GLAECONOMICS

Draft Economic Evidence Base 2016

MAYOR OF LONDON

Copyright

Greater London Authority
February 2016

Published by
Greater London Authority
City Hall
The Queen's Walk
London SE1 2AA

www.london.gov.uk
enquiries 020 7983 4100
minicom 020 7983 4458

ISBN 978-1-84781-618-4

For more information about this publication, please contact:
GLA Economics
telephone 020 7983 4922
email glaeconomics@london.gov.uk

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.

GLA Economics uses a wide range of information and data sourced from third party suppliers within its analysis and reports. GLA Economics cannot be held responsible for the accuracy or timeliness of this information and data.

The GLA will not be liable for any losses suffered or liabilities incurred by a party as a result of that party relying in any way on the information contained in this report.

Contents

Executive summary

Globalisation and its impact on London's economy

London's economy has been shaped by globalisation – the increasingly connected and integrated nature of the international economy. This integrated international economy has, in large part, arisen through increases in trade over time. As a result, globalisation has led to structural change in the UK economy, as well as across the world; resources have moved from less productive to more productive uses.

Taking advantage of this increase in globalisation, London's exports in 2013 totalled around £139.9 billion according to GLA Economics estimates, up by £64.7 billion compared to 2003. This trend was mainly driven by a rise in service exports. In 2013, monetary finance was the largest service export sector with exports worth around £24.9 billion. The second largest service export sector was personal travel worth around £11.0 billion, followed by business management and management consulting with an export value of around £9.0 billion.

Globalisation has led to a specialisation in those areas where London has a comparative advantage over other competitor areas. Relative to the other G7 economies, it is evident that the UK's service exports currently specialise in: personal, cultural and recreational services; financial services; insurance & pension services; telecommunication, computer and information services; and other business services. It is in these service sector areas that London specialises.

London's position as an internationally competitive centre for global business services brings trade not just to London but to the UK as a whole. London's trade is not just international; there is significant trade with other UK regions. The more international trade London engages in, the more trade there is likely to be for the rest of the UK. London's international trade results in a net injection to the UK economy with total exports exceeding imports by around £28 billion in the year to mid-2014, according to the London Business Survey 2014[1]. Other GLA Economics research suggests[2] that to service this international trade, London imports a significant level of goods and services from the rest of the UK across different sectors.

As a result, this net injection to the economy doesn't just benefit the capital but generates wider economic activity in the other UK regions. According to GLA Economics estimates, based on results from the London Business Survey 2014, London imported around £405.2 billion worth of goods and services from the rest of the UK in the year to mid-2014.

Chapter 1 of the Draft Economic Evidence Base has more detail on the impact of globalisation on London's economy and the specialisations in London's economy.

The spatial nature of London's economy

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 more than a century 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 these internationally competitive agglomeration economies.

Central London offers a range of factors that are not found in combination in many other places. As shown by a number of surveys (see Chapter 3 of the Draft Economic Evidence Base for more details) 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. A large number of firms therefore locate 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[3]. 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: so-called agglomeration benefits. These agglomeration benefits are the positive externalities which arise when specialised economic activity takes place in a spatial concentration – such as in Central London.

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[4], areas in which London specialises. The economies of agglomeration have a degree of circular causality – existing spatial concentration results in forces that encourage further spatial concentration.

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 Crossrail and HS2 will advance this accessibility further.

As a result of agglomeration, there is very high competition for space in Central London, by both businesses seeking shops and offices and people seeking housing. In theory, businesses can often pay more for land than people seeking land for housing, since employment land generates output and the area in which agglomeration benefits are highest is very narrow. Given this, the highest value businesses, that benefit most from agglomeration, are most willing and able to pay for offices in Central London and outbid others for land in Central London[5].

As in most cities, land prices tend to be highest in the centre and generally decline with distance from the centre, reflecting the appeal of central locations when compared to peripheral ones. Tough competition for limited space drives up land values and acts, along with urban costs such as congestion and other diseconomies of spatial concentration, and planning controls, as a check on further concentration[6].

Housing and commercial uses compete for land in a similar way to how different types of employment bid against one another for land. Highly productive employment tends to crowd out residential development. Agglomeration economies bring very large benefits to firms and cause great concentrations of employment in very small areas. Since businesses prefer to be clustered together and significant economic benefits derive from such concentration, other land uses like housing tend to locate further out. But residential land, particularly that land inhabited by the most productive employees – who earn considerable salaries – can even crowd out less productive businesses, pushing these businesses further from the centre.

More detail on the spatial nature of London's economy and some of the forces acting on it, for instance the pressure from residential housing on land for commercial development, can be found in Chapter 2 of the Draft Economic Evidence Base.

London's attractiveness to businesses and people

On many measures, London is a competitive international location for business. The capital figures prominently across a range of city ranking indices; ranking as the leading global city according to the PWC Cities of Opportunity and the Global Financial Centres Index. London has a highly skilled workforce, with over half of all workers in the capital being educated to at least degree level.

London has higher net business start-up rates than for the UK as a whole. It is a prominent destination for inward investment, particularly in those areas where London has industrial specialisation, such as information and communication, financial services and professional services.

The economic opportunities that businesses locating in London offer, in part, encourage people to live and work in the capital. Given its international competitiveness, many around the world look to London to fulfil their career ambitions. International migration to London is significant with 37 per cent of London's population born overseas (similar rates to other major global cities like New York, Hong Kong and Singapore).

London's culture and heritage provides another attraction to people, both residents and tourists with London being the most visited city in the world. The capital not only attracts people to work in the capital, it attracts students to study in 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.

Chapter 3 of the Draft Economic Evidence Base provides more detail on the attractiveness of London to businesses and people.

The outlook for London's economy and risks

Projections for London's population and employment suggest London will continue to grow over the next few decades. However, there are upside and downside risks to these projections, which themselves are subject to a number of assumptions, 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 such as a tightening of monetary policy, reductions in government spending, or the outcome of the forthcoming referendum on Britain's membership of 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. Some of the more significant risks include:

- The cost of living (including housing costs) and its impact on labour supply. Housing costs have increased significantly in London in recent years and other costs like childcare are higher in London than elsewhere in the country. Higher living costs make it more difficult for people to live and work comfortably in London.

- The cost of business accommodation. Office occupancy costs in prime central markets are higher than many other competing global cities. Such high costs for business space risk losing businesses to other internationally competitive business locations.

- Pressures on the transport network. Many parts of London's private and public transport networks suffer from significant congestion and overcrowding; London also has limited airport capacity.

- Pressures on other parts of the infrastructure network. The scale of growth expected in London has significant implications for its infrastructure. For instance, 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 over this period.

If London's international competitiveness is to be maintained, sufficient investment in London's infrastructure will be necessary. As noted earlier, such investment, by maintaining London's international competitiveness and so maintaining the net injection into the UK economy which London's international trade brings, will benefit the rest of the country (as well as London).

Chapter 4 of the Draft Economic Evidence Base looks at the range of risks to London's economy in more detail.

London's environment

London's environment impacts upon the health and quality of life of Londoners, but it also has an important role in the function of the London economy, as its resources are used by people and businesses to produce goods and services. Maintaining high environmental standards and developing infrastructure that both meets the needs of London's economy and is resilient to current and future environmental challenges is essential to ensure London's continued competitiveness.

Development of the concept of natural capital has been undertaken by the Natural Capital Committee (NCC), which was established by Government and reported to the Economic Affairs Committee.[7] The NCC has produced three reports on the State of Natural Capital exploring the natural capital concept and new valuation techniques, accounting and appraisal methods that can help reveal the real value of the natural environment and the benefits that are provided by environmental assets.[8] For example, by maintaining the atmosphere (the asset) free of pollution, the benefit that is derived from this is clean air, therefore mitigating the negative externalities (and hence costs) associated with poor air quality.

With population and economic activity projected to grow in the next thirty years, the pressures on resources and natural capital will continue to grow. To maintain and improve quality of life for Londoners, as well as safeguarding future economic growth, interventions to protect the natural environment will need to be undertaken.

Chapter 5 of the Draft Economic Evidence Base looks in more detail at specific aspects of London's environment and related issues.

London's people and labour market

London's population is now larger than it ever has been with approximately 8.7 million residents living in London. London's population tends to be younger than the rest of the UK (driven by the tendency for young adults to move to London to study and to work). London's population is projected to continue to grow to over 10 million inhabitants by 2036. By 2036, 15 per cent of London's population is projected to be over the age of 65, compared with 11 per cent in 2015. At the same time, London's school-age population is growing and is projected to number nearly 1.4 million by 2036. London's population growth has been driven by a considerable rise in the number of births and, most significantly, large inflows of international migrants.

The percentage of London residents who are in work is at record levels; latest estimates show over 72 per cent of Londoners in employment. That is almost six percentage points higher than the lows recorded in 2011 and 2012. Similar positive trends have been seen with unemployment, which is now down to 6.4 per cent (amongst the lowest levels for decades). Despite the improvement in London's labour market, the employment rate remained below and unemployment remained above those for the UK (although these gaps have narrowed in recent years). Moreover, the employment rate gap between London and the UK could be due to the characteristics of London's population, such as its ethnic diversity and age structure.

Parents in London have historically had a lower employment rate than parents across the rest of the UK, though this gap has halved from 11.9 percentage points in Q4 2007 to 5.3 percentage points in Q4 2013. This difference mostly reflects women in London with dependent children having a lower employment rate than the rest of the UK. For example, despite the employment rate for women with dependent children rising 6.6 percentage points since 2007 in London, it was still 8.9 percentage points lower than for the rest of the UK (in 2013).

Educational attainment in London is generally high and better than in England as a whole or other English regions as measured by the percentage of pupils achieving 5 or more A*-C grades including English and Maths at GCSE. However, the educational outcome of London's pupils also varies by borough, ethnicity and disadvantage status.

Chapter 6 of the Draft Economic Evidence Base looks in more detail at London's demographic profile and the performance of London's labour market over time.

Socio-economic issues in London

Despite London's economic success in a number of areas, it also faces many socio-economic issues. In particular the cost of living in London can be very high. Indeed, London was ranked as the 6th most expensive international city to live in according to a 2015 survey of 71 global cities by UBS. Housing is a particularly expensive part of living in London. Whereas median properties in England and Wales sold for more than six times the median gross annual household income, in London, the same ratio was more than ten times in 2014 after having risen sharply over the 2000s.

The impact of housing costs can be seen when considering household incomes. Median household weekly income (in gross terms) is around £80 higher in London than the UK as a whole. However, after accounting for housing costs, median household weekly incomes in London stood at £398 compared to £390 in the UK as a whole. Indeed over the past decade or so there has been a convergence of median household income in London and the UK as a whole.

Poverty levels, 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 by this measure and nearly a quarter of Outer London residents, which is also higher than for any other region. As a consequence, around 300,000 children in Inner London are living in poverty (after accounting for housing costs), with a further 400,000 in Outer London. The Inner London child poverty rate remains particularly high, at 46 per cent and whilst the Outer London child poverty rate is lower, at 33 per cent, it is still higher than for any other region.

Chapter 7 of the Draft Economic Evidence Base looks in more detail at such socio-economic issues including health, crime and education in London.

Executive summary endnotes

1 GLA Economics, 'London Business Survey 2014: Exports', November 2014.
2 GLA Economics, 'Growing Together II: London and the UK Economy', September 2014.
3 GLA Economics, September 2014, 'Growing Together II: London and the UK economy'.
4 Graham, D. (2007) "Agglomeration, productivity and transport investment" Journal of Transport Economics and Policy, 41(3)
5 Henderson, J. 2009, "Cities and Development", *Journal of Regional Science*, 50th Anniversary issue.
6 Cavailhes, J; Gaigne, C; Tabuchi, T; & Thisse, J. 2007. "Trade and the Structure of Cities", Journal of Urban Economics, Volume 62(3) p. 383-404
7 Natural Capital Committee - http:www.naturalcapitalcommittee.org/why-we-were-set-up.html
8 State of Natural Capital Reports - http://www.naturalcapitialcommittee.org/state-of-natutal-committee - reports.html

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 will be updated.

To that end, this report sets out a draft version of the economic evidence base. It represents data available up to the beginning of December 2015. It is a work-in-progress and should not be viewed as a definitive outline of the GLA's economic evidence base to be used in strategy development. In part, the report is being published to allow for views on the economic evidence base to be aired prior to strategy development. The evidence base will be updated before the strategies are finally developed.

As well as the executive summary and introduction, this draft version of the economic evidence base consists of 7 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 nature of London's economy. Chapter 3 sets out some indicators of London's economic success. Chapter 4 looks at some of the risks likely to face London's economy in the next few decades with Chapter 5 looking in more detail at London's environment. Chapter 6 looks at London's population and its labour market before Chapter 7 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

1 State of London's economy, trade and London's specialisation

Main findings

- London's industrial structure has changed significantly in the last three decades with a marked decline in manufacturing, and a strong shift towards a service-led economy.

- In 2014, London's economic output was estimated to total around £364 billion, 6.8 per cent higher than in 2013 and more than double the value in nominal terms compared to 1997. In 2014, London accounted for around 22.5 per cent of UK's economic output, a rise from around 18.9 per cent in 1997.

- London's exports in 2013 totalled around £139.9 billion with service exports accounting for the majority (77 per cent). Furthermore, London exported over half of all UK service exports, whilst London's goods exports accounted for around 11 per cent of total UK goods exports in 2013.

- London had a trade surplus with the rest of the world with exports totalling around £147 billion in the 12 months to mid-2014 compared to total imports of around £118 billion. Additionally, in the 12 months to mid-2014 London imported around £405 billion of goods and services from the rest of the UK providing a wider economic benefit to the rest of the UK.

- Around 44.6 per cent of the UK's goods and service exports went to the European Union (EU) in 2014, although this share has declined from around 54.8 per cent in 1999. In contrast, the UK's key service export destinations in 2013 were Europe and North American economies, accounting for almost three quarters of all UK exports of services.

- Relative to G7 countries[1], the UK's service exports currently specialise in: Personal, cultural and recreational services; Financial services; Insurance & pension services; Telecommunication, computer and information services; Other business services – all areas in which London specialises in.

- Financial and insurance activities accounted for just under a fifth of London's economy in 2014 as measured by Gross Value Added (GVA). In contrast, in terms of jobs the Professional, scientific and technical sector accounted for the largest proportion of jobs in London in 2014.

- London's specialises in Financial and insurance services, while other sectors of specialisation include Information and communication; Professional, scientific and technical services, as well as Real estate activities.

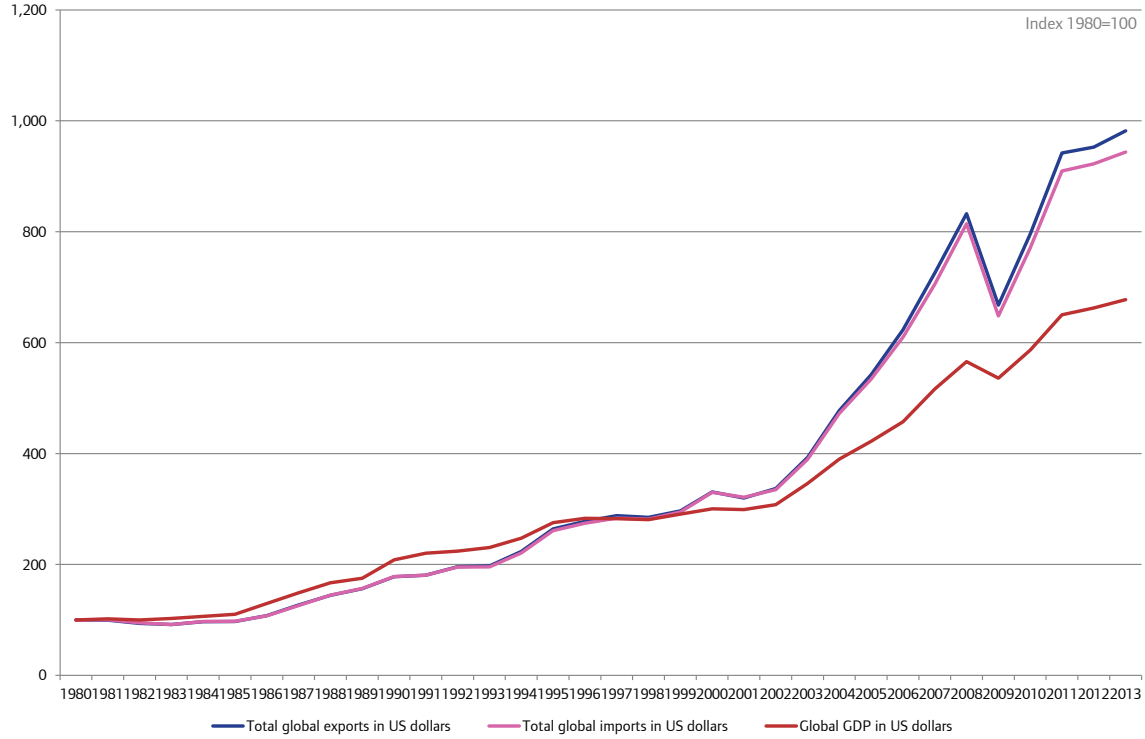
- London's employment composition is different to the UK as a whole and also differs to that of other cities in the UK such as Manchester, as well as other developed economies such as Germany. Manufacturing employment accounts for a considerably larger share in both Germany (around 20 per cent) and Japan (around 17 per cent) than in London (around 2 per cent).

This chapter looks at London's economy over time, how the industrial structure has changed and how London's current specialisation is likely to position the capital in the global economy going forward.

London's trade

London's economy has been shaped by globalisation – the increasingly connected and integrated nature of the international economy. This integrated international economy has, in large part, arisen through increases in trade over time. As a result, globalisation has led to structural change in the UK economy, as well as across the world; resources have moved from less productive to more productive uses. However, in the recent context, world import growth between 2010 and 2013 has been below its long-term pre-crisis average, and weak relative to global GDP growth[2]. Comparisons between global trade and GDP suggest that historically trade growth has exceeded GDP growth. Yet, recent data suggests that this relationship has broken down and since the second half of 2011, global GDP growth has exceeded growth in global trade. Recent International Monetary Fund (IMF) research suggests that this breakdown in the relationship is not necessarily due to the change in the composition of trade but in "the slowing pace of international vertical specialisation"[3,4]. However, the European Central Bank (ECB) research suggests that, while growth in goods trade slowed substantially following the financial crisis, growth in trade in services remained broadly stable. In light of London's export specialisation in services, trade has most likely contributed positively to London's economic performance since the financial crisis in 2008/09.

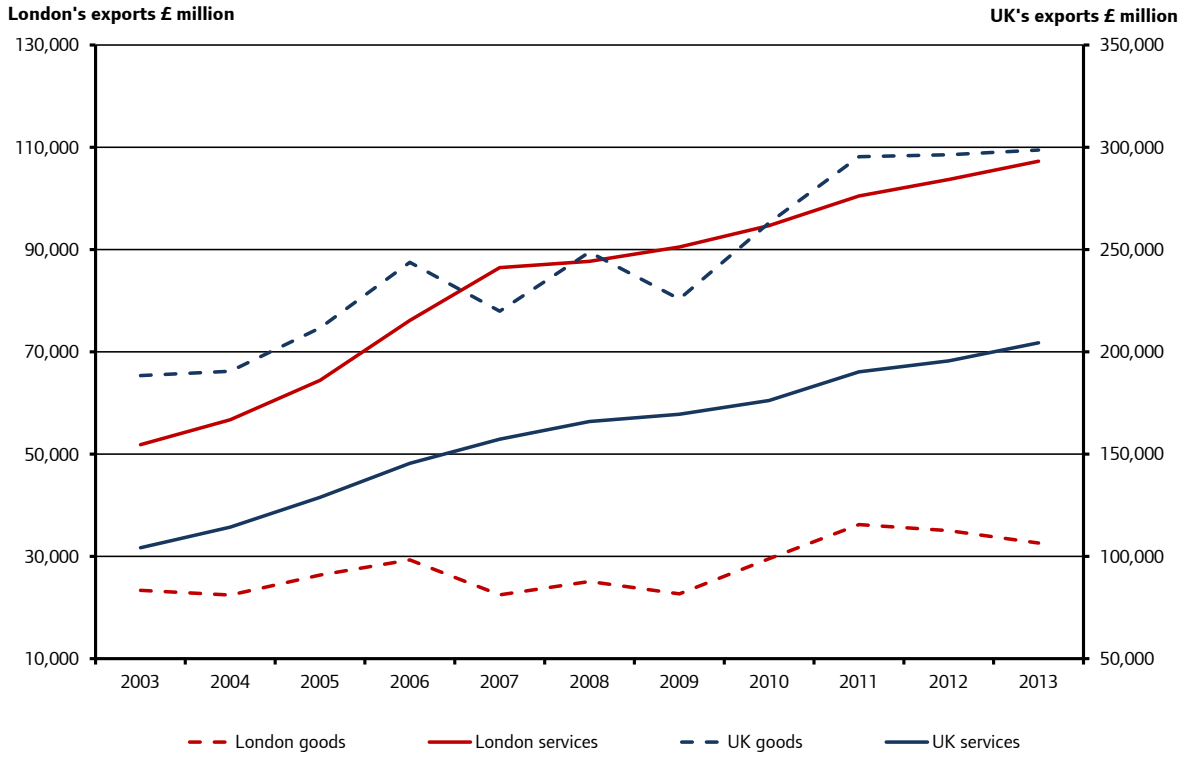
Figure 1.1: Changes in global trade and GDP over time



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

GLA Economics estimates that in 2013 London's exports totalled around £139.9 billion, up by £64.7 billion compared to 2003 (Figure 1.2), with this trend mainly driven by a rise in service exports. GLA Economics further estimates that London's service exports more than doubled between 2003 and 2013. In 2013, London's service exports were around £107.3 billion, compared to £51.9 billion in 2003. Growth in London's goods exports also increased over this period but at a more modest rate.

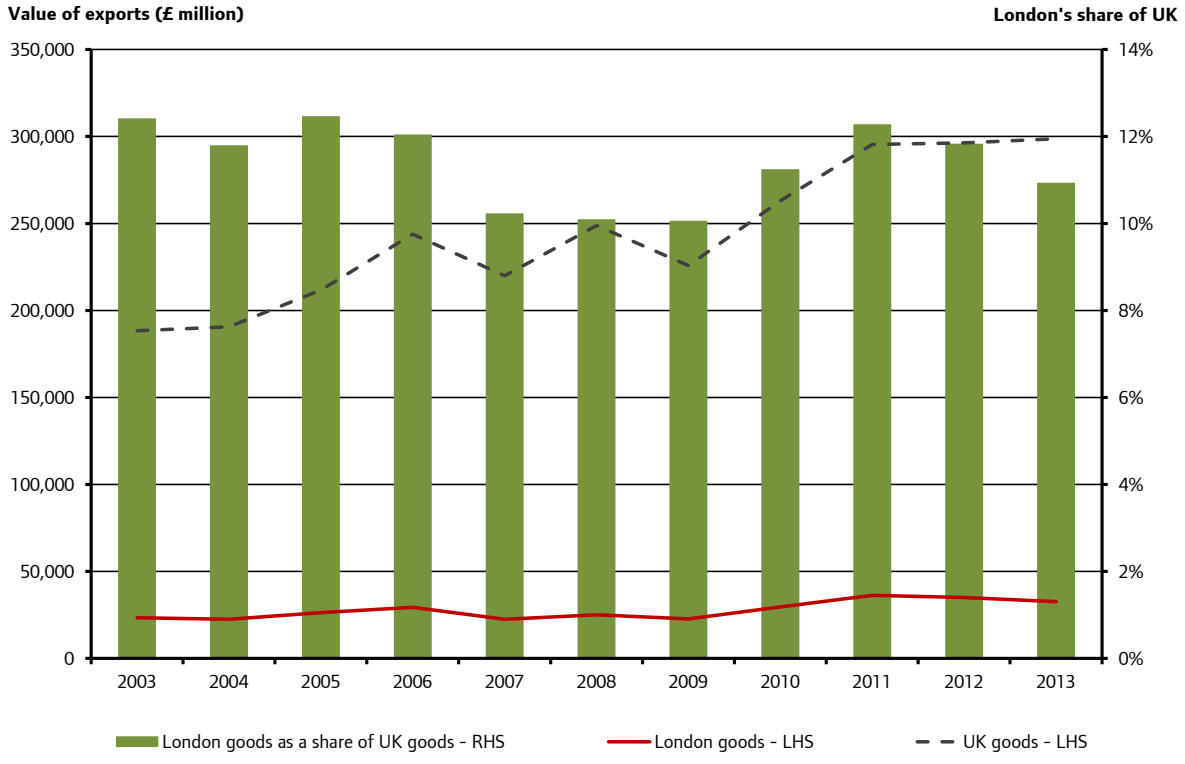
Figure 1.2: London's exports over time



Source: Pink Book for UK level service exports data, ONS and GLA Economics modelling.

Figure 1.3 demonstrates how London's goods exports have changed over time relative to the UK as a whole, whilst Figure 1.4 provides information on London's goods exports by product category. In 2013, London exported around £32.6 billion worth of goods, a 40 per cent increase compared to 2003, when goods exports totalled around £23.4 billion. In contrast, UK goods exports grew by almost 60 per cent over the same period. London's share of total UK goods exports remained broadly unchanged between 2003 and 2013. However, between 2007 and 2009, London's share of the UK goods export share fell to around 10 per cent.

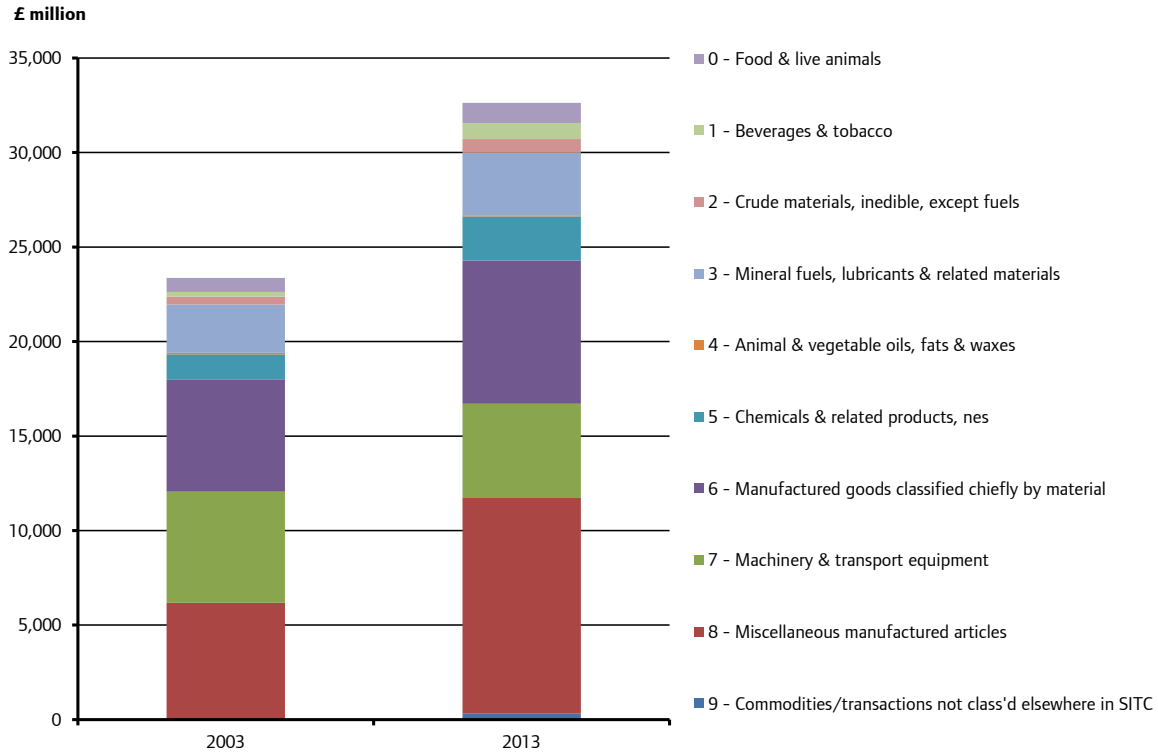
Figure 1.3: London's goods exports over time



Source: Regional Trade Statistics, HMRC.

As shown in Figure 1.4, Miscellaneous manufactured articles (which include, for example, clothing, toys and games, works of art and antiques) was the most significant goods export category, with exports increasing by 85 per cent (equivalent to around £5.2 billion) between 2003 and 2013; in 2013, exports in this classification totalled £11.4 billion. In contrast, goods exports of Machinery and transport equipment fell by 15 per cent from £5.9 billion in 2003 to around £5.0 billion in 2013.

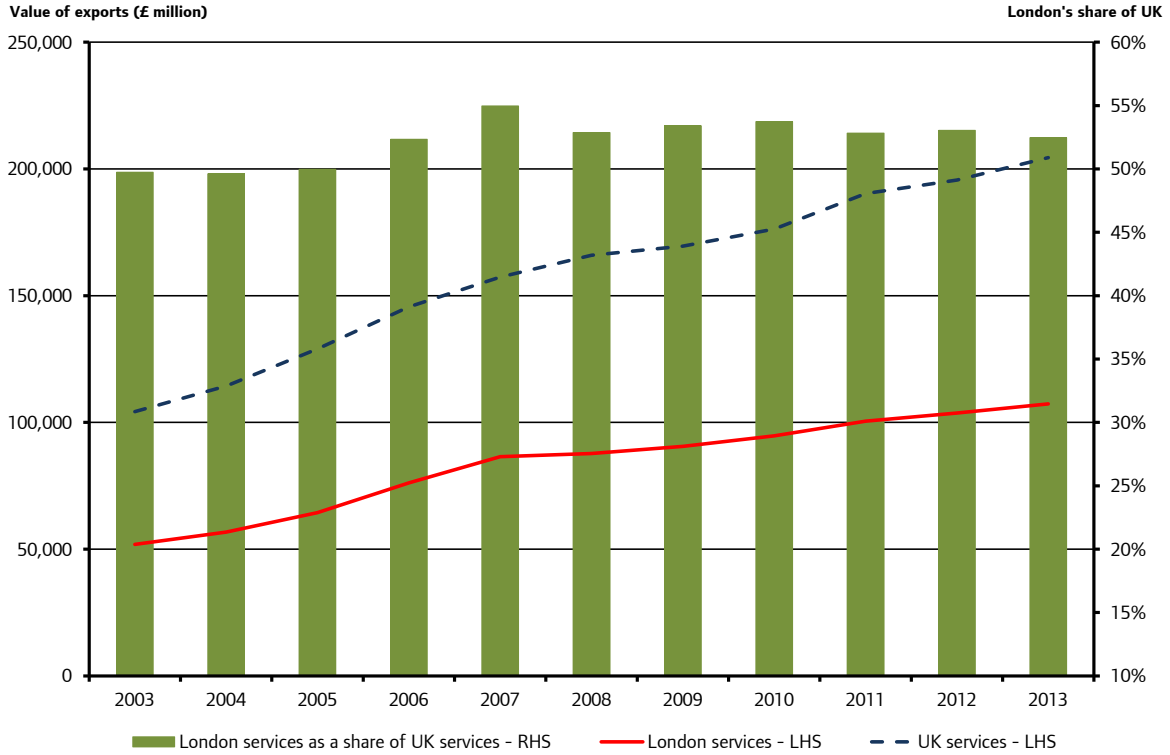
Figure 1.4: London's goods exports – 2003 compared to 2013



Source: Regional Trade Statistics, HMRC

GLA Economics estimates that in 2013, London exported around £107.3 billion worth of services, compared to £204.5 billion for the UK as a whole (Figure 1.5). Overall, London's service exports in 2013 were 107 per cent, or £55.4 billion, higher than in 2003. London's service exports accounted for just over half of all UK service exports in 2013 (around 52 per cent), compared to around 50 per cent in 2003.

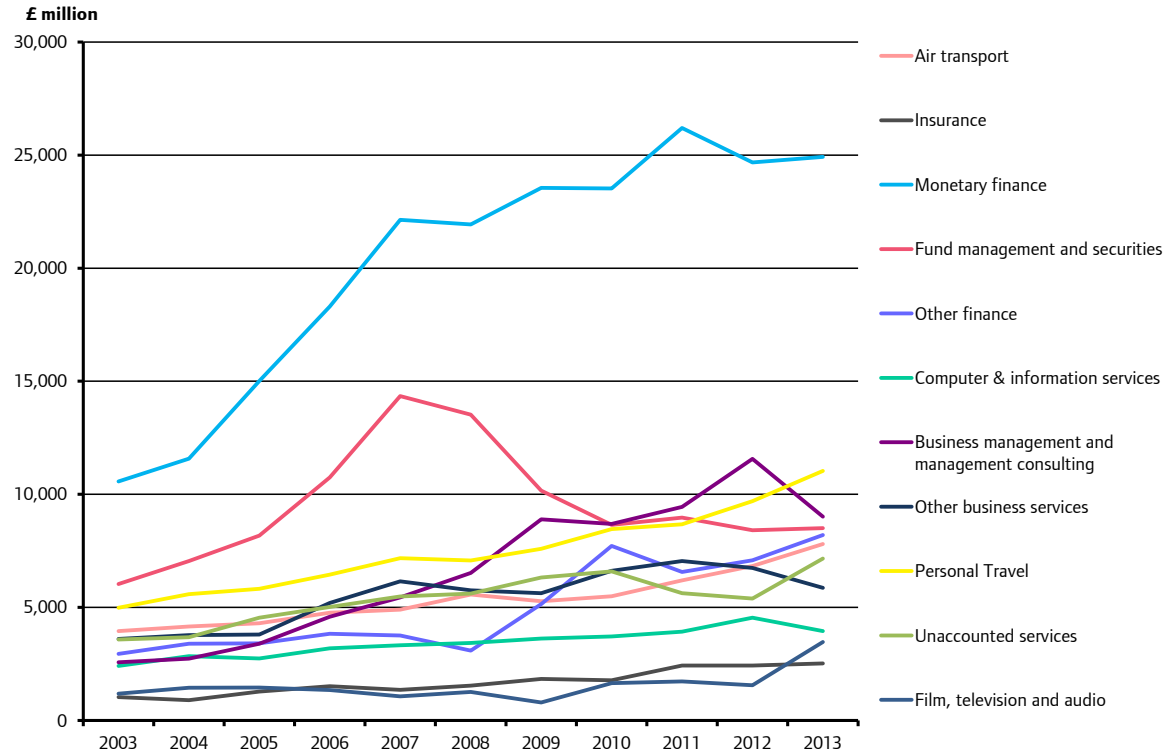
Figure 1.5: London's service exports over time



Source: Regional Service Export analysis from the ONS.

In addition to the trends in total London's service exports, the analysis also looked at how different service export sectors performed over time (Figure 1.6). Figure 1.6 shows that in 2013, Monetary finance was the largest service export sector with exports worth around £24.9 billion, compared to around £10.6 billion in 2003. The second largest service export sector was Personal travel worth around £11.0 billion, followed by Business management and management consulting with an export value of around £9.0 billion.

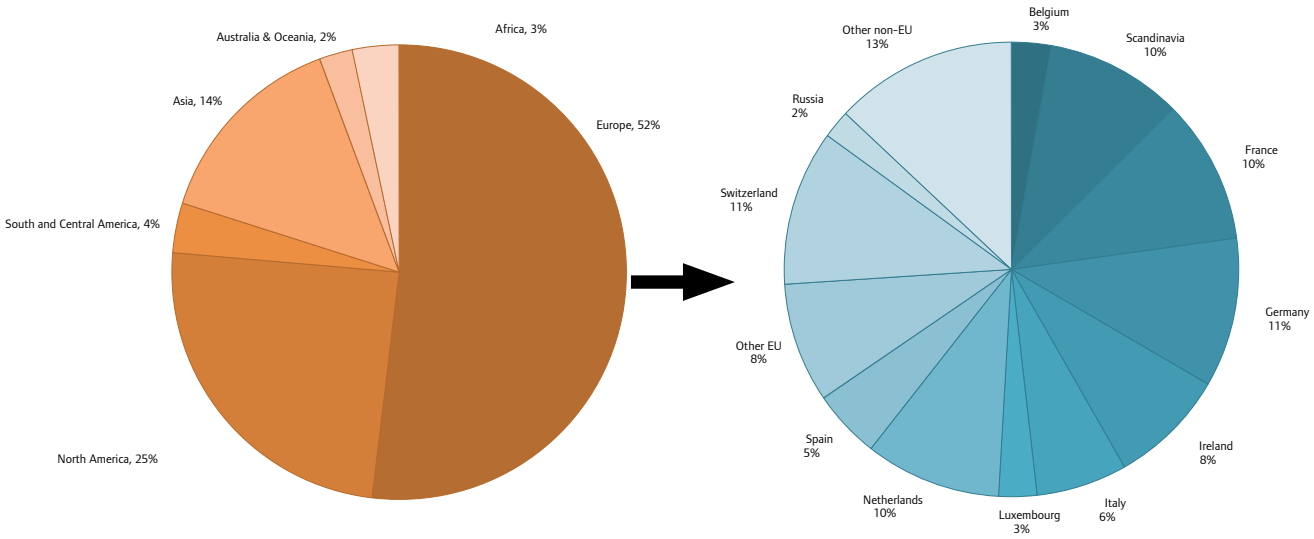
Figure 1.6: London's service exports by sector over time[5,6,7,8,9]



Source: UK service exports from The Pink Book 2014, ONS; London Business Survey, GLA; and GLA Economics modelling.

Figure 1.7 demonstrates UK's key service export destinations in 2014 with Europe and North American economies accounting for over three quarters of all UK exports of services. Of all European exports, around 11 per cent go to Germany, while France, the Netherlands and Scandinavia respectively account for approximately 10 per cent of exports each.

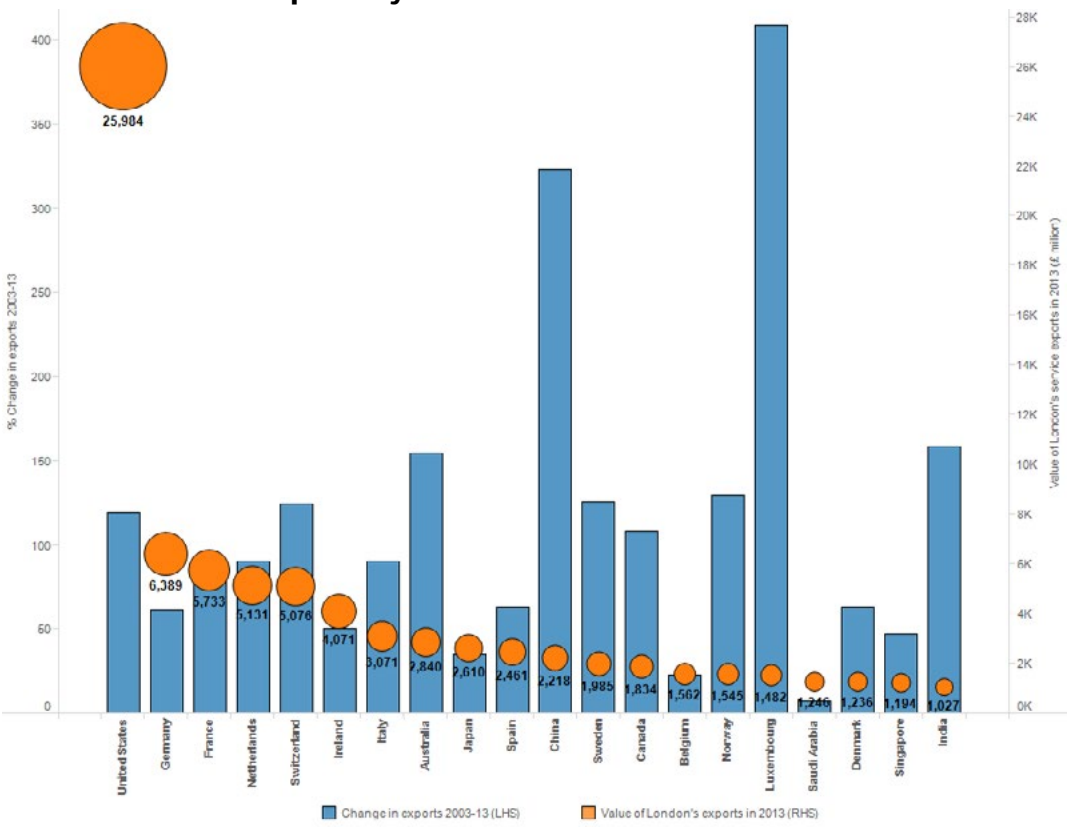
Figure 1.7: UK exports of services by destination in 2014



Source: The Pink Book 2015, ONS

GLA Economics analysis suggests that similarly to goods exports[10], the United States is the most significant service export destination for London, followed by Germany and France (Figure 1.8). London exported around £26.0 billion worth of services to the US in 2013, with exports to Germany and France totalling around £6.4 billion and £5.7 billion respectively. Over time, London's service exports to the US more than doubled between 2003 and 2013 (119 per cent), while service export growth to Germany and France was comparatively muted (61 per cent and 80 per cent respectively).

Figure 1.8: London's service exports by destination in 2013



Source: International Trade in Services (ITIS) 2013, ONS and GLA Economics modelling.

Increased globalisation has led to London's specialisation in sectors that it is relatively better at producing compared to its key trading partners (more efficiently and at a lower opportunity cost); i.e. in what areas does London have a comparative advantage in. For London this has meant specialisation in the service industries and specifically in Professional services.

Table 1.1 shows London's relative comparative advantage in different service sectors compared to other G7 countries. Sectors with an index score of less than one indicate that the country doesn't specialise in that industry relative to other G7 economies (in relation to exports). An index score above one suggests export specialisation in that particular service industry for that country. Relative to the other G7 economies, it is evident that the UK's service exports currently specialise in: Personal, cultural and recreational services; Financial services; Insurance & pension services; Telecommunication, computer and information services; and Other business services. In comparison to other G7 countries, both the US and Germany specialise in five service industries, whilst France's service exports specialise in eight different service sectors.

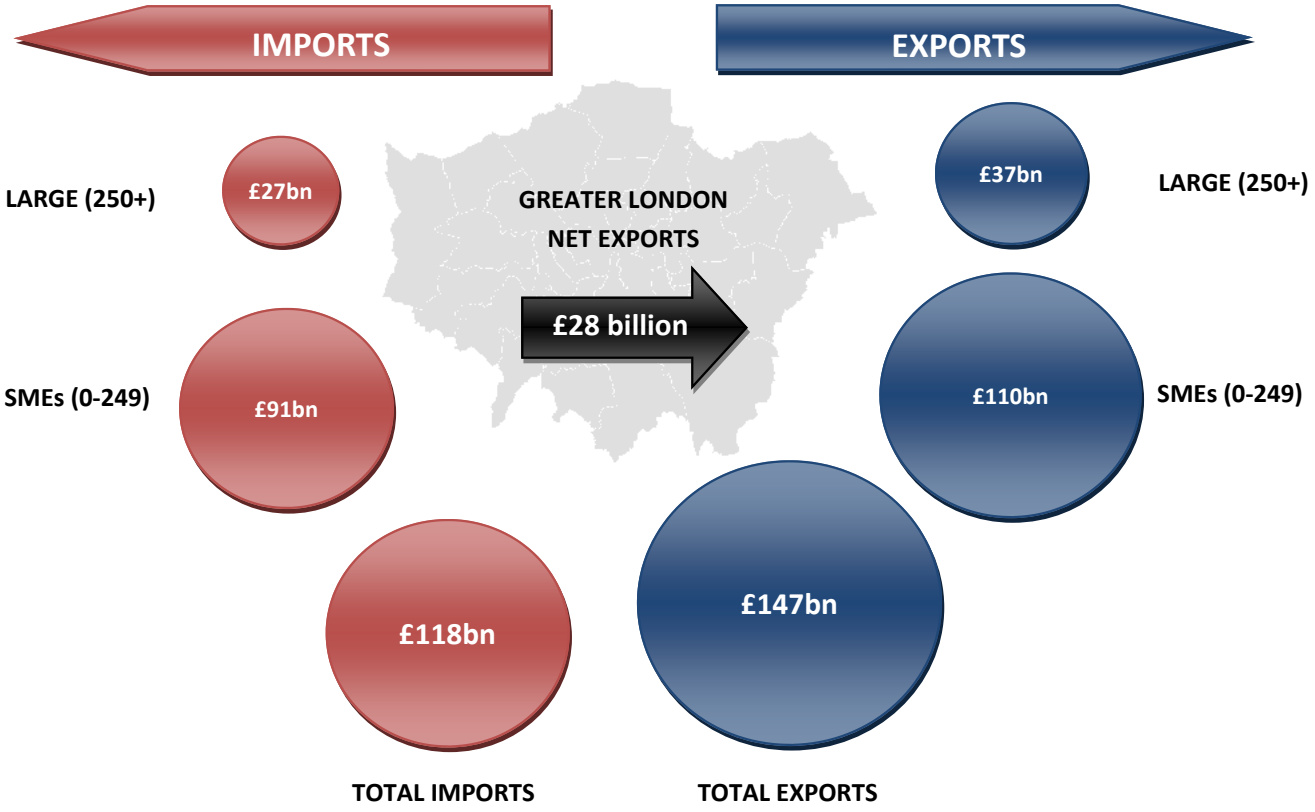
Table 1.1: Revealed Comparative Advantage in exports of services against the G7 advanced economies (2013)[11,12,13,14]

	London	UK	France	US	Japan	Italy	Canada	Germany
Manufacturing Services on Physical Inputs Owned by Others	1.4	1.1	2.9	...	0.5	2.7	...	1.5
Maintenance and Repair Services n.i.e.	0.3	0.4	1.2	1.5	0.0	0.2	0.9	1.2
Transport	0.5	0.7	1.2	0.8	1.8	0.9	0.9	1.4
Travel	0.6	0.6	1.1	1.2	0.5	1.9	1.0	0.7
Construction Services	1.6	1.1	1.4	...	7.6	0.5	0.7	...
Insurance and Pension Services	0.6	2.6	1.0	0.7	0.0	0.6	0.6	0.7
Financial Services	3.3	2.0	0.4	1.1	0.3	0.4	0.7	0.8
Charges for the Use of Intellectual Property n.i.e.	0.4	0.5	0.4	1.7	2.1	0.3	0.4	0.4
Telecommunication, Computer, and Information Services	0.7	1.1	1.0	0.8	0.3	1.2	1.7	1.6
Other Business Services	0.9	1.1	1.2	0.7	0.9	1.0	1.3	1.2
Personal, Cultural, and Recreational Services	5.7	2.1	1.7	...	0.2	0.2	4.8	1.0
Government Goods and Services n.i.e.	0.3	0.6	0.2	1.6	0.9	0.5	0.8	1.0

Source: Balance of Payment Statistics, IMF, Pink Book, ONS and GLA Economics modelling

London is an internationally competitive centre for global business services, bringing trade to London and the UK as a whole. London's trade is not just international, there is significant trade with other UK regions. The more international trade London engages in, the more trade there is likely to be for the rest of the UK. Not only does London's service export account for a significant proportion of total UK service exports but London's trade draws in a net injection to the UK economy, with total exports exceeding imports by around £28 billion in the year to mid-2014, according to the London Business Survey 2014 (Figure 1.9)[15]. Other GLA Economics research suggests that London imports a significant level of goods and services from the rest of the UK across different sectors.[16]

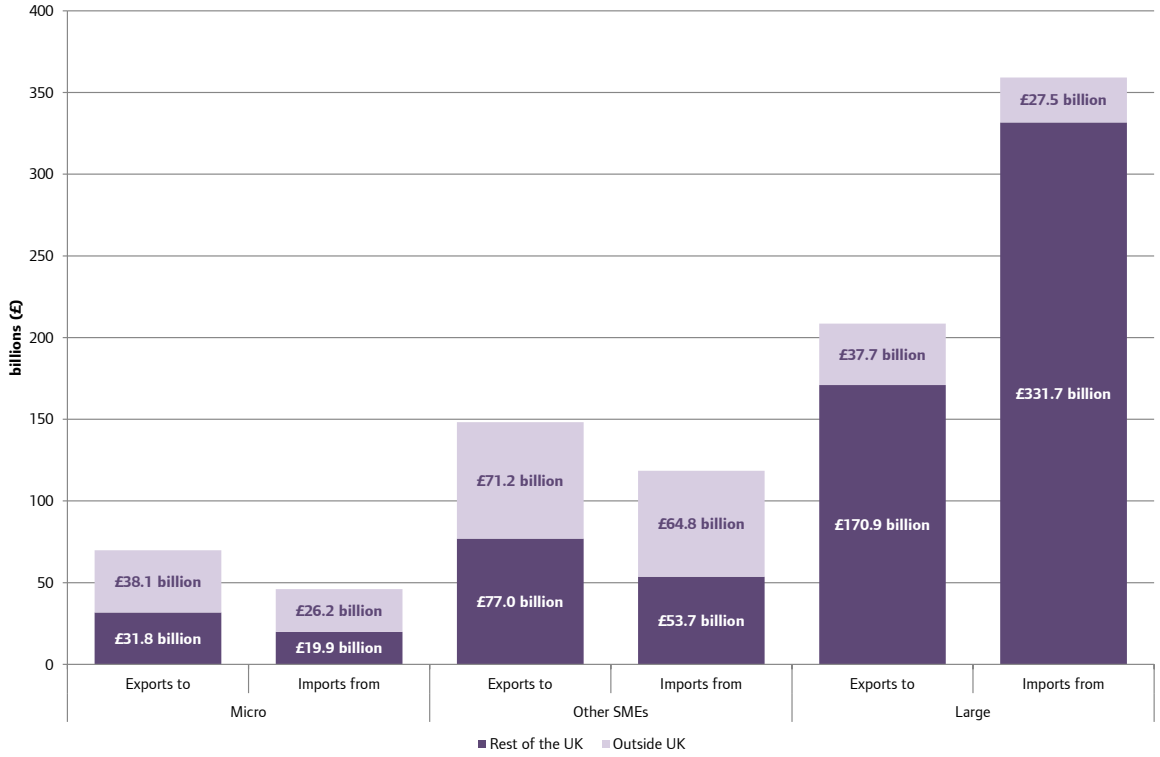
Figure 1.9: London's international trade in the year to mid-2014



Source: London Business Survey 2014, GLA

This net injection to the economy doesn't just benefit the capital but generates wider economic activity in the other UK regions. According to GLA Economics estimates, based on results from the London Business Survey 2014, London imported around £405.2 billion worth of goods and services from the rest of the UK in the year to mid-2014 (Figure 1.10). The breakdown of data by firm size suggests that large firms located in London more commonly used firms based outside London to source products and services. In the year to mid-2014, large corporations imported over £332 billion from the rest of the UK, compared to around £20 billion by micro and £54 billion by other SMEs.

Figure 1.10: Trade between London and the rest of the UK and world



Source: London Business Survey 2014, GLA and GLA Economics modelling.

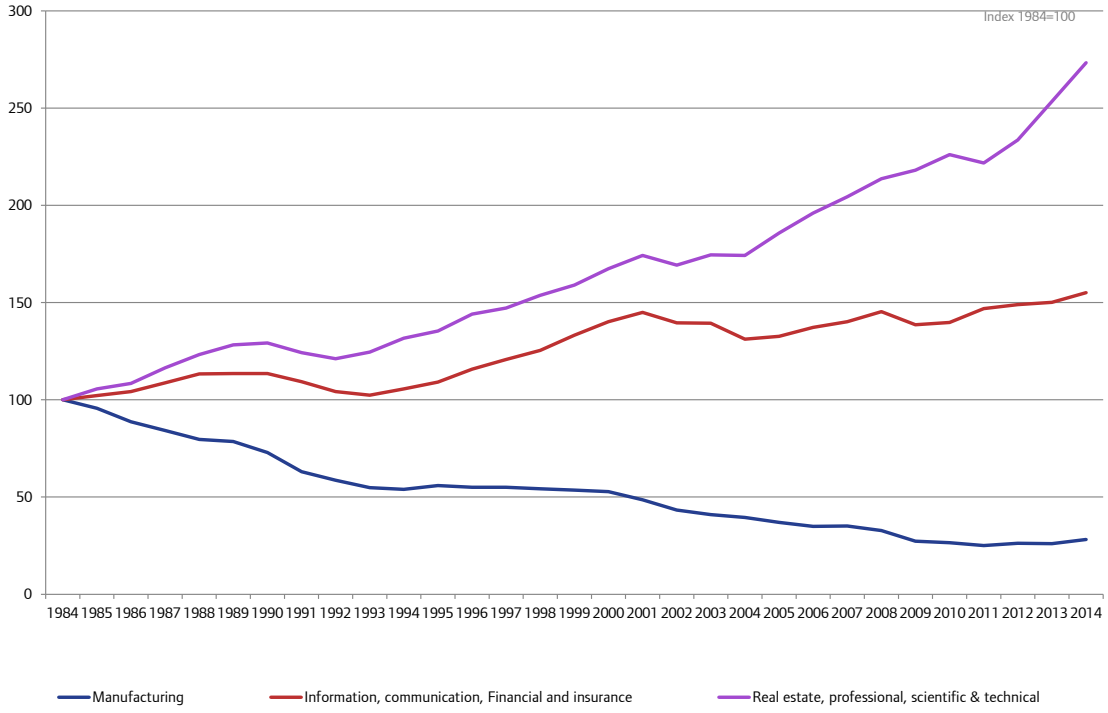
London's industrial structure and sectors over time

The structure of London's economy has seen substantial changes in the last three decades with a marked decline in manufacturing, and a strong shift towards a service-led economy.

London's sectors and jobs over time

Globalisation has been one of the key driving forces behind these structural changes, demonstrated in Figure 1.11. The number of jobs in Manufacturing has fallen from around 476,000 in 1984 to around 134,000 in 2014; while jobs in Professional, real estate, scientific and technical activities have more than doubled to around 880,000 over the same period[17].

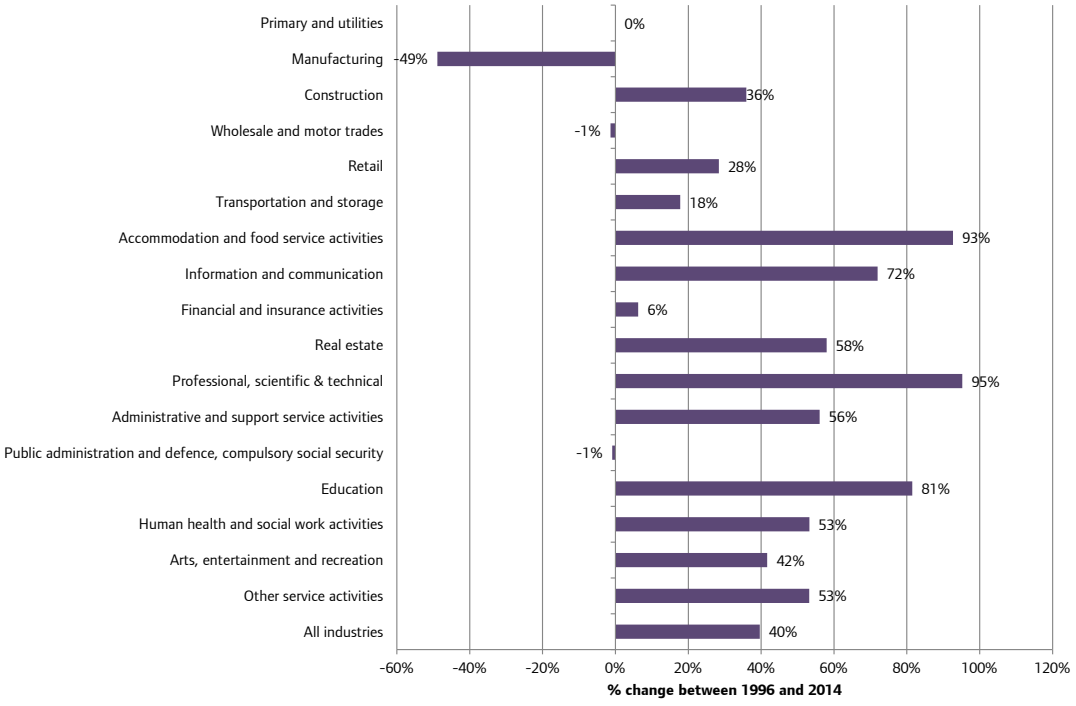
Figure 1.11: Employment in London by sector over time 1984 to 2014



Source: Workforce Jobs, ONS and GLA Economics modelling.

Figure 1.12 shows that between 1996 and 2014, the total number of jobs in London increased by 40 per cent over the period (equivalent to around 1.58 million jobs). The rise in the number of professional services jobs, and jobs in administrative services were the largest contributors to the total job increases over the period. Falls in manufacturing jobs were substantial; between 1996 and 2014, there were around 128,000 fewer jobs in the sector (equivalent to around a 49 per cent decline).

Figure 1.12: Changes in jobs in London by sector between 1996 and 2014

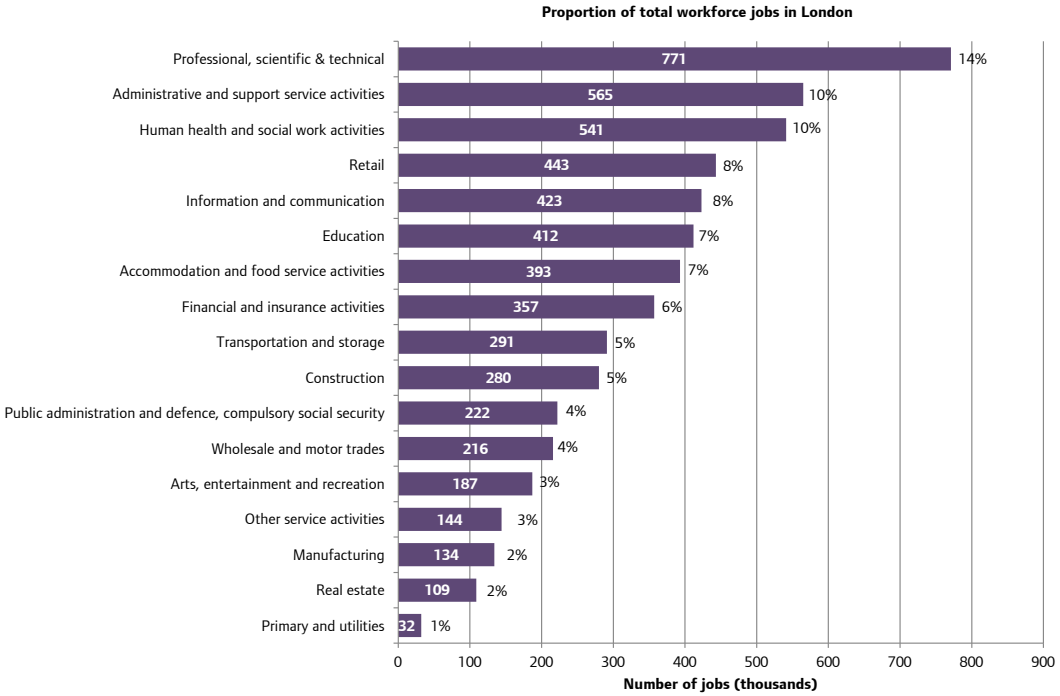


Source: Workforce jobs, ONS.

Figure 1.12 demonstrates growth in the three key broad sectors that saw the largest increases in total number of jobs between 1996 and 2014; these were Professional, scientific and technical activities (a 95 per cent increase), Accommodation and food service activities (93 per cent) and Education activities (81 per cent). Significant growth in workforce jobs was also observed in the Information and Communication sector.

The importance of Professional, scientific and technical activities has increased significantly since 1996 (Figure 1.13); in 2014 there were around 771,000 jobs in the sector accounting for 14 per cent of all jobs in London, compared to around 10 per cent in 1996. Other significant employers in terms of number of jobs in London in 2014 include: the Administrative and support service activities sector with around 565,000 jobs in 2014 (10 per cent), and the Human health and social work sector (10 per cent) that provides around 541,000 jobs. In addition, the retail sector provided around 443,000 jobs in 2014.

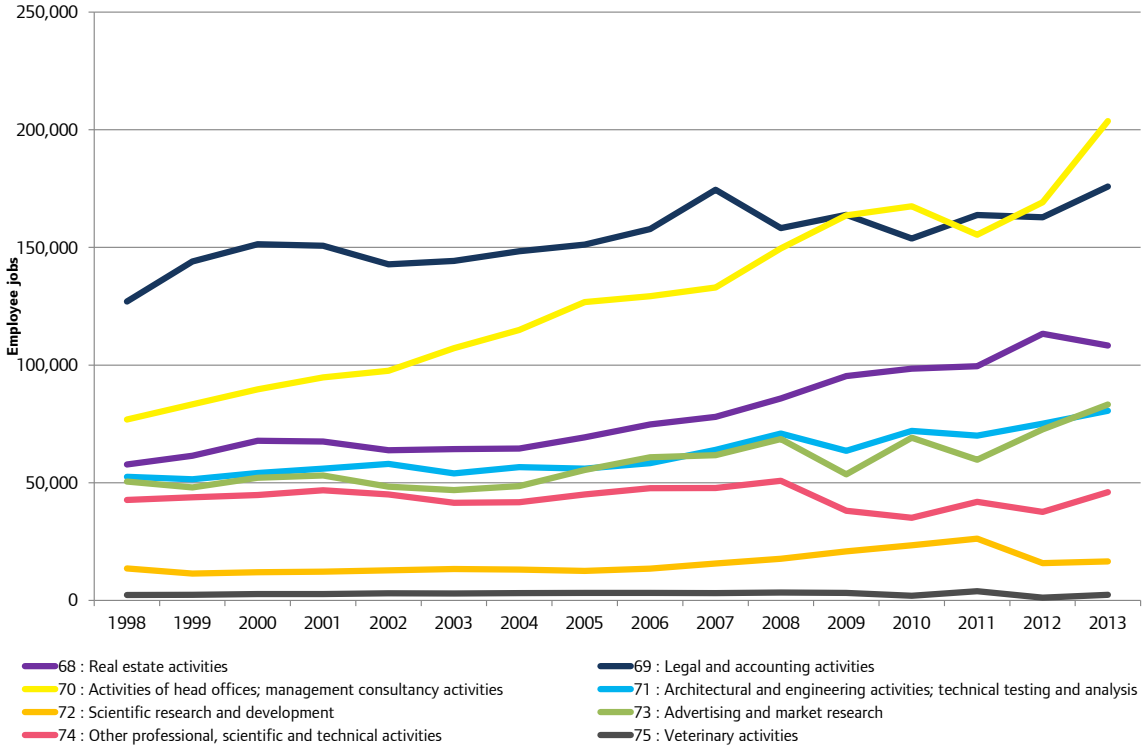
Figure 1.13: Jobs in London in 2014 by sector and proportion of the London total



Source: Workforce Jobs, ONS.

Previous GLA Economics analysis of sectors[18] suggests that growth in Professional, scientific, technical and real estate activities since the late 1990s has been largely driven by the rise in the number of employee jobs in head office and management consultancy activities supported by growth in real estate, and legal and accounting services (Figure 1.14). 'Activities of head offices; management consultancy activities' include services from Public relations and communication activities, to Financial management, Activities of head offices and Management consultancy activities (other than financial management). Jobs in Management consultancy activities accounted for over half of the division's jobs in 2013, with Activities of head offices accounting for just over a third of jobs in the sector. This analysis also suggests that despite the financial crisis and the recession that followed, the number of employee jobs in activities of head offices and management consultancies grew strongly between 1998 and 2013. In 2013, there were around 203,700 employee jobs in the sector.

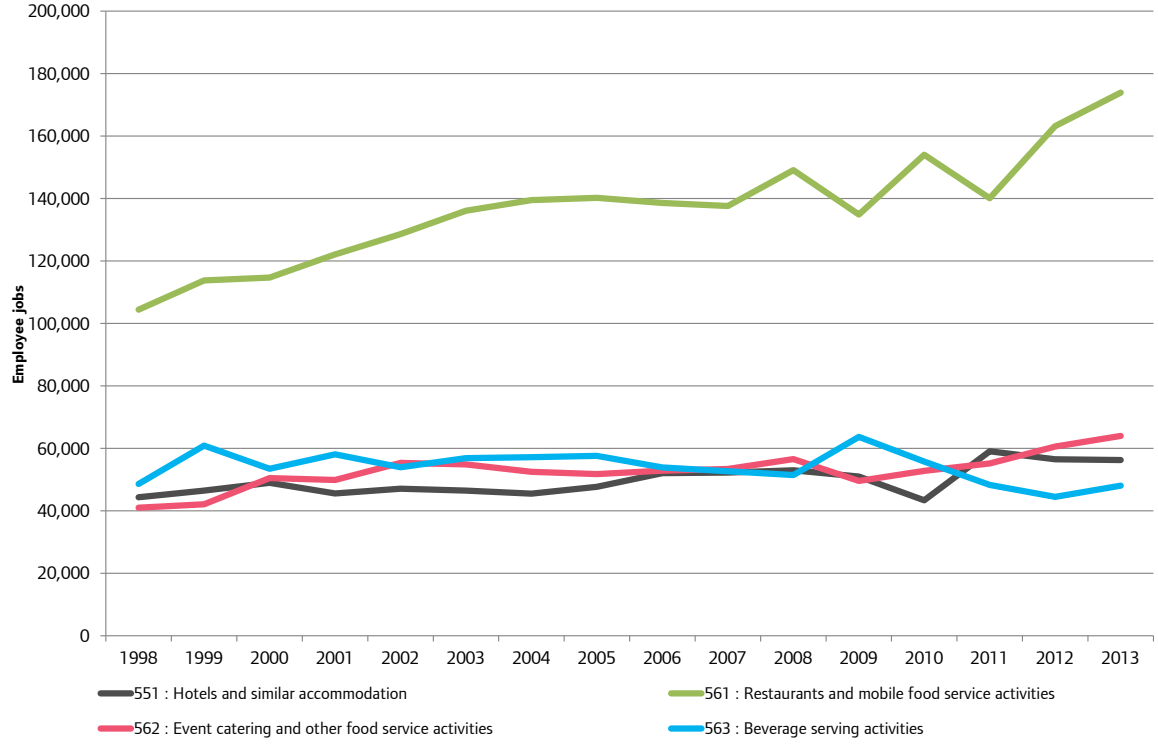
Figure 1.14: Detailed data on employee jobs in Professional, scientific, technical and real estate activities



Source: Annual Business Inquiry and Business Register and Employee Survey, ONS and GLA Economics modelling.

Jobs in the Accommodation and food service activities were another significant driver of total jobs in London between 1996 and 2013. Figure 1.15 suggests that a rise in the number of jobs in Restaurants and mobile food service activities were the largest contributor to jobs growth in this sector. Restaurants and mobile food service providers accounted for around 173,900 jobs in the sector in 2013, a 67 per cent rise from 1998.

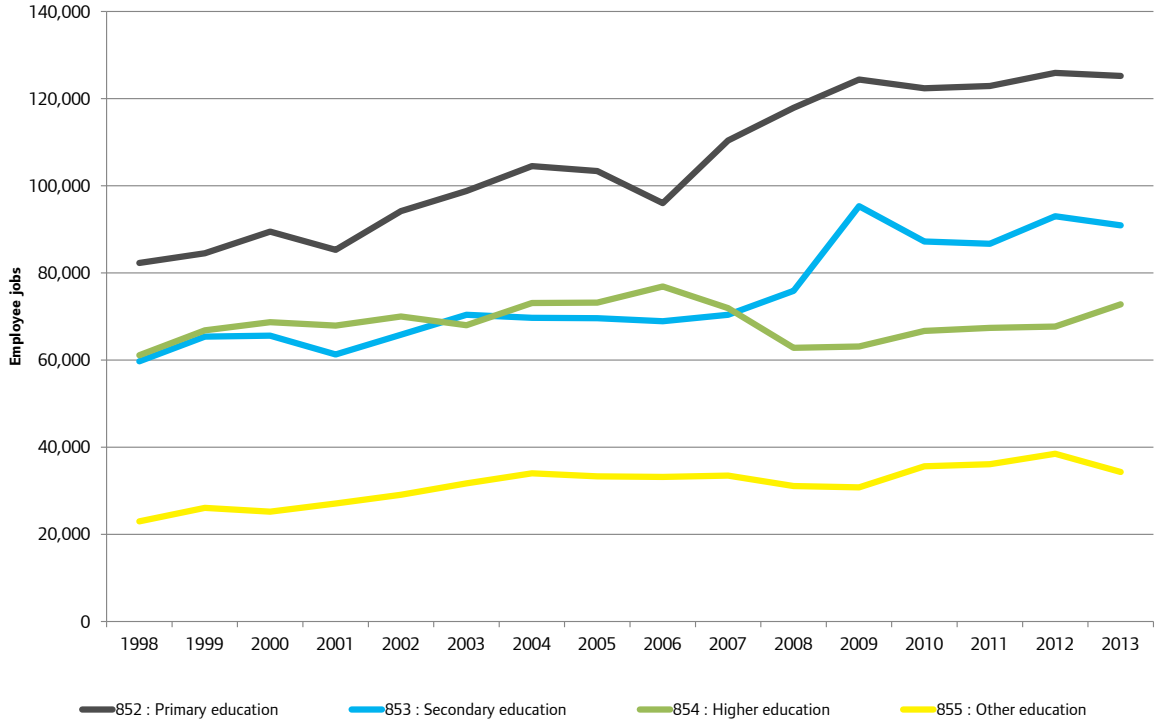
Figure 1.15: Detailed data on employee jobs in Accommodation and food service activities



Source: Annual Business Inquiry and Business Register and Employee Survey, ONS and GLA Economics modelling.

Growth in employee jobs in the education sector has been driven by the increase in jobs in Primary and Secondary education, with employee jobs in these sectors totalling around 125,200 and 90,900 respectively (Figure 1.16). Jobs in primary education have more than doubled from 1998, however, this rise can at least partially be explained by population growth in London (see Chapter 6). Employee jobs provided in Higher education (including jobs in Post-secondary non-tertiary, First-degree level higher education and Post-graduate level higher education) totalled 72,800 in 2013.

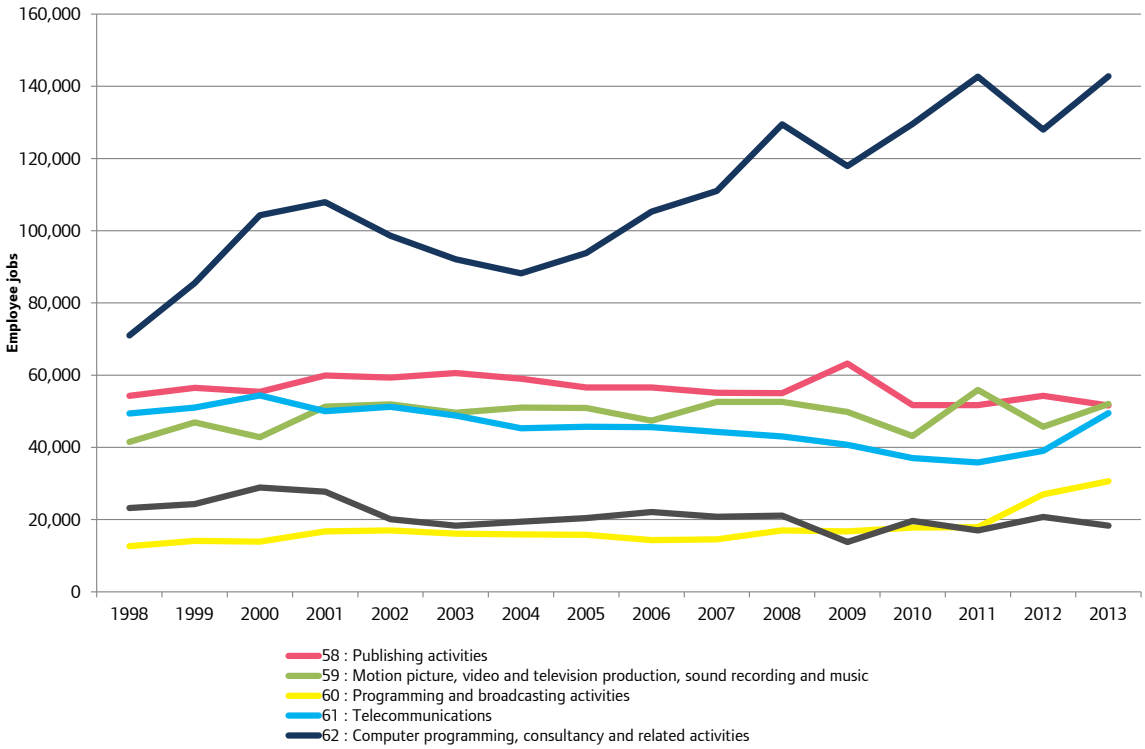
Figure 1.16: Detailed data on employee jobs in Education



Source: Annual Business Inquiry and Business Register and Employee Survey, ONS and GLA Economics modelling.

Another key sector in London; Computer programming, consultancy and related activities, has seen a substantial increase in employee jobs since 1998 with the sector more than doubling by 2013 to 142,800 (Figure 1.17). Employee jobs in Film and television production along with sound and music recording have also increased by 25 per cent from the late 1990s.

Figure 1.17: Detailed data on employee jobs in Information and communication activities

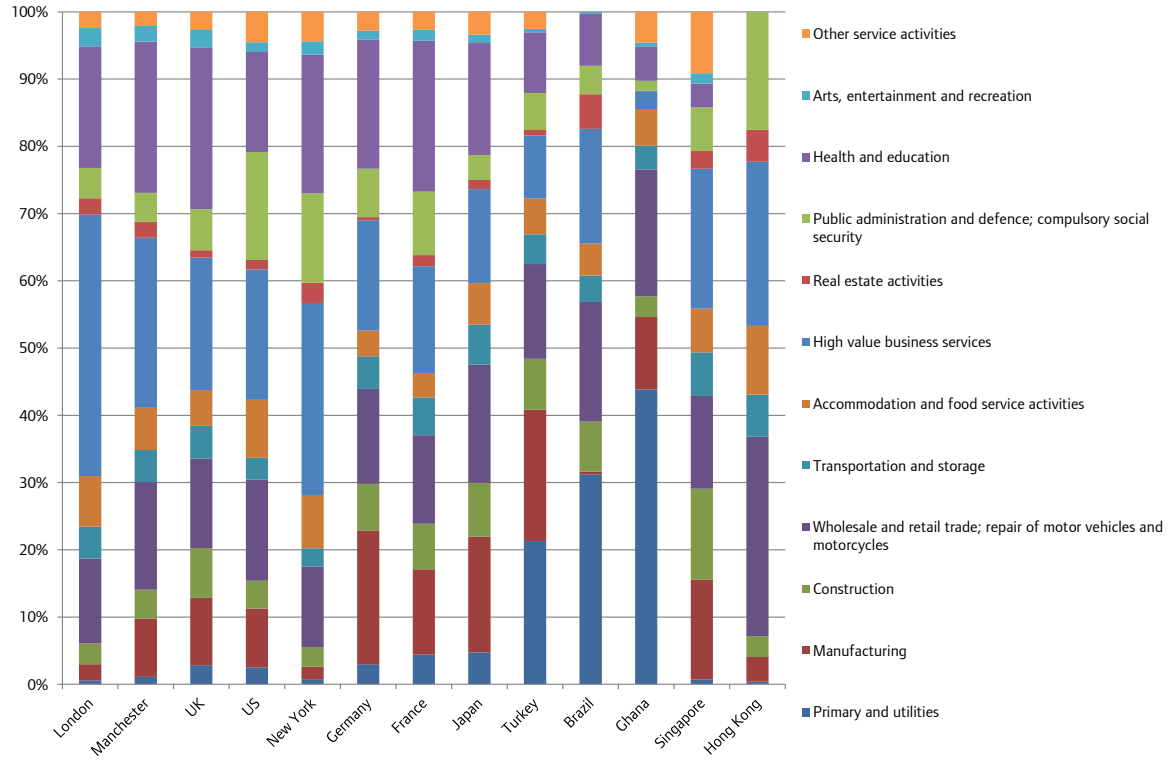


Source: Annual Business Inquiry and Business Register and Employee Survey, ONS and GLA Economics modelling.

As demonstrated in Figure 1.12, jobs in Manufacturing declined substantially between 1996 and 2014. However, detailed sector analysis suggests that some areas of manufacturing have performed more strongly in recent years. For example, while overall manufacturing jobs have fallen over the last decade or so, the number of jobs in the manufacturing of food products was 40 per cent higher in 2013 when compared to 1998[19]. Areas of food manufacturing that have seen increases over the period include bakery and other food products (including processing of tea and coffee; manufacture of prepared meals and dishes, and confectionary, for example).

Figure 1.18 demonstrates that the industrial structure of London is different to other global cities, as well as other industrialised and emerging economies. London's employment composition is different to the UK's but also differs to that of other cities in the UK such as Manchester and other developed economies such as Germany's[20]. Manufacturing accounts for a considerably larger share of activity in both Germany (around 20 per cent) and Japan (around 17 per cent) than in London or the UK (around 2 per cent and 10 per cent respectively). High value business services are more important to London than New York, for example.

Figure 1.18: Industrial composition of London and the UK compared to some other countries and cities as demonstrated by employee jobs[21,22,23,24,25]



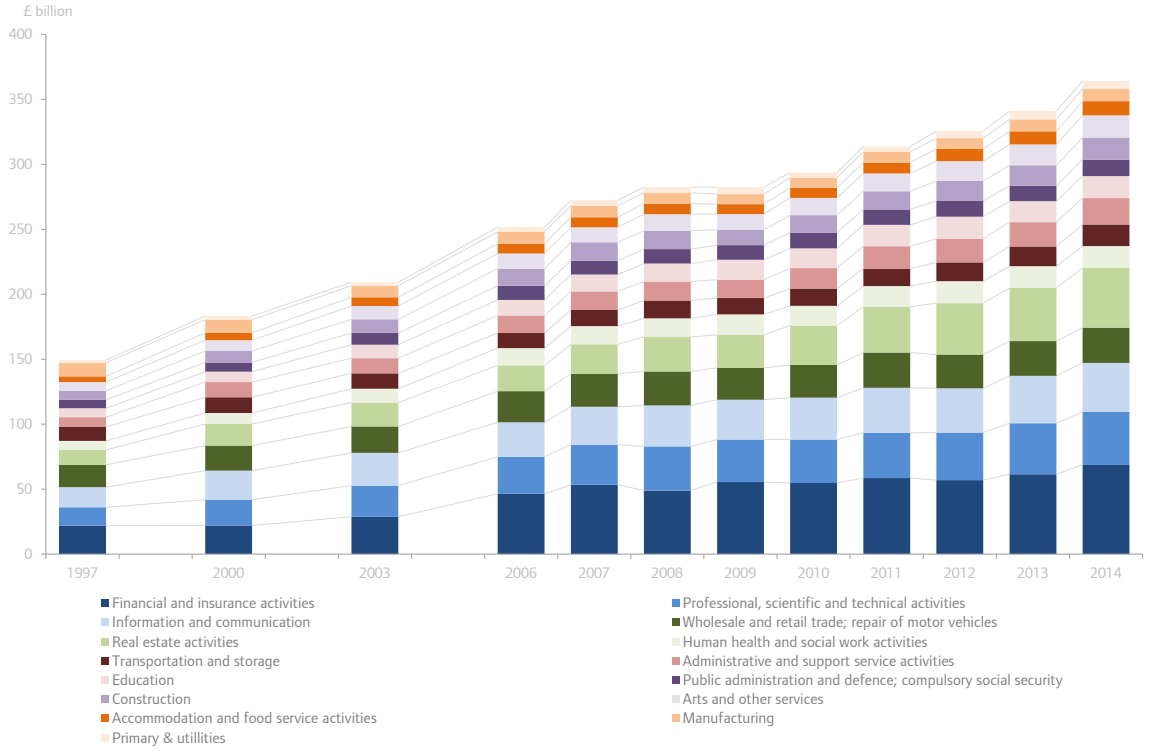
Source: Business Register and Employment Survey, ONS; Eurostat; International Labour Organization; Bureau of Labour Statistics, United States Department of Labour; Census and Statistics Department, Hong Kong; the Ministry of Manpower, Singapore Government.

Note: The latest data point varies across countries.

London's Gross Value Added (GVA) across sectors

Based on the total numbers of employee jobs, the Professional, scientific and technical activities was the largest sector in London. However, in terms of Gross Value Added (GVA), the Financial and insurance activities accounted for just under a fifth of activity in London in 2014 (Figure 1.19). The value of this industry has grown by 212 per cent since 1997, the third fastest rate for any industry in London. The only industries to surpass this rate of growth were Electricity, gas, steam and air conditioning supply (356 per cent), and Real estate activities which has grown by 305 per cent since 1997 (this sector accounts for 12.6 per cent of London's GVA in 2014). In 2014, 51.8 per cent of the UK's GVA in the Financial and insurance industry was generated in London (up from 42.6 per cent in 1997). Indeed, London's Financial and insurance industry made up 4.3 per cent of the UK's total GVA in 2014. Professional, scientific and technical activities and Real estate activities both made a sizeable contribution towards London's economy accounting for 11.2 per cent and 12.6 per cent respectively of London's total GVA in 2014.

Figure 1.19: Gross Value Added (GVA) in London by sector over time



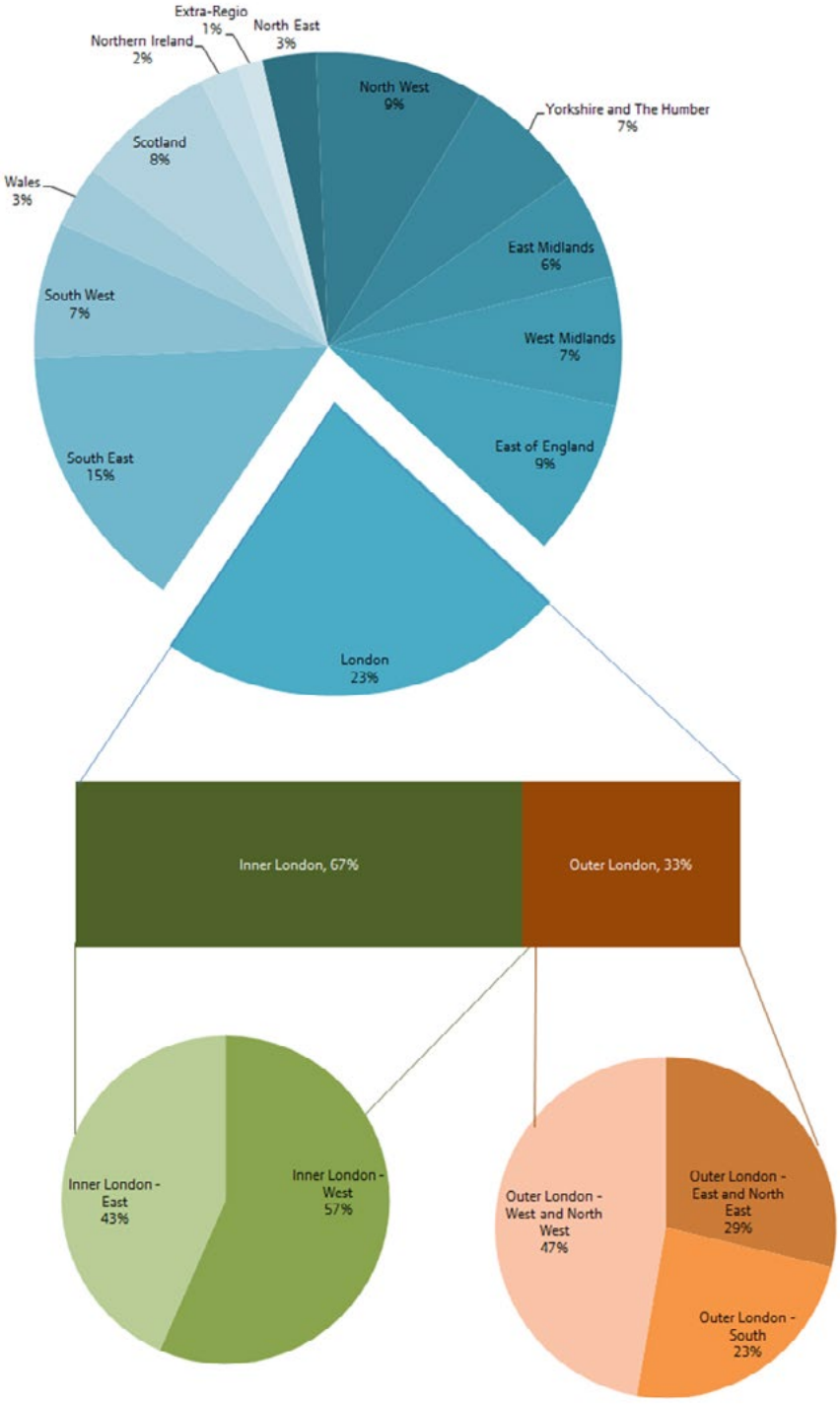
Source: Regional Accounts, ONS

As measured by GVA, London's total economic output was worth around £364 billion[26] in 2014, 6.8 per cent higher than in 2013. In 2014, London accounted for 22.5 per cent of the UK's total GVA, up from 18.9 per cent in 1997. The growth in London's nominal GVA accounted for 32.6 per cent of the UK's total GVA increase between 2013 and 2014. Over two-thirds of London's GVA was produced in Inner London in 2014 (Figure 1.20). Almost two-fifths (38.0 per cent) of London's total GVA was produced in Inner London-West alone, with it having a higher GVA than all UK regions except for the South East, the North West, the East of England (and, of course, London).

Figure 1.20: Geographic breakdown of headline UK[27] GVA in 2014[28]

Headline workplace GVA in 2014, £ billion	
Northern Ireland	34
North East	48
Wales	54
East Midlands	95
Yorkshire and The Humber	106
West Midlands	115
South West	121
Scotland	124
East of England	139
North West	150
South East	240
London	364
UK	1,618
Inner London	245
Inner London - West	139
Inner London - East	106
Outer London	119
Outer London - East and North East	34
Outer London - South	29
Outer London - West and North West	56

Note: Numbers may not add due to rounding
& UK numbers include Extra-Regio & statistical discrepancy

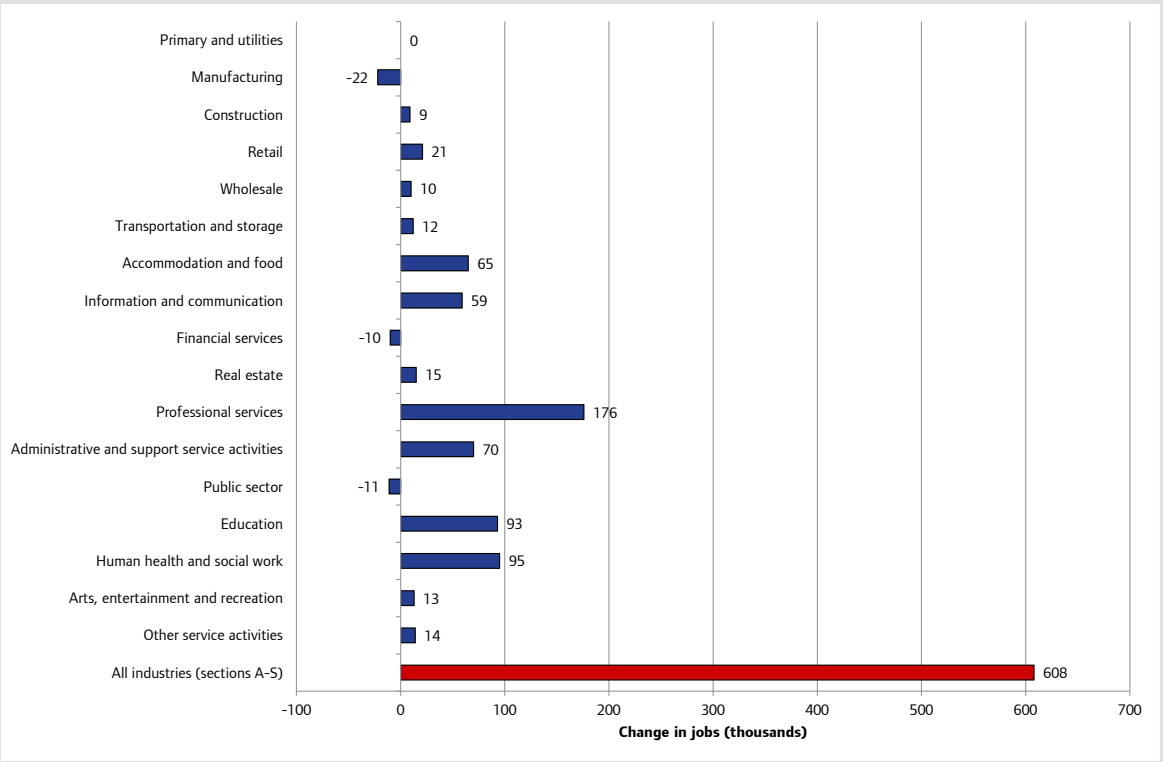


Source: Regional Accounts, ONS

Box 1.1: London's economic performance since 2008

Since the 2008/09 recession output growth has been sluggish by historical post-recession standards while employment growth has been uncharacteristically and unexpectedly strong (Figure 1.21). This has led to a stalling in productivity growth (see Box 4.1 in Chapter 4). 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[29].

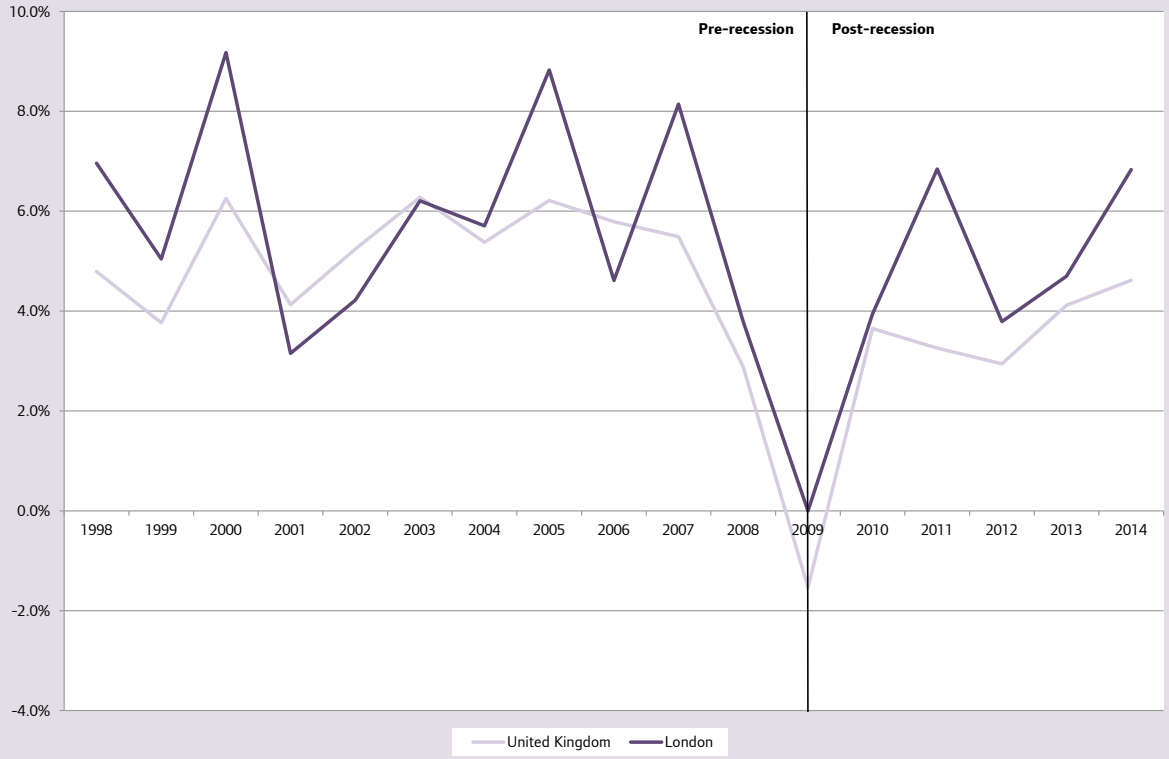
Figure 1.21: Percentage changes in jobs in London by sector between 2008 and 2014



Source: Workforce jobs, ONS

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 (Figure 1.22)[30]. 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).

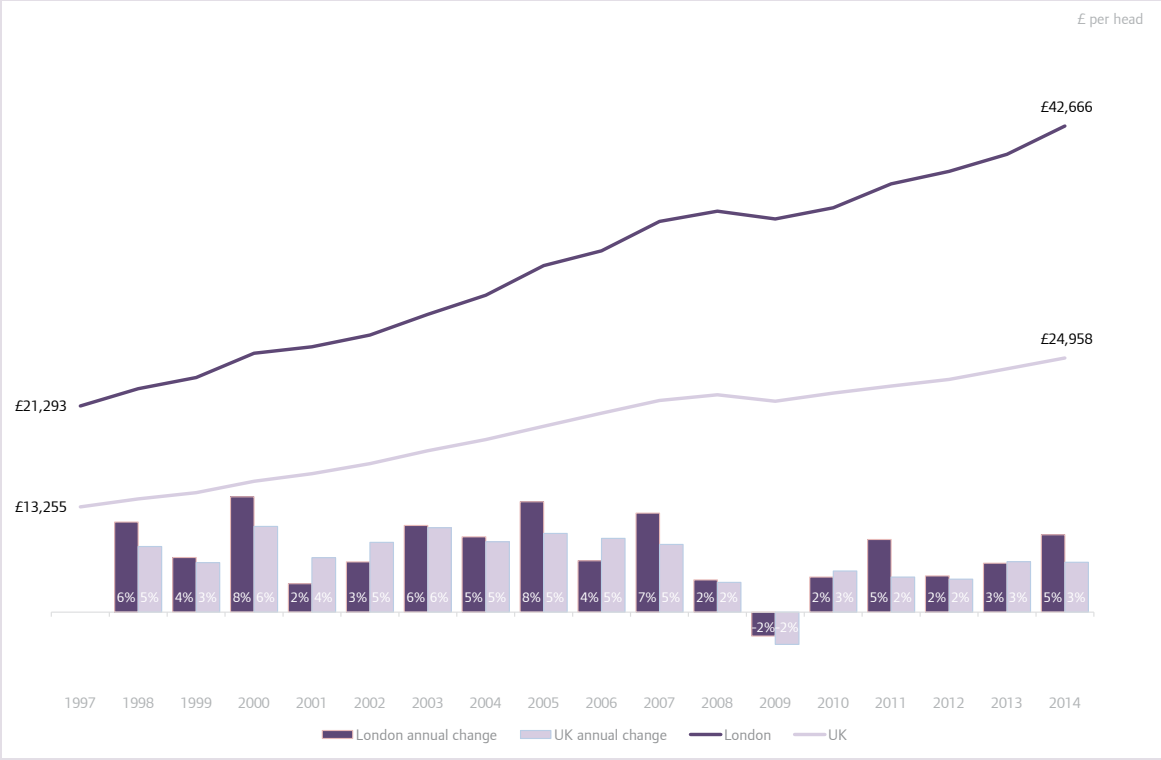
Figure 1.22: Nominal growth rates in GVA in London and the UK, between 1998 and 2014



Source: Regional Accounts, ONS.

London's recent GVA performance remains impressive even after adjusting for its relative size[31]. GVA per head of population in the capital was £42,666 in 2014 (see Figure 1.23), the highest of any English region or UK nation and over 70 per cent higher than that for the UK as a whole which stood at £24,958. Over 2014, GVA per head in London has increased by 5.3 per cent. Since 2008, it has risen by 18.0 per cent, compared to a rate of increase of 12.7 per cent for the UK as a whole.

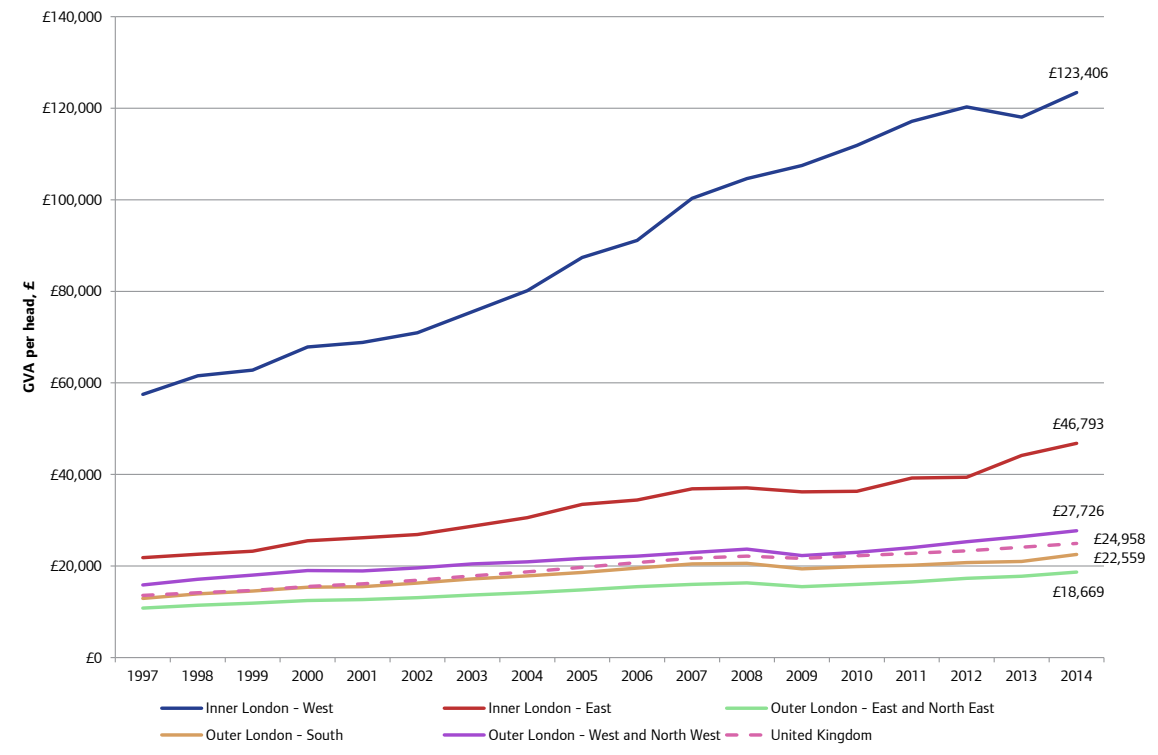
Figure 1.23: Headline GVA[32] per head (£) and annual percentage change in London and UK over time[33], current prices



Source: Regional Accounts, ONS.

However, the London-wide GVA per head estimates hide some significant variation across the sub-regions and local areas. Between 2008 and 2014, GVA per head grew by 18.0 per cent in Inner London – West compared to 26.2 per cent in Inner London – East. Within the Outer London NUTS2 areas, GVA per head growth was highest at 16.9 per cent in Outer London – West and North West, and lowest in Outer London – South where growth was just 9.5 per cent since 2008[34]. For comparison, GVA per head for the UK as a whole grew by 12.7 per cent between 2008 and 2014.

Figure 1.24: Headline GVA[35] per head at London NUTS 2 level and UK, 1997-2014[36], current prices

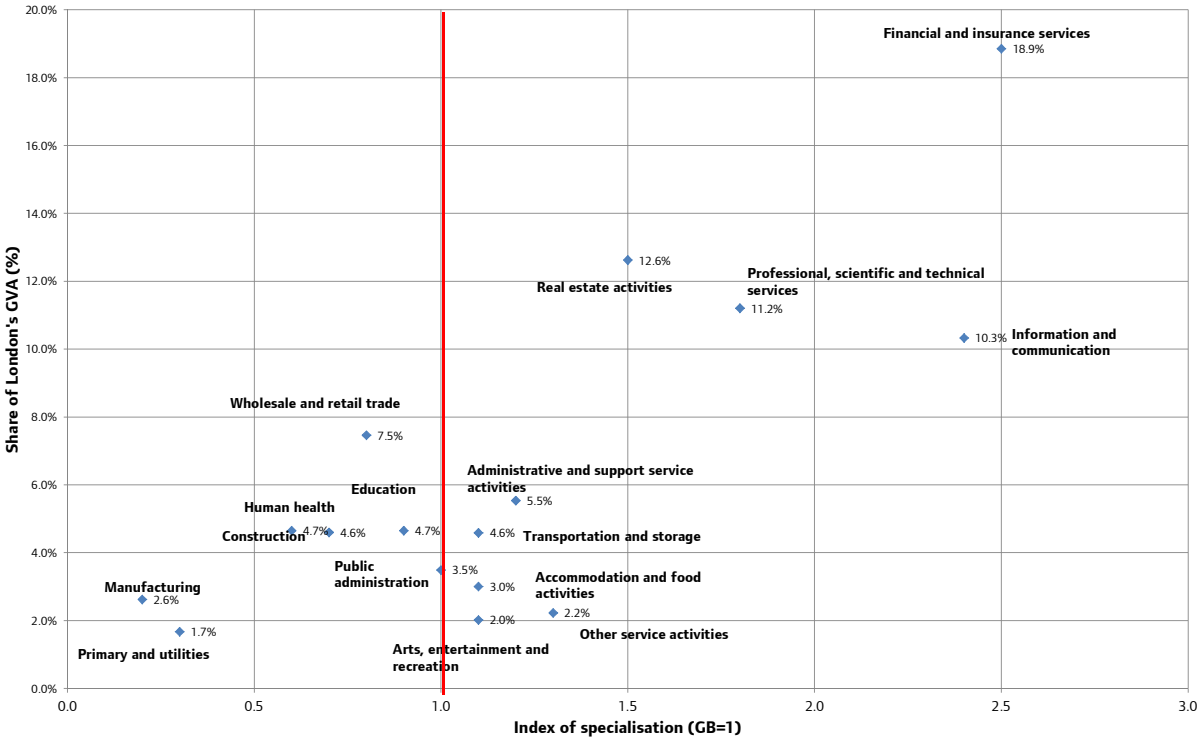


Source: Regional Accounts, ONS.

London's economic specialisation

Figure 1.25 further demonstrates London's current industrial structure and areas that London specialises in as represented by employee jobs; some of these areas London also has a relative comparative advantage compared to its trading partners (Table 1.1). If London reflected the same employee proportions as Great Britain (GB) as a whole, then all the sectors shown would be located on the vertical red line in the diagram. The vertical axis looks at the proportion of London's total output each individual sector contributes. The diagram demonstrates that London's economic activity is, in the main, concentrated in Financial and insurance services, whilst other sectors of concentration include Information and communication, Professional, scientific and technical services as well as Real estate activities (all sectors are located in the top right quadrant in the figure – with high specialisation and a relatively high proportion of total output). Table 1.2 provides a more detailed summary of the index of specialisation by broad industry category.

Figure 1.25: London's index of specialisation and share of London's total output, 2014[37]



Source: Business Register and Employment Survey (BRES) - ONS, UK Regional Accounts – ONS.

The index of specialisation estimates for London suggest that the capital specialises in Financial services, Information and communication activities, and Professional services (Table 1.2). An index of specialisation of greater than one indicates that London has a greater proportion of employee jobs in that sector compared to the rest of Great Britain and as such a relative specialisation when compared to the rest of the country. The broad industry categories provide only a partial picture of London's specialisations and the results of examination of more detailed industry level data are shown in Table 1.3.

More detailed data show that London particularly specialises in areas such as Fund management activities, Television programming and broadcasting activities, and media activities, such as advertising (Table 1.3). In 2014, Fund management activities provided around 28,200 jobs, with an index of specialisation score of 12.0, and employee jobs in the capital accounted for around 71.0 per cent of the GB total. Another particular specialisation for London in 2014 was in Security and commodity contracts brokerage with around 25,500 jobs in 2014, and with an index of specialisation score of 9.1. With around 80 per cent of all Television programming and broadcasting activities jobs in GB located within London, this is another area in which London has a particular specialisation in (with an index of specialisation score of 19.4). Advertising agencies were also an important provider of jobs (42,400) in 2014 accounting for almost 46 per cent of all GB jobs in the sector, with an index of specialisation score of 4.1.

Table 1.2: London's industrial structure and main specialisation, 2014

Sector	London employee jobs	Share of total London employee jobs	London share of rest of GB employee jobs	Index of specialisation
Total London	4,732,800	100.0%	16.9%	1.0
Primary and utilities (Sections A, B, D and E)	28,800	0.6%	5.1%	0.3
C : Manufacturing	113,300	2.4%	4.8%	0.2
F : Construction	144,800	3.1%	11.6%	0.6
G : Retail	406,700	8.6%	14.6%	0.8
G : Wholesale	187,900	4.5%	11.6%	0.7
H : Transportation and storage	227,300	4.8%	18.2%	1.1
I : Accommodation and food service activities	358,000	7.6%	18.1%	1.1
J : Information and communication	372,800	7.9%	32.6%	2.4
K : Financial and insurance activities	351,900	7.4%	34.1%	2.5
L : Real estate activities	107,600	2.3%	23.7%	1.5
M : Professional, scientific and technical activities	613,900	13.0%	27.3%	1.8
N : Administrative and support service activities	490,600	10.4%	20.2%	1.2
O : Public administration and defence; compulsory social security	220,000	4.6%	17.1%	1.0
P : Education	385,700	8.1%	15.0%	0.9
Q : Human health and social work activities	483,700	10.2%	12.9%	0.7
R : Arts, entertainment and recreation	125,200	2.6%	18.3%	1.1
S : Other service activities	114,600	2.4%	20.9%	1.3

Source: Business Register and Employment Survey, ONS. Sector letter prefixes relate to sector codes within the Standard Industrial Classification; SIC 2007, Office for National Statistics.

Table 1.3: London's detailed industrial structure and main specialisation, 2014

Sector	London employee jobs	Share of total London employee jobs	London share of rest of GB employee jobs	Index of specialisation
Total London	4,732,800	100.0%	16.9%	1.0
K : Financial and insurance activities	351,900	7.4%	34.1%	2.5
of which				
6630 : Fund management activities	28,200	0.6%	71.0%	12.0
6612 : Security and commodity contracts brokerage	25,500	0.5%	65.1%	9.1
6430 : Trusts, funds and similar financial entities	6,900	0.1%	54.3%	5.8
6419 : Other monetary intermediation	140,300	3.0%	35.0%	2.6
6619 : Other activities auxiliary to financial services, except insurance and pension funding	46,000	1.0%	34.0%	2.5
6499 : Other financial service activities, except insurance and pension funding, n.e.c.	13,200	0.3%	31.0%	2.2
6629 : Other activities auxiliary to insurance and pension funding	24,700	0.5%	30.3%	2.1
6622 : Activities of insurance agents and brokers	32,500	0.7%	29.8%	2.1
6512 : Non-life insurance	13,400	0.3%	19.9%	1.2
6511 : Life insurance	4,300	0.1%	13.9%	0.8
J : Information and communication	372,800	7.9%	32.6%	2.4
of which				

5913 : Motion picture, video and television programme distribution activities	4,500	0.1%	83.3%	24.5
6391 : News agency activities	7,700	0.2%	81.1%	21.0
6020 : Television programming and broadcasting activities	22,100	0.5%	79.8%	19.4
5912 : Motion picture, video and television programme post-production activities	8,600	0.2%	76.1%	15.6
5920 : Sound recording and music publishing activities	5,700	0.1%	70.4%	11.7
5911 : Motion picture, video and television programme production activities	35,900	0.8%	63.9%	8.7
6010 : Radio broadcasting	7,300	0.2%	61.9%	8.0
6312 : Web portals	4,400	0.1%	59.5%	7.2
5814 : Publishing of journals and periodicals	19,800	0.4%	50.5%	5.0
5811 : Book publishing	11,000	0.2%	45.1%	4.0
5813 : Publishing of newspapers	13,300	0.3%	33.9%	2.5
5819 : Other publishing activities	5,500	0.1%	32.7%	2.4
6120 : Wireless telecommunications activities	5,100	0.1%	31.5%	2.3
6201 : Computer programming activities	39,900	0.8%	27.0%	1.8
6202 : Computer consultancy activities	88,500	1.9%	26.6%	1.8
6209 : Other information technology and computer service activities	31,900	0.7%	26.1%	1.7
6190 : Other telecommunications activities	37,500	0.8%	22.5%	1.4
6311 : Data processing, hosting and related activities	9,600	0.2%	22.5%	1.4
M : Professional, scientific and technical activities	613,900	13.0%	27.3%	1.8
of which				
7021 : Public relations and communication activities	11,500	0.2%	58.4%	6.9
7312 : Media representation	7,500	0.2%	51.0%	5.1
7311 : Advertising agencies	42,400	0.9%	45.7%	4.1
7320 : Market research and public opinion polling	19,800	0.4%	40.9%	3.4
7410 : Specialised design activities	17,300	0.4%	36.2%	2.8
7111 : Architectural activities	23,500	0.5%	33.3%	2.5
6910 : Legal activities	86,400	1.8%	32.5%	2.4
7420 : Photographic activities	5,600	0.1%	32.2%	2.3
7022 : Business and other management consultancy activities	135,100	2.9%	30.9%	2.2
6920 : Accounting, bookkeeping and auditing activities; tax consultancy	87,000	1.8%	29.7%	2.1
7010 : Activities of head offices	75,100	1.6%	29.0%	2.0
7490 : Other professional, scientific and technical activities n.e.c.	24,600	0.5%	24.9%	1.6
7219 : Other research and experimental development on natural sciences and engineering	17,000	0.4%	15.9%	0.9
7500 : Veterinary activities	6,600	0.1%	13.6%	0.8
7112 : Engineering activities and related technical consultancy	46,100	1.0%	12.7%	0.7
7120 : Technical testing and analysis	4,100	0.1%	7.9%	0.4
L : Real estate activities	107,600	2.3%	23.7%	1.5
of which				
6832 : Management of real estate on a fee or contract basis	28,200	0.6%	31.4%	2.2

6831 : Real estate agencies	38,300	0.8%	26.6%	1.8
6820 : Renting and operating of own or leased real estate	39,100	0.8%	18.4%	1.1
S : Other service activities	114,600	2.4%	20.9%	1.3
of which				
9411 : Activities of business and employers membership organisations	7,800	0.2%	55.3%	6.1
9412 : Activities of professional membership organisations	16,100	0.3%	54.4%	5.9
9491 : Activities of religious organisations	16,300	0.3%	26.2%	1.7
9601 : Washing and (dry-)cleaning of textile and fur products	6,000	0.1%	21.1%	1.3
9499 : Activities of other membership organisations n.e.c.	20,400	0.4%	17.9%	1.1
9602 : Hairdressing and other beauty treatment	19,900	0.4%	17.0%	1.0
9609 : Other personal service activities n.e.c.	14,300	0.3%	15.8%	0.9

Source: Business Register and Employment Survey, ONS.
Note: London data are based on 4-digit Standard Industrial Classification level data (SIC2007).

Chapter 1 endnotes

1 The Group of 7 (G7) is a group of seven major advanced economies as reported by the International Monetary Fund (IMF) and consists of Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.
2 European Central Bank, 'Understanding the weakness in world trade', ECB Economic Bulletin, Issue 3, 2015.
3 IMF working paper, 'The global trade slowdown: cyclical or structural?', January 2015.
4 For example, "Chinese exporters are now using more domestically produced inputs than imported inputs; the share of Chinese imports of parts and components in total exports has decreased from 60 per cent in the mid-1990s to 35 per cent today".
5 More detailed data breakdowns of 'Other business services' are available in the data file published alongside GLA Economics working paper 'An analysis of London's exports'.
6 Insurance services don't appear to be a significant export sector for London in 2013. However, this may at least partially reflect the methodology used to apportion UK level insurance services down to the London level. The apportionment is based on London's relative productivity compared to the UK and as the earlier GVA per job analysis demonstrates GVA per job in the insurance industry for London is considerably lower than the GVA per job in the industry for the UK as a whole (GLA Economics, 'Gross Value Added per Workforce Job in London and the UK', February 2015.
7 'Other finance' includes 'Baltic exchange' that covers the brokerage and other service earnings of members of the Exchange for Chartering, sales and purchases of ships and other associated activities. Exports in 'Other finance' also include exports by 'Other financial institutions' that refer to financial service transactions not included elsewhere.
8 'Other business services' includes exports of other trade-related services; operational leasing; miscellaneous business, professional and technical services (such as legal, accounting, management consulting, recruitment and training and public relations; advertising and market research and development). For further details refer to the 'Methodological notes (BPM6 basis)' from the Office for National Statistics.
9 Unallocated services include 'Manufacturing on physical inputs owned by others', 'Maintenance and repair', 'Construction', 'Intellectual property', 'Recruitment of Business management and management consulting', ' Waste treatment and de-pollution, agriculture and mining services' and 'Other Business services exported by UK banks'.
10 GLA Economics applied the UK's export shares for each country to London's total service exports.
11 Balassa Index of Revealed Comparative Advantage, captures the degree of trade specialisation of a country, and is defined as $RCA = (x_{ij}/X_i)/(x_{aj}/X_a)$ *where* x_{ij} *are exports of services* j from country i; x_i are total exports from country i; x_{aj} are total exports of services j from the reference area (i.e. G7 countries); x_a are total service exports from reference area (i.e. G7 countries).
12 (…) in the table reflects a lack of statistical data available that can be reported or calculated from underlying observations.
13 London's service export estimates for Construction services, Manufacturing Services on Physical Inputs Owned by Others and Maintenance and Repair Services n.i.e. are based on UK service exports figures and London's average service export share of the UK industry level data.
14 Export data for G7 countries is based on data from the IMF Balance of Payments database, whilst London level data are based on GLA Economics estimates.
15 GLA Economics, 'London Business Survey 2014: Exports', November 2014.
16 GLA Economics, 'Growing Together II: London and the UK Economy', September 2014.
17 Figures for manufacturing jobs in 1984 are based on modelled estimates featured in a publication by GLA Economics, 'London's sectors – more detailed jobs data', March 2015. In contrast, the latest figures for manufacturing jobs are based on official workforce jobs statistics published by the Office for National Statistics (ONS).
18 GLA Economics, 'London's sectors: more detailed jobs data', Working Paper 65.
19 For further details, see Working paper on 'London's sectors: more detailed jobs data', March 2015.
20 Data shown in Figure 26 are based on different surveys and definitions across countries and cities, and therefore these findings should be treated with some caution.
21 Data for London, Manchester, New York, Germany, France, Turkey and UK refer to 2014; US for 2012; Japan for 2013; Brazil for 2009 and Ghana for 2010. Data for London and Manchester are from BRES, whilst data for the UK is from Eurostat.
22 High value business services include: Information and communication; Financial and insurance activities; Professional, scientific and technical activities; and Administrative and support service activities (or our best estimate for the sectors that corresponds to the outlined sectors that data are available for).
23 Data for US and New York may differ from data provided on London, UK and the other European countries due to minor differences in Standard Industrial Classification system across the European Union and the US.
24 Education data for Singapore is included in Public administration.
25 Professional and administrative jobs data are grouped together for Hong Kong. In addition, Sections P to S are combined into one category in the source data. These sections include: P : Education; Q : Human health and social work activities; R : Arts, entertainment and recreation; S : Other service activities.
26 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.
27 UK includes Extra-Regio (which comprises compensation of employees and gross operating surplus which cannot be assigned to regions)
28 2014 data are provisional.
29 See GLA Economics, 'London's changing economy since 2008', October 2015, for further details.
30 ONS, 'Regional Gross Value Added (Income Approach)', December 2015.

31 Adjusting for relative size is important as it provides a clearer understanding of the regions relative prosperity and is generally correlated with living standards. The importance of this can be observed when we compare national incomes. China, for example, has significantly higher output than Singapore; however the output per head and living standards of Singapore are higher.
32 Estimates are for workplace based GVA allocating incomes to the region in which the economic activity takes place.
33 2014 data are provisional.
34 The Nomenclature of Territorial Units for Statistics (NUTS) is a hierarchical classification of administrative areas, used across the European Union (EU) for statistical purposes. NUTS 2 areas within London are: Inner London – West, Inner London – East, Outer London – East and North East, Outer London – South, and Outer London – West and North West.
35 Estimates are for workplace based GVA allocating incomes to the region in which the economic activity takes place.
36 2014 data are provisional.
37 Index of specialisation calculations are based on Business Register and Employment Survey (BRES) data that include country-level data on employee jobs for Great Britain, England, Scotland and Wales. 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 The spatial characteristics of London

2.1 Main Findings

- 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 £179 billion in 2012, accounting for nearly 55 per cent of London's output and just over 12 per cent of UK output.

- Significant concentrations of employment can also be seen in central London which has grown over time, but with other areas such as Heathrow also being important areas of employment in London.

- London represents a significant share of employment in the Greater South East and is a destination of employment for a large number of commuters.

- Distinct clustering of sectors by employment was also discovered in London with the Central Activities Zone being important for most but with other areas such as Hillingdon around Heathrow showing clustering in Accommodation and food service activities employment.

- London has seen a large growth in public transport usage but this has led to challenges such as overcrowding at a number of heavily used rail stations. Further, London dominates rail travel in Great Britain with it being found that in 2012/13, 62 per cent of all rail journeys in Great Britain started or finished in London.

- There is a risk that the high demand for residential land may crowd out commercial uses of land. The emerging evidence suggests that this is starting to have a negative impact on the supply of office floorspace.

- The supply of housing has not kept up with demand, in part, driven by London's strong population growth over the past 15 to 20 years. There have been strong rises in London house prices which are far higher than the rest of the country.

- In the centre of London, population density is quite low relative to other major cities around the world, despite it being smaller in terms of its geographical size.

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 more than a century 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 up to the 20th century, 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 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 include 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 can be 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		2010	
1	Beijing	0.7	Beijing	0.7	Beijing	1.1	**London**	**6.5**	Shanghai	13.3
2	Istanbul	0.7	Istanbul	0.6	**London**	**1.1**	New York	4.2	Mumbai	12.6
3	Vijayanagar (India)	0.5	Agra	0.5	Guangzhou	0.8	Paris	3.3	Buenos Aires	11.9
4	Cairo	0.4	Osaka	0.4	Tokyo	0.7	Berlin	2.7	Moscow	11.3
5	Tabriz (Iran)	0.3	Kyoto	0.3	Istanbul	0.6	Chicago	1.7	Karachi	10.9
	London	**0.1**	**London**	**0.2**					**London**	**8.1**

Source: Tertius Chandler, (1987), Four Thousands Years of Urban Growth via London 2036: an agenda for jobs and growth[1] *(1500-1900); The WorldAtlas List of Geography Facts and London Datastore (2010)*

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 etc. Thus which boundaries are used in analysis will be partly dependent on the type of question the researcher is interested in, however in this analysis, given the GLA's statutory responsibilities, the definition of London mostly used in this report will be that of Greater London.

The boundary of the Greater London area and its constituent local authorities (surrounding the nucleus of the City) is shown in Map 2.1 and highlights the geography for which the GLA is responsible for. Map 2.2 shows another couple of ways of mapping Greater London's geographic area; first in terms of its connected built-up or metropolitan areas which extend beyond the defined Greater London area, demonstrating that development has extended beyond the city's defined boundary. Map 2.2 also shows another definition of London this time as set out by the London's Functional Urban Area[2], 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.

Another way of defining London may be 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"[3].

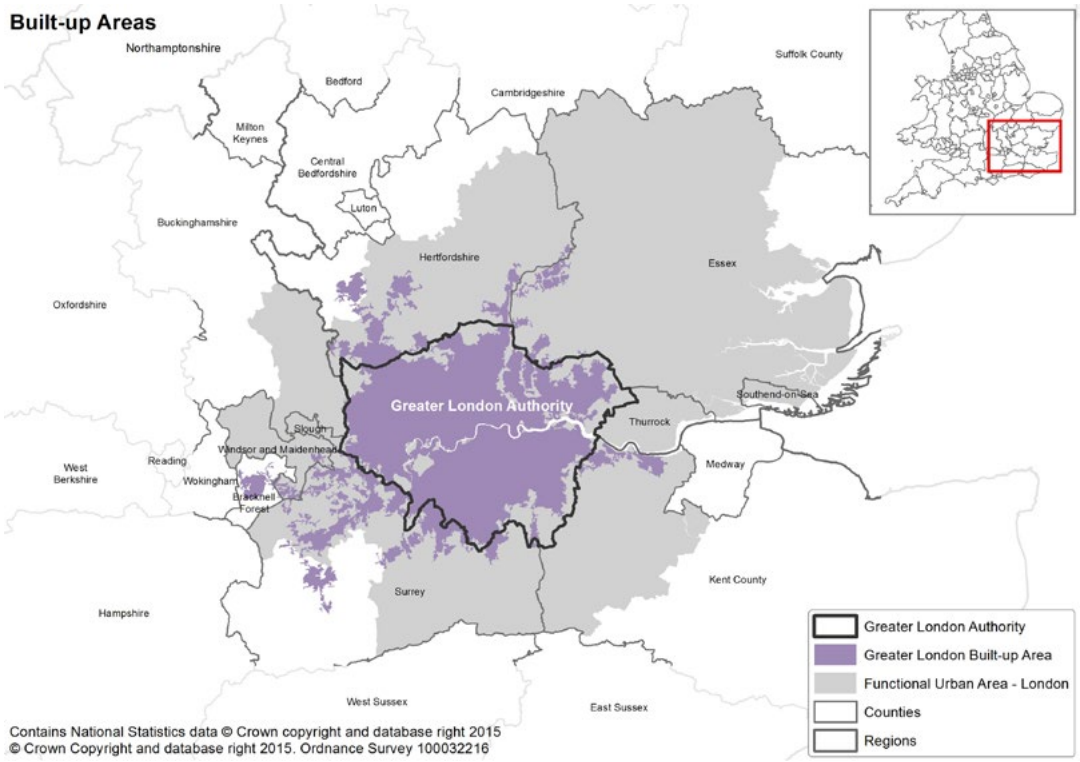
Maps 2.3 a to c show the UK's, parts of the Greater South East's and London's TTWAs. Interestingly, a significant part of West London including Heathrow is not a part of the London TTWA, but has its own TTWA called Heathrow and Slough. Whilst not in the London TTWA, arguably Heathrow and Slough TTWA should be considered as part of London given much of it lies within the city's boundaries.

Finally, Maps 2.38 to 2.43 later in this chapter 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 2.1: Greater London and its constituent local authorities

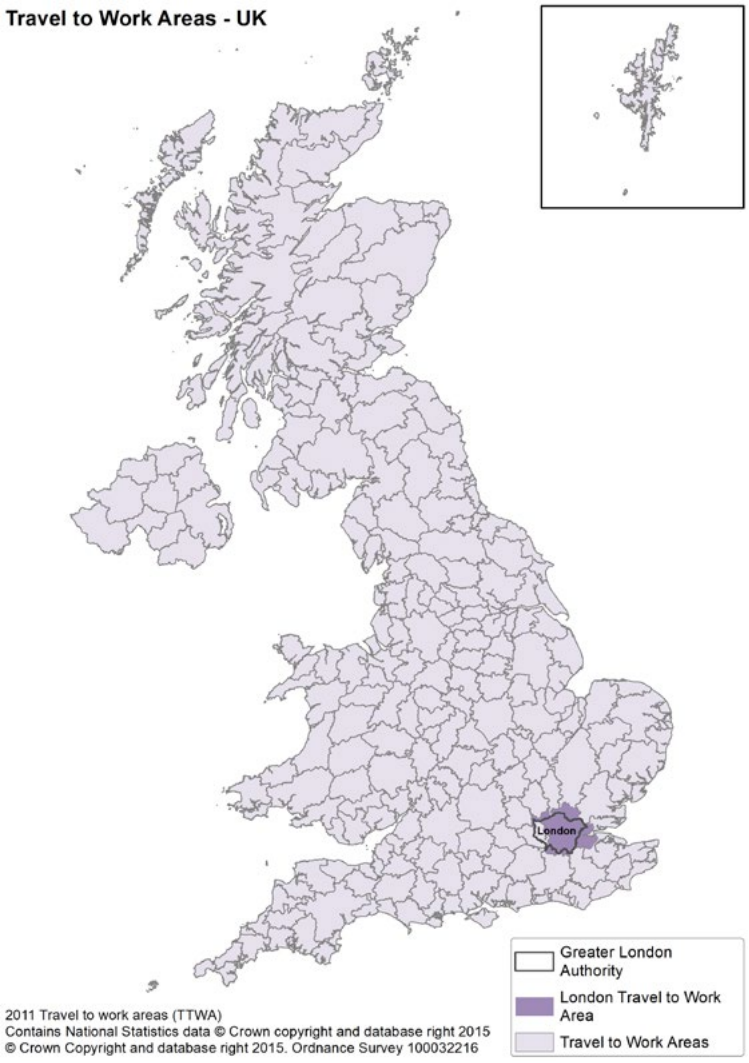
Source: GLA Intelligence Unit

Map 2.2: Greater London's connected built-up area and functional urban area



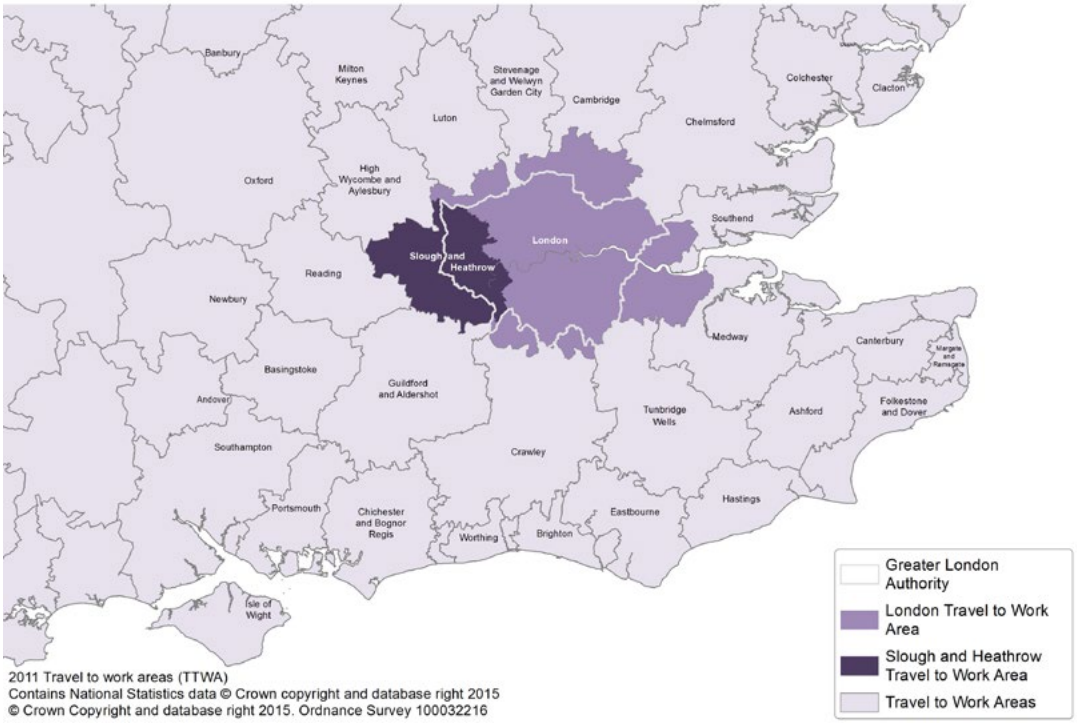
Source: GLA Intelligence Unit

Map 2.3a: United Kingdom 2011 Travel to Work areas



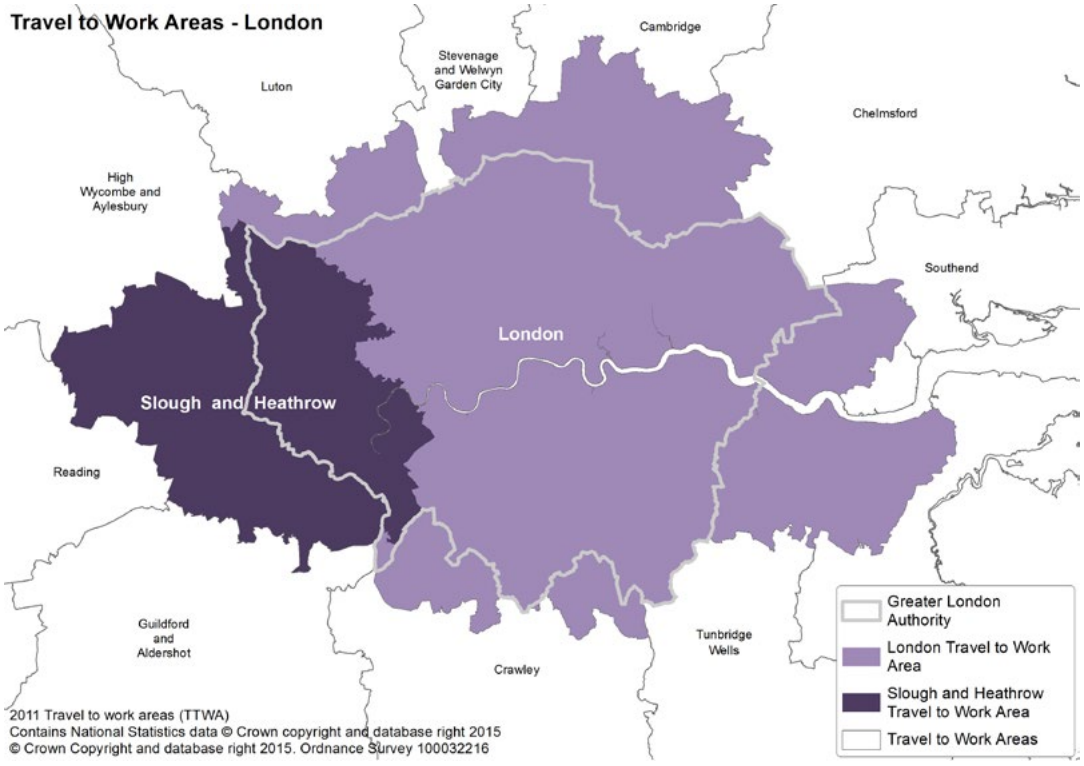
Source: ONS & GLA Intelligence Unit

Map 2.3b: Travel to Work areas in 2011 with a focus on part of the Greater South East



Source: ONS & GLA Intelligence Unit

Map 2.3c: London's 2011 Travel to Work area



Source: ONS & GLA Intelligence Unit

Still, 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. Central London offers a range of factors that are not found in combination in many other places. As shown by a number of surveys[4] 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. 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[5]. 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: so-called agglomeration benefits. 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[6], as outlined in Chapter 1.

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 Crossrail and High Speed 2 (HS2) will advance this accessibility further. Finally, it should also be noted that although beneficial to the city's economy agglomeration economies 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.

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

Thus it can be seen that a geography of particular importance to not only London or the UK as a whole but arguably the wider EU is London's Central Activities Zone (CAZ). As noted the CAZ contains a unique cluster of vitally important 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[7] (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[8].

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. At the time of writing, these data is also not available at the borough level with the lowest published official estimate of output (as measured by GVA) being at the NUTS3[9] level geography that existed before January 2015[10]. Estimates of GVA at the NUTS3 level for the new post-January 2015 geography will be published by the ONS in December 2015, but will still not include estimates for the size of output for the CAZ, NIOD and their fringes. However GLA Economics has published 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 2012 (£ million rounded to the nearest £10 million)

Area	GVA (£ million)
CAZ	139,840
CAZ 1km Fringe	22,340
NIOD	15,150
NIOD 1km Fringe	1,870
CAZ & NIOD	154,990
CAZ, NIOD & a 1km Fringe	179,200

Source: ONS, BRES and GLA Economics' calculations

Given that in 2012 London's GVA stood at £325,613 million, these estimates would suggest that the CAZ accounted for around 43 per cent of London's GVA. While they further suggest that the CAZ and NIOD accounted for around 48 per cent of London's GVA and the CAZ, NIOD and the 1 km fringe around these areas accounted for nearly 55 per cent of London's GVA. UK GVA stood at £1,475,948 million in 2012 implying that the CAZ, NIOD and their fringes accounted for just over 12 per cent of UK GVA.

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 Tables 2.3 and 2.4 which show the evolution of employees and employment[11] in the CAZ, NIOD and their approximately 1 km fringes over the years 2009 to 2014. There was a large increase in both employees and employment within this area over the six years under consideration, with 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. In employment terms the growth was in a similar range and again higher than growth in London as a whole. It should be noted that employment growth in the NIOD was particularly strong with it increasing from around 99,000 in 2009 to around 133,000 in 2014 an increase of around 34 per cent. In terms of the total number of employees and employment 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. However, given the calculation that the CAZ, NIOD and their fringes account for 55 per cent of London's output this employment figure would imply that employment in this area is generally more productive than the London average[12].

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	Change from 2009 to 2014
CAZ	1.42	1.46	1.51	1.55	1.61	1.68	18.3%
CAZ 1km Fringe	0.27	0.28	0.29	0.30	0.30	0.31	13.9%
NIOD	0.10	0.10	0.12	0.12	0.13	0.13	34.4%
NIOD 1km Fringe	0.02	0.03	0.03	0.03	0.03	0.03	20.5%
CAZ & NIOD	1.52	1.55	1.63	1.67	1.74	1.81	19.3%
CAZ, NIOD & their 1km Fringes	1.82	1.86	1.95	2.00	2.07	2.15	18.5%
London	4.14	4.21	4.30	4.45	4.56	4.73	14.2%

Source: BRES

Table 2.4: Employment 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	Change from 2009 to 2014
CAZ	1.47	1.50	1.57	1.62	1.67	1.73	17.8%
CAZ 1km Fringe	0.28	0.28	0.30	0.31	0.31	0.32	13.7%
NIOD	0.10	0.10	0.12	0.12	0.13	0.13	33.8%
NIOD 1km Fringe	0.02	0.03	0.03	0.03	0.03	0.03	20.3%
CAZ & NIOD	1.57	1.60	1.69	1.73	1.80	1.86	18.8%
CAZ, NIOD & their 1km Fringes	1.87	1.91	2.02	2.07	2.14	2.21	18.1%
London	4.27	4.32	4.50	4.59	4.71	4.85	13.6%

Source: BRES

The nature of employment in the CAZ, NIOD and their fringes is, as could be expected, heavily concentrated in a few sectors as shown by Table 2.5, with Professional, scientific and technical being particularly important. The five sectors considered in Table 2.6 accounted for around 65 per cent of the total employment in the CAZ in 2014, 67 per cent of employment in the CAZ & NIOD, and 63 per cent of the employment in these two areas and their fringe. In the NIOD alone these five sectors accounted for 82 per cent of employment. Compared to London as a whole, these five sectors accounted for around 46 per cent of employment in 2014.

Table 2.5: Employment 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	384,000	59%	39,000	6%	19,000	3%	2,000	0%	403,000	61%	444,000	68%
Financial & insurance activities	243,000	68%	12,000	3%	57,000	16%	1,000	0%	300,000	84%	312,000	87%
Information & communication	189,000	50%	28,000	7%	13,000	3%	3,000	1%	202,000	53%	232,000	61%
Administrative and support services activities	179,000	36%	25,000	5%	15,000	3%	9,000	2%	195,000	39%	229,000	46%
Accommodation & food services activities	137,000	37%	40,000	11%	5,000	1%	2,000	1%	142,000	39%	184,000	50%

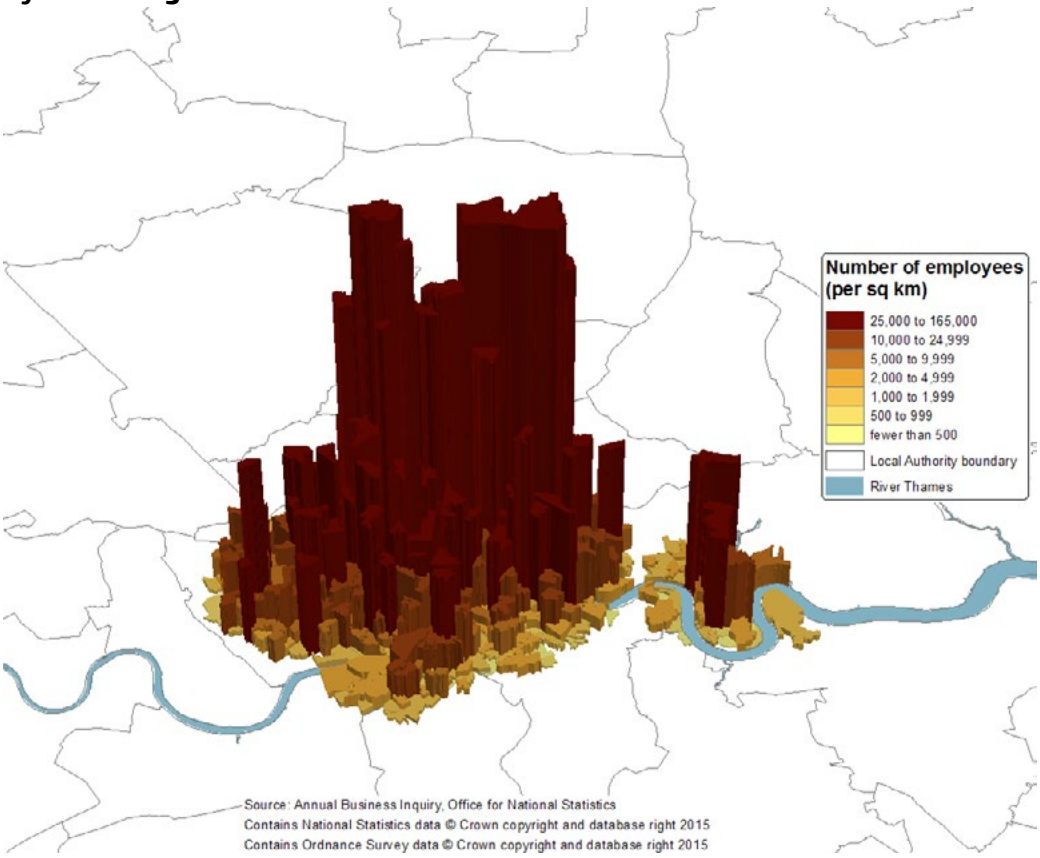
Source: BRES & GLA Economics calculations

The large number of employees in the CAZ, NIOD and their bounding areas is further underlined by Maps 2.4 and 2.5[13]. 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'[14].

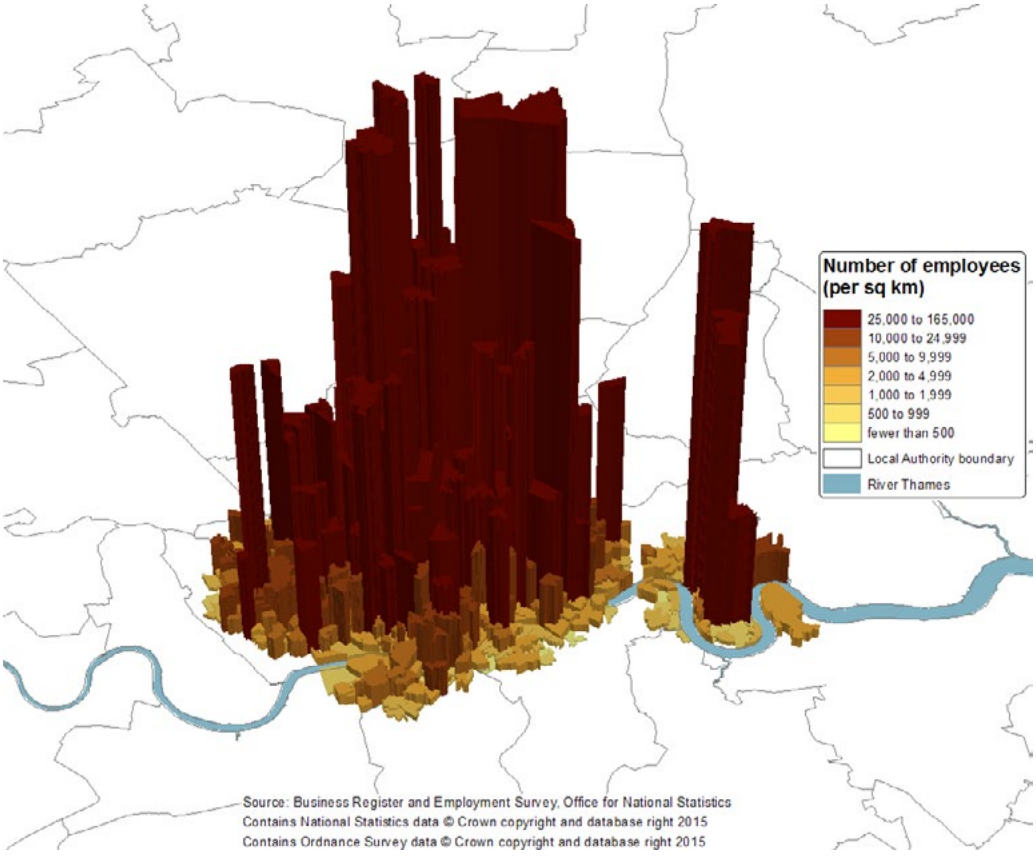
Map 2.6, using statistical analysis[15] of census employment data (and is for the year 2011), shows the effect of these economies of agglomeration[16] to form employment clusters for a number of industries.

Map 2.4: Number of employees per square kilometre in 2003 in the CAZ, NIOD and an approximately 1km fringe around them



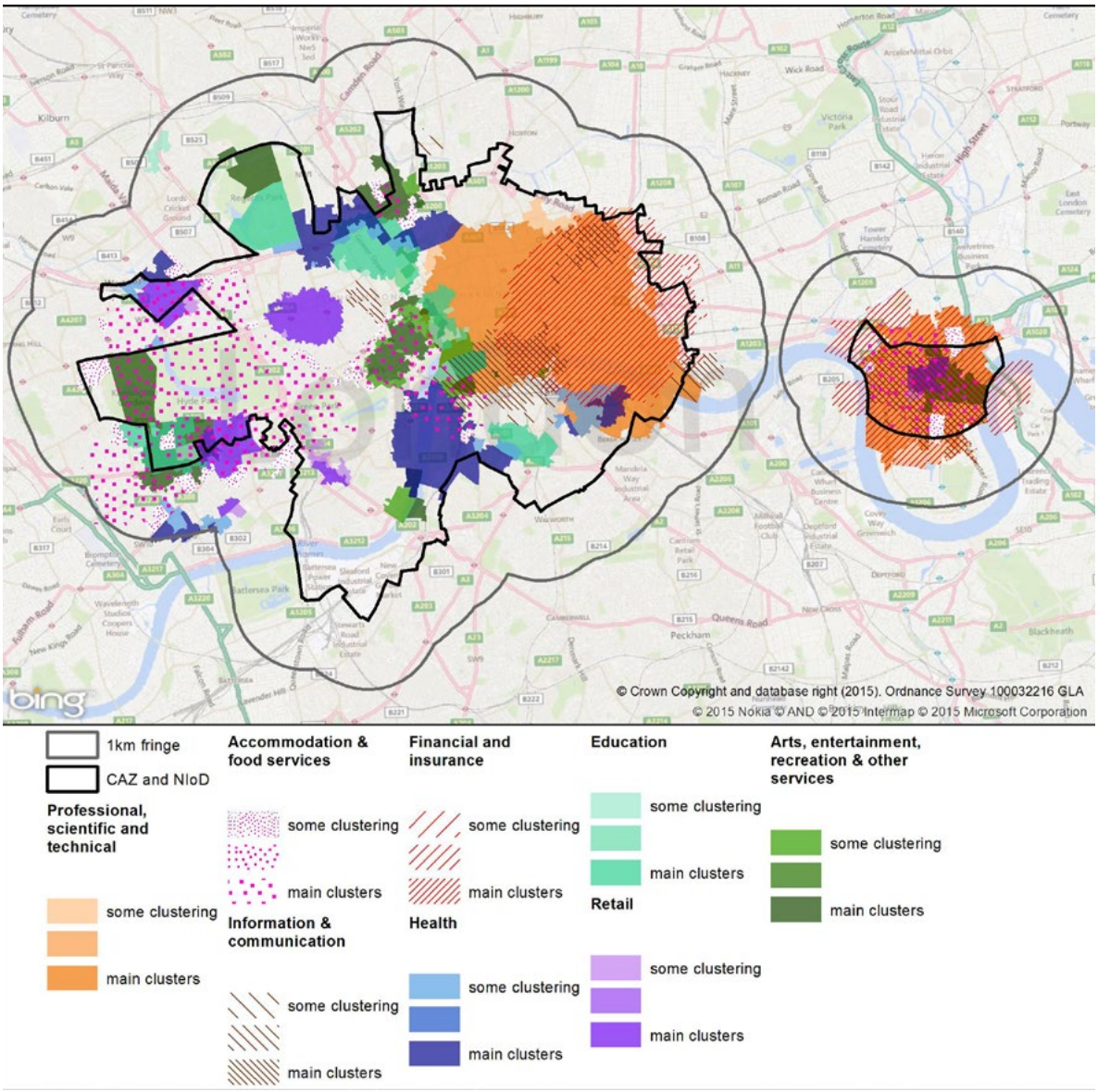
Source: Annual Business Inquiry (ABI)[17]

Map 2.5: Number of employees per square kilometre in 2014 in the CAZ, NIOD and an approximately 1km fringe around them



Source: BRES

Map 2.6: Clustering[18] by industry employment type in the CAZ, NIOD and an approximately 1km fringe around them



Source: Census[19] and GLA Intelligence Unit analysis

There are a number of areas in London which are of particular interest, given the potential future development potential of these areas. Further analysis of some of these areas is included in the Appendix to this chapter.

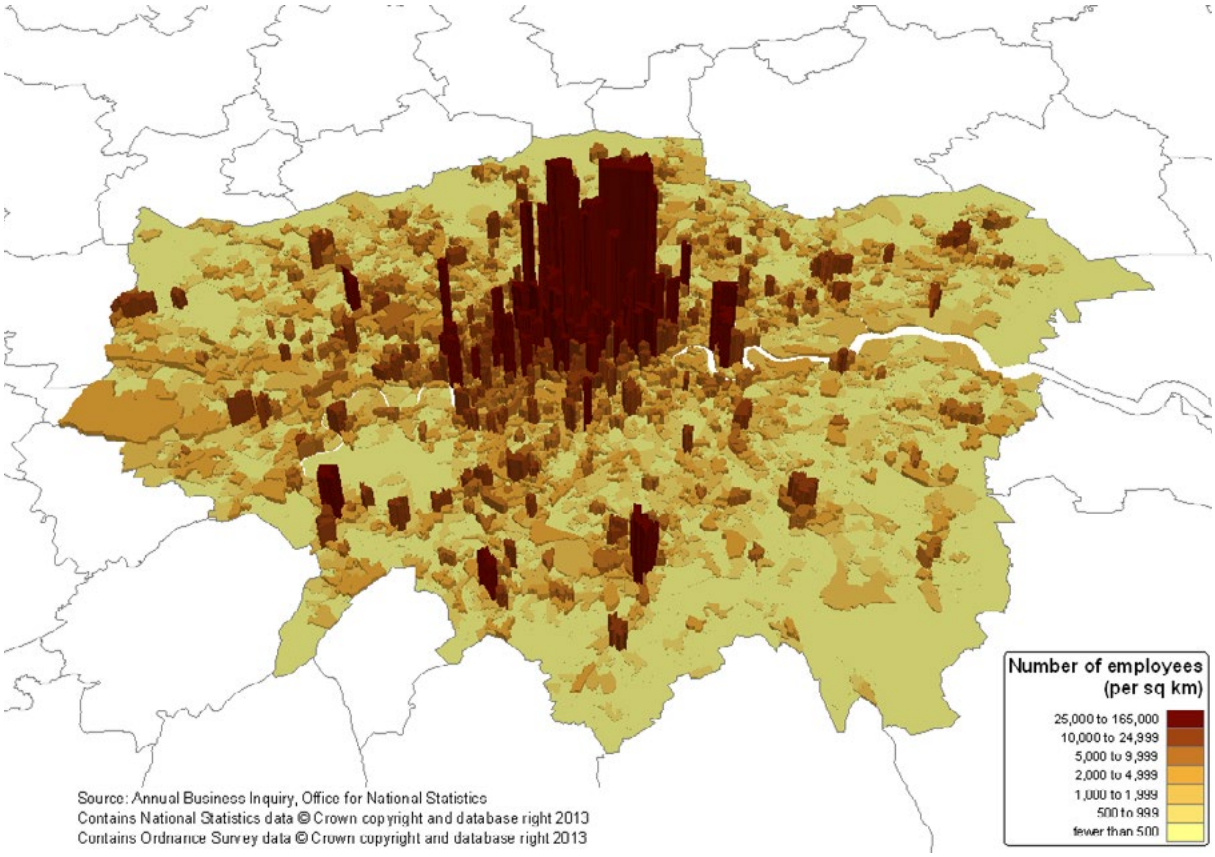
2.5 The wider London economy

This section examines the wider London economy, beyond that already examined in Chapter 1.

2.5.1 Employment levels and concentration, density and changes over time

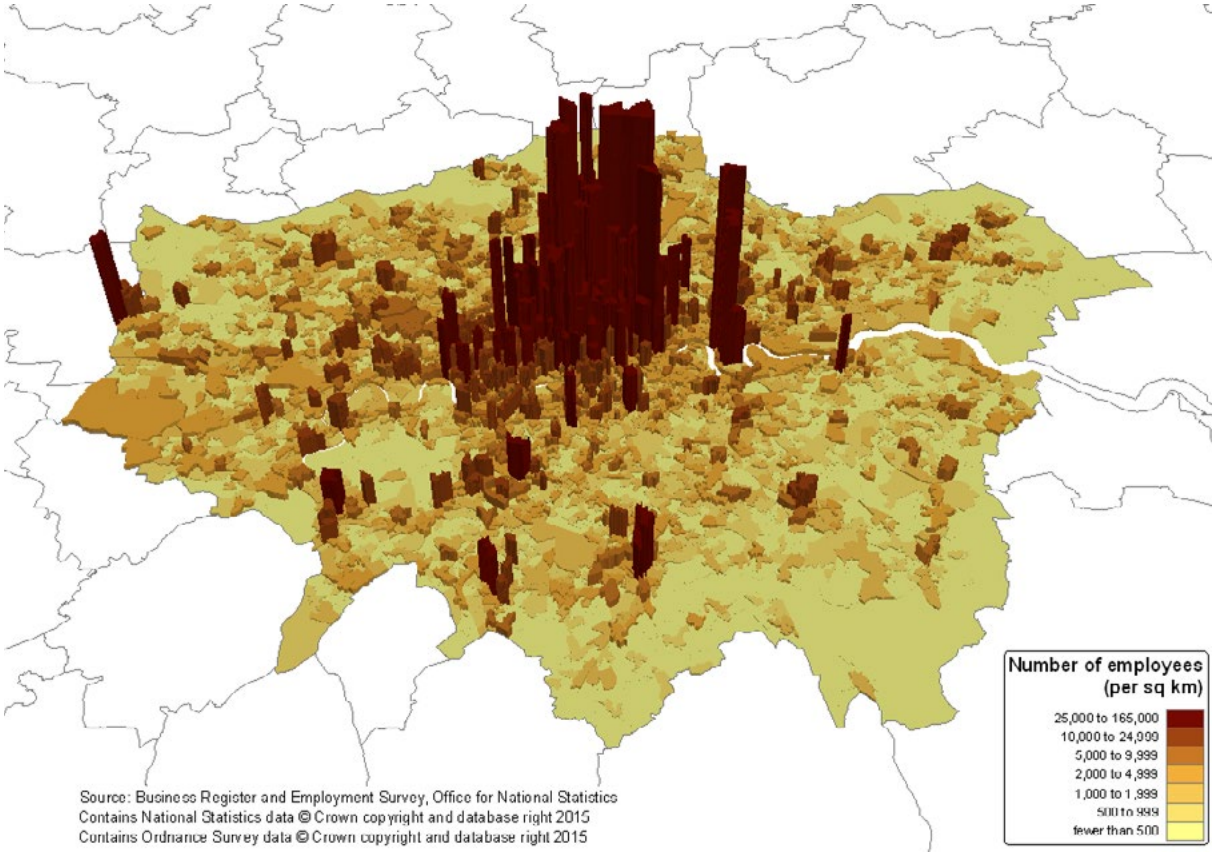
Maps 2.7 and 2.8 shows how employment concentration in London has evolved since 2003 and shows that while employment is highly concentrated in the CAZ and NIOD other areas such as Hillingdon (although surprisingly not so much around Heathrow), some industrial areas and various town centres also see significant employment concentration. The maps also highlight the strong growth in employment seen in those areas. The Appendix to this report provides Map B1 to B5 which examine employment in London at the lower NUTS2 geography levels. The dominance of London as an employment centre can also be observed from Map 2.9 which shows employment concentration per square kilometre in the GSE in 2014.

Map 2.7: Number of employees per square kilometre in 2003 in London



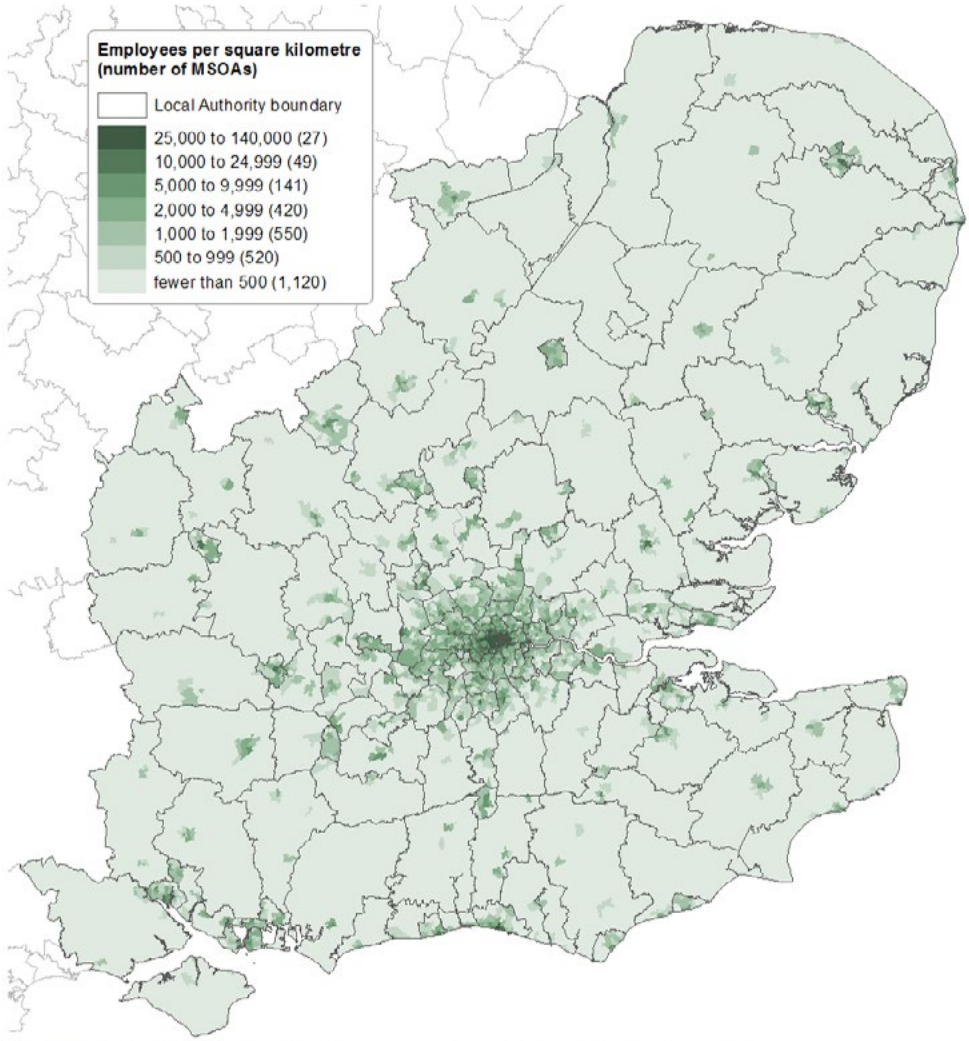
Source: Annual Business Inquiry (ABI)

Map 2.8: Number of employees per square kilometre in 2013 in London



Source: BRES

Map 2.9: Number of employees per square kilometre in 2013 in the Greater South East



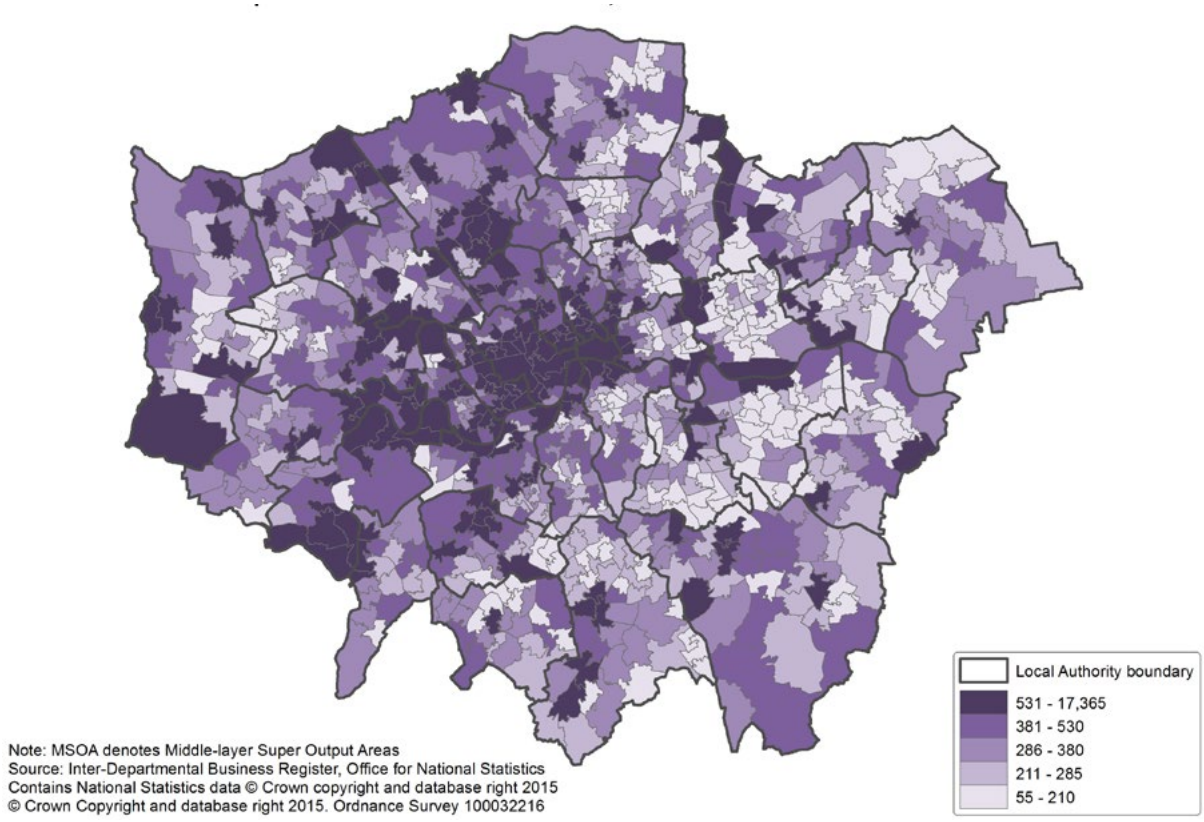
Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics

Source: BRES

2.5.2 Firms in London

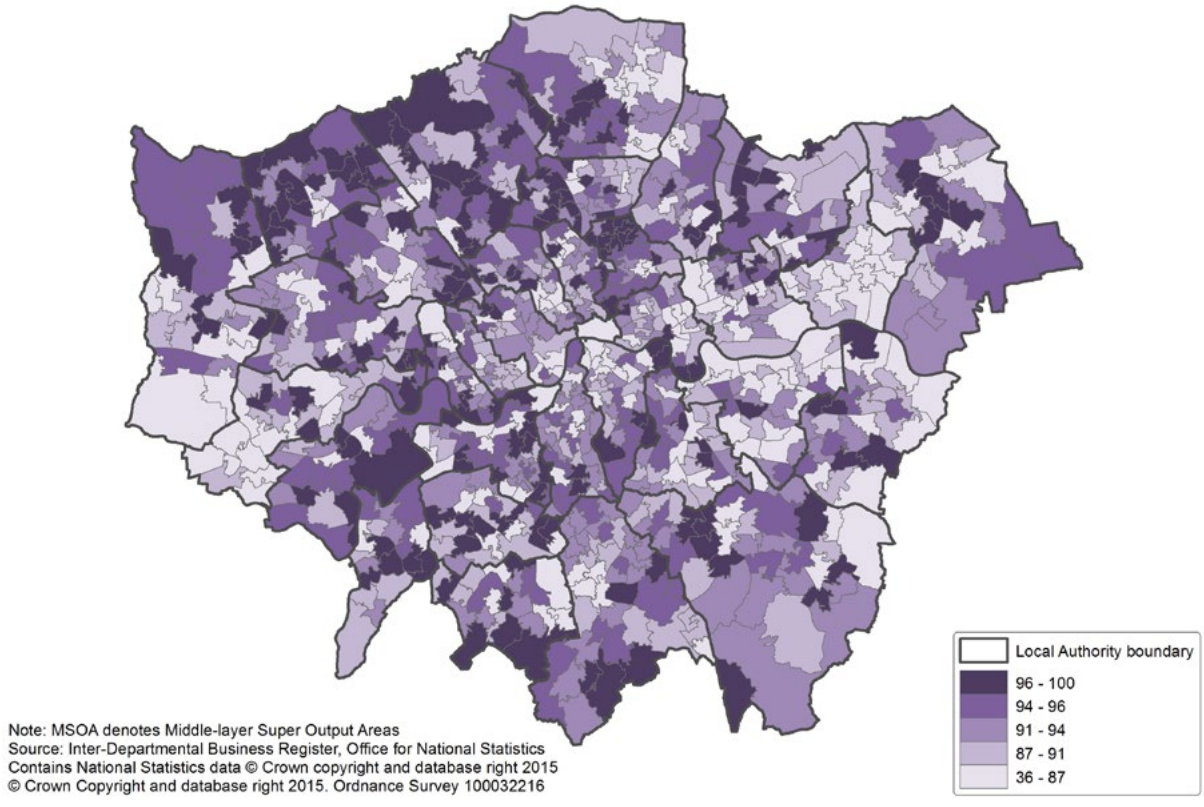
London is home to a large number of workplaces especially in the CAZ, but as can be seen from Map 2.10 other areas of London, especially in the west of London, as well as various town centres and several Strategic Industrial Locations (SIL) such as Park Royal, the Thames Gateway SILs in Newham (Royals), Charlton and Barking and Dagenham (River Road) also have significant concentration of workplaces. Conversely, it can be seen 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 2.11), 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 2.12). It should however be noted that large employment workplaces are relatively rare as a percentage of all workplaces across all of London with most workplaces being small employment workplaces.

Map 2.10: Workplaces in London in 2014 by MSOA[20]



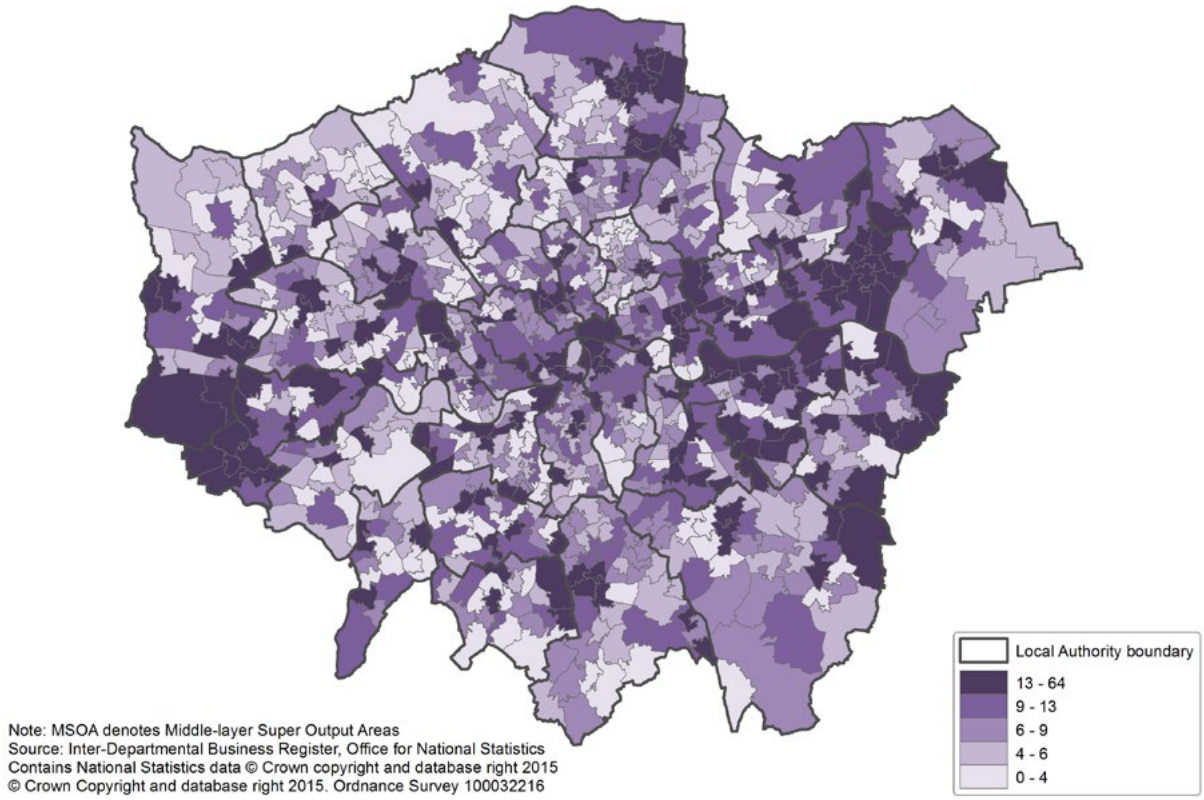
Source: ONS and GLA Intelligence Unit

Map 2.11: Workplaces that employ less than 250 people by MSOA in London in 2014 as a percentage of the MSOA's total workplaces



Source: ONS and GLA Intelligence Unit

Map 2.12: Workplaces that employ 250 or more people by MSOA in London in 2014 as a percentage of the MSOA's total workplaces



Source: ONS and GLA Intelligence Unit

2.6 Selected sectors of the London economy

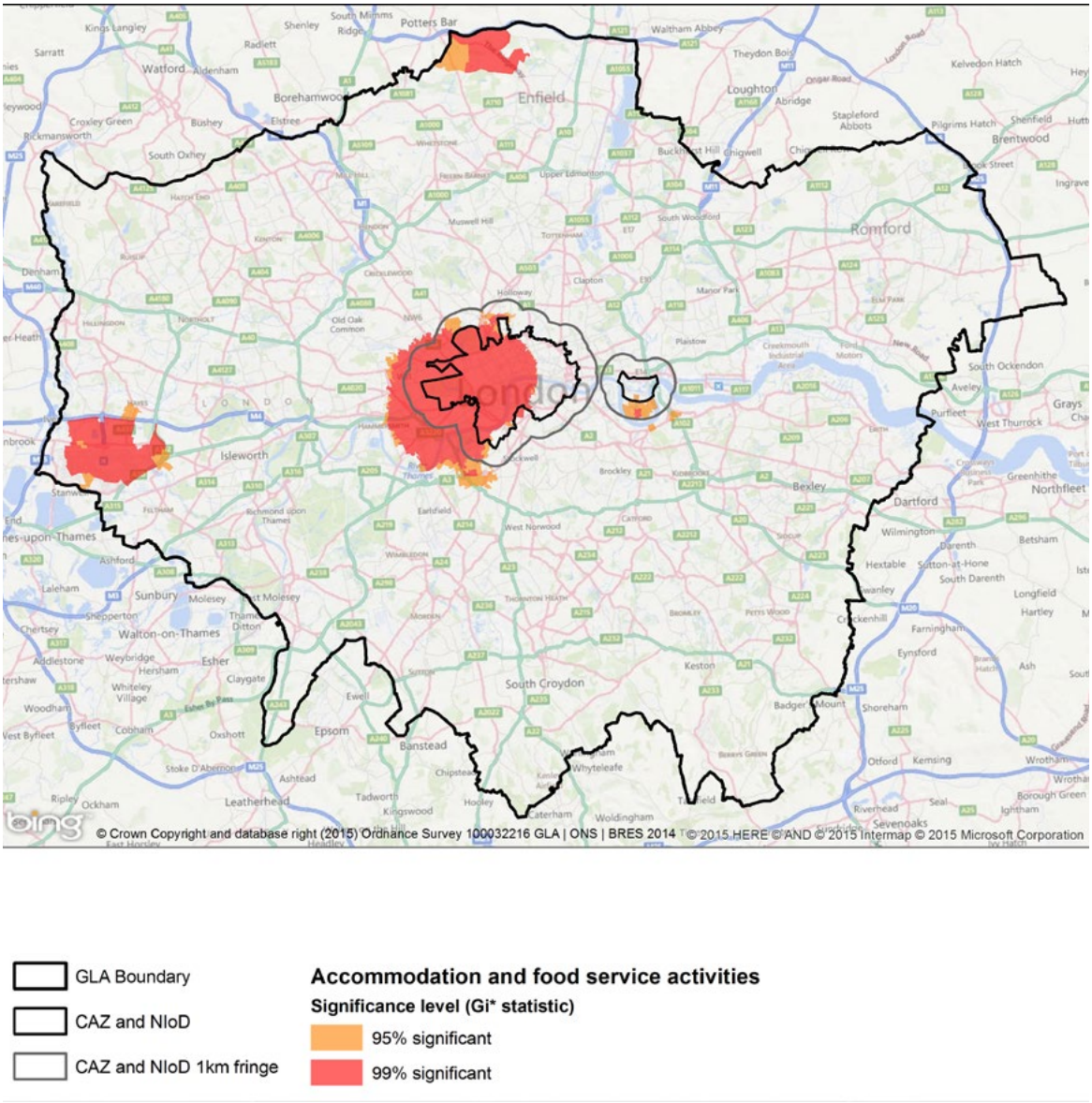
This section sets out to examine the spatial nature of selected broad sectors of the economy in London. GLA Economics has also in the past examined the spatial nature of employment in the science and technology category[21] and the creative industries[22] and sections B.2 and B.3 of the Appendix provides brief summaries and where necessary updates on these areas of the economy.

2.6.1 Employment clustering in London

Distinct clustering of firms can be seen across London, but the importance of the CAZ as a location for business is still evident. Maps 2.13 to 2.20 show clustering for a number of industrial sectors[23]. At this level of geography these clusters highlight the dominate areas of employment for these sectors in London but do not necessarily include every small area of high employment concentration in a given sector in London. Still as can be seen from these maps the CAZ is an important area of employment for all these sectors but other areas of interest are visible too.

Map 2.13 examines employment concentration in Accommodation and food service activities and as well as highlighting the CAZ as an area of high employment for this sector. The map also highlights the area around Heathrow and an area adjacent to Potter's Bar as areas of importance for this sector.

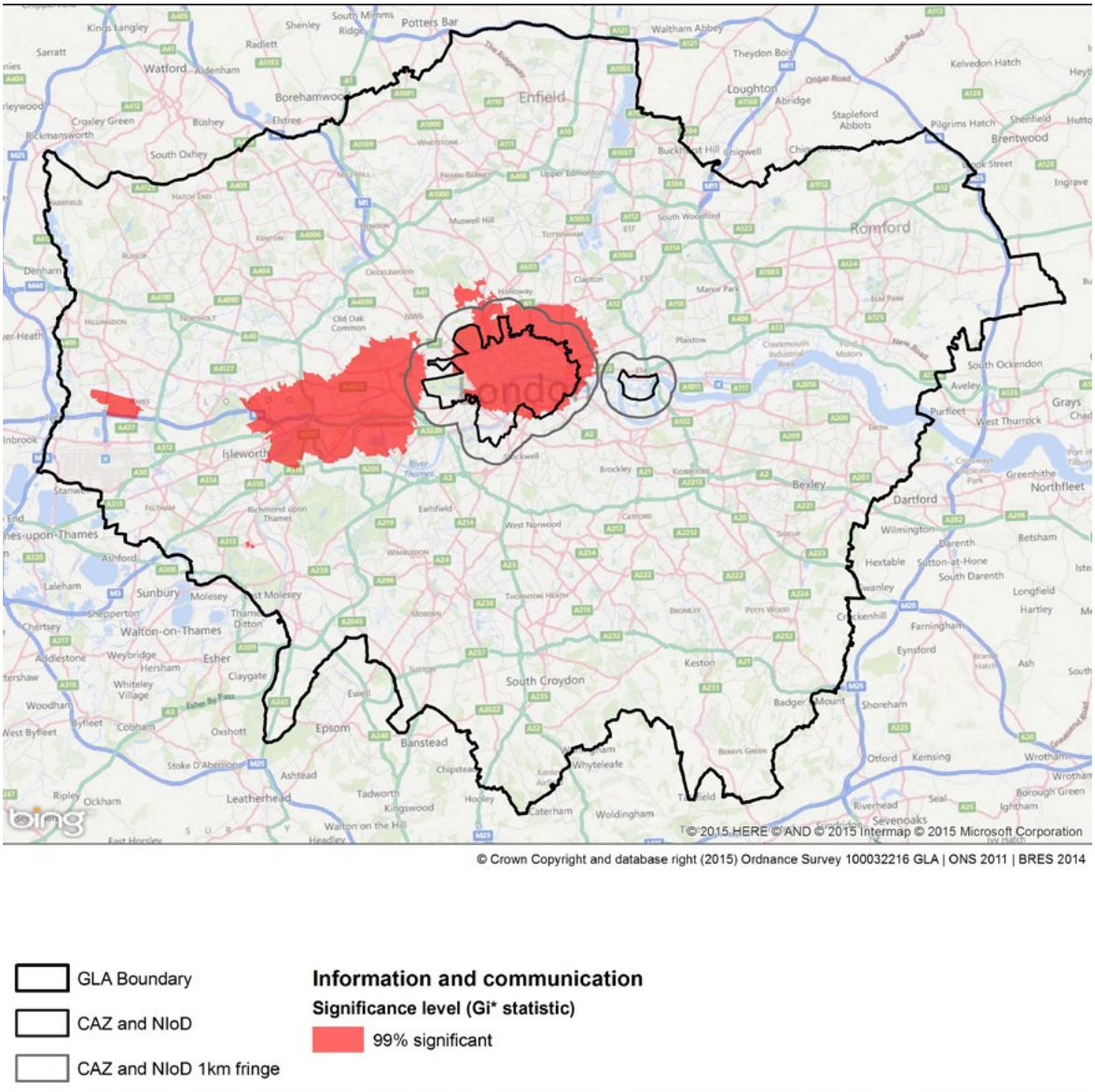
Map 2.13: Clustering in Accommodation and food service activities employment in London



Source: Census and GLA Intelligence Unit analysis

Map 2.14 shows employment clustering in Information and communication in Central London and to the west following a path through Hammersmith and along the M4.

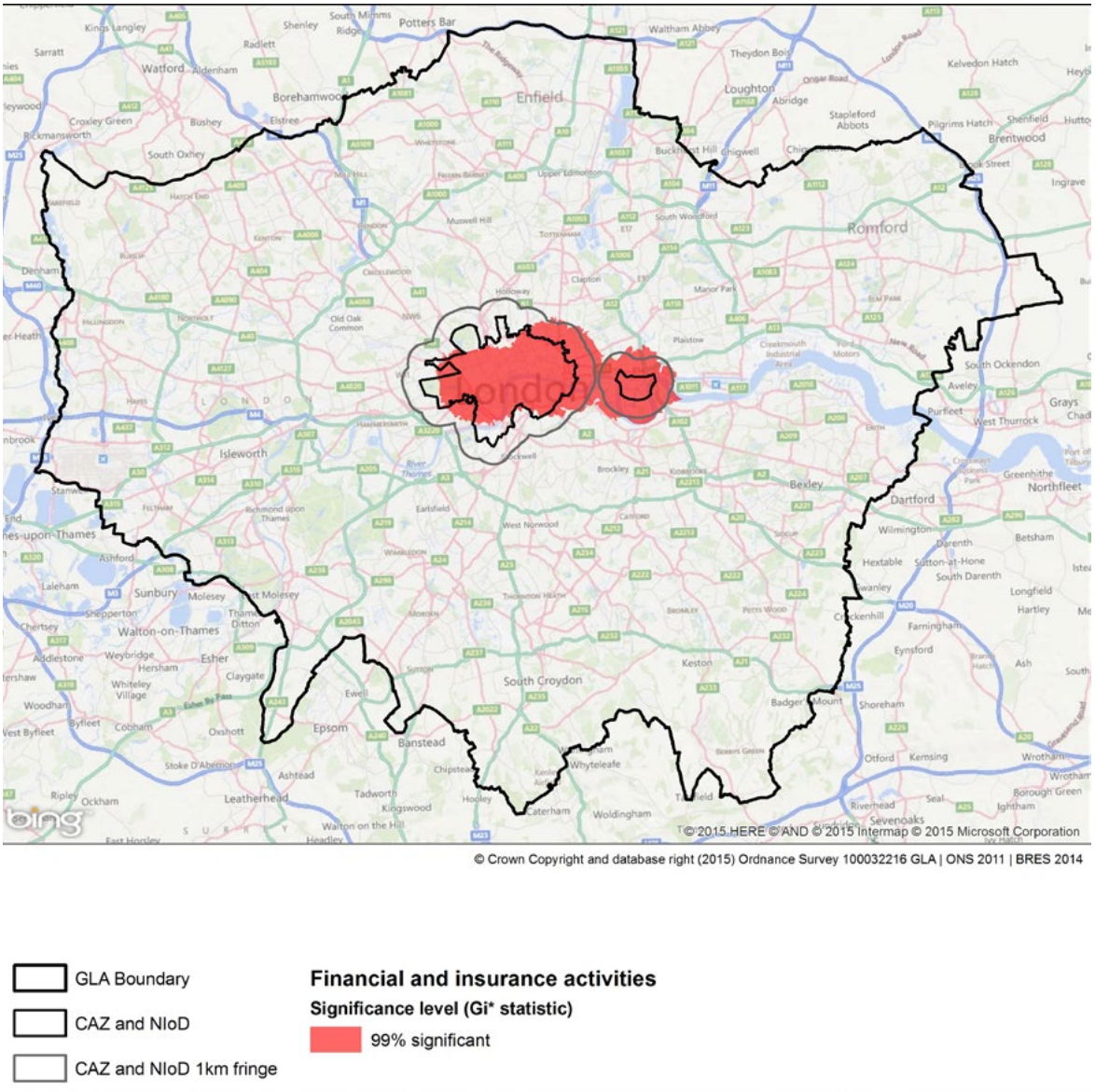
Map 2.14: Clustering in Information and communication employment in London



Source: Census and GLA Intelligence Unit analysis

Perhaps unsurprisingly Map 2.15 shows Financial and insurance activities clustering in the CAZ and Isle of Dogs.

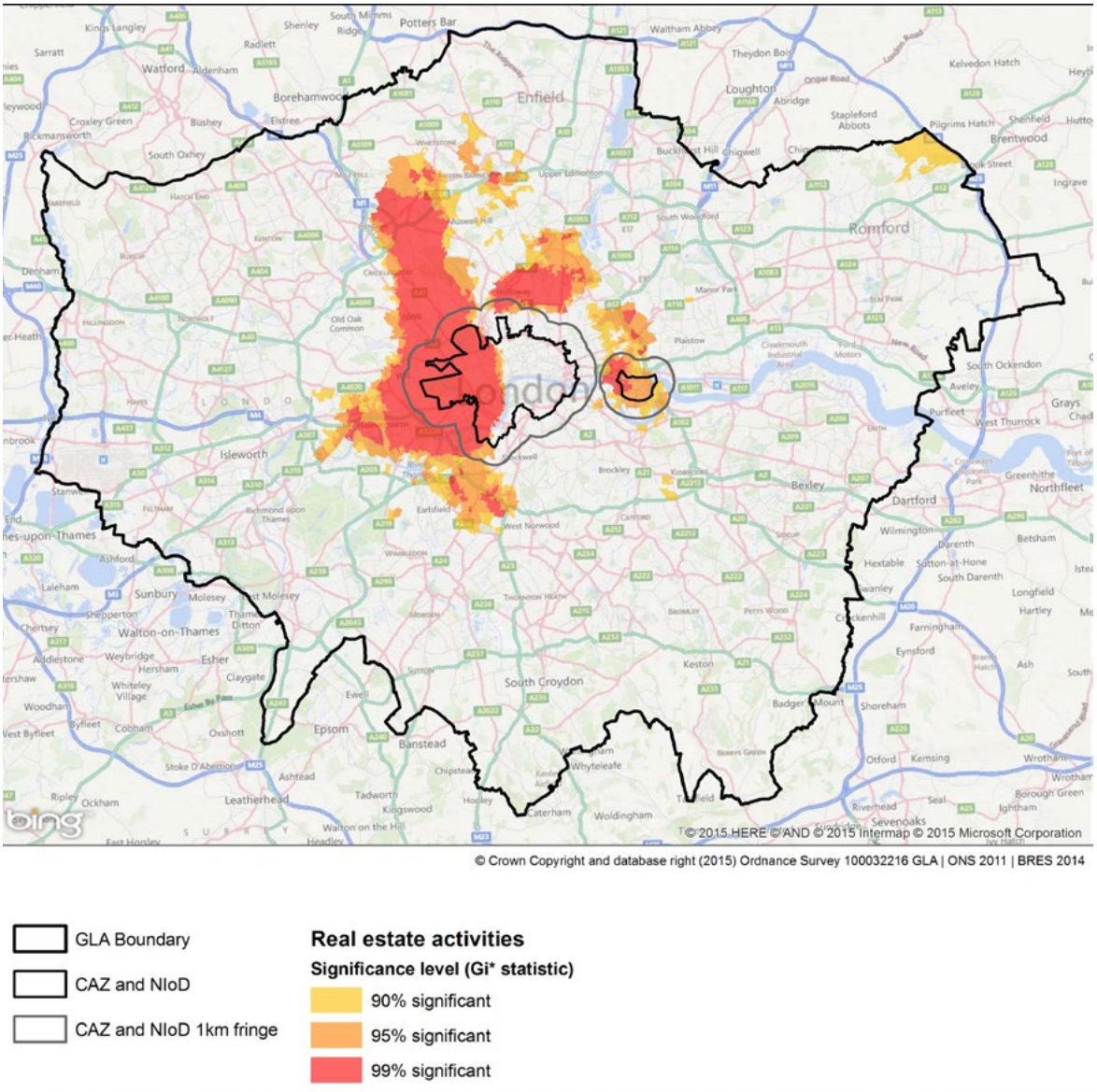
Map 2.15: Clustering in Financial and insurance activities employment in London



Source: Census and GLA Intelligence Unit analysis

Map 2.16 shows clustering in employment in Real estate activities in and to the west of the CAZ, around its northern perimeter and with a swathe into north London.

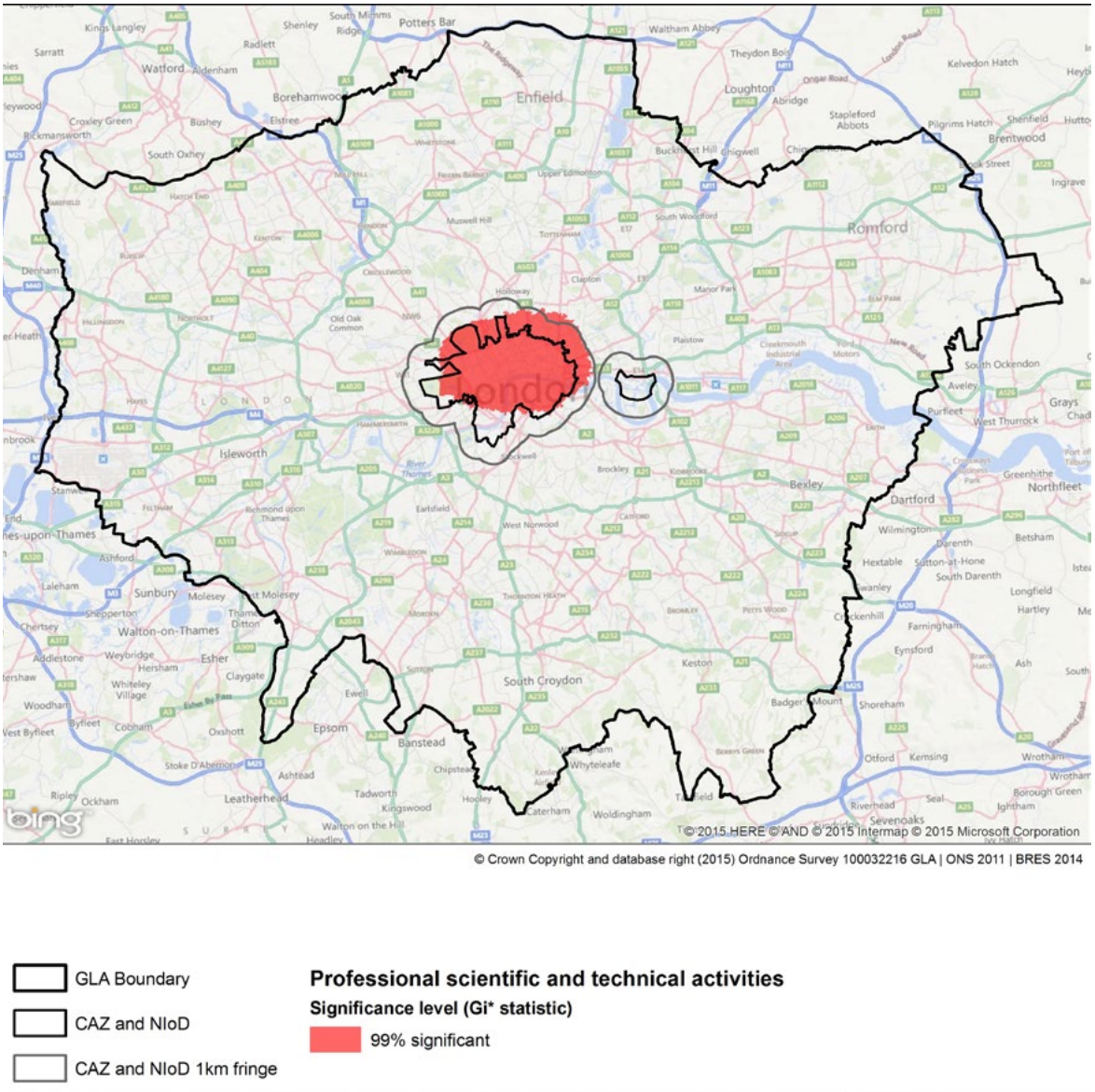
Map 2.16: Clustering in Real estate activities employment in London



Source: Census and GLA Intelligence Unit analysis

As shown by Map 2.17 employment in Professional, scientific and technical activities is highly concentrated in the CAZ.

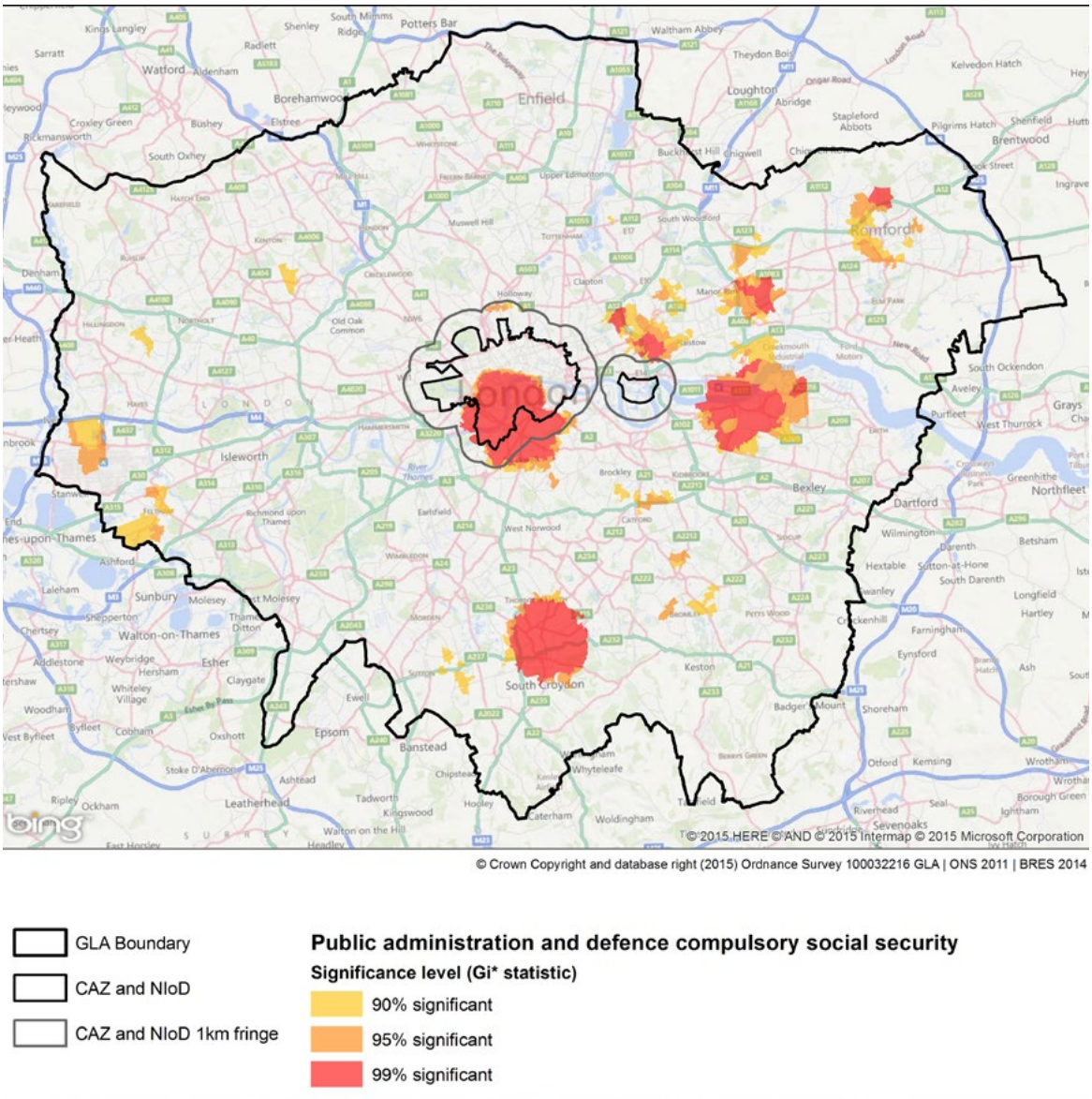
Map 2.17: Clustering in Professional, scientific and technical activities employment in London



Source: Census and GLA Intelligence Unit analysis

Clustering in Public administration and defence, compulsory social security employment is shown in Map 2.18 and highlights central government in Westminster, but also an area in Corydon most likely related to the Home Office immigration office; the cluster further south from City Airport is potentially related to the Royal Artillery Barracks in Woolwich.

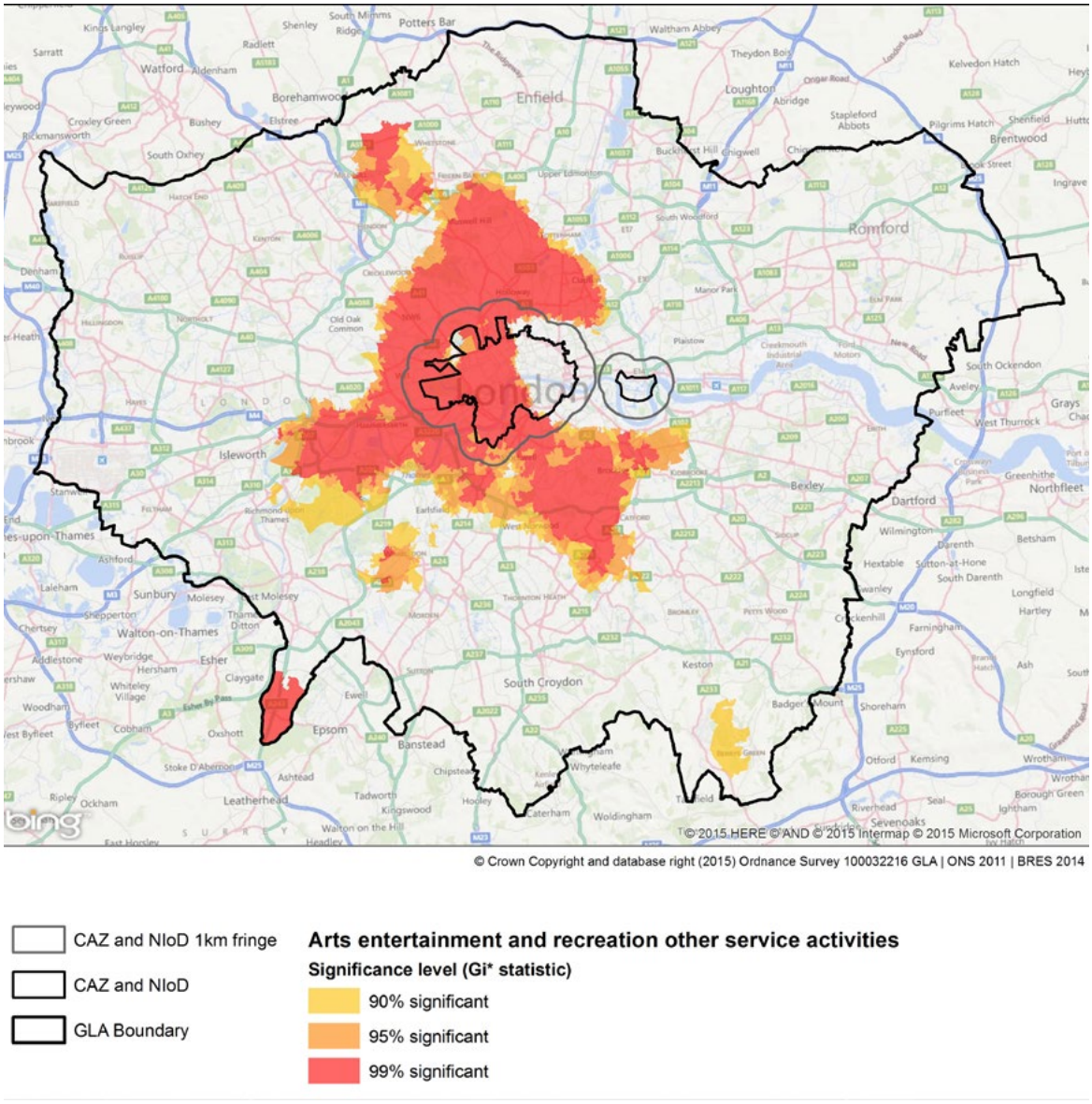
Map 2.18: Clustering in Public administration and defence, compulsory social security employment in London



Source: Census and GLA Intelligence Unit analysis

Map 2.19 shows clustering in Arts entertainment and recreation other service activities employment emanating out from the CAZ across a wide part of central London and an area west of Epsom most likely picking up Chessington World of Adventures.

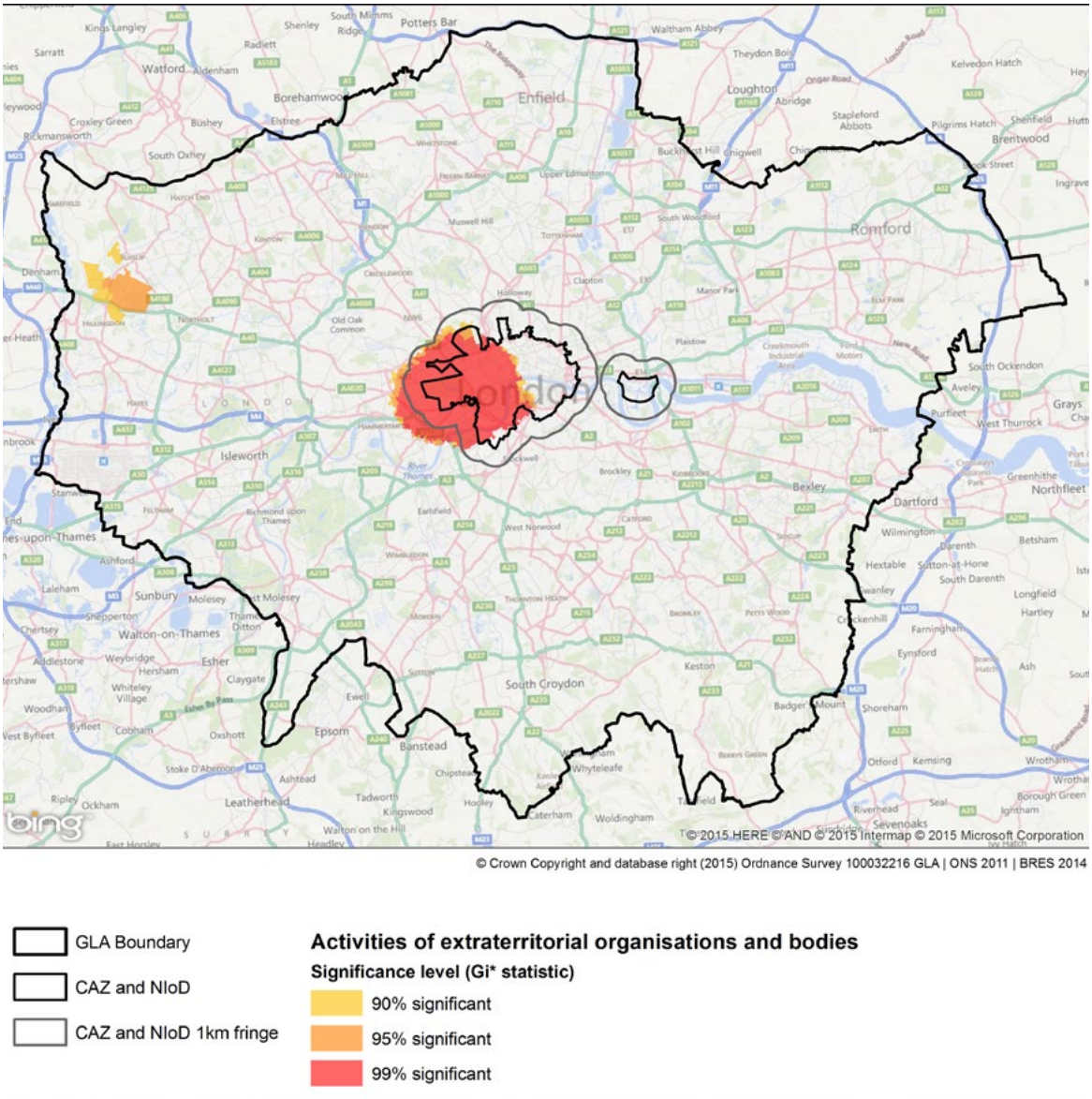
Map 2.19: Clustering in Arts entertainment and recreation other service activities employment in London



Source: Census and GLA Intelligence Unit analysis

Finally, Map 2.20 shows clustering in Activities of extraterritorial organisations and bodies employment in the west of the CAZ and its fringe.

Map 2.20: Clustering in Activities of extraterritorial organisations and bodies[24] employment in London



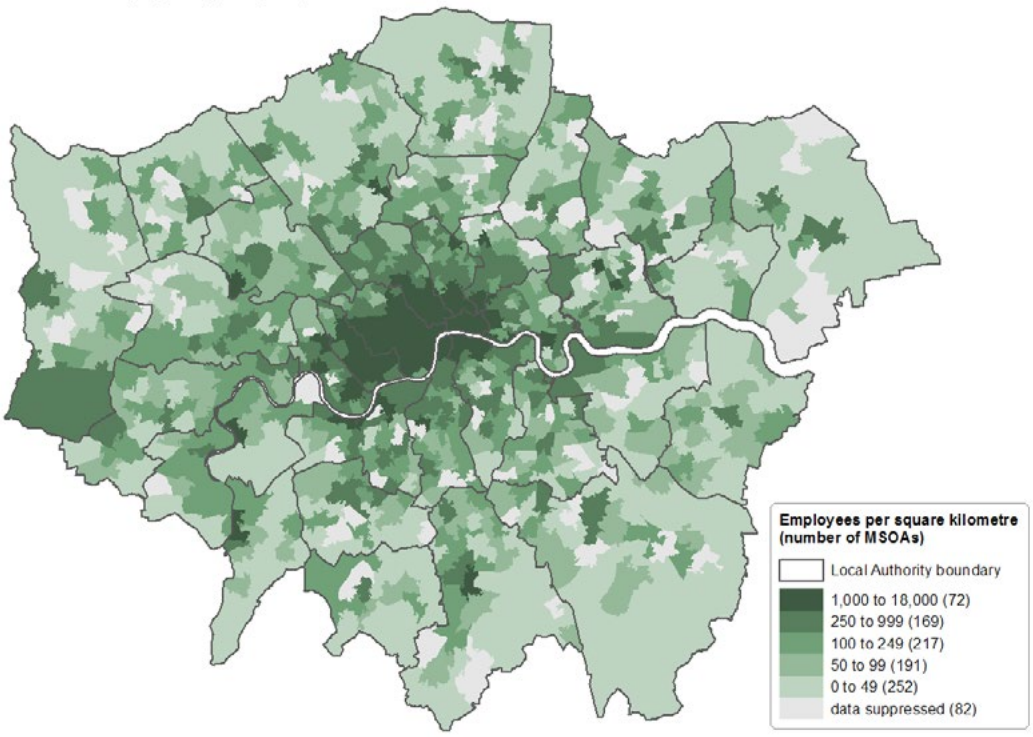
Source: Census and GLA Intelligence Unit analysis

2.6.2 Broad industrial sectors of the economy

This sub section examines the geography of employment concentration by broad industrial sectors in London in greater detail. However, it should be noted that some industrial sectors are not presented in this chapter. Those sectors cannot be analysed at low-level geographies because of confidentiality.

Map 2.21 shows that Central London is an important area of employment in the Accommodation and food service sector. There are also other clear smaller areas of employment concentration in this sector across London.

Map 2.21: Employee concentration in Accommodation & food service activities in London in 2014

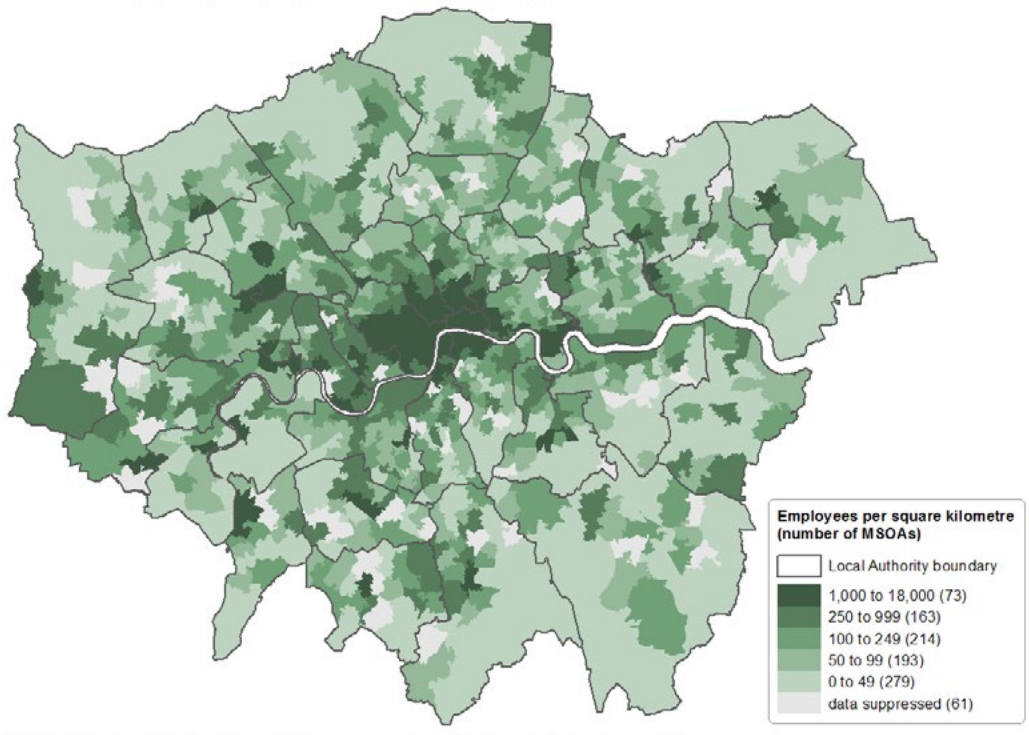


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics

Source: Inter-Departmental Business Register (IDBR)

Employees in Administrative and support services are also heavily concentrated in Central London and the NIOD but as seen from Map 2.22 other areas, especially in West London around the Thames and Heathrow, also see large numbers of employees in this sector.

Map 2.22: Employee concentration in Administrative and support services in London in 2014

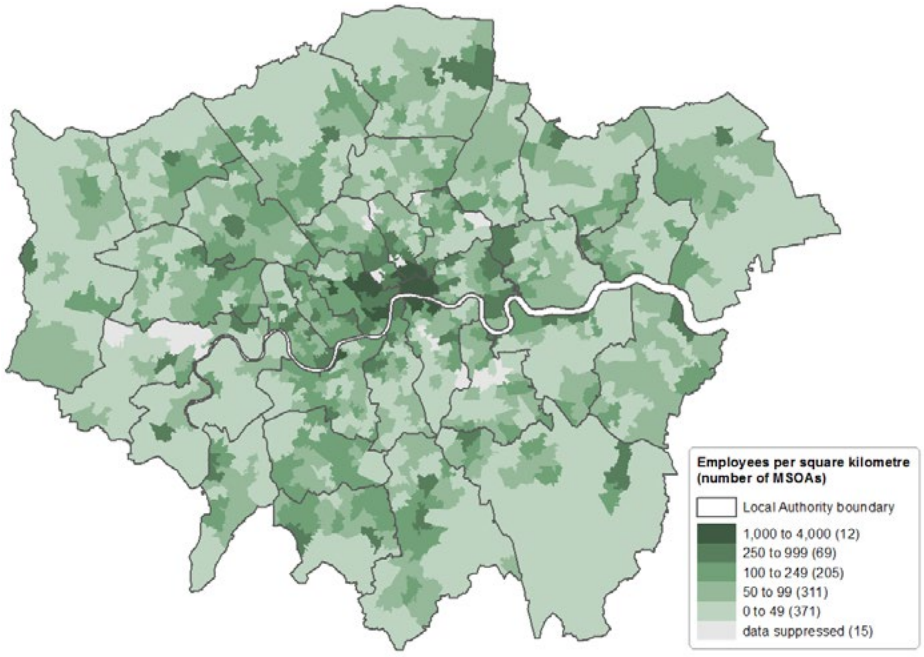


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics

Source: IDBR

Map 2.23 shows that beyond Central London there are concentrations of employees in London east of the city, some areas of South London, around Heathrow and to the northern most part of London.

Map 2.23: Employee concentration in Construction in London in 2014

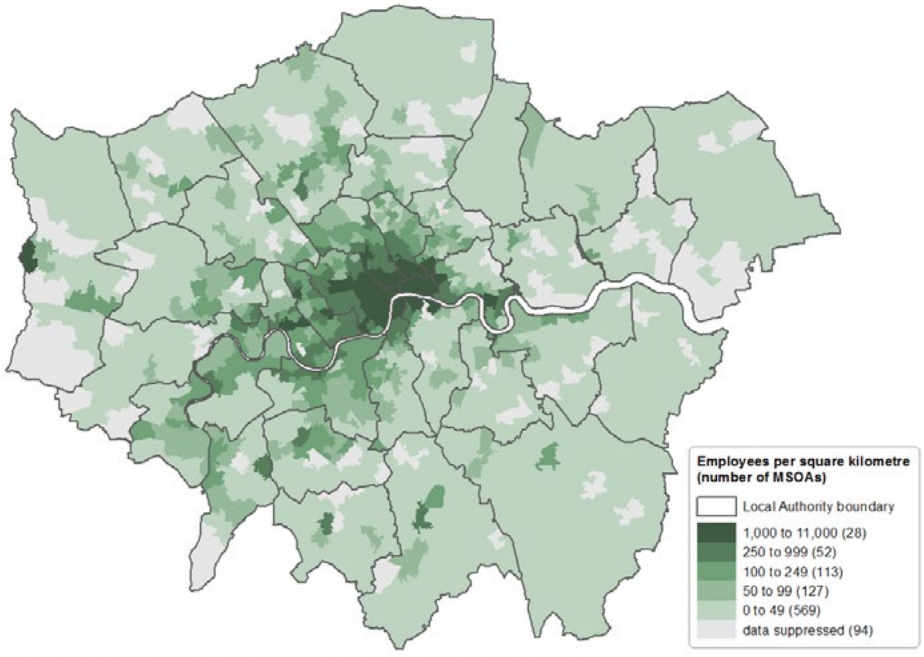


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics

Source: IDBR

Head offices and management consultancy as shown by Map 2.24 is unsurprisingly concentrated in Central London, the NIOD and also around Heathrow.

Map 2.24: Employee concentration in Head offices and management consultancy in London in 2014

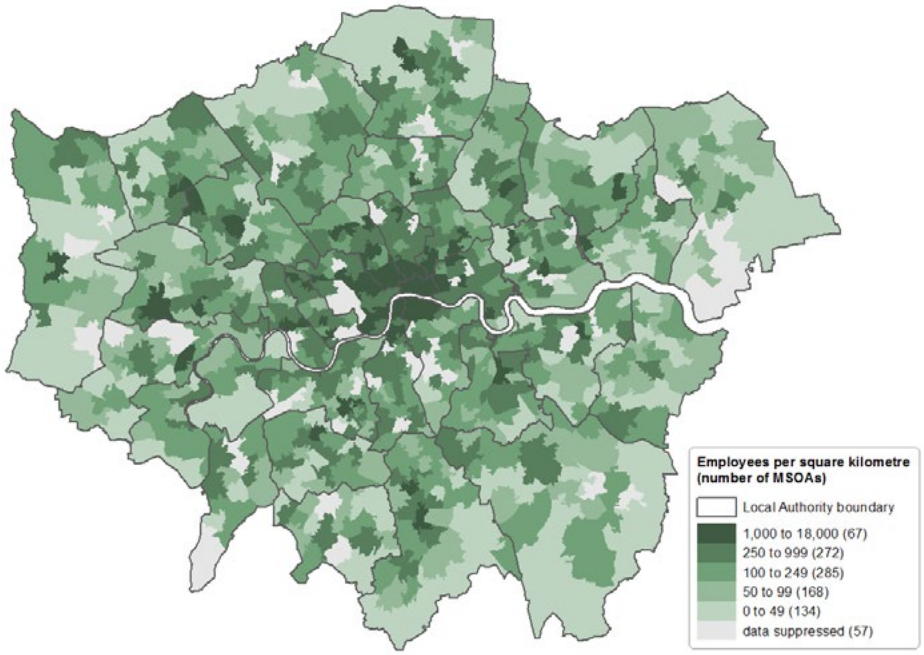


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics

Source: IDBR

Map 2.25 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 due to the wider distribution of the London population.

Map 2.25: Employee concentration in Human health and social work activities in London in 2014

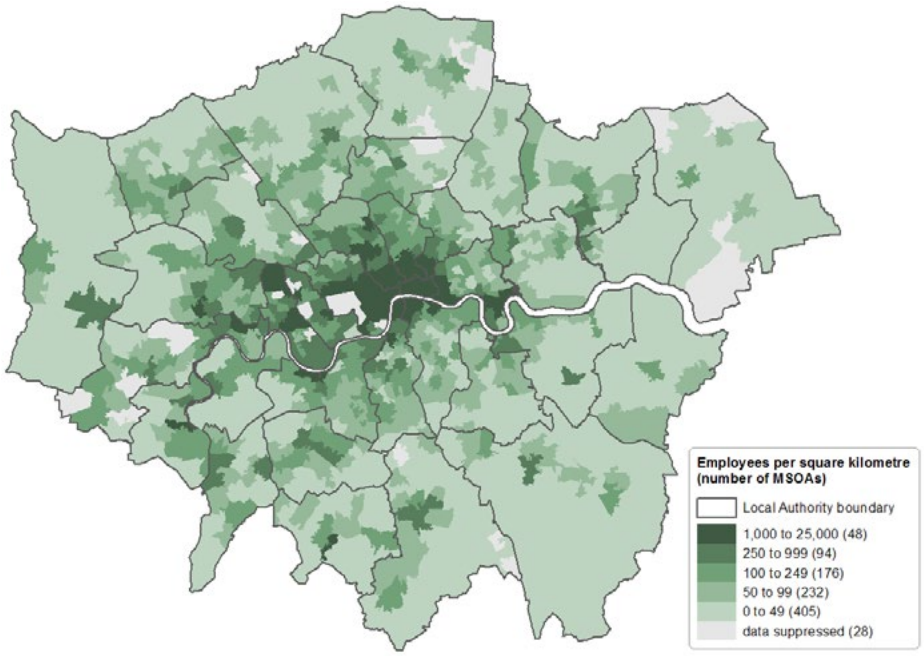


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
Contains National Statistics data © Crown copyright and database right 2015
Contains Ordnance Survey data © Crown copyright and database right 2015. Ordnance Survey 100032216

Source: IDBR

Map 2.26 shows that employees in Information and communications are concentrated in Central London and the NIOD, as well as areas in West London parts of Richmond upon Thames and Sutton.

Map 2.26: Employee concentration in Information and communications in London in 2014

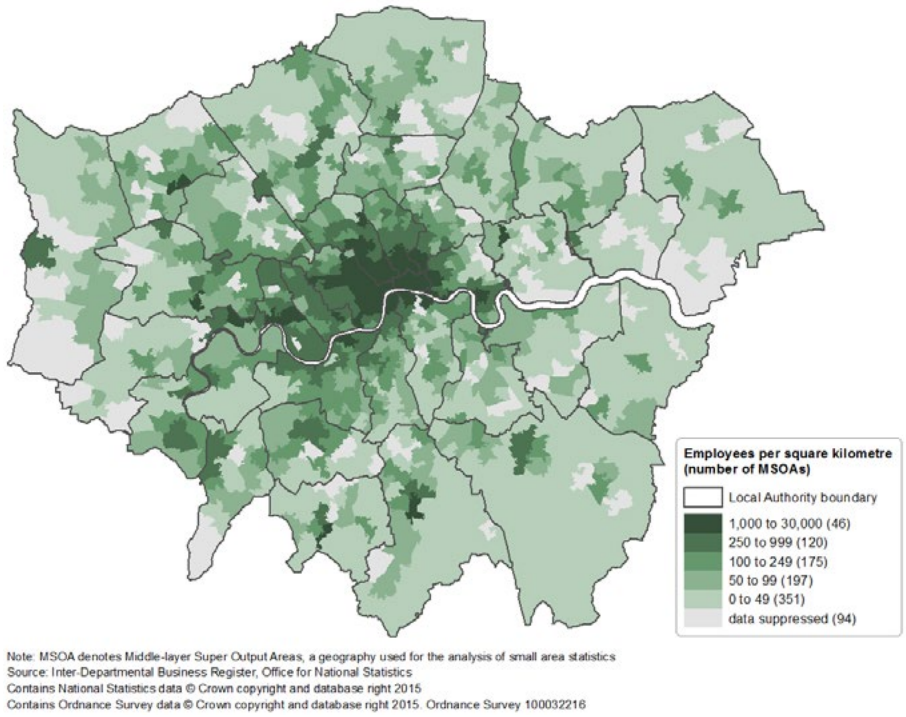


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
Contains National Statistics data © Crown copyright and database right 2015
Contains Ordnance Survey data © Crown copyright and database right 2015. Ordnance Survey 100032216

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 2.27 also shows areas of concentration in Croydon, Harrow, Newham, and Sutton.

Map 2.27: Employee concentration in Professional, scientific and technical activities (excluding Head office and management consultancy) in London in 2014

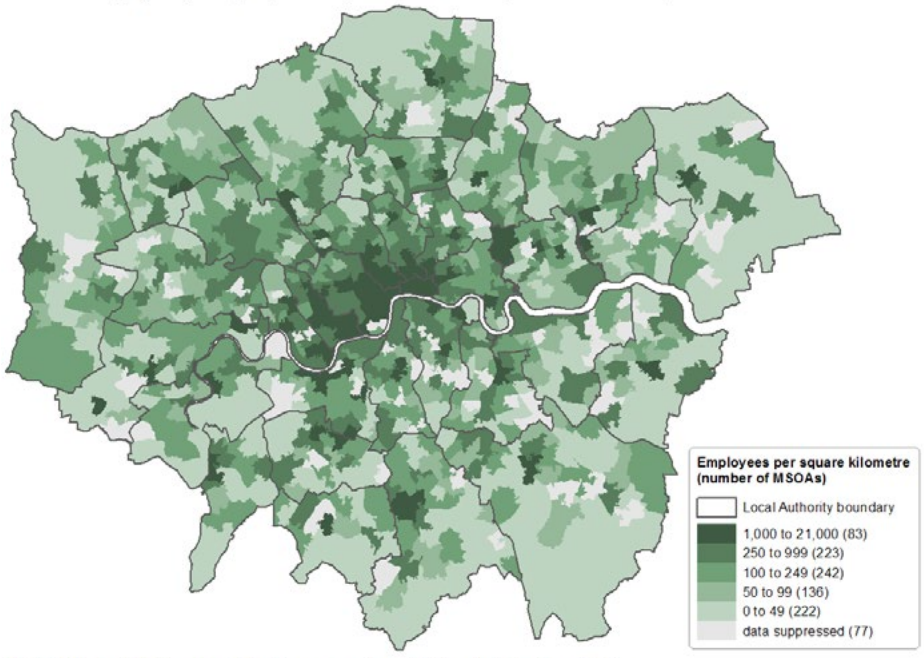


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics

Source: IDBR

Map 2.28 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 2.28: Employee concentration in Retail (excluding motor services) in London in 2014

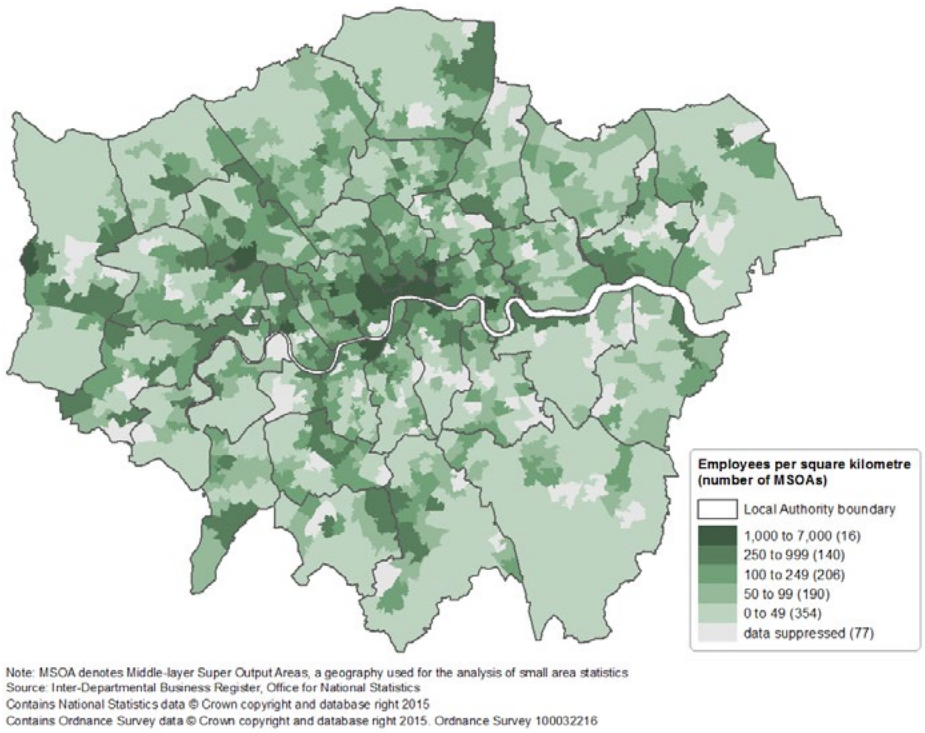


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics

Source: IDBR

Finally, Map 2.29 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 2.29: Employee concentration in Wholesale (including motor services) in London in 2014



Source: IDBR

2.7 London's links

This section examines the links to London of those areas economically tied to the capital including those that lie well beyond the Greater London boundary, as well as looking at what links London together. It begins by examining commuter flows into London. It then moves on to transport which is an important area as London faces a number of issues which might be considered as reflecting the 'costs of congestion'. These include: a shortage of housing; shortage of school places; congestion/excessive crowding on public transport; and, air/noise pollution. It is notable that all of these issues involve the public sector in some shape or form – suggesting public policy has a potentially significant role to play.

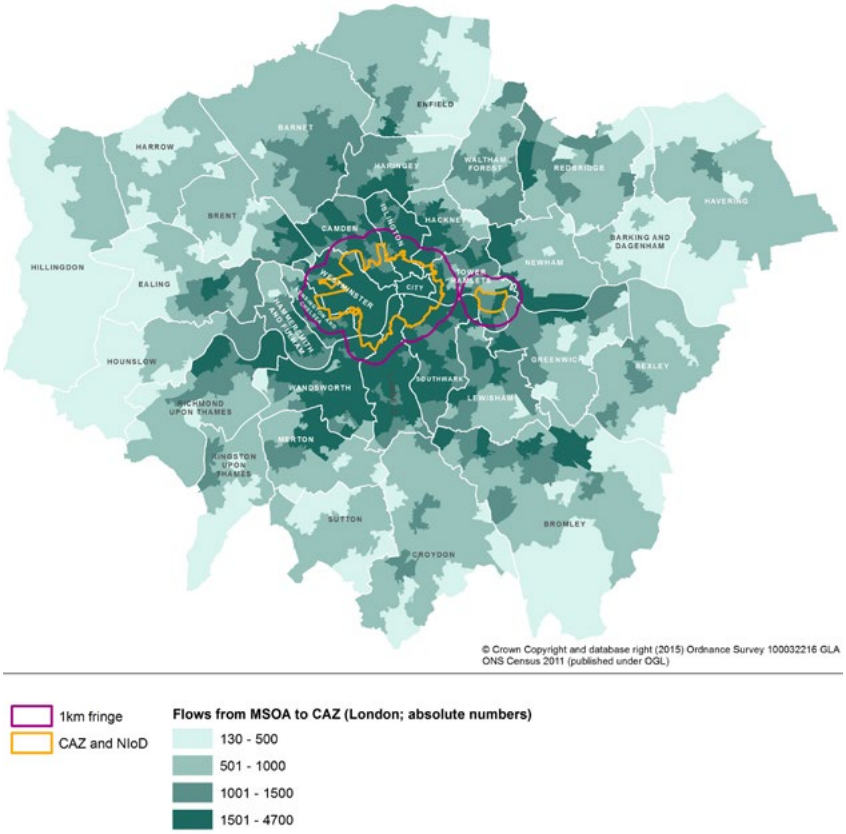
2.7.1 London's commuter geography

London sees commuters flowing into it from the wider South East and beyond but also sees much internal travel between different areas of the capital. This sub section looks at these commuters in some detail.

2.7.1.2 Commuters into the CAZ

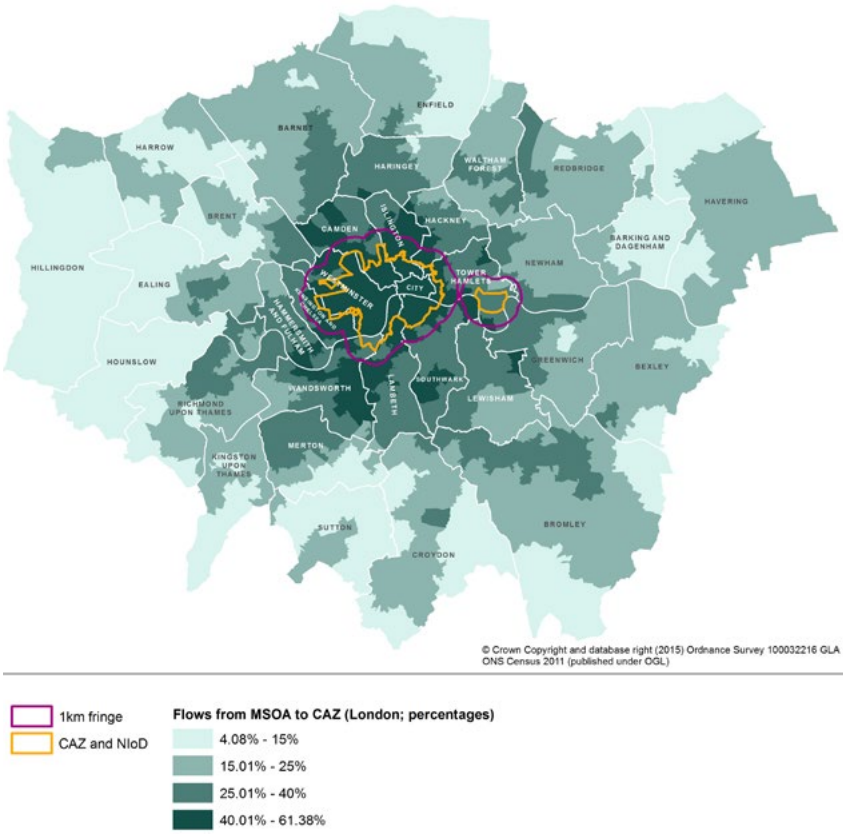
A larger number of people both within London and the wider Greater South East work in the CAZ and need to commute into it every work day. Maps 2.30 and 2.32 show worker residence data for the CAZ on a map of London and the Greater South East respectively at the Middle Layer Super Output Area (MSOA) level and indicates the importance of certain areas for workers into the CAZ. In addition, Maps 2.31 and 2.33 show the number of workers coming from different MSOAs as a percentage of the areas workforce indicating the importance of the CAZ as an employment destination for these areas. The patterns shown in these maps are consistent with the TTWA for London analysed earlier in the chapter, 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 2.30: Workers in CAZ only based workplaces by residence origin in London, 2011, absolute numbers



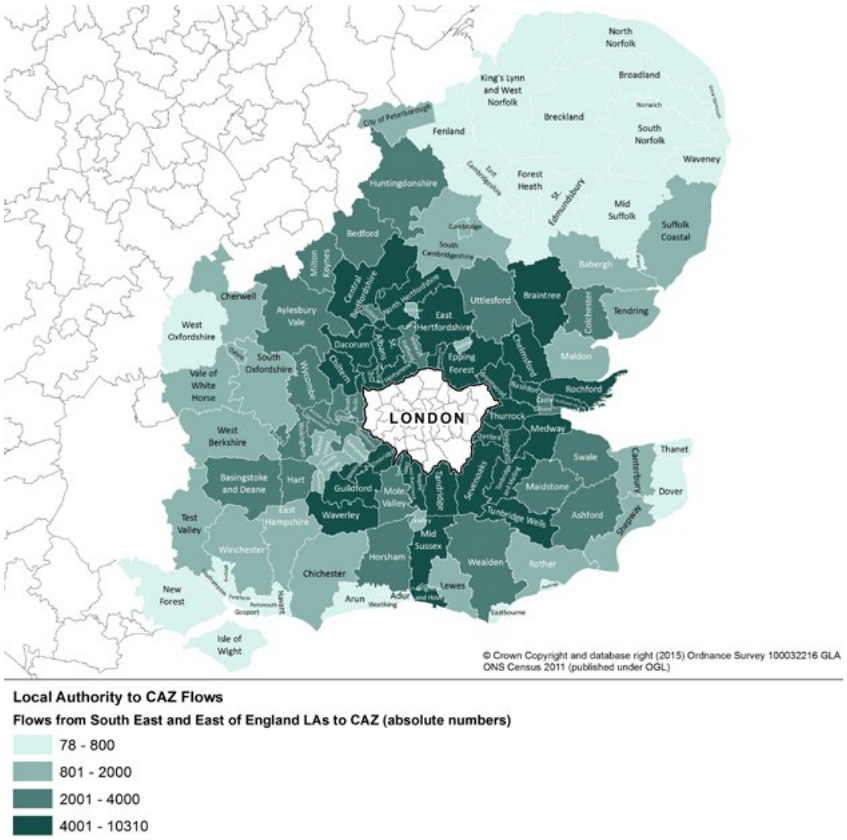
Source: Census and GLA Intelligence Unit analysis

Map 2.31: Workers in CAZ only based workplaces by residence origin in London, 2011, as percentage of an areas workforce



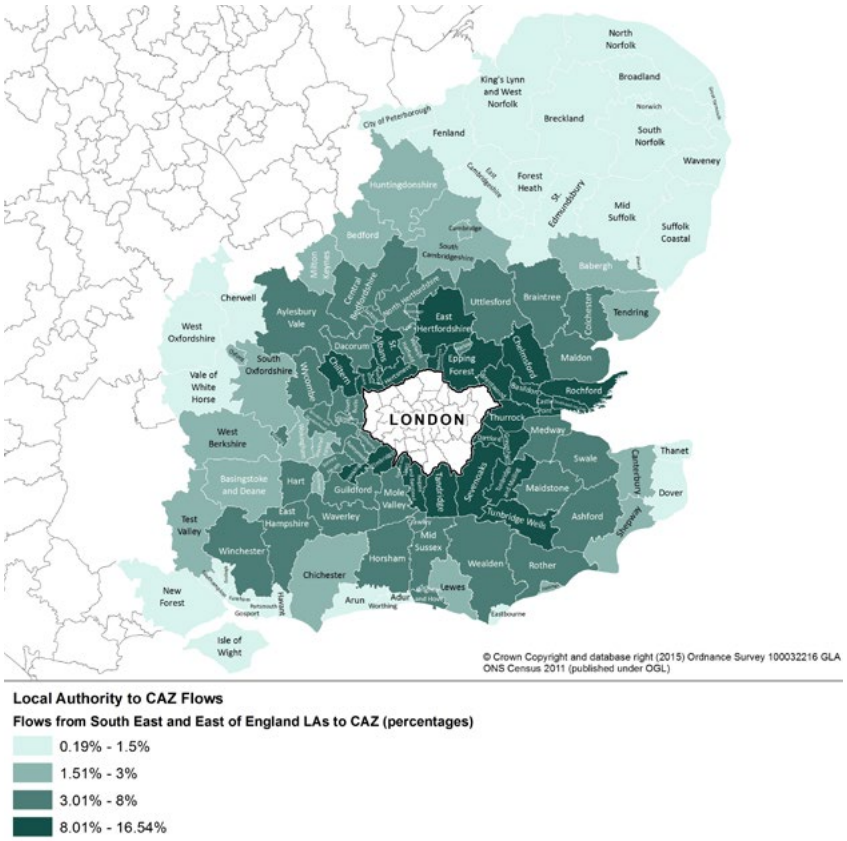
Source: Census and GLA Intelligence Unit analysis

Map 2.32: Workers in CAZ only based workplaces by residence origin in the Greater South East (excluding London), 2011, absolute numbers



Source: Census and GLA Intelligence Unit analysis

Map 2.33: Workers in CAZ only based workplaces by residence origin in the Greater South East (excluding London), 2011, as percentage of an areas workforce

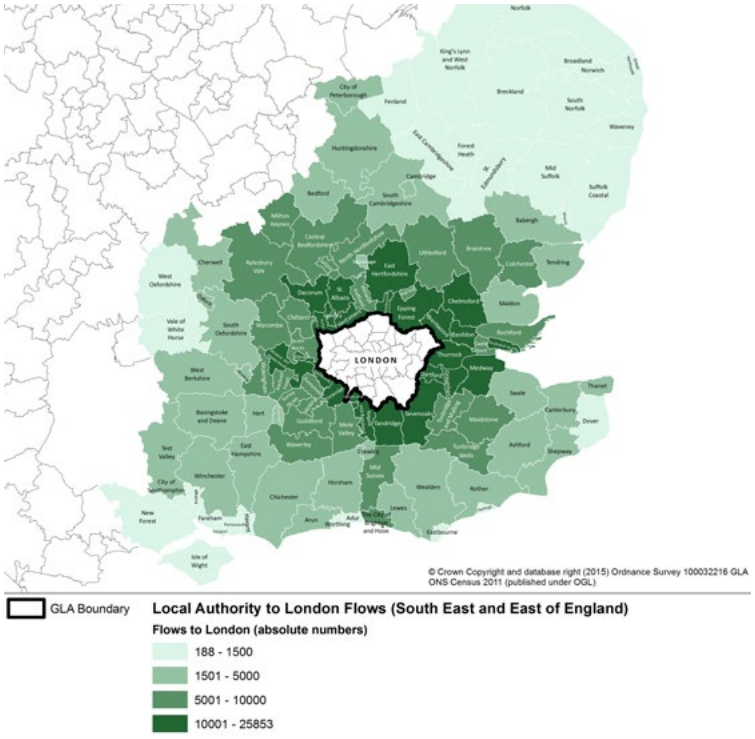


Source: Census and GLA Intelligence Unit analysis

2.7.1.3 Commuters into London as a whole

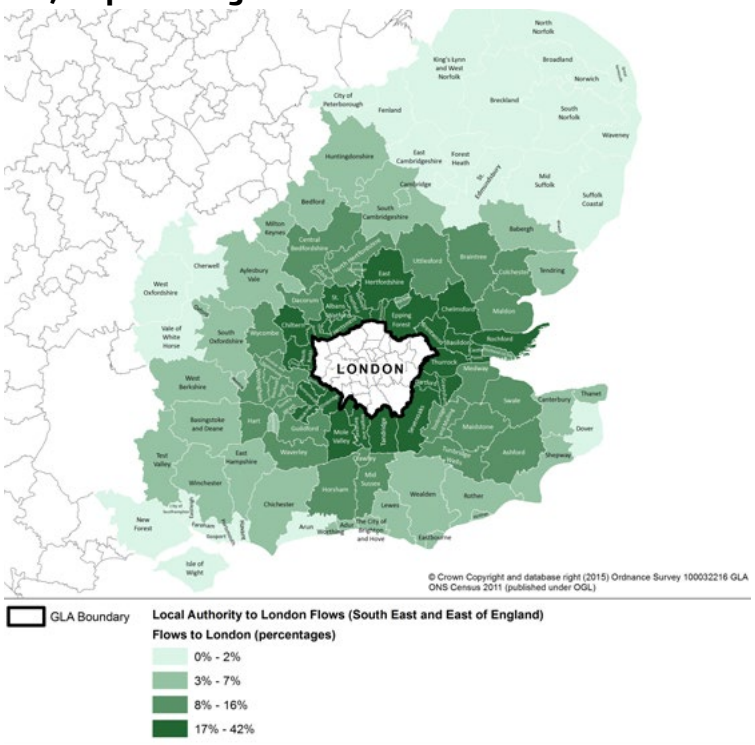
London is an important work destination for people living in the Greater South East outside of London with Map 2.34 showing the absolute number of workers an area provides to London and Map 2.35 showing the percentage of an areas workforce that work in London.

Map 2.34: Workers in London based workplaces by residence origin in the Greater South East (excluding London), 2011, absolute numbers



Source: Census and GLA Intelligence Unit analysis

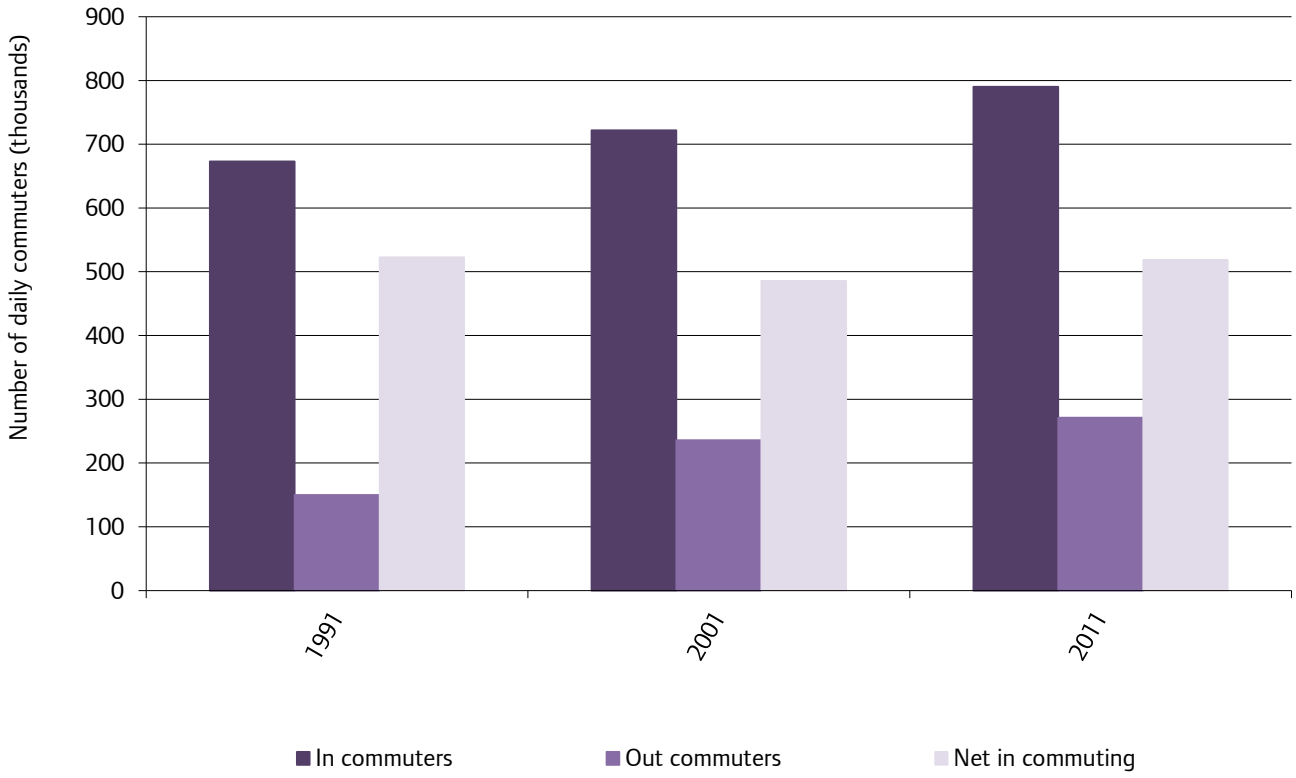
Map 2.35: Workers in London based workplaces by residence origin in the Greater South East (excluding London), 2011, as percentage of an areas workforce



Source: Census and GLA Intelligence Unit analysis

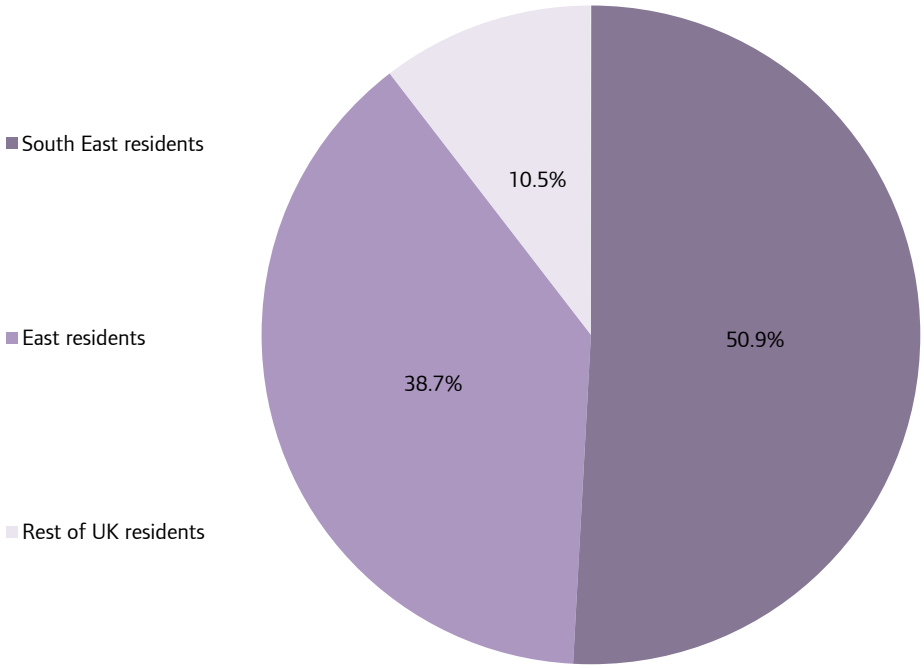
Figures 2.1 to 2.3 examine London's commuters in more detail; with Figure 2.1 showing the steady increase in out and in-commuting that has occurred since 1991. While Figure 2.2 shows that most but not all commuters in London come from the Greater South East. In looking at the source and characteristics of commuters in to London, Transport for 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"[25].

Figure 2.1: Long term trend in commuting to and from London



Source: Census via TfL – Travel in London 7

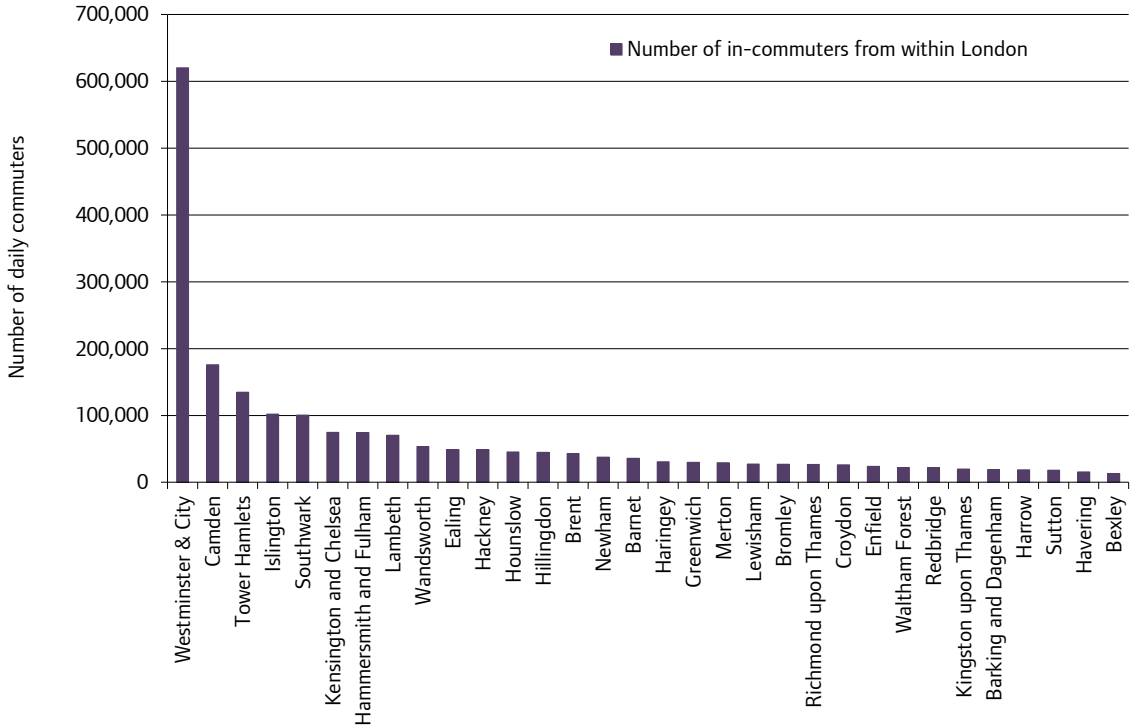
Figure 2.2: Proportion of commuters into London by region of residence, 2011



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"[26]. However, as can be seen from Figure 2.3, 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 2.3: Commuting inflows from within London by borough, 2011. London residents only

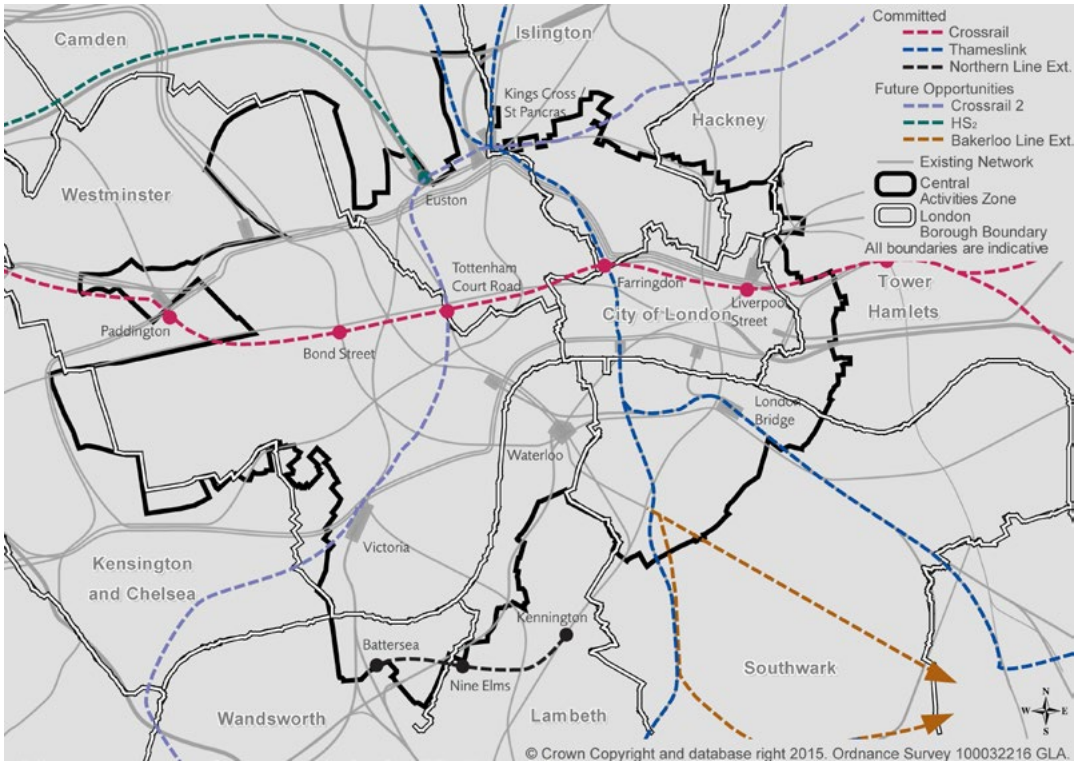


Source: Census via TfL – Travel in London 7

2.7.2 Transport in the CAZ

Public transport is vital for the functioning of the CAZ, with it being the only realistic way in which to provide to transport for 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 2.36.

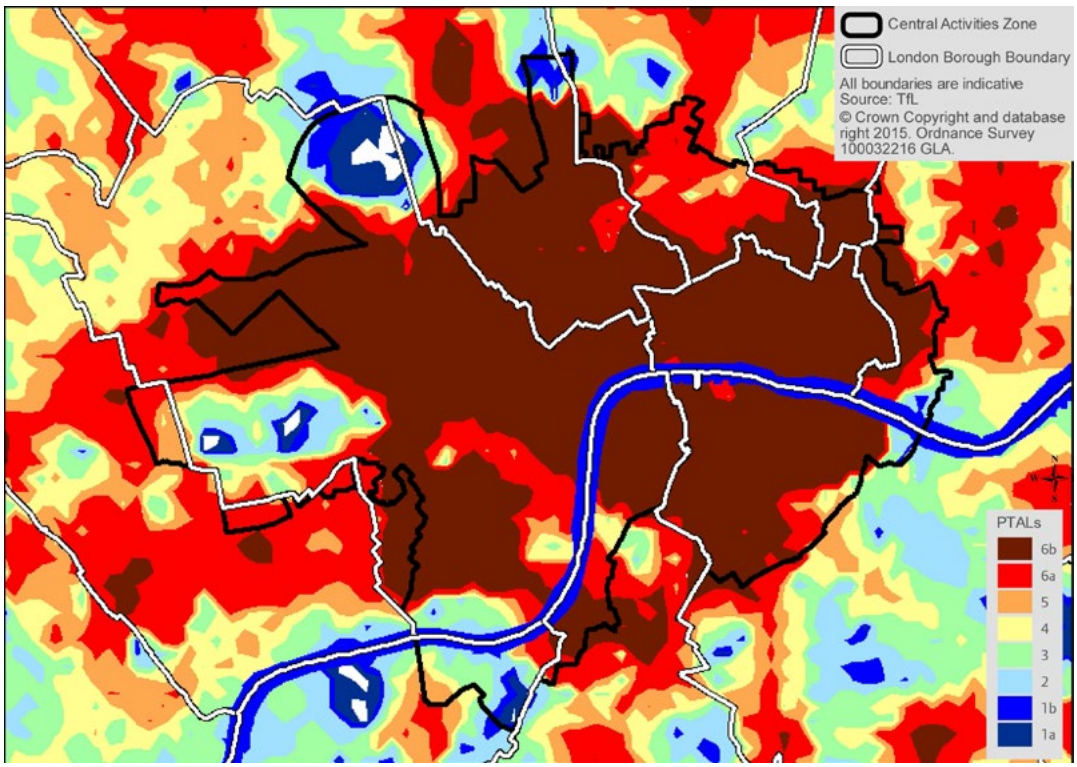
Map 2.36: Major public transport infrastructure schemes including committed and future opportunities



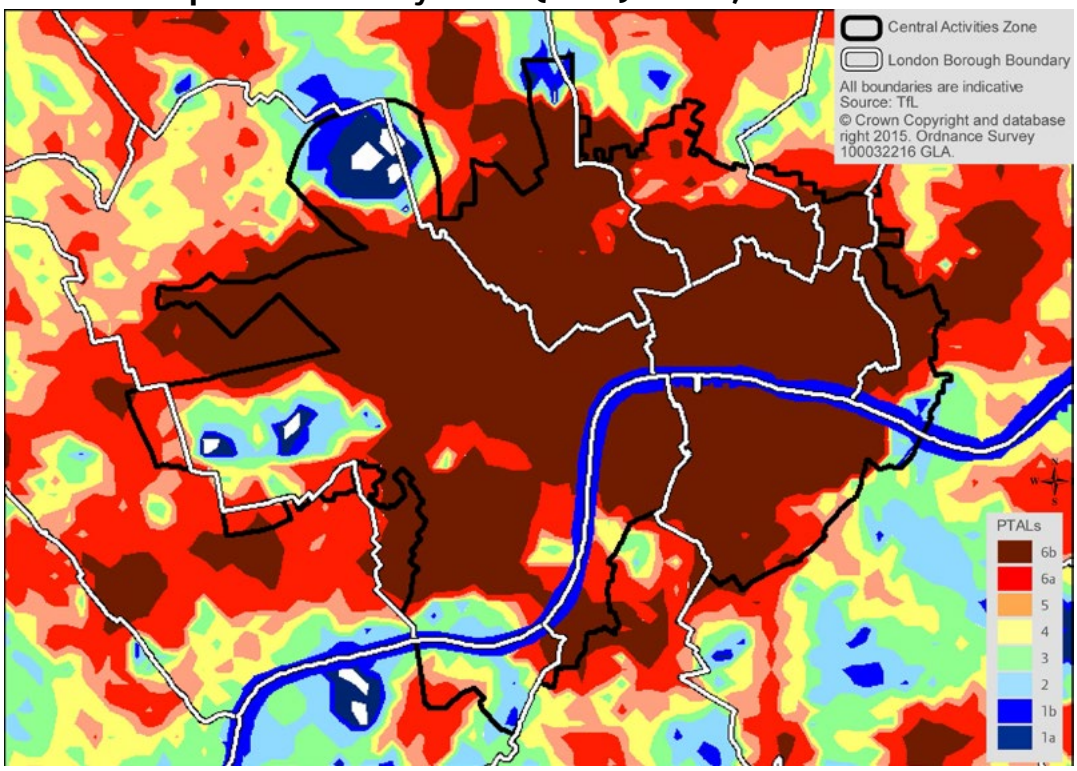
Source: GLA & TfL

Maps 2.37a and 2.37b below illustrate the transport situation in 2015 and that projected for 2021 for public transport access levels (PTAL) in the CAZ incorporating the phasing of committed public transport projects. It should be noted that the high levels of public transport connectivity in the CAZ supports the close integration of transport and development of this area.

Map 2.37a: Public Transport Accessibility Levels (PTAL) in CAZ, 2015



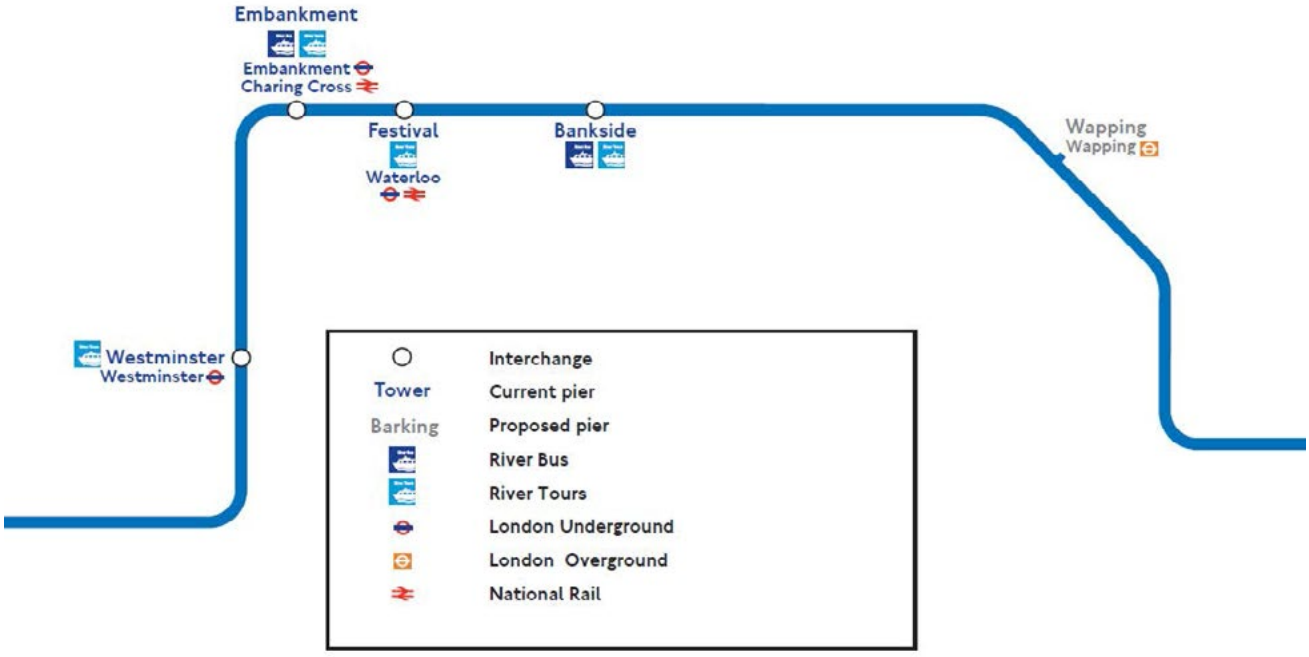
Map 2.37b: Public Transport Accessibility Levels (PTAL) in CAZ, 2021



Source: GLA & TfL

The River Thames provides a number of transport solutions and Map 2.38 highlights plans for the extension of piers at Westminster, Embankment and Bankside. There is also potential to bring Wapping Pier back into use as a river bus stop and TfL is also considering the feasibility of the re-development of Festival Pier, including increasing its size and capacity.

Map 2.38: Location of piers with proposed improvements and potential new pier in Central London

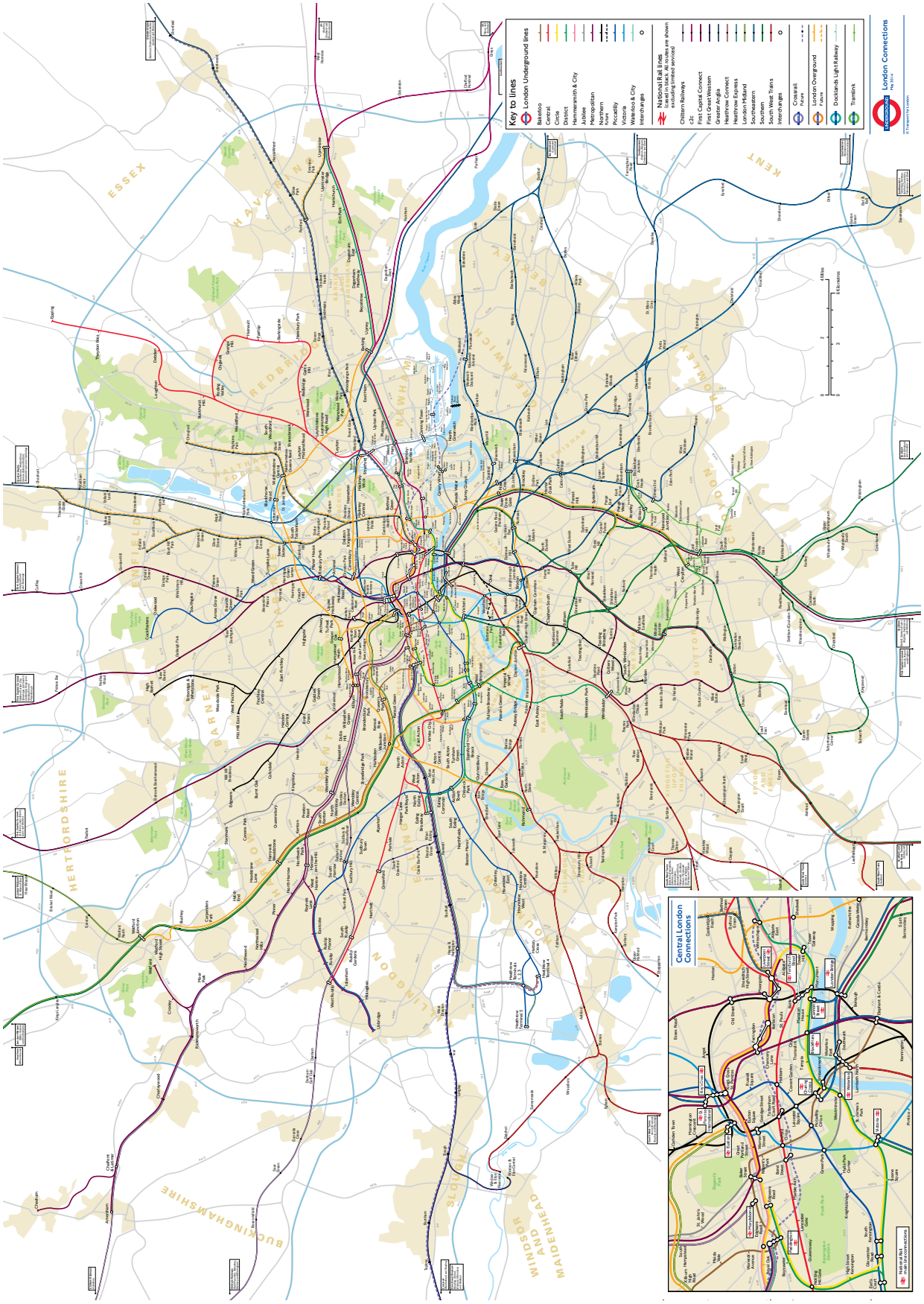


Source: GLA & TfL

2.7.3 Transport in London as a whole

The transport connections in wider London are extensive and snake into the wider South East as highlighted by Map 2.39, which shows the rail and tube routes in London and the surrounding geographies.

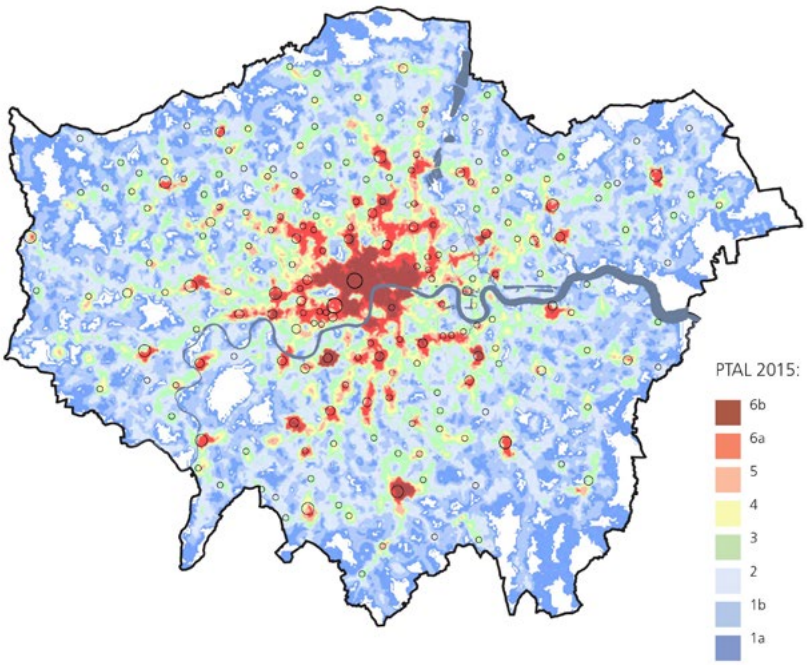
Map 2.39: Geographically accurate tube and rail map



Source: TfL[27]

However, although London's transport network is extensive as shown by Map 2.40, the PTAL across London is variable. It is the case though, as highlighted by the circles on the map, that public transport accessibility in London's town centres is generally quite high. Further, recent research for the GLA has found that "in terms of improvements in PTAL ratings there is one centre - St John's Wood – where the PTAL rating between 2009-2020 is estimated to rise from 4 to 6a and a further four centres where the PTAL rating is projected to rise from 5 to 6a: Canada Water, Chiswick, Dalston and Kentish Town. Centres with improved accessibility are centres that are likely to be able to absorb greater capacity"[28]. In terms of visits to town centres recent research for TfL has found that the "bus is the most widely used mode to travel to most town centres. Overall, 34 per cent use the bus on the day of visit. Bus use is lower to travel to Central London, where tube use is greater"[29].

Map 2.40: PTAL in London with highlighted town centres, 2015

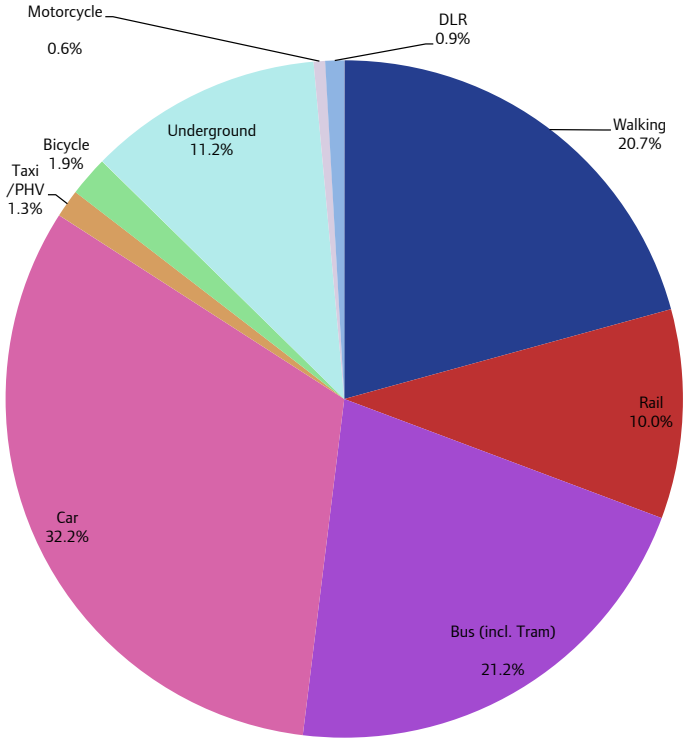


Source: GLA

Looking at the mode of transport used in London as a whole it can be seen from Figure 2.4 that private vehicle transport only accounts for around a third of daily journeys, with its share having declined significantly over recent years as is shown in Table 2.6. This is perhaps unsurprising given that low average traffic speed 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 take up the increase in travel demand that has been seen in London.

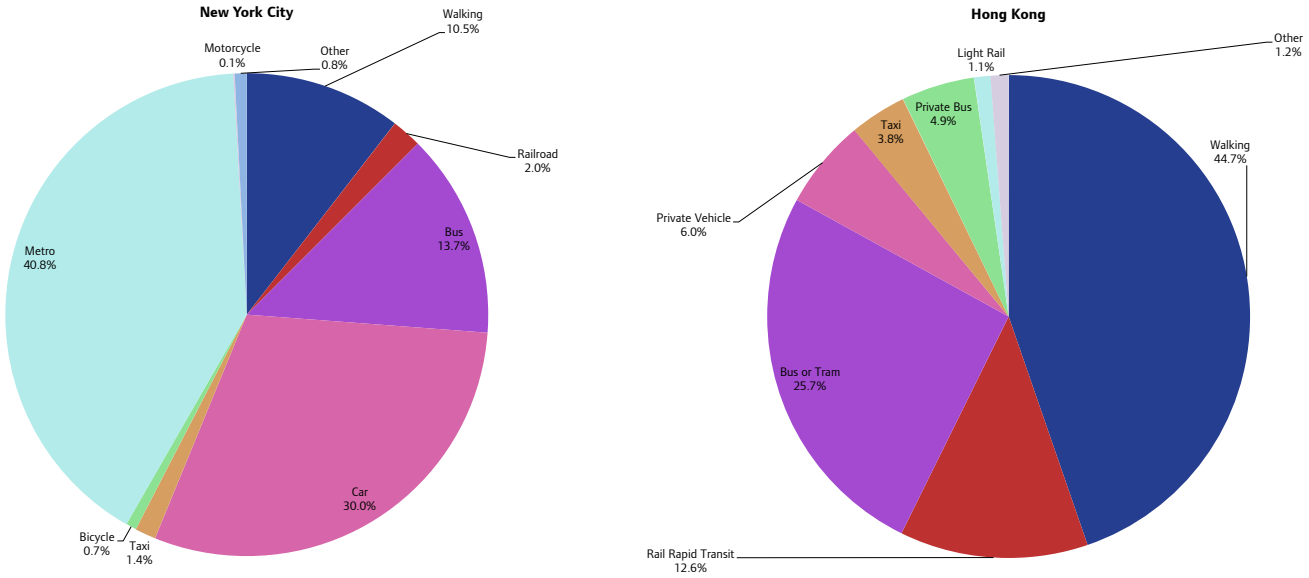
Large sections of Inner London are within 45 minutes public transport travel time of a significant number of jobs as is shown by Map 2.41, whereas Map 2.42 shows population accessibility by public transport. Placing this into an international context, Figure 2.5 shows how London's transport modes compare to two other global cities, New York and Hong Kong and shows the differing importance of transport modes between the cities, 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 2.4: Transport modal shares of daily journey stages in London, 2013



Source: TfL – Travel in London 7

Figure 2.5: Transport modal shares in comparison cities[30]



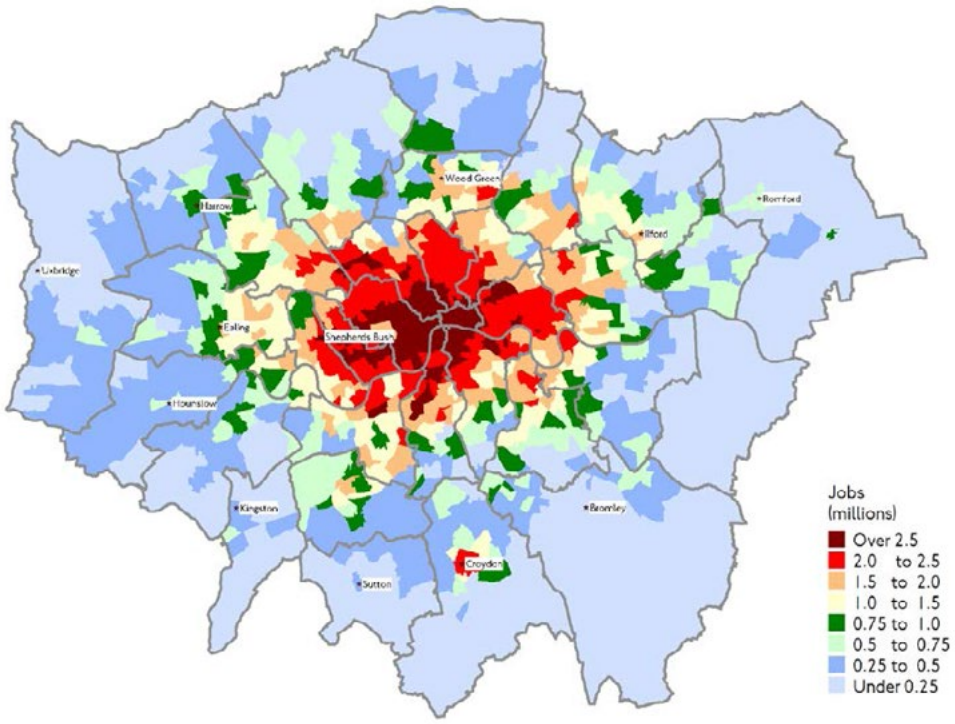
Source: LSE, urban age project[31]

Table 2.6: Percentage shares of journey stages by type of transport, 1993 to 2013

	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%

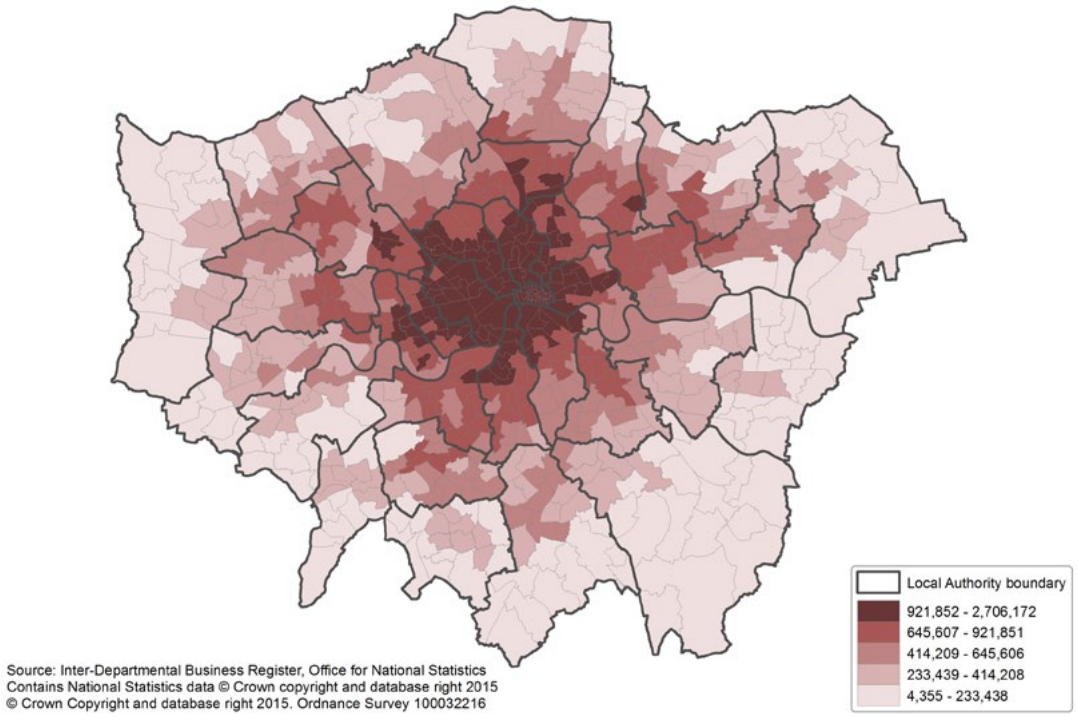
Source: TfL – Travel in London 7

Map 2.41: Number of jobs available by mass public transport within 45 minutes travel time, 2012



Source: TfL – Travel in London 7

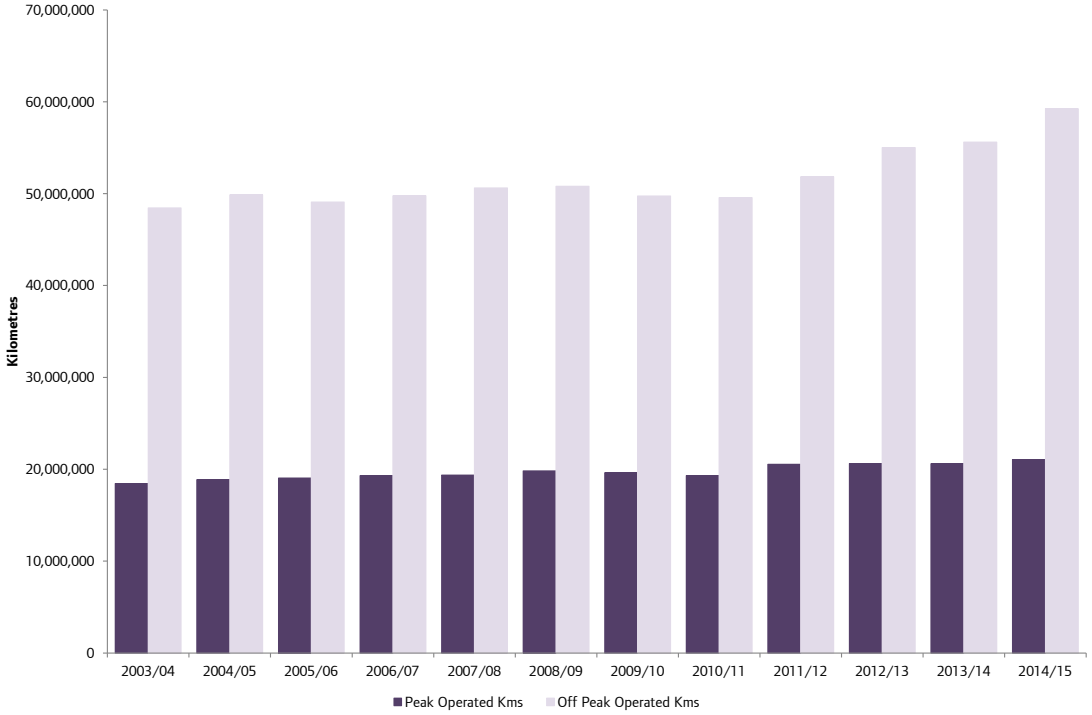
Map 2.42: Population accessibility by public transport within 45 generalised minutes, by ward in London



Source: GLA Intelligence Unit

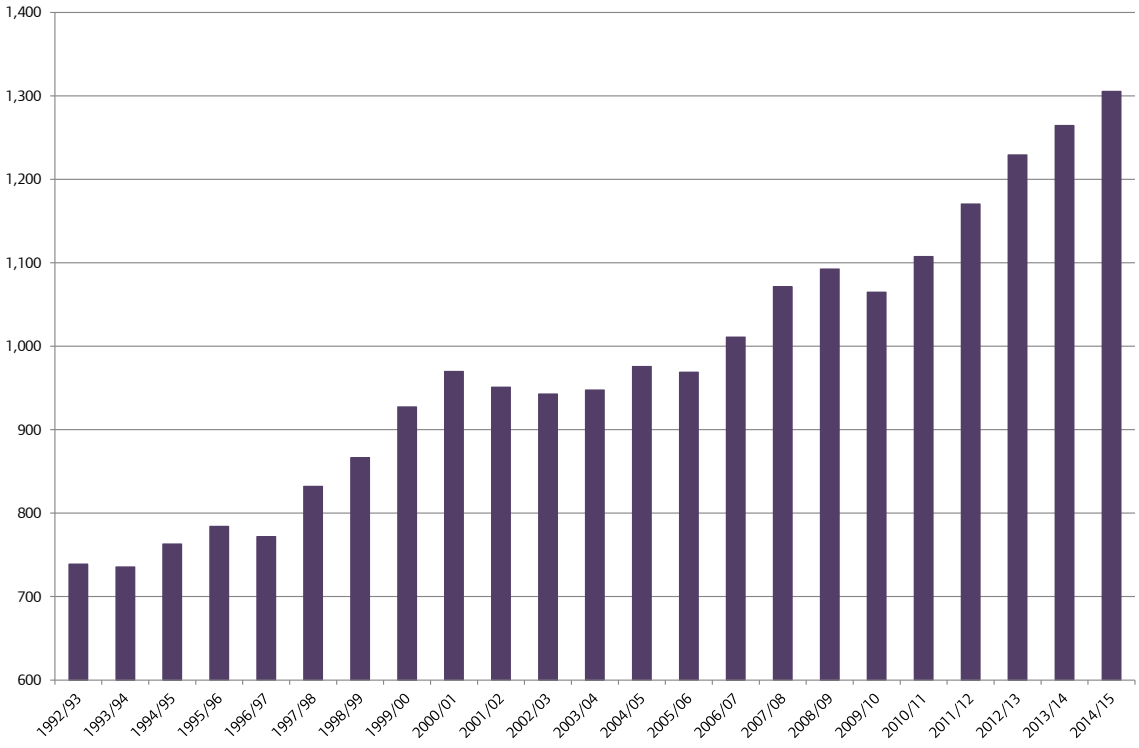
With respect to the Tube Figure 2.6 shows that operated kilometres on the Underground network in both peak and off peak times continues to rise. This increase in capacity has been matched by an increase in the number of passenger journeys as shown by Figure 2.7. While the service has also seen an improvement 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"[32]. The underground has also seen a reduction in average journey time as shown by Figure 2.8, 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"[33]. Finally, Figure 2.9 provides a longer time series of passenger journeys and shows that the growth in passenger kilometres and journey stages on London Underground has been ongoing since at least the late 1980s to early 1990s.

Figure 2.6: Operated kilometres on the London Underground



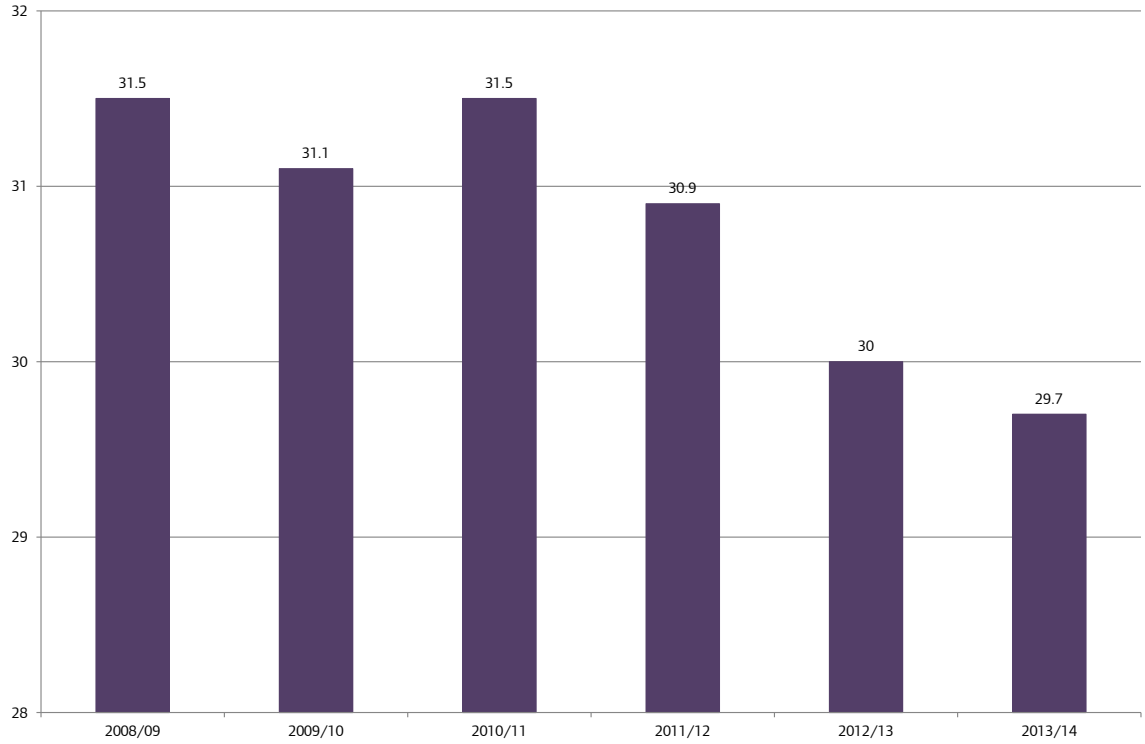
Source: TfL

Figure 2.7: London underground passenger journeys (millions)



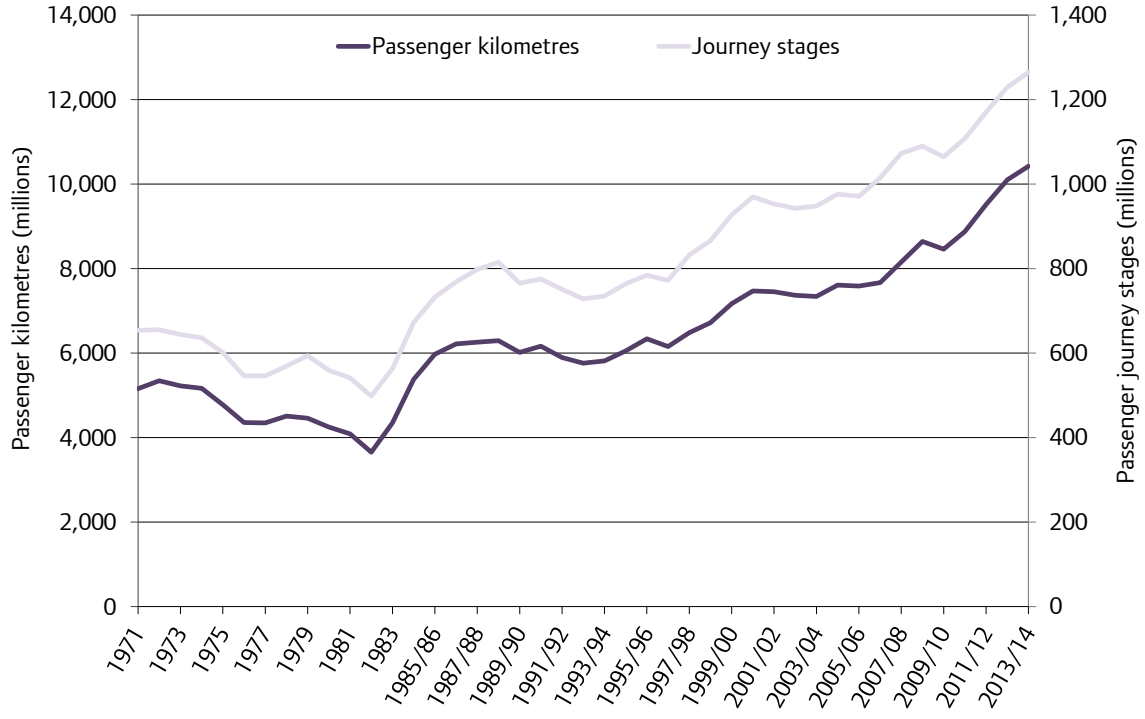
Source: TfL

Figure 2.8: Average journey times on the London Underground (minutes)



Source: TfL

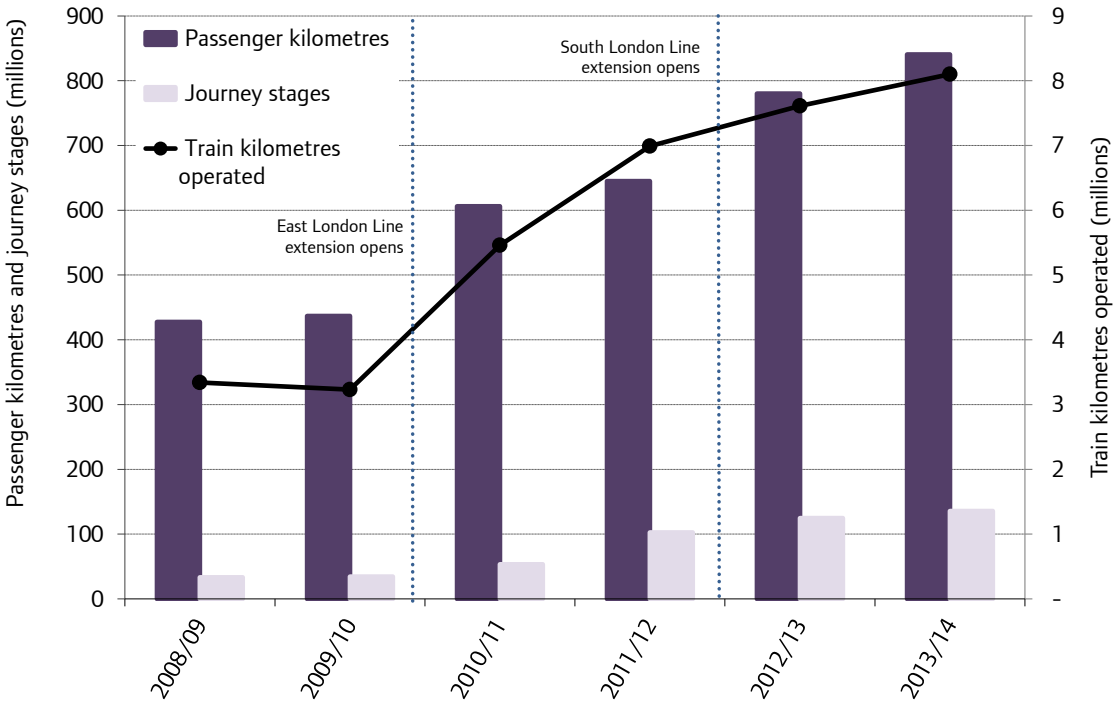
Figure 2.9: Passenger kilometres and journey stages by Underground



Source: TfL – Travel in London 7

Looking beyond the Underground, Figure 2.10 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 2.7.

Figure 2.10: Passenger kilometres and journey stages by London Overground



Source: TfL – Travel in London 7

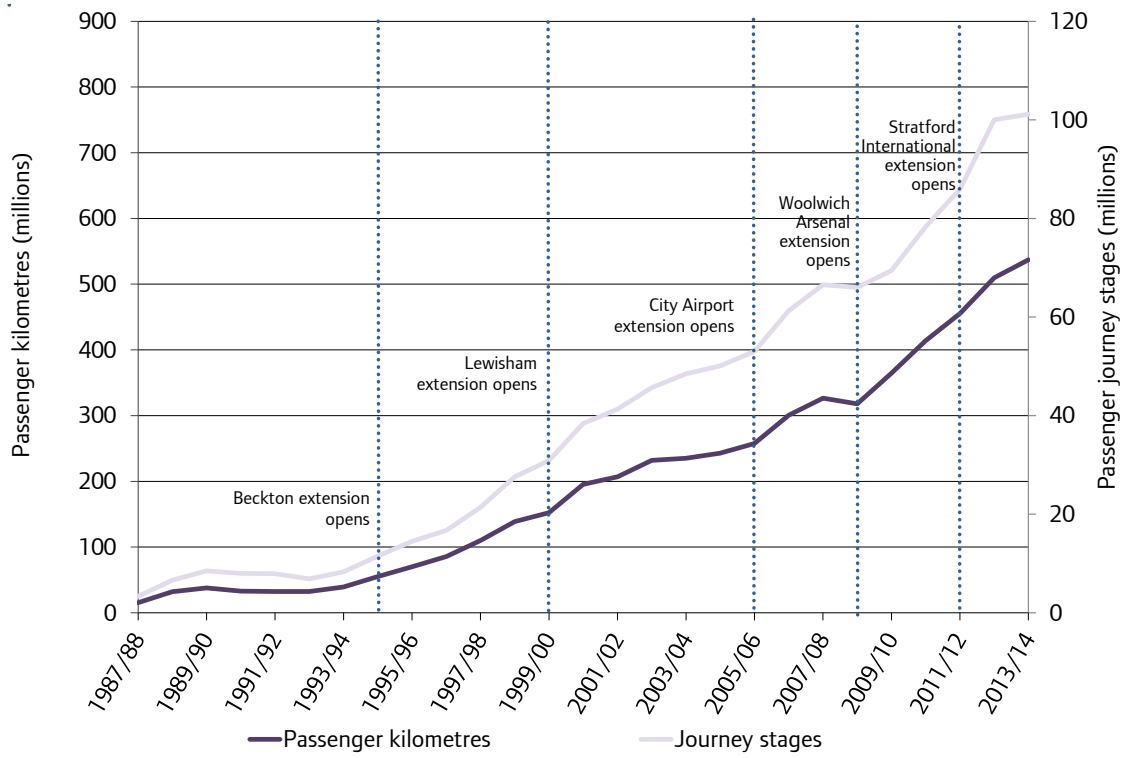
Table 2.7: Passenger kilometres and passenger journey stages by National Rail – operators classified by the Office of Rail Regulation as London and South East operators

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	25.0	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%

Source: Office of Rail regulation via TfL – Travel in London 7

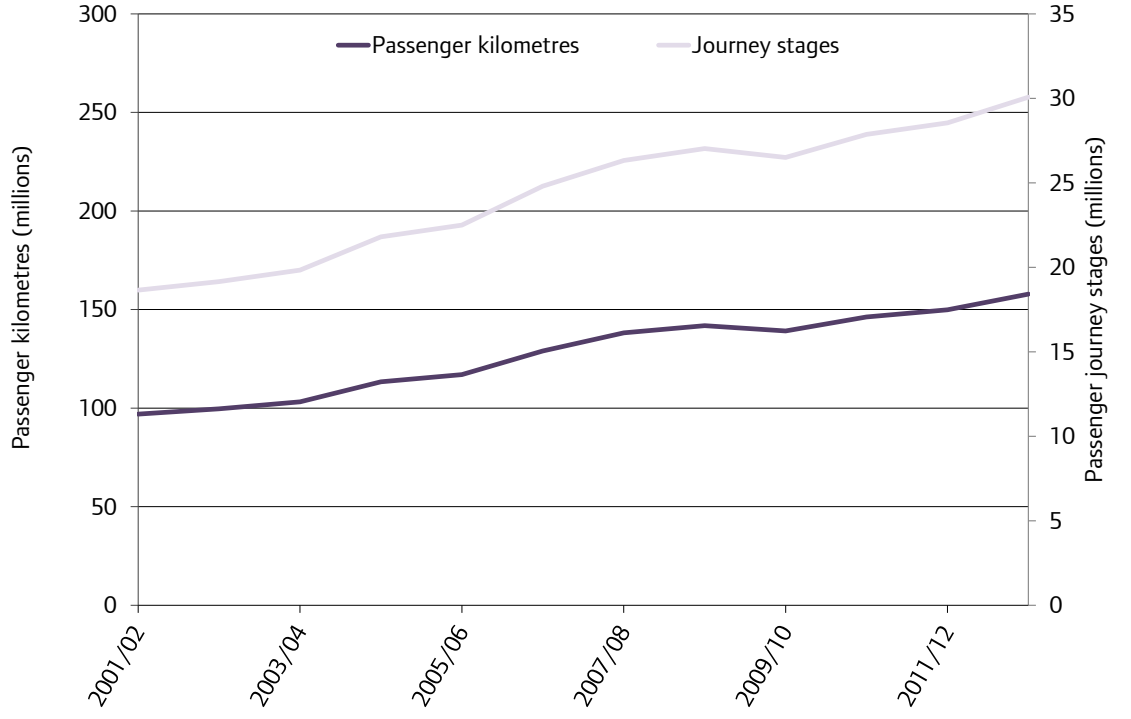
However, growth in demand for the use of public transport is not restricted to the Tube and rail services as highlighted by Figures 2.11 to 2.13 which show the growth in usage of the DLR, Tramlink, and bus services. While, Table 2.8 highlights the growth in trips in recent years, and in particular highlights the strong growth in bus, rail, and Tube usage. Table 2.9 demonstrates that cycling has become an increasingly popular mode of transport in the city.

Figure 2.11: Passenger kilometres and journey stages by DLR



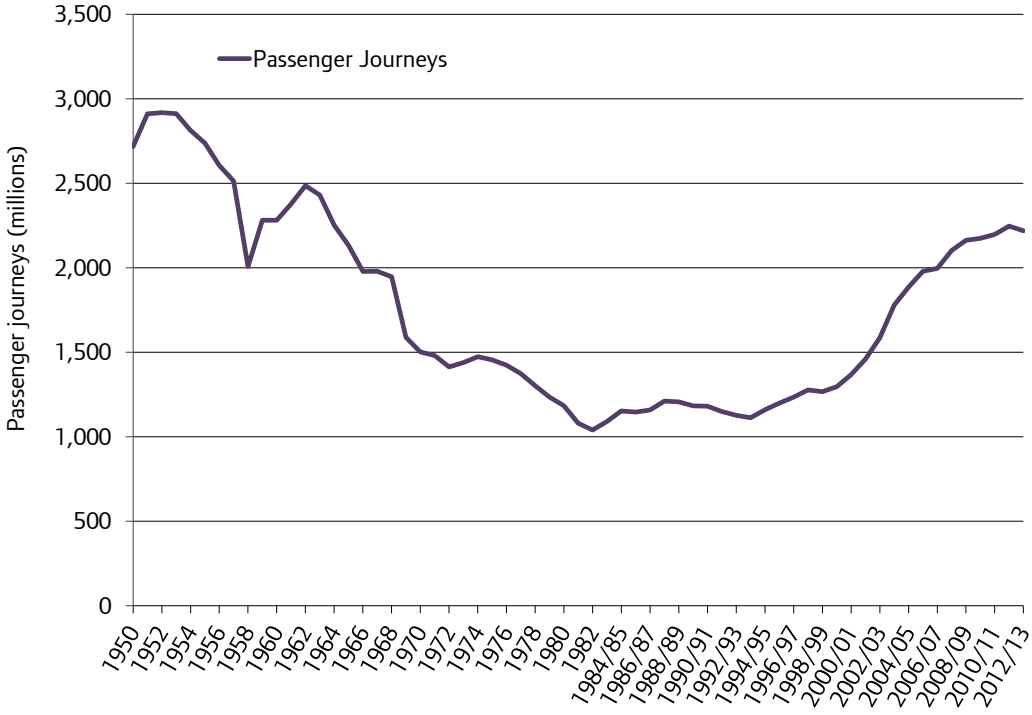
Source: TfL – Travel in London 7

Figure 2.12: Passenger kilometres and journey stages by London Tramlink



Source: TfL – Travel in London 7

Figure 2.13: Bus demand in London over time



Source: TfL – Travel in London 7

Table 2.8: Aggregate travel volumes in Greater London, estimated daily average number of trips by main mode of travel, 1993 to 2013, Seven-day week (Millions of trips)

Year	Rail	Under-ground/ DLR	Bus (in-cluding tram)	Taxi/ PHV	Car driver	Car pas-senger	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	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	3.1	0.3	6.4	3.5	0.2	0.4	5.7	23.6
2007	2.1	2	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	24.8
2010	2.3	2.1	4	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

Source: TfL – Travel in London 7

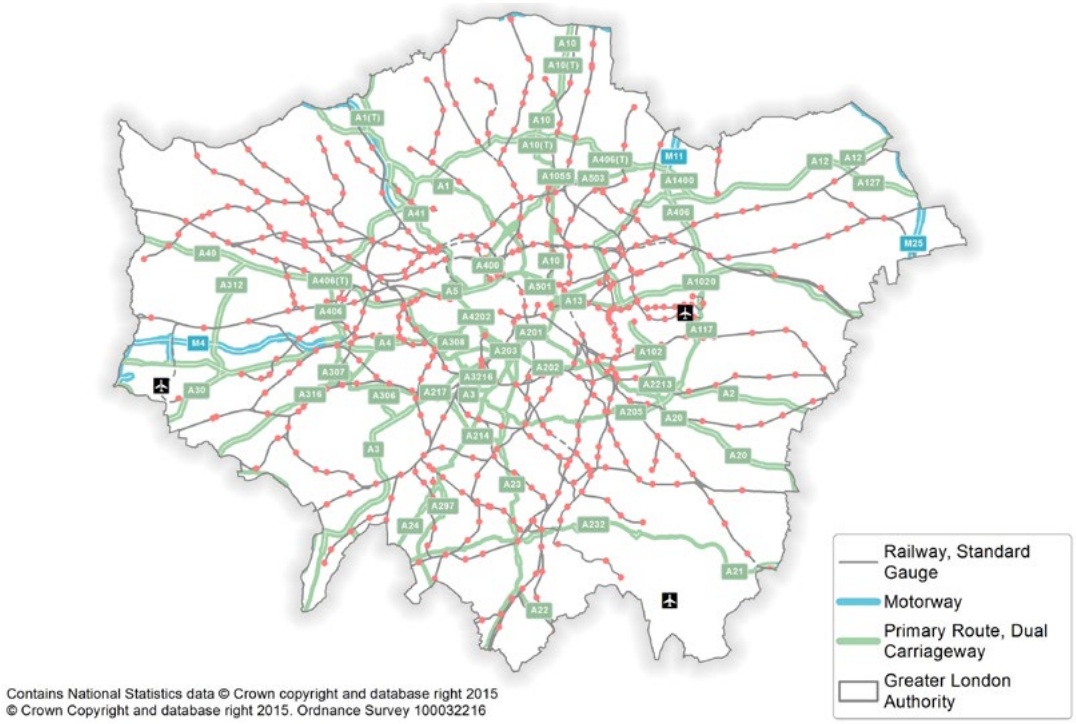
Table 2.9: Daily average cycle stages and trips in London

Year	Cycle stages		Cycle trips
	Millions	Year on year % change	Millions
2003	0.37	14%	0.32
2004	0.38	3%	0.33
2005	0.41	9%	0.39
2006	0.47	12%	0.42
2007	0.47	0%	0.42
2008	0.49	5%	0.44
2009	0.51	5%	0.47
2010	0.54	6%	0.49
2011	0.57	5%	0.49
2012	0.58	2%	0.5
2013	0.58	1%	0.5

Source: TfL – Travel in London 7

Looking at road transport in London, Map 2.43 highlights the major roads, rail lines and airports in London, however as shown by Table 2.10 the usage of these roads has declined in recent years, unlike for Great Britain as a whole. Figure 2.14 shows that even though the general trend in road usage has been downwards, this has not been the case for light goods vehicles which saw growth from 2001 until 2008 (and the recession); usage has recently picked up again after a few years of flat lining.

Map 2.43: Roads, rail and airports in London



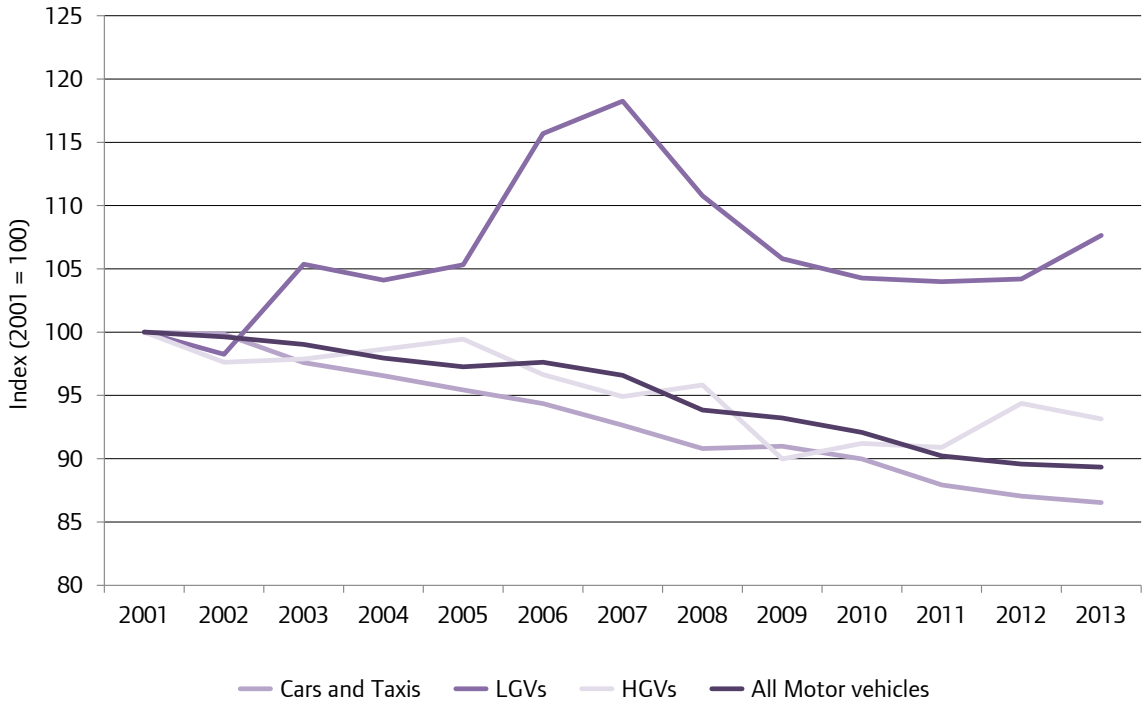
Source: GLA Intelligence Unit

Table 2.10: London road traffic (billion vehicle kilometres) by central, inner, outer London and Great Britain, all motor vehicles

Year	Central London	Inner London	Outer London	Greater London	Great Britain
1993	1.3	8.7	20.7	30.7	412.3
1994	1.3	8.8	21	31.1	421.5
1995	1.3	8.9	21	31.2	429.7
1996	1.3	8.9	21.3	31.5	441.1
1997	1.3	8.9	21.5	31.7	450.3
1998	1.3	8.9	21.7	31.9	458.5
1999	1.3	9.1	22.3	32.7	467
2000	1.3	9	22.1	32.4	466.2
2001	1.2	9	22	32.3	472.6
2002	1.2	8.9	22	32.1	483.7
2003	1.2	8.8	21.9	31.9	486.7
2004	1.2	8.7	21.7	31.6	493.9
2005	1.2	8.5	21.7	31.4	493.9
2006	1.2	8.5	21.8	31.5	501.1
2007	1.2	8.6	21.4	31.2	505.4
2008	1.1	8.3	20.9	30.3	500.6
2009	1	8.2	20.8	30.1	495.8
2010	1	8	20.6	29.7	487.9
2011	1	7.8	20.3	29.1	488.9
2012	1	7.6	20.3	28.9	487.1
2013	1	7.4	20.4	28.8	488.8

Source: Department for Transport via TfL – Travel in London 7

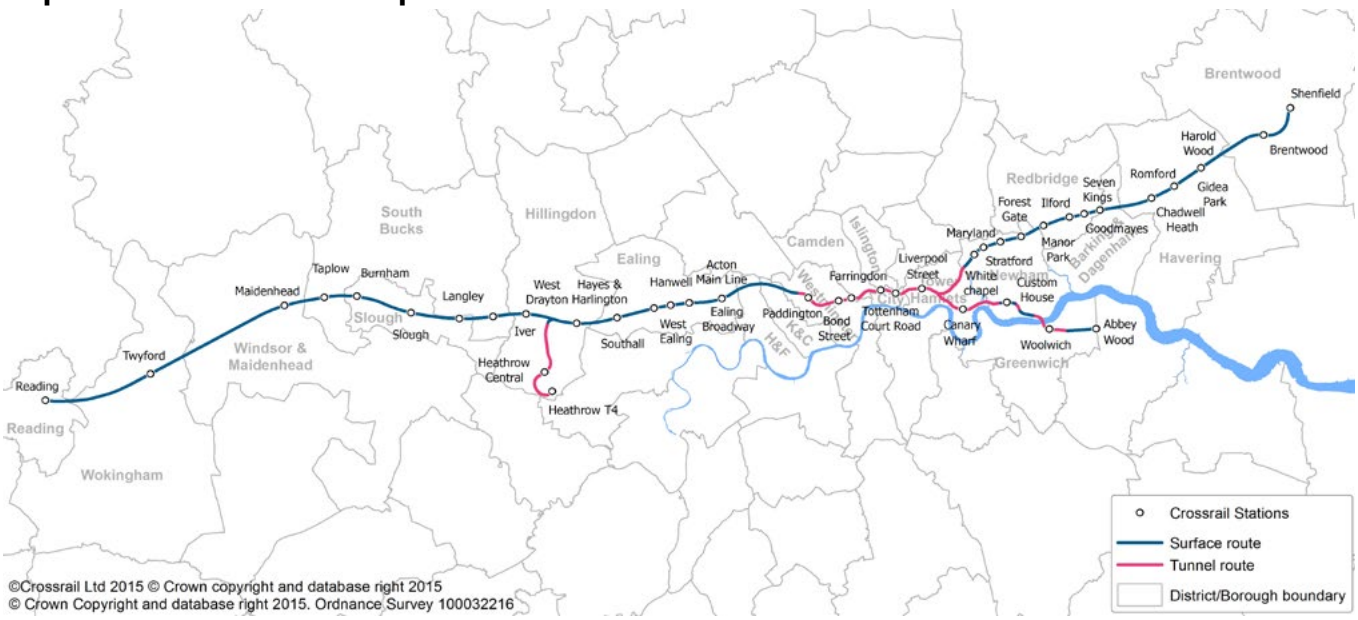
Figure 2.14: Growth in road traffic in London, 2001 to 2013



Source: TfL – Travel in London 7

London's transport system continues to evolve and provide connections to the wider South East as shown by Map 2.44 which shows the route Crossrail will take when it opens. 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"[34].

Map 2.44: Crossrail route map



Source: GLA Intelligence Unit mapping

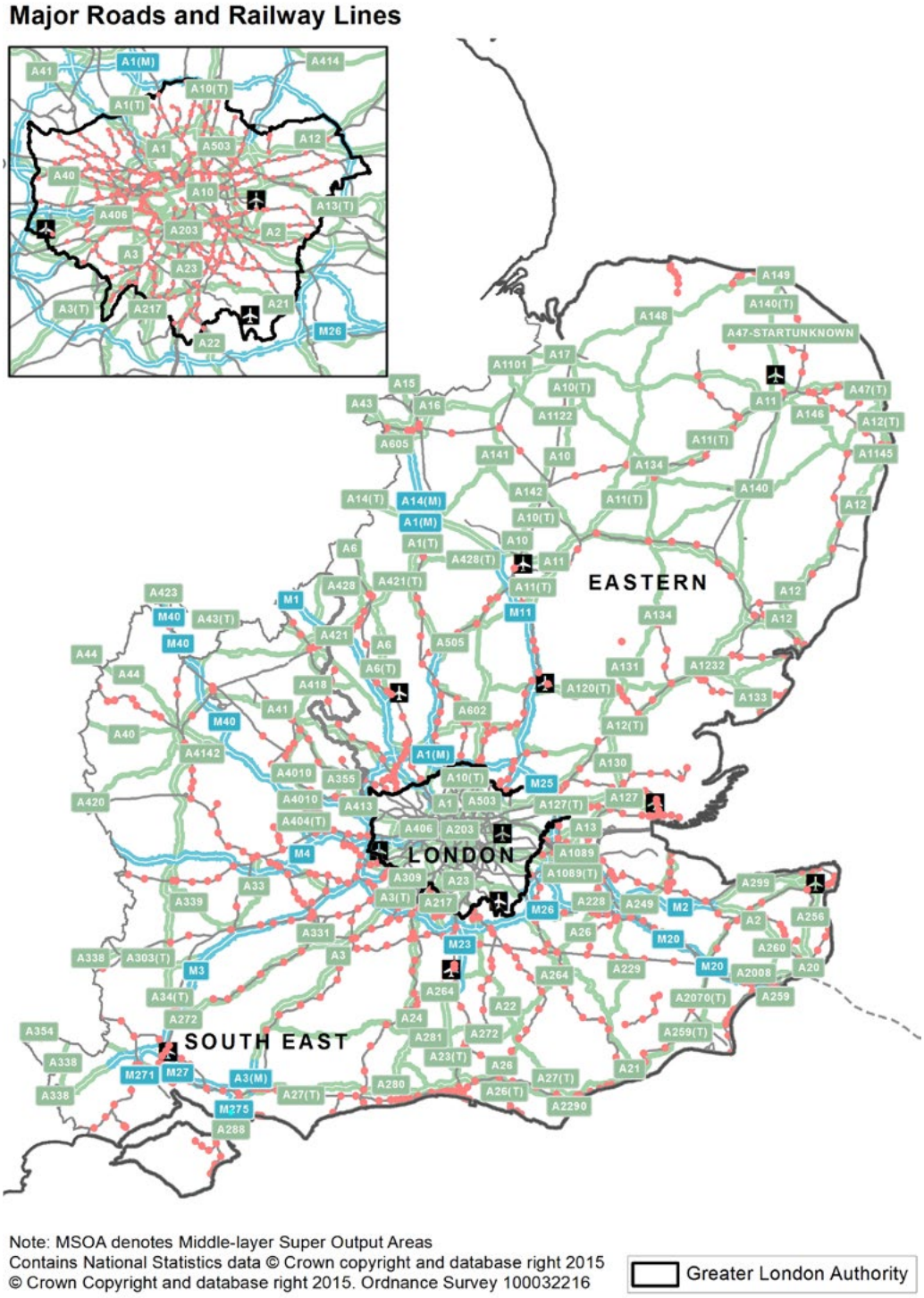
2.7.4 Transport in the Greater South East

As highlighted previously London is connected to the Greater South East in terms of commuters coming into and out of London but also significant parts of London's transport are of vital importance to the economies of the Greater South East as well as London such as airport capacity. This sub section examines these transport links in more depth.

2.7.4.1 Rail travel

Map 2.45 shows London's motorway and rail connections with the wider South East and highlights the connections between London and the rest of the UK.

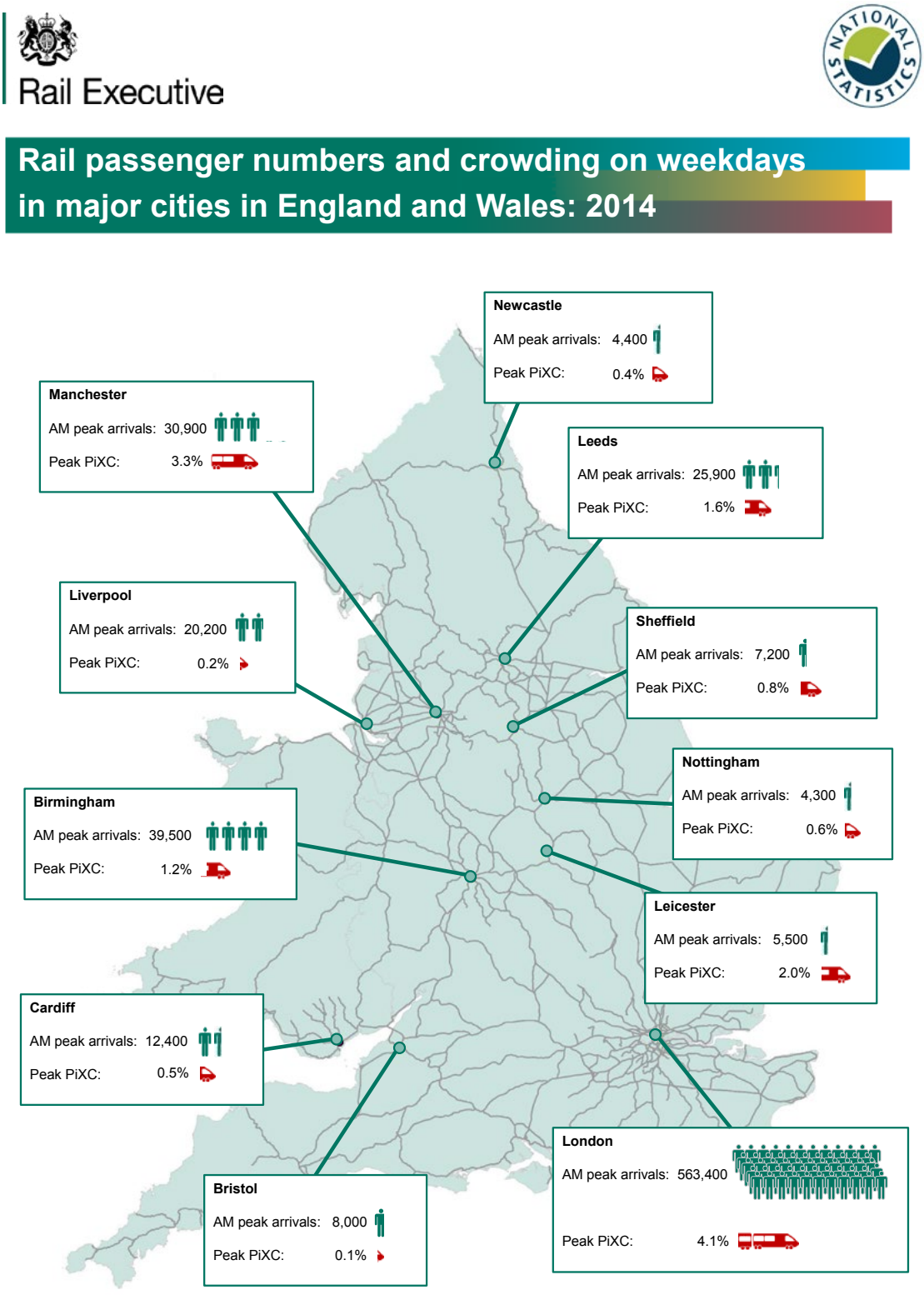
Map 2.45: Airport, rail and road infrastructure in the South East region



Source: GLA Intelligence Unit

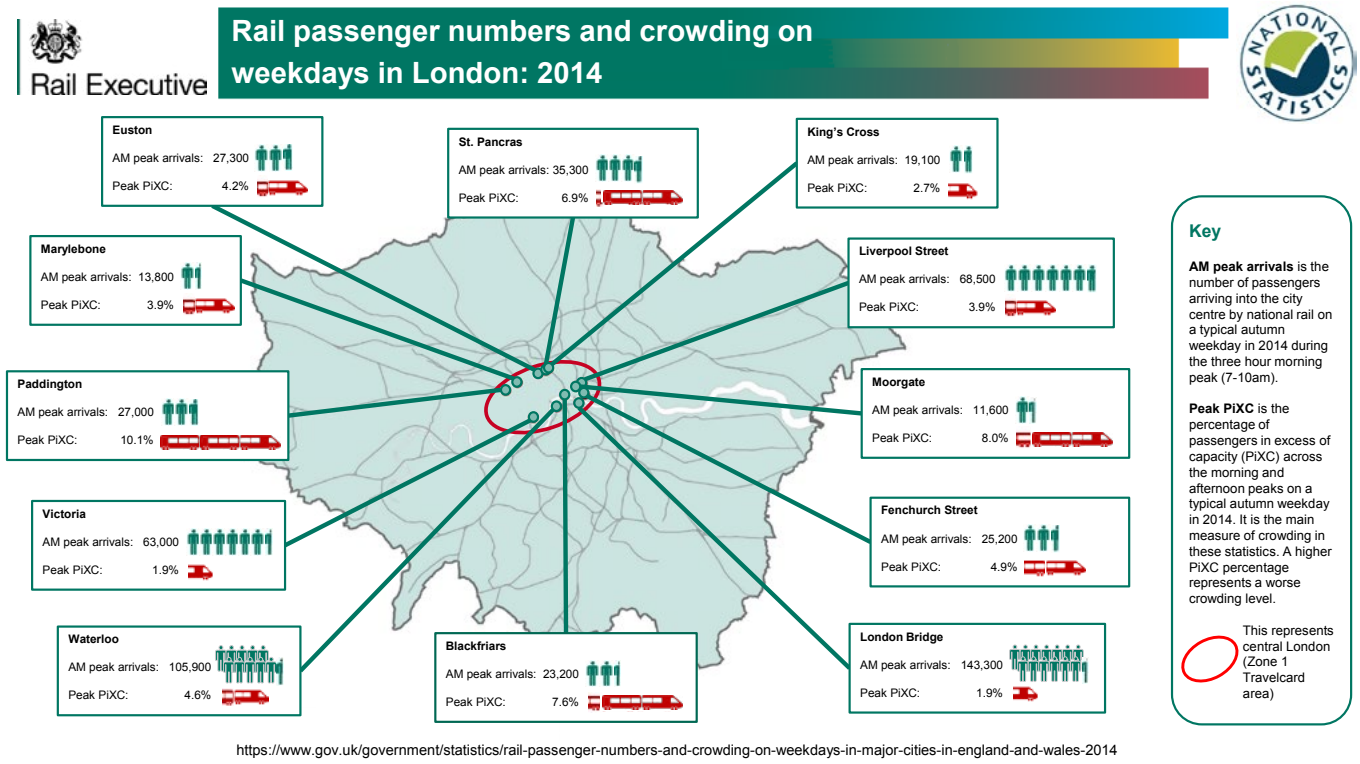
However, London's transport flows overshadow those seen in the rest of the UK. This can be seen by examining morning peak time passenger arrivals as shown in Maps 2.46a and 2.46b, which show that London far outweighs any other English or Welsh city. While in terms of overcrowding, the Department for Transport (DfT) found on a typical autumn weekday in 2014 that "overall peak crowding was higher in London than in other cities, with 4.1 per cent of passengers in excess of capacity (PiXC) in London compared to 1.4 per cent PiXC across the other 10 cities". While, "139 thousand passengers were standing at trains' busiest points on arrival into London in the morning peak, 22 per cent of all passengers. 26 per cent of morning peak trains were over capacity and in total 59 per cent had passengers standing". And "in the morning peak 563 thousand passengers arrived by rail into central London (Zone 1 of the travelcard area), a 3 per cent increase from the year before. Just over one million passengers arrived into central London by rail across the whole day"[35].

Map 2.46a: Rail passenger numbers and crowding on weekdays in major cities in England and Wales (2014)



Source: Department for Transport[36]

Map 2.46b: Rail passenger numbers and crowding on weekdays in London (2014)



Source: Department for Transport

Table 2.11 below, examines 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 2.12 examines this in more detail, looking at the 1 hour and 3 hour am and pm peak based on congestion and standing on trains arriving in various cities and individual London stations.

Table 2.13 looks at peak time over-capacity for London and South East train operators and shows that overcrowding holds for most operators, although some face significantly higher overcrowding than others. Table 2.14 meanwhile highlights that crowding on peak time trains has been a persistent problem in London since 1990 but with the trend worsening in recent years to hit its highest level since at least 1990 in 2014. While Table 2.15 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 "sixty six per cent of journeys in the South East and 76 per cent in the East of England started or finished in London"[37].

Table 2.11: 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[38]	5.5%	2.0%	2.1%	0.6%	3.9%	1.3%
London Bridge[39]	3.1%	1.0%	0.5%	0.0%	1.9%	0.5%
Marylebone[40]	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[41]	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[42]	3.3%	-0.1%	0.3%	0.3%	1.9%	-0.2%
Waterloo[43]	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 2.12: Peak crowding on a typical autumn weekday in London by terminal (2014)

		Passengers in excess of capacity (PiXC)		Passengers standing		Services with PiXC		Services with passengers standing	
AM peak arrivals (07:00-09:59)[44]		Number	%[45]	Number	%[46]	Number	%[47]	Number	%[48]
Blackfriars (via Elephant and Castle)[49]	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[50]	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[51]	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%
Maryle-bone[52]	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%
Padding-ton[53]	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 Interna-tional[54]	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[55]	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[56]	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)[57]									
Blackfriars (via Ele-phant 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%
Maryle-bone	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%
Padding-ton	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 Interna-tional	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

Table 2.13: 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[58]	4.9%	2.8%	3.9%
First Great Western[59]	13.5%	6.0%	10.1%
Govia Thameslink Railway	7.4%	5.1%	6.3%
Greater Anglia[60]	5.5%	2.1%	3.9%
London Midland	5.7%	7.4%	6.5%
London Overground[6162]	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

Table 2.14: 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 2.15: City centre[63] (Zone 1 for London) 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[64]	179	51,826	39,473	186	51,668	40,489	960	269,019	115,769	953	265,941	112,304
Bristol[65]	52	14,349	8,036	51	13,071	9,600	267	70,179	28,138	259	68,251	28,461
Cardiff[66]	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[67]	128	30,599	20,155	139	30,646	21,792	712	153,095	65,832	712	150,865	62,765
London[68]	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[69]	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[70]												
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[71]	153	95,383	68,545	148	92,565	59,382	657	351,404	106,652	643	340,145	109,160
London Bridge[72]	200	124,710	143,343	189	116,115	116,138	850	451,076	229,610	871	459,481	222,175
Marylebone[73]	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[74]	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[75]	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

2.7.4.2 London's Airports

London Heathrow is the pre-eminent UK airport with it taking the third most passengers globally (Table 2.16). In the year to April 2015, preliminary estimates are that 73.7 million passengers went through Heathrow; since 2010, passenger numbers have increased by 11.5 per cent, and Heathrow overtook Chicago O'Hare as the third largest airport in the world in 2011.

Table 2.16: Cities with largest numbers of passenger numbers, and other selected global cities (millions of passengers)

Rank	Airport	2000	2005	2010	2011	2012	2013
1	Atlanta	80.2	85.9	89.3	92.4	95.5	94.4
2	Beijing	..	41.0	73.9	78.7	81.9	83.7
3	**London Heathrow**	**64.6**	**67.9**	**65.9**	**69.4**	**70.0**	**72.4**
4	Tokyo	56.4	63.3	64.2	62.6	66.8	68.9
5	Chicago	72.1	76.5	66.8	66.7	66.6	66.8
7	Dubai	..	..	47.2	51.0	57.7	66.4
8	Paris	48.2	53.8	58.2	61.0	61.6	62.1
19	New York	32.9	41.9	46.5	47.6	49.3	50.4

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 2.16 shows that back in the year 2000, 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). The Table 2.17 outlines the airports with the greatest growth in passenger numbers (amongst those within the top 30 airports by passenger numbers in both 2010 and in the year to January 2015), it thus highlights London airport capacity constraints. For more on London's airport capacity constraints, see Chapter 4.

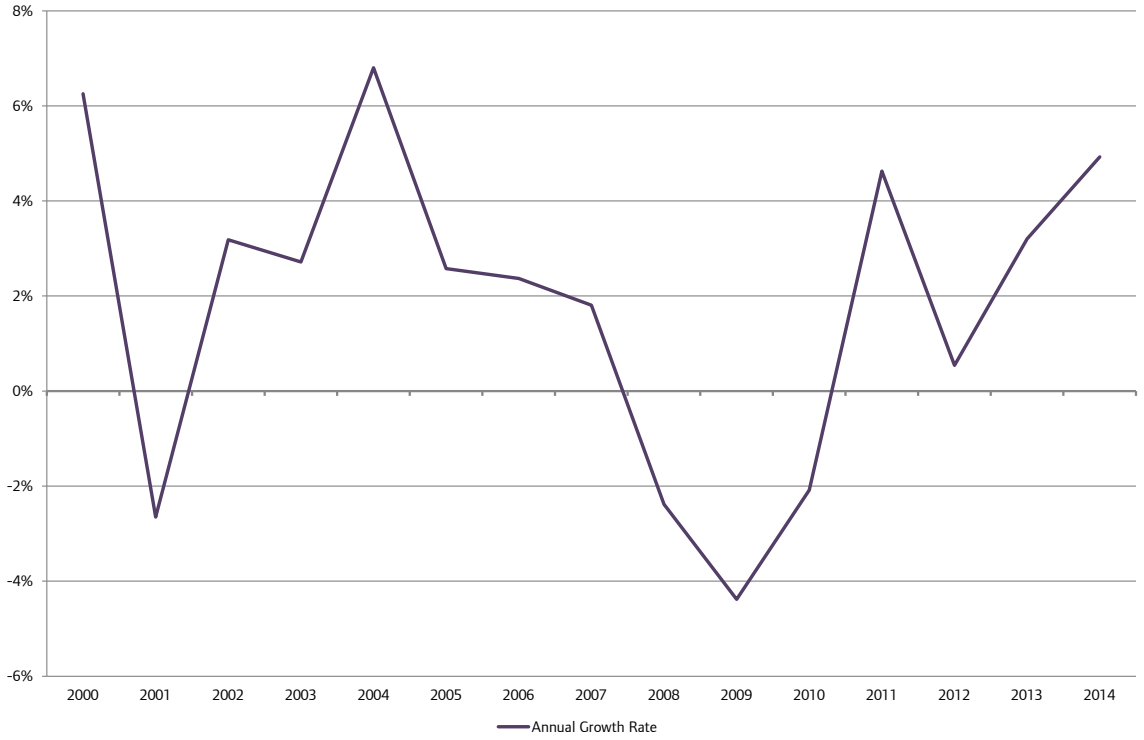
Table 2.17: Cities with the largest growth in passenger numbers, between 2010 and the year to January 2015

Rank	Airport	Average Annual Growth Rate
1	Dubai	10.7%
2	Guangzhou	7.5%
3	Singapore	6.4%
4	Shanghai	6.3%
5	Jakarta	6.2%
17	**London Heathrow**	**2.8%**

Source: GLA Economics calculations; Airports Council International

In 2014, there were a total of 135.1 million passengers at London airports (Heathrow, Gatwick, Stansted and City), an increase of 4.9 per cent on the year previous. Figure 2.15 shows that following the 2008/09 recession, there has been a pick-up in passengers from 2011 onwards, reaching record highs in 2014. Over the last fifteen years, total passenger numbers at London airports have increased by 30.3 per cent, and since 2010, the increase was 13.9 per cent.

Figure 2.15: Annual growth in total passenger numbers at London airports, 1999 – 2014



Source: GLA Economics calculations; Civil Aviation Authority

2.7.4.3 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[76] 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 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".

SQW noted[77] 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.

2.8 Housing and land use in London

While London undoubtedly benefits from agglomeration economies, there exists a trade-off between these forces and the associated urban costs, such as congestion and 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 harder to measure. Mobility within and between cities however imply that urban (dis)-amenities and commuting costs will, at least to some extent, be reflected in land prices (as people 'vote with their feet'[78]).

This section examines the competition for land use in London that results from agglomeration, before presenting evidence on the location decisions of London residents, and the effect on London's housing market.

2.8.1 Competition for land use in London

Land and property are hugely important socially and economically. Having sufficient housing available to accommodate the population comfortably matters, while decisions over whether to develop land for business or housing use contribute to the structure of the economy.

Despite the spread of London, as seen in Map 2.8, Central London remains a prime location for businesses. It lies at the centre of the most populous region in the UK and millions can travel by public transport from home to Central London within 45 minutes. The transport network influences the location decision of residents who need access to jobs, schools, and other services, as well as businesses that want to maximise access to markets. Within an urban environment, the location of commercial and residential buildings is largely driven by topographical constraints, the location of public transport and other infrastructure, but also by the city's inherited traditions of urban culture and development.

2.8.1.1 Mapping the use of land

London's built environment – consisting of domestic and non-domestic buildings, roads, rail and other infrastructure – covers around 28 per cent of the total land area in London, compared to less than 5 per cent in the South East or England as a whole.

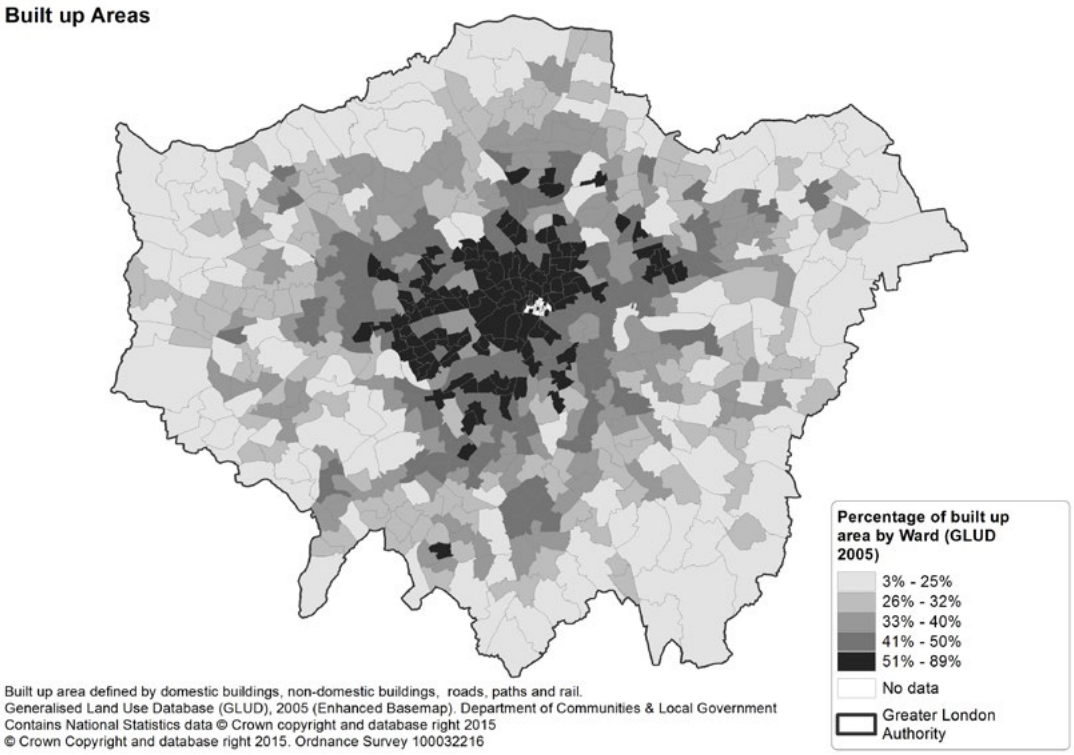
Table 2.18: Land use percentages in London, the South East and England

	London	South East	England
Domestic buildings	8.7	1.3	1.1
Other buildings	4.7	0.7	0.7
Roads and paths	13.1	2.6	2.3
Rail	1.1	0.1	0.1
All built	27.6	4.7	4.2
Domestic gardens	23.8	6.2	4.3
Green Space	38.2	84.8	87.5
Water	2.8	2.7	2.6
All 'green'	64.9	93.7	94.4
Other / unclassified	7.5	1.6	1.4
Green belt	22.1	16.6	12.4

Source: Generalised land use data 2005 and DCLG, Local Planning Authority Green Belt: England 2012/13

Within central London boroughs, where the benefits of agglomeration are highest, this figure rises to more than 50 per cent.

Map 2.47: Land use by London boroughs, 2005



Sources: Generalised land use data 2005

2.8.1.2 The economics of land use in London

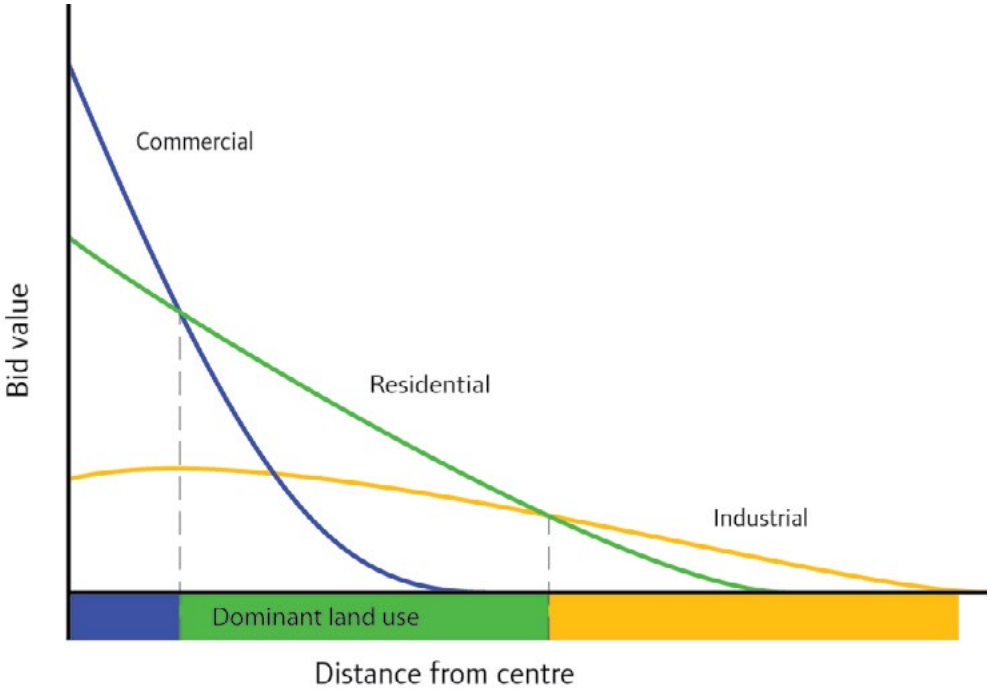
As a result of agglomeration, there is very high competition for space in Central London, by both businesses seeking shops and offices and people seeking housing. In theory, businesses can often pay more for land than people seeking land for housing, since employment land generates output and the area in which agglomeration benefits are highest is very narrow, as detailed above. As such, the highest value businesses, that benefit most from agglomeration, are most willing and able to pay for offices in Central London and outbid others for land in Central London[79].

As in most cities, land prices tend to be highest in the centre and generally decline with distance from the centre, reflecting the appeal of central locations when compared to peripheral ones. Tough competition for limited space drives up land values and acts – along with urban costs such as congestion and other diseconomies of spatial concentration, and planning controls – as a check on further concentration[80].

This phenomenon was first identified nearly 200 years ago by the economist Johann von Thünen in his work on agricultural rents, and was applied to cities in 1964 by William Alonso[81]. His model explains the price and demand for real estate in a city and is shown in Figure 2.16. It shows the distribution of land uses that occur in a simplified, competitive real estate environment and is useful in understanding how market forces shape demand for land.

Housing and commercial uses compete for land in a similar way to how different types of employment outbid one another for land. Highly productive employment tends to crowd out residential development. Agglomeration economies bring very large benefits to firms and cause great concentrations of employment in very small areas. Since businesses prefer to be clustered together and significant economic benefits derive from such concentration, other land uses like housing tend to locate further out. However, residential land, particularly that land inhabited by the most productive employees – who can earn considerable salaries – can even crowd out less productive businesses, pushing these businesses further from the centre.

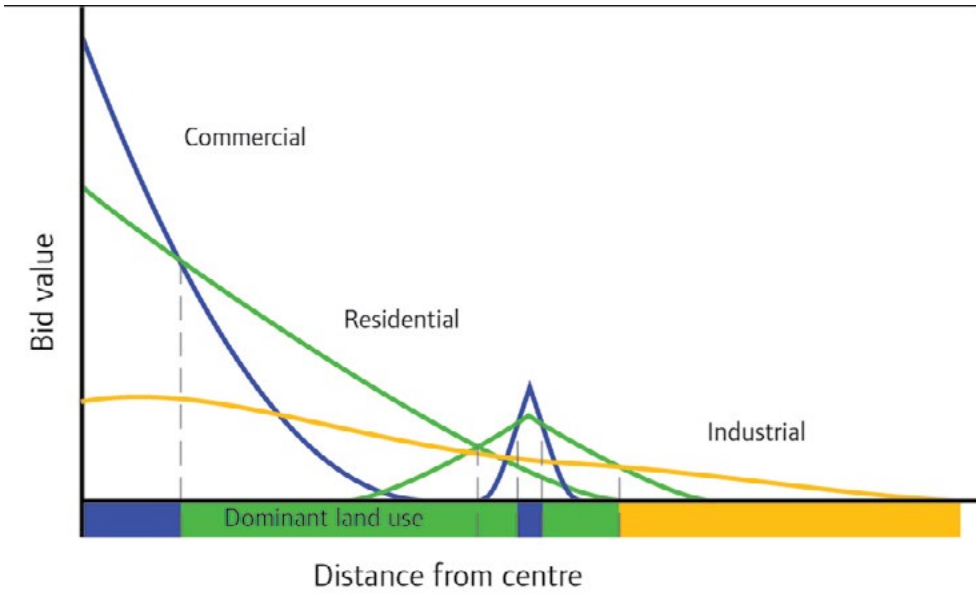
Figure 2.16: The Alonso model helps understand the distribution of land uses



Source: GLA Economics

It is possible to extend this model to also consider the role of secondary centres of employment within London (these can be seen in Map 2.8). Here, in the case of a polycentric city, the relationship between housing markets is made clear[82]. Where the two markets intersect, those desiring homes closest to the primary employment centre are prepared to pay more for space than those seeking to locate near the secondary centre. As a result, people working in peripheral employment centres tend to live further away from that centre than in the area between the peripheral centre and the regional centre.

Figure 2.17: The Alonso model applied to a polycentric city



Source: GLA Economics

Very large employment centres, in particular Central London, have very large labour pools that live across the Greater South East. As a result, there is a large reliance on high volume transport networks to accommodate flows of people in and out of London. As Map 2.30 shows, there are relatively more people commuting to Central London from the regions east of London and employment in the 'Western Wedge' draws many London residents. London's polycentric structure means that the housing market surrounding many employment centres tends to interact with others and so some degree of crowding out occurs.

The competition for land use in London thereby influences residential and commercial location decisions, which in turn impact upon travel patterns and the structure of London's economy.

2.8.1.3 The changing use and value of land in London

This section looks at the changes in the use of land in London over time, in relation to the changing values of different types of land use identified above. In particular it investigates the pressure to release land for housing given the increasing demand for and value of residential properties in London.

In theory, the value of land in different uses reflects the underlying demand for the property type built on it relative to the supply of land for that type of use. In practice, the real world can be less straightforward due to discontinuities in the market, including those introduced by topographic factors, investment and lending patterns, social housing provision, and other public policy interventions, that contribute to a 'complex and irregular mosaic of property values'[83].

2.8.1.3.1 Changes in developed and non-developed land use

In the 12 months to mid-2014, Ordnance Survey[84] assessed that 430 hectares of land had changed use in London, equivalent to just 0.3 per cent of London's total land area. Of the land area changing to a developed use, 69 per cent was previously-developed, while over half of the land use change captured was between different developed uses (51 per cent).

The main new uses of land changing to a developed use were:

- Vacant developed land at 87 hectares (29 per cent);
- Residential use at 86 hectares (29 per cent);
- Other developed use[85] at 53 hectares (18 per cent); and
- Transport and utilities at 51 hectares (17 per cent).

The area of land use change indicated by this data appears to be relatively small. However, even small changes in land use may have a significant impact on the levels of floorspace available in urbanised areas where multi-storey buildings are common.

2.8.1.3.2 The changing use of employment land

Across London there was 69.5 million square metres of business floorspace in 2012. 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 7 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.

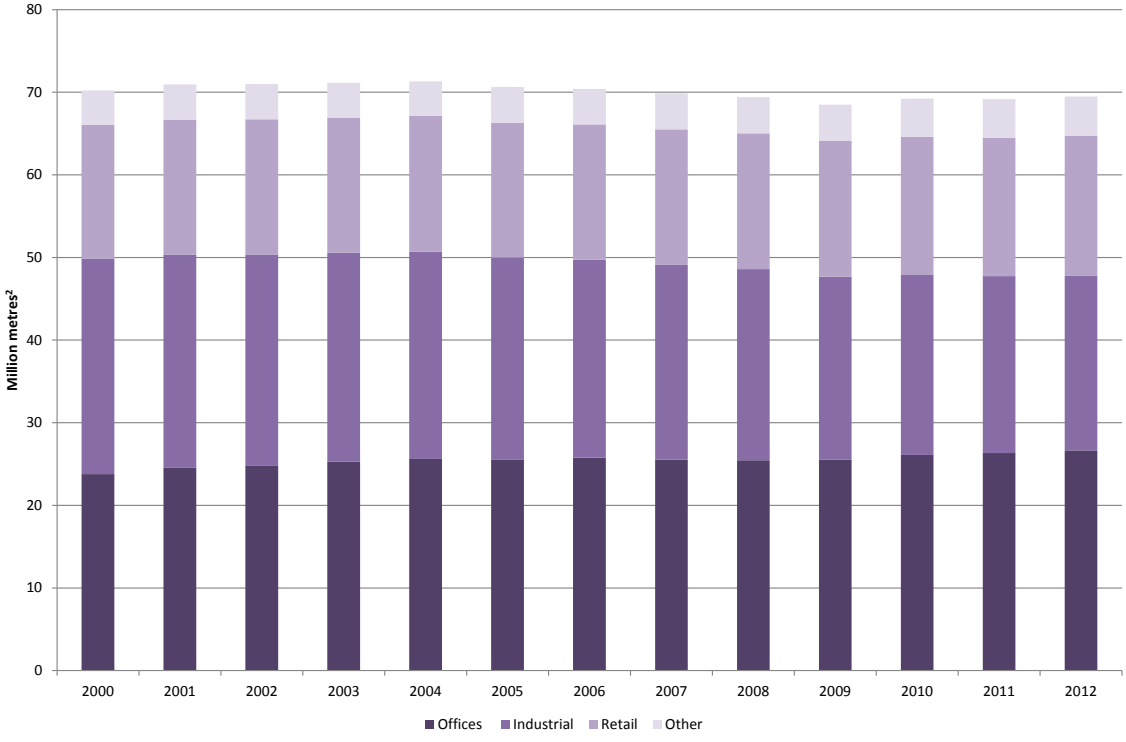
The patterns of changes in business floorspace use over this period are different across Inner London when compared to Outer London. Total business floorspace in Inner London remained broadly unchanged between 2000 and 2012, falling by 140,000 square metres (0.4 per cent) at an average of 12,000 square 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.

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 per cent) was counterbalanced by modest reductions in comparison retail floorspace of 13,000 square metres, and service retail floorspace of 22,000 square metres)[86]. In Inner London retail space increased by around 40,000 square metres per year (460,000 square metres in total) between 2000 and 2012, while in Outer London retail floorspace increased by around 350,000 square metres in total or 29,000 each year.

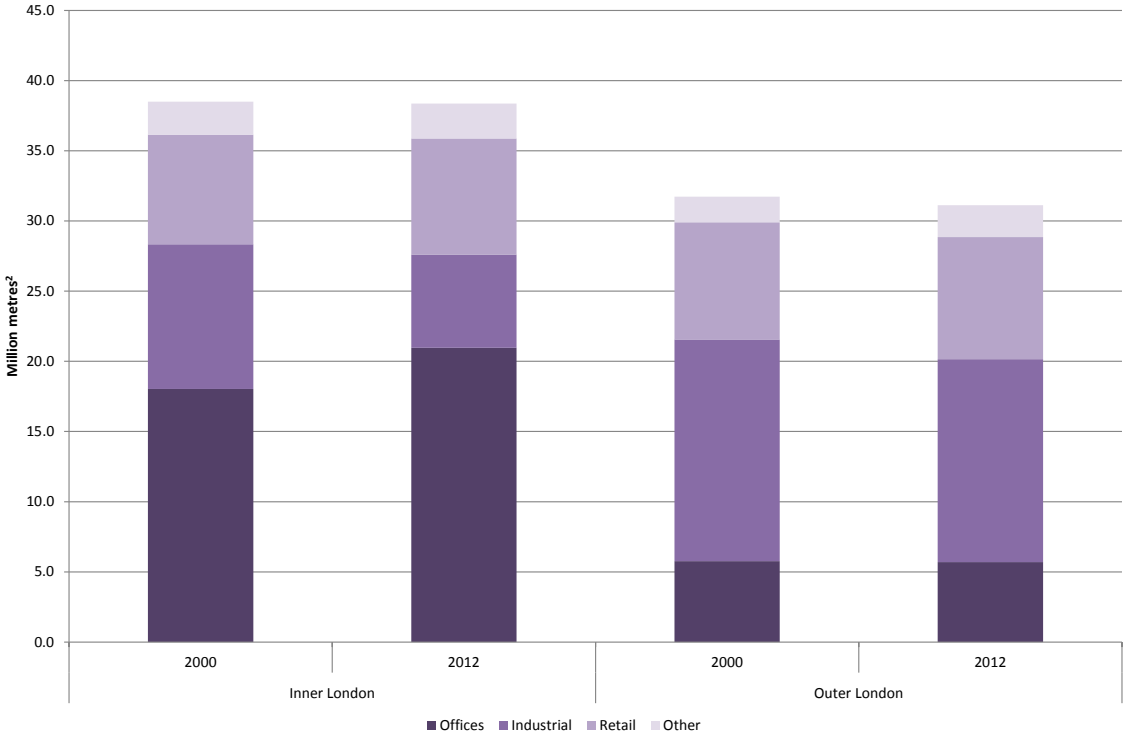
A further 21.1 million square metres are taken up by industrial uses including warehousing, reflecting an 19 per cent fall between 2000 to 2012, when industrial floorspace decreased by 5 million square metres or 415,000 square metres per year, a significant share of which may also be related to retail[87]. 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 2.18: Business floorspace in London, 2000-2012



Source: VOA 2000-2012

Figure 2.19: Business floorspace in Inner and Outer London, 2000 and 2012



Source: VOA 2000-2012

These changes in the use of employment land reflect the competition between uses which affects the relative value of land. The value of commercial and industrial premises are calculated by the Valuation Office Agency (VOA) based on the notional annual rent that the non-domestic property could let for on the open market (the rateable value). The latest VOA data shows that, the 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), with London alone accounting for over a quarter of total rateable values in England and Wales.

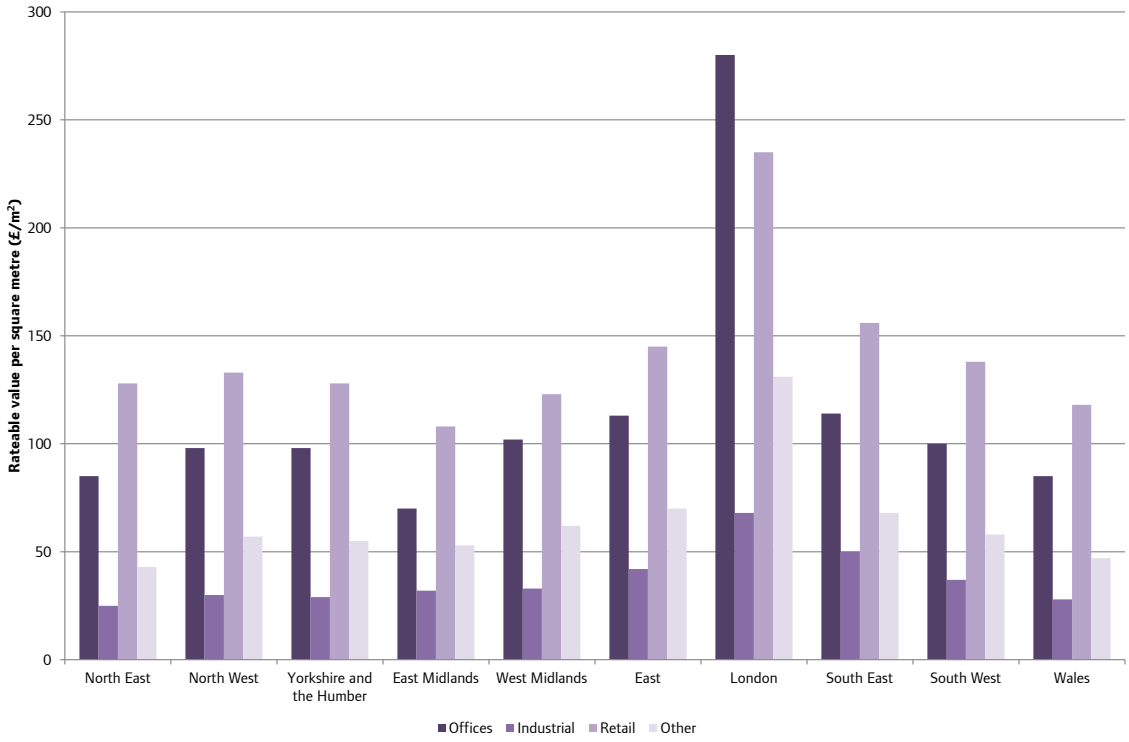
Table 2.19: Number of properties and rateable values in London, by property type

	Number of properties (000s)	Total rateable value (£ million)	Average rateable value (£)	Share of total rateable value in E&W
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

Controlling for the different average size of these properties, Figure 2.20 shows that office and retail space in London are particularly highly valued relative to industrial and other uses.

Figure 2.20: Price differentials by commercial land use class across England and Wales (2012)



Source: VOA, 2012

As well as differences in the value of employment land by the type of use, there is also spatial variation in the rents for commercial and industrial space. Prime rents in the City were £67.50 per square foot as of September 2015 – higher than the £42.50 per square foot in the Docklands and East London – and have increased by 10 per cent over the past year. However, they still remain well below the rents in some areas of the West End, where rents were £120 per square foot in the Mayfair and St. James's areas (see Table 2.20)[88].

Table 2.20: Office Rental Values and Occupancy Costs in London[89]

Location	Prime Rents (£ per square foot)	Occupancy Costs (£ per square foot)
Mayfair	120.00	179.00
St James's	120.00	179.00
North of Oxford Street	95.00	144.50
Soho	87.50	131.00
Belgravia & Knightsbridge	85.00	138.00
Fitzrovia	82.50	117.50
Covent Garden	77.50	115.50
Marylebone, Euston & King's Cross	77.50	105.50
Victoria	75.00	114.00
Bloomsbury	72.50	107.50
City - Core	67.50	98.50
Kensington and Chelsea	65.00	105.00
City - Midtown	65.00	99.00
City - Eastern	65.00	95.50
City - Northern	65.00	95.50
City - Southern	65.00	94.50
City - Western	65.00	95.50
Paddington	62.50	93.00
Clerkenwell	62.50	86.00
Shoreditch	60.00	81.00
Waterloo	57.50	82.00
Southbank	57.50	86.00
Aldgate	55.00	80.00
Hammersmith	52.50	78.50
Camden	50.00	75.00
Battersea	45.00	69.00
Vauxhall	45.00	69.00
Docklands	42.50	80.00
Stratford	40.00	57.00

Source: JLL Research, The Central London Office Market Report Q3 2015

Industrial prime rents are much lower than office rents. As with office rents these vary across different parts of London reflecting the balance of demand and supply for space in different areas, from £15 per square foot in the Heathrow area, to £6.25 in Dagenham. This variation is also present in industrial land values which range from £450,000 - £650,000 an acre in the east compared to up to £1.8 million an acre in Park Royal and Heathrow in the west (see table 2.21).

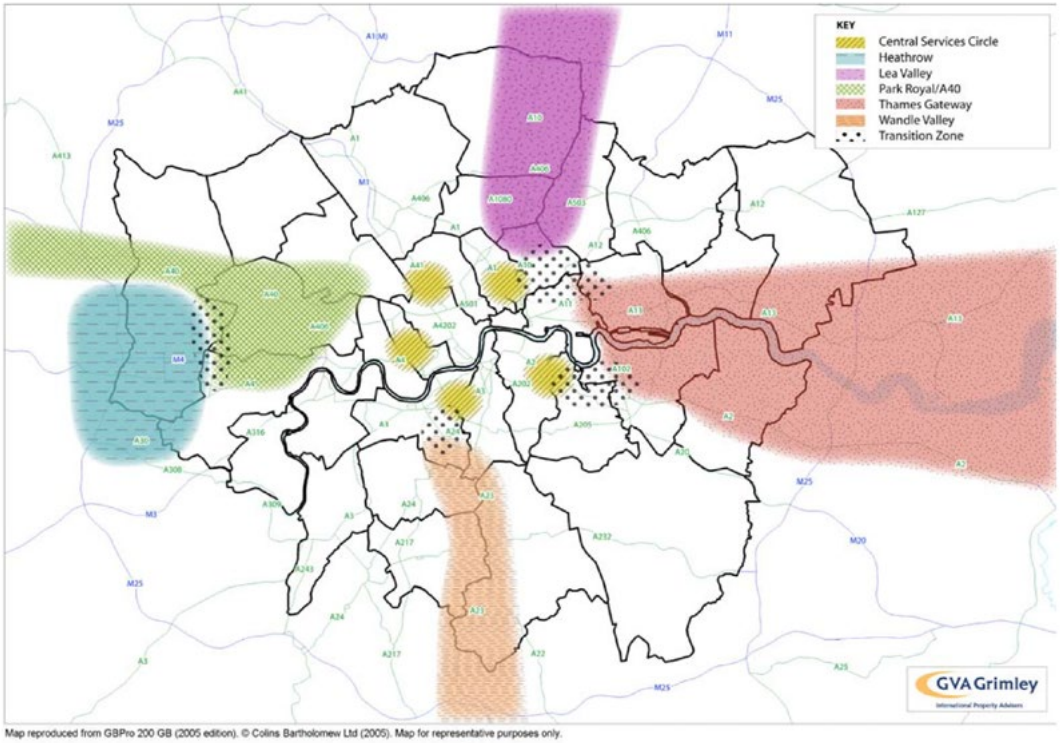
Table 2.21: Industrial rents and land values for small sheds in London, 2014[90]

Location	Prime rents (£ per square foot)	Secondary rents (£ per square foot)	Land values per acre (£ million)
Heathrow	15.00	9.50	1.80
Park Royal	13.50	9.75	1.75
Feltham	11.50	8.75	1.35
Wembley	11.00	7.50	1.40
Acton	11.00	7.00	1.35
Staples Corner	11.00	9.25	1.60
Canning Town	11.00	6.75	1.00
Uxbridge	10.50	7.25	1.10
West Drayton	10.50	8.00	1.20
Greenford	10.25	7.50	1.20
Hayes	10.00	7.00	1.20
Merton	9.50	7.00	1.25
Woolwich	9.50	7.00	1.00
Tottenham	9.00	6.50	1.00
Croydon	8.50	6.00	0.75
Enfield	8.50	6.50	1.00
Walthamstow	8.50	6.25	0.75
Barking	8.00	5.50	0.60
Romford	7.50	6.00	0.45
Dagenham	6.25	5.00	0.45

Source: Colliers International industrial rents, 2014

Unlike office and retail space which tend to cluster centrally, industrial and warehousing space in London instead tends to concentrate in particular 'wedges' or 'pockets' in order to afford easy access to markets in and out of London (Map 2.48).

Map 2.48: Principal property market areas for industrial and warehousing

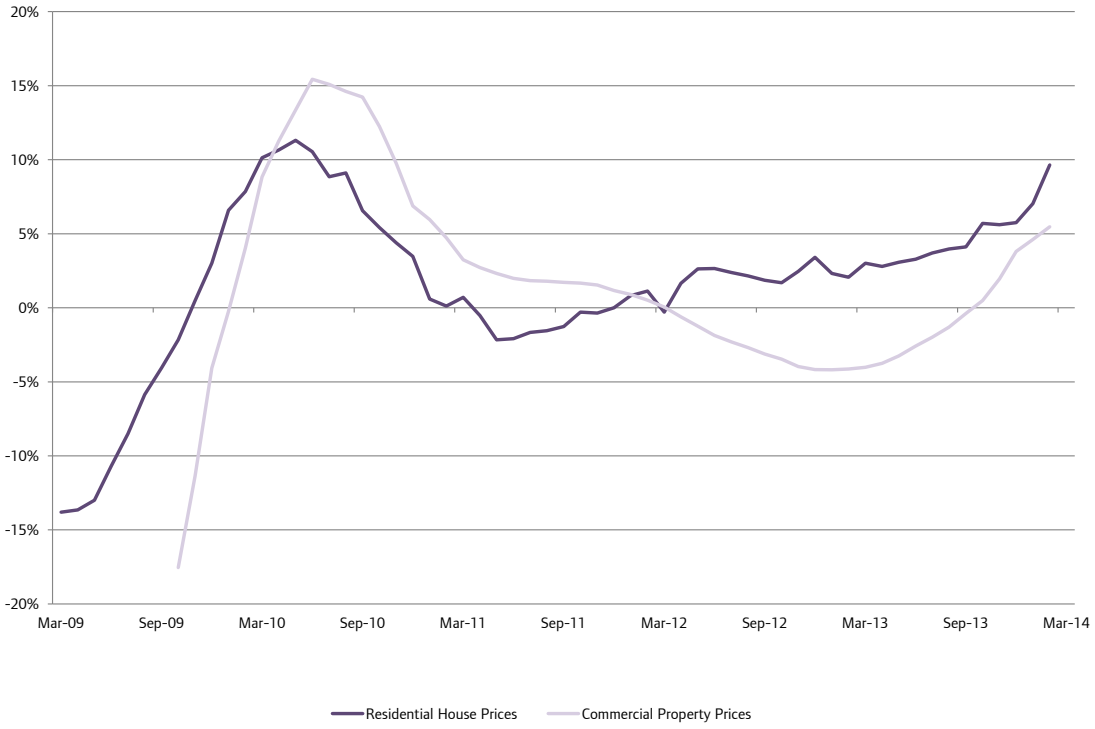


Source: URS

2.8.1.3.3 Price competition between commercial and residential space

According to spatial equilibrium theory[91], since land is substitutable on the margin between uses, commercial and residential property prices will move together if local productivity or the set of amenities change. Commercial and residential property prices are, in this sense, driven by common, or at least overlapping, fundamentals. Data for England comparing trends in the prices of commercial and residential properties provides some evidence of this correlation (Figure 2.21).

Figure 2.21: Commercial property and house prices annual growth, England



Source: ONS, IPD (DTZ Research)

Savills land development index, which mostly covers central London, shows that since 2008, the price of residential land recovered strongly compared to hotel and office development land, and now exceeds its pre-crisis peak. This may put increasing pressure on office and hotel space in central London areas as residential developments may increasingly be able to outbid other uses in the most central areas, as a result if these trends continue.

Figure 2.22: Savills land development index, prime London

Source: Savills

The latest data available from DCLG suggests that, in terms of land area, only limited amounts of land in London had switched to residential use in 2013/14[92]. Of the 86 hectares of land in London changing to residential use in 2014, 53 per cent was built on previously-developed land. It is however likely that in urbanised areas even relatively small changes in land use may have a significant impact on the levels of available floorspace.

2.8.1.3.4 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. This shows that the introduction of permitted development rights (often referred to as 'office-to-residential') introduced in May 2013 to fast-track the conversion of offices to homes, has resulted in:

- At least 2,800 office-to-residential prior approval applications across London between May 2013 and April 2015, of which over 2,000 have been approved.
- If all of the schemes that have been approved but not superseded were 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. .
- 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 1 per cent of London's stock of office floorspace.
- 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 4 per cent of London's stock of office floorspace.

While these figures remain relatively small in the context of London's stock of office floorspace, the trends presented here provide early signs of a shift away from employment land and commercial space towards residential use. Chapter 4 considers the potential future risks to businesses if commercial space were to

be increasingly crowded out by the demand for housing and/or if current exemptions from the permitted development rights in the CAZ and NIOD were lifted.

2.8.2 House prices in London

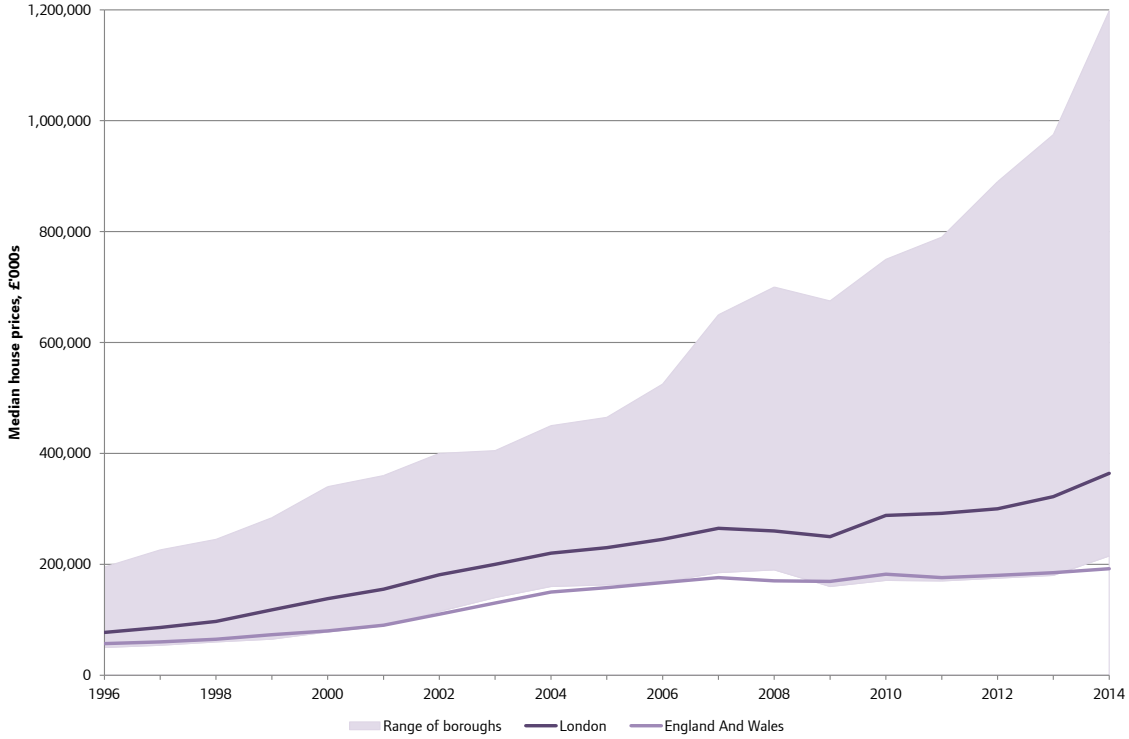
As noted above, the value of residential property in London has been increasing in recent years. London's house prices are considerably higher, and have been rising at a faster rate, than the country as a whole.

In each year since Land Registry records began in 1996, the average (median) house price in London[93] has 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, with the exception of 2009 when year-on-year average prices in London fell by £10,000, which was greater than the £1,000 fall in average prices in England and Wales (see Figure 2.23).

In the period from 1996 – 2014 the gap between the average prices paid for housing across the different London boroughs has also grown markedly bigger. This reflects the rapid increase in house prices in central areas, where house prices were relatively high at the start of the period. This is particularly true in desirable central London boroughs with median house prices in 2014 as high as £860,000 in Westminster (up 11.4 per cent annually in the five years since 2009) and £1.2 million in Kensington and Chelsea (up 12.2 per cent annually in the five years since 2009) based on Land Registry data.

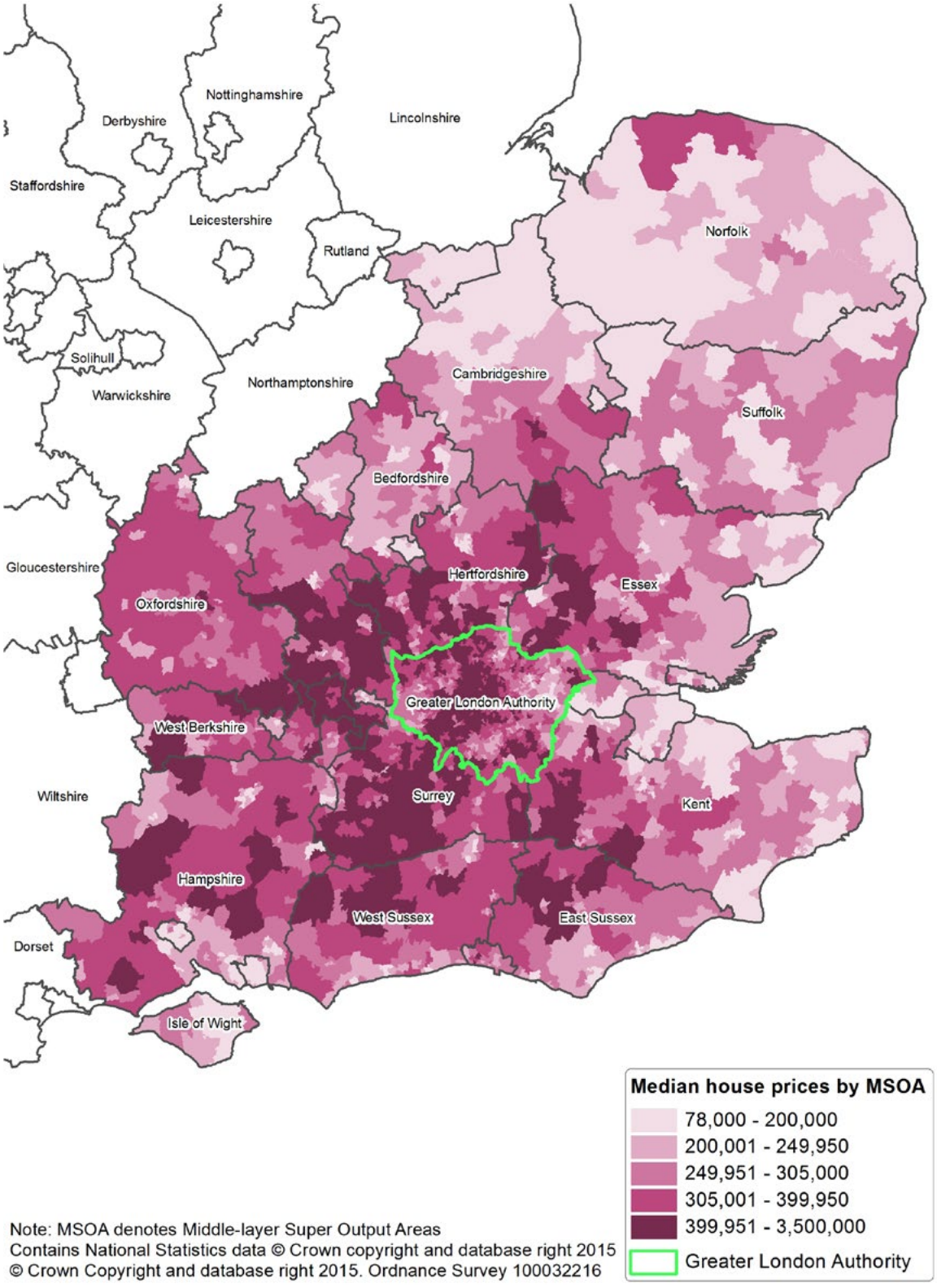
This compares to a London borough low median house price of £215,000 in Barking and Dagenham (up 6.1 per cent annually in the five years since 2009), which is still higher than the national average for England and Wales of £192,000 (up 2.6 per cent annually in the five years since 2009). High house prices have also spread beyond London's boarders, as people live outside of the capital and commute in for work. Counties such as Surrey, Essex, Kent and Hertfordshire have areas where the median house price exceeds £400,000.

Figure 2.23: House prices in London in England and Wales, 1996-2014



Source: Land Registry

Map 2.49: Maps of median house prices in London and the GSE, 2014

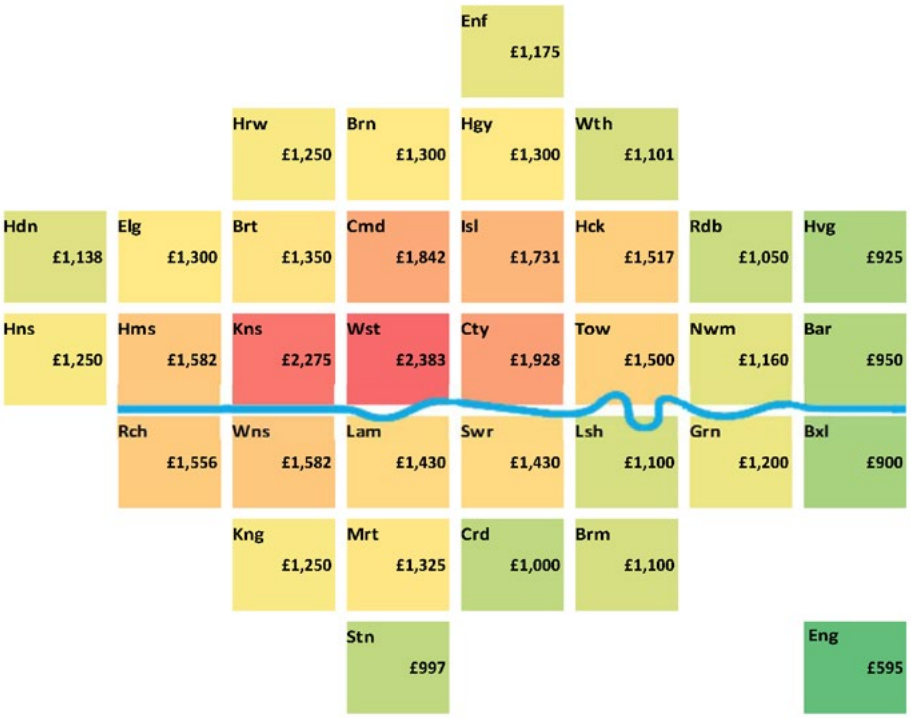


Source: Land Registry

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 2013/14 were £1,350 per month, more than twice as high as median rents in England as a whole (£595 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[94].

Map 2.50 shows that in the 12 months to March 2014, the median monthly private rent was highest in Westminster (£2,383) and Kensington and Chelsea (£2,275). These were the only two local authorities in England to have a median monthly private rent of more than £2,000 in 2013/14. While considerably lower, median rents recorded in the London Boroughs of Havering, Barking, and Bexley were between 50-60 per cent above the national average.

Map 2.50: Map of median monthly rents by Borough (2013/14)

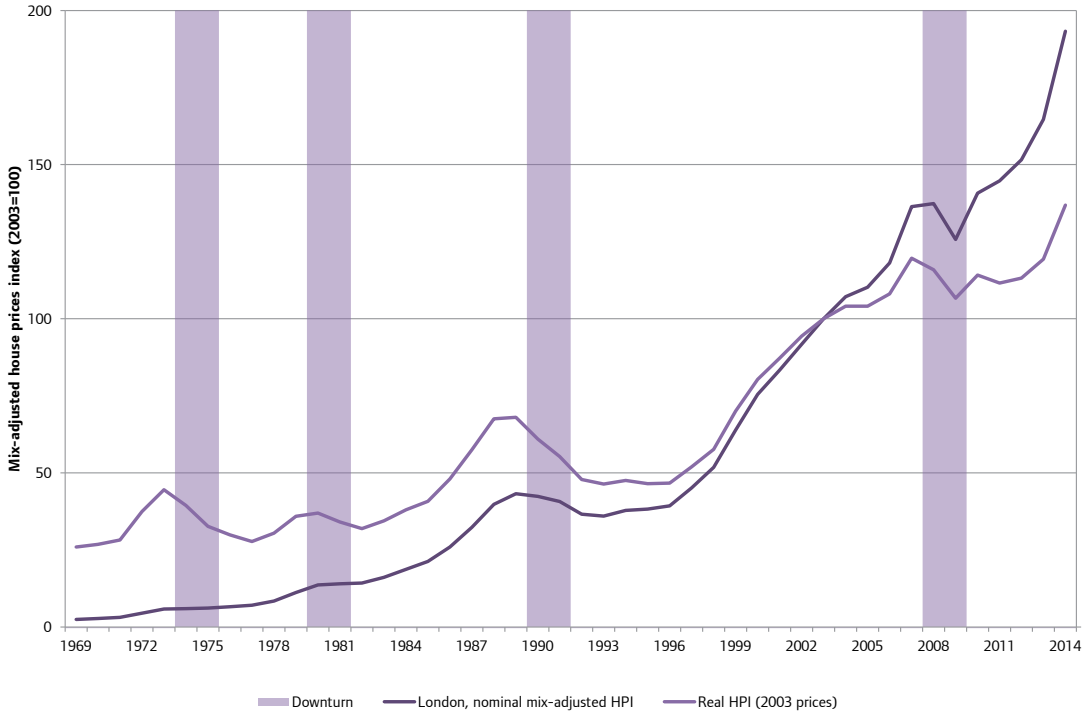


Source: VOA

2.8.2.1 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 2.24: Nominal and real house price levels in London and the business cycle, 1969-2014



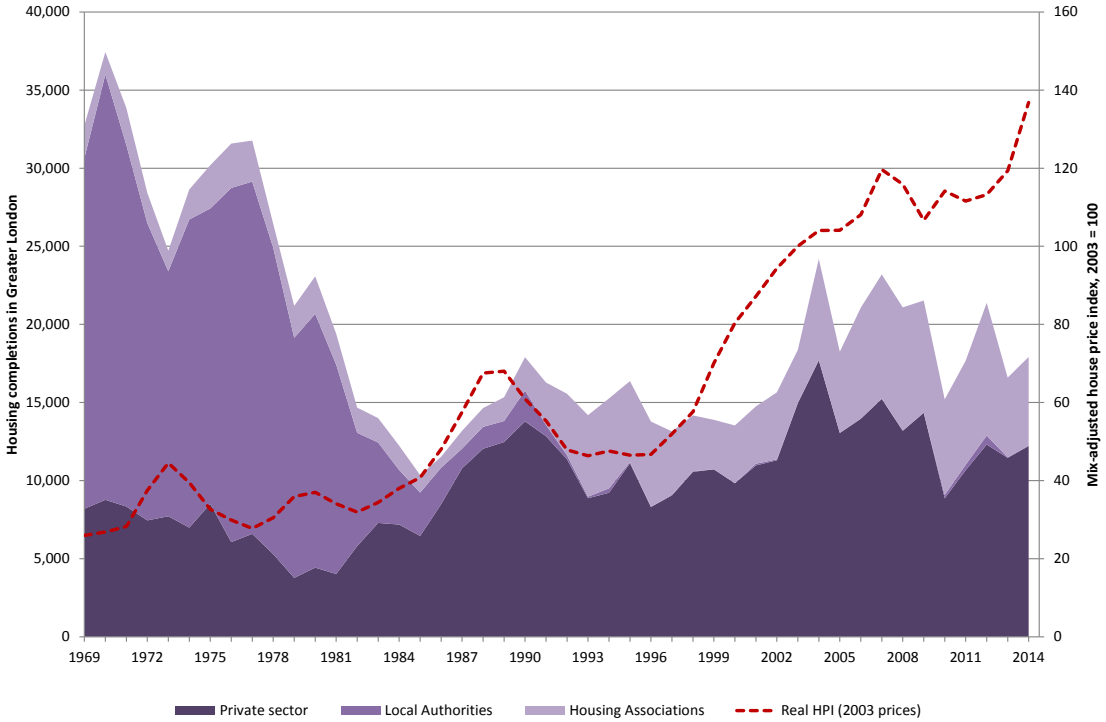
Source: ONS House Price Index reference table 33

2.8.3 Responsiveness of housing supply

While housing 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 2.25). Furthermore, latest estimates indicate that 49,000 homes per year until 2035 need to be built in London to meet demand[95] - levels of building that have not been reached since prior to World War II, and well below the current rate of house building which saw less than 18,000 new homes built in 2014.

Figure 2.25: New house building and house prices in London, 1969-2014



Sources: 1969 to 1989 data provided to GLA by DCLG; 1990-2014: DCLG house building statistics tables 217 and 255a. ONS mix-adjusted house price index reference table 33.

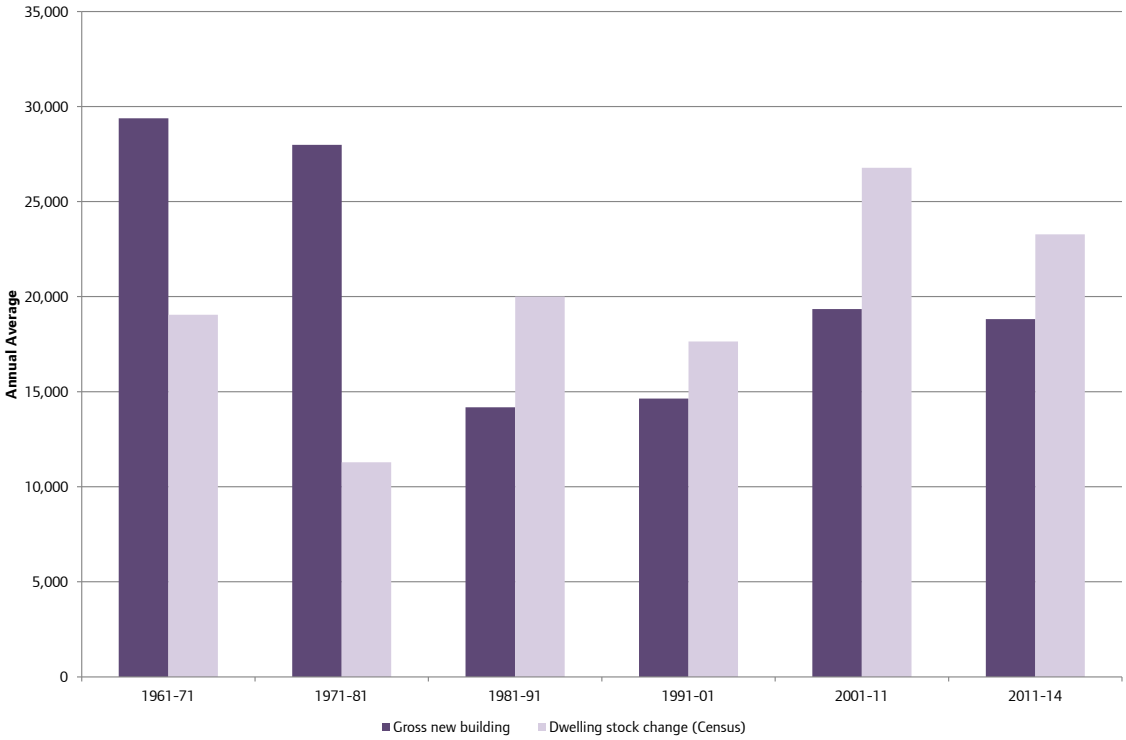
These construction data however only applies to new buildings (in effect, a gross measure) and does not take account of other possible changes to the dwelling stock as a result of conversions, changes of use and/or demolitions.

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[96].

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 on the number of dwellings allow us to infer the net change across each decade. Figure 2.26 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 demolitions. On an annual average basis, gross new builds and net additions to the housing stock have been slightly lower in the three years between 2011 and 2014 than in the previous decade, at a time of rising house prices.

Figure 2.26: Gross new house building and change in dwelling stock in London, annual averages



Sources: DCLG house building statistics, and Census data from 1961 to 2011

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 2014 real house prices grew by 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 has increased from 2.32 in 1998 to 2.50 in 2014.

As the average household size has increased, so has the incidence of overcrowding[97], which was up by 65 per cent in London between 1997/98 and 2012/13. Around three-quarters of this increase was in the private rented sector, with the rate of overcrowding in the sector doubling over this period from 6.1 to 12.8 per cent, and exceeding over 100,000 households in total in 2012/13[98]. This is consistent with the expected behavioural response to the undersupply of homes and increased cost of housing over this period, alongside the increase in international migrants from poorer countries between 2001 and 2011 who tend to live at much higher densities, in terms of people per room[99].

Looking forward, the most recent population projections show that between 2014 and 2041 London's population is projected to increase by between 65,000 (long-term migration assumptions) and 83,000 people per year (short-term migration assumptions). The total rise in population projected is between 20.6 per cent and 26.4 per cent– an aggregate increase of between 1.61 million and 2.06 million people[100]. While the latest assessment projections for housing need in London found that 49,000 new homes per year are needed between 2015 and 2035[101], less than 18,000 new homes were delivered in the capital in 2014. 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.

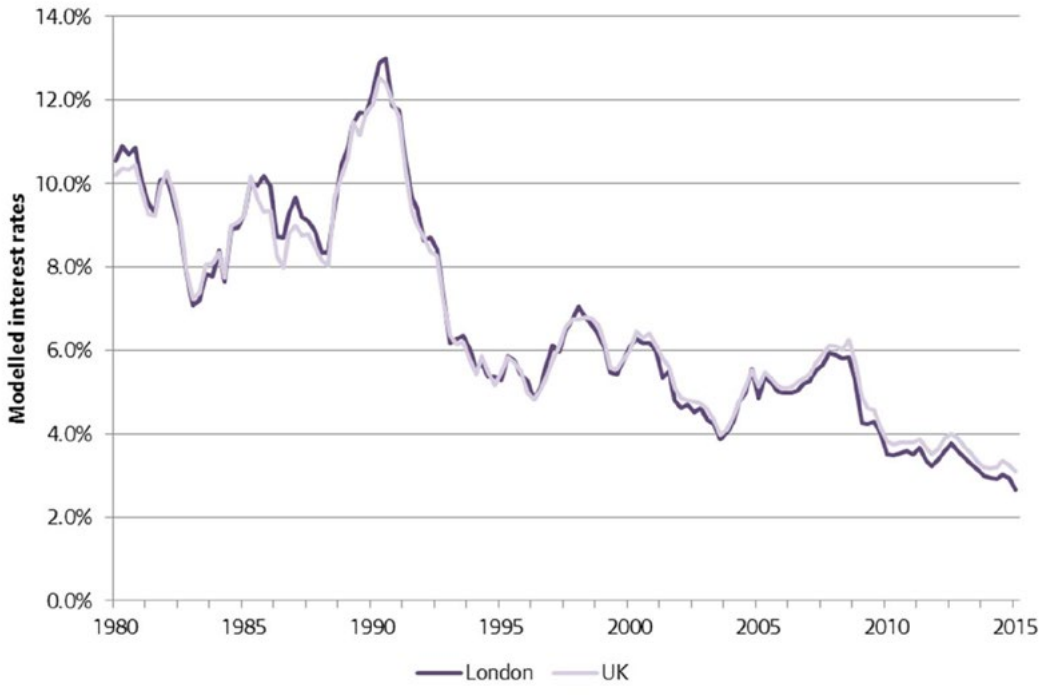
2.8.3.1 Other drivers of demand for housing

As well as increases in population, other types of demand for housing can also influence the market, particularly for house prices. Important factors include changes in incomes, the cost of mortgages, and demand for housing as an investment vehicle by investors.

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[102], 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.

Borrowing costs for home buyers are also important – and these costs are at historically low levels. Figure 2.27 shows that interest rates on regulated mortgages secured on properties in London were 2.7 per cent in the first quarter of 2015, down from an estimated high of 13 per cent in 1990. Such historically low mortgage interest rates have reduced the nominal debt repayment burden and increased household's borrowing power. It is also notable that while Bank of England base rates have been set at 0.5 per cent since March 2009, the mortgage interest rates faced by homebuyers has fallen by 1.6 percentage points in the past five years.

Figure 2.27: Mortgage interest rates in London and the UK, 1980-2015



Source: Greater London Authority, An Economic Analysis of London's Housing Market (November 2015)

Further, a 2005 OECD paper[103] 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[104]. 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 that either of these have had a profound impact on house prices. Indeed, although increasingly supported by buy-to-let mortgages, 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 owner-occupation.

With regard to foreign ownership, the evidence is also mixed, and on balance suggests that it is responsible for only a small share of transactions and likely to have had only modest effects on house prices in London. There is also some evidence to suggest that following the economic crisis, the additional demand for new build properties may have to some extent lessened the negative impact of credit constraints on construction activity[105].

2.8.3.2 Market frictions and physical constraints on housing supply

A number of factors may explain why housing supply in London has been relatively unresponsive to price signals to date. A number of possible market frictions and inefficiencies have been put forward by the literature to explain why housing is slow to respond to market signals[106]. These include: difficulties for house-builders to access commercial finance; risk aversion or perverse incentives that lead to stock-piling of land; barriers to overcoming construction materials and skills shortages; as well as imperfect competition in the market for residential development (relative to other land uses). In a 2012 report, Molior[107] 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[108].

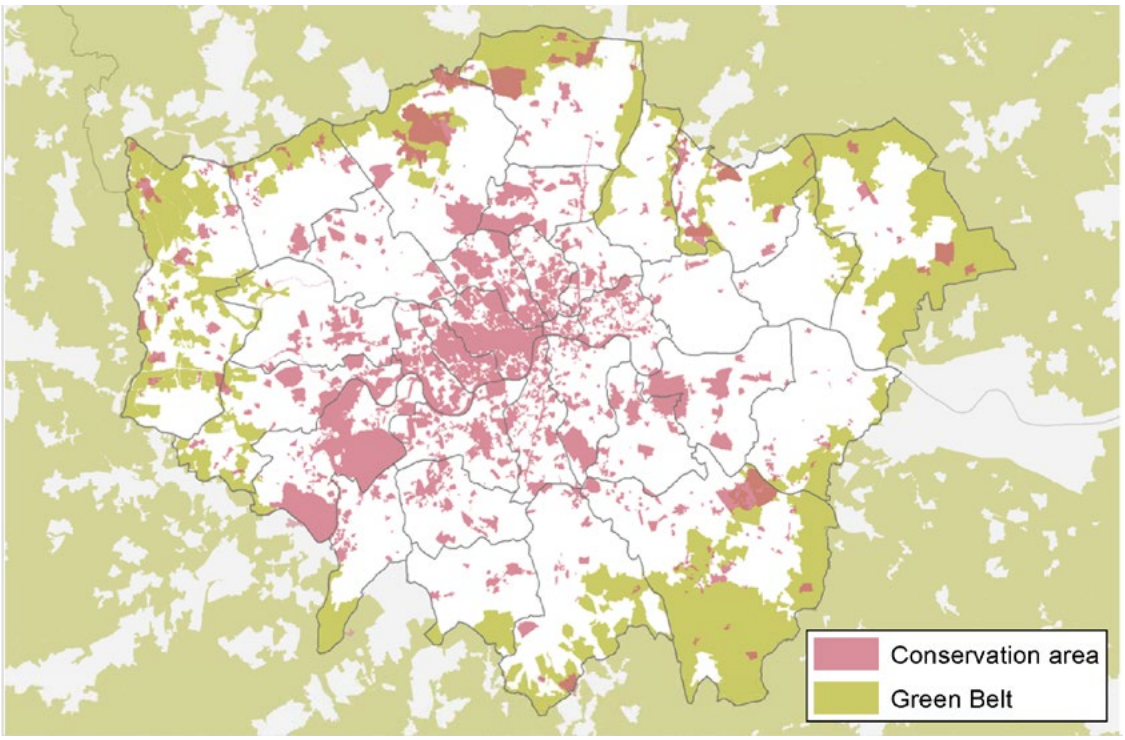
However the most cited constraint is the planning system and the local scarcity of developable land associated with it. New building in London, and particularly house building, is subject to a number of constraints; notably the land covered by Green Belt and other designated conservation areas[109]. 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 1 per cent in Barking and Dagenham to 72 per cent in Kensington and Chelsea and 77 per cent in Westminster.

- 22 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.

- 94 per cent of the metropolitan Green Belt lies outside of London.

- 4 per cent of new residential addresses were created within the Green Belt and 5 per cent of land changing to residential use was within the designated Green Belt.

Map 2.51: 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 results 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'[110], 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 consider 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[111].

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[112] 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[113] 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) 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.

While it remains possible that conditions after consent is granted may act as a barrier to completions in some cases, the persistence of this gap suggests that other factors are acting as a brake on house building. 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[114]. The Outer London Commission (OLC) also highlights concern of 'a tendency for developers to manage the delivery of private sale units to maintain sales values' across larger sites[115].

2.9 The 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 is necessary to allow London to house 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 much lower when compared to other global cities. This suggests that there is 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.

2.9.1 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[116].

Economic advantages from higher density development include improving a city's economic efficiency and employment opportunities through agglomeration, increasing productivity levels - with a doubling of employment density increasing average productivity by around six per cent[117], 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[118].

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 were 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[119].

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[120]. 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[121]. 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[122]. 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 to recycle; and using more energy during the construction of high density buildings.

Boyko and Cooper also found in the research that the health benefits from density include increasing exercise by enabling more walkable and bicycle friendly neighbourhoods that offer more opportunities to walk or cycle, whilst other research has revealed 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. Some of the research findings on social impacts is mixed, suggesting higher densities can both increase and reduce social inequality and segregation, and also have positive and negative impacts on crime.

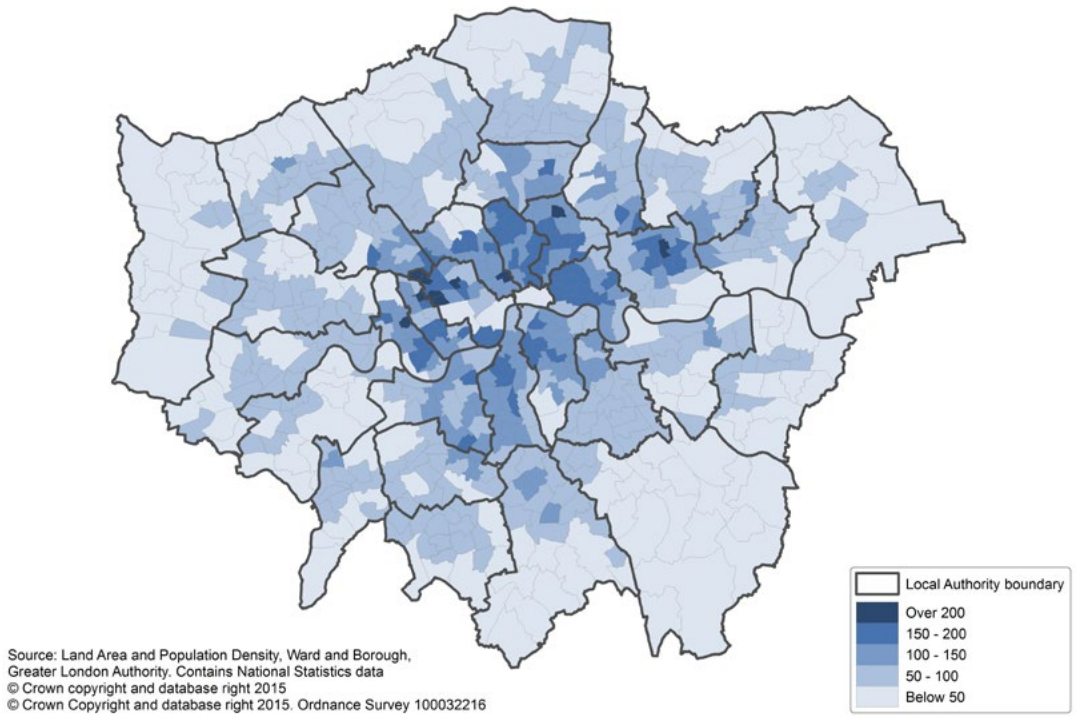
Overall, there is no clear consensus on the costs and benefits that arise from higher densities. This underlines the importance of planning and design when increasing population density. Increases of development density that are well planned and designed can ensure that the benefits from population density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

2.9.2 Current levels of density in London

Overall in the capital there are 5,510 people per square kilometre, with Inner London boroughs more concentrated at 10,773 people per square kilometre, and density increasing to 11,565 in the Central London boroughs[123]. 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[124]. 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.

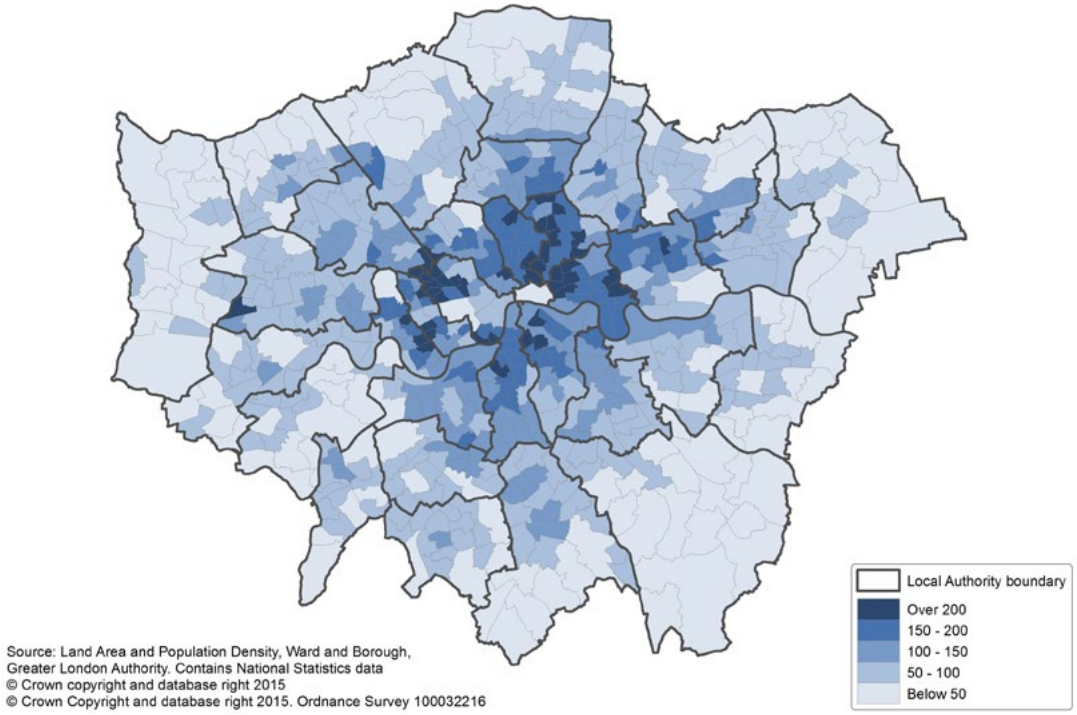
Map 2.52: Population density in London, 2015



Source: Greater London Authority

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 2.53: Projected population density in London, 2041



Source: Greater London Authority

Box 2.1: 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 do not appear to 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 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[125].

Recent research by GLA Economics[126] has examined this issue in detail and discovered that:

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.

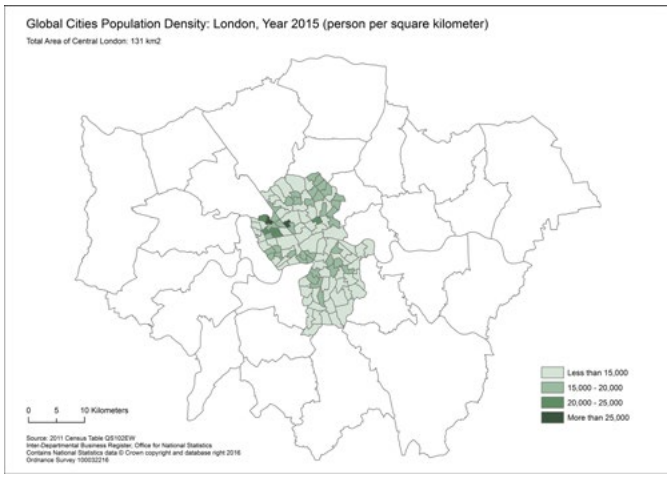
Nevertheless, there is reasonable evidence to suggest that land turned over for housing in areas of low transport accessibility could be associated with employment growth in the local economy. Taking the coefficient of employment density regressed alone on population density in areas of low accessibility, 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.

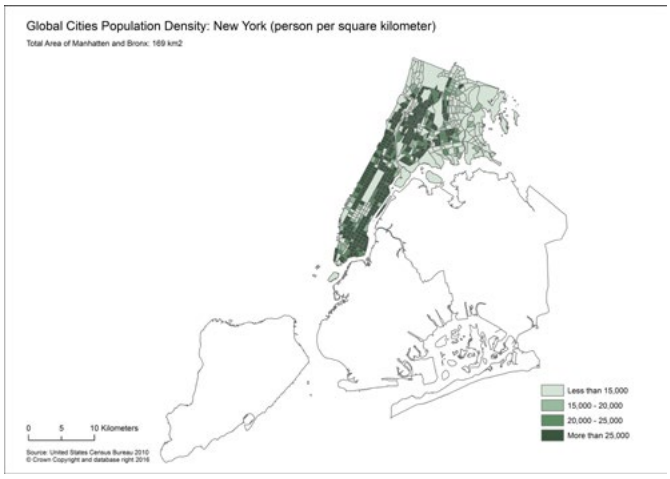
2.9.2.1 Density of London compared to other cities

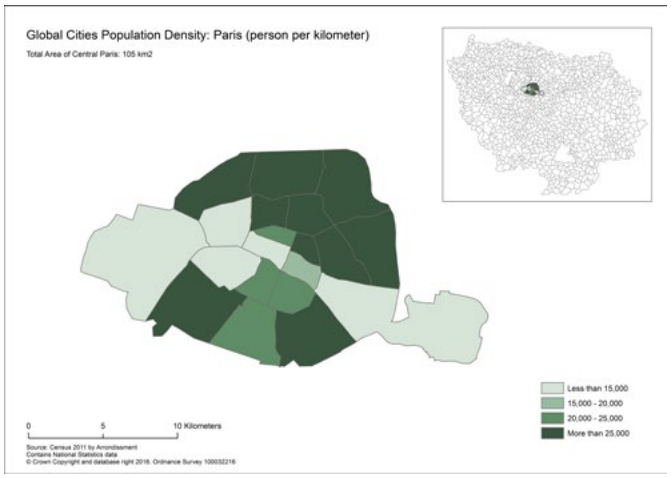
Given the projections in increased density of London, it is useful to analyse how it compares to other cities. Four other 'global' cities – Paris, New York, and Tokyo - have been chosen for this comparison.

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.

Maps 2.54-2.57: Population densities of central areas in 'global cities'







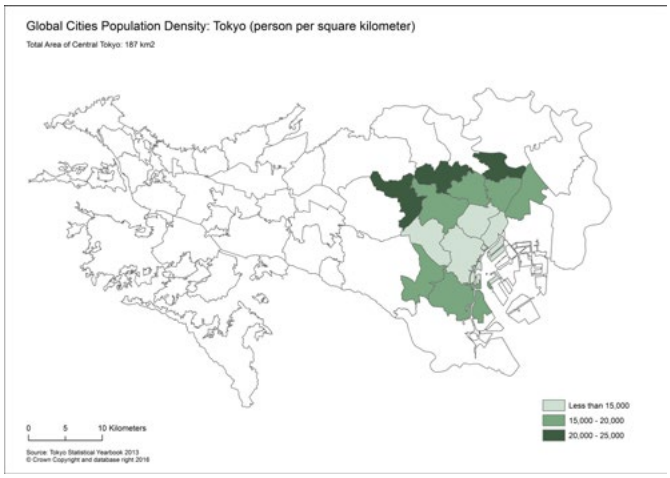


Table 2.22: Density of 'global cities'

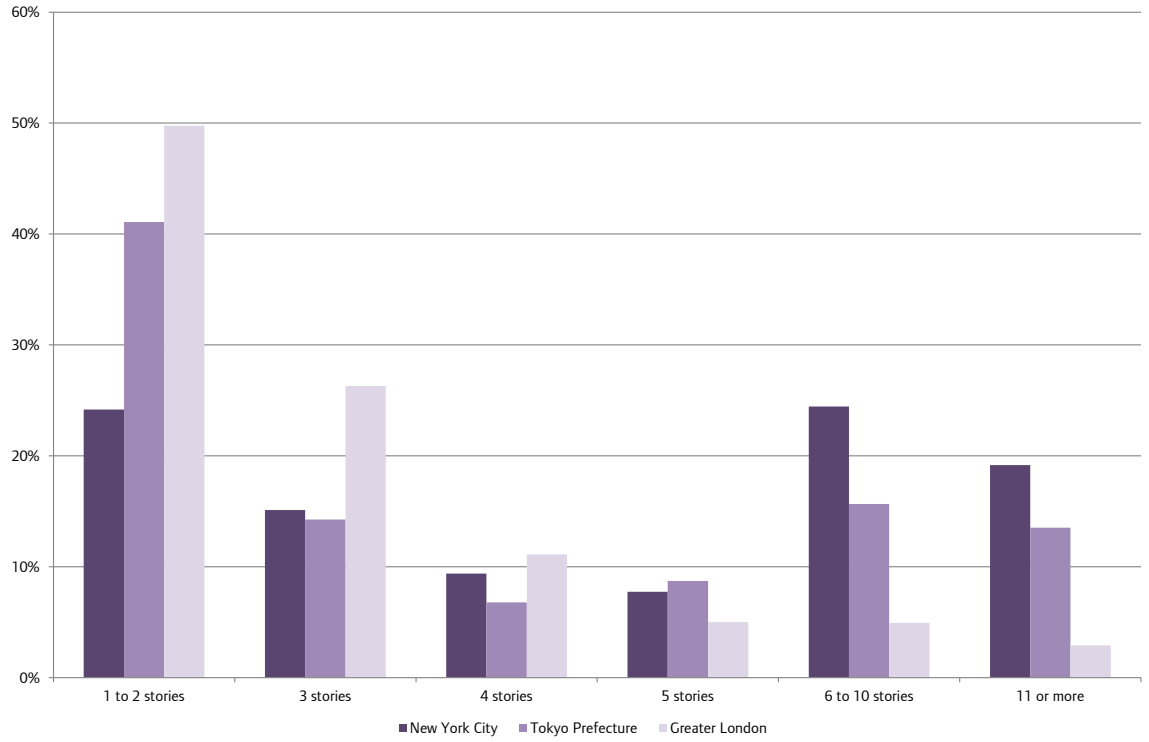
City	Population (millions)	Density (per km2)	Area (km2)
London	8.66	5,510	1,572
Central London	*1.49*	*11,565*	*129*
Paris[127]	12.01	997	11,986
Central Paris	*2.24*	*21,264*	*105*
Tokyo	13.29	6,038	2,189
Central Tokyo[128]	*3.09*	*16,533*	*187*
New York City	8.49	10,756	786
Manhattan and The Bronx	*3.07*	*18,300*	*168*

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 tall buildings are three stories or less, compared to 55 per cent in Tokyo and 39 per cent in New York City. While buildings of eleven stories 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 2.28: Building height in selected cities



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

Whether these tall buildings in London are predominantly residential or not 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[129].

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 8 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 major European cities shows a similar trend. London is a higher density city than other major cities in the European Union (Table 2.23), but most other major European cities cover a wider geographic area compared to London, despite their lower populations. Madrid is five times bigger than London, Rome is three times the size geographically, while Bucharest is 12 per cent bigger than London but is home to around one quarter of the people. In terms of geographic size, only Berlin is smaller than London at just over half the size, and is home to around 40 per cent of London's population; it has the second highest population density of the major European cities behind London.

Table 2.23: Population density of large cities in the European Union[130]

City	Population (millions)	Density (per km2)	Area (km2)
London	8.66	5,510	1,572
Berlin	3.42	4,001	886
Bucharest	2.28	1,298	1,759
Paris	12.01	997	11,986
Madrid	6.38	804	7,983
Rome	4.32	780	5,183

Source: GLA Estimates, Eurostat (Macrobond)

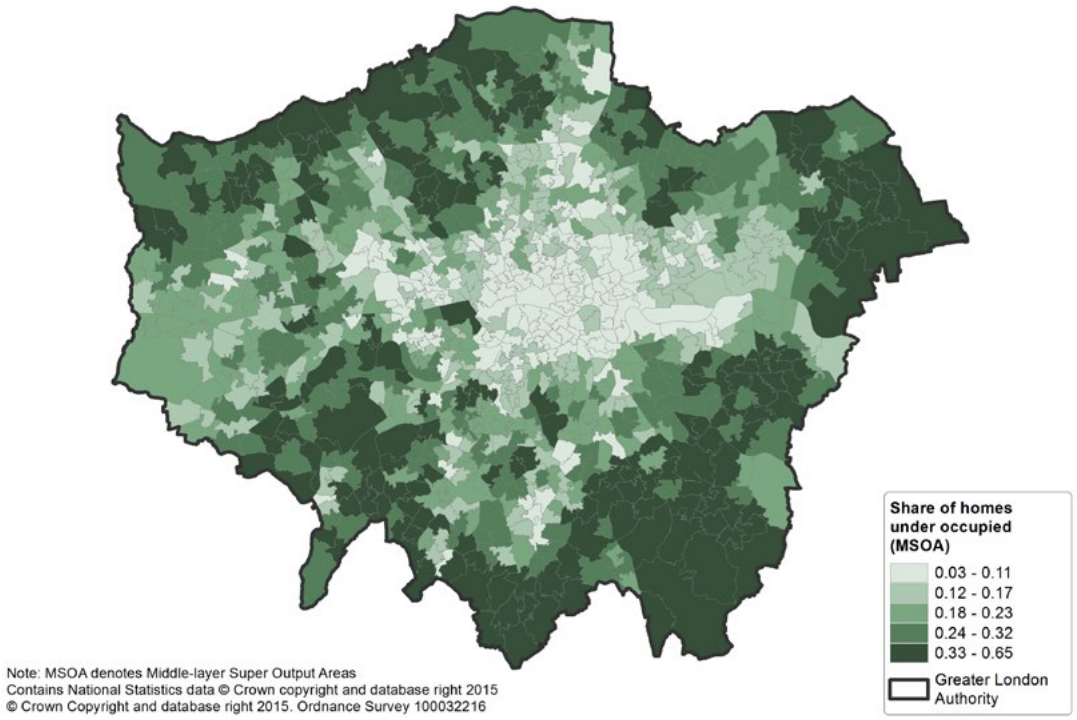
Another manner in which to consider the density of the city is by measuring its population weighted density. This attempts to measure the density at which the average resident lives, rather than dividing the total population by the entire city area, by using a weighted average of parcels of land based on their population. Based on this measure 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[131].

Whilst these comparisons have focused mainly on the central areas of these cities, further analysis of population density in Outer London will be included in the final version of this report.

2.9.2.2 Capacity of existing stock

Another way to house the growing population of London would be to increase the use of the existing housing stock, as much of it is currently under-utilised. There are around 730,000 under-occupying households in London[132], 23 per cent of all households in the capital[133]. Generally, under-occupation is 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 2.58: Share of homes under occupied in London



Source: Census 2011

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[134]. 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[135]. Well-designed taxes could influence the incentives of under-occupation and encourage a more efficient use of the housing stock.

Chapter 2 endnotes

1 London First, January 2015, 'London 2036: An agenda for jobs and growth'.
2 More detail on Functional Urban Areas is available from Eurostat here: Eurostat, 'European cities – the EU-OECD functional urban area definition'.
3 ONS, 'Travel to Work Areas'.
4 For an example see: Cushman & Wakefield, 2011, 'European Cities Monitor'.
5 GLA Economics, September 2014, 'Growing Together II: London and the UK economy'.
6 Graham, D. (2007) "Agglomeration, productivity and transport investment" Journal of Transport Economics and Policy, 41(3)
7 An area that contains Canary Wharf.
8 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.
9 NUTS stands for Nomenclature of Units for Territorial Statistics. It is a European classification for areas based on their size to ensure data across countries at different geographical levels are comparable.
10 After January 2015 a more detailed NUTS3 geography for London was introduced; details of this change can be found at: ONS, 'Bulletin 2014/11: Changes to Nomenclature of Territorial Units for Statistics (NUTS) areas in January 2015'.
11 The difference in BRES between 'employees' and 'employment' is 'working owners', defined as those self-employed who are registered for VAT or PAYE.
12 Note this is comparing employment in 2014 with GVA in 2012 and slight care should therefore be given when comparing the two numbers.
13 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.
14 The area around Old Street Roundabout where a number of tech firms have congregated.
15 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.
16 External benefits that arise when economic activity takes place in a concentrated space.
17 ABI data was used for this map as BRES data does not go back to 2003.
18 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 here and elsewhere in this chapter.
19 Census data are adapted from data from the Office for National Statistics licenced under the Open Government Licence v.3.0.
20 Middle-layer Super Output Areas.
21 Douglass, G. & Hoffman, J., March 2015, 'Working Paper 64: The science and technology category in London'. GLA Economics.
22 Togni, L., October 2015, 'Working Paper 70: The creative industries in London'. GLA Economics.
23 It should be noted that due to the different geographic sizes used in these maps compared to Map 2.6 the clustering in these maps is shown in somewhat more broad strokes. More detail on the clustering methodology used here 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.
24 Includes international organisations such as the IMF, UN, EU etc. as well as diplomatic and consular missions.
25 TfL, 2014, 'Travel in London 7'.
26 Ibid.
27 TfL: London connections map.
28 MaccreanorLavington, Peter Brett Associates, Graham Harrington, July 2014, 'Accommodating Growth in Town Centres: Achieving successful Housing Intensification and High Street diversification'. Greater London Authority.
29 Accent, June 2013, 'Town Centres 2013'. TfL.
30 Refers to trips to work only.
31 Urban Age Cities Compared: Where People Live.
32 TfL, March 2015, 'Building our Capital: five years of delivery by London Underground'.
33 Ibid.
34 Crossrail, 'Delivering substantial economic benefits in London, the South-East and across the UK'.
35 Department for Transport, 9 September 2015, 'Rail passenger numbers and crowding on weekdays in major cities in England and Wales: 2014'.
36 For more information see: Department for Transport, 9 September 2015, 'Rail passenger numbers and crowding statistics: infographic'.

37 Rail Executive, 15 October 2014, 'Rail Trends, Great Britain 2013/14'.
38 Figures are based on only one manual count per service. Includes services that terminate at Stratford (AM) and services that start at Stratford (PM).
39 Services to and from Charing Cross and Cannon Street are included in the London Bridge figures.
40 Figures are based on only one manual count per service.
41 Includes Heathrow Connect services.
42 Includes Gatwick Express services.
43 Southeastern services calling at Waterloo East are not included in the Waterloo figures as they are included in the figures at London Bridge.
44 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.
45 As a percentage of standard class critical load.
46 As above.
47 As a percentage of total number of services.
48 As above.
49 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.
50 Figures are based on only one manual count per service. Includes services that terminate at Stratford (AM) and services that start at Stratford (PM).
51 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.
52 Figures are based on only one manual count per service.
53 Includes Heathrow Connect services.
54 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.
55 Includes Gatwick Express services.
56 Southeastern services calling at Waterloo East are not included in the Waterloo figures as they are included in the figures at London Bridge.
57 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.
58 Figures are based on only one manual count per service.
59 Includes Heathrow Connect services.
60 Figures are based on only one manual count per service.
61 Includes services to and from London Euston (Watford DC line services) only and excludes services on other London Overground lines.
62 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.
63 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.
64 Moor Street, New Street and Snow Hill.
65 Temple Meads.
66 Cardiff Central and Queen Street.
67 Liverpool Central, Lime Street, Moorfields and James Street.
68 All stations in Zone 1 of the Transport for London (TfL) travelcard area on routes into major terminals.
69 Oxford Road, Piccadilly and Victoria.
70 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.
71 Figures are based on only one manual count per service.
72 Services to and from Charing Cross and Cannon Street are included in the London Bridge figures.
73 Figures are based on only one manual count per service.
74 Includes Heathrow Connect services.
75 Includes Gatwick Express services.
76 Oxford Economics, September 2015, 'Adding Value: The River Thames Public Amenity'. Port of London Authority.
77 SQW Limited, September 2015, 'River Thames Economic Prosperity'. Port of London Authority.
78 Fujita and Thisse (2002): fundamental trade off Tiebout (1956)
79 Henderson, J. 2009, "Cities and Development", *Journal of Regional Science*, 50th Anniversary issue.
80 Cavailhes, J; Gaigne, C; Tabuchi, T; & Thisse,J. 2007. "Trade and the Structure of Cities", Journal of Urban Economics, Volume 62(3) p. 383-404
81 Alonso, W.A., 1964, 'Location and land use: toward a general theory of land rent', Harvard University Press, Cambridge.
82 The housing market is considered in further detail in the next section.
83 Jones, C. and Watkins, C. (2009), 'Housing Markets and Planning Policy', Oxford: Wiley-Blackwell.
84 Land use change data provided by DCLG is derived from Ordnance Survey products, based on rolling assessments, rather than directly observed so may not yet capture the full picture of land use change in London. An additional year of data for 2014/15 will be available from early 2016, and will be added to the analysis in the final version of this report. Additional analysis of

changes in land use from the London Development Database, which may provide a more reliable indicator, will also be included in the final version of this report.

85 This category includes buildings where no other category was suitable, as well as hard standing areas such as car parks, paved areas and tarmac.

86 GLA, London town centre health check analysis report 2013

87 Valuation Office Agency (VOA), commercial and industrial floorspace

88 JLL Research, The Central London Market Report Q3 2015

89 Prime rents reflect the rents paid at the high end of the market, whilst the occupancy costs include the other costs entailed with renting office space

90 Rents apply to small sheds, defined as units between 10,000 to 30,000 square feet in size. Prime rents apply to new units whilst secondary rents reflect second-hand units built during the 1990's. Land values are based on prime locations only.

91 Rosen, 1979 and Rabuck,1982.

92 Land use change data provided by DCLG is derived from Ordnance Survey products, based on rolling assessments, rather than directly observed so may not yet capture the full picture of land use change in London. An additional year of data for 2014/15 will be available from early 2016, and will be added to the analysis in the final version of this report. Additional analysis of changes in land use from the London Development Database, which may provide a more reliable indicator, will also be included in the final version of this report.

93 In presenting the 'average' price, the median is typically used as it avoids over-estimates associated with mean values that result from a positive skew in the distribution of house prices.

94 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 , accessed on: 02/10/15.

95 Greater London Authority, The London Strategic Housing Market Assessment (2013)

96 Source: London development database, extracted on 06/08/15.

97 A household is deemed to be overcrowded it has less bedrooms than required according to the bedroom standard (a formula to determine housing need), based on the composition of the household

98 2013/14 English Housing Survey

99 Gordon, Ian (2014) Fitting a quart in a pint pot?: Development, displacement and/or densification in the London region

100 GLA Intelligence, June 2015, 'GLA 2014 round of trend-based population projections - Results'.

101 Greater London Authority, The London Strategic Housing Market Assessment (2013)

102 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.

103 OECD, 'Recent house price developments: the role of fundamentals', OECD Economic Outlook, 78, pp. 123-154.

104 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.

105 GLA Economics, 'House prices in London: an economic analysis of London's housing market', November 2015

106 For a discussion, see HM Government (2006), 'Barker Review of Land Use Planning', December 2006.

107 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.

108 GLA, 'Barriers to Housing Delivery Update: Private sector housing development on large sites in London', July 2014. Report by Molior London for the GLA.

109 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 may be 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.

110 Hardin, G. 'The Tragedy of the Commons', 1968, Science vol 162, no. 3859, pp. 1243-1248.

111 For further evidence on the costs and benefits of the Green Belt and London's green spaces, see chapter 5.

112 Cheshire and Hilber, 2008, 'Office Space Supply Restrictions in Britain: The Political Economy of Market Revenge' Economic Journal, Royal Economic Society, vol. 118(529).

113 Hilber, C. and Vermeulen, W. 'The impacts of restricting housing supply on house prices and affordability', November 2010

114 GLA, 'Barriers to Housing Delivery Update: Private sector housing development on large sites in London', July 2014. Report by Molior London for the GLA.

115 OLC, 'Removing barriers to housing delivery', Background paper issue 3, June 2015. The OLC is due to issue its final report on the barriers to housing delivery in March 2016, as part of a full review of the London Plan.

116 Boyko and Cooper (2011).

117 Ciccone and Hall (1996).

118 Urban Land Institute (2015).

119 Pichardo-Muniz and Chavarria (2012).

120 NCE Cities Paper 3: Accessibility in cities – transport and urban form.
121 TfL, Travel in London Report 8, Transport for London (2015)
122 Gleeson (2011) 'Make No Little Plans': Anatomy of Planning Ambition and Prospect. Geographical Research.
123 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)
124 Greater London Authority, 'Land Area and Population Density, Ward and Borough'.
125 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, and 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.
GLA Intelligence (2014). "2011 Census Snapshot: Distance Travelled to work in London", CIS 2014-07 Census Information Scheme.
126 For more information on this topic please see: Togni, L., October 2015, 'Working Paper 71: More residents, more jobs? 2015 update - The relationship between population, employment and accessibility in London'. GLA economics.
127 The Paris region is classified as Île-de-France, is the NUTS 1 level region used to cover Paris. This is consistent for comparison with the NUTS1 classification of London
128 Central area identified containing 13 of the 23 special wards in central Tokyo
129 JLL Raising the Roof, September 2015
130 All European Union cities with a population of greater than 2 million people
131 Charting Transport, 'Comparing the densities of Australian and European cities', 26 November 2015
132 Under-occupied households are those with two or more bedrooms more than they require based on household composition according to the bedroom standard, a formula to determine housing need
133 English Housing Survey 2010/11 – 2012/13
134 Hilber, C. 2015, 'UK Housing and planning policies: the evidence from the economic research', LSE Centre for Economic Performance.
135 Mirrlees Review (2010)

3 London's attractiveness as a location for business and people

Key Findings

- On many measures, London is a competitive location for business, with corporation tax rates in the UK lower than any other G7 country
- The capital figures prominently across a range of city ranking indices, ranking as the leading global city according to the PWC Cities of Opportunity and the Global Financial Centres Index
- London has a competitive business climate, with net business start-up rates higher than for the UK as a whole
- 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
- 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 the most visited city in the world, with 17.4 million people visiting the capital in 2014.
- 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.

Introduction

London is a pre-eminent global city; it has developed over time as a result of being a centre of trade. Through globalisation, London has become increasingly specialised in certain activities (such as business services and finance) and has built upon its comparative advantages. Many factors explain why London remains a competitive location; however it can be summarised that businesses wish to locate in the capital as a result of London's central global position, its openness to trade, its links to international markets, and its competitive business environment.

London's attractiveness to business has a knock on effect in attracting people. Specialisation in high skilled, high value business activity means that London is able offer high wages and numerous career opportunities. People are attracted to the capital from both within the UK and outside; for business this means that there is a high supply of labour for higher value occupations and activities, but also in lower skilled occupations.

This chapter looks at the factors that have drawn business and people to the capital, examining trends in inward investment, taxation, and regulation, and London as a place to live; but also provides an overview of London's competitiveness compared to other global cities, directly comparing London across a range of indicators and city rankings.

London attractiveness as a location for business

This section looks at the various factors which influence businesses, both international and within the UK, to locate in the capital. The main pull factors come as a result of the specialisation of the capital in high value sectors, its openness to trade, and its development over time as a business destination.

Over time, London's status as a global city has developed as a result of its central location. London sits between East and West, and global time systems are based upon Greenwich Mean Time. The implications of this are 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 starts towards the end of business hours in London. The capital is therefore able to develop strong connections with mall of these business locations, sitting naturally as the connection between East and West.

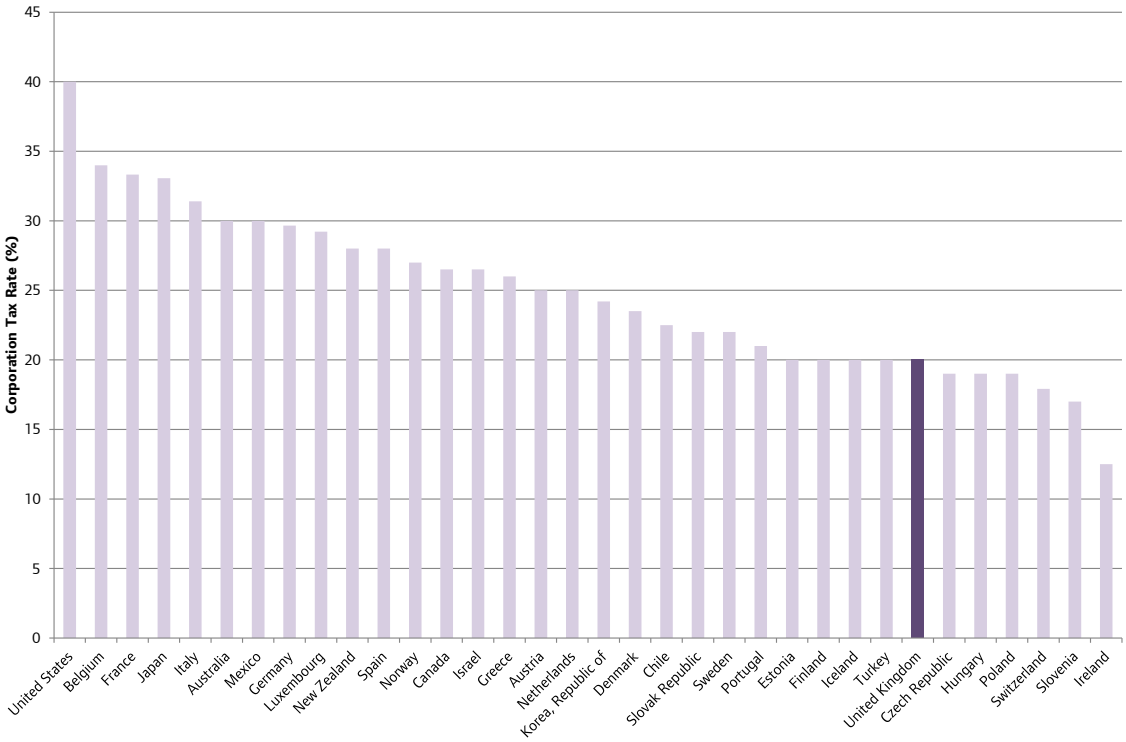
In addition, the UK has played an important role in global history and globalisation; English has become the pre-eminent business language, used in North America, and widely taught as an essential skill across education systems. The presence of a wide range of cultures coming together in a global city, with English as a common language, enables the capital to attract both business and people.

The UK's role in global history also means that it 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; agglomeration of finance and legal services in a central location create efficiencies for business. In addition, the UK is seen as a politically stable location, grounded upon a strong legal framework. When examining London's position in the global economy, all these factors together play a significant role in attracting business to the capital.

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 3.1 demonstrates how the UK ranks in relation to other nations for corporation tax rates, showing that although not being the country with the lowest rate, the UK ranks well in the global context, and in 2015, has the lowest corporation tax rate of any G7 country.

Figure 3.1: Corporation Tax Rates, OECD Nations, 2015



Source: 2015 Global Tax Rate Survey, 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 3.1. 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 3.1: Highest corporation tax rate in selected countries over time, 2006-2015 (ranked highest to lowest, 2015)[1]

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
United Arab Emirates	55	55	55	55	55	55	55	55	55	55
United States	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
Japan	40.69	40.69	40.69	40.69	40.69	40.69	38.01	38.01	35.64	33.06
Italy	37.25	37.25	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
Canada	36.1	36.1	33.5	33	31	28	26	26	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
EU average	24.83	23.97	23.17	23.11	22.93	22.7	22.51	22.75	21.34	22.15
United Kingdom	30	30	30	28	28	26	24	23	21	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
Hong Kong	17.5	17.5	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

Source: KPMG[2]

Although the UK is a competitive location for business based on 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 3.2 provides data from KPMG on the highest income tax rate level 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.

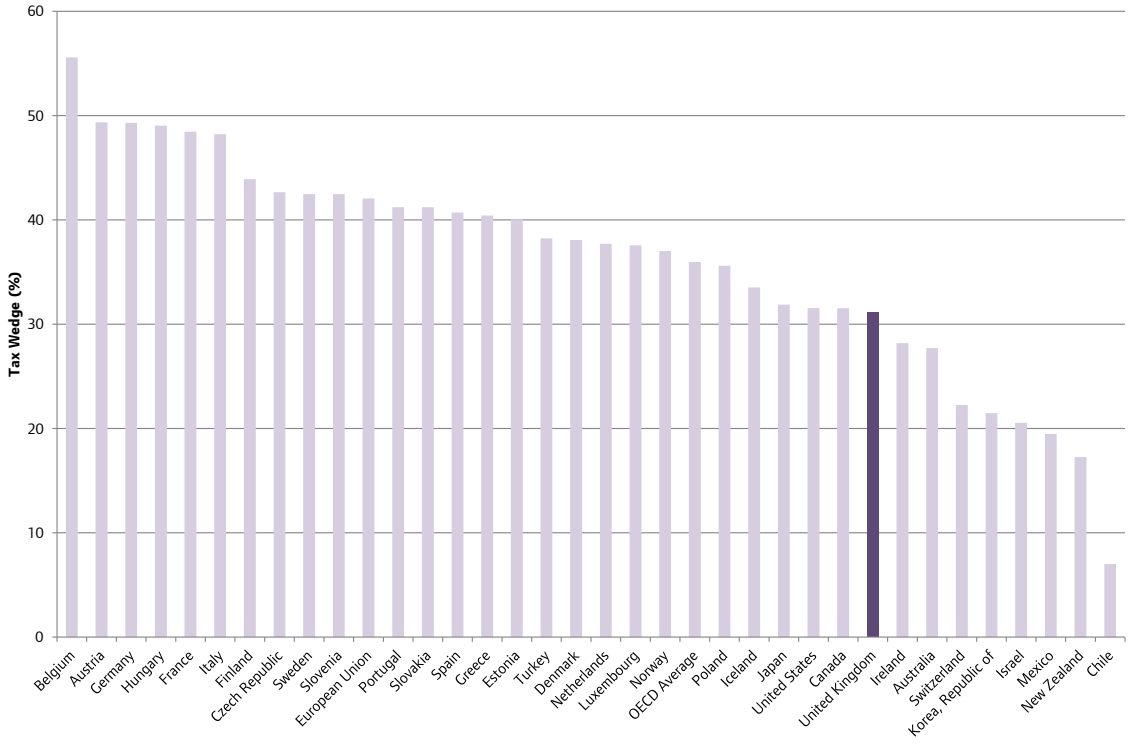
Table 3.2: Highest income tax rate in selected countries and area averages over time, 2006-2015 (ranked highest to lowest on 2015)[3]

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Japan	50	50	50	50	50	50	50	50.84	50.84	50.84
Ireland	42	41	41	46	47	48	48	48	48	48
Germany	42	45	45	45	45	45	45	45	45	45
United Kingdom	40	40	40	40	50	50	50	45	45	45
France[4]	40	40	40	40	41	41	45	45	45	..
Italy	43	43	43	43	43	43	43	43	43	43
Switzerland	40.4	40.4	40	40	40	40	40	40	40	40
United States	35	35	35	35	35	35	35	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
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
Singapore	20	20	20	20	20	20	20	20	20	20
Hong Kong	16	16	15	15	15	15	15	15	15	15
Macau	12	12	12	12	12	12	12	12	12	12
United Arab Emirates	0	0	0	0	0	0	0	0	0	0

Source: KPMG[5]

The tax wedge measures the difference between the pre-tax and post-tax earnings of an individual. It is an estimate of how much more the firm has to pay an individual employee (after all personal tax deductions and taxes on the employer) to provide the individual with 100 per cent of the average annual wage. Data for 2014 are shown in the following chart:

Figure 3.2: Tax wedge for OECD countries, 2014

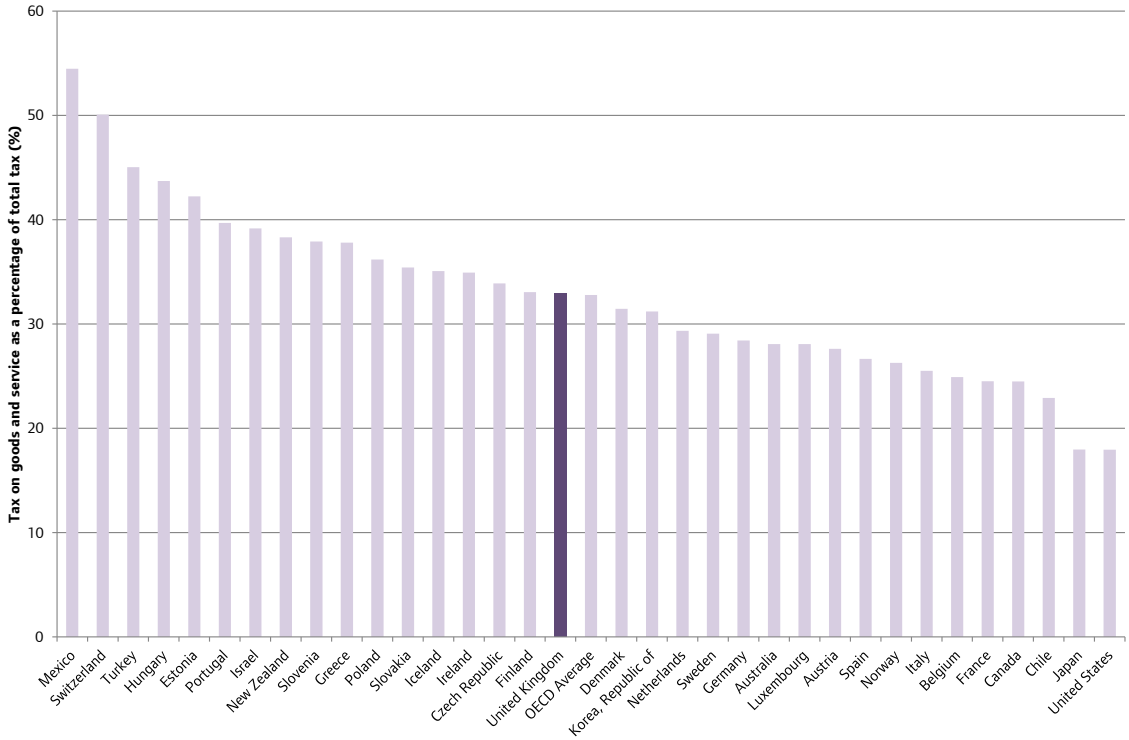


Source: OECD

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. The following chart

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 likely to be lower compared to relative levels of corporation or personal taxation.

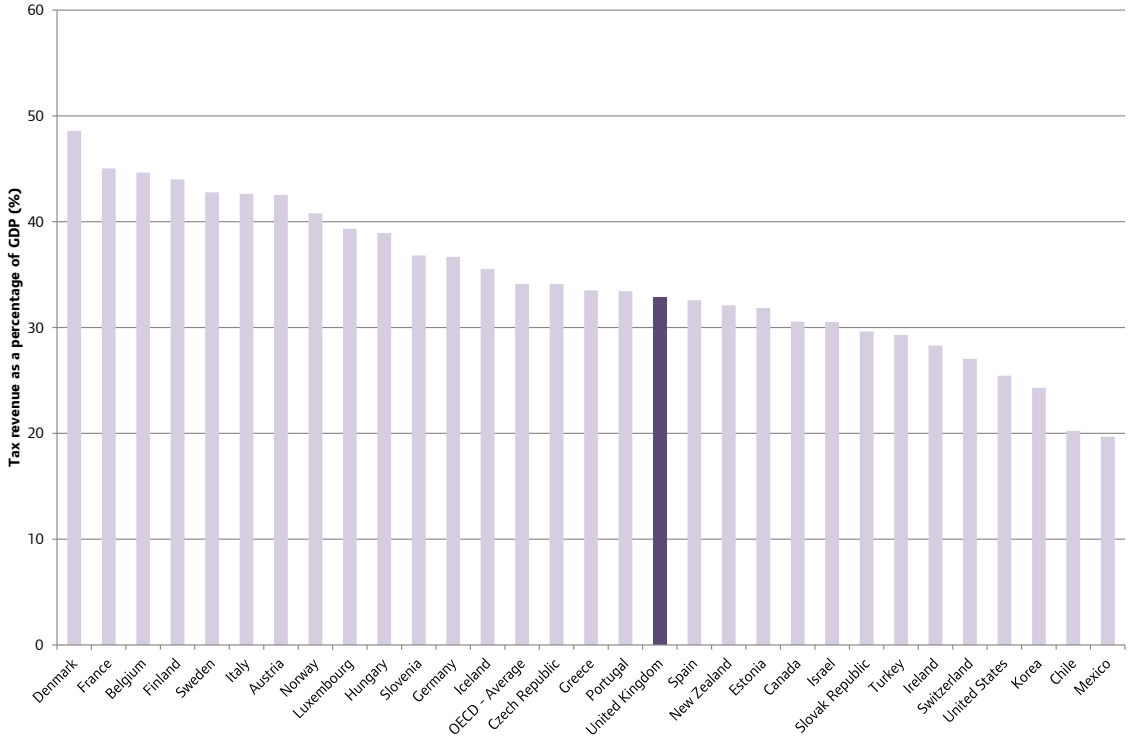
Figure 3.3: Taxation on goods and services as a proportion of total taxation, 2013



Source: OECD

To provide an overall perspective on the relative competitiveness of tax systems across countries, the following chart provides the total tax revenue as a proportion of GDP, which finds that the UK sits near the middle of the scale on this this indicator. In particular, Switzerland and the United States have lower overall proportions of tax revenue to total GDP than the UK.

Figure 3.4: Total tax revenue as a proportion of GDP, 2013



Source: OECD. Data for Australia, Japan, Netherlands and Poland not available.

London has developed a particular specialism in financial and business services, particularly as a result of a liberalisation of financial services, and by building upon the factors which have given London its inherent competitiveness (such as London's geographic position, legal system and the English language). London's finance centre is part of a wider business services agglomeration with companies locating in Central London able to utilise expertise in financial services, legal advice, accountancy services, and other consulting services. One particular index which shows London's competitiveness as a financial centre comes from the Global Financial Centres Index. Here cities are measured against five main criteria (business environment, financial sector development, infrastructure, human capital, and reputation). The following table shows London's most recent position against other financial centres. Within the five individual criteria, the top five cities are all ranked in the same position for each; therefore London leads against all five areas of competitiveness.

Table 3.3: Top ten cities on the Global Financial Centres Index

Position	City
1	London
2	New York
3	Hong Kong
4	Singapore
5	Tokyo
6	Seoul
7	Zurich
8	Toronto
9	San Francisco
10	Washington D.C.

Source: Global Financial Centres Index

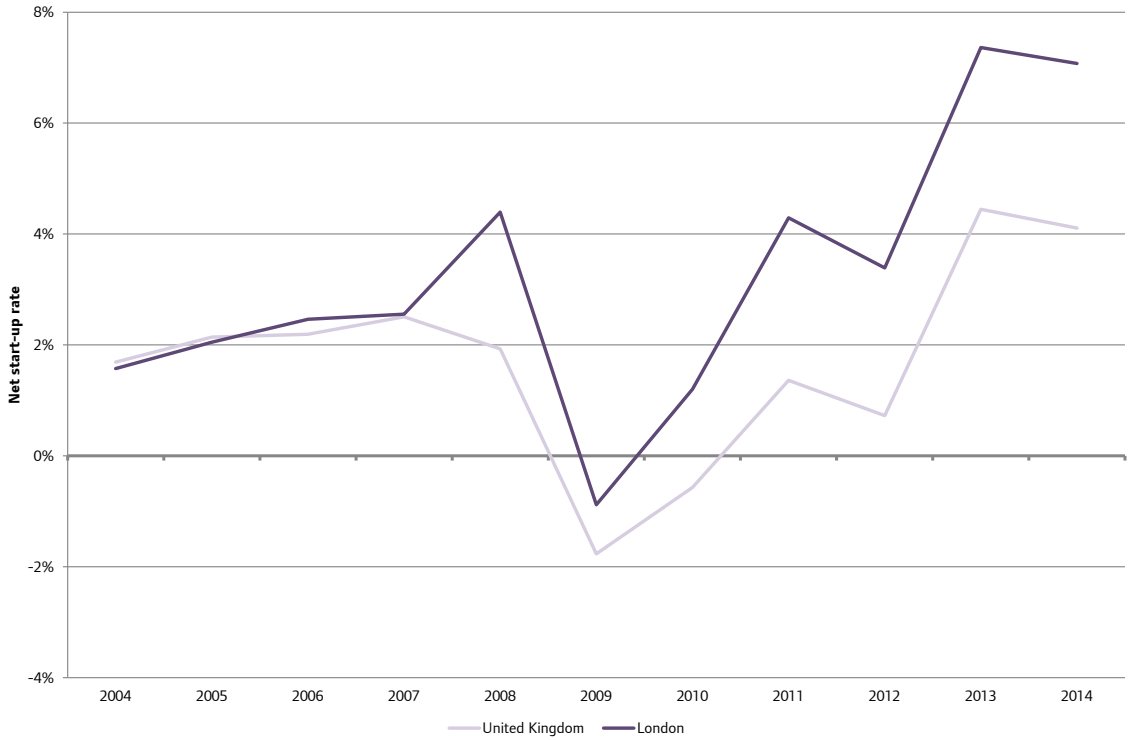
Although London's exact position in this ranking has been varied overtime – London and New York are the two centres which are clearly ahead of Hong Kong and Singapore, however these two cities in particular have become more competitive in recent years. This indicator does show that as a result of the regulatory environment and its specialisation in finance and business services, London becomes an attractive location for businesses.

London as a competitive business environment

As a result of the pull factors which 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 high numbers of business start-ups. As well as a high number of start-ups London also witnesses higher levels of business failures, therefore business churn is higher in London than in the UK as a whole. This section gives an indication of the scale of business start-ups and survival.

The following chart provides an illustration of the net start-up rate for businesses in London and the UK. Based upon data from the Interdepartmental Business Register (IDBR), there were 88,580 business births in London in 2014, accounting for 25 per cent of the UK total. There was however a much smaller number of business closures, at just 53,140; indicating a net start-up rate in the capital of 7.1 per cent. This compares to 4.1 per cent for the UK as a whole. In the period back to 2004, the average net start-up rate in London has been consistently higher than the UK as a whole (at 3.2 per cent compared to 1.7 per cent for the UK as a whole).

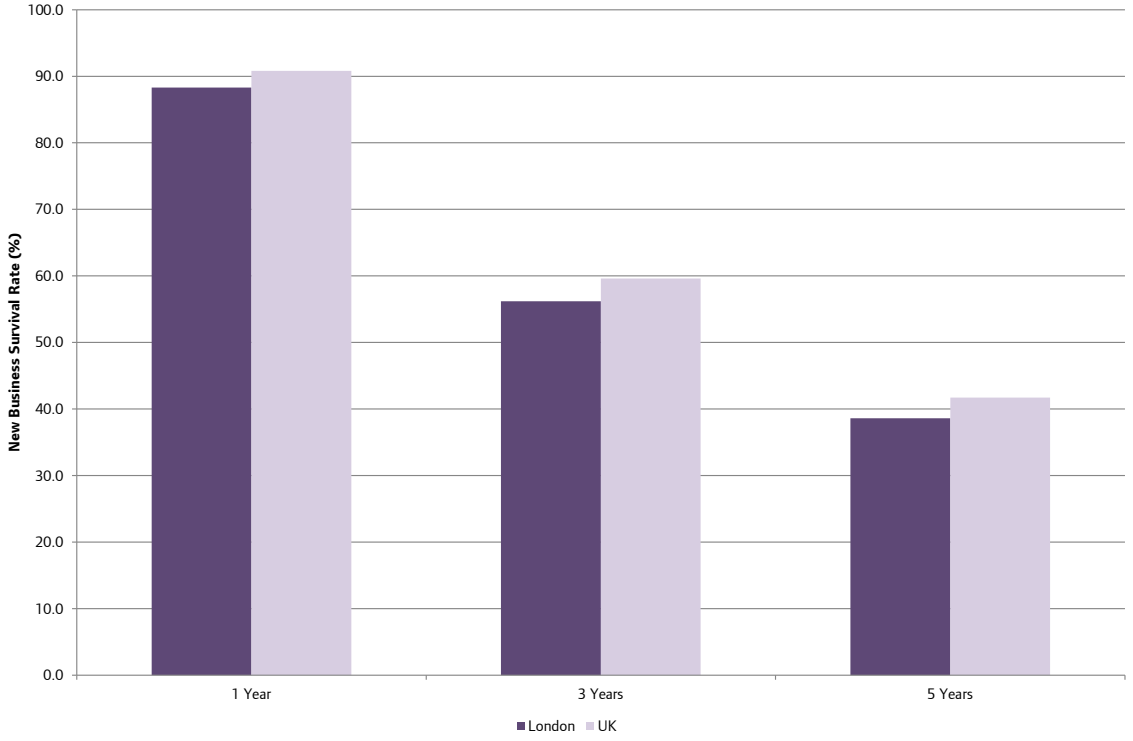
Figure 3.5: Annual business net start-up rate, London and the UK



Source: Business Demography, ONS; GLA Economics calculations

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, with only 38.6 per cent of businesses born in 2009 still in operation five years later.

Figure 3.6: Business survival rates for those established in 2009, London and the UK



Source: ONS Business Demography

London as a competitive location

A range of city index rankings provide evidence of London's competitiveness, whilst at the same time providing an insight into the relative strengths and weaknesses of the capital. One particular example of comes from the PWC Cities of Opportunity ranking, which assess the competitiveness of cities across ten broad indicators (and 59 component indicators). The sixth version of this report ranked London as the leading global city for the first time, ahead of New York and Singapore. The following table shows the top ten cities from this report:

Table 3.4: Top ten cities on the PWC Cities of Opportunity ranking

Position	City
1	London
2	New York
3	Singapore
4	Toronto
5	San Francisco
6	Paris
7	Stockholm
8	Hong Kong
9	Sydney
10	Chicago

Source: PWC Cities of Opportunity

London is rated as the leading city in three of the ten broad indicators, that of technology readiness, city gateway (looking at aspects such as the city as a place for leisure and business tourism, airport and transport connectivity), and economic clout (looking at the city as a place for business headquarters, a location for FDI, and productivity). The following table gives London's position in each of the ten broad indicators and the three top rated cities across each indicator:

Table 3.5: 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	**2nd**	Paris	London	San Francisco
Technology readiness	**=1st**	London, Seoul	--	Stockholm
City gateway	**1st**	London	Beijing	Singapore
Transportation and infrastructure	**6th**	Singapore	Toronto	Seoul
Health, safety and security	**6th**	Stockholm	Sydney, Toronto	--
Sustainability and the natural environment	**14th**	Stockholm, Sydney	--	Berlin, Paris
Demographics and livability	**2nd**	Sydney	London	San Francisco
Economic clout	**1st**	London	Beijing	New York
Ease of doing business	**5th**	Singapore	Hong Kong	New York
Cost	**15th**	Los Angeles	Chicago	Johannesburg

Source: PWC Cities of Opportunity

While the overall ranking shows that London is a competitive location, there are potentially areas which could be observed as risks to London, in particular on sustainability and natural environment, and on the costs of the city. The former is covered in more detail within Chapter 5 which looks at the state of London's environment and how future growth can be secured through its use of natural resources; the latter is covered in more detail within Chapter 4, looking at the risks to London's economy.

What these broad component indicators show though is that London's competitiveness is built upon London's standing as a major financial and economic centre, its central position in the world, the ability to grow and build upon technological improvement, and its ability to attract a highly skilled workforce, from both within the UK and outside.

There are a range of other city ranking indicators which also show London's to be a globally competitive city – ranking indicators must always be critiqued based on the methodology used in developing them[6] – however there are a significant number of indices which confirm London's position. The following table outlines where London places across a range of these indicators.

Table 3.6: 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 2014 – PwC[7]	Global Cities Index 2014 – A.T. Kearney[8]	City Prosperity Index 2012/2013 – United Nations (4th)[9]
European Attractiveness Survey 2014 – EY[10]	2025 City Competitiveness Index – The Economist Intelligence Unit[11]	Innovation Cities Index 2014 – Innovation Cities (3rd)[12]
Global Destination Index 2014 – MasterCard[13]	Sustainable Cities Index 2015 – Arcadis[14]	
Global Power City Index 2014 – The Mori Memorial Foundation[15]	Networked Society City Index 2014 - Ericsson[16]	
The World According to GaWC 2012 – Globalization and World Cities (Loughborough University)[17]	Cities in Motion Index 2014 – IESE Business School[18]	
Global Financial Centre Index 18 – Z/Yen[19]		
European Digital City Index 2015 – Nesta		
GfK/Anholt City Brands Index 2013		

An indicator of London's competitiveness as a location for business is through the scale of foreign direct investment (FDI). From an economic perspective, inward investment acts as a means of increasing productivity, as a new entrant into a market will have ideas, methods or technologies which enable productivity to increase. However new entrants, if they have technology far in advance of domestic firms, may mean that less productive firms will be forced to leave the market; the net benefits from inward investment will likely be through improvements in total factor productivity.

The following section examines data on the scale of inward investment to London and other major global cities over time, before looking at the industry sectors in which London attracts most investment.

Data on inward investment is sourced primarily from fDi Markets, a real-time data resource providing details on new inbound FDI investments, the origin and destination locations, the industrial sector, the number of new jobs estimated to be created through the investment, and the level of capital investment related to it. Data on jobs and capital investments are estimated, however numbers of FDI projects are more certain.

The profile of inward investment to London

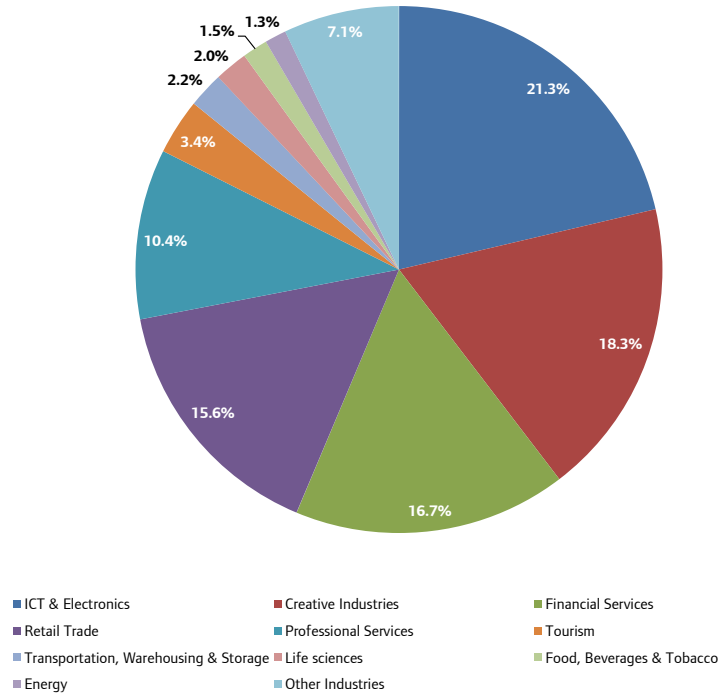
Data from fDi Markets outline the industrial sector associated with individual investments, however it must be noted that these do not match directly with the Standard Industrial Classification set out by the Office for National Statistics. The following table and chart outlines the broad industrial sectors of inward investment to London over the last five years, and finds that these largely match with London's specific industrial specialisations outlined in Chapter 1.

Table 3.7: Number of inbound FDI projects to London, by broad industry sectors

Sector	2010/11	2011/12	2012/13	2013/14	2014/15	Total
ICT & Electronics	63	91	102	80	64	**400**
Creative Industries	56	78	77	72	60	**343**
Financial Services	69	70	58	59	58	**314**
Retail Trade	51	65	42	67	68	**293**
Professional Services	31	41	37	40	47	**196**
Tourism	7	15	19	12	11	**64**
Transportation, Warehousing & Storage	4	3	5	13	16	**41**
Life sciences	9	8	1	13	7	**38**
Food, Beverages & Tobacco	3	7	3	11	5	29
Energy	3	10	4	3	5	**25**

Source: fDi Markets; GLA Economics calculations

Figure 3.7: Proportion of inbound FDI projects to London, by broad industry sectors



Source: fDi Markets; GLA Economics calculations

When broken down further into industrial sub-sectors, the following table shows further the importance of the Information and Communication; Finance and Insurance; Professional, Scientific and Technical Activities sectors; where nine of the ten industrial sub-sectors here would be considered to be part of these three SIC sections (Sections J, K and M).

Table 3.8: Number of inbound FDI projects to London by industrial sub-sector

Sector	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Software publishers, except video games	54	64	83	91	67	**359**
Internet publishing & broadcasting & web search	18	39	42	43	35	**177**
Clothing & clothing accessories	31	40	22	32	51	**176**
Corporate & investment banking	30	24	23	13	17	**107**
Advertising, PR, & related	16	23	20	11	12	**82**
Investment management	10	19	10	13	13	**65**
Professional, scientific & technical services	17	15	6	12	15	**65**
Custom computer programming services	10	9	13	11	16	**59**
Legal services	7	14	9	8	16	**54**
Retail banking	10	12	6	9	4	**41**

Source: fDi Markets; GLA Economics calculations

London is a major recipient of inward investment and compared to other major global cities, is highly competitive. London represents over a third of all inward investment into the UK, a level which has been consistent over the last five years.

Table 3.9: London's proportion of inbound FDI projects by financial year

Financial Year	Proportion of total UK inbound FDI, London (%)
2010-11	35.4
2011-12	38.7
2012-13	39.5
2013-14	38.0
2014-15	36.6

Source: fDi Markets; GLA Economics calculations

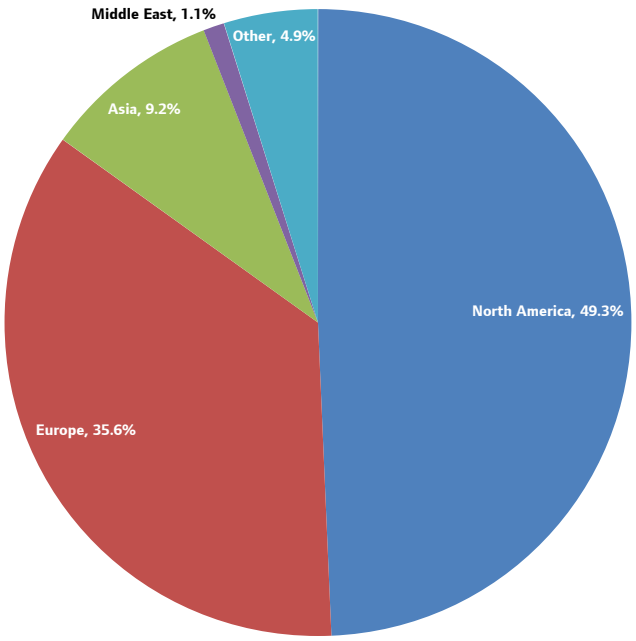
Data from the EY Global Investment Monitor estimates that London's share of total UK inward investment is higher still, with London estimated to have received 43.0 per cent of total UK FDI projects in 2014; with the trend over the past ten years being for London increasing its share of the UK's total new FDI projects.

Analysis from EY finds that London remains the most attractive location for potential new investors into the UK (46 per cent of respondents to the EY 2015 UK attractiveness survey reporting London as the most attractive region to establish operations), however the survey also found that for those businesses already located within the UK, London remains the most attractive region for investment. This implies that London remains the gateway to the UK for investment and that companies are willing to further expand in the capital.

London's investment linkages

Trends over the last five years have shown that North America and Europe remain the most important markets for London as the origins of investment. In the 2014/15 financial year, these two regions accounted for 84.9 per cent of total inward investment projects to London (an increase of just 0.4 percentage points over the 2010/11 financial year).

Figure 3.8: Inbound FDI projects by continent, 2014-15 financial year



Source: fDi Markets; GLA Economics calculations

The North American market is also comparatively more important to London than the UK as a whole; with the North American share of total inward investment into the UK being over 7 percentage points higher; the opposite effect is seen for Europe which is just under 7 percentage points lower. Asia holds a relatively small share of total investment into London and the UK, and an average of the last five financial years finds that the Middle East only accounts for around 2 per cent of total inward investment.

Table 3.10: Proportion of inbound FDI projects, to London and the UK, by continent, five year financial year average

Continent	Proportion of London inbound FDI projects (%)	Proportion of total UK inbound FDI projects (%)
North America	49.2	41.9
Europe	34.7	41.2
Asia	9.0	11.2
Middle East	2.0	1.7
Other	5.0	4.0

Source: fDi Markets; GLA Economics calculations

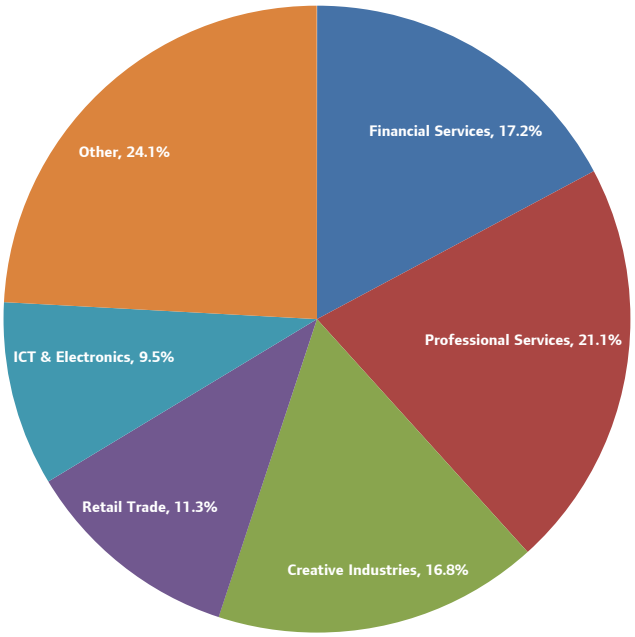
While much attention is focussed on London as a destination for investment, it is also an origin for investment. The following table shows the scale of outbound investment over the last five years, with the United States being the predominant location, but with Asia being an important market; China and Singapore being the two nations immediately behind. As with inbound investment, Professional and Business services; as well as Information and Communication are the sectors in which most outbound investment are associated with, as shown in the chart below.

Table 3.11: Number of inbound FDI projects originating from London

Country	2010/11	2011/12	2012/13	2013/14	2014/15	Total
United States	147	142	140	146	147	**722**
China	57	61	45	30	32	**225**
Singapore	43	46	32	49	38	**208**
Germany	37	40	46	42	33	**198**
Australia	52	36	30	38	30	**186**
India	46	49	25	20	33	**173**
Hong Kong	29	36	34	22	17	**138**
Spain	26	25	33	24	21	**129**
France	17	23	17	49	22	**128**
UAE	27	23	26	27	21	**124**

Source: fDi Markets; GLA Economics calculations

Figure 3.9: Proportion of FDI projects originating from London, industry sector, 2010/11 – 2014/15

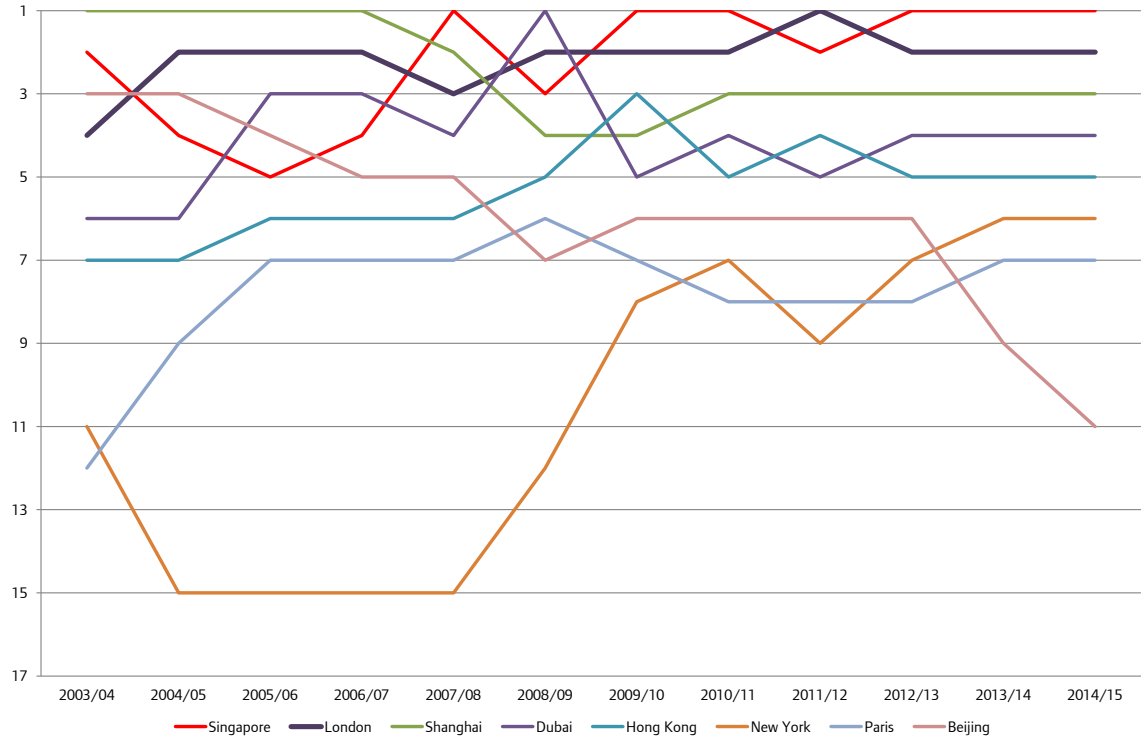


Source: fDi Markets; GLA Economics calculations

International comparisons on inward investment

London competes for investment against other major global cities and nations, especially when capital and people are able to move relatively freely. London as a destination has been consistently competitive over the last ten years. The following chart shows London's relative ranking compared with other major global cities, and shows that London has consistently been amongst the top three cities for the number of inward investment projects coming to London.

Figure 3.10: Ranking of cities for inbound FDI projects, 2003/04 – 2014/15



Source: fDi Markets; GLA Economics calculations

Between 2010/11 and 2014/15, London received almost 2,000 inward investment projects, with estimated capital expenditure of £35 billion, creating an estimated 88,000 jobs. The following three tables outline how London compares to other global cities across these indicators:

Table 3.12: Number of inbound FDI projects by city; 2010/11 to 2014/15

City	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Singapore	380	400	376	447	397	**2,000**
London	332	406	369	396	373	**1,876**
Shanghai	325	303	259	279	240	**1,406**
Dubai	245	249	254	261	233	**1,242**
Hong Kong	235	252	235	207	198	**1,127**
New York	161	144	153	203	191	**852**
Paris	144	144	144	188	137	**757**
Beijing	169	149	155	118	99	**690**
Sydney	130	120	143	123	134	**650**
Bangalore	107	105	86	76	103	**477**

Source: fDi Markets; GLA Economics calculations

Table 3.13: Capital expenditure associated through inbound FDI, by city; £ billion, 2010/11 to 2014/15

City	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Singapore	13.13	9.79	5.74	6.69	6.93	**42.29**
Shanghai	8.36	7.12	8.27	6.53	5.40	**35.68**
London	4.21	6.95	13.08	6.26	4.69	**35.19**
Hong Kong	4.16	3.92	4.96	3.51	3.31	**19.86**
Dubai	4.19	2.60	2.93	2.85	4.79	**17.35**
Beijing	3.39	3.90	4.93	3.62	1.31	**17.15**
Sao Paulo	4.24	4.31	3.85	3.48	0.72	**16.60**
Sydney	2.43	2.27	2.68	2.13	3.03	**12.54**
New York	2.20	1.34	1.97	3.21	2.97	**11.69**
Chongqing	1.95	2.98	4.39	1.52	0.64	**11.47**

Source: fDi Markets; GLA Economics calculations

Table 3.14: Number of jobs created by inbound FDI by city; 2010/11 to 2014/15

City	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Shanghai	45,500	38,500	35,900	35,600	29,900	**185,400**
Singapore	38,400	32,600	26,100	25,300	29,100	**151,500**
Bangalore	24,200	18,900	15,800	14,900	15,800	**89,600**
London	14,600	14,000	17,800	25,100	16,800	**88,200**
Beijing	17,100	13,600	18,800	18,100	7,100	**74,900**
Bucharest	18,200	6,400	21,900	17,700	10,100	**74,300**
Hong Kong	12,200	13,700	19,300	13,600	13,000	**71,700**
New York	15,400	9,500	10,300	18,700	16,700	**70,500**
Dubai	16,400	12,900	16,100	9,900	11,800	**67,000**
Chennai	30,800	12,400	7,500	6,700	9,400	**66,800**

Source: fDi Markets; GLA Economics calculations

The range of data on inward investment illustrates that London is an attractive destination for global business in finance, professional and business services, it also maintains its competitiveness in light of growing competition from an increasingly globalised market. London's relative position as a destination for inward investment as well as its position within city ranking indicators demonstrates London's competitiveness as a location to invest. At the same time as attracting businesses to locate, the capital also attracts people to live and work; without skilled labour, London risks losing its competitiveness compared to other major cities. The following section looks at the factors which attract people to live and work in the capital as well as a range of data which demonstrate London's attractiveness as a location.

Skills of London's workforce

Given London's industrial specialisation, the capital needs to attract high skilled labour to meet the needs of businesses. Within the UK, London has the highest proportions of residents with degree level education (NVQ Level 4+) as shown in the following table.

Table 3.15: Proportion of those in employment at individual levels of qualification, London and the UK, Jan – Dec 2014

	London	United Kingdom
NVQ Level 4+	57.6%	41.6%
NVQ Level 3 only	13.0%	17.4%
Trade Apprenticeships	1.6%	3.8%
NVQ Level 2 only	9.6%	15.6%
NVQ Level 1 only	6.2%	10.4%
Other qualifications	7.7%	6.1%
No qualifications	4.2%	5.1%

Source: Annual Population Survey, ONS

In addition, when compared to other regions of Europe, London has the highest proportion of people aged 25 – 64 with ISCED Level 5 – 6 qualifications (equivalent to graduate level and higher), showing London's attractiveness in the European context.

Table 3.16: Proportion of population aged 25 – 64 with tertiary educational attainment, by NUTS1 region

NUTS1 Region	Country	Proportion aged 25 – 64 with tertiary education (%)
London	United Kingdom	53.7
Comunidad de Madrid	Spain	47.2
Scotland	United Kingdom	46.5
Luxembourg	Luxembourg	45.9
South East	United Kingdom	45.0
Ile de France	France	43.8
Region de Bruxelles-Capitale	Belgium	43.5

Source: Eurostat

London's attractiveness to people

There are a wide range of factors that influence people to live and work in a particular location; most typically these are based around a broad range of economic opportunities. In an increasingly globalised world, people are able to move more freely to take advantage of employment opportunities and seek a better quality of life. London's position as a major global centre for business means people are drawn to the capital for employment and their careers, London's culture and vibrancy means people are drawn to the capital to have a better quality of life.

Wages and costs of living

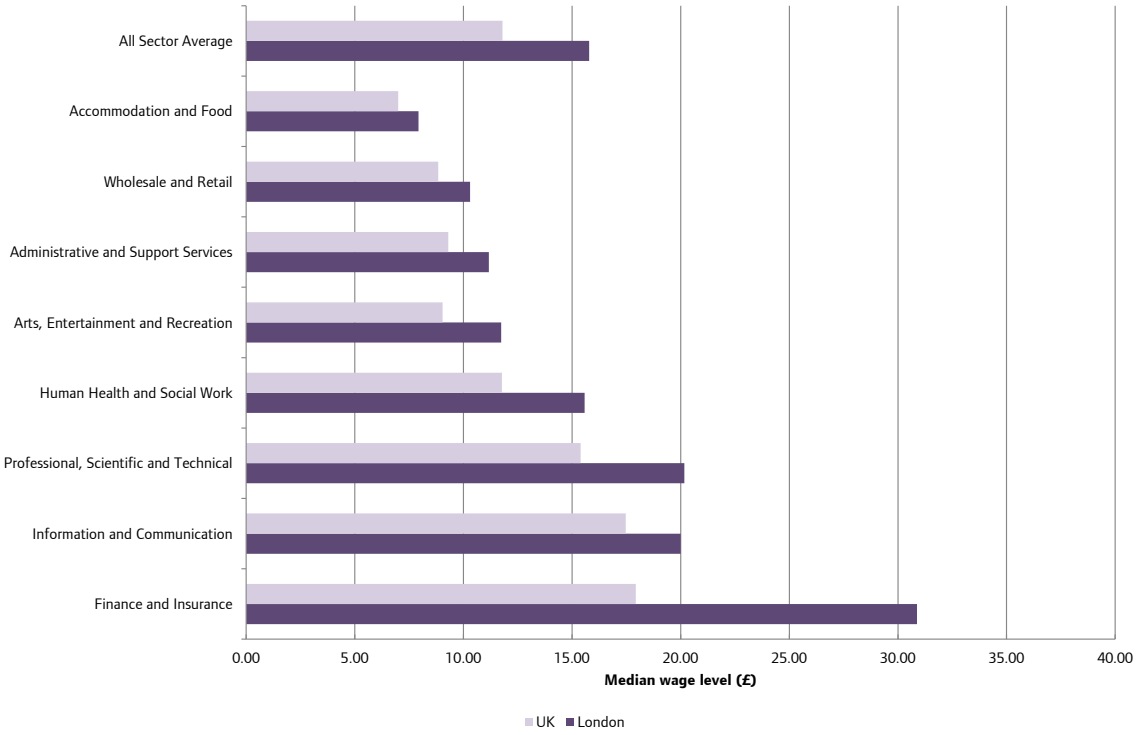
As a major global economic centre, people are drawn to the capital to further their career prospects, but also to relocate to achieve a higher standard of living. This effect is true for both UK residents and international migrants. In the context of the UK, wages are higher in London compared to other regions, there is also greater disparity in the distribution of wages, typically as a result of the proportion of workers in high value sectors. The following chart shows the wage distribution of selected deciles of workers in London and the UK; then Figure 3.11 shows the distribution of wages across different industrial sectors.

Table 3.17: Wage distribution, London and the UK, 2014

	Median	Mean	10th Percentile	25th Percentile	75th Percentile	90th Percentile
London	£15.79	£20.23	£7.65	£10.31	£23.88	£35.57
United Kingdom	£11.80	£15.27	£6.90	£8.34	£17.88	£25.64

Source: Annual Survey of Hours and Earnings, ONS

Figure 3.11: Wage levels in selected sectors in London, 2015



Source: Annual Survey of Hours and Earnings, ONS

As shown in Table 3.18, in comparison to global wage levels, the UK does not have particularly high wages when compared to other European countries and major nations.

Table 3.18: 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[20]

However, it is the variance between London and the rest of the UK which attracts both highly skilled workers and other migrants to the capital. The following data from UBS 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 3.19: Wage levels in selected world cities[21] (Index New York = 100)[22]

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[23]

London as a place to 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.[24]

Table 3.20: 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%

Source: London Higher

A signficant reason for the popularity of London as a destination for international students is the higher 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 3.21.

Table 3.21: Number of universities in London within the top 100 globally

Publication	Number in Top 100
Times Higher Education World University Rankings[25]	5
QS World University Rankings[26]	4
Times Higher Education World Reputation Rankings[27]	5
The Economist Full-time MBA ranking[28]	2
FT Global MBA Ranking 2014[29]	3

Culture, Quality of Life and Tourism

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. The attractiveness of a place to live therefore provides the other perspective, from the potential supply of workers looking to locate in the capital which can meet the skills needs of businesses looking to locate in the capital.

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 this indicator, London performs less well – in 40th position – although it is the highest ranked of all UK cities. The following table shows the top 10 cities on this indicator.

Table 3.22: 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
40	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 the following table. 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 3.23: 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
40	London	8.5 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 the following table provides the rankings for the top ten cities as referenced within the PWC Cities of Opportunity rankings:

Table 3.24: 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	**40th**
2	New York	**=44th**
3	Singapore	**26th**
4	Toronto	**15th**
5	San Francisco	**=27th**
6	Paris	**=27th**
7	Stockholm	**=19th**
8	Hong Kong	**=70th**
9	Sydney	**10th**
10	Chicago	**43rd**

Source: PWC, Mercer

Despite this, one of the major reasons for people to locate to London are the cultural offerings that the city has to offer. As well as being a diverse population, 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 show that London performs strongly against other major global cities across a number of indicators, as shown in Table 3.25.

Table 3.25: City comparisons on cultural provision

	London	New York	Paris	Sydney	Tokyo
Art galleries	857	613	1,151	207	688
Festivals and celebrations	271	263	360	--	485
National museums	13	7	27	1	8
Admissions to all theatres	22.0m	13.1m	5.6m	6.1m	12.0m
Live music venues	320	453	430	435	385
Michelin star restaurants	62	76	105	--	224
Theatres	241	420	353	73	230
Museums	215	143	313	83	47
UNESCO World Heritage Sites	4	1	4	3	1

Source: World Cities Culture Forum

These attractions bring tourism to the capital, encouraging visits from both UK residents and international visitors. In a similar fashion that inward investment is an indicator of London's attractiveness to business, tourism is an indicator of the attractiveness of its attractiveness to people.

According to the MasterCard Global Destination Cities Index, London is forecast to be the most visited city in the world in 2015, with 18.8 million visitors, an increase of 6.0 per cent on the year previous.[30] London ranks ahead of Bangkok, Paris, Dubai and Istanbul in terms of both expected visitor numbers, as well as expected visitor expenditure, estimated at $20.2 billion in 2014; based upon the average exchange rate for 2014 of Sterling against the US Dollar, this equates to around £13.8 billion[31].

In addition, London has also seen strong average annual rates of growth in both visitor numbers and expenditures, averaging 5.3 per cent growth in visitor numbers between 2011 and 2015, and 7.5 per cent growth in visitor expenditure. Some emerging markets though have grown at a significantly faster pace, as seen in Istanbul and Dubai in terms of the volume of visitors; and Seoul in terms of visitor expenditure.

Table 3.26: International Tourism Forecasts, 2011 – 2015, million

Rank	City	2011	2012	2013	2014	2015	Average annual growth rate
1	London	15.3	15.5	16.8	17.8	18.8	5.3%
2	Bangkok	13.8	15.8	17.5	16.9	18.2	7.2%
3	Paris	14.0	14.3	15.5	15.6	16.1	3.6%
4	Dubai	9.9	10.9	12.2	13.2	14.3	9.6%
5	Istanbul	7.5	8.8	9.9	11.3	12.6	13.8%
6	New York	10.3	10.6	11.1	11.9	12.3	4.5%
7	Singapore	10.4	11.1	11.9	11.5	11.9	3.4%

Source: MasterCard Global Destination Cities Index, 2015

Table 3.27: International Visitor Spend Forecasts, 2011 – 2015, $ billion

Rank	City	2011	2012	2013	2014	2015	Average annual growth rate
1	London	15.1	16.0	17.6	19.8	20.2	7.5%
2	New York	15.8	14.8	16.1	16.9	17.4	2.4%
3	Paris	15.0	14.5	16.9	16.9	16.6	2.6%
4	Seoul	8.2	9.9	12.0	14.7	15.2	16.7%
5	Singapore	14.5	15.2	15.4	14.9	14.7	0.3%

Source: MasterCard Global Destination Cities Index, 2015

In recent years, London has seen record levels of international tourism. According to the International Passenger Survey, in 2014, there were a total of 17.4 million visitors to the capital; who spent £11.8 billion on their visits. Over the course of the last ten years, there have been significant increases in visitors and expenditure; and London has seen faster growth than the UK as a whole, an interpretation that could be made of this is that London itself is increasingly seen as the focal point of trips to the UK.

Table 3.28: Growth over time of international visitors and expenditures, 2005 – 2014

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

Growth of international visitors (2005 – 2014)	25.3%
Average annual growth rate of visitors	**2.5%**

Growth of international tourism visitor spend (2005 – 2014; in constant 2005 prices)	40.2%
Average annual growth rate of visitor expenditure (in constant prices)	**3.8%**

Source: GLA Economics calculations, drawn from International Passenger Survey, ONS

Table 3.28 outlines the growth over time of international visitors and their expenditures over the last ten years, and finds that in real terms[32] there has been growth of 40.2 per cent in spending of international visitors to London. Similar analysis for the UK as a whole shows that over the same ten year period; there has been an increase of 14.7 per cent of overseas visitors to the UK; and in constant 2005 prices, an increase of 25.1 per cent of visitor spend.

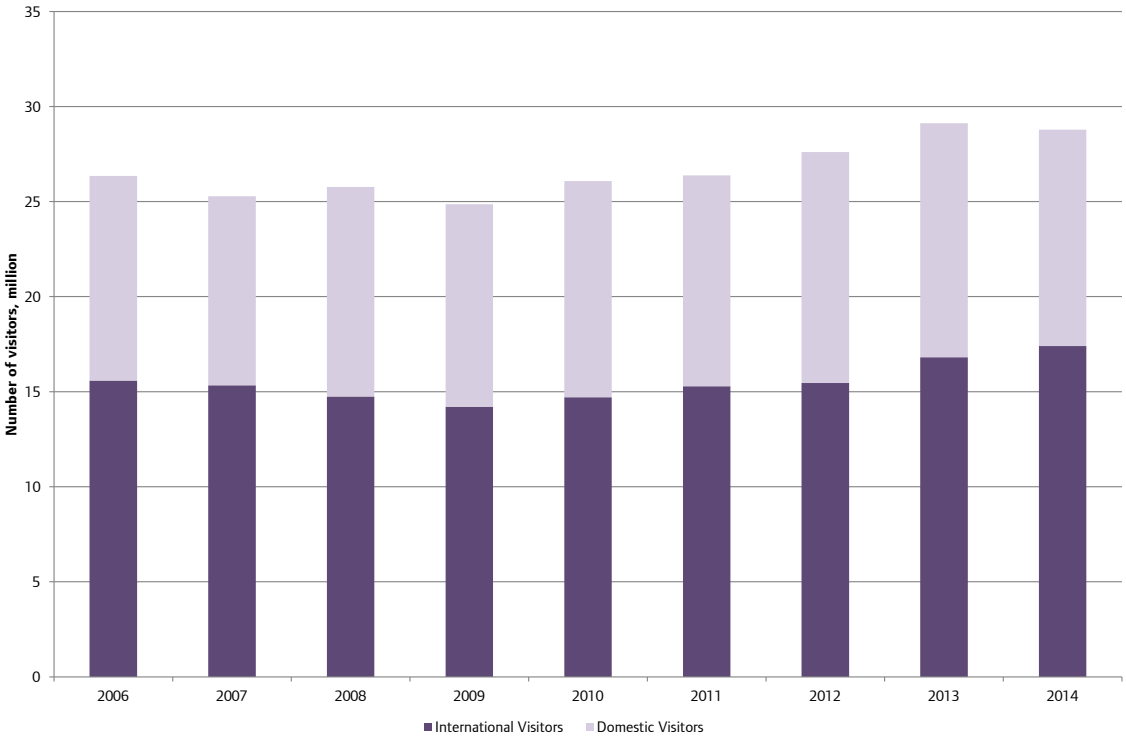
London also attracts a significant amount of domestic overnight tourism – those trips made by GB residents to the capital. However, trends in domestic tourism are more volatile. In 2014, it was estimated that there were a total of 11.4 million overnight tourists to London from the UK, a fall of almost 1 million on the year previously. The following table a breakdown in the trends for international and domestic tourism since 2006:

Table 3.29: Overnight visitors to London

Year	International Visitors	Domestic Visitors	Total Overnight Tourism
2006	15,590,000	10,760,000	26,350,000
2007	15,340,000	9,940,000	25,280,000
2008	14,750,000	11,020,000	25,770,000
2009	14,210,000	10,650,000	24,860,000
2010	14,710,000	11,370,000	26,080,000
2011	15,290,000	11,090,000	26,380,000
2012	15,460,000	12,150,000	27,610,000
2013	16,810,000	12,310,000	29,120,000
2014	17,400,000	11,380,000	28,780,000

Source: International Passenger Survey, ONS; Great Britain Tourism Survey, Visit England

Figure 3.12: Total number of overnight visitors to London



Source: International Passenger Survey, ONS

As a result of international, domestic and day visits to the capital; it is estimated that tourism supported 283,000 jobs in the capital in 2014. For 2014, as a whole, total tourism expenditure to the capital was estimated at £25.5bn. Based upon analysis undertaken by the ONS, it was estimated that the tourism direct GVA for London as a destination was £10.0 billion in 2013.

International migration to London

As London has developed as a major global city, it has drawn people to live and work in the capital. This is a feature common to all major countries and cities, especially as connections develop and become simpler. The proportion of London's population which were born outside of the UK has grown over time, as is shown in the following table. It shows that 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[33]. In contrast, for England and Wales outside London less than one in ten people were born outside the UK (see Table 3.30).

Table 3.30: 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[34], 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 (see Table 3.31).

Table 3.31: 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

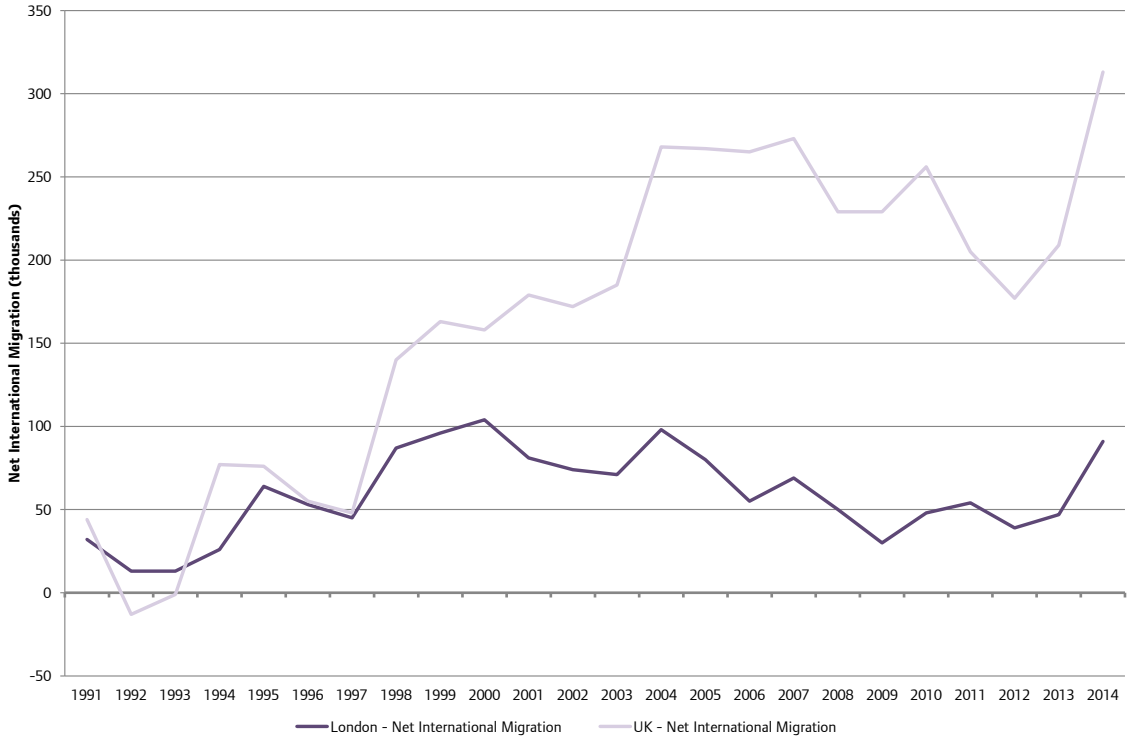
*Notes: Sources may not be directly comparable due to differences in the treatment of short-term residents within the target population, as well as the effects of sampling and response patterns in different countries. *Data used to produce estimates for Qatar and the UAE refer to foreign citizens.*

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 3.13 shows net international migration for long term migrants. Over the last decade, net international migration to London has fluctuated around 100,000 per year, however has seen significant growth between 2012 and 2014. Between mid-2013 and mid-2014, net international migration to London grew by 35.1 per cent (for the UK as a whole, there was 41.6 per cent growth).

London comprises a significant proportion of total net migration to the UK and 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.

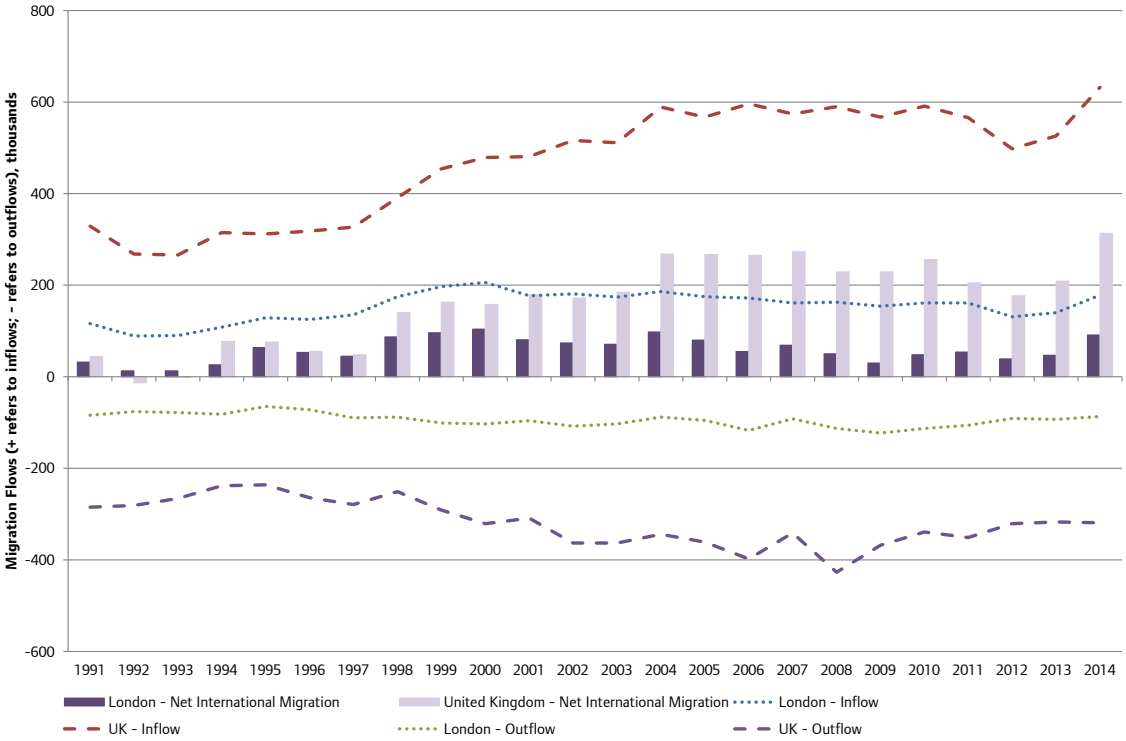
Figure 3.13: Net International Migration to London and the UK



Source: Long-term International Migration, ONS

Looking further at flows of migration, it shows that movement of people works in both directions, therefore 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 3.14: International migration flows, London and the UK



Source: Long-term International Migration, ONS

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[35]. 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 3.15). 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 economic powerhouse being a major contributing factor.

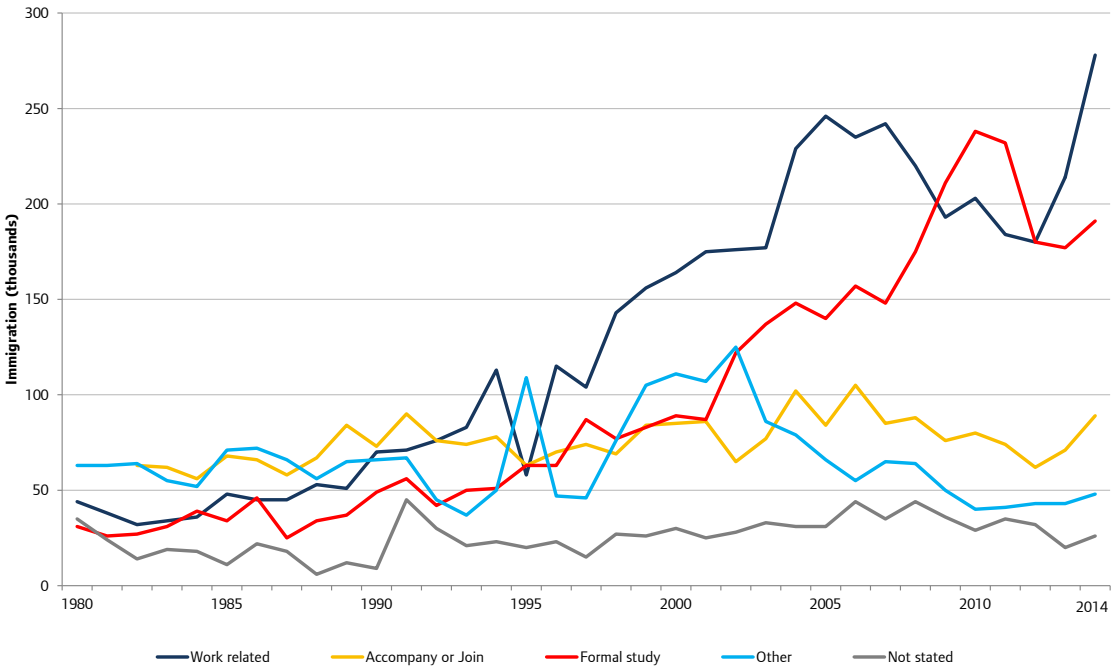
Since 1995, the numbers of migrants moving to the UK each year for work increased dramatically in 1998 and again in 2004, followed by a drop in 2008/09 during the financial crisis and subsequent rapid increase in 2014 based on the latest estimates. Migration for work-related reasons therefore seems to 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[36] 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.

At the same time 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 temporary 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[37].

Figure 3.15: Main reason for immigration to the UK, 1980-2014



Source: ONS migration statistics quarterly report, August 2015.[38]

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[39] 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[40]. 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[41].

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[42] 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.

Chapter 3 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 GLA Economics, "City ranking indices – handle with care", Current Issues Note 31.
7 Ibid.
8 A.T. Kearney, 2014, 'Global Cities Index and Emerging Cities Outlook'.
9 UN Habitat, 2012, 'State of the World's Cities 2012/2013'.
10 EY, 2014, 'European Attractiveness Survey, back in the game'.
11 The Economist Intelligence Unit, 2013, 'Hot spots 2025, benchmarking the future competitiveness of cities'. Citi.
12 Innovation Cities, 2014, 'Innovation Cities Index 2014'.
13 MasterCard, 2014, '2014 Global Destination Cities Index'.
14 ARCADIS, 2015, 'Sustainable Cities Index'.
15 The Mori Memorial Foundation, 2014, 'Global Power City Index 2014'.
16 Ericsson, 2014, 'Networked Society City Index'.
17 GaWC, 2012, 'The world according to GaWC 2012'.
18 IESE Business School, 2014,'IESE Cities In Motion Index 2014'.
19 Z/Yen Group and Qatar Financial Centre, 2015, Global Financial Centres Index 18
20 See: http://stats.oecd.org//Index.aspx?QueryId=64115#
21 This survey was published in 2015.
22 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.".
23 UBS, September 2015. 'Prices and earnings – Edition 2015: Do I earn enough for the life I want?'.
24 "The Economic Impact of London's International Students", London & Partners. (2015)
25 Imperial (8th), UCL (14th), LSE (23rd), King's College (27th), Queen Mary (98th)
26 UCL (7th), Imperial (8th), King's College (19th), LSE (35th)
27 Imperial (14th), UCL (17th), LSE (22nd), King's College (31st), London Business School (91st – 100th)
28 London Business School (24th), Cass Business School (54th)
29 London Business School (3rd), Cass Business School (41st), Imperial College Business School (49th)
30 MasterCard 2014 Global Destinations Cities Index.
31 Annual average exchange rate, Pound Sterling to US Dollar for 2014 was $1.648:£1. Source: Bank of England.
32 HM Treasury, "GDP deflators at market prices, and money GDP".
33 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.
34 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/
35 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/
36 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.
37 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
38 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. 2) Figures for 2014 are provisional estimates and are represented by a cross. All other figures are final estimates. 3) "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.
39 Home Office, 'Migrant Journey: fifth report', February 2015.
40 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.
41 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.
42 Home Office, 'The reason for migration and labour market characteristics of UK residents born abroad', September 2014

4 The Outlook for London's Economy and Risks

Main findings

- GLA Economics' long run central projections to 2036 estimate that employment will grow at an average annual rate of 0.69 per cent, equivalent to 40,800 net additional jobs per annum over the period. These projections suggest the London economy will perform strongly in future years but they are dependent on a range of underlying assumptions, not least future productivity trends in London. 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 the weak productivity growth seen in London (and the UK) since the recession.

- In terms of the future sectoral make-up of London's economy, GLA Economics' projections suggest that London will continue to specialise in service sector activities going forward. Business and professional services are expected to generate nearly two-fifths of the total increase in jobs in London to 2036. Strong employment growth is also expected in administrative and support services, accommodation and food services, and information and communication – collectively accounting for just over half the expected total increase in jobs to 2036.

- 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 such as a tightening of monetary policy, reductions in government spending, or the outcome of the forthcoming referendum on Britain's membership of 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 living and its impact on labour supply – there are high vacancy rates in some lower paid sectors such as health and social care.
    * The cost of business accommodation - office occupancy costs in prime central markets are higher than many other competing global cities.
    * Pressures on the transport network - Londoners spend more time idling in traffic than their counterparts in European cities; 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.

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 2014, there were around 5.554 million jobs in London and this is projected to reach 6.418 million by 2036, equivalent to 40,800 net additional jobs per annum.

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 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 the product 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 helps to reduce transaction costs, fosters collaboration and competition, and supports the development of formal and informal networks. This in turn leads to knowledge spillovers (positive externalities), 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 sometimes termed 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).

Given London's impressive growth performance it would appear that the agglomeration benefits continue to outweigh the costs – but for how long? 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[1].

If businesses find that it becomes harder to recruit skilled workers, to find suitable work premises, or to move goods, services, and people around, 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[2]. There are also equity considerations such as the distribution of wealth created by London's growth.

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 role to play enabling growth through investment in infrastructure, public services, via the planning system and other policy interventions. London's success needs to be carefully managed if the capital is to remain internationally competitive and for growth to be sustained.

The Outlook for London's Economy

Long run projections of employment in London to 2036

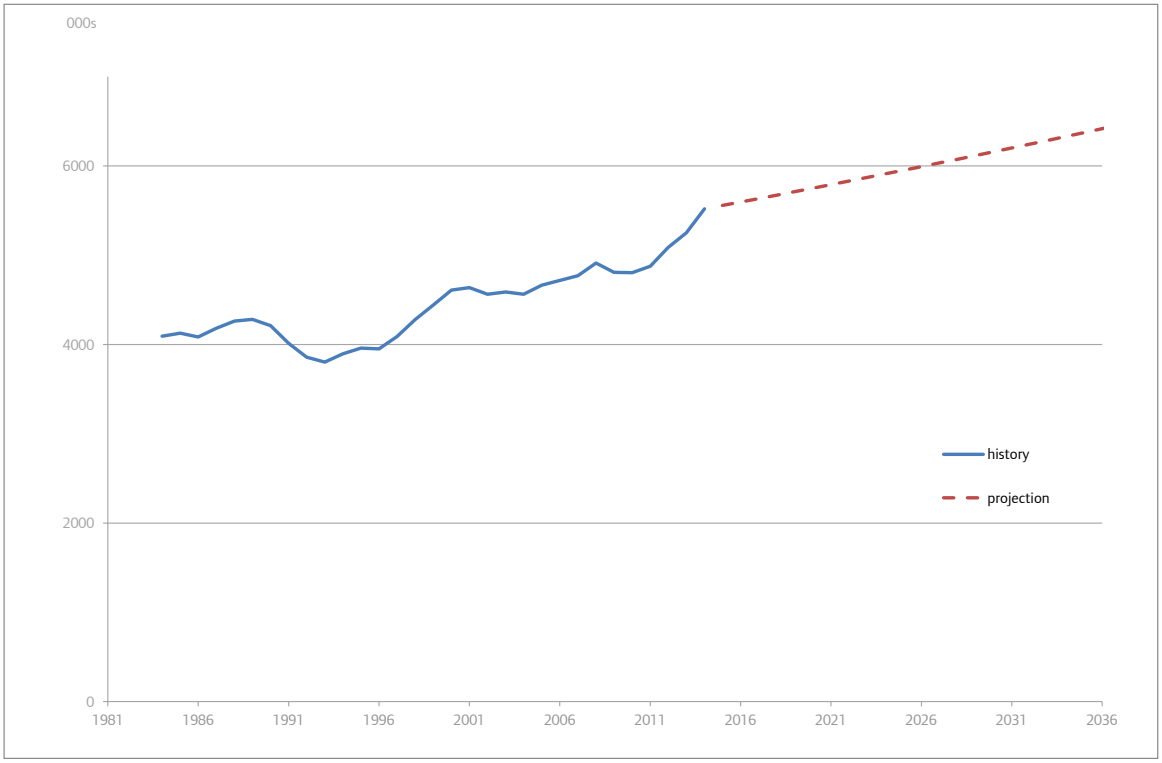
Chapter 1 examined the change in London's industrial structure over time, demonstrating that London has become increasingly specialised in services. Financial and insurance services accounted for the largest share of economic output in London in 2014, around 19.0 per cent, while Professional, scientific and technical activities provided the largest proportion of jobs in London.

In the short to medium term, the economic outlook for London's economy is positive with the latest GLA Economics forecast predicting growth of around 3.4 per cent in 2015, 3.2 per cent in 2016, and 2.7 per cent in 2017.

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 2014, there were around 5.554 million jobs, a 5 per cent increase compared with 2013, and 12 per cent higher than the pre-recession peak.

Looking ahead, recent strong growth in jobs is expected to slow although employment is forecast to grow over the long term[3]. Projections estimate that employment will grow by an annual average rate of 0.69 per cent between 2015 and 2036, equivalent to 40,800 jobs per annum, to reach 6.418 million in 2036 (Figure 4.1).

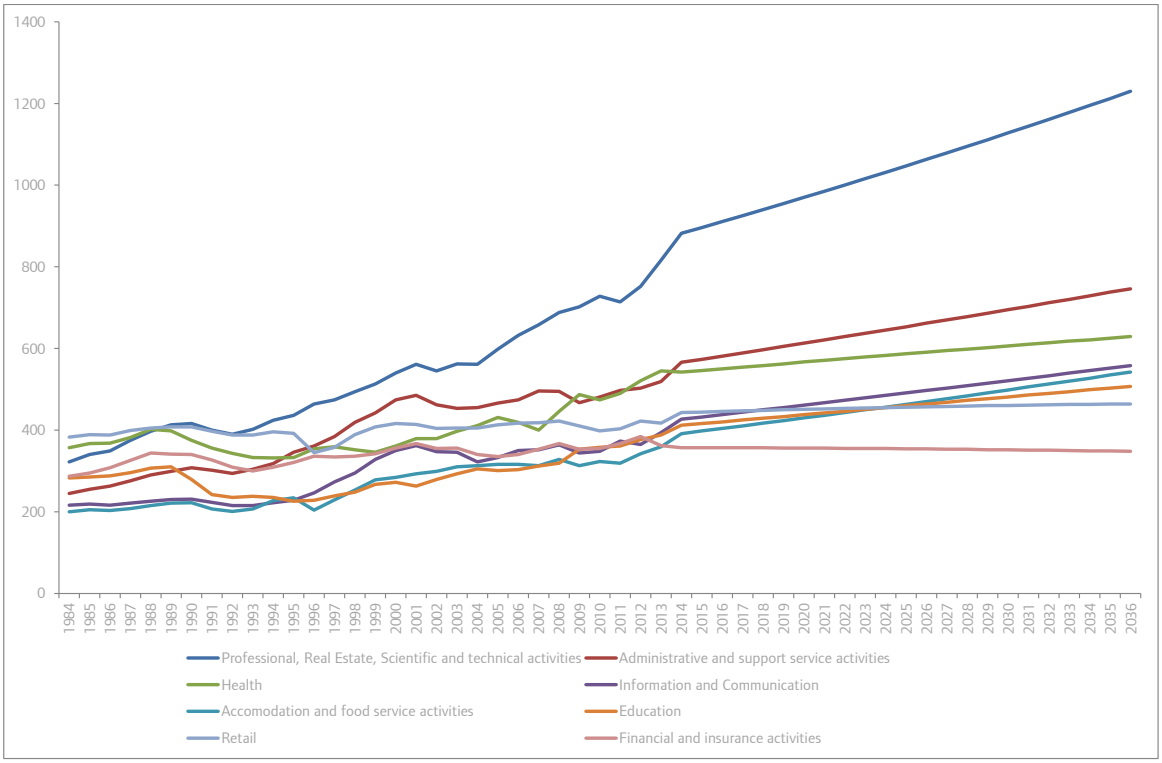
Figure 4.1: The GLA Economics long-run employment projection to 2036



Source: GLA Economics

In keeping with previous trends, business services (professional, real estate, scientific and technical activities) are expected to drive jobs growth, accounting for nearly two-fifths of the total increase in London to 2036 (Figure 4.2). Strong employment growth is also expected in administrative and support services, accommodation and food services, and information and communication sectors – collectively accounting for just over half the expected total London increase to 2036.

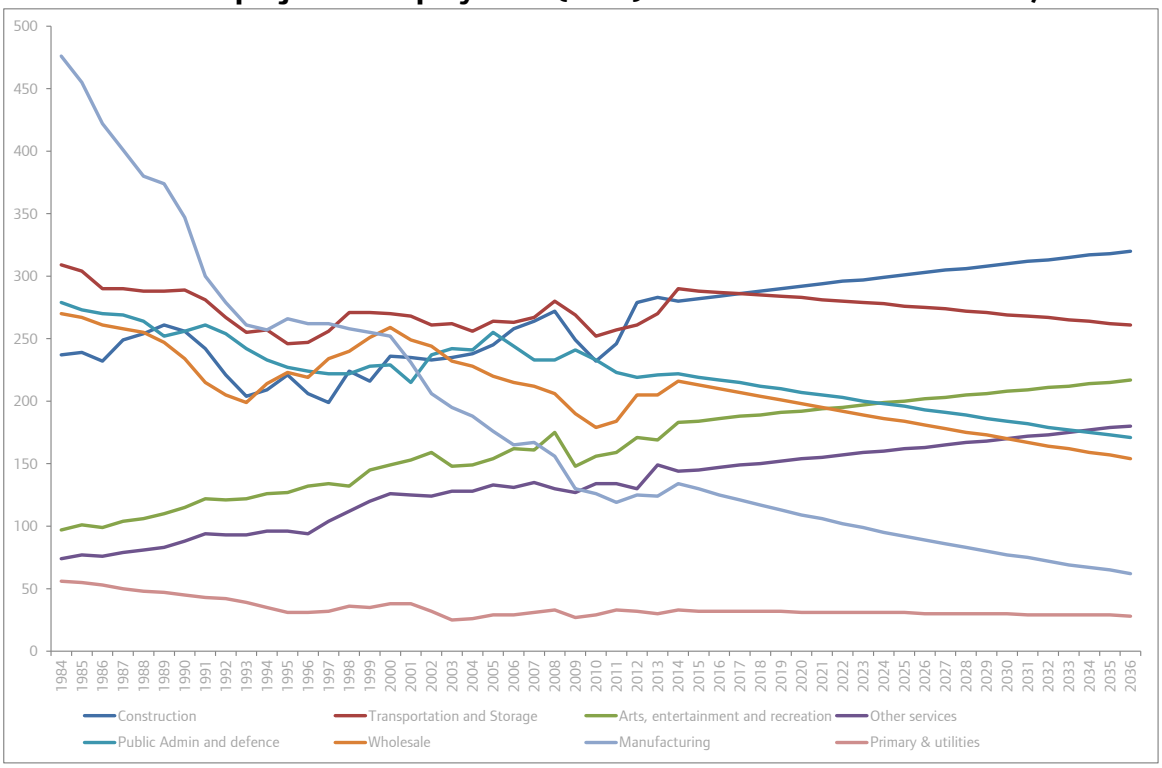
Figure 4.2: Historic and projected employment (000s) in London's largest sectors, 1984 to 2036



Source: GLA Economics

Conversely, employment in primary and utilities, manufacturing, wholesale, and public administration and defence sectors are all expected to decline over the period to 2036 (Figure 4.3).

Figure 4.3: Historic and projected employment (000s) in London's smaller sectors, 1984 to 2036



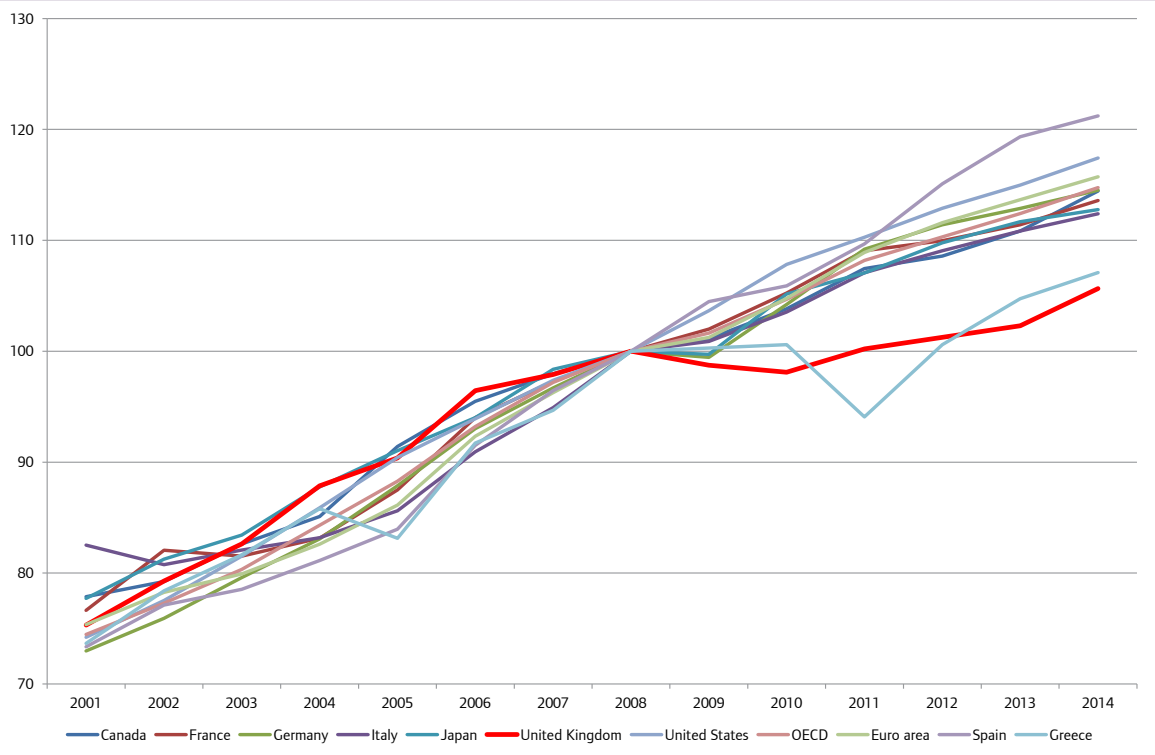
Source: GLA Economics

Box 4.1: Recent productivity performance in London and the UK

Despite London's impressive GVA performance[4] since 2008 (see Chapter 1, Box 1.1), concerns have been expressed about the long-term prospects for UK, and by extension London's, economic growth, due to the slow growth in productivity that has occurred in the UK since the recession. This is demonstrated in Figure 4.4 which shows that output per hour has been relatively static in the UK since 2008 compared to some other developed economies.

Examining this in more detail 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 stood at 0.9 per cent, compared to an OECD average of 2.3 per cent. Thus, although productivity declined in both the UK and OECD countries the decline was greater in the UK in the post-recession period. While in other analysis, the ONS observed that "output per hour worked in the UK was 17 percentage points below the average for the rest of the major G7 advanced economies in 2013; the widest productivity gap since 1992. On an output per worker basis, UK productivity was 19 percentage points below the average for the rest for the G7 in 2013"[5].

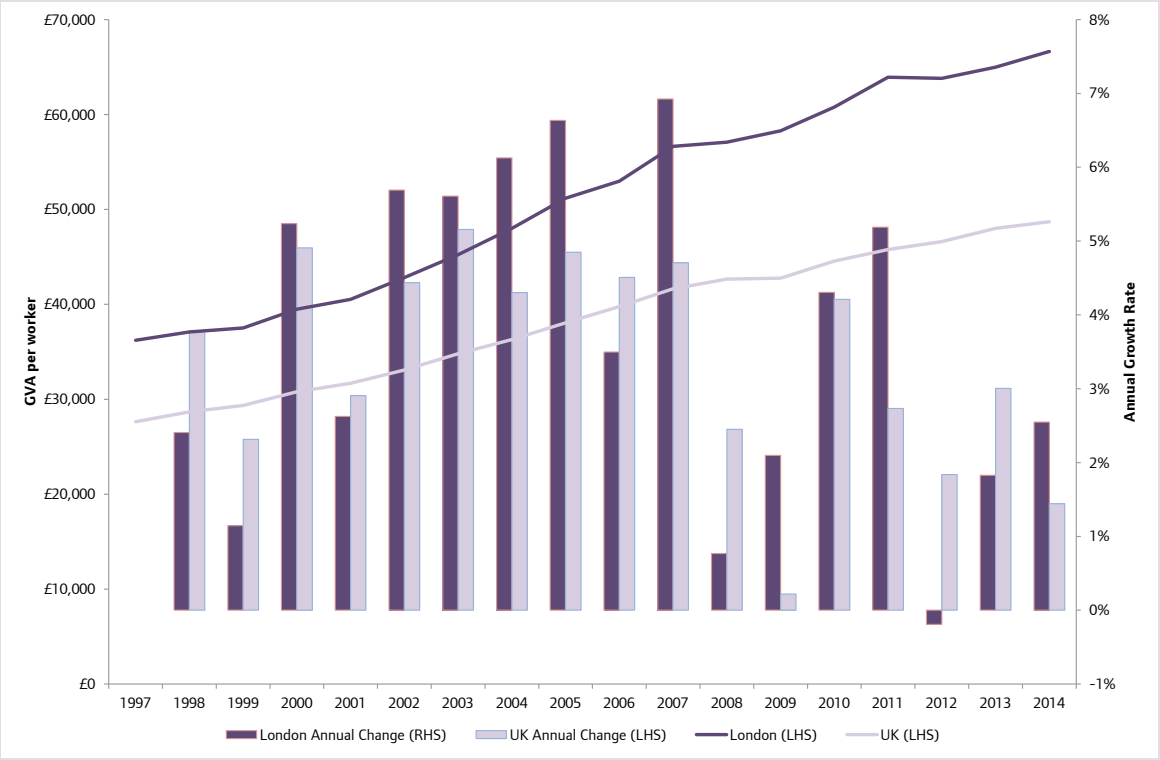
Figure 4.4: GDP per hour worked in selected countries, 2001 to 2014 (index 2008=100)



Source: OECD

As can be observed, GVA per worker (in nominal terms) is significantly higher in London when compared to the UK as a whole (Figure 4.5), standing at £66,638 in 2014 compared to a figure of £48,703 for the UK as a whole[6]. GVA per worker grew by 2.5 per cent in 2014, compared to 1.4 per cent for the UK as a whole[7]. Between 1997 and 2008 London's GVA per worker grew at an average annualised rate of 4.2 per cent compared to a rate of 4.0 per cent for the UK. However, over the years 2008 to 2014 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 is important to note however, that the differences in inflation between London and the UK as a whole may mean that the discrepancies in economic performance between the capital and the country as a whole, reflected in Figure 4.5, could be misleading and should be treated with caution.

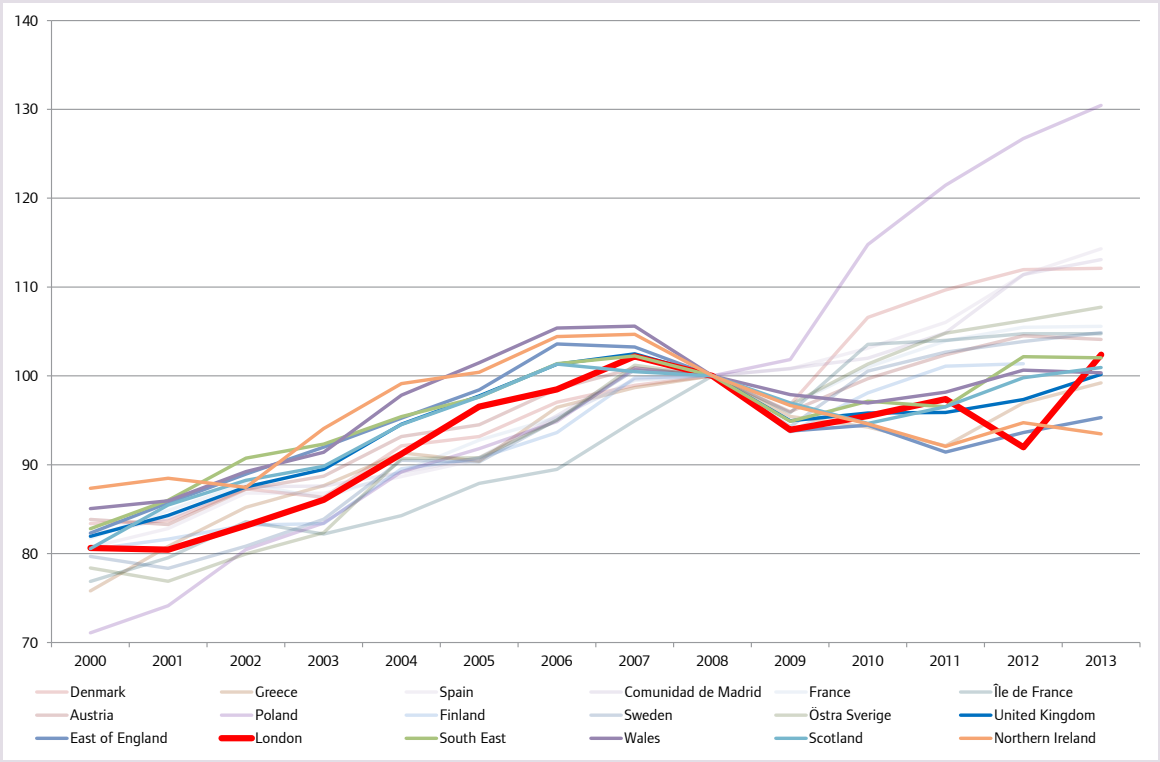
Figure 4.5: Headline GVA per worker (£) and annual percentage change for London and UK 1997-2014[8], current prices



Source: Regional Accounts, ONS, Nomis and GLA Economics calculations

Whilst Figure 4.5 demonstrated the differences in economic performance between London and the UK as a whole in nominal terms, Figure 4.6 shows output per worker in London in real terms compared to selected European countries and NUTS1 regions. As can be observed by 2013 London's output per worker had recovered more strongly than the UK as a whole, but was lagging behind other European regions and countries, however this lag was significantly less marked in 2013 than in 2012.

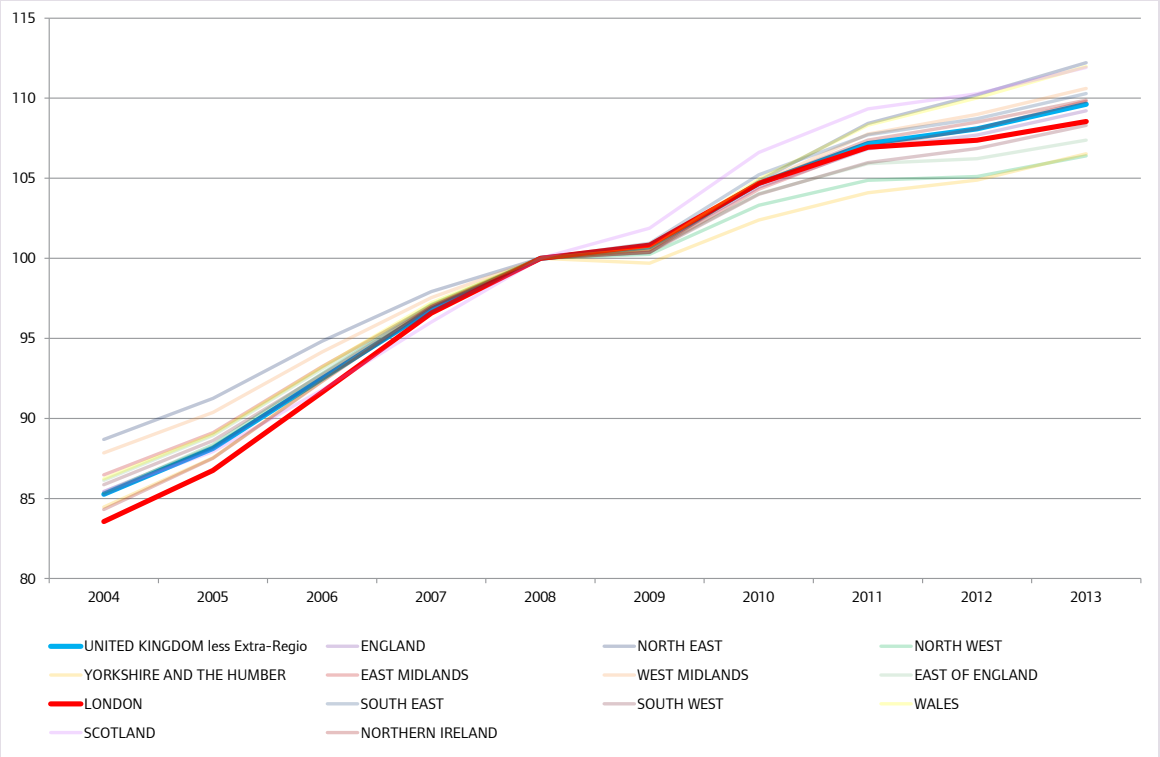
Figure 4.6: Output per worker in selected countries and NUTS1 regions, 2000 to 2013 (index 2008=100)



Source: Eurostat and GLA Economics calculations

London's GVA per hour worked performance is not as good as in a number of other regions of the UK over this period (Figure 4.7). This result may in part be explained by the hypothesis put forward by McCafferty[9], who suggested the UK productivity puzzle was due to a mixture of changes in regulation, changes in business models, a tough trading environment, labour retention and minimum operating scale. Given the different sectoral makeup of London compared to the other regions of the UK, it is possible that some of these issues would have a larger impact on different geographies.

Figure 4.7: Nominal (smoothed) GVA per hour worked in London, the UK and its nations and regions 2004-2013 (index 2008=100)



Source: ONS[10] and GLA Economics calculations

A number of factors have been identified that could account for these differences (see Chapter 1). For example, differences in employment patterns, i.e. jobs are part-time or self-employment jobs, weakness of wage growth (for further details on wage growth by sector, see Chapter 6), weak investment growth in physical capital but also in training and 'intangible' capital. Concentration of job creation in lower skilled occupations could also partially explain the recent trends in productivity at a sector level.

Differences in sector level performance, both in terms of jobs and productivity since the financial crisis, are highlighted in Table 4.1. Looking at evidence across sectors it is clear that despite strong growth in jobs, both wages and productivity have stagnated since the financial crisis. Productivity is measured here using 'GVA per workforce job' and is based on a methodology developed by GLA Economics and the ONS. This captures the proportion of published GVA which is attributable to the activity of the workforce divided by workforce jobs[11].

Sector level productivity estimates, based on GLA Economics' GVA per workforce jobs estimates adjusted for CPI inflation, suggest that productivity performance across most sectors of the London economy was weak between 2009 and 2012 (Table 4.1). Five out of 17 sectors of the economy saw productivity grow 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 4.1: Changes in sector level performance in London

	No of London jobs in 2014 ('000)	London jobs contribution in 2014 (ranked: 1=highest, 17 =lowest)	Jobs growth 1996 to 2014 (%)	Jobs growth 2008 to 2014 (%)	Jobs growth 2010 to 2014 (%)	% of jobs done by people with degree or higher (2014)	% of EE jobs paid less than the London Living Wage in April 2015	% change in real wages of EEs 2009 to 2015	% of jobs done by people born in the UK, British Overseas Territories or EEA (2014)	% of jobs done by people born in the Rest of the World (2014)	Productivity change (2009-12) (%)
Primary and utilities	32	17	0	0	14	48	x	N/A	74	26	-14
Manufacturing	134	15	-49	-14	6	38	24	-13	78	22	-1
Construction	280	10	36	3	21	26	15	-14	81	19	9
Wholesale and motor trades	216	12	-1	5	21	33	23	N/A	74	26	-7
Retail	443	4	28	5	11	32	53	-3	67	33	-10
Transportation and storage	291	9	18	4	15	22	7	-4	65	35	0
Accommodation and food service activities	393	7	93	20	22	24	68	-3	62	38	-4
Information and communication	423	5	72	16	22	69	4	-12	76	24	-3
Financial and insurance activities	357	8	6	-3	1	65	2	-0	79	21	-11
Real estate	109	16	58	16	1	44	12	-14	83	18	8
Professional, scientific & technical	771	1	95	30	24	72	6	-11	81	19	-3
Administrative and support service activities	565	2	56	14	17	35	37	-4	68	32	7
Public administration and defence, compulsory social security	222	11	-1	-5	-4	58	2	-8	84	16	9
Education	412	6	81	29	15	67	13	-9	77	23	-5
Human health and social work activities	541	3	53	21	14	53	18	-12	67	33	-9
Arts, entertainment and recreation	187	13	42	7	20	62	31	-6	84	16	-16
Other service activities	144	14	53	11	7	38	25	-16	75	25	20
ALL INDUSTRIES	5,519		40	12	15	50	20	-11	75	25	-3

Source: ONS: WFJ, APS, ASHE, CPI. GLA Economics: GVA per workforce job modelling.
Note: Employee jobs – EE, European Economic Area – EEA

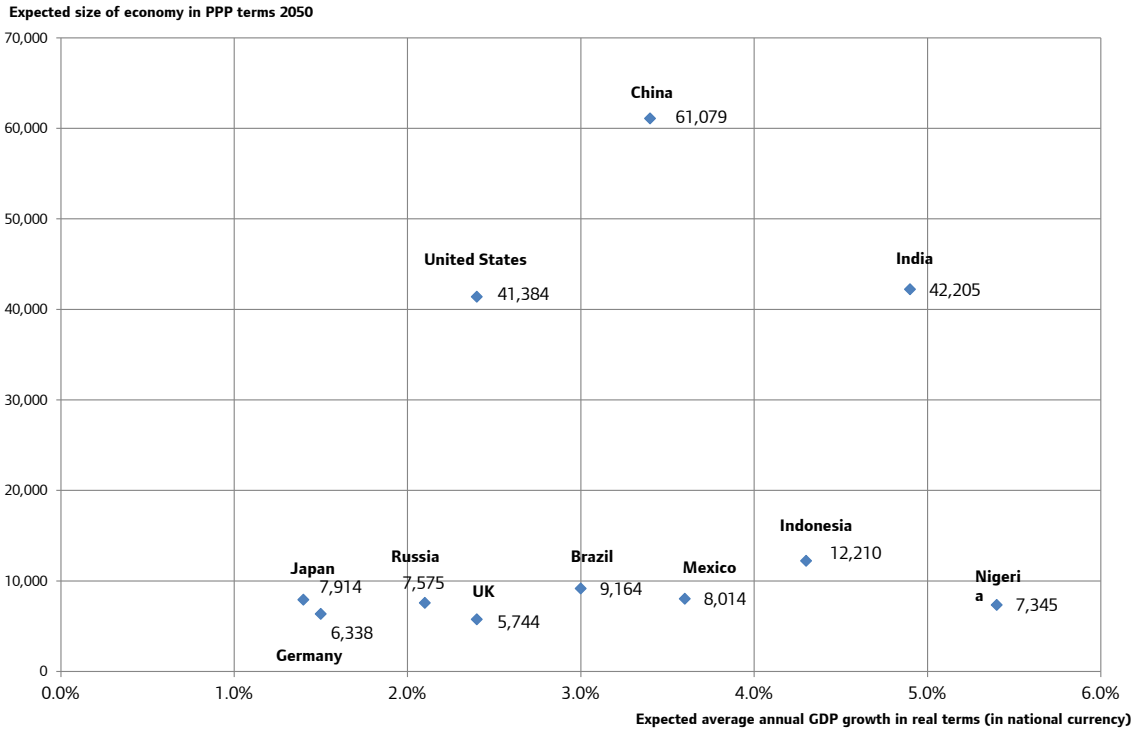
Risks to London's Economy

Exogenous risks

Globalisation and global competition

Globalisation has created massive opportunities for London's businesses 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 remain 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 to exploit. For example, opportunities may open up to provide financial services to upwardly mobile populations in emerging markets[12]. Figure 4.8 shows the expected size of major global economies in 2050 together with expected average annual GDP growth.

Figure 4.8: Expected size of global economies by 2050 and their expected average annual GDP growth

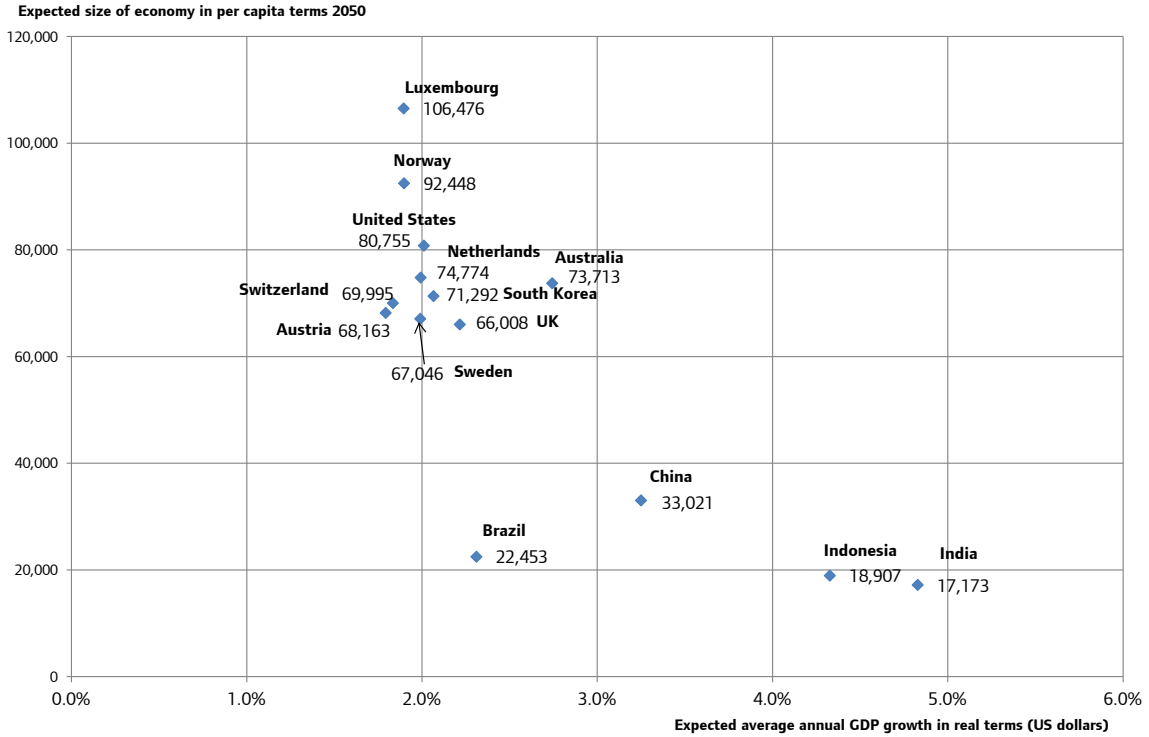


Source: PWC[13]

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.

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 4.9 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 4.9: Expected size of global economies by 2050 in per capita terms and average annual GDP growth



Source: OECD[14]

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[15]. Table 3.3 in Chapter 3 shows rankings of Global Financial Centres[16] identifying London and New York as the dominant financial services hubs. 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.

City governments across the globe are aggressively targeting and incentivising businesses to relocate to their area. According to research by Deloitte[17], the Hong Kong and Singapore governments spend significantly more than London does on activities to attract Foreign Direct Investment, and in the promotion of tourism. Nevertheless, London is 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. While this investment is to be welcomed, it can be more speculative and volatile in nature and any withdrawal would represent a downside risk to London's economy.

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[18]. Similar policies are in place across the EU, the USA and in other advanced economies.

Economists have debated whether current low growth rates (principally in the US but also other 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:[19]

- *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[20]. 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)[21].

- *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[22]. 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.

The Eurozone crisis

The Eurozone is the UK's main trading partner and a vital one for London's businesses. The sovereign debt problems of a number of countries within the Eurozone, notably Greece, remain a downside risk to the economy. 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[23]. If the Eurozone were to tip into recession then this would have negative implications for the UK and London in terms of trade and possibly also to the financial system. 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.

Slowdown in China and other emerging markets

For much of 2015, commentators have been predicting a slowdown in emerging markets[24]. Of particular concern, given the size of its economy, is China. Large falls in the Chinese stock market and a number of weak economic surveys (notably factory output) have led Chinese authorities to reduce interest rates and to devalue the currency. The slowdown is having knock-on effects for the economies of those countries that are dependent on exports to China, such as Australia. If this fed 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[25]. 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.

Interest rate rises

Interest rates in the UK remain at historically low levels; the Bank of England has kept the base rate constant at 0.5% since March 2009. There is continuing speculation about when this period of extremely accommodative monetary policy will end, both in the UK and overseas in key economies such as the USA. Forecasters have continually pushed back their expectations about when the Federal Reserve and the Bank of England will tighten monetary policy principally because inflation has remained low. 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 the recovery 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.

Geopolitical events

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. The main concerns at present are in the Middle East and Russia/the Ukraine. 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 on 13 November 2015 served as a reminder that major European cities including London are targets for terrorist activity. Terrorism is a risk to the safety and security of citizens and also to 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[26]. 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 and London have shown their resilience over the long term and an innate ability to bounce back from such attacks.

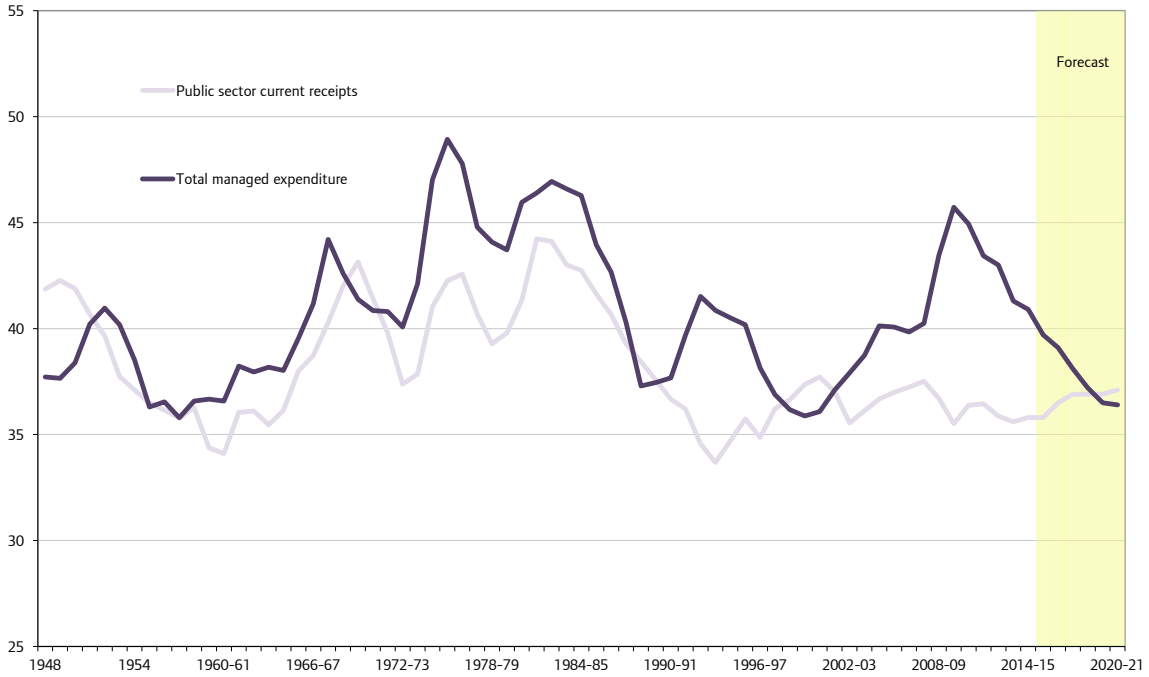
Cyber crime

The rise of the digital economy brings new risks to individuals, businesses, and national security from cyber crime. 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[27]. 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 £75k – £311k for a small business.

Fiscal consolidation

Whilst the government continues to run a budget deficit, the net impact on the economy will be expansionary. However, the government's plans to reduce the deficit over time through spending cuts to eventually run a budget surplus may act to dampen economic activity in sectors which are more reliant on public spending. Figure 4.10 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 40.9 per cent in 2014/15 and on the basis of current plans is forecast to fall to 36.4 per cent by 2020/21 – close to its lowest level since the Second World War[28]. While the impact of this reduction in spending is uncertain, if much needed investment in London's infrastructure were to be deferred or cancelled then London's growth in the long term may be compromised.

Figure 4.10: Total managed expenditure and public receipts as a per cent of GDP over time



Source: OBR

Britain's Membership of the EU

It has been argued that uncertainty over Britain's membership of the EU is a possible risk to London's economy. However, according to findings from the London Business Survey, when asked about the impact on their business of leaving the EU (but remaining part of the single market), 64% of respondents said it would be 'neither positive nor negative'. Of those that did expect an impact, around three-quarters thought it would be negative[29].

The Europe Report[30] considered four different scenarios for London's economy that might 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). The Government has committed to hold a referendum on membership of the EU before the end 2017.

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 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 what is a critical sector for London's economy, and the UK economy as a whole. The City of London Corporation has observed that the concentration of financial services activities in London means that UK and EU regulation of the sector has a disproportionate impact on London's economy[31].

Risks to London's financial sector include any additional taxes or levies that could be imposed on the banking sector. 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% by 2021, they also announced the introduction of a supplementary tax of 8 per cent on banking sector profits from January 2016[32]. Moreover, regulation on incentive pay for bankers could also hamper the ability of London's firms to attract skilled workers. Any future new EU regulatory initiatives such as a financial

transaction tax could increase transaction costs, making London's banking sector less competitive. This would have significant implications not only for employment in London's financial services sector, but also the many professional and local services firms which supply the sector.

Research for the City of London Corporation modelled a number of different scenarios of future regulatory conditions in the financial services sector and how they could impact on GDP growth in Europe[33]. Under a less challenging regulatory climate which enables the EU financial services sector to grow at 1.9 per cent over the period 2015-2030 (60 per cent of its pre-crisis growth rate), EU GDP would grow by 1.8 per cent annually. In contrast, in a more challenging regulatory environment with near zero growth in financial services, GDP would grow by only 1.5 per cent per annum over the same period[34].

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% of global GDP each year[35]. If a wider range of risks and impacts are taken into account, the estimates of damage could rise to 20% 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[36]. See Chapter 5 for more on the environmental challenges in London.

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, immigration controls, and the cost of living.

- **Infrastructure** - including congestion on the transport network, the capacity of the water, drainage and energy networks and broadband 'not spots'.

The supply and affordability of workspace

Offices

The employment projections show that office-based services will be the main driver of growth in London in the coming years. Some of the growth in office-based jobs will be accommodated by occupiers reducing their property footprint (e.g. via hot-desking, remote working or more efficient use of space) but nevertheless a considerable quantum of new office space will be required. According to consultants PBA, there will be 575,000 new office-based jobs in London over the period 2011-2036, and this could require up to 7.5m sq.ft of net additional office space[37].

It is vital that London has a ready supply of sites and premises in existing and new office locations to accommodate new office space to keep rents in London at competitive levels. In the London Business Survey, 32% of business units identified the supply of commercial premises as having a negative or very negative impact on their business[38].

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.

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. Table 2.20 in Chapter 2 shows rental values 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 4.2 below shows that the West End is the most expensive office location in the world in terms of total occupancy costs.

Table 4.2: Top 10 most expensive locations by country

2014 Rank	2013 Rank	Country	City	Location	Occupancy costs €/Sq. m/Year	Occupancy costs $/Sq. ft/Year
1	1	United Kingdom	London	West End	2,344	264
2	2	Hong Kong	Hong Kong	CBD	1,636	184
3	5	United States	New York	Midtown (Madison/5th Avenue)	1,162	131
4	6	Brazil	Rio de Janeiro	Zona Sul	1,150	129
5	7	India	New Delhi	Connaught Place	1,064	120
6	3	Russia	Moscow	CBD	1,055	119
7	4	Japan	Tokyo	CBD (5 Central Wards)	1,051	118
8	9	China	Beijing	CBD	926	104
9	10	Australia	Sydney	CBD	878	99
10	8	France	Paris	CBD	860	97

Source: Cushman & Wakefield[39]

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 4.3 shows data on historic and forecast office vacancy rates for various global cities.

Table 4.3: 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

Source: Knight Frank[40]

These figures suggest that London's vacancy rate (5.4%) is relatively low by international standards. 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 will become prohibitively high and businesses will look elsewhere.

Office supply

Following the 2008 recession, speculative activity in the office market slowed significantly and this has contributed a current dearth in supply and historically low vacancy rates. Supply in the office sector tends to lag the economic cycle due to the time it takes to start and complete office developments. As the economic recovery has gathered momentum, supply has started to respond. The level of speculative activity is up on previous years with 7.3million sq.ft of floorspace under construction in Q2 2015[41].

The longer term question is the extent to which London's office market can accommodate the expansion in demand such that values do not begin to impact on the competitiveness of businesses. Inevitably some businesses will be priced out of prime central London markets and this is likely to increase demand in fringe locations.

There is a more immediate concern for some London Boroughs that Permitted Development Rights (PDR) legislation, which allows conversion of business premises for residential use without the need for the normal planning procedures, is eroding the supply of employment space (see Chapter 2 for data on the number of conversions).

The CAZ, the NIOD, Tech City and the Royal Docks Enterprise Zone have been exempt from this legislation up until now. However, it has been announced that the exemption will only remain in place until May 2019, after which time the relevant authorities will need to have an Article 4 direction in place to remove the permitted development rights. This means that Central London office locations, as well as locations outside the exemption zone, are at risk of losing strategic employment space.

The retention of these premises and the associated employment floorspace is viewed by some as important for the longer term health of the local economy. The loss of commercial space, in the short-term, may mean that firms find it more expensive to grow or are priced out of the area if the supply of space has been diminished. The counter argument is that some of this office stock may no longer be fit for purpose or can be put to better use by providing valuable new homes. The concern here is that the size and specification of new dwellings being created may not be optimal. The GLA continues to monitor the situation and will release updated figures in due course.

Industrial land supply

London's supply of industrial land (B2 and B8) has been in decline for some time particularly as manufacturing employment in London has fallen. Employment land in many London boroughs is under speculative pressure due to the shortage of housing and the higher values that can be achieved by developers in the residential sector.

The loss of employment land in London's industrial estates is seen as a risk by some commentators, as they can be valuable sources of employment in sectors such as distribution, manufacturing, construction, catering and other light industrial uses.[42] The alternative perspective is that the market should determine the optimal use of industrial land through price signals and these industrial premises may be better located elsewhere in terms of economic efficiency.

One area of concern is the availability of land in the future for distribution and warehousing activities. The need for fast and predictable delivery times – not least due to the rise of online retail - may change the preferred locations for warehousing space. Specifically, firms could increasingly require warehouse space near to their customers so they can offer better delivery options. This may mean firms that have previously used warehouses further away from London seek to establish premises within or close to the capital.

According to forecasts by Experian[43], London will need an additional 0.9 million square metres of comparison goods retail space by 2036, suggesting that the effects of population and income growth will more than offset any e-commerce induced reductions in store portfolios. The report, however, also points to spatial differences in retail floorspace requirements with some boroughs estimated to require less retail floorspace than they currently have. In addition to changes in the use of shop space by retail firms, 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, potentially holding very limited stock for display purposes and relying on stock held elsewhere to fulfil orders, this could increase demand for warehousing space[44].

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 3). 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. Unproductive firms are forced to either become more efficient or to exit the market - a process known as 'creative destruction'[45] - which in turn helps to drive productivity growth.

There is a concern that the cost of workspace in London is such that start-ups and small businesses cannot find the space they need, and that this may be damaging the economy. The lease terms may be another 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.

The London Enterprise Panel recently commissioned research to examine the supply of incubator, accelerator and co-working space in London[46]. Incubator space is typically space designed to support the growth of start-ups or a business 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.

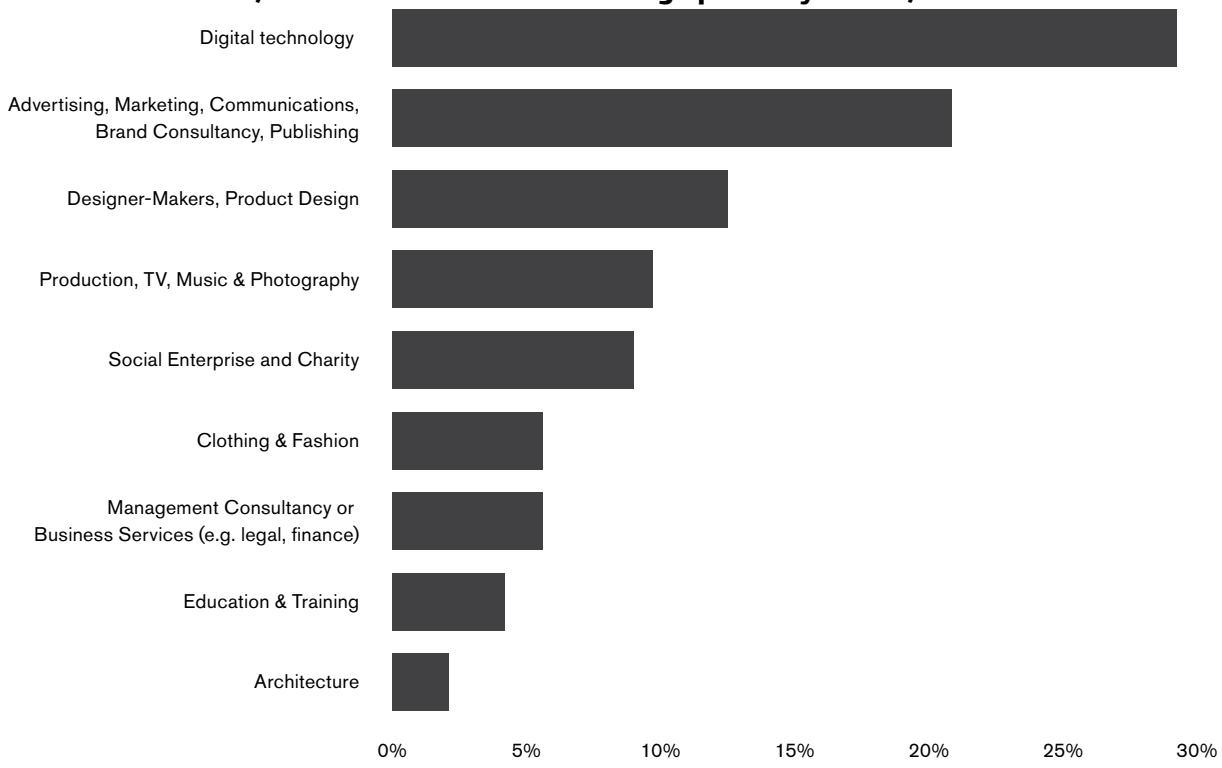
The research found there to be 132 incubator, accelerator and co-working spaces in London which accommodate upwards of 3,800 SMEs in a given working day. Over two thirds offered office space, around a quarter offered workshop space, and less than ten IACs providing laboratory space. Provision is concentrated 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).

Map 4.1: Number of Incubators, Accelerators and Co-working Spaces by borough, 2015

Source: URS

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.

Figure 4.11: Incubators, Accelerators and Co-working spaces by sector, 2015



Source: URS

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. Those that exploit vacant space (such as empty high street shops) for meanwhile or 'pop-up' uses can help to improve the physical environment and have a regenerative benefit. In the absence of a profile of demand, it is difficult to discern whether the

market is failing to provide sufficient affordable workspace provision in Outer London or if this is a reflection of lower demand.

One area of concern expressed by 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, there is a need for them to move on from these informal, often shared, facilities. Some have argued that the lack of start-up and grow-on spaces in London, particularly laboratory space, is a risk to growth of the science sector[47].

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, the City of London Corporation highlighted the (lack of) availability of a skilled workforce as one of the factors that could dampen the City's growth in coming years[48]. 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.

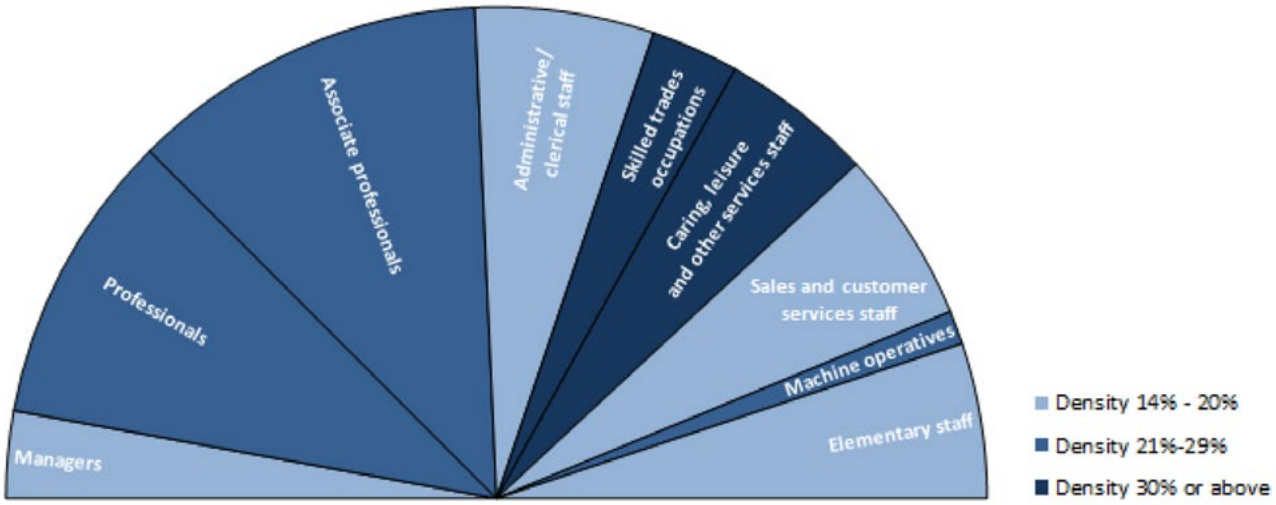
The following considers particular skills shortages and gaps identified by employers in London, and some of the risks to attracting skilled labour to London. A more detailed profile of London's labour market is provided in Chapter 6.

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[49]. 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 2013 UKCES Employer Skills Survey (the most recent survey) reported just over 135,000 vacancies in London in 2013. As shown in Figure 4.12, the highest proportion of job vacancies were in 'associate professional' (24 per cent) and 'professional' (19 per cent) occupations.

Figure 4.12: Vacancies by occupation and density of skills shortages



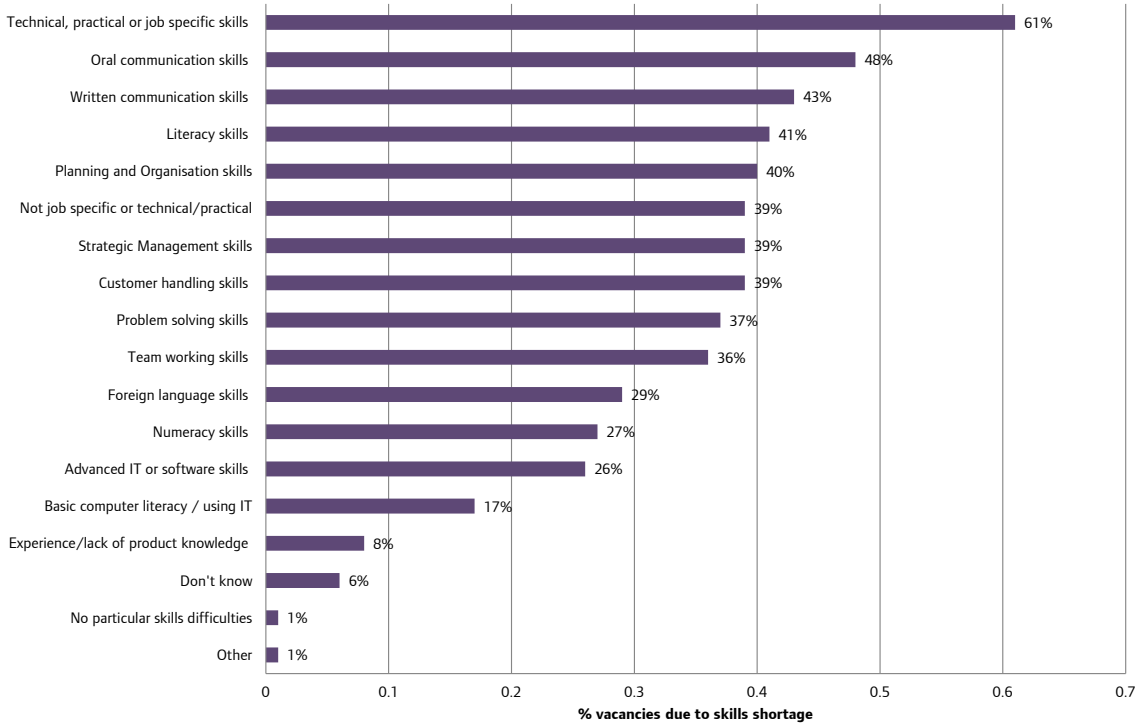
Source: UKCES Employer Skills Survey, 2013

According to the UKCES survey, 28 per cent of vacancies (36,000) were reported by employers as being "hard to fill". Of these vacancies over 82 per cent (around 30,000) 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 77 per cent of hard to fill vacancies in the rest of the UK.

Figure 4.12 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 and caring, leisure and other service staff.

The most common types of skills shortages reported by London-based employers relate to technical, practical or job-specific skills (61 per cent). More than 40 per cent of employers in London also cite communication and literacy skills as difficult to obtain from applicants.

Figure 4.13: Types of skills shortages



Source: UKCES Employer Skills Survey, 2013

As a result of skills shortage vacancies, around half of affected employers claim that this has resulted in lost business and delays in developing new products[50].

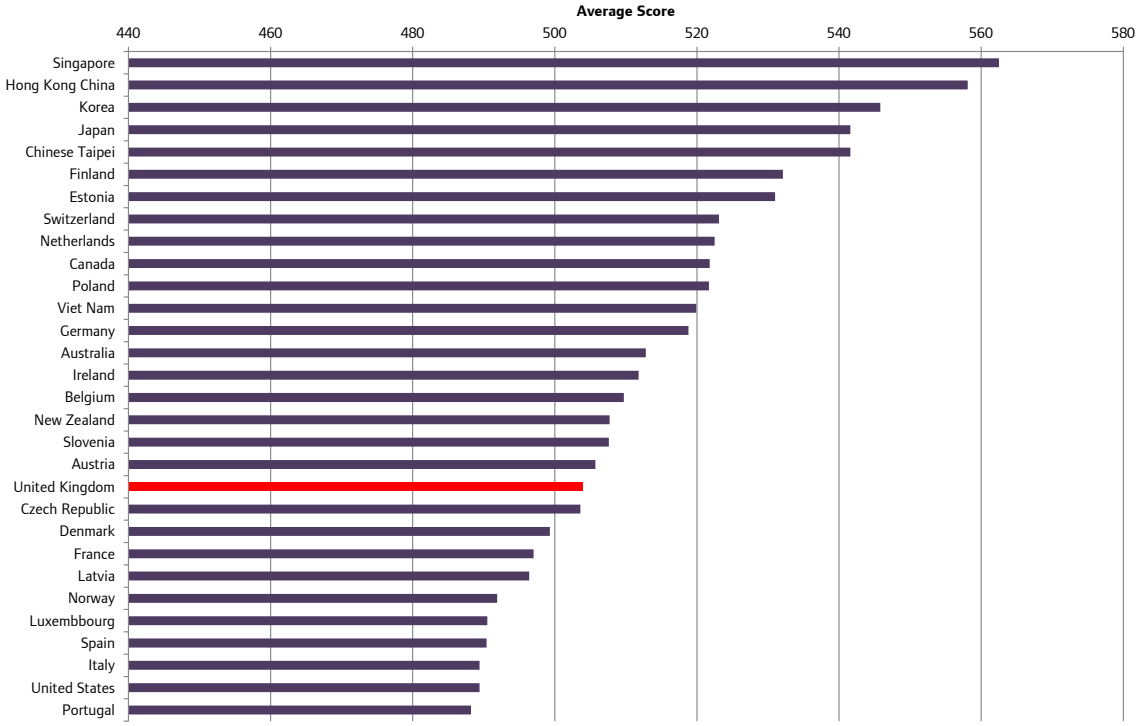
Some London employers also experience skills gaps within their existing workforce. While 5 per cent of establishments (13,600) in London reported having a skills shortage vacancy in 2013, 15 per cent (36,700) suffered from skills gaps within their existing workforce. This is in line with the rest of the UK as a whole where 4 per cent of establishments reported having a skill shortage vacancy and 15 per cent reported having staff who are not fully proficient ('skills gaps').

In total, there are almost 240,000 cases where London employers considered existing staff not to be fully proficient in their roles (equivalent to 5.7 per cent of all those employed). As a proportion of all employment, these skills gaps are most prevalent in elementary, sales and customer service occupations.

Education and training

London's ability to supply businesses with skilled labour depends on having a first class education system capable of nurturing talent for the future. By international standards, UK students (aged 15) underperform in terms of basic skills as Figure 4.14 below illustrates. Countries in the Far East such as Singapore, Korea, Japan, and parts of China, generally outperform UK students on international tests in mathematics and science[51] . However, performance at GCSE level in London has improved in recent years (see Chapter 6).

Figure 4.14: Average performance on international student achievement tests (top 30 ranked countries)



Source: OECD[52]

The cost of living

London is also a costly city to live in. This can be seen from Table 4.4, which shows the relative cost of living in various cities as determined by their price levels. London ranks at number 6 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[53]. While 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[54].

Table 4.4: Price levels in selected world cities (Index New York = 100)[55]

Rank	City	Excl. rent	Incl. Rent	Rank	City	Excl. rent	Incl. Rent	Rank	City	Excl. rent	Incl. Rent
1	Zurich	108.7	92.6	25	Dublin	70.3	63.1	49	Tallinn	54.4	44
2	Geneva	106.1	91.8	26	Taipeh	67.3	62.7	50	Ljubljana	54	44
3	New York	100	100	27	Brussels	67.2	57.3	51	Bogotá	53.6	43.7
4	Oslo	92.9	79.9	28	Rome	67.1	57.1	52	Jakarta	53.3	41.6
5	Copenhagen	88	74.3	29	Manama (Bahrain)	66.6	55.4	53	Bratislava	53.3	42.6
6	London	84.7	79.5	30	Frankfurt	65.8	55.1	54	Santiago de Chile	52.8	44
7	Chicago	83.5	76.7	31	Munich	65.5	56.1	55	Lima	52.2	42.8
8	Tokyo	83.1	70.6	32	Vienna	65.4	53.4	56	Kuala Lumpur	52	41.2
9	Auckland	82.8	67.6	33	Amsterdam	65.3	55.5	57	Moscow	51.9	45.2
10	Sydney	80.5	72.5	34	Shanghai	64.9	54.3	58	Manila	51.3	41.1
11	Seoul	79.2	64.2	35	Istanbul	64.8	53	59	Vilnius	50.9	40.9
12	Toronto	78.1	63.7	36	Doha	64.8	61.4	60	Nairobi	50.3	40.5
13	Milan	77.9	64.5	37	Lyon	64.8	51.2	61	Warsaw	48.8	39.6
14	Stockholm	76.9	62.8	38	Berlin	63.3	51.3	62	Cairo	48.1	38.7
15	Montreal	76.2	58.9	39	Barcelona	63.2	50.5	63	Budapest	47.6	38.6
16	Miami	76.1	67.7	40	Beijing	61.4	53.2	64	Johannesburg	46.6	40.5
17	Los Angeles	76	67.4	41	Madrid	60.6	50.4	65	Riga	45.8	37.1
18	Helsinki	74.3	63.2	42	Nicosia	60.3	48.4	66	Prague	45.6	36.4
19	Hong Kong	72.9	76.8	43	São Paulo	59.4	49.5	67	New Delhi	45.5	36.9
20	Paris	72.6	63.8	44	Athens	58.9	47.5	68	Mumbai	44.9	37.2
21	Luxembourg	72.3	66.1	45	Rio de Janeiro	57.9	49.2	69	Bucharest	43.8	34.5
22	Tel Aviv	72	61.4	46	Bangkok	57.5	46.4	70	Sofia	39	30
23	Dubai	71.1	66.1	47	Lisbon	55.5	45.3	71	Kiev	38.1	30.3
24	Buenos Aires	70.4	56.1	48	Mexico City	54.7	46.2				

Source: UBS[56]

Housing

As set out in Chapter 2, 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[57]. Based on national data from Q3 2014, London is rated the seventh least affordable of 86 major metropolitan markets[58] 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[59].

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 4.5: 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"[60].

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[61]. 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[62].

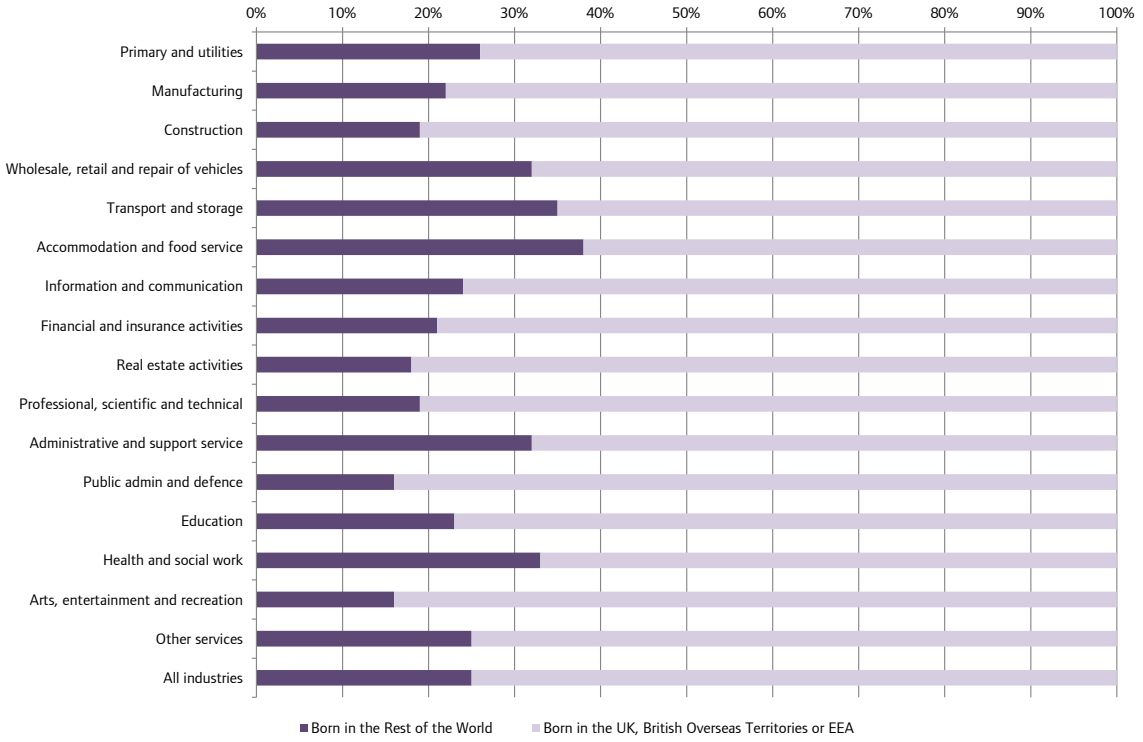
High housing costs can also create inflationary pressures in the economy as workers demand higher wages as compensation for higher rents and house prices. This in turn adds to the cost of doing business in London. Finally, people may be required to take out larger mortgages or other forms of personal debt to pay for housing costs; as discussed earlier in this chapter, Londoners have relatively high average mortgage debt relative to their income. 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. Overall it can therefore be seen that issues in the housing market can 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 2 and 7 for more on the housing challenges in London.

The supply of international migrant labour

London, and the UK, has benefitted significantly from a flexible approach to recruitment of non-EEA nationals, both in the skills and experience of individuals and as a place for foreign investment. However, a risk identified by some businesses is that stricter immigration controls including the recently introduced annual cap on non-European Economic Area (EEA) migrants could lead to skills shortages.

One in four jobs in London in 2014 were filled by people born outside the UK/EEA[63]. While place of birth is an imperfect indicator of whether someone requires a visa to work in the UK, it gives an indication of the importance of non-EEA workers to London's economy. Figure 4.15 shows the proportion of jobs by sector filled by people born outside the UK/EEA. Accommodation and food (38 per cent), Transport and storage (35 per cent) and Health and social work (33 per cent) have the highest proportions of jobs filled by people born outside the UK/EEA compared to the average for all sectors (25 per cent).

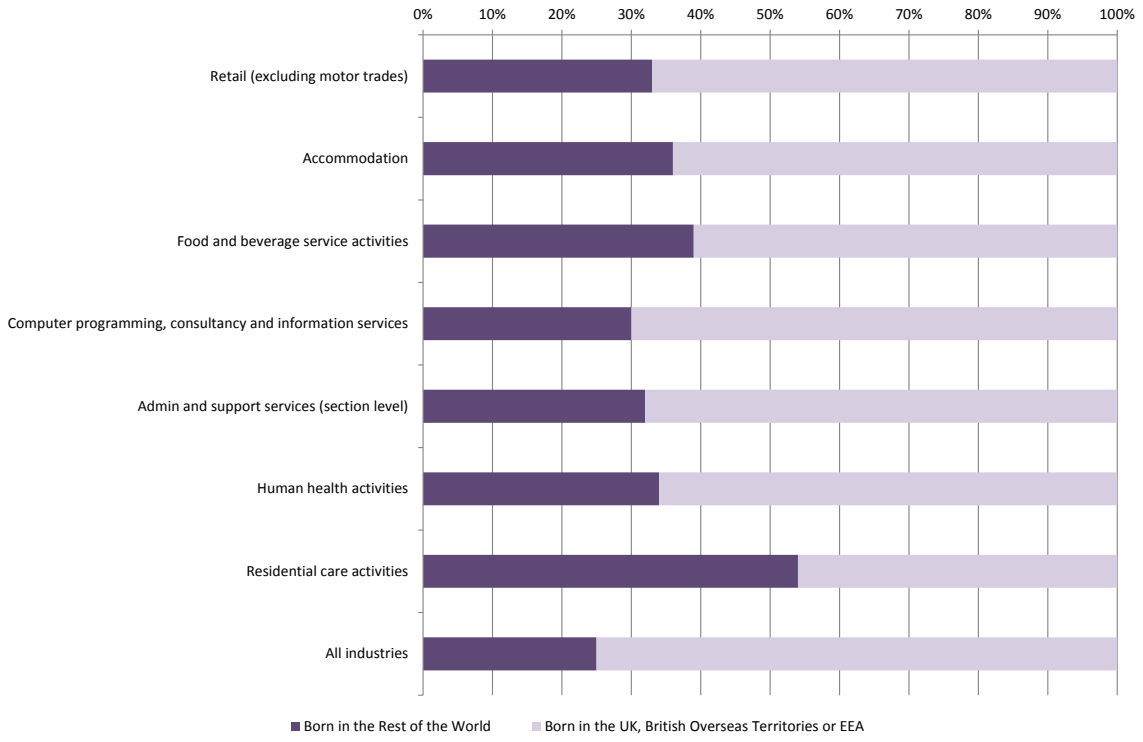
Figure 4.15: Jobs in London by place of birth of job holder by sector (section level[64]), 2014



Source: ONS Annual Population Survey, 2014

Digging deeper into sub-sectors (see Figure 4.16), some 'high value' activities such as Computer programming, consultancy and information services (30 per cent) have above average proportions of jobs filled by non-EEA residents. These are areas where London has a particular specialism and which have seen significant growth.

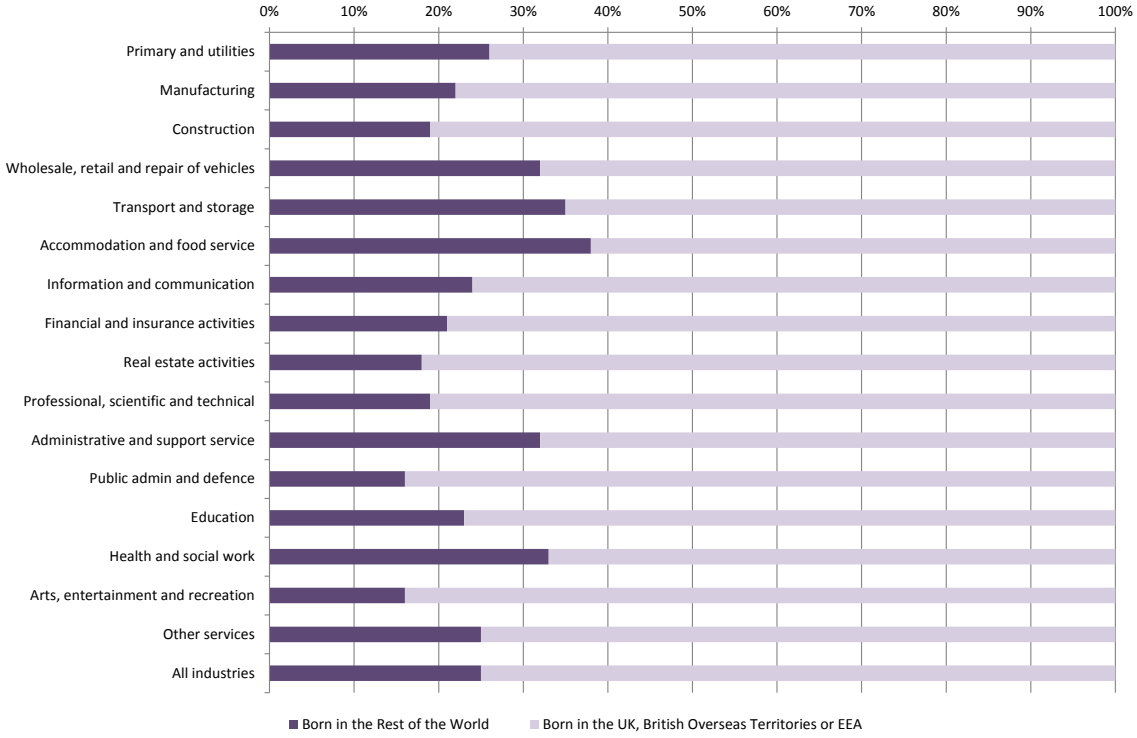
Figure 4.16: Selected sectors (division-level) with high proportions of jobs filled by people born outside the European Economic Area (% of jobs), 2014



Source: ONS Annual Population Survey, 2014[65]

Figure 4.17 shows selected occupations with particularly high proportions of jobs filled by people born outside the EEA. Service professions are especially reliant on people born outside the EEA, notably nursing and midwifery (49 per cent of jobs) and carers (50 per cent).

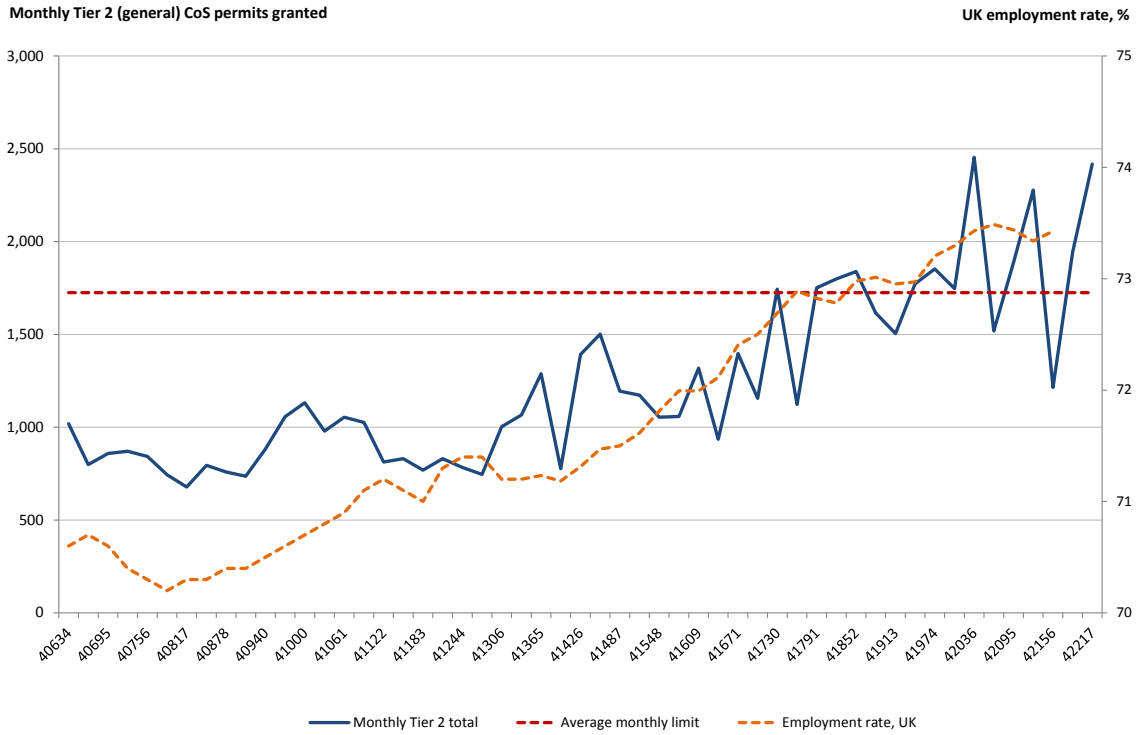
Figure 4.17: Occupations in London with high proportions of jobs filled by people born outside the European Economic Area (% of jobs), 2014



Source: ONS Annual Population Survey, 2014

The main route through which non-EEA workers are permitted to work in the UK is the Tier 2 visa system. Under the Tier 2 scheme there are 20,700 posts available a year (an average of 1,725 per month) – a limit which was set to encourage employers to hire from within the UK. Figure 4.18 shows that as London and the UK's economies have strengthened, there has been a corresponding increase in demand for labour, both from within the UK and from overseas. Tier 2 Certificates of Sponsorship (CoS) allocations have risen and exceeded the average monthly limit on several occasions.

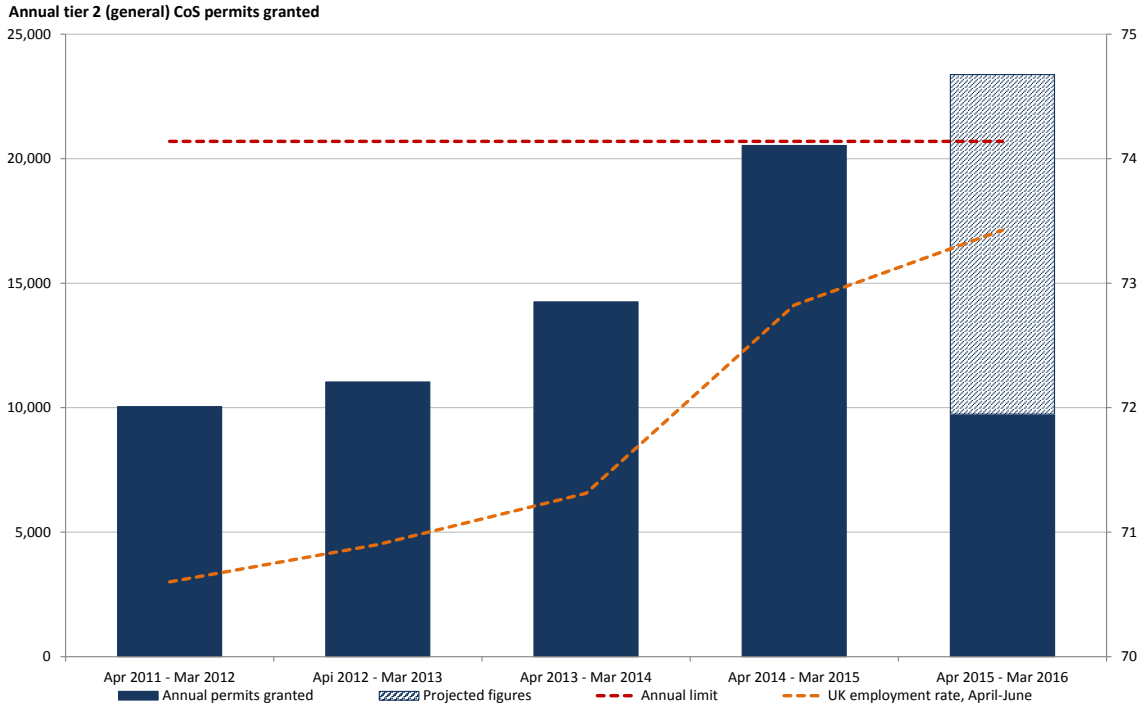
Figure 4.18: The number of restricted certificates allocated to employer sponsors by month, for foreign workers in Tier 2 (General)



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. There is a small discrepancy between Home Office statistics and the FOI response as the former takes account of unused allocations. ONS data on UK employment rates are taken as the 3-month seasonally-adjusted averages from the start of the corresponding period.

If recent trends continue, in 2015/16, the number of applications from skilled migrants will exceed the 20,700 limit. Assuming that current rules remain in place, the Home Office will select those who can receive a restricted Certificate of Sponsorship based on the current points system, meaning that a higher salary will increasingly be required for skilled migrants to enter the UK. This may make recruitment more difficult for some employers, such as graduate level or public service positions.

Figure 4.19: The number of restricted certificates allocated to employer sponsors for foreign workers in Tier 2 (General), 2011/12 – 2015/16



Source: Home Office[66]

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[67]. Table 4.6 shows the net number of additional school-aged children expected over the period to 2050[68].

Table 4.6: Projected additional number of children by age group

	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050
Age 4-10	49,780	54,121	1,500	(14,621)	(10,778)	3,973	39,404	39,483
Age 11-16	34,907	60,489	55,208	11,786	(11,100)	(10,784)	21,684	21,119
Age 17-18	12,294	(7,479)	28,155	12,730	974	(3,567)	3,769	3,422
Total additional population, ages 4-18	96,980	107,131	84,863	9,894	(20,904)	(10,378)	64,857	64,024

Source: Arup/GLA Intelligence Unit[69]

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[70]. 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

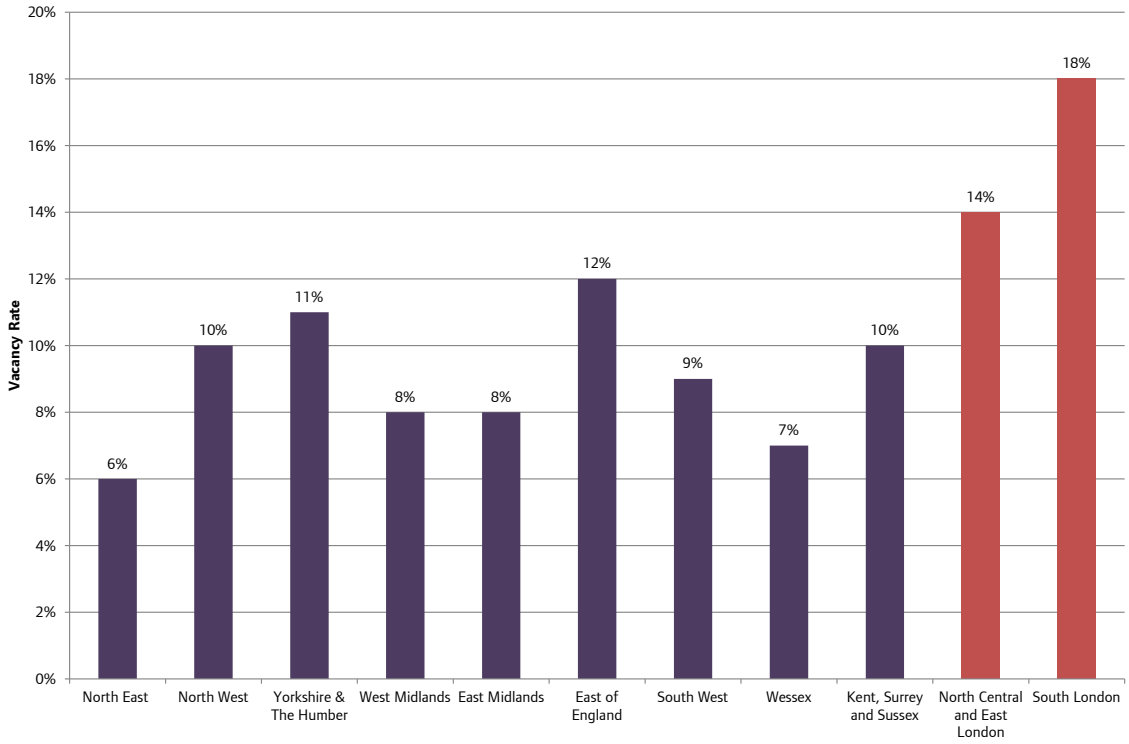
additional teachers, which could be challenging if the cost of living in London were to rise at a faster rate than teacher pay.

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 a tight budget settlement[71]. Similarly, an aging population will increase demand for adult social care services at a time when local councils face significant budgetary pressures[72]. 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 4.20 shows that London has high vacancy rates in the nursing profession relative to other regions in the UK[73].

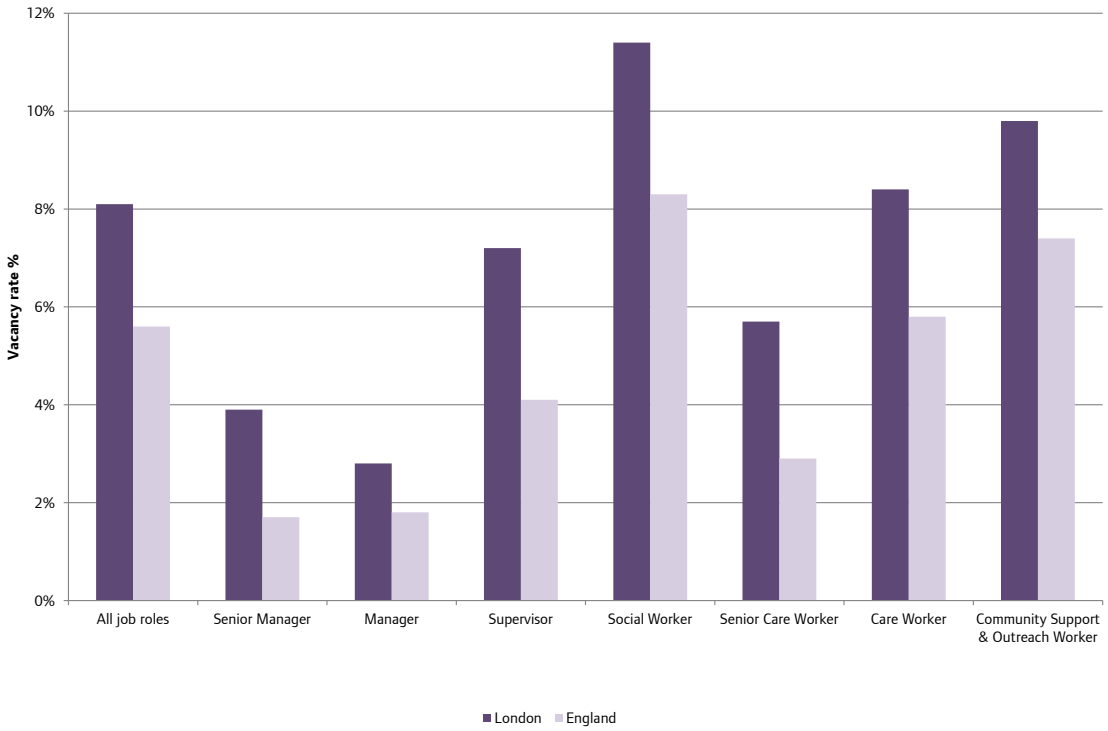
Figure 4.20: Nursing vacancy rates, 2014



Source: London Health Commission[74]

Similarly in the social care sector, vacancy rates in most occupations are above the national average as shown in Figure 4.21.

Figure 4.21: Vacancy rates (%) in the social care sector, London and England



Source: London Health Commission[75]

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[76].

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.

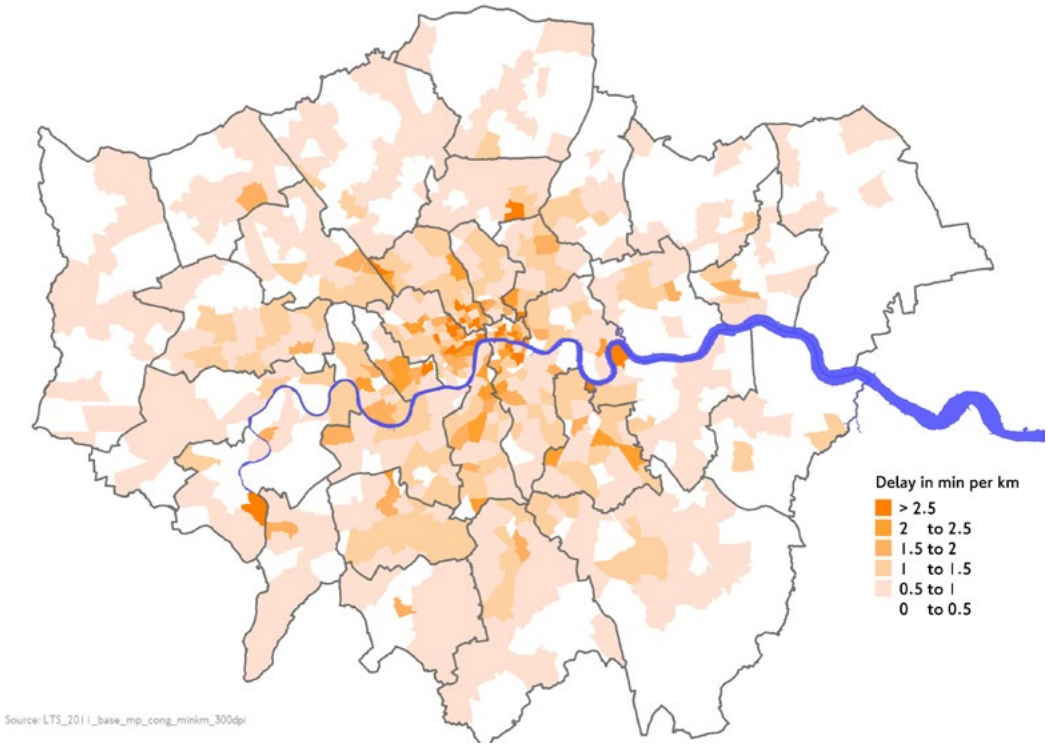
Transport

An efficient and reliable transport network is important for the local 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. Third, an efficient transport system can help to provide firms with access to wider markets by lowering transaction costs.

Some level of congestion on London's transport network is arguably the inevitable consequence of having to transport a mass of people to and from Central London. 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 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.

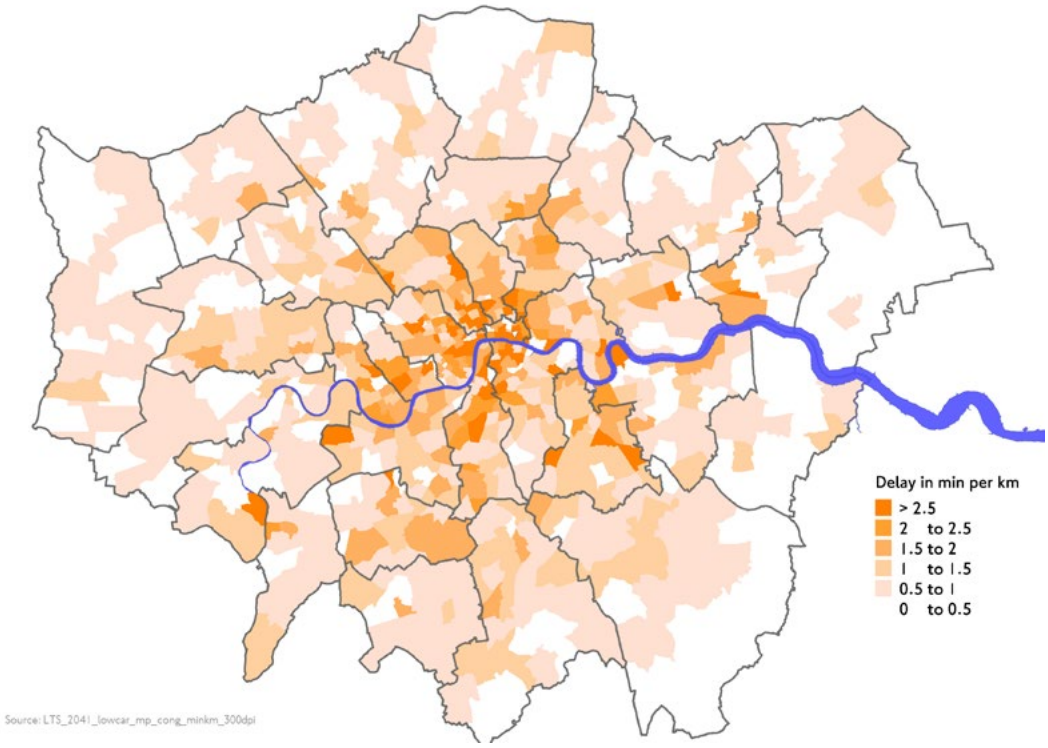
London suffers from congestion on its roads and on public transport at peak periods. Map 4.2 shows highway congestion at morning peak periods in 2011. According to modelling by TfL, congestion is likely to get worse in many parts of London in the coming years, as shown in Map 4.3.

Map 4.2: Highway congestion, morning peak 2011



Source: TfL

Map 4.3: Highway congestion, morning peak 2041



Source: TfL

Highways in London are among the most congested in Europe according to INRIX, a provider of real-time traffic information[77]. London commuter zone drivers wasted an average of 96 hours idling in traffic in 2014 – the highest in Europe (See Table 4.7). Of the 94 European cities analysed in the report, nearly half (48 per cent) experienced an increase in traffic compared to 2013.

Table 4.7: 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 commute 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

Time wasted in traffic in London is significantly higher than the UK average, which was 30 hours in 2014. Indeed, all of the UK's most congested roads, as measure by annual hours wasted, are within London according to INRIX.

Table 4.8: 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	10.4	AM	Weds 08:00	138.6
2	London	A215	Albany Road: Camberwell	Shirley Road: Croydon	9.6	PM	Fri 18:00	119.7
3	London	A4	Henlys Roundabout: Hounslow	Holborn Circus	14.7	AM	Weds 08:00	113.4
4	London	A4	Aldwych	Henlys Roundabout: Hounslow	14.2	PM	Weds 18:00	108
5	London	A23	Thornton Heath	Westminster Bridge	8.6	AM	Tues 08:00	96.0

Source: INRIX

While parts of London's highway network suffer from congestion, there has been progressive modal shift from private forms of transport to public transport (see Chapter 2). This has meant increased pressure on the public transport network. Map 4.4 below shows crowding on the London Underground and DLR network at morning peak periods in 2011. 'Crowded' parts of the line (marked in orange) are defined by TfL as those with approximately 2-3 passengers per square metre and 'very crowded' lines (marked in red) are those with 3-4 passengers per square metre. Lines in black are where there are more than four people per square metre, considered to be the maximum levels of crowding. Map 4.5 shows the same map but modelled for 2041 factoring in expected demographic and behavioural changes and committed TfL 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.

Map 4.4: London Underground and DLR crowding, morning peak 2011

Source: TfL

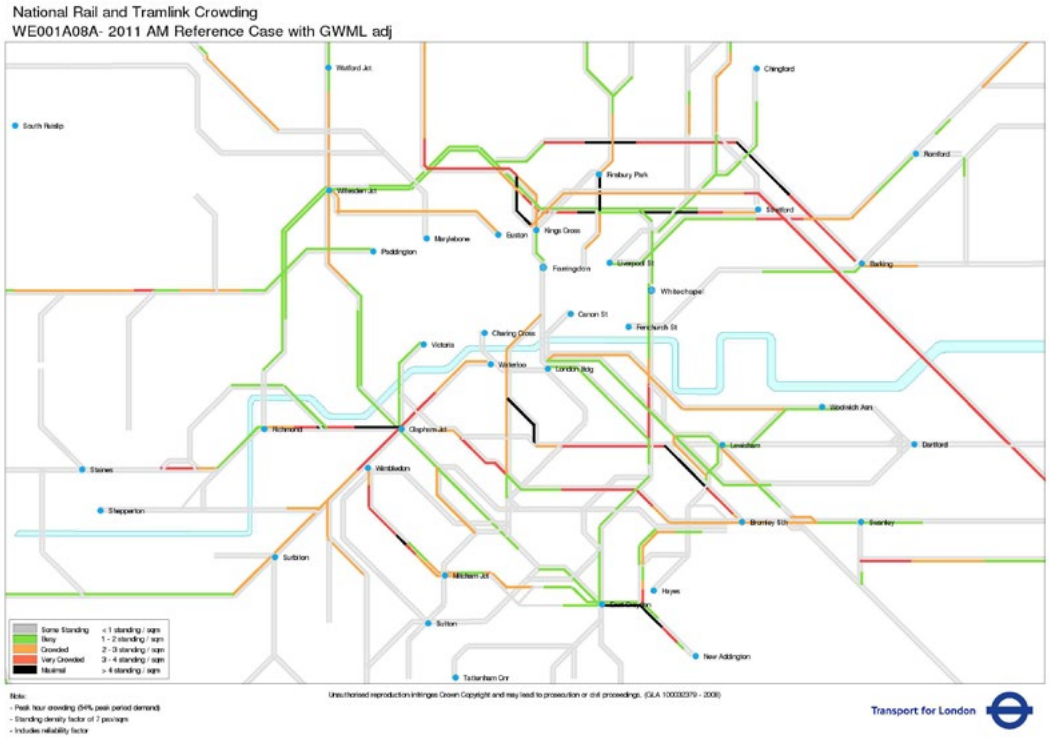
Map 4.5: London Underground and DLR crowding, modelled morning peak 2041

Source: TfL

Similarly, Map 4.6 below shows crowding on national rail routes into London at morning peak. Parts of the network coloured black and red are where four or more passengers have to stand per square metre.

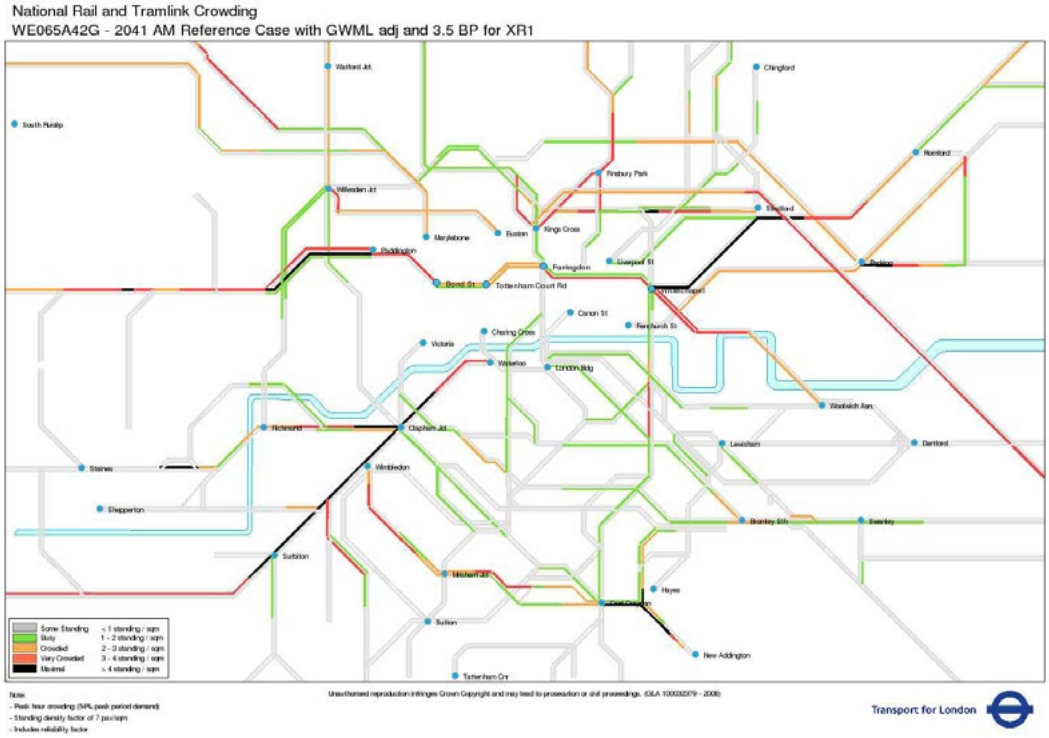
Map 4.7 beneath models the network in 2041 accounting for planned TfL investments including Crossrail. On this basis, crowding is expected to be alleviated on some parts of the network where new investment is planned but wills still worsen on others, for example on trains into Waterloo and Paddington.

Map 4.6: Rail crowding, morning peak 2011



Source: TfL

Map 4.7: Rail crowding, modelled morning peak 2041



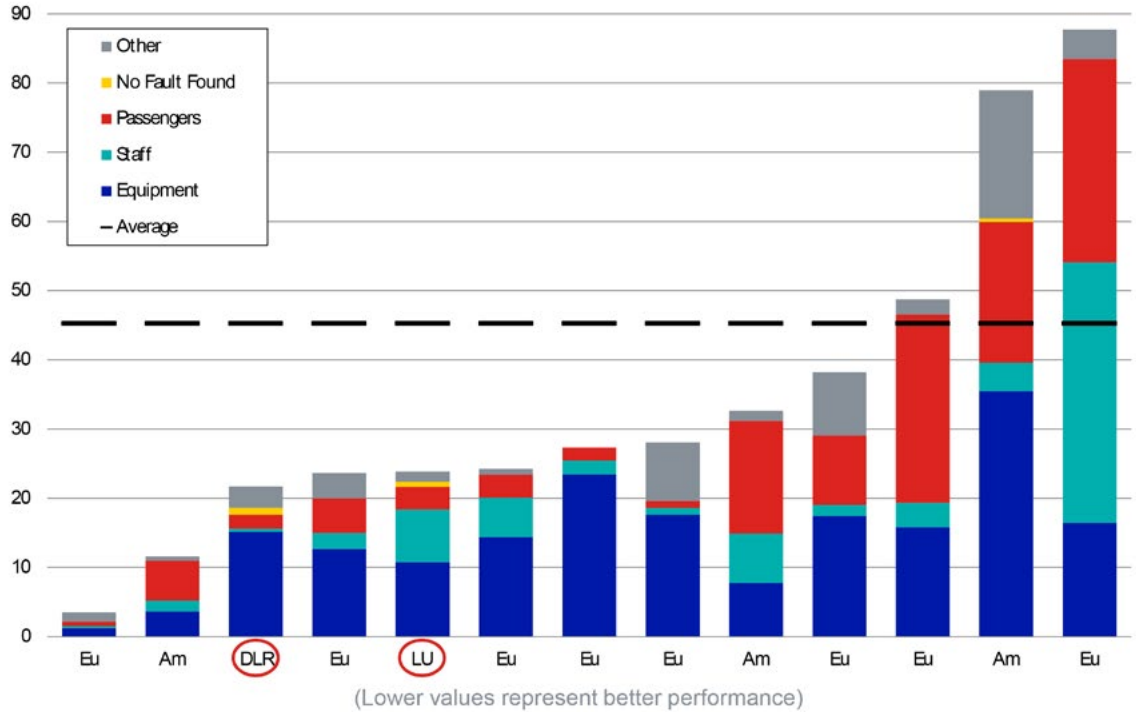
Source: TfL

Overcrowding is first and foremost a safety concern. Research by the University of Greenwich into crowd behaviour in public spaces more generally suggest 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.[78] Second, there are economic implications of excessive overcrowding if people are unable to board trains and their journeys are delayed. Third, there may be wellbeing implications from overcrowding; 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.[79]

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. 70 per cent of business units said transport infrastructure within London was good or excellent, 24 per cent said it was adequate and 4 per cent said it was poor[80].

When compared to similar metro systems in Europe and North America, the London Underground and DLR are relatively reliable networks. Figure 4.22 shows incidents causing a five minute delay across Western Europe and North America metro networks[81]. 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[82].

Figure 4.22: Incidents causing a five minute delay per million car kilometre (Western Europe and North America, 2013/14)



Source: TfL

Airport Capacity

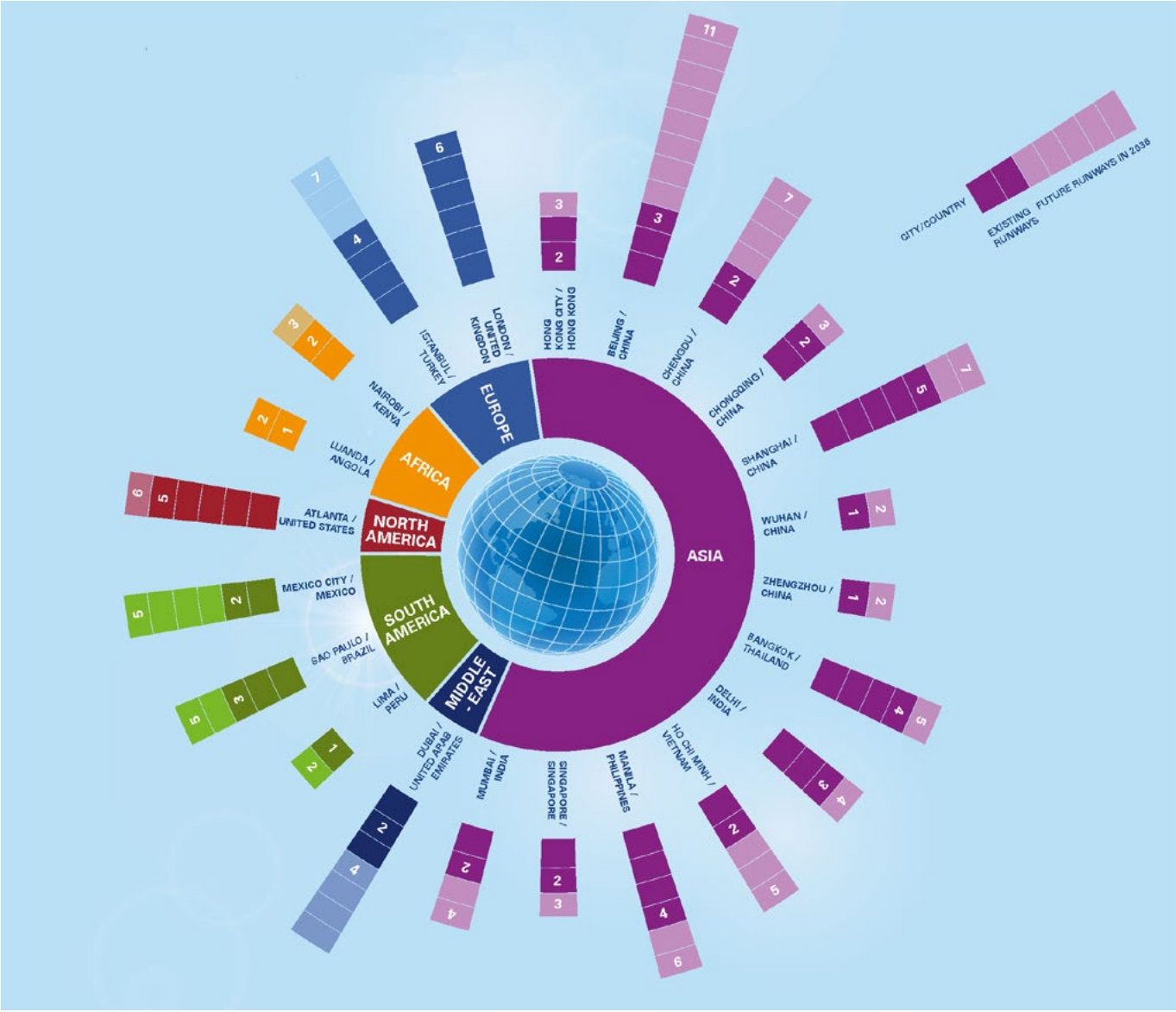
Good aviation connectivity is vital for a global city like London. It promotes trade and investment and in doing so generates employment and helps to improve productivity. London's strong services sector, which generates significant export earnings for the UK, is particularly reliant on aviation. Air 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[83].

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[84]. 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[85]. 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.

For its Interim Report, the Airports Commission carried out a detailed review of the strength of the links to emerging markets from Heathrow compared to from other European hubs and from Dubai. This showed that Heathrow has comparatively strong links to India (reflecting the UK's historic ties), but poorer links to other emerging economies[86]. By 2040, according to forecasts by the Airports Commission, without expansion London could lose daily connections with up to twenty international cities that it would otherwise have had.

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 4.23: Runways across world's major cities, now and in 2036.



Source: KPMG (2015)

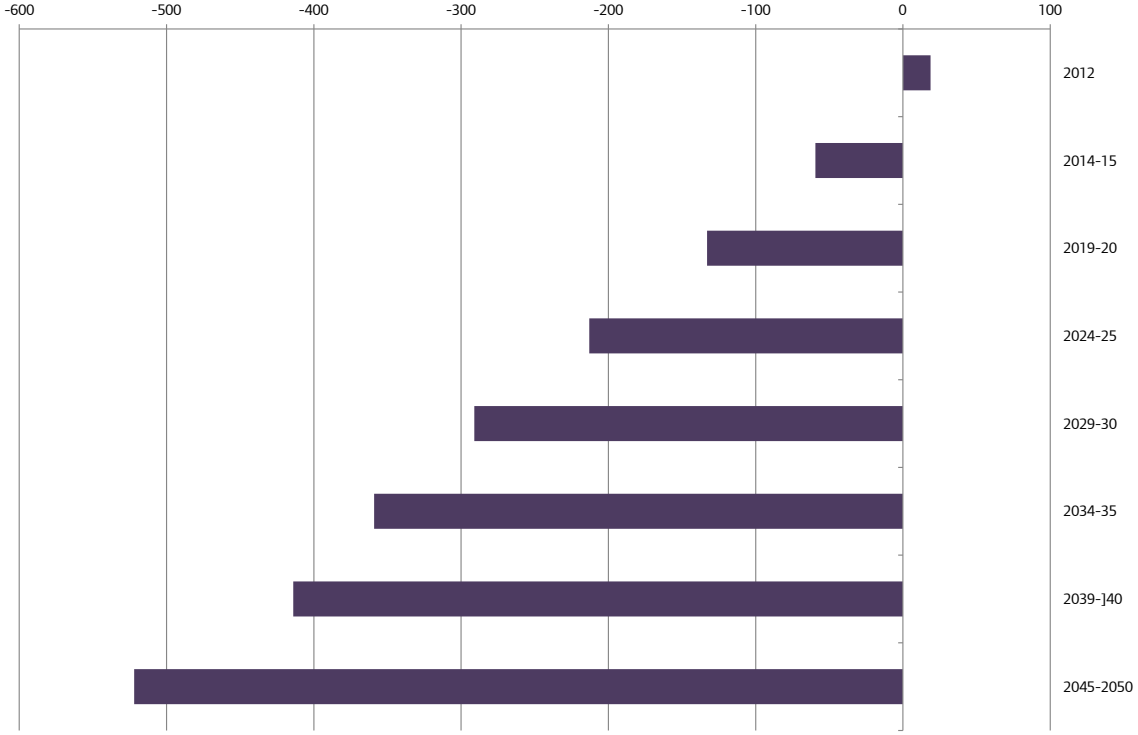
Figure 4.23 above shows airport expansion plans across the world – darker colours show the current number of runways and light colours show those that are planned[87]. By 2036, China will have built 17 new runways to serve its major cities, providing capacity for around 400 million extra passenger journeys 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 by 2050[88]. 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[89]. 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[90].

Figure 4.24: Expected deficit in water supply in London (million litres per day)

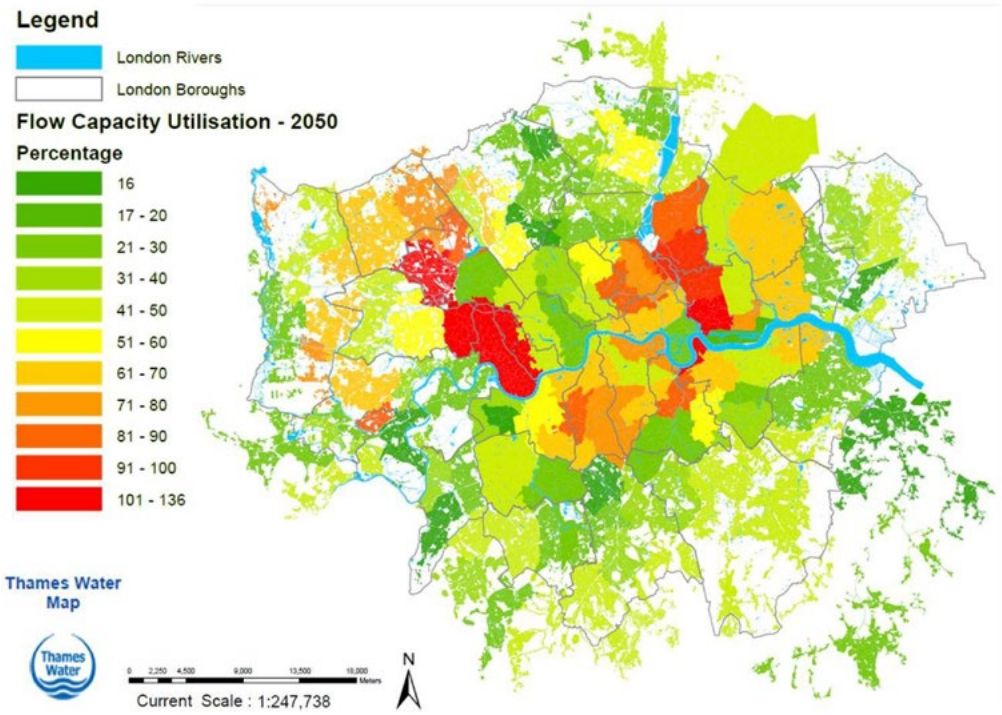


Source: Thames Water

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 5 for more on flooding).

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[91]. 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 4.8 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 4.8: Modelled drainage and sewerage capacity to manage future population growth and climate change in 2050



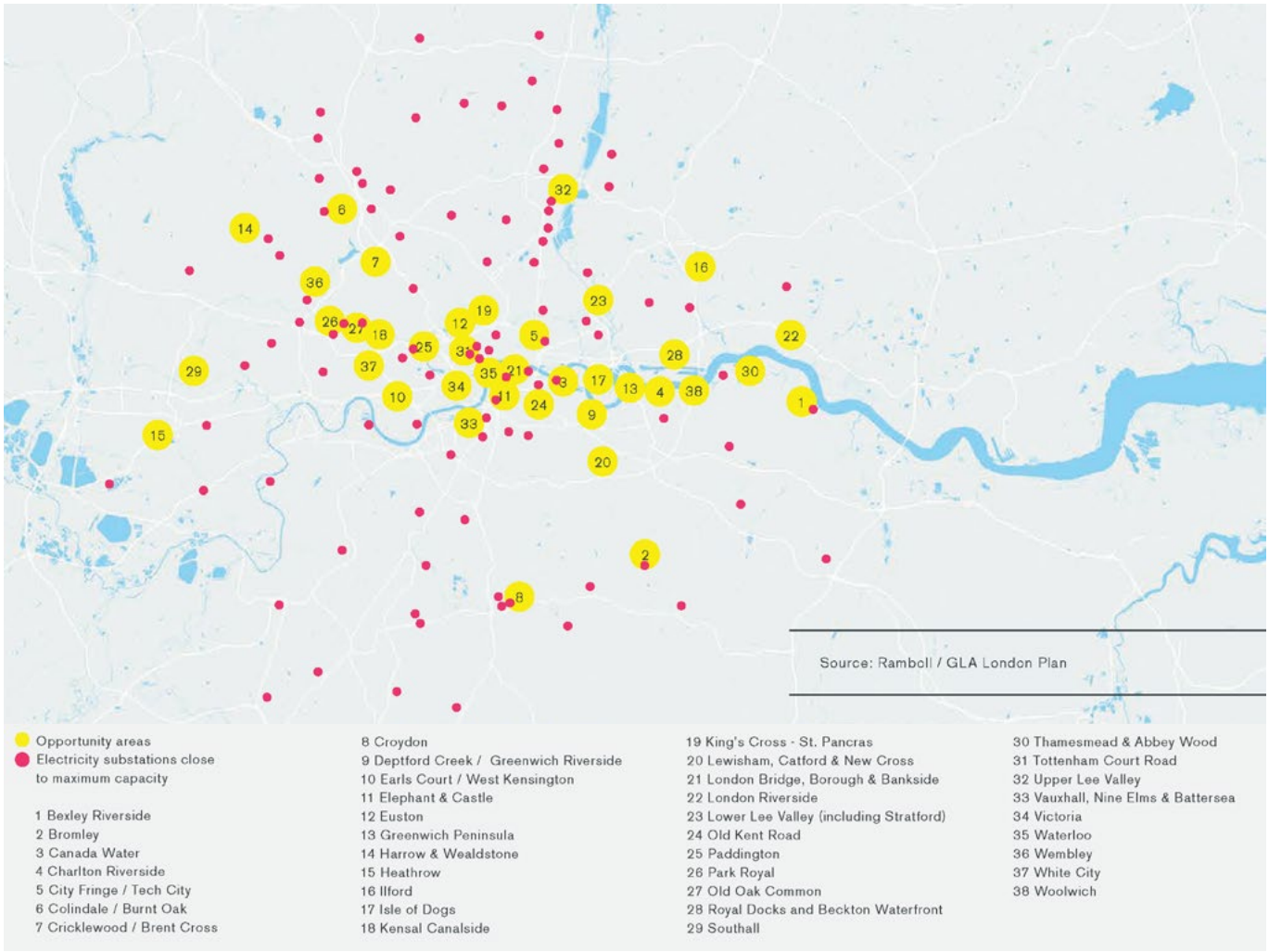
Source: Thames Water

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[92].

As shown in Figure 4.25, many of London's electricity substations are already close to capacity. This can lead to delays and substantial additional costs for developers[93]. Extra capacity will particularly be required around the Opportunity Areas identified in the London Plan (also mapped on Figure 4.25) where significant numbers of new homes and jobs are planned.

Figure 4.25: Electricity substations currently close to capacity



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.

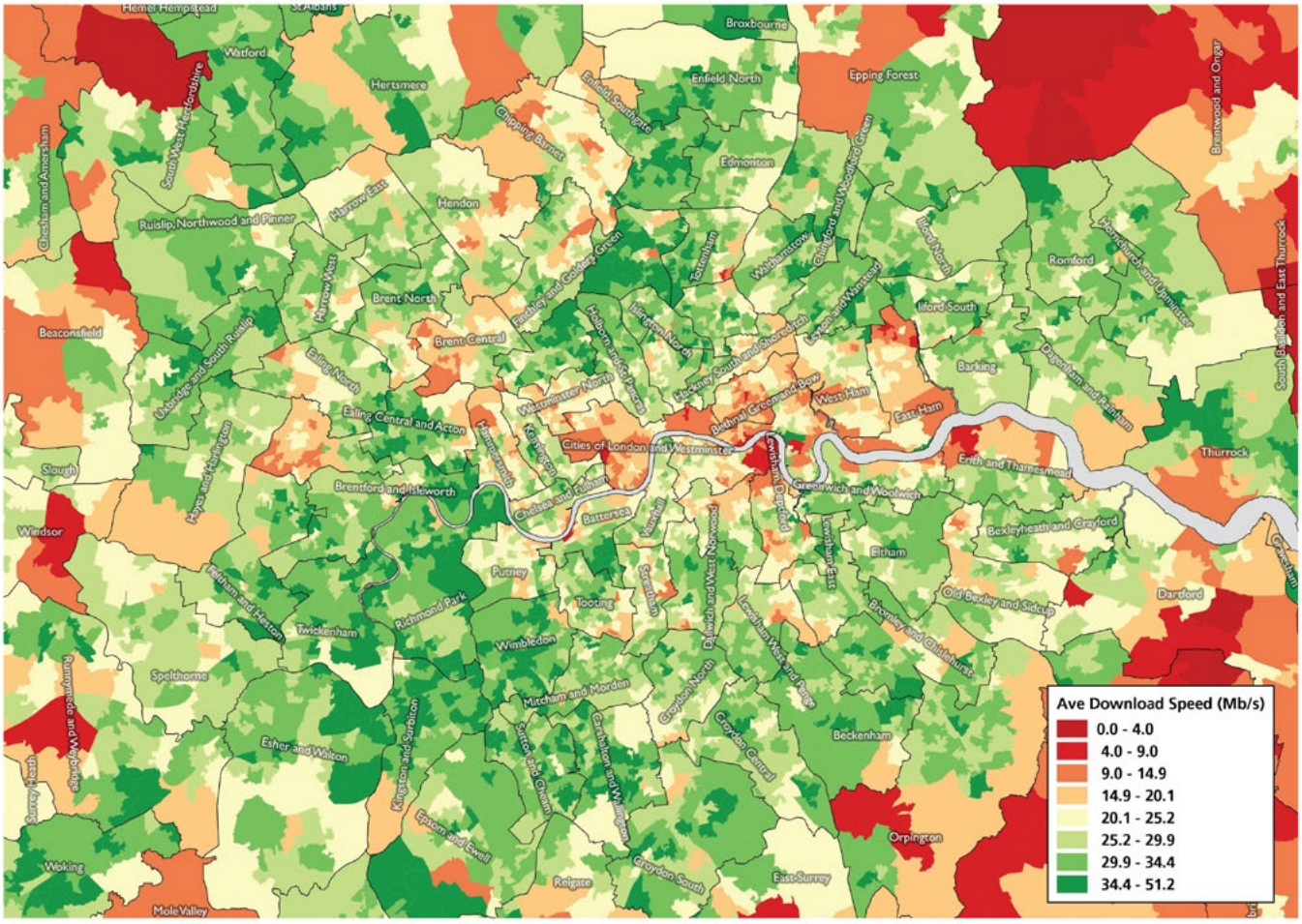
Broadband

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[94]. In London, average speeds were 27.3mbps, the highest of all UK regions.

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 the gold standard[95]. Fibre-to-the-premises (FTTP) is offered by some smaller providers and BT is trialling its G.fast technology which could offer 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.

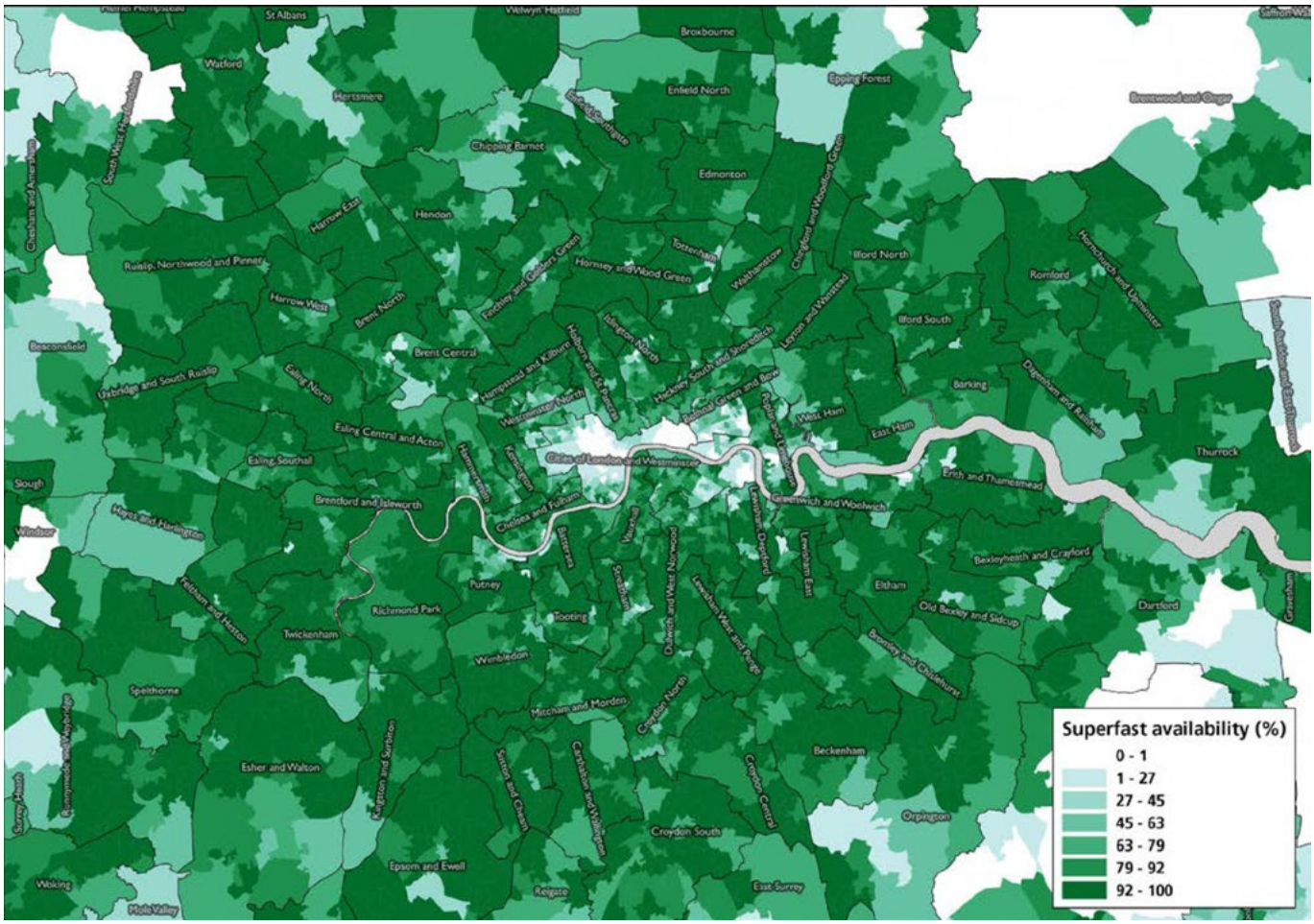
Map 4.9: Average download speed in London, 2014.



Source: House of Commons

In general, London provides good access to high speed broadband however there are some 'not spots' in the city where superfast broadband is unavailable for a variety reasons[96] (see Map 4.10). A House of Commons research note[97] 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. However, these figures should be treated with caution. In the City, such is the importance of high speed internet, many firms pay for more 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 London hotspots have considerably better coverage, with Hackney South and Shoreditch servicing 86 per cent of properties and Hackney North and Stoke Newington 93 per cent, though Bethnal Green and Bow lags at 56 per cent, in the bottom 100 constituencies.

Map 4.10: Superfast broadband coverage in London, 2014



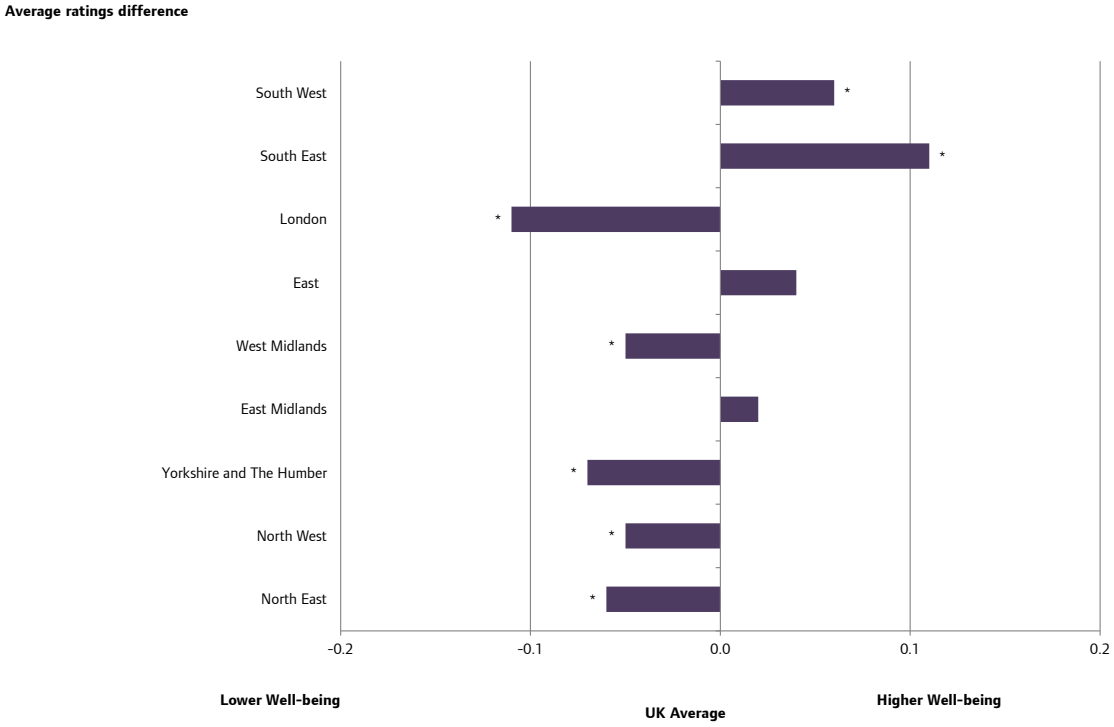
Source: House of Commons

Quality of life

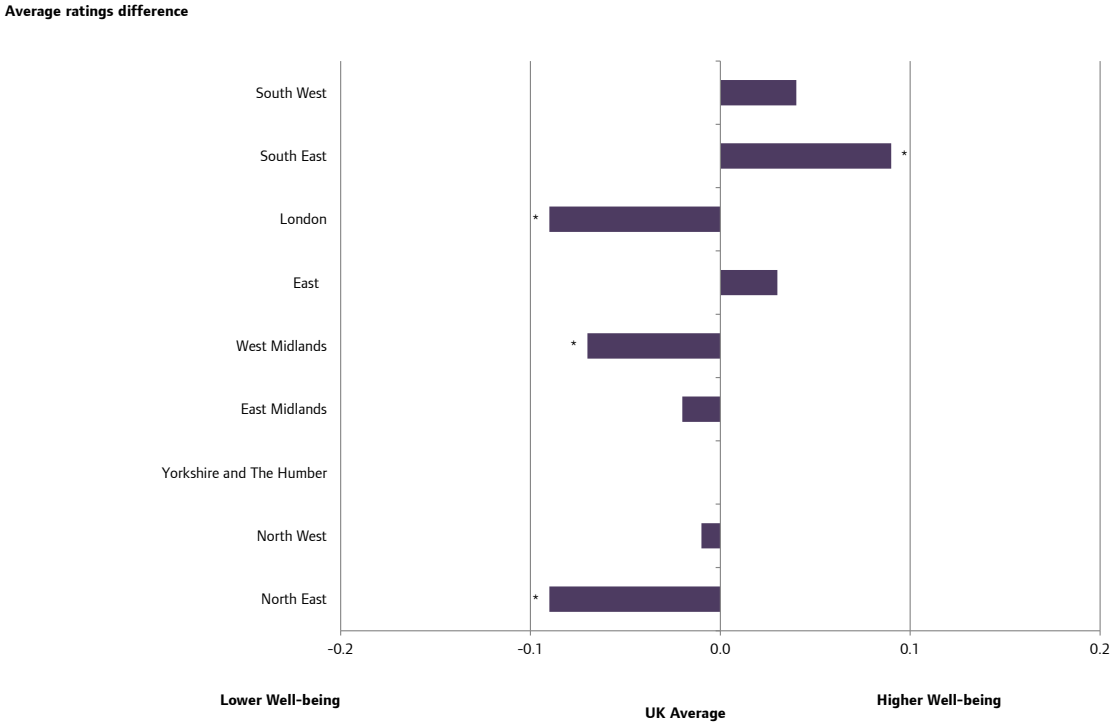
If quality of life in London deteriorates due to congestion, pollution, or other factors, then business and skilled workers could choose other locations over London. London's attractiveness to business and people is dependent on a whole variety of 'quality of life' factors such as its green spaces, culture, sport, music, events, etc. These factors make London a place where people want to live and work, and are also vital to the tourism sector (see Chapters 3 and 5). Despite this, on a number of self-reported measures of wellbeing, Londoners are less satisfied with their lives compared to people in other regions of the UK[98]. Figure 4.26 shows regional variations in four different measures of well-being.

Figure 4.26: Average personal well-being ratings compared to UK averages by English region, financial year ending 2015

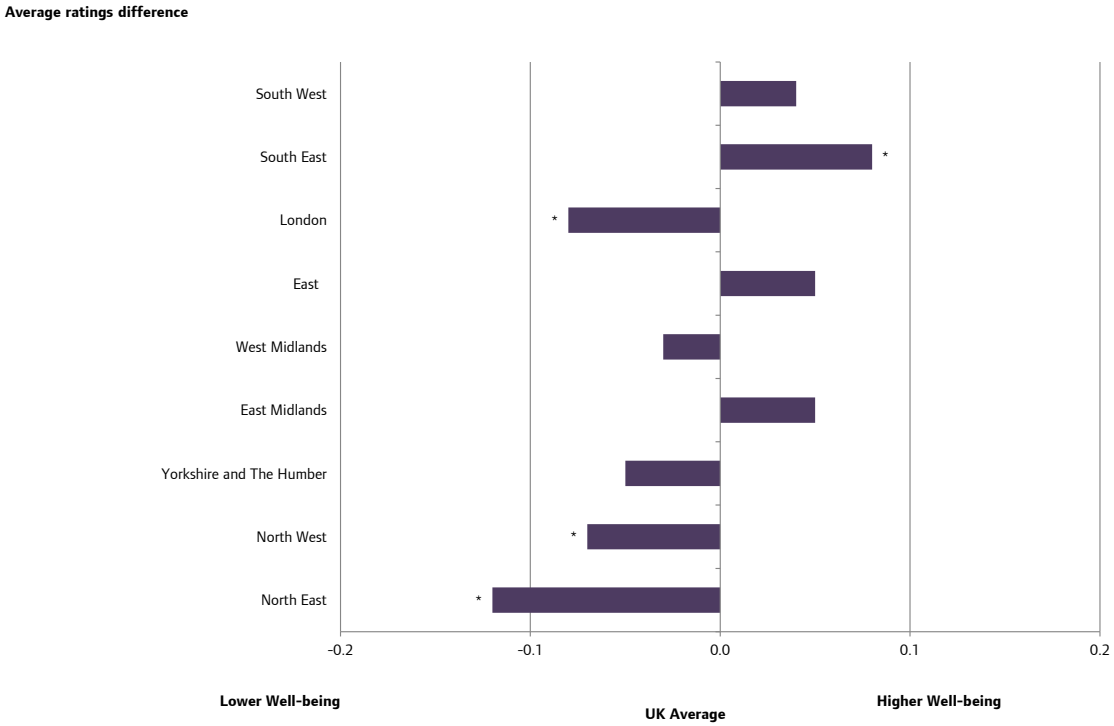
a. Life Satisfaction



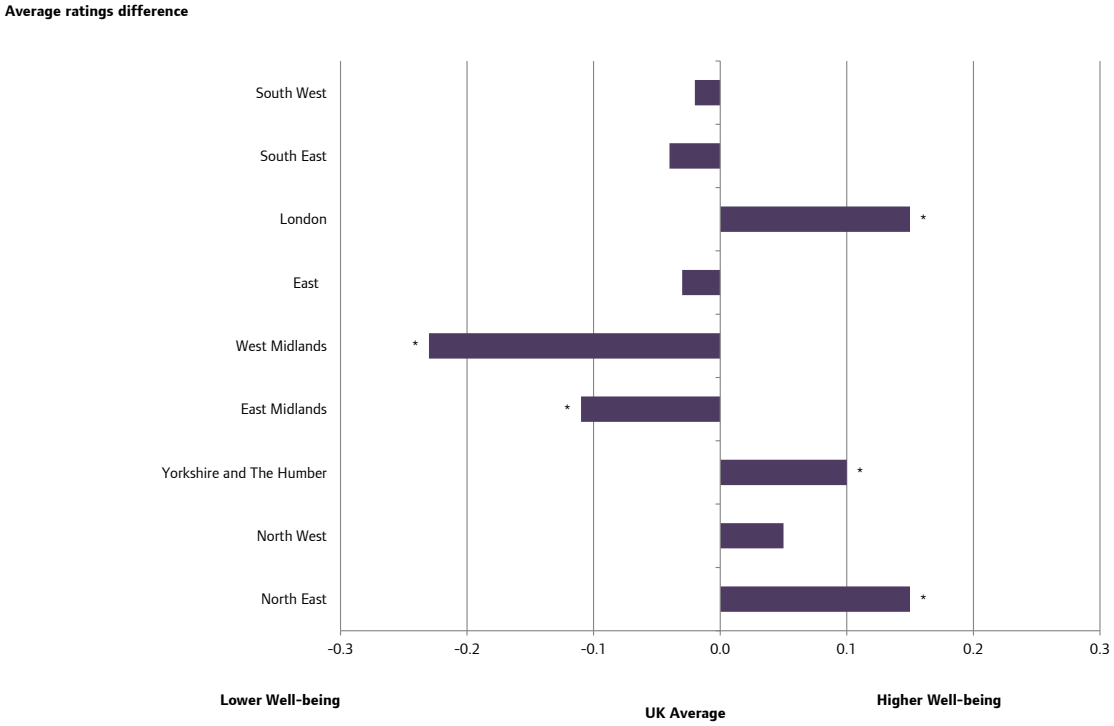
b. Worthwhile



c. Happiness



d. Anxiety



Source: Annual Population Survey, ONS
*Note: * Indicates a statistically significant difference determined on the basis of non-overlapping confidence intervals.*

It should be noted that the differences in wellbeing between regions are fairly marginal so these charts should be treated with caution. According to ONS, other aspects of life such as health and employment status have a more significant impact on peoples' well-being than where they live. However, any deterioration of wellbeing in the future due to longer commuter journeys, more pollution, erosion of green spaces, or other factors that are important to quality of life, could deter people from wanting to live or work in London. Quality of life issues are considered further in Chapters 5 and 7.

Chapter 4 endnotes

1 GLA, 2014, 'Housing in London'
2 ONS. 2014, 'Commuting and Personal Well-being'.
3 GLA Economics, July 2015, 'Updated employment projections for London by sector and trend-based projections by borough' .
4 It is important to note that GVA performance for London data are only available in nominal terms implying that no adjustment has been made to take into account changes in price levels over time.
5 Data drawn from ONS, 20 February 2015, 'International Comparisons of Productivity - Final Estimates, 2013'. Measures of labour productivity measured here are given in two forms, by total hours worked and by numbers of workers in employment. As mentioned in this article, "these two measures can yield different results, reflecting differences in working patterns across countries and compositional movements over time, such as a shift towards part-time working."
6 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. However, these data are experimental and some commentators have suggested that these data are not very robust and reliable.
7 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 recently published analysis of GVA per workforce job, which differs from these estimates as that methodology 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 in Working Paper 63: "Gross Value Added per Workforce Job in London and the UK."
8 2014 data are provisional.
9 McCafferty, M., 19 June 2014, 'The UK productivity puzzle – a sectoral perspective'. Bank of England.
10 See Reference tables for: ONS, February 2015, 'Subregional Productivity - February 2015'.
11 This is done by primarily removing the effects of rental incomes from the published GVA data); GVA per workforce job (at the broad sector level) is calculated as attributable GVA to the workforce divided by workforce jobs. Further detail as to the methodology and estimates are provided in GLA Economics, 'Working Paper 63: Gross Value Added per Workforce Job in London and the UK'. GLA Economics; outlined within sections 2 and 3.
12 World Economic Forum, 2012, 'Redefining the Emerging Market Opportunity: Driving Growth through Financial Services Innovation'
13 PWC, February 2015, 'The World in 2050 – Will the shift in global economic power continue?'
14 OECD, May 2014, 'Economic Outlook No 95 – Long-term baseline projections'.
15 OECD, 2007, 'Moving Up the Value Chain: Staying Competitive in the Global Economy'.
16 Z/Yen Group, September 2015, 'The Global Financial Centres Index 18'. Ranking based on a mix of indicators and survey responses examining the business environment, financial sector development, infrastructure, human capital and reputational factors.
17 Deloitte/London First, November 2014, 'Benchmarking the effectiveness of London's promotional system'
18 Budget deficits of over 5% of GDP have been run since 2008/9.
19 Teulings, C. and Baldwin, R. (2014) 'Secular Stagnation: Facts, Causes and Cures' CEPR Press
20 Gordon, R. (2012), 'Is US Economic Growth Over? Faltering Innovation Confronts the Six Headwinds', NBER Working Paper No. 18315
21 See for example, Krugman (2014) 'Four Observations on Secular Stagnation' in Teulings, C. and Baldwin, R. (2014) 'Secular Stagnation: Facts, Causes and Cures' CEPR Press
22 Glaeser, E.L. 'Secular joblessness' in Teulings, C. and Baldwin, R. (2014) 'Secular Stagnation: Facts, Causes and Cures' CEPR Press
23 For more on this issue see Financial Times, 1 July 2014 'How Greek contagion is being contained'.
24 See for example, Financial Times, May 14 2015 'The emerging market slowdown: don't expect a quick recovery'
25 GLA Economics, November 2014, 'London's Economic Outlook: Autumn 2015'.
26 For example, see London Chamber of Commerce and Industry (2005) 'The Economic Effects of Terrorism on London: Experiences of firms in London's Business Community' and GLA Economics (2005) 'London's Economic Outlook: Autumn 2005' supplement on the economic impact of the July 2005 terrorism attacks.
27 HMG, 2015, 'Information Security Breaches Survey, Technical Report. Survey conducted by PwC.
28 OBR, November 2015, 'Economic and fiscal outlook'.
29 GLA Economics, November 2014, 'London Business Survey 2014: Main findings'
30 Mayor of London, 2014, 'The Europe Report: A Win Win Situation'
31 Centre for Cities and Cambridge Econometrics, June 2015, 'The future of the City of London's economy'. City of London Corporation.
32 HMT, July 2015, Summer Budget 2015
33 Pricewaterhousecooper, May 2015, 'Where next Europe: the future of European financial services'. City of London Corporation.
34 In the second scenario, the contribution that the financial services sector makes to the economy is constrained using conditions that cause lending and returns to capital to fall, and the flow of money around the EU is heavily restricted and the benefits of a well-functioning financial sector are not felt by the wider economy.
35 Stern, N., 2006, Stern Review on the Economics of Climate Change'.
36 HMG (2012) 'UK Climate Change Risks Assessment: Government Report'
37 PBA)2014) 'London Office Floorspace Projections'

38 GLA Economics, November 2014, 'London Business Survey 2014: Main findings'
39 Cushman & Wakefield, 4 March 2015, 'London cements position as world's most expensive office market'.
40 Knight Frank, 2015, 'Global Cities Index 2015'.
41 Jll (2015) 'Central London Office Market Report Q2 2015'
42 Insert reference to Just Space pamphlet.
43 Experian, 2013, 'Consumer Expenditure and Comparison Goods Floorspace Need In London'
44 For more, see GLA Economics (2015) Retail in London: Looking Forward
45 Schumpeter, J. (1942) 'Capitalism, Socialism and Democracy', New York: Harper & Bros.
46 URS, 2015, 'Supporting Places of Work: Incubators, Accelerators and Co-Working Spaces'
47 SQW, October 2015, 'Mapping London's Science and Technology Sectors'. Final Report to the GLA.
48 Centre for Cities and Cambridge Econometrics, June 2015, 'The future of the City of London's economy'. City of London Corporation.
49 London Business Survey (2014), London as a business location, Table: LBL1
50 UKCES Employer Skills Survey 2013, January 2014, table T68A/1.
51 Based on comparative data of countries participating in science and mathematics assessments om either the Performance for International Student Assessment (PISA) or the Trends in International Mathematics and Science Study (TIMSS).
52 Hanushek, E. A., & Woessmann, L., May 2015, 'Universal Basic Skills: What Countries Stand to Gain'. OECD.
53 Knight Frank, 2015, 'Global Cities Index 2015'.
54 Mercer, 17 June 2015, '2015 Cost of Living Rankings'.
55 UBS notes: "the composition of our reference basket of goods and services represents the spending habits of a three-person European family. The prices of the 122 goods and services are weighted by monthly consumption. For example, we assume that a family in Europe consumes almost 15 kilos (33 pounds) of vegetables every month, but only buys a new personal computer every 2.5 years. Price level calculations are based on the cost of a basket of 122 goods and services including rent. For our index, these reference basket prices are shown as relative to our reference city, New York City. Rent values were calculated by weighting the prices of our three types of housing equally".
56 UBS, September 2015. 'Prices and earnings – Edition 2015: Do I earn enough for the life I want?'.
57 Demographia (2015), '11th annual survey of international housing affordability'
58 The 2015 Demographia survey includes 86 metropolitan markets with a population greater than 1 million in: Australia, Canada, Hong Kong, Ireland, Japan, New Zealand, Singapore, the UK and United States.
59 Given affordability tends to improve the further out from a city centre the smaller the definition of the city area, the higher median prices will tend to be for example.
60 Centre for Cities and Cambridge Econometrics, June 2015, 'The future of the City of London's economy'. City of London Corporation.
61 Hilber, C. A. L. & Lyytikäinen, T., Housing transfer taxes and household mobility: distortion on the housing or labour market?, Government Institute for Economic Research: Working Papers 47, August 2013.
62 The research estimates the effect of the UK Stamp Duty Land Tax on household mobility using micro data, specifically self-assessed house values from the British Household Panel Survey against actual sale values of the house; regression analysis is used to examine the impact of the jump in Stamp Duty from the 1 per cent threshold to 3 per cent threshold.
Hilber, C. A. L. & Lyytikäinen, T., Housing transfer taxes and household mobility: distortion on the housing or labour market?, Government Institute for Economic Research: Working Papers 47, August 2013.
63 Annual Population Survey, 2014
64 The industries shown are sections of the UK Standard Industrial Classification (SIC) 2007.
65 The industries shown are selected divisions of the UK Standard Industrial Classification (SIC) 2007 with 30% or more jobs are filled by people born outside the EEA. Not all section-level sectors are large enough to have a breakdown of results by division level in London. Administrative and support services are shown at section level.
66 Home Office allocations of restricted certificates of sponsorship from 2014/15. Data prior to 2014/15 is from a Home Office FOI response on 29 April 2015. Projected figures for 2015/16 are based on available data for the 5 months from April 2015 to August 2015, and do not take account of the adjustments to the points requirement necessary to meet the cap. ONS data on UK working age employment rates (16-64) from the 3-month seasonally adjusted series of Labour Market Statistics for the period April-June of each year.
67 Figures presented in this section are from the London Infrastructure Plan 2050, for more recent estimates of school places over a shorter time horizon at a ward and local authority level, see: GLA, November 2015, 'Projected demand for school places'.
68 It should be noted there is considerable uncertainty about population projections in later forecast periods and these figures are indicative.
69 Arup/GLA, July 2014, 'The cost of London's long-term infrastructure'.
70 Based on simplifying assumptions about the number of pupils per school and class sizes. More efficient use of land, existing assets or new assets could mitigate the need for additional space. No account is made for how new population growth might be allocated to 'vacated' school places in existing infrastructure. For more, see: GLA/Arup, July 2014, 'The cost of London's long-term infrastructure'.
71 National Audit Office, November 2014, 'The financial sustainability of NHS bodies'.
72 House of Commons Committee of Public Accounts, May 2013, 'Department for Communities and Local Government: Financial sustainability of local authorities: Third Report of Session 2013-14'.
73 London Health Commission, October 2014, 'Workforce Technical Pack'

74 NHS qualified nurse supply and demand survey, report produced for the Health Education England Nursing Supply Steering Group by NHS Employers, May 2014. Note: no data provided for North West London and also the Thames Valley.
75 Figures sourced from London Health Board, June 2014, 'Making the Case for London'
76 London Health Commission, October 2014, 'Workforce Technical Pack'
77 INRIX, August 2015, Traffic Scorecard Report
78 See The Guardian, 3 October 2015, 'Hajj Crush: how crowd disasters happen and how they can be avoided'
79 ONS, 12 February 2014, 'Commuting and Personal Well-being, 2014'.
80 London Business Survey 2014, 'How businesses rate London as a location for business' Table LBL1
81 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.
82 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..
83 PWC , June 2025, 'Quality of Life: Leisure Impacts Assessment' published alongside the Airports Commission
84 Airports Commission, July 2015 'Airports Commission: Final Report'
85 Airports Commission, July 2015 'Airports Commission: Final Report'
86 PwC (December 2013), Airports Commission: Comparative connectivity analysis
87 KPMG (2015) Let Britain Fly campaign
88 Figures from Thames Water in Mayor of London, July 2014, 'London Infrastructure Plan 2050 A Consultation'.
89 For a longer discussion see Mayor of London, July 2014, 'London Infrastructure Plan 2050 A Consultation'.
90 Mayor of London, 2014, 'Enabling Infrastructure: Green, Energy, Water & Waste Infrastructure to 2050'.
91 Mayor of London, October 2015, 'London Sustainable Drainage Action Plan: Draft for public consultation'.
92 Mayor of London, July 2014, 'London Infrastructure Plan 2050 A Consultation'.
93 Financial Times, November 23, 'London power grid feels the strain of development'
94 Ofcom, December 2014, 'Infrastructure Report 2014'
95 Tech London Advocates, 2015, 'Joining the Dots: Building The Infrastructure for London Tech'
96 For a discussion of the challenges in London, see Mayor of London (2014) 'Raising London's High Speed Connectivity to World Class Levels'.
97 House of Commons, March 2015, 'Fixed broadband: policy and speeds' and 'Maps of Average Broadband Speed in Great Britain' .
98 ONS, September 2015, 'Personal Well-being in the UK 2014/15'

5 London's environment

Key Findings

- Maintenance of 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.

- Climate change remains a significant risk to the London economy. Although, London's CO_2 emissions have fallen 11 per cent since 1990, global emissions continue to rise rapidly and this presents a risk to both London's economy and environment. However, measures to decarbonise energy supply and improve energy efficiency both locally and globally can generate economic opportunities for London.

- Air quality in London has improved in recent years; London is now compliant for eight out of nine regulated pollutants and ranked 15th out of 36 of the world's biggest cities. However, poor air quality continues to create significant economic costs in the capital – estimated to be equivalent to 140,000 life-years lost, or £3.7 billion.

- London's continued expansion of population and business, as well as the competition for land use, means that the need for infrastructure for waste and recycling, water, and energy supply in London would be expected to grow in the future.

- London ranked 11th overall on the Siemens Green City Index, which compared thirty European cities across eight categories – carbon emissions, energy, buildings, transport, water, waste and land use, air quality and environmental governance. Although city indices may, more generally, have limitations, they do highlight areas where London could improve.

Introduction

The environment is a fundamental part of London's economy, it impacts upon the health and quality of life of Londoners, but it also has an important role in the function of the London economy, as its resources are used by people and businesses to produce and provide goods and services. Therefore, maintaining high environmental standards and developing infrastructure that both meets the needs of London's economy and is resilient to current and future challenges, is essential to ensure London's continued competitiveness.

With population projected to grow over the next thirty years, the pressures on resources and the natural environment will continue to expand. Therefore, to maintain and improve quality of life for Londoners, as well as safeguarding economic growth into the future, interventions to protect London's environmental assets will need to be undertaken. Many of the issues explored in this chapter are examples of market failure, typically through negative externalities.

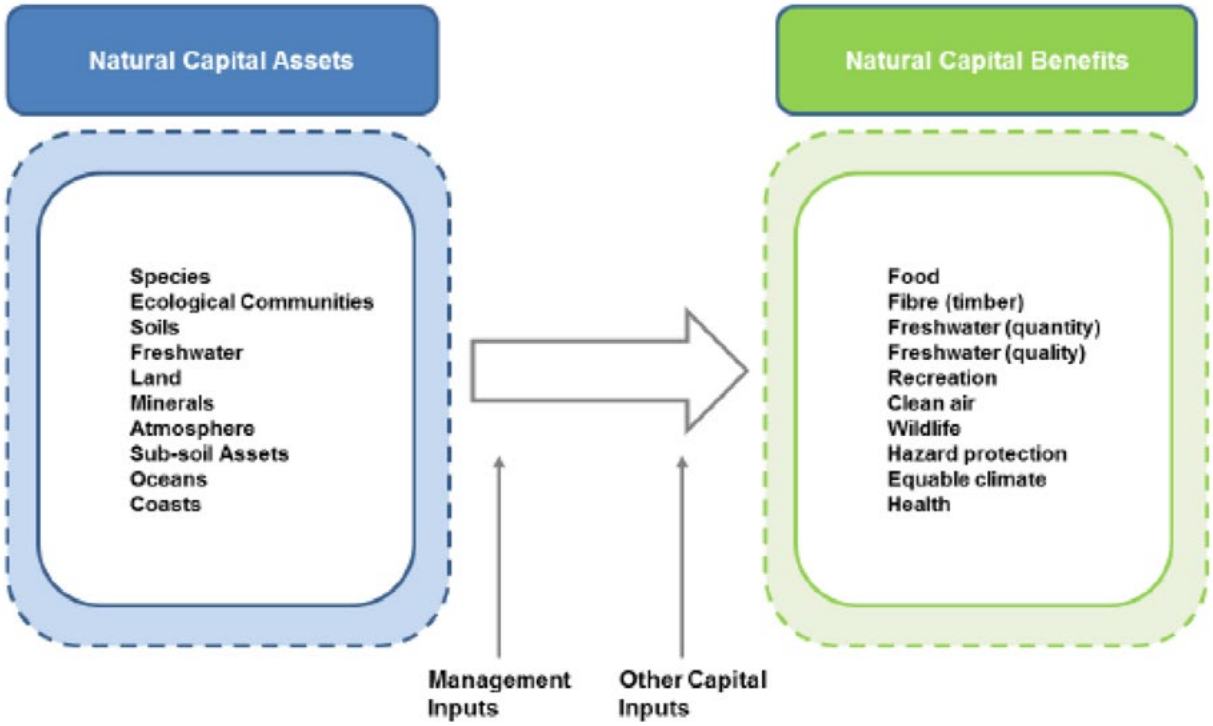
This chapter also introduces the concept of natural capital, which refers to the elements of the natural environment which provide goods and services to people such as clean air, clean water, food and recreation.[1] Through industrialisation, population change and increased demands for goods and services, the stock

of natural capital has declined over time, particularly in cities like London, which could prove detrimental for future economic growth. For example, increased incidence of poor air quality impacts on the health of residents, potentially causing costs through lost work, falls in productivity, and increased healthcare costs.

Development of the concept of natural capital has been undertaken by the Natural Capital Committee (NCC), which was established by Government to report to the Economic Affairs Committee.[2] The NCC has produced three reports on the State of Natural Capital exploring the natural capital concept and new valuation, accounting and appraisal methods that can help reveal the real value of the natural environment and the benefits that are provided by environmental assets.[3] For example, by maintaining the atmosphere (the asset) free of pollution, the benefit that is derived from this is clean air, therefore mitigating the negative externalities (and hence costs) associated with poor air quality. The natural capital framework is illustrated in Figure 5.1 below. The NCC has developed a natural capital accounting framework which has been piloted on a number of green infrastructure assets, including the Beam Parklands in Dagenham, East London and through the application of the i-Tree eco methodology to London. These examples are described in more detail later in this chapter, in the section on Green Infrastructure.

In summary, economic benefits can be obtained from better protecting and improving natural capital in order to maintain the existing economic benefits provided and mitigates the potential economic losses from the depletion or degradation of natural capital. Work on the natural capital framework and environmental valuation is still ongoing, with much more scope for further research about how the economic benefits of the environment can be valued and accounted for in public policy decisions.[4]

Figure 5.1: Natural capital assets and type of benefits



Source: Natural Capital Committee[5]

The following sections outline the current state of the environment in London across the environmental issues listed below:

- Climate change
- Air quality
- Noise pollution
- Flood risk and drainage
- Water supply
- Green infrastructure
- Energy use
- Waste and recycling
- London's environmental ranking compared to other global cities.

Each of these sections also discusses the economic costs and risks associated with each of these environmental issues.

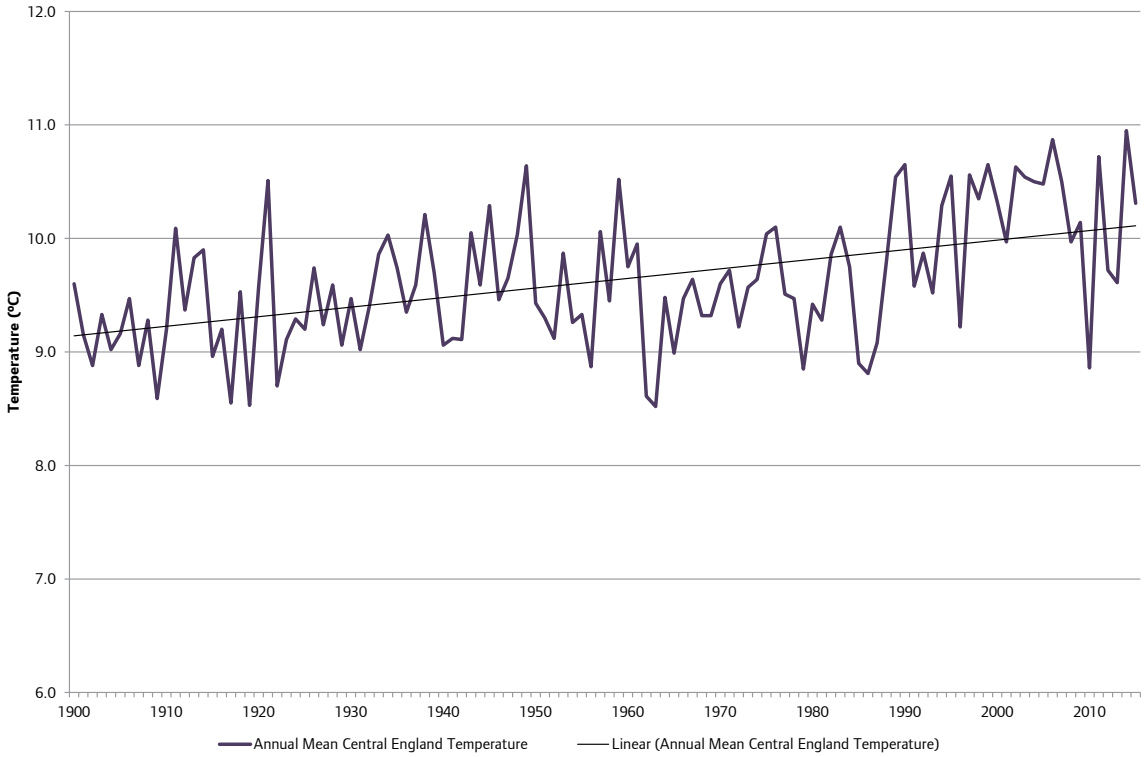
Climate Change

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".[6]

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, the following chart 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 hundred 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.[7]

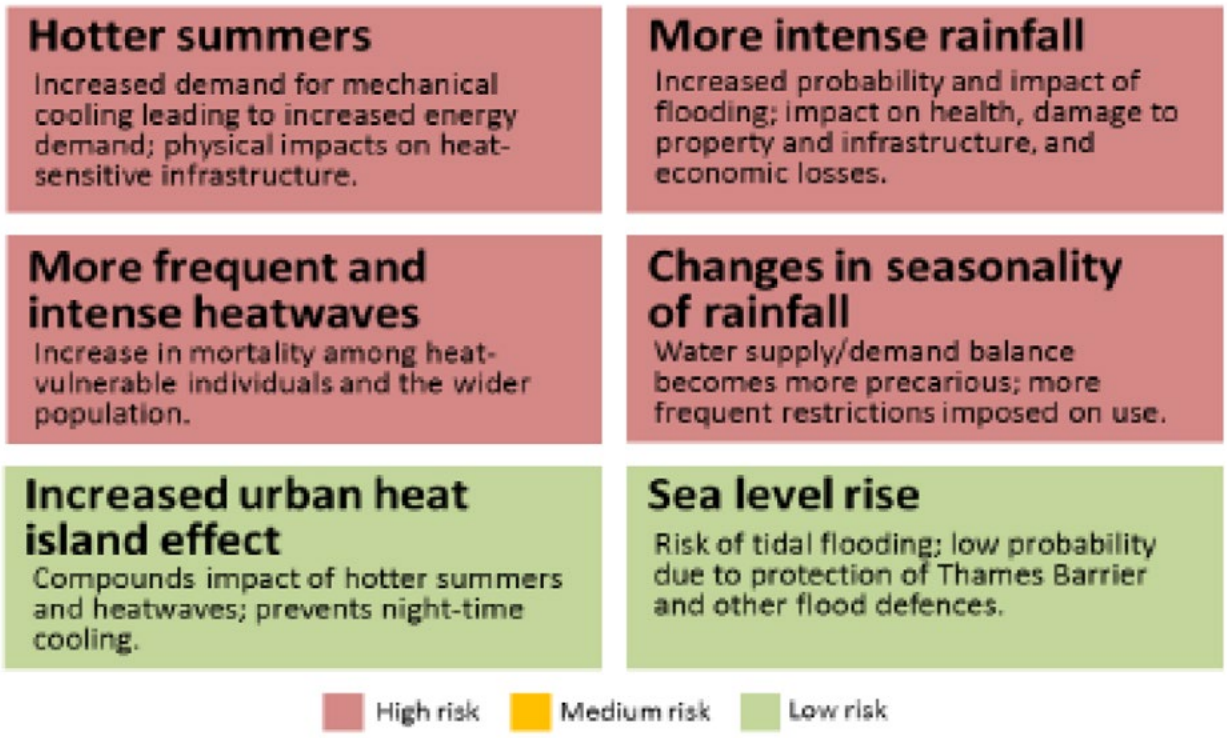
Figure 5.2: Central England Temperature – Mean Annual Data, 1900 – 2015



Source: HadCET, accessed from the Met Office

Analysis from the Carbon Disclosure Project outlined six current and anticipated effects of climate change for London, as outlined in the diagram below:

Figure 5.3: Current and anticipated effects of climate change in London



Source: Carbon Disclosure Project, data provided for the CDP Cities 2013 report, GLA, 2013[8]

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 4). Finally, with increased industrialisation, urban heat effects may create a greater reliance on household energy usage for air conditioning and may reduce people's quality of life.

Opportunities for London

With an increased risk of climate change, there may be opportunities for London's economy to lead in mitigation; for example building upon London's highly skilled workforce to develop specialisation in low-carbon technologies, or building upon its pre-existing specialism for business and professional services (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.[9]

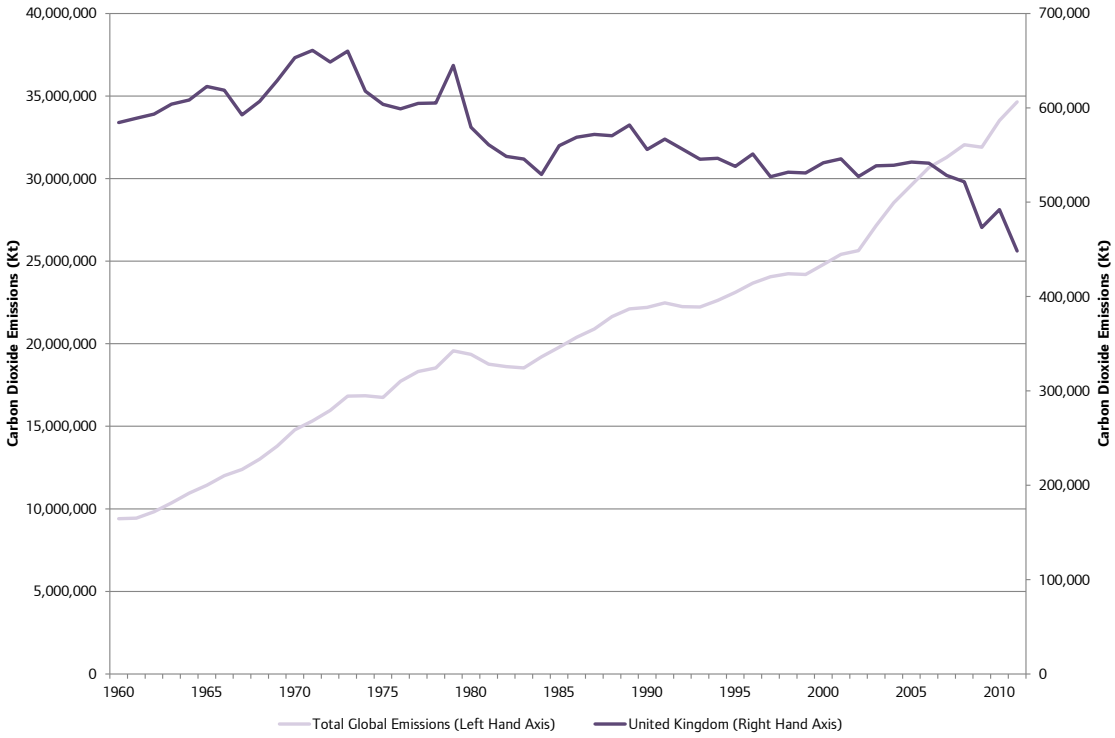
Within low carbon finance, the London Stock Exchange hosts the FTSE Environmental Markets Index Series markets; the FTSE Environment Technology Index has constituent companies with a market cap of $296 billion[10], and the FTSE Environmental Opportunities All-Share has a total market cap of $2.50 trillion.[11] It is however an area in which other global cities have looked to develop specialism in, 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".[12] 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.

Carbon Emissions in London

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 Figures 5.4 and 5.5.

Figure 5.4: Comparison of trends in carbon emissions, global and UK emissions



Source: World Bank

Similar to trends for the UK, carbon dioxide emissions in London has been falling in both per capita and absolute terms, as shown in Table 5.1 and Figure 5.5. Between 2005 and 2013, total CO_2 emissions in London fell by 11.6 per cent; with emissions by industry type falling by 9.9 per cent for industry and commercial, 11.4 per cent for domestic, and 15.3 per cent from transport.

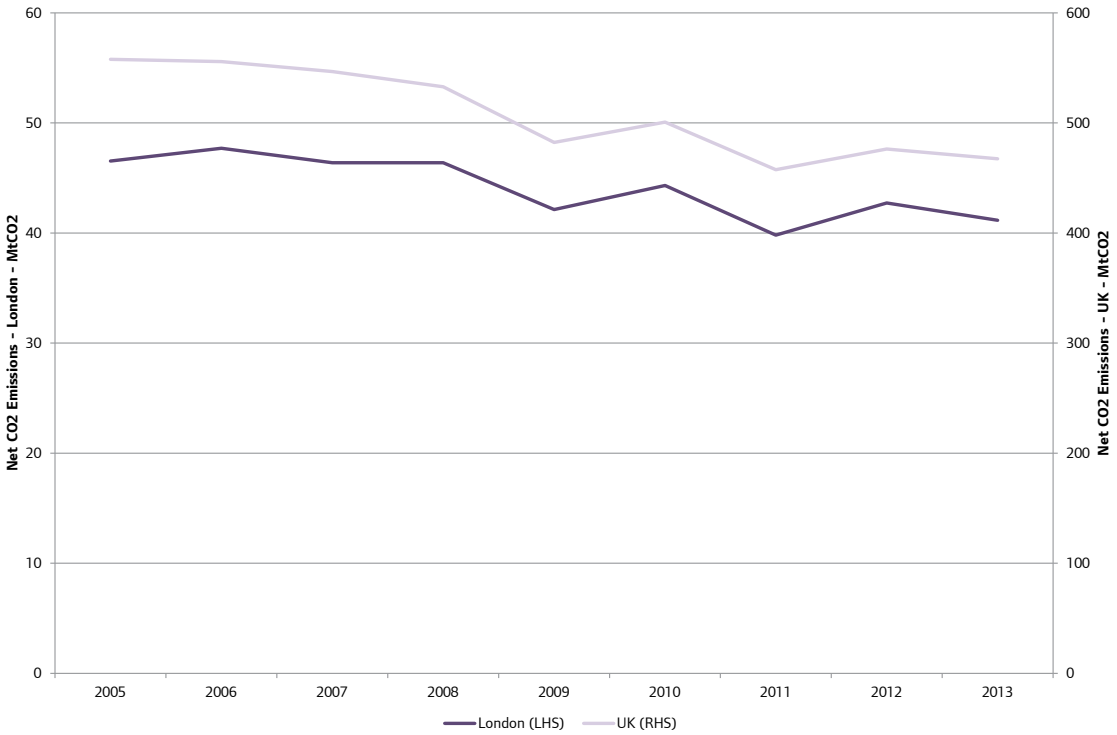
There are a variety of reasons which could explain the falls in carbon dioxide emissions. These include a less carbon intensive national grid; a decline of capital intensive industries (partially shown by employment data in the manufacturing sector); the impact of energy efficiency programmes (both for 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 5.1: Local CO_2 emissions by industry type, $ktCO_2$, 2005 – 2013

Year	Industry and Commercial	Domestic	Transport	Total	CO_2 per capita estimate
2005	20,332.6	17,142.4	9,016.1	46,538.2	6.2
2006	21,697.0	17,055.4	8,893.2	47,689.3	6.3
2007	20,892.1	16,642.3	8,808.2	46,383.5	6.0
2008	21,162.6	16,845.6	8,332.6	46,378.8	5.9
2009	18,727.1	15,235.6	8,122.3	42,121.4	5.3
2010	19,883.0	16,371.9	8,027.7	44,316.2	5.5
2011	17,630.3	14,331.3	7,819.5	39,812.0	4.9
2012	19,425.5	15,491.4	7,783.5	42,728.3	5.1
2013	18,311.8	15,184.5	7,637.4	41,159.7	4.9
Absolute change 2005 – 2013	-2,020.8	-1,957.9	-1,378.7	-5,378.5	--
Percentage Change	-9.9%	-11.4%	-15.3%	-11.6%	--

Source: DECC. Note: Per capita estimate based on ONS Mid-Year Population estimates

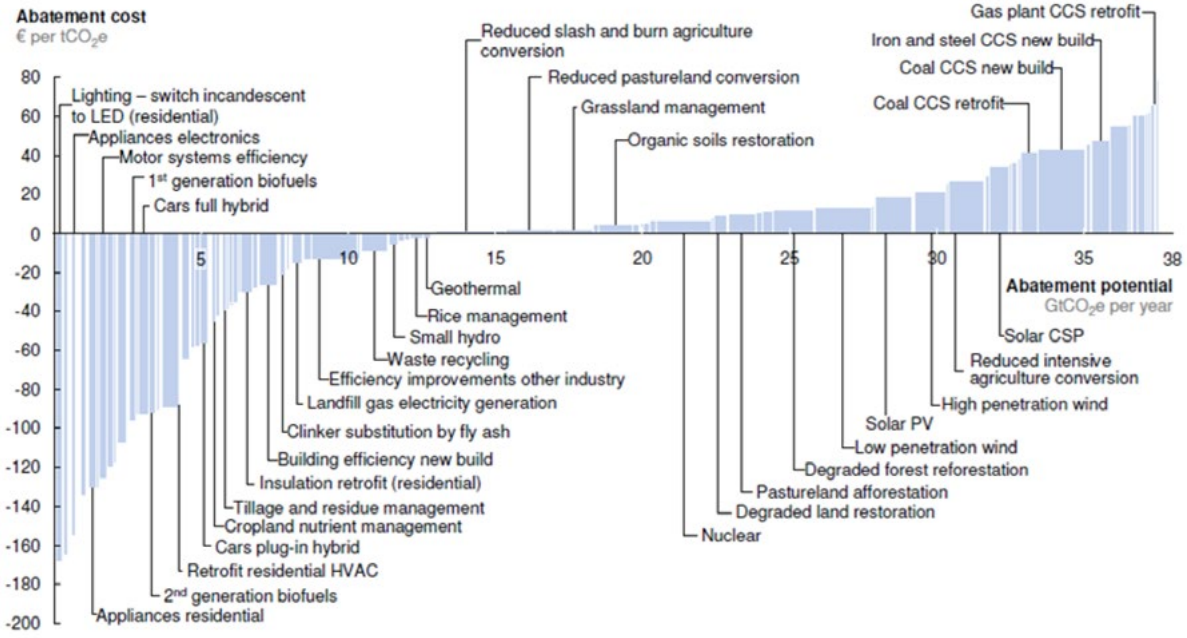
Figure 5.5: Trends in UK and London CO_2 emissions



Source: DECC

Despite trends for reductions in carbon emissions over time, for developed nations to meet carbon reduction targets, a variety of programmes and activities need to take place, each of which will have different capacity to reduce carbon emissions at various level of cost. The diagram in Figure 5.6 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.

Figure 5.6: 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

Air Quality

Significant improvements in air quality have occurred across the UK in recent decades as a result of interventions to reduce emissions in areas such as industry and transport. For example within London, this has resulted from the implementation of one of the world's largest bus retrofit programmes, vehicle licensing requirements for taxis and a new Low Emission Zone for construction machinery.

According to the European Environment Agency, "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".[13]

London's air quality has significant 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. 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 (such as the Siemens Green City Index).

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. 51 per cent of the Local Super Output Areas (i.e. roughly wards) within the most deprived 10 per cent of London have concentrations above the Nitrogen Dioxide (NO_2) EU limit value. This is in contrast to the 10 per cent least deprived areas, which are on average 1 per cent above the NO_2 EU limit value.[14]

Health Impacts

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.

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. External sources are responsible for just under half of the mortality burden associated with NO_2. Furthermore, 75 per cent of the cardiovascular hospital admissions associated with $PM_{2.5}$ result from sources outside London. 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 both pollutants ranged from £1.4 billion to £3.7 billion, depending on whether the costs associated with long term exposure to NO_2 were included.

Measured Concentrations

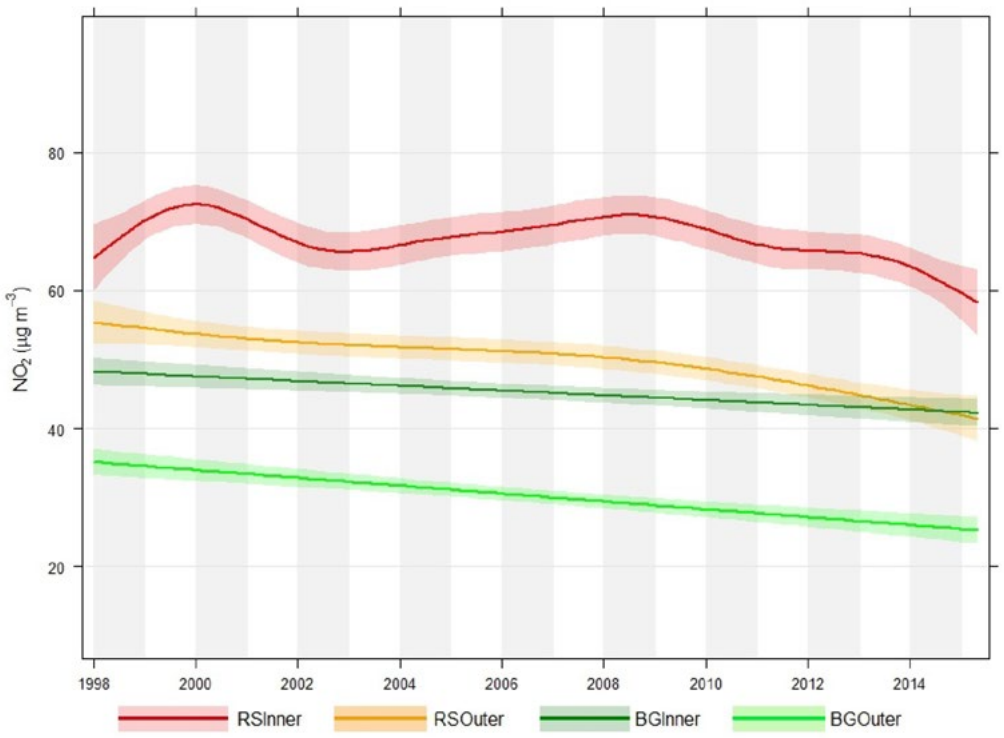
London has a large air quality monitoring network, funded by London boroughs, the GLA, TfL and Heathrow Airport. Many of these sites are part of the London Air Quality Network (LAQN)[18], managed by King's College London's Environmental Research Group.

Figures 5.7 and 5.8 show that overall, there has been a gradual reduction in NO_2 and PM_{10} 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.

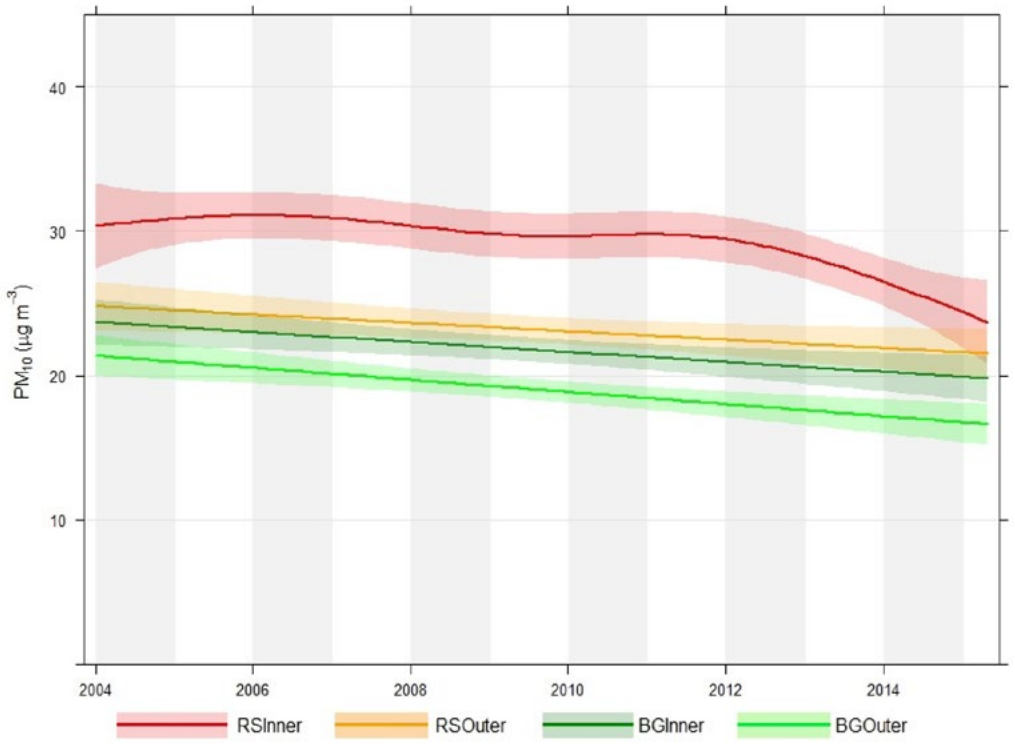
This network gives an opportunity to understand trends in London's air quality. One way to view air quality monitoring data is to group monitors based on their location and distance from the roadside and look at the average concentrations. For example, roadside monitors are within five metres of roads, whilst background sites are away from major sources.

Figure 5.7: Trends in NO_2, 1998 to 2014



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 Iinner and Outer London).

Figure 5.8: Trends in PM_{10}, 2004 to 2014[19]



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).

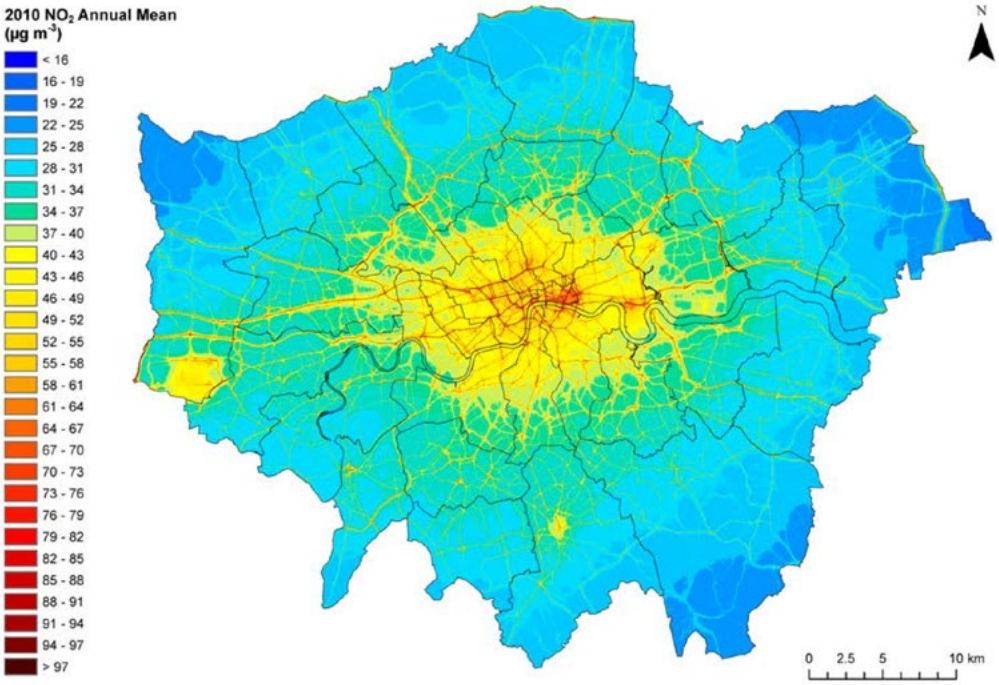
These averages do not however reflect the variability between individual site characteristics and trends. They do reflect all pollution sources experienced at a monitoring site and not just locally emitted pollution or road based pollution specifically.

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 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[20] (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 transport links. The following chart shows how air quality gets relatively poorer in areas closer to the centre of the city.

Map 5.1: NO_2 annual mean concentrations (mg/m^3) for the year 2010



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 5.1 and Figures 5.9 – 5.10 highlight the highly spatial and temporal nature of air quality in London.

Figure 5.9: Average NO_2 pollution by hour, London mean roadside and background, August 2015

Source: GLA Economics calculations; King's College London data (accessed at London Datastore)

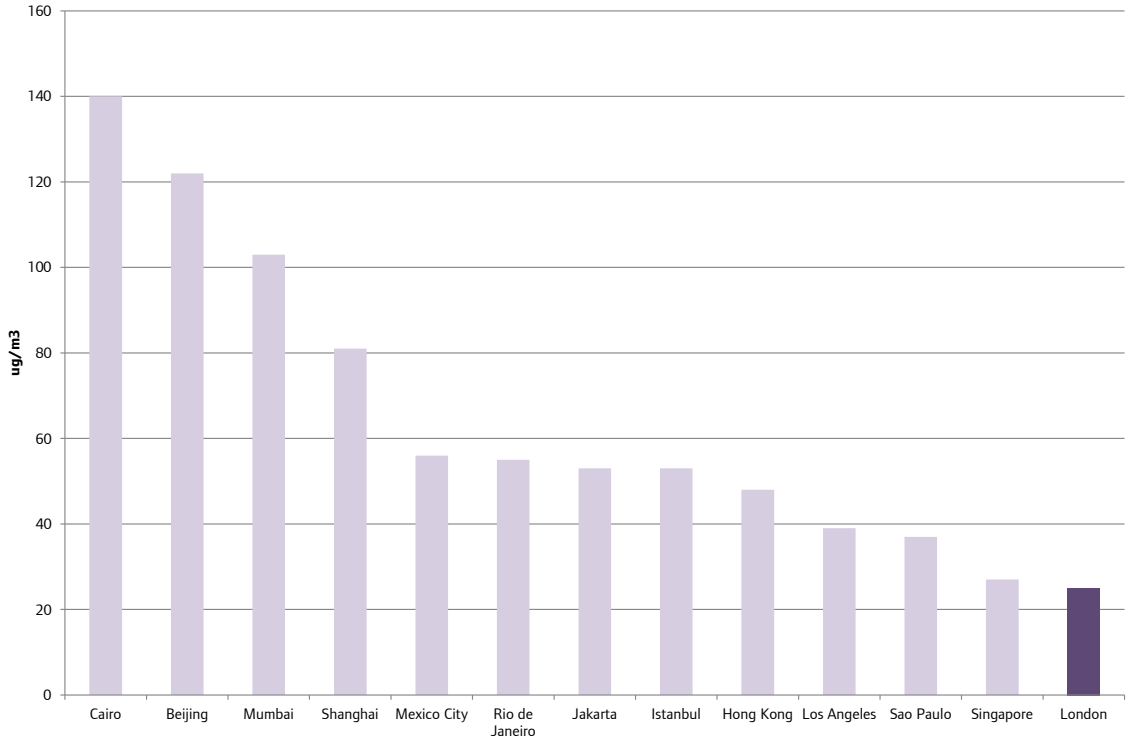
Figure 5.10: Average PM_{10} pollution by hour, London mean roadside and background, August 2015

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[21]; 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.

Despite the UK being at risk of penalty from the European Commission due to poor air quality[22], 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 5.11 being within emerging economies.

Figure 5.11: 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 5.2. 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 5.2 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.[23]

It should be mentioned that most of the cities which place above London in this ranking tend to be 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 5.2.

Table 5.2: Citywide Index, five year average 2008-2012

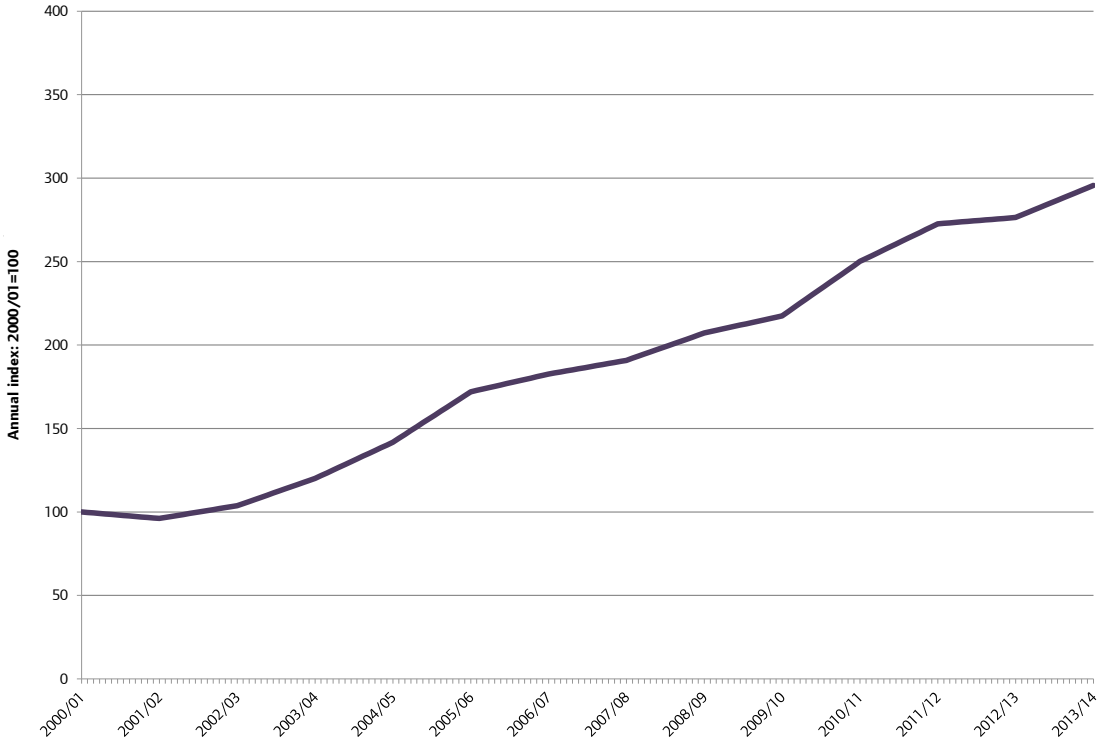
Position	City
1	Vancouver
2	Sydney
3	Stockholm
4	Vienna
5	Berlin
8	Singapore
12	Paris
15	London
17	New York
30	Hong Kong
34 (of 36)	Shanghai

Source: AMEC Environment & Infrastructure

Cycling in London

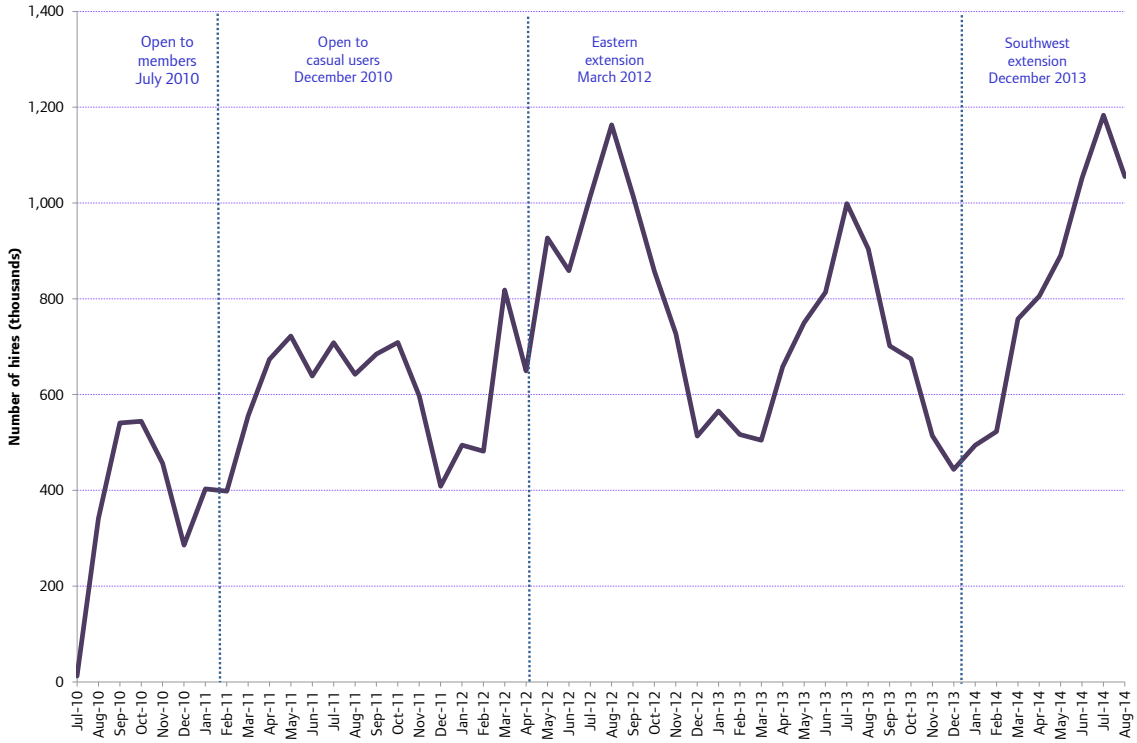
A feature of transport in the capital over the last decade has been the growth in cycling. Data for the TfL Road Network (which includes major roads) has found that between 2000/01 and 2013/14, cycling grew by 196 per cent[24]. Figure 5.12 shows the annual index of cycling trips undertaken on the road network. The Cycle Hire programme has contributed to this growth (Figure 5.13), what is unclear though is whether there have been shifts away from car usage to cycling, therefore improvements in air quality may not be as a result of this, rather reduced congestion and increased road speeds may contribute to improved environmental quality.

Figure 5.12: Annual index of cycle journeys on the Transport for London road network



Source: Travel in London report; TfL Surface Transport

Figure 5.13: Trend in monthly cycle hires, Cycle Hire Scheme



Source: Travel in London, TfL

Impacts of noise

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 Organisation estimated that across Western Europe, prevailing levels of noise cost between 1.0 and 1.6 million disability-adjusted life years lost each year.[25] Using Department of Health estimates, the social cost would therefore be between £60 billion and £100 billion per year across Western Europe[26]. 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.[27]

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 5.3.

Table 5.3: Number of people exposed to roadside, railway and industrial noise above thresholds, Greater London, 2011

Type	>55dB	>65dB	>75dB
Roadside	2,378,200	1,027,200	99,200
Railway	525,200	158,100	15,200
Industrial	23,600	7,500	3,000

Type	>50dB	>60dB	>70dB
Roadside – Night	1,665,400	649,400	900
Railway – Night	388,700	95,100	6,400
Industrial - Night	20,500	6,700	2,700

Source: Defra

Aviation noise also affects many people in London. A 2013 report from TfL noted that 766,100 people lived within the ≥ 55 Lden[28] contour of Heathrow[29], and at least another 17,800 people[30] 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.

Water

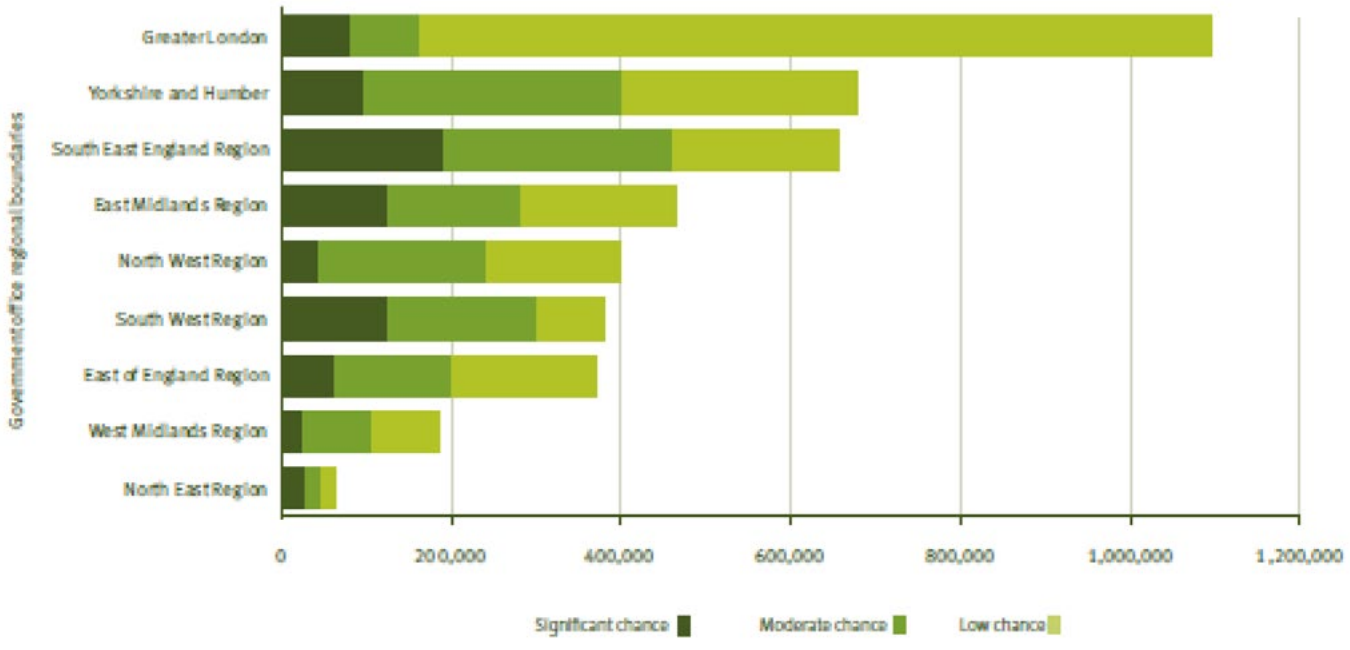
Water is a fundamental part of the natural environment; it services households and industry through consumption and sewerage. Due to London's geographic location, the Thames has played an important part in the development of the capital as a centre for trade, through the import and export of goods and services.

Flood Risk and Drainage

16 per cent of London's land area is within a floodplain 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 5.14. However, as a city close to sea level, it is vulnerable to many of the negative impacts of climate change. In particular, sea level rise, and increased expectations of more intense rainfall mean that the capital faces an increased risk of flooding. To address this risk, the Thames tidal flood defences protect over £200 billion 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.

The understanding of the risk of surface water flood risk has improved greatly over the past 5 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 5.14: Numbers of people living in a floodplain by region



Source: NaFRA; Environment Agency

Water Supply

The South East of England is classified by the Environment Agency 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, meaning that 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 Environment Agency 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, bringing water via canal from the River Severn, 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 5 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.

Sewerage

London's sewerage system has been developed over the past 150 years. The recent completion of the £650 million Lee Tunnel in East London should prevent sewer overflows into the River Lee near Stratford. This will be complemented by the £4 billion Thames Tideway Tunnel which is due to be 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.

Green Infrastructure

What is Green Infrastructure?
Green infrastructure is 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.

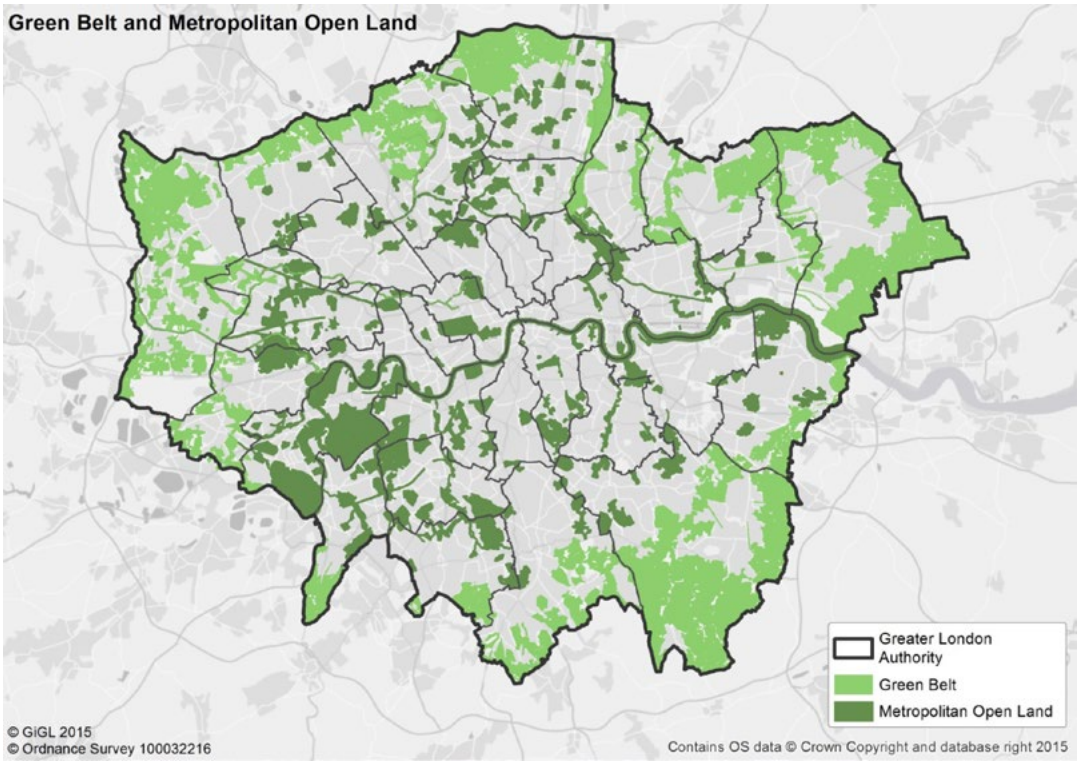
London is already a green city, with over 47 per cent of its total area classified as green or blue, and has over 8 million trees. As set out by the NCC, green infrastructure is an integral part of the urban environment upon which the prosperity and viability of the city depends.

Better 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. 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[31].

Within an environmental context, the scale of economic impacts is potentially much higher. The Natural Capital account for Beam Valley Parklands, 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[32].

Map 5.2: Green spaces in London



Source: GLA Intelligence Unit. Note: This map only includes Green Belt and Metropolitan Open Land, not all green spaces in London.

Programmes of planting trees in urban areas have been undertaken to provide a range of both environmental and wellbeing benefits. These include aesthetic improvements to areas and these becoming a focal point for residents; but 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 urban forest provides total benefits of £132.7 million per annum.[33]

Energy Use

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 15.5 per cent, as shown in Figure 5.15. Table 5.4 shows this decrease in energy consumption was consistent across the domestic, commercial and transport sectors

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[34] (13.2 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.[35]

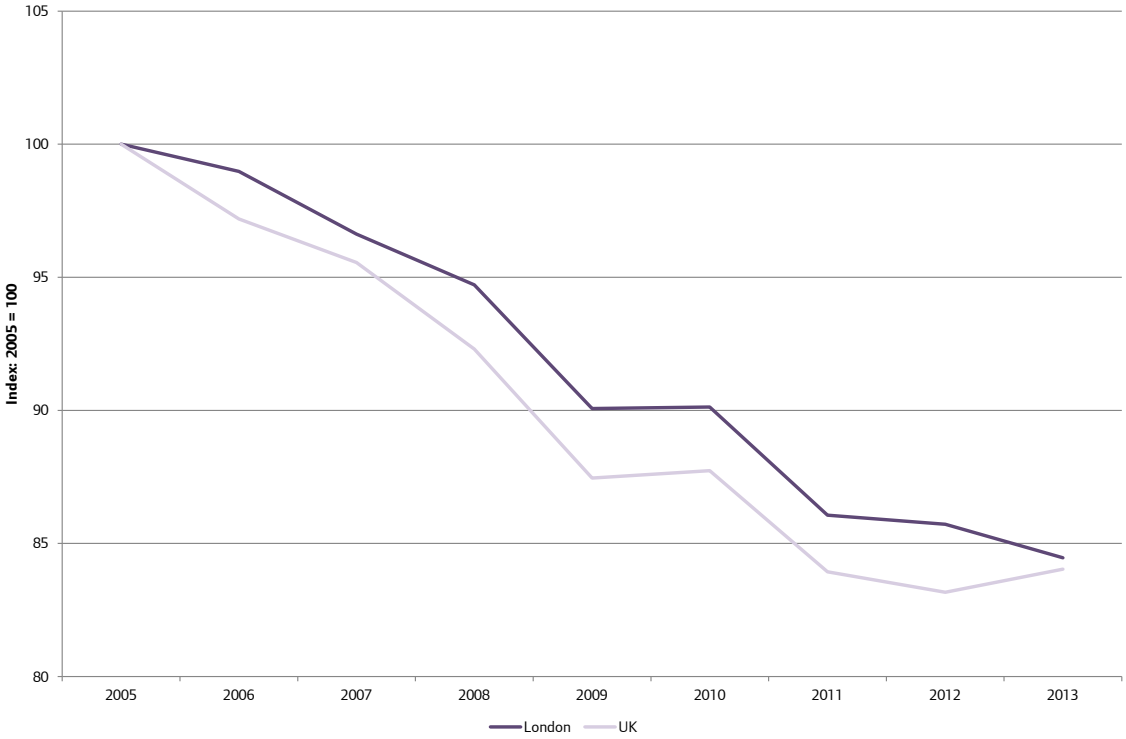
With London's population estimated to increase by around 3 million people, and add an additional 1.6 million homes by 2050, London's need for energy may increase – an expected 20 per cent increase in demand[36].

Table 5.4: Total sub-national energy consumption, London, by consuming sector, GWh

Year	Industry and Commercial	Domestic	Transport	All Fuels Consumption
2009	52,457.5	58,621.1	29,663.4	140,893.6
2010	53,336.8	58,504.6	28,963.7	140,992.2
2011	50,472.4	55,752.0	28,098.5	134,627.0
2012	50,980.5	55,234.2	27,590.8	134,091.7
2013	50,121.5	54,436.7	27,249.0	132,124.6
Absolute change 2009 – 2013	-2,336.0	-4,184.4	-2,414.4	-8,769.0
Percentage change	-4.5%	-7.1%	-8.1%	-6.2%

Source: DECC. Note: Totals do not add due to the exclusion of bioenergy and waste.

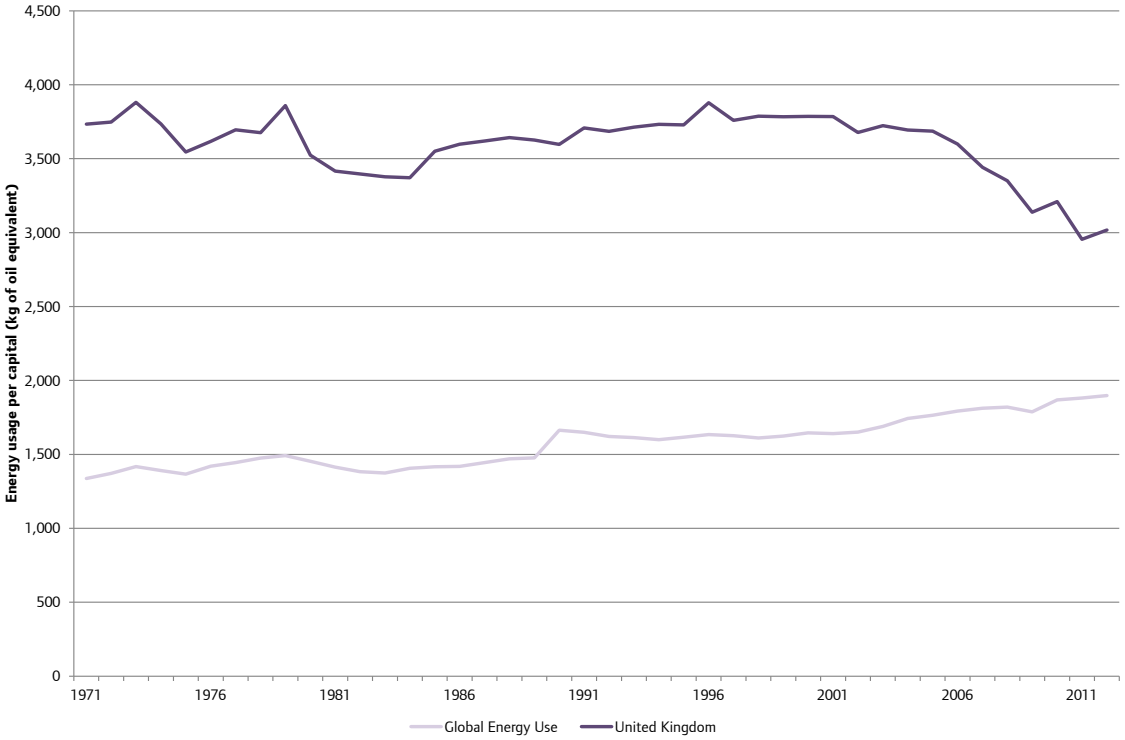
Figure 5.15: Trends in UK and London energy consumption



Source: DECC

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. The following chart shows the trends over the last forty years:

Figure 5.16: Energy usage per capita



Source: World Bank

Waste and Recycling

As a major population centre, London produces a significant quantity of household waste. In addition, as a centre for business, the Capital also produces a large quantity of commercial waste, all of which needs to either be serviced in the capital, or exported elsewhere. As London comprises 13.2 per cent of the total UK population and 22.5 per cent of total economic output, it follows that the capital will produce a significant proportion of the total waste generated in the UK.

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 in the how industrial activity impacts upon London's natural capital. A growing population and increased business activity also has implications in where waste remediation and recycling activity can take place in the capital, especially in the context of the competition and cost of land (as highlighted in Chapter 2). 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, reducing the scale of waste going to landfill (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. 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 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[37], estimates that total employment in the circular economy was 46,700 in 2013. Modelling from GLA Economics estimates that the total GVA in the circular economy would be approximately £2.8 billion in 2013.[38]

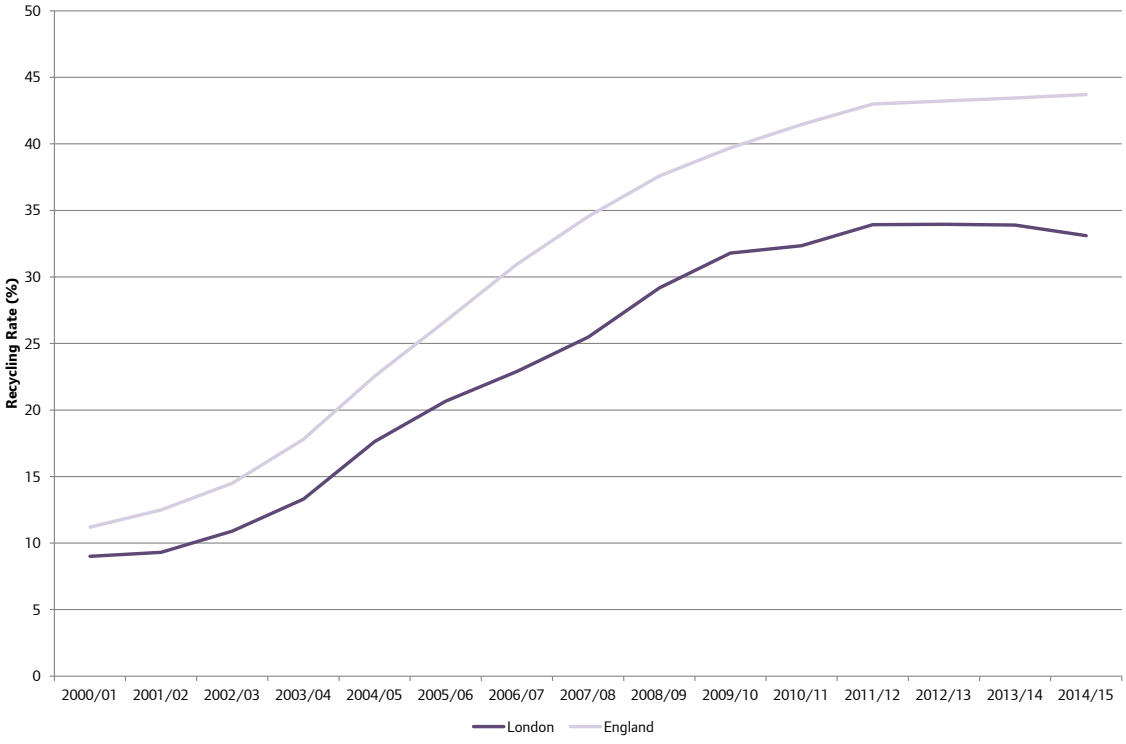
Data on household waste are widely available from Defra, however data on commercial waste are not as complete at the regional level; therefore only household waste statistics are provided. For context, it is estimated that 47.6 million tonnes of commercial and industrial waste were generated in the UK in 2012; it would not be unreasonable to assert that London would account for at least its population share of total commercial waste.[39]

Data on local authority controlled 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. In 2013, it is estimated that London produced 4.7 million tonnes of commercial and industrial waste accounting for about 32 percent of London's total waste. It is estimated that London produces 7.2 million tonnes of construction, demolition and excavation waste each year equating to 48 percent of all waste arisings.

Data for 2014/15 shows that 3.66 million tonnes of waste were collected by local authorities in London (about 20 per cent of total waste arising). However total household waste has fallen by 18.2 per cent in London since 2000/01, and despite a growth in population, total waste arisings have, year-on-year, generally remained largely steady or declined. However, when waste arisings per head are considered, there has been a steady decline over time. 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.[40]

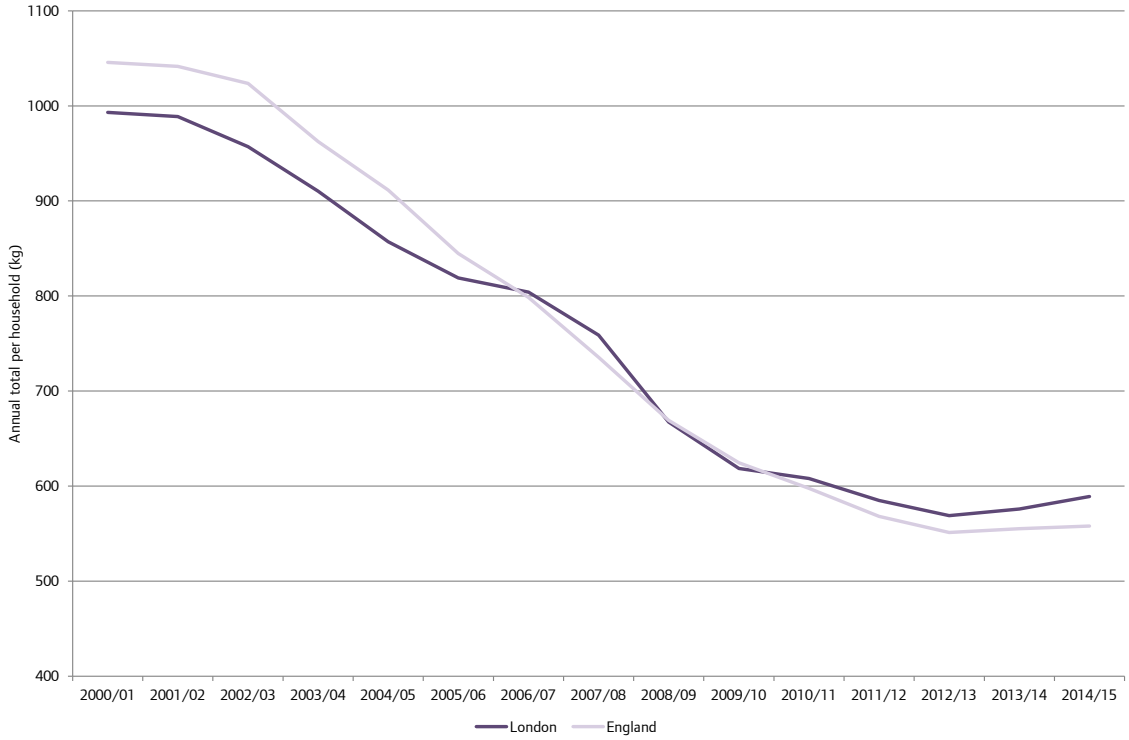
Data shows that London typically lags behind other regions in the proportions of household waste sent to recycling; in 2014/15, household recycling rates were just over ten percentage points lower than the average for England as a whole. At the same time though, London has higher than average levels of household waste per household – but the lowest levels of household waste generated per person; measures to encourage households to reduce waste levels have shown impact, with average household annual waste falling by 42 per cent since 2000/01.

Figure 5.17: Household recycling rates in London and England as a whole; 2000/01 – 2014/15



Source: Defra

Figure 5.18: Annual household waste totals per household



Source: Defra

With increasing trends in recycling, there has been a decreasing trend in the amount of waste sent to landfill, which has important implications for London and its infrastructure. Table 5.5 shows the trends of household recycling, household waste and waste sent to landfill over the last six financial years:

Table 5.5: Data on household 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%
Residual household waste per household	618kg	608kg	585kg	569kg	576kg	589kg

Source: Defra

London's position in the global context

The Siemens Green City Index compared thirty European cities across eight categories – carbon emissions, energy, buildings, transport, water, waste and land use, air quality and environmental governance – based upon quantitative data and as well as subjective assessment of a city's aspirations for greening their city. A limitation of this index is that the reference date is 2009, therefore many cities will have progressed in that time, but it gives an indication of how London performs comparatively against other cities.

Overall, London ranked 11th, but across the indicators, the capital varied between 8th and 16th, providing an indication that improvement could be made across a wide range of areas, as shown in the following table:

Table 5.6: London's position within Siemens Green City Index indicators

Category	London's ranking	Leading city	Second city	Third city
CO_2	10th	Oslo	Stockholm	Zurich
Energy	10th	Oslo	Copenhagen	Vienna
Buildings	10th	Berlin, Stockholm (equal 1st)		Oslo
Transport	16th	Stockholm	Amsterdam	Copenhagen
Water	8th	Amsterdam	Vienna	Berlin
Waste and land use	11th	Amsterdam	Zurich	Helsinki
Air quality	12th	Vilnius	Stockholm	Helsinki
Environmental governance	15th	Brussels, Copenhagen, Helsinki and Stockholm (equal 1st)		

Source: Siemens Green City Index

An important caveat associated with city indices, is that establishing comparable measures between international cities can be difficult and in many cases there may not be data available, or may be drawn from less recent analysis which may not be reflective of the current situation. Furthermore, any indicator (or composite) of indicators generally results in a simplification of often complex and interlinked systems. Therefore, these results should be interpreted cautiously when they are used to inform policy development and debate.[41]

Chapter 5 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 Natural Capital Committee - http:www.naturalcapitalcommittee.org/why-we-were-set-up.html
3 State of Natural Capital Reports - http://www.naturalcapitialcommittee.org/state-of-natutal-committee - reports.html
4 Natural Capital Committee, 2015, page 19 – 20.
5 Natural Capital Committee, 2015, page 19
6 "Stern Review: The Economics of Climate Change", 2006; page vi
7 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".
8 "Weathering the Storm: The Impact of Climate Change on London's Economy", London Assembly, 2015; page 10
9 "London's Low Carbon Market Snapshot 2015", kMatrix, page 4.
10 "FTSE Environmental Technology Index Series", Factsheet, 30 November 2015
11 "FTSE Environmental Opportunities Index Series", Factsheet, 30 November 2015
12 "Stern Review: The Economics of Climate Change", 2006; page viii
13 Drawn from Natural Capital Committee, State of Natural Capital, 3rd Report
14 Aether, "Analysing Air Pollution Exposure in London".
15 PM2.5 and PM10 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. PM2.5 refer to particles that are smaller than 2.5 micrograms in diameter; these are considered to have more harmful health effects than PM10, 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 King's College London, "Understanding the Health Impacts of Air Pollution in London"
18 www.londonair.org.uk
19 Due to monitoring methodological changes a time series can only be derived for PM_{10} from 2004
20 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.
21 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
22 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, however is likely to be financial.
23 "Comparison of Air Quality in London with a number of world and European cities", AMEC Environment & Infrastructure, Table 10.6, page 61.
24 "Travel in London 7", Transport for London, page 101.
25 "Burden of disease from environmental noise: Quantification of healthy life years lost in Europe", World Health Organisation; Executive Summary page xvii.
26 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.
27 "Burden of disease from environmental noise: Quantification of healthy life years lost in Europe", World Health Organisation; Executive Summary page xvii.
28 Lden – is the A-weighted long-term average sound level for the day-evening-night noise indicator in decibels (24 hours).
29 TFL, Airports Commission Discussion Paper 05: The Mayor of London's Response
30 London City Airport, Noise Action Plan, 2010-2015
31 Valuing Greenness Green spaces, house prices and Londoners' priorities https://www.london.gov.uk/sites/default/files/valuing_greenness_report.pdf
32 Beam Parklands Natural Capital Account
33 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.
34 Based upon 2014 ONS mid-year population estimates.
35 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.
36 https://www.london.gov.uk/what-we-do/business-and-economy/better-infrastructure/london-infrastructure-plan-2050
37 WRAP, 2015, "Employment and the Circular Economy: Job creation through resource efficiency in London".
38 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.

39 "Digest of Waste and Resource Statistics – 2015 Edition", Defra.
40 Definition of houses in multiple occupation available at: https://www.gov.uk/private-renting/houses-in-multiple-occupation
41 GLA Economics, "City ranking indices – handle with care", Current Issues Note 31.

6 London's people

Key findings

Demography

- London's population is bigger than ever before with approximately 8.7 million 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 rest of the UK. This is driven by the tendency for young adults to flock into London to study and to work.

London's future population

- Looking to the future, London's population is set to continue to grow and evolve. In fact, it is projected to increase to over 10 million inhabitants by 2036.

- Not only is London's population rising, it is also getting older. By 2036, 15 per cent of London's population is projected to be over the age of 65, compared with 11 per cent in 2015.

- London's school-age population is also growing and is projected to number nearly 1.4 million by 2036, bringing with it its own challenges for London in terms of school place planning.

- Driving London's population growth has been a considerable rise in the number of births and, most significantly, large inflows of international migrants.

Migration to London

- London's high international inflow means it has become something of a hub for foreign-born communities. Approximately 3.1 million 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 last 10 years.

- 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, Mixed or another non-White ethnicity.

Households

- 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 & 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.

- Approximately one-in-three households in London (32 per cent) were made up of just one person, while 37 per cent were couple households.

- Some 31 per cent of households contained at least one dependent child. Moreover, 74 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.

Commuters

- While 8.7 million live in London, London's workday population grows by an additional half a million as commuters flood into work. In fact, one-in-six people working in London actually lives outside of its boundaries.

London's labour market

- The percentage of London residents who were in work is at record-levels, with the latest estimate showing 72.4 per cent in employment. That is almost six percentage points higher than the lows recorded in 2011 and 2012. Similar trends were recorded for unemployment which, at 6.4 per cent, was historically low.

- 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 gap between London and the UK could be due to London's unique characteristics, such as its more ethnically diverse and younger population, its share of full-time and part-time jobs and higher living costs that raise the opportunity cost of working. Accounting for these characteristics, London's employment would be higher than the UK.

- 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 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.

Current topics with London's labour market

- The percentage of workers in London who were underemployed – that is, individuals who are in work but want to work more hours – was 9.2 per cent in 2014. 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 9.1 per cent. Generally, underemployment has exceeded overemployment in each year since 2011 suggesting that there is more spare capacity in London's labour market than indicated by the official unemployment rates.

- Over half of employers in London reported staff skills that were under-used in 2013, which was the second-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 suggested that non-UK born individuals who were equally qualified to UK-born employees were 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 or the perceived lower quality of overseas qualifications.

- London's labour market has seen a change in its occupation structure between 2004 and 2014, with an increase in high-skilled and service-orientated jobs, but a decline in middle-skilled roles.

The supply of labour

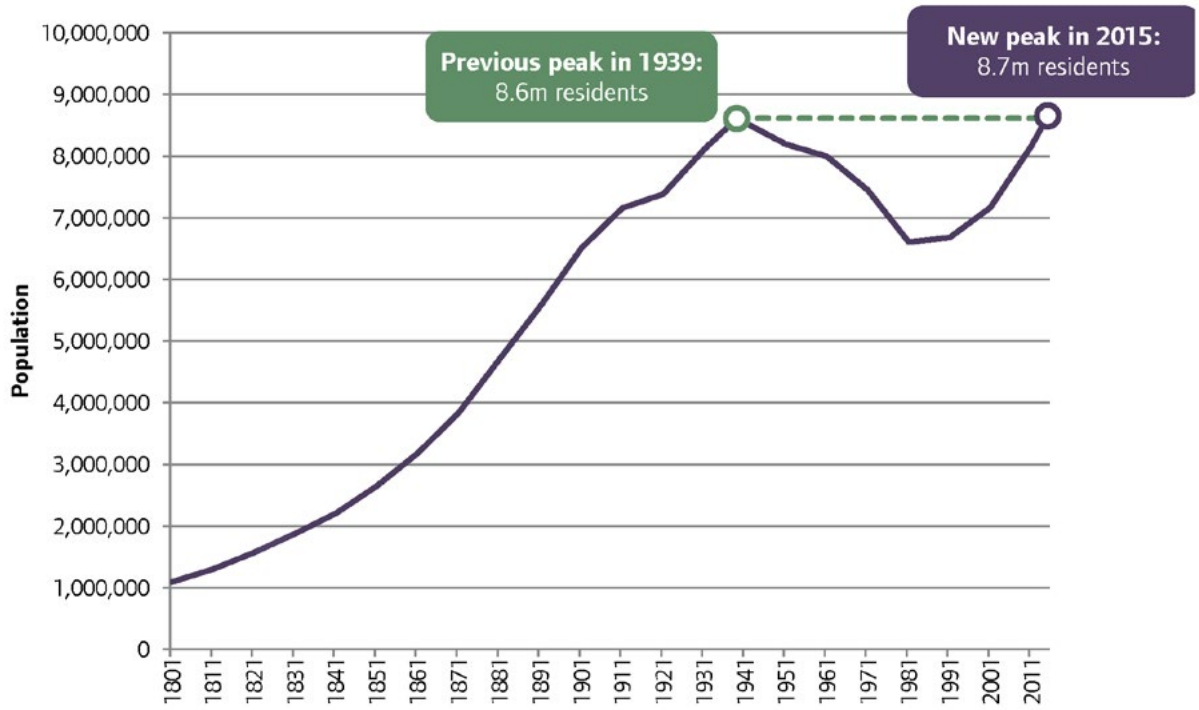
- The number of young people aged 16-24 who were not in education, employment or training (NEET) was 105,000 in Q3 2015. London had a lower proportion who were NEET than the England average, which could partially be linked to a higher percentage of students achieving at least five A*-C grade GCSEs (70.4 per cent versus 64.2 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, 11.9 per cent were still in employment in 2014. Almost half of these did so as they were not ready to stop work, though one-in-five 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.

London's demography

In 2015, approximately 8.7 million people were living in London making it larger than ever, exceeding the previous population peak in 1939. 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].

Figure 6.1: Total population of Greater London, 1801-2015



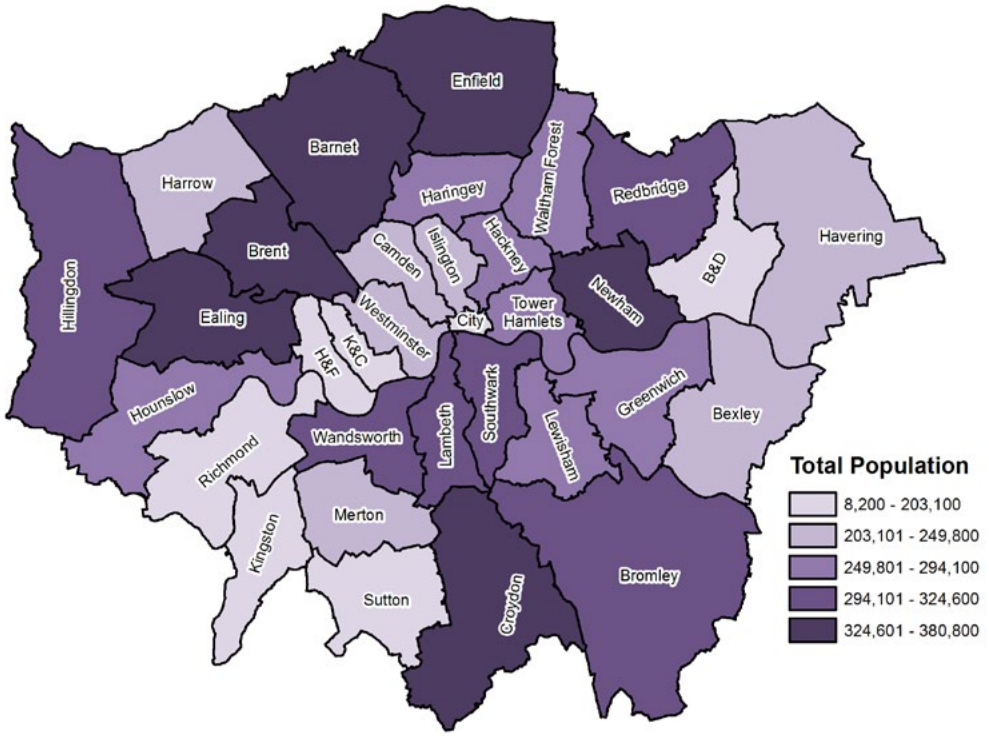
Source: ONS Census, GLA trend-based population projections (short-term migration scenario)

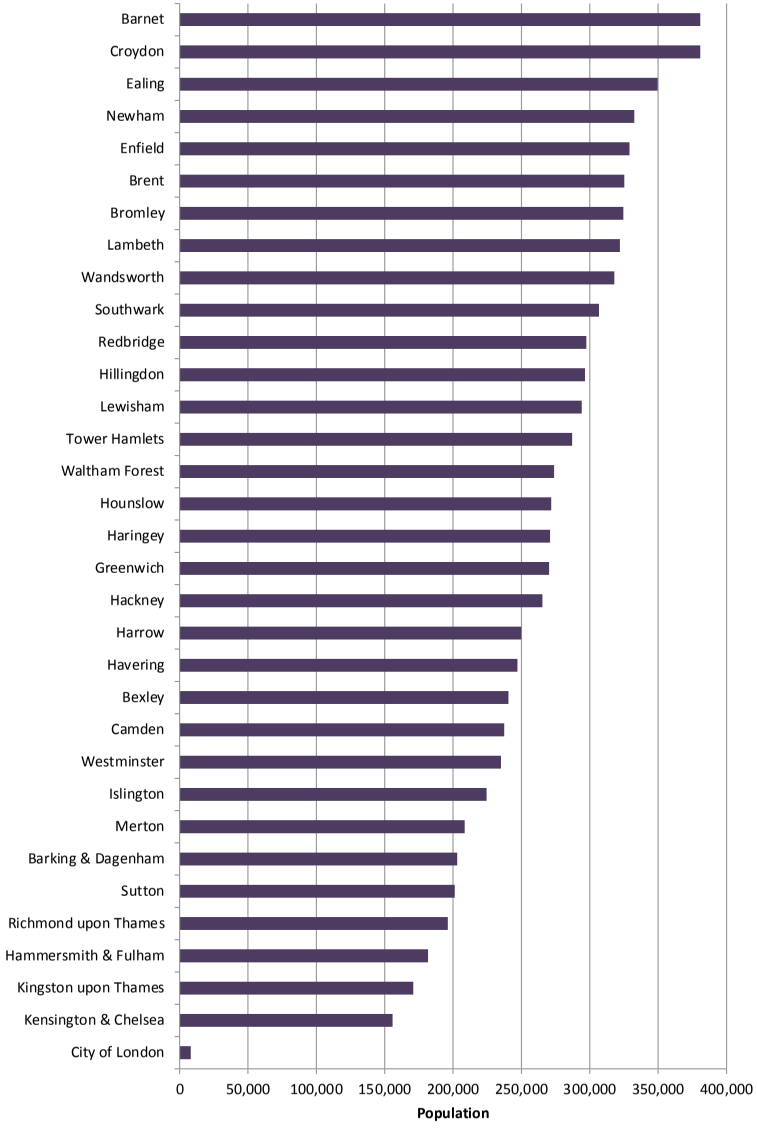
Between 1939 and the 1981 there was a fall in the population, driven by policy changes implemented after the Second World War that resulted in people moving out of London into the newly built "New Towns" surrounding London (such as Basildon and Crawley)[2].

However, since the late 1980s, London's population has seen unprecedented growth driven by the city's strong economic performance, an improving image and, perhaps most significantly, large inflows of international migrants.

Map 6.1 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 6.1: Total population by London borough, 2015

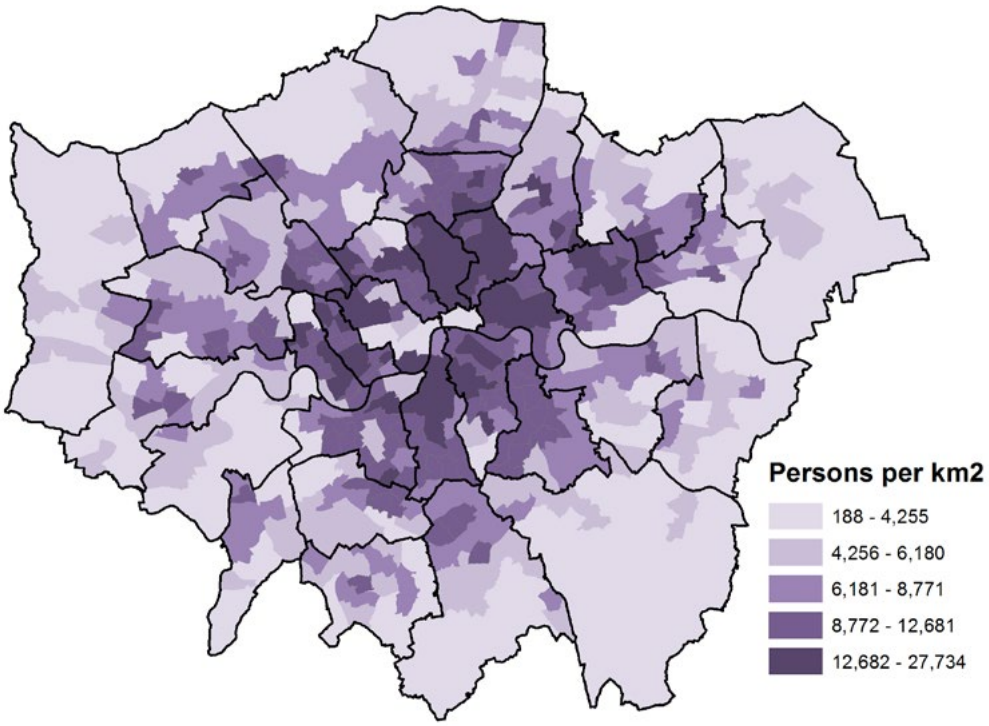




Source: GLA trend-based population projections (short-term migration scenario)

Looking at population density gives us a different picture. Map 6.2 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 hectare) 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 2.

Map 6.2: Persons per km2 by ward, 2011



Source: GLA Ward Population Projections

Table 6.1: Total population and density by borough, 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

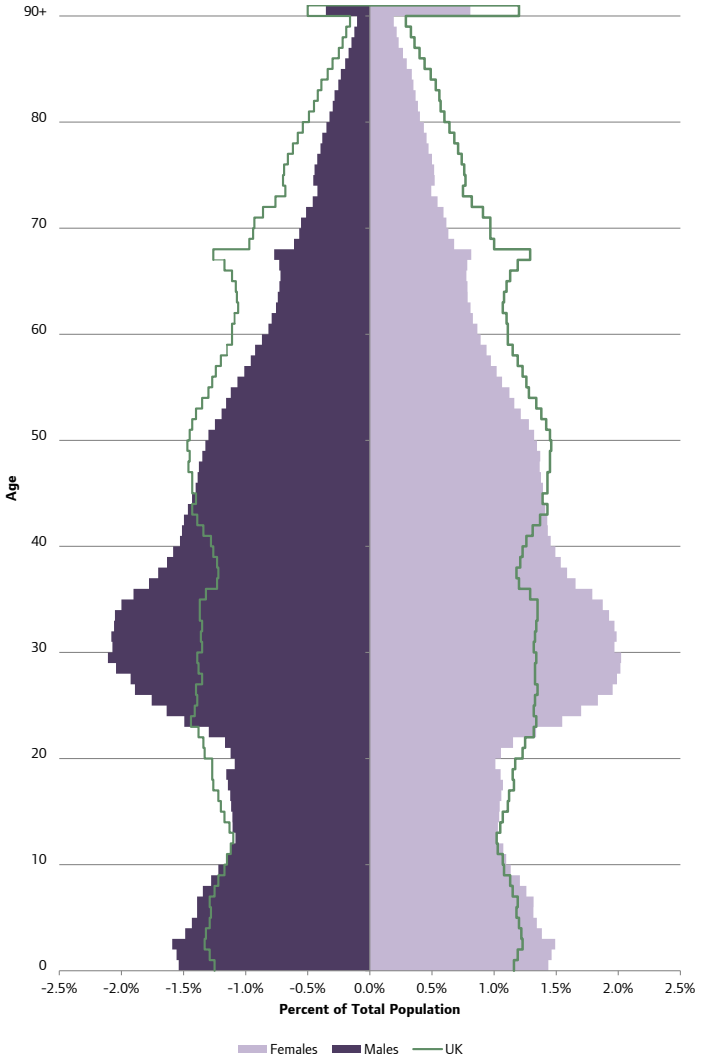
Source: GLA trend-based population projections (short-term migration scenario)

Age structure

London has a younger age structure than the rest of the UK. 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 6.2 below shows that London had a much higher proportion of residents aged between 25 and 45 years old compared with the national average in 2014.

Figure 6.2: Age structure of London compared to United Kingdom, 2014



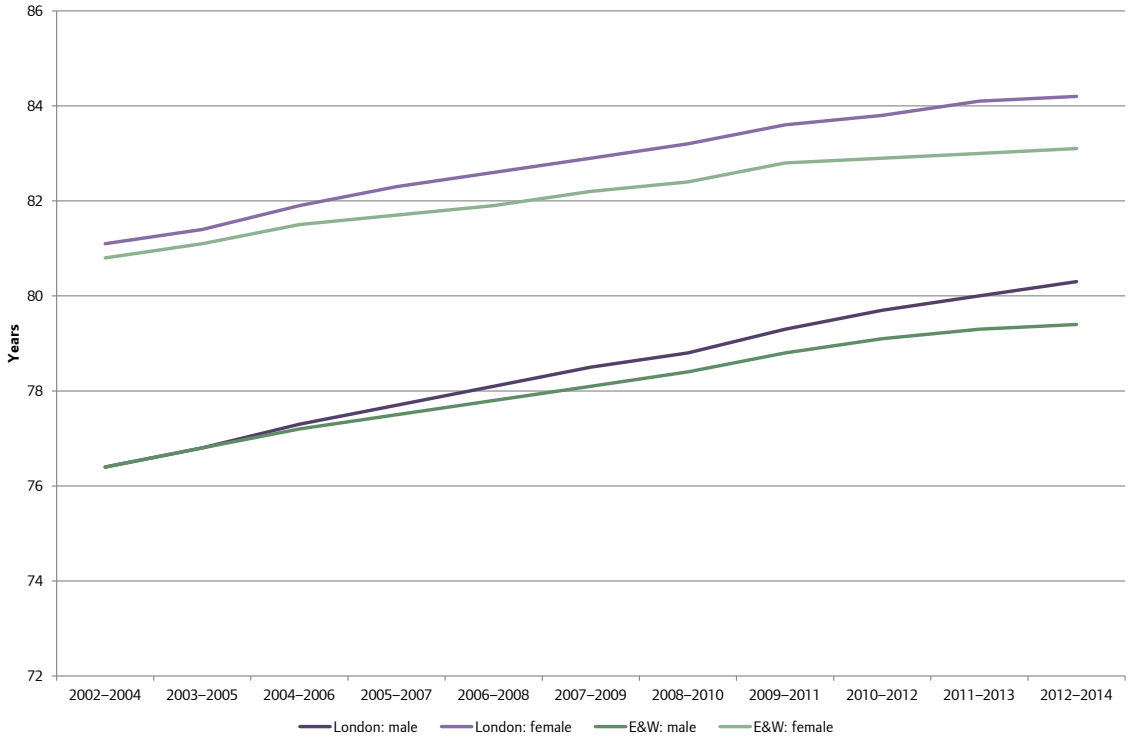
Source: ONS Mid-year Estimates 2014

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 & Wales. 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 & Wales. For a new-born baby girl in London this rises to 84.2 years and 83.1 years in England & 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 7.

Figure 6.3: Life expectancy at birth, London and England & Wales, 2002-2004 to 2012-2014

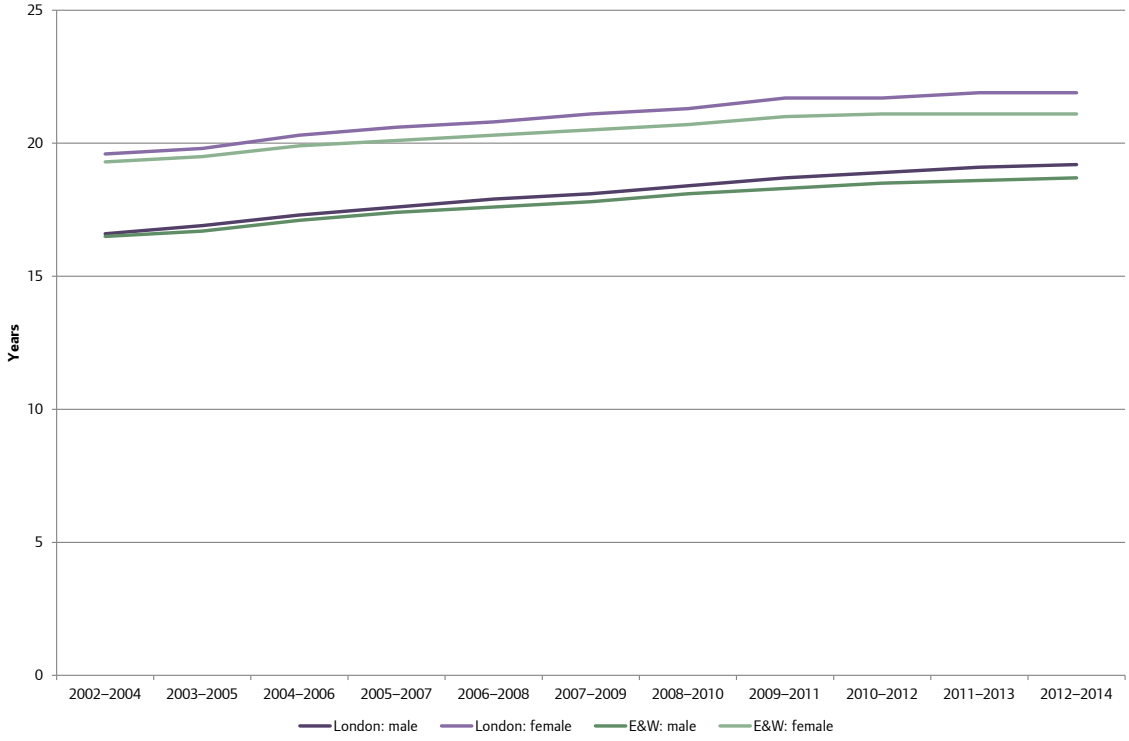


Source: ONS Life Expectancy at Birth

Life expectancy at age 65 for Londoners has also been rising. 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 less difference in life expectancy at age 65 when comparing London and England & Wales as opposed to life expectancy at birth.

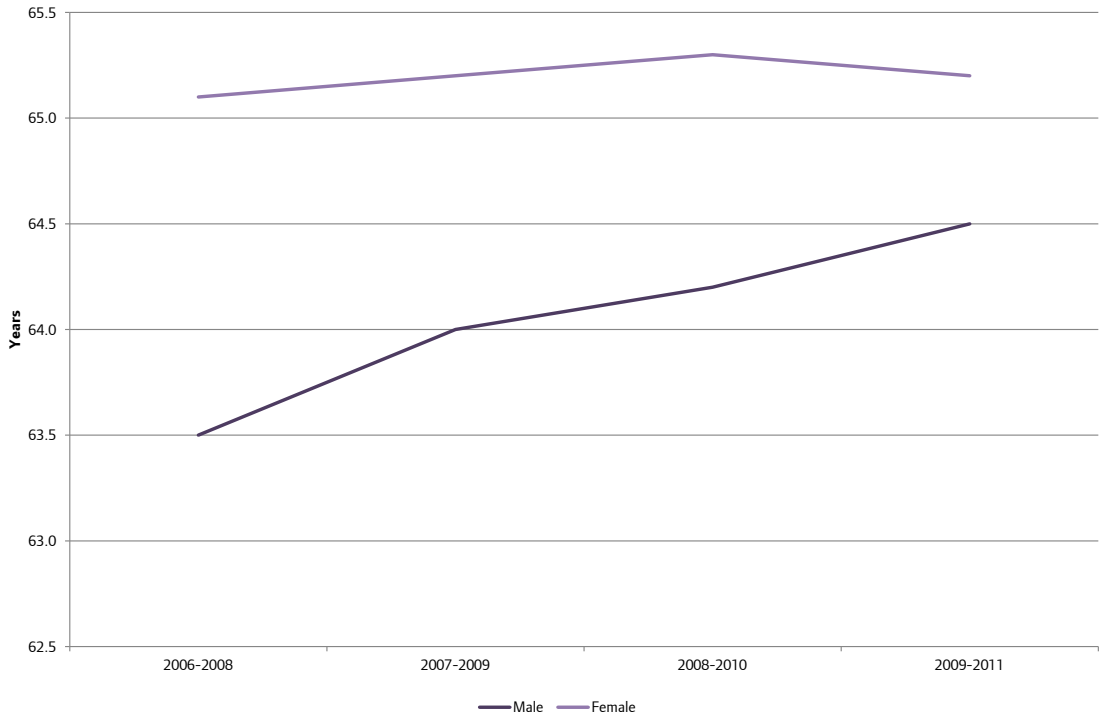
Figure 6.4: Life expectancy at age 65, London and England & Wales, 2002-2004 to 2012-2014



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. 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 6.5: Disability free life expectancy at birth, London, 2006-2008 to 2009-2011

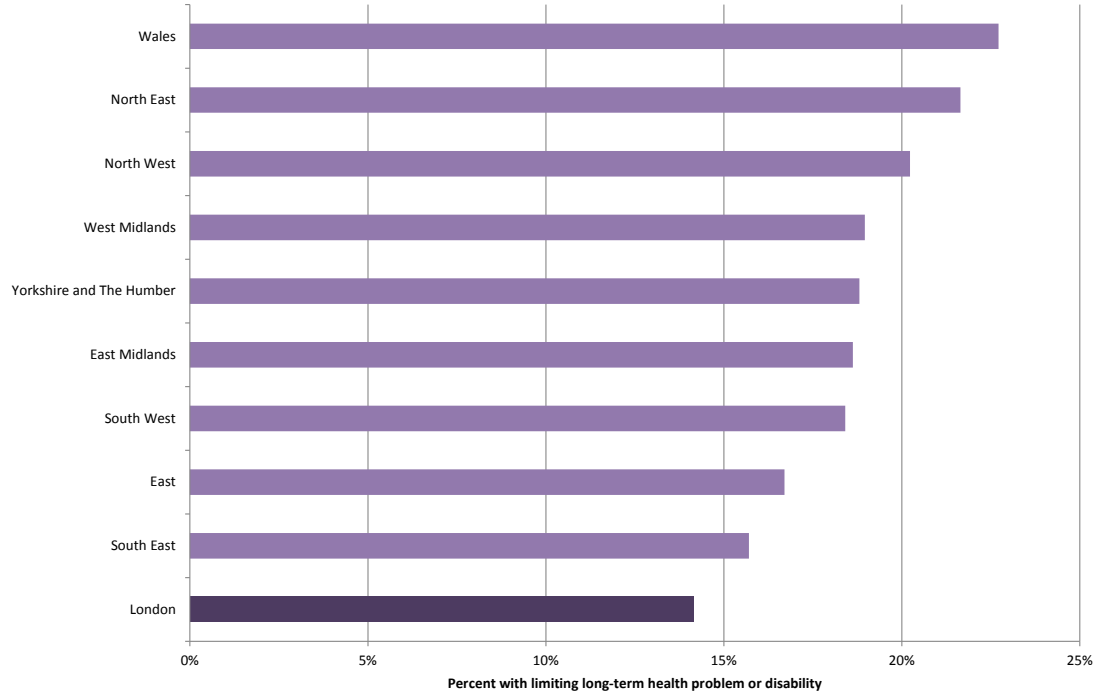


Source: ONS Disability free life expectancy at birth

Health & Disability

London saw 1.16 million (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 & Wales.

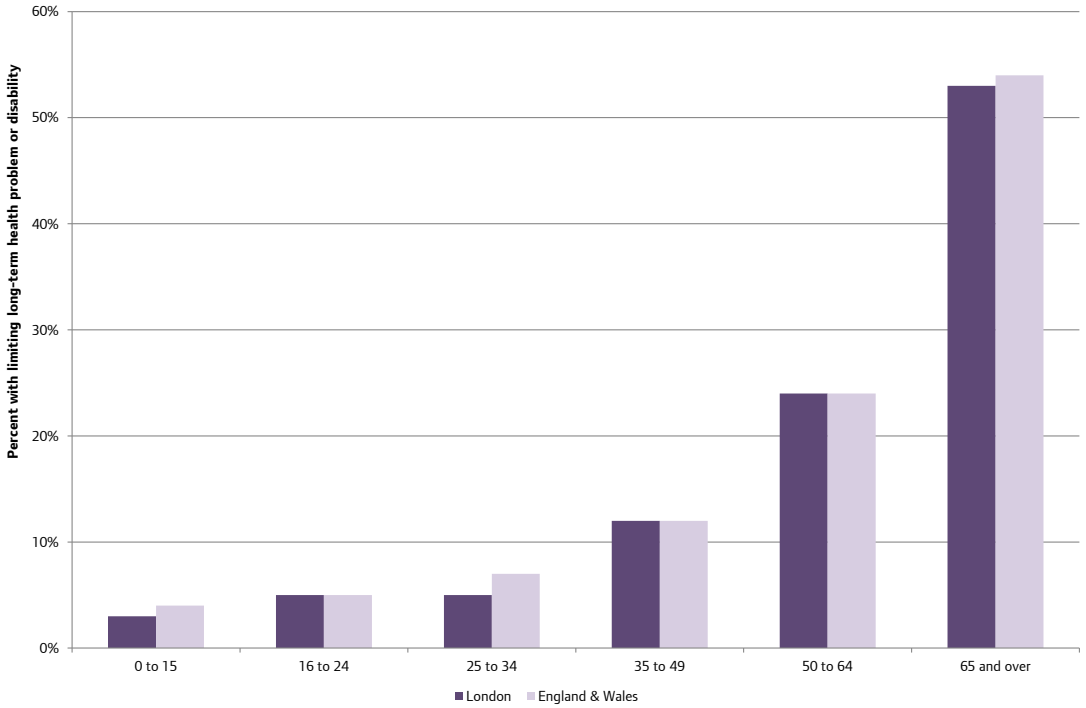
Figure 6.6: Percent of usual residents with a limiting long-term health problem or disability by region, 2011



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 6.7: Percent with a limiting long-term health problem or disability in London and England & Wales by age group, 2011

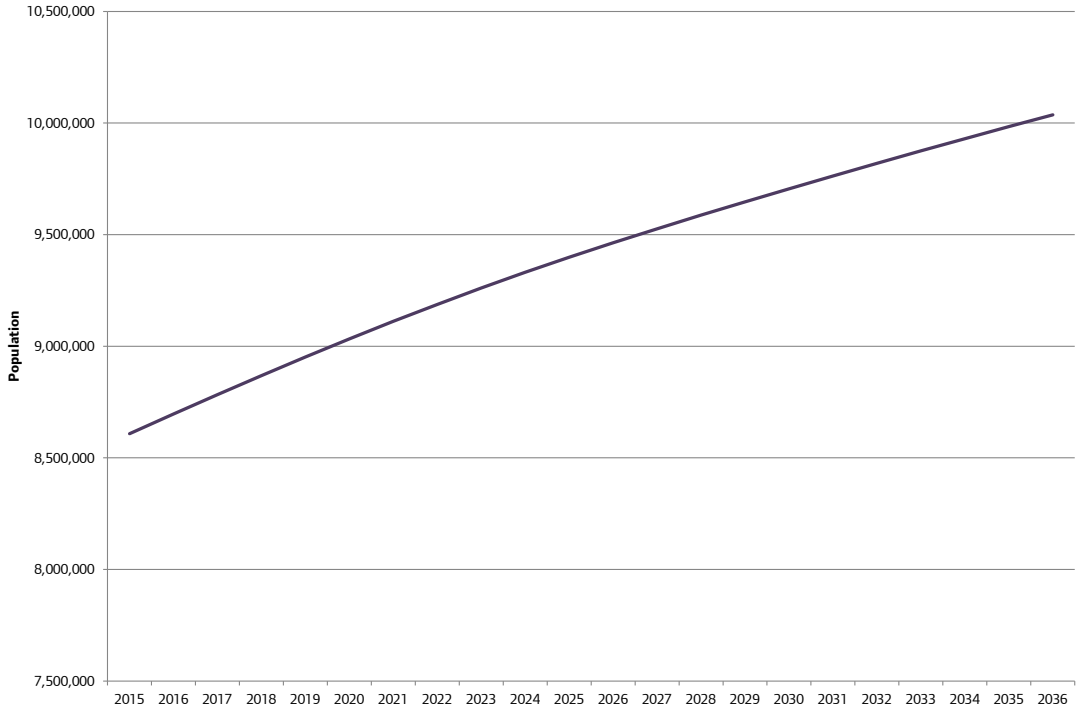


Source: ONS Census 2011

London's future population

Looking to the future, London's population is set to continue growing. In fact, it is projected to increase to over 10 million inhabitants by 2036[4].

Figure 6.8: Total projected population, London, mid-2015 to mid-2036

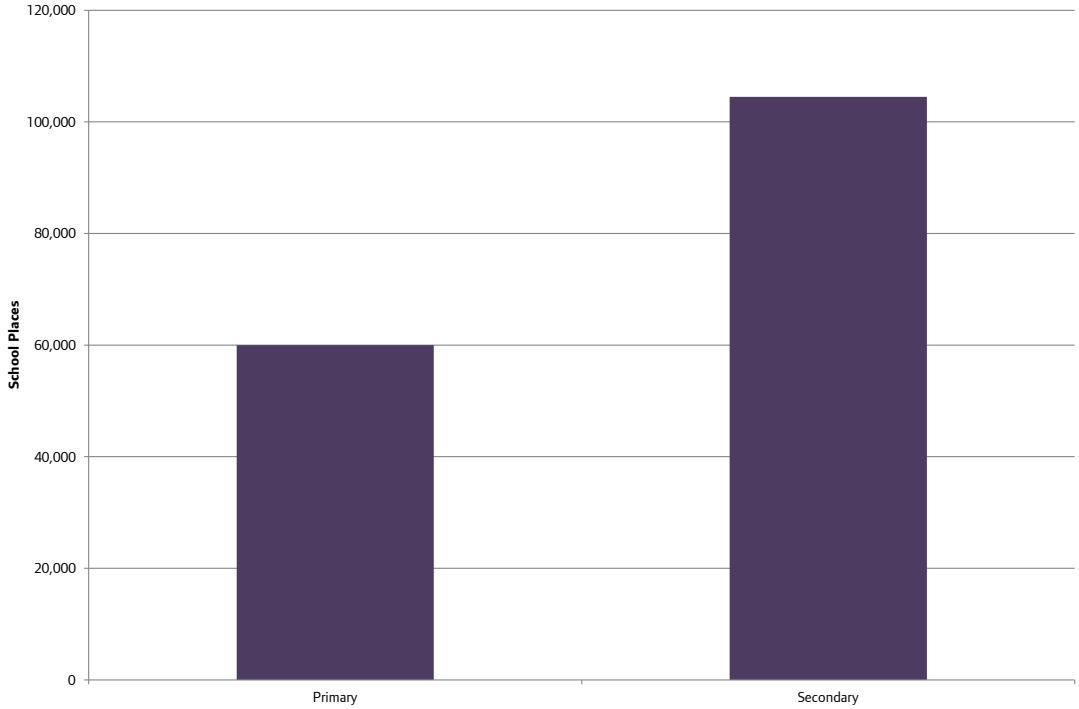


Source: GLA 2014 trend-based population projections (long-term migration scenario)

Not only is London's population rising, it is also getting older. By 2036, 15 per cent of London's population is projected to be over the age of 65 compared to 11 per cent in 2015. This means that the number of over-65s in London will go up by more than 50 per cent 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 over one per cent of London's population by 2036.

London's school-age population[5] is also growing and is projected to number nearly 1.4 million by 2036, bringing with it its own challenges for London in terms of school place planning. Figure 6.9 shows that London would need an additional 60,000 primary school[6] and 104,000 secondary school[7] places by 2025[8] to meet the growth in demand.

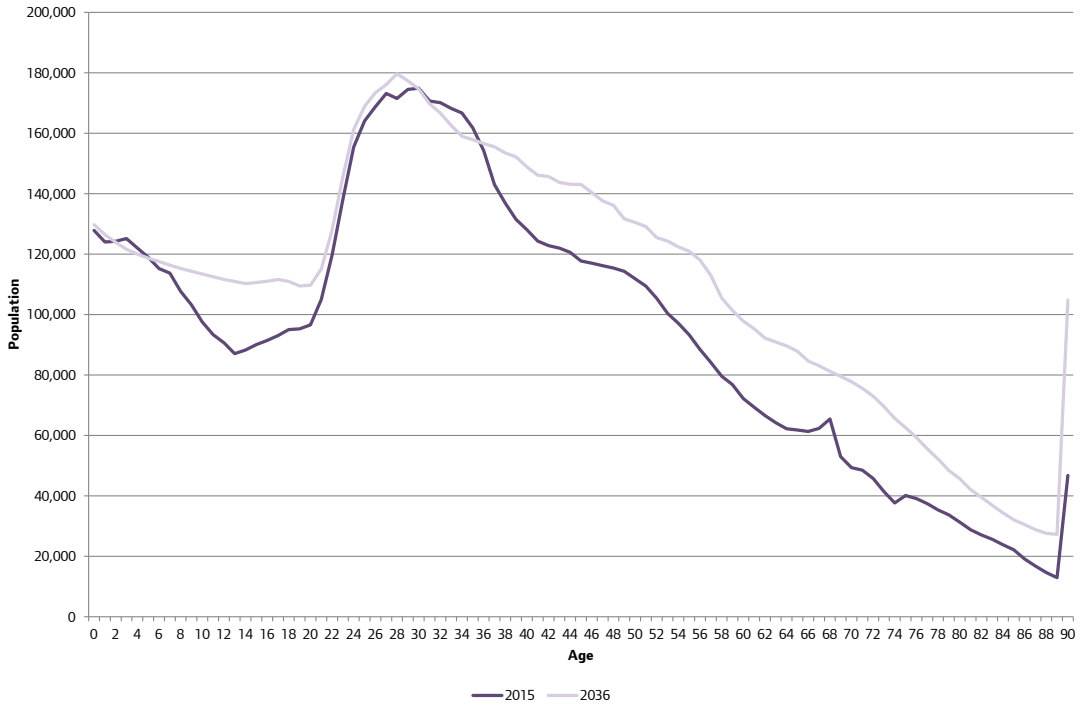
Figure 6.9: Projected additional demand for school places, London, 2015 to 2025



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 5.9 million of its inhabitants are of working-age[9] and this number is projected to rise to 6.7 million by 2036.

Figure 6.10: Age structure of London's population, mid-2015 and mid-2036



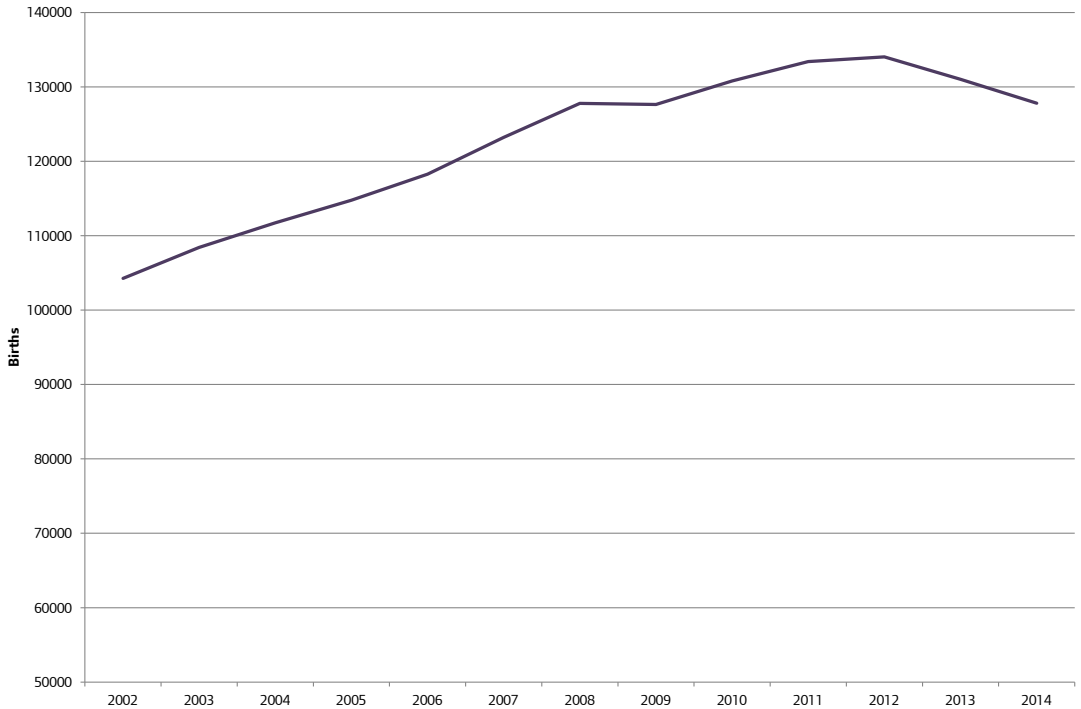
Source: GLA 2014 trend-based population projections (long-term migration scenario)

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 134,000 births in London, up nearly 30,000 from the number seen in 2002. Births have since fallen for two consecutive years to just below 128,000 in 2014, 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 6.11: Births, London, mid-2002 to mid-2014

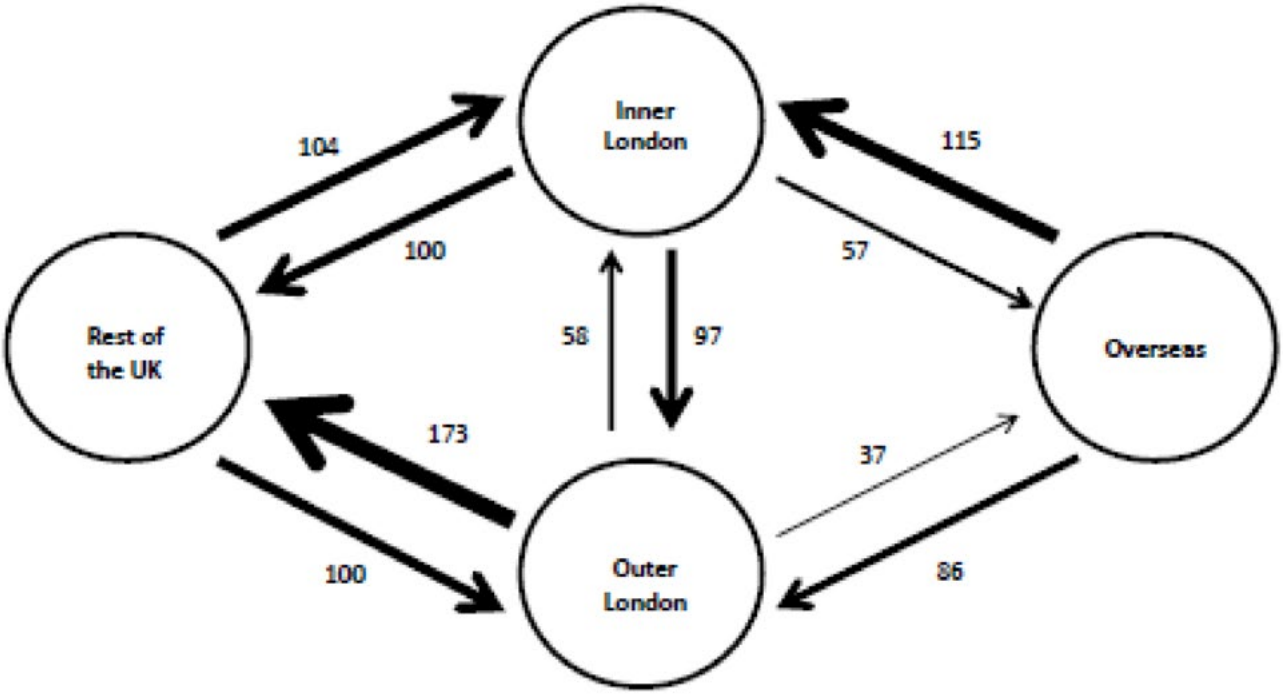


Source: ONS Mid-year population estimates

Migration to London

Another significant component of London's population change is migration. Figure 6.12 shows the pattern of internal and international migration flows in relation to London (split here by inner and outer London) for mid-2014. Migrants from overseas tend to go to Inner London from where internally there is a higher flow to outer London than vice versa. From Outer London, flows are higher to the rest of the UK than from the rest of the UK to either Inner or Outer London.

Figure 6.12: Migration flows, mid-2014



Source: ONS Mid-year population estimates, ONS internal migration estimates

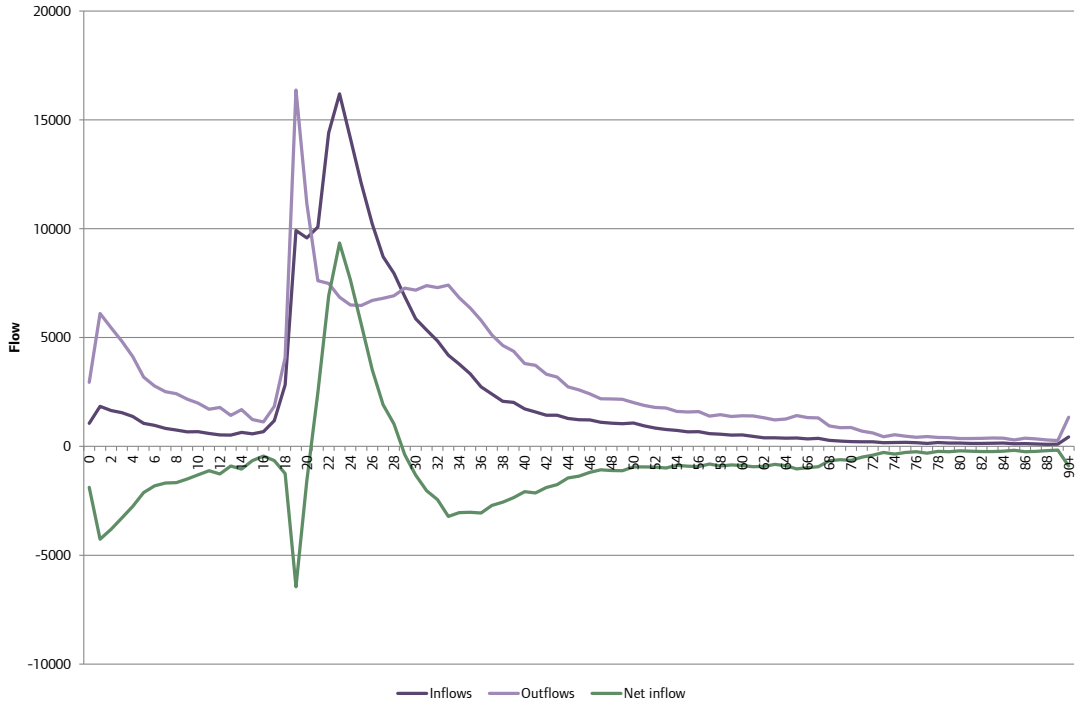
This trend of high domestic migration flows from London to the rest of the UK has been present over the long term. In the years 1975 to 2012, domestic migration from the rest of the UK into London averaged 160,000 per annum. Over the same period, average annual outward domestic migration from London was 220,000. Thus on average over this period London lost a net 60,000 people to the rest of the UK each year.

Figure 6.13: Domestic migration into and out of London, 1975-2012

Source: ONS

Figure 6.16 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.

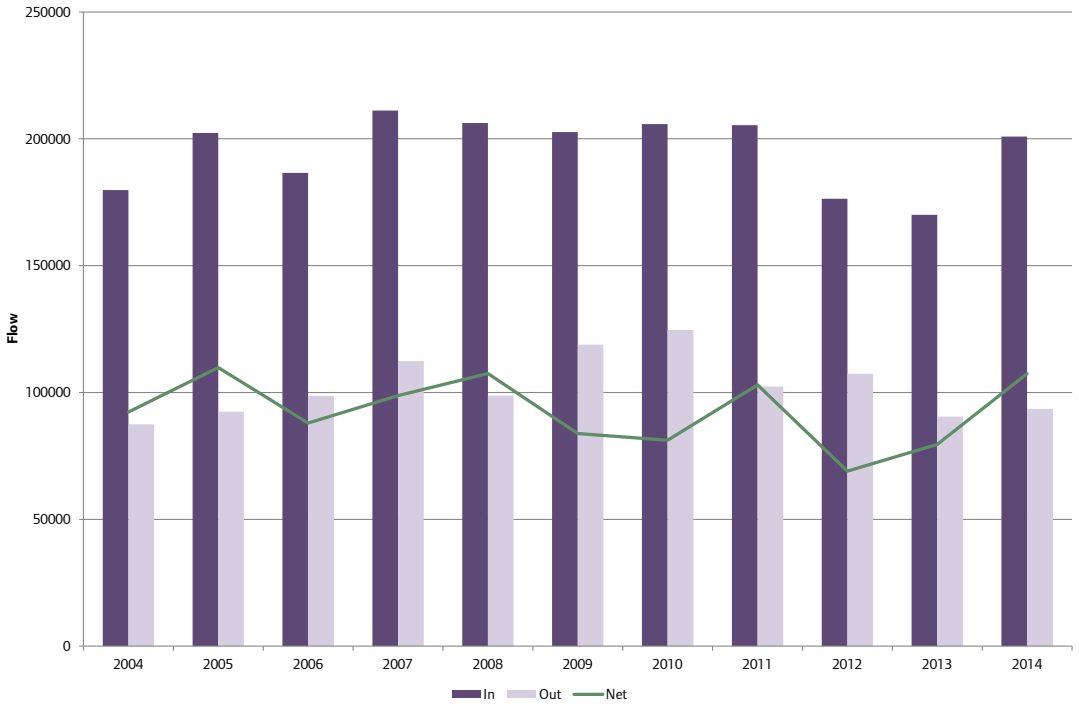
Figure 6.14: Internal migration flows by age, London, mid-2014



Source: ONS Internal migration estimates

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[10] a year and only around 100,000 people per annum leave London to move abroad. This difference – known as international net migration – is therefore positive meaning that some of London's population growth is the result of an increase in the number of international in-migrants to the capital. In 2014, 35 per cent of international in-migrants to the UK headed to London.

Figure 6.15: International migration, London, 2004 to 2014

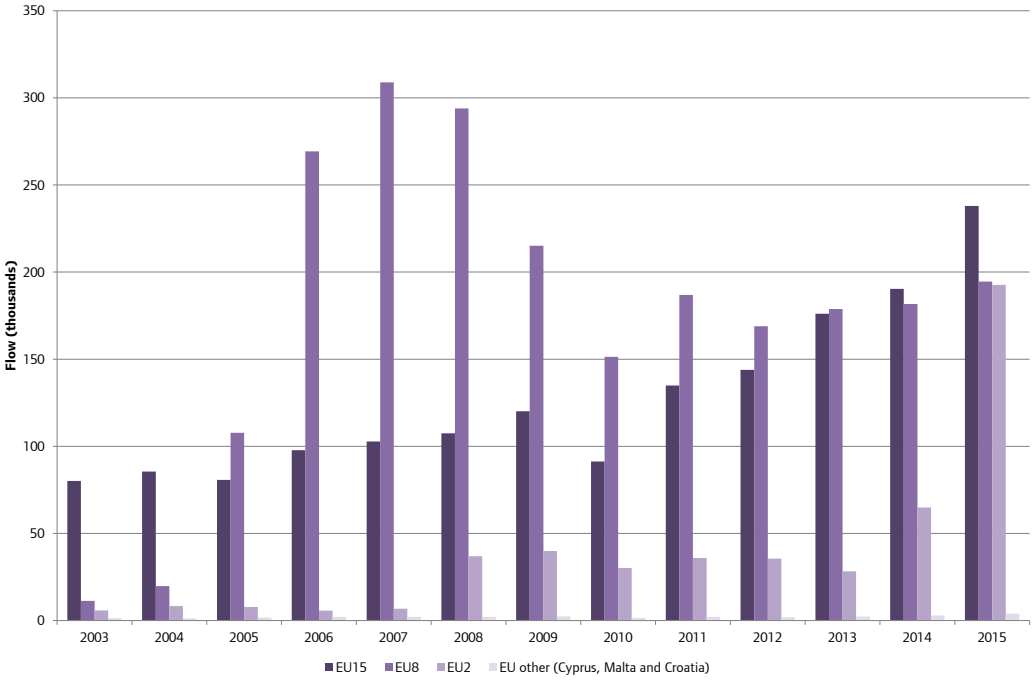


Source: ONS Local Area Migration Indicators

London's appeal means that the city attracts people from all over the world, though particularly from other EU countries due to freedom of movement between member nations. After the enlargement of the EU in 2004 to include ten new countries[11], London welcomed over 250,000 people per year between 2006 and 2008 from these new member nations[12]. Whilst numbers from these countries have fallen in recent years, growth of the EU to include Bulgaria and Romania in 2007[13] has meant that there were nearly 193,000 migrants from these two countries registering in London in 2015.

Since 2010, there has been a steady rise in the number of people from other EU15 countries migrating to London. The impacts of the global financial crisis on the economies of many EU countries have resulted in higher unemployment rates and the attraction of London as a place to work.

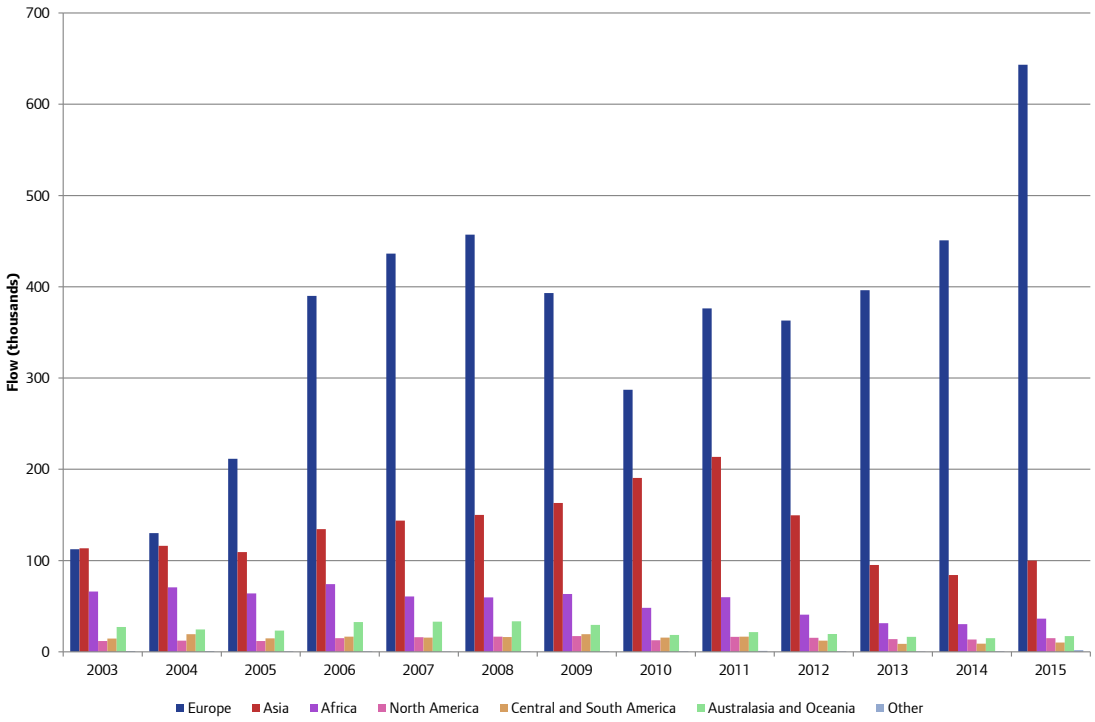
Figure 6.16: International migration, London, 2004 to 2014



Source: Department for Work & Pensions National Insurance Number Registrations

Outside of Europe, the highest international flows are from Asia (nearly 100,000 in-migrants in 2015), although numbers have since fallen from their peak of over 213,000 in 2011.

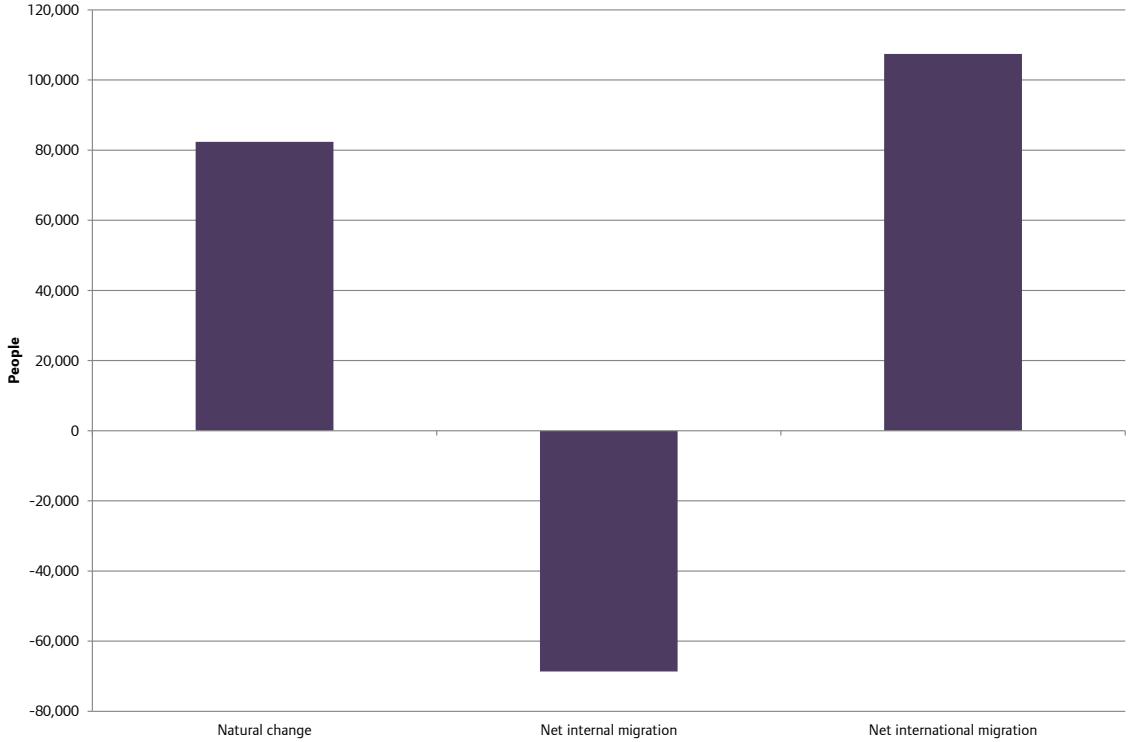
Figure 6.17: National Insurance Number registrations, world regions, 2003-2015



Note: Financial year data (April to March). Source: Department for Work & Pensions National Insurance Number Registrations

Bringing this all together shows that international migration contributed the most to London's population over the last ten years, averaging 93,000 more international in-migrants to London than international out-migrants per year between 2005 and 2014. Natural change accounted for an average 78,000 more people in London per year, whereas net internal migration resulted in some 60,000 more people leaving London domestically than arriving per year.

Figure 6.18: Components of change, London, 10 year average (2005 - 2014)



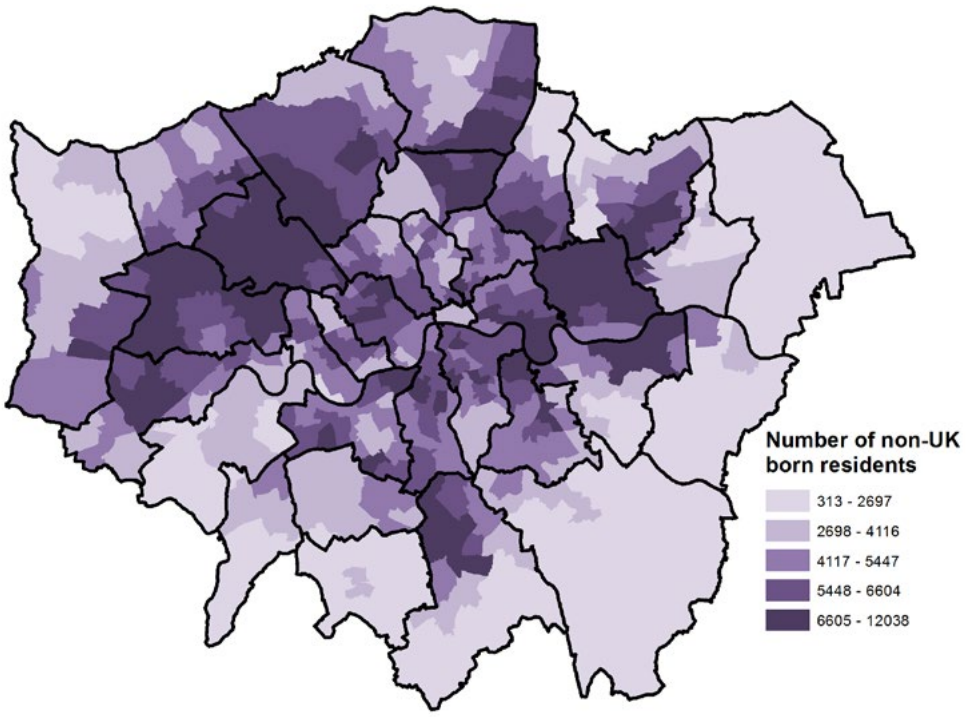
Source: ONS Mid-year population estimates

Country of Birth

London's high international inflow means it has become something of a hub for foreign-born communities. Approximately 3.1 million people living in London were born abroad (37 per cent of the total population)[14].

In 2011, the Census counted that just under half (49 per cent) of London's foreign born population had arrived in the UK in the previous ten years. This means that one-in-six Londoners had arrived in the UK since 2001.

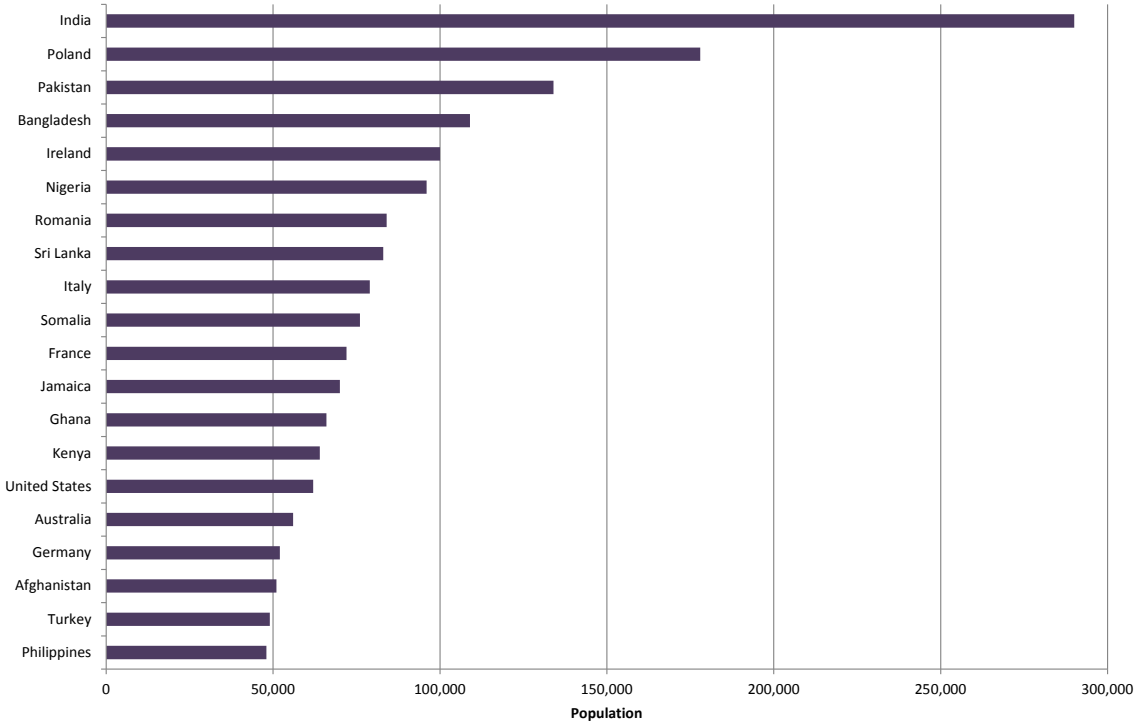
Map 6.3: Distribution of foreign born residents across Greater London wards, 2011



Source: ONS Census 2011

London's foreign born population is so diverse that it is worth separating into individual countries of origin. The top non-UK country of birth was India with 290,000 residents. Poland, Pakistan, Bangladesh and Ireland also had over 100,000 residents each living in London.

Figure 6.19: Largest foreign born populations living in London, 2014



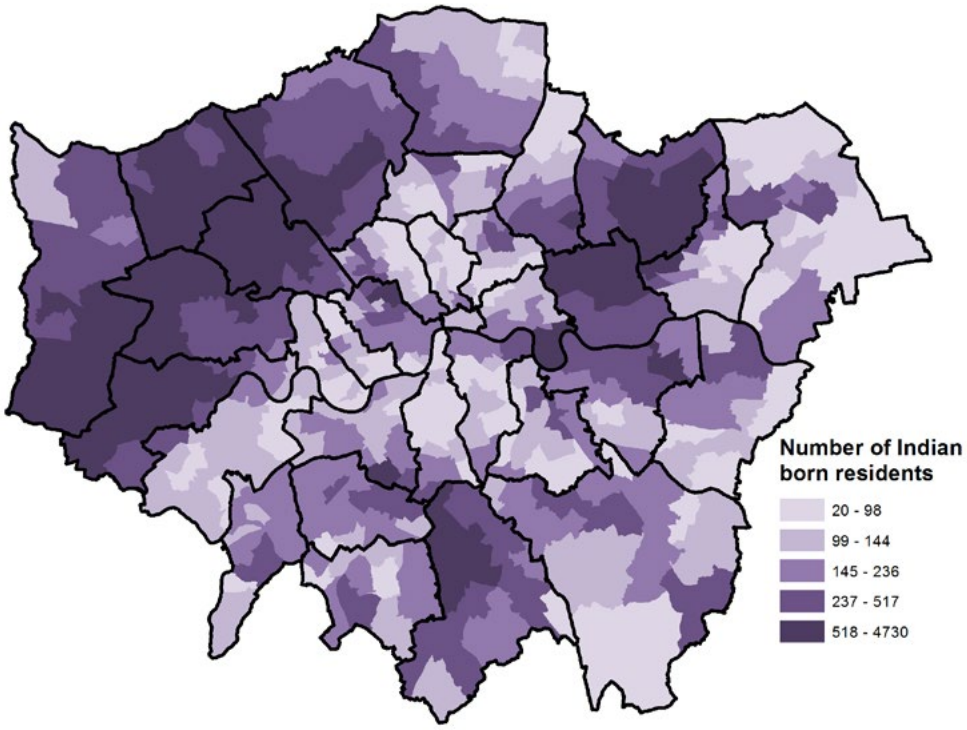
Source: ONS Annual Population Survey

The following three nationalities will provide an idea of how characteristics vary between different migrant communities.

Born in India

The most highly concentrated Indian areas were in west and north-east London.

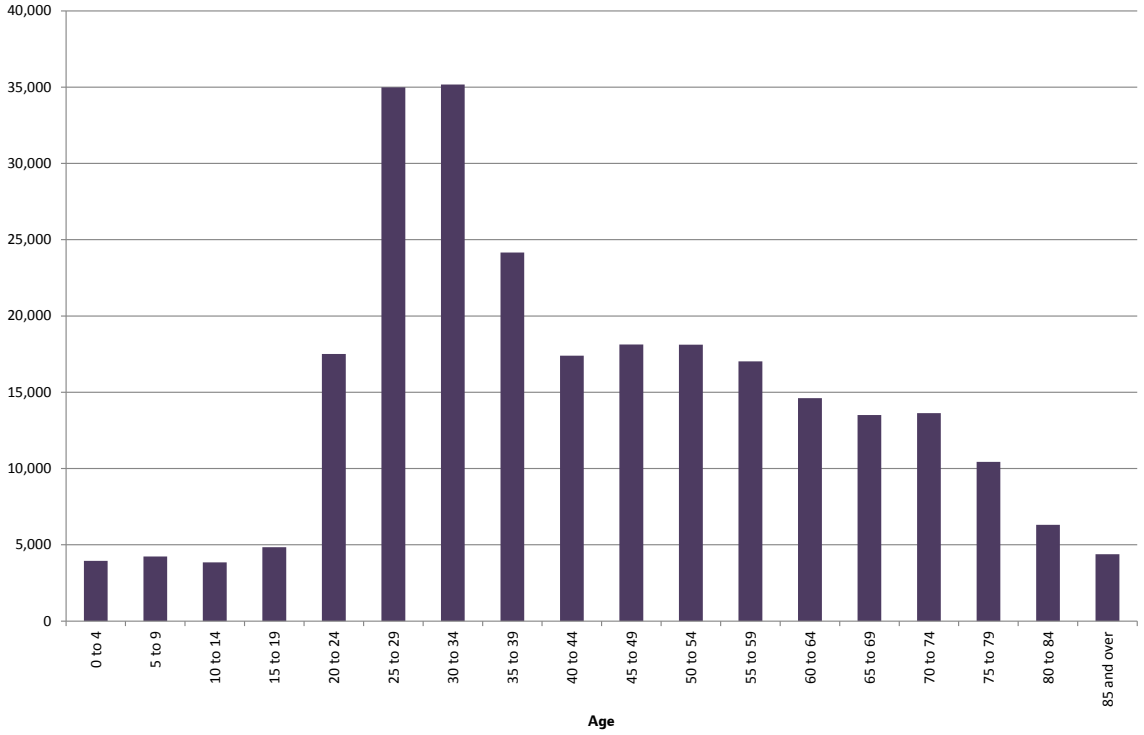
Map 6.4: Distribution of Indian born residents across Greater London wards, 2011



Source: ONS Census 2011

The Indian born population is ageing, with 18 per cent aged 65 and over.

Figure 6.20: Age structure of Indian born residents in London, 2011



Source: ONS Census 2011

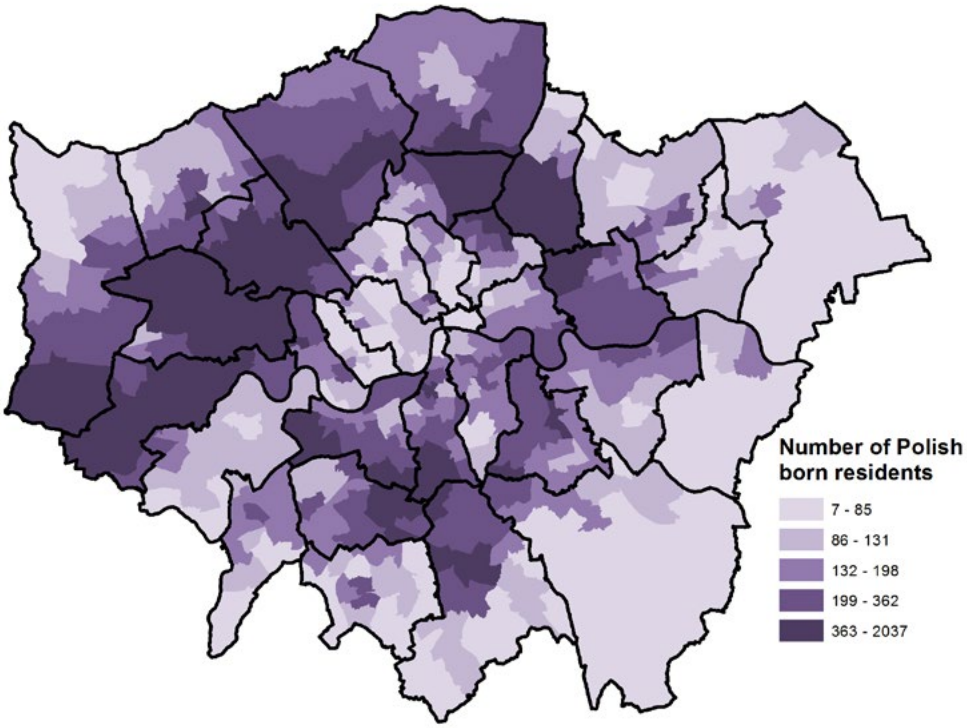
More characteristics:

- Around half arrived in the UK before 2000 with the other half arriving between 2001 and 2011.
- In 2011, 70 per cent of men and 59 per cent of women were in work.
- Top occupations:
    * Men: Science and Research professionals (11 per cent), Elementary admin (11 per cent), Managers and directors (9 per cent)
    * Women: Admin (13 per cent), Elementary admin (11 per cent), Sales (11 per cent)

Born in Poland

There were approximately 178,000 Polish born Londoners in 2014. The highly concentrated Polish areas form a ring around the central London boroughs.

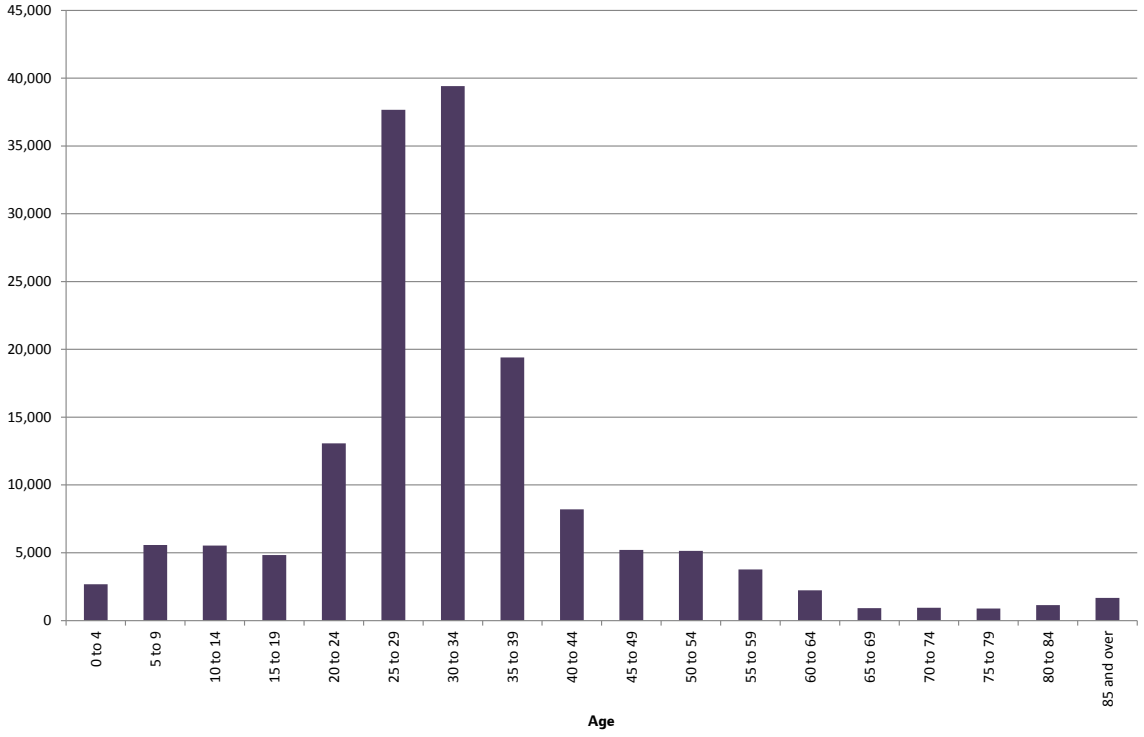
Map 6.5: Distribution of Polish born residents across Greater London wards, 2011



Source: ONS Census 2011

The majority (69 per cent) of the population were aged between 20 and 39 years old, while just 4 per cent were aged 65 or over.

Figure 6.21: Age structure of Polish born residents in London, 2011



Source: ONS Census 2011

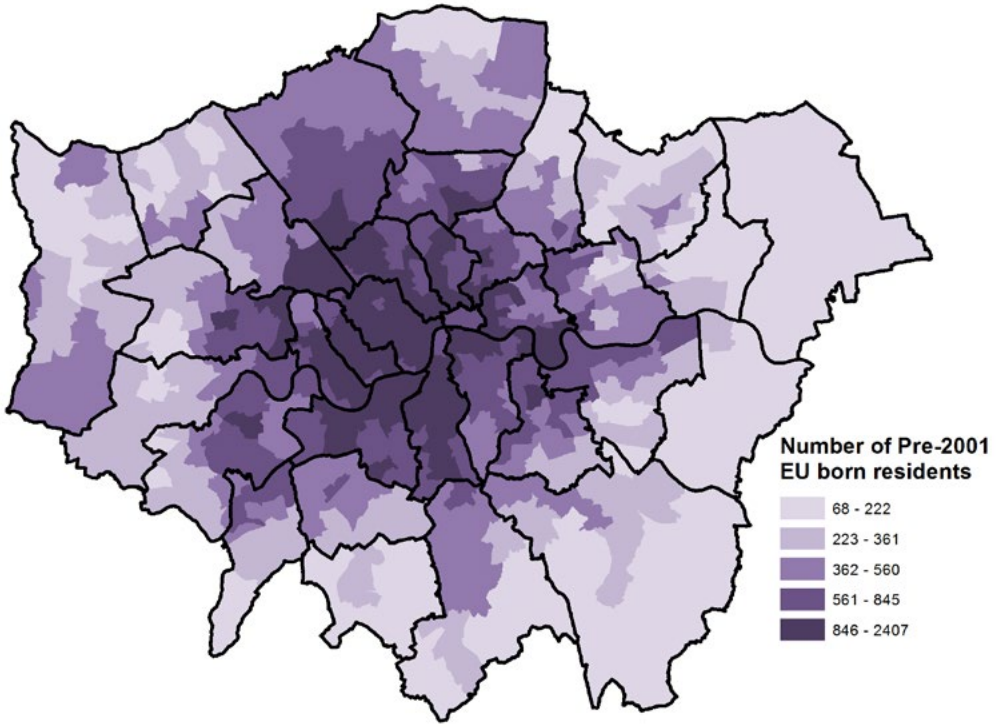
More characteristics:

- The majority (86 per cent) arrived in the UK between 2001 and 2011.
- One-in-four of those arriving since 2001 could not speak English well. Despite this, employment rates were high with 82 per cent of men and 77 per cent of women in work at the time of the Census.
- Top occupations:
  * Men: Skilled construction trade (32 per cent), Elementary admin (11 per cent), Transport and machine operatives (8 per cent)
  * Women: Elementary admin (30 per cent), Admin (8 per cent), Caring personal service (8 per cent)

EU Member Countries in 2001

This group consisted of people born in any country that was a member of the EU in 2001[15]. There were 370,000 pre-2001 EU born Londoners in 2014 with the majority living in inner London.

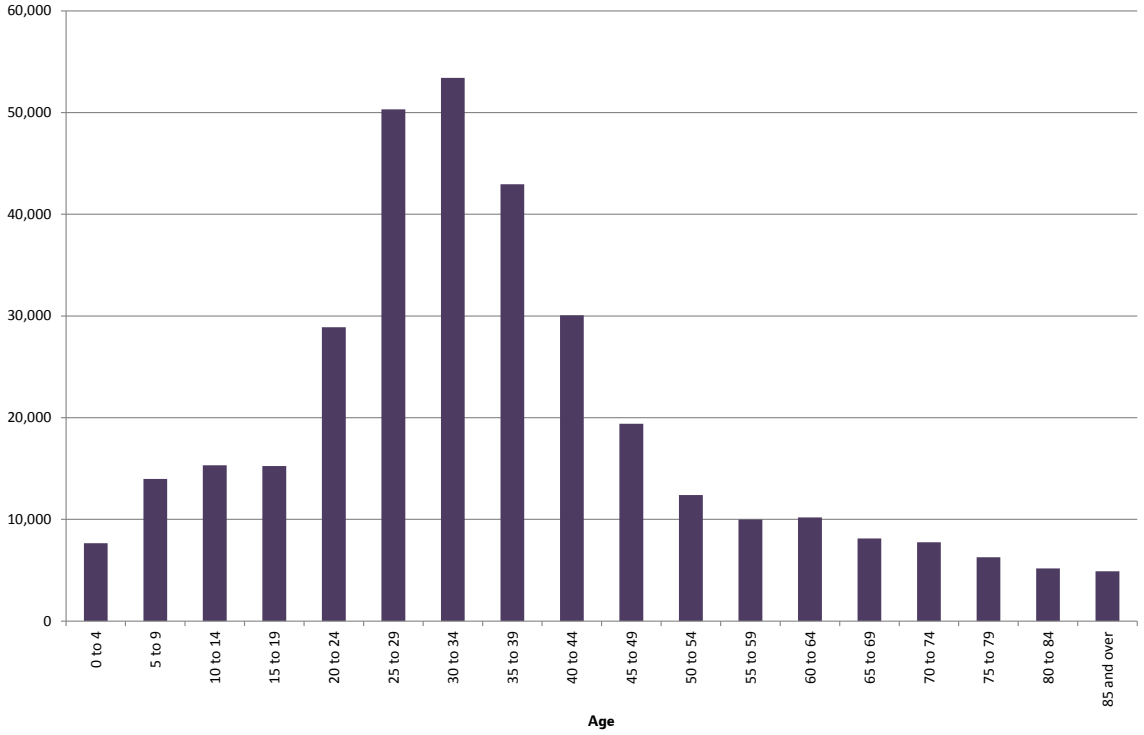
Map 6.6: Distribution of pre-2001 EU born residents across Greater London wards, 2011



Source: ONS Census 2011

This population consisted predominantly of younger working age persons.

Figure 6.22: Age structure of Pre-2001 EU born residents in London, 2011



Source: ONS Census 2011

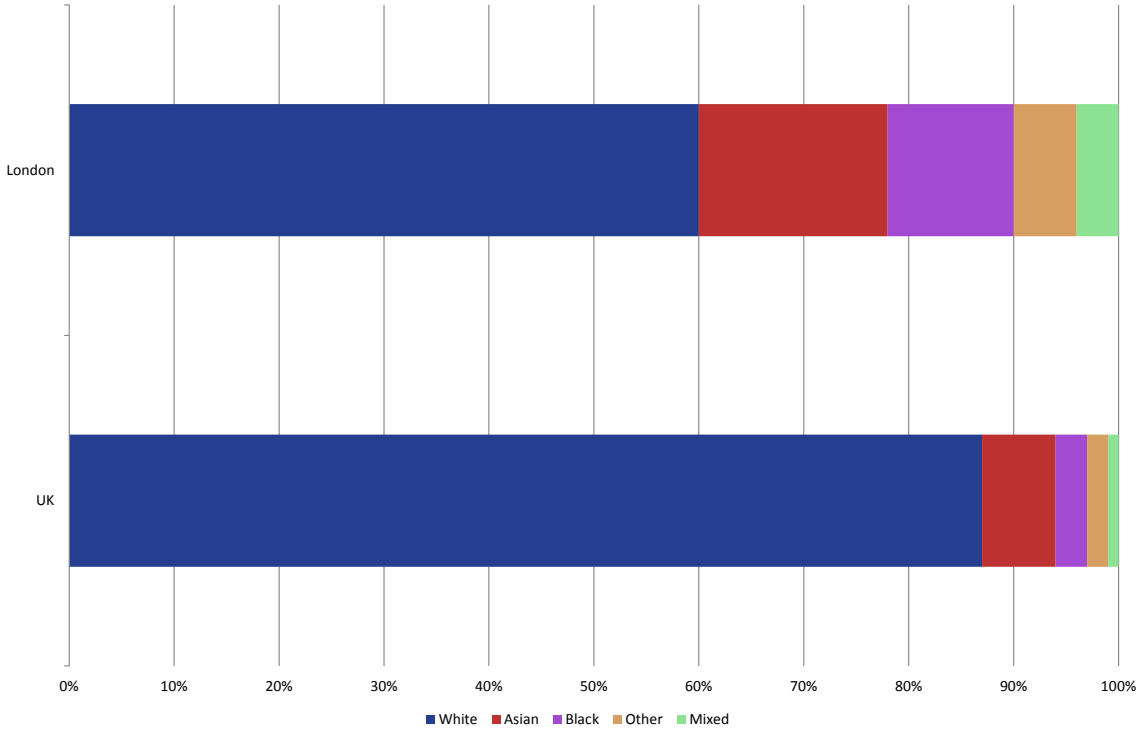
More characteristics:

- Over half (58 per cent) arrived between 2001 and 2011.
- In 2011, 74 per cent of men and 70 per cent of women were in work.
- This is a highly skilled group with nearly half (48 per cent) having Level 4 qualifications or above[16]. By way of comparison the London average was 38 per cent.
- Top occupations
  - Men: Business & public service professionals (12 per cent), Managers / Directors (12 per cent)
  - Women: Elementary admin (14 per cent), business & public service professionals (10 per cent)

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, Mixed or another non-White ethnicity. By way of comparison, the figure for the UK as a whole was 13 per cent.

Figure 6.23: Residents by ethnic group, 2014



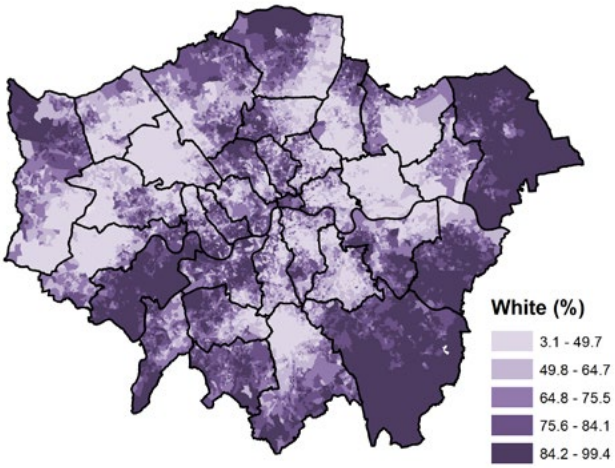
Source: ONS Annual Population Survey

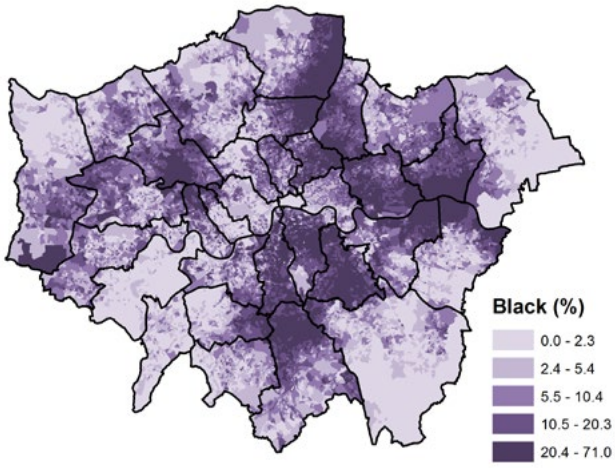
Table 6.2: Ethnicity by borough, 2011

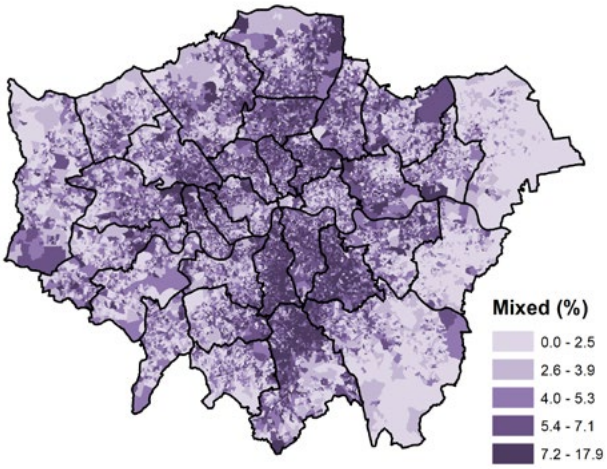
Area	White	Mixed	Asian	Black	Other
Barking and Dagenham	58%	4%	16%	20%	2%
Barnet	64%	5%	18%	8%	5%
Bexley	82%	2%	7%	8%	1%
Brent	36%	5%	34%	19%	6%
Bromley	84%	4%	5%	6%	1%
Camden	66%	6%	16%	8%	4%
City of London	79%	4%	13%	3%	2%
Croydon	55%	7%	16%	20%	2%
Ealing	49%	4%	30%	11%	6%
Enfield	61%	5%	11%	17%	5%
Greenwich	62%	5%	12%	19%	2%
Hackney	55%	6%	11%	23%	5%
Hammersmith and Fulham	68%	6%	9%	12%	6%
Haringey	61%	6%	9%	19%	5%
Harrow	42%	4%	43%	8%	3%
Havering	88%	2%	5%	5%	1%
Hillingdon	61%	4%	25%	7%	3%
Hounslow	51%	4%	34%	7%	4%
Islington	68%	6%	9%	13%	3%
Kensington and Chelsea	71%	6%	10%	7%	7%
Kingston upon Thames	74%	4%	16%	3%	3%
Lambeth	57%	8%	7%	26%	2%
Lewisham	54%	7%	9%	27%	3%
Merton	65%	5%	18%	10%	2%
Newham	29%	5%	43%	20%	3%
Redbridge	43%	4%	42%	9%	3%
Richmond upon Thames	86%	4%	7%	2%	2%
Southwark	54%	6%	9%	27%	3%
Sutton	79%	4%	12%	5%	1%
Tower Hamlets	45%	4%	41%	7%	2%
Waltham Forest	52%	5%	21%	17%	4%
Wandsworth	71%	5%	11%	11%	2%
Westminster	62%	5%	15%	8%	11%
Inner London	57%	6%	16%	17%	4%
Outer London	61%	4%	20%	11%	3%
London	60%	5%	18%	13%	3%

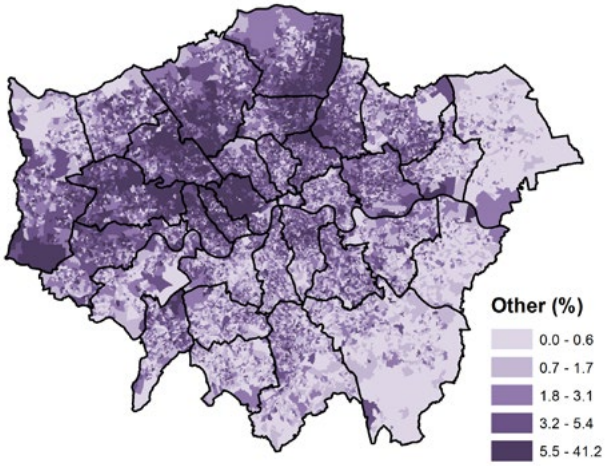
Source: ONS Census 2011

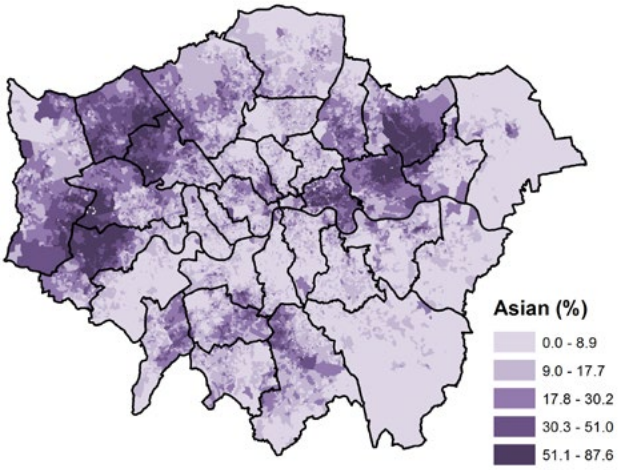
Map 7: Distribution of ethnic groups across Greater London, 2011











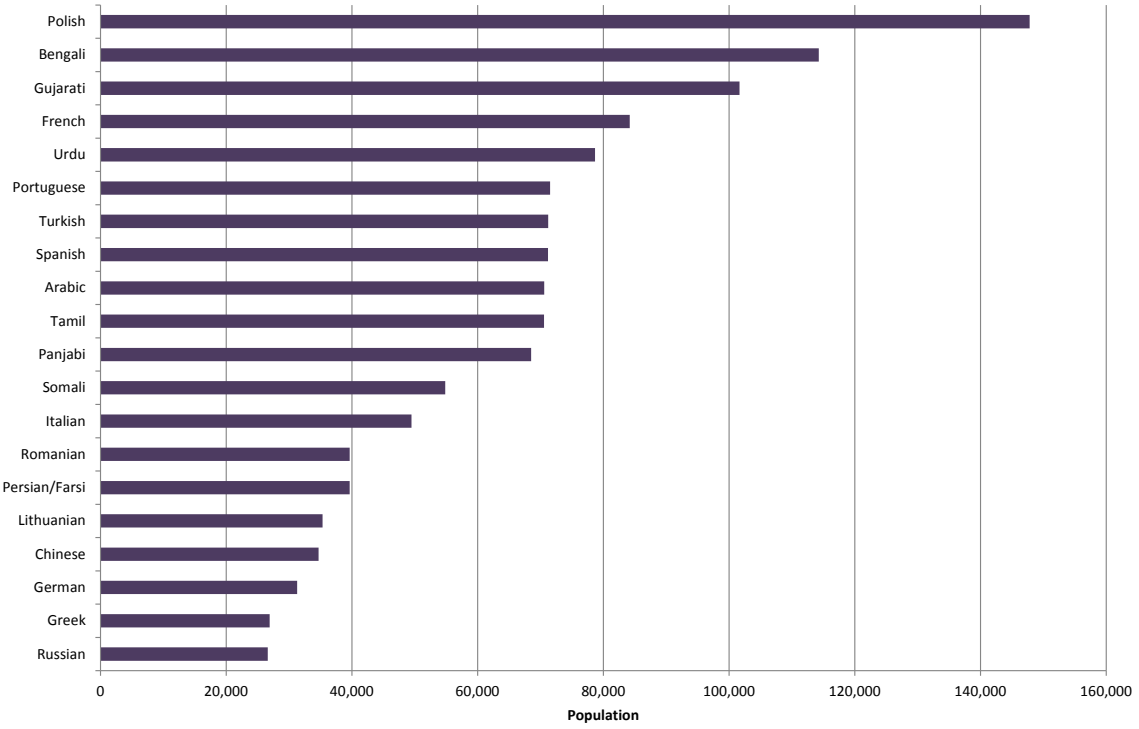
There are clear spatial trends when looking at London's ethnic groups.

Currently, London's White population was most highly concentrated in Outer London; its Black population in east London; and its Asian population in west and north-east London.

Language

In London, 1.73 million (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 6.24: Most spoken (non-English) main languages in London, 2011



Source: ONS Census 2011

The 2011 Census counted that one-in-ten (some 300,000) of London's foreign born population 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.

Impact of migration

There is some debate as to the impact of migration on the UK. The main points focus around the labour market, businesses, the Exchequer and local services including housing and schools. This section brings together existing evidence and research on the matter.

One of the key parts of the discussion is focussed on the labour market and whether migration impacts the employment of existing UK workers. Economic theory suggests that wages would adjust to an increase in labour supply in the long-term meaning that everyone that wants to work can find a job. Indeed, there is evidence of falling real earnings coinciding with an increase in migration to London between 1995 and 2000[17].

Consequently, the concern about migrant labour could instead be focussed around the welfare of existing UK workers in terms of the resulting lower wages. Whilst there are labour market policies – such as the national minimum wage – that would limit the extent to which earnings could fall, the effects could proportionately be larger for those in low pay jobs. For example, research by the Home Office and the Department for Business, Innovation and Skills (BIS) suggested that migrants were more likely to displace existing UK workers who were low skilled and, typically, low paid[18].

Another point in the debate is the impact of migrant workers on businesses. However, further BIS research found that businesses interviewed held a broadly positive view of the impact of migrant employees[19]. Firms noted that migrant workers typically brought more knowledge and skills than would otherwise have been the case from a domestic worker. Moreover, due to cultural differences, migrants bring new ideas and processes

that can lead to the upskilling of colleagues and increase productivity. On the opposing side, however, businesses reported challenges associated with integration and language.

The debate on how immigration impacts the Exchequer is focussed on the difference between the taxes and other contributions they make to public finances and the costs of benefit payments and public services that they receive. The Migration Observatory summarised existing literature of the fiscal impact of migration and concluded that the effect is small, but can be either positive or negative and vary among different groups[20]. For example, skilled migrants in highly-paid jobs are likely to have more of a positive effect than low skilled individuals. A separate study by the OECD found similar conclusions in that the overall fiscal impact is small[21].

A related point is whether migration has an effect on local services such as the availability of healthcare, schools or housing for example. Looking at housing, there is little 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 house prices and rents, though the overall effect will partly be dependent on the responsiveness of housing supply. The Migration Observatory noted that there was more, but still limited evidence on social housing. This showed that while migrants are less likely than the native UK population to be accommodated in social housing the probability of migrants living in social housing increases over time[22].

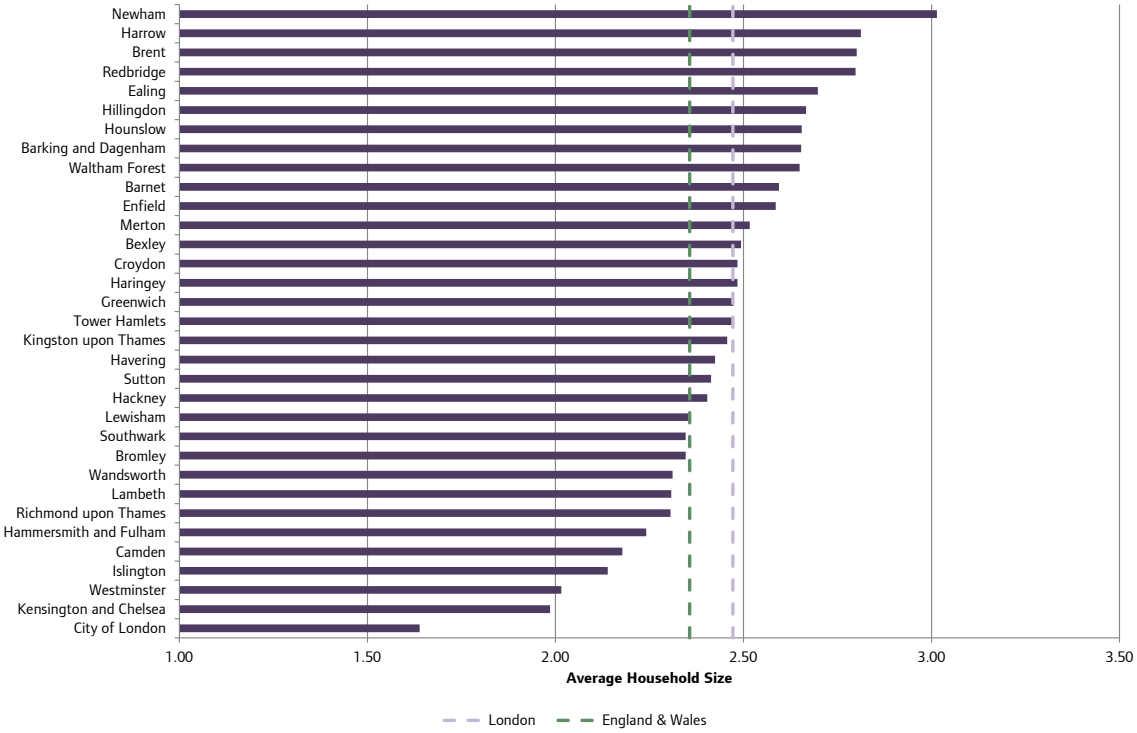
Households

The vast majority of Londoners lived in private households – 8.07 million of the total of 8.17 million residents counted at the time of the 2011 Census lived in 3.3 million households, equivalent to 99 per cent of the population. The remaining 1 per cent of Londoners lived in communal establishments[23].

The average household size for London was 2.47 in 2011, up from around 2.40 in 2001. That was the largest of any region in England & 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.

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 6.25: Average household size, 2011

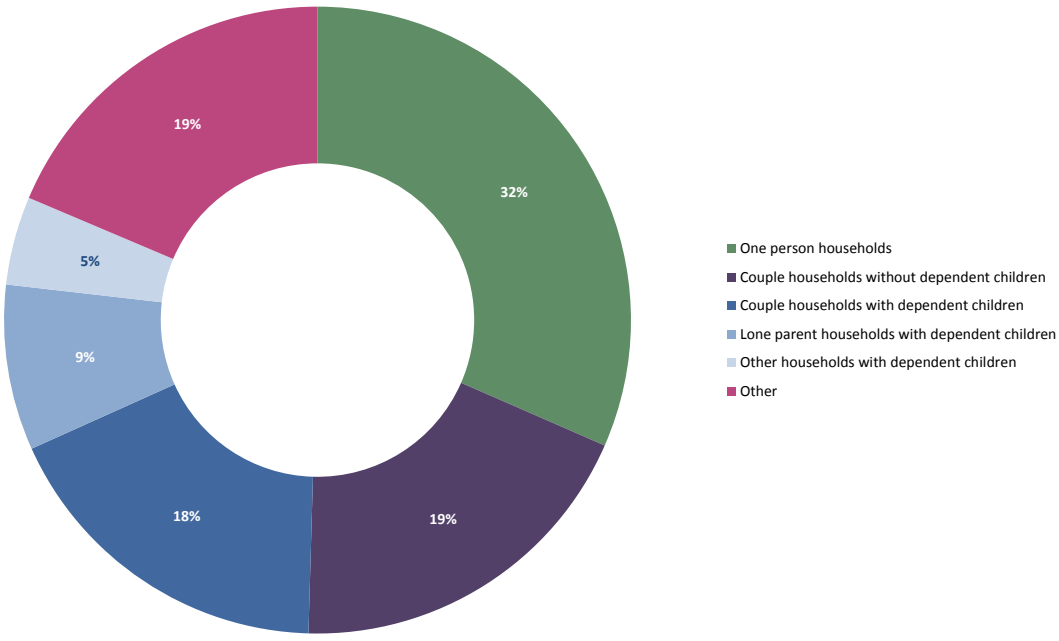


Source: ONS Census 2011 Household Composition

Household composition

Approximately one-in-three households in London (32 per cent) were made up of just one person while 37 per cent were couple households. The proportion of one person households was similar to the national average (30 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 6.26: Composition of London households, 2011

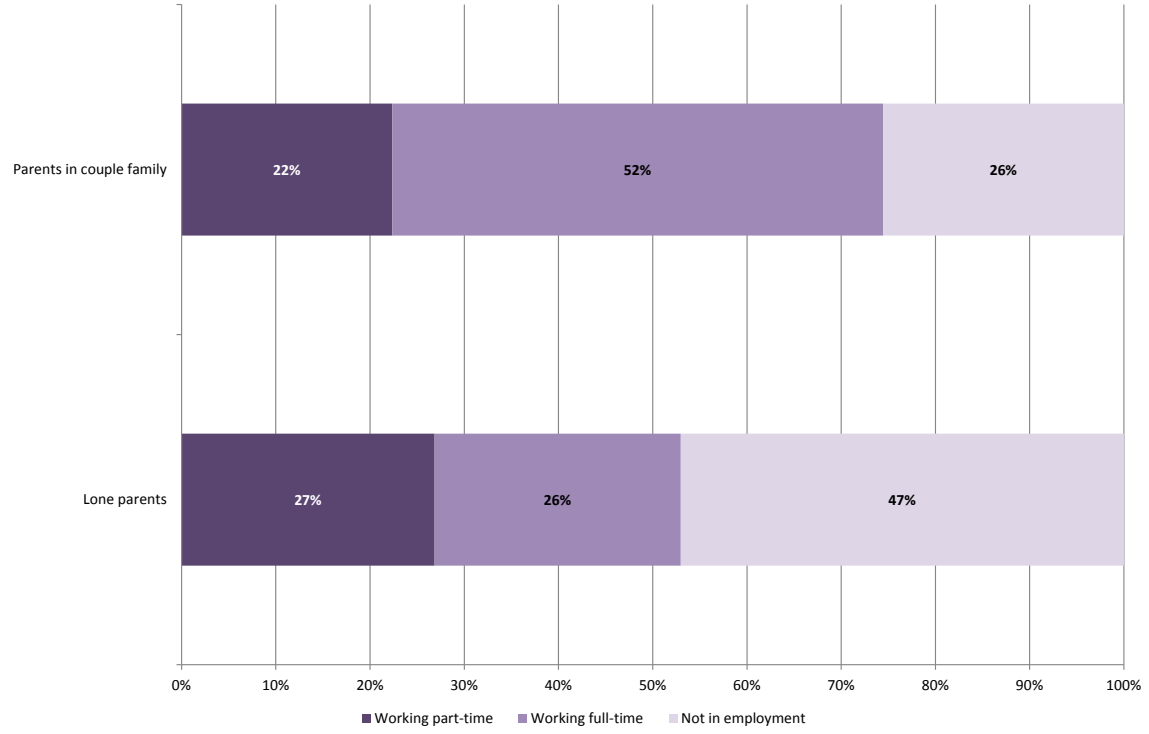


Source: ONS Census 2011

Some 31 per cent of households contained at least one dependent child. Moreover, 74 per cent of parents in couple families were working compared to 53 per cent of lone parents. The national figures were 80 per cent for couple families and 59 per cent for lone parents.

Not only were lone parent less likely to be in employment than parents in a couple, but they were less likely to work full-time. For example, 49 per cent of lone parents in employment worked full-time compared to 70 per cent of parents in couple families.

Figure 6.27: Economic activity of parents by family type, 2011

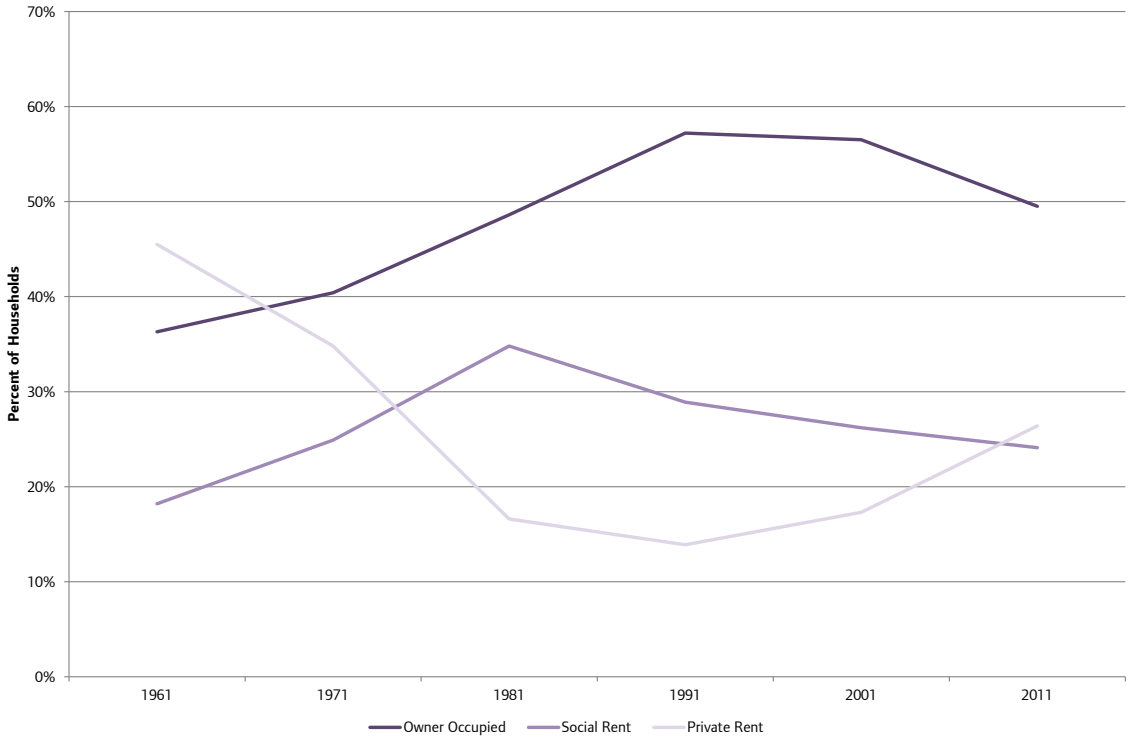


Source: ONS Census 2011 Tenure

Tenure

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.

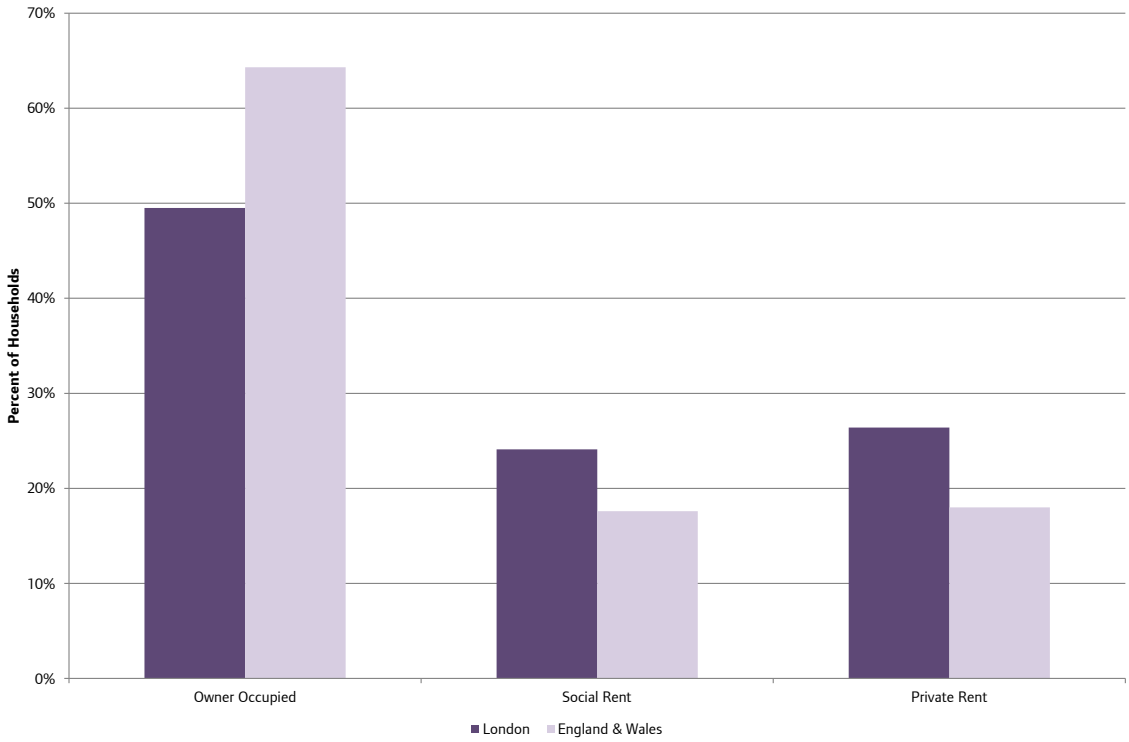
Figure 6.28: Housing tenure in London, 1961-2011



ONS Census 1961-2011

Comparing London's most recent Census figures to the national average, owner occupation was much less common in the capital with a higher proportion renting their accommodation instead.

Figure 6.29: Housing tenure in London and England & Wales, 2011



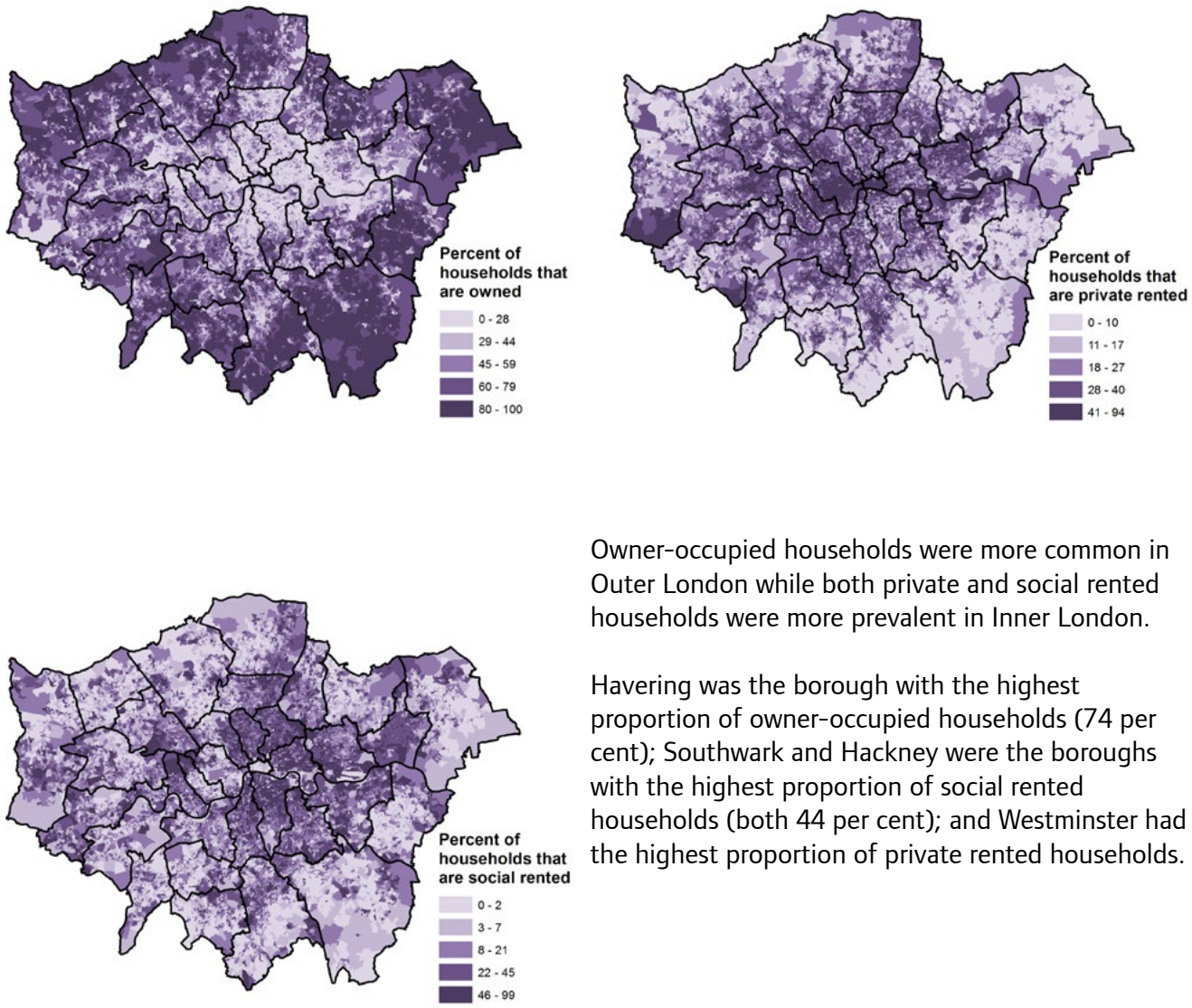
Source: ONS Census 2011

Table 6.3: Housing tenure in London and England & Wales, 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 & Wales	23,366,044	15,031,914	64%	4,118,461	18%	4,215,669	18%

Source: ONS 2011 Census

Map 6.8: Variations in tenure of households across Greater London, 2011



Owner-occupied households were more common in Outer London while both private and social rented households were more prevalent in Inner London.

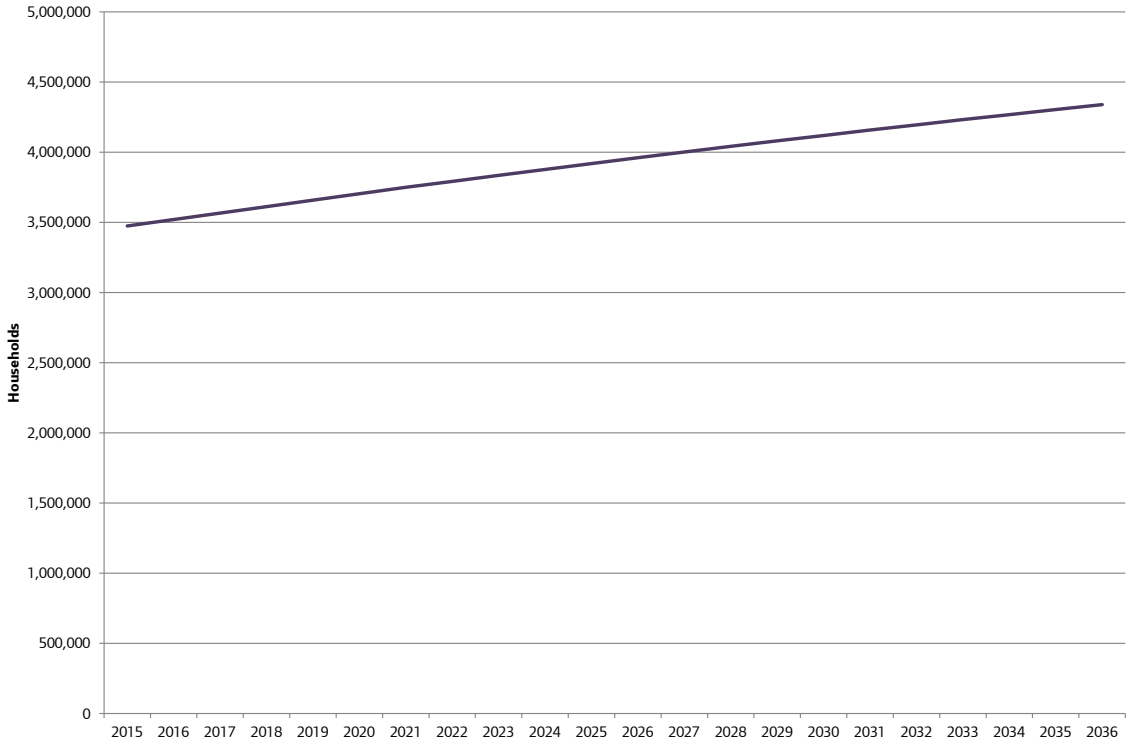
Havering was the borough with the highest proportion of owner-occupied households (74 per cent); Southwark and Hackney were the boroughs with the highest proportion of social rented households (both 44 per cent); and Westminster had the highest proportion of private rented households.

Source: ONS 2011 Census

Household Projections

London's number of total households is projected to grow by 25 per cent between 2015 and 2036. This would mean 856,000 more households in the capital bringing the total to 4.3 million by 2036.

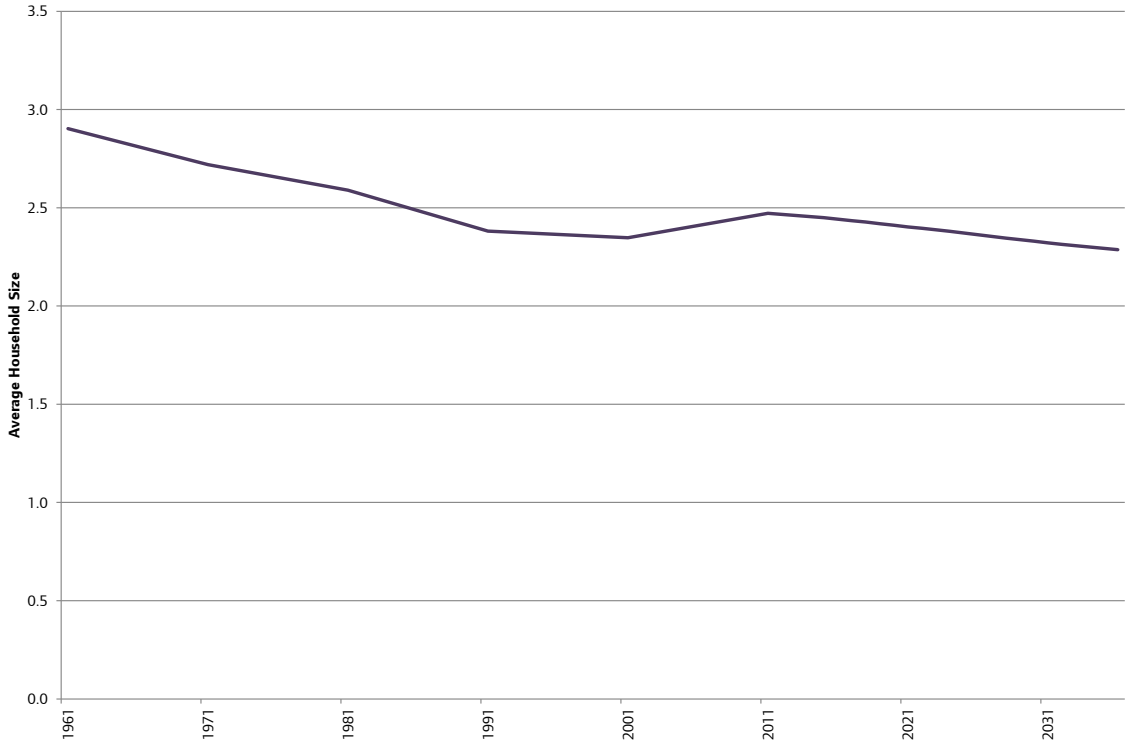
Figure 6.30: Total projected households, London, mid-2015 to mid-2036



Source: GLA 2014 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 2036, it is projected that the average household in London will consist of 2.29 people falling from the 2015 projection of 2.45.

Figure 6.31: Projected average household size, London, 1961 to 2036

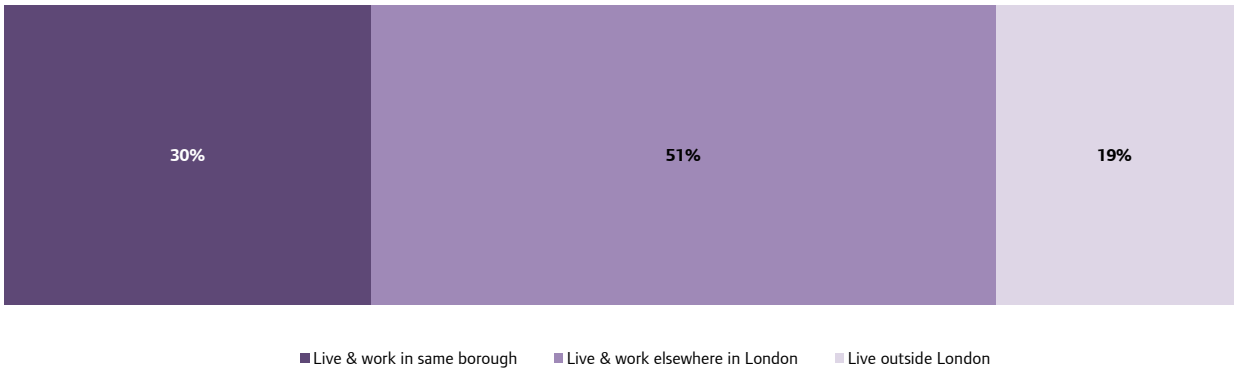


Source: GLA 2014 round trend-based household projections (long-term migration scenario)

Commuters

While 8.7 million lived in London, London's workday population grows by an additional half a million as commuters flood into work. In fact, one-in-six people working in London actually lived outside of its boundaries.

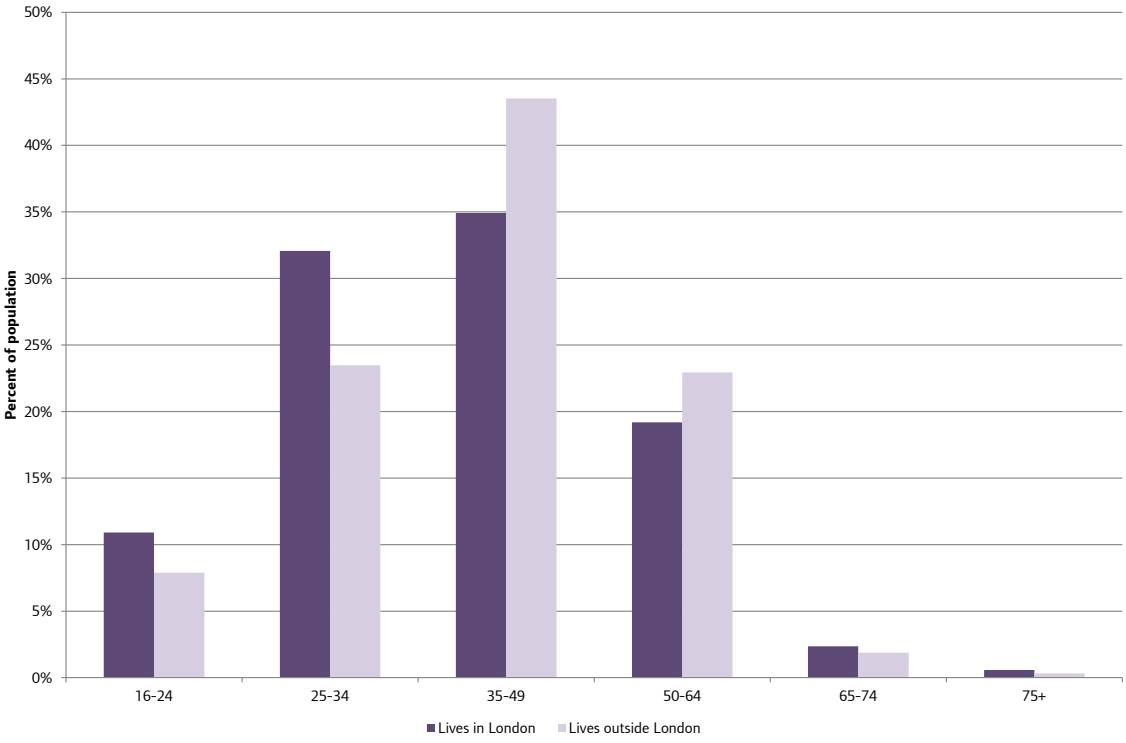
Figure 6.32: Place of usual residence of London workers, 2011



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.

Figure 6.33: Age of workers in London by place of residence, 2011

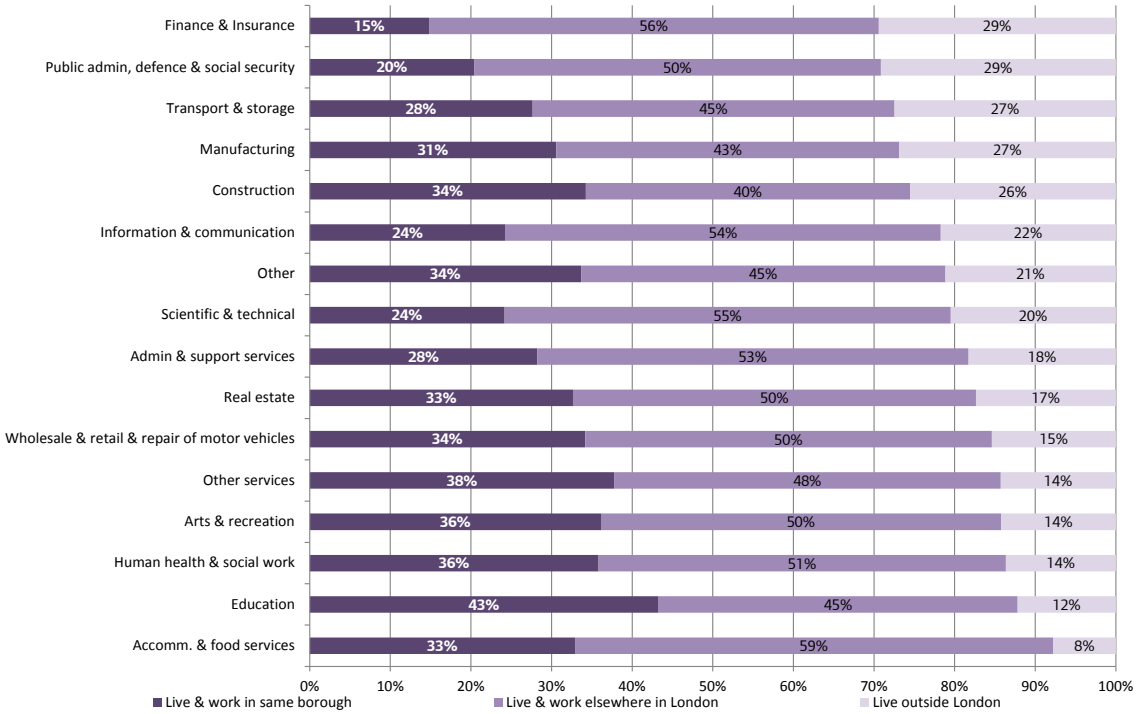


Source: ONS Census 2011

Finance & Insurance was the industry with the highest proportion of workers commuting into work from outside London (29 per cent), while the Accommodation and Food Services industry had the smallest proportion (8 per cent).

The Education industry saw the highest proportion both living and working in the same borough (43 per cent), while Finance & Insurance was the least likely industry for people to live and work in the same borough with just 15 per cent doing so.[24]

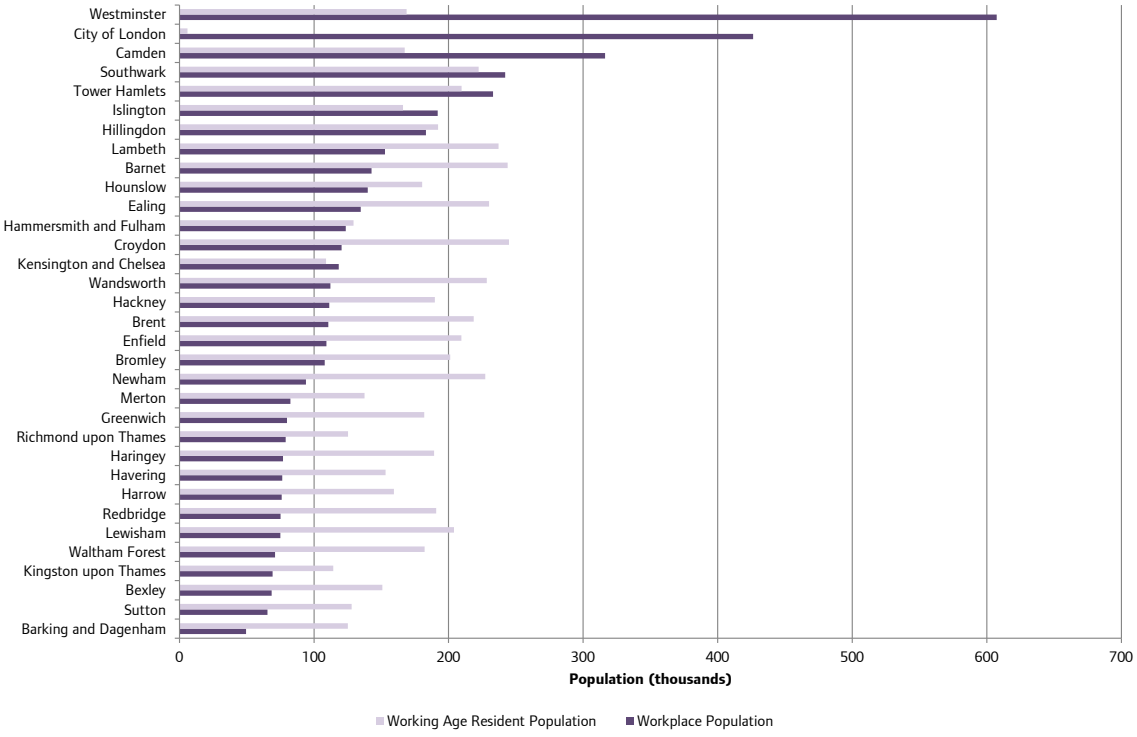
Figure 6.34: Place of residence of London workers by industry, 2011



Source: ONS Census 2011

Figure 6.35 shows that the workplace populations of Westminster, City of London and Camden were all far larger than their working age 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 6.35: Workplace population compared to working age resident population, 2014



Source: ONS Annual Population Survey, Business Register and Employment Survey, Mid-year estimates

London's labour market

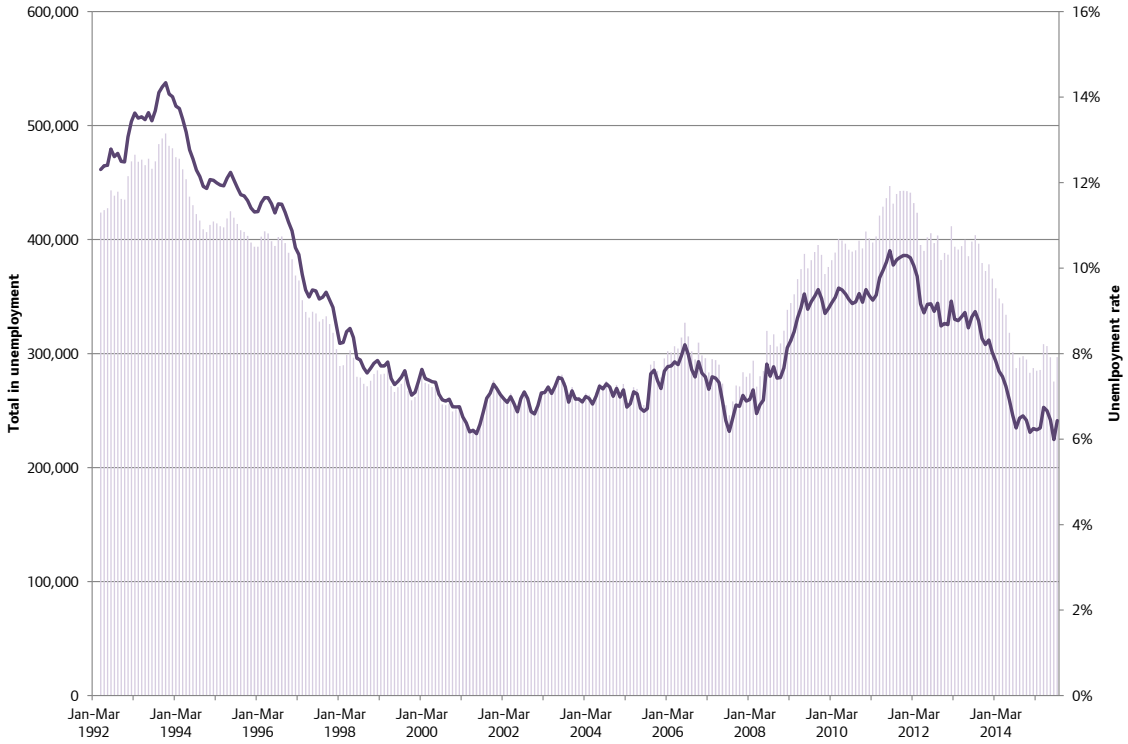
London's labour market performance over time is shown in Figure 6.36. The latest estimates from the ONS showed 72.4 per cent of London residents aged 16-64 years were in employment during the three months to September 2015[25]. That was up from 72.1 per cent in the previous quarter and, despite being unchanged from a year earlier, was almost six percentage points higher than the lows recorded in 2011 and 2012.

Figure 6.36: London's employment rate, residents aged 16-64 years, three-month rolling, 1992-2015

Source: ONS Labour Force Survey

Comparably, there were 297,000 unemployed residents aged 16 years and over[26] in London in Q3 2015. That gives an unemployment rate of 6.4 per cent which, whilst up 0.2 percentage points from a year earlier, remained historically low as can be seen in Figure 6.37. The unemployment rate was lower for men (6 per cent) than for women (7 per cent). Furthermore, by age groups, the unemployment rate was highest for 16-17 year olds (42.4 per cent) and generally fell as age increases.

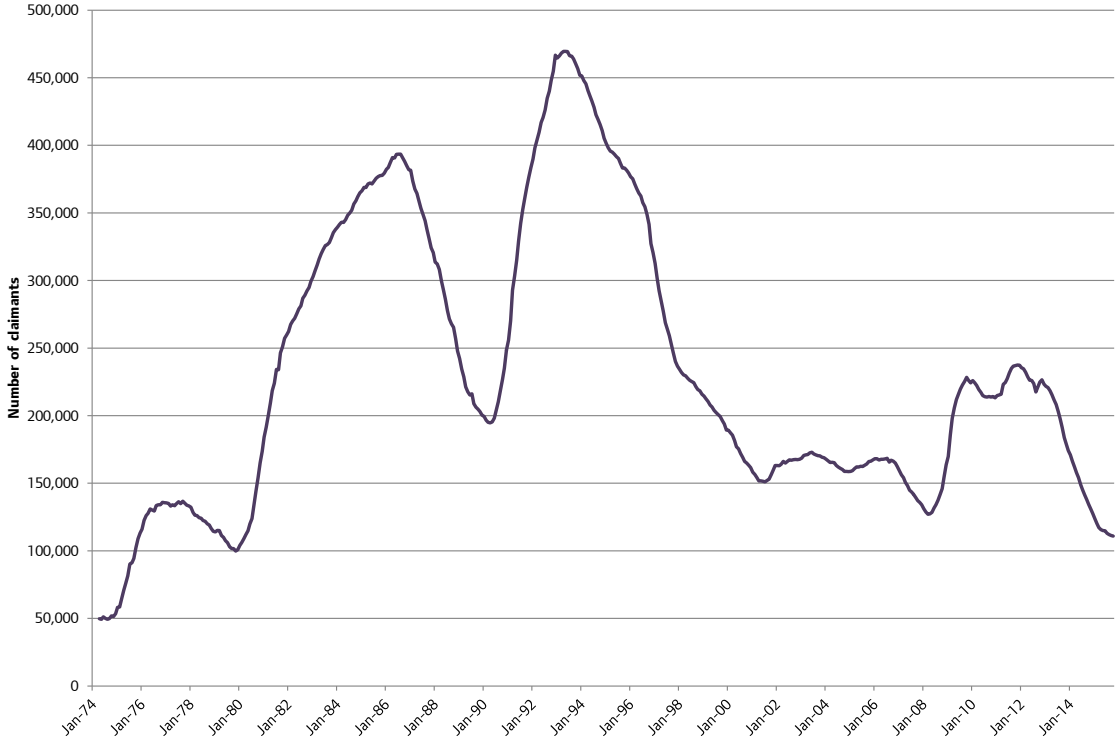
Figure 6.37: London's unemployment rate, residents aged 16 years and over, three-month rolling, 1992-2015



Source: ONS Labour Force Survey

A different measure of unemployment is the Claimant Count[27]. There were 111,000 people claiming unemployment benefit in London in October 2015. That was down 23,300 from a year earlier and the lowest since the late 1970s (Figure 6.38). The Claimant Count unemployment rate was meanwhile estimated at 1.9 per cent. By gender, men had a higher Claimant Count unemployment rate (2.1 per cent) than women (1.7 per cent). Furthermore, approximately one-in-four claimants had been claiming unemployment benefit for more than 12 months[28].

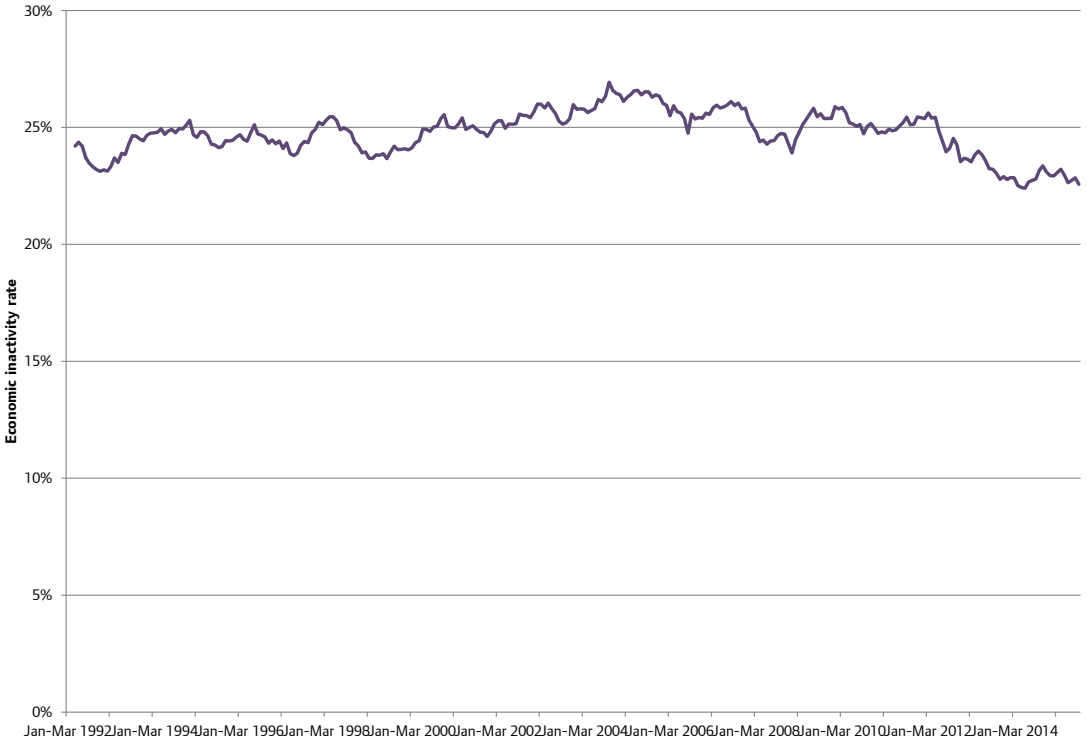
Figure 6.38: Claimant count in London, seasonally adjusted, 1974-2015



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 the three months to September 2015, the percentage of London residents who were inactive was 22.6 per cent (Figure 6.39). Although down 0.2 percentage points from the three months to September 2014, the economic inactivity rate has been relatively stable since 1992.

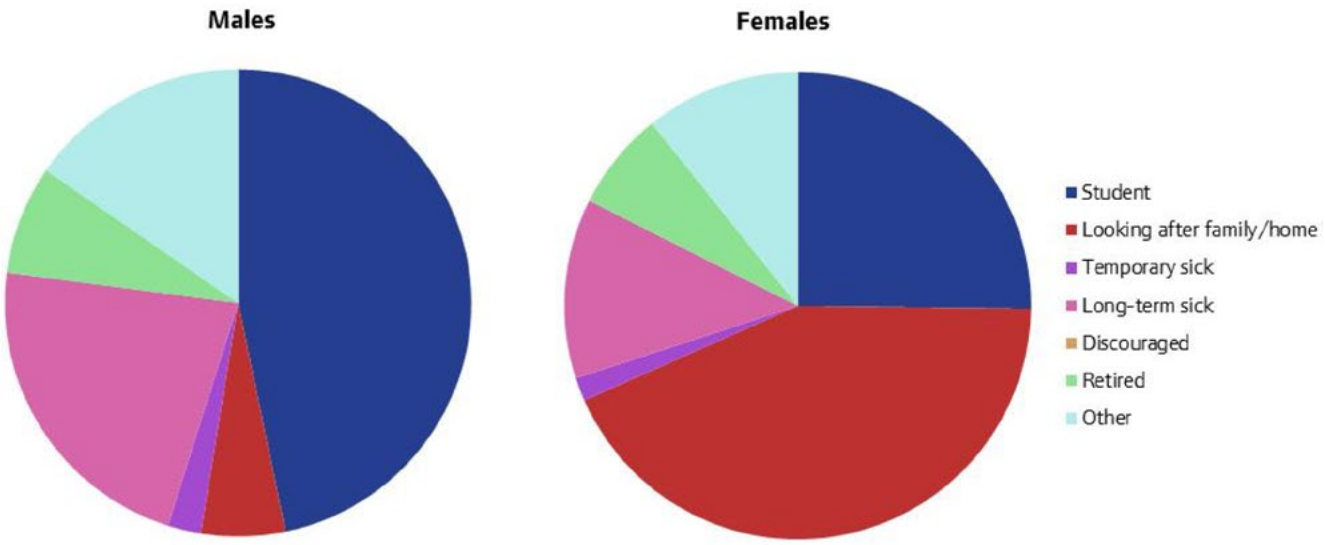
Figure 6.39: Economic inactivity in London, residents aged 16-64 years, three-month rolling, 1992-2015



Source: ONS Labour Force Survey

The majority of people who were economically inactive in London cited this was because they did not want a job (74.3 per cent)[29]. More detailed breakdowns are shown in Figure 6.40 and indicate that being a student (32.2. per cent) and looking after the family or home (30.6 per cent) were the most commonly reported reasons. Interestingly, women were more likely to cite looking after the family or home than men (43 per cent versus 5.8 per cent).

Figure 6.40: Reasons for being economically inactive by gender in London, residents aged 16-64 years, July 2014 to June 2015

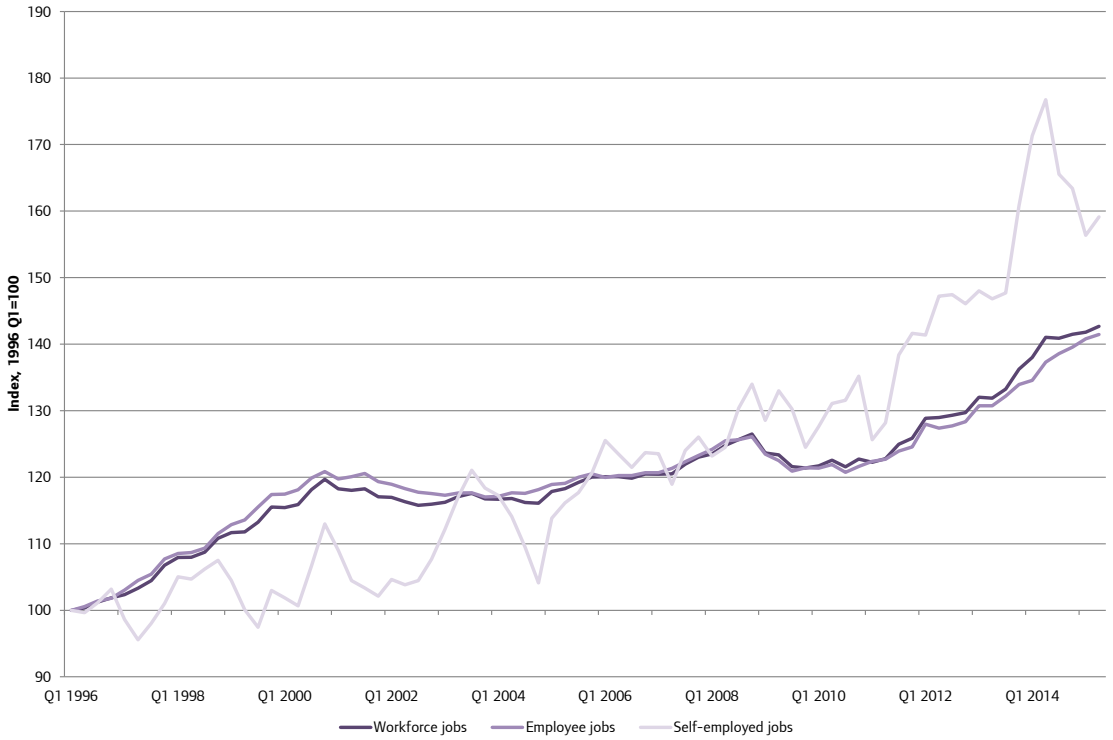


Source: ONS Annual Population Survey

When comparing with the year ending June 2005, the proportion of economically inactive residents who do not want a job had fallen – 77.1 per cent in 2005 compared with 74.3 per cent in 2015. Moreover, whilst being a student and looking after the family or home were similarly the most cited reason for being inactive in 2005, there were proportionally more who reported being either temporarily or long-term sick (20 per cent versus 17.5 per cent).

Another labour market breakdown is by employees and those that are self-employed[30]. Most jobs in London were employee roles (87.3 per cent in June 2015) with the remainder largely self-employment jobs (12.6 per cent)[31]. Nonetheless, self-employment has seen a faster rate of growth since 1996 than employee jobs as shown in Figure 6.41. In fact, the growth in self-employed jobs since 2006 can partly explain the overall rise in workforce jobs in London. For example, whilst employee jobs have increased 17.9 per cent between Q1 2006 and Q2 2015, growth in self-employment jobs has been one-and-a-half times stronger at 26.8 per cent.

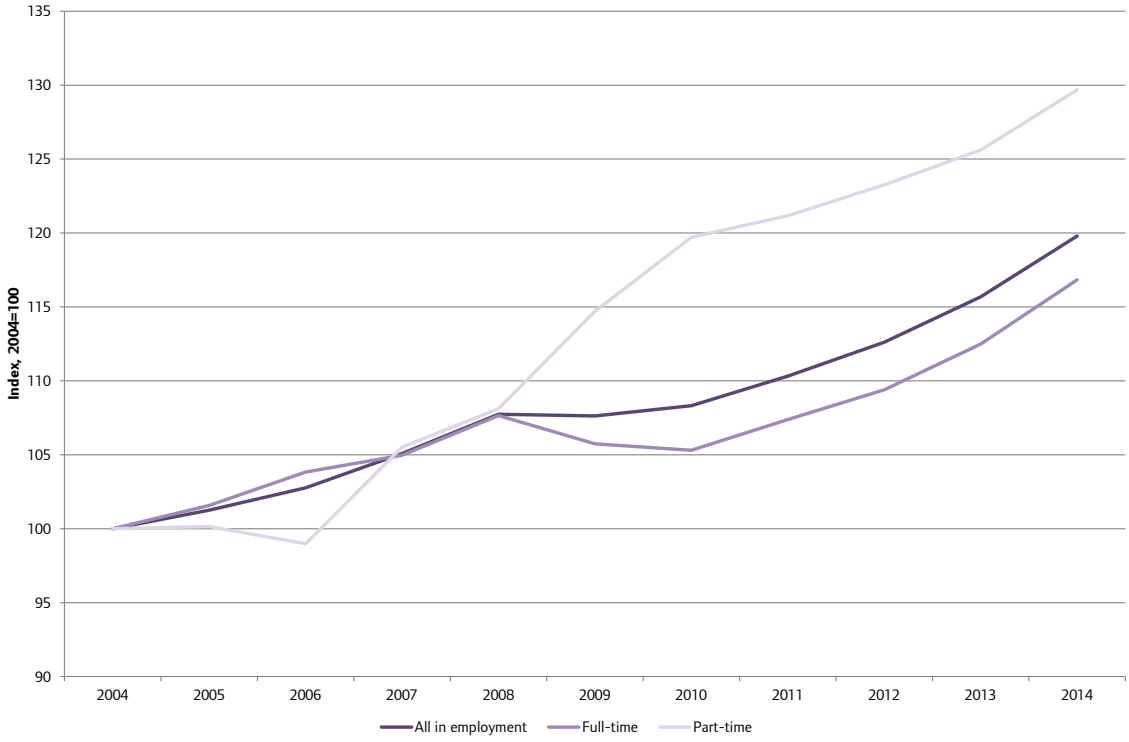
Figure 6.41: Workforce jobs in London by employees and self-employed jobs, 1996-2015



Source: ONS Workforce Jobs

The split by full-time and part-time working age employees in 2014 was 77.7 per cent and 21.8 per cent respectively. Of those working part-time, 61.5 per cent reportedly did not want a full-time job, but an additional 21.6 per cent commented that they could not find a full-time position (compared with 13.6 per cent of people citing this reason in 2008)[32]. In particular, the number of part-time workers in London has grown 29.7 per cent since 2004 (compared with 16.8 per cent growth for full-time workers) and can also partly explain the rise in total employment as shown in Figure 6.42.

Figure 6.42: Full-time and part-time workers in London, working age population (16-64 years), 2004-2014, 2004=100



Note: January to December periods. Source: ONS Annual Population Survey Box: Part-time employment in London

Box 6.1: 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. Indeed, when comparing with UK trends as shown in Figure 6.42, growth in part-time workers was stronger in London (29.7 per cent versus 9.8 per cent). Despite this, the share of part-time workers in London (21.8 per cent in 2014) is lower than the UK as a whole (25.5 per cent).

The same trends are observed when looking at the number of part-time jobs[33]. When looking at the growth in part-time jobs between 2008 and 2014, the biggest risers were in the Other Activities, Real Estate, Professional, Scientific & Technical Activities, and Public Administration & Defence industries. Additionally, the occupations that saw the biggest increases in part-time roles were in Managerial, Associate Professional & Technical, 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[34].

To try to explain the remaining difference, GLA Economics also looked at the gender and parental differences in part-time employment[35]. Generally, female employment rates (both full and part-time) in London have historically been lower than male employment rates as shown in Figure 6.45 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 – 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 for why women (with dependent children) have a lower employment rate in London and particularly in regards to part-time employment. Some possible reasons include:

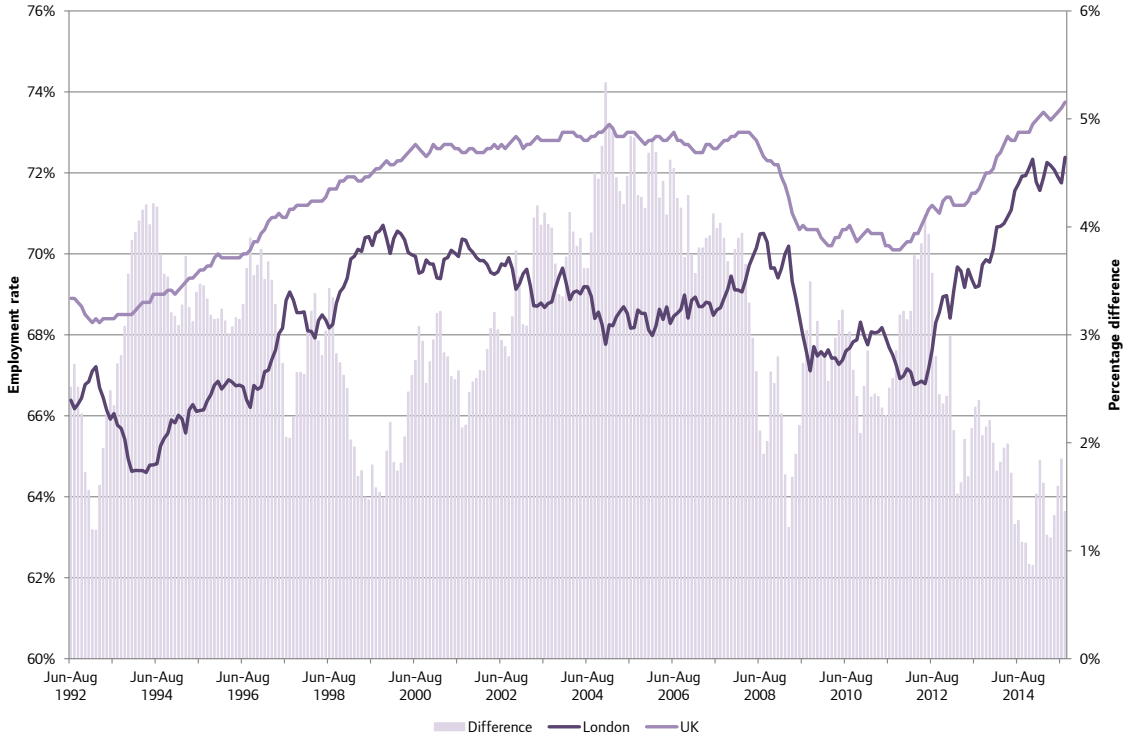
- London-specific factors such as the higher costs of living (which are arguably not effectively accounted for by the national tax and benefits system) and higher costs of travelling to work;
- Individual characteristics such as ethnicity; and
- Factors on the demand side including factors that prevent 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).

Tables 6.19 - 6.21 in Appendix 6.1 provides details of London's labour market at a borough level.

Comparisons with the UK in Figures 6.43 and 6.44 show that London has consistently had a lower employment rate and a higher unemployment rate since 1992. For example, in the three months to September 2015, the UK's employment rate was 73.7 per cent – 1.4 percentage points above London; whilst the UK's unemployment rate was 5.3 per cent – 1.1 percentage points below London. However, this has not always been the case with previous GLA Economics analysis showing London having a higher employment rate than the UK prior to 1990[36].

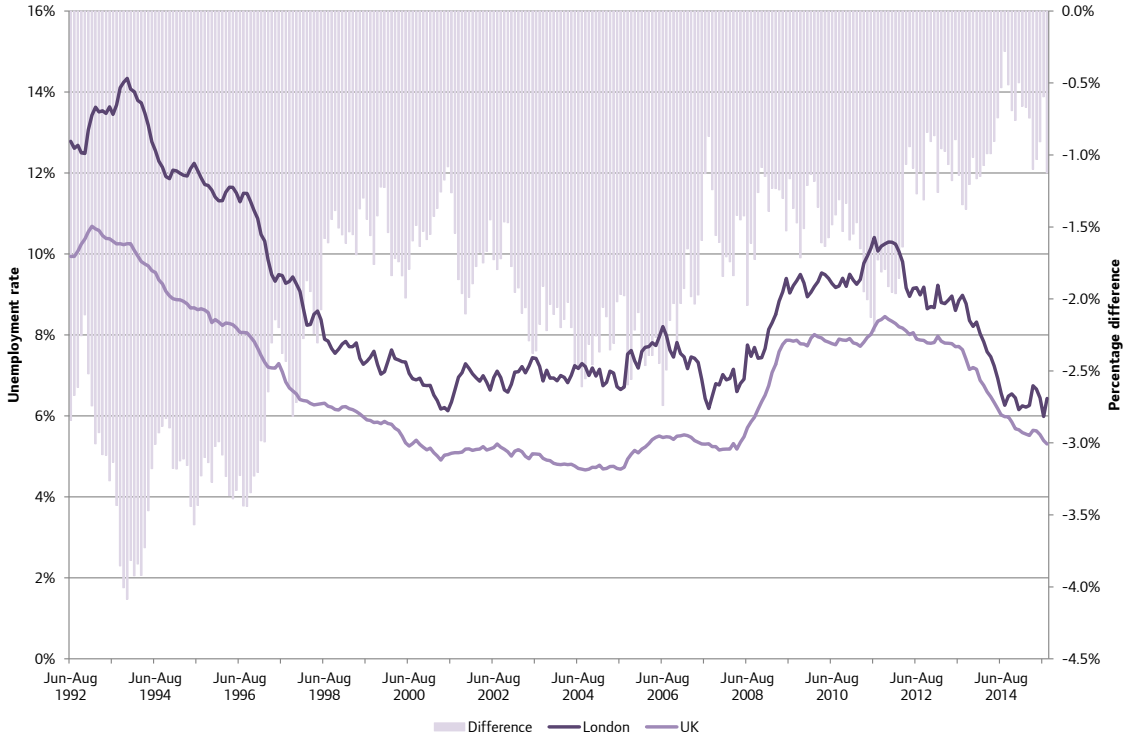
More recently, the gap between London and the UK has narrowed which can partly be explained by London having a stronger recovery from the recent recession. For instance, London's employment rate has risen 5.7 percentage points since its recessionary low compared with a 3.6 percentage point rise for the UK.

Figure 6.43: Employment rates in London and the UK for the working age population (16-64 years), three-month rolling, 1992-2015



Source: ONS Labour Force Survey

Figure 6.44: Unemployment rates in London and the UK for the population aged 16 years and over, three-month rolling, 1992-2015



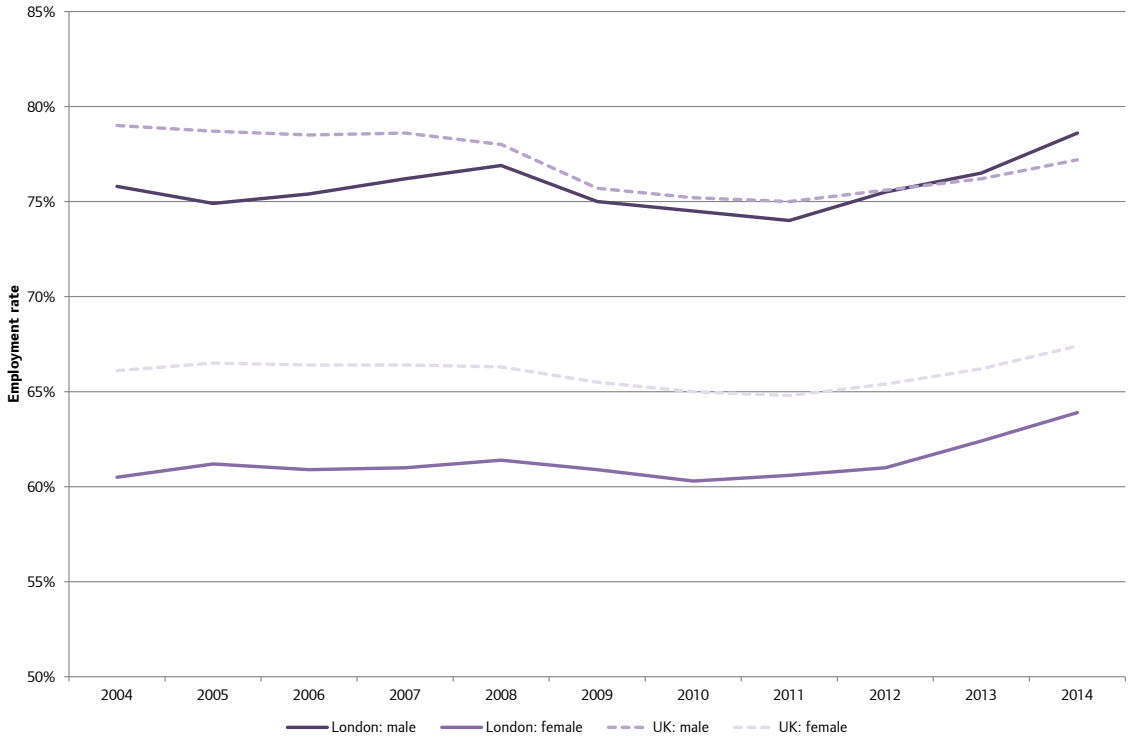
Source: ONS Labour Force Survey

Previous analysis by GLA Economics suggested that this difference can be explained by the unique characteristics of London's population[3738]. For example, London has a higher proportion of the population being Black, Asian and minority ethnic (BAME), and migrants than the UK. The following charts and tables looks at the employment rates by demographic breakdowns to see whether London-specific characteristics can still explain this difference.

Gender

The first chart shows the male and female employment rates for London and the rest of the UK[39]. 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 2014, London's male employment rate was 78.6 per cent compared with the female employment rate of 63.9 per cent. The second observation is that the difference between the male employment rates for London and the UK is relatively small, but is larger 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, cost of living which can influence the opportunity cost of women working[40].

Figure 6.45: Employment rates by gender in London and the UK for the working age population (16-64 years), 2004-2014



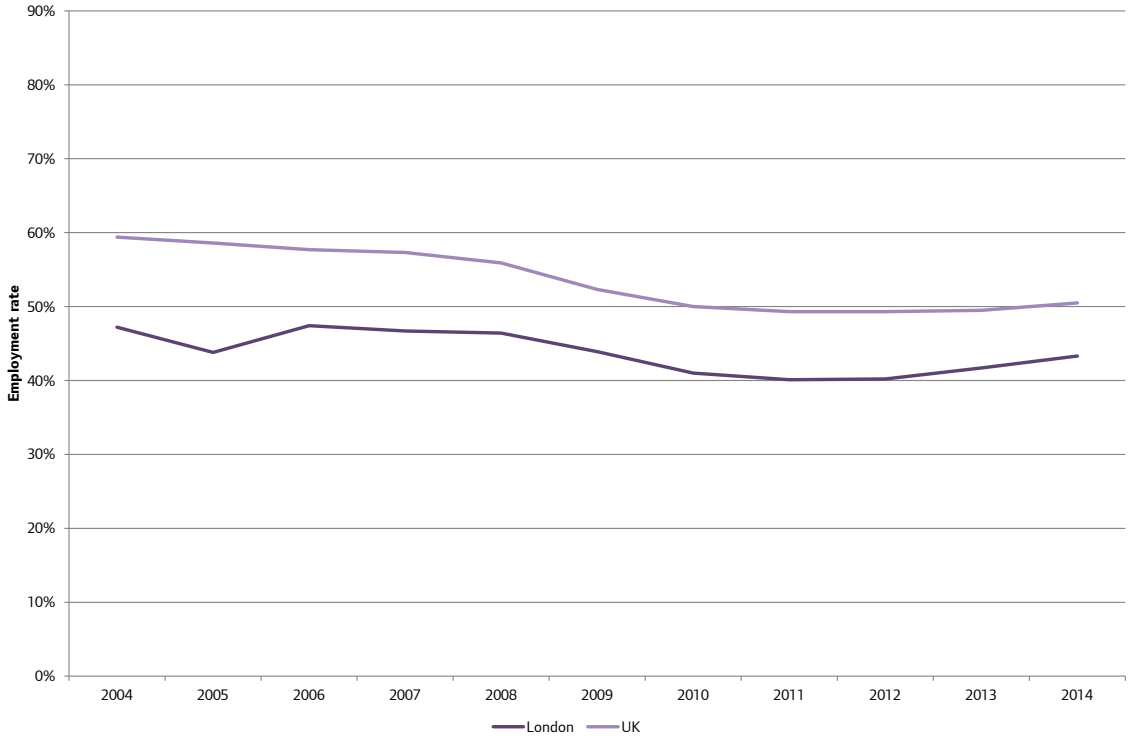
Note: January to December periods. Source: ONS Annual Population Survey

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[41]. In fact, the male employment rate for London has been marginally higher than the UK in both 2013 and 2014. This suggests that the closing of these gaps could partly explain the convergence of London's and the UK's headline employment rates.

Age

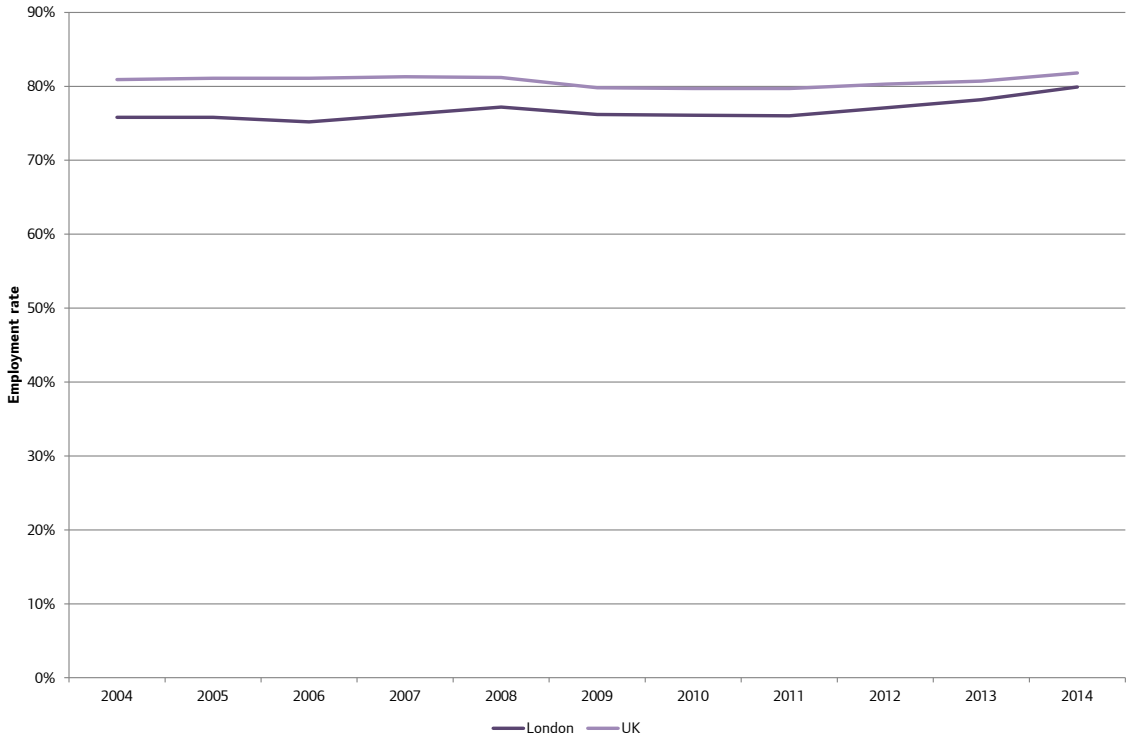
Figures 6.46-6.48 plots the employment rates for the 16-24, 25-49 and 50-64 age groups for London and the UK. The largest gap in London's and the UK's employment rates is for the 16-24 age group[42], but this has narrowed from 12.2 percentage point difference in 2004 to 7.2 percentage point in 2014 and was one of the drivers for the closing of the gap at the headline level. There has also been a convergence between employment rates for the 25-49 age group, with the rates broadly similar for London and the UK. The same can be said for the 50-64 age group where the employment rates for London and the UK were 68.5 per cent and 68.3 per cent respectively.

Figure 6.46: Employment rates for the 16-24 age group for London and the UK, 2004-2014



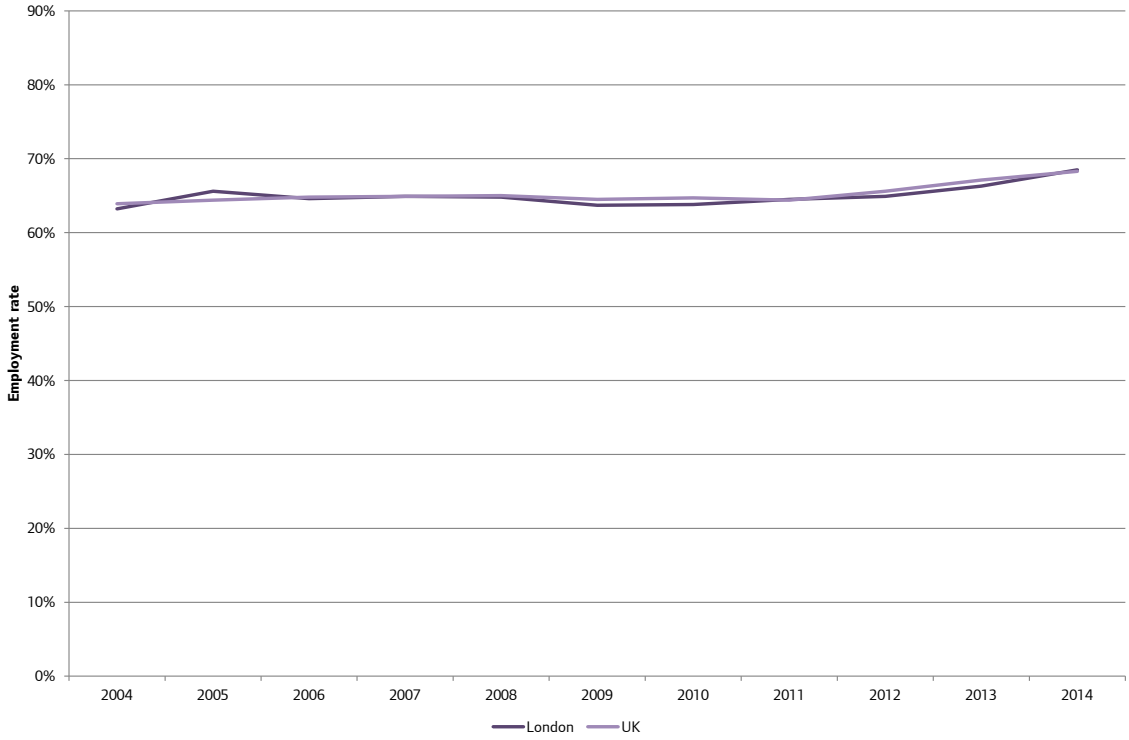
Note: January to December periods. Source: ONS Annual Population Survey

Figure 6.47: Employment rates for the 25-49 age group for London and the UK, 2004-2014



Note: January to December periods. Source: ONS Annual Population Survey

Figure 6.48: Employment rates for the 50-64 age group for London and the UK, 2004-2014

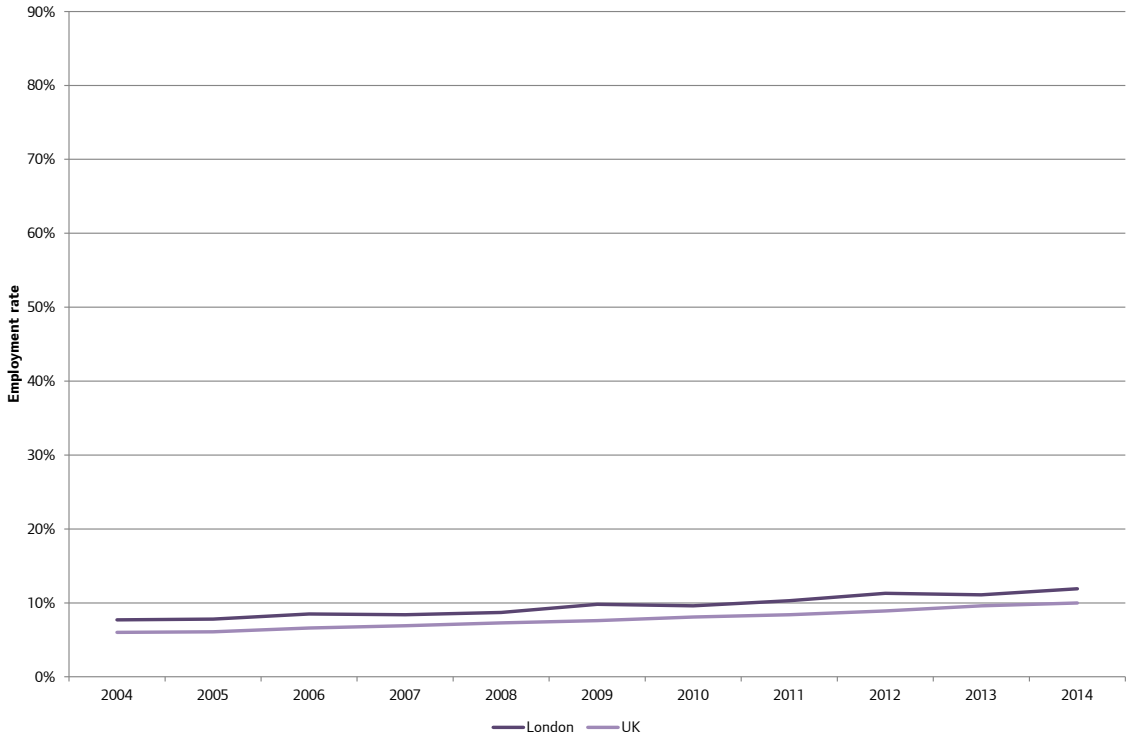


Note: January to December periods. Source: ONS Annual Population Survey

Employment rates by age groups and gender are also presented in Appendix 6.2. 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. 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 6.49). The latest estimates indicated that London's employment rate for the over 65 age group was 11.9 per cent in 2014, compared with 10 per cent for the UK.

Figure 6.49: Employment rates for the over 65 age group for London and the UK, 2004-2014

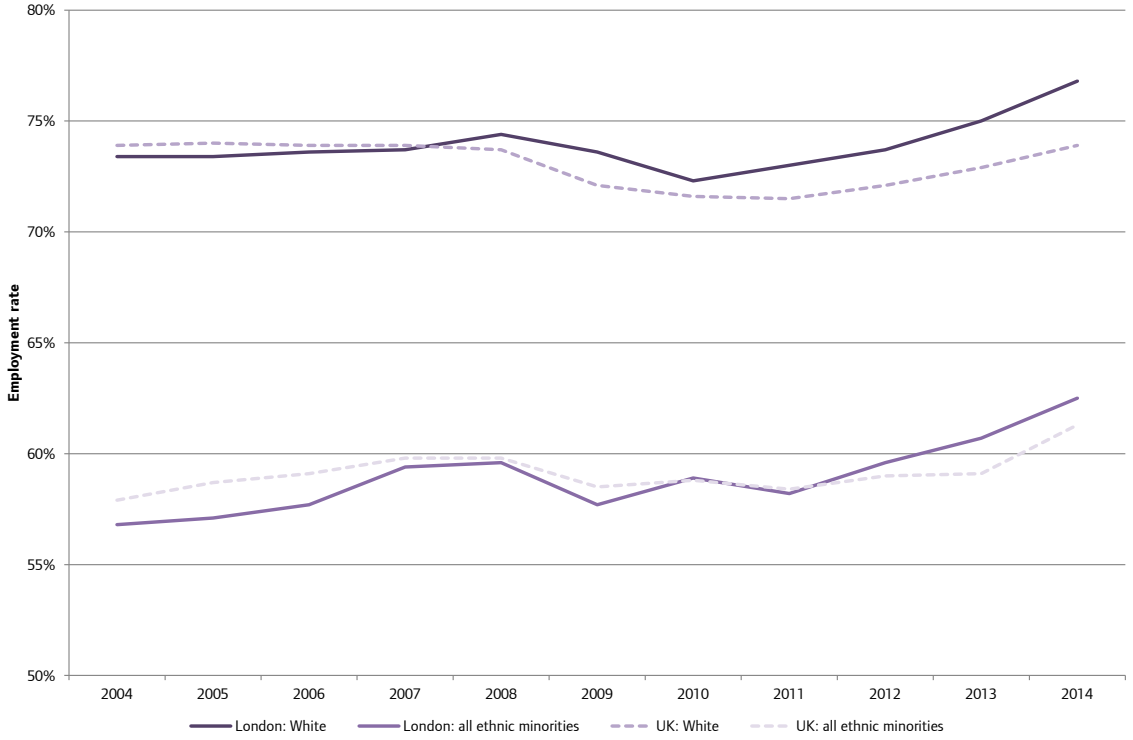


Note: Janaury to December periods. Source: ONS Annual Population Survey Ethnicity

Ethnicity

An interesting trend emerges when looking at employment rates by ethnicity for London and the UK. Whilst employment rates are higher for the 'White' grouping than the ethnic minority group, London generally has higher rates than the UK as a whole (Figure 6.50). For example, the employment rate for the 'White' group was 76.8 per cent in London in 2014, compared with 73.9 per cent for the UK. Similarly, the employment rate for all ethnic minorities was 62.5 per cent in London, compared with 61.3 per cent for the UK. Further breakdowns are provided in Tables 6.4 and 6.5 and suggest that employment rates in London were in line or indeed 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.

Figure 6.50: Employment rates by ethnicity for the working age population (16-64 years) for London and the UK, 2004-2014



Note: January to December periods. Source: ONS Annual Population Survey

Table 6.4: Employment rates by detailed ethnicity groups for the working age population (16-64 years) for London, 2004-2014

Year	White	Indian	Pakistani or Bangladeshi	Black or Black British	All mixed ethncities	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%	69.3%	51.4%	60.3%	61.6%	60.4%
2014	76.8%	71.3%	55.1%	62.2%	60.3%	61.4%

Note: January to December periods. Source: ONS Annual Population Survey

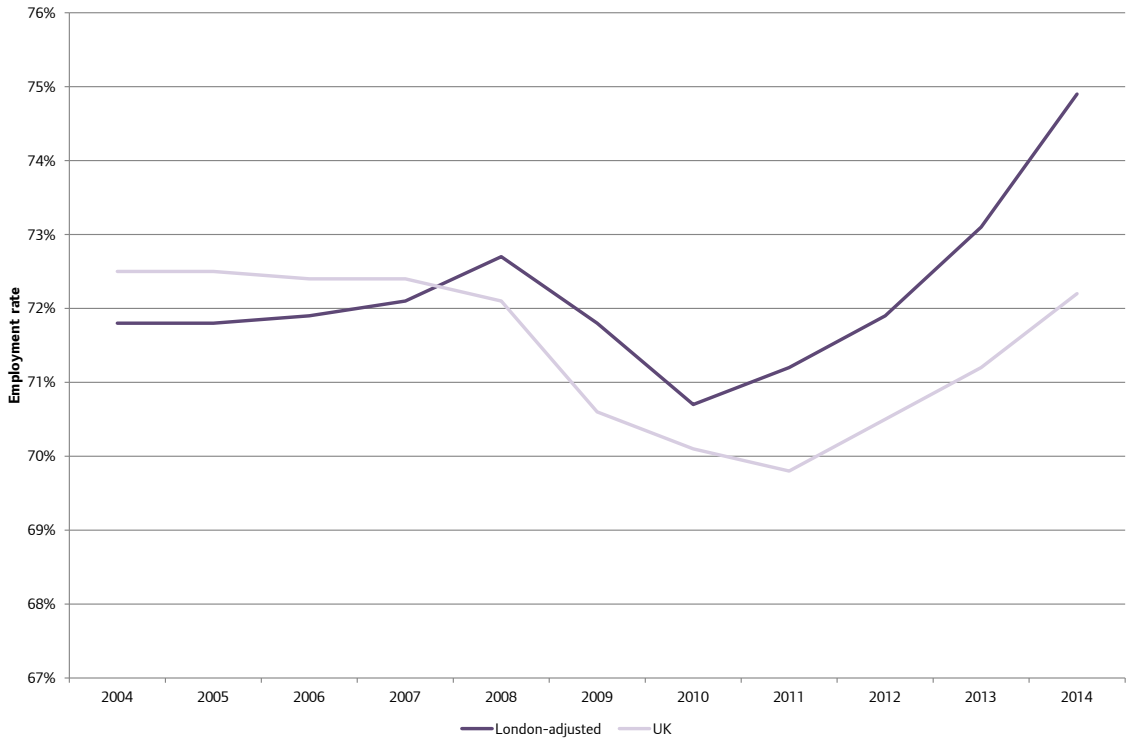
Table 6.5: Employment rates by detailed ethnicity groups for the working age population (16-64 years) for the UK, 2004-2014

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%

Note: January to December periods. 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 Figure 6.23 for example), 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[43] would then be above the UK as shown in Figure 6.51.

Figure 6.51: London-adjusted employment rate based on ethnicity groups and the UK employment rate for the working age population (16-64 years), 2004-2014



Note: January to December periods. Source: ONS Annual Population Survey, GLA Economics calculations

Similar London-adjusted employment rates with the UK can be constructed with other employment breakdowns and will be included in later versions of the Economic Evidence Base.

Lone parents

Table 6.6 shows the percentage of working and workless families[44] in London and the UK by type of family in 2014. Families are more likely to be working in London than the UK as a whole, with 88.1 per cent of all families in London working compared with 87.3 per cent for the UK. Moreover, couple families in London are more likely than lone parent families[45] to be in employment (93.5 per cent versus 70.2 per cent). Where families across the UK were reported as being workless, looking after the family or home was the most common reason provided for not being in work, particularly for lone parents (ONS (2014), Families in the labour market, 2014).

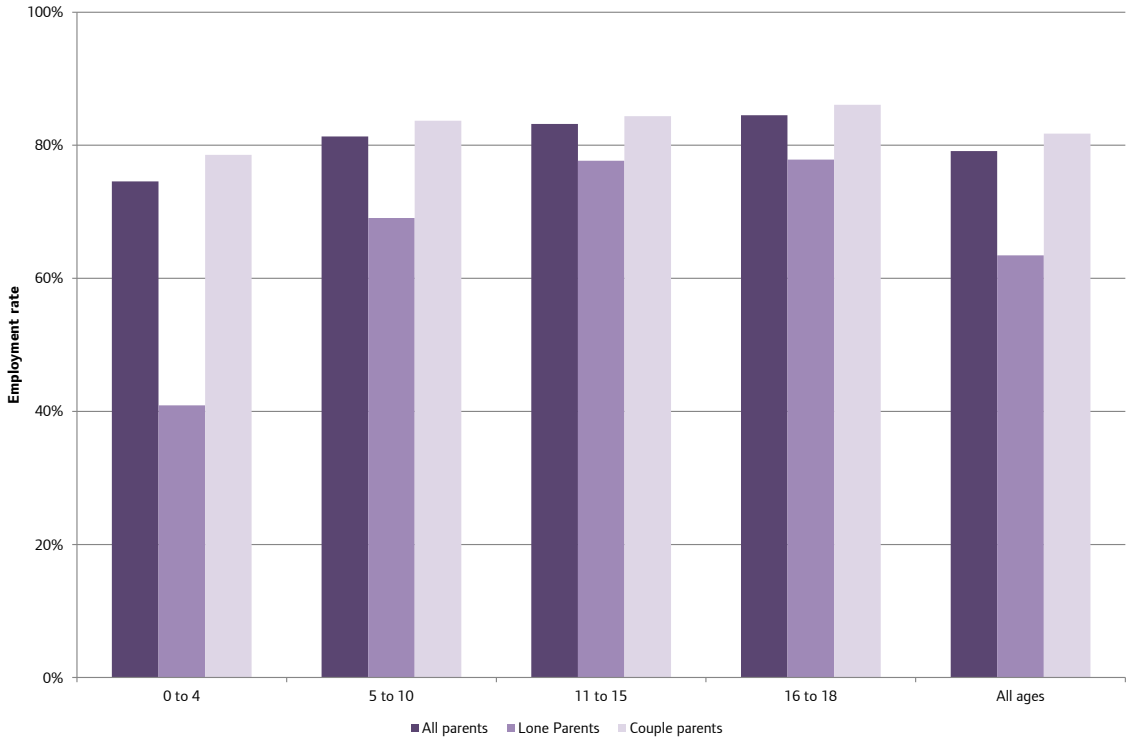
Table 6.6: Percentage of families by type of family and combined economic activity status of family members in London and the UK, 2014

Region	Lone parent families		Couple families		All families	
	Working families	Workless families	Working families	Workless families	Working families	Workless families
London	70.2%	29.8%	93.5%	6.5%	88.1%	11.9%
UK	70.0%	30.0%	91.4%	8.6%	87.3%	12.7%

Note: January to December. Source: ONS Annual Population Survey household dataset

As can be expected, employment rates for working families rises as the age of dependent children[46] increases. This is shown in Figure 6.52 which plots this data for the UK as a whole.

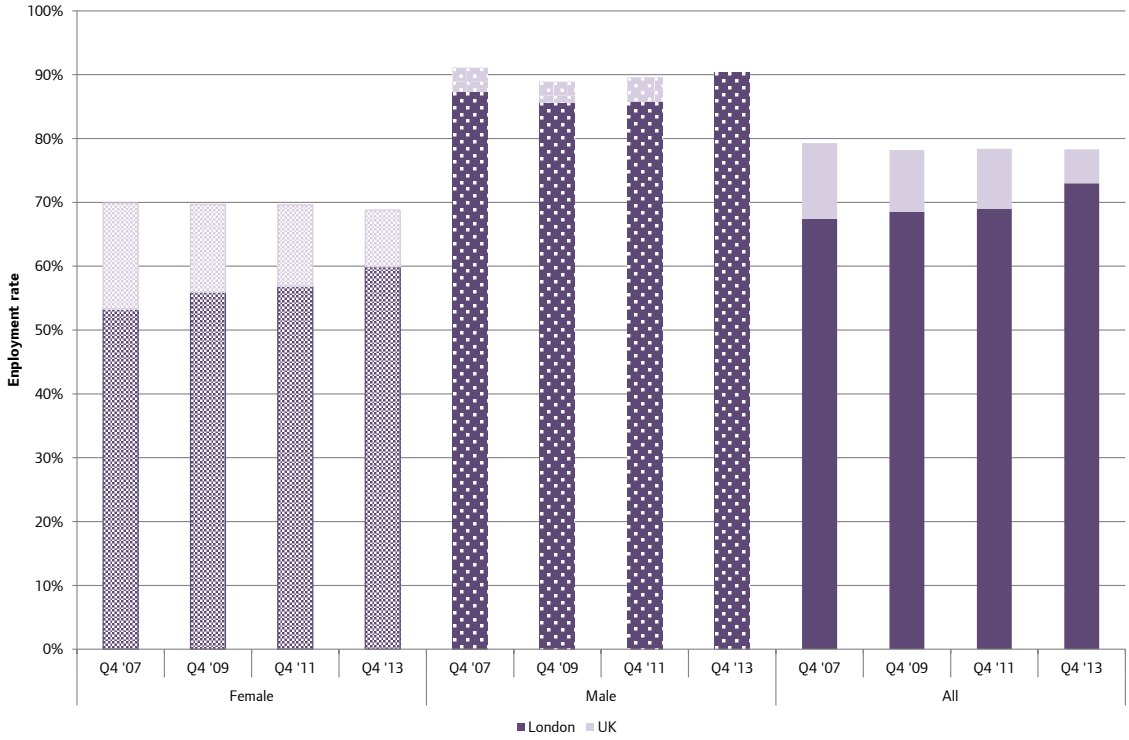
Figure 6.52: Percentage of parents in employment by age of youngest dependent child for the UK, April to June 2014



Note: April to June period. Source: ONS Labour Force Survey data

Alternatively, Figure 6.53 plots the employment rates of parents by gender for London and the rest of the UK for select periods from 2007. Initially, parents in London have historically had a lower employment rate than parents across the rest of the UK, though this gap has halved from 11.9 percentage points in Q4 2007 to 5.3 percentage points in Q4 2013. This difference mostly reflects women in London with dependent children having a lower employment rate than the rest of the UK. For example, despite the employment rate for women with dependent children rising 6.6 percentage points since 2007 in London, it was 8.9 percentage points lower than the rest of the UK.

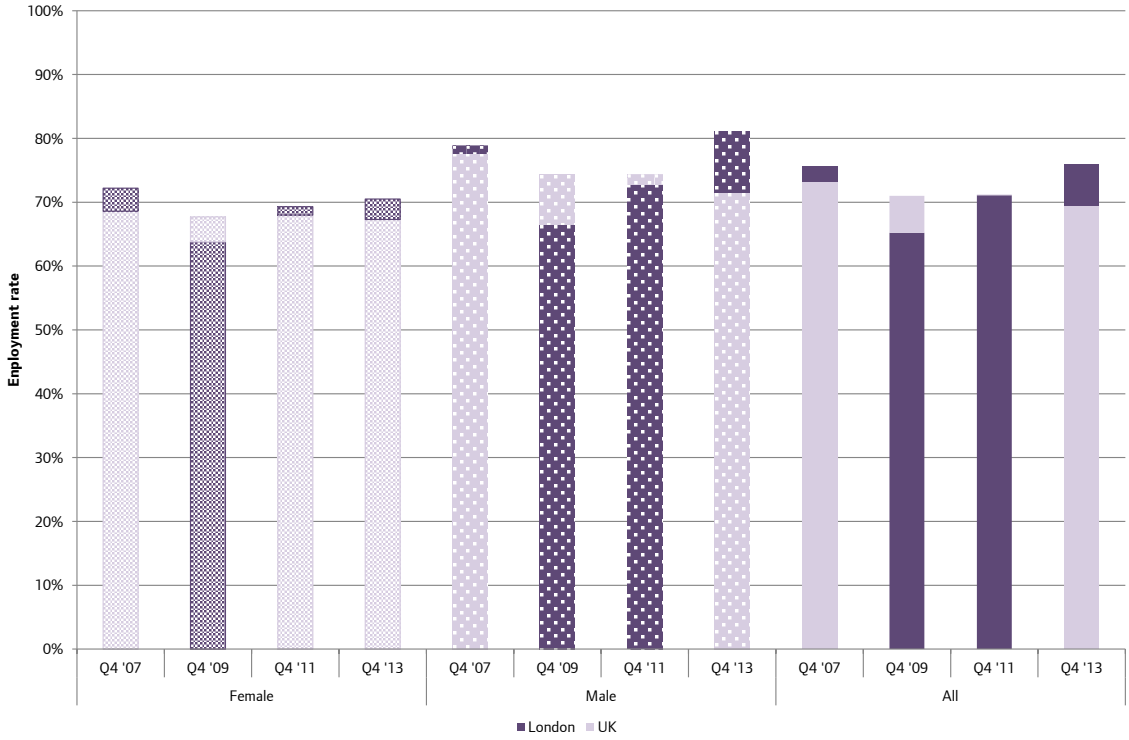
Figure 6.53: Employment rates of parents by gender for London and the Rest of the UK



Note: October to December periods. Source: ONS Quarterly Households Labour Force Survey and GLA Economics calculations

Interestingly, women without dependent children in London have a higher employment rate (70.5 per cent in Q4 2013) than women with dependent children (59.9 per cent). However, the reverse is true for women across the rest of the UK where parents have consistently had a higher employment rate than non-parents. Indeed, women without children generally do better in London than outside as shown in Figure 6.54. A similar trend can be seen for men more recently where men without dependent children have a higher employment rate in London. That said, men without dependent children (both in London and the rest of the UK) have lower employment rates than men with dependent children.

Figure 6.54: Employment rates of non-parents by gender in London and the Rest of the UK

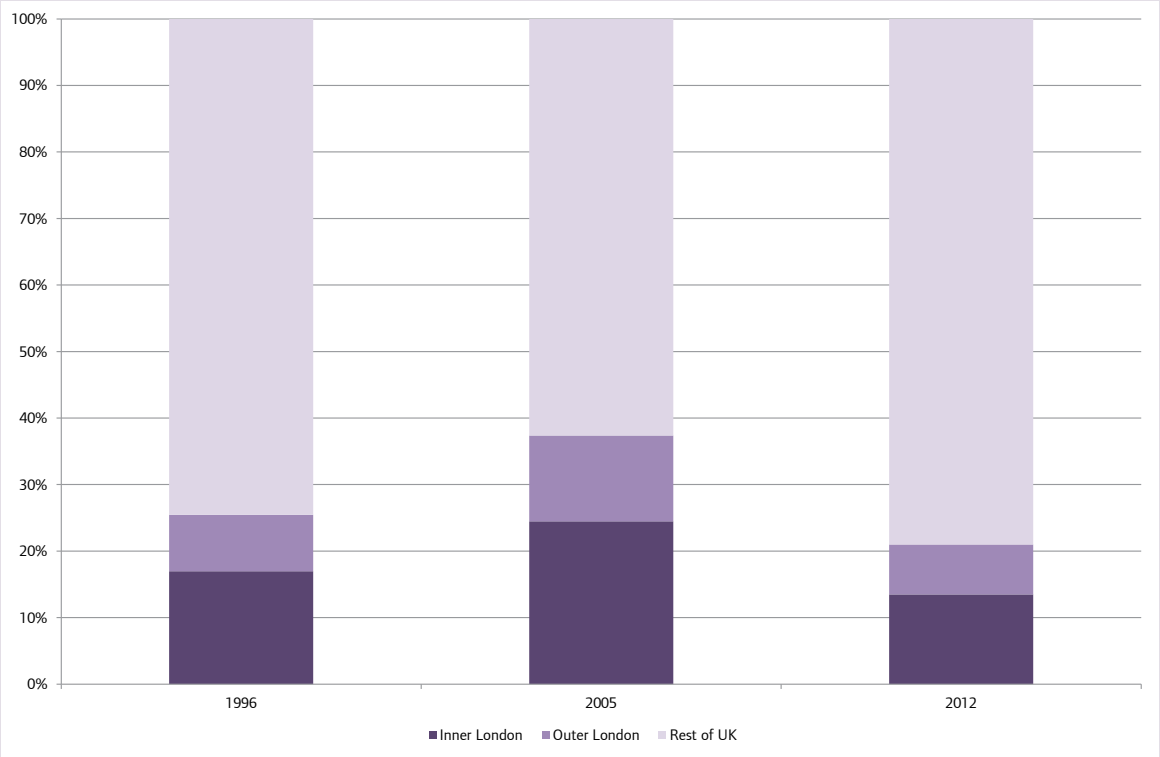


Note: October to December periods. Source: ONS Quarterly Households Labour Force Survey and GLA Economics calculations

Box 6.2: Never worked households in London

Never worked households are rare across the UK with less than 10 per cent of workless households made up of individuals who have never had a job[47]. Instead, many are either looking for work or have caring responsibilities or disabilities. Despite this, there are approximately 264,000 never worked households across the UK in 2012, up from 114,000 in 1996. Indeed, Inner London had the highest proportion of never worked families across the UK (13.5 per cent of the total). Including Outer London means that 21 per cent of all never worked households were in London, though this figure was down from previous years (Figure 6.55).

Figure 6.55: 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

Parts of the rise in never worked households could be due 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. Indeed, 44 per cent of never-worked households were lone parents, 65.1 per cent were headed up with women and 34.3 per cent had heads of households that were from ethnic backgrounds.

Whilst no information was available on the reason for why individuals have never worked, there is data for the current reason for not working among individuals who have never worked. The most common reason for not currently working was being unemployed (37.1 per cent), though looking after the home or family (29.9 per cent) and long-term sickness or disability (19.3 per cent) were also commonly cited.

Qualifications

In London, 57.6 per cent of the working age resident population who are in employment[48] had NVQ Level 4 or higher (the equivalent of higher education) in 2014. A further 13 per cent had Level 3 (A Levels) and 9.6 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 6.7).

Table 6.7: Percentage of the working age population (16-64 years) who are in employment by highest qualification for London and the UK in 2014

Highest qualification	London	UK
No qualifications	4.2%	5.1%
Other qualifications	7.7%	6.1%
NVQ1 only	6.2%	10.4%
NVQ2 only	9.6%	15.6%
Trade Apprenticeships	1.6%	3.8%
NVQ3 only	13.0%	17.4%
NVQ4 or higher	57.6%	41.6%

Source: ONS Annual Population Survey

Employment rates by qualification can be estimated when combining these breakdowns with population estimates. These figures for London and the UK are shown in Tables 6.8 and 6.9. These show that employment rates by qualification in London were generally lower than for the UK as a whole and can therefore not explain the difference between the London and UK headline employment rates. The one notable exception was for those with NVQ Level 4 or higher where the employment rates for London and the UK were broadly similar in 2014. This suggests that individuals with low or even no qualifications are less likely to be in employment in London than the UK – that is, the penalty for not having good qualifications is greater in London than the UK as a whole.

Table 6.8: Employment rates by qualification for the working age population (16-64 years) for London, 2004-2014

Year	NVQ4+	NVQ3	NVQ2	NVQ1	Other qualifications	No qualification
2004	85.6%	69.4%	66.4%	64.2%	67.2%	41.3%
2005	85.1%	67.6%	62.8%	65.6%	66.5%	42.2%
2006	86.0%	67.2%	63.4%	61.5%	66.1%	41.5%
2007	84.9%	66.7%	62.3%	60.8%	69.8%	42.8%
2008	84.2%	65.6%	63.1%	58.4%	68.9%	39.9%
2009	82.8%	64.6%	60.2%	58.3%	64.9%	39.6%
2010	82.6%	61.7%	57.8%	53.7%	65.3%	37.0%
2011	80.9%	62.7%	56.1%	55.5%	61.8%	39.2%
2012	81.5%	62.4%	57.8%	53.0%	65.0%	38.0%
2013	82.5%	61.7%	56.9%	54.8%	66.7%	40.0%
2014	83.6%	66.3%	58.6%	56.9%	68.6%	38.4%

Note: January to December periods. Source: ONS Annual Population Survey and GLA Economics calculations

Table 6.9: Employment rates by qualification for the working age population (16-64 years) for the UK, 2004-2014

Year	NVQ4+	NVQ3	NVQ2	NVQ1	Other qualifications	No qualification
2004	86.9%	77.6%	75.0%	72.9%	72.8%	51.0%
2005	87.1%	77.4%	74.6%	72.8%	73.0%	49.9%
2006	86.8%	76.8%	73.9%	71.6%	73.9%	49.6%
2007	87.0%	76.8%	73.3%	71.0%	75.1%	49.4%
2008	84.9%	75.9%	71.5%	67.9%	72.1%	44.2%
2009	83.6%	74.0%	69.0%	65.2%	69.1%	42.2%
2010	83.7%	72.7%	67.4%	63.0%	68.8%	40.5%
2011	82.4%	72.8%	66.9%	62.6%	68.2%	40.2%
2012	82.8%	72.3%	66.9%	63.0%	68.5%	39.7%
2013	83.4%	72.2%	67.0%	63.2%	69.7%	40.7%
2014	83.9%	73.1%	67.9%	64.3%	71.5%	41.1%

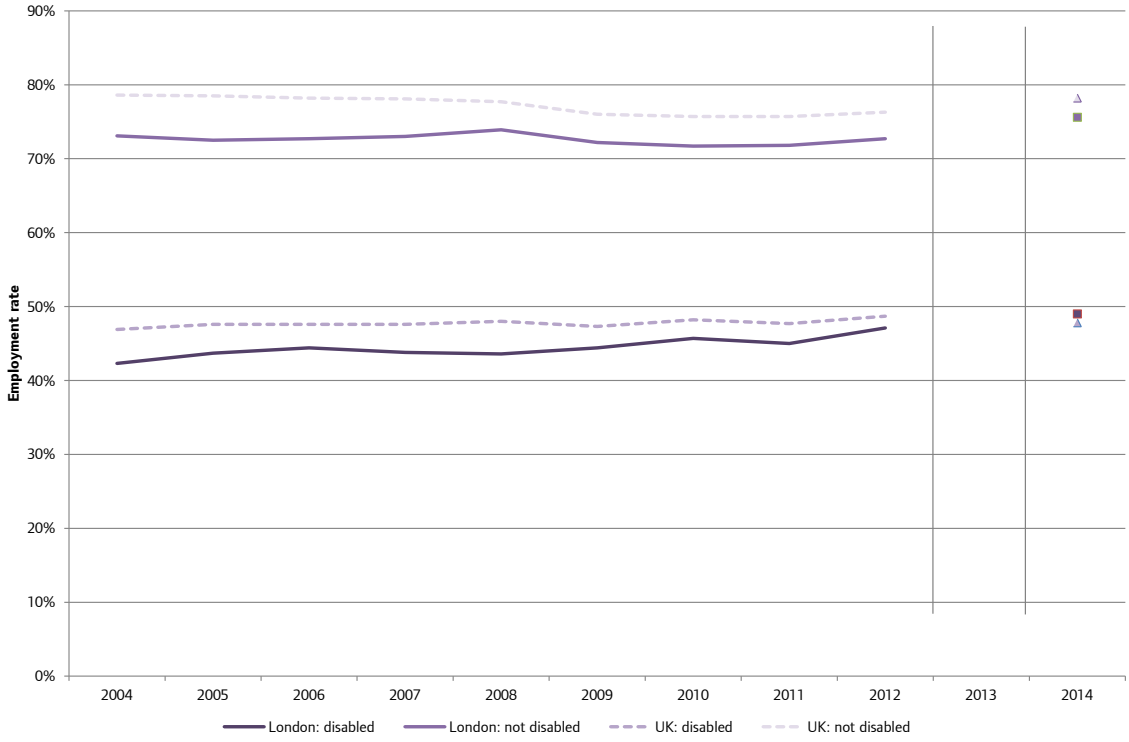
Note: January to December periods. Source: ONS Annual Population Survey and GLA Economics calculations

Disabilities

The percentage of the working age population who were disabled[49] in London was estimated at 16 per cent in 2014. In comparison, approximately 19.1 per cent of people aged 16-64 were disabled across the UK.

Concurrently, the employment rates for individuals with and without disabilities for London and the UK are shown in Figure 6.56. In London, the employment rate for those with disabilities was 49 per cent in 2014, compared with 75.6 per cent for those without disabilities. Notably, the employment rate for those who were disabled was higher than that for the UK as a whole (47.8 per cent), but lower for non-disabled individuals (78.2 per cent).

Figure 6.56: Employment rates by disability for London and the UK, 2004-2014



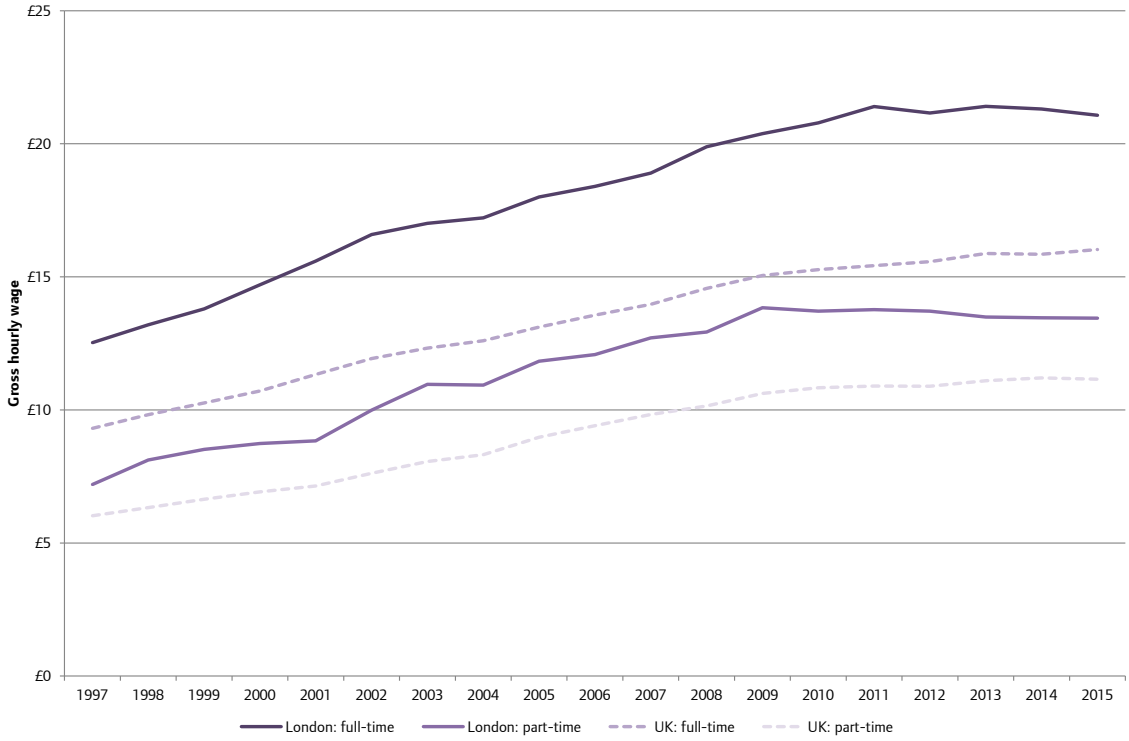
Note: Data for 2004 to 2012 is based on the Disability Discrimination Act definitions, whilst data for 2014 is based on the Equalities Act definition. The two are inherently different and cannot be compared. Source: ONS Annual Population Survey

Earnings

London's wages are higher than the UK. However, this could be a reflection of the higher cost of living in London, such as the cost of land, transport costs and higher demand for goods and services. In 2015, the mean hourly gross wage for a full-time job was £21.07 in London[50] 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 6.57) 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 6.57: Gross median hourly earnings in London and the UK, workplace basis, 1997-2015



Source: ONS Annual Survey of Hours and Earnings

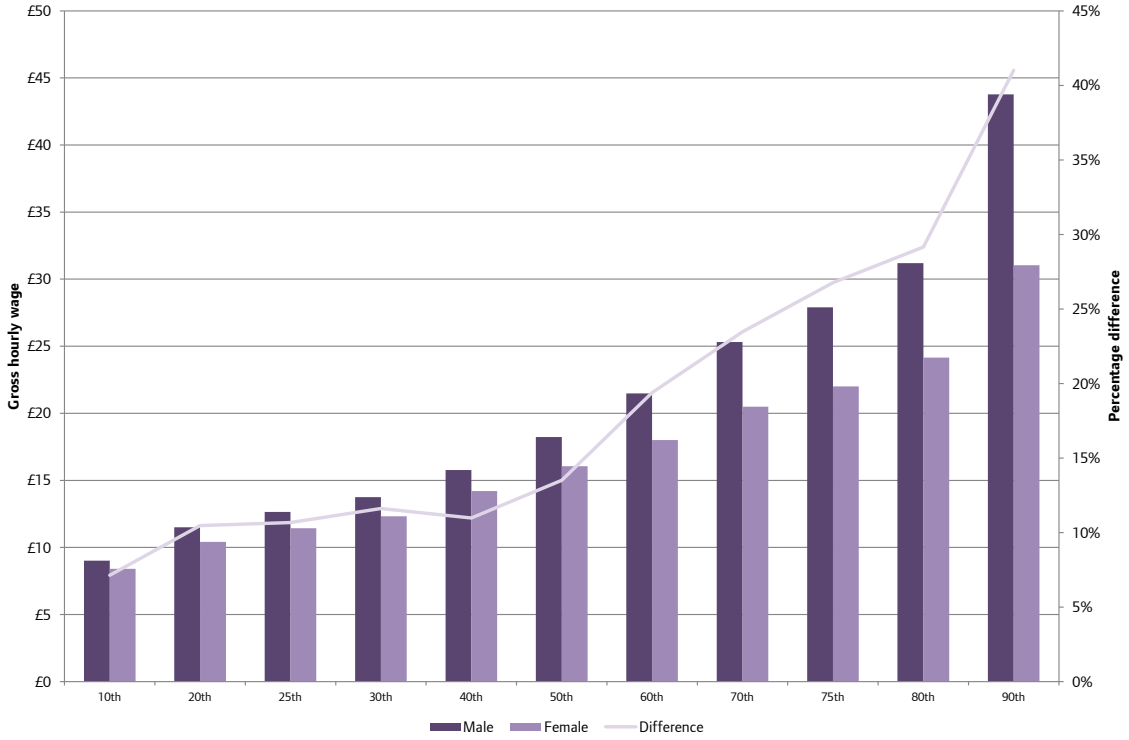
By gender, the average (median) full-time hourly wage was £18.23 for men and £16.06 for women in London. That is a gender pay gap of 13.5 per cent. Historically, male full-time workers have been paid more than their female equivalents as illustrated in Figure 6.58, though the pay gap has reduced slightly in recent years. Moreover, since 2006, this pay gap has been larger in London than the UK as a whole. 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 (-)8.1 per cent.

Figure 6.58: Median pay gap between male and female workers by full-time and part-time for London and the UK, 2006-2015

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 of which would affect the mean. This can be seen in Figure 6.59 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 6.59: Pay gap between full-time male and female workers by wage percentile in London, 2015

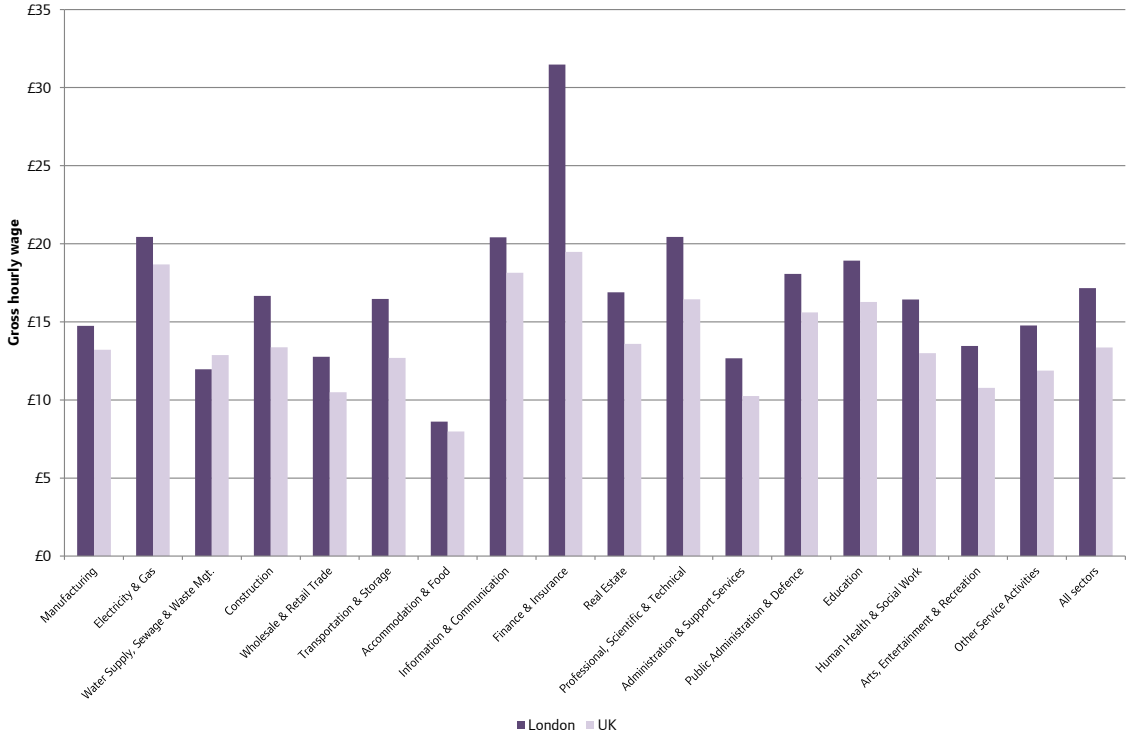


Source: ONS Annual Survey of Hours and Earnings

It should be noted that all these are 'simple' comparisons of the wage paid to men and women; it does 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, of which women are more likely to be affected than men[51].

These headline earnings figures mask significant differences between London's industrial sectors as shown in Figure 6.60. 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. 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.

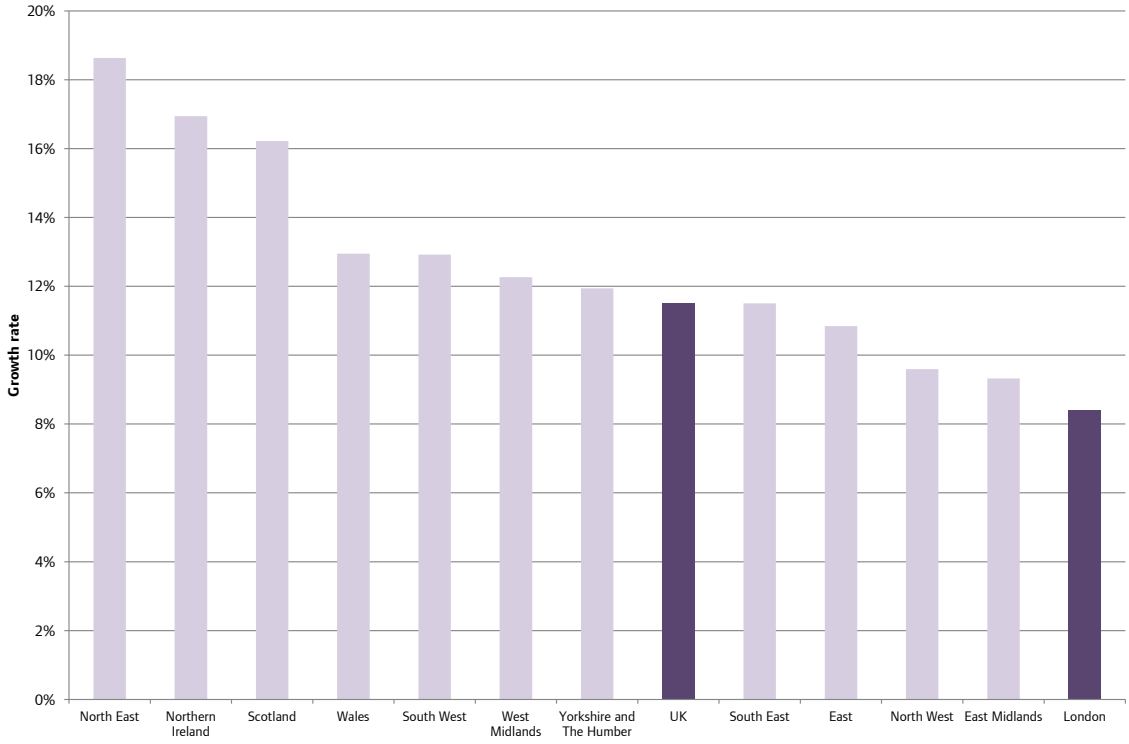
Figure 6.60: Median gross hourly earnings for full-time jobs by sector in London and the UK, workplace basis in 2015



Note: SIC 2007 breakdowns. Source: ONS Annual Survey of Hours and Earnings

Looking over time, the median gross hourly wage has increased 8.4 per cent between 2008 and 2015 in London. That was the slowest rate across all 12 UK regions as shown in Figure 6.61, 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.

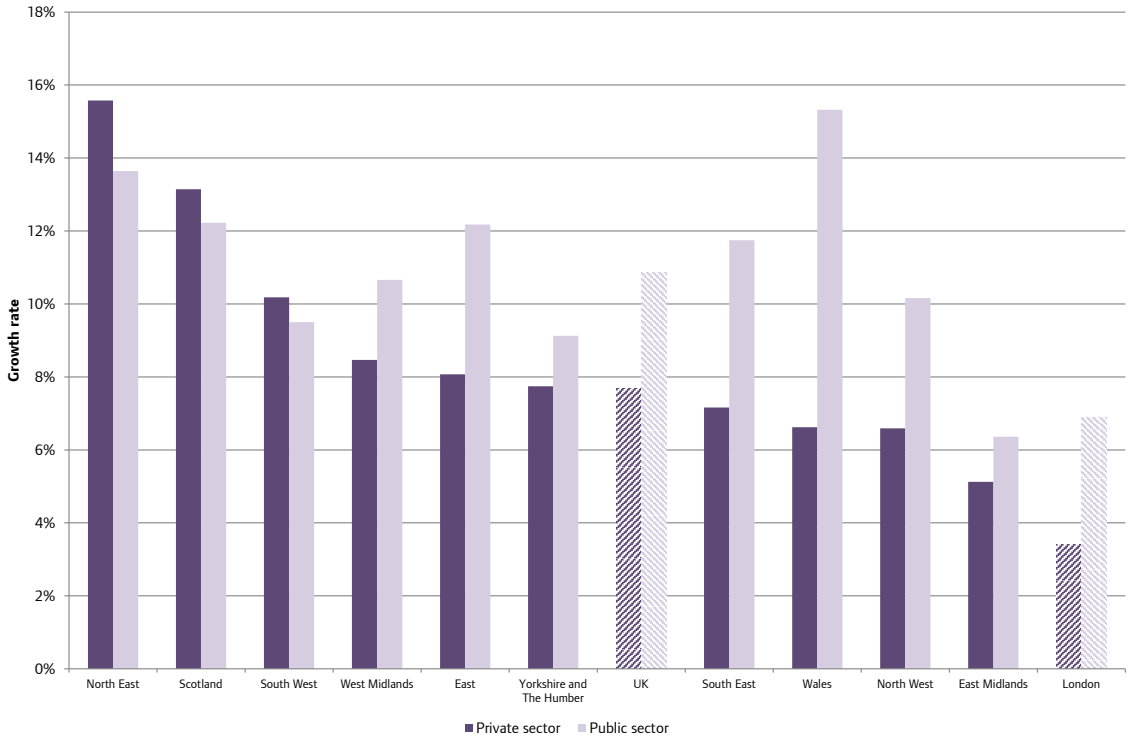
Figure 6.61: Growth in median gross hourly earnings for full-time jobs between 2008 and 2015 by UK region, workplace basis



Source: ONS Annual Survey of Hours and Earnings

Similar trends are observed when looking at full-time hourly wages by private and public sectors. Figure 6.62 shows the rates of wage growth for the UK regions between 2009 and 2015 (note that this is a different time period to the above analysis[52]). Hourly wages in London's private sector grew 3.4 per cent over this period and 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.

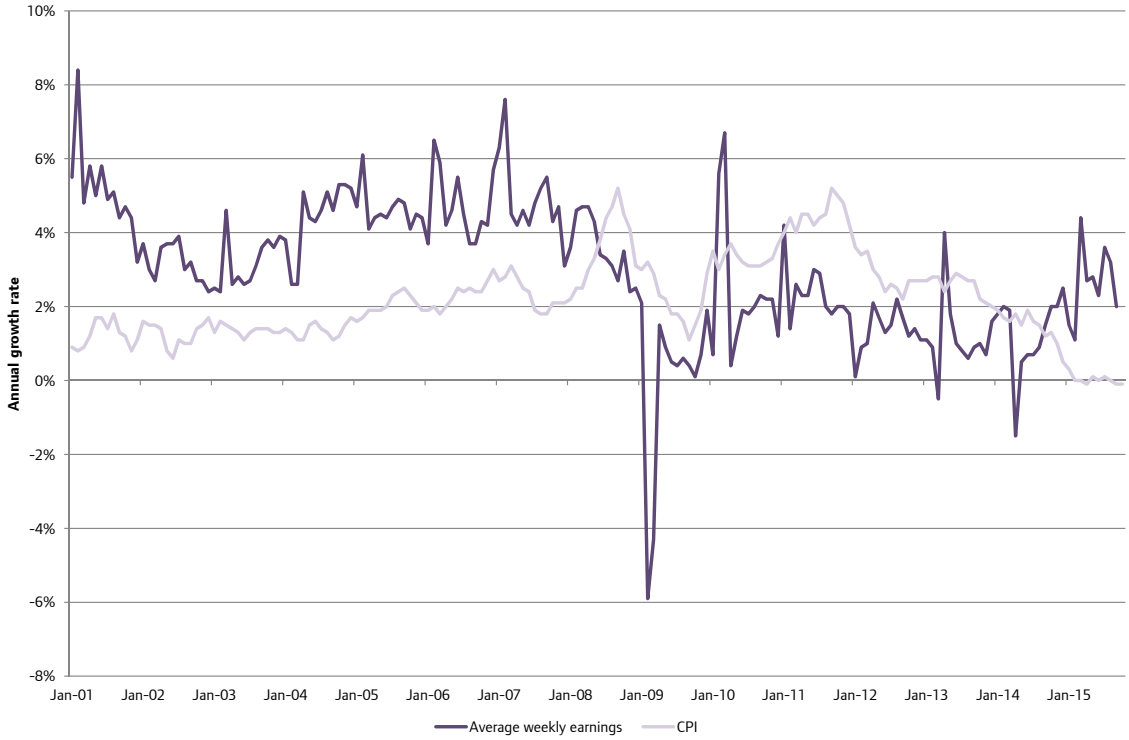
Figure 6.62: Growth in median gross hourly earnings for full-time jobs between 2009 and 2015 by private and public sector and by UK region, workplace basis



Source: ONS Annual Survey of Hours and Earnings

In fact, consumer prices have grown at a faster rate than average (mean) weekly wages across the UK for the majority of the 2008 and 2015 period as shown in Figure 6.63. That said, since the second half of 2014, annual average weekly earnings inflation has consistently stood above price inflation, though this is partly a reflection of record-low rates of Consumer Price Index (CPI) inflation due to falling oil prices.

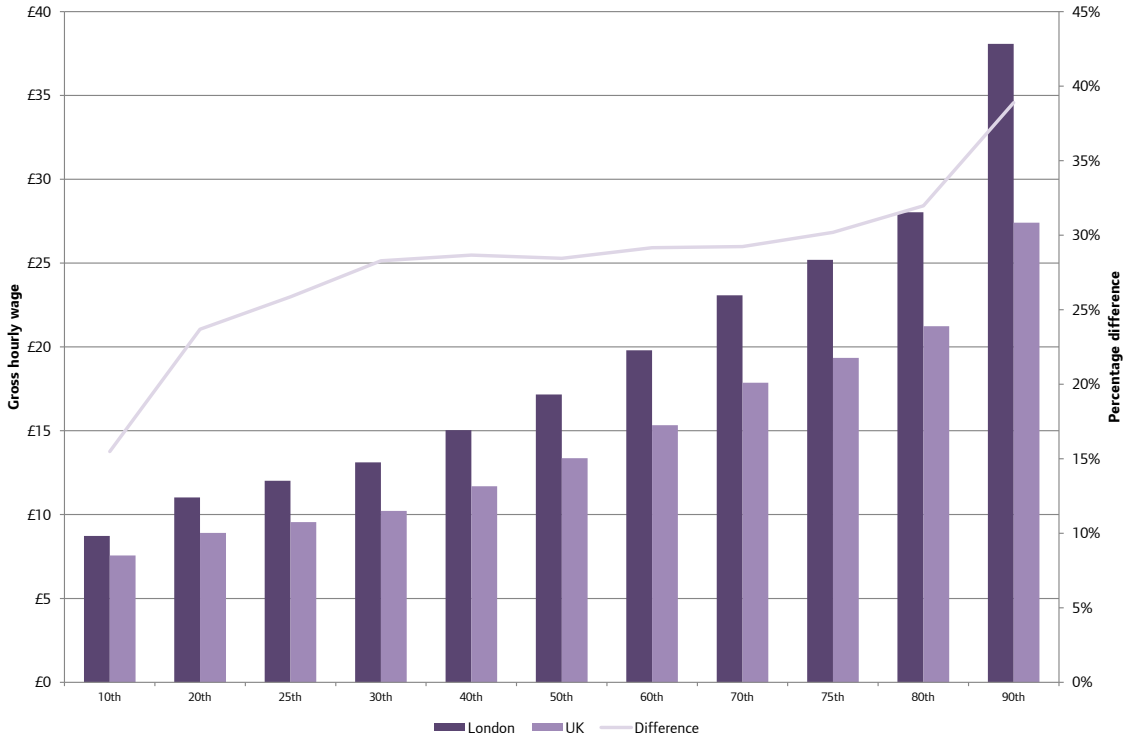
Figure 6.63: Average (mean) weekly earings inflation for the UK and CPI inflation, 2001-2015



Note: AWE refers to total pay for the UK's whole economy. Source: ONS Annual Survey of Hours and Earnings, ONS CPI

Meanwhile, Figure 6.64 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 15.3 per cent higher than the UK in 2015; but at the 90th percentile, this difference was larger at 38.9 per cent.

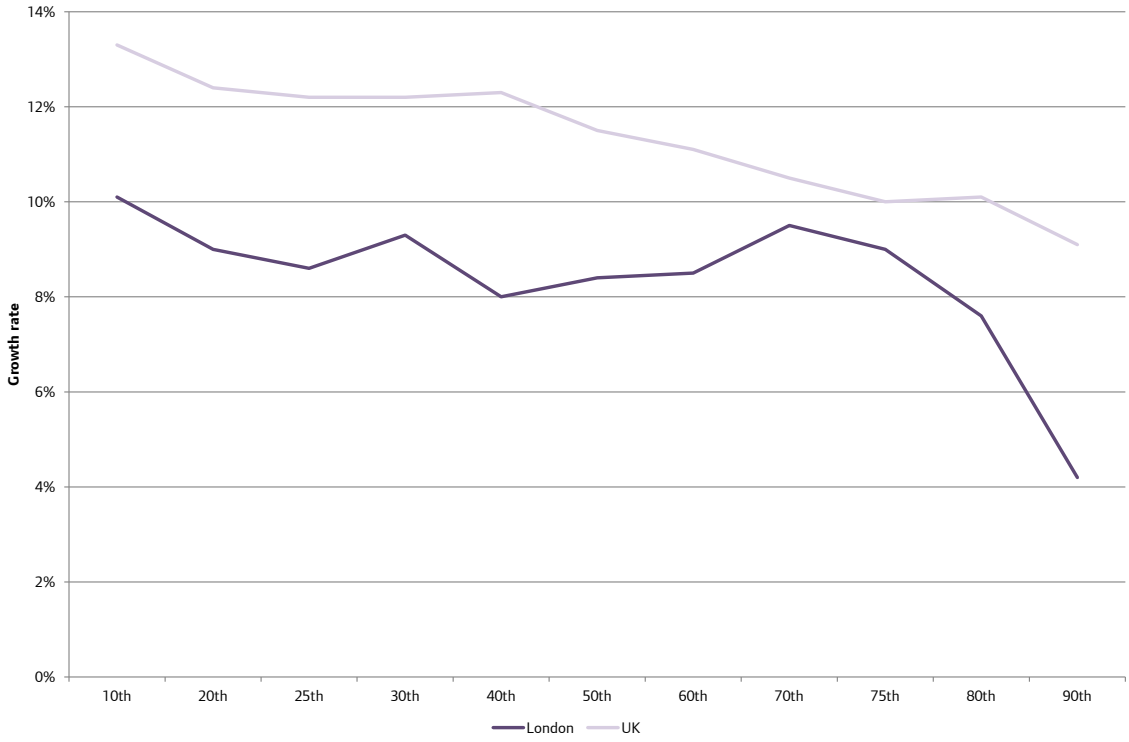
Figure 6.64: Average hourly earnings by wage percentiles for London and the UK in 2015



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 6.65). The extent to which the UK saw faster growth was greatest at the 90th percentile, though was comparably large at the lower end of the wage distribution.

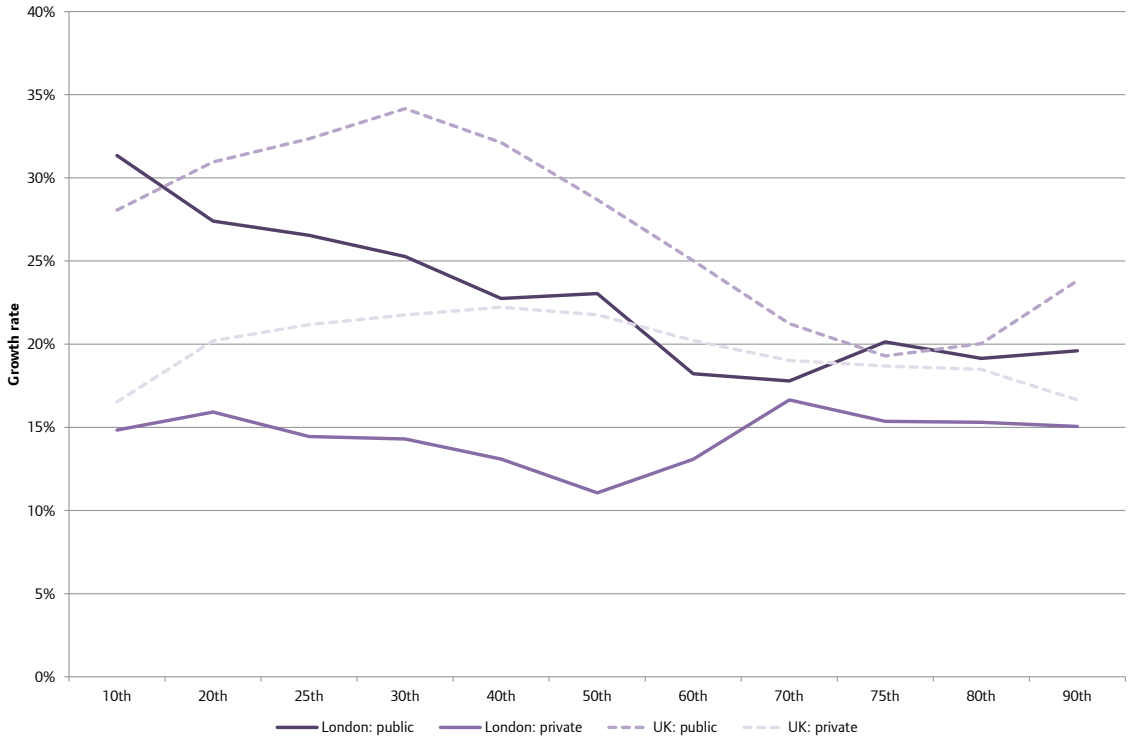
Figure 6.65: Growth in average full-time hourly earnings between 2008 and 2015 by wage percentile for London and the UK



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 6.66 (the change between 2009 and 2015). The sole exceptions were for the 10th and 75th percentiles in the public sector where London saw a stronger rate of growth than the UK as a whole. Interestingly, this chart clearly illustrates that wage growth for the lower percentiles has been stronger in the public rather than the private sector for both London and the UK.

Figure 6.66: Growth in average full-time hourly earnings between 2009 and 2015 by wage percentile and by private and public sector for London and the UK



Note: nominal average hourly earnings. Source: ONS Annual Survey of Hours and Earnings

Current topics with 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.

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.

Box 6.3: : 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.

The numbers of people who were under and overemployed in London were 388,000 and 306,000 respectively in 2014. This gives under and overemployment rates[53] of 9.2 per cent and 9.1 per cent, which were both below the UK readings[54] of 9.9 per cent and 9.7 per cent. London has historically posted lower rates than the UK as can be seen in Figure 6.67.

Figure 6.67: Percentage of workers who were either underemployed or overemployed in London and the UK, 2006-2014

Source: ONS Annual Population Survey

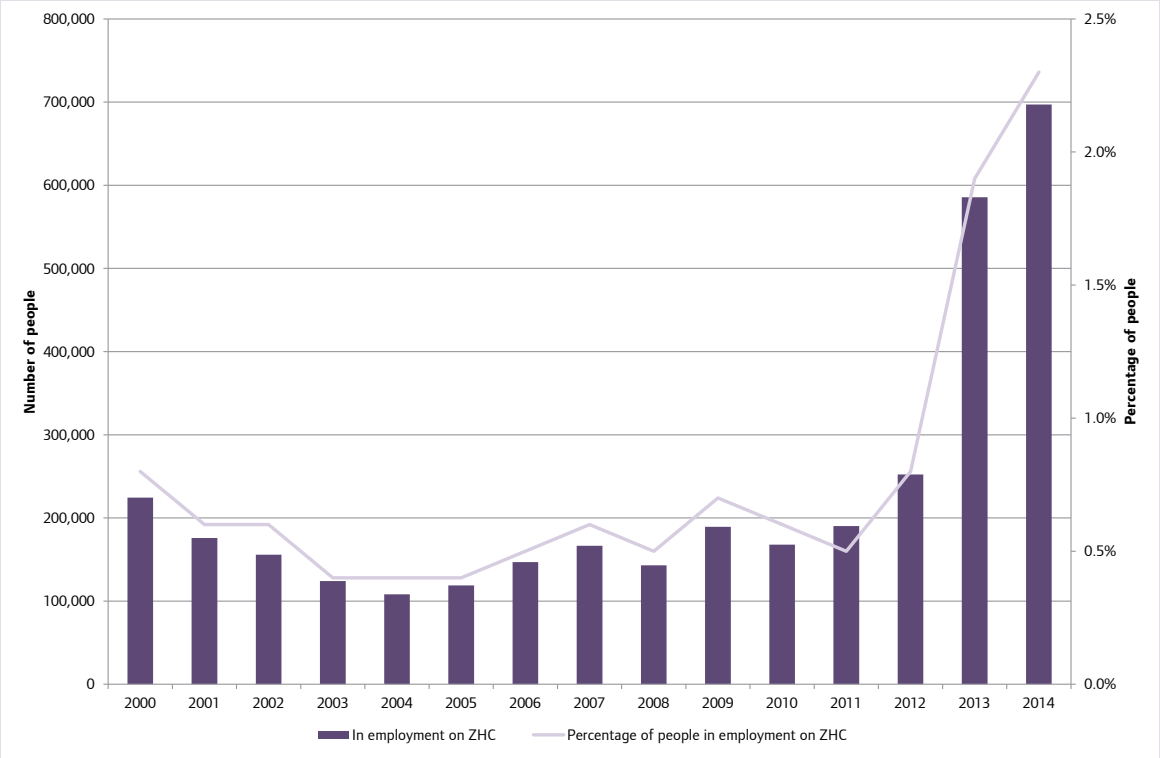
The difference between under and overemployment rates can provide an indication as to the efficiency of the labour market at meeting demands for working more and fewer hours. Focussing on London, the underemployment rate has exceeded slightly the overemployment rate in each year since 2011, with this difference peaking at 1.4 percentage points in 2013. This suggests that there has recently been net underemployment in London – that is, there are more hours demanded by workers than hours workers want to work less – which could be an indication of slack in the labour market. This net underemployment is also evident across the UK. An impact of net underemployment is that individuals are not working to their full capacity.

Box 6.4: Does zero-hour contracts constitute underemployment?

Zero hour contracts (ZHC) are employment contracts that offer no guarantee of a minimum number of hours[55]. 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 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 2014 (Figure 6.68). However, despite these increases, the number employed on a ZHC was 744,000 in the three months to June 2015 and accounted for less than 2.5 per cent of all employment in the UK. In London, there were approximately 96,000 people on ZHC, equivalent to 2.2 per cent of all those in employment.

Figure 6.68: Zero-hour contracts rate across the UK, 2000-2014

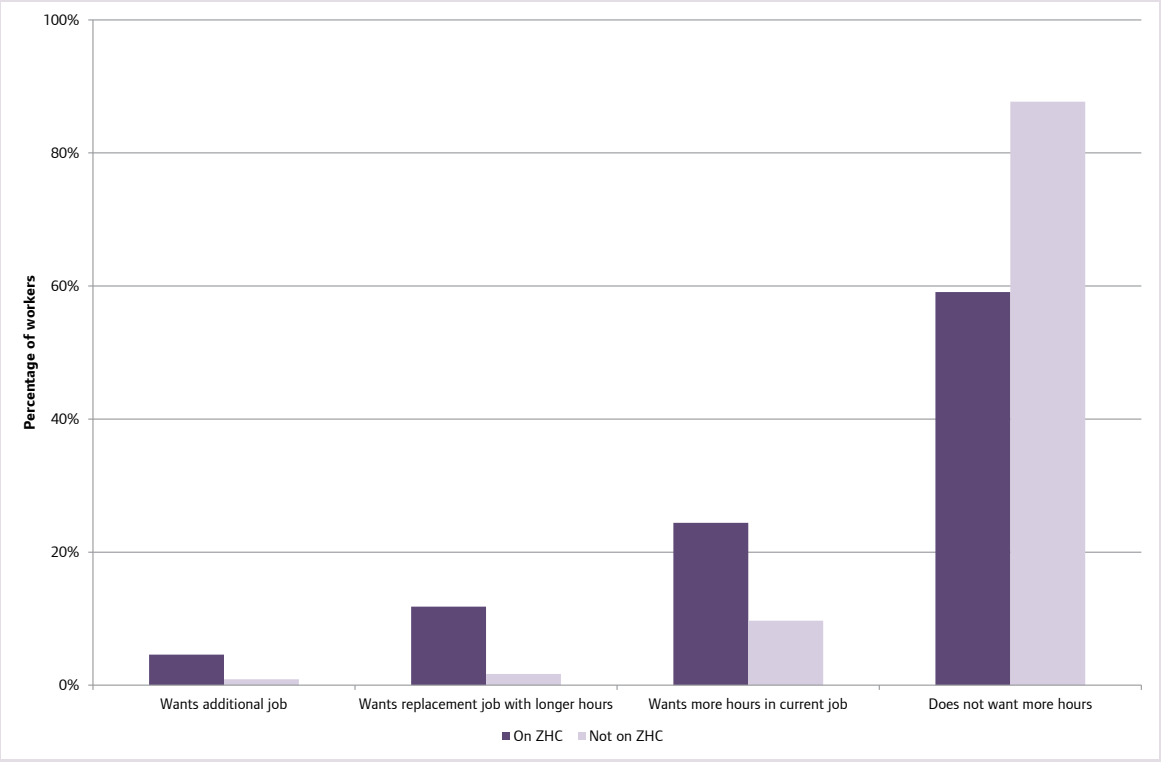


Note: October to December periods. Source: ONS Labour Force Survey

People on ZHC were more likely to be female, in full-time education or in young or older age groups (ONS, (2015), Contracts with no guaranteed hours, employer contracts that do not guarantee a minimum number of hours, 2015 update). Moreover, employees on ZHC were more likely to be working in the Admin & Support Services, Accommodation & Food and Health & Social Work sectors.

Notably, two-in-five (40.9 per cent) workers on ZHC wanted to work more hours in April to June 2015 (Figure 6.69). The comparable figure for all types of employment (whether or not they are ZHC) was 12.3 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 6.69: Percentage of workers on zero-hour contracts that are looking for another job or more hours in the UK, April to June 2015



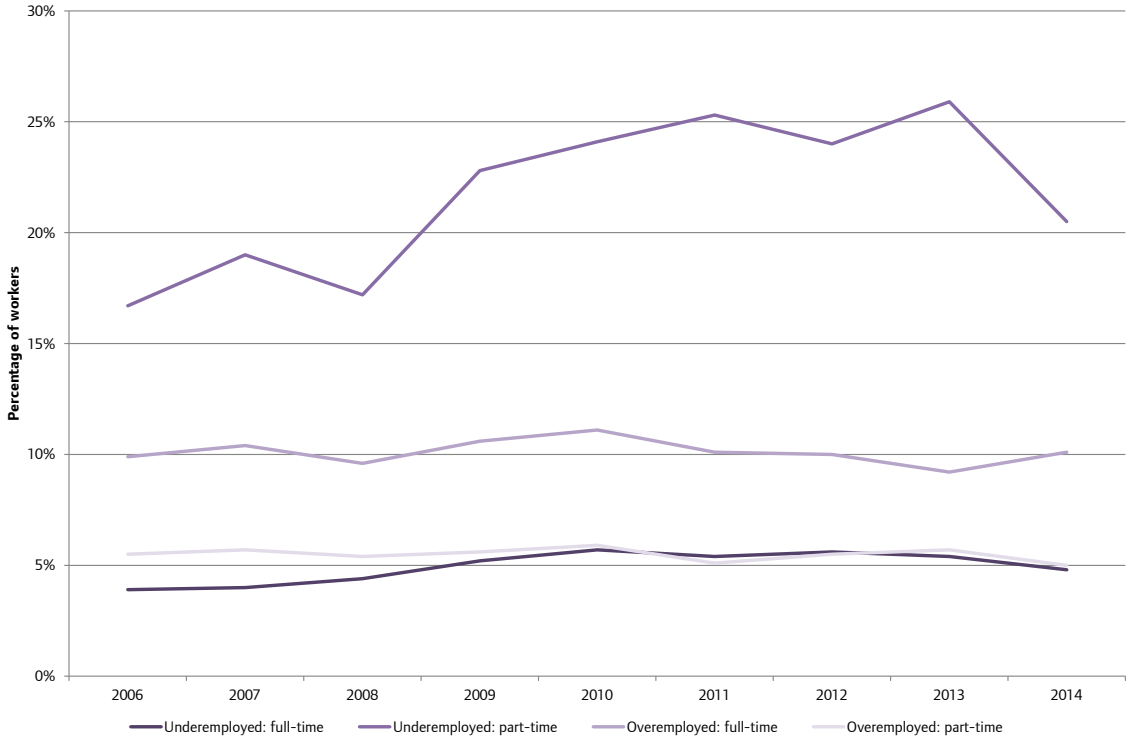
Note: April to June period. Source: ONS Labour Force Survey

Most individuals who were underemployed in London wanted to work more hours in their current role (69.1 per cent), though 18.7 per cent wanted a new job and 12.3 per cent wanted an additional job in 2014. On average, underemployed people wanted to work an additional 12.2 hours a week (up from 11.7 hours in 2008), which was more than the UK average of 11.3 hours.

Similarly, most overemployed people in London wanted to work less hours in their current job (92.1 per cent) and work on average 11.2 hours less each week. That was on par with the UK average, though down from 11.4 hours in 2008.

Underemployment was more prevalent for part-time workers in London. Around one-fifth of part-time workers were underemployed in 2014, having fallen from a peak of 25.9 per cent in 2013 (Figure 6.70). The proportion of full-time workers who were underemployed also increased during the 2008-09 recession, but has since fallen to a six-year low of 4.8 per cent. The reverse is true for overemployment in that full-time workers were more likely to be overemployed (10.1 per cent in 2014) and this trend has been broadly stable since 2006.

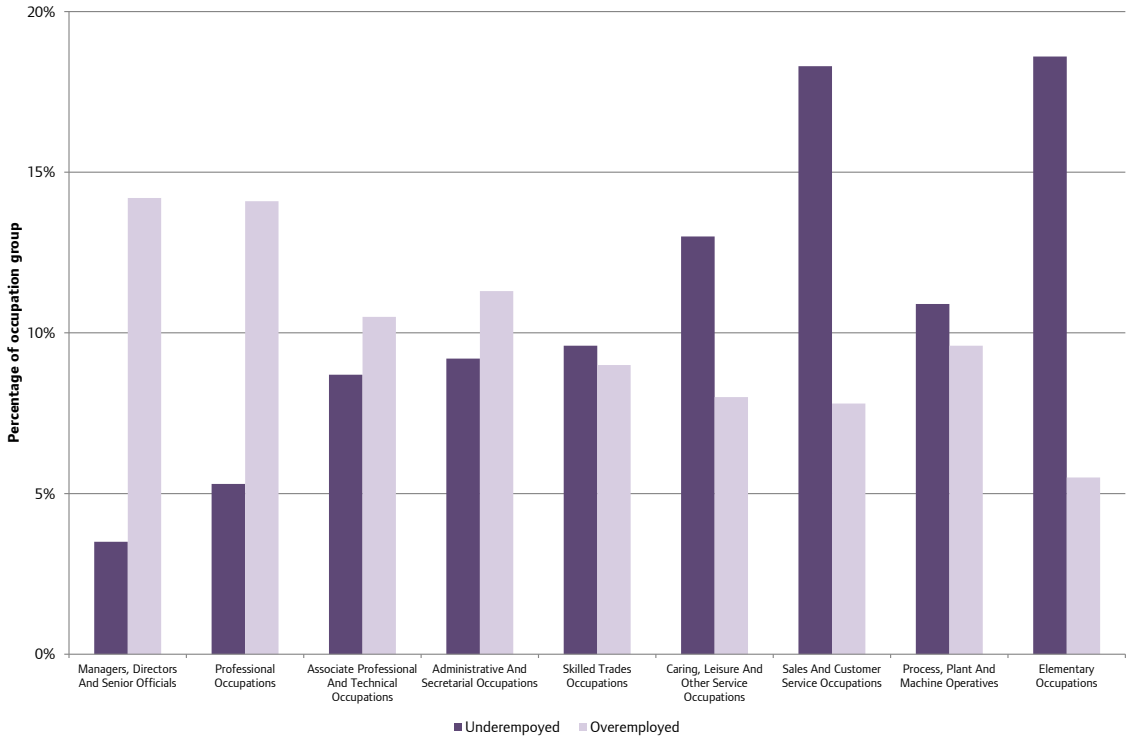
Figure 6.70: Percentage of full-time and part-time workers that were either underemployed or overemployed in London, 2006-2014



Source: ONS Annual Population Survey

By occupation, underemployment was most common in Elementary (18.6 per cent) and Sales & Customer Service (18.3 per cent) roles as shown in Figure 6.71. However, again, the reverse is true for overemployment where Managers, Directors & Senior Officials (14.2 per cent) and Professional (14.1 per cent) occupations had the highest proportion of workers who wanted to work fewer hours.

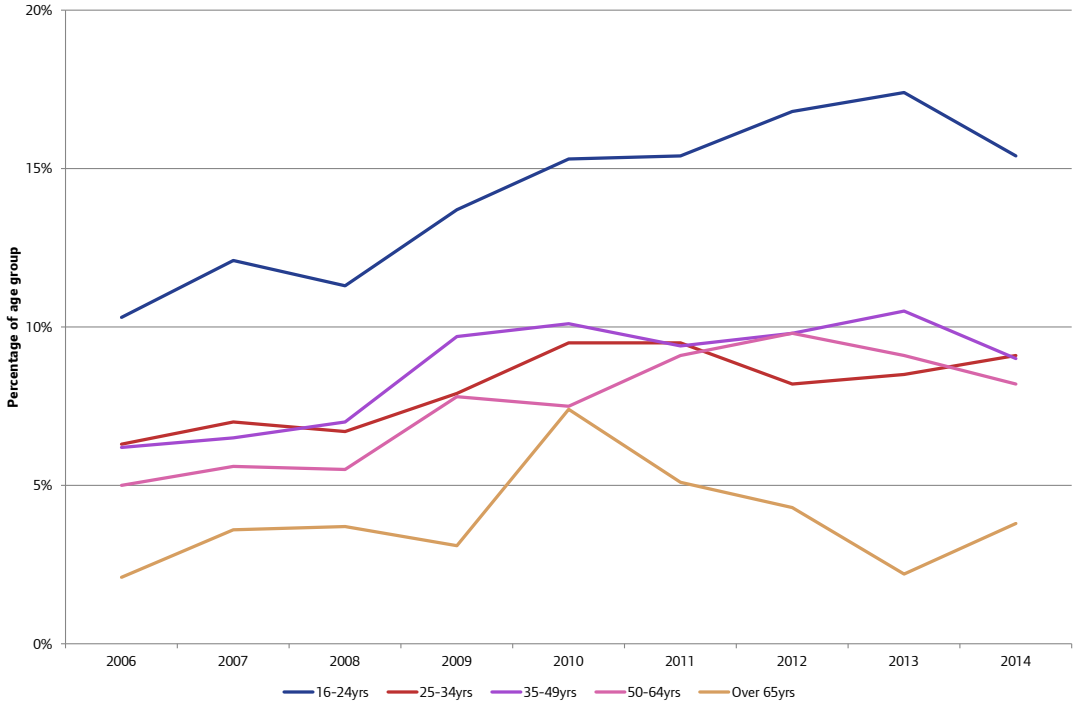
Figure 6.71: Percentage of each major occupations grouping that were either underemployed or overemployed in London, 2014



Source: ONS Annual Population Survey

Figures 6.72 and 6.73 show the percentages of each age group that were underemployed in London over time. The 16-24 years group historically had the highest concentration of underemployed workers, with this at 15.4 per cent in 2014. In comparison, the lowest underemployment rate was recorded for the over 65 years group at just 3.8 per cent. That said, all age groups had seen an increase in the proportion of underemployed workers since 2006, though the largest rise was for the 16-24 years group.

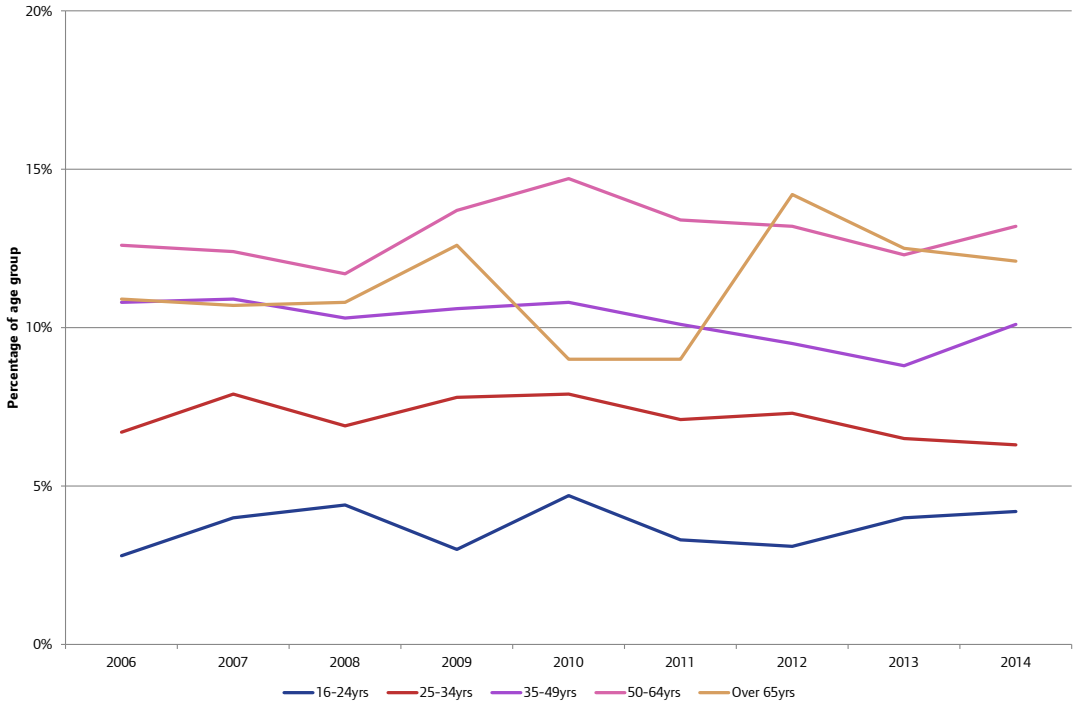
Figure 6.72: Percentage of each age grouping that were underemployed in London, 2006-2014



Source: ONS Annual Population Survey

Meanwhile, the 50-64 years and over 65 years groupings had the highest proportion of overemployment at 13.2 per cent and 12.1 per cent respectively in 2014. In particular, the over 65 years category had seen the percentage of overemployed workers rise from 10.9 per cent in 2006.

Figure 6.73: Percentage of each age grouping that were overemployed in London, 2006-2014

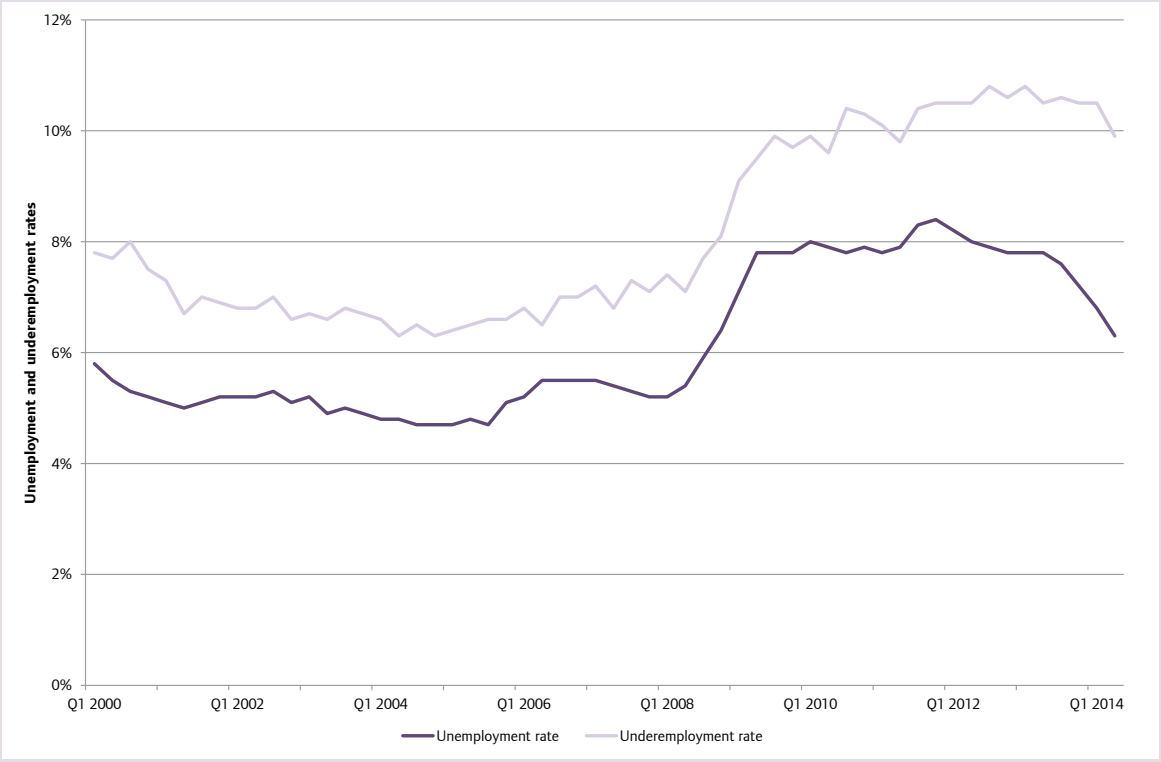


Source: ONS Annual Population Survey

Box 6.5: A comparison between unemployment and underemployment

A simple comparison between the two rates calculated by ONS is shown in Figure 6.74. Underemployment has historically been higher than unemployment and, in fact, the difference between the two has been increasing since the second-half of 2011. The latest estimates for which a comparison can be made is for the three months to June 2014. During this period, unemployment across the UK was reported at 6.3 per cent, whilst comparably the underemployment rate was 9.9 per cent – a difference of 3.6 percentage points.

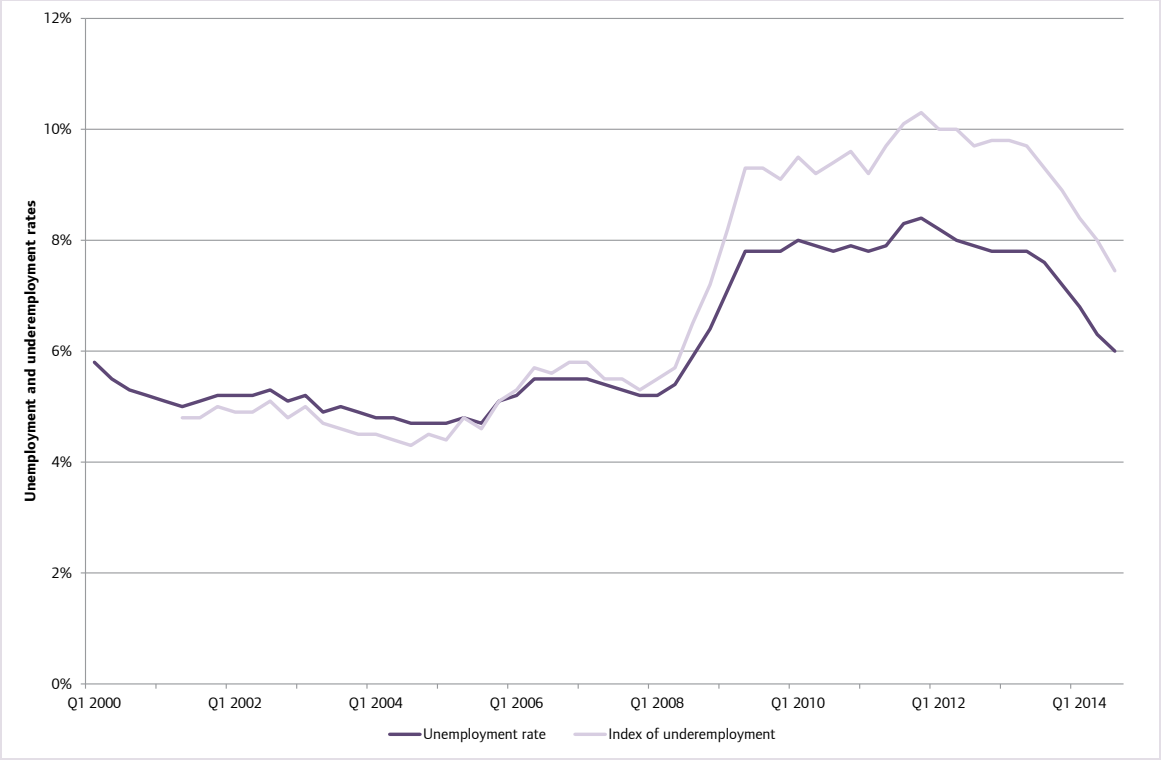
Figure 6.74: Underemployment and unemployment rates for the UK, 2000-2014



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[56]. This is presented in Figure 6.75 and shows that unemployment and underemployment were closely matched between 2001 and 2008. However, since then, there has been a much larger divergence of which the authors attributed to increasing numbers of workers wishing to work more hours and a fall in the number wishing to work less. This suggests that there is spare capacity in the labour market and any increase in demand for workers can be met internally (i.e. employers could offer existing workers more hours to avoid recruitment costs) and a reduction in unemployment would be harder to achieve.

Figure 6.75: Index of underemployment and unemployment rate for the UK, 2001-2014



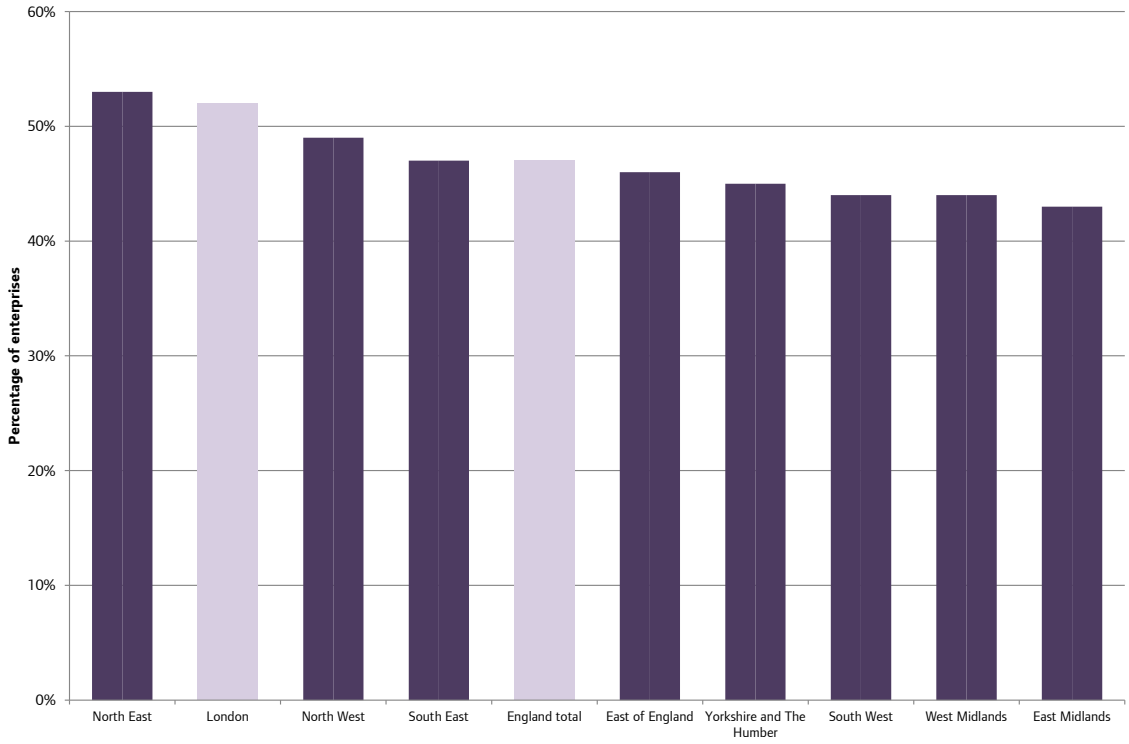
Notes: quarterly periods. Source: ONS Labour Force Survey, Bell & Blanchflower

Underutilisation of labour

Another aspect of the labour market is whether the skills of employees are being fully utilised in their role. In 2013, 47 per cent of employers reported skills that were under-used by employees in England according to the UKCES Employer Skills Survey. 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 59 per cent, whilst the lowest were generally recorded in the primary and manufacturing sectors such as Agriculture at 36 per cent.

Noticeably, underutilisation was more acute in London with 52 per cent of employers reporting staff skills that were under-used. That was the second-highest rate among the nine English regions (Figure 6.76). 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 both migrant and young workers.

Figure 6.76: Proportion of enterprises reporting underutilisation of staff skills by English region, 2013



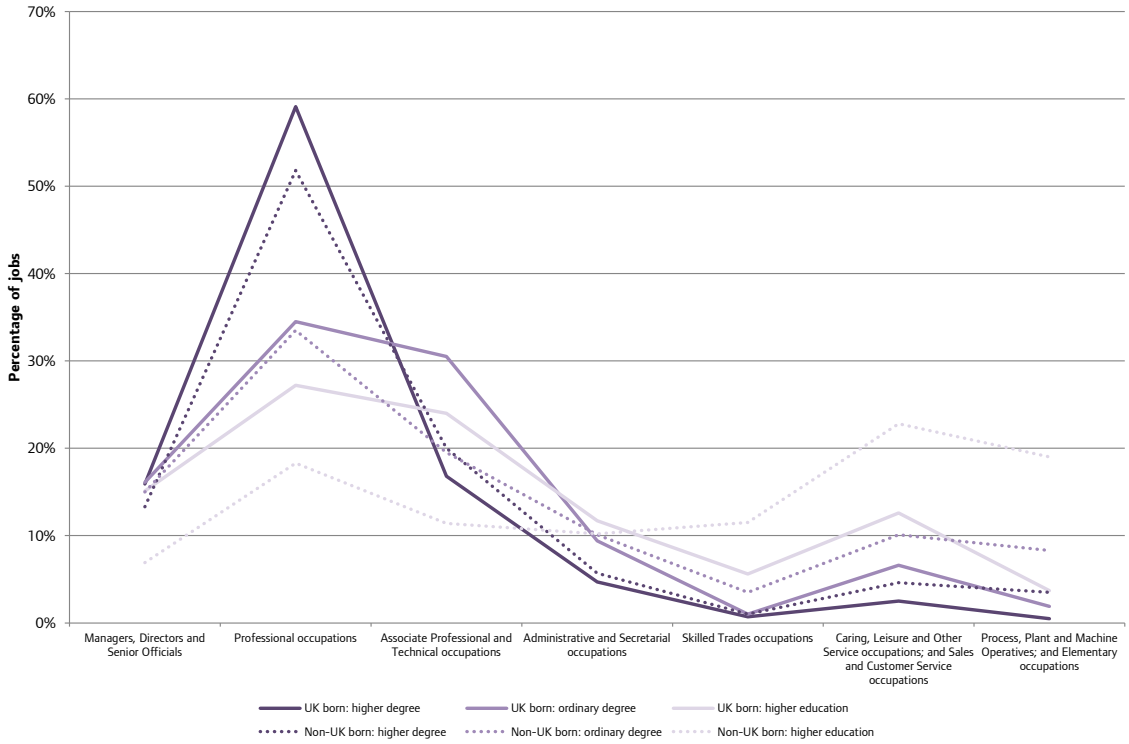
Source: UK Commission's Employer Skills Survey 2013 Underutilisation of migrant workers

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.

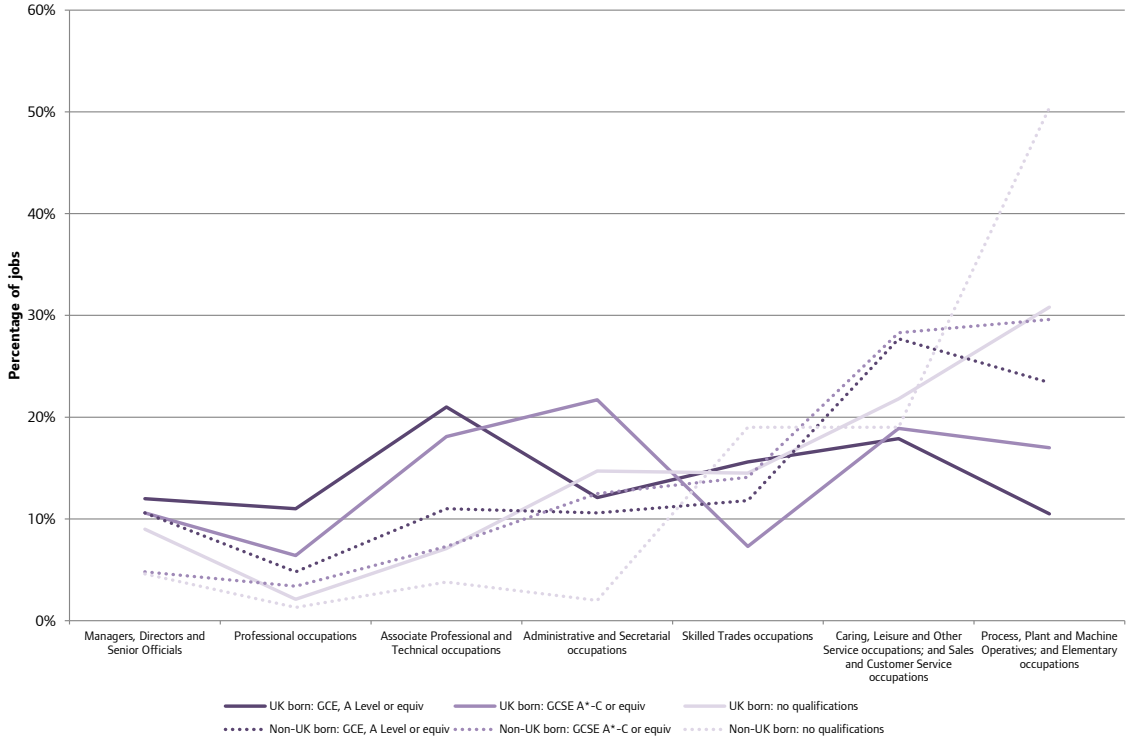
Acknowledging the above points, Figures 6.77 and 6.78 plots the percentage of employees by occupation for each qualification using data from the ONS Annual Population Survey for 2014. The first chart is for workers whose highest qualification is higher education, ordinary degree or higher degree and these employees are unsurprisingly more likely to be in professional and management occupations. However, it can clearly be seen that non-UK born workers are less likely than their UK born counterparts to be in these skilled occupations (and instead more likely to be in less skilled occupations) suggesting that the skills of migrant workers are underutilised. Moreover, this trend is evident across different highest qualification levels including those with school education or even no qualifications as shown in the second chart.

Figure 6.77: Percentage of jobs in London by occupation, highest qualification and country of birth of job holder, 2014



Source: ONS Annual Population Survey

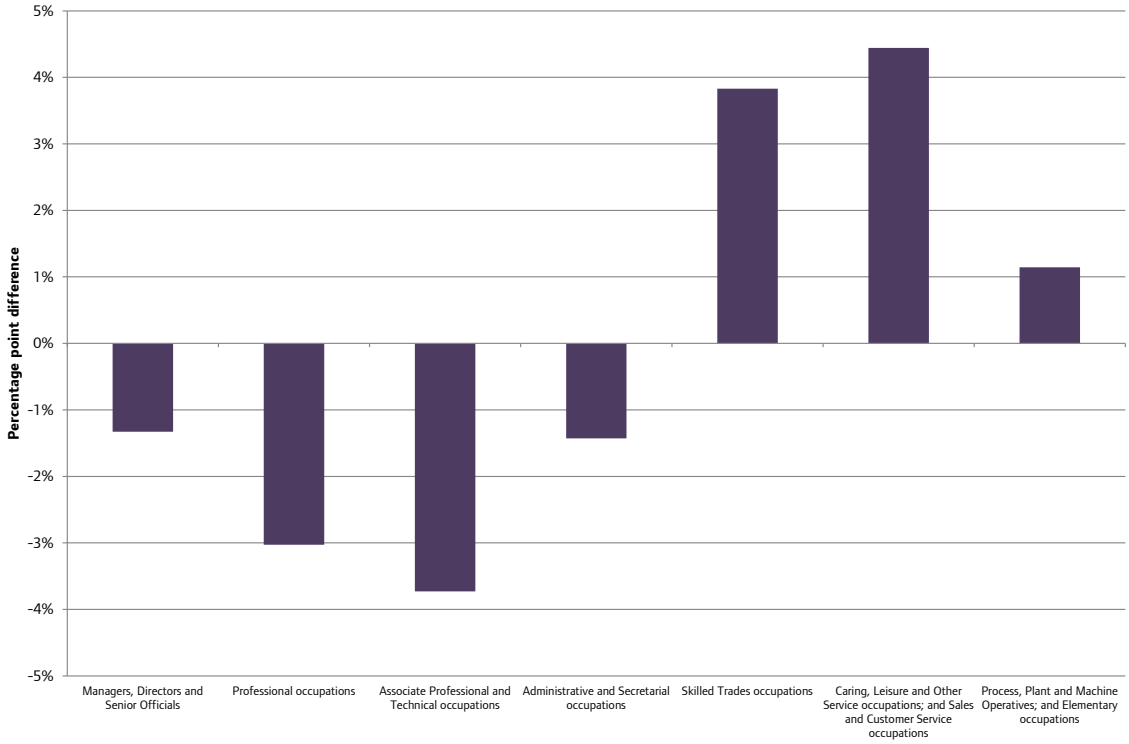
Figure 6.78: Percentage of jobs in London by occupation, highest qualification and country of birth of job holder, 2014



Source: ONS Annual Population Survey

The same analysis can be conducted for workers across the rest of the UK (excluding London) and similarly suggests an underutilisation of migrant workers compared with domestic employees. Indeed, this mismatch – that is, the difference between the proportion of workers by occupation and highest qualification for the UK born and non-UK born workers – is to a greater extent in London than the rest of the UK. For example, Figure 6.79 shows that, on average across all qualification levels, migrant workers were less likely to be in high-skilled occupations in London than the rest of the UK, but more likely to be in low-skilled occupations.

Figure 6.79: Difference between percentage of jobs by occupation, highest qualification and country of birth of job holder for London and the rest of the UK, 2014



Source: ONS Annual Population Survey, GLA Economics calculations

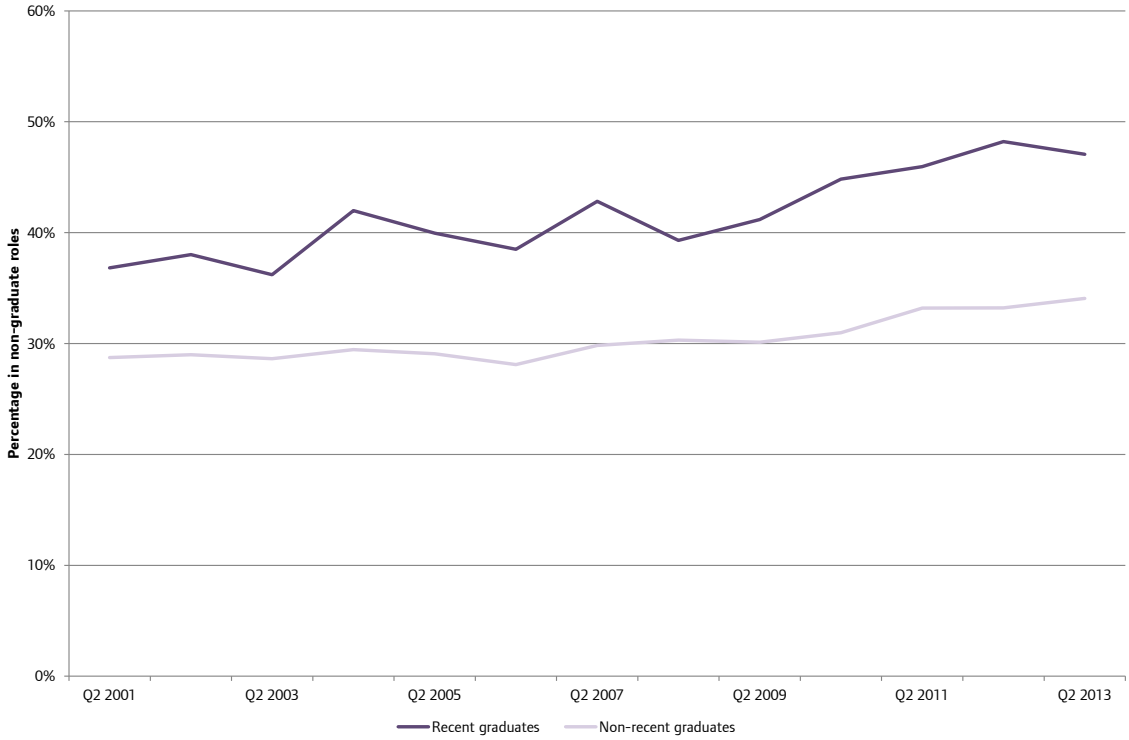
There are several explanations as to why migrant workers are underutilised in terms of their skills. The ESRC Centre on Migration suggested that this could be due to employers not recognising the value of overseas qualifications, but noted that this effect could decrease over time[57]. Rosso alternatively propositioned that the issue could be due to the lower quality of overseas qualification and the poor transferability of knowledge[58]. 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[59].

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 found that 58.8 per cent of graduates in the UK were in non-graduate roles, which was one of the highest rates among EU countries (CIPD (2015), Over-qualification and skills mismatch in the graduate labour market, Policy review, August 2015).

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 6.80) (ONS (2013), Graduates in the UK labour market, 2013). 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 6.80: Percentage of recent graduates and non-recent graduates in non-graduate roles across the UK, 2001-2013



Notes: April to June quarters. Non-recent graduates are individuals who left full-time education more than five years from the survey date. Source: ONS Labour Force Survey Persons Datasets

More recent data is shown in Table 6.10 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 6.10: Percentage of recent and non-recent graduates in non-graduate roles in London and the UK, 2011-2014

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%

Notes: January to December periods. Non-recent graduates are individuals who left full-time education more than five years from the survey date. 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 as indicated by the pick-up following the 2008-09 recession where job vacancies would arguably be lower.

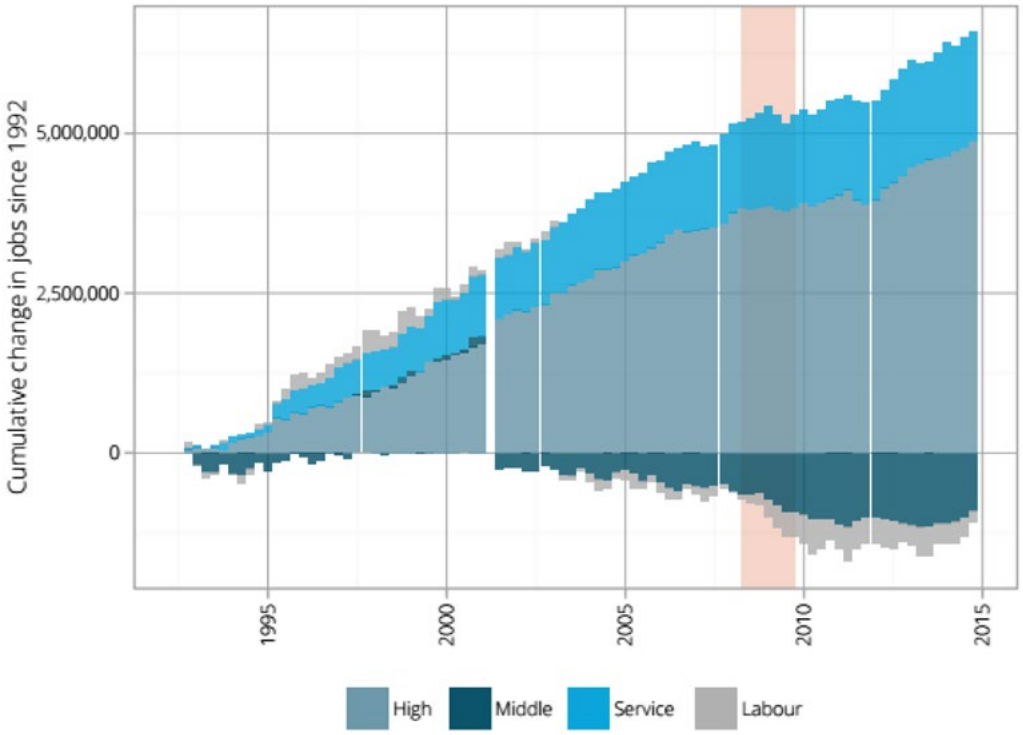
However, CIPD noted that the presence of graduates being in non-graduate roles does not necessarily mean an underutilisation of graduates' skills[60]. Instead they suggested that non-graduate roles may have been upgraded to better utilise their skills, or that graduates have similar skills to non-graduates with sufficient work experience.

The changing labour market structure

Figure 6.81 shows the UK labour market's occupation structure since 1992. 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[61]. 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.

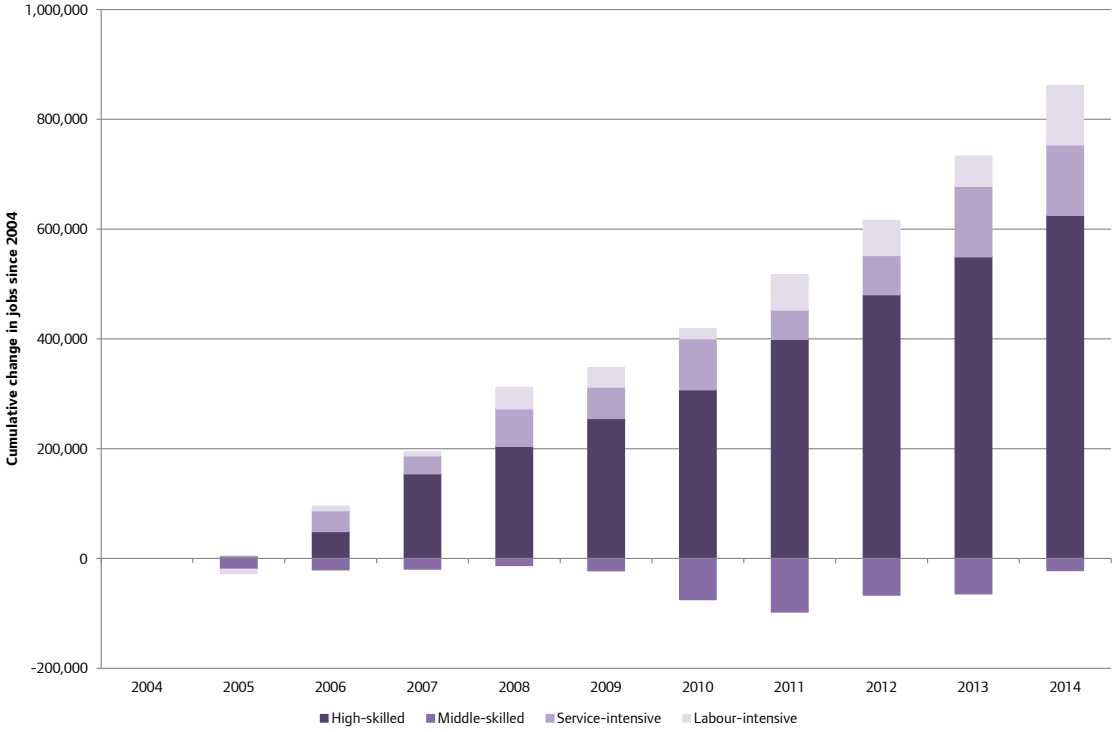
Figure 6.81: Cumulative change in employment by broad occupation group for the UK, 1992-2015



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 6.82 replicates this analysis for London[62] using the same broad occupation group definitions as above. This shows that there has similarly been a large increase in high-skilled roles within London (+625,000 jobs between 2004 and 2014), whilst middle-skilled jobs has declined (-22,000 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.

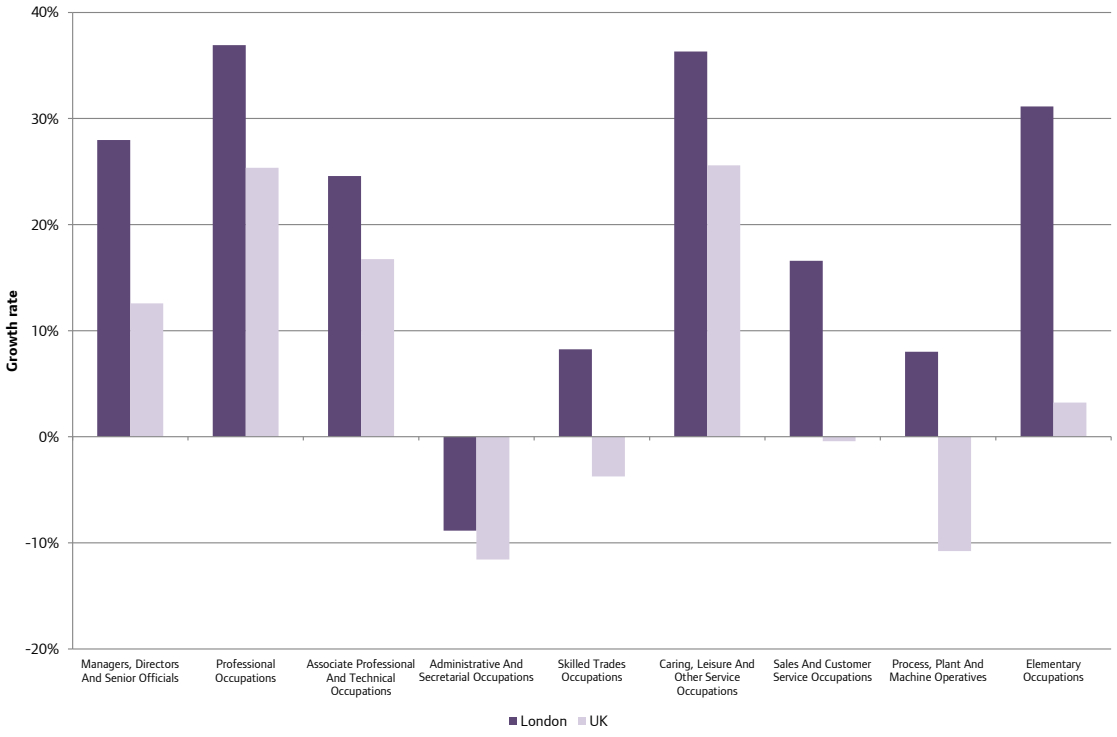
Figure 6.82: Cumulative change in employment by broad occupation group for London, 2004-2014, workplace basis



Notes: January to December periods. Broad occupation group definitions consistent with UKCES (2015). Source: ONS Annual Population Survey

Looking at the more detailed occupation groups, London has seen strong growth in Professional (36.9 per cent) and Caring, Leisure & Other Service (36.3 per cent) occupations between 2004 and 2014 (Figure 6.83). However, growth has been comparably much weaker for Skilled Trades (8.2 per cent) and Process, Plant & Machine Operatives (8 per cent) occupations. In fact, the number of Administrative & Secretarial occupations declined 8.9 per cent in London.

Figure 6.83: Growth in employment by occupation between 2004 and 2014 for London and the UK, workplace basis



Notes: January to December periods. Source: ONS Annual Population Survey

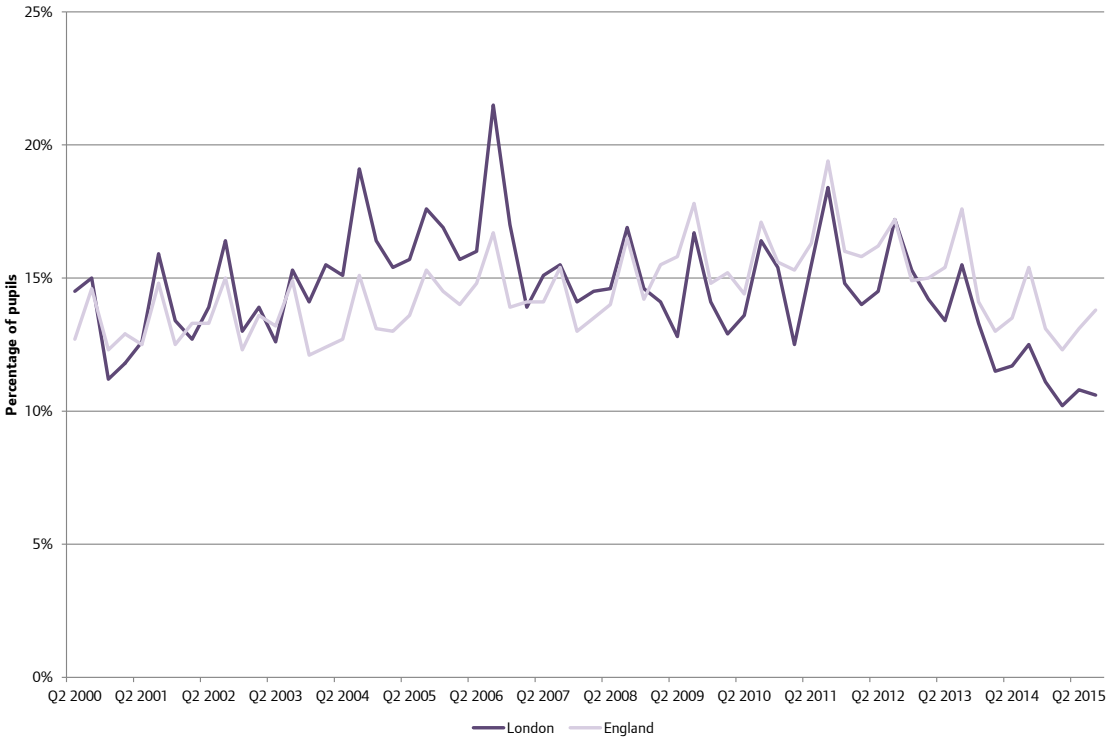
The supply of labour

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 or have already left the labour force.

Young people

A key milestone for young people is the transition from education to the labour market and, whilst most successfully move into sustained work, some find themselves not in education, employment or training (NEET). There were approximately 105,000 individuals aged 16-24 who were NEET in London in Q3 2015, equivalent to 10.6 per cent (Figure 6.84). Of this, 75,000 were aged 19-24 (10.4 per cent) implying 30,000 were aged 16-18. However, it should be noted that this data is seasonal in that it reflects the academic year.

Figure 6.84: Percentage of individuals aged 16-24 who were NEET in London and England as a whole, 2000-2015



Source: ONS Labour Force Survey

The risk factors associated with being NEET include comparably poor academic attainment, having English as an additional language, exclusions from school, special education needs and free school meal eligibility[63]. Therefore, this section will look at these characteristics within London's school age population.

Initially, there were 731,000 pupils in state primary schools and 484,000 pupils in state secondary schools in London during 2015. Of this, students from ethnic minority backgrounds[64] represented 71.7 per cent and 68.6 per cent of the school populations respectively. These were much higher than the England averages of 30.4 per cent and 26.6 per cent. Given this, it is unsurprising that London has a higher proportion of pupils that have English as an additional language (EAL). Almost half of all primary school children in London were EAL (compared with 19.4 per cent for England); though this was lower for secondary school pupils (40.6 per cent versus 15 per cent).

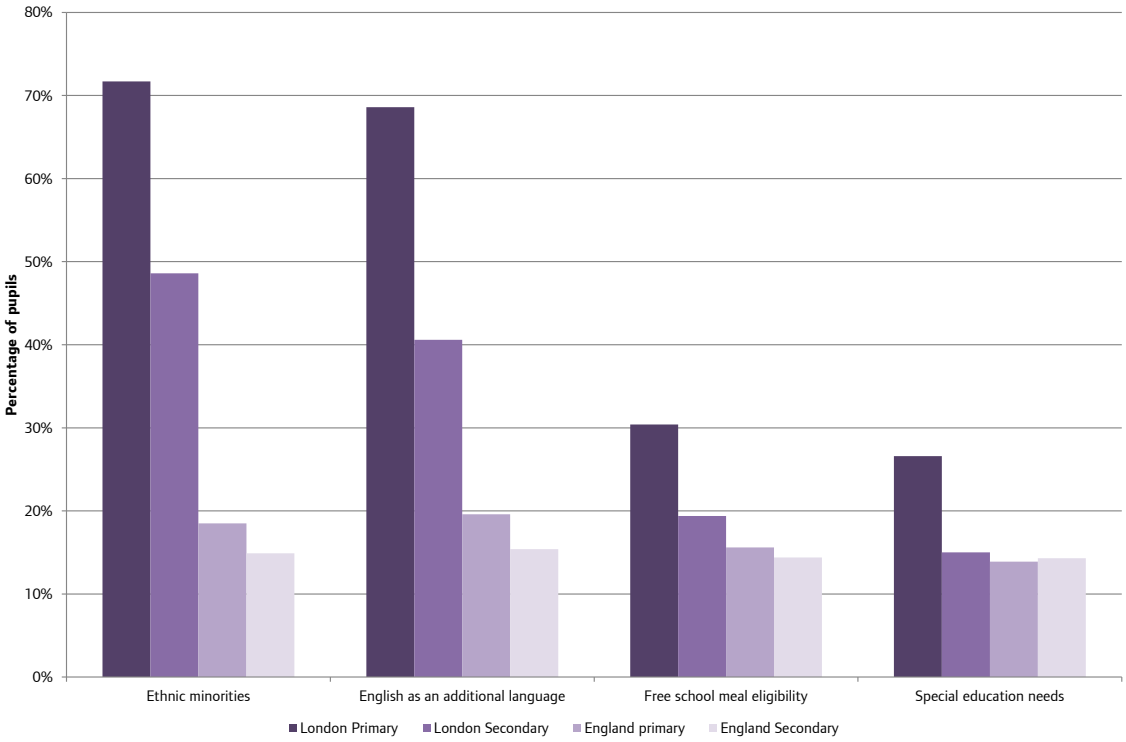
There were 137,000 primary and 95,000 secondary school students who were eligible for free schools meals in London. London had a higher percentage of pupils eligible for free school meals than England as a whole – 18.5 per cent versus 15.6 per cent for primary school children and 19.6 per cent versus 13.9 per cent for secondary school pupils.

Meanwhile, there were 109,000 state primary school and 75,000 state secondary school pupils who had special education needs (SEN) in 2015. The proportion of all students that had SEN in London (14.9 per cent and 15.4 per cent respectively) were broadly in line with the averages for England as a whole.

School exclusion statistics are currently only available for 2013-14. The number of permanent exclusions across state primary, state secondary and special schools was 780 in London, the equivalent of 0.07 per cent of the entire school population. That was slightly above the England average of 0.06 per cent. In contrast, the number of fixed-period exclusions was 35,000 in London or 2.9 per cent of the population, which was below the England average of 3.5 per cent.

These NEET risk indicators are summarised in Figure 6.85 below.

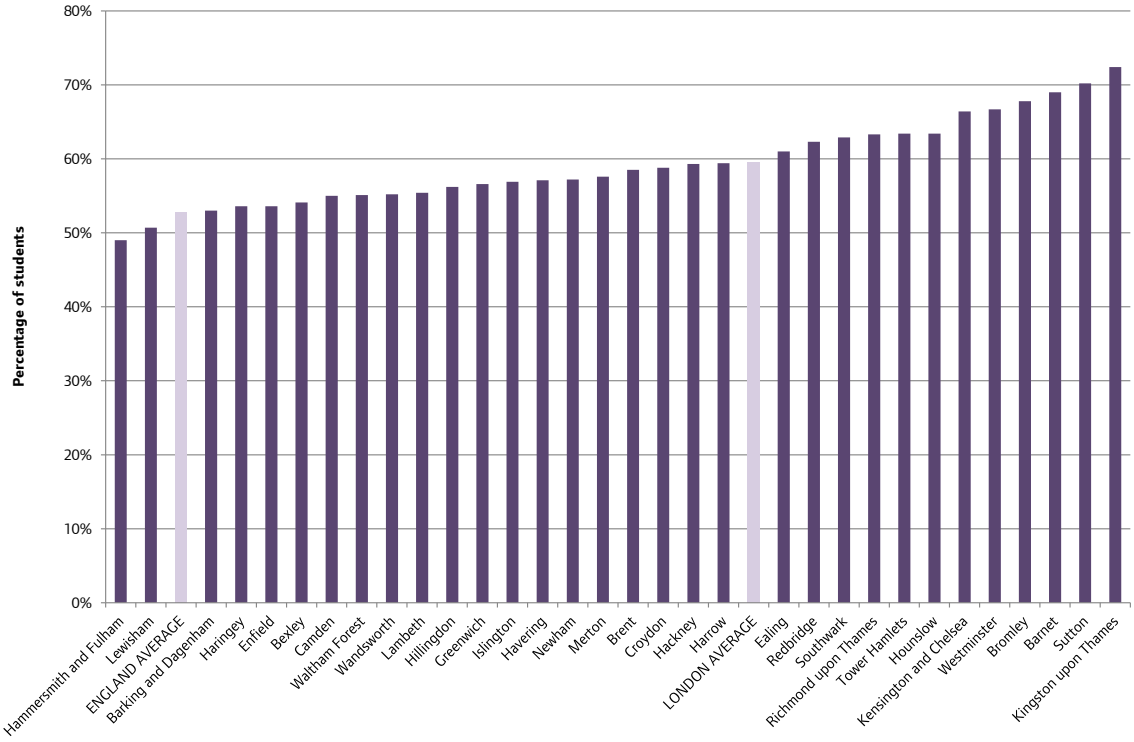
Figure 6.85: Percentage of primary and secondary school pupils by ethnicity, EAL, FSM eligibility and SEN for London and England in 2015



Note: all state schools. Source: Department for Education School Census

Perhaps the greatest risk indicator for being NEET is low educational attainment. 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 59.5 per cent in London – above the England average of 52.8 per cent – with Kingston-upon-Thames recording the highest success rate (Figure 6.86). Conversely, it can be implied that the proportion of pupils not achieving five good GCSEs, and are therefore at heightened risk of being NEET, was 40.5 per cent for London and 47.2 per cent for England.

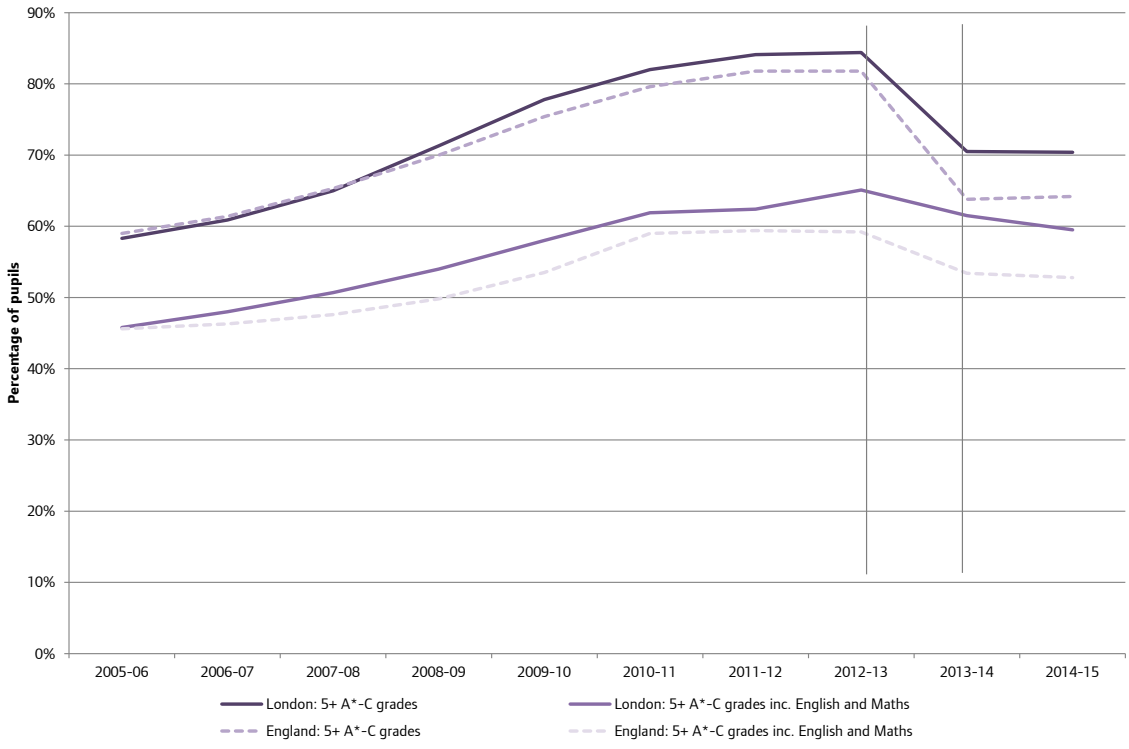
Figure 6.86: Percentage of students achieving at least five A*-C grade GCSEs (including English and Maths) by borough in 2014-15, state-funded schools only



Note: Results for Hammersmith & Fulham are distorted by the pending English results of one school and will increase when included in the revised data. Source: Department for Education KS4 attainment statistics, 2014-15 provisional

Historic comparisons 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 has constantly outperformed England as a whole (Figure 6.87). Therefore, this could be a potential explanation as to why the percentage of NEETs is lower in London.

Figure 6.87: 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

Indeed, Table 6.11 shows that most Key Stage 4 (KS4) students remain in education (approximately 92 per cent) in London, with only a fraction entering employment or training. The percentage of young people who were registered as being NEET after KS4 was only 1 per cent and was marginally lower than England as a whole (2 per cent).

Table 6.11: Percentage of key stage 4 pupils by destination for London and England in 2013-14

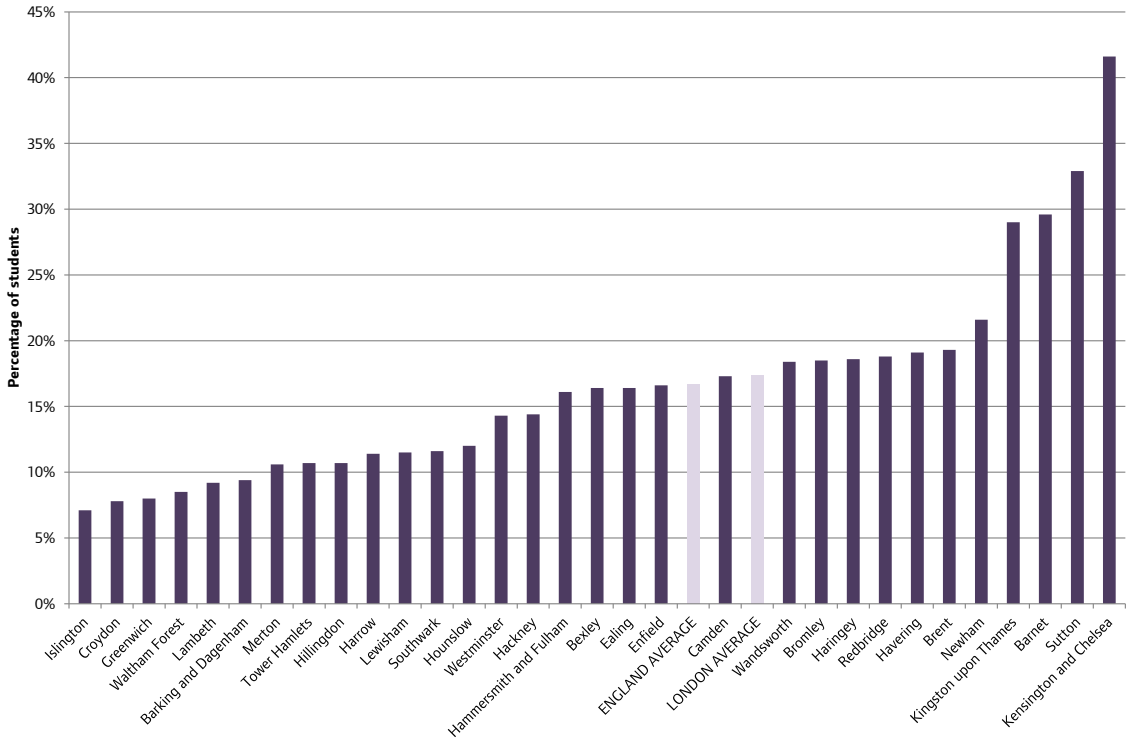
Destination	London	England
All education, employment or training destinations	**93%**	**92%**
Education destination	92%	90%
Employment or training destination	..	1%
Combined education and employment/training destination	..	1%
Destination not sustained	**4%**	**5%**
Destination not sustained/NEET	**1%**	**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

As noted above, most young people continue on to Key Stage 5. Popular subjects in London for the 2014-15 academic year included Mathematics (12.4 per cent), English (9.7 per cent) and Biological Sciences (7.8 per cent). In fact, 35.8 per cent of A Level entries were in STEM subjects[65].

The percentage of students at state-funded schools achieving AAB or better in their A Levels was 17.4 per cent in 2014-15. Males performed slightly better than females (18.2 per cent versus 16.9 per cent). Moreover, London performed slightly above the England average of 16.7 per cent. There were also quite significant differences by borough – only 7.1 per cent of students in Islington achieved AAB or higher compared with 41.6 per cent in Kensington & Chelsea (Figure 6.88).

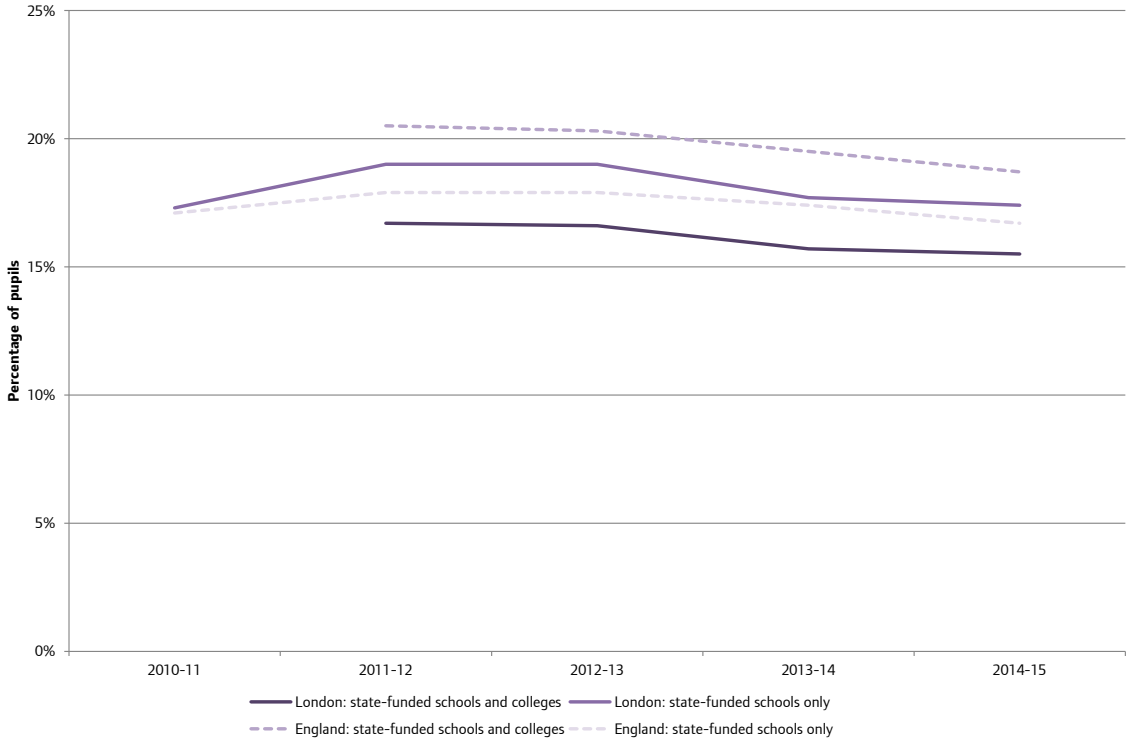
Figure 6.88: Percentage of students achieving AAB or better at A Level by London borough in 2014-15, state-funded schools only



Note: City of London is excluded for disclosure reasons and figures for Kingston-upon-Thames is not yet available. Source: Department for Education 2014/15 16-18 attainment data

Figure 6.89 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. 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 was 15.5 per cent in 2014-15, compared with 18.7 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[66].

Figure 6.89: Percentage of students achieving AAB or better at A Level for London and England, 2010-11 and 2014-15



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 6.12 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 an 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 6.12: 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	**5%**	**7%**
Destination not sustained/NEET	**2%**	**2%**
Activity not captured	**14%**	**13%**

Source: Department for Education National Pupil Database

Box 6.6: Apprenticeships in London

The number of apprenticeship starts in London was 45,000 in the 2014-15 academic year. That was up from 40,000 in 2013-14, though the trend has generally been declining since 2011-12[67] (Figure 6.90). There are in fact four levels of apprenticeships that vary in skills and qualifications: intermediate, advanced, higher and degree. Almost six in every ten (58.6 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 are broadly similar for England as a whole.

Figure 6.90: Number of apprenticeship starts 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 (46.7 per cent), with the 'under 19 years' and 19-24 age groupings representing 22.1 per cent and 31.2 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 6.13).

Table 6. 13 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	63.1%	57.1%	57.5%	58.6%
Advanced level	35.7%	39.5%	36.9%	37.4%
Higher level	1.2%	3.5%	5.6%	4.0%
All levels	100.0%	100.0%	100.0%	100.0%

Source: Skills Funding Agency

Table 6.14 shows the sector subject that the apprenticeship starts were in during 2014-15. The most popular areas were Business, Administration & Law (34.5 per cent) and Health, Public Services & Care (25.9 per cent). Concurrently, Construction, Planning & the Built Environment saw the largest percentage rise since 2011-12.

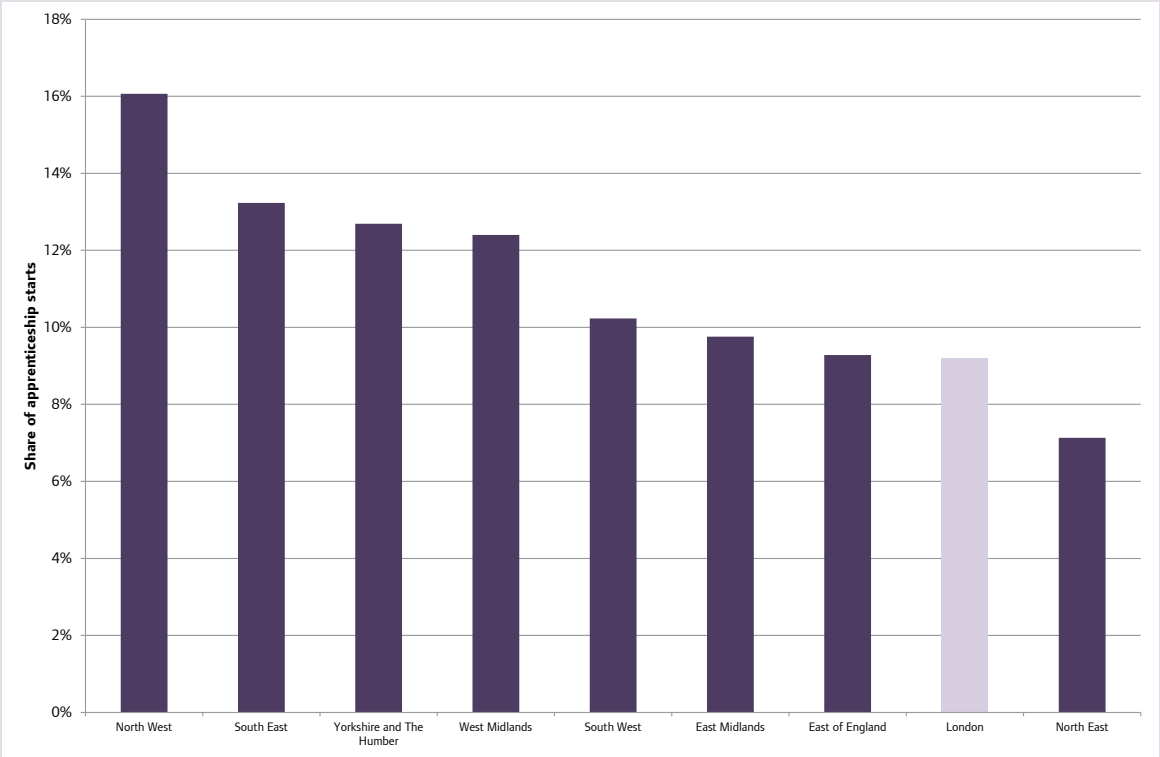
Table 6.14: Apprenticeship starts by sector subject area in London in 2014-15 academic year

Sector subject area	Number	Percentage	Change since 2011-12
Agriculture, Horticulture and Animal Care	560	1.2%	5.7%
Arts, Media and Publishing	300	0.7%	-18.9%
Business, Administration and Law	15,460	34.5%	-5.6%
Construction, Planning and the Built Environment	1,250	2.8%	47.1%
Education and Training	890	2.0%	-19.8%
Engineering and Manufacturing Technologies	4,330	9.7%	-9.4%
Health, Public Services and Care	11,600	25.9%	12.3%
Information and Communication Technology	1,910	4.3%	-0.5%
Languages, Literature and Culture	-	-	-
Leisure, Travel and Tourism	1,320	2.9%	-55.1%
Preparation for Life and Work	-	-	-
Retail and Commercial Enterprise	7,180	16.0%	-10.5%
Science and Mathematics	10	0.0%	0.0%
Unknown	-	-	-
Total	**44,820**	**100.0%**	**-5.1%**

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 6.90). 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).

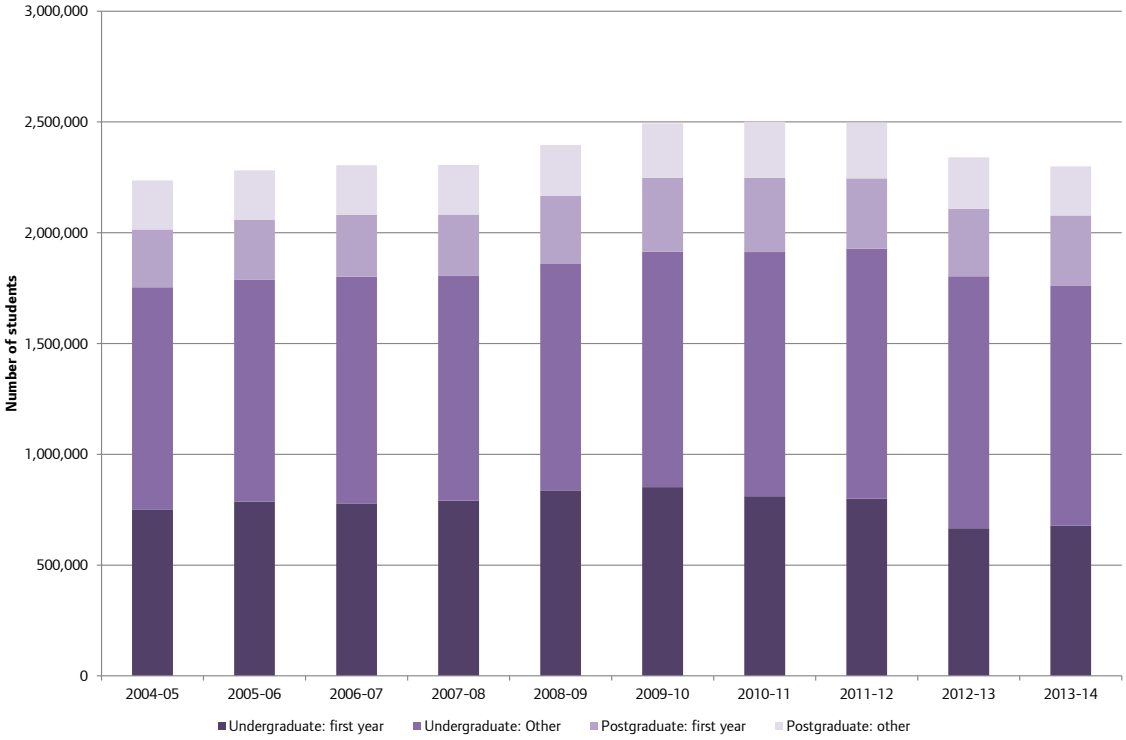
Figure 6.91: Regional share of total apprenticeship starts for England in 2014-15 academic year



Source: Skills Funding Agency

There were approximately 1.760 million undergraduate and 0.539 million postgraduate students in the UK during 2013-14 (Figure 6.92). That was the lowest student population in eight years and generally a reflection of a drop in the number of first year students in recent years. For example, the number of first year undergraduate and postgraduate students was 0.996 million in 2013-14, down from a peak of 1.185 million in 2009-10.

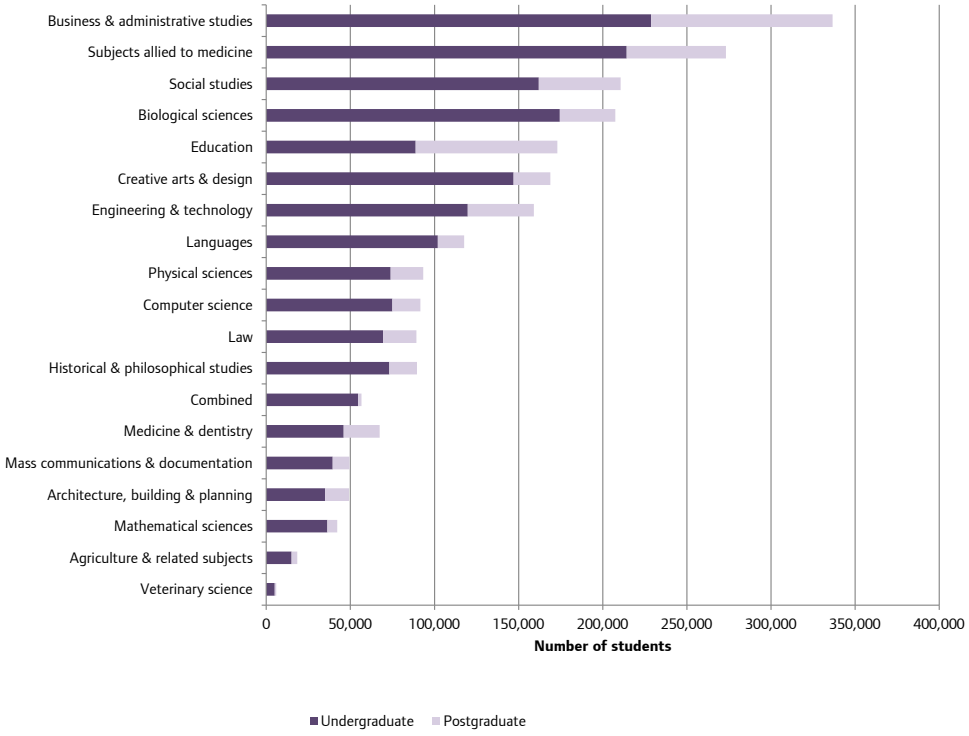
Figure 6.92: Number of undergraduate and postgraduate students in the UK, 2004-05 to 2013-14



Source: Higher Education Statistics Agency

As Figure 6.93 shows, the most popular degree subject was Business & Administration Studies and was true for both undergraduate (13 per cent) and postgraduate (20 per cent) levels. The next most popular subject for undergraduates was subjects allied to medicine (but not including medicine or dentistry) representing 12.2 per cent of the total, though this was Education for postgraduates (15.6 per cent).

Figure 6.93: Number of undergraduates and postgraduates by degree subject in the UK, 2013-14



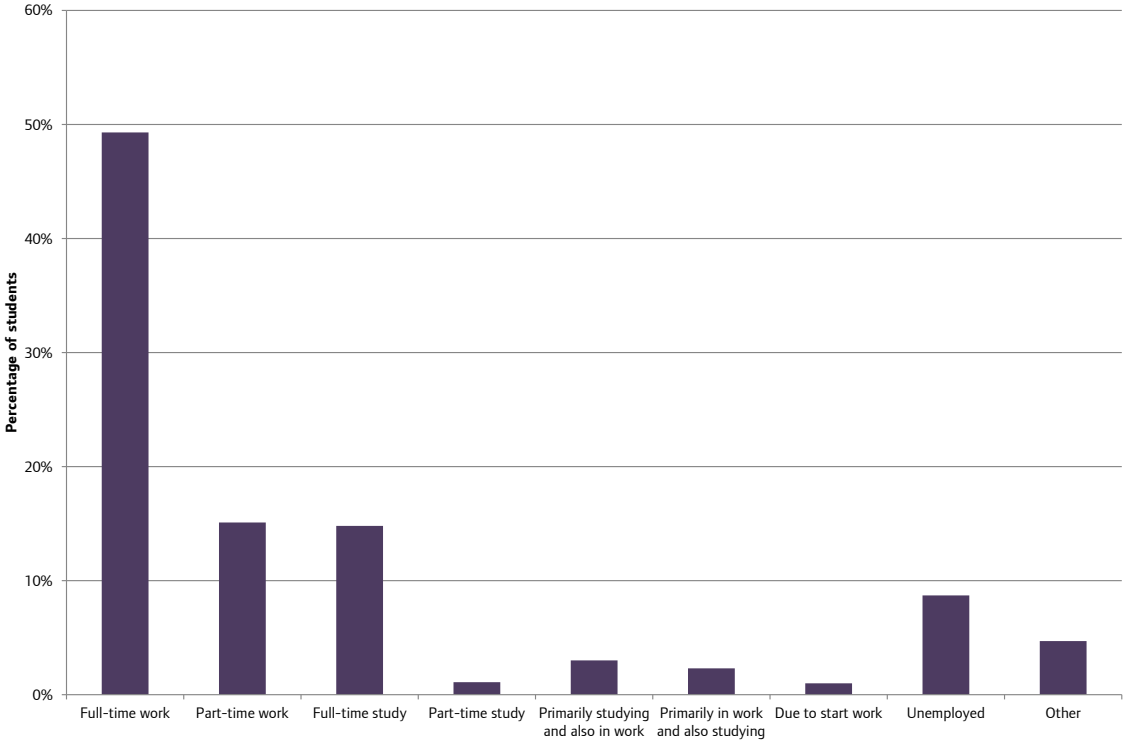
Source: Higher Education Statistics Agency

Around three-quarters of UK graduates entered employment after completing their degree in 2013-14, whilst a further 14 per cent went on to further study. Only 6 per cent were reportedly unemployed.

Employment rates were higher (and thus unemployment levels were lower) 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 6.94). That was a 2 percentage point increase from the 2011-12 class. A further 15.1 per cent were in part-time work meaning the proportion of London resident graduates who were in some sort of work was 64.4 per cent. Meanwhile, unemployment stood at 8.7 per cent in 2012-13, an improvement on 11 per cent in 2011-12.

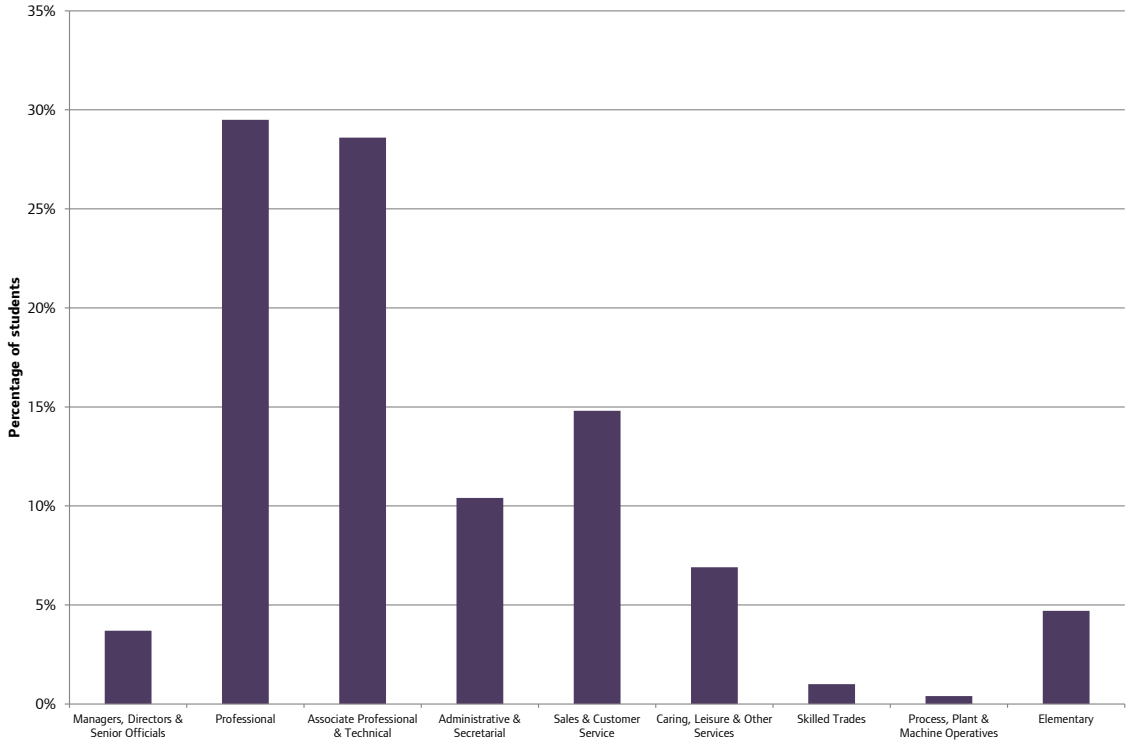
Figure 6.94: Destinations of London resident graduates in 2012-13



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 6.95).

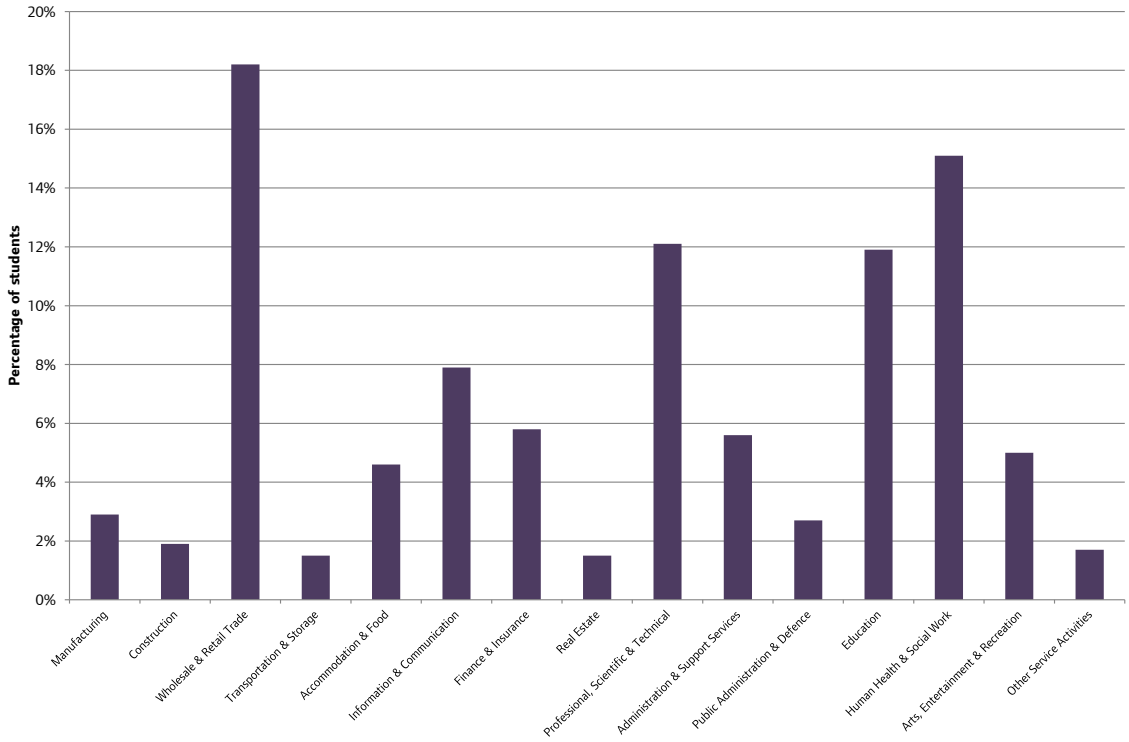
Figure 6.95: Occupations of London resident graduates who were in employment in 2012-13



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 6.96. The top sectors were Wholesale & Retail Trade (18.2 per cent) and Human Health & Social Work (15.1 per cent).

Figure 6.96: Industry of London resident graduates who were in employment in 2012-13

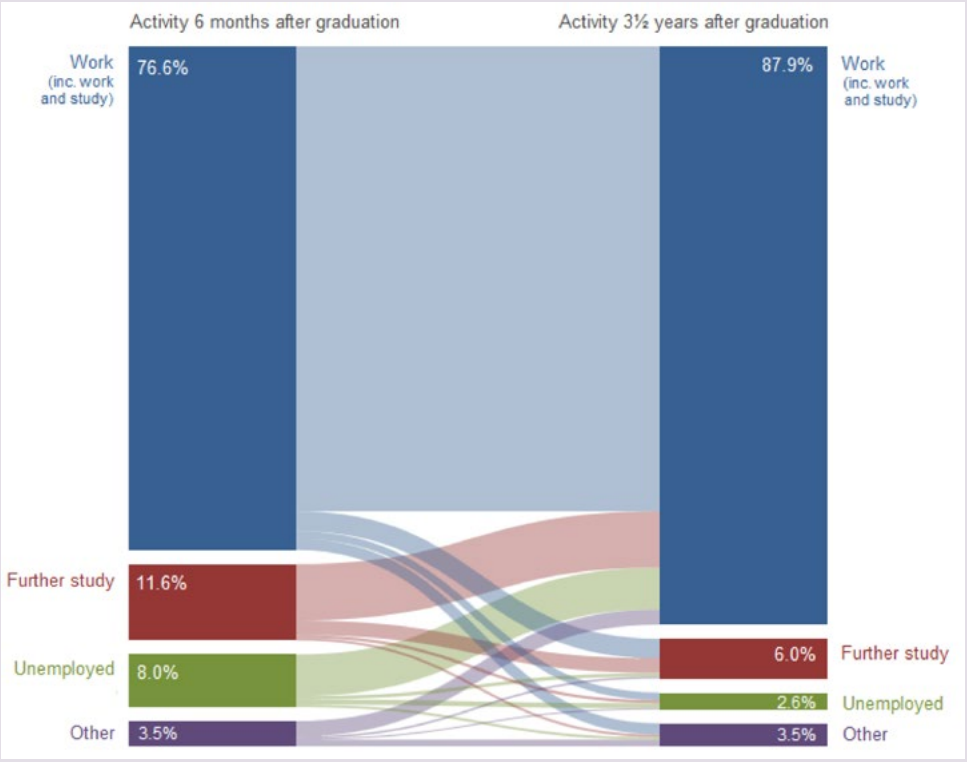


Source: Higher Education Statistics Agency. Taken from: London Councils (2015). The higher education journey of young London residents. Box: Career progression of graduates

Box 6.7: 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 6.97).

Figure 6.97: Activites of UK domiciled leavers from HE six months and three-and-a-half years after graduation



Source: Higher Education Statistics Agency Destinations of Leavers from Higher Education Longitudinal Survey. Taken from HESA press release 221.

As discussed in Chapter 3, London is an attractive place to work. This can clearly be seen in Table 6.15 where 23.1 per cent of all graduates in 2010-11 were working in London three-and-a-half years after graduation. Moreover, London's attractiveness can be seen when looking at the movement of graduates from other UK regions to London. For example, 27.8 per cent of graduates domiciled in the South East were later working in London. Noticeably, 84.4 per cent of graduates who were working in London six months after graduation were still working in London three-and-a-half years after graduation.

Table 6.15: Percentage of graduates working in London three-and-a-half years after graduation by region of domicile, HE provider and employment six months after graduation

Region	Percentage of graduates working in London 3.5 years after graduation by:		
	Region of domicile in 2010-11	Region of HE provider in 2010-11	Region of employment 6 months after graduation
North East	8.3%	15.5%	4.5%
North West	9.5%	10.6%	6.8%
Yorkshire & Humber	9.3%	13.2%	4.9%
East Midlands	12.2%	17.9%	5.9%
West Midlands	9.6%	13.8%	4.8%
East of England	27.6%	30.7%	15.8%
London	82.1%	70.4%	84.4%
South East	27.8%	29.8%	15.2%
South West	16.7%	22.9%	8.1%
Wales	8.6%	8.2%	3.3%
Scotland	7.6%	8.2%	3.3%
Northern Ireland	11.2%	4.4%	3.9%
Total	**24.4%**	**24.4%**	**23.1%**

Source: Higher Education Statistics Agency Destinations of Leavers from Higher Education Longitudinal Survey

Figure 6.98 and Table 6.16 provide a summary of the education pathways[68] (from GCSEs to higher education) discussed above for London. When combining the various destination data, almost six in every ten students could have a degree (either ordinary or higher degree) as their highest qualification. A further 10 per cent could achieve higher education level and one-quarter might have GCE, A-level or equivalent as their highest award.

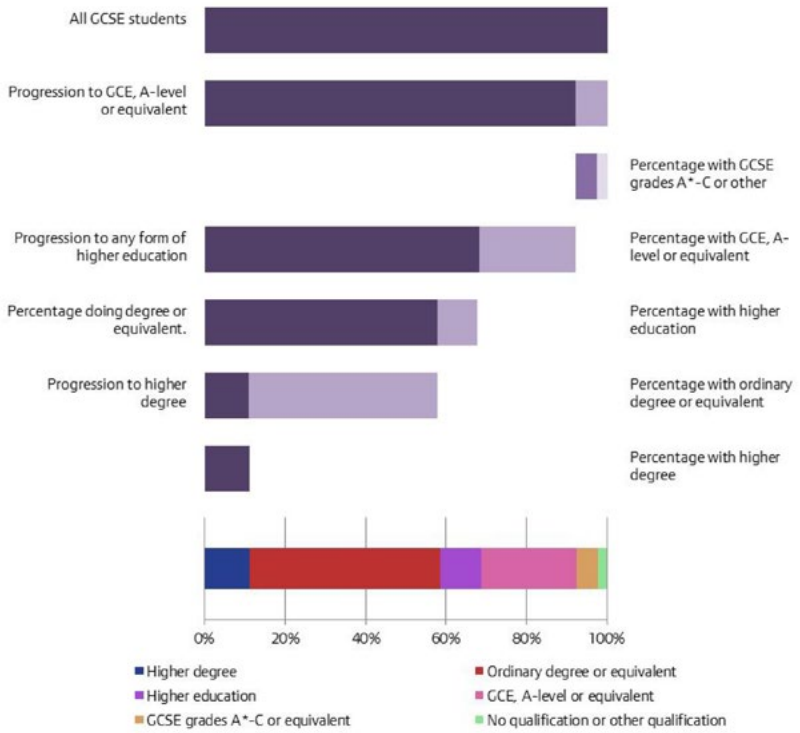
Table 6.16 also presents the proportion of jobs[69] in London by highest qualification in 2014. Comparing this with the education pathways, it could be expected that students will be better qualified than the current workforce. For example, 23.7 per cent of students are expected to achieve GCE, A-level or equivalent as their highest qualification compared with 16.6 per cent for current workers. This could partly be a reflection of changes in the participation age[70] for example.

Table 6.16: Students and jobs in London by highest qualification

Highest qualification	Students – based on expected education pathways	Number of jobs
No qualification	2.3% *	4.1%
Other qualification	2.3% *	8.7%
GCSE grades A*-C or equivalent	5.4%	12.5%
GCE, A-level or equivalent	23.7%	16.6%
Higher education	10.1%	7.8%
Ordinary degree or equivalent	47.4%	35.4%
Higher degree	11.1%	14.8%
Total	**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

Figure 6.98: Education pathways for London



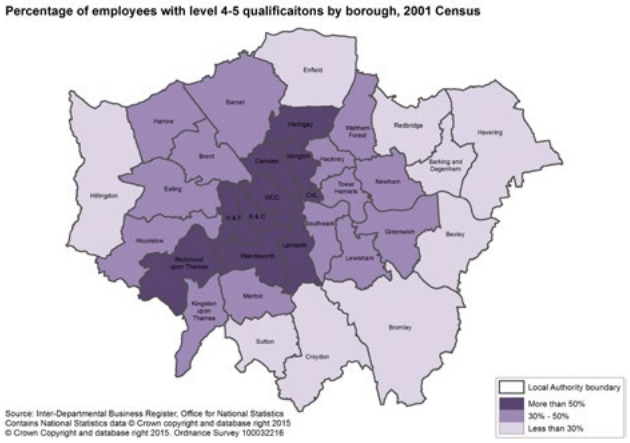
Note: It has not been possible to track the same year group through their entire education pathway due to data limitations. Instead, this analysis is based on the latest destinations data from various sources. In reality, destinations may be affected by both endogenous (i.e. characteristics of the year 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 70.4 per cent of students achieving at least five A*-C grade GCSEs in London (see Figure 6.94). Source: Department for Education National Pupil Database, Higher Education Statistics Agency, GLA Economics calculations*

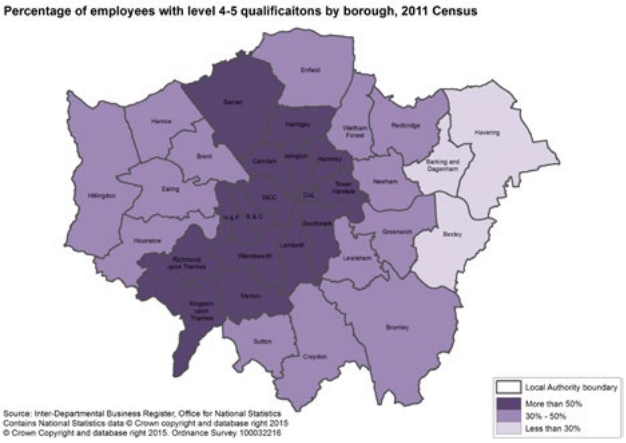
Current workforce

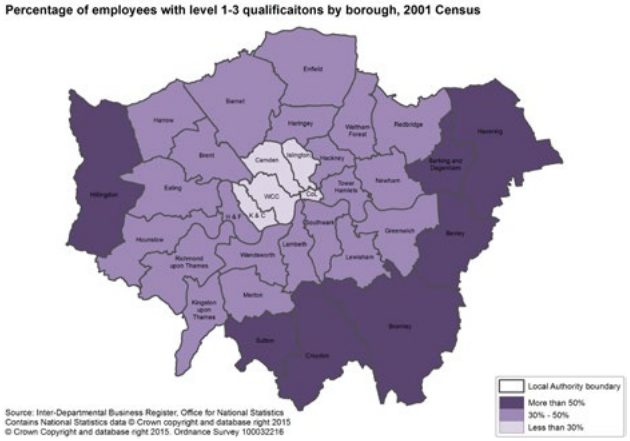
The following maps (Map 6.9) show the concentration of workers by qualification across London[71]. These show that Inner London boroughs had a greater proportion of employees with Level 4 qualifications or above (i.e. higher education) in 2011, whilst Outer London boroughs were more likely to have employees with Levels 1-3 qualifications. Indeed, Barking & Dagenham and Havering were the only two boroughs to have more than half of employees in this group. They were also the only boroughs to have more than 10 per cent of employees with no qualifications.

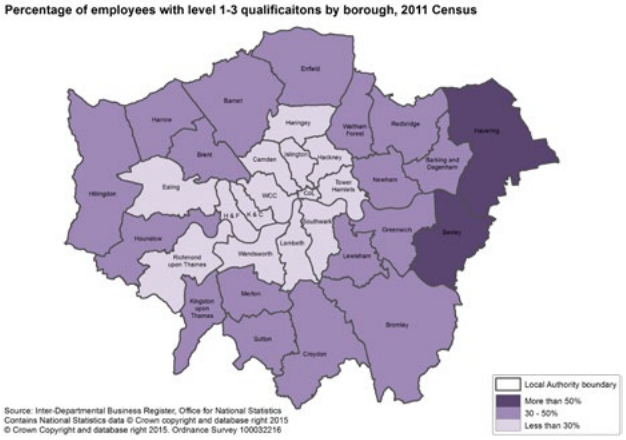
Generally, employees have higher qualifications than in 2001. For example, whilst nine boroughs had less than 30 per cent of employees with Level 4 or 5 qualifications in 2001, there was only three in 2011. Similarly, only Inner West London had less than 10 per cent of employees with no qualifications in 2001, but this was the case for the majority of boroughs.

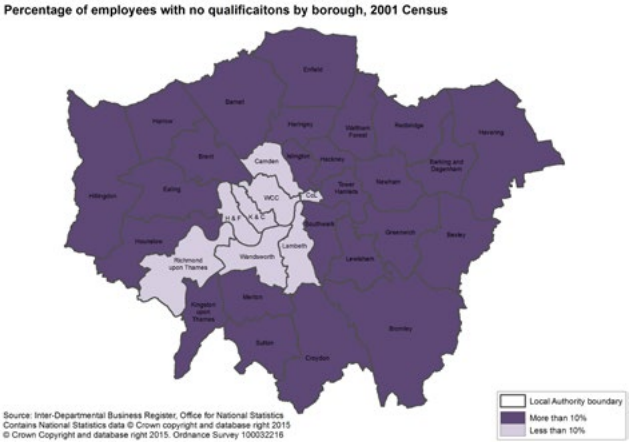
Map 6.9: Percentage of employees by qualification in 2001 and 2011

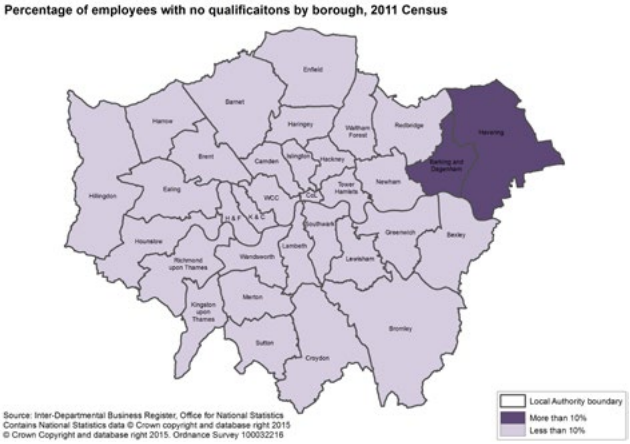










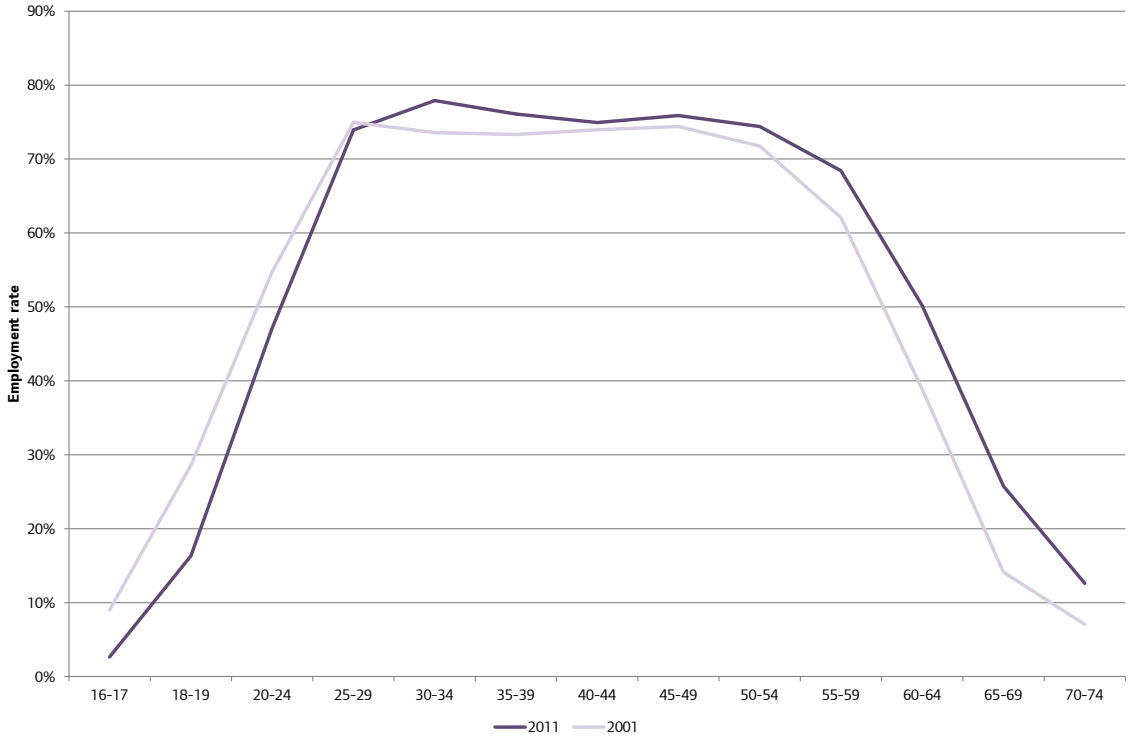


Source: ONS Census 2001 and 2011

The over 65s

This section is focussed on people aged 65 and over[72]. As shown in Figure 6.49, the employment rate for this age group was only 11.9 per cent in 2014 and, despite having increased from 7.7 per cent in 2004, was the lowest rate among all age groups. In fact, when looking across more detailed age bands using Census data (Figure 6.99), the employment rate drops suddenly for the 60-64 and 65-69 age groups. This mostly reflects the fact that the vast majority of older people are economically inactive and in retirement. For example, in London, 79.9 per cent of men aged 65 and over and 86.9 per cent of women were retired in 2014.

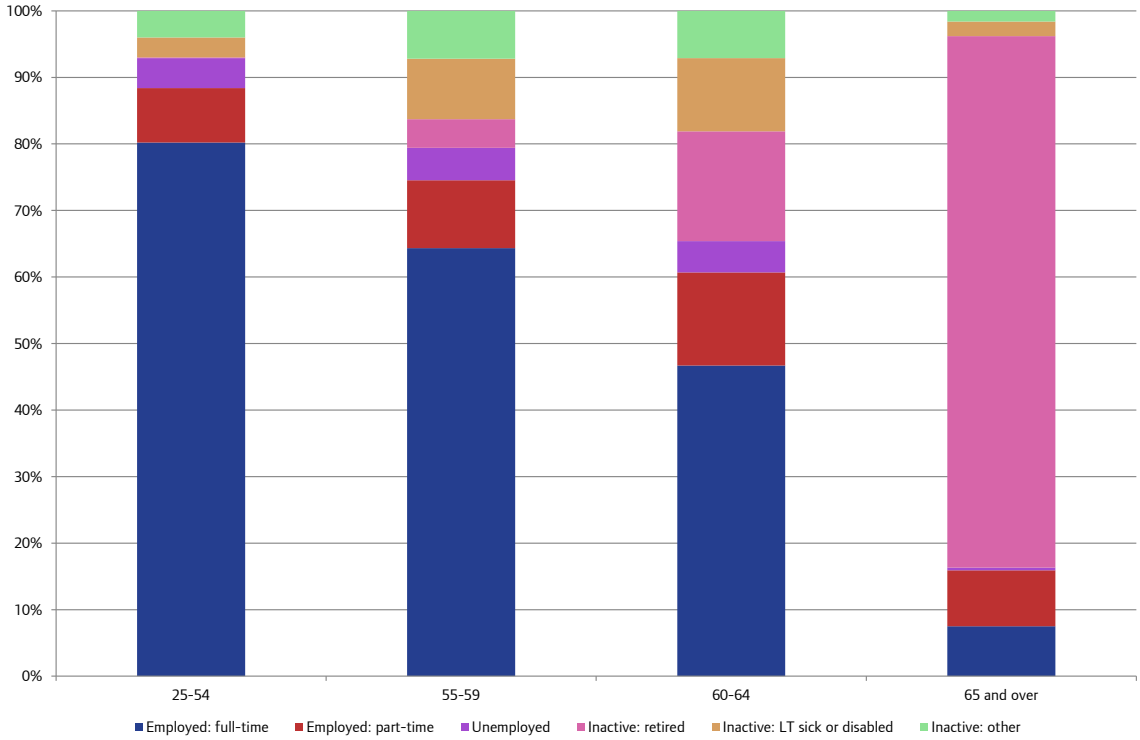
Figure 6.99: Employment rates by detailed age groups for London, 2001 and 2011 (Census data)



Source: ONS Census 2001 and Census 2011

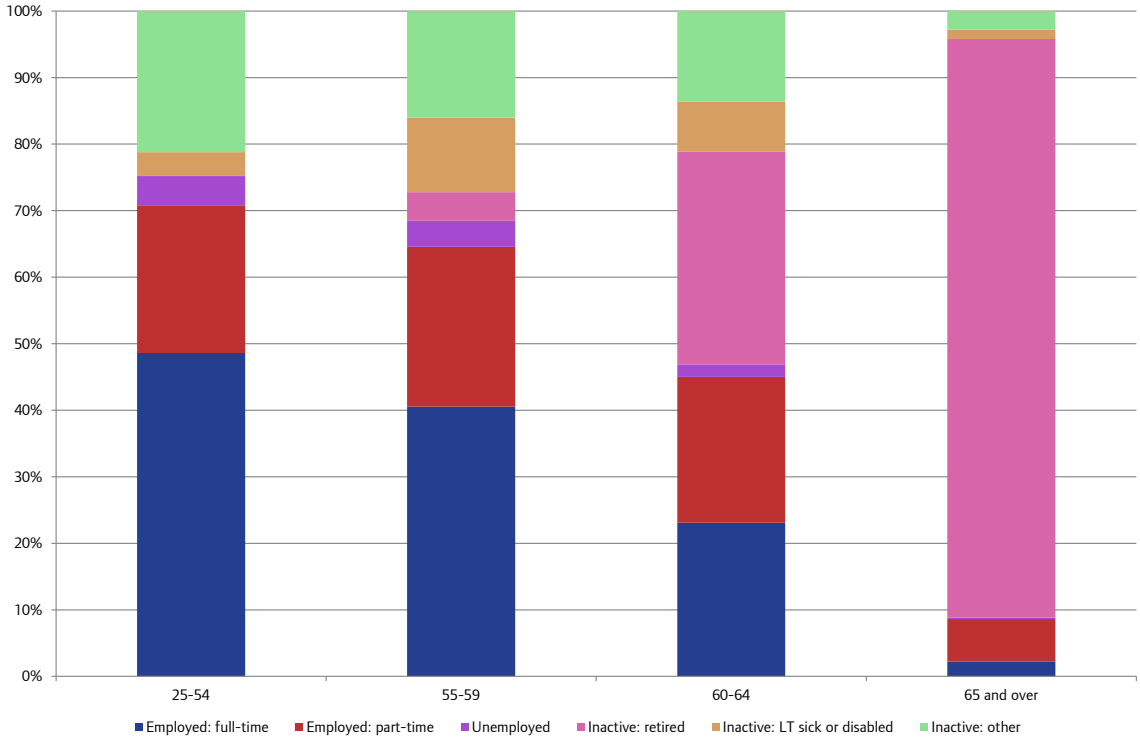
These trends are evident for both men and women in London as shown in Figures 6.100 and 6.101 which alternatively uses ONS Annual Population Survey data. For example, the employment rate for men and women aged 55-59 was 74.6 per cent and 64.5 per cent respectively in 2014, but this dropped to 60.7 per cent and 45 per cent for the 60-64 age group.

Figure 6.100: Economic activity by age groups for men in London, 2014



Source: ONS Annual Population Survey

Figure 6.101: Economic activity by age groups for women in London, 2014



Source: ONS 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 8.2 per cent, but this increased to 14 per cent for the 60-64 age group. This could suggest that older workers are seeking more flexible working arrangements. For example, Table 6.17 shows the average number of hours worked by full-time and part-time main jobs declining as people get older.

Table 6.17: Mean actual weekly hours of work (including overtime) by full-time and part-time main jobs for London and the UK in 2014

Age group	Full-time main job		Part-time main job	
	London	UK	London	UK
16-24	37.9	36.7	15.5	14.6
25-54	38.5	38.0	16.6	17.3
55-64	37.2	37.3	15.9	15.9
65 and over	36.8	38.1	12.3	12.5
All ages	**38.3**	**37.8**	**16.0**	**16.2**

Source: ONS Annual Population Survey

As Table 6.18 illustrates, the main reason that older people provided for working past the state pension age in 2014 was that they were not ready to stop work (47.8 per cent). Paying for essential items such as bills was cited by 18.9 of older people in London, which was a higher proportion than UK (16.8 per cent). In contrast, 6.4 per cent said it was to pay for desirable items such as holidays and that was lower than 8.3 per cent for the UK.

Table 6.18: Main reason for working past state pension age for London and the UK, both sexes, 2014

Main reason	London	UK
To pay for essential items (such as bills)	18.9%	16.8%
To pay for desirable items (such as holidays)	6.4%	8.3%
To boost pension pot	5.8%	7.4%
Not ready to stop work	47.8%	49.5%
Employer needs your experience or you are needed in the family business	4.5%	6.6%
Due to opportunities to work more flexible hours	2.1%	1.3%
Other	14.4%	10.1%

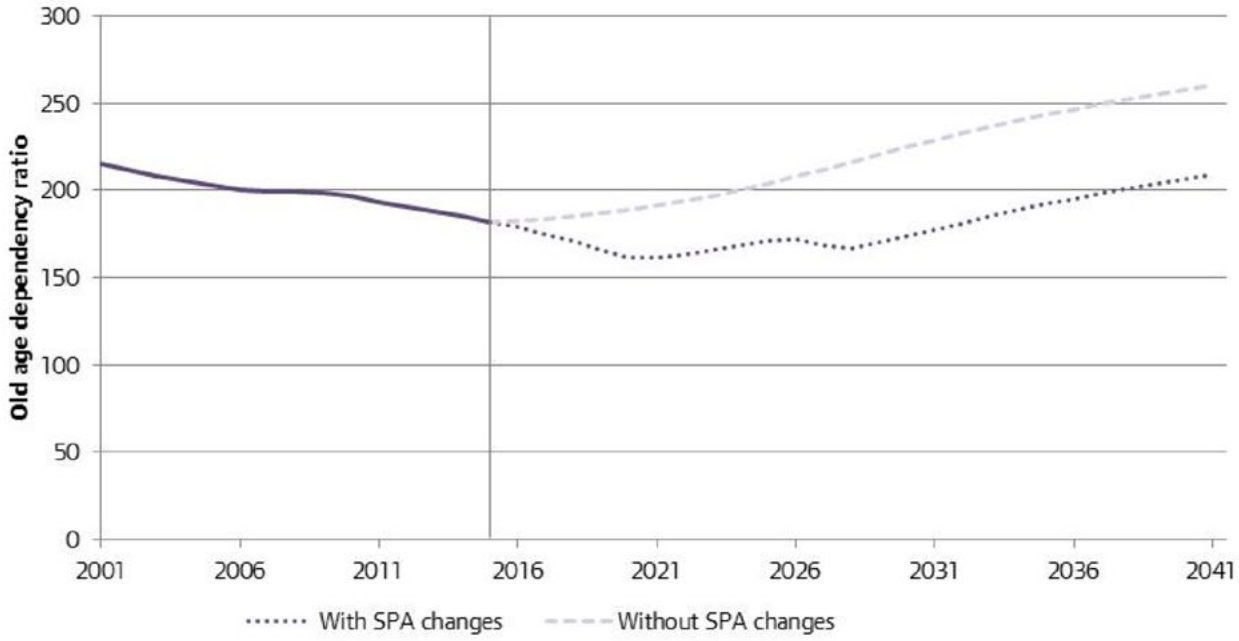
Source: ONS Annual Population Survey

Aside from participating in the labour market, older people may instead participate in the informal labour market by caring for adults, through childcare, or volunteering[73]. 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.

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[74]. Research by the Department for Work and Pensions (DWP) suggested that raising the SPA (and consequently increasing the working age population) would lead to a smaller increase in the labour force as some would chose to leave the labour market[75] though other effects might 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. Figure 6.102 shows a gradual decline in the OADR since 2001 to around 180 older people per 1,000 people who are working age for London[76]. 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 209 per 1,000 people working age.

Figure 6.102: Old age dependency ratio per 1,000 people working age for London, with and without planned SPA changes



Source: GLA Intelligence 2014 round population projections (long-term migration), ONS 2014 round population projections, GLA Economics calculations

Chapter 6 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 2014 round trend-based population projections (long-term migration scenario). This bases the volume of migration flows on estimates for the period mid-2001 to mid-2013. 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 04-2015 (https://files.datapress.com/london/dataset/2014-round-population-projections/2015-10-09T09:02:51/update-04-2015-2014rnd-trend-proj-methodology.pdf)
5 The school-age population is taken to be those age 4 to 15 inclusive.
6 Primary school is taken to be children age 4 to 10 inclusive.
7 Secondary school is taken to be children age 11 to 15 inclusive.
8 This is for academic year 2024/25, i.e. September 2024 to August 2025.
9 The working-age population is taken to be those age 16 to 64 inclusive.
10 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.
11 The ten new countries to join the EU in 2004 were: the Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia.
12 National Insurance Number (NINo) registrations are used as a proxy for measuring international migration as a NINo is required to work in the UK. However this therefore excludes students, children, retired people and those who do not intend to work meaning that the real number is likely to be higher. Also there is often a lag between arriving in the UK and registering for a NINo and therefore NINo registrations can only be used an indication of when someone may have arrived in the UK.
13 Bulgaria and Romania joined the EU in 2007. However working restrictions were put in place and not lifted until January 2014. This explains the lower numbers of people from these two countries registering for a NINo between 2007 and 2014.
14 ONS APS 2014
15 EU member countries in 2001: France, Germany, Italy, Portugal, Spain, Aland Islands, Austria, Belgium, Denmark, Finland, French Guiana, Gibraltar, Greece, Guadeloupe, Luxembourg, Martinique, Netherlands, Reunion, Sweden.
16 Level 4 includes the following qualifications: Degree (for example BA, BSc), Higher Degree (for example MA, PhD, PGCE), NVQ Level 4-5, HNC, HND, RSA Higher Diploma, BTEC Higher level, Foundation degree (NI),
17 Gordon, I & Kaplanis, I (2014). Accounting for big-city growth in low-paid occupations: immigration and/or service-class consumption, Economic Geography, 90, 1, pg. 67-90
18 Devlin, C et al. (2014). Impacts of migration on UK native employment: an analytical review of the evidence, Occasional Paper 109, March 2014.
19 BIS (2015). The impact of migrant workers on UK businesses, BIS Research Paper 217, February 2015.
20 Vargas-Silva, C (2015). The fiscal impact of immigration in the UK, The Migration Observatory, Briefing, Revision 3
21 OECD (2013). International migration outlook 2013: the fiscal impact of immigration in OECD countries.
22 The Migration Observatory (2015). Impact on housing: little systematic evidence of direct and indirect impacts of immigration on house prices, rents and social housing at national and local levels. Accessed on 2 November 2015 at http://www.migrationobservatory.ox.ac.uk/top-ten/8-housing
23 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.
24 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.
25 ONS Labour Force Survey.
26 This is consistent with the 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.
27 This is the number of people claiming Jobseeker's Allowance and out-of-work Universal Credit.
28 This is for all claimants aged 16 years and over and not seasonally adjusted.
29 For the July 2014 to June 2015 period.
30 Workforce jobs data is used here which is conceptually different from the rest of the analysis in this chapter that instead looks at the number of residents. Indeed, the number of jobs usually exceeds the number of people as some individuals may have more than one job.
31 The remainder includes HM Forces jobs and Government-support trainees.
32 All part-time workers aged 16 years and over.

33 This is based on workforce jobs.
34 GLA Economics (2015a). Part-time employment in London, GLA Economics, Current Issues Note 42.
35 Ibid.
36 GLA Economics (2008). The evolution of UK and London employment rates, GLA Economics Working Paper 33.
37 GLA Economics (2006). Worklessness in London: explaining the difference between London and the UK, GLA Economics, Working Paper 15.
38 Other research also point to certain demographic and environmental characteristics as factors in explaining regional differences in employment and unemployment rates including López-Bazo & Motellón (2013), The regional distribution of unemployment, what do micro-detail 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.
39 This uses ONS Annual Population Survey data of which the latest estimates refers to 2014.
40 GLA Economics (2015a). Part-time employment in London, GLA Economics, Current Issues Note 42.
41 See footnote 36 for these charts.
42 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 groupings.
43 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 13.2 per cent (the same as the UK), down from its actual figure of 39 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 62.5 per cent is applied to 13.2 per cent of the population. Overall, this means that the only change during the adjustment process in the percentage of the population who were from ethnic minorities.
44 A working family is a family unit containing at least one person aged 16-64 and at least one person aged 16 or over is in employment. A workless family is a family unit containing at least one person aged 16-64 and has no one aged 16 or over in employment.
45 A lone parent family contain a lone parent and at least one non-dependent child.
46 Dependent children are children under the age of 16 and individuals aged 16-18 years who are not in full time education and have never been married.
47 Rosso, A et al. (2015). What explains the growth in 'never-worked' households, Joseph Rowntree Foundation.
48 Resident basis.
49 Both core and work-limiting disabilities in line with the Equalities Act.
50 Workplace basis.
51 GLA (2008). Women in London's economy, 4th edition.
52 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.
53 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.
54 All UK data for the April to June 2014 period.
55 This definition may also include other contracts which are not explicitly zero-hours, but ZHC is used here to describe this broad category.
56 Bell & Blanchflower (2013). Underemployment in the UK revisited, National *Institute Economic Review, 224*.
57 ESRC Centre on Migration (2009). An evidence base on migration and integration in London.
58 Rosso, A (2013). Skill premia and immigrant-native wages gap, Centre for Learning and Life Chances in Economies and Societies, Research paper 45.
59 Stirling, A (2015). Migrant employment outcomes in European labour markets, Institute for Public Policy Research.
60 This is supported by other research including Green & Zhu (2010), Chevalier (2003) and Chevalier & Lindley (2009).
61 The definitions used here are consistent with UKCES (2015) and are as follows: 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.
62 Workplace basis.
63 Mirza-Davies, J (2015). NEET: young people not in education, employment or training, House of Commons, Briefing Paper, Number 06705, 21 May 2015.
64 This includes all ethnic groups other than White British.
65 This is defined as Physics, Biology, Chemistry, Other Science, Mathematics and Further Mathematics, Design & Technology, Computing and ICT.
66 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.
67 This is the first year of comparable data.

68 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. For example, the KS4 destinations data reported that 92 per cent of pupils continued on to KS5 and, of these, the KS5 destinations data reported 75 per cent going on to university. 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 proportion achieving either no or other qualifications is unknown.
69 This is the number of jobs in London for all ages and people.
70 From September 2013, the participation age rose from 16 to 17; and from September 2015, this again rose from 17 to 18. Young people must stay in full-time education, start an apprenticeship or be in work whilst in part-time education.
71 This is based on Census 2001 and 2011 data.
72 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.
73 GLA Economics (2013). The economic contribution of older Londoners, GLA Economics, July 2013.
74 These are covered under the Pensions Acts 1995, 2007, 2011 and 2014.
75 Barrell, R et al. (2011). The macroeconomic impact from extending working lives, Department for Work and Pensions, Working Paper 95.
76 The working age population is defined as 16 years to SPA; older people are conversely defined as being the SPA or older.

7 Socio-economic issues

Key Findings

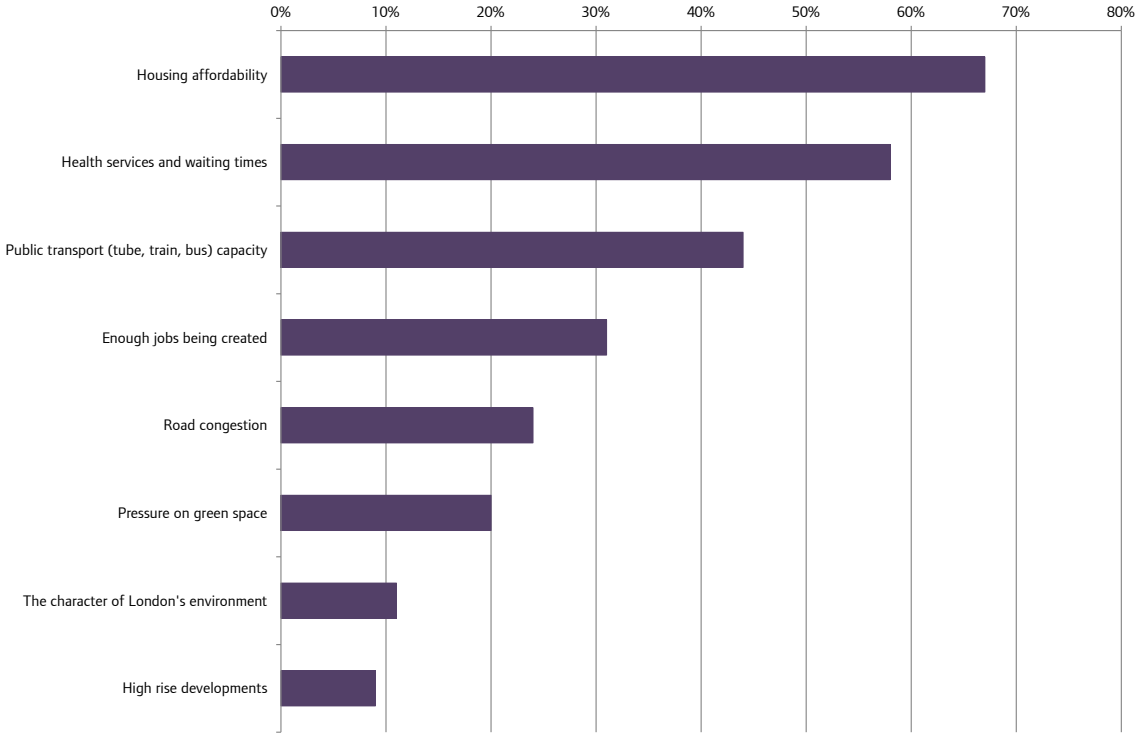
- Earnings made up 78 per cent of all London's household income in 2011/12-2013/14. State support made up just 11 per cent of the total, while investments and occupational pensions each accounted for 4 per cent.
- Nationally, 10 per cent of households have gross incomes below £215 per week, while the figure is only slightly higher in London at £231. At the other end of the scale, 90 per cent of households in the UK have income below £1454 per week (and therefore 10 per cent of households get more than this amount). In London, the top of the distribution is more than a third higher, with 10 per cent of households having income over £1945 per week.
- Median property in England and Wales is sold for more than six times the median gross annual household income; whereas in London, property was sold for more than ten times median gross annual income in 2014 after having risen sharply over the 2000s.
- London was the sixth most expensive city to live in according to a 2015 survey of 71 global cities by UBS.
- Poverty levels among the 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 by this measure and nearly a quarter of Outer London residents, which is also higher than for any other region.
- Around 300,000 children in Inner London are living in after housing cost 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.
- 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.
- London faces health issues that are unique in England as a whole. Around two fifths of all people living with diagnosed HIV in the UK live in London. Further, London has a higher incidence of TB than England as a whole.
- Total recorded crime per 1,000 of population in London was higher than in England in the year to June 2015. However, this did not hold for all offending in London, with for instance sexual offences and possession of weapons offences being at similar rates.
- Education attainment in London is generally high and better than in England as a whole or other English regions as measured by the percentage of pupils achieving 5 or more A*-C grades including English and Maths at GCSE. However, the educational outcome of London's pupils also varies by borough, ethnicity and disadvantage status.

7.1 Introduction

London's economy is internationally competitive and successful in many ways. However, despite the economic success London still has many socio-economic issues. This chapter looks at these issues in more detail.

Londoners' unease about a number of issues has recently been raised in GLA polling as shown in Figure 7.1, and although a number of these 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, with the main focus being 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.

Figure 7.1: Londoners' top areas of concerns



Source: GLA Intelligence Unit polling[1]

7.2 The affordability of London

This section will look at issues of the affordability of living and working in London. Concerns about the affordability of living and working in London often revolve around worries about London's economic competitiveness which is then linked to a number of policy priorities. Many of these policies resolve into 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 or families directly affected.

7.2.1 Affordability and Household Income

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, although affordability is most often discussed in terms of housing. However, it applies equally to other items and this part of the chapter will look beyond just housing affordability. 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.

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; benefits and other sources such as maintenance payments; educational grants; and ad hoc income, for example, royalties, income from odd jobs, babysitting etc; and the total may also include the value of certain payments in kind, such as free school meals, free TV licence for over 75s etc. This is further complicated by whether this is calculated before certain deductions such as taxes, pension contributions, maintenance payments etc. For this analysis, different definitions are thus 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 above, less direct taxes, including Council Tax, and pension contributions and also deducts transfer payments made, such as maintenance for children or support for students living elsewhere.

- 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 points nods towards 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.

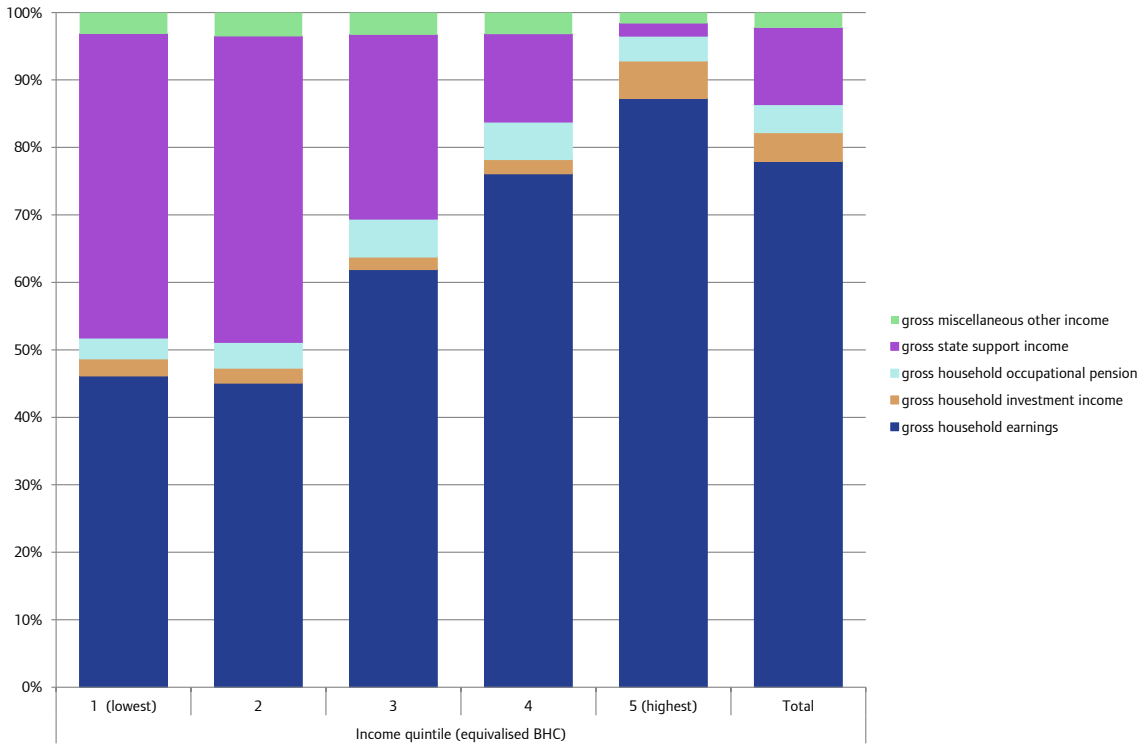
Overall, households across the UK receive 70 per cent of their gross income from earnings, making this by far the largest source of income. A further 15 per cent comes from state support in the form of state pension, child benefit, disability benefits, means-tested support for those who are out of work or on low incomes and other benefits. Income from occupational pensions and other investments makes up a further 12 per cent of the total, with just 2 per cent from other sources. Earnings make up an even greater proportion of total household income in London – 78 per cent of all household income 2011/12-2013/14. State support made up just 11 per cent of the total, while investments and occupational pensions each accounted for 4 per cent (see Figure 7.2).

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. For households in the lowest fifth of the income distribution, around 45 per cent of income was from earnings and 50 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. Among households made up of only working age adults, a higher proportion of income was from earnings, and state support was much lower, with a higher proportion also from miscellaneous other sources.

Figure 7.2 shows that London's households in the two lowest national income quintiles (using the BHC equivalised income) are remarkably similar in the profile of their income sources, with roughly equal amounts coming from earnings and from benefits. Each of these quintiles accounts for 16 per cent of all London's households. Earnings clearly make an increasing contribution to the total, balanced by a reduction in the proportion deriving from state support as total income increases, as would be expected. The combined total of the other three groups as a percentage of overall total income varies little across the quintiles. It is particularly worth noting that the overall percentage of total household income that is from earnings is higher than for all except the highest income quintile. 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 part of the income distribution.

Figure 7.2: Sources of gross income by income quintiles in London, 2011/12 – 2013/14



Source: Family Resources Survey 2011/12-2013/14, DWP

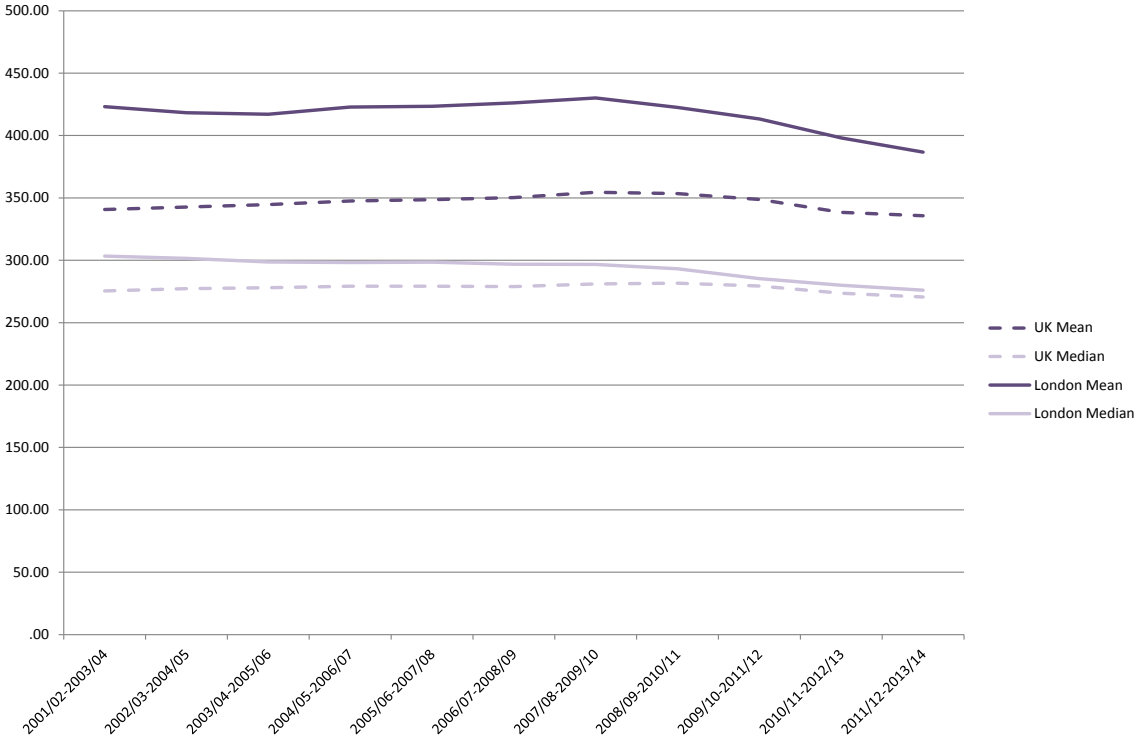
Table 7.1 shows the average figures (mean and median) for gross household income in both London and the UK, along with distributional figures in the form of the deciles. Nationally, 10 per cent of households have gross incomes below £215 per week, while the figure is only slightly higher in London at £231. At the other end of the scale, 90 per cent of households in the UK have income below £1454 (and therefore 10 per cent of households get more than this amount), in London, the top of the distribution is more than a third higher, with 10 per cent of households having income over £1945 per week. This disparity is reflected in the median and mean figures. While the median for London is higher than the UK figure, the mean is much higher because there are more high earners in London. Figure 7.3 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.

Table 7.1: Mean, median & deciles, gross, gross equivalised, equivalised BHC & AHC, weekly income London & UK, All households, 2011/12-2013/14

	UK				London			
	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	787	726	549	484	1035	942	677	557
Median	568	543	447	390	679	620	508	398
Percentiles								
10	215	259	227	154	231	270	230	113
20	294	328	289	226	334	350	304	193
30	372	390	339	277	428	427	367	250
40	461	459	390	330	548	522	433	316
50	568	543	447	390	679	620	508	398
60	694	641	513	457	850	778	600	491
70	850	770	595	537	1071	972	718	602
80	1067	950	707	646	1358	1216	878	759
90	1454	1264	910	846	1945	1690	1163	1049

Source: Family Resources Survey, 2011/12-2013/14, three year averages

Figure 7.3: Mean and median equivalised household weekly income AHC, All households, London and UK



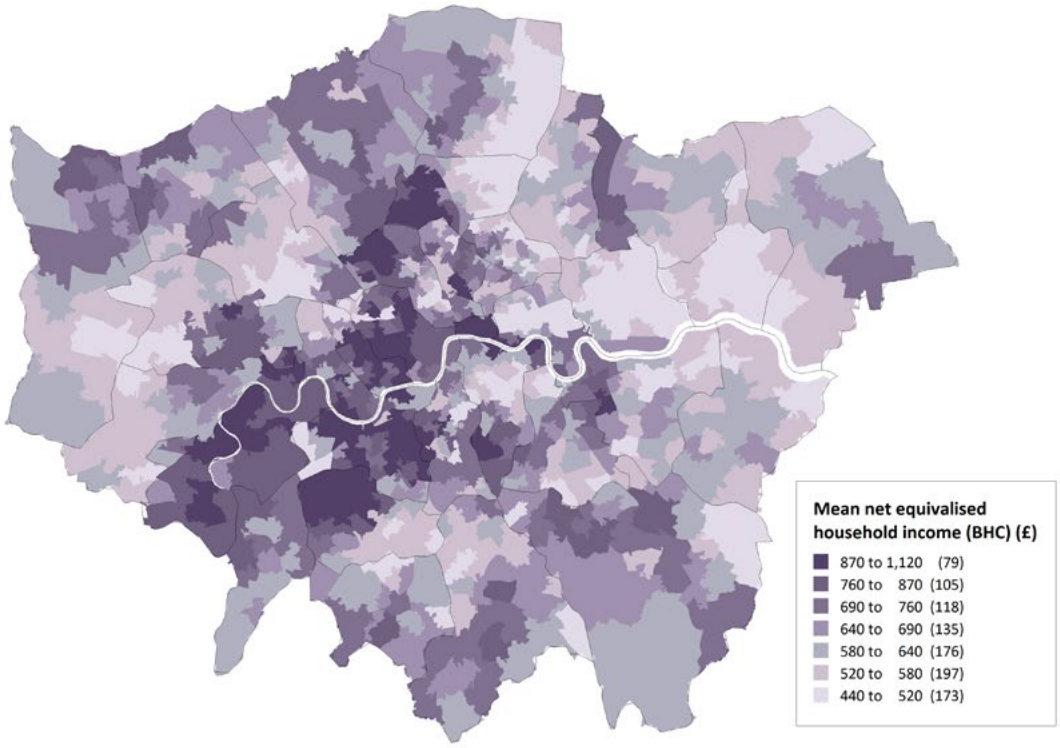
Source: Family Resources Survey 2001/02-20013/14, 3-year averages, adjusted using RPI All Prices Index (ONS)

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 so it becomes possible to compare incomes of individuals living alone with larger households. This is an important step in determining affordability.

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 etc are taken into account, differences at the lower end of the distribution in the net BHC income have all but disappeared, and after taking into account the higher costs of housing in London, the medians for the UK and London are close, so nearly half of London households have less disposable income after paying the essential costs for their housing than do their equivalent households in the rest of the UK. The disposable income at 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 less than the equivalent of £113 per week to support a couple with no children. At the same time, higher income households in London still tend to be better off than those elsewhere, though at the 90th percentile of the distribution, the disparity has fallen to less than a quarter. The mean for London remains considerably higher than the national mean due to this much wider range and households at the top end having very high incomes.

Map 7.1 shows how the mean of the equivalised net income varies across London. While it is clear that the richer (on average) areas are generally in the west of London, the pattern is very dispersed. Several boroughs, such as Wandsworth, Kensington & Chelsea, Lambeth and Southwark, each include small areas with average net income of over £1,000 per household per week, as well as other areas where the average net income is less than £500 per household per week. In contrast, there are few areas is 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 exceeding £525.

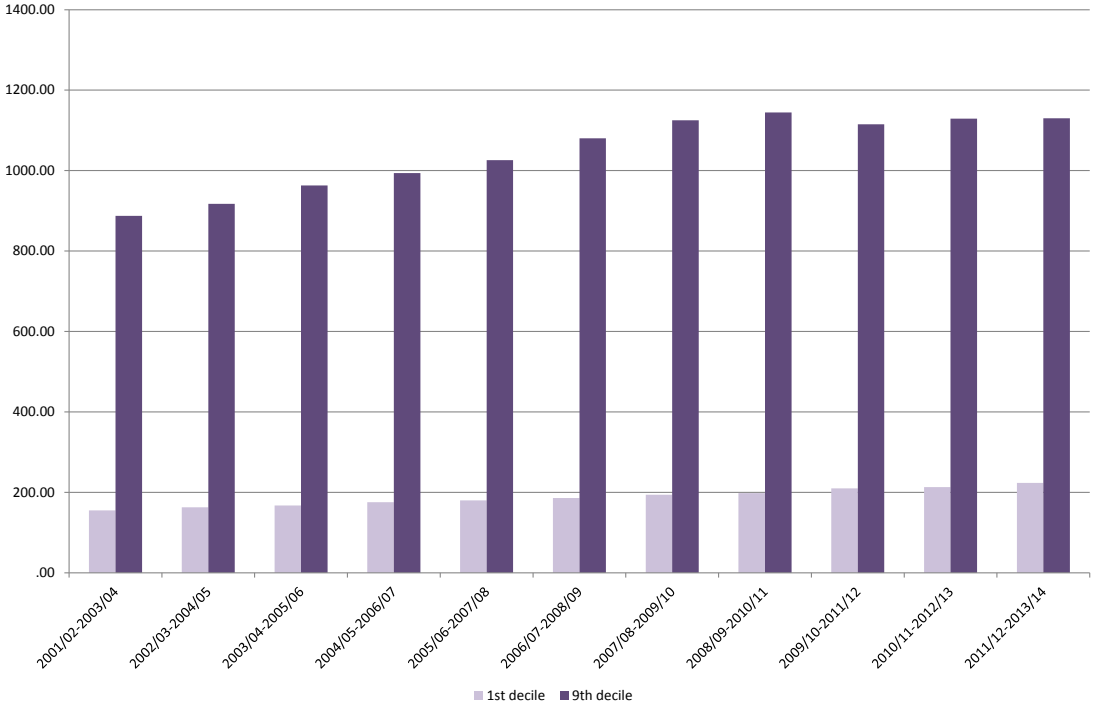
Map 7.1: Mean equivalised household income (BHC) in London (MSOAs)



Source: ONS Small Area Income Estimates 2011/12

The inequality of income across London is further illustrated looking at the change over time. This shows the gap between incomes for the top and bottom 10 per cent of London's BHC income distribution increasing from 2001/02 to 2009/10, whereas the gap has since fallen back as the lowest incomes have continued to increase while the highest incomes have fallen.

Figure 7.4: Highest and lowest deciles of equivalised nominal BHC household weekly income over time in London



Source: Family Resources Survey 2001/02-2013/14, DWP 3 year averages

Affordability affects different groups of people in different ways – different factors and different things are important. A key component, apart from income, is expenditure, which can be split into essential and non-essential spending. The essentials cover things like housing, food and clothing, transport, fuel and for some, childcare, costs of disability/care. 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.

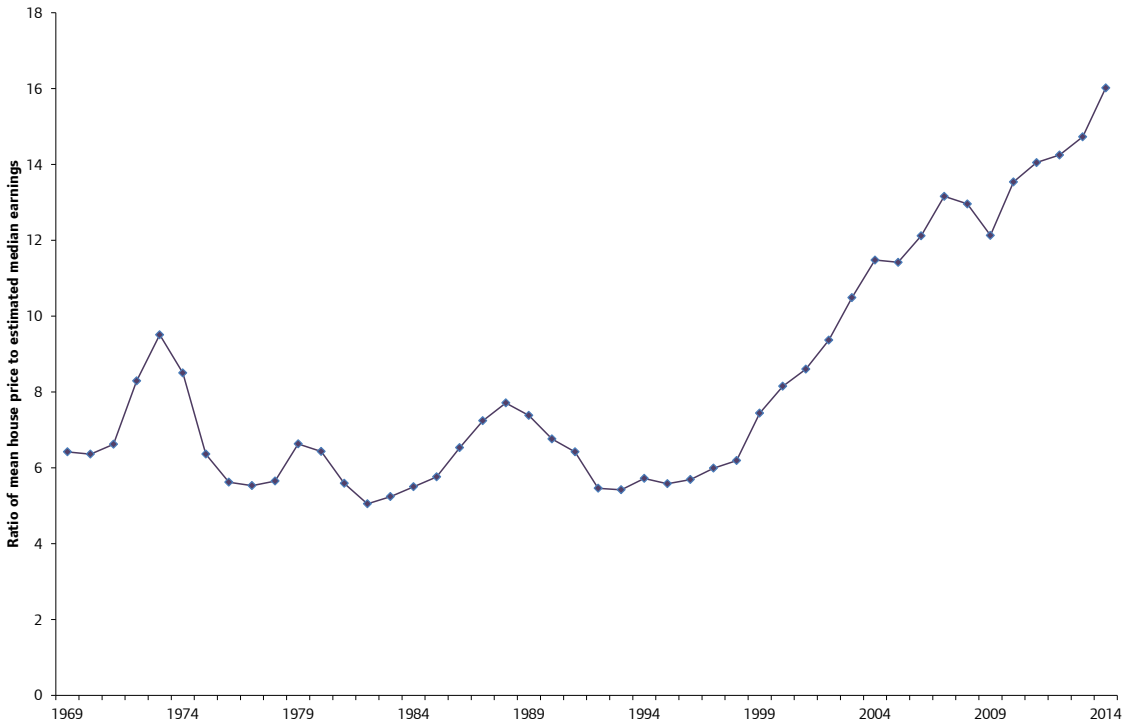
Costs of some items vary little across the country, though access to those prices may not be equally available - utilities and basic food costs fall into this group. However, Londoners tend to spend more eating out than average, possibly meaning that the average food expenditure (which excludes eating out) may be reduced. For other items, there are clear differences – overall costs of transport in London are generally cheaper than in many other parts of the country: fewer people have cars, distances travelled may be shorter[2], so walking or cycling may be more feasible options. Actual expenditure on a particular good or service is therefore not always a good indication of costs.

There are particular services, such as childcare, which may be essential to allow parents to work, where the costs are higher than elsewhere. Childcare costs are, on average, around £40 more per week in London than the national average for pre-school-age part-time care, £70 more for full-time or £25 more for after-school care[3]. Working London parents therefore need to earn relatively more than those elsewhere to pay for this.

7.2.2 Affordability: The cost of housing

As already highlighted in Chapter 2, house prices in London have been rising. This means rising costs for households given that the biggest variation in costs for them is, of course, housing. The median house price for property sold in London in 2014 was £365,000, compared with £195,000 nationally[4]. The London figure is more than three times that for the North East and nearly 50 per cent higher than the median for the South East[5]. These figures mean that the median property in England and Wales is sold for more than six times the median gross annual household income, whereas in London, the same ratio was more than ten, having risen sharply over the 2000s (see Figure 7.5). This is a very crude indicator of housing affordability, since gross household income includes elements that would not be relevant for house purchase, such as Housing Benefit, but nevertheless it shows how much more difficult it may be to access owner occupation in London than in the rest of the country.

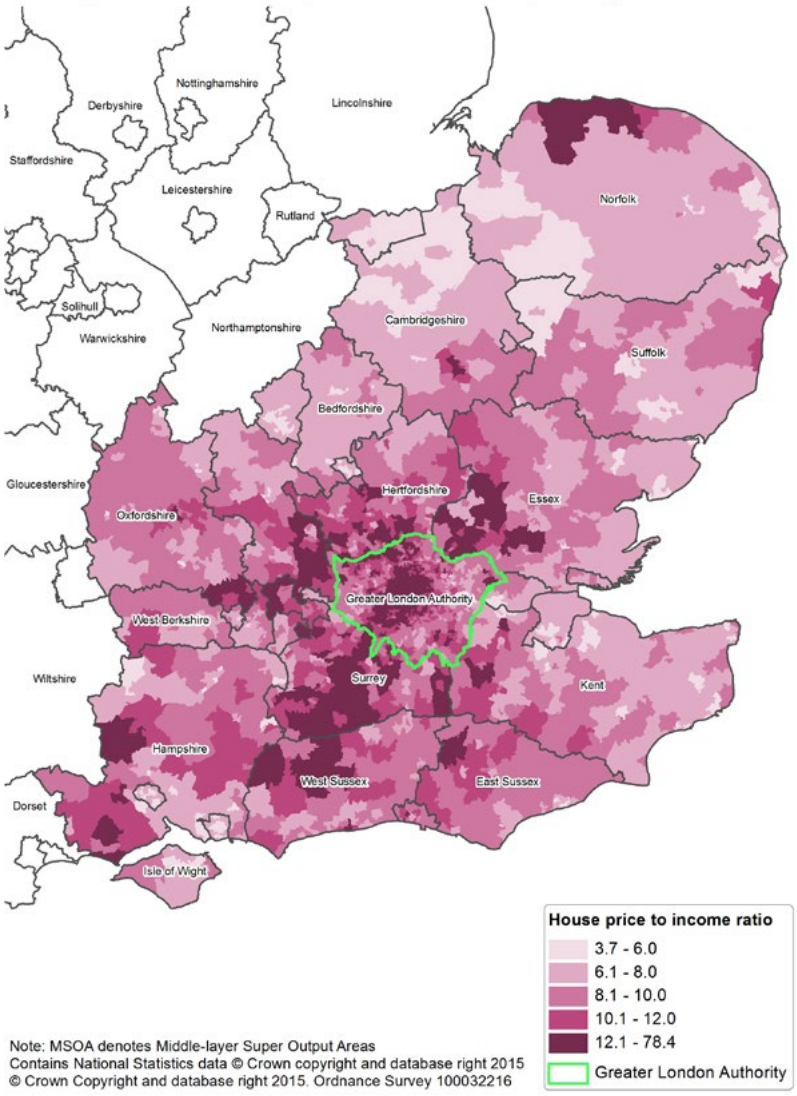
Figure 7.5: House price to earnings ratio in London, 1969 - 2014



Sources: New Earnings Survey (NES) prior to 1997 and ASHE workplace-based earnings from 1997 to 2014. ONS simple average house prices, 1969-2014. Notes: for consistency with ASHE data, median annual earnings from 1969-1997 are based on weighted estimates of work-based weekly earnings from NES data.

Research by the Institute for Fiscal Studies (IFS) examined London's house prices in relation to the UK as a whole and found that "real house prices [have] increased more than threefold (by 247 per cent) in London from their trough in 1994–95 to their peak in 2007–08. They have also recovered more strongly than in the rest of the UK since the financial crisis"[6]. Again, this research highlights that Londoners are required to spend more as a multiple of their income on housing than elsewhere, with the IFS finding that the ratio of house prices to average earnings in London stood at an all-time high of over ten in 2014 compared to just under seven for the UK as a whole. Map 7.2 below illustrates a similar issue for the Greater South East as a whole, although as can be observed the problem is particularly acute in London and its surrounding geography.

Map 7.2: Housing affordability in the Greater South East, 2014

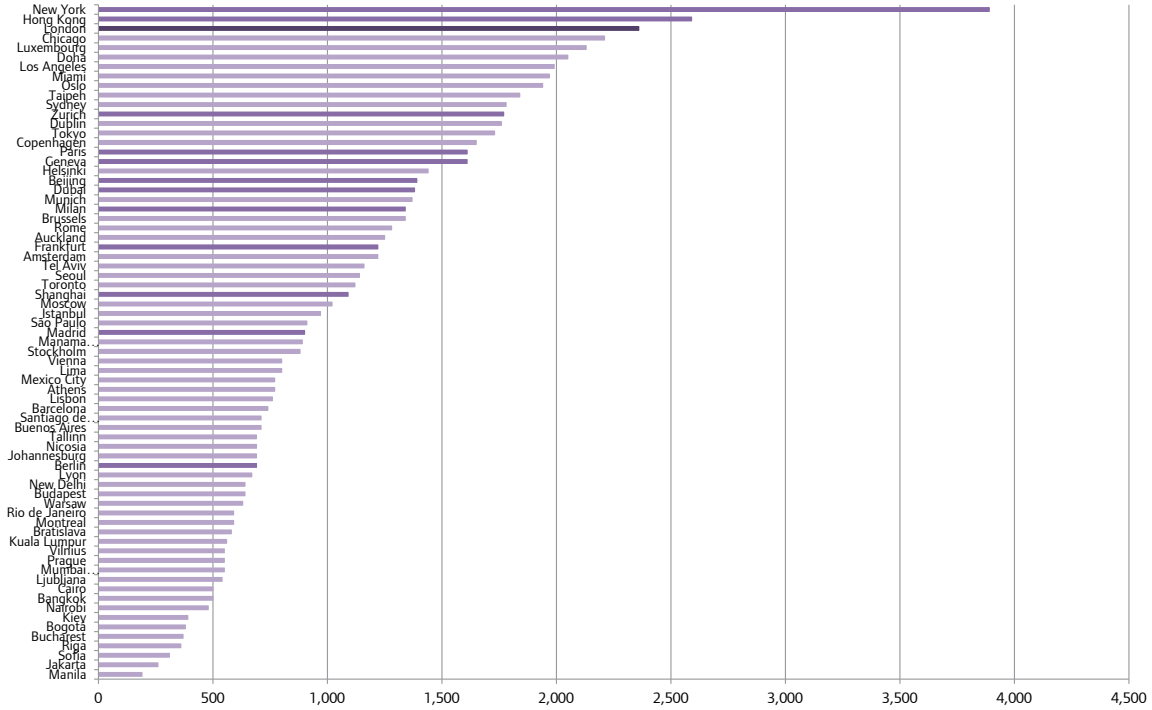


Source: GLA Intelligence Unit mapping of ONS and Land Registry data

Affordability of private rents is also an issue for Londoners. Comparing the median private rent[7] to the gross income of a household around the middle of the income distribution shows that private rents account for around half of all income (including Housing Benefit) in London, whereas nationally median private rent would account for close to a quarter of median gross income.

London's private rental housing is also costly compared to other world cities. This can be observed from Figure 7.6 which shows that the medium normal local rent in London is high, with renting only costing more in New York, and Hong Kong.

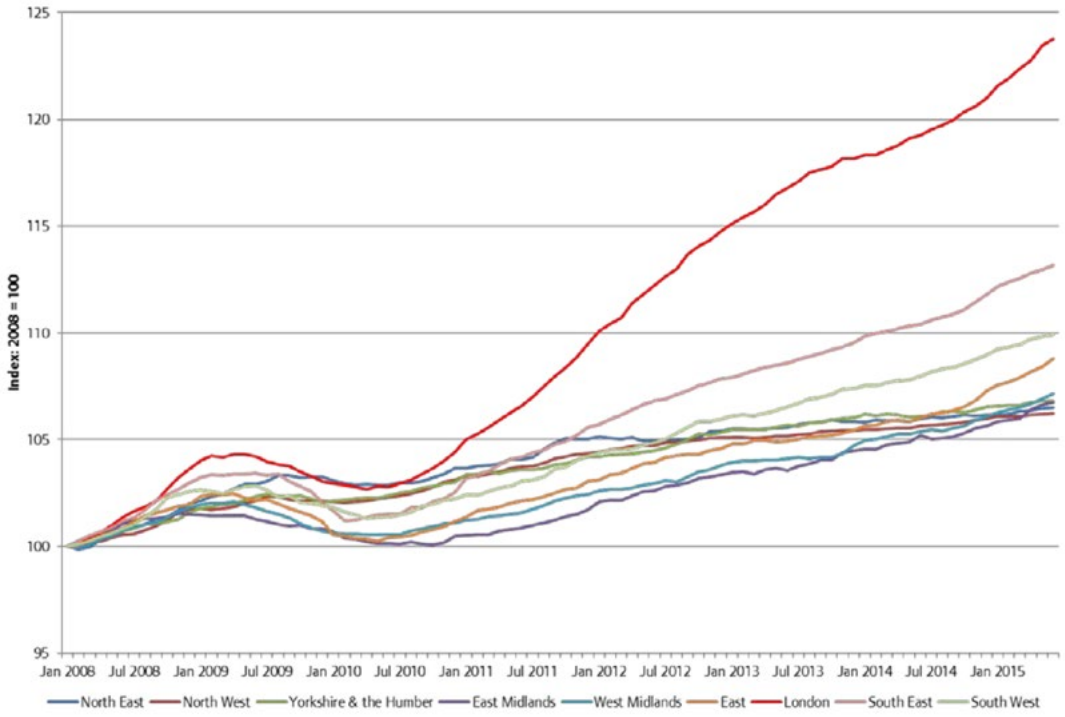
Figure 7.6: Normal local rent[8] costs in selected world cities (US$[9])[10]



Source: UBS[11]

Within the UK, the relative costs of private renting have risen sharply in London compared to other English regions. Figure 7.7 provides experimental data from the ONS providing a quarterly index of housing rental prices.

Figure 7.7: Private housing rental price index, London and other English regions, 2008 – 2014



Source: ONS

7.2.3 Affordability: The cost of living

London is also a costly city to live in. Table 7.2 shows the relative cost of living in various cities as determined by their price levels. London ranks at number 6 according to this survey by UBS. Knight Frank,

in examining the affordability of a number of global cities for graduates - an important demographic for the future success of the city - ranked London 13th out of 20 cities behind Frankfurt, Berlin, Paris and New York, but ahead of Tokyo, Singapore, Shanghai and Hong Kong[12]. While Mercer ranked London as 12th most expensive out of 207 cities in their 2015 cost of living rankings behind Luanda, Hong Kong, Zurich, Singapore, Geneva, Shanghai, Beijing, Bern, N'Djamena and Tokyo, but ahead of New York, Dubai and Paris amongst others[13].

Table 7.2: Price levels in selected world cities[14] (Index New York = 100)[15]

Rank	City	Excl. rent	Incl. Rent	Rank	City	Excl. rent	Incl. Rent	Rank	City	Excl. rent	Incl. Rent
1	Zurich	108.7	92.6	25	Dublin	70.3	63.1	49	Tallinn	54.4	44
2	Geneva	106.1	91.8	26	Taipeh	67.3	62.7	50	Ljubljana	54	44
3	New York	100	100	27	Brussels	67.2	57.3	51	Bogotá	53.6	43.7
4	Oslo	92.9	79.9	28	Rome	67.1	57.1	52	Jakarta	53.3	41.6
5	Copenhagen	88	74.3	29	Manama (Bahrain)	66.6	55.4	53	Bratislava	53.3	42.6
6	London	84.7	79.5	30	Frankfurt	65.8	55.1	54	Santiago de Chile	52.8	44
7	Chicago	83.5	76.7	31	Munich	65.5	56.1	55	Lima	52.2	42.8
8	Tokyo	83.1	70.6	32	Vienna	65.4	53.4	56	Kuala Lumpur	52	41.2
9	Auckland	82.8	67.6	33	Amsterdam	65.3	55.5	57	Moscow	51.9	45.2
10	Sydney	80.5	72.5	34	Shanghai	64.9	54.3	58	Manila	51.3	41.1
11	Seoul	79.2	64.2	35	Istanbul	64.8	53	59	Vilnius	50.9	40.9
12	Toronto	78.1	63.7	36	Doha	64.8	61.4	60	Nairobi	50.3	40.5
13	Milan	77.9	64.5	37	Lyon	64.8	51.2	61	Warsaw	48.8	39.6
14	Stockholm	76.9	62.8	38	Berlin	63.3	51.3	62	Cairo	48.1	38.7
15	Montreal	76.2	58.9	39	Barcelona	63.2	50.5	63	Budapest	47.6	38.6
16	Miami	76.1	67.7	40	Beijing	61.4	53.2	64	Johannesburg	46.6	40.5
17	Los Angeles	76	67.4	41	Madrid	60.6	50.4	65	Riga	45.8	37.1
18	Helsinki	74.3	63.2	42	Nicosia	60.3	48.4	66	Prague	45.6	36.4
19	Hong Kong	72.9	76.8	43	São Paulo	59.4	49.5	67	New Delhi	45.5	36.9
20	Paris	72.6	63.8	44	Athens	58.9	47.5	68	Mumbai	44.9	37.2
21	Luxembourg	72.3	66.1	45	Rio de Janeiro	57.9	49.2	69	Bucharest	43.8	34.5
22	Tel Aviv	72	61.4	46	Bangkok	57.5	46.4	70	Sofia	39	30
23	Dubai	71.1	66.1	47	Lisbon	55.5	45.3	71	Kiev	38.1	30.3
24	Buenos Aires	70.4	56.1	48	Mexico City	54.7	46.2				

Source: UBS[16]

7.2.3.1 The basic living cost of a basket of goods to Londoners

In the calculation of the London Living Wage[17] 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 7.3 and 7.4 below show the calculations of basic living costs in London for these families given different employment patterns.

Table 7.3: Basic Living Costs for typical families living in London (£ per week), households with children

	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 costs	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
Total Transport Costs	66.80	66.80	66.80	33.40	33.40	33.40	33.40
Childcare costs	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 calculations[18]

Table 7.4: Basic Living Costs for typical families living in London (£ per week), households without children

	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 costs	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
Total Transport Costs	66.80	66.80	66.80	33.40	33.40	33.40	33.40
Childcare costs	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

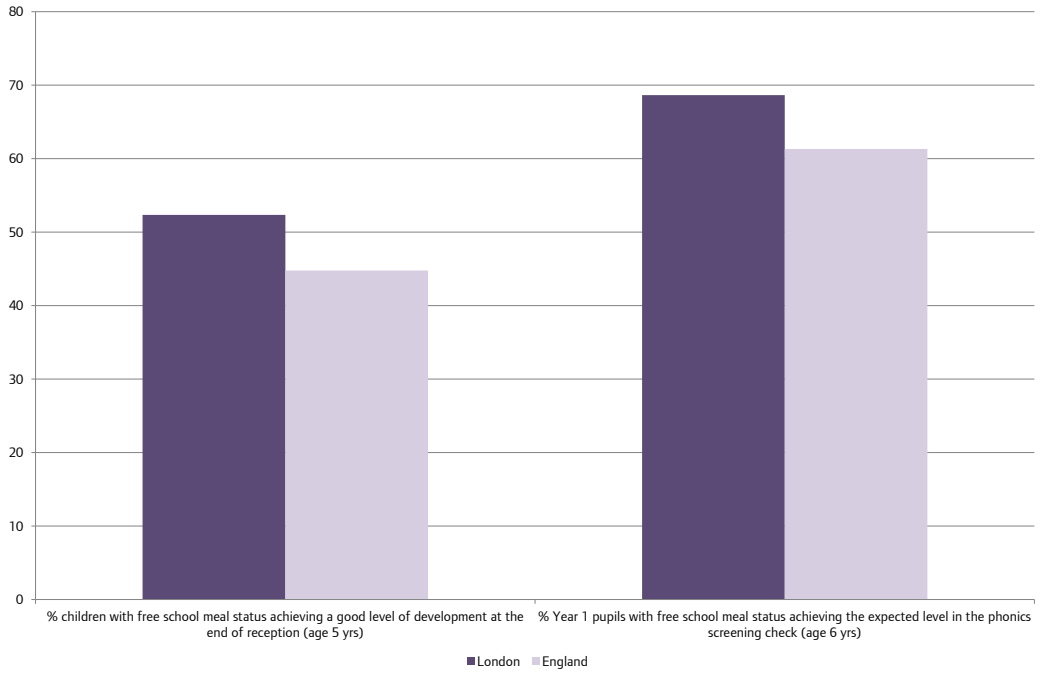
Source: GLA Economics calculations[19]

Thus, it can be observed that different types of households require different levels of weekly income to cover their basic costs. Further, other costs may be a significant strain on households with research by GLA Economics in 2011 finding that "the incidence of fuel poverty in London [stood at between] 13.3 per cent to 18.6 per cent. Furthermore, the actual numbers of households involved are very substantial, although the 12.9 per cent share of national households in fuel poverty is slightly less than London's share of English households. When severe fuel poverty is examined, there are more than 126,400 households in London falling within the definition. However, in the case of both fuel poverty and severe fuel poverty, there are significant numbers in the capital just beneath the threshold level (ie between 7.6 per cent and 10.0 per cent of basic income)"[20].

7.2.3.2 Affordability: Child care

Child care affordability is a cause of concern for a number of reasons such as the inequality of opportunity associated with poor care in early years. Specifically, in inequality terms, there is a widespread concern to improve the chances of children in their early years. This is particularly important for those who would otherwise be disadvantaged. For instance, Ofsted found that "only a little more than a third of children from low income backgrounds reached a good level of development"[21] before entering primary school. 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…it is clear that these children are being failed in some very different areas. Gateshead, Leicester and Richmond upon Thames serve very different communities and yet all have similar poor performance. Twelve of the top 20 local authorities on this measure are found in the capital: [however] as we have reported elsewhere, educational performance in London is some of the highest in the country. But not all London boroughs do so well, with two boroughs in the bottom 20 in the country"[22]. The deprivation aspect of this is highlighted in Figure 7.8 below which 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 7.8: Percentage of children receiving free school meals achieving a good level of development at the end of reception and achieving the expected level in the phonics screening check in year 1, in London and England in 2013/14



Source: Public Health England[23]

Looking at data from the Childcare Costs Survey 2015[24], it can be seen that the cost of childcare is higher in London than in any other region. This finding is not a surprise given the previous analysis on regional prices, however the analysis shows that the variation between London and the UK is considerably larger than for prices in general. Table 7.5 shows the variation in weekly costs of childcare between London and Great Britain as a whole.

Table 7.5: Weekly costs of childcare, London and Great Britain, 2015

	Nursery 25 hours (Under 2 years)	Nursery 25 hours (Over 2 years)	Childminder 25 hours (Under 2 years)	Childminder 25 hours (Over 2 years)	After School Club 15 hours	Childminder After School Pick-up
London	£152.06	£140.64	£146.31	£144.27	£53.65	£89.94
Great Britain	£115.45	£109.83	£104.06	£103.04	£48.18	£64.65
Difference	31.7%	28.1%	40.6%	40.0%	11.4%	39.1%

Source: Family and Childcare Trust

The survey also found that between 2010 and 2015, the increase in the weekly cost of a nursery place for children under the age of two was 38.0 per cent in London, compared to 32.8 per cent for Great Britain as a whole. This was however not the largest percentage increase for any one region, it was estimated that in the West Midlands, these costs increased by 51.9 per cent over the same period. Despite this, it is clear that increases in childcare costs have outstripped inflation in the past five years. It is also clear that 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 £7,907 in 2015.

7.2.4 Conclusions to the affordability of London

Conclusions on London's affordability are far from easy to describe in brief. On the basis of many competing indices, illustrated elsewhere in this Evidence Base, London is consistently highly placed as a good place to live. However, for many aspects of household affordability, London appears to be an expensive city in which to live.

7.3 Living standards, poverty and inequality; diversity and inclusion

Issues relating to living standards and poverty impact on equity, but can also impact on the perception of the capital as a place to live and work. This section analyses data on poverty, household expenditure and provides analysis on the numbers of Londoners dependant on benefits. In addition this section looks at spatial data on the relative deprivation of areas within London.

7.3.1 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. However, as noted in other chapters, productivity has lagged behind and although the city offers opportunities that draw people from across the world, 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[25]. Their research found that a slim majority of survey respondents agreed with the statement "London is a fair city" with 51 per cent of women and 56 per cent of men agreeing. However, there were variations based on age with 51 per cent of 18-54 year olds agreeing while 60 per cent of over 55's 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 £50k agreeing, this rose to 60 per cent for households with incomes between £50k and £70k, before dropping to 55 per cent for households with incomes over £70k.

The Commission also found that "Londoners are divided about how their personal financial situation may change over the next year. 44 per cent felt that it would stay the same, 22 per cent thought that it would get better, and 24 per cent felt that it would get worse. 9 per cent did not know how their personal financial situation would change". Further, "the majority of Londoners (69 per cent) do not believe there is sufficient affordable housing available across all areas of London. A further 15 per cent think that there is not enough affordable housing in some areas of London". And "just over half of Londoners (52 per cent) believe that Local Authorities should encourage mixed developments for households from all incomes to be developed. A substantial minority (31 per cent) believe that new developments should be low cost housing for poorest residents"[26].

7.3.2 Living standards, poverty and inequality

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. Data on Family Spending shows that Londoners tend to spend more on housing than people elsewhere, but less on transport (see Table 7.6)[27]. They also spend more on "luxury" items; restaurants, hotels etc. This is likely to be a reflection, at least in part, of the number of high income households.

Table 7.6: Household expenditure by UK countries and regions, 2011-2013

	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)	1,130	2,970	2,310	1,950	2,330	2,500	3,190	3,540	2,200	22,130	1,250	2,330	740	26,450
Total number of households in sample (over 3 years)	800	1,860	1,500	1,300	1,570	1,600	1,510	2,230	1,430	13,790	760	1,400	480	16,430
Total number of persons in sample (over 3 years)	1,820	4,340	3,490	3,000	3,770	3,820	3,770	5,300	3,330	32,640	1,800	3,100	1,200	38,740
Total number of adults in sample (over 3 years)	1,430	3,320	2,690	2,360	2,910	2,940	2,770	4,070	2,610	25,090	1,410	2,460	920	29,880
Weighted average number of persons per household	2.2	2.3	2.3	2.3	2.4	2.3	2.5	2.4	2.4	2.4	2.4	2.2	2.4	2.4
Commodity or service	Average weekly household expenditure (£)													
Food & non-alcoholic drinks	48.60	53.00	49.80	55.40	53.90	60.10	60.30	63.20	59.80	56.90	55.30	54.80	62.60	56.80
Alcoholic drinks, tobacco & narcotics	12.00	12.50	12.30	12.00	11.90	11.60	10.60	12.60	11.30	11.90	10.60	14.90	15.30	12.20
Clothing & footwear	22.40	21.70	19.80	19.70	19.70	20.40	25.30	24.60	23.20	22.10	22.20	23.00	35.00	22.60
Housing(net)[28], fuel & power	58.70	63.30	61.30	60.80	61.20	69.00	103.20	74.80	65.30	70.80	56.70	56.90	56.50	68.50
Household goods & services	28.80	30.80	26.00	28.20	27.50	30.50	31.00	35.50	32.00	30.50	23.40	26.50	25.20	29.60
Health	3.30	4.20	5.30	6.60	5.30	6.90	6.50	10.70	8.20	6.70	4.80	4.80	6.30	6.40
Transport	52.20	58.00	57.90	66.10	63.60	75.20	62.50	84.50	73.10	67.30	60.70	65.80	65.40	66.80
Communication	12.20	12.70	12.50	13.80	13.30	14.50	16.20	14.80	14.00	14.00	13.30	12.60	14.40	13.80
Recreation & culture	57.70	60.10	56.40	63.20	59.60	70.70	60.50	75.60	67.80	64.30	61.50	54.30	57.70	63.10
Education	5.30	5.60	4.80	9.30	7.70	5.10	13.10	7.80	10.30	7.90	11.70	3.50	2.90	7.50
Restaurants & hotels	35.30	37.10	36.80	34.00	36.90	39.80	50.10	46.10	41.60	40.70	32.70	36.80	47.10	40.20
Miscellaneous goods & services	31.00	37.80	34.80	38.40	35.80	42.30	41.40	47.90	38.80	39.70	31.80	32.50	40.70	38.70
All expenditure groups	367.60	396.80	377.60	407.40	396.20	446.20	480.60	498.00	445.50	432.80	384.60	386.50	429.10	426.30
Total expenditure	424.60	458.70	431.10	466.70	455.50	523.40	579.60	585.40	518.20	505.40	438.80	449.00	484.70	496.70
Average weekly expenditure per person (£)														
Total expenditure	190.5	197.1	189.00	204.40	192.30	224.50	231.00	244.20	218.40	214.10	182.80	202.10	200.70	211.20

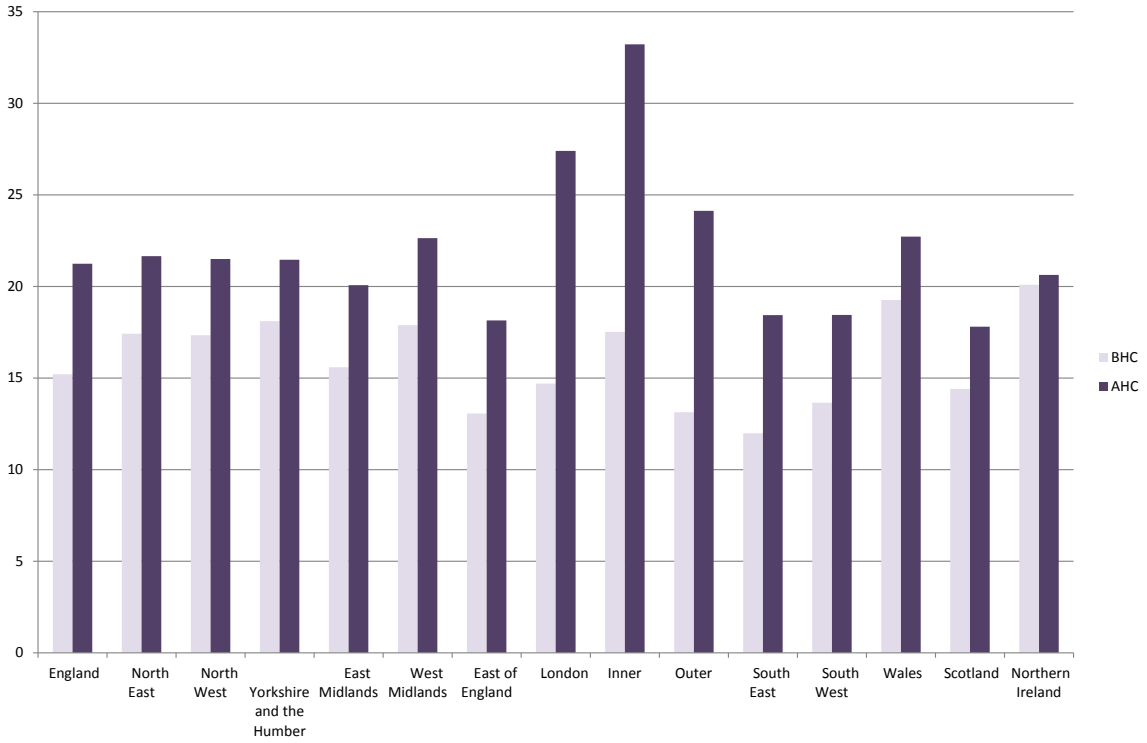
Source: ONS, Family Spending 2013

Note: 1) The commodity and service categories are not comparable to those in publications before 2001-02. 2) This table is based on a three year average.

This wide variation in spending patterns, living standards and inequality is revealed in the levels of poverty in London. As previously with affordability, there are again different measures available. The primary measures used by Government and others are defined in terms of income and are relative (rather than to some externally determined level). Poverty is measured as those in households whose (equivalised) household income is below 60 per cent of the median for the population as a whole. It can be measured using either the before or after housing costs definitions described previously. Comparisons are with national medians, so there are particular difficulties with regards to London with using the before housing costs measure around the inclusion of Housing Benefit in total income, as for most people in London it is higher than in other parts of the country due to the higher housing costs. Of course, this is particularly relevant for those in the lowest income groups who are most likely to be entitled to Housing Benefit.

On the Before Housing Costs measure of poverty, the proportion of Londoners in poverty is close to the national average. However, it is higher in Inner London with levels close to the North of England, but lower in Outer London and more in line with neighbouring regions. In contrast, poverty levels among London's population after taking account of housing costs in the capital are clearly 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 still higher than for any other region.

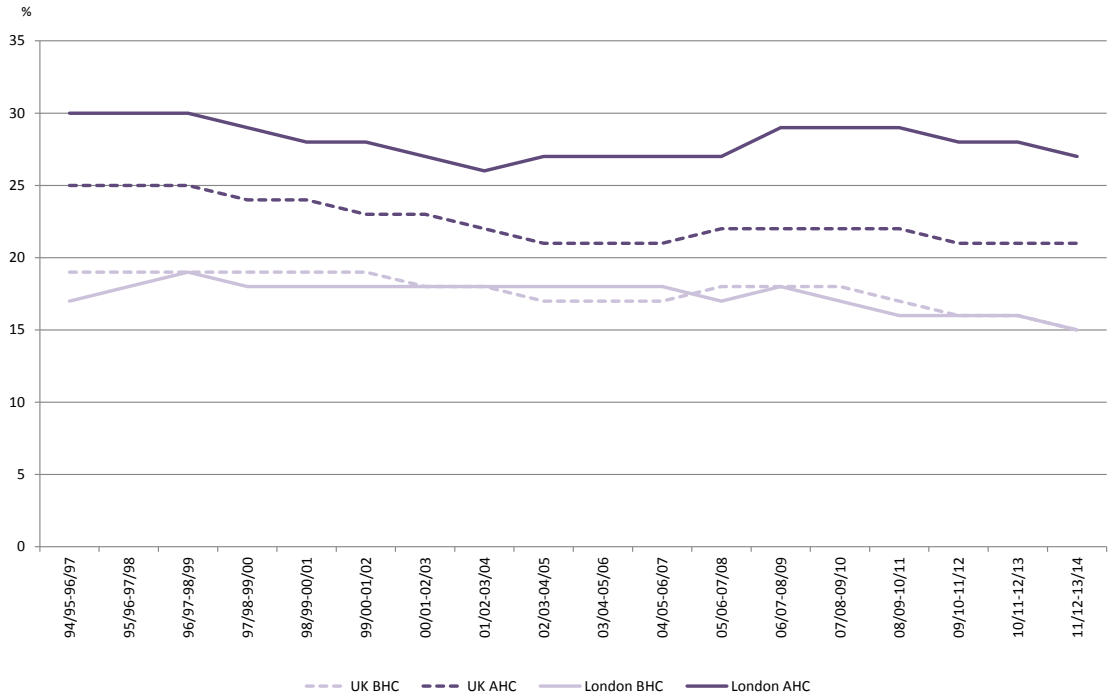
Figure 7.9: Percentage of individuals in households with income below 60% median by region



Source: FRS 2011/12-2013/14, DWP

The time series for all individuals in poverty in London and the UK, both before and after housing costs, are illustrated in Figure 7.10. The latest figures of 15 per cent BHC and 27 per cent AHC (2011/12-2013/14) in London show a slight decrease on the previous figures (2010/11-2012/13); the levels of BHC poverty measured for London have followed those of the UK very closely over the last 15 years. However, it is clear that London has higher levels of poverty taking housing costs into account than the UK, particularly with higher and more divergent levels during the years of the recession.

Figure 7.10: Percentage of individuals living in households with less than 60 per cent of contemporary median household income, for London and UK 1994/95 –2013/14



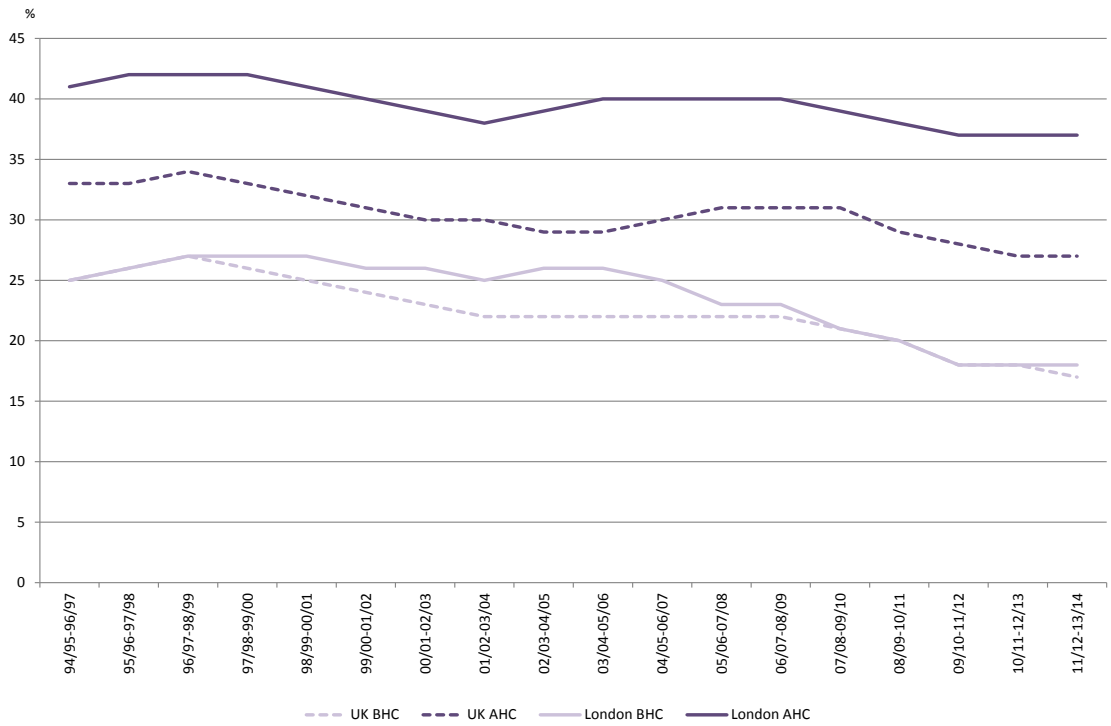
Source: FRS 1994/95-2013/14, DWP

It should be noted that the 60 per cent median income level of poverty is fairly arbitrary and other measures can be used to examine low pay. Thus in a recent piece of research GLA Economics looked at low pay as defined by being "hourly pay excluding overtime below the 20th percentile point in the pay distribution for all London employees"[29]. This research found that "part time employees are much more likely to be low-paid than full-time employees – [with] the median hourly rate of pay for part-time workers [having] been persistently below the 'low pay' level. Moreover over 50 per cent of part-time male workers earn less per hour than the London Living Wage"[30].

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. It found that "since 1997 the proportion of employees in the social care sector in low pay 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 and indeed the differences in median pay have increased"[31].

Looking at the 60 per cent of contemporary median income measure, the poverty rate in London also varies by household characteristics; some groups of the population have higher poverty rates than others. For example, households with children are more likely to be in poverty than households with only working age adults. Still, as Figure 7.11 shows, by both measures poverty rates for children for both London and for the UK as a whole have fallen over the long-term. However, the rates of poverty, particularly AHC, remain well above those of the population as a whole, with 37 per cent of London's children living below the poverty line.

Figure 7.11: Percentage of children living in households with less than 60 per cent of contemporary median household income, for London and UK 1994/95 –2013/14



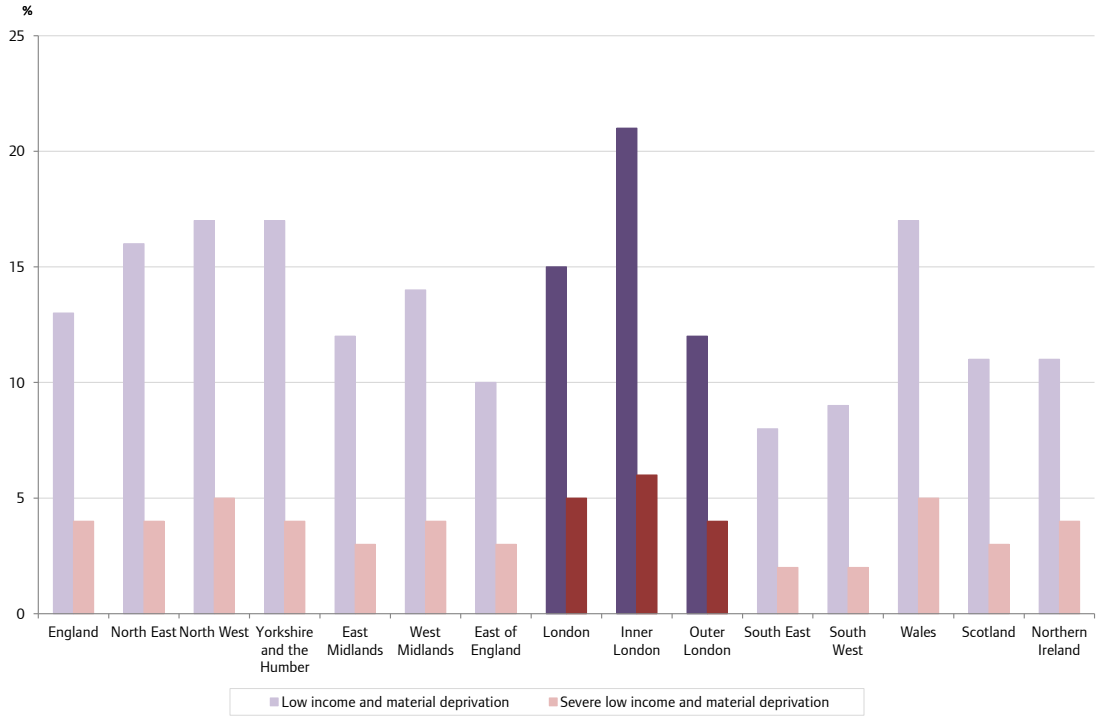
Source: FRS 1994/95 - 2013/14, DWP

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. Other characteristics associated with increased risk of poverty include worklessness (particularly for households claiming unemployment benefits), living in both social and private rented housing, particular ethnic groups and disabled household members.

However, as noted above the 60 per cent median level is an arbitrary measure, and other income levels can be used alongside to give a wider picture. 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. Another way of measuring poor living standards is used in the Family Resources Survey and looks at material deprivation. This method asks a series of questions about whether the family can or cannot afford a range of goods, services, or activities, that are widely viewed as essentials. These would 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.

Figure 7.12 illustrates the regional differences in the levels of material deprivation, combined with low income, for children. While fewer children in Outer London were living without the essentials, over a fifth of children in Inner London could not afford such necessities.

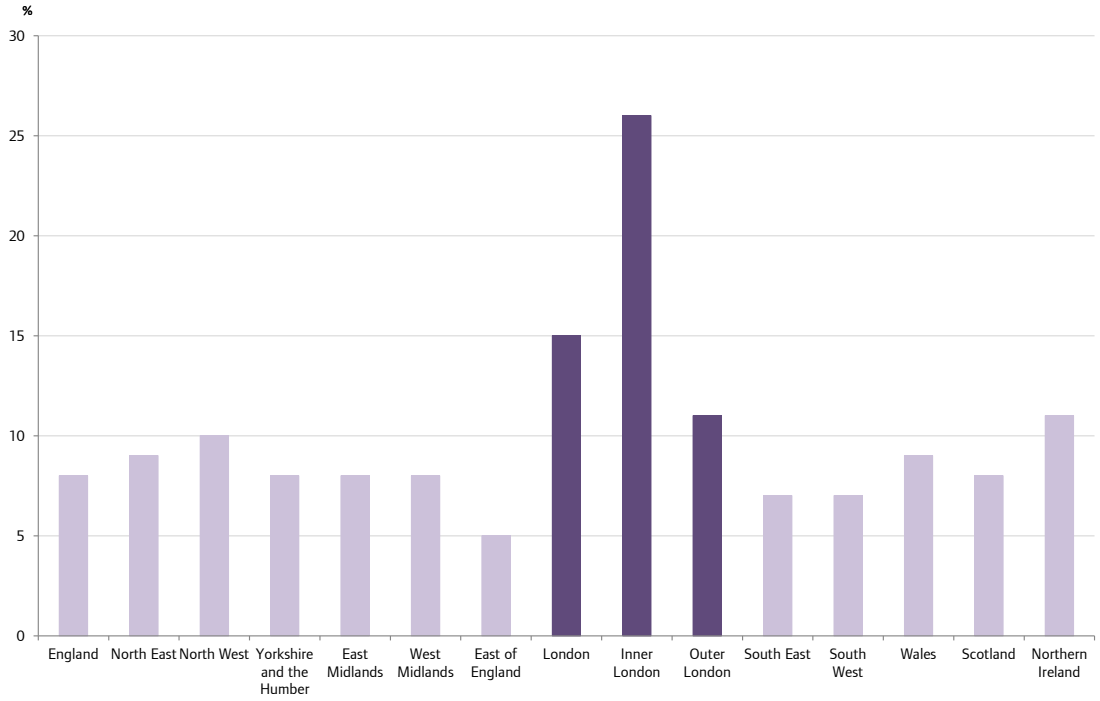
Figure 7.12: Low income and material deprivation levels among children by region: (three year average) 2011/12 to 2013/14



Source: FRS 2011/12 - 2013/14, DWP

As shown in Figure 7.13, material deprivation among pensioners in London is much higher than elsewhere. In Inner London, material deprivation affects more than a quarter of all pensioners – more than twice the proportion in any other part of the UK – even in Outer London, the level is higher than anywhere else in Great Britain. Income poverty among pensioners is less clear cut, with more pensioners in poverty by the BHC measure than the AHC measure in most areas, though in Inner London, this is not the case. One particular characteristic of pensioners associated with poverty includes living in rented accommodation, particularly social housing. However, the biggest differential is whether or not any income is derived from an occupational or private pension.

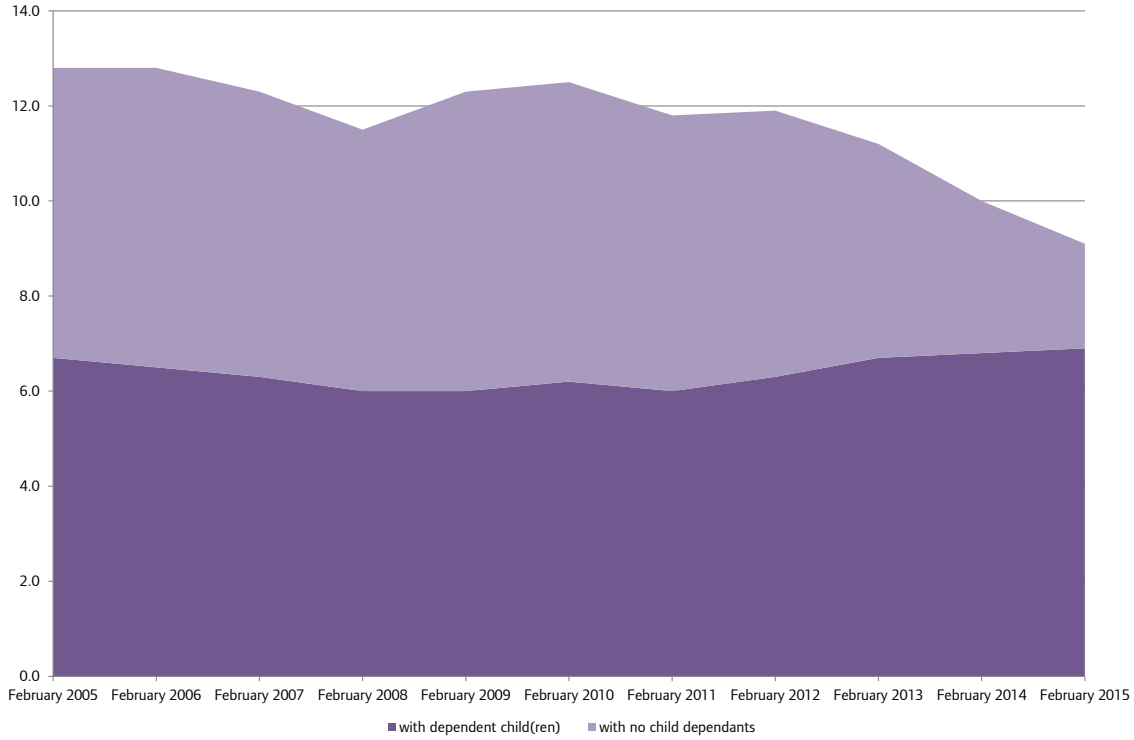
Figure 7.13: Material deprivation levels among people of pensionable age by region: (three year average) 2011/12 to 2013/14



Source: FRS 2011/12 - 2013/14, DWP

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 7.14[32] .

Figure 7.14: Percentage of London's Working Age population dependent on certain benefits*

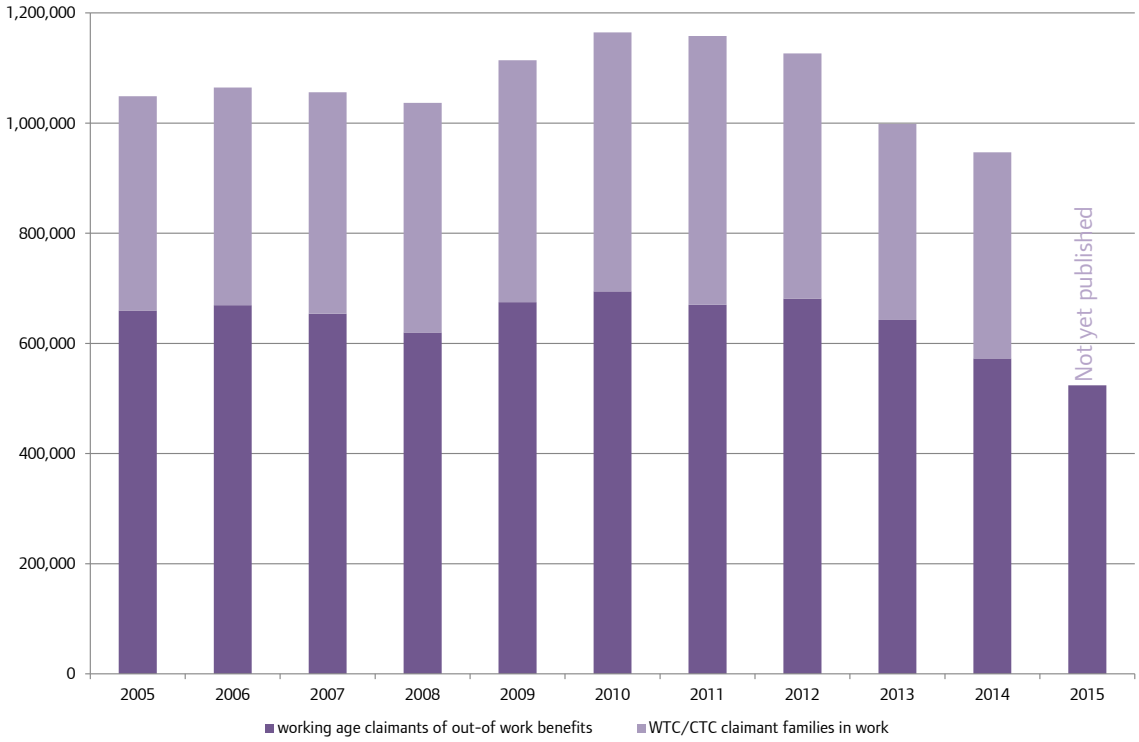


Source: Department for Work and Pensions (DWP) Longitudinal Study (aggregate statistics published via NOMIS)
*Note: * The benefits are primarily for those not in employment, though some people working limited hours are included. Individuals may be receiving more than one benefit. Some people in work claiming disability benefits are included.*

The percentage of London's working age residents claiming out-of-work benefits is slightly higher than 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 7.15 shows, alongside those receiving the main out-of-work benefits (in dark purple), families in low paid work receiving tax credits (in light purple). 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.

Figure 7.15: Working age benefit claimants in London

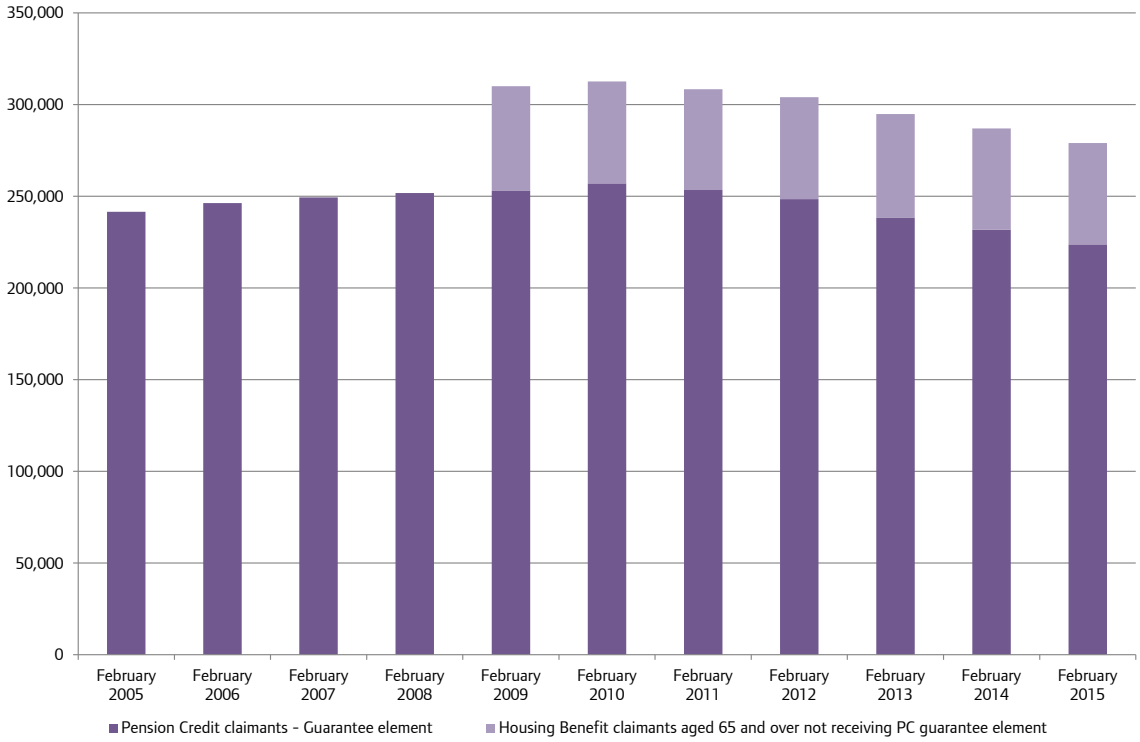


Sources: DWP Longitudinal Study (aggregate statistics published via NOMIS); HRMC Personal Tax Credit Statistics. Notes: WTC refers to Working Tax Credit; CTC refers to Child Tax Credit.

The reduction in the number of in-work families claiming tax credits between 2011 and 2012, and the even sharper decrease the following year, are at least in part due to changes in the benefit entitlement rules, rather than a significant improvement in the levels 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. Some of these claimants became in-work claimants of tax credits[33].

Figure 7.16 shows pension age benefit claimants. However, caution is required in interpreting the statistics in Figure 7.16, since there are "minimum figures" of pension age residents in means tested benefit households. These are figures for claimants, not for all pensioners living in those households, so couples are counted as one. Around 18 per cent of Pension Credit claimants have a partner[34].

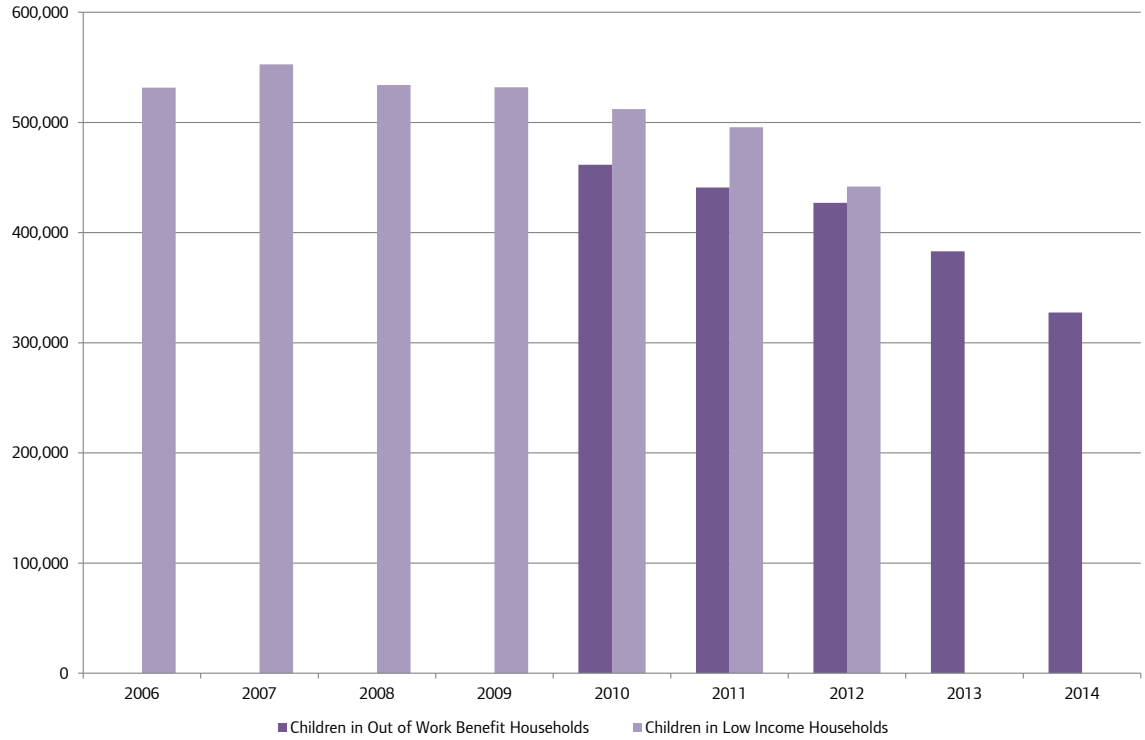
Figure 7.16: Pension age benefit claimants: Claimants of Pension Credit and Housing Benefit



Sources: DWP Longitudinal Study (aggregate statistics published via NOMIS); DWP Housing Benefit Statistics (available through Stat-Xplore)

Figure 7.17 shows the number of children in London in families receiving benefits. The difference between the two data series are mainly around the inclusion of children in households receiving Child Tax Credit (with or without Working Tax Credit) where the household income falls below a threshold calculated to represent a 60 per cent median figure nationally, 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[35]. However, some children in families not receiving Child Tax Credit may have incomes below this threshold and be excluded, and some children in households receiving out of work benefits may have incomes above this threshold. Changes in the benefit system are not properly reflected in these figures as Universal Credit had yet to impact on families with children by 2014 and the benefit cap affects only Housing Benefit which is excluded from these statistics[36].

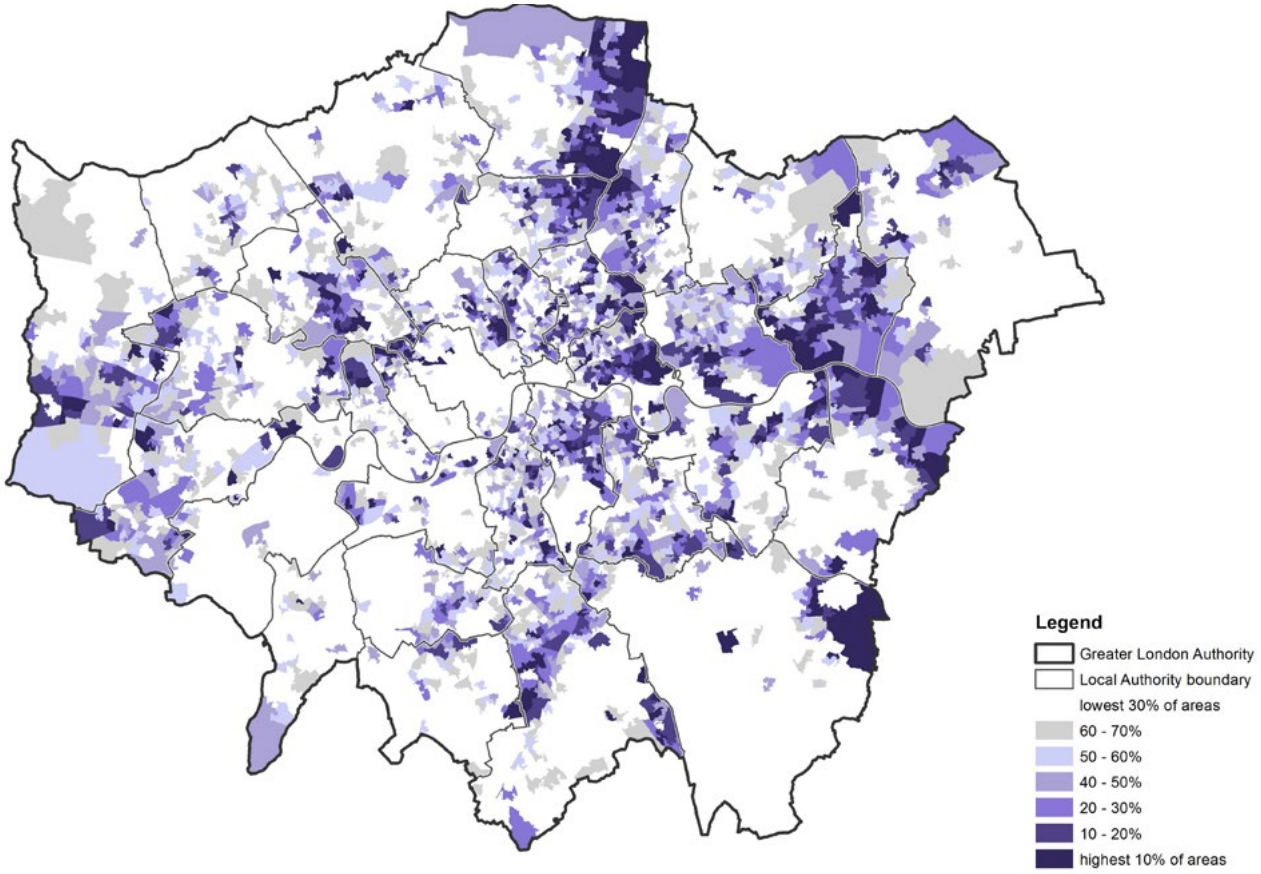
Figure 7.17: Children in families receiving benefits



Sources: DWP Longitudinal Study and HMRC Child Benefit Statistics, published as data series: Children in Out of Work Benefit Households, DWP; DWP Longitudinal Study and Family Resources Survey, published as data series: Child Poverty Statistics (formerly known as National Indicator 116), DWP

While, Map 7.3 shows the distribution of the latest figures (2014) for households with children claiming out of work benefit[37].

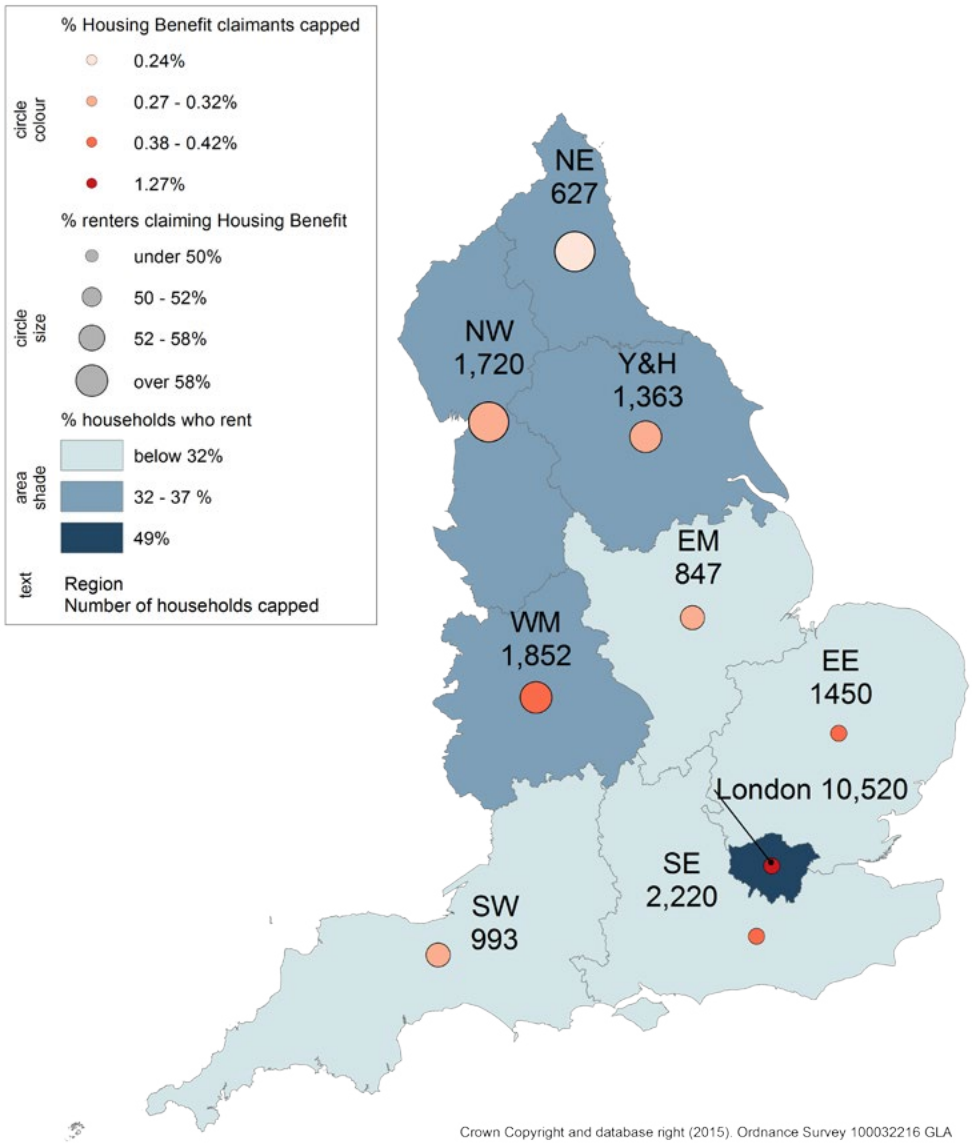
Map 7.3: Children in out of work benefit households



Source: Children in out-of-work benefit households data series, May 2014, DWP

Almost half of London's households rent their homes, whereas in most parts of the country it is below a third, up to 37 per cent in the North East region[38]. However, less than half of London renters claim Housing Benefit, among the lowest proportions for any region. This compares with over 60 per cent in the North East. The amount of Housing Benefit payable relates directly to the costs of housing in the area, so is generally higher in London. The introduction of the Benefit Cap, 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, has therefore impacted more on households in London where housing costs, and therefore the amount payable in Housing Benefit, are higher. Nearly half of all households affected by the Benefit Cap are in London, and more of those households have had their payments cut by a greater amount than households elsewhere. The number of households subject to the cap in London has decreased much more than in other regions as households moved into work or increased hours so that they were no longer subject to the benefit cap[39].

Map 7.4: Households renting in England, claiming benefit and with capped benefit payments by region, February 2015

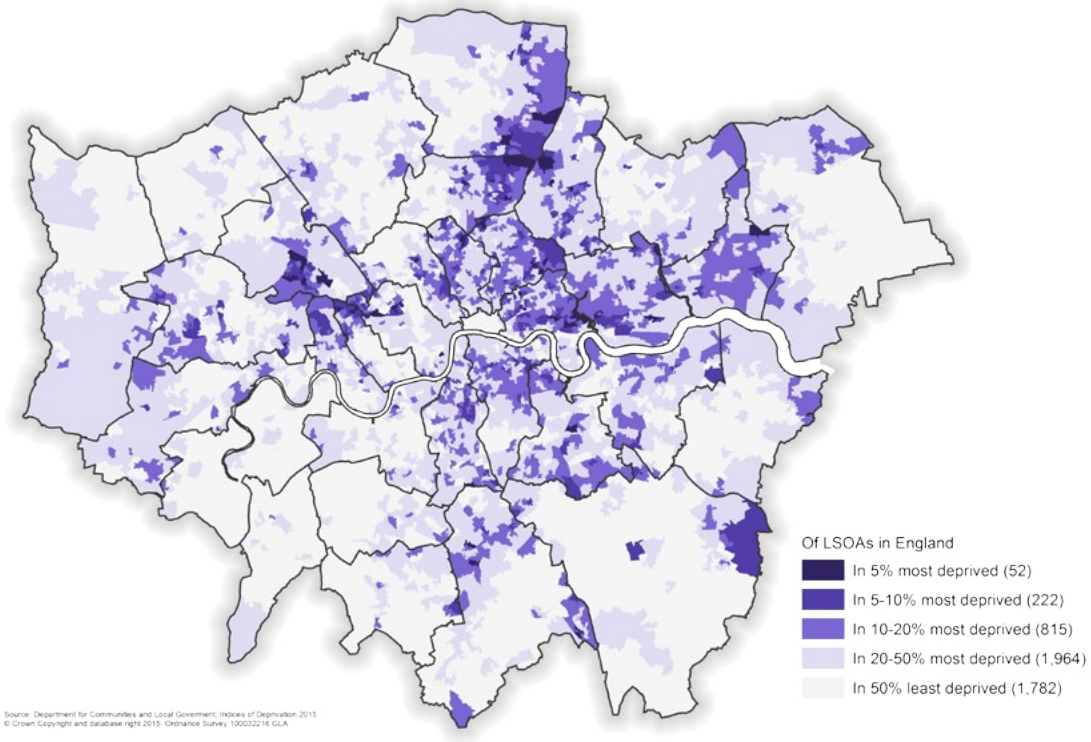


Sources: GLA calculations using 2011 Census and DCLG 2012 based Household projections; Housing Benefit Statistics, DWP; Benefit Cap Statistics for February 2015, DWP. Note that comparable figures are not available for Wales and Scotland for some elements, so only data for England are shown.

7.3.3 Deprivation

The English Indices of Deprivation 2015 measure relative deprivation in small areas of England[40]. Deprivation in London is widespread, but not as dense as it was. Map 7.5 below shows how the new Index of Multiple Deprivation (IMD) ranks the areas within London, with the darker shades representing the most deprived areas.

Map 7.5: Index of Multiple Deprivation, 2015

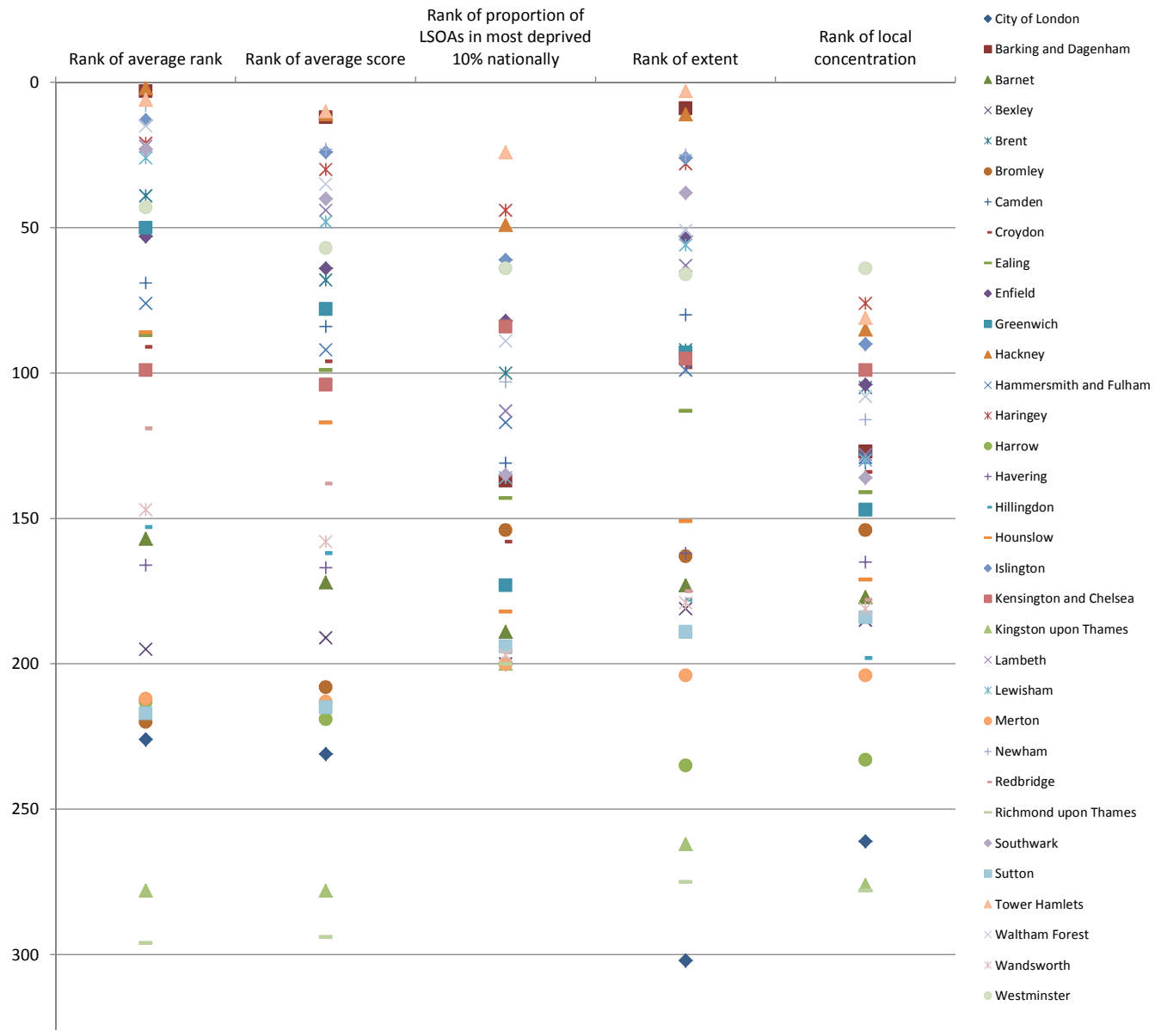


Source: Indices of Deprivation 2015, DCLG

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.

Summary measures for local authorities look at different aspects, such as how the borough performs on average, the extent to which people are most affected by deprivation, and how bad the deprivation is in the worst parts. Figure 7.18 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 on three of five measures. Islington, Newham and Waltham Forest also rank in the top 20 most deprived on one of the five measures.

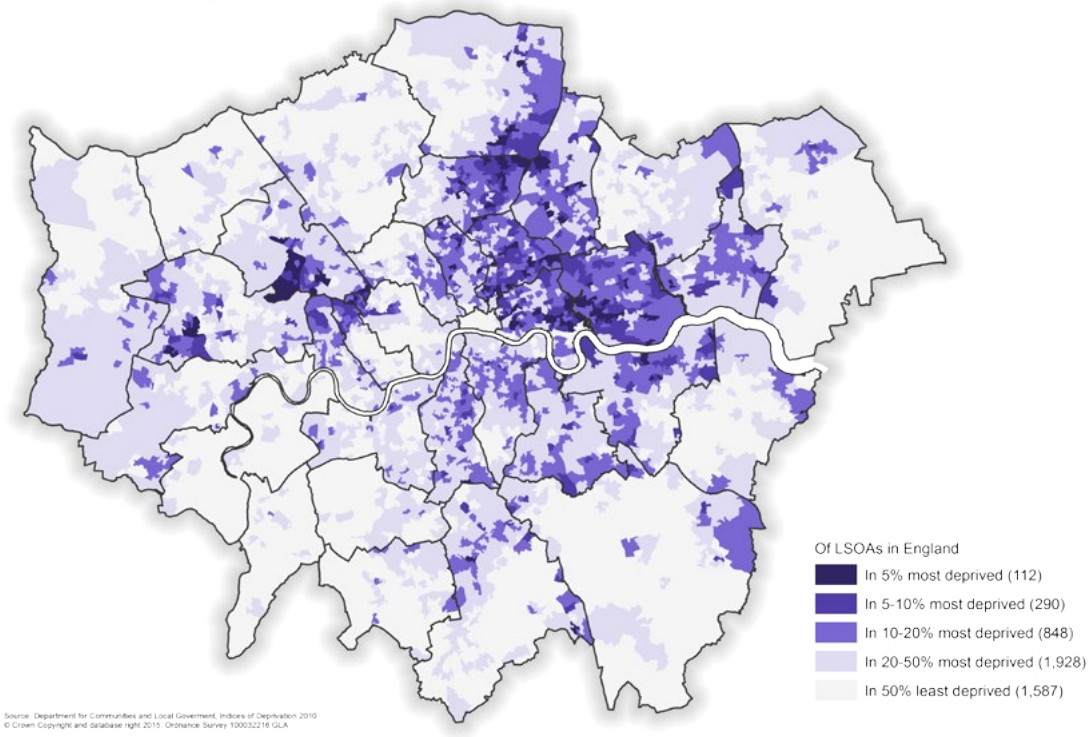
Figure 7.18: Borough level summary measures of the Index of Multiple Deprivation 2015



Source: Indices of Deprivation 2015, DCLG.
Note: A rank of 200 on the proportion of LSOAs in the most deprived ten 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 IMD2010 (Map 7.6) – 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. The map below shows the previous 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.

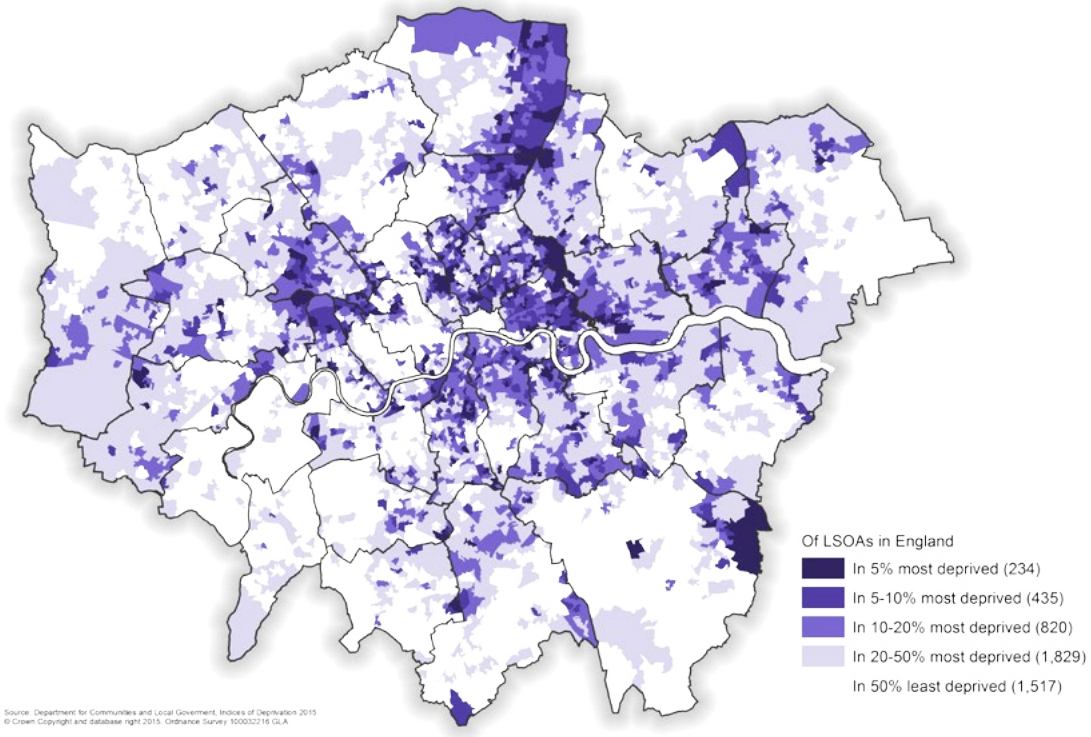
Map 7.6: Index of Multiple Deprivation 2010



Source: Indices of Deprivation 2010, DCLG

The supplementary indices, measuring the extent of income deprivation among children and among older people, show that Tower Hamlets has the highest levels of children living in income deprivation in England (Maps 7.7 & 7.8).

Map 7.7: Income Deprivation Affecting Children Index

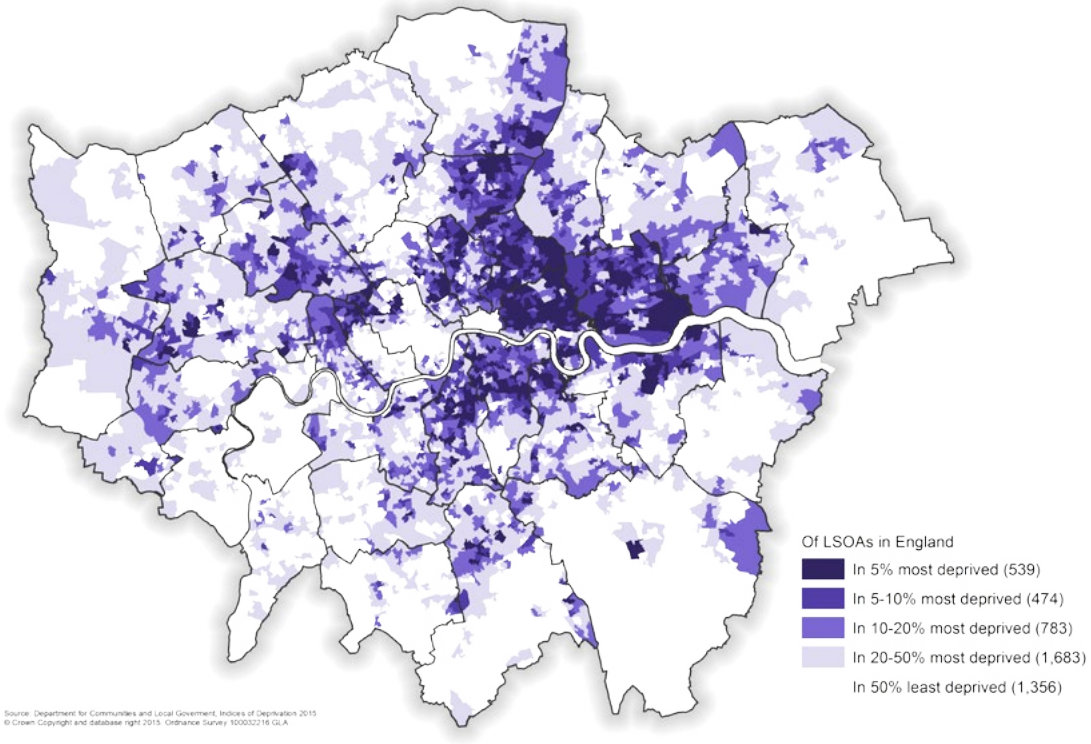


Source: Indices of Deprivation 2015, DCLG

The proportion of relatively deprived areas is lower than five years earlier, despite the fact that this measure relates to data from around the end of the recession, whereas the previous version relied on data from the start of the recession. Islington, Barking & Dagenham, Hackney, Newham, Lambeth, Southwark and

Lewisham are also among the top ten local authorities on this measure. Nottingham and Manchester, ranked 4th and 5th are the only areas outside London included on the list. Tower Hamlets is also highest for income deprivation among older people, followed by Hackney, Newham, and Islington. Lambeth, Southwark, and Haringey are also in the top ten (as are Manchester-5th, Knowsley-8th and Liverpool-10th).

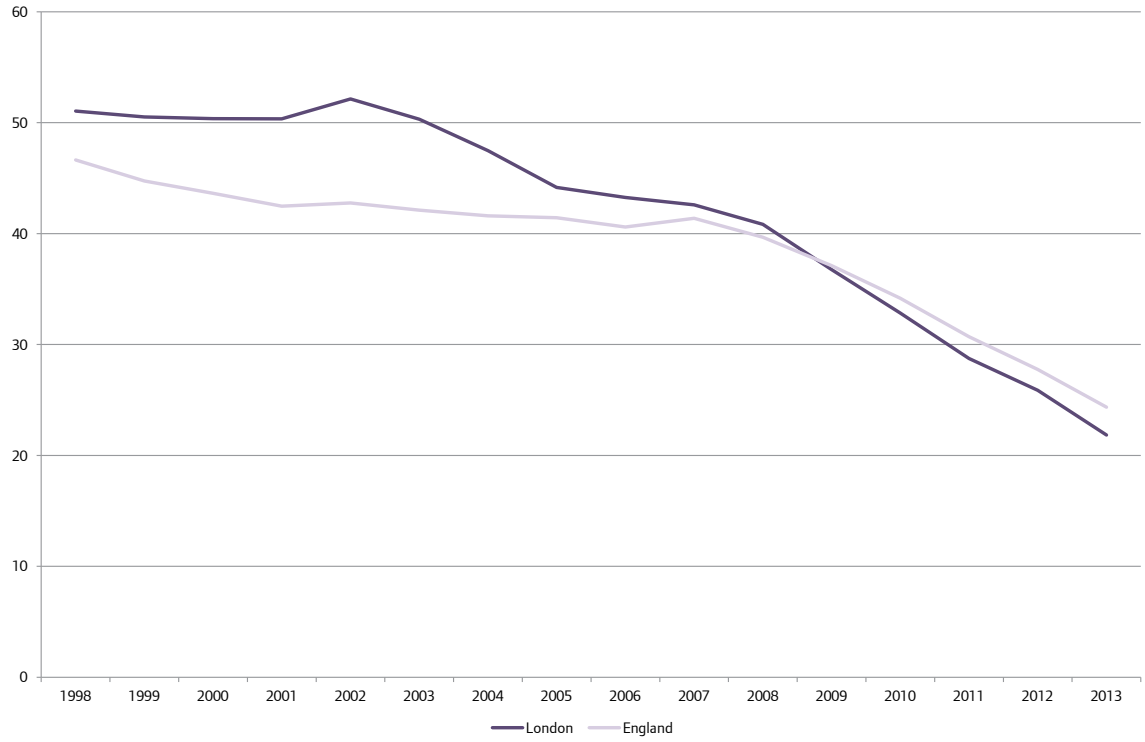
Map 7.8: Income deprivation affecting older people



Source: Indices of Deprivation 2015, DCLG

Finally, a further issue that may impact on living standard is giving birth at a young age. However, as can be observed from Figure 7.19, the number of under 18 year olds per 1,000 giving birth in London has been generally declining over recent years with it recently dropping below the level seen in England as a whole.

Figure 7.19: Under 18 conceptions per 1,000, London and England



Source: Public Health England

7.3.4 Workless households

The proportion of working age households with all adults in work in Outer London was the lowest for any region of Great Britain (Table 7.7), but it had the highest proportion of households with both working and non-working adults, so the proportion of workless households was also amongst the lowest. The pattern is similar for households in Inner London, with a higher proportion of mixed employment households than for other regions, but with an overall pattern that is less extreme than for Outer London.

One of the key drivers of the higher rate of 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. Being sick, disabled or taking early retirement are much less likely as reasons for worklessness in London than elsewhere.

Table 7.7: Households by region and combined economic activity status of household members April-June 2015 (per cent of total)

	Combined economic activity status of household[1]		
Region	**Working households**	**Mixed households[2]**	**Workless households**
United Kingdom	55.9	28.3	15.8
Great Britain	56.1	28.3	15.6
England	56.0	28.7	15.3
North East	52.0	25.1	22.9
North West	53.8	27.4	18.8
Yorkshire and The Humber	57.0	25.2	17.9
East Midlands	56.9	28.7	14.5
West Midlands	51.9	30.6	17.5
East of England	60.5	27.6	11.9
London	**52.2**	**34.1**	**13.7**
Inner London	**53.6**	**30.7**	**15.7**
Outer London	**51.1**	**36.7**	**12.3**
South East	58.7	29.0	12.3
South West	60.2	26.6	13.2
Wales	54.8	28.1	17.2
Scotland	57.7	24.5	17.9
Northern Ireland	48.8	28.5	22.7

Source: Labour Force Survey household datasets

Notes: 1) Households including at least one person aged 16 to 64. 2) Mixed households contain both working and workless members

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 (see Table 7.8). London, in particular Inner London, has a much lower proportion of children in households with all adults in work. It should be noted that the thrust of policy and of evidence are that work is a key driver of poverty avoidance.

Table 7.8: Children in households by region and combined economic activity status of household members April-June 2015 (per cent of total)

	Combined economic activity status of household		
Region	Working households	Mixed households[3]	Workless households
United Kingdom	55.4	32.8	11.8
Great Britain	55.4	33.0	11.7
England	54.6	33.6	11.8
North East	54.9	23.8	21.4
North West	55.8	30.1	14.2
Yorkshire and The Humber	56.4	28.2	15.4
East Midlands	54.5	33.8	11.7
West Midlands	50.5	37.5	12.0
East of England	59.8	32.1	8.1
London	**42.8**	**44.7**	**12.5**
Inner London	**40.6**	**43.7**	**15.7**
Outer London	**44.1**	**45.4**	**10.6**
South East	60.5	32.2	7.3
South West	61.8	28.0	10.2
Wales	57.5	31.3	11.2
Scotland	62.5	26.6	10.9
Northern Ireland	56.0	28.3	15.7

Source: Labour Force Survey household datasets

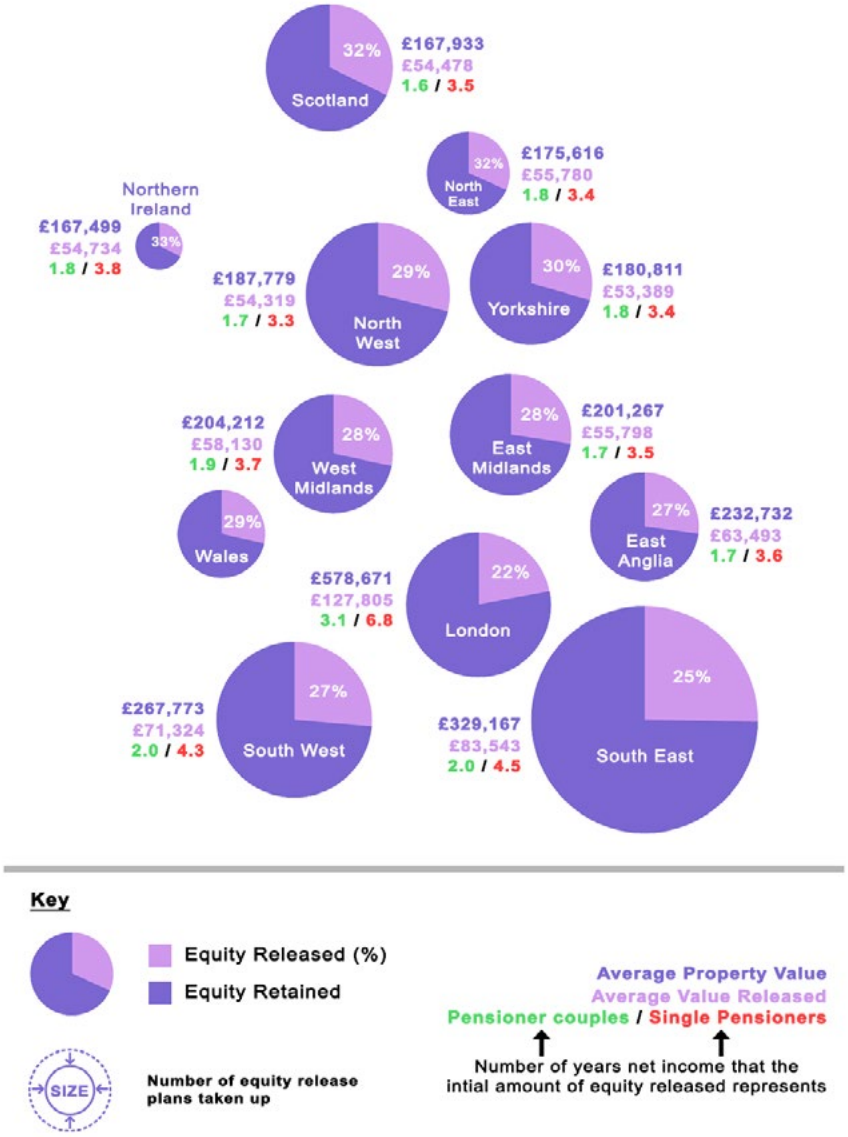
7.3.5 Wealth

The total wealth of households[41] in Great Britain varies to an even greater degree than income. The richest 10 per cent of households own nearly half (45 per cent) of the entire household wealth, while the poorest half of the distribution own about ten per cent of the entire household wealth. London has a higher proportion of households in the richest category (12.5 per cent in the top 10 per cent nationally). The largest component of their wealth is pension wealth, making up around half of their total assets. For the bottom half of the distribution, property wealth (net of mortgage debt) is their biggest asset, even though a large proportion of this group do not own any property.

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. More than a quarter of Londoners with financial debt, which might be household bills, credit cards or loans etc, found it a heavy burden[42].

Still, there is some evidence that some of the property debt may be in the form of equity release rather than a mortgage to purchase a property. Figure 7.20 shows that some older people are releasing substantial sums from their properties. In 2015, nearly 24,000 equity release plans were taken up, of which 2,412 were in London. Although the portion of the property value released in London was the lowest in the country, the amount households released was substantially larger in London than elsewhere, averaging nearly £130,000, a much higher multiple of pensioners' average incomes than elsewhere too. The reasons for the equity release include home improvements, paying off outstanding mortgage amounts or other loans, provision for long-term care, cash to cover essential spending costs or maintaining a lifestyle (including going on holiday), or helping family or friends, which might include assisting a younger generation fund a deposit for their own home. It may be in combination with any of these or separately that it is also used to avoid Inheritance Tax. This is potentially an issue of increasing importance in London.

Figure 7.20: Equity release by region, 2015



Source: UK Equity Release Market Monitor 2015, Key Retirement; Pensioners Incomes Series, 2013/14, DWP

7.3.6 Minimum wage and living wage

Voluntary and statutory measures have been attempted to support those on low wages in London. These measures include the statutory National Minimum Wage, the upcoming statutory National Living Wage and the voluntary London Living Wage. It is however important to differentiate between these schemes.

In the Summer Budget of 2015, the Chancellor of the Exchequer announced the National Living Wage. This will be set at £7.20 from April 2016 for over 25 year olds, rising from the current National Minimum Wage of £6.70. It will increase to 60 per cent of median UK earnings, around £9, by 2020. In comparison the London Living Wage is currently 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 7.9), and its counterpart the out-of-London Living Wage[43].

Table 7.9: 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

7.4 Homelessness and related matters

Homelessness is a concern for a number of reasons. In part, this may be caused by a significant imbalance between the demand for and supply of housing, particularly affordable housing. This issue is dealt with in some detail in Chapter 2 and earlier in this chapter. There might also be a failure of the planning system to make sufficient land available for (affordable) housing and a failure to ensure the supply of sufficient and sufficiently skilled labour for the construction sector. In this sense, significant levels of homelessness might be seen as symptomatic of an, arguably, ineffective approach to infrastructure planning and delivery for housing and associated services. An additional concern is the extent to which some London residents occupy sub-standard housing.

Both homelessness and sub-standard housing are key drivers of ill-health, which is discussed later in this chapter. In addition concern for homelessness and sub-standard housing may derive substantially from considerations of equity. These may also impinge on the overall reputation of London as a leading world city, as discussed in Chapter 4.

Accurate data on rough sleeping as a proxy for homelessness is understandably difficult to collect. This is highlighted by a survey by Crisis[44], 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 the Table 7.10 below.

Table 7.10: Characteristics of Rough Sleepers in London 2014-15

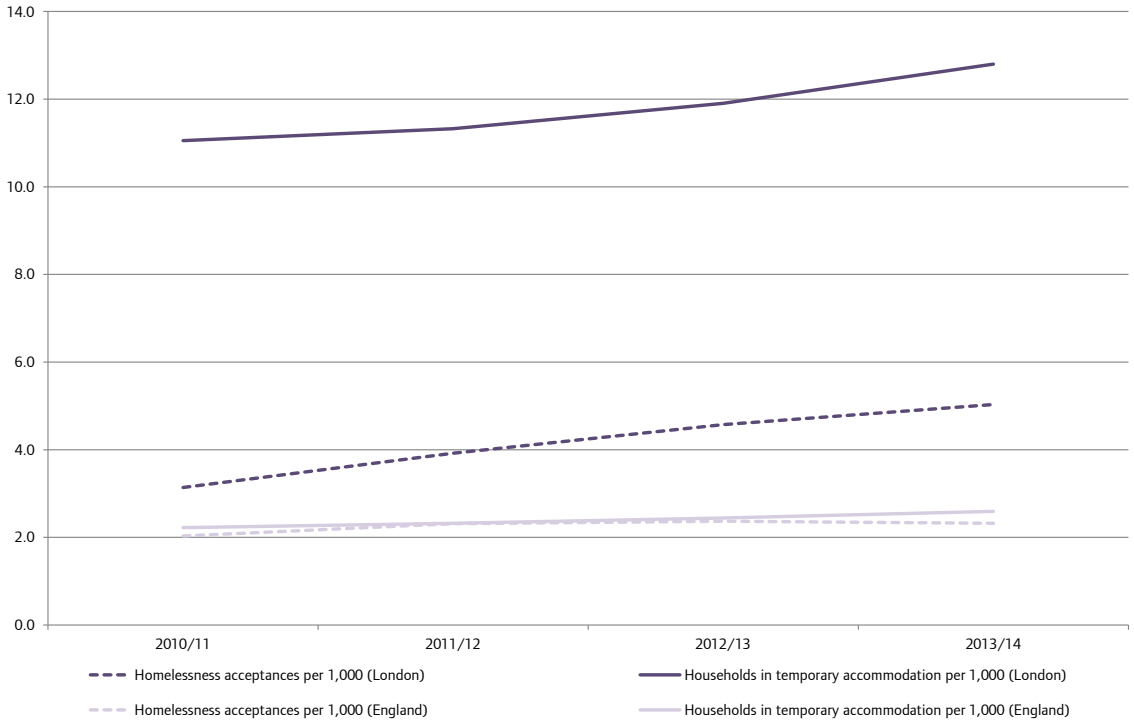
History	New	For 2+ years	Return after 1+ years	Total
	5,107	1,595	879	7,581
Age	**< 25**	**26-45**	**46-55**	**55+**
	12%	57%	21%	10%
Support needs*	**Alcohol**	**Drugs**	**Mental health**	**None**
	41%	31%	45%	28%

Source: CHAIN Annual Bulletin Greater London, 2014-15

** Note: An individual rough sleeper may exhibit more than one of these.*

Homelessness is a particular problem in London and has been so for some time as highlighted by Figure 7.21 which shows that the number of homeless acceptances per 1,000 households is higher than in England as a whole. This figure has been rising, while the figure for England has been relatively stationary in comparison. This is also the case with those households in temporary accommodation, which has seen a recent rise in London. Further, household overcrowding, although low, is not unheard of in London with household data from the English Housing Survey for 2012/13 showing that 30,000 people live in households with more than three persons per bedroom.

Figure 7.21: Homelessness acceptances per 1,000 households and households in temporary accommodation per 1,000 in London and England

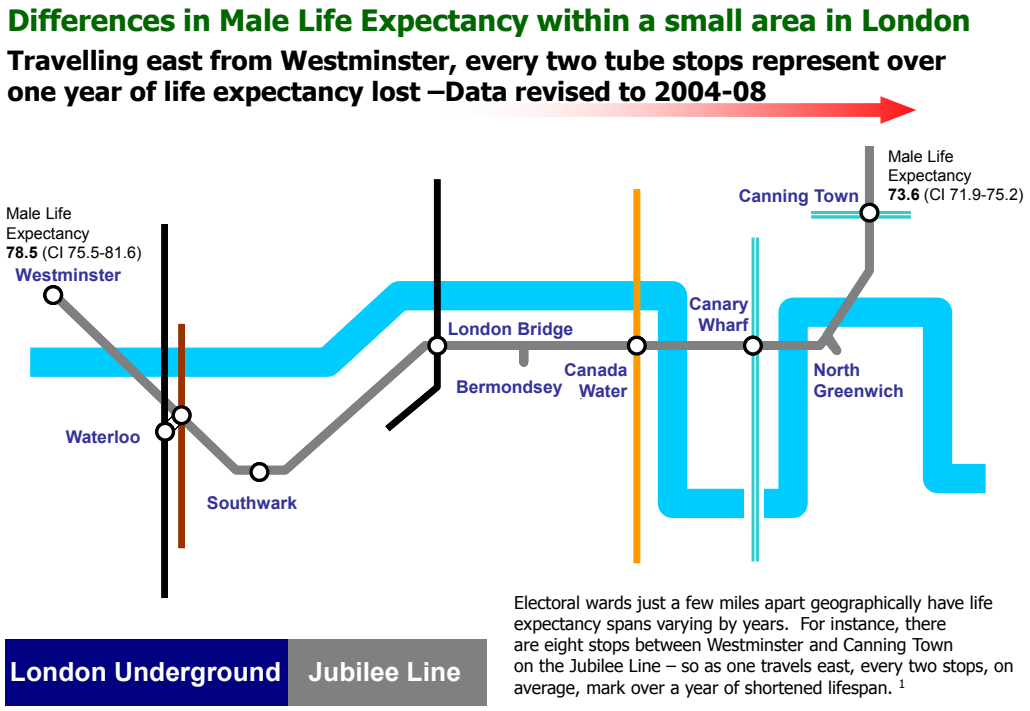


Source: Public Health England

7.5 Health and Wellbeing

Health and wellbeing are areas of concern for a number of reasons; partially as individuals may be unaware of the impact of diet, exercise and other features of lifestyle on their own health status or that of members of their family. In addition they may be aware of evidence on these matters but misperceive the risk of harmful effects. Moreover the science of the links between behaviour or ambient environment and (ill-) health are still not fully understood in all cases. Similar impacts can derive from the (profit-maximising) decisions of businesses. Businesses may also more specifically misperceive the worth of having, and acting on, a concern for their employees' health[45]. There are also equity concerns; specifically, there appear to be links between socio-economic status and health status. This becomes apparent with the decline in average life expectancy as you move east along the Jubilee Line from Westminster to Canning Town as highlighted by Map 7.9.

Map 7.9: Differences in male life expectancy along a section of the Jubilee Line (2004-08)



[1] Source: Analysis by London Health Observatory of ONS and GLA data for 2004-08. Diagram produced by Department of Health

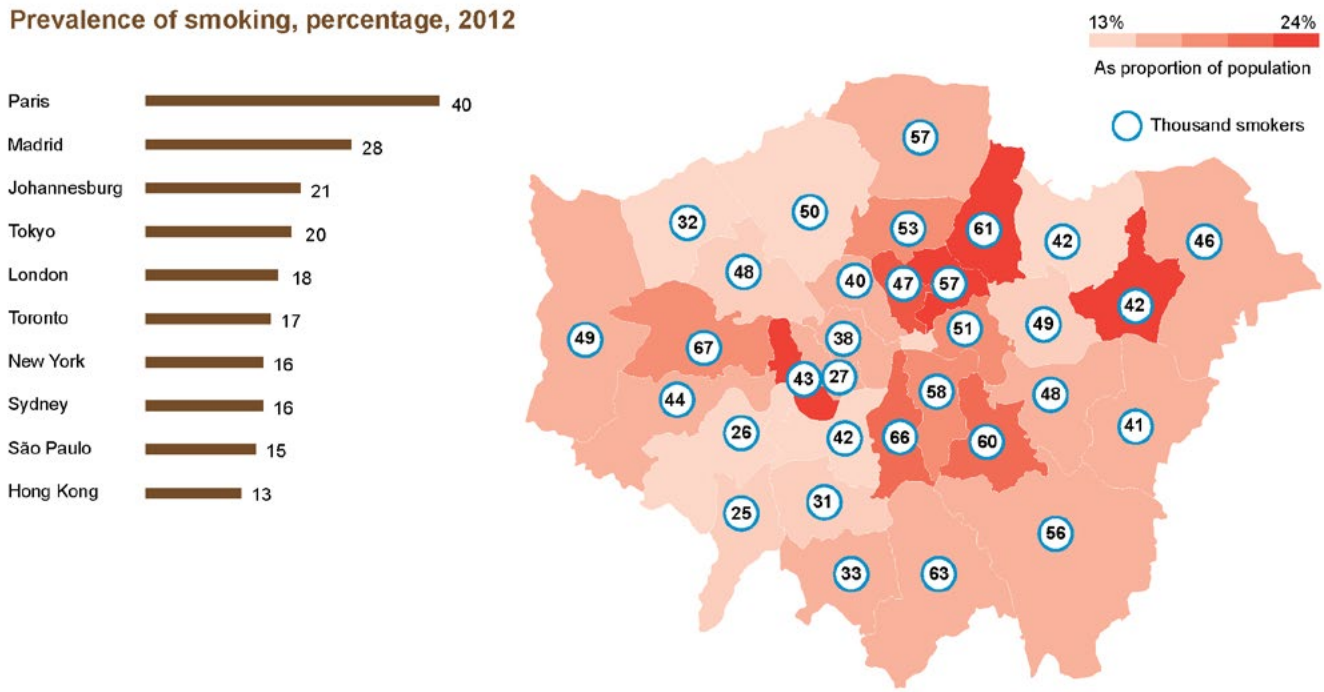
Source: London Health Observatory[46]

7.5.1 Lifestyle and health

Lifestyle factors are among the key drivers of (ill-) health, with a major lifestyle factor impacting on the probability of ill-health being smoking. In fact "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"[47]. There is also a socio-economic element to smoking, with there being "a strong relationship between smoking and occupation, with smoking rates much higher among people in routine and manual occupations compared to those in managerial and professional occupations"[48].

Still, London compares well to some other areas of England on smoking prevalence with around 17 per cent of adult Londoners smoking in 2014 compared to around 18 per cent of people in England as a whole. However some London boroughs have significantly higher smoking rates, as shown in Map 7.10. Other major cities such as New York have demonstrated the potential for focused programmes to help reduce smoking; and in 2012, had a lower prevalence of smoking than London.

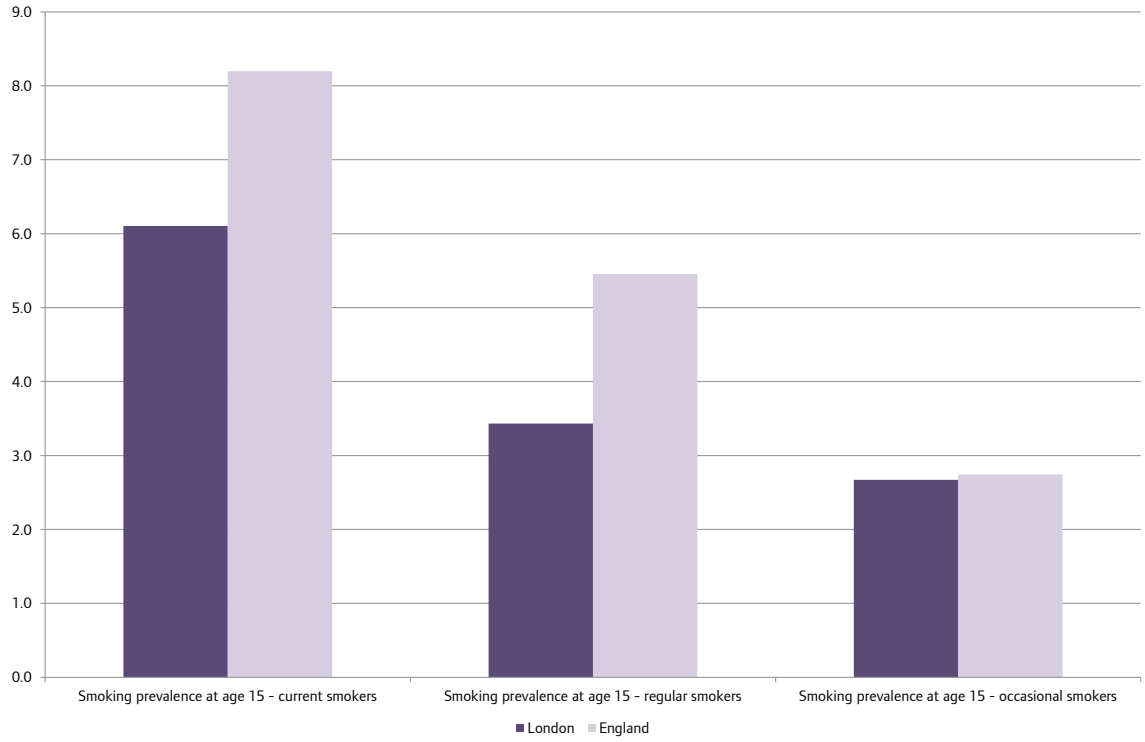
Map 7.10: Prevalence of smoking in London



Source: Better Health for London, London Health Commission, October 2014

Smoking prevalence at the age of 15 is also generally lower in London than England as a whole as shown in Figure 7.22, which looks at smoking prevalence.

Figure 7.22: Smoking prevalence in 15 year olds as percentage of all 15 year olds, London and England in 2014/15

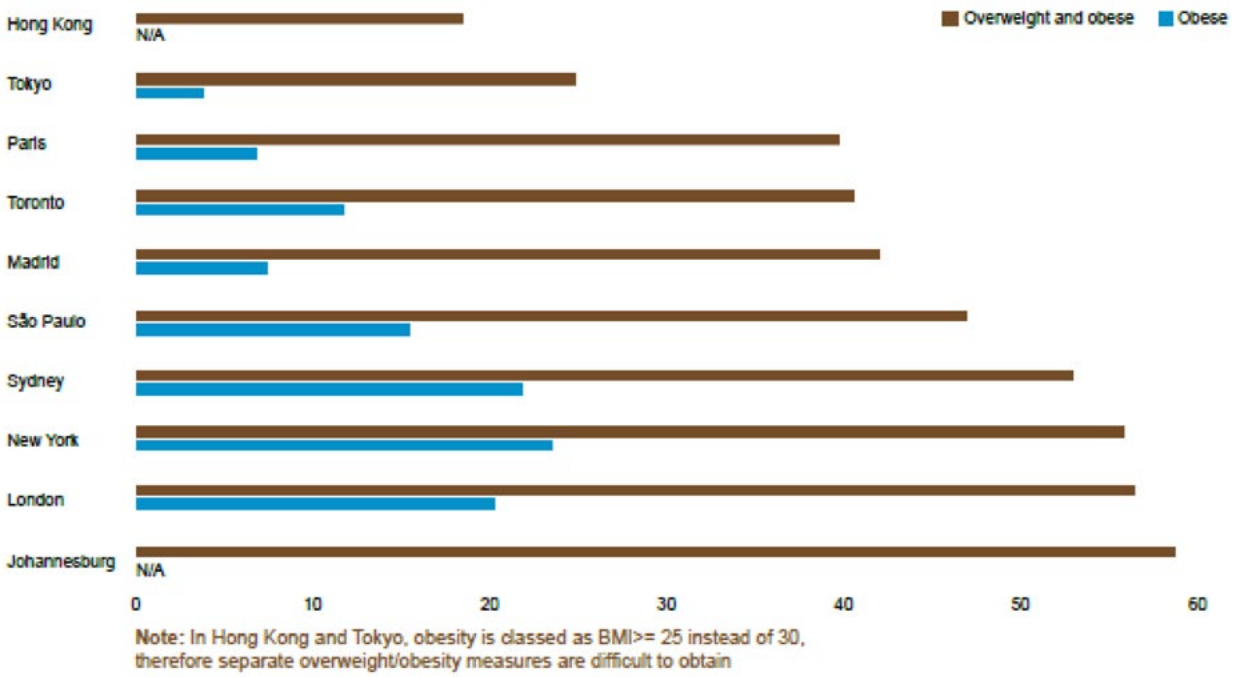


Source: Public Health England

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 7.23.

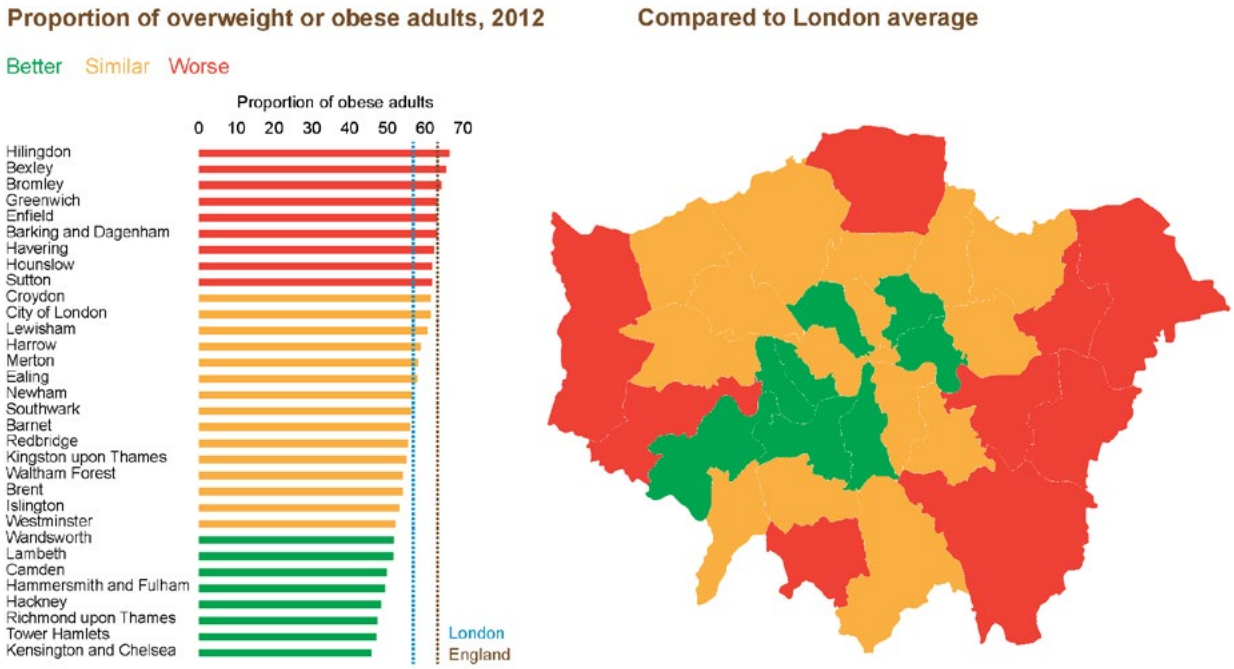
Figure 7.23: Proportion of overweight and obese adults in ten world cities, 2012



Source: Better Health for London, and Global Cities Analysis; London Health Commission, October 2014

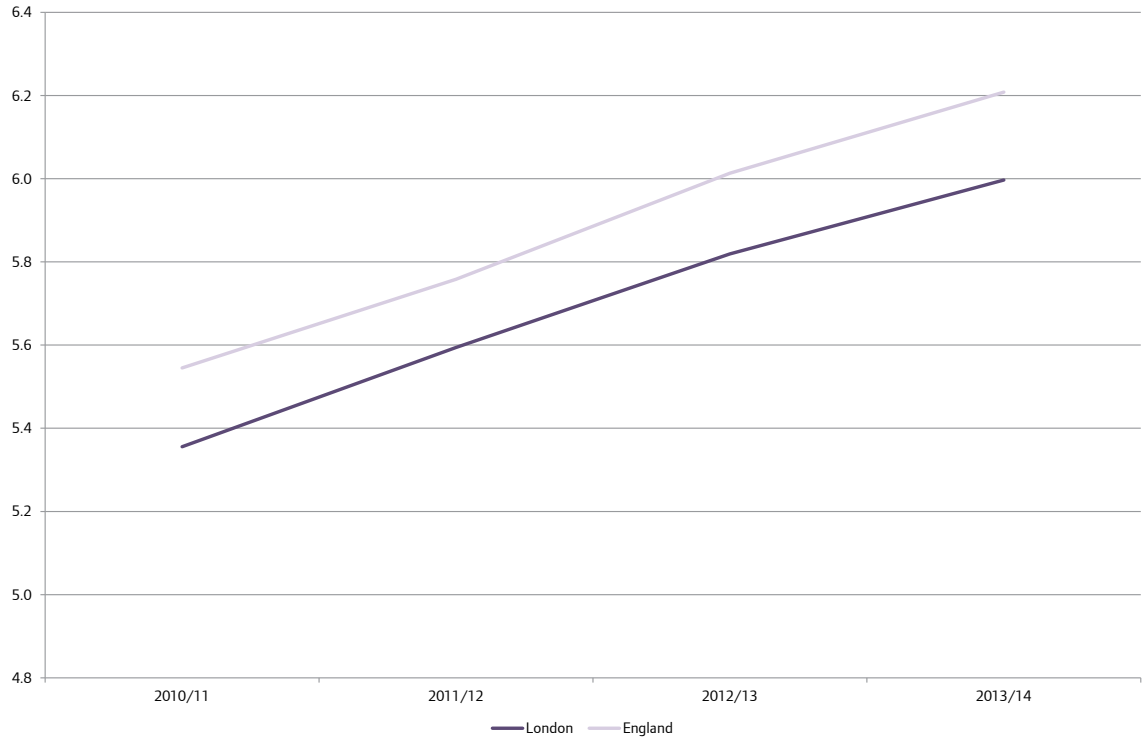
Nevertheless, Map 7.11 shows that the prevalence of being overweight or obese in London is lower compared to other English regions. Thus, on the whole, the proportion of the adult population of Londoners who has excess weight is 58.4 per cent, compared to 64.6 per cent in England as a whole. However, proportions vary significantly between London's boroughs, with several having rates that exceed 70 per cent, while others are below 50 per cent. The lower prevalence of obesity in London may help explain why diabetes is lower in London than England as a whole, as shown in Figure 7.24, with "being overweight or obese [being] the main modifiable risk factor for type 2 diabetes"[49]. However, as can also be seen, recorded diabetes has been rising over time in both London and England as a whole.

Map 7.11: Proportion of overweight or obese adults in London



Source: Better Health for London, London Health Commission, October 2014

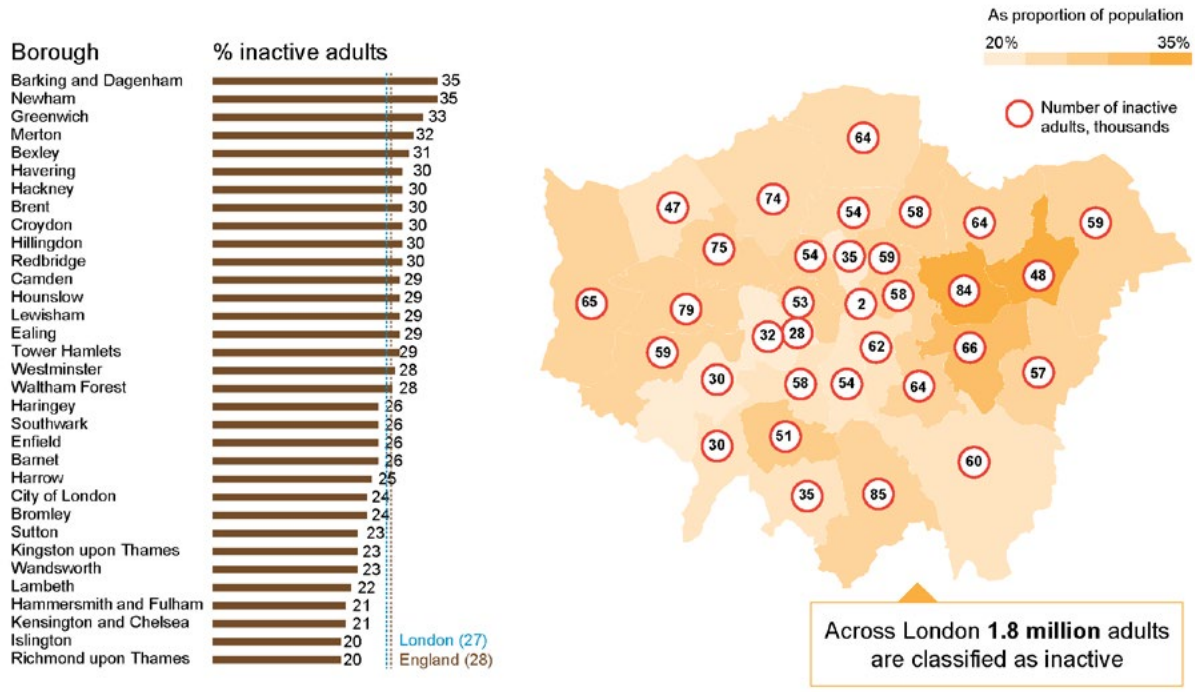
Figure 7.24: Recorded diabetes prevalence as percentage of the population, aged 17 or above London and England



Source: Public Health England

Map 7.12, looks at one of the possible drivers of obesity, which is inadequate physical activity. It shows a substantial variation in levels of inactivity across boroughs.

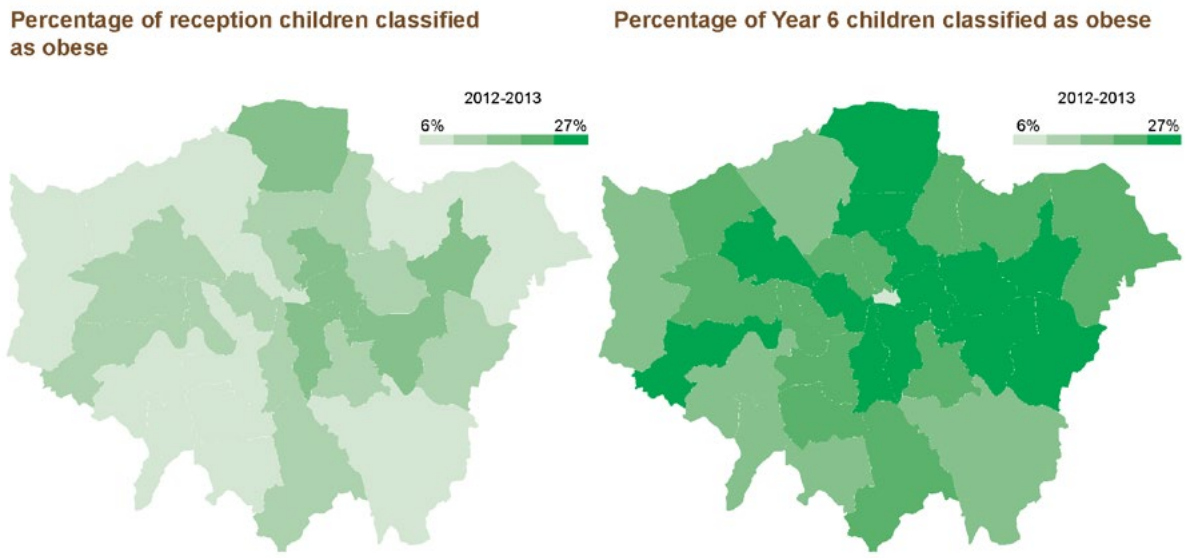
Map 7.12: Inactivity in London



Source: Better Health for London, London Health Commission, October 2014

Obesity amongst children is also a particularly acute issue. The London Health Commission reports that "London has the highest rate of childhood obesity [amongst] peer global [cities]. In all the regions of England [it has] the highest proportion of obese children"[50]. The increase in the proportion over primary school years is striking. Map 7.13 provides a picture of obesity by borough for two age groups, while Figure 7.25 examines how this has varied over time in London and England as a whole.

Map 7.13: Obesity in two child age groups



Source: Better Health for London, London Health Commission, October 2014

Figure 7.25: Percentage of 4-5 year olds and 10-11 year olds who have excess weight in London and England

Source: Public Health England

7.5.2 The impact of ill-health

This sub section looks at ill-health in London by first examining its impact; before examining some relevant health and wellbeing statistics for London in comparison with England and the rest of the world.

As noted ill-health has a socioeconomic element with those individuals in the lowest household income quintile (ie, income in the bottom 20 per cent of incomes) more likely to self-report that they suffer from bad or very bad health[51]. While examining health in London in more detail, a report by GLA Economics[52] found that Londoners are slightly more likely to suffer from bad or very bad health, and slightly less likely to be in very good health[53]. Also discovered was a geographic dispersion of ill health across London, which overlapped with areas of income deprivation in the capital.

Ill-health also impacts on individuals in terms of their employment prospects with GLA Economics finding:

- "Low employment of people with health problems – 43 per cent of male Londoners with a health problem are workless compared with 36 per cent nationally (the figures are 54 per cent versus 49 per cent for women);

- "Employment of people with disabilities – London has the lowest rate of people with disabilities in employment in England, 45 per cent compared to 50 per cent nationally;

- "Failure to return to work following ill-health – London has the highest proportion of individuals on incapacity benefit for greater than six months in England and the greatest proportion of individuals falling out of work within six months following a return; and

- "Prevalence of preventable illness – The majority of Londoners on incapacity benefit have preventable and / or treatable conditions, ie,: 47 per cent mental health; 15 per cent musculoskeletal; 6 per cent circulatory or respiratory; 5 per cent nervous system; 4 per cent injury, poison, etc.; and 26 per cent other"[54].

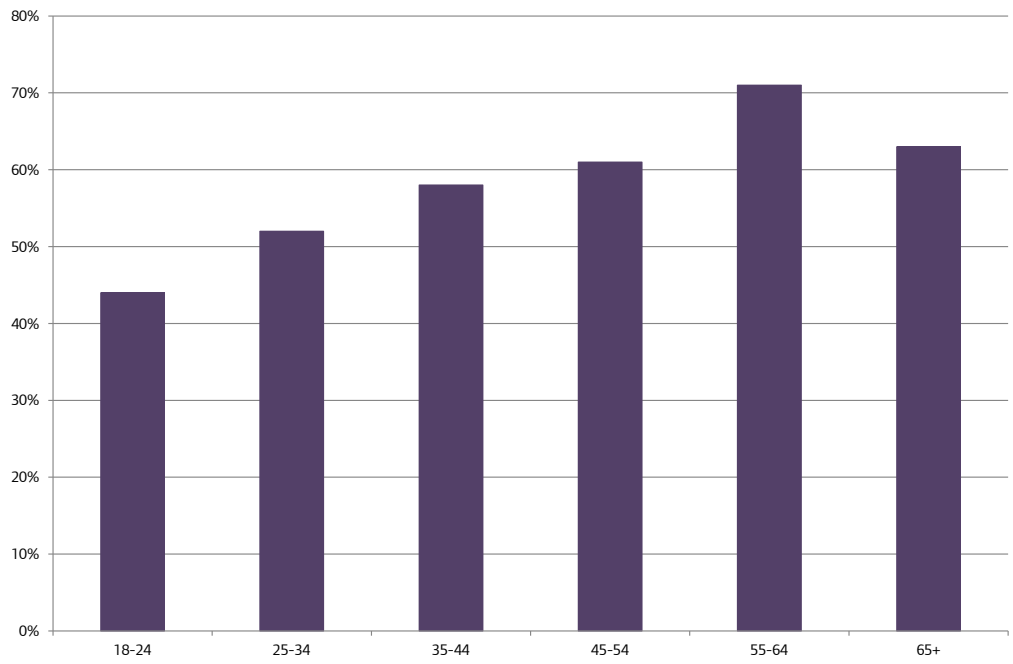
Mental ill-health has wide impacts on Londoners with a recent report by the GLA noting that "in any given year, an estimated 1 in 4 individuals will experience a diagnosable mental health condition. A third of these will experience two or more conditions at once. Mental ill-health is the single largest source of disease burden, more than cancer and cardiovascular disease, and the costs extend well beyond health and social care"[55]. It also impacts on other areas of health with "mental health issues also prevent[ing] physical health conditions from being addressed properly. Roughly £1 in every £8 spent on long-term health conditions can be linked to poor mental health, which translates to an additional £2.6 billion in treatment costs each year in London"[56]. Further it impacts on other socio-economic issues with "individuals with mental ill-health [being] more likely to be the victims of crime than the perpetrators, but the costs to the criminal justice system are significant. The London criminal justice system spends approximately £220 million per year on services related to mental ill-health, and other losses such as property damage, loss of stolen goods and the lost output of victims cost London another £870 million each year"[57].

Finally, ill-health is costly to the economy, with GLA Economics estimating that in 2012, an average London firm of 250 employees lost around £4,800 per week (or around £250,000 a year) due to sickness absence[58]. While in terms of mental ill-health the GLA estimates that its wider impacts led to around £26 billion in total economic and social cost to London each year[59].

7.5.2.1 Health care provision in London

Health care provision is an important factor affecting a city's liveability and a concern for individuals of all ages that generally increases with age as shown by Figure 7.26.

Figure 7.26: Health as a concern of Londoners, by age



Source: GLA Intelligence Unit polling60

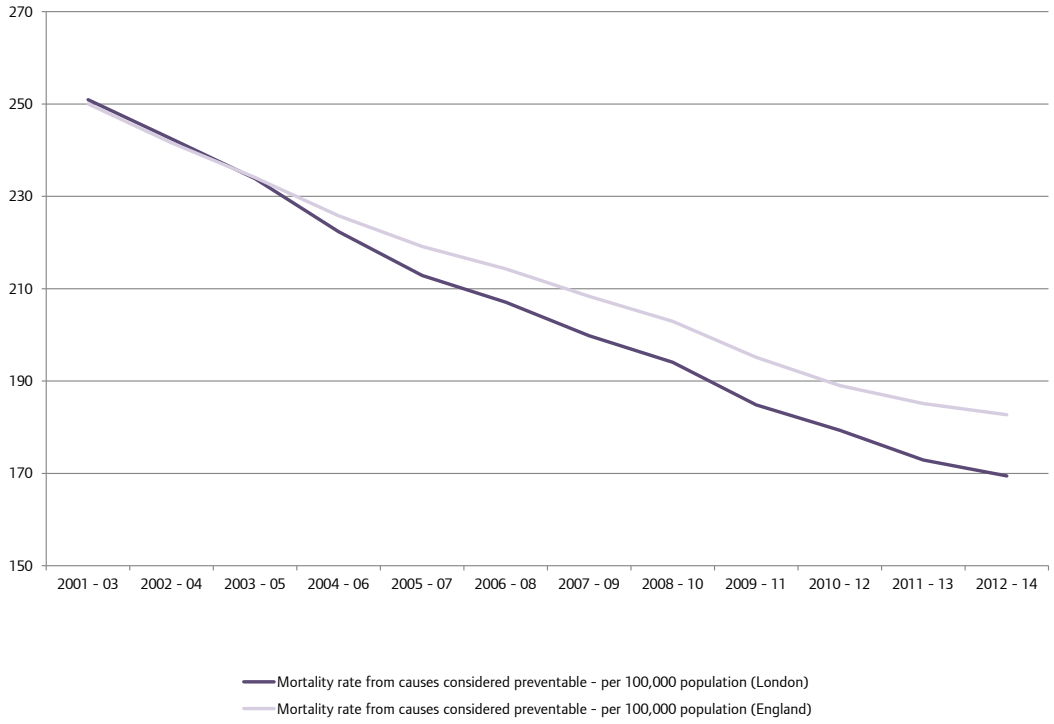
London's health performance with respect to the rest of England is mixed. Table 7.11 shows that female life expectancy in London is the highest of any region, while male life expectancy is one of the highest. However, healthy life expectancy was higher in some other English regions. As shown by Figure 7.27, London's mortality rate from preventable causes has been falling in recent years and has overtaken that for England as a whole. This improvement in performance is also seen for cardiovascular diseases and cancer (Figure 7.28).

Table 7.11: Life expectancy (LE) and healthy life expectancy (HLE) for males and females at birth by English region, 2011 to 2013

	Males		Females	
	Life Expectancy	Healthy Life Expectancy	Life Expectancy	Healthy Life Expectancy
South East	80.4	65.6	83.9	66.7
South West	80.1	65.3	83.8	65.5
East	80.3	64.6	83.8	65.4
London	**80.0**	**63.4**	**84.1**	**63.8**
East Midlands	79.3	62.7	83.0	63.5
West Midlands	78.8	62.4	82.8	62.8
North West	78.0	61.2	81.8	61.9
Yorkshire and The Humber	78.5	61.1	82.2	61.8
North East	78.0	59.3	81.7	60.1
England	79.4	63.3	83.1	63.9

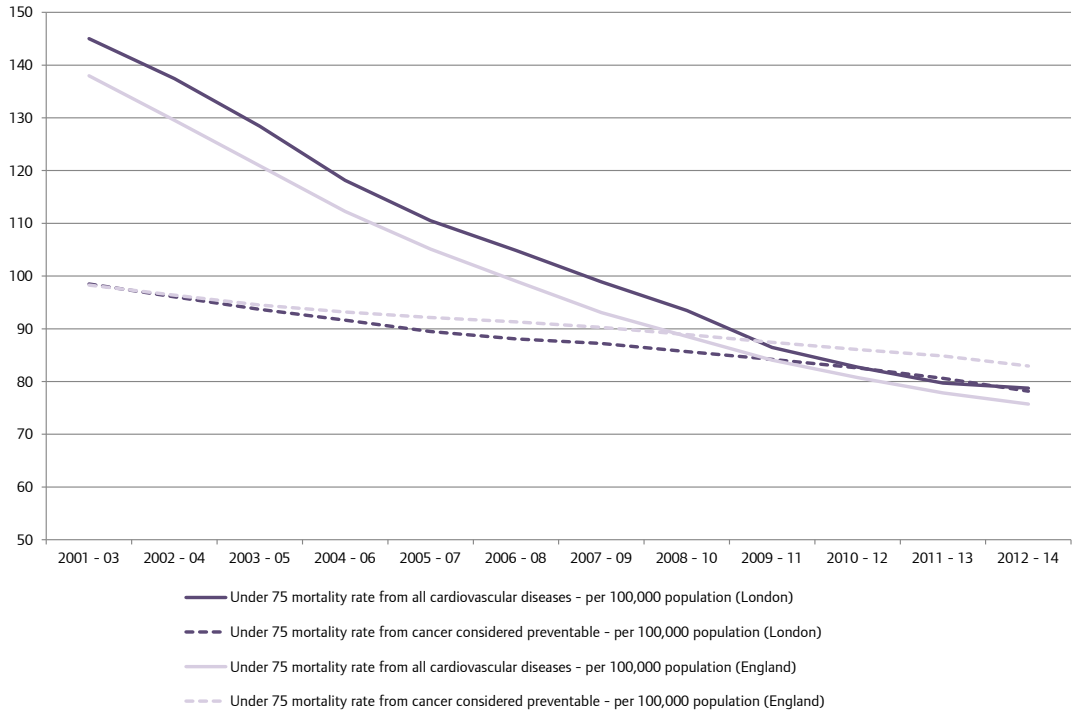
Source: ONS[61]

Figure 7.27: Mortality rate from causes considered preventable - per 100,000 population, London and England



Source: Public Health England

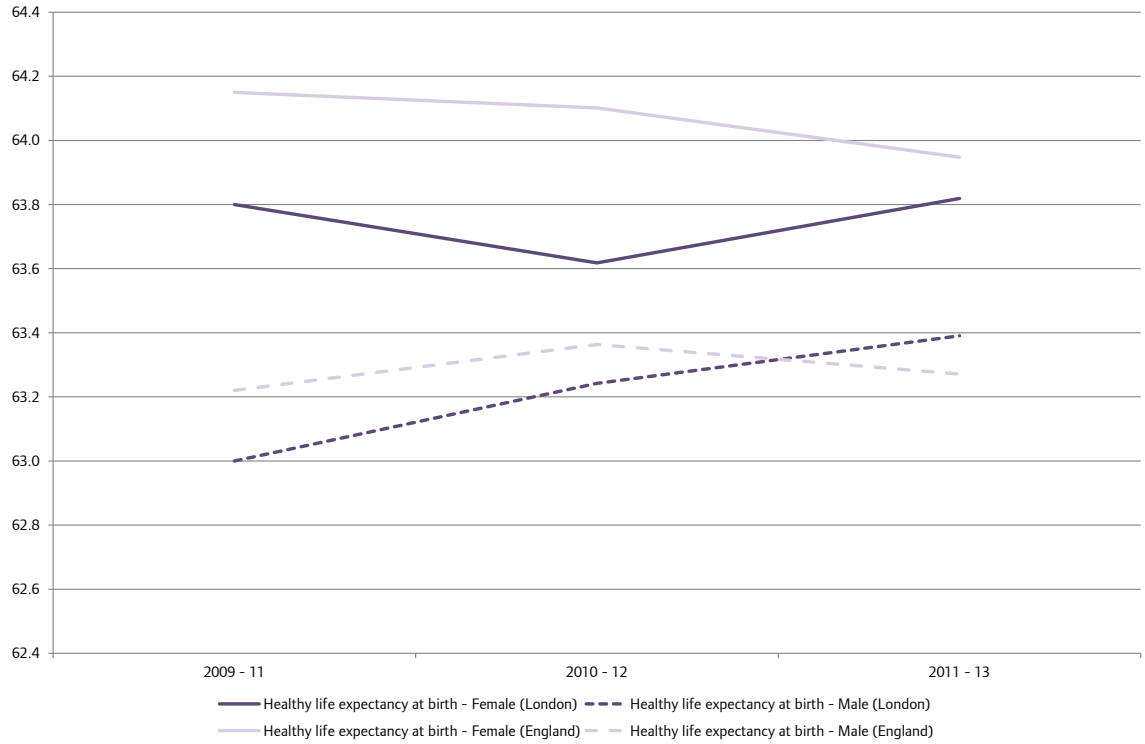
Figure 7.28: Under 75 mortality rate from all cardiovascular diseases and from cancer considered preventable - per 100,000 population, London and England



Source: Public Health England

London's men have generally longer healthy life expectancies at birth than for people in England as a whole but the reverse is true for London's women, as shown in Figure 7.29. However, the ONS has noted that healthy life expectancies in London can vary depending on where people live even within boroughs, highlighting the impact of inequality on health, stating that "men who live in the least deprived parts of Kensington & Chelsea can expect almost a quarter of a century more of good health than their male counterparts in the most deprived part of the borough. For males at birth, the number of years an individual could expect to live in good health based on current rates – known as healthy life expectancy – differed by an average of 24.6 years between the most and least deprived parts of the borough. For females at birth, inequality during the same period was 21.2 years. Overall healthy life expectancy in the borough was 67.6 years for males and 69.1 years for females". The ONS further observe that "the London borough of Newham had the lowest level of health inequality within it for men, at 3.8 years, as well as one of the lowest levels of healthy life expectancy overall at 57.9 years. For females, Newham had the second lowest level of inequality (3.1 years) and also a low number of years lived in good health (56.8 years). Inequality in health between areas within Newham is less noteworthy than elsewhere, largely because most of the areas within the borough have a similarly low healthy life expectancy. For example, among males, out of 21 small areas within Kensington and Chelsea only three had a lower healthy life expectancy than the Newham average of 57.9 years"[62].

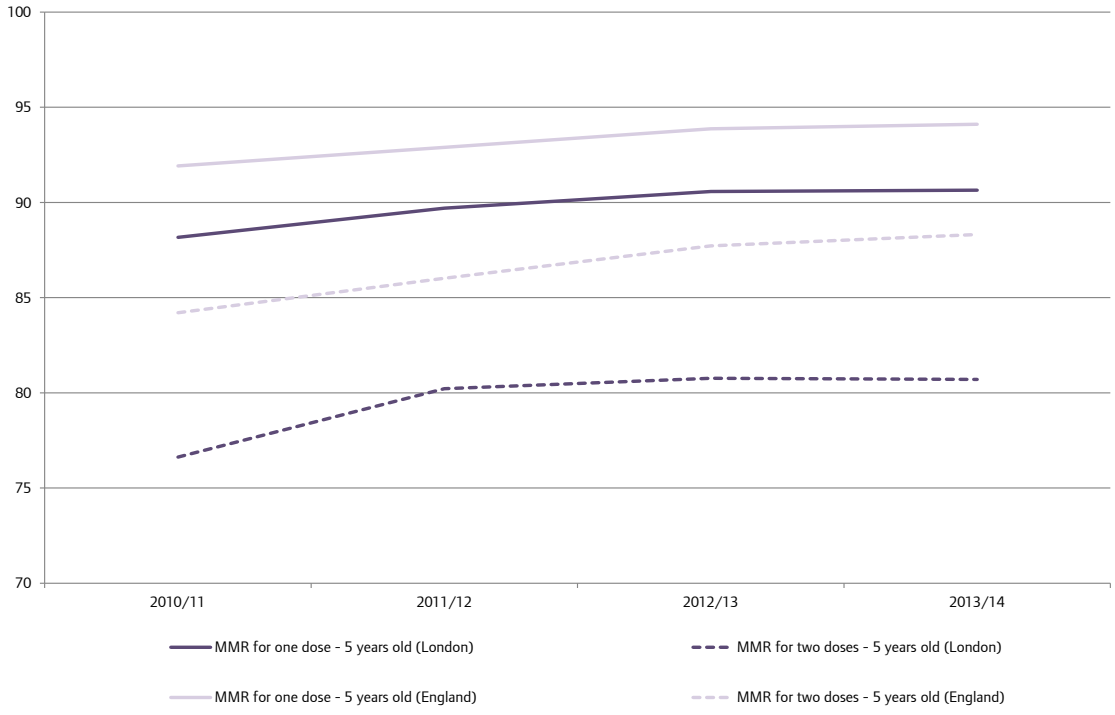
Figure 7.29: Healthy life expectancy at birth, London and England



Source: Public Health England

For other indicators London performs worse than the English average, with tooth decay in children aged five averaging 1.19 decayed teeth compared to 0.94 in England in 2011/12. MMR vaccination rates have also been lower in London than in England as a whole as shown in Figure 7.30.

Figure 7.30: Percentage of 5 years olds receiving MMR vaccination rates (1 and 2 doses), London and England

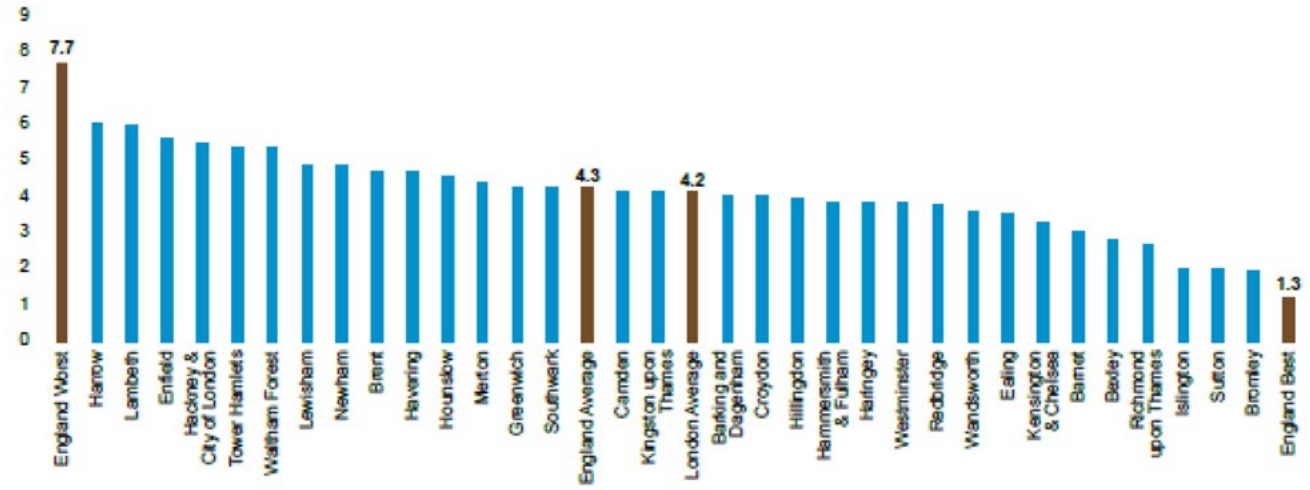


Source: Public Health England

Although the death rate per thousand live births for London's children under one years old differs little from that for England on average (Figure 7.31), it is significantly worse than England as a whole in terms of the

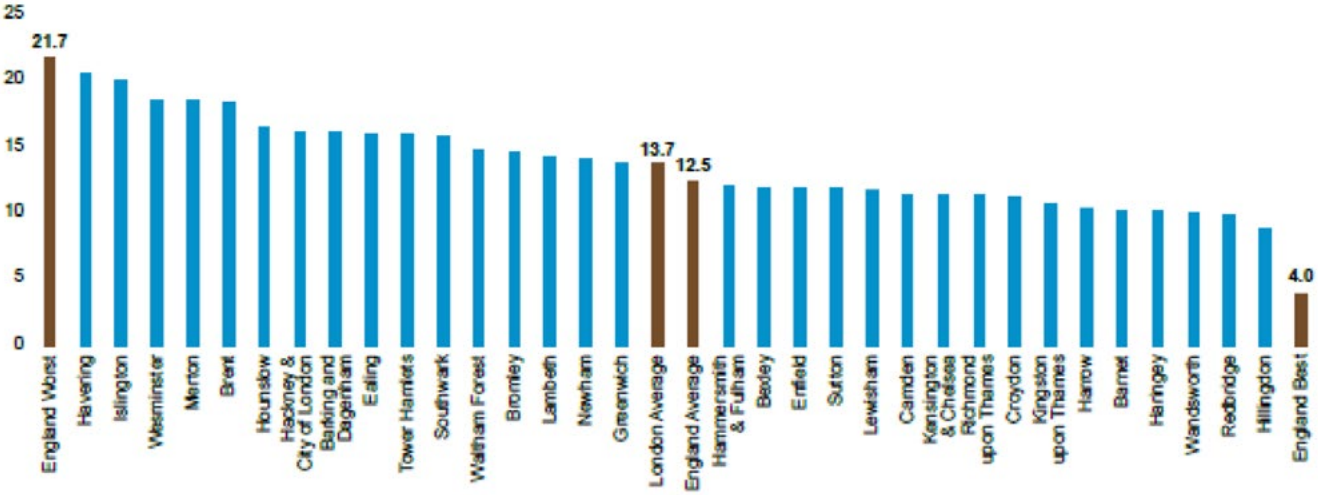
standardised death rate per 100,000 for children aged 1-17 years (Figure 7.32). Further, in terms of both phenomena, the variation across boroughs is substantial.

Figure 7.31: Under 1 death rate per 1,000 live births



Source: Better Health for London, London Health Commission, October 2014

Figure 7.32: 1 – 17 age death rate per 100,000

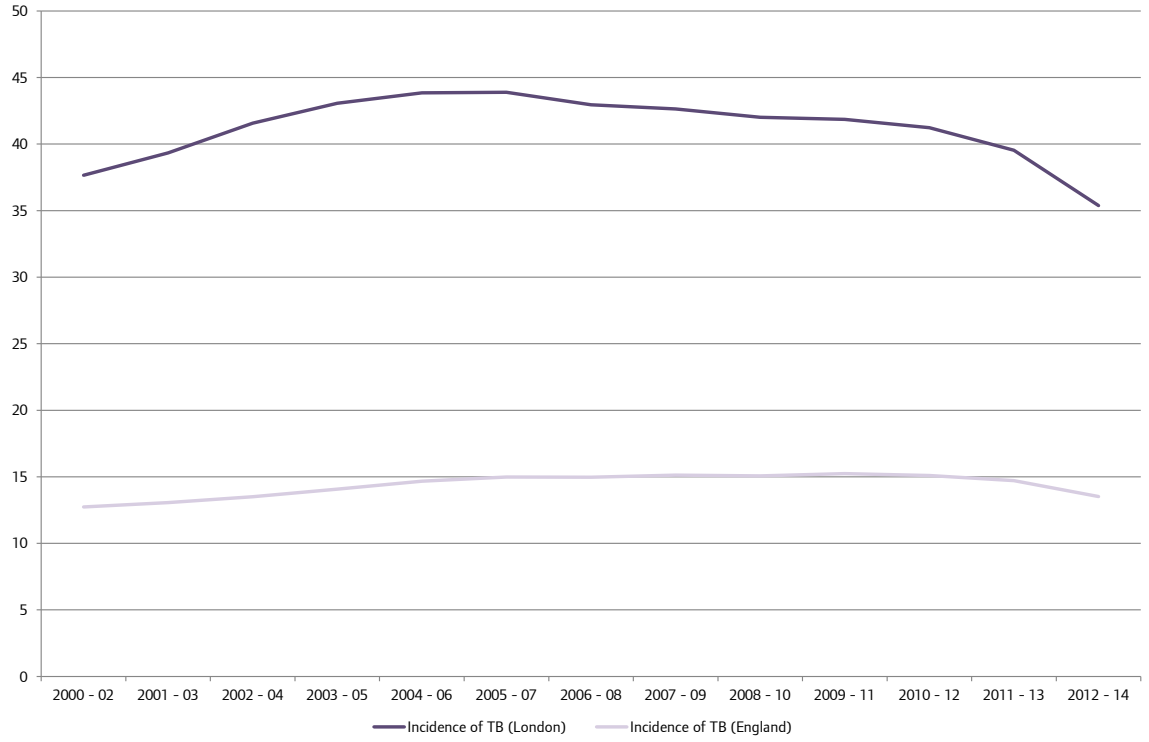


Source: Better Health for London, London Health Commission, October 2014

London also faces health issues that are unique to itself within England as a whole. While there are an "estimated 103,700 people in 2014" living with HIV in the UK, "around two fifths (43 per cent) of all those living with diagnosed HIV in the UK live in London". Although, "in the last 10 years, the biggest increases in people living with diagnosed HIV have been in the East of England, the West Midlands and the North East".

It should also be noted that of those living with HIV, "around one in six (17 per cent) were undiagnosed and unaware of their infection"[63]. Figure 7.33 highlights another issue for London, that London has a higher incidence of TB than England as a whole.

Figure 7.33: The three-year average number of reported new cases per year of TB (based on case notification) per 100,000 population in London and England



Source: Public Health England

7.5.2.2 International Comparisons of health outcomes

Looking internationally, surveys have ranked London highly in regard to its health situation, with it being tied at 5th with Chicago and Singapore "for health, safety and security" in PwC's "Cities of Opportunity 6" survey[64]. A recent survey comparing London to a number of world cities by the London Health Commission did not rank London the 'healthiest' but also rarely ranked it as the 'unhealthiest' city on any of the health rankings examined as shown by Table 7.12. For example, London has slightly better life expectancy than New York, but slightly worse than Paris.

Table 7.12: Comparing London's health outcomes to a number of other global cities

	Hong Kong	Johan-nesburg	London	Madrid	New York	Paris	Sao Paulo	Sydney	Tokyo	Toronto
Income inequality (Gini coefficient)	0.5	0.63	**0.44**	0.44	0.51	0.38	0.61	0.39	0.38	0.4
Male life expectancy (years)	81	54	**80**	79	78	79	71	79	80	80
Female life expectancy (years)	86	57	**84**	85	83	85	79	84	86	85
Infant mortality (deaths/ 1,000 births)	1.3	48	**4.3**	3.9	4.7	3.7	12	5.5	2.7	6.1
One way commute journey time (minutes)	36	36	**37**	40	34.6	33.7	42.8	33	34.5	33
% of obese adults	..	..	**20**	8	24	7	16	12	4	12
% of obese/ overweight adults	19	59	**57**	42	56	40	47	38	25	41
% of obese Children	7	..	**22**	2	21	5	7	10	..	12
% of obese/ overweight children	27	..	**37**	15	39	16	25	29	10	32
% reaching recommended physical activity level	40	21	**57**	23	56	38	62	56	32	47
% of population who smoke	13	..	**18**	28	16	40	15	16	20	17
% of population consuming 5+ drinks in one occasion	6	..	**14**	14	20	15	..	24	..	13
Suicides per 100,000 pop.	11.8	..	**7.5**	2.7	6	8.1	5.4	8.6	21.3	6.9

Source: London Health Commission[65]

Looking at the UK as a whole, it can be seen that although "74 per cent of people in the UK reported being in good or better health in 2013, higher than the OECD average of 68 per cent"[66]; the situation in terms of health care resources in the UK compared to other countries is mixed. If we examine London in relation to UK and EU regions in relation to these indicators and others, the picture becomes more mixed as demonstrated by Table 7.13, which shows that for some health indicators, London performs well compared to the UK and EU, with it ranking relatively well for instance on mortality from circulatory disease, whilst in other indicators, such as AIDS incidence it ranks less well.

Table 7.13: Health summary for London against UK and EU rankings

		Rank of London in	
Domain	**Indicator**	**UK[67]**	**EU[68]**
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	1/11	19/168
	Low weight births	5/12	27/169
	Road injuries and deaths	9/12	206/212
Risk Factors	Obese adults	11/12	13/113
	Overweight and Obesity	11/12	16/92
	Adult smokers	8/12	108/158
Health Professionals and Health Care Services	Physicians	2/12	156/262
	Midwives	3/12	29/160
	Nurses (including midwives)	3/12	47/232
	Hospital beds	6/12	212/265
	Acute care beds	9/12	245/262
	Psychiatric beds	3/12	100/246
	Acute care discharge from hospital	7/12	22/216

Source: I2sare project[69]

7.6 Crime

Another aspect that affects the liveability of London and which can impact on different demographics divergently is crime. This section examines crime in London in the light of national and international comparisons. Crime is also an issue of concern as the perception of low crime prevalence is important for competitiveness. This enters the international assessment of London as a world city addressed elsewhere in the Economic Evidence Base.

7.6.1 Crime in London

Crime, although generally declining in recent years, still risks making London a less-appealing place to live, with the OECD finding that London was the least safe of any UK region (although still performing better than the OECD average)[70]. Further, as shown by Table 7.14, total recorded crime in London was higher than the level in England as a whole in the year to June 2015. However, this did not hold for all offending in London, with for instance sexual offences and possession of weapons offences being at similar rates. It should also be noted that the GLA will soon be publishing detailed analysis on the crime landscape of London.

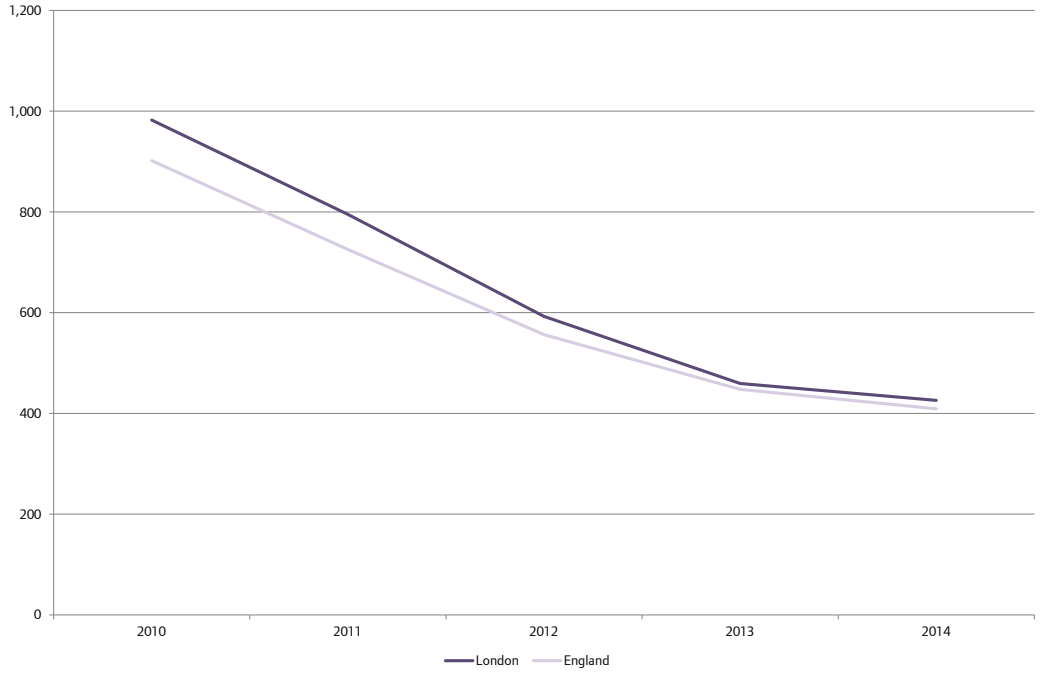
Table 7.14: Police recorded crime by offence group, Metropolitan Police, London Region and England, rate per 1,000 population, year ending June 2015

	Metropolitan Police	London Region[71]	ENGLAND
Total recorded crime - excluding fraud	84.0	84.6	63.2
Violence against the person	19.7	19.8	14.3
Homicide	0.0	0.0	0.0
Violence with injury	8.3	8.4	6.8
Violence without injury	11.4	11.4	7.6
Sexual offences	1.8	1.8	1.7
Robbery	2.6	2.6	0.9
Theft offences	42.0	42.3	30.6
Burglary	8.5	8.5	7.2
Domestic burglary[72]	5.5	5.5	3.5
Domestic burglary (households)	14.1	14.1	8.5
Non-domestic burglary	3.1	3.1	3.7
Vehicle offences	9.6	9.6	6.2
Theft from the person	3.9	4.0	1.3
Bicycle theft	2.1	2.1	1.6
Shoplifting	4.9	5.0	5.7
All other theft offences	12.9	13.1	8.5
Criminal damage and arson	7.1	7.1	8.8
Drug offences	4.7	4.7	2.7
Possession of weapons offences	0.5	0.5	0.4
Public order offences	4.7	4.7	2.9
Miscellaneous crimes against society	1.1	1.1	0.9

Source: ONS via GLA Datastore

Figure 7.34 shows that London has more 10 to 17 year olds entering the youth justice system every year than England as a whole, although, there has been some recent convergence in these numbers. These figures help to partially illustrate the issues London faces in terms of youth crime.

Figure 7.34: First time entrants to the youth justice system, London and England (per 100,000)

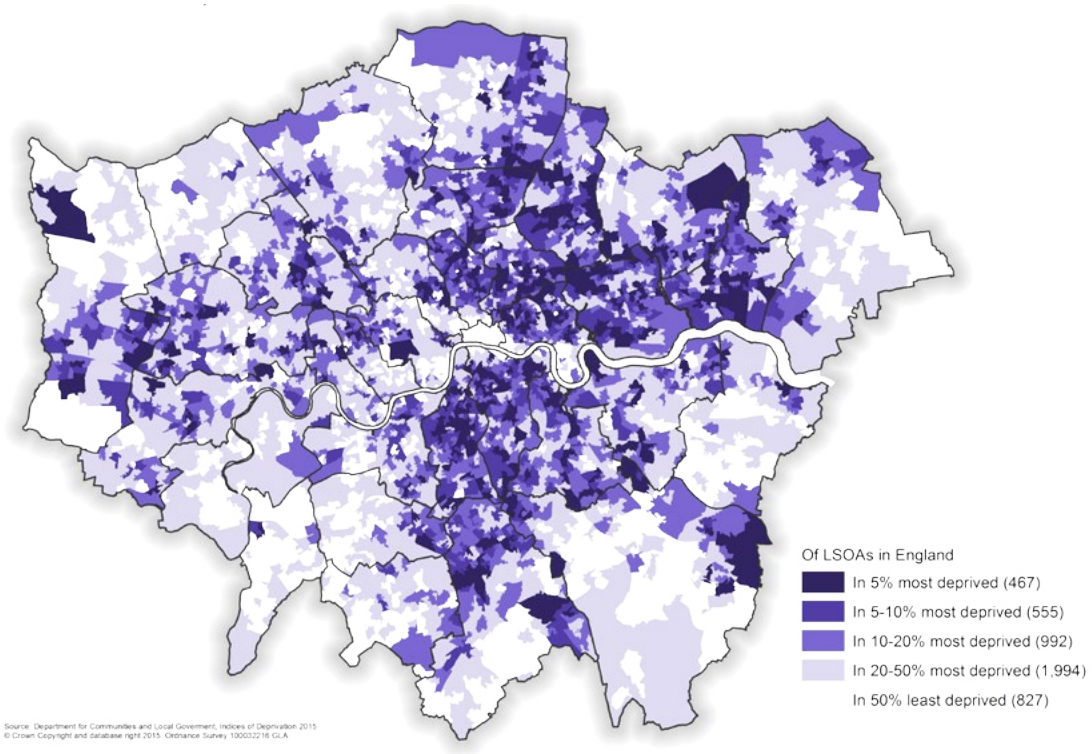


Source: Public Health England

It can also be observed from Map 7.14 that crime is not evenly spread across London with the incidence generally more substantial in the north east and central southern parts of London.

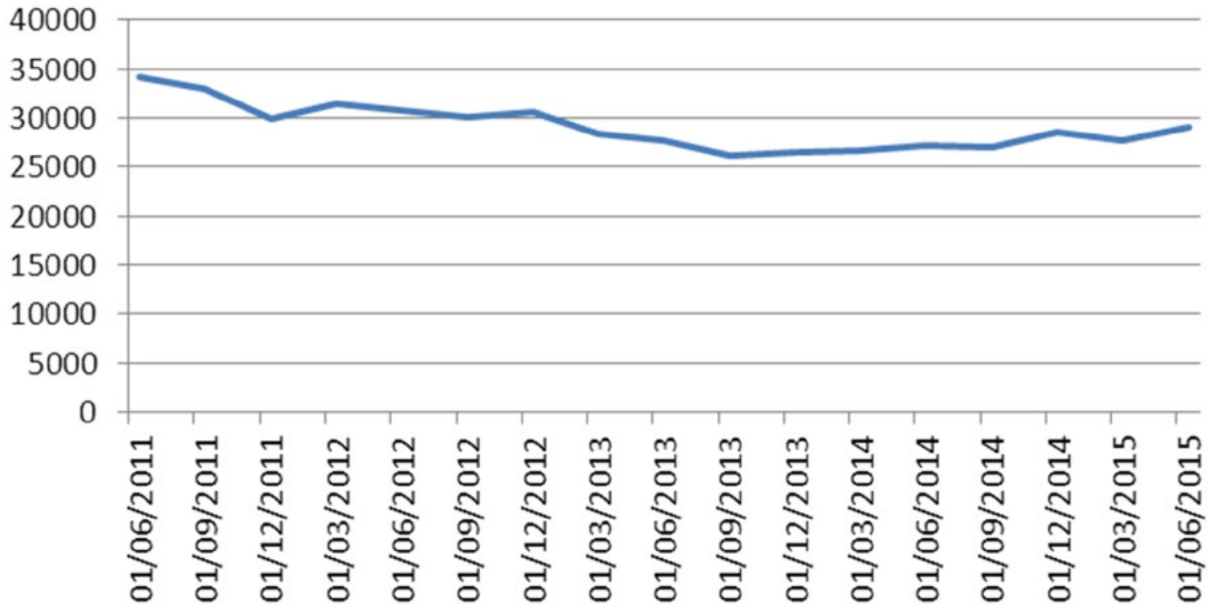
Business crime is also a risk to London's economy and although the Mayor's Office for Policing and Crime (MOPAC) data would indicate that onsite crime has been falling over the long term, as shown by Figure 7.35 there has been a recent up-tick since 2013. Map 7.15 shows that the rates of business crime vary across the capital, with Newham having the highest rate of business crime over the year to June 2015. London's businesses and individuals also face an evolving criminal environment with online crime becoming increasingly important. In fact, "around 70 per cent of frauds are now 'cyber-enabled', and the internet provides an opportunity for fraudsters to expand their activities on a huge scale"[73].

Map 7.14: Crime domain in London in 2015



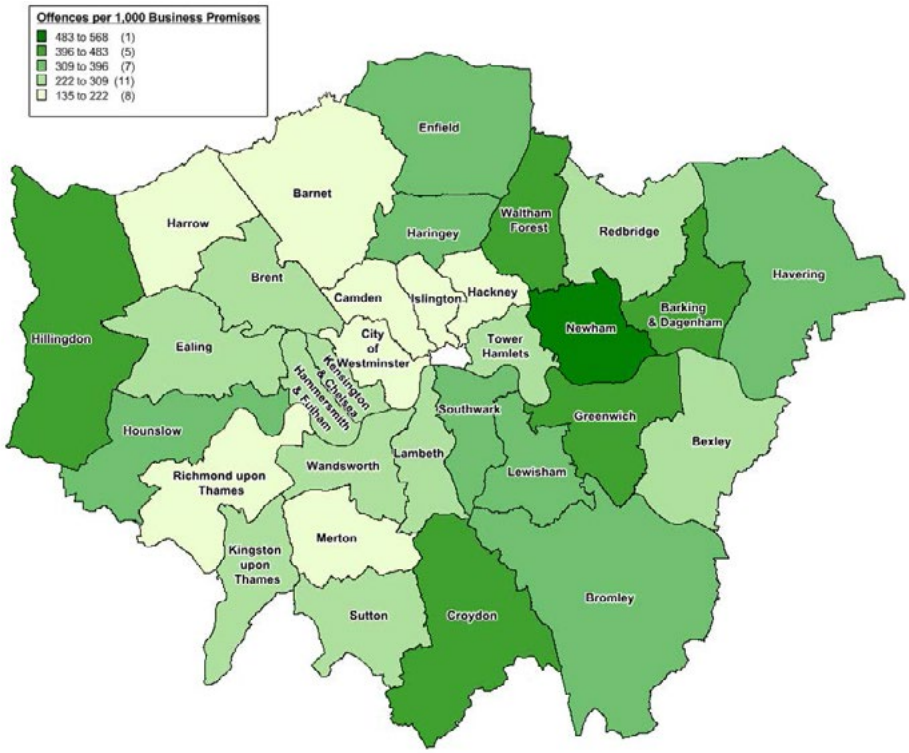
Source: DCLG & GLA Intelligence Unit analysis

Figure 7.35: Metropolitan Police Service all business crime 4-year trend



Source: MOPAC

Map 7.15: Offences per 1,000 business premises July 2014 to June 2015



Source: MOPAC

7.6.2 International comparisons on crime

Looking abroad, international comparisons of crime (although limited) seem to indicate that London is a relatively safe city. This is supported by national level data (Table 7.15), which shows that the UK ranks low compared to other countries on the murder rate. However, on other measures of crime and also on police personnel per 100,000 of population, England and Wales rank less well internationally as is shown in Table 7.16.

Table 7.15: Homicides in selected countries, rates per 100,000 population, 2004-2013 (ranked on 2013)

Country/ Territory	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Honduras	53.8	46.6	44.3	50.0	60.8	70.7	81.8	91.8	91.0	84.3
Jamaica	55.2	62.4	49.7	58.5	59.5	61.6	52.6	40.9	39.1	42.9
El Salvador	45.8	62.2	64.4	57.1	51.7	70.9	64.1	70.2	41.5	39.8
South Africa	39.5	38.4	39.3	37.3	36.1	33.1	31.0	29.9	30.7	31.9
Colombia	44.8	39.6	36.8	34.7	33.0	33.7	32.3	33.5	30.7	31.8
Trinidad and Tobago	20.1	29.8	28.5	29.8	41.6	38.3	35.6	26.4	28.3	30.2
Brazil	..	..	..	23.5	23.9	23.0	22.2	23.3	26.5	26.5
Mexico	8.5	9.0	9.3	7.8	12.2	17.0	21.8	22.8	21.5	18.9
Panama	9.3	10.8	10.8	12.7	18.4	22.6	20.6	20.3	17.2	17.2
Philippines	7.5	7.5	7.1	6.5	6.4	6.9	9.5	9.1	8.8	9.3
Russian Federation	..	..	..	..	11.6	11.1	10.1	9.7	9.2	9.0
Lithuania	10.3	11.3	8.9	8.7	9.5	8.1	7.1	7.0	6.8	6.8
Kenya	4.0	3.5	3.5	3.4	3.6	5.6	5.5	6.3	6.5	6.6
Estonia	6.8	8.5	6.9	7.1	6.4	5.4	5.4	5.0	4.9	4.1
United States of America	5.5	5.6	5.8	5.6	5.4	5.0	4.7	4.7	4.7	3.8
Latvia	8.0	5.7	5.8	4.3	4.6	5.1	3.3	3.4	4.8	3.5
India	3.8	3.7	3.6	3.6	3.6	3.5	3.5	3.6	3.5	3.3
Hungary	2.1	1.6	1.7	1.5	1.8	1.5	1.6	1.7	1.4	2.7
Belgium	2.6	2.1	2.1	2.0	1.9	1.7	1.7	1.9	1.7	1.8
Finland	2.8	2.3	2.3	2.4	2.5	2.2	2.2	2.0	1.6	1.7
Malta	1.7	1.0	0.0	1.0	1.4	0.9	0.9	0.7	2.8	1.6
Bulgaria	3.2	2.6	2.4	2.3	2.3	2.0	2.0	1.7	1.9	1.5
Romania	2.3	2.1	2.0	1.9	2.1	1.8	1.8	1.5	1.7	1.5
Serbia	1.6	1.5	1.6	1.7	1.4	1.5	1.3	1.4	1.2	1.5
Canada	1.7	1.8	1.7	1.6	1.7	1.6	1.4	1.5	1.6	1.4
Macao	2.2	1.5	2.3	2.2	1.6	1.9	0.7	1.3	1.3	1.4
Slovakia	2.3	2.0	1.6	1.6	1.7	1.5	1.6	1.8	1.4	1.4
Greece	1.0	1.2	1.0	1.2	1.3	1.4	1.6	1.7	1.5	1.4
Algeria	1.3	0.6	0.9	0.8	0.9	0.8	0.7	0.8	1.4	1.3
Portugal	1.4	1.3	1.5	1.8	1.2	1.2	1.2	1.1	1.1	1.3
France	1.6	1.6	1.4	1.6	1.6	1.3	1.3	1.3	1.2	1.2
Ireland	0.7	1.3	1.5	1.8	1.1	1.3	1.2	0.9	1.2	1.1
Croatia	1.9	1.5	1.6	1.4	1.5	1.1	1.4	1.1	1.2	1.1
Australia	1.5	1.3	1.3	1.2	1.2	1.2	1.0	1.1	1.1	1.1
Cyprus	1.6	1.9	1.4	1.2	0.8	1.7	0.7	0.8	2.0	1.0
United Kingdom	**1.6**	**1.5**	**1.4**	**1.4**	**1.2**	**1.2**	**1.2**	**1.0**	**1.0**	**1.0**
The former Yugoslav Republic of Macedonia	2.3	2.1	2.2	2.0	1.7	1.7	2.0	1.4	1.4	1.0
New Zealand	1.1	1.5	1.2	1.1	1.2	1.5	1.0	0.9	0.9	1.0
Hong Kong	0.7	0.5	0.5	0.3	0.5	0.7	0.5	0.2	0.4	0.9
Czech Republic	1.3	1.1	1.3	1.2	1.1	0.9	1.0	0.8	1.0	0.9
Norway	0.8	0.7	0.7	0.6	0.7	0.6	0.6	2.3	0.5	0.9
Sweden	1.2	0.9	1.0	1.2	0.8	0.9	1.0	0.9	0.7	0.9
Poland	1.7	1.5	1.3	1.4	1.2	1.3	1.1	1.2	1.0	0.8
Italy	1.2	1.0	1.1	1.1	1.0	1.0	0.9	0.9	0.9	0.8
Denmark	0.8	1.0	0.5	0.7	1.0	0.9	0.8	0.8	0.7	0.7
Austria	0.7	0.7	0.7	0.5	0.7	0.6	0.7	0.9	1.0	0.7

Germany	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.8	0.7	0.7
Netherlands	1.2	1.1	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.7
Switzerland	1.1	1.0	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.7
United Arab Emirates	..	..	..	..	..	..	0.8	0.6	0.8	0.6
Slovenia	1.4	1.0	0.6	1.2	0.5	0.6	0.7	0.8	0.7	0.6
Spain	1.2	1.2	1.1	1.1	0.9	0.9	0.8	0.8	0.8	0.6
Japan	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3
Singapore	0.5	0.5	0.4	0.4	0.6	0.4	0.4	0.3	0.2	0.3
Iceland	1.0	1.0	0.0	0.7	0.0	0.3	0.6	0.9	0.3	0.3
Luxembourg	0.4	0.9	1.5	1.5	1.6	1.0	2.0	0.8	..	0.2

Source: United Nations Office on Drugs and Crime (UNODC)[74]

Table 7.16: Crime and police personnel per 100,000 population in selected countries in 2013 (ranked on police personnel per 100,000 population)

Country/ Territory	Assault	Kidnapping	Robbery	Burglary breaking and entering	Domestic Burglary/ Housebreaking	Motor Vehicle Theft	Total Sexual Violence	Rape	Total Sexual Offences against Children	Total Police Personnel
Macao	300.2	0.2	26.5	22.1	62.0	64.3	9.4	4.2	19.1	1,087.1
Spain	35.6	0.3	183.3	356.6	284.9	104.1	19.0	2.8	9.8	525.3
Russian Federation	24.4	0.3	64.5	172.3	70.4	36.2	9.2	3.0	32.0	522.0
Algeria	138.9	0.6	45.3	35.0	8.4	10.8	14.3	1.7	18.5	491.4
Croatia	19.2	0.0	35.5	430.9	108.6	25.1	17.3	6.3	47.3	483.6
Greece	50.4	0.9	44.2	607.9	230.0	258.8	7.7	1.3	2.4	480.2
Italy	108.7	0.5	104.6		412.2	300.8	7.4	..	10.4	453.4
Malta	50.8	0.0	48.3	335.2	181.1	75.8	21.9	3.5	38.1	452.7
Hong Kong	91.9	0.0	6.9	49.6	37.6	8.2	24.7	1.5	54.3	446.0
The former Yugoslav Rep. of Macedonia	10.3	0.9	22.2	717.0	125.2	24.1	7.2	1.8	11.5	440.2
Cyprus	11.6	1.7	13.1	234.5	156.4	131.8	4.1	1.6	..	439.8
Portugal	242.2	4.1	156.4	361.9	209.3	139.5	21.1	3.3	45.4	432.1
Slovakia	37.0	0.1	15.3	204.9	31.3	44.6	2.9	1.7	51.0	411.1
Northern Ireland	**59.7**	**3.2**	**53.0**	**498.7**	**317.2**	**115.9**	**104.3**	**27.2**	**291.0**	**400.7**
Latvia	22.3	0.9	44.7	46.6	34.3	65.7	22.0	3.6	34.2	399.9
Bulgaria	34.2	1.2	41.2	237.6	88.6	49.6	8.7	2.3	21.5	370.7
Czech Republic	174.6	0.1	28.5	582.9	103.9	100.3	19.7	5.5	43.6	362.1
Serbia	13.5	0.1	40.3	260.0	83.4	23.5	3.3	0.7	8.7	356.3
Slovenia	89.2	0.2	18.2	741.8	184.1	30.0	13.0	2.6	47.5	348.1
Belgium	621.0	10.2	1,616.0	946.1	725.5	141.6	59.7	27.7	165.0	342.1
Estonia	7.7	0.1	37.0	..	165.6	42.5	29.6	10.5		327.8
Austria	44.0	0.0	44.0	1,044.2	194.8	60.5	36.1	10.8	114.2	327.0
Scotland	**1,188.3**	**4.7**	**28.1**	**418.0**	**306.6**	**112.2**	**161.5**	**31.7**	**..**	**323.9**
Lithuania	7.0	1.5	61.9	..	108.2	49.9	14.7	4.4	48.6	312.1
Netherlands	311.1	3.1	78.1	1,720.2	659.7	124.3	51.3	7.9	27.8	307.9
Germany	612.4	2.1	57.1	528.9	180.7	79.4	56.6	9.0	93.6	296.2
Brazil	330.1	0.2	505.3	128.0	11.8	114.3	28.1	24.9	..	267.5

Australia	..	2.6	40.5	871.5	620.9	227.0	85.3	..	..	262.6
Poland	1.2	1.2	32.4	310.2	59.9	40.8	8.4	3.6	20.9	255.8
Romania	81.0		13.5	69.5	69.5	13.3	7.2	4.5	22.2	247.1
Liechten-stein	278.3	0.0	2.7	337.8	337.8	13.5	16.2	8.1	474.3	229.7
England and Wales	**564.3**	**3.0**	**101.5**	**778.2**	**372.3**	**132.3**	**99.3**	**36.4**	**199.0**	**224.6**
Switzerland	7.0	4.0	67.1	850.8	412.6	83.5	89.6	7.1	91.2	220.6
Sweden	839.8	..	87.4	892.8	424.8	289.7	190.0	58.9	420.4	208.0
Iceland	27.9	..	14.9	331.4	112.6	63.1	137.2		258.3	207.3
Japan	46.7	0.1	2.6	84.4	45.5	57.4	7.1	1.1	22.4	202.2
Canada	138.9	9.2	66.0	443.3	277.7	206.9	75.6	..	60.3	196.9
USA	226.3	..	107.8	602.5	445.5	218.6	..	24.9	..	195.9
Denmark	164.8	..	56.8	1,404.1	746.0	169.0	..	6.2	..	191.3
France	299.6	3.5	193.9	593.3	382.9	269.4	43.2	17.4	118.0	172.4
Norway	50.9	..	33.1	312.1	108.2	131.6	49.6	22.5	100.4	163.6
Singapore	8.8	..	4.7	9.4	..	7.5	26.7	2.2	37.4	162.2
Finland	654.3	0.0	28.1	316.4	105.9	146.7	61.0	18.0	176.9	141.5
India	26.7	5.2	2.9	8.3	..	13.2	9.3	2.7	2.8	138.3
Hungary	134.3	0.1	23.1	382.5	156.1	57.2	59.6	2.5	307.5	84.2
United Arab Emirates	3.3	..	..	..	..	..	..	0.8	2.8	..
Ireland	272.5	2.6	60.6	500.4	..	159.1	43.7	9.8	..	..

Source: UNODC

7.7 Education

Although early years education has been covered above, children's education does not end when they leave nursery and as demonstrated in previous chapters a highly educated workforce has been one of the key factors driving London's success. This is likely to become even more important in the future. A key concern for individuals and families is the educational outcomes of their children throughout their school career, and high educational attainment is seen as one way in which individuals can become more socially mobile.

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 occasion may make them more prone to develop into NEETs[75] and hence be more inclined to participate in antisocial behaviour and crime. There is also evidence that there is a similar increased propensity to ill-health among those with lower educational attainment. These all may further impact on London's competitiveness, as discussed elsewhere in the Economic Evidence Base.

A further issue is around equity. There is evidence of a vicious circle, particularly amongst London's white, less well-off families. LSE research for the Trust for London has recently found that "general 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"[76]. And 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 types of 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 5 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"[78]. This has resonances to earlier sections of this chapter.

Education attainment in London at GCSE level is generally high and better than in England as a whole or other English regions as shown by Table 7.17. However, as can also be seen, the educational outcome of London's pupils varies by ethnicity.

Table 7.17: Percentage of pupils achieving 5 or more A*-C grades including English and Maths at GCSE (all and by ethnicity), in England and the English regions in 2013/14

	All Pupils	White	Mixed	Asian	Black	Chinese
England	56.8	56.3	57.9	61.5	53.7	76.3
London	**61.5**	**60.4**	**62.3**	**69.1**	**55.5**	**79.2**
North East	54.6	54.5	60.1	57.8	48	74.6
North West	55.8	55.9	55.5	57.3	49	73.5
Yorkshire and the Humber	53.9	54.9	50.9	47.2	45.5	70.8
East Midlands	54	53.6	52.5	60.3	47.3	73.8
West Midlands	54.9	54.7	51.3	59.8	47.7	73.9
East	57.2	56.9	60.2	59.9	58.5	76.5
South East	59	58.5	60.6	65.3	56.7	79.3
South West	56.7	56.7	58.5	59.8	46.1	74.5

Source: Department for Education[79]

Table 7.18 shows that there are variation in GCSE outcomes by London borough with Kensington and Chelsea having over 70 per cent of pupils achieving 5 or more A*-C grades including English and Maths at GCSE, while Lewisham had a rate of just over 50 per cent in 2013/14. It can also be seen from Table 7.19 that deprivation also impacts on educational performance with disadvantaged children performing less well at GCSE than those that aren't disadvantaged. Interestingly, those children for which English is not their first language slightly outperform those children for which English is their first language at the London level.

Table 7.18: Percentage of pupils achieving 5 or more A*-C grades including English and Maths at GCSE (all and by ethnicity) by London borough and in England in 2013/14

	All Pupils	White	Mixed	Asian	Black	Chinese
Camden	60.5	63.5	63.9	60.4	52.7	..
City of London	..	..	..	..	..	..
Hackney	58.8	62.6	60.7	65.2	52.9	64.3
Hammersmith and Fulham	65.6	71.4	58.8	71.8	55.8	..
Haringey	59.1	62.2	64.9	64.9	50.7	30
Islington	59.9	57.5	64.9	69.7	54.7	100
Kensington and Chelsea	73.8	76.2	67.6	76.7	66.2	..
Lambeth	57	58.2	52.4	70.3	55.4	81.3
Lewisham	51.3	54.4	55.4	45.5	47.5	71.1
Newham	55.4	43.1	57.7	62.1	52.6	66.7
Southwark	62.4	61.3	60.7	69	61.9	74.1
Tower Hamlets	59.7	46.8	49.5	63.5	58.2	70.6
Wandsworth	59.1	63.6	59.1	66.1	49	..
Westminster	68.1	69.5	73.2	70.7	61.3	88
Barking and Dagenham	58.2	50.7	56	70.6	66.1	..
Barnet	67.5	67.4	63.5	81.6	56	89.1
Bexley	60.3	56.4	65.9	76.9	68.3	78.9
Brent	60	51.8	65.8	68	50.2	..
Bromley	65.6	64.9	67.5	81.3	64.5	72.7
Croydon	56.8	59.1	55.9	65.1	50.9	66.7
Ealing	59.8	63.2	65.8	64.5	47.7	57.1
Enfield	59.7	57.4	61.2	76.2	58.8	..
Greenwich	59.6	54.4	60.4	66.7	64.2	62.5
Harrow	62.3	57.2	53.8	72.3	51.4	..
Havering	60.2	58.2	65.8	70.1	66.9	100
Hillingdon	58.6	54.8	65.9	69.5	46.2	..
Hounslow	66.1	66.4	69.9	69.5	57.2	60
Kingston upon Thames	70	65.6	72.2	84.4	59.7	87
Merton	64.2	64.9	63.2	72.8	55.7	60
Redbridge	68.1	63.8	65.4	74.4	56.3	75
Richmond upon Thames	63.5	64	61	69.4	42.2	..
Sutton	72.1	67.7	75.4	89.4	66.8	100
Waltham Forest	56.7	55.3	58.3	62.1	51.9	60
Inner London	59.5	60.2	60.4	63.8	54.4	74.7
Outer London	62.4	60.4	63.4	71.8	56.5	81.8
London	61.5	60.4	62.3	69.1	55.5	79.2
England	56.8	56.3	57.9	61.5	53.7	76.3

Source: Department for Education

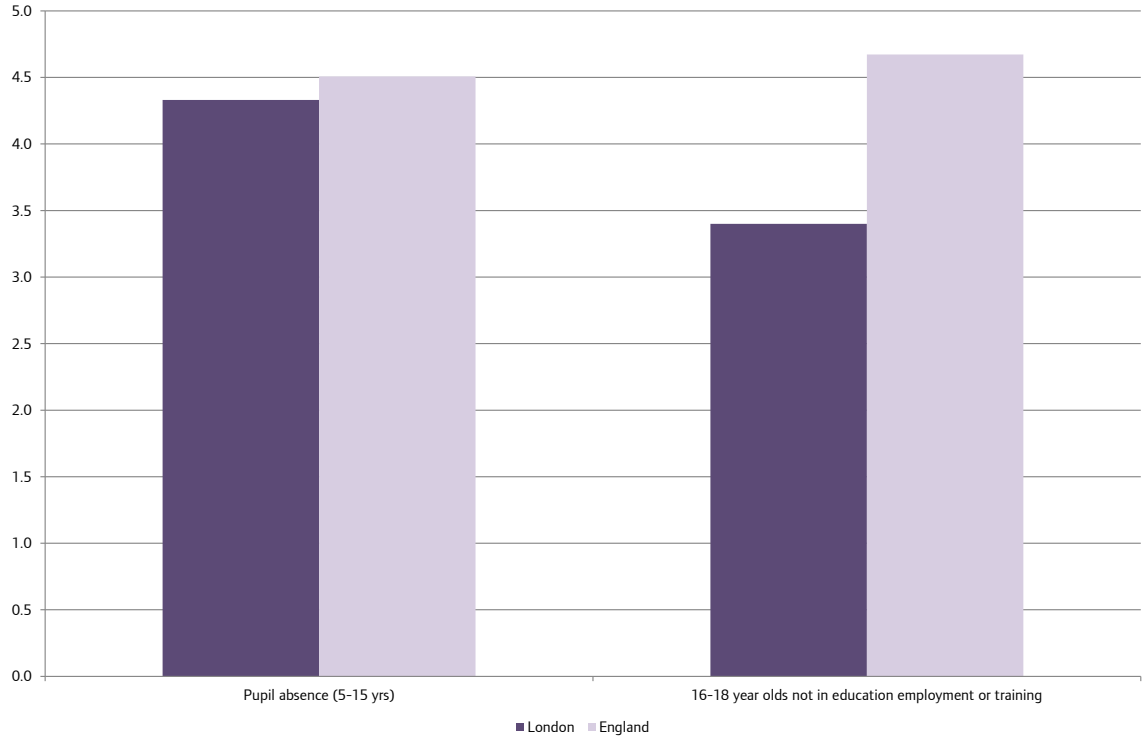
Table 7.19: Percentage of pupils achieving 5 or more A*-C grades including English and Maths at GCSE (by different characteristics) by London borough and in England in 2013/14

	Pupils whose first language is English	Pupils whose first language is other than English	Pupils known to be eligible for free school meals	All other Pupils (not eligible for FSM)	Disadvantaged pupils	All other Pupils (not disadvantaged)
Camden	59.5	61.6	50.7	65.4	52.1	71.7
City of London	..	..	..	..	..	..
Hackney	59.7	57.3	50.6	63	51.8	66.9
Hammersmith and Fulham	67.2	63	46.1	72.2	50	78.2
Haringey	64.3	54.2	47.2	64.6	49.4	70
Islington	53.4	65.8	54.6	64.1	56.1	68
Kensington and Chelsea	68.9	78.7	62	76.6	63.8	82.4
Lambeth	55.9	58.8	49	61	50.5	65
Lewisham	50.4	53.6	37.1	55.5	39.8	61.4
Newham	51.7	57.1	47	60.5	49.1	65.1
Southwark	59.5	66.7	52.4	66.2	54.8	70.5
Tower Hamlets	49.8	63.4	55.2	65.1	56.8	68.6
Wandsworth	58.9	59.3	40.9	63.8	45.1	69.8
Westminster	65.4	69.4	62.6	71.1	62.2	75.7
Barking and Dagenham	55.6	63.8	45.8	62.3	46.1	67.1
Barnet	69	65.3	46.5	71.8	48.6	76.1
Bexley	59.6	66.7	31	63.4	36.3	66.6
Brent	63.7	57.2	45.5	63.6	48.4	67.5
Bromley	65.6	67.8	36.7	68	42	71.5
Croydon	57.3	55.1	43.4	59.7	46.2	62.8
Ealing	64	56.2	44.2	64.3	47.3	68
Enfield	62.6	55.5	41.5	64	47	67.8
Greenwich	56.3	65.9	42.7	64.3	50.3	69.2
Harrow	63	61.6	40.3	66.4	46.5	68.8
Havering	60.2	60.4	38.9	62.7	40.7	65.3
Hillingdon	56.6	62.5	37.3	62.5	37.9	66.7
Hounslow	65.4	66.8	49.7	69.5	51.5	73.8
Kingston upon Thames	68.9	72.9	41.9	73	42	76.1
Merton	61.6	69.8	41.7	69.1	46	72.6
Redbridge	67.3	68.4	49.3	72.5	50.9	74.5
Richmond upon Thames	62.7	66.5	38.1	67.4	41.5	71.1
Sutton	70.5	80.8	37.7	75.8	44.7	78.1
Waltham Forest	58.1	54.6	41.5	60.9	46.1	64.4
Inner London	57.7	61.2	50.4	64.1	52	69
Outer London	62.4	62.4	42.8	66.2	46	69.8
London	61.2	61.9	46.5	65.6	48.7	69.6
England	56.9	56.5	33.7	60.7	36.7	64.2

Source: Department for Education

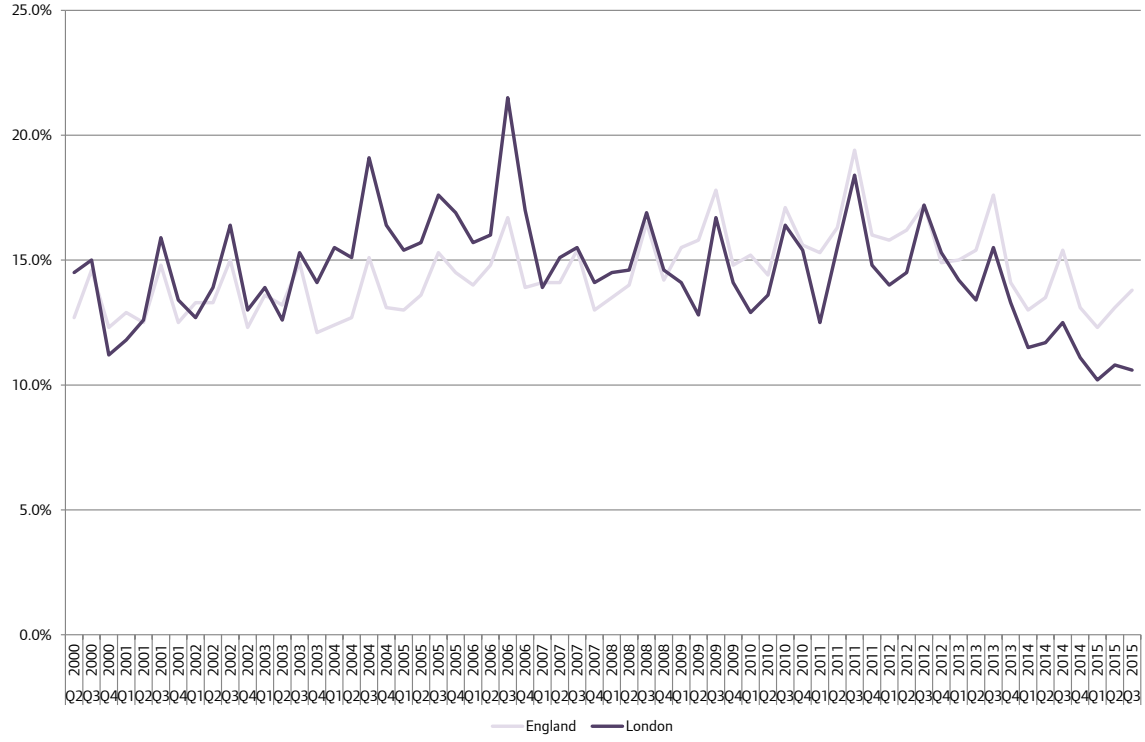
As can be seen from Figure 7.36, London also performed slightly better on pupil absence from school compared to England as a whole in 2013/14, and had less 16-18 year old NEETs in 2014. This picture for NEETs is replicated at the 16-24 year old age range as shown in Figure 7.37, with London having overtaken England as a whole in the mid-2000s on this performance measure.

Figure 7.36: Percentage of half days missed by pupils (2013/14) and percentage of 16-18 year olds NEET's (2014) in London and England



Source: Public Health England

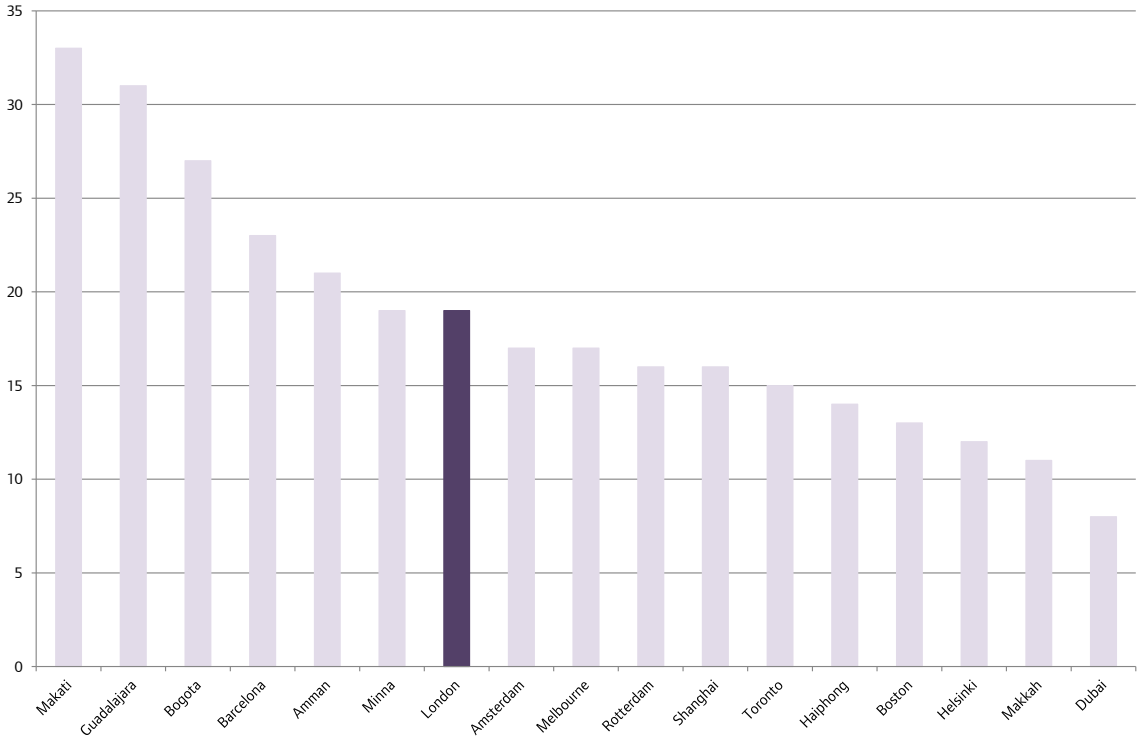
Figure 7.37: Percentage of 16-24 year olds NEET in London and England



Source: Labour Force Survey[80]

Examining London in an international context, Figure 7.38 gives an indication of the type of resources available to a child in London by examining the student/teacher ratio in London and other global cities. However, as can be observed from this chart, London's situation is relatively poor when compared to other more affluent cities.

Figure 7.38: Primary education student/teacher ratio in selected world cities



Source: World Council on City Data: WCCD Open City Data Portal

Finally, the UK as a whole ranks relatively well on expenditure per primary education student as shown in Table 7.20, but less well on other measures such as spending on tertiary education per student.

Table 7.20: Expenditure per student at different education levels US$ (tens), 2011 ranked on primary education spending (annual, equivalent US$ using PPPs)

	Expenditure per student, pre-primary education	Expenditure per student, primary education	Expenditure per student, secondary education	Expenditure per student, tertiary education including R&D activities
Luxembourg	25,074	23,871	16,182	..
Switzerland	5,267	12,907	15,891	22,882
Norway	6,730	12,459	13,939	18,840
United States	10,010	10,958	12,731	26,021
Austria	8,933	10,600	13,607	14,895
Iceland	9,138	10,339	8,470	8,612
Sweden	6,915	10,295	10,938	20,818
United Kingdom	**9,692**	**9,857**	**9,649**	**14,223**
Denmark	14,148	9,434	10,937	21,254
Belgium	6,333	9,281	11,732	15,420
Slovenia	8,136	9,260	8,568	10,413
Canada	..	9,232	..	23,226
Australia	10,734	8,671	10,354	16,267
Ireland	..	8,520	11,502	16,095
Italy	7,868	8,448	8,585	9,990
OECD - Average	7,428	8,296	9,280	13,958
Japan	5,591	8,280	9,886	16,446
Finland	5,700	8,159	9,792	18,002
New Zealand	11,088	8,084	9,312	10,582
Netherlands	8,020	8,036	12,100	17,549
Germany	8,351	7,579	10,275	16,723
Spain	6,725	7,288	9,615	13,173
Korea	6,861	6,976	8,199	9,927
France	6,615	6,917	11,109	15,375
Israel	4,058	6,823	5,712	11,554
Poland	6,409	6,233	5,870	9,659
Portugal	5,674	5,865	8,676	9,640
Slovak Republic	4,653	5,517	4,938	8,177
Estonia	2,618	5,328	6,389	7,868
Latvia	4,359	4,982	4,998	7,552
Czech Republic	4,302	4,587	7,270	9,392
Hungary	4,564	4,566	4,574	9,210
Chile	5,083	4,551	4,495	8,333
Brazil	2,349	2,673	2,662	10,902
Mexico	2,568	2,622	2,943	7,889
Turkey	2,412	2,218	2,736	8,193
Argentina	1,979	2,167	3,034	..
Colombia	3,491	2,041	2,207	6,882
Indonesia	205	587	522	1,173

Source: OECD[81]

Chapter 7 endnotes

1 This poll was carried out in 2015.
2 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.
3 Family and Childcare Trust, 'Childcare Costs Survey 2015'.
4 Based on Land Registry for 2014, excluding properties sold below market value, or below £1,000 or above £20 million.
5 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.
6 Belfield, C., Chandler, D., & Joyce, R., February 2015, 'Housing: Trends in Prices, Costs and Tenure'. Election 2015: Briefing Note 4 – Institute for Fiscal Studies.
7 Using Q3 2014, VOA private rent data.
8 UBS notes: "to estimate the worldwide costs of housing, we considered the prices for three different types of apartments. For two of these types, we standardized requirements to Western preferences, with a furnished two-room apartment and an unfurnished three-room apartment. We only looked at newly built apartments which with a bathroom and a kitchen. Prices included utilities (energy and water taxes), but not the use of a garage. To capture local standards, our survey asked for the price of an apartment of typical size, location, and amenities for the respective city. All three housing options were weighted equally.".
9 Weighted on a selected basket of goods.
10 This survey was published in 2015.
11 UBS, September 2015. 'Prices and earnings – Edition 2015: Do I earn enough for the life I want?'.
12 Knight Frank, 2015, 'Global Cities Index 2015'.
13 Mercer, 17 June 2015, '2015 Cost of Living Rankings'.
14 This survey was published in 2015.
15 UBS notes: "the composition of our reference basket of goods and services represents the spending habits of a three-person European family. The prices of the 122 goods and services are weighted by monthly consumption. For example, we assume that a family in Europe consumes almost 15 kilos (33 pounds) of vegetables every month, but only buys a new personal computer every 2.5 years. Price level calculations are based on the cost of a basket of 122 goods and services including rent. For our index, these reference basket prices are shown as relative to our reference city, New York City. Rent values were calculated by weighting the prices of our three types of housing equally".
16 UBS, September 2015. 'Prices and earnings – Edition 2015: Do I earn enough for the life I want?'.
17 GLA Economics, 2 November 2015, 'A Fairer London: The 2015 Living Wage in London'.
18 Ibid.
19 Ibid.
20 Kyte, S., November 2011, 'Current Issues Note 34: A summary assessment of fuel poverty in London in 2009 and scenarios to 2013'. GLA Economics.
21 Ofsted, April 2014, 'Early years: 2012/13'.
22 Ibid.
23 All references to Public Health England data unless stated otherwise can be found at: Public Health England: Public Health Outcomes Framework.
24 Produced by the Family and Childcare Trust.
25 London Fairness Commission, September 2015, 'Is London a Fair City: Interim Report 2015'.
26 London Fairness Commission, September 2015, 'Is London a Fair City: Executive Summary 2015'.
27 Note that new data for 2014 was published on 8 December 2015 after this version of the Economic Evidence Base was finalised.
28 Excluding mortgage interest payments, Council Tax and Northern Ireland rates.
29 Hoffman, J., February 2014, 'Working Paper 59: Low pay in London'. GLA Economics.
30 Ibid.
31 Ibid.
32 The welfare system is complicated and administered by different branches of government, including local authorities as well as two Government departments, therefore it is not possible to simply combine data from the different sources. Strictly, some of the figures included here should not be added, as some may be 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.
33 It should also be noted that 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.
34 Pension Credit has two forms, the Guarantee Credit, which is for people on very low incomes and a Savings Credit, which is an additional amount payable to those with low incomes and a certain level of savings. This may be paid with or without the Guarantee Credit. Some of those receiving only the Savings Credit element are not included in these figures if they do not also receive Housing Benefit. It is not possible from the published statistics to derive figures for those above pensionable age receiving Housing Benefit on a consistent basis. Some pensioners aged under 65 are therefore not counted in the above figures. The Housing Benefit data is not produced on a comparable basis for previous years.
35 Figures for 2013 onwards are not yet available.

36 It should also be noted that 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.
37 Note they are absolute numbers, as producing rates is problematic for the reasons outlined earlier.
38 Based on 2011 Census data.
39 Further details of this analysis are available in: GLA Intelligence Update, July 2015, 'Benefit Cap in London'.
40 By lower-layer super output areas.
41 The total wealth of households is made up of a combination of elements, such as financial wealth (savings, stocks, shares etc), physical wealth (household assets etc), property wealth (housing and land, including overseas) and pension wealth (the value of any pension funds), less any debts, including mortgage.
42 ONS, Wealth and Assets Survey 2008/10 and 2010/12.
43 For more information on the London Living Wage see: GLA Economics, 2 November 2015, 'A Fairer London: The 2015 Living Wage in London'.
44 Crisis: About Homelessness – Rough Sleeping. Accessed 1 December 2015.
45 GLA Economics, May 2012, 'London's business case for employee health and well-being'.
46 Available from: Public Health England, 'Jubilee line of health inequality 2004-2008'.
47 Department for Health, April 2014, 'Living Well for Longer: National Support for Local Action to Reduce Premature Avoidable Mortality'.
48 Ibid.
49 Public Health England, July 2014, 'Adult obesity and type 2 diabetes'.
50 See page 32 of: London Health Commission, 2014, 'Better Health for London'.
51 For further details please see various Health Survey's for England.
52 GLA Economics, May 2012, 'London's business case for employee health and well-being'.
53 Although as noted later a number of indicators, although by no means all, have been improving more quickly in the capital than in England as a whole recently and this situation may well have improved since the publication of this report in 2012
54 GLA Economics, May 2012, 'London's business case for employee health and well-being'.
55 GLA, January 2014, 'London Mental Health: The invisible costs of mental ill health'.
56 Ibid.
57 Ibid.
58 GLA Economics, May 2012, 'London's business case for employee health and well-being'.
59 GLA, January 2014, 'London Mental Health: The invisible costs of mental ill health'.
60 This poll was carried out in 2015.
61 Office for National Statistics, 26 March 2015, 'Healthy Life Expectancy at Birth for Upper Tier Local Authorities: England, 2011 to 2013'.
62 ONS, 20 November 2015, 'How long will you live in good health?'
63 Terrance Higgins Trust: HIV in the UK.
64 Pricewaterhousecooper, 2014, 'Cities of Opportunity 6'.
65 London Health Commission, 2014, 'Global City Comparisons: Overview'.
66 Beardsmore, R. & Randall, C., 1 July 2015, 'Measuring National Well-being: International Comparisons, 2015'. Office for National Statistics.
67 Ranking out of 12 UK regions.
68 Ranking out of EU regions for which data is available.
69 I2sare, November 2010, 'Regional Health Profiles in the European Union: United Kingdom – London'.
70 OECD, 2014, 'How's Life in Your Region: Measuring Regional and Local Well-Being for Policy Making'.
71 Includes data from the City of London Police and Metropolitan Police.
72 The ONS notes that: "Domestic burglary rates are shown both by rate per 1,000 population and rate per 1,000 households. Household population figures are from the mid-2012 estimates".
73 London Assembly: Police and Crime Committee, March 2015, 'Tightening the net: The Metropolitan Police Service's response to online theft and fraud'.
74 See: https://data.unodc.org/#state:0
75 Not in Education, Employment or Training.
76 LSE, July 2015, 'New research evidence on social mobility and educational attainment'. Trust for London.
77 Ibid.
78 Ibid.
79 Via the London Datatstore at: GCSE Results by Gender and Location of Educational Institution, Borough
80 Department for Education, 19 November 2015, 'NEET statistics quarterly brief: July to September 2015'.
81 See: http://www.oecd-ilibrary.org/education/data/education-at-a-glance/financial-and-human-resources-investment-in-education_data-00750-en?isPartOf=/content/datacollection/edu-db-data-en

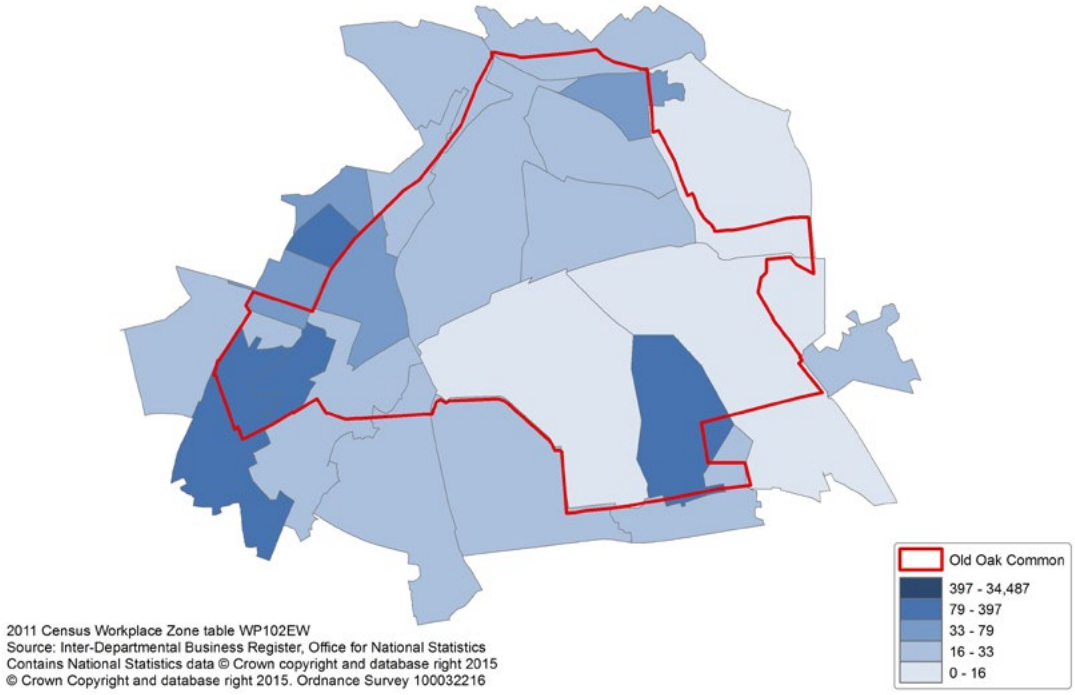
Appendix to Chapter 2 – The spatial characteristics of London

Section A: Development Areas

A.1 Old Oak common

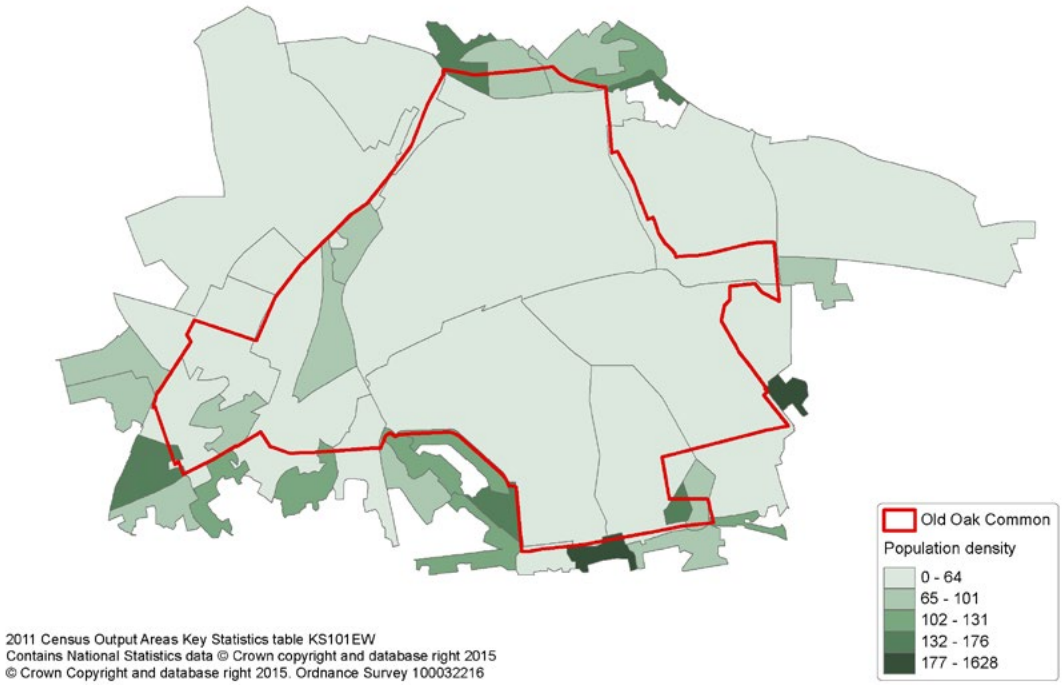
In 2011 it can be seen from Maps A.1 and A.2 that both employment and population where both relatively low in Old Oak Common.

Map A.1: Employment density in 2011 in Old Oak Common (person per hectare)



Source: Census and GLA Intelligence Unit analysis

Map A.2: Population density in 2011 in Old Oak Common (person per hectare)

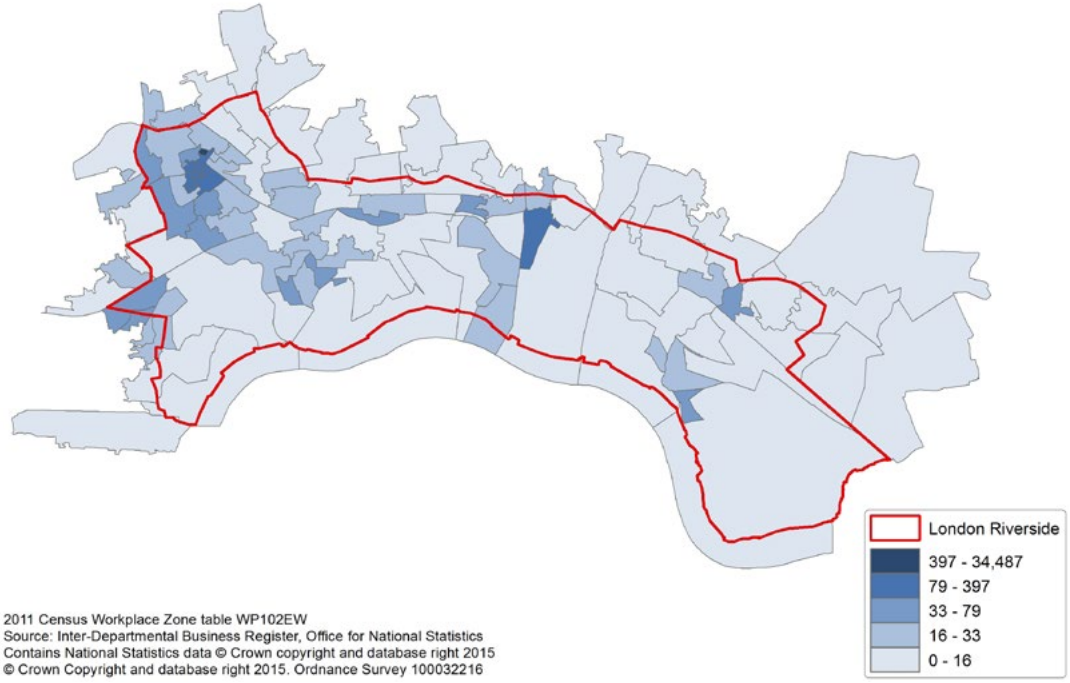


Source: Census and GLA Intelligence Unit analysis

A.2 London Riverside

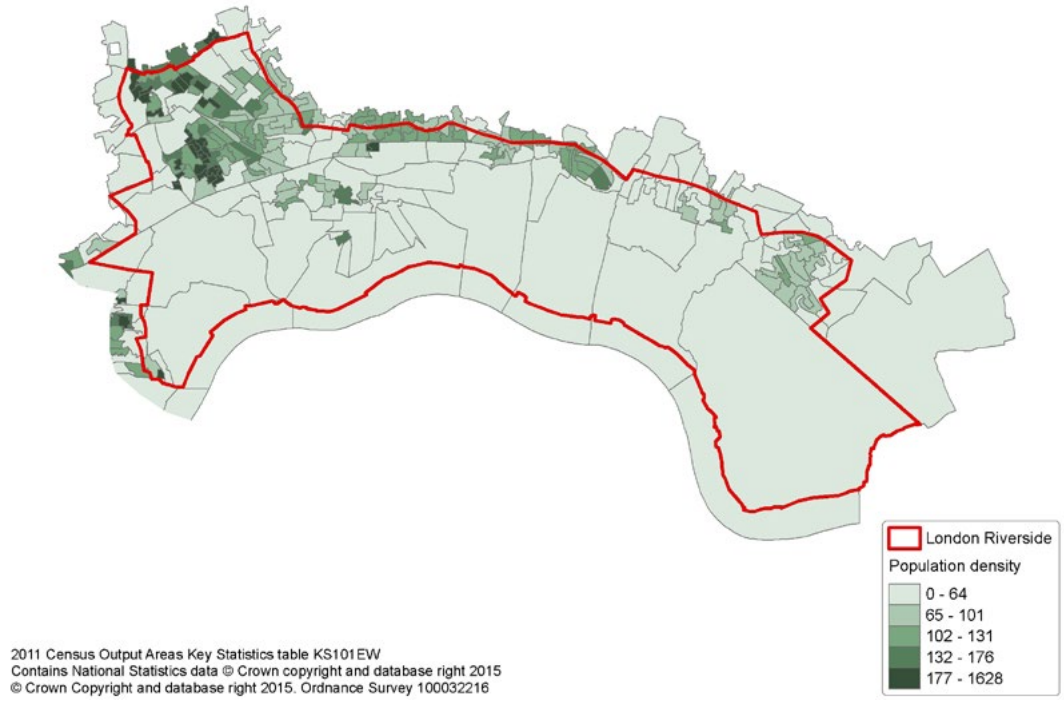
Map A.3 shows that in 2011 London Riverside had relatively low employment density although with higher density to its east and in its centre, while Map A.4 shows that its population per hectare was more concentrated to its north east and along its northern fringe.

Map A.3: Employment density in 2011 in Barking Riverside (person per hectare)



Source: Census and GLA Intelligence Unit analysis

Map A.4: Population density in 2011 in Barking Riverside (person per hectare)

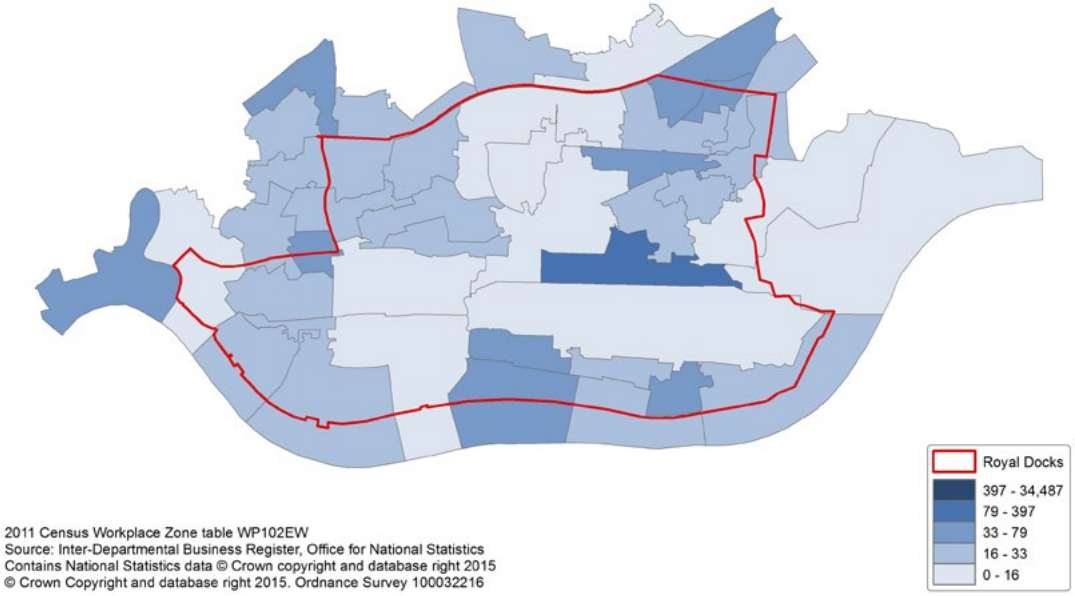


Source: Census and GLA Intelligence Unit analysis

A.3 Royal Docks

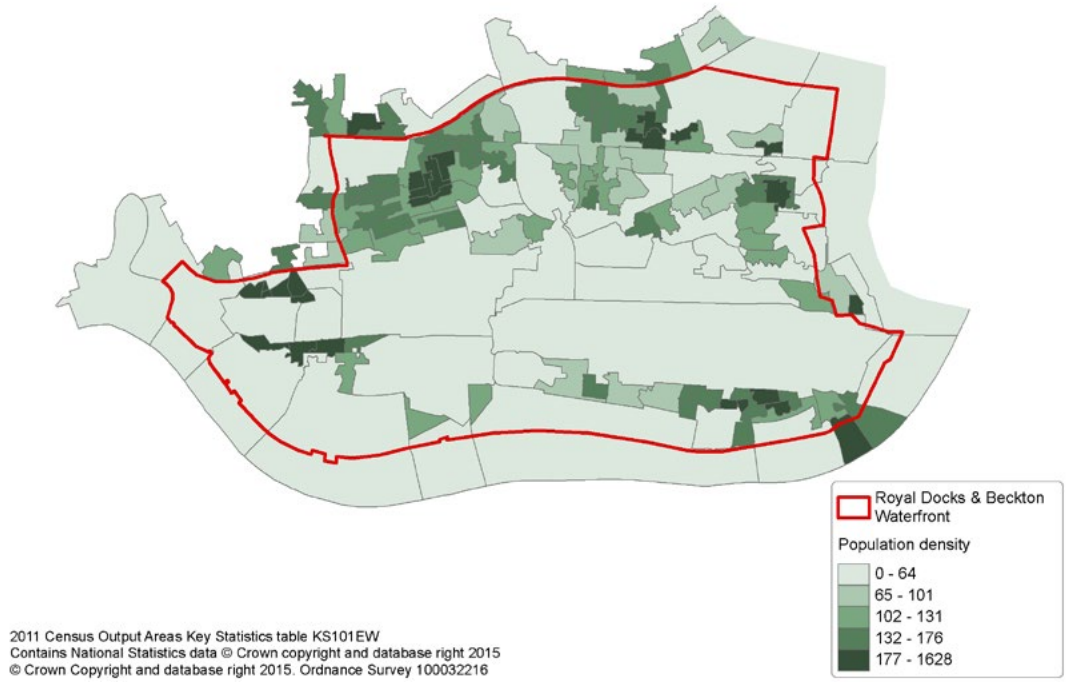
As was the case with London Riverside it can be seen from Map A.5 that employment in the Royal Docks in 2011 was more concentrated around its edge, while for population (Map A.6) the situation is similar in the centre of the area with relatively little population but more varied around the edges.

Map A.5: Employment density in 2011 in the Royal Docks (person per hectare)



Source: Census and GLA Intelligence Unit analysis

Map A.6: Population density in 2011 in the Royal Docks (person per hectare)

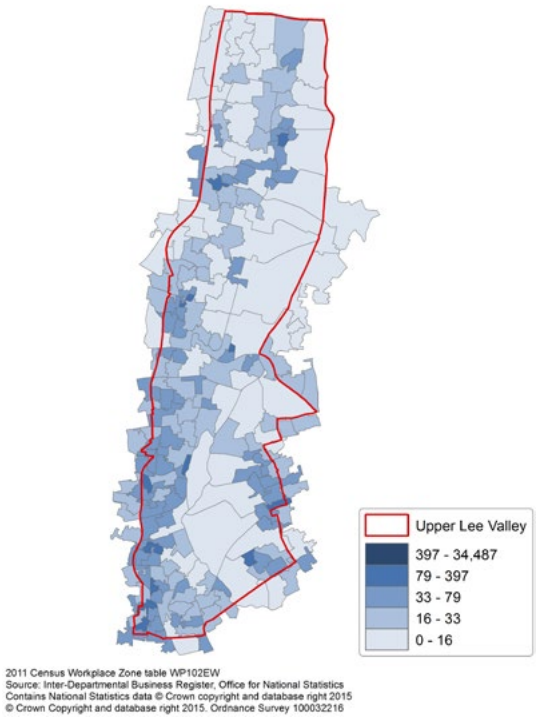


Source: Census and GLA Intelligence Unit analysis

A.4 Upper Lee Valley

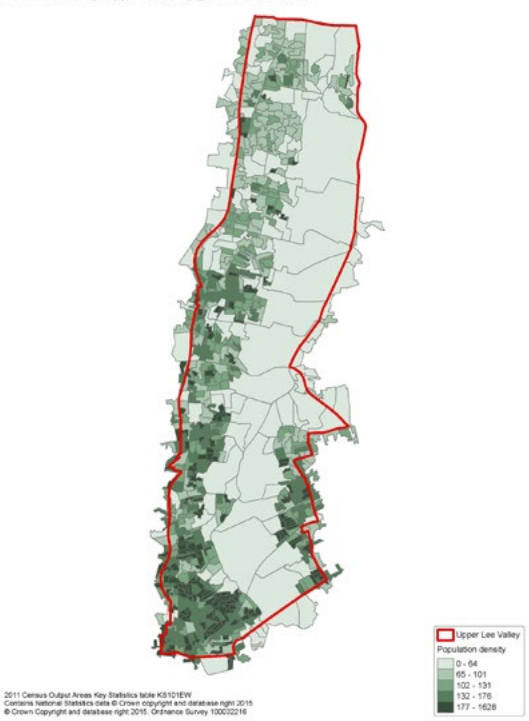
Map A.7 shows a vein of moderately concentrated employment running through the Upper Lee Valley, while Map A.8 shows a generally similar population density pattern, with the population density being more intense on the eastern and bottom western edge of the area.

Map A.7: Employment density in 2011 in the Upper Lee Valley (person per hectare)



Source: Census and GLA Intelligence Unit analysis

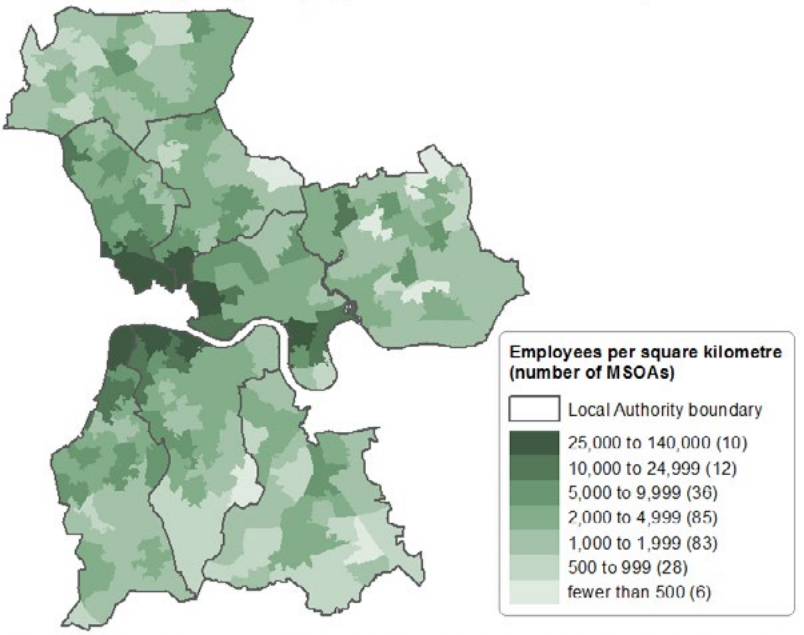
Map A.8: Population density in 2011 in the Upper Lee Valley (person per hectare)



Source: Census and GLA Intelligence Unit analysis

Section B Employment location and specialisation

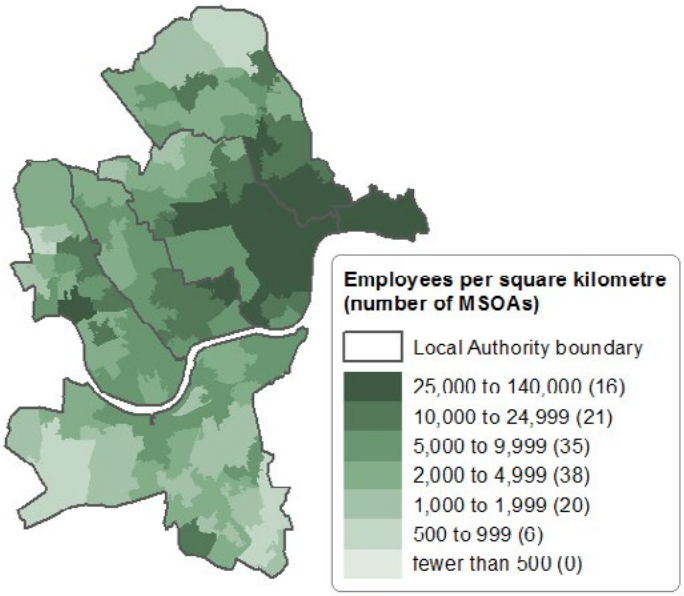
Map B.1: Number of employees per square kilometre in 2013 in Inner London - East



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 2015
Contains Ordnance Survey data © Crown copyright and database right 2015. Ordnance Survey 100032216

Source: BRES

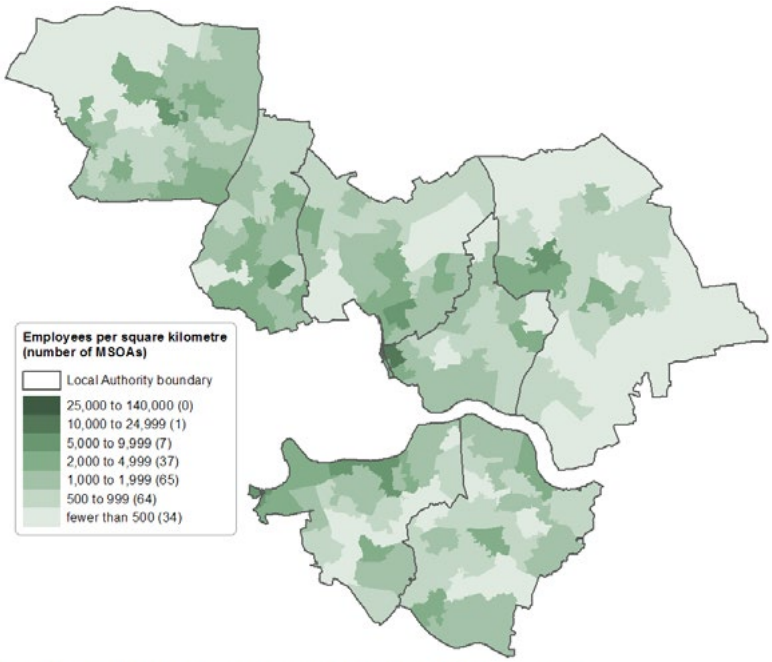
Map B.2: Number of employees per square kilometre in 2013 in Inner London - West



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
Contains National Statistics data © Crown copyright and database right 2015
Contains Ordnance Survey data © Crown copyright and database right 2015. Ordnance Survey 100032216

Source: BRES

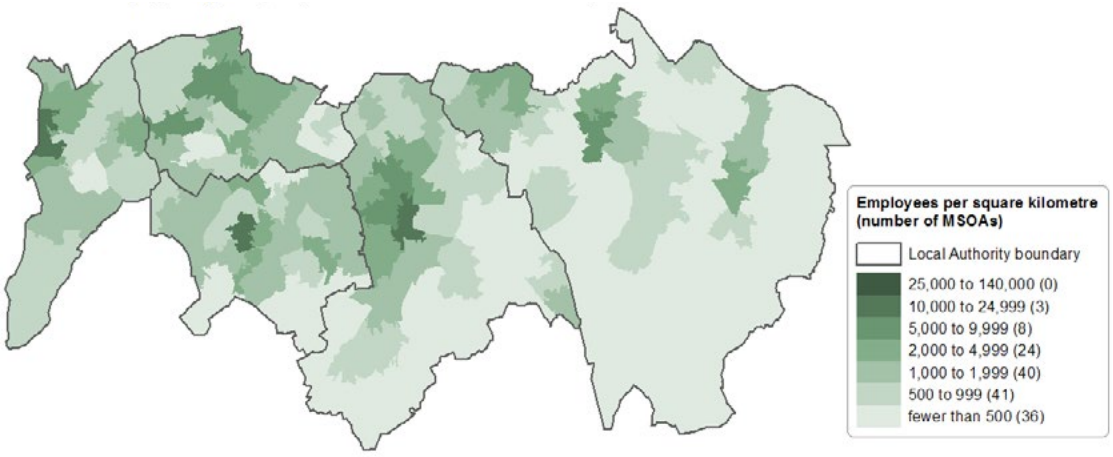
Map B.3: Number of employees per square kilometre in 2013 in Outer London – East & North East



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 2015
Contains Ordnance Survey data © Crown copyright and database right 2015. Ordnance Survey 100032216

Source: BRES

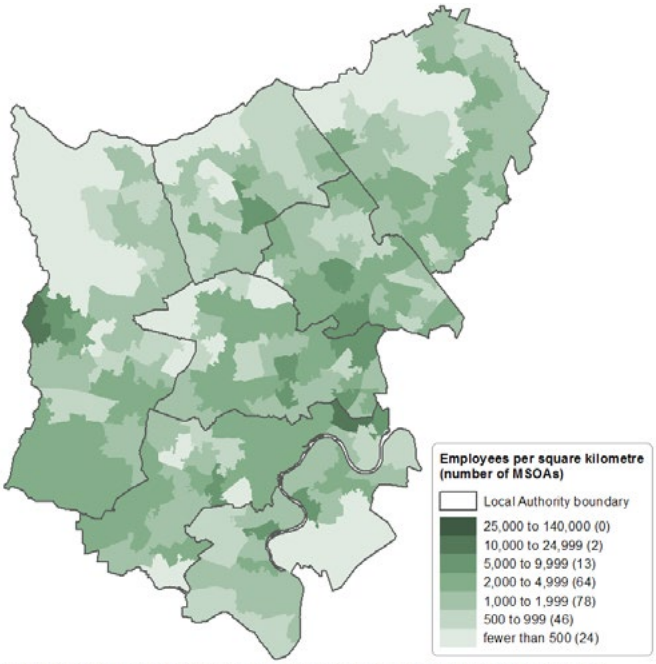
Map B.4: Number of employees per square kilometre in 2013 in Outer London – South



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

Source: BRES

Map B.5: Number of employees per square kilometre in 2013 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

Source: BRES

B.1 The science and technology category[136]

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[137]. Further, in the years between 2003 and 2014, there was a rise of 10.1 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 19.9 per cent – was nearly twice as great, accounting for around 75 per cent of the total rise of 207,200 in the Greater South East (see Table B.1).

Table B.1: 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
Change 2014/2003	156,400	16,800	34,100	207,200
% change 2014/2003	19.9	3.7	4.2	10.1

Source: ONS - IDBR[138] and GLA Economics calculations

As a proportion of total employee jobs, Table B.2 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 around 1 percentage points and in the Greater South East it has also fallen by around 1 percentage point.

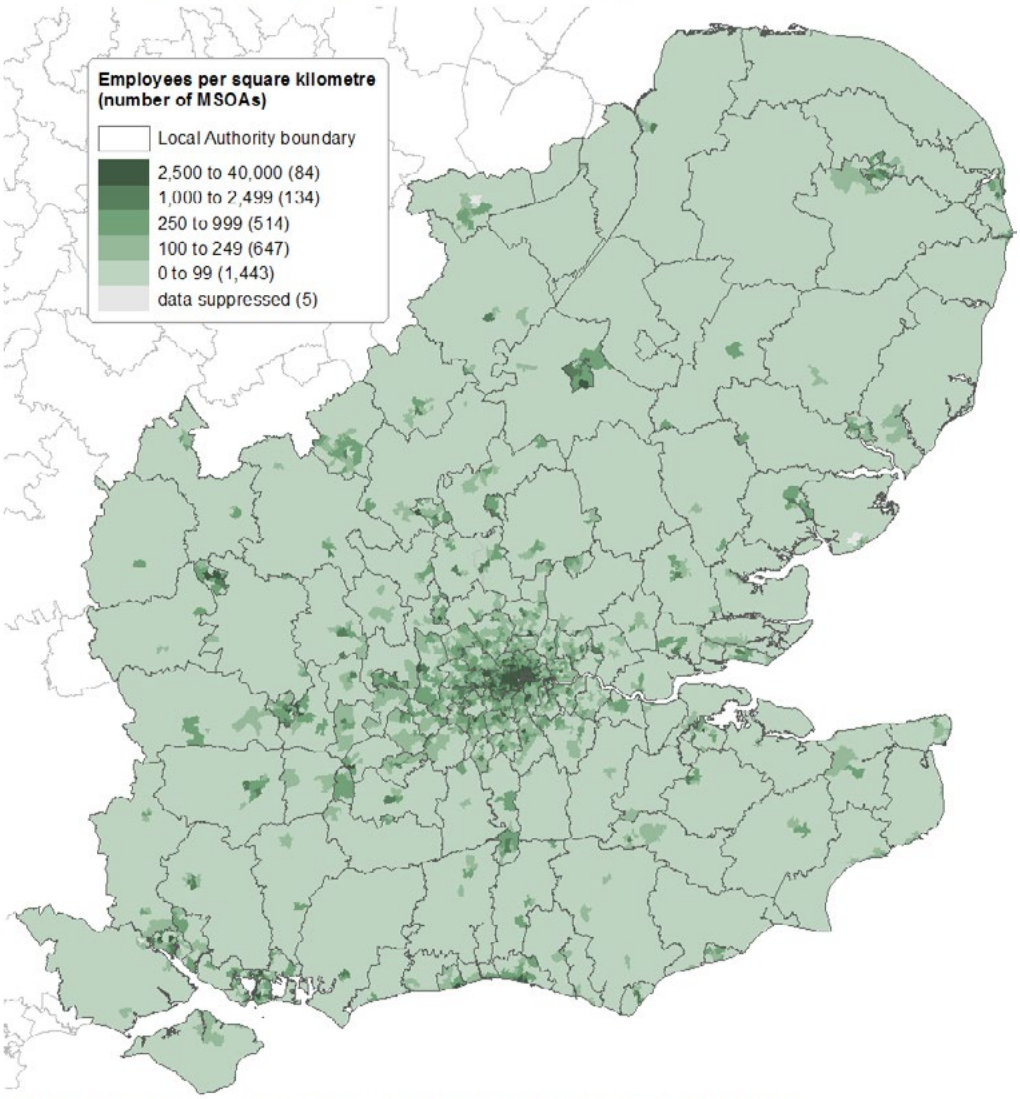
Table B.2: Employee jobs in Science and Technology as % of Total Employee Jobs

	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%

Source: ONS - IDBR and GLA Economics calculations

Maps B.6 to B.8 below show the spatial characteristics of STC jobs, in the Greater South East, London and Inner London in detail. Map A.6 shows a concentration of Science and Technology employee jobs along the M4 Corridor and around Southampton, Norwich, and Cambridge.

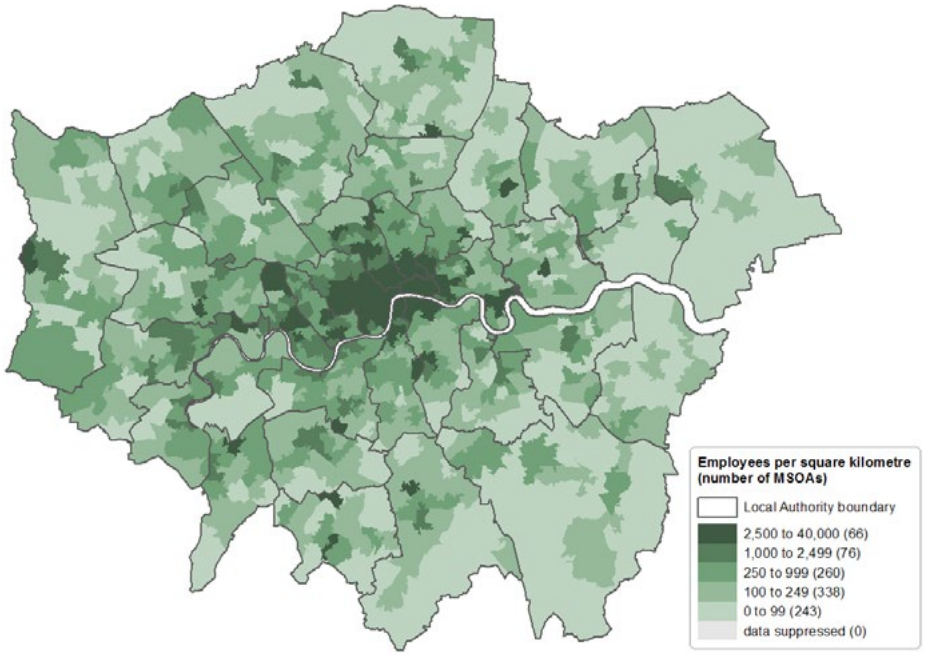
Map B.6: Employee jobs in the STC in the Greater South East, 2014



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

Map B.7 shows a concentration of Science and Technology employee jobs in central and western London and in Bromley (most likely related to the Princess Royal University Hospital).

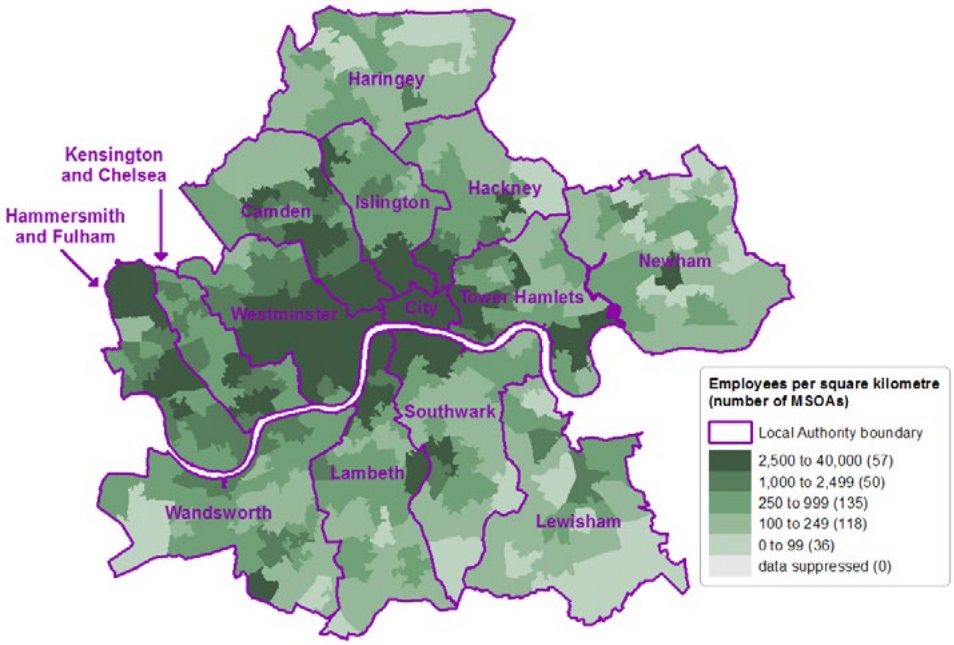
Map B.7: Employee jobs in the STC in London, 2014



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 2015
Contains Ordnance Survey data © Crown copyright and database right 2015. Ordnance Survey 100032216

Map B.8 shows a concentration of Science and Technology employee jobs bordering each other in the Boroughs 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 B.8: Employee jobs in the STC in Inner London, 2014

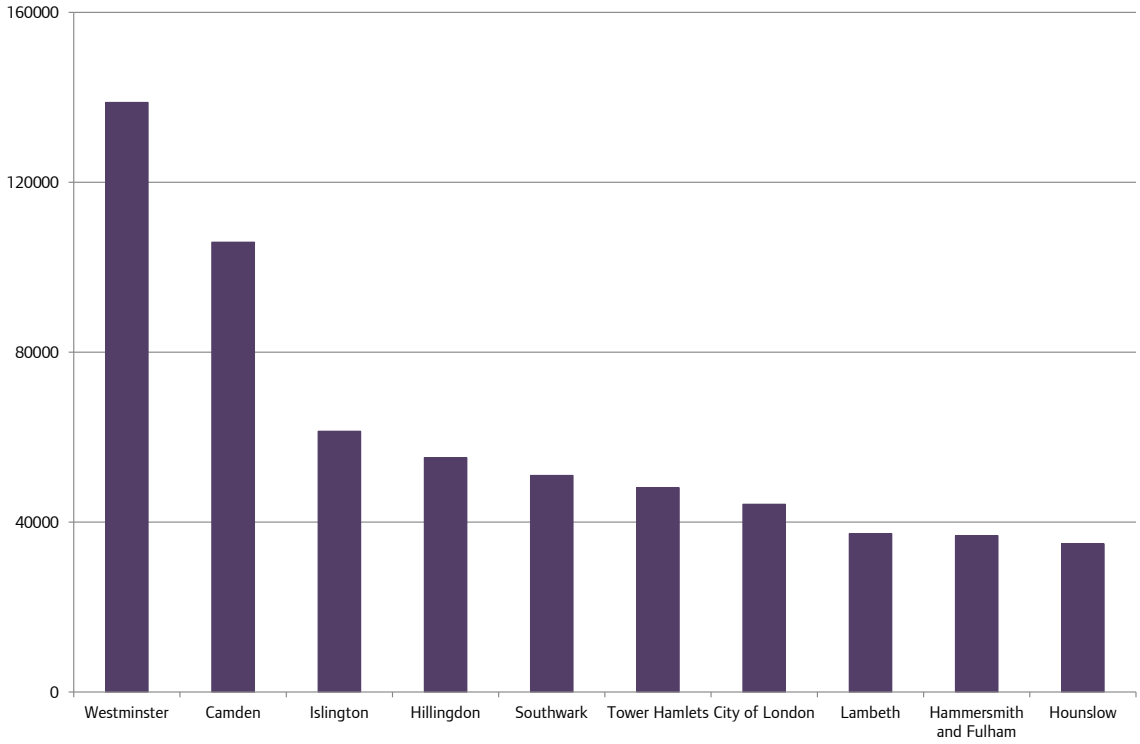


Note: MSOA denotes Middle-layer Super Output Areas, a geography used for the analysis of small area statistics
Source: Inter-Departmental Business Register, Office for National Statistics
Contains National Statistics data © Crown copyright and database right 2015
Contains Ordnance Survey data © Crown copyright and database right 2015. Ordnance Survey 100032216

Turning to the London Boroughs, Figure B.1 shows the boroughs of London with Science and Technology category jobs in 2014 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 B.1: London Boroughs with the highest number of Science and Technology jobs in 2014



Source: ONS - IDBR

Table B.3 shows there has been a rise of over 36 per cent in the number of workplaces[139] in the Science and Technology category in the years 2003 to 2014 in the Greater South East, a much bigger rise than the noted above rise for the number of employees (up 10.1 per cent), implying a fall in the average number of employees per workplace. As with employees, the rise in workplaces in London (up 50.5 per cent) was stronger than the rise in either the Eastern region or the South East.

Table B.3: Workplace units in the STC

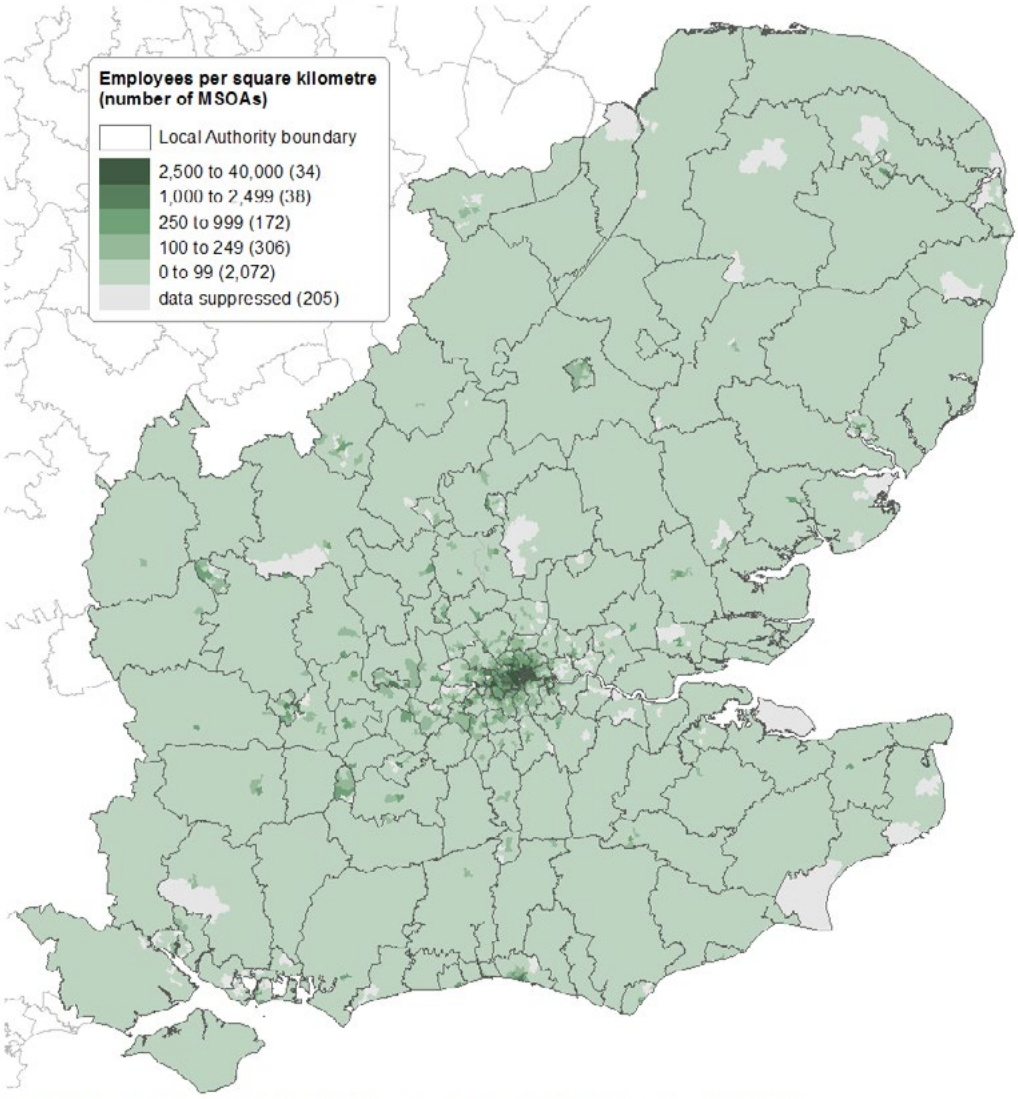
	London	East	South East	Greater South East
2003	67,845	36,635	64,920	169,400
2008	75,685	39,755	69,905	185,345
2013	92,965	43,035	77,980	213,980
2014	102,105	46,245	82,785	231,135
Change 2014/2003	+34,260	+9,610	+17,865	+61,735
% change 2014/2003	+50.5	+26.2	+27.5	+36.4

Source: ONS – IDBR and GLA Economics calculations

B.2 Creative industries[140]

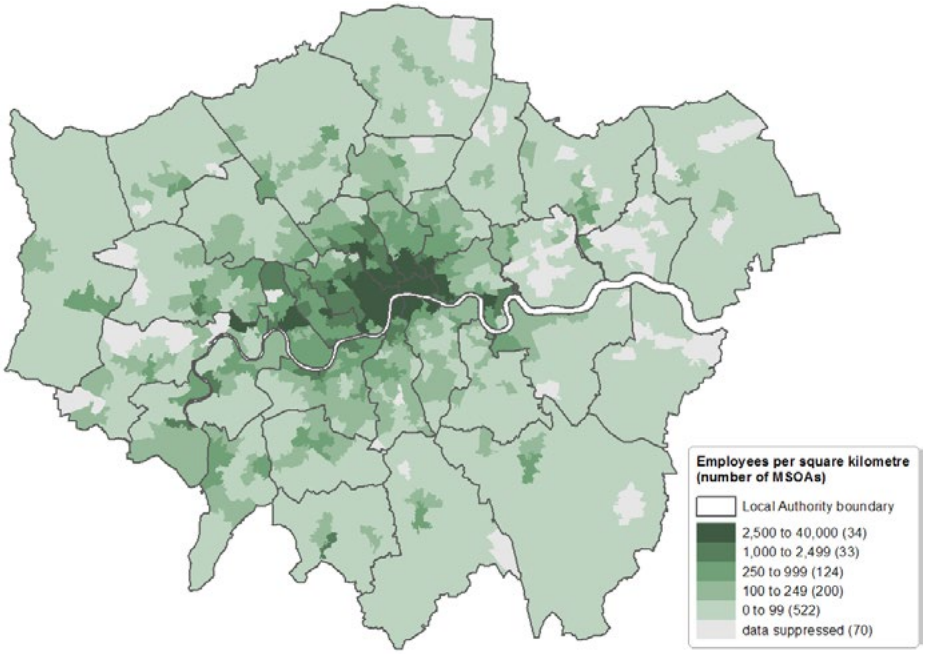
The creative industries[141] are a significant part of London's economy as well as the creative industries for the UK as a whole. With organisations operating in the creative economy are important employers in London. In 2014, there were 795,800 jobs in the creative economy in London, equivalent to 16.3 per cent of total jobs in the capital (compared to 7.4 per cent of the total number of jobs in the Rest of the UK). As can be seen from Maps B.9 and B.10 creative jobs are clustered heavily in London compared to the wider Greater South East although they tend to cluster within Central London, with a corridor into West London.

Map B.9: Number of employees in the Creative industries in the Greater South East, MSOAs (per sq. km), 2014



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

Map B.10: Number of employees in the Creative industries in London, MSOAs (per sq. km), 2014



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

This section examines other geographies of interest in London, this time in terms of some 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.

Appendix to Chapter 2 endnotes

136 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.

137 Theseira, M. January 2012, 'London's Digital Economy', GLA Intelligence Unit.

138 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.

139 Workplaces here do not include workplaces of just the self employed as only employee jobs are examined in this paper.

140 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.

141 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.

Appendices to Chapter 6 - London's People

Appendix 6.1: Headline labour market statistics for London boroughs

This appendix presents the economic activity, employment and unemployment rates for the London boroughs for 2004-2014.

Table 6.19: Economic activity rates by borough, 16-64 years, 2004-2014

Borough	2004	2006	2008	2010	2012	2014
Barking & Dagenham	68.2%	68.7%	70.7%	72.4%	72.3%	72.0%
Barnet	75.3%	73.5%	72.8%	75.1%	74.1%	73.7%
Bexley	79.0%	79.5%	77.6%	77.1%	78.8%	79.6%
Brent	69.9%	70.8%	76.0%	69.8%	74.8%	73.3%
Bromley	80.6%	79.5%	80.8%	77.0%	78.9%	79.1%
Camden	73.0%	71.8%	71.8%	73.7%	70.7%	71.7%
City of London	89.4%	58.7%	92.9%	59.0%	78.2%	!
Croydon	77.9%	77.4%	78.4%	77.8%	80.4%	79.3%
Ealing	74.2%	75.4%	73.4%	74.9%	76.0%	74.2%
Enfield	72.9%	74.3%	72.9%	69.2%	71.8%	74.3%
Greenwich	73.4%	73.2%	70.9%	73.9%	77.7%	74.8%
Hackney	63.2%	66.8%	72.2%	75.9%	70.0%	74.4%
Hammersmith & Fulham	74.7%	75.7%	76.4%	71.5%	76.0%	80.3%
Haringey	64.8%	73.4%	67.5%	68.2%	72.4%	74.3%
Harrow	76.5%	78.3%	73.5%	78.0%	77.9%	76.7%
Havering	77.9%	77.2%	81.1%	73.4%	76.2%	81.6%
Hillingdon	78.1%	77.4%	76.8%	74.7%	77.4%	77.1%
Hounslow	76.0%	79.3%	75.1%	77.6%	78.0%	79.6%
Islington	69.3%	71.9%	72.9%	71.4%	72.5%	73.9%
Kensington & Chelsea	67.7%	66.5%	70.2%	66.9%	69.0%	74.3%
Kingston-upon-Thames	77.0%	77.8%	76.6%	77.6%	75.8%	79.1%
Lambeth	75.7%	69.8%	76.1%	80.0%	79.1%	85.4%
Lewisham	76.7%	76.3%	77.3%	72.2%	75.1%	79.1%
Merton	81.4%	79.0%	82.7%	78.0%	78.8%	80.2%
Newham	60.7%	65.2%	66.1%	63.6%	70.4%	67.1%
Redbridge	77.5%	72.8%	71.1%	70.4%	71.6%	74.5%
Richmond-upon-Thames	74.9%	78.7%	78.7%	80.8%	79.7%	82.3%
Southwark	73.8%	71.1%	73.0%	77.3%	76.3%	79.2%
Sutton	78.4%	81.9%	79.3%	81.4%	80.3%	82.1%
Tower Hamlets	61.6%	62.0%	69.6%	69.4%	69.8%	76.6%
Waltham Forest	68.3%	72.1%	69.8%	73.4%	74.7%	75.1%

Wandsworth	79.6%	77.4%	81.1%	79.0%	79.8%	82.7%
Westminster	68.8%	67.8%	68.5%	68.3%	70.4%	70.5%
London	**73.5%**	**73.8%**	**74.4%**	**74.0%**	**75.3%**	**76.7%**

Note: January to December periods; disclosive figures indicated by "!". Source: ONS Annual Population Survey

Table 6.20: Employment rates by borough, 16-64 years, 2004-2014

Borough	2004	2006	2008	2010	2012	2014
Barking & Dagenham	61.4%	62.2%	64.7%	62.5%	61.9%	63.6%
Barnet	70.5%	68.7%	67.3%	70.4%	66.5%	70.2%
Bexley	76.2%	75.2%	72.1%	70.4%	73.6%	75.2%
Brent	64.3%	63.9%	70.5%	64.2%	66.6%	68.0%
Bromley	76.8%	75.8%	78.1%	72.7%	74.4%	74.8%
Camden	67.8%	66.0%	67.7%	66.2%	65.0%	66.4%
City of London	89.4%	58.7%	87.1%	45.4%	!	!
Croydon	73.4%	72.4%	74.3%	72.0%	71.7%	73.1%
Ealing	69.7%	69.4%	68.8%	67.3%	66.4%	68.2%
Enfield	69.4%	71.1%	66.2%	63.2%	64.2%	69.0%
Greenwich	67.4%	67.7%	66.2%	66.7%	69.4%	66.7%
Hackney	56.1%	58.3%	65.9%	68.0%	63.4%	68.1%
Hammersmith & Fulham	67.2%	69.3%	69.3%	65.8%	68.9%	76.0%
Haringey	57.6%	67.0%	62.5%	62.0%	66.4%	68.0%
Harrow	70.2%	71.6%	68.6%	72.3%	71.3%	72.7%
Havering	75.6%	74.0%	76.8%	68.5%	69.1%	75.9%
Hillingdon	74.7%	70.6%	71.9%	67.0%	69.8%	71.9%
Hounslow	69.3%	71.8%	70.8%	71.5%	72.3%	73.8%
Islington	62.7%	66.4%	68.9%	66.5%	66.0%	68.6%
Kensington & Chelsea	64.0%	62.0%	65.1%	63.5%	65.3%	69.1%
Kingston-upon-Thames	73.9%	74.2%	71.8%	70.3%	70.5%	75.0%
Lambeth	67.0%	64.1%	68.3%	72.7%	70.7%	80.2%
Lewisham	69.7%	70.0%	70.5%	64.1%	67.5%	74.8%
Merton	75.8%	73.4%	77.5%	71.9%	73.0%	74.5%
Newham	55.1%	56.9%	59.7%	54.8%	60.1%	60.3%
Redbridge	74.1%	67.5%	65.7%	64.4%	65.7%	69.4%
Richmond-upon-Thames	71.0%	75.7%	75.8%	74.7%	75.6%	78.1%
Southwark	65.4%	64.5%	66.8%	68.7%	68.8%	72.0%
Sutton	74.0%	77.7%	76.5%	75.5%	74.8%	78.1%
Tower Hamlets	53.2%	53.1%	61.2%	61.1%	61.5%	68.7%
Waltham Forest	62.1%	66.9%	64.2%	63.9%	67.7%	68.2%
Wandsworth	75.7%	71.3%	76.6%	72.5%	74.5%	79.4%
Westminster	63.4%	62.0%	62.5%	61.8%	64.4%	66.3%
London	**68.1%**	**68.1%**	**69.1%**	**67.3%**	**68.2%**	**71.2%**

Note: January to December periods; disclosive figures indicated by "!". Source: ONS Annual Population Survey

Table 6.21: Unemployment rates by borough, 16 years and over, 2004-2014

Borough	2004	2006	2008	2010	2012	2014
Barking & Dagenham	10.1%	9.6%	8.4%	13.5%	14.1%	11.5%
Barnet	6.5%	6.3%	7.4%	6.1%	10.0%	4.8%
Bexley	3.4%	5.3%	7.0%	8.5%	6.4%	5.4%
Brent	8.2%	9.6%	7.1%	8.0%	10.9%	7.0%
Bromley	4.6%	4.7%	3.3%	5.5%	5.5%	5.3%
Camden	7.2%	7.9%	5.7%	9.9%	7.7%	7.2%
City of London	!	!	!	!	!	!
Croydon	5.9%	6.3%	5.1%	7.5%	10.5%	7.8%
Ealing	6.0%	7.9%	6.2%	10.0%	12.3%	7.8%
Enfield	4.9%	4.3%	9.0%	8.5%	10.4%	7.1%
Greenwich	8.0%	7.4%	6.7%	9.6%	10.5%	10.5%
Hackney	11.2%	12.5%	8.7%	10.3%	9.4%	8.4%
Hammersmith & Fulham	10.1%	8.3%	9.1%	8.3%	9.2%	5.3%
Haringey	10.9%	8.5%	7.4%	9.0%	8.3%	8.2%
Harrow	8.2%	8.5%	6.6%	7.1%	8.4%	5.0%
Havering	2.8%	4.0%	5.2%	6.6%	9.1%	6.9%
Hillingdon	4.4%	8.7%	6.3%	10.1%	9.6%	6.5%
Hounslow	8.7%	9.5%	5.9%	7.8%	7.4%	7.1%
Islington	9.3%	7.6%	5.4%	6.8%	8.8%	7.0%
Kensington & Chelsea	5.3%	6.4%	7.1%	4.9%	5.2%	6.9%
Kingston-upon-Thames	3.9%	4.6%	6.3%	9.2%	6.8%	5.3%
Lambeth	11.3%	8.0%	10.2%	8.9%	10.7%	6.3%
Lewisham	9.1%	8.3%	8.6%	11.3%	10.0%	5.3%
Merton	6.8%	7.0%	6.2%	7.6%	7.2%	7.0%
Newham	9.2%	12.6%	9.6%	13.8%	14.6%	10.1%
Redbridge	4.2%	7.2%	7.5%	8.4%	8.1%	6.8%
Richmond-upon-Thames	5.0%	3.9%	3.8%	7.5%	4.9%	4.9%
Southwark	11.2%	9.4%	8.2%	11.0%	9.8%	8.9%
Sutton	5.5%	5.2%	3.5%	7.0%	6.7%	4.9%
Tower Hamlets	13.4%	14.2%	11.9%	12.0%	11.9%	10.3%
Waltham Forest	8.9%	7.3%	7.9%	12.8%	9.2%	9.0%
Wandsworth	4.8%	7.9%	5.5%	8.1%	6.8%	4.2%
Westminster	7.7%	8.4%	8.8%	9.0%	8.4%	5.9%
London	**7.2%**	**7.7%**	**7.0%**	**8.9%**	**9.2%**	**7.0%**

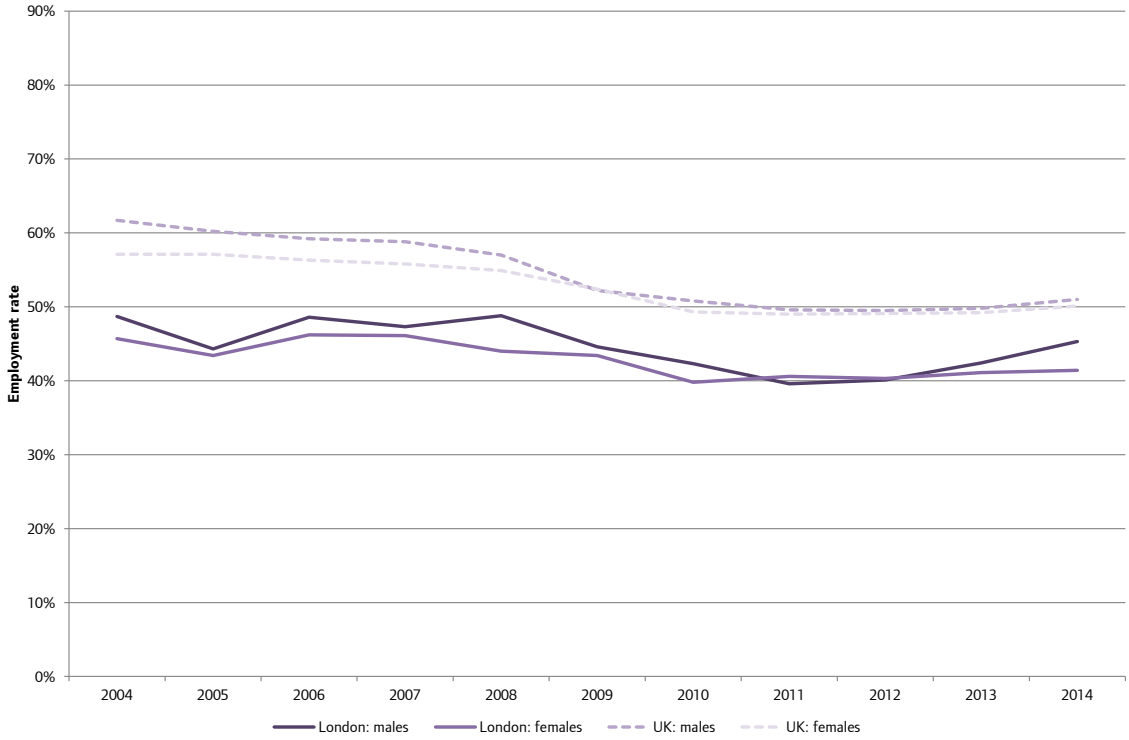
Note: January to December periods; disclosive figures indicated by "!". Source: ONS Annual Population Survey

Appendix 6.2: 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 6.103 below. Although the same can be said for the UK as a whole, the employment rates were consistently above that for London.

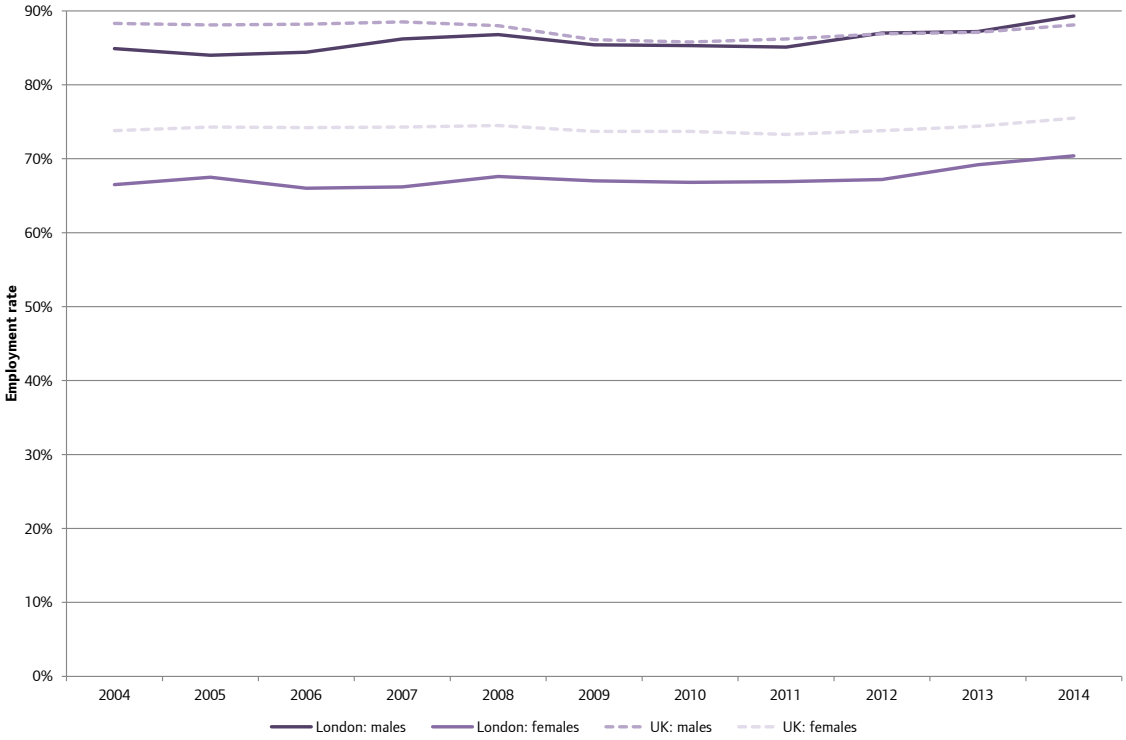
Figure 6.103: Employment rates for the 16-24 age group by gender for London and the UK, 2004-2014



Note: January to December periods. Source: ONS Annual Population Survey

That said, differences between the male and female employment rates were observed for the 25-49 age group (Figure 6.104). For example, 89.3 per cent of men in London were employed in 2014, compared with 70.4 per cent for women. Moreover, whilst the male employment rate for London was similar to the UK, London's female employment rate has been noticeably below that for the UK (this is a statistically significant difference after accounting for confidence intervals). This gap stood at 5.1 percentage points in 2014. 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.

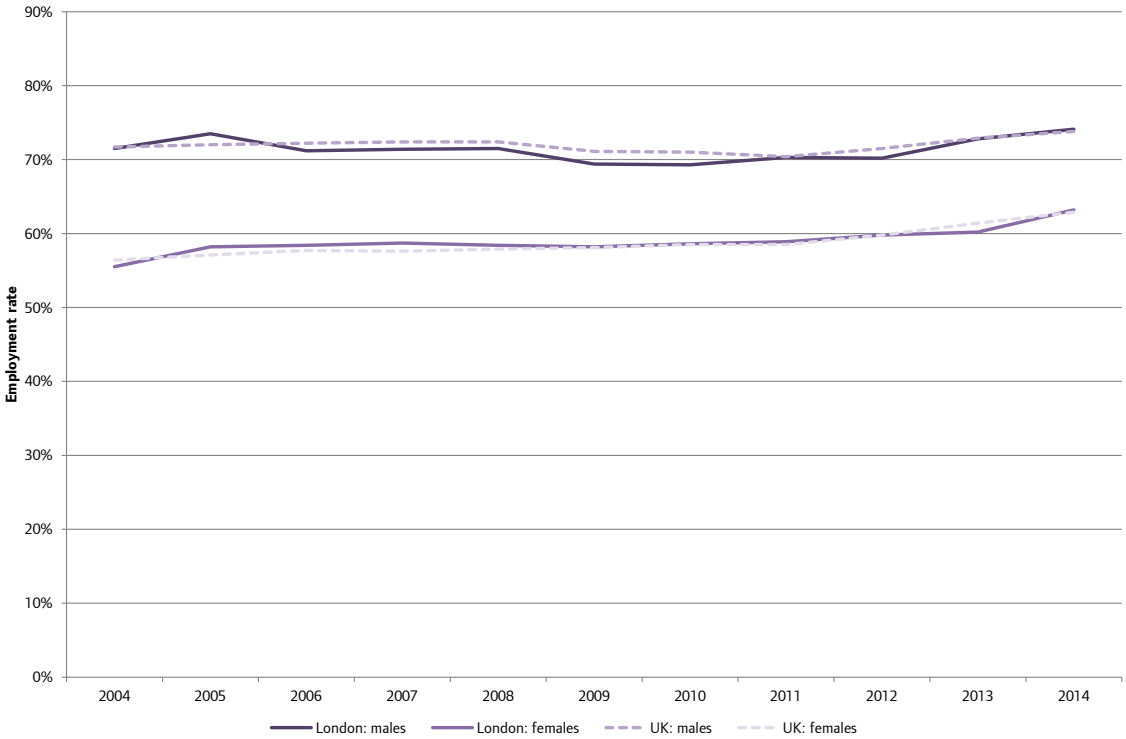
Figure 6.104: Employment rates for the 25-49 age group by gender for London and the UK, 2004-2014



Note: January to December periods. 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 6.105. In fact, after accounting for the confidence intervals, there was no statistical difference between London and the UK.

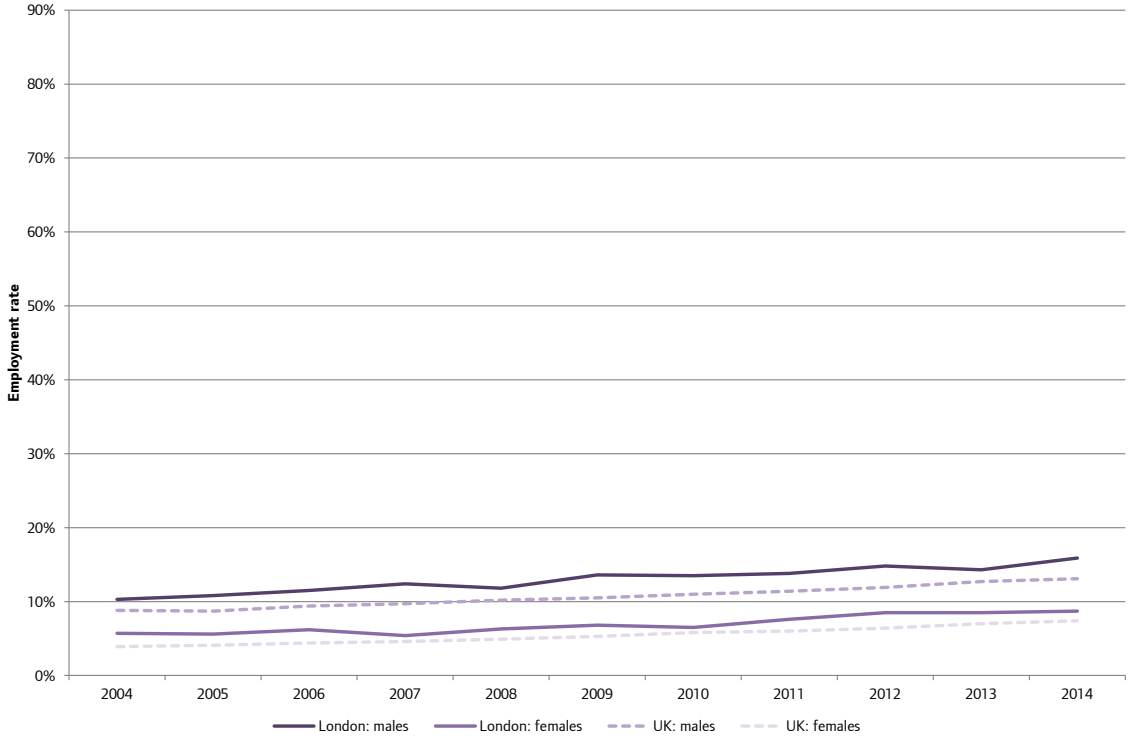
Figure 6.105: Employment rates for the 50-64 age group by gender for London and the UK, 2004-2014



Note: January to December periods. Source: ONS Annual Population Survey

Employment rates for the over 65 age group are shown in Figure 6.106 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 (15.9 per cent in 2014) was generally above that for women (8.7 per cent).

Figure 6.106: Employment rates for the over 65 age group by gender for London and the UK, 2004-2014



Note: January to December periods. Source: ONS Annual Population Survey

GLAECONOMICS

Greater London Authority
City Hall
The Queen's Walk
London SE1 2AA

Tel: 020 7983 4922
Email: glaeconomics@london.gov.uk
www.london.gov.uk/gla-economics-publications

MAYOR OF LONDON