribution, but the magnitude of this impact is disputed[2]. For example, the Centre for European Reform reported that immigration from the EU between 2004 and 2015 has reduced wages of low-skilled service workers, but the effect was very small[3]. Similarly, Nickell & Saleheen also found a small negative impact of immigration on wages, particularly for semi or unskilled occupations[4]. In contrast, Dustmann et al. found an increase in average wages as migration increased over the 1997 to 2005 period, though this in part was due to a gain for medium and high-paid workers outweighing a decrease for low-paid workers[5]. It

should be noted, however, that Wadsworth et al. suggested that these results from all three studies were overstated and the overall effect was close to zero[6]. Metcalf[7] highlights that whilst one of the potential costs of low skilled migration is a 'small negative impact on wages of low paid workers' overall low skilled migrants had a neutral impact on UK-born employment rates, fiscal contribution, GDP per head and productivity. It should be noted, however, that all these studies look at the impact at the UK level and trends may be different within London.

## Education

On average, migrants are better educated than those born in the UK[8]. This can be seen in Table 8.6 which shows the percentage of jobs by highest qualification and country of birth for the UK. For example, 41.3 per cent of those born in the UK have higher education and above, though this rises to 46.5 per cent for those born elsewhere in the EEA and 57.5 per cent for those born in any other country. Indeed, these figures may underestimate the level of qualifications or skills for migrants given the high proportion of 'other qualifications' held by that group.

**Table 8.6: Share of jobs in the UK by highest qualification and country of birth of job holder in 2015**

| Highest qualification | Born in the UK | Born elsewhere in the EEA (excluding the UK) | Born in any other country (excluding the UK/EEA) |
|---|---|---|---|
| Higher degree | 9.8% | 15.3% | 19.7% |
| Ordinary degree or equivalent | 21.4% | 22.3% | 28.2% |
| Higher education | 10.1% | 8.9% | 9.6% |
| GCE, A level or equivalent | 25.1% | 13.1% | 11.5% |
| GCSE grades A*-C or equivalent | 22.1% | 7.8% | 7.8% |
| Other qualifications | 6.3% | 25.6% | 15.8% |
| No qualifications | 5.3% | 7.1% | 7.4% |
| **Total** | **100.0%** | **100.0%** | **100.0%** |

*Note: the Workforce Jobs series is the preferred measure of jobs, but the Annual Population Survey is used here for its individual-level information such as country of birth and educational qualification.*
*Source: ONS Annual Population Survey*

This distinction is not as clear cut when looking at jobs in London (Table 8.7). The percentage of jobs with higher education or above was 58.2 per cent for those born in the UK, but this was slightly lower at 57 per cent for the EEA. However, as noted earlier, migrants tend to have a much higher proportion of 'other qualifications' which potentially clouds the situation on skills.

**Table 8.7: Share of jobs in London by highest qualification and country of birth of job holder in 2015**

| Highest qualification | Born in the UK | Born elsewhere in the EEA (excluding the UK) | Born in any other country (excluding the UK/EEA) |
|---|---|---|---|
| Higher degree | 16.9% | 21.2% | 20.4% |
| Ordinary degree or equivalent | 34.6% | 27.1% | 29.9% |
| Higher education | 6.7% | 8.7% | 10.0% |
| GCE, A level or equivalent | 18.8% | 12.3% | 10.8% |
| GCSE grades A*-C or equivalent | 15.7% | 5.2% | 7.0% |
| Other qualifications | 4.2% | 20.3% | 16.1% |
| No qualifications | 3.1% | 5.2% | 5.8% |
| **Total** | **100.0%** | **100.0%** | **100.0%** |

Note: the Workforce Jobs series is the preferred measure of jobs, but the Annual Population Survey is used here for its individual-level information such as country of birth and educational qualification.
Source: ONS Annual Population Survey

## Businesses

Research by the Department for Business, Innovation & Skills (BIS) found that businesses largely held a positive view of the impact of migrant employees[9]. Firms noted that migrant workers typically brought more knowledge and skills than would otherwise have been the case from a domestic worker. Moreover, given cultural differences, migrants bring new ideas and processes that can lead to the upskilling of colleagues and increase productivity[10]. Nevertheless, businesses also reported challenges associated with the integration of migrants and language.

Migrants could also play an important part in leading and creating new businesses. However, the only data that is available – the BIS Small Business Survey – looks at the proportion of small and medium enterprises (SMEs) in the UK that were led by someone belonging to a minority ethnic group which is not the same as being born outside of the UK. Acknowledging this, the survey showed that 6 per cent of SMEs in the UK were minority ethnic led in 2014[11]. This was higher when solely looking at start-ups (12 per cent). Altogether it was estimated that there were 300,000 minority ethnic group led SMEs in the UK which contributed £30bn in GVA to the UK's non-financial business economy. No regional data is available for the latest survey, but it was reported that 28 per cent of SMEs in London were minority ethnic led in 2010 – that was above the UK average of 8 per cent in the same year and the highest of all UK regions[12]. Other research by the GLA using the 2006 London Annual Business Survey similarly showed that 21 per cent of social enterprises and 20 per cent of non-social enterprises in London were owned by people belonging to other ethnic groups besides White British in 2006[13].

Moreover, a survey conducted in 2005 by the then Department for Trade and Industry showed that people born in East Europe (followed by those born in the Middle East, West Africa and South America) were the most likely to have already done or are thinking about starting a business as shown in Figure 8.42. In fact, levels of entrepreneurship were higher than people born in the UK for almost all other world regions with the exceptions of West Europe and North America.

**Figure 8.42: Proportion of population that have or are thinking about starting a business by region of birth for England in 2005**
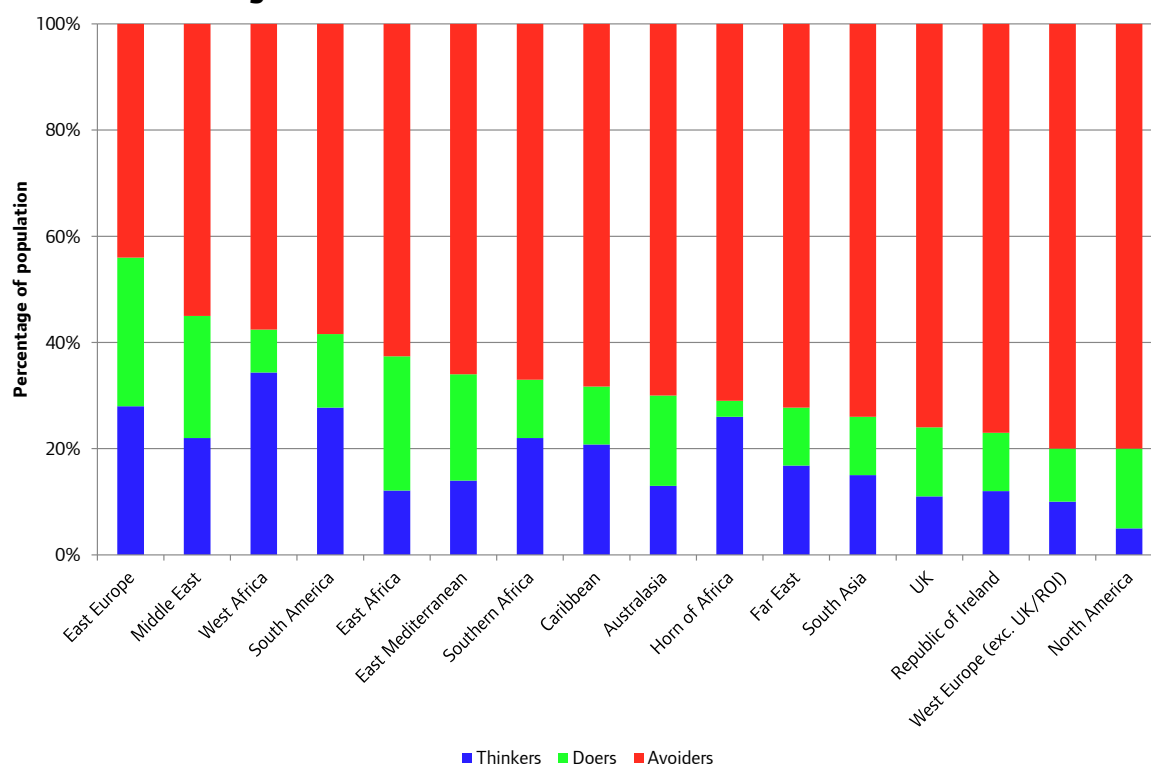


Source: Department for Trade and Industry Household Survey of Entrepreneurship 2005

A report by Latin Elephant[14] further suggests that minority ethnic groups led businesses and, particularly clusters of these firms, can help support the local economy by providing greater employment opportunities for ethnic minorities for example.

## Exchequer

The fiscal impact of migration is the difference between the costs of the services and benefits they receive and the taxes and other public finance contributions they make. The Migration Observatory summarised the existing literature of the fiscal impact of migration, but noted that estimates are *"limited because of a lack of data and accurate information about a wide range of important factors. For this and other reasons, a significant number of assumptions must be made in order to estimate the fiscal effects of immigration, and results tend to change based on these assumptions"*[15].

Acknowledging this uncertainty, the Migration Observatory concluded that the fiscal impact is small – around +/- 1 per cent of UK GDP – meaning that the tax contribution that foreign-born individuals make is broadly in line with the cost of the services they receive[16]. For example, Dustmann & Frattini estimated that the net fiscal impact of immigration from EEA countries was +£8.8bn between 1995 and 2011, which compared with a net fiscal impact of -£604.5bn for those born in the UK[17]. The authors partly linked this to immigrants receiving less tax credits and benefits than natives. Meanwhile, other estimates by MigrationWatch UK that uses a different set of assumptions suggests that the net fiscal impact of EEA migrants over the same period was instead –£13.6bn[18].

Whilst this general finding provides for the average effect, the impact may well vary depending on the group considered and the time of arrival for example. Table 8.8 shows the estimates of the net fiscal impact of migrants from a number of studies though, as noted above, these are subject to some uncertainty as results can vary depending on the assumptions made. Positive numbers suggest a net fiscal contribution over the time period as a whole shown in the first column; negative numbers suggest that costs were greater than tax contributions. Overall, the studies suggest that the

fiscal effect of recent migrants (whether positive or negative) was generally better than non-recent migrants, and similarly EEA migrants over non-EEA migrants.

**Table 8.8: Estimates of the fiscal effects of immigration for the UK over various time periods, constant 2011 prices**

| Time period | All migrants | | Recent migrants | |
|---|---|---|---|---|
| | EEA | Non-EEA | EEA | Non-EEA |
| **Dustmann & Frattini (2013)** <br> The fiscal effects of immigration to the UK, Centre for Research and Analysis of Migration, discussion paper series no 22/13. | | | | |
| 1995-2011 | + £8.8bn | - £104.1bn | | |
| 2001-2011 | + £9.0bn | - £86.8bn | + £22.1bn | + £2.9bn |
| **Dustmann & Frattini (2014)** <br> The fiscal effects of immigration to the UK, *The Economic Journal*, 124, pg.583-643. | | | | |
| 1995-2011 | + £4.4bn | - £118.0bn | | |
| 2001-2011 | | | | + £5.2bn |
| **MigrationWatch UK (2014)** <br> An assessment of the fiscal effects of immigration to the UK. | | | | |
| 1995-2011 | - £13.6bn | - £134.9bn | | |
| 2001-2011 | - £13.4bn | - £116.8bn | - £0.25bn | - £27.17bn |
| **Rawthorn (2014)** <br> Large scale immigration: its economic and demographic consequences for the UK, Civitas. | | | | |
| 2001-2011 | | | - £0.3bn | - £29.7bn |

Note: the figures shown in this table are the cumulative fiscal effect over the specified time period. Source: See table. Taken from: Vargas-Silva (2015)

A separate study by the OECD found similar conclusions in that the overall fiscal impact is small[19].

## Local services

A related point is whether migration has an effect on local services such as the availability of healthcare, schools or housing for example. In terms of the propensity to use services and focussing on the NHS, Wadsworth found that the use of hospitals and GP services was broadly the same for immigrants and native born populations[20]. Similarly, Steventon & Bardsley also found no evidence that immigrants use elective or emergency care more than the UK-born population[21]. Moreover, Giuntella et al. found no evidence that immigration increases waiting times in A&E and elective care, though they observed an increase in waiting times for outpatients in more deprived areas outside of London[22].

Looking at housing, there is little and conflicting evidence to inform on whether this impact is positive or negative or the magnitude of this effect. Economic theory would suggest that an increase in demand for housing (for example) would result in higher prices and rents, though the overall effect would partly be dependent on the responsiveness of housing supply. A study looking at the impact of international migration on house prices between 2003 and 2008, finds that price effects are only modest. This is in part due to lower demand for housing among migrants, as well as the offsetting effects of prices on rates of household formation and outflows of domestic residents[23]. In contrast, Sá found that a 1 per cent increase in the migrant population resulted in a reduction in house prices by 1.6 per cent[24]. The author suggested that this dynamic was – like above – due to the offsetting effect of UK-born residents moving out of the area as migrant concentration increases which has a downward effect on prices.

In terms of social housing, the Migration Observatory reported that the percentage of migrants living in social housing (18 per cent) was broadly in line with the native population (17 per cent). However, Battiston et al. suggests that once relevant household characteristics (such as number of children and number of adults in work) are accounted for migrants are significantly less likely to be in social housing than the UK-born population[25].

## Appendix to Chapter 8 endnotes

1 Home Office and Department for Business, Innovation & Skills (2014). Impacts of migration o UK native employment: an analytical review of the evidence.

2 Vargas-Silva, C & Markaki, Y & Sumption, M (2016). The impacts of international migration on poverty in the UK, Joseph Rowntree Foundation.

3 Centre for European Reform (2016). The economic consequences of leaving the EU.

4 Nickell, S & Saleheen, J (2015). The impact of immigration on occupational wages: evidence from Britain, *Bank of England staff working papers,* 574.

5 Dustmann, C et al. (2013). The effect of immigration along the distribution of wages, *Review of Economic Studies*, 80, 1, pg.145-173.

6 Wadsworth, J et al. (2016). Brexit and the impact of immigration on the UK, LSE Centre for Economic Performance.

7 Work Immigration and the Labour Market, Incorporating the role of the Migration Advisory Committee, David Metcalf Chair, Migration Advisory Committee and London School of Economics, June 2016 (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/547697/MAC-_report_immigration_and_the_labour_market.pdf)

8 The data used in this section is from the ONS Annual Population Survey and refers to the number of jobs in 2014. Therefore, it is not comparable with the data used in the country of birth section of Chapter 8, which alternatively uses the ONS 2011 Census and refers to the number of residents in 2011.

9 BIS (2015). The impact of migrant workers on UK businesses, BIS Research Paper 217, February 2015.

10 An increase in productivity could lead to an increase in wages and partly explain why immigration does not have a significant impact on wages.

11 Department for Business, Innovation and Skills (2015). Small business survey 2014: businesses led by women and ethnic minorities.

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15 Vargas-Silva, C (2015). The fiscal impact of immigration in the UK, The Migration Observatory, Briefing, Revision 3.

16 Ibid

17 Dustmann, C & Frattini, T (2013). The fiscal effects of immigration to the UK, Centre for Research and Analysis of Migration, discussion paper series no 22/13.

18 MigrationWatch UK (2014). An assessment of the fiscal effects of immigration to the UK.

19 OECD (2013). International migration outlook 2013: the fiscal impact of immigration in OECD countries. Available at: http://www.oecd-ilibrary.org/social-issues-migration-health/international-migration-outlook-2013/the-fiscal-impact-of-immigration-in-oecd-countries_migr_outlook-2013-6-en

20 Wadsworth, J (2013). Mustn't grumble: immigration, health and health service use in the UK and Germany, *Fiscal Studies*, 34, 1, pg.55-82.

21 Steventon, A & Bardsley, M (2011). Use of secondary care in England by international immigrants, *Journal of Health Services Research and Policy*, 16, pg.90-94.

22 Giuntella, O et al. (2015). The effects of immigration on NHS waiting times, University of Oxford working paper. Available at: https://www.nuffield.ox.ac.uk/economics/papers/2015/giunt_nic_silva2015.pdf

23 Meen, G (2012). The adjustment of housing markets to migration change: lessons from modern history, *Scottish Journal of Political Economy*, 59, 5.

24 Sá, F (2015). Immigration and house prices in the UK, *The Economic Journal*, 125, 587, pg.1393-1424.

25 Battiston, D et al. (2014). Immigration and the access to social housing in the UK, CEP discussion paper no 1264. Available at: http://cep.lse.ac.uk/pubs/download/dp1264.pdf

# Appendices to Chapter 9

## Appendix 9.1: Headline labour market statistics for London boroughs

This appendix presents the economic activity, employment and unemployment rates for the London boroughs for 2005 to 2015.

**Table 9.28: Economic activity rates by borough, residents aged 16-64 years, 2005 to 2015**

| Borough | 2005 | 2007 | 2009 | 2011 | 2013 | 2015 |
|---|---|---|---|---|---|---|
| Barking & Dagenham | 69.0% | 72.3% | 71.1% | 71.4% | 74.7% | 73.9% |
| Barnet | 74.4% | 72.6% | 72.0% | 75.3% | 76.7% | 75.3% |
| Bexley | 79.5% | 77.3% | 75.7% | 76.8% | 79.8% | 81.3% |
| Brent | 71.6% | 75.4% | 75.6% | 69.2% | 75.3% | 75.1% |
| Bromley | 82.8% | 83.0% | 79.8% | 78.1% | 80.2% | 79.9% |
| Camden | 69.6% | 71.7% | 71.4% | 67.1% | 68.6% | 72.2% |
| City of London | 77.7% | 88.9%* | 81.6%* | 74.0%* | 65.8%* | 65.4%* |
| Croydon | 79.3% | 78.1% | 79.6% | 75.4% | 80.5% | 78.8% |
| Ealing | 72.9% | 72.7% | 73.7% | 75.9% | 74.4% | 77.4% |
| Enfield | 74.1% | 69.5% | 67.9% | 73.8% | 72.8% | 75.5% |
| Greenwich | 74.4% | 74.8% | 70.8% | 76.1% | 72.4% | 78.7% |
| Hackney | 59.4% | 70.7% | 75.5% | 72.8% | 70.3% | 73.3% |
| Hammersmith & Fulham | 75.6% | 76.4% | 73.7% | 72.1% | 75.4% | 81.4% |
| Haringey | 71.5% | 70.7% | 67.8% | 73.7% | 74.9% | 75.8% |
| Harrow | 75.5% | 77.0% | 78.9% | 78.6% | 75.3% | 77.6% |
| Havering | 77.6% | 79.2% | 77.7% | 80.2% | 77.1% | 80.6% |
| Hillingdon | 75.7% | 69.1% | 78.3% | 76.2% | 77.2% | 77.8% |
| Hounslow | 77.6% | 73.1% | 77.5% | 78.0% | 80.3% | 77.7% |
| Islington | 67.2% | 74.0% | 73.3% | 75.6% | 75.4% | 76.4% |
| Kensington & Chelsea | 70.6% | 69.7% | 67.9% | 67.1% | 70.5% | 71.5% |
| Kingston-upon-Thames | 77.1% | 74.6% | 78.4% | 74.1% | 78.8% | 77.8% |
| Lambeth | 72.8% | 75.6% | 81.3% | 81.8% | 84.7% | 83.7% |
| Lewisham | 76.6% | 75.1% | 78.0% | 74.0% | 79.9% | 80.6% |
| Merton | 76.1% | 81.4% | 78.8% | 77.9% | 80.1% | 82.5% |
| Newham | 61.6% | 64.0% | 65.3% | 64.5% | 70.5% | 72.7% |
| Redbridge | 69.1% | 70.4% | 72.6% | 70.3% | 75.2% | 74.4% |
| Richmond-upon-Thames | 78.6% | 80.7% | 78.4% | 77.5% | 80.2% | 82.8% |
| Southwark | 68.9% | 71.0% | 74.6% | 72.0% | 73.1% | 80.7% |
| Sutton | 82.4% | 80.4% | 81.2% | 79.8% | 83.2% | 82.6% |
| Tower Hamlets | 65.4% | 62.9% | 70.0% | 69.4% | 73.2% | 77.4% |

| | | | | | |
|---|---|---|---|---|---|
| Waltham Forest | 72.4% | 71.6% | 71.7% | 76.2% | 76.6% | 77.2% |
| Wandsworth | 77.5% | 78.9% | 82.5% | 81.3% | 82.1% | 83.3% |
| Westminster | 69.4% | 67.0% | 72.6% | 68.0% | 71.1% | 72.5% |
| **London** | **73.4%** | **73.7%** | **74.9%** | **74.4%** | **76.3%** | **77.7%** |

*Note: January to December periods and has been reweighted in July 2016. Figures that are unreliable due to small sample sizes are shown by "*" and should be used with caution. Figures that are not available due small sizes or disclosure are shown by "!".*

*Source: ONS Annual Population Survey*

## Table 9.29: Employment rates by borough, residents aged 16-64 years, 2005 to 2015

| Borough | 2005 | 2007 | 2009 | 2011 | 2013 | 2015 |
|---|---|---|---|---|---|---|
| Barking & Dagenham | 62.3% | 66.0% | 62.4% | 62.0% | 64.2% | 65.9% |
| Barnet | 69.8% | 69.3% | 67.0% | 69.2% | 72.3% | 68.7% |
| Bexley | 76.4% | 73.9% | 69.4% | 70.9% | 73.2% | 75.2% |
| Brent | 65.3% | 68.4% | 68.8% | 60.6% | 67.1% | 69.6% |
| Bromley | 80.0% | 79.5% | 75.6% | 73.7% | 75.7% | 75.6% |
| Camden | 64.4% | 67.1% | 65.2% | 61.4% | 63.6% | 69.3% |
| City of London | 77.7% | 88.9%* | 63.3%* | ! | ! | 65.4%* |
| Croydon | 73.1% | 72.6% | 71.8% | 66.0% | 73.4% | 75.5% |
| Ealing | 67.0% | 67.9% | 64.4% | 68.0% | 65.4% | 72.9% |
| Enfield | 66.7% | 65.7% | 60.9% | 64.8% | 66.8% | 72.9% |
| Greenwich | 67.5% | 67.8% | 63.5% | 67.7% | 64.4% | 72.4% |
| Hackney | 53.3% | 62.1% | 68.2% | 67.0% | 62.6% | 69.0% |
| Hammersmith & Fulham | 70.2% | 70.2% | 67.0% | 66.7% | 70.9% | 77.6% |
| Haringey | 66.5% | 64.7% | 59.8% | 65.7% | 68.4% | 71.5% |
| Harrow | 70.9% | 73.4% | 71.4% | 73.4% | 67.9% | 74.0% |
| Havering | 73.2% | 76.6% | 71.2% | 73.9% | 70.7% | 76.4% |
| Hillingdon | 69.3% | 65.2% | 72.3% | 69.5% | 70.6% | 73.4% |
| Hounslow | 72.8% | 69.7% | 70.4% | 72.4% | 74.1% | 74.3% |
| Islington | 63.4% | 68.4% | 65.3% | 68.0% | 68.5% | 72.9% |
| Kensington & Chelsea | 65.6% | 66.3% | 62.8% | 62.6% | 65.5% | 68.3% |
| Kingston-upon-Thames | 72.5% | 72.7% | 74.1% | 67.9% | 73.9% | 74.2% |
| Lambeth | 65.8% | 67.8% | 72.5% | 72.4% | 78.0% | 78.6% |
| Lewisham | 70.8% | 66.7% | 69.4% | 67.7% | 71.3% | 76.0% |
| Merton | 70.2% | 77.8% | 73.2% | 71.3% | 76.1% | 78.8% |
| Newham | 55.8% | 57.3% | 55.5% | 54.4% | 62.0% | 66.3% |
| Redbridge | 64.8% | 66.1% | 66.9% | 63.0% | 67.1% | 68.4% |
| Richmond-upon-Thames | 76.2% | 77.1% | 74.1% | 74.5% | 77.1% | 79.6% |
| Southwark | 63.5% | 64.9% | 65.7% | 63.3% | 65.0% | 74.4% |
| Sutton | 79.3% | 75.2% | 77.2% | 73.3% | 77.9% | 78.1% |
| Tower Hamlets | 57.3% | 55.5% | 59.5% | 60.0% | 63.2% | 70.4% |
| Waltham Forest | 66.3% | 66.5% | 65.2% | 67.8% | 70.8% | 73.1% |
| Wandsworth | 72.8% | 73.9% | 77.6% | 75.5% | 74.3% | 78.7% |
| Westminster | 63.3% | 62.9% | 66.6% | 62.9% | 66.7% | 65.9% |
| **London** | **68.0%** | **68.6%** | **67.9%** | **67.3%** | **69.5%** | **73.0%** |

*Note: January to December periods and has been reweighted in July 2016. Figures that are unreliable due to small sample sizes are shown by "*" and should be used with caution. Figures that are not available due small sizes or disclosure are shown by "!".*

*Source: ONS Annual Population Survey*

**Table 9.30: Unemployment rates by borough, residents aged 16 years and over, 2005 to 2015**

| Borough | 2005 | 2007 | 2009 | 2011 | 2013 | 2015 |
|---|---|---|---|---|---|---|
| Barking & Dagenham | 9.6% | 8.5% | 12.1% | 13.1% | 14.0% | 11.0% |
| Barnet | 6.3% | 4.5% | 6.6% | 7.9% | 5.5% | 8.4% |
| Bexley | 3.9% | 4.2% | 8.0% | 7.5% | 8.4% | 7.5% |
| Brent | 8.7% | 9.0% | 8.8% | 12.3% | 10.7% | 7.4% |
| Bromley | 3.4% | 4.1% | 5.2% | 5.6% | 5.6% | 5.2% |
| Camden | 7.2% | 6.4% | 8.6% | 8.0% | 7.0% | 3.9% |
| City of London | ! | ! | ! | ! | ! | ! |
| Croydon | 7.7% | 7.1% | 9.9% | 12.2% | 8.6% | 4.1% |
| Ealing | 8.0% | 6.6% | 12.4% | 10.1% | 11.7% | 5.7% |
| Enfield | 9.8% | 5.6% | 10.0% | 12.0% | 8.1% | 3.8% |
| Greenwich | 9.1% | 9.2% | 10.1% | 11.0% | 10.7% | 8.0% |
| Hackney | 10.2% | 12.1% | 9.6% | 8.0% | 10.9% | 5.8% |
| Hammersmith & Fulham | 7.2% | 8.1% | 9.0% | 7.3% | 6.1% | 4.6% |
| Haringey | 6.9% | 8.4% | 11.8% | 11.0% | 8.4% | 5.5% |
| Harrow | 5.8% | 4.6% | 9.9% | 6.5% | 9.6% | 4.5% |
| Havering | 5.5% | 3.2% | 8.1% | 7.8% | 8.4% | 5.2% |
| Hillingdon | 8.3% | 5.6% | 7.6% | 8.5% | 8.4% | 5.7% |
| Hounslow | 6.3% | 4.8% | 9.0% | 7.1% | 7.8% | 4.2% |
| Islington | 5.6% | 7.5% | 10.7% | 9.9% | 9.1% | 4.4% |
| Kensington & Chelsea | 6.8% | 4.7% | 7.3% | 6.8% | 7.2% | 4.1% |
| Kingston-upon-Thames | 5.9% | 3.0% | 5.5% | 8.5% | 6.1% | 4.4% |
| Lambeth | 9.7% | 10.4% | 10.7% | 11.4% | 7.8% | 5.9% |
| Lewisham | 7.6% | 11.0% | 10.9% | 8.8% | 10.6% | 5.7% |
| Merton | 7.6% | 4.6% | 7.1% | 8.4% | 4.8% | 4.5% |
| Newham | 9.3% | 10.4% | 15.0% | 15.5% | 12.0% | 8.9% |
| Redbridge | 6.1% | 5.9% | 7.6% | 10.1% | 10.6% | 7.8% |
| Richmond-upon-Thames | 3.3% | 4.4% | 5.8% | 3.9% | 3.7% | 3.7% |
| Southwark | 7.7% | 8.4% | 11.6% | 12.0% | 11.1% | 7.6% |
| Sutton | 3.9% | 6.3% | 4.8% | 7.8% | 6.3% | 5.5% |
| Tower Hamlets | 12.3% | 11.8% | 14.8% | 13.6% | 13.6% | 8.9% |
| Waltham Forest | 8.4% | 7.1% | 8.8% | 10.8% | 7.5% | 5.3% |
| Wandsworth | 6.0% | 6.3% | 5.8% | 7.3% | 9.3% | 5.8% |
| Westminster | 8.6% | 6.2% | 7.9% | 7.2% | 6.0% | 8.7% |
| **London** | **7.2%** | **6.9%** | **9.2%** | **9.5%** | **8.7%** | **6.1%** |

Note: January to December periods and has been reweighted in July 2016. Figures that are unreliable due to small sample sizes are shown by "*" and should be used with caution. Figures that are not available due small sizes or disclosure are shown by "!".
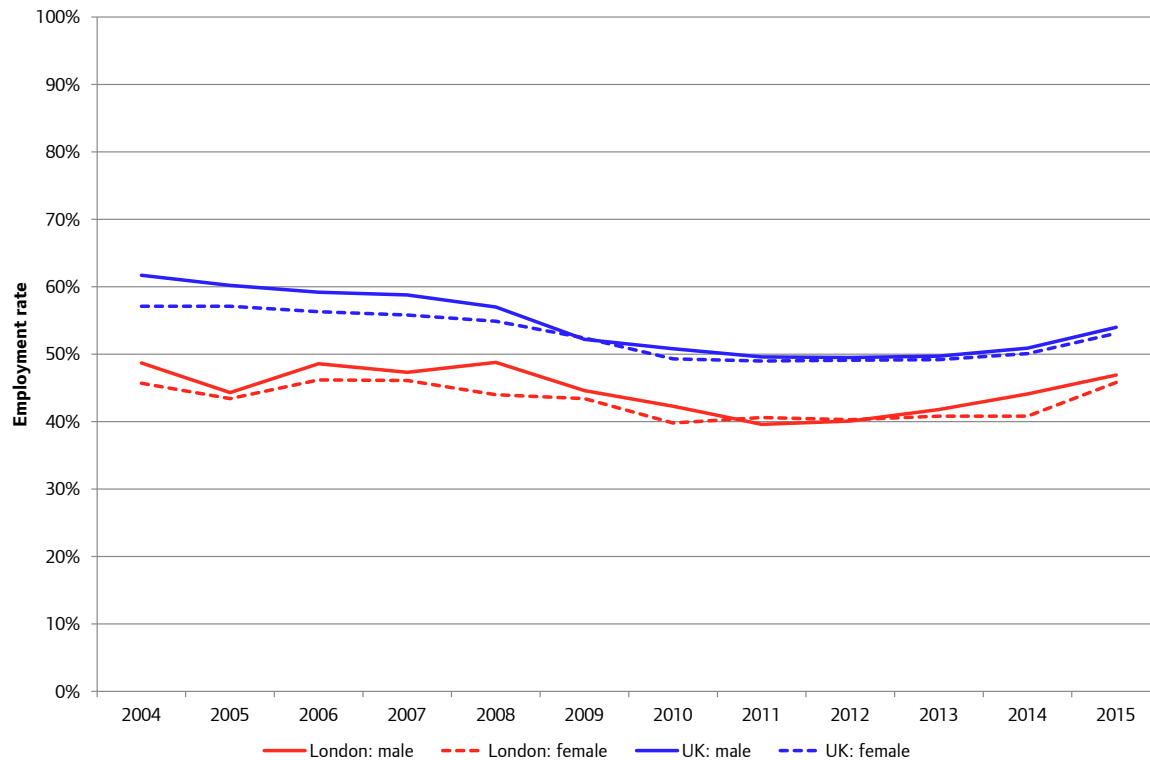
Source: ONS Annual Population Survey

# Appendix 9.2: Employment rates by age groups and gender

This appendix presents the employment rates by age groups for both men and women as well as for London and the UK.

Employment rates for men and women aged 16-24 were broadly similar in London as shown in Figure 9.88 below. Although the same can be said for the UK as a whole, the employment rates were consistently above those for London.
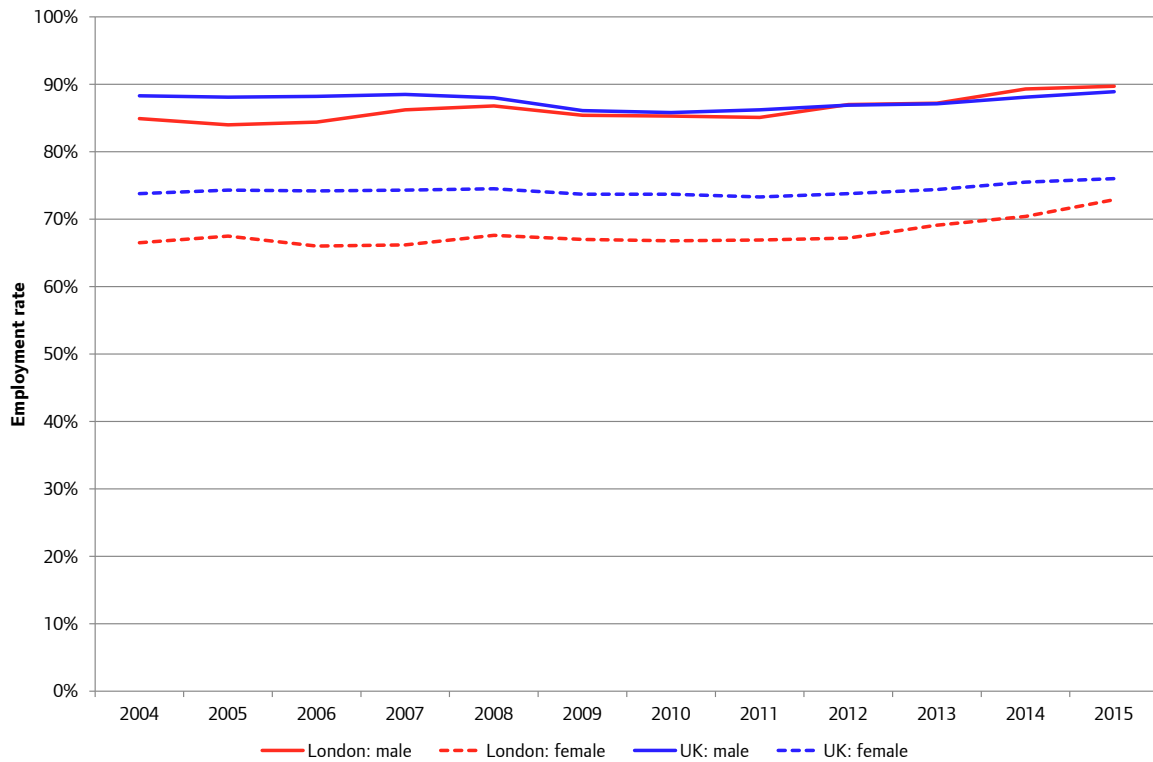
**Figure 9.88: Employment rates for the 16-24 age group by gender for London and the UK, residents, 2004 to 2015**



*Note: January to December periods and has been reweighted in July 2016. Source: ONS Annual Population Survey*

That said, differences between the male and female employment rates were observed for the 25-49 age group (Figure 9.89). For example, 89.7 per cent of men in London were employed in 2015, compared with 72.9 per cent for women. Moreover, whilst the male employment rate for London was similar to the UK, London's female employment rate has been statistically below that for the UK. This gap stood at 3.1 percentage points in 2015. A potential reason for this could be due to women with dependent children having a lower employment rate in London than the rest of the UK as noted in the main paper.

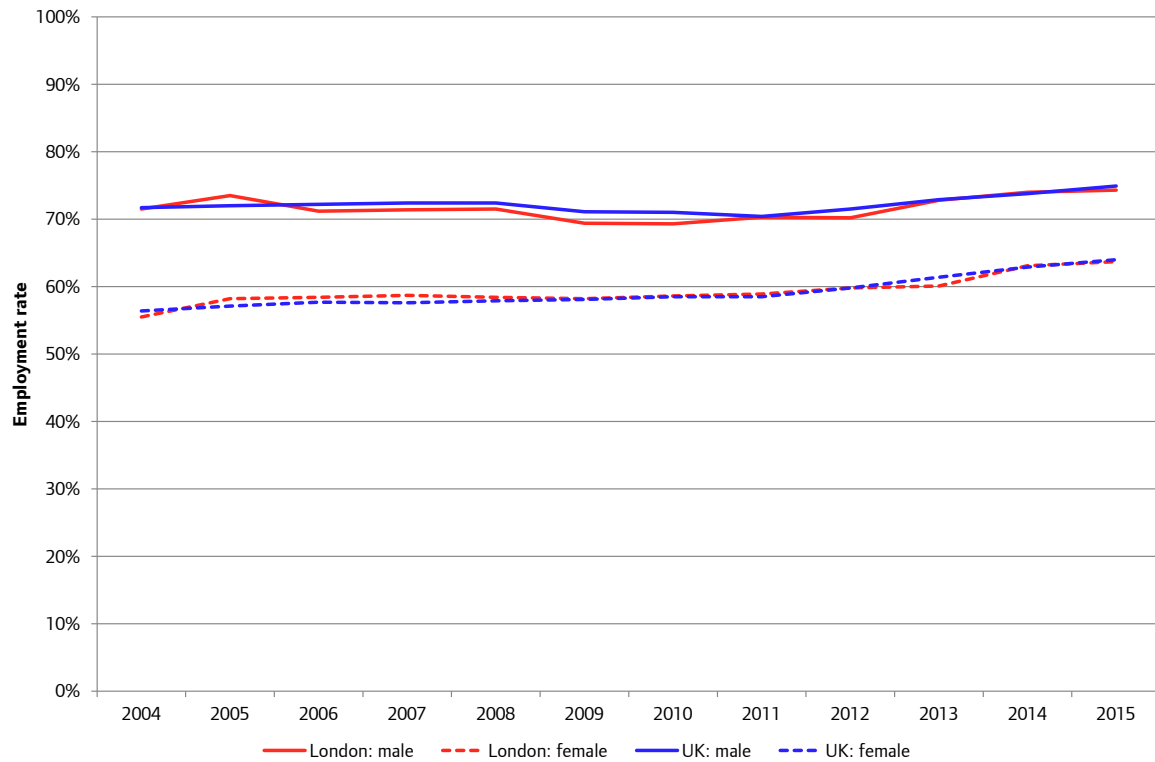**Figure 9.89: Employment rates for the 25-49 age group by gender for London and the UK, residents, 2004 to 2015**



*Note: January to December periods and has been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

Whilst the differences between male and female employment rates were also present for the 50-64 age group, the gaps between London and the UK had narrowed as shown in Figure 9.90. In fact, after accounting for the confidence intervals, there was no statistical difference between London and the UK.

**Figure 9.90: Employment rates for the 50-64 age group by gender for London and the UK, residents, 2004 to 2015**
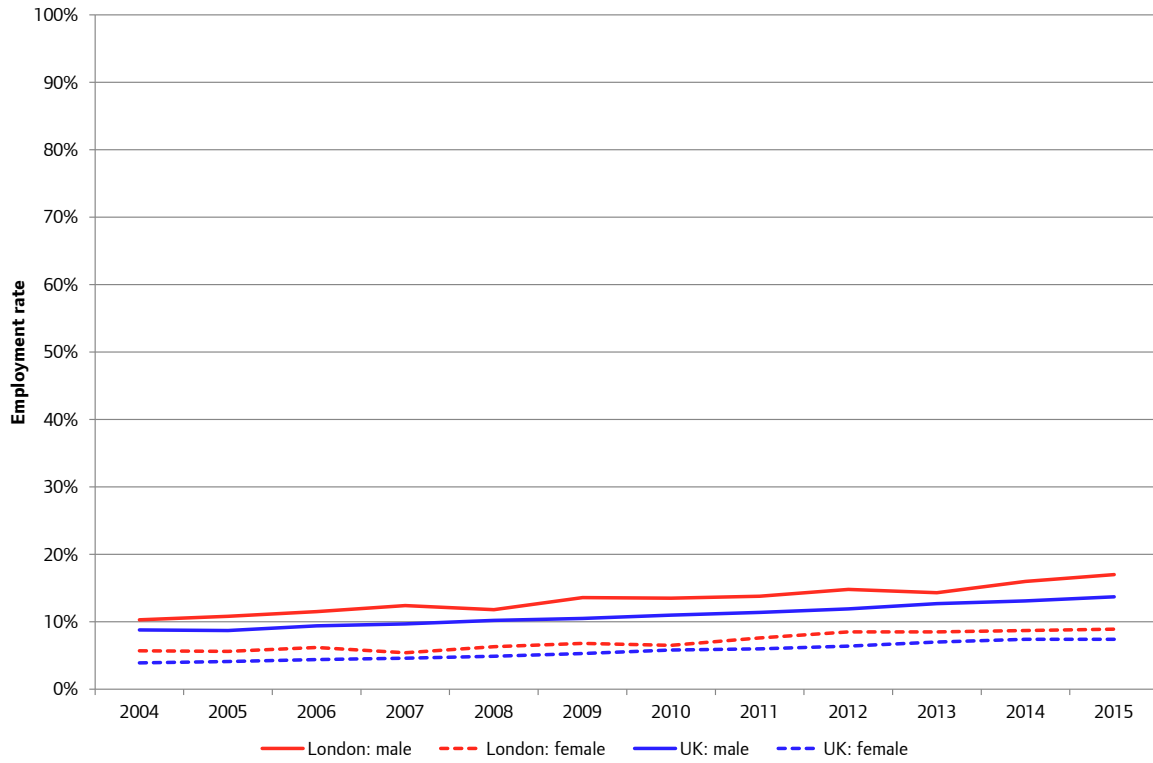


*Note: January to December periods and has been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

Employment rates for the over 65 age group are shown in Figure 9.91 even though they are outside of the working age definition of 16-64 years. As noted previously, London had a higher overall employment rate than the UK and this was the case for both men and women. That said, London's male employment rate (17 per cent in 2015) was generally above that for women (8.9 per cent).

**Figure 9.91: Employment rates for the over 65 age group by gender for London and the UK, residents, 2004 to 2015**



*Note: January to December periods and has been reweighted in July 2016.*
*Source: ONS Annual Population Survey*

# GLA ECONOMICS

# MAYOR OF LONDON