Understanding the demand for and supply of visitor accommodation in London to 2036

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MAYOR OF LONDON

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Executive summary

London is one of the most visited cities in the world.

London is one of the most visited cities in terms of international visitor numbers, comparable to some Far Eastern cities such as Singapore and Hong Kong and outperforming other European cities such as Paris. Total international visitor numbers to London were nearly 15.5 million in 2012 and visitor spend was over £10 billion. London received nearly 18 per cent more international visitor spend than all the other UK regions put together[1]. Both the scale of and character of London's tourism is different from that of any other UK region. The hotel market in London reflects this, being characterised by higher occupancy rates, higher average daily room rates and far higher profitability levels than other regions of the country.

The provision of an adequate supply of visitor accommodation is, therefore, critical for the future success of the sector.

The supply of visitor rooms in London is difficult to estimate...

There is a lack of regular data collected on the stock of visitor accommodation in London. The 1981 and 1991 censuses provided estimates of the level of serviced visitor accommodation in London but, unfortunately, subsequent censuses have not captured this information. However, surveys of serviced visitor accommodation in London have been carried out in 2002, 2006 and 2010. As a result, there is relatively little robust time-series data on the supply of serviced visitor accommodation in London over time.

...but best estimates suggest it has been growing over the last 20 years...

Census figures show that there were around 88,000 serviced visitor rooms in London in 1981 and 1991; by 2010 survey estimates suggest this had increased to 112,300. Our best estimates suggest most of the growth in supply occurred between 2002 and 2010. Growth in the supply of serviced rooms since 2002 has averaged almost 2,400 net additional rooms per year across London.

... with significant growth in the last two years.

Between 2010 and 2012 the supply of serviced visitor accommodation has increased significantly. GLA Economics' estimate of serviced visitor accommodation in 2012 is over 19,000 higher than the previous 2010 estimate. Whilst a sizeable part of this difference is likely to be down to more detailed data collection this time around, support for a significant increase in recent years comes from the London Hotel Development Monitor (LHDM) which shows an additional 11,500 hotel rooms opened in London in 2011 and 2012.

There are an estimated 2,100 accessible rooms in London.

There is no existing data source with information on accessible rooms across all types of accommodation or comprehensively covering all boroughs. Based on the information available and assuming that 5 per cent of newly opened rooms are accessible[2], there are an estimated 2,100 accessible rooms in London.

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[1] Source: International Passenger Survey 2012 (provisional).

[2] Five per cent is the minimum proportion required by Part M of the Building Regulations.

The expansion in supply looks set to continue, at least in the immediate future...

The LHDM provides a good source of information on expected hotel room openings over the next few years. The LHDM suggests that strong growth in supply will continue at least for the next few years with over 5,500 hotel rooms expected to open in 2013 (4,000 of which are already under construction) and at least another 10,000 rooms likely to open in 2014 and 2015.

... suggesting there may be over 40,000 net additional serviced accommodation rooms in London by 2036.

Given the nature of past information on visitor accommodation in London, projecting the supply of London's visitor accommodation using just supply side information is problematic. However, taking information on likely openings up to 2015 (together with best estimates of closures) and using the 1991–2010 long-term trend in supply of visitor rooms from 2015 on would suggest a potential increase of around 42,000 in the stock of serviced visitor accommodation in London by 2036.

However, the supply of visitor accommodation in London depends on the future demand for it ...

The need for visitor accommodation in the future requires a consideration of what is likely to happen to the number of nights stayed in London by tourists over time. Unfortunately, there are numerous data issues surrounding historic time series of tourism nights stayed in London. In particular, a lot of the international visitor data has major discontinuities when going back beyond 1997. Moreover, there are a wide range of factors that could impact on future nights stayed in London.

As a result, in order to project the number of nights stayed by tourists in London, GLA Economics has considered a variety of methodologies, or scenarios. The methodologies consider a number of different factors including simple extrapolation of past trends; relating growth in tourism nights in London to changes in GDP in origin countries; and, using forecasts commissioned from Oxford Economics by London & Partners for example. However, it is important to realise that the future is essentially unknown and there will always be a wide margin of uncertainty associated with such projections, especially at a time when there is considerable economic uncertainty.

A central projection of 146.2 million international tourist nights by 2036...

For international tourists to London alone, there is a central projection estimate in 2036 of 146.2 million nights. However, the actual range yielded by the various methodologies, or scenarios, stretches from 98.0 million to 217.2 million nights. All the projections, or scenarios, display some level of tourism growth.

... with the domestic market adding to this.

A different approach to projecting the future of the domestic market was required on account of the fact that it is covered by a different survey with even more limited data. The central projection estimate for domestic nights is around 37 million nights in 2036.

... totalling 183.6 million nights by 2036.

The aggregation of the two markets, international and domestic, results in a central projection estimate of 183.6 million nights by 2036. However, it should be noted that the combination of the various scenarios produces a large range from roughly 132 to 257 million nights.

Converting projected nights to a figure for new rooms is challenging ...

The projected number of nights passed by tourists – international and domestic – in the capital is a means to an end. The purpose of understanding what is likely to happen to tourism nights in London is to understand what level of future visitor accommodation is likely to be required (in order to be able to plan for it effectively).

... but our best estimates suggest an annual need for just under 1,800 net new serviced visitor rooms between now and 2036.

There are a number of ways in which the number of tourism nights can be converted into a requirement for serviced visitor rooms. Using our best estimate of the past relationship between tourism nights in London and the level of serviced accommodation in London, our central projection for the number of serviced visitor rooms required by 2036 is 42,900 (or just under 1,800 net new serviced visitor rooms per annum).

1 Introduction

Tourism is an important sector for London. The capital is one of the most visited cities in the world in terms of international visitor numbers, comparable to some Far Eastern cities such as Singapore and Hong Kong, outperforming other European cities such as Paris. Total international visitor numbers to London were nearly 15.5 million in 2012 and visitor spend was over £10 billion. Domestic visitors – both day and overnight visitors – add to this total.

The scale and character of London's tourism is different from that of any other UK region. The capital dominates Britain's most visited tourism attractions with some sites (such as the British Museum) clocking up more than five million visits every year. London's hotel market also reflects this – characterised by higher occupancy rates, higher average daily room rates and far higher profitability levels than other regions of the country. Analysis of occupancy rates in Central London suggests that chain hotels are often bordering upon 80 per cent – and, at certain times of the year (usually June and July), even exceeding 90 per cent. This is broadly 10 to 15 percentage points higher than the rest of England and 10 percentage points higher than either Scotland or Wales at most times of the year. Average daily room rates in the central area are nearly twice that of the rest of England. In terms of occupancy, revenue per available room and gross operating profit, Central London has far more in common with European cities such as Brussels or Paris than with other parts of the UK.

Given the importance of tourism to London's economy, it is important to ensure there is sufficient visitor accommodation in London. To that end, the London Plan has traditionally set a 'benchmark target' for the provision of new hotel bedroom supply. In order to understand the need for visitor accommodation in London it is necessary to come to a view on the likely future demand.

In the past there have been a number of studies examining the future of hotel demand in Greater London. These have included:

- PriceWaterhouseCoopers (2002)[3]
- Grant Thornton and the Leisure & Tourism Organisation (2006)[4]
- Grant Thornton (2010)[5]

GLA Economics was asked by the Greater London Authority (GLA) London Plan team to update work surrounding the demand for serviced visitor accommodation to see whether the existing London Plan benchmark target (Policy 4.5) for serviced rooms needed revising. The work was to also include an update around the accessibility of serviced visitor accommodation.

The first part of this report examines the supply side of the London market. It sets out the best estimate of the current supply of serviced (and non-serviced) visitor accommodation in London. It also looks at the potential growth in supply of visitor accommodation over time (from focusing on the supply side only).

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[3] 'Demand and capacity for hotels and conference centres in London' (August 2002): http://www.london.gov.uk/sites/default/files/archives/uploads-tr13_hotels.pdf
[4] 'Hotel Demand Study' (June 2006): http://www.london.gov.uk/sites/default/files/archives/uploads-hotel-demand-study.pdf
[5] 'Accessible hotels in London' (March 2010): http://www.london.gov.uk/sites/default/files/archives/Accessible-Hotels.pdf

The report then moves onto the demand side, illustrating how visitor nights in London have moved over time. It sets out how GLA Economics has gone about projecting visitor nights over time and its central projection for visitor nights. The report finishes with the projection for nights converted into the likely requirement for serviced visitor accommodation over time.

A series of appendices provide more detail on the work outlined in this report.

2 The supply of visitor accommodation in London over time

Main findings:

- GLA Economics has produced a database of accommodation in London for December 2012. The database updates that produced in 2010 using sources such as the internet, planning permissions data and a network of contacts in the London Boroughs.

- 1,735 establishments across Greater London provide an estimated 131,600 serviced rooms. Of these, the vast majority (108,200) are in hotels, with the rest shared between B&Bs and hostels. Adding 'non-serviced' accommodation in HE establishments and apartments takes the number of rooms available in London to 165,700.

- The Central London boroughs and the areas immediately adjacent to Heathrow have the highest concentrations of visitor rooms.

- Whilst past estimates of the supply of visitor accommodation in London are infrequent and inconsistent with one another, best estimates suggest that over the 1991 to 2010 period, the average net growth in serviced visitor rooms per annum was just over 1,300.

- There appears to have been significant growth in rooms in London during 2011 and 2012.

- Data from the LHDM suggests that the significant expansion of hotel rooms is likely to continue for the next few years at least. Using this information (together with estimates of closures) and taking the long-term trend between 1991 and 2010 for the period after 2015 suggests the stock of serviced rooms will increase by 42,000.

This section looks at the visitor accommodation market in the capital and historical trends within it.

Historical estimates of visitor accommodation in London

The census and the London Tourist Board (which became first 'Visit London' and, more recently, London & Partners) have in the past provided estimates of the stock of visitor rooms in London. These estimates have tended to focus on rooms in serviced accommodation. Serviced accommodation includes hotels, bed and breakfasts/guesthouses and hostels; whereas non-serviced accommodation includes campus accommodation made available for part of the year to visitors and short-term rental apartments.

The 1981 and 1991 censuses provided an estimate of the number of visitor rooms in serviced accommodation. According to the census there were around 88,000 rooms in serviced accommodation in both 1981 and 1991. This included rooms in all hotels, bed and breakfasts and youth hostels with over 10 rooms providing visitor accommodation. It should be noted that these estimates include all rooms – bedrooms, lounges, dining rooms etc., so over-estimate the number of serviced bedrooms available in London.

Visit London (then 'the London Tourist Board') conducted a comprehensive survey of serviced visitor rooms in 2002. Based on this survey, there were an estimated 93,200 serviced visitor rooms in London. At this time Visit London estimated there were a further 28,700 visitor rooms in non-serviced accommodation.

In 2006, Visit London conducted another survey of visitor accommodation in London, based on this they estimated there were 102,800 serviced visitor rooms in London and a further 26,700 non-serviced visitor rooms.

In 2010 Grant Thornton produced an updated estimate for the GLA. It estimated there were 112,300 serviced visitor rooms in London in 2010. It also provided a database of serviced and non-serviced accommodation. This database did not include specific data on the number of rooms in non-serviced accommodation. However, based on the database we now estimate there were a total of 143,000 serviced and non-serviced visitor rooms in London in 2010.

Table 2.1: Estimates of serviced accommodation in London

Year	Estimate	Source
1981	88,100	1981 census
1991	87,400	1991 census
2002	93,200	Visit London
2006	102,800	Visit London
2010	112,300	Grant Thornton

Table 2-1 shows how these estimates compare. While these estimates give a general indication of the change in the number of serviced visitor rooms in London over time, they are not necessarily consistent with each other so do not provide a precise estimate of change.

Current supply of visitor accommodation in London

To understand the current supply of visitor accommodation in London, GLA Economics has produced a comprehensive estimate of the total number of visitor rooms across all types of accommodation. That is, GLA Economics looked at all serviced and non-serviced visitor accommodation – hotels, bed and breakfasts, guesthouses, hostels, campus accommodation, caravan parks along with serviced and non-serviced apartments. Serviced and non-serviced rooms tend to have quite different planning requirements. As a result, in the main this document focuses on serviced accommodation, whilst highlighting the position for all visitor accommodation where relevant/possible.

Method for establishing visitor accommodation in 2012

To provide an estimate for the number of visitor rooms in London at December 2012 the 2010 database produced as part of the Grant Thornton report[6] was used as the starting point. Each entry was checked to confirm whether the establishment was still trading as visitor accommodation. Planning permission data, the internet and borough contacts were used to add establishments opening since 2010 and any missed from the 2010 update.

The London hotel market is a very dynamic one and many establishments trading in 2010 have closed or changed use, for example from hotel to office or bed and breakfast to residential. As much as possible we have excluded establishments that were open in 2010 and are no longer trading as visitor accommodation. We have also excluded any establishments that are used as temporary housing for local residents rather than visitor accommodation.

This provided a robust estimate of most types of accommodation. It should be noted that this, may still however under-estimate the number of short-term rental apartments privately rented by visitors. Planning information is less available for this type of visitor accommodation than for example hotels, and due to the nature of this market segment, it is harder to identify apartments from internet searches.

Results

There were an estimated 2,175 establishments in London providing visitor accommodation in London in 2012. These establishments provided an estimated 165,700 rooms. Table 2.2 shows the breakdown by establishment type.

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[6] 'Accessible hotels in London' (March 2010): http://www.london.gov.uk/sites/default/files/archives/Accessible-Hotels.pdf

Table 2.2: Visitor accommodation in London 2012 by accommodation type

	Establishments	Rooms	Average rooms / establishment
B&B	844	18,900	22
Hotel	772	108,200	140
Hostel	119	4,500	30
Serviced Subtotal	*1,735*	*131,600*	
Campus	93	23,800	260
Apartments (including those referred to as 'serviced' apartments)	344	10,300	29
Non-serviced Subtotal	*437*	*34,100*	
Total	**2,175**	**165,700**	

Source: GLA Economics

Table 2.2 shows there were an estimated 844 bed and breakfasts in London in 2012 accounting for almost 40 per cent of all establishments providing visitor accommodation in London, more than any other type. There are an estimated 772 hotels in London, along with an estimated 119 hostels making up the serviced visitor accommodation in the capital.

In addition, there were 344 self-catering apartments, along with 93 campuses providing visitor accommodation in London in 2012. Campus accommodation opened up to visitors in general is not available all year.

Due to their size, with an average of 140 rooms each, hotels provide the majority of the visitor rooms in London. Hotels account for two-thirds of the visitor rooms in London.

Map 2.1 shows how the 165,700 rooms are distributed across London.

Map 2.1: Distribution of room supply by London Borough
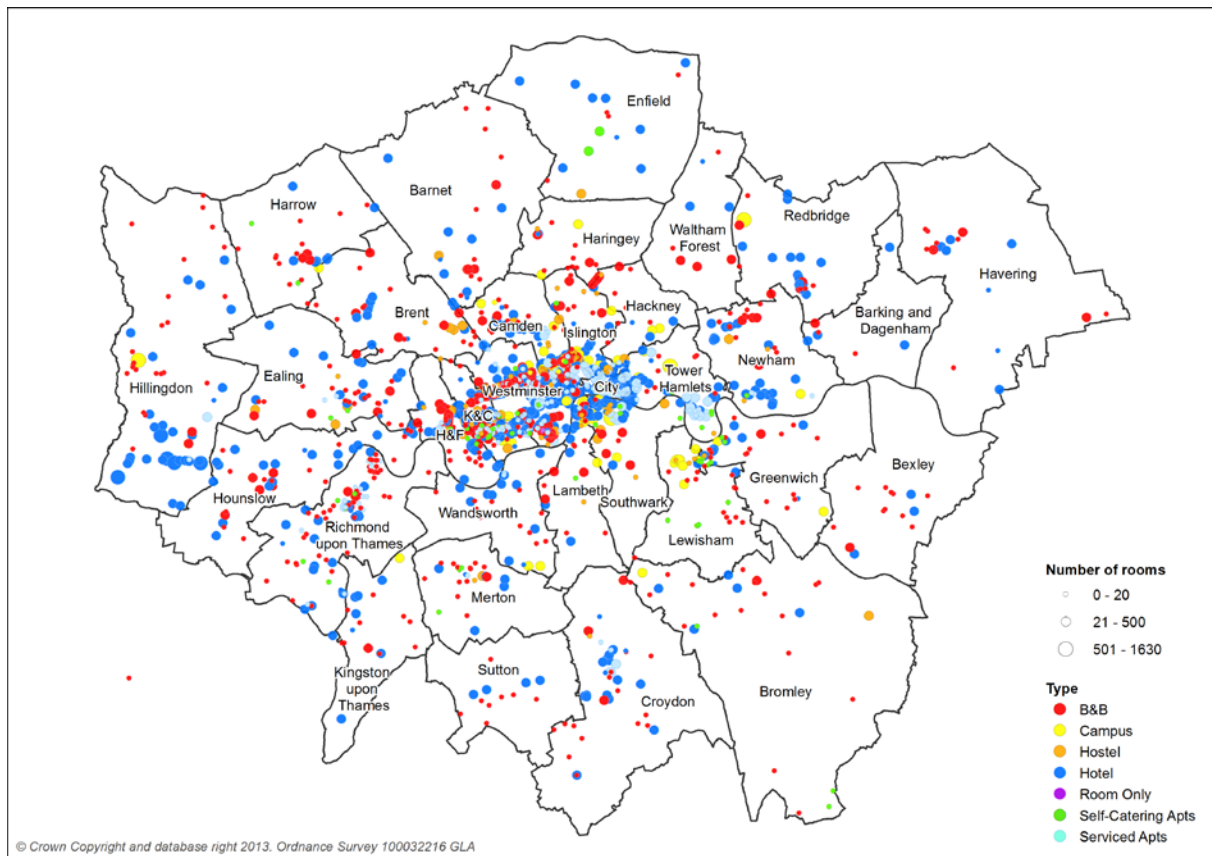
Source: GLA Economics

The number of rooms varies a great deal by borough. The distribution across boroughs can be seen on Map 2.1 above. The Central London boroughs and Hillingdon and Hounslow (around Heathrow) have the greatest concentrations of visitor rooms. Westminster has the highest number – with over 40,000 rooms available to visitors. Most of the outer boroughs have less than 2,000 rooms each, with many having considerable fewer, for example, there are an estimated 250 visitor rooms in Sutton.

Comparison to previous estimates

In 2010, there were 112,300 serviced visitor rooms in London. In 2012 there are an estimated 131,600 – an increase of 19,300.

Looking at serviced and unserviced accommodation, GLA Economics estimates there were 165,700 visitor rooms in 2012 compared to 143,000 total visitor rooms in 2010. This represents a 15 per cent increase in room stock over two years.

A significant proportion of this increase may be due to improved data collection. Information we have received from the boroughs, notably from Westminster, suggests that the data collected in 2010 was indeed less comprehensive than our latest estimate.

Moreover, the LHDM shows an additional 11,500 hotel rooms opened in London in 2011 and 2012. This covers serviced rooms in larger hotels (those with at least 20 rooms), which the GLA Economics data gathering suggests accounted for the bulk of openings in 2011 and 2012. The LHDM suggests that most of the growth in rooms in (almost 8,000 rooms) came in 2012. This may well be as expected with 2012 being the year of the Olympics.

Comparing the databases for 2010 and 2012 shows an increase in serviced rooms of 19,300, which, as already stated, is likely to be an over estimate of the actual change in the number of serviced rooms. The LHDM figure does not include closures so is an over estimate of the net change in the number of rooms in larger hotels, but does not cover the whole market for serviced rooms. It does not include bed and breakfast, smaller hotels or hostels for example.

Figure 2.1: London Hotel Development Monitor actual and forecasted new hotel rooms in London 1989-2017
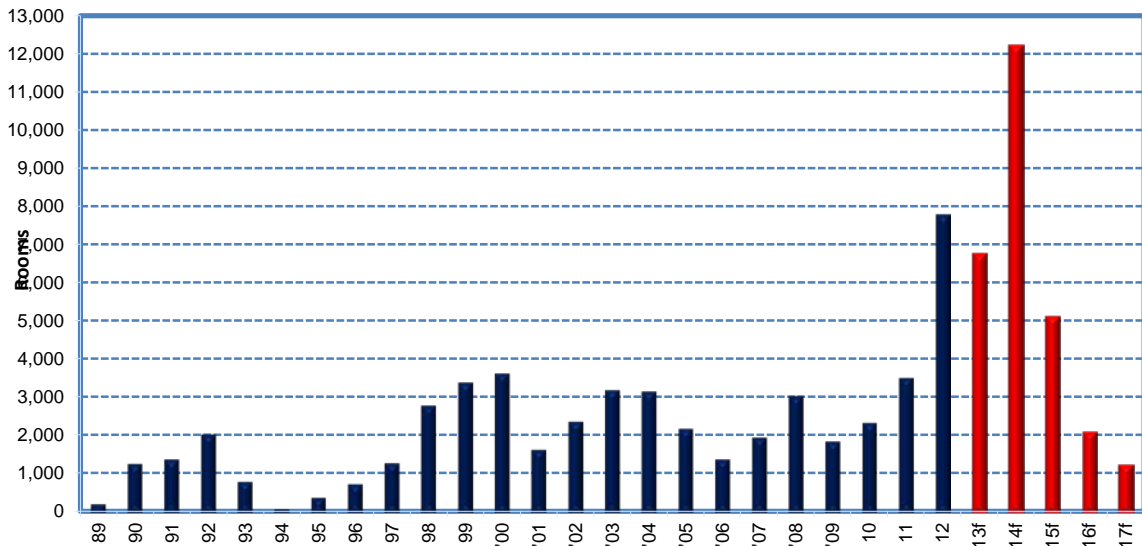
Source: London Hotel Development Monitor

Putting this information together suggests there has been a significant level of growth in the number of visitor rooms in London in 2011 and 2012. The actual level of change in serviced rooms is likely to be between 11,500 and 19,300.

Figure 2.2 shows our best estimate of the trend in serviced (and all) visitor accommodation over time. It should be noted that there is very little information on serviced accommodation over time (and even less information on all rooms over time). As a result, Figure 2.2 interpolates potential room numbers in years where no data exists. Figure 2.2 should, therefore, be treated as an estimate of the trend in rooms over time – rather than a precise estimate of the number of rooms over time. Figure 2.2 shows that the increase over the last two years has been higher than any other increase over the last 20 years.

Figure 2.2: Interpolated growth in visitor accommodation 1981–2012
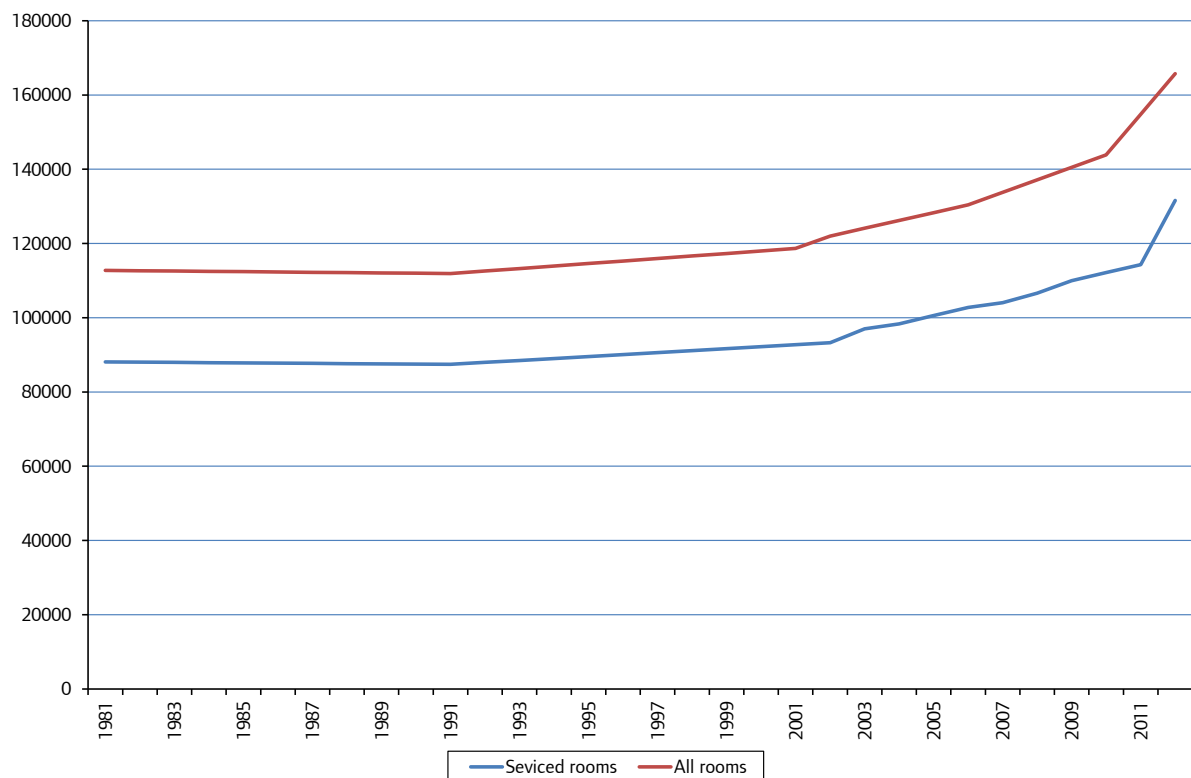
Source: GLA Economics estimates

Notes:

1) 'Serviced' shows rooms in hotels, B&Bs and hostels; 'All' adds campus accommodation and apartments to this.
2) The figures for 1981 and 1991 are taken from the census, 1992-2012 estimates are based on a combination of Visit London accommodation censuses in 2002 and 2006, the 2010 database and GLA Economics' 2012 estimate.
3) Data points in between these data points have been interpolated.
4) For 'all rooms' the ratio of serviced rooms to all rooms from recent years has been used to provide estimates for 1981 and 1991.

The chart shows that our best estimate is that there has been continued growth in visitor rooms in London over the last 20 years or so. However, growth was relatively modest from 1991 to 2002. The period between 2002 and 2010 saw more significant growth – the number of serviced rooms increased by an average of 2,300 rooms per year. Indeed, information from the London Development Database (LDD) which contains planning permission data on new hotels with seven or more rooms, suggests an average net annual growth of around 2,000 rooms since 2001. Similarly, the LHDM suggests that around 2,200 rooms opened on average between 1989 and 2012.

As a result, all sources suggest a broadly similar magnitude of growth of serviced visitor accommodation up to 2010. The LHDM and our data gathering[7] suggest this growth has been significantly surpassed since 2010.

Spatial distribution of the change in visitor accommodation between 2010 and 2012
Comparing the estimate of visitor accommodation in 2012 with that in 2010 shows the areas where there has been a change in visitor accommodation. As noted earlier, part of this difference may be due to improved data collection. However, we have no information to suggest there was any 'spatial bias' in the collection of information as between 2010 and 2012. As a result, a comparison of the 2010 and 2012 datasets should provide a reasonable indication of the change in visitor accommodation over time.

Map 2.2 shows how the change in visitor accommodation (across all accommodation types) is distributed across the London Boroughs.

Map 2.2: The change in visitor accommodation over the last two years – distribution by London Borough
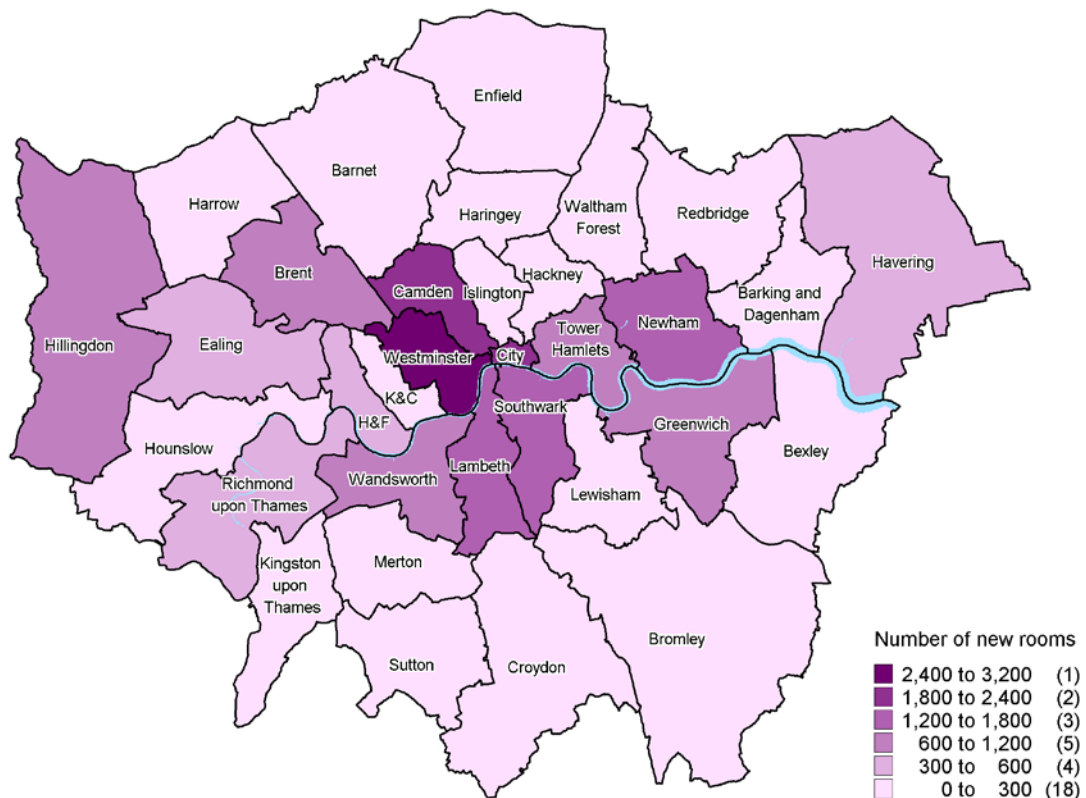
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Source: GLA Economics estimates based on 2012 and 2010 databases

Central London and Heathrow continue to see additional rooms opening. The boroughs surrounding Central London – both to the east and west have also seen high levels of openings. It is the outer boroughs in the north and south of London that have experienced the lowest increase in rooms.

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[7] Data from the LDD is not complete for 2011 and not yet available for 2012.

Large hotels have dominated new openings. These have tended to be budget branded hotels or luxury hotels. Travelodge and Premier Inn combined added 2,500 rooms to hotel supply in London in 2012 alone. Notable luxury hotels openings include the Park Plaza, Westminster Bridge with over 1,000 rooms.

While large hotels have provided the majority of new rooms, there have been openings across all types of accommodation. For example, newly available accommodation at universities has added an extra 2,000 rooms to the supply of visitor rooms outside of term time.

Establishments that have closed over the last two years have tended to consist of a greater number of bed and breakfasts and relatively few hotels. However, the number of rooms in bed and breakfasts has still increased over the last two years.

Supply of accessible rooms

There is no existing data source with information on accessible rooms across all types of accommodation or comprehensively covering all boroughs. Some information is available for larger hotels in Central London from specialist disability sources. Establishments themselves tend not to provide information on the number of accessible rooms available nor do they provide accurate information on the facilities available within bedrooms and bathrooms – essential for many disabled people making decisions about where it is physically possible for them to stay (disability organisations have for a number of years been encouraging hotels to provide access statements describing the access and facilities available for disabled people but very few make this information available on their web sites). There are also issues of definition – features that may make a room accessible for one person may not make it accessible for another.

The following data sources do provide some information on accessible rooms in London:

* Direct Enquires/Inclusion London (see http://www.directenquiries.com / http://inclusivelondon.com)
* Access in London Guide (see http://accessinlondon.org/pdf/Accommodation-Aug-2012.pdf)
* Disabled Go My Access London http://www.myaccesslondon.com/en/search-results
* Hotels database 2010 produced by the former London Development Agency – contained limited amount of information on numbers of accessible rooms by establishment.

Building Regulations require all new hotels to make at least 5 per cent of their rooms wheelchair accessible[8]. The GLA report 'Accessible Hotels in London' March 2010 identified a clear gap between demand for and supply of accessible rooms. The report recommended the number of accessible rooms in each new build hotel be increased to 10 per cent to close the gap between supply and demand. This was introduced into the London Plan as planning policy in 2011 (see London Plan Policy 4.5 London's Visitor Infrastructure). Further guidance on implementing this policy is contained in the draft Town Centres Supplementary Planning Guidance (see

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[8] See design considerations and provisions in paragraphs 4.17- 4.24 of Approved Document M 2004 edition incorporating 2010 and 2013 amendments. British Standard BS 8300:2009+A1:2010 recommends that for new buildings the minimum provision of accessible bedrooms as a percentage of the total number of bedrooms should be 5% without a fixed tracked-hoist system, 5% with a fixed tracked-hoist system or similar system giving the same degree of convenience and safety and 5% capable of being adapted in the future to accessibility standards (i.e. with more space to allow the use of a mobile hoist, wider doors, provision for services and with enclosing walls capable of supporting the required fittings, e.g. grab rails and drop down support rails).

http://www.london.gov.uk/sites/default/files/Town%20Centre%20SPG%20Consultation%20Draft%20Jan%202013%20High%20Res.pdf Section 2 Accessible hotel provision and accessibility management plans and Appendix C Accessible Hotels).

The information available on newly opened hotels suggests that the actual proportion of new rooms being made accessible remains around 5 per cent. This information is mainly from the Access in London Guide which includes information on the total number of rooms and the number of accessible rooms in a number of newly opened (as well as established) hotels mainly in Central London. Where information was not available on the number of accessible rooms in new hotels (that is, those opened in the last two years), it has been assumed that 5 per cent of the total rooms opened were accessible.

Based on the information available and the assumed number of new rooms that are accessible, there are an estimated 2,100 accessible rooms in London. This is a very approximate estimate; more comprehensive data is needed to produce a more reliable estimate, to track progress on supply and to assess the supply in different types of hotel.

Potential growth in room supply to 2036

Over the period 1991 to 2010, average annual net growth in serviced visitor rooms was just over 1,300. There has been a clear step change in the last two years – with a significant net increase in visitor room supply. Such a change may well have been expected due to the Olympics and so may not imply a change in trend.

In order to provide information to inform the judgement around the London Plan benchmark target a range of considerations around potential hotel supply were made.

The LHDM, although not complete in terms of covering all types of visitor accommodation, provides the best source of information on expected gross hotel room supply over the next few years. The LHDM suggests that strong growth in supply will continue at least for the next few years. Over 5,500 rooms are expected to open in 2013, 4,000 of which are already under construction. In total over 16,000 rooms are either under construction or have detailed planning permission and are expected to open by 2015. These are spread throughout London, with a greater spread outside of Central London compared to existing hotels.

Map 2.3: Expected completed new hotel rooms in 2013

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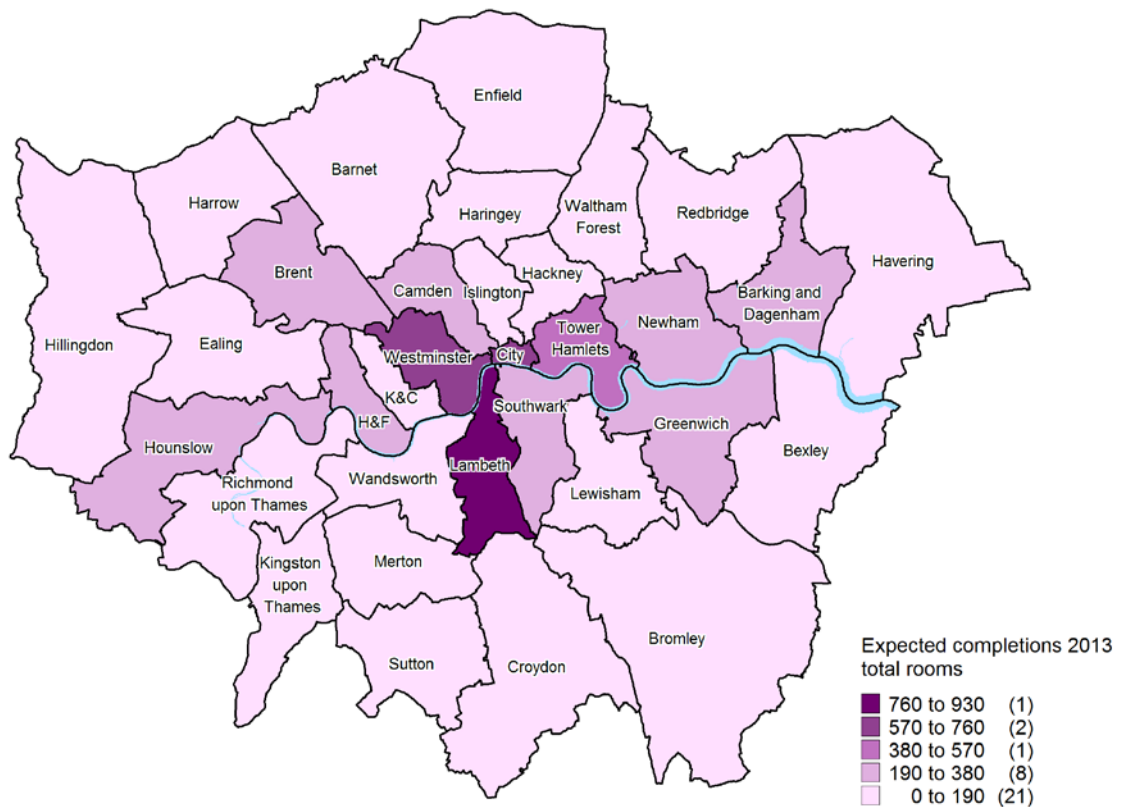
Source: London Hotel Development Monitor

Map 2.3 shows that openings in 2013 continue to concentrate in Central London, but the boroughs surrounding Central London (Lambeth in particular) and to the east and west will see a relatively high level of openings.

Map 2.4 shows where detailed planning permission has been granted. This suggests a continued expansion in Lambeth, Tower Hamlets and a general east west spread in openings. 6,100 and 3,100 rooms have detailed planning permission and are expected to open in 2014 and 2015 respectively.

Map 2.4: Planning permission for new hotel rooms, 2013 to 2015

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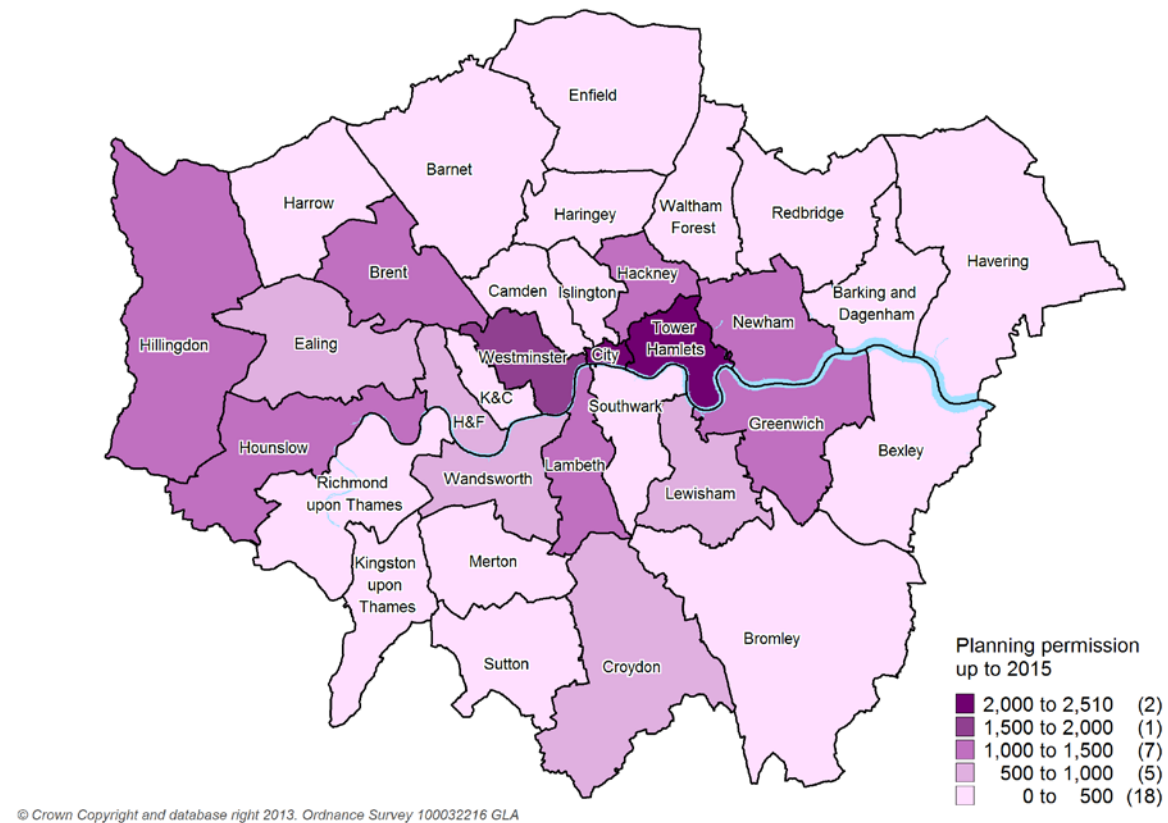
Source: London Hotel Development Monitor[9]

Information is not available on planned openings of smaller hotels and other types of accommodation; they will at least to some extent add to this total.

In addition, with post-census estimates it can be difficult to identify closures. There is very little data collected on closures apart from where planning permission is required for the change of use.

Based on partial information from the LDD, Westminster Council and the GLA Economics hotel database, the estimated annual number of closures of serviced rooms over the last ten years is estimated to have averaged around 0.8 per cent of the existing stock of serviced visitor rooms. There is not enough data to be able to reliably estimate closures of non-serviced rooms.

Whether this rate of closures will continue is debateable. There may be some potential for closures to increase in the period after the Olympics, where closures were delayed due to the Olympic effect. Conversely closures may not increase if part of the legacy effect of the Olympics is for more tourists to stay in London in the future.

If it is assumed that the past estimated rate of closures continues, all hotels under construction or granted detailed planning permission are completed and bed and breakfasts continue along a similar trend as in recent years, there will be an estimated net increase of around 15,000 serviced rooms by 2015. If it is assumed that ratio between serviced and non-serviced rooms

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[9] Note that Map 2.4 includes those hotels opening during 2013 as mapped in Map 2.3.

remains the same, there will be an additional 21,000 extra visitor rooms of all types in London by 2015.

Estimating beyond this is, of course, problematic. There are a number of factors that could positively or negatively affect the change in room supply in London over the next 20 years. Local impacts may be stronger or weaker than expected from Crossrail and future sporting events. There may be changes to international travel which impact significantly upon the London visitor market. Central London may start to reach full capacity in terms of building new accommodation venues. The on-going economic uncertainly across the world make predictions of this sort all the more difficult.

It is not clear whether the recent level of growth in visitor accommodation will continue. It seems reasonable to assume that at least part of the significant recent growth in rooms has been due to the Olympics. The difficulty is knowing just how much – and, therefore, what the long-run trend for visitor accommodation actually is. It has been assumed here that the long-term trend based on 1991–2010 will be returned to from 2015 and will continue through to 2036. It should be noted that this represents a considerable slowdown from our best estimates of growth in the past decade or so. That is, it has been assumed that the annual rate of growth in serviced rooms will be 1,300; and around 1,700 for total visitor rooms from 2015 on. This is our central scenario; Appendix S-2 sets out some alternative scenarios.

These assumptions lead to a projected increase of just over 42,000 in the stock of serviced accommodation and an increase of 56,000 of all types of visitor accommodation in London by 2036. This gives a total stock of 222,000 visitor rooms, of which around 173,000 would be in serviced accommodation. This trajectory is shown in Figure 2.3.

Figure 2.3: Possible growth in visitor accommodation in the capital to 2036
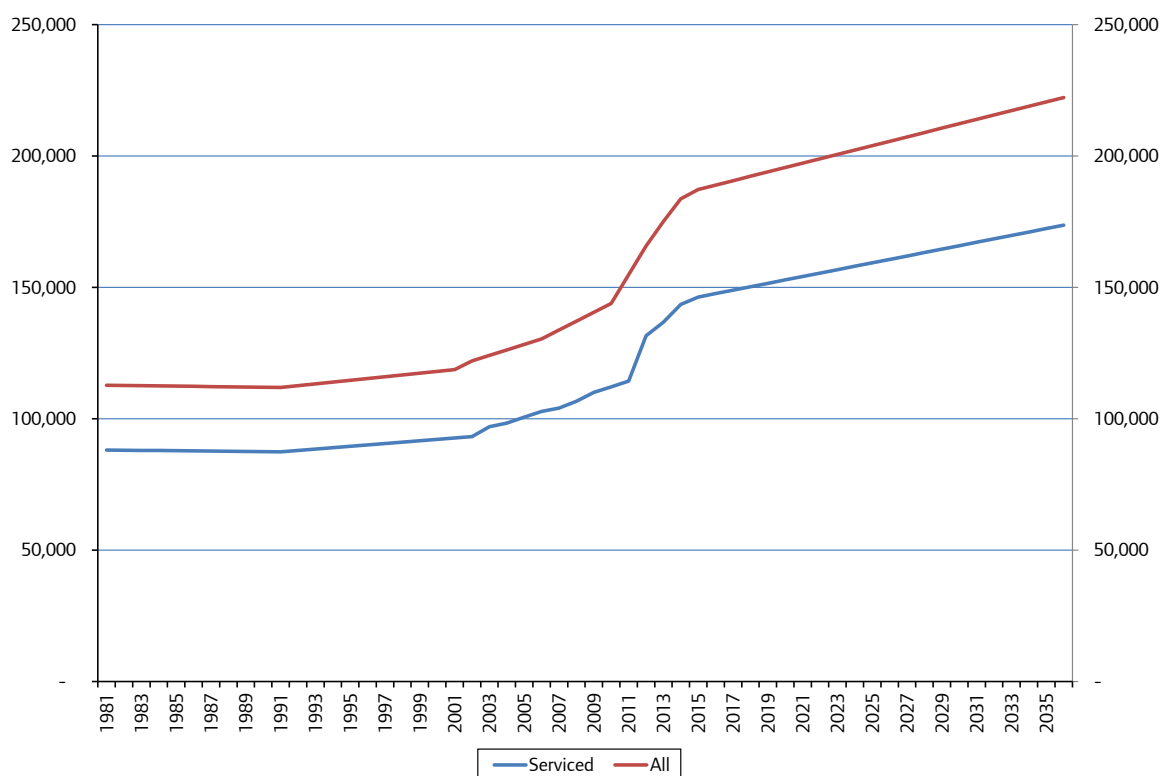
Source: GLA Economics estimates

It is important to re-iterate that these are estimates based on current planning permissions and pre-2010 long-term trends. Possible alternative assumptions include:

- to reflect potential for higher future growth for example more in line with estimated openings up to 2015; or
- higher closures following the rapid increase in openings in 2012.

Changing assumptions changes these estimates considerably and suggests that the total increase in stock of serviced rooms might range from 32,000 to 64,000 (see Appendix S-2 for more information).

# 3 The demand for visitor accommodation in London over time

Main findings:

- London is one of the most visited cities in the world in terms of international visitor spend. A small number of inbound markets from North America and Western Europe account for the majority of visitor nights at present.

- To estimate future tourism nights, GLA Economics employed a range of methodologies, or scenarios, which encompassed: simple extrapolation of nights; the relationship between inbound tourism to the capital and other countries' Gross Domestic Product (GDP) growth; and the aggregation of separately forecast country series.

- In all, 11 models, or scenarios, were developed with all 11 demonstrating some growth in international visitor nights.

- Considering both international and domestic nights for 2036, the central estimate is 183.6 million nights (with a range from 132 to 257 million nights).

- The empirical relationship between total visitor nights and room supply in the capital is used to convert tourism nights into a future requirement for visitor rooms. On this basis 42,900 new serviced rooms are required by 2036 (or just under 1,800 per annum).

This section looks at the demand from visitors looking to stay in London over time. It starts by looking at trends in nights spent in London over time. It then considers the various ways in which visitor nights over time might be projected before outlining GLA Economics' central estimates for tourism nights over time. The section ends with a consideration of the conversion of the nights projection into a serviced (and 'all') room requirement.

As noted earlier, London is one of the most visited cities in the world. A quarter of all visitor nights spent in London over 2012 were from three countries: the United States, France and Italy (see Figure 3.1). A further six countries (Germany, Spain, Australia, Poland, India, and the Republic of Ireland) account for the next 25 per cent of nights. Those nine countries together accounted for 54 per cent of visits and 45 per cent of spend in 2012. Comparable graphics for visits and spend are given in Appendix D-1. Unsurprisingly, the number of nights passed per visit is very different even amongst those inbound markets as shown by Figure 3.2.

Figure 3.1: Share of visitor nights in London by largest inbound markets in 2012
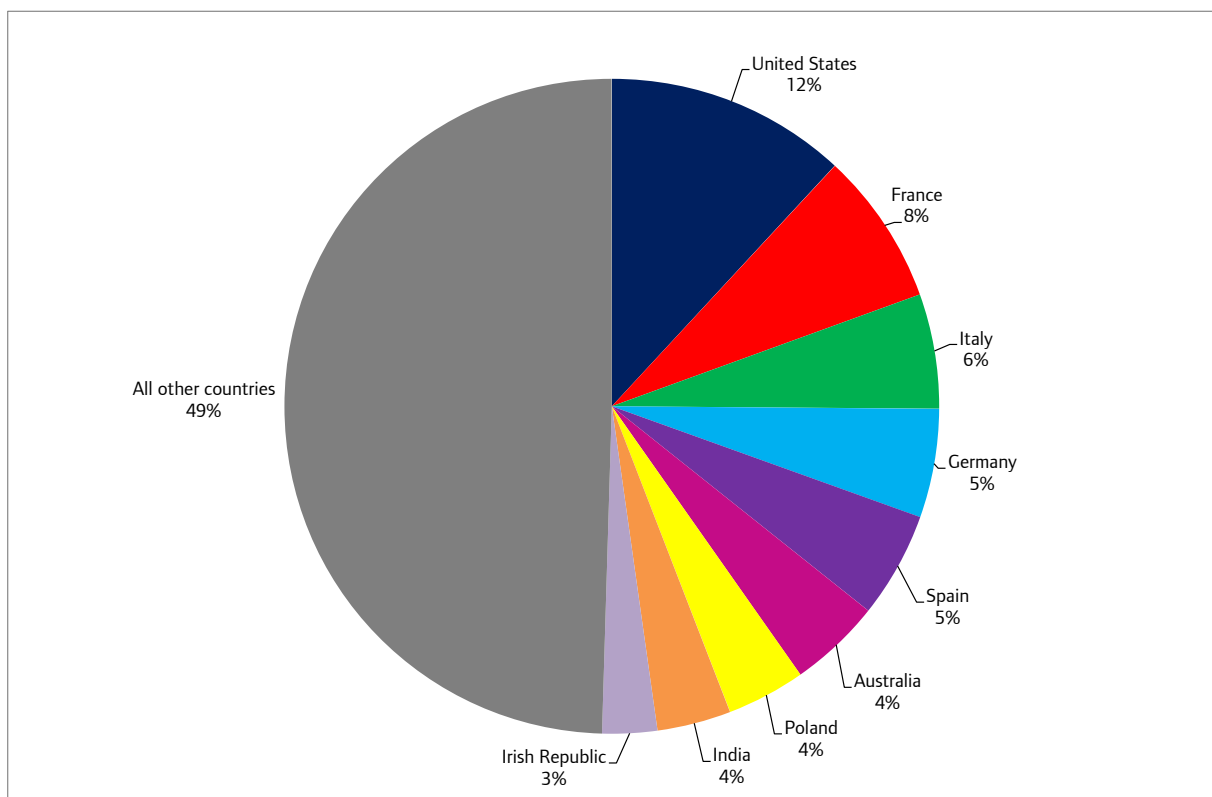
Source: International Passenger Survey, 2012

Figure 3.2: Average number of nights stayed in London by selected inbound market, 2012
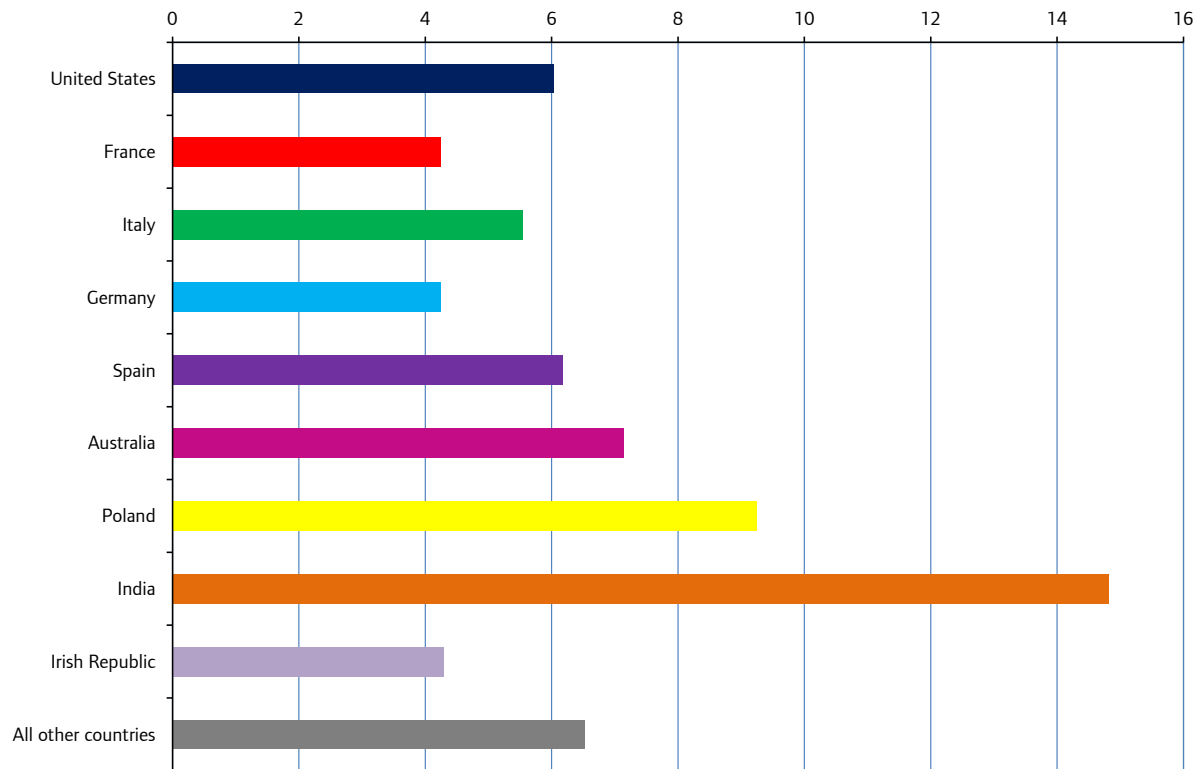
Source: International Passenger Survey, 2012

Figures 3.3 and 3.4 show how the number of visitor nights has changed over time. It shows that visitor nights stayed by tourists from the United States have fallen from 25 per cent of all visitor nights in the mid-1980s to around 15 per cent in 2012[10].

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[10] Note that the calculation for the mid-1980s assumes that the average numbers of nights spent in the UK from US visitors was the same for London as for the UK as a whole.

Figure 3.3: Visitor nights in London by broad global region of origin (thousands of nights), 1984 - 2012
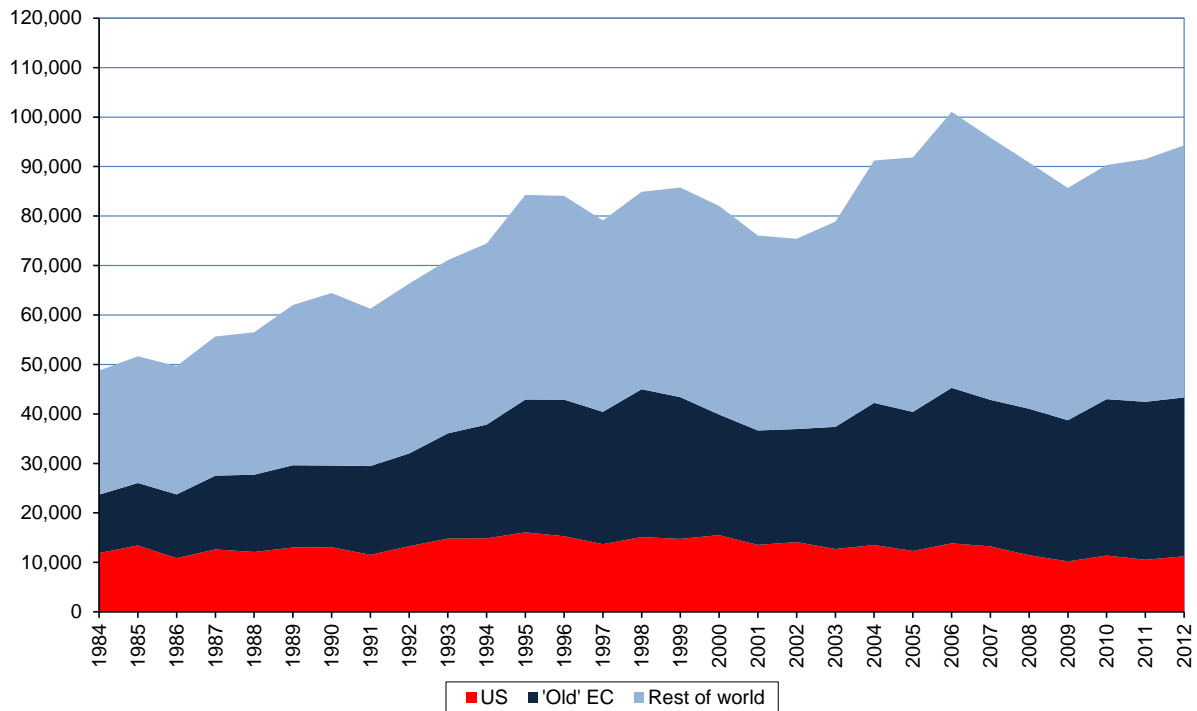
Source: ONS, Central Statistical Office, DTI Business Statistics Office & GLA Economics calculations and estimates[11]

Note here that the above refers to international tourists only. It does not include domestic visitor nights which in 2011 stood at 27.1 million nights.

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[11] 'Old' EC has been defined here as the following listed countries and kept to this definition regardless of year. However, note that there is unavoidable discontinuity connected with the unification of West and East Germany.

    Belgium
    Denmark
    France
    Germany - from 1991 including the former territory of the German Democratic Republic
    Greece
    Irish Republic
    Italy
    Luxembourg
    Netherlands
    Portugal
    Spain

Only shares have been used for the pre-1997 IPS data since methodological changes in the geographical allocation of nights would make for a highly inconsistent series.

Figure 3.4: Visitor nights in London by broad global region of origin as a percentage of all visitor nights in that year, 1984 – 2012

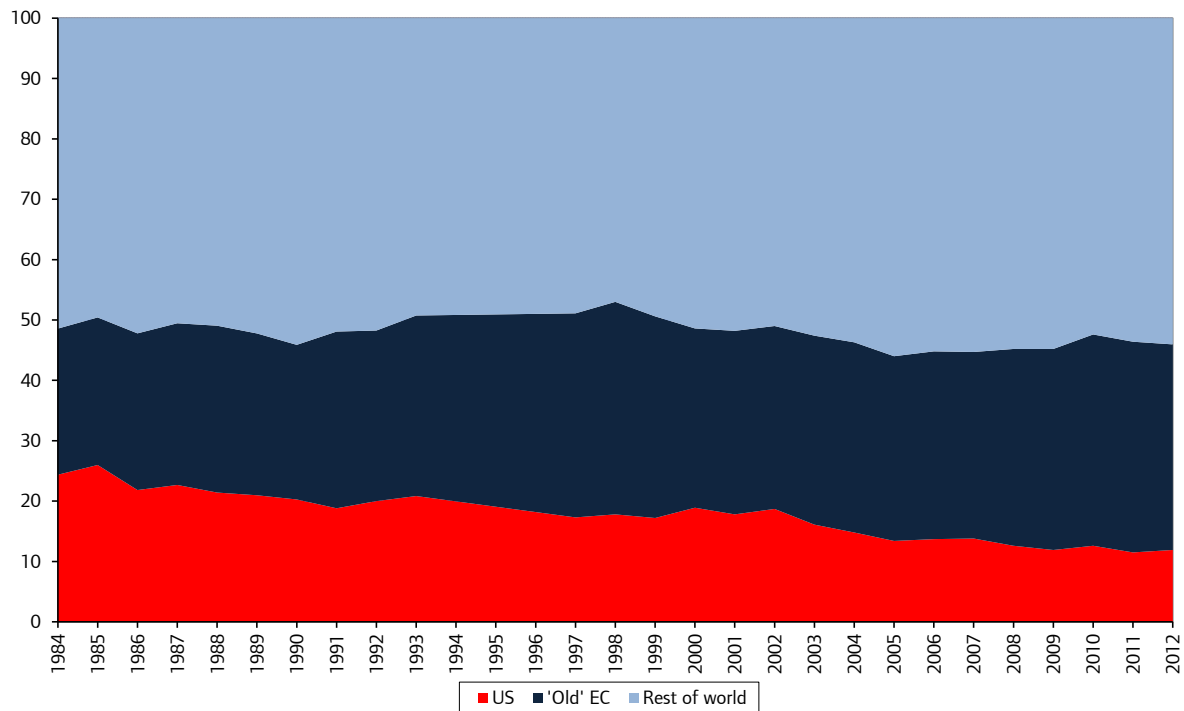*Source: ONS, Central Statistical Office, DTI Business Statistics Office & GLA Economics calculations and estimates*

Projecting nights over time

In order to project tourism nights over time Grant Thornton, in its previous work, used an econometric model, the full details of which are outlined on page 77 of their report, 'Hotel demand study' (June 2006)[12]. It was not possible to replicate the Grant Thornton model for this work.

There are a multitude of factors that might impact on tourism nights in London over time. These include changes in exchange rates. Figure 3.5 shows the trend in Sterling since 1975 and shows that whilst, arguably, the exchange rate has been on a declining long-term trend, there have been significant, and sometimes sustained, variations around this.

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[12] 'Hotel Demand Study' (June 2006): http://www.london.gov.uk/sites/default/files/archives/uploads-hotel-demand-study.pdf

Figure 3.5: Trends in Sterling exchange rates against a weighted basket of currencies since 1975 (Average for 1990 = 100)

Source: Bank of England, GLA Economics index calculations

However, even if the exchange rate could be forecast with perfect accuracy, the impact it would have on nights has varied over time. This is shown in Figure 3.6 which shows the change in exchange rates against the change in tourism nights in London. Indeed, there are so many factors in play that only about 3 per cent of movements in tourism nights can be explained by exchange rates.

Figure 3.6: Relationship between annual change in weighted basket of currencies exchange rate with Sterling and annual change in international tourism nights in London
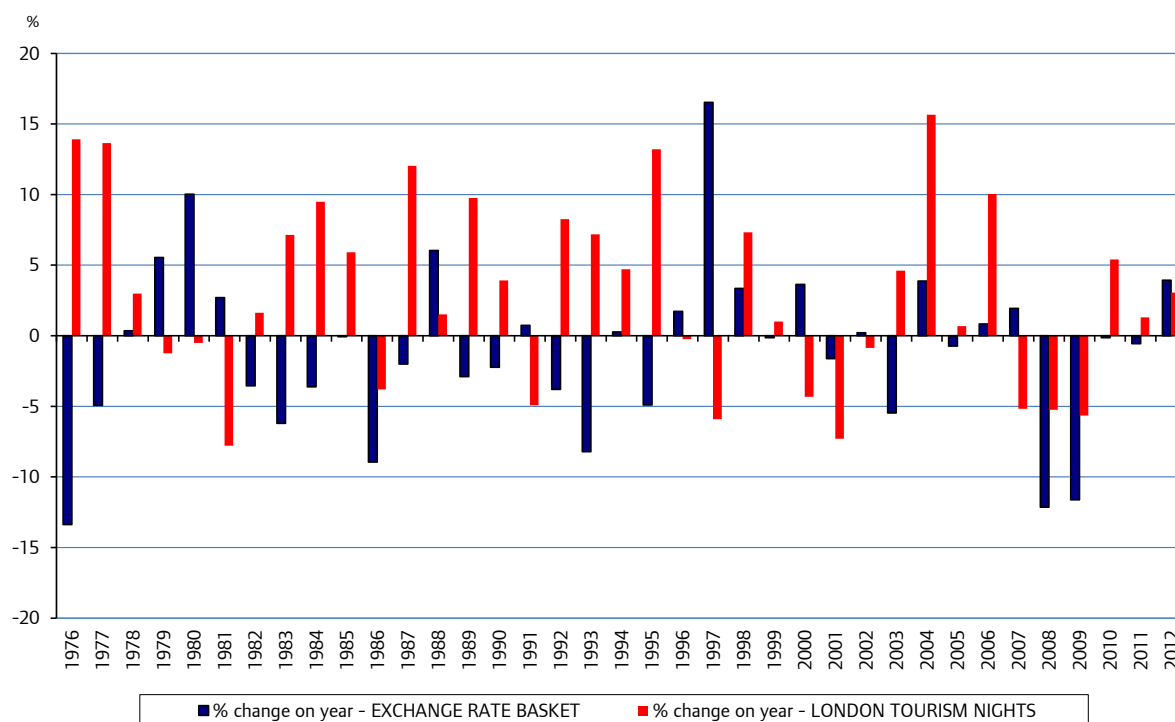
Source: Bank of England, ONS and GLA Economics index calculations

There are many other factors that are likely to impact on the number of tourism nights spent in London over time. These are likely to include: changes in the economy/consumption trends of London's inbound markets; growth in emerging markets; trends in city breaks/visits; changes in competitor city destinations; and, advances in technology/transport for example. Given the range of factors likely to impact on the demand for London's visitor nights over time it was considered unlikely that a fully specified, robust regression model could be built with available data.

In order to project forward data, it is useful to have as long a time series as possible. Unfortunately, the existing (consistent) time series data on London nights is relatively short. As a result, GLA Economics used a variety of sources and assumptions to build an estimated time series of tourism nights for London back to 1964. As a result of all these issues, GLA Economics decided to look at a number of different methodologies, or what might be considered as different scenarios, for projecting forward tourism nights spent in London.

Methodologies used
The methodologies employed for the projection of tourism nights fall into three broad categories.

First are models that extrapolate the tourism nights data series into the future. In essence these models assume that the past trend in tourism nights is a good guide to the future trend in tourism nights. As noted earlier, however, data on tourism nights in London is only available for a relatively short time period. As a result, and as noted above, a significant amount of work was put into trying to use existing data, together with various assumptions, to estimate what tourism nights in London looked like in the past (i.e. before the existing time series starts).

Second are models that look at the relationship between tourism nights and economic output (or GDP). These methodologies assume that as countries become more affluent they may take more leisure – of which visits (and stays) in London could be a part.

Third are models that look at individual countries and which project the likely trend in individual countries propensity to visit (and stay in) London over time before aggregating to total nights in London.

Various inputs are required to the different models. For some models GLA Economics has used London & Partners commissioned work forecasting tourism nights by individual countries out to 2022. For some models, OECD assumptions about economic growth by country have been used. For other models, information on income elasticities have been used to project by how much demand for leisure is likely to grow as a result of increases in economic output.

In essence, a range of different models were investigated using a range of different information to attempt to build up a range of different projections, or scenarios, of tourism nights in London. More details on the main characteristics of the models, the range of inputs used and the exact specifications of the models are contained in the appendices (see Appendices D-3 to D-8).

In total, 11 models were finally developed and used in the development of the 'central projection'. Of the 11 models, two were eventually removed from the consideration of the central projection on the basis that they appeared to be outliers. With the two outlier models removed, the remaining nine models produced a reasonably consistent set of results for international tourism nights in London.

International visitor nights central projection
Figure 3.7 demonstrates that for international tourists to London alone, there is a central estimate in 2036 of 146.2 million nights. However, the results produced by the various models range from 98.0 million to 217.2 million nights. It needs to be kept in mind that this result refers only to international visitor nights. The central projection is the average of the middle nine models of results. Although there is a large range, arguably the more likely results range is indicated by the narrower, darker colourations. It should be noted that there is some growth displayed in all the projections.

Figure 3.7: Projected international tourist nights into London to 2036: central projection and upper and lower bounds (thousands of nights)
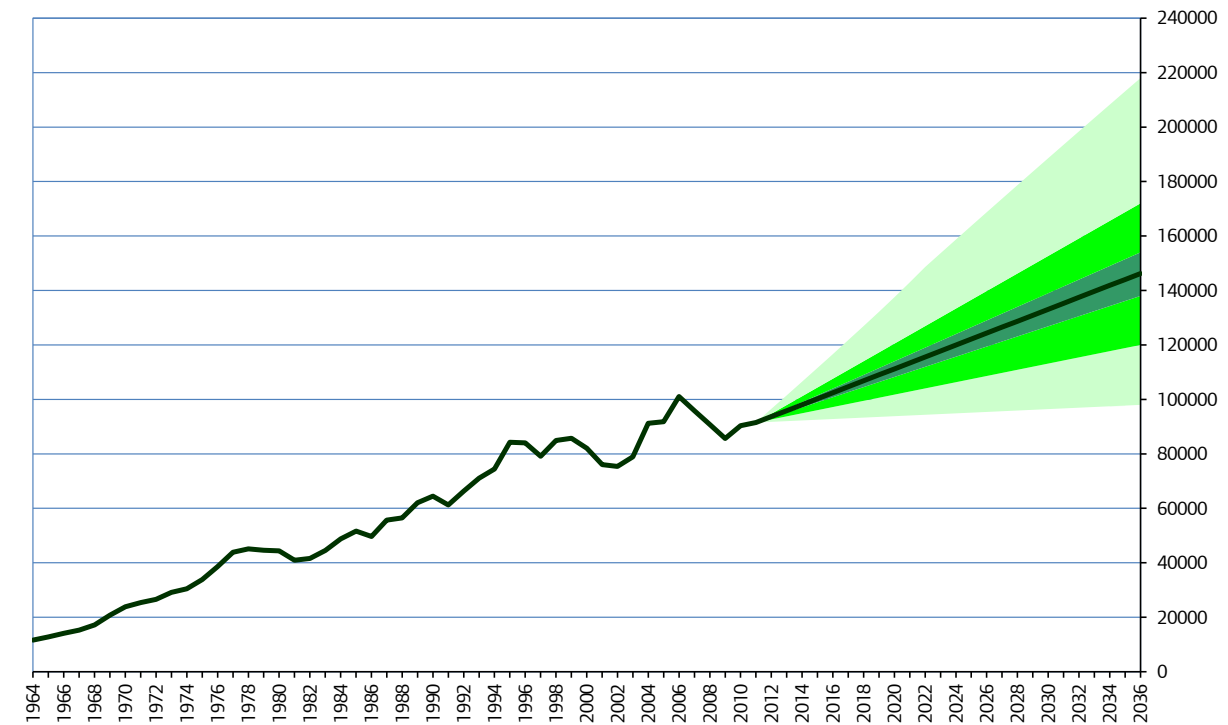

Source: GLA Economics

Integrating UK domestic tourism to London into the model

The 'domestic' market for overnight tourism – that is to say people from any part of the United Kingdom staying in London – was dealt with separately from the international component. In any other part of the UK, the domestic market would be the most important component in projection visitor nights to 2036. However, London is different from the remainder of the UK – and even the remainder of England. In London, the domestic overnight market is of less importance when compared to the rest of the country; a lower proportion of visitors staying overnight are from the domestic market. Furthermore, domestic visitors tend to have a relatively low average number of nights. This results in more than three quarters of tourism nights in London being accounted for by the international inbound market. To 2011 domestic tourism accounted for 27.1 million nights in London as compared to 91.5 million nights for international tourists. Figure 3.8 compares the percentage split in tourism nights in London between the domestic and international market and compares this with England excluding London.

Figure 3.8: Share of market of tourism nights accounted for by international and domestic visitors – London and the 'rest of England', 2011
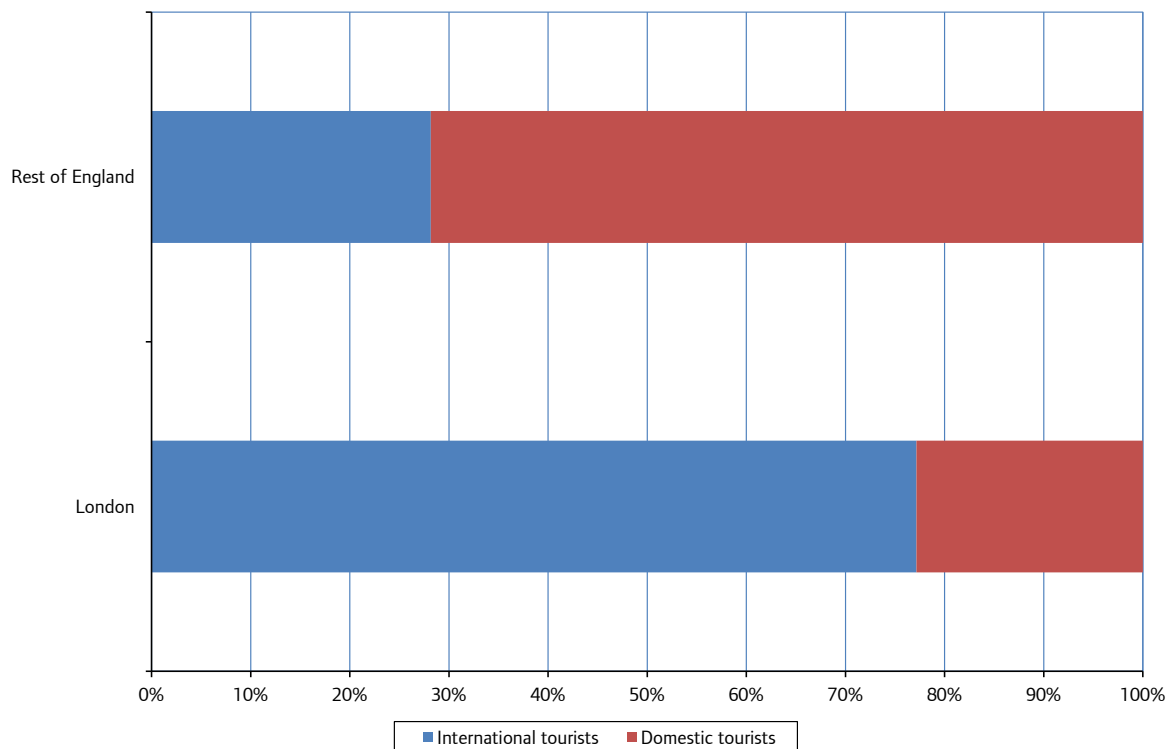
*Source: International Passenger Survey / UK Tourism Survey 2011*

A different approach to projecting the future of the domestic market was taken. For domestic tourism, data from the United Kingdom Tourism Survey (UKTS) and its successor, the Great Britain Tourism Survey (GBTS), cover a much shorter time frame than the International Passenger Survey (used for the international visitor analysis) and is subject to more significant discontinuities. As a result, there is poorer quality data for the UK domestic market than the international market.

As a result, a lower number of models, initially five, were developed for the domestic market as compared to the international market. One of these models was subsequently discarded on account of being an outlier, with the remaining four methodologies producing a relatively narrow range of results. Appendix D-8 deals with the specifications of the four models used for the domestic market tourism nights projection.

Figure 3.9 shows the aggregated projection including the domestic element (the central projection for domestic nights is 37.4 million by 2036). It shows the models produce a variety of results, ranging from 132 to 257 million nights. Within this range the central projection is for 183.6 million nights in 2036

Figure 3.9: Projected tourist nights in London (international and domestic aggregated) to 2036 central projection and upper and lower bounds (thousands)
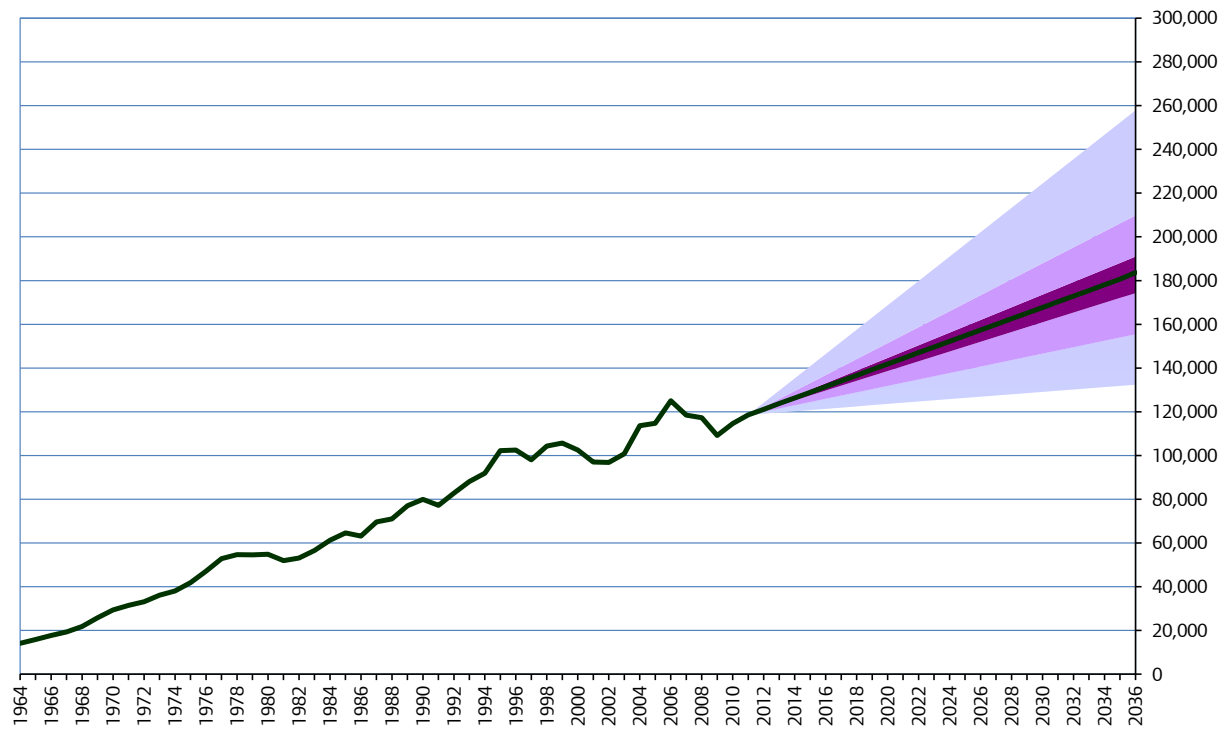
Source: GLA Economics

Monthly variation in occupancy and room rates

It is important to understand that, whilst the GLA Economics methodology is based essentially on averages, hotel occupancy and room rates do not behave the same all year. For example, analysis of monthly figures from Central London chain hotels since December 2009 suggests that occupancy rates are at their lowest in January – typically at around 65-70 per cent - whereas they tend to be at their highest (above 90 per cent) in the June and July period. August also tends to be a relative trough as shown in Figure 3.10.

Figure 3.10: Monthly occupancy rate in Central London chain hotels
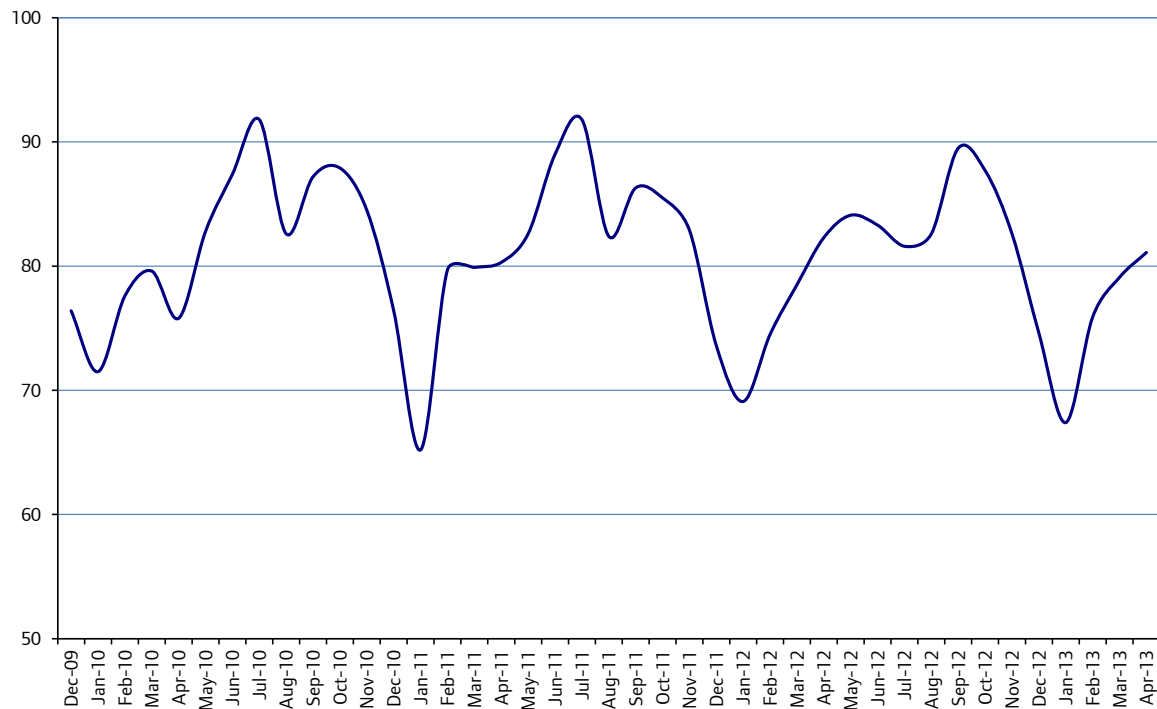
Source: TRI Hospitality Consulting
Note that monthly figures are subject to revisions. (Figures for much of 2012 and 2013 have yet to be revised).

Those monthly patterns also reflect in prices paid for a room. The Central London chain hotel series shown in Figure 3.11 has been adjusted for the change in general prices.

Figure 3.11: Monthly average room rate in Central London chain hotels (adjusted by the Consumer Prices Index)

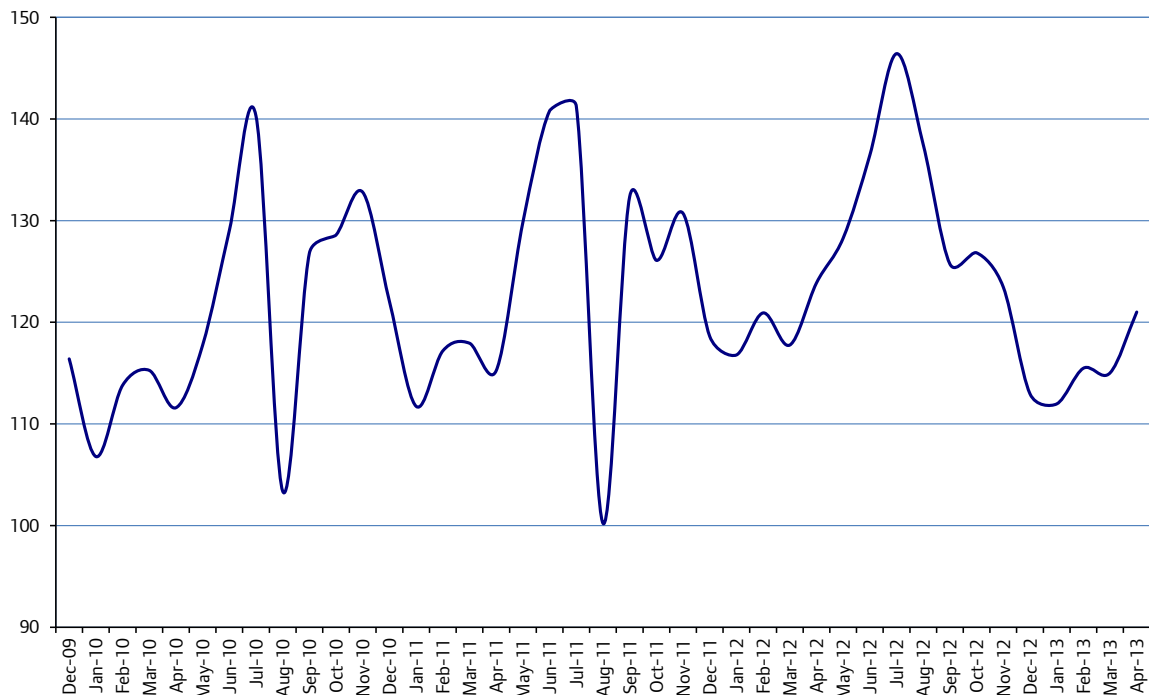*Source: TRI Hospitality Consulting*
Note that monthly figures are subject to revisions. (Figures for much of 2012 and 2013 have yet to be revised).

Obviously, the period of the Olympics in the autumn of 2012 is likely to have been exceptional.

Conversion from projected visitor nights to room requirement in London

The approach taken to move from the estimate of total nights to a figure for the number of serviced rooms required in the future makes use of the empirical, existing ratio between total visitor nights and room supply in London.

The approach assumes that the historic supply of rooms in London has been adequate to cope with the existing number of visitor nights but also assumes that there is no serious excess supply of accommodation (which, in turn, is effectively implied by occupancy level data). The ratio implies that one room is capable of providing the needs of X number of visitor nights – including a proportion of those nights where no room is actually required (because visitors are staying with friends, for example). The same ratio is simply then applied to the central projection for visitor nights in 2036.

The average ratios for visitor nights to both serviced and all rooms have been used in the calculations. Calculating the same ratio for serviced rooms only for each year yields a ratio which essentially varies between 850 and 1,200 as shown in Figure 3.12.

Figure 3.12: The ratio between tourism nights in London and rooms
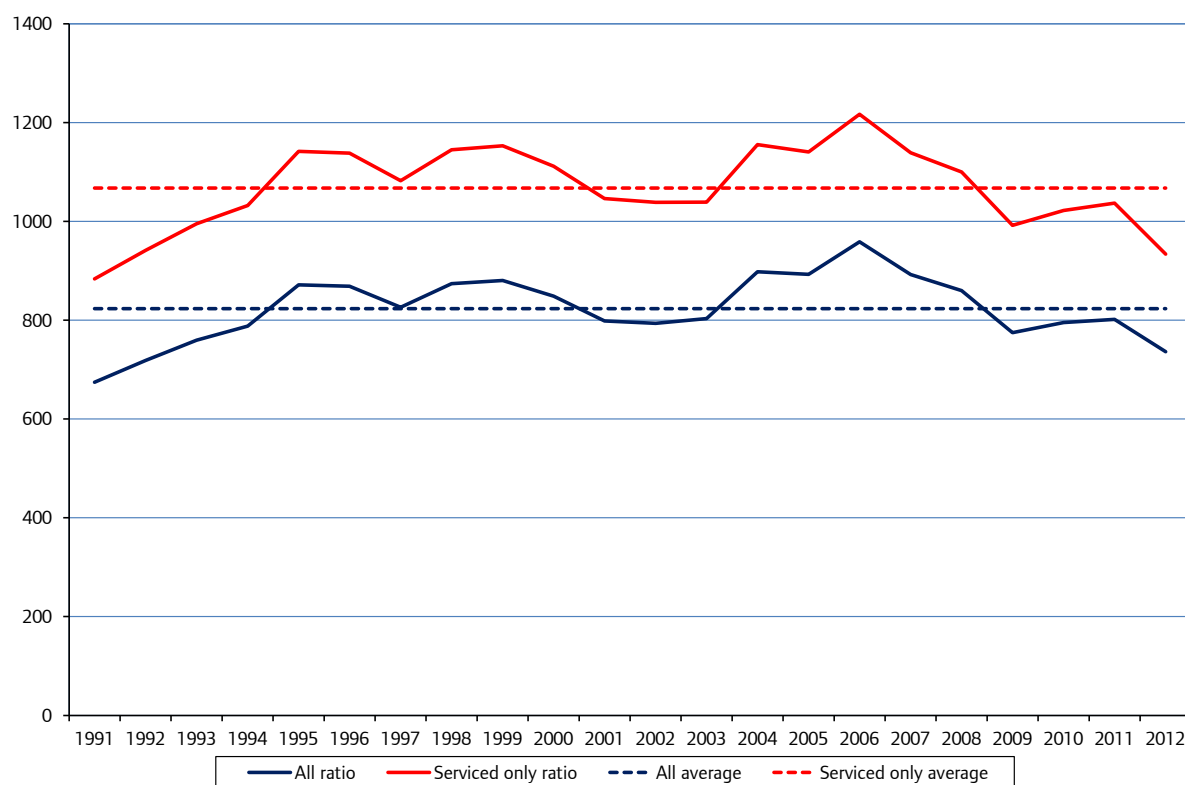
Source: GLA Economics calculations

Figure 3.12 shows that when the serviced rooms ratio falls to around 850 there is an over-supply of hotel rooms relative to the number of visitors. It is possible that prices fall and this attracts an increased number of visitors. Approaching 1,200, the strain put on the existing supply of rooms becomes excessive, prices are likely to rise and there is an incentive to build new hotels.

If this average ratio (the average in this case being 1,068) methodology is applied to 2036, 174,500 serviced rooms would be required. Since the current supply of serviced rooms is 131,600, this would imply a net build of 42,900 serviced rooms (or just under 1,800 rooms per annum). This is our central projection for the requirement of serviced rooms.

For all rooms the average ratio is 823 historically. This would imply a 226,200 requirement against an existing supply of all rooms of 165,700, yielding a net requirement of 60,500 rooms to be constructed.

Calculation of upper and lower bounds of estimates for room requirement
Upper and lower limits for the number of rooms required by 2036 could be defined by using the lowest and highest historical ratios in the series from Figure 3.12 and applying this to the total number of tourism nights.

For serviced rooms only, the upper limit is defined by the 884 ratio and the lower limit by the 1,217 ratio, yielding a range between 21,500 and 79,300.

Table 3.1 provides a summary of these upper and lower limits.

Table 3.1: Upper and lower bounds for serviced room requirement forecast for 2036

Methodology	Ratio assumption	Total projected 'serviced' requirement	Net build requirement (serviced rooms)
GLA Economics Central	1068	174,500	42,900
GLA Economics Lower	1217	153,100	21,500
GLA Economics Upper	884	210,900	79,300

4 Conclusions

- Information on the change in the supply of serviced (and all) tourist accommodation in London over time is sparse.

- In 2012, our best estimate suggests there were 131,600 serviced rooms in London (and 165,700 serviced and unserviced rooms). Best estimates suggest that this represents significant growth over the past couple of years and information from planning permissions suggests significant growth is likely to continue for at least the next couple of years.

- Projecting tourism nights spent in London is dependent on a range of factors and assumptions.

- Based on a range of models, GLA Economics projects tourism nights in London to reach 183.6 million by 2036.

- Using this projection for tourism nights, together with our best estimates of the past relationship between tourism nights spent in London and the supply of serviced tourist accommodation, suggests that around 42,900 net new serviced tourist rooms (or just under 1,800 per annum) will be required by 2036.

APPENDICES

Appendices to this study have been divided into supply-side and demand-side information. The demand-side appendices are necessarily quite extensive and have been broken up further by subject matter.

SUPPLY-SIDE APPENDICES

Appendix S-1: Supply of visitor accommodation – 2012 update

Appendix S-2: Change in the supply of visitor accommodation in London to 2036

DEMAND-SIDE APPENDICES: CONTEXT

Appendix D-1: Spend and visitor shares by major inbound market to London, 2012

Appendix D-2: Composition of international tourism nights in London by global region (2012)

DEMAND-SIDE APPENDICES: MODELLING

Appendix D-3: Model development and specifications

Appendix D-4: Results of the projected nights models for 2036

Appendix D-5: Methodology of conversion of visitor nights to room demand in 2036

DEMAND-SIDE APPENDICES: METHODOLOGICAL ALTERNATIVES

Appendix D-6: The Grant Thornton methodology applied to GLA Economics' figures

DEMAND-SIDE APPENDICES: INCOME ELASTICITY APPROACH

Appendix D-7: Derivation of income elasticities of demand for tourism to London

DEMAND-SIDE APPENDICES: SENSITIVITY TESTING

Appendix D-8: Sensitivity testing of assumptions

Appendix S-1: Supply of visitor accommodation – 2012 update

GLA Economics has produced a comprehensive estimate of the number of visitor rooms in London as at December 2012. This is the first time such a comprehensive estimate has been made of all types of visitor accommodation. The updated database includes information on rooms in all types of visitor accommodation – that is, in hotels, hostels, bed and breakfasts, short-term rental apartments and university accommodation. Establishments of all sizes have been included. This represents a fundamental shift from previous attempts to collate information on the supply of rooms. Previous estimates of the stock of rooms in London have tended to focus mainly on serviced accommodation (hotels, hostels and bed and breakfasts).

The starting point for the 2012 update was the existing database from 2010. The 2010 database includes information on visitor accommodation in hotels, hostels, bed and breakfast and university accommodation. Some partial information on visitor accommodation in apartments was included but this did not include the number of rooms and was not a full list of all such apartments in London. The final estimate of visitor rooms in London in 2010 did not include university accommodation.

GLA Economics checked each entry in the 2010 database to ascertain whether the establishment was still trading as visitor accommodation and still offered the same number of rooms. All trading establishments provided the starting point for the 2012 update.

A variety of sources were then used to arrive at a full list of visitor accommodation in London. Sources used included:

- The London Development Database – this provided information on newly opened rooms in hotels with at least seven rooms where planning permission was required.
- The London Hotel Development Monitor – this provided information on the number of rooms in newly built hotels of at least 20 rooms.
- TripAdvisor – The well-known consumer-based website provides information on around 800 hotels, 340 bed and breakfasts and over 300 speciality accommodation establishments in London. As TripAdvisor is so well used the existence of reviews for individual hotels provided useful information as to whether establishments were still trading, and of new openings.
- Other internet sources – such as GooglePlus, Yellow Pages, Hostel World and general searches on accommodation in London.

The entries were checked by planning departments at the boroughs which provided useful feedback on individual entries and the overall findings.

Perhaps due to the greater availability of information on the internet compared to even two years ago, this database appears to have a more comprehensive coverage of serviced visitor accommodation in London. As already stated, this is the first time non-serviced accommodation has been fully included. Note that all apartments providing visitor accommodation are classified here as non-serviced accommodation, even where the market may describe them as 'serviced apartments'. This is because serviced apartments generally do not provide the same level of service as for example a hotel and don't tend to be subject to the same planning requirements as serviced accommodation (hotels, B&Bs and hostels).

The 2012 update is still however an estimate of the number of visitor rooms in London and there may be some small establishments or apartments that we have failed to identify.

The 2012 updates suggest there are 2,175 establishments providing around 165,700 visitor rooms in London. Table S1-1 below shows how these rooms are spread across the 33 London boroughs. Maps S1-1 to S1-33 show how they are spread across each Borough by establishment type.

Table S1-1: 'All' and serviced rooms by London Borough as at 2012

	Serviced rooms	All rooms
Barking & Dagenham	580	580
Barnet	1,220	1,220
Bexley	330	330
Brent	2,400	2,400
Bromley	430	560
Camden	17,580	25,440
City of London	3,840	4,870
Croydon	2,270	2,430
Ealing	1,820	1,850
Enfield	700	760
Greenwich	1,250	2,410
Hackney	760	1,410
Hammersmith & Fulham	3,400	3,490
Haringey	730	1,000
Harrow	780	1,240
Havering	850	850
Hillingdon	9,840	11,500
Hounslow	2,850	2,850
Islington	2,950	4,700
Kensington & Chelsea	15,280	19,300
Kingston	950	1,110
Lambeth	3,830	4,760
Lewisham	270	1,300
Merton	600	630
Newham	4,190	4,650
Redbridge	830	2,030
Richmond	1,590	1,770
Southwark	4,530	8,300
Sutton	250	250
Tower Hamlets	4,800	7,370
Waltham Forest	590	590
Wandsworth	1,130	1,480
Westminster	38,180	42,190

Central London

Under this assumption, Central London will continue to see strong growth. However, there is expected to be a shift from the central area of Central London to the more peripheral areas south of the river. Nevertheless, Westminster, City of London and Camden will together provide almost 16,000 extra rooms by 2036, around 37 per cent of the expected increase across Greater London as a whole. More than a further 6,000 rooms are expected to be provided in Southwark and Lambeth. Within this, the 5-star, 'Shangri-La' is due to provide 200 rooms.

As discussed in the main supply section of the text, there may be some potential for Central London to be nearing full capacity, which may mean that such growth will not be realised. However, this is to some extent already factored into the estimates, as planning permissions already show a relative slowdown in Central London and relatively higher levels of expansion in the boroughs surrounding Central London. It is not clear how this will continue through to 2036.
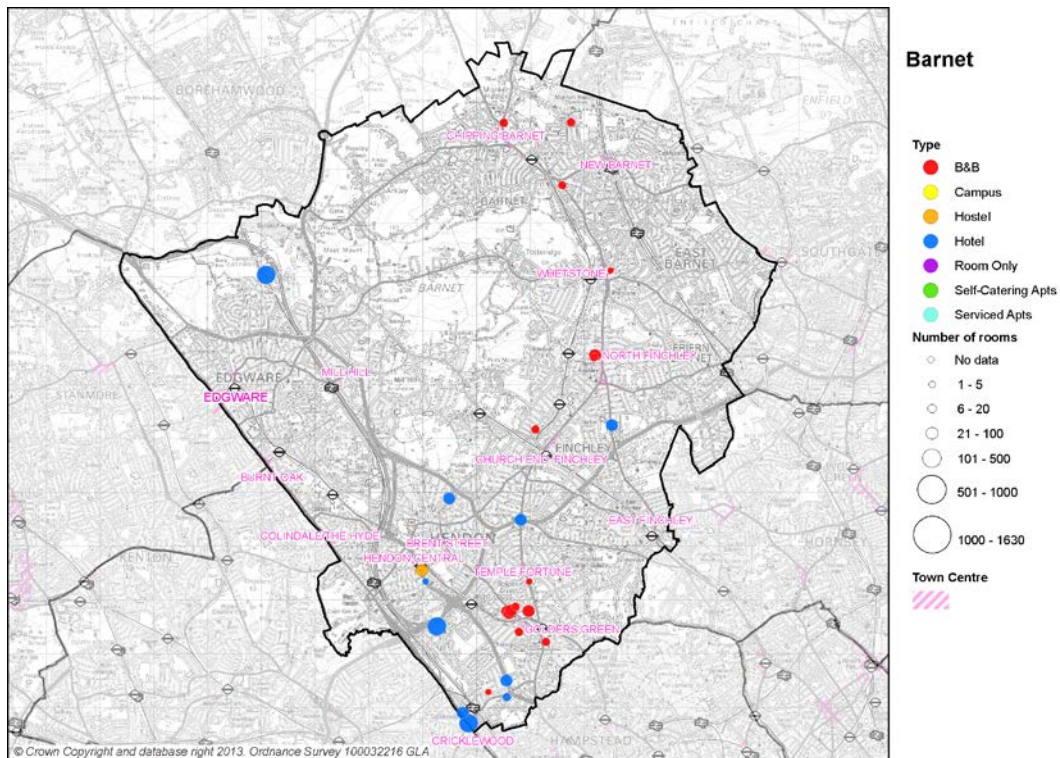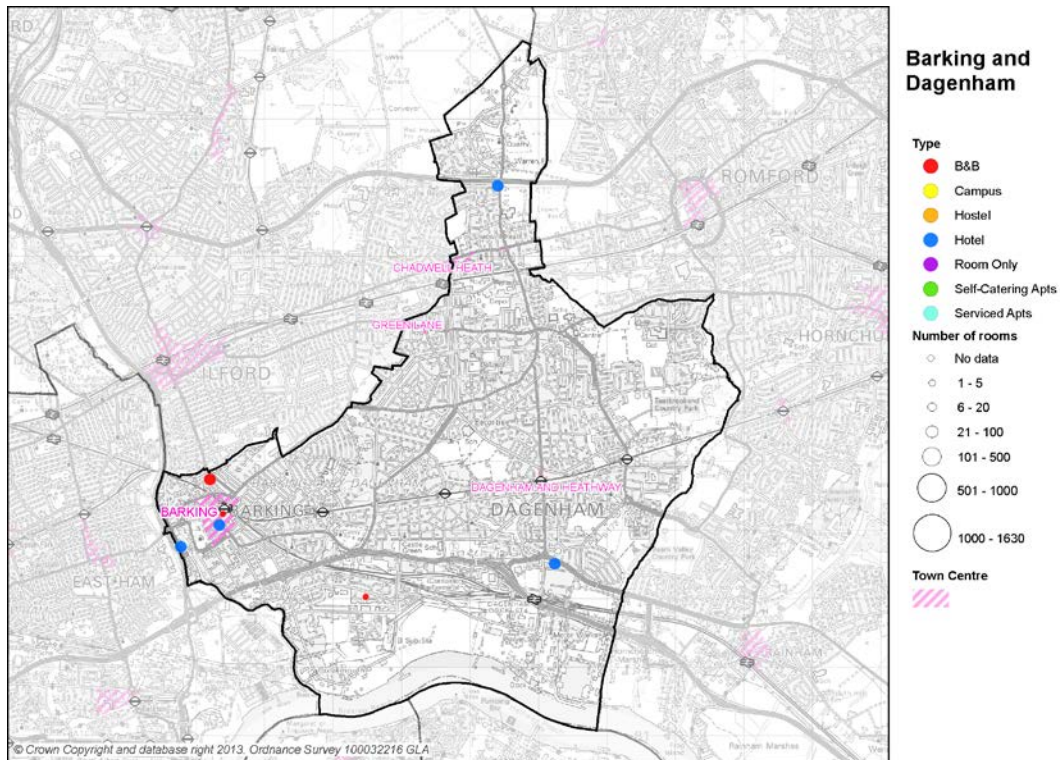
Inner London

Tower Hamlets, Hammersmith & Fulham and Hackney are expected to account for a lower number of visitor rooms than Central London: around 10,000. Tower Hamlets alone may provide 4,800 serviced rooms. Growth in Tower Hamlets so far has been concentrated at the border with the City of London and around Canary Wharf. Planning permissions suggest this general pattern will continue at least in the near future.

Across these boroughs large budget and luxury hotels will at least in the near future continue to dominate. For example, budget chain Ibis is opening a 250-room hotel in Hammersmith.

Outer London

The outer boroughs to the East and West appear set to provide the bulk of the remaining additional rooms in London to 2036. Hillingdon and Hounslow may experience over 4,000 additional visitor rooms by 2036. Growth will be influenced by Heathrow, but may slow down going forward if capacity is not expanded at Heathrow. Crossrail is likely to be a contributor to current and on-going expansion in visitor rooms to the west and east.

The outer boroughs to the north such as Harrow and to the south such as Sutton are predicted to see much lower growth in the number of visitor rooms.

Greenwich

Type
- B&B
- Campus
- Hostel
- Hotel
- Room Only
- Self-Catering Apts
- Serviced Apts

Number of rooms
- No data
- 1 - 5
- 6 - 20
- 21 - 100
- 101 - 500
- 501 - 1000
- 1000 - 1630

Town Centre

Hackney

Type
- B&B
- Campus
- Hostel
- Hotel
- Room Only
- Self-Catering Apts
- Serviced Apts

Number of rooms
- No data
- 1 - 5
- 6 - 20
- 21 - 100
- 101 - 500
- 501 - 1000
- 1000 - 1630

Town Centre

Islington

Type
- B&B (red)
- Campus (yellow)
- Hostel (orange)
- Hotel (blue)
- Room Only (purple)
- Self-Catering Apts (green)
- Serviced Apts (cyan)

Number of rooms
- No data
- 1 - 5
- 6 - 20
- 21 - 100
- 101 - 500
- 501 - 1000
- 1000 - 1630

Town Centre

Kensington and Chelsea

Type
- B&B (red)
- Campus (yellow)
- Hostel (orange)
- Hotel (blue)
- Room Only (purple)
- Self-Catering Apts (green)
- Serviced Apts (cyan)

Number of rooms
- No data
- 1 - 5
- 6 - 20
- 21 - 100
- 101 - 500
- 501 - 1000
- 1000 - 1630

Town Centre

Kingston upon Thames

Type
- B&B
- Campus
- Hostel
- Hotel
- Room Only
- Self-Catering Apts
- Serviced Apts

Number of rooms
- No data
- 1 - 5
- 6 - 20
- 21 - 100
- 101 - 500
- 501 - 1000
- 1000 - 1630

Town Centre

Lambeth

Type
- B&B
- Campus
- Hostel
- Hotel
- Room Only
- Self-Catering Apts
- Serviced Apts

Number of rooms
- No data
- 1 - 5
- 6 - 20
- 21 - 100
- 101 - 500
- 501 - 1000
- 1000 - 1630

Town Centre

Richmond upon Thames

Type
- B&B
- Campus
- Hostel
- Hotel
- Room Only
- Self-Catering Apts
- Serviced Apts

Number of rooms
- No data
- 1 - 5
- 6 - 20
- 21 - 100
- 101 - 500
- 501 - 1000
- 1000 - 1630

Town Centre

Southwark

Type
- B&B
- Campus
- Hostel
- Hotel
- Room Only
- Self-Catering Apts
- Serviced Apts

Number of rooms
- No data
- 1 - 5
- 6 - 20
- 21 - 100
- 101 - 500
- 501 - 1000
- 1000 - 1630

Town Centre

Appendix S-2: Change in the supply of visitor accommodation in London to 2036

Over the period 1991 to 2010, average growth in serviced visitor rooms was around 1,300. There has been a clear step change in the last two years – with an increase in serviced rooms of between 11,500 and 18,500. Such a change may well have been expected due to the Olympics.

The extent to which this may continue over the near future and further down the line to 2036 is uncertain. It is possible to argue that we may be on a new growth trend and developments such as Crossrail and further international sporting events will keep growth in hotel supply high. It is also possible to argue that there will be an increased level of closures after the Olympic effect has worn off, that Central London may be close to reaching full capacity and this will constrain future growth.

There are a number of factors that could positively or negatively affect the change in room supply in London over the next 20 years. For example:

- Local impacts may be stronger or weaker than expected from Crossrail and future sporting events;
- Changes to international travel might impact significantly upon the London visitor market;
- Central London may start to reach full capacity in terms of building new accommodation venues;
- Ongoing economic uncertainty across the world make predictions of this sort all the more difficult.

Given these uncertainties, GLA Economics have produced alternative estimates based on a variety of scenarios, where the assumptions around trends in openings and closures have been changed. These are shown in Charts S2-1 and S2-2, separately for serviced and for all rooms.

Depending on the assumptions adopted the number of serviced rooms in London by 2036 could be between 163,000 and 195,000, an increase of between 32,000 and 64,000.

Extending these estimates to include all types of accommodation extends the potential degree of error as there is much less data on past trends and no planning permission information for future expansions. However, using similar assumptions as for serviced rooms suggest potential for the total stock of visitor accommodation to be anywhere between 209,000 and 245,000, an increase of between 43,000 and 79,000.

Figure S2-1: Supply of serviced visitor rooms – alternative projections to 2036
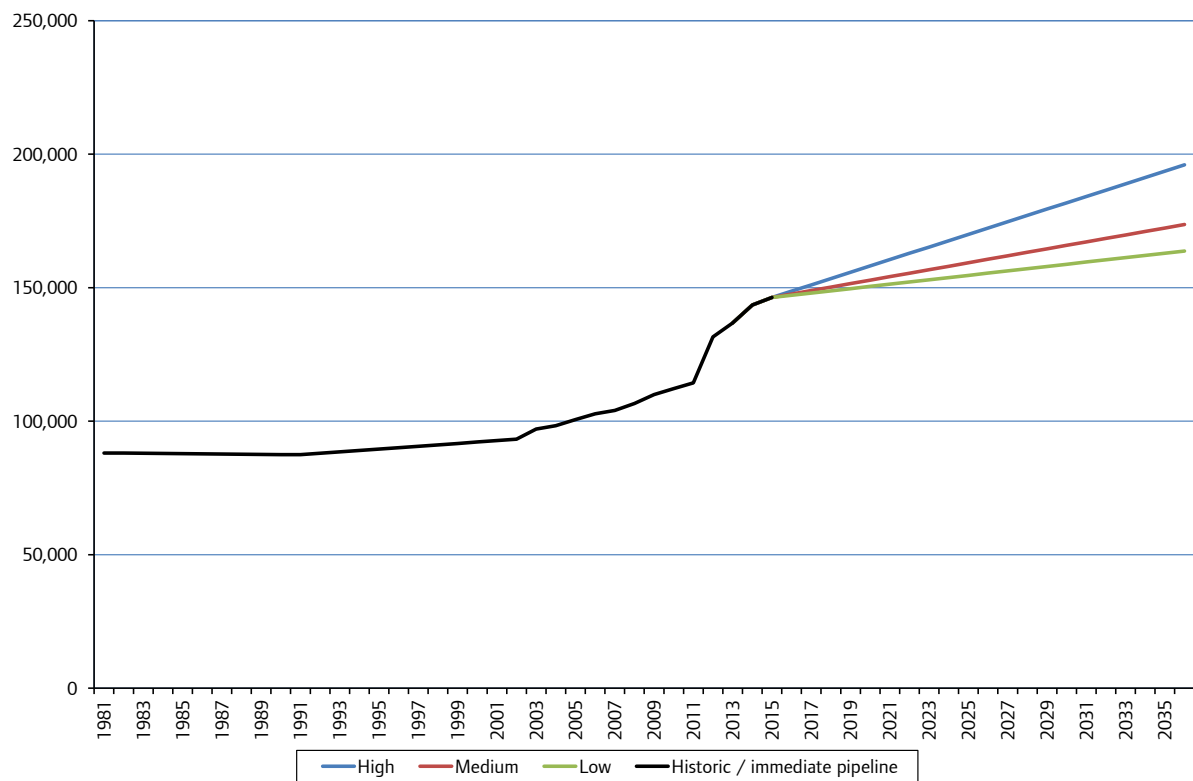
Figure S2-2: Supply of all visitor rooms – alternative projections to 2036
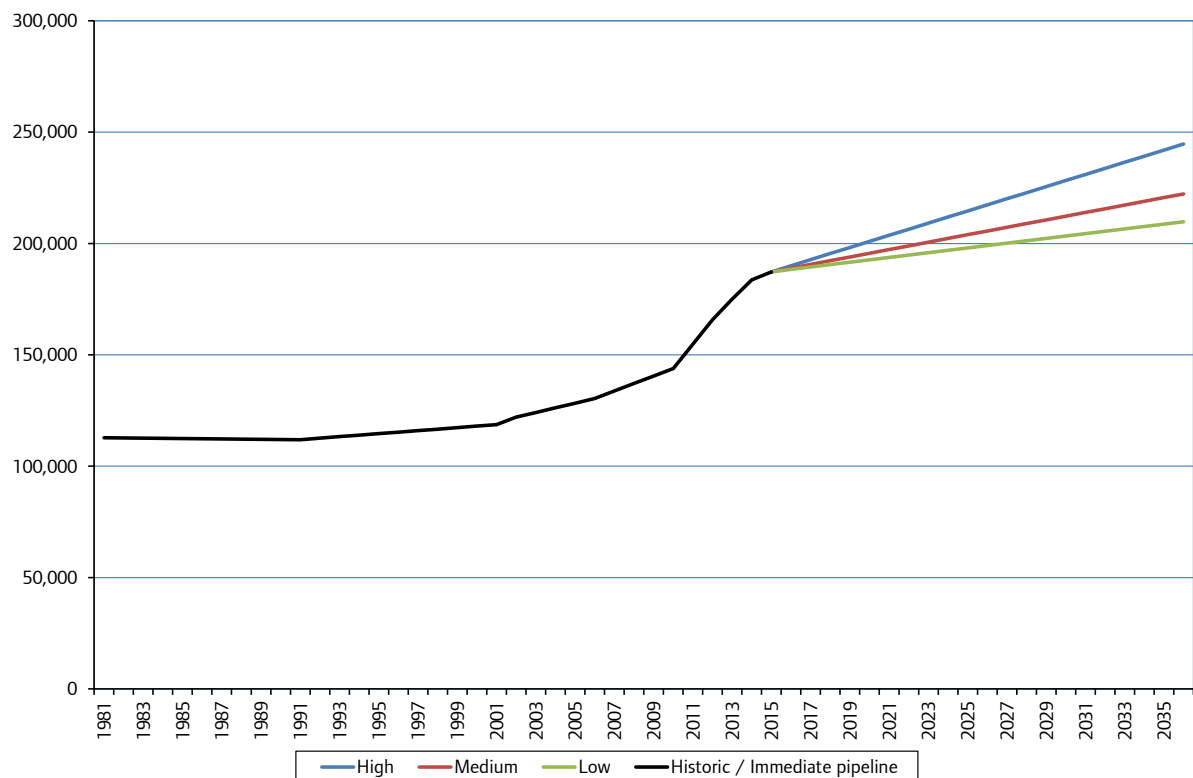
The assumptions used are described in Table S2-1.

Table S2-1: Assumptions adopted for alternative estimates of hotel room supply in London between 2016 and 2036.

High	The trend for net change in serviced and non-serviced rooms from 2002-2010 is assumed to apply from 2016 to 2036.
Medium	The trend for net change in serviced and non-serviced rooms from 1991-2010 is assumed to apply from 2016 to 2036.
Low	The trend for net change in serviced and non-serviced rooms from 1981-2010 is assumed to apply from 2016 to 2036.

All scenarios make the following assumptions to 2015:

Serviced rooms

- Hotel room openings are equal to those under construction and with detailed planning permission according to the London Hotel Development Monitor
- Bed and breakfast room openings are equal to the annual average for 2010-2012
- Closures are equal to 0.8% of the total serviced rooms in London.

Non-serviced rooms

- The proportion of serviced to total rooms remains the same.

While the assumptions are not changed dramatically in the above options, they do make a significant impact on the estimates. This shows the level of uncertainty around the estimates and potential for future developments that have not been factored in to impact significantly upon the supply of visitor accommodation in London, particularly as any impact is likely to be cumulative over the years.

Supply of visitor accommodation by London borough

Looking as far as 2036 is particularly difficult at borough level. There is a great deal of noise at such a local level. There are many factors that may come into play at borough level over the long term, such as changes to transport links with other parts of London, the rest of the UK and indeed with other countries. There may be other changes at the local level that are not yet planned such as improved shopping facilities or entertainment venues, along with potential regeneration initiatives. Site availability is also a significant factor, in terms of availability of land and competition from other uses such as offices and housing.

The figures provided here are intended to provide a general idea of the possible distribution of our estimated overall increase in supply of visitor rooms in London by 2036. The figures should be seen in the context of the total being an estimate itself.

The figures are based on the current split of visitor rooms by borough and the information we have on planning for future rooms. It has been assumed that the split in distribution by borough will remain constant from 2015. We do not have information to say what level of deviation from this there may be between 2015 and 2036. Note here that this borough level split has been constrained to the demand side projections for 2036.

Table S2-2: Potential additional rooms required by 2036 by London borough

	Serviced rooms	All rooms
Barking & Dagenham	400	400
Barnet	500	600
Bexley	200	200
Brent	800	900
Bromley	300	400
Camden	3,700	6,200
City of London	2,900	4,000
Croydon	600	700
Ealing	800	900
Enfield	100	200
Greenwich	800	1,700
Hackney	1,600	3,100
Hammersmith & Fulham	1,700	1,900
Haringey	300	400
Harrow	400	700
Havering	300	300
Hillingdon	2,400	3,200
Hounslow	1,900	2,000
Islington	700	1,300
Kensington & Chelsea	2,700	2,700
Kingston-upon-Thames	400	500
Lambeth	2,000	2,700
Lewisham	100	600
Merton	200	300
Newham	1,400	1,700
Redbridge	400	1,100
Richmond-upon-Thames	300	400
Southwark	1,800	3,500
Sutton	200	200
Tower Hamlets	2,900	4,900
Waltham Forest	200	300
Wandsworth	500	700
Westminster	9,400	11,800
LONDON	**42,900**	**60,500**

Should the distribution hold fairly constant from 2015, Table S2-2 represents the potential split by borough for serviced as well as all types of visitor rooms.

Appendix D-1: Spend and visitor shares by major inbound market to London, 2012

Figures D1-1 and D1-2 provide a comparison in visitor and spend terms to Figure 3-1 (which is on a nights basis) in the main text.

Figure D1-1: Share of visitors by largest inbound markets (ordered by number of nights) in 2012
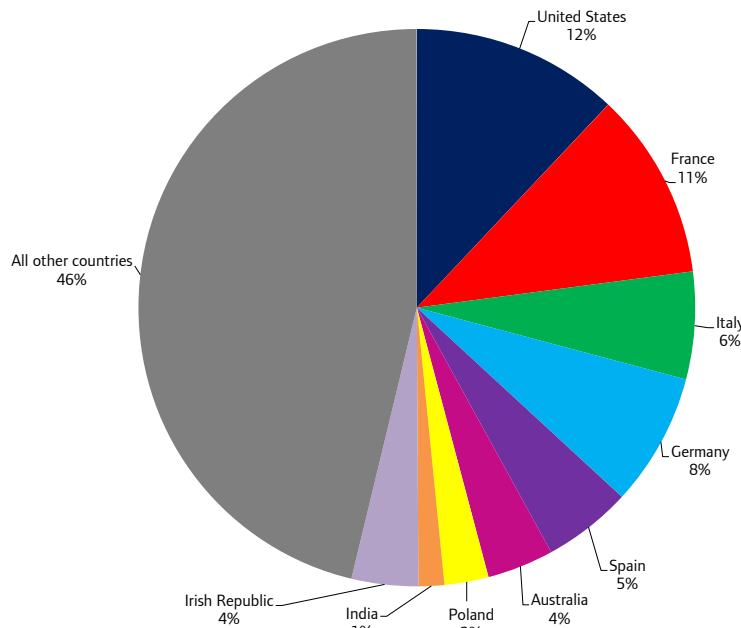
Source: International Passenger Survey, 2012

Figure D1-2: Share of visitor spend by largest inbound markets (ordered by number of nights) in 2012
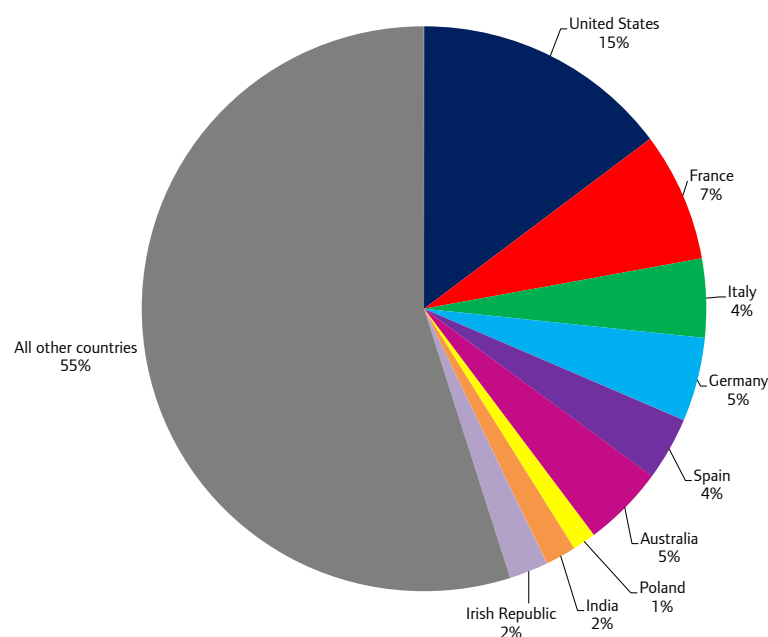
Source: International Passenger Survey, 2012

Appendix D-2: Composition of international tourism nights in London by global region (2012)

Figure D2-1 shows the composition of total international visitor nights in London by broad global region over the period 1997 to 2012.

Figure D2-1: International tourism nights in London by global region, 1997 – 2012 (thousands of nights)
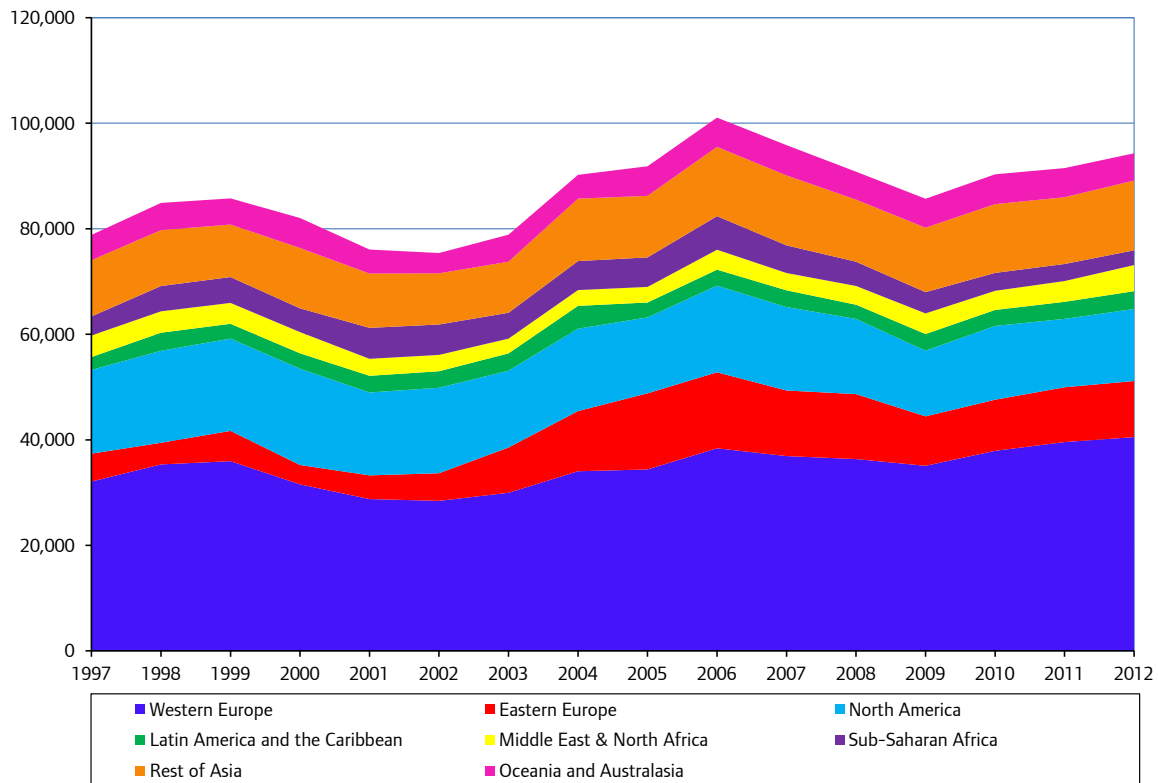
Source: International Passenger Survey and GLA Economics calculations. Note that 2012 data includes aggregations.

For the purposes of this graphic only, the global regions have been defined as follows. Please note that the naming of a country here is not a statement of recognition. The countries named are those given by IPS respondents although one or two obvious duplicates / chronological variants have been removed.

Western Europe
Andorra
Austria
Azores & Madeira
Belgium
Cyprus
Denmark
Faroe Islands
Finland
France
Germany
Gibraltar

Greece
Greenland
Iceland
Irish Republic
Italy
Liechtenstein
Luxembourg
Malta
Monaco
Netherlands
Norway
Portugal
San Marino
Spain & the Balearic Islands
Sweden
Switzerland

Eastern Europe
Albania
Bosnia-Herzegovina
Bulgaria
Belarus
Croatia
Czech Republic
Estonia
Hungary
Latvia
Lithuania
Macedonia
Moldova
Montenegro
Poland
Romania
Russia
Serbia
Slovakia
Slovenia
Ukraine

North America
Canada
United States

Latin America & the Caribbean
Anguilla & St Kitts
Antigua
Argentina
Bahamas
Barbados
Belize

Bermuda
Bolivia
Brazil
British Antarctic & the Falkland Islands
British Virgin Islands
Chile
Colombia
Costa Rica
Cuba
Dominica
Dominican Republic
Ecuador
El Salvador
Grenada
Guadeloupe
Guatemala
Guyana
Haiti
Honduras
Jamaica
Martinique
Mexico
Montserrat
Netherlands Antilles
Nicaragua
Panama
Paraguay
Peru
Puerto Rico
St Lucia
St Vincent
Suriname
Trinidad & Tobago
Turks/Caicos Islands
Uruguay
US Virgin Islands
Venezuela

Middle East & North Africa
Algeria
Bahrain
Egypt
Israel (including Palestine)
Jordan
Lebanon
Libya
Morocco
Oman
Qatar
Saudi Arabia

Syria
Tunisia
United Arab Emirates (UAE)
Western Sahara
Yemen

Sub-Saharan Africa
Angola
Benin
Botswana
Burkina Faso
Burundi
Cameroon
Cape Verde
Central African Republic
Chad
Comoros
Congo
Djibouti
Equatorial Guinea
Eritrea
Ethiopia
French Guinea
Gabon
Gambia
Ghana
Guinea
Guinea-Bissau
Ivory Coast
Kenya
Lesotho
Liberia
Madagascar
Malawi
Mali
Mauritania
Mozambique
Namibia
Niger
Nigeria
Rwanda
Sao Tome & Principe
Senegal
Sierra Leone
Somalia
South Africa
Sudan
Swaziland
Tanzania
Togo

Uganda
Zaire
Zambia
Zimbabwe

Rest of Asia
Afghanistan
Armenia
Azerbaijan
Bangladesh
Brunei
Burma (Myanmar)
Cayman Islands
China
East Timor
Georgia
Hong Kong
India
Indonesia
Iran
Iraq
Japan
Kampuchea (Cambodia)
Kazakhstan
Kyrgyzstan
Kuwait
Laos
Macao
Malaysia
Maldives
Mauritius
Mongolia
Nepal
North Korea
Pakistan
Philippines
Seychelles
Singapore
South Korea
Sri Lanka
Tajikistan
Taiwan
Thailand
Turkey
Turkmenistan
Uzbekistan
Vietnam

Oceania & Australasia
Australia

Canton & Enderbury Islands
Fiji
French Polynesia
New Caledonia
New Zealand
Other Commonwealth Pacific Islands
Papua New Guinea

Residents of countries not in the above list were not sampled by the International Passenger Survey.

Appendix D-3: Model development and specifications

This appendix sets out the approach taken to modelling tourism demand for nights in London over time. Note that summaries of the results themselves have been incorporated into separate appendices. Furthermore, methodologies utilised varied necessarily between the international component of London's tourism and its domestic (i.e. UK) component.

International tourism component
As noted in the main text, GLA Economics' approach was to look at a number of separate methodologies and on the international side these fall essentially into three groups.

(i)   *Simple extrapolation*: What we are concerned about here is visitor nights in London and this is what is being extrapolated – so this group of methodologies does not proxy that to anything else. The idea behind the approach is simply this: what has happened in the past will tell you what is going to happen in the future. Obviously this is driven by trends and not by the 'volatile' aspects of series.

(ii) *Relationship with GDP: The* second group of methodologies essentially looks at the relationship with GDP as some indicator of disposable income. The logic behind the relationship is that a foreign tourist needs some money to go on holiday and it is not an essential like food and heat. If we could see what is going to happen to GDP (either by country or globally), then we should be in a position to calculate what will happen to tourism – in theory.

(iii) *Aggregation of separately forecast country series: 'sum different from the parts':* The third and final group emphasises the difference between looking at aggregates and looking at countries or groups of countries. At the heart of this approach is the belief that extrapolation of the aggregate may not in fact be the same as the summation of its individual components. With reference to inbound tourism markets, what is being suggested is that the aggregation of trends for individual countries may not produce the same results as the extrapolation of the aggregate.

All types of methodologies have associated issues.

Simple extrapolation
There are a number of potential problems with the simple extrapolation of visitor nights data – as there are with every type of methodology. For example, looking at different periods of time will give you different trends. And there can be periods exhibiting step changes, often associated with a particular event (for example, Eastern European countries joining the European Union) or a change or modification in technology or regulation.

On many occasions, data incompleteness or the lack of lengthy time series creates additional complications. Furthermore, the inherent assumption is that the future is just like the past in terms of its trends. What if the future is just different? For example, within London's tourism inbound markets, what if the capital is reliant on Chinese and Indian tourists rather than American and French ones?

Relationship with GDP

There are some issues with this group of methodologies too. The main one is that it is reliant on accurate forecasts of GDP growth. There are plenty of organisations producing forecasts of GDP. In the past this has been reasonably simple and based on the assumption of a constant rate of global expansion. However, after recent events in the global economy, it may no longer be so simple. Furthermore, there is a marked shift in the composition of global GDP growth with many of London's traditional, established markets facing especially uncertain times. In contrast, much of the real growth is located in inbound markets where London does not currently have an exceptionally strong foothold at present.

Aggregation of separately forecast country series

The single most obvious problem with this approach is that there is a requirement to be 'selective'. It is possible get silly results for individual countries due to the small sample size in the IPS, one-off events (the 'A8' Eastern European countries joining the EU etc.) and some markets may not be showing up at all in the data yet.

In addition to this, one might add to the list of difficulties: the availability of academic elasticities and the limited range of countries for which they have been undertaken and the focus of these upon spend and visitor numbers rather than upon visitor nights. However, if the elasticities being used are derived, then there is the importance of how the chosen time period (usually influenced by the availability of time series data), how the results should be quality checked when there is so little comparable research and, again, the impact of one-off events (which will be particularly exacerbated under such a scenario).

Table D3-1: Some of the main problems associated with the three categories of methodologies

Problem area	Simple extrapolation	Relationship with GDP	Aggregation of separately forecast country series
Looking at different periods results in different trends	√	√	√
Risk of lack of completeness of data	√	√	√√
Risk of time series not being long enough	√		√√
Simply switches uncertainty from one variable to another		√	
Reliant on unseen 'external' methodology			√
One-off events can have major impact	√	√	√√

Key: √=a significant problem   √√=an especially significant problem

Table D3-1 summarises *some* of the main difficulties and demonstrates that the aggregation of separately forecast country series can be especially prone to some of these problems – because each individual country series will tend to be more affected than an overall aggregate would be. The aggregation of the individual country series has a tendency to compound rather than balance out these problems.

Alongside the second group of methodologies is the concept of income elasticity of demand. Essentially, what is being investigated here is if national income increases – say by 10 per cent - what happens to international tourism? In other words, does it increase proportionately by 10 per cent or by more or by less? This will depend on lots of things that are not necessarily visible from the raw tourism or GDP data. For example, if 99 per cent of the wealth is held by 0.1 per cent of the population, then it is quite possible that there might be no increase in outbound tourism from that country at all.

This study is actually quite atypical in terms of its requirements from the income elasticity of demand for tourism concept. A wide variety of academic studies actually exist but are more usually focused upon either spend or visits. GLA Economics specifically needed to look at nights – which is closer to visits but not exactly the same thing. As part of the work, GLA Economics has derived its own elasticities of demand for tourism to London by country. The focus on nights rather than visits is one reason (amongst many) why there might be differences between these 'revealed' or empirical estimates and academic ones by country. The basic calculation of the co-efficient of income elasticity of demand for tourism to London, together with a worked example and a full list of the countries to which this calculation was applied has been included as Appendix D-7.

This appendix now moves on to the model specifications used.

Model specifications

On the international side eleven model variants have been used. These models vary according to a number of factors and the variants represent specific combinations of these factors.

- If they are based on extrapolation, do they use visitor nights directly for those extrapolations or are they the result of the extrapolation of GDP?
- Do they take into account forecasts done for London & Partners by Oxford Economics?
- How have changes to the number of nights stayed been incorporated – or have they been incorporated at all?
- How far back does the time series being analysed go – whether 'modelled' to account for missing data or not?
- Has the projection been produced using aggregate data or individual country data aggregated up? [In most cases GLA Economics used the top 50 countries in terms of current share of inbound market to London and bracketed all remaining markets into an 'other' category. Appendix D-7 gives a worked example of the derived income elasticities of demand for tourism nights in London.]
- If income elasticities of demand are used, are they 'academic' ones sourced to previous literature or are they those derived from the individual country analysis of the relationship between income growth and tourism to London?
- If GDP estimates are used through to 2036, are they simple extrapolations of existing trends or are they furnished by the OECD report to 2060 (which allows for individual country calculation of particular years for all OECD countries and some major global players outside the OECD)?
- If commissioned forecasts to 2022 are used, is the trend derived from only the forecast period or from the whole series?
- If commissioned forecasts to 2022 are used, is an implied nights assumption used or a static nights assumption?

These questions and their relationship to the eleven model variants are shown in Figure D3-1.

Figure D3-1: Summary table of model variant assumptions

MODEL NUMBER	1	2	3	4	5	6	7	8	9	10	11
Extrapolation of											
Previous nights	●	●	●					●	●	●	●
GDP / income elasticities				●	●	●	●				

MODEL NUMBER	1	2	3	4	5	6	7	8	9	10	11
Start date											
1964 (modelled)	●	●									
1997			●	●	●	●	●				
Forecasts based								●	●	●	●

MODEL NUMBER	1	2	3	4	5	6	7	8	9	10	11
Adjusted for change in nights per visit	●	●	●								
Using long term trend		●	●								
Using step changes	●										

MODEL NUMBER	1	2	3	4	5	6	7	8	9	10	11
Construction using											
Aggregated series	●	●	●					●	●	●	●
Individual country data				●	●	●	●				

MODEL NUMBER	1	2	3	4	5	6	7	8	9	10	11
Income elasticities used				●	●	●	●				
Derived / empirical				●		●					
'Academic'					●		●				

MODEL NUMBER	1	2	3	4	5	6	7	8	9	10	11
GDP used				●	●	●	●				
Linear extrapolation				●	●						
OECD forecasts						●	●				

MODEL NUMBER	1	2	3	4	5	6	7	8	9	10	11
London & Partners to 2022 used								●	●	●	●
Trend via whole series								●	●	●	
Trend only for forecast period											●
Implied nights assumption									●		●
Static nights assumption								●		●	

The tables below show a summary specification of each model together with summary information about the derived result. For comparative purposes, the average of the 11 series for the 2036 central projection was 148.4 million nights. With the two outliers removed, this average was modified to 146.2 million nights. Note that where forecast growth was non-linear over the period between 2012 and 2036, this has been modified so that it is not.

International market models - specifications

Table D3-2: Model 1 Specifications

Extrapolation type	Linear extrapolation of previous nights series.
Data analysis period	From 1964. Where necessary this was part modelled data based on London shares of UK data.
Nights per visit assumptions	Adjusted for a change in nights per visit but that change was assumed only to take place in two step changes.
Aggregation level	Only the aggregate level data was extrapolated. Individual country data was not produced for this model.
Income elasticities used	Not applicable to this model.
GDP sourcing	Not applicable to this model.
Use of L&P commissioned forecasts	Not applicable to this model.
Result – central projection for 2036	138.7 million nights
Ranking (high to low)	Rank 7/11 – below average

Figure D3-2: Model 1 result compared to other results (thousands of tourism nights)
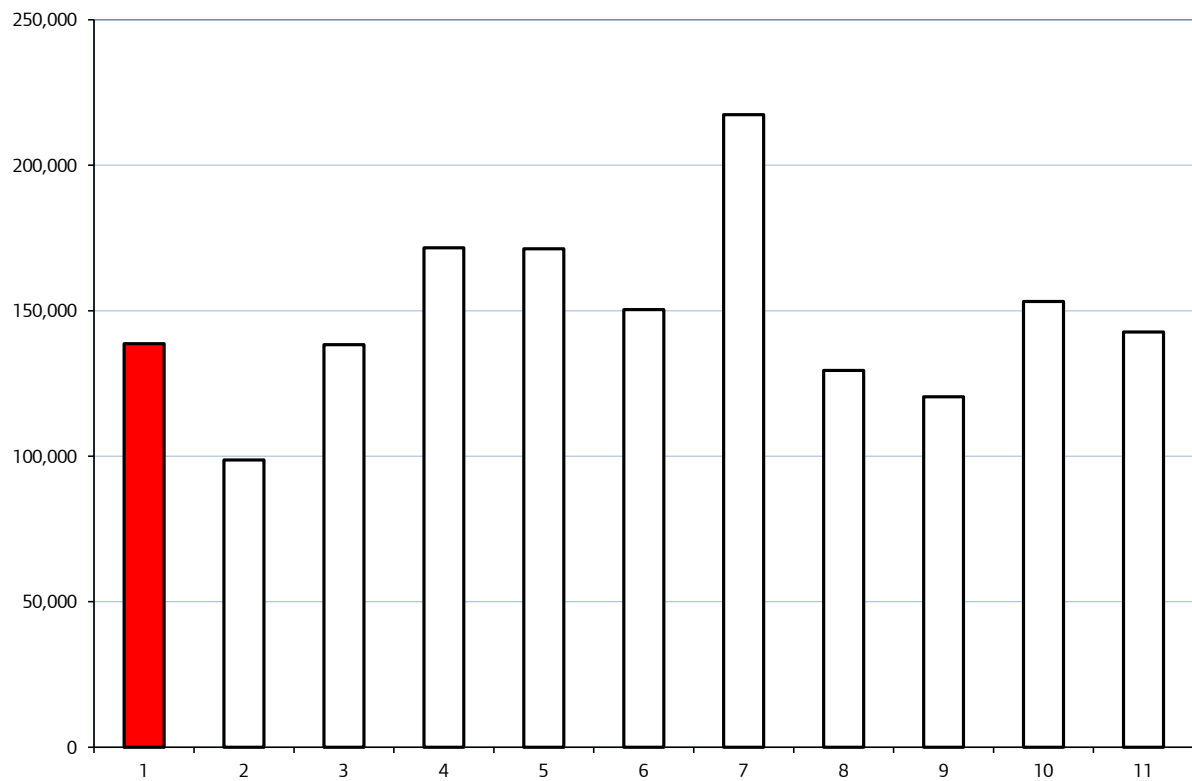
Table D3-3: Model 2 Specifications

Extrapolation type	Linear extrapolation of previous nights series.
Data analysis period	From 1964. Where necessary this was part modelled data based on London shares of UK data.
Nights per visit assumptions	Adjusted for a change in nights per visit and that change was a continuous extrapolation of recorded change over the period since 1997. This meant that whilst visitor numbers continued to grow strongly, nights tailed off and went into decline.
Aggregation level	Only the aggregate level data was extrapolated. Individual country data was not produced for this model.
Income elasticities used	Not applicable to this model.
GDP sourcing	Not applicable to this model.
Use of L&P commissioned forecasts	Not applicable to this model.
Result – central projection for 2036	98.7 million nights
Ranking (high to low)	Rank 11/11 – defines the lower bound of estimates

Figure D3-3: Model 2 result compared to other results (thousands of tourism nights)

Table D3-4: Model 3 Specifications

Extrapolation type	Linear extrapolation of previous nights series.
Data analysis period	From 1997. No modelled data was included in this analysis. This defines a different trend from Models 1 and 2.
Nights per visit assumptions	Assumed to be static.
Aggregation level	Only the aggregate level data was extrapolated. Individual country data was not produced for this model.
Income elasticities used	Not applicable to this model.
GDP sourcing	Not applicable to this model.
Use of L&P commissioned forecasts	Not applicable to this model.
Result – central projection for 2036	138.3 million nights
Ranking (high to low)	Rank 8/11 – below average

Figure D3-4: Model 3 result compared to other results (thousands of tourism nights)
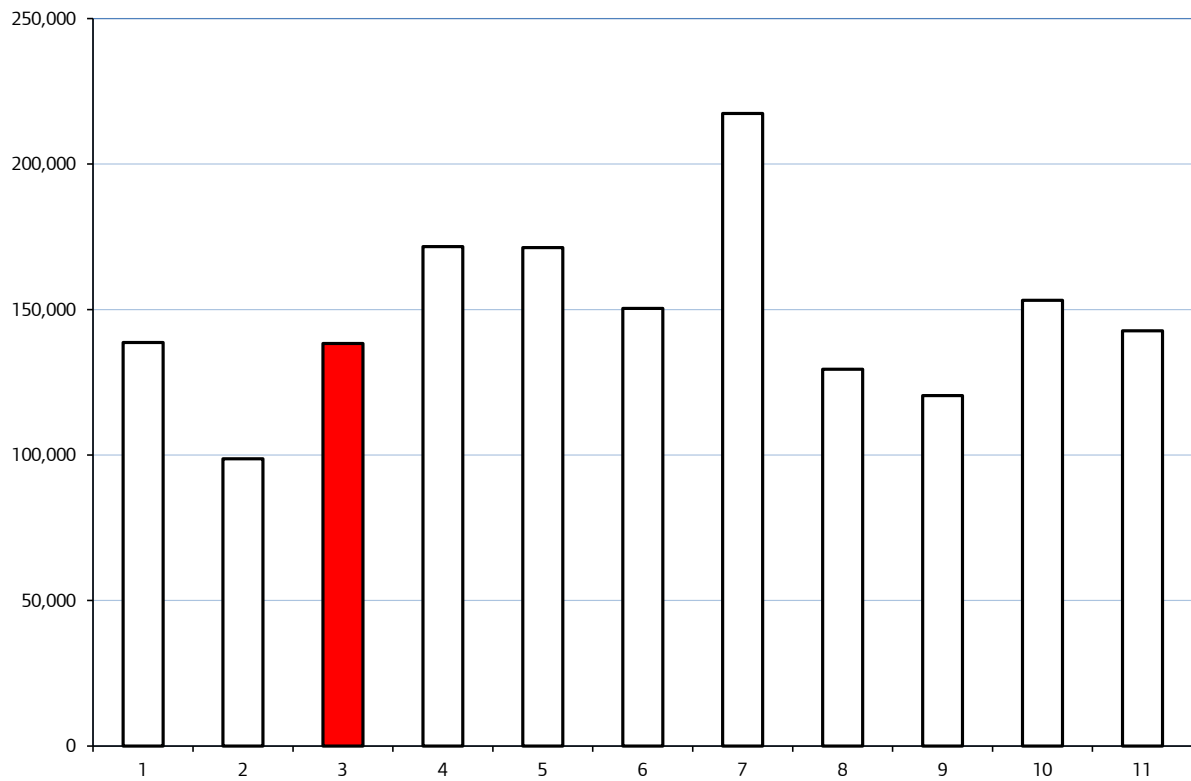
Models from the group involving the relationship with GDP tend to produce higher growth than the models based on simple extrapolation of nights. Four of the five highest results were produced by this group of models.

Table D3-5: Model 4 Specifications

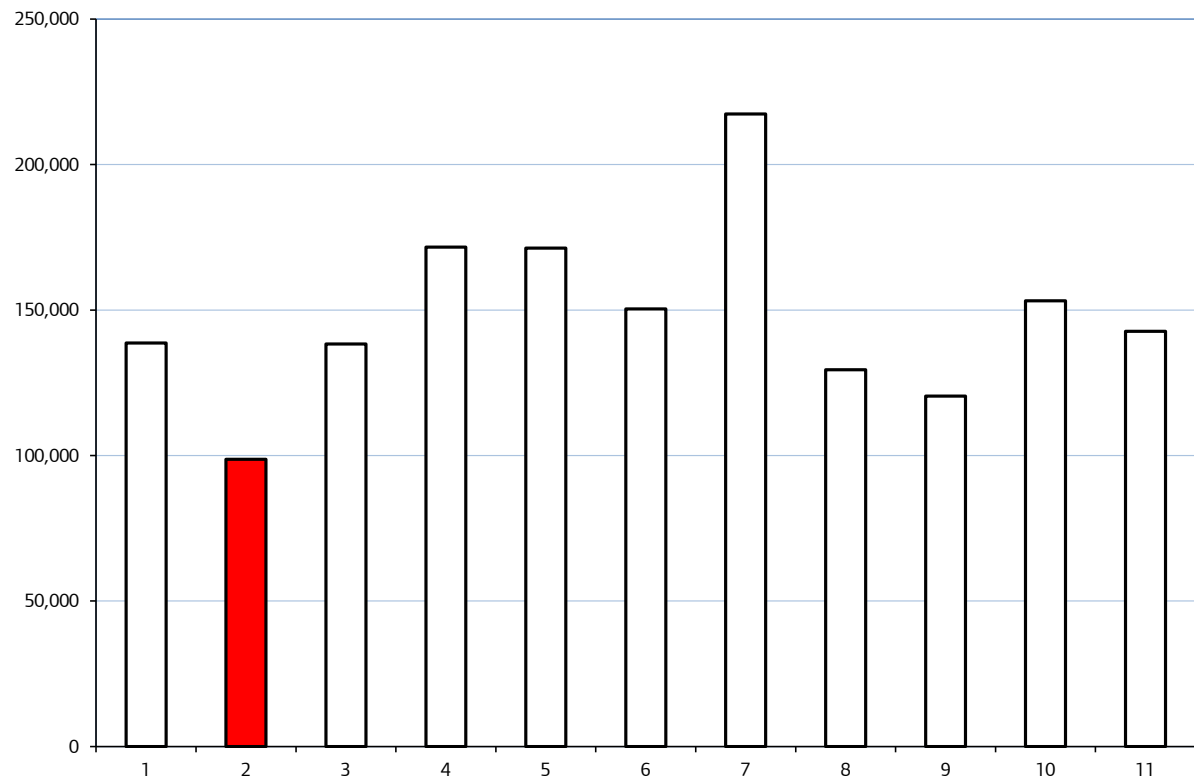|	
Extrapolation type	Nights growth linked to growth of GDP.
Data analysis period	From 1997. No modelled data was included in this analysis.
Nights per visit assumptions	Assumed to be static.
Aggregation level	Analysis took place at the individual country level for the 'top 50' inbound domestic markets for London. Although country level estimates were produced for 2036, these estimates were then aggregated back up.
Income elasticities used	Where applicable, derived empirical income elasticities of demand for tourism to London were used based on changes over the period 1997 – 2011. In a few cases, the elasticities were overwritten. Those countries outside the top 50 inbound markets were aggregated together.
GDP sourcing	Simple linear extrapolation of GDP was used based on the trend over the period 1997 – 2011.
Use of L&P commissioned forecasts	Not applicable to this model.
Result – central projection for 2036	171.3 million nights
Ranking (high to low)	Rank 2/11 – above average

Figure D3-5: Model 4 result compared to other results (thousands of tourism nights)

Table D3-6: Model 5 Specifications

|	
Extrapolation type	Nights growth linked to growth of GDP.
Data analysis period	From 1997. No modelled data was included in this analysis.
Nights per visit assumptions	Assumed to be static.
Aggregation level	Analysis took place at the individual country level for the 'top 50' inbound domestic markets for London. Although country level estimates were produced for 2036, these estimates were then aggregated back up.
Income elasticities used	Where available sourced 'academic' estimates were used for income elasticities of demand. Note that these were always for the UK rather than London and in some developing countries were for outbound tourism as a whole. Those countries without specific estimates for income elasticity of demand were aggregated together and assumed to have an income elasticity of demand of 1.3.
GDP sourcing	Simple linear extrapolation of GDP was used based on the trend over the period 1997 – 2011.
Use of L&P commissioned forecasts	Not applicable to this model.
Result – central projection for 2036	171.3 million nights
Ranking (high to low)	Rank 3/11 – above average

Figure D3-6: Model 5 result compared to other results (thousands of tourism nights)

Table D3-7: Model 6 Specifications

Extrapolation type	Nights growth linked to growth of GDP.
Data analysis period	From 1997. No modelled data was included in this analysis.
Nights per visit assumptions	Assumed to be static.
Aggregation level	Analysis took place at the individual country level for the 'top 50' inbound domestic markets for London. Although country level estimates were produced for 2036, these estimates were then aggregated back up.
Income elasticities used	Where applicable, derived empirical income elasticities of demand for tourism to London were used based on changes over the period 1997 – 2011. In a few cases, the elasticities were overwritten. Those countries outside the top 50 inbound markets were aggregated together.
GDP sourcing	OECD forecasts by year for all OECD countries and for major global players outside the OECD.
Use of L&P commissioned forecasts	Not applicable to this model.
Result – central projection for 2036	150.4 million nights
Ranking (high to low)	Rank 5/11 – slightly above average

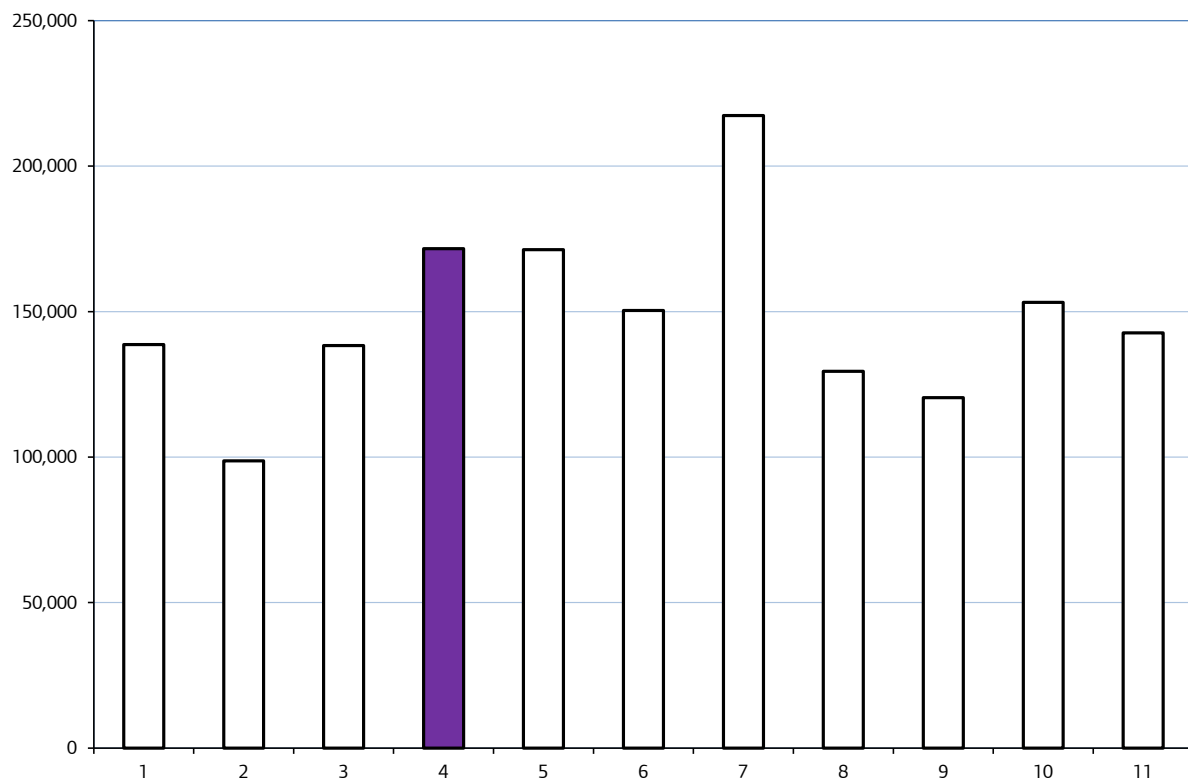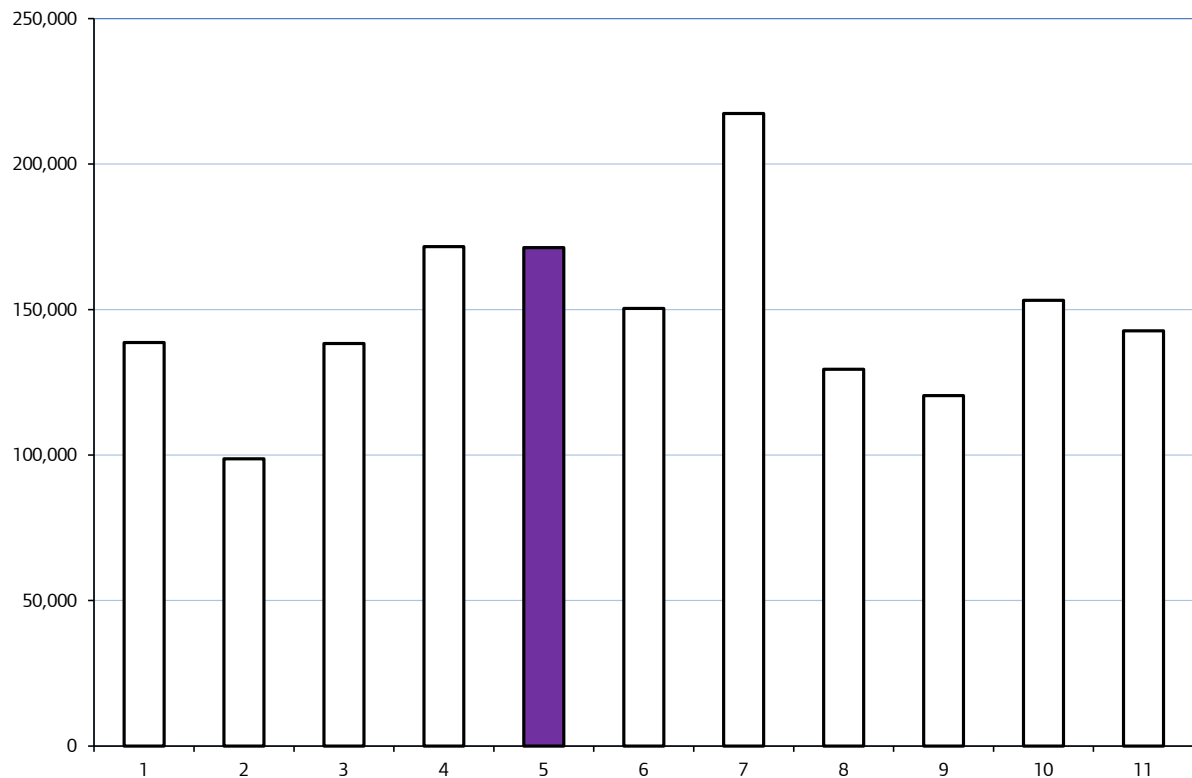**Figure D3-7: Model 6 result compared to other results (thousands of tourism nights)**

Table D3-8: Model 7 Specifications

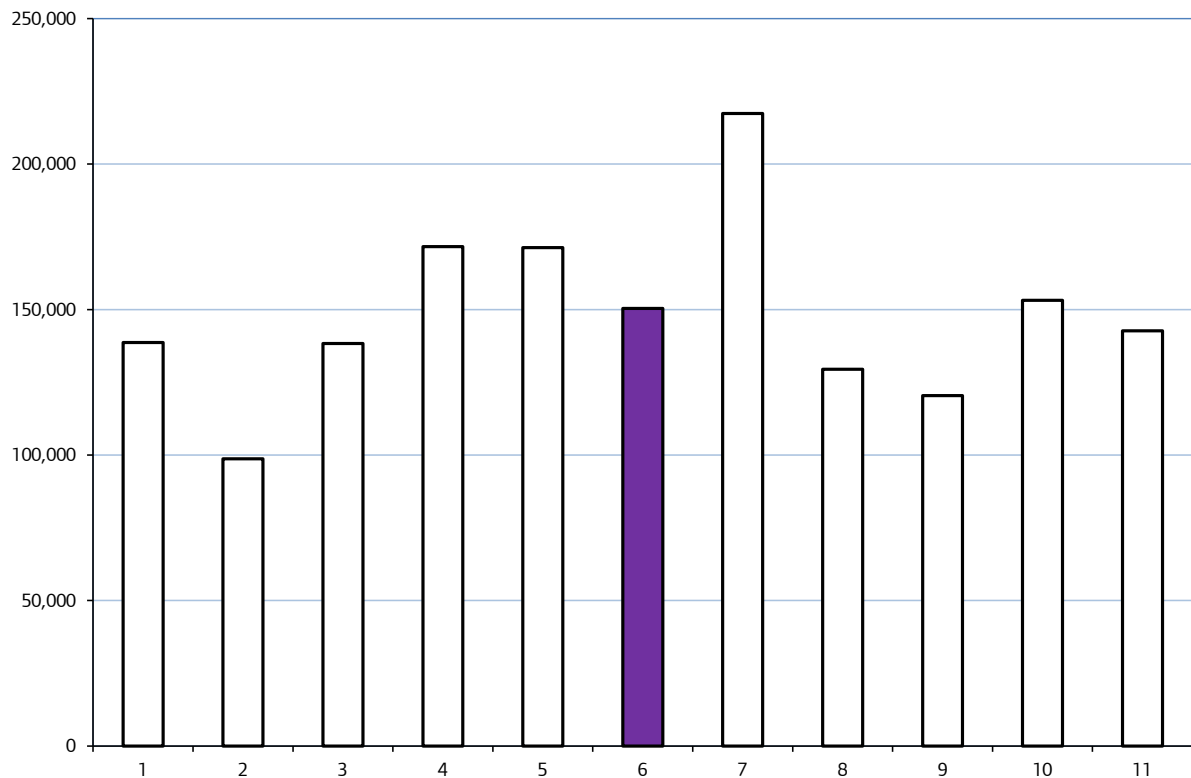| Extrapolation type	Nights growth linked to growth of GDP.
Data analysis period	From 1997. No modelled data was included in this analysis.
Nights per visit assumptions	Assumed to be static.
Aggregation level	Analysis took place at the individual country level for the 'top 50' inbound domestic markets for London. Although country level estimates were produced for 2036, these estimates were then aggregated back up.
Income elasticities used	Where available sourced 'academic' estimates were used for income elasticities of demand. Note that these were always for the UK rather than London and in some developing countries were for outbound tourism as a whole. Those countries without specific estimates for income elasticity of demand were aggregated together and assumed to have an income elasticity of demand of 1.3.
GDP sourcing	OECD forecasts by year for all OECD countries and for major global players outside the OECD. The combination of strong growth in emerging economies and a higher than observed income elasticities of demand for them generated high growth in this scenario.
Use of L&P commissioned forecasts	Not applicable to this model.
Result – central projection for 2036	217.4 million nights
Ranking (high to low)	Rank 1/11 – defines upper bound

Figure D3-8: Model 7 result compared to other results (thousands of tourism nights)

Table D3-9: Model 8 Specifications

Extrapolation type	London and Partners commissioned forecasts up until 2022; extrapolation of trends beyond that.
Data analysis period	Forecasts-based until 2022. This variant uses a trend for the whole backseries back to 1964.
Nights per visit assumptions	Assumed to be static.
Aggregation level	Only the aggregate level data was extrapolated. Individual country data was not produced for this model.
Income elasticities used	Not applicable to this model.
GDP sourcing	Not applicable to this model.
Use of L&P commissioned forecasts	Fully incorporated up until 2022.
Result – central projection for 2036	129.5 million nights
Ranking (high to low)	Rank 9/11 – below average

Figure D3-9: Model 8 result compared to other results (thousands of tourism nights)

Table D3-10: Model 9 Specifications

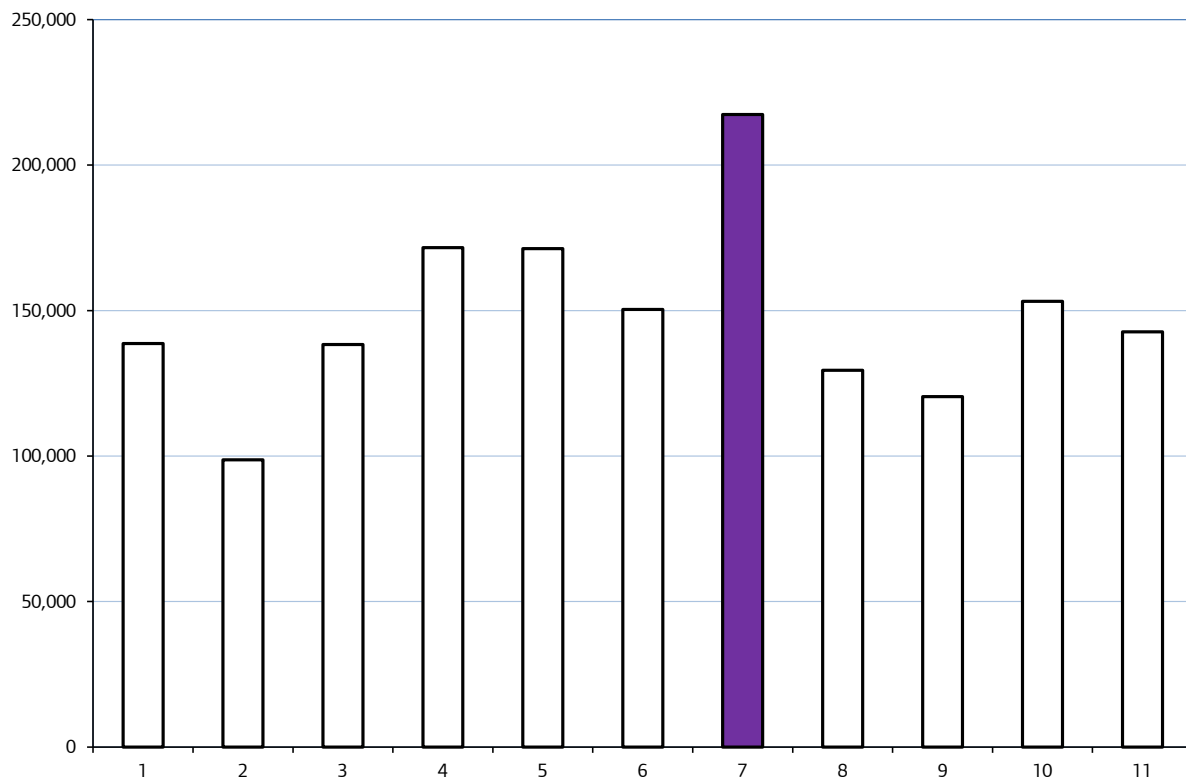|	
Extrapolation type	London and Partners commissioned forecasts up until 2022; extrapolation of trends beyond that.
Data analysis period	Forecasts-based until 2022. This variant uses a trend for the whole backseries back to 1964.
Nights per visit assumptions	Uses an implied nights assumption derived from the forecast until 2022 and extrapolates this.
Aggregation level	Only the aggregate level data was extrapolated. Individual country data was not produced for this model.
Income elasticities used	Not applicable to this model.
GDP sourcing	Not applicable to this model.
Use of L&P commissioned forecasts	Fully incorporated up until 2022.
Result – central projection for 2036	120.4 million nights
Ranking (high to low)	Rank 10/11 – below average

Figure D3-10: Model 9 result compared to other results (thousands of tourism nights)

Table D3-11: Model 10 Specifications

Extrapolation type	London and Partners commissioned forecasts up until 2022; extrapolation of trends beyond that.
Data analysis period	Forecasts-based until 2022. This variant uses a trend derived only from the forecast period which tends to lead to higher projections.
Nights per visit assumptions	Assumed to be static.
Aggregation level	Only the aggregate level data was extrapolated. Individual country data was not produced for this model.
Income elasticities used	Not applicable to this model.
GDP sourcing	Not applicable to this model.
Use of L&P commissioned forecasts	Fully incorporated up until 2022.
Result – central projection for 2036	153.2 million nights
Ranking (high to low)	Rank 4/11 – slightly above average

Figure D3-11: Model 10 result compared to other results (thousands of tourism nights)
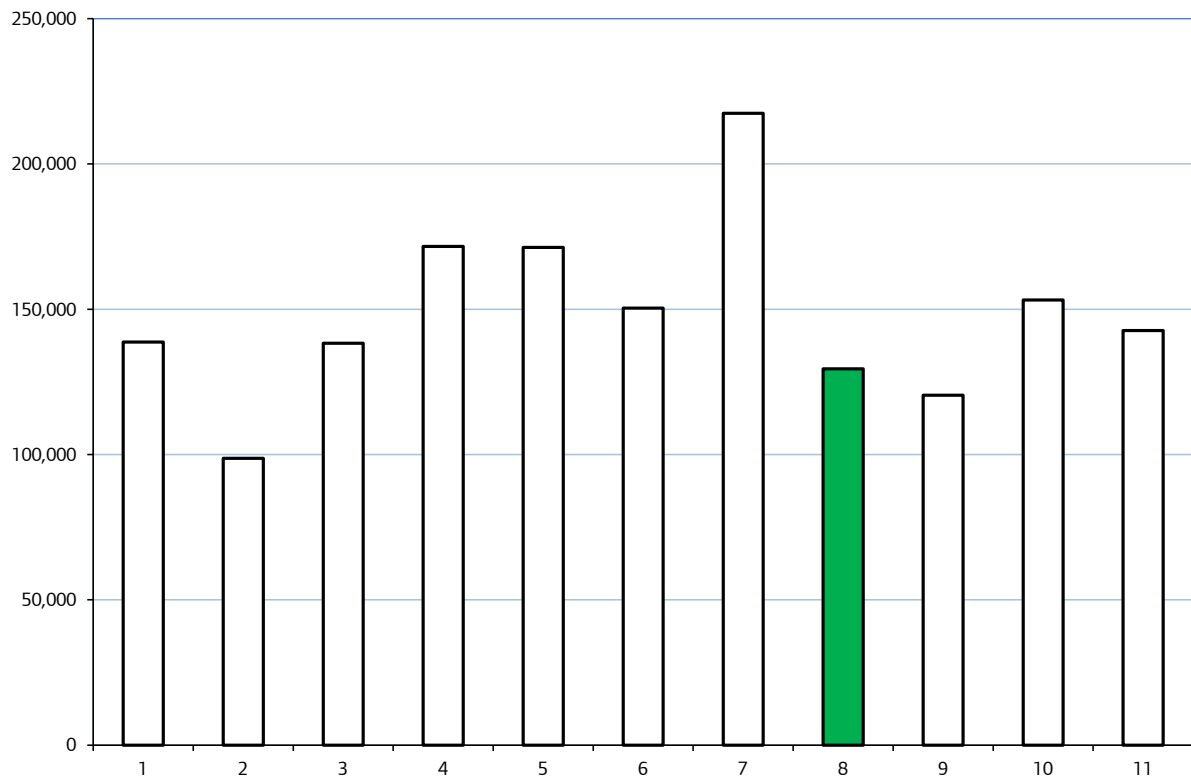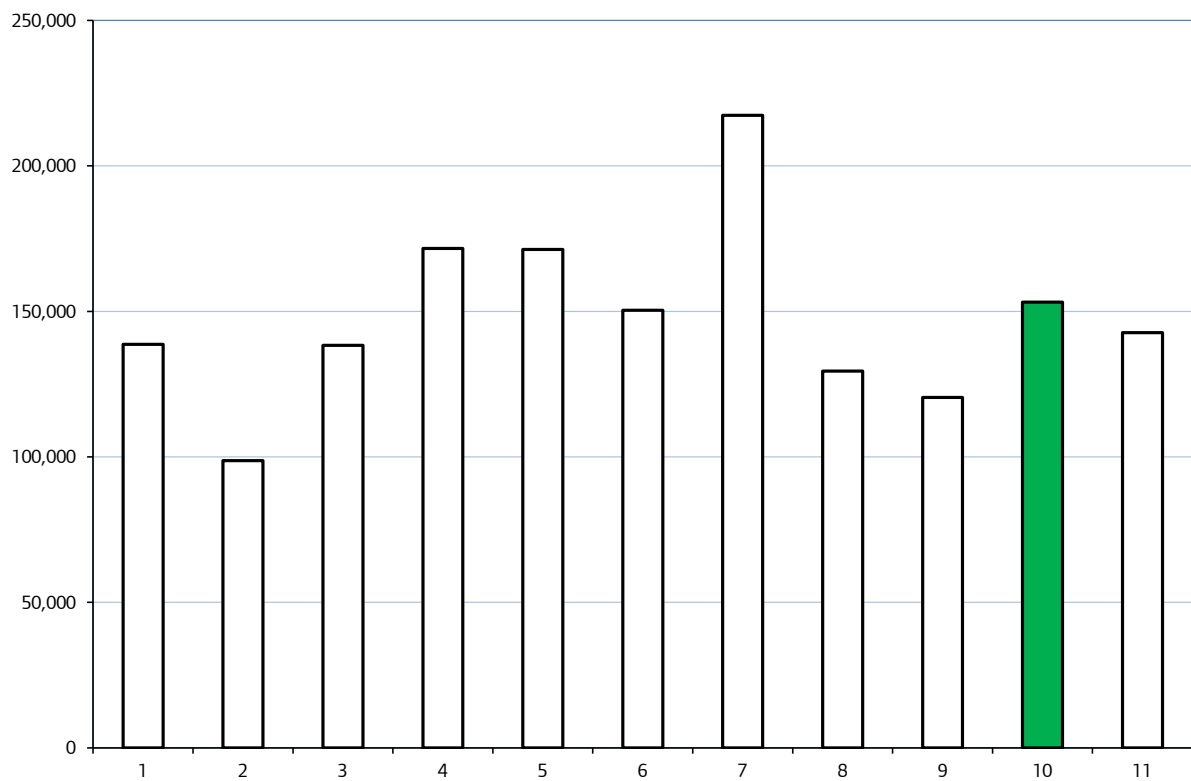
Table D3-12: Model 11 Specifications

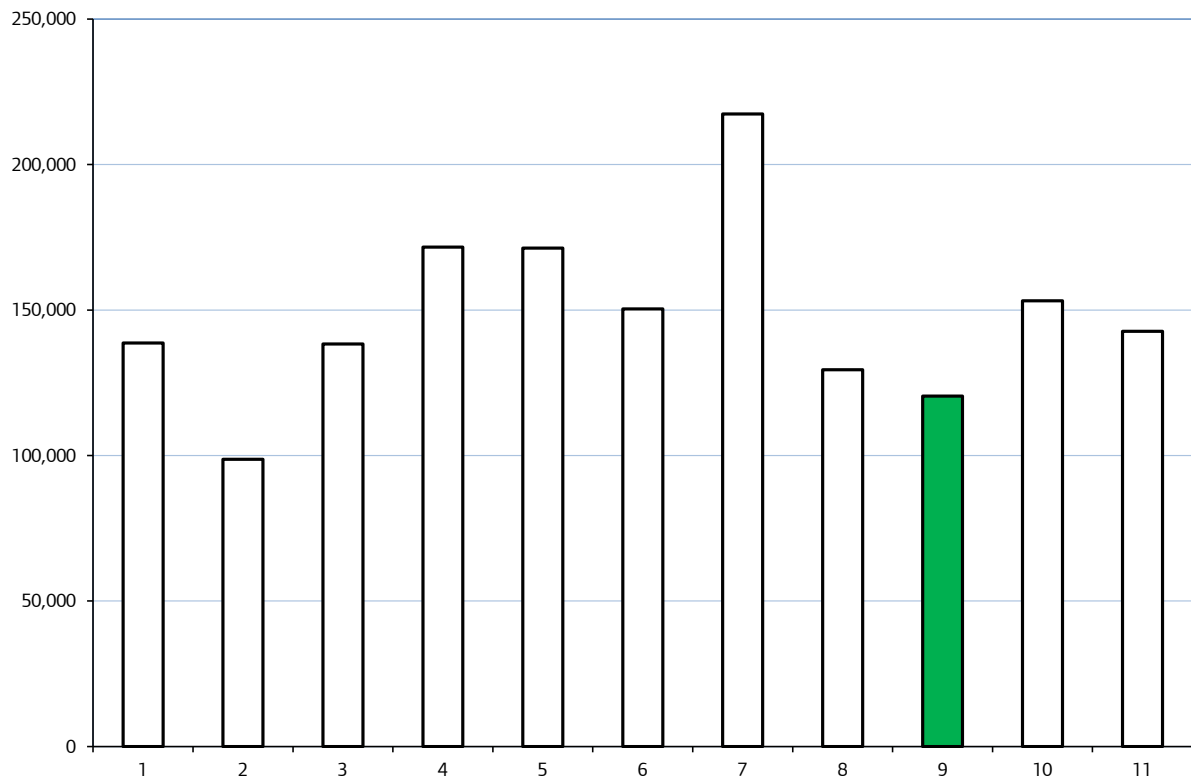|	
Extrapolation type	London and Partners commissioned forecasts up until 2022; extrapolation of trends beyond that.
Data analysis period	Forecasts-based until 2022. This variant uses a trend derived only from the forecast period which tends to lead to higher projections.
Nights per visit assumptions	Uses an implied nights assumption derived from the forecast until 2022 and extrapolates this.
Aggregation level	Only the aggregate level data was extrapolated. Individual country data was not produced for this model.
Income elasticities used	Not applicable to this model.
GDP sourcing	Not applicable to this model.
Use of L&P commissioned forecasts	Fully incorporated up until 2022.
Result – central projection for 2036	142.7 million nights
Ranking (high to low)	Rank 6/11 – slightly below average

Figure D3-12: Model 11 result compared to other results (thousands of tourism nights)
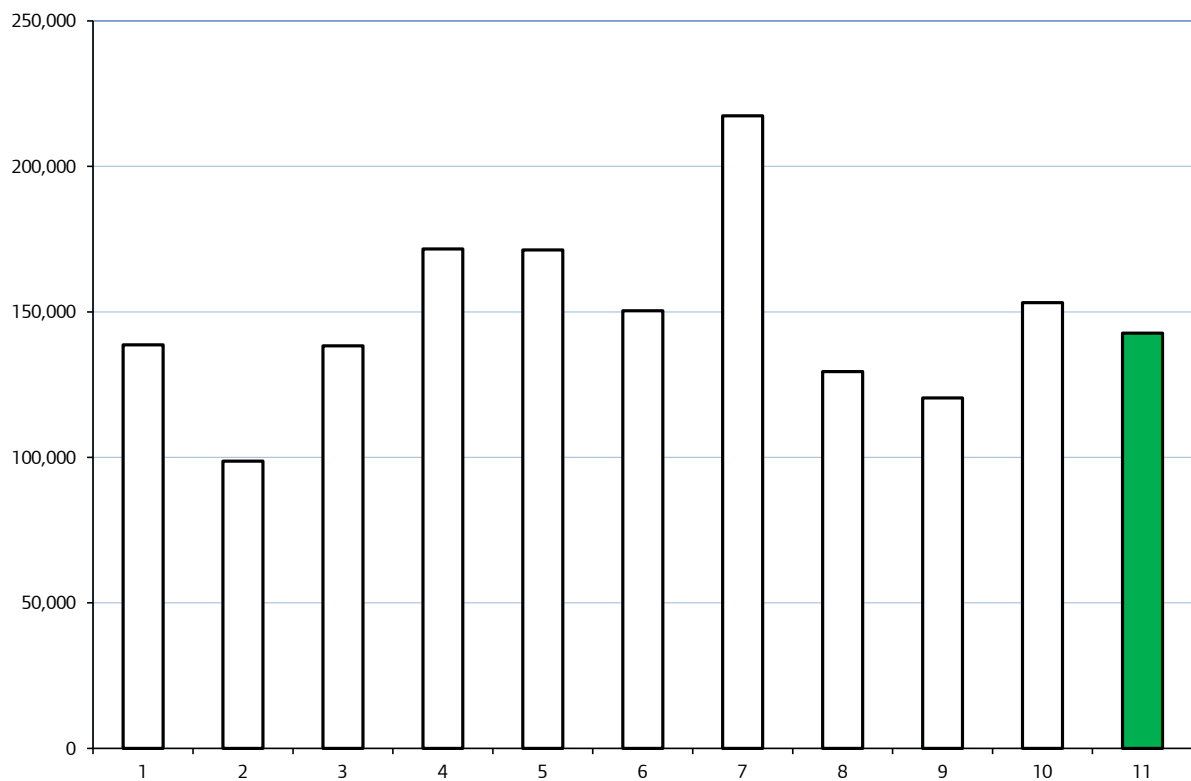
Table D3-13 shows the average and adjusted average (i.e. with the two most extreme outliers removed) result for each set of models as well as other summary data.

Table D3-13: Summary data for the groups of model variants (millions of visitor nights in London)

Model group	Average	Adjusted average[13]	Highest	Lowest
Extrapolation of previous nights	125.2	138.5	138.7	98.7
Relationship with GDP	177.7	164.4	217.4	150.4
Forecasts-based	136.5	136.5	153.2	120.4
All model variants	**148.4**	**146.2**	**217.4**	**98.7**

The above eleven variants refer only to the international component of London's tourism market. This appendix now examines the models used for the domestic (UK) component.

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[13] Note here that these adjusted averages are based upon nine (rather than eleven) of the international models.

Domestic market models – specifications

The tables below show a summary specification of each model together with summary information about the derived result. For comparative purposes, the average of the four series for the 2036 central projection was 37.4 million nights. Although work was done on a fifth methodology, the result was deemed to be unreliable and it was therefore abandoned. Note that where forecast growth was non-linear between 2012 and 2036, this has been modified so that it is not. With the exception of Model UK1, all models were of the GDP type.

Table D3-14: Model UK1 Specifications

Extrapolation type	Linear extrapolation of previous nights series.
Data analysis period	From 2006.
Income elasticities used	Not applicable to this model.
GDP sourcing	Not applicable to this model.
Result – central projection for 2036	38.3 million nights
Ranking (high to low)	Rank 2/4

Figure D3-13: Model UK1result compared to other results (millions of tourism nights)
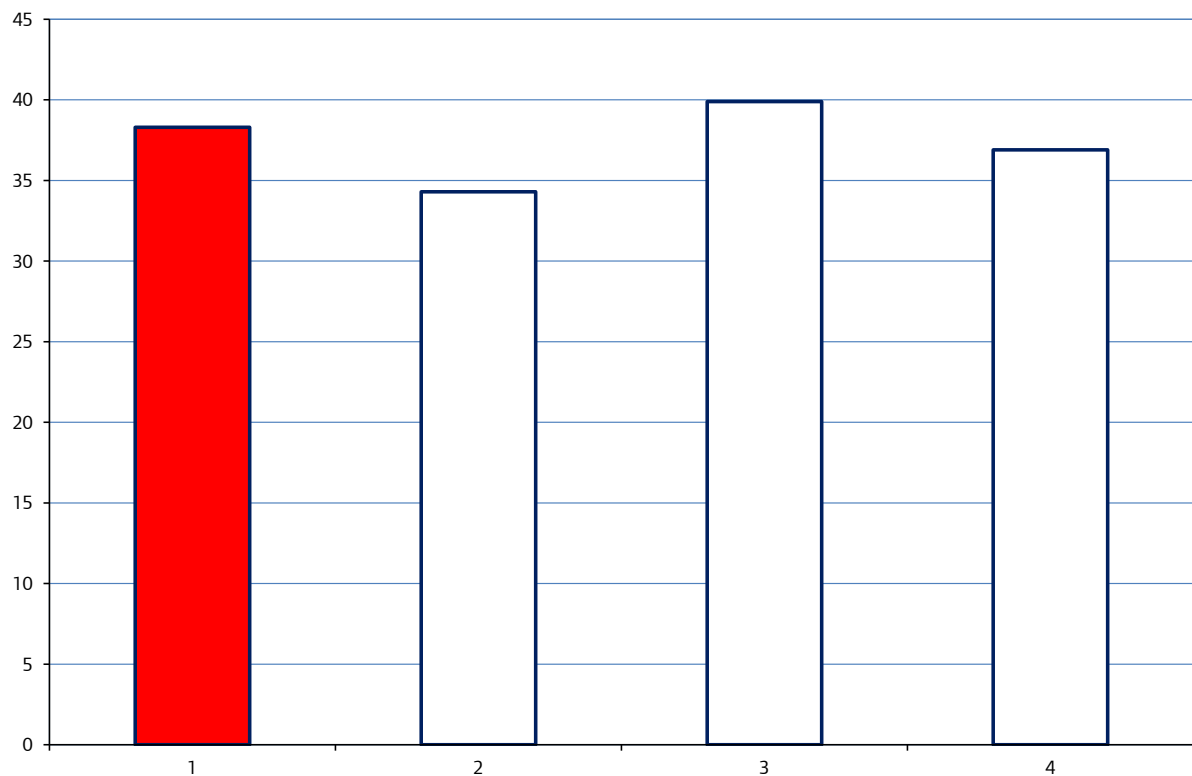
Table D3-15: Model UK2 Specifications

Extrapolation type	Derived from forecast GDP growth and domestic market income elasticities of demand for domestic tourism.
Data analysis period	From 2006.
Income elasticities used	Academic estimates of income elasticity of demand for the UK were used.
GDP sourcing	Experian Economics – Regional Planning Service forecasts
Result – central projection for 2036	34.3 million nights
Ranking (high to low)	Rank 4/4 – forms lower estimate bound

Figure D3-14: Model UK2 result compared to other results (millions of tourism nights)
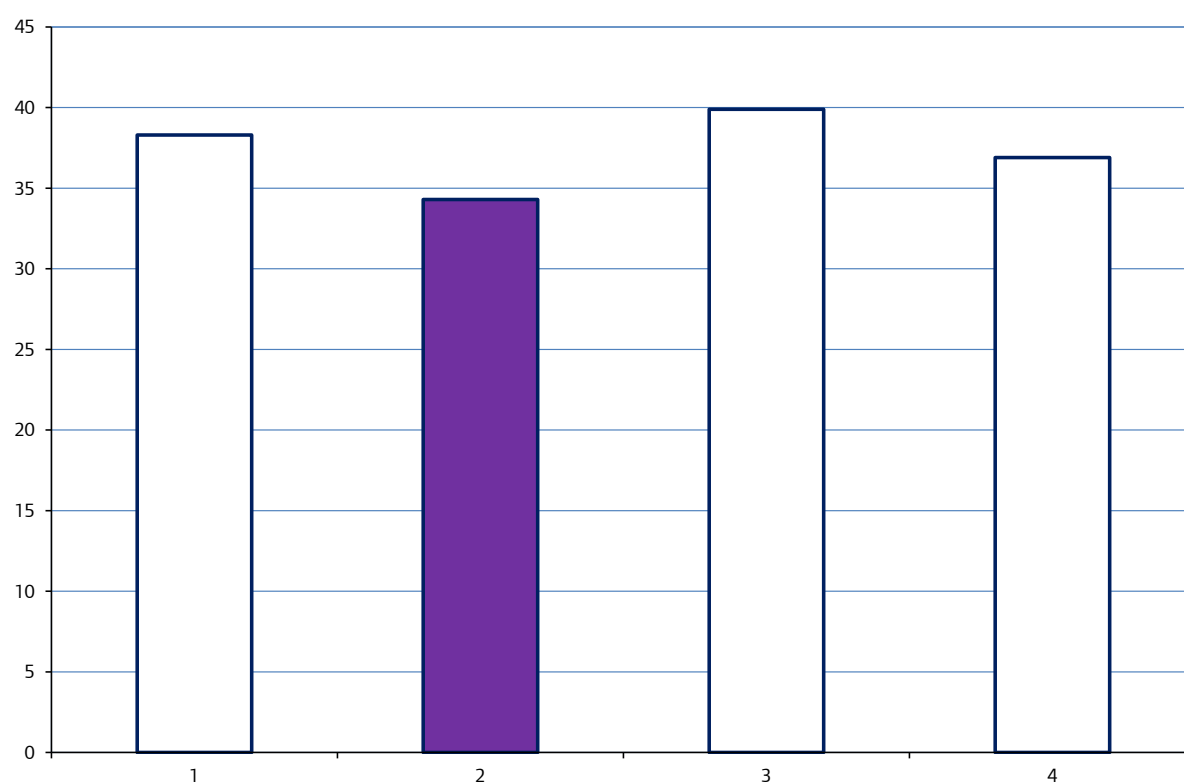
Table D3-16: Model UK3 Specifications

Extrapolation type	Derived from forecast GDP growth and domestic market income elasticities of demand for domestic tourism.
Data analysis period	From 2006.
Income elasticities used	A derived income elasticity of demand for tourism was calculated based on the limited period for which broadly comparable data were available. This generated greater growth.
GDP sourcing	Experian Economics – Regional Planning Service forecasts
Result – central projection for 2036	39.9 million nights
Ranking (high to low)	Rank 1/4 – forms higher estimate bound

Figure D3-15: Model UK3 result compared to other results (millions of tourism nights)
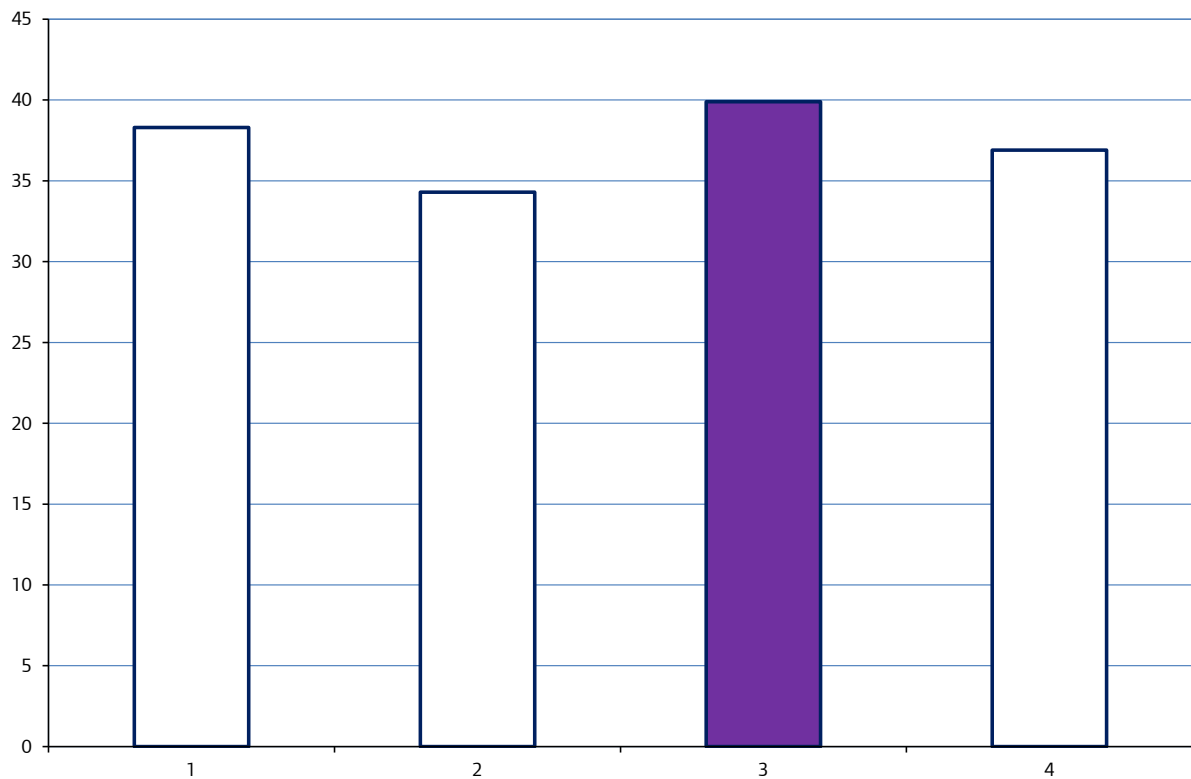
Table D3-17: Model UK4 Specifications

Extrapolation type	Derived from forecast GDP growth and domestic market income elasticities of demand for domestic tourism.
Data analysis period	From 2006.
Income elasticities used	Academic estimates of income elasticity of demand for the UK were used.
GDP sourcing	OECD forecasts
Result – central projection for 2036	36.9 million nights
Ranking (high to low)	Rank 3/4

Figure D3-16: Model UK4 result compared to other results (millions of tourism nights)
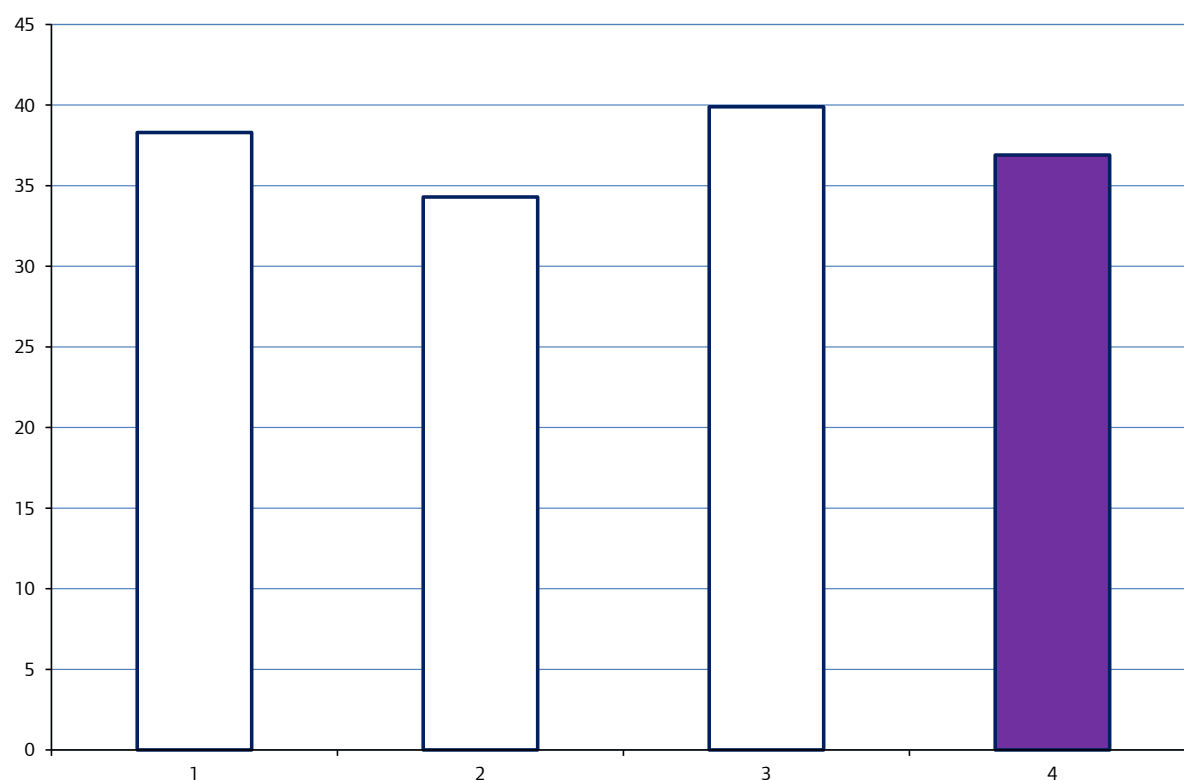
Each model was then run independently and the next section discusses the results.

Appendix D-4: Results of the projected international visitor nights models for 2036

This section presents the headline results of the international visitor nights projection models.

For each model variant, there was only one projection result for 2036. In view of the fact that the modeling is not concerned with cycles etc., any changes in the angles of slopes caused by forecasts to 2022 or by series returning to long-term trends were smoothed out. However, for any one individual model there could be variant results generated by changing assumptions. Therefore, in theory, each model actually produces a central estimate with degrees of confidence (incalculable) around that. However, that is not the way the study has viewed each model's result. There was no means of putting on 95 per cent confidence bands around each central estimate and yet GLA Economics wanted to make the results like a 'Bank of England' type fan chart.

The approach taken by GLA Economics was to incorporate all the results from the eleven model variants into the overall projection. These are presented as a range of possibilities in Figure D4-1 colour-coded into:

- **Red**: Extrapolation of previous nights group;
- **Purple**: Using GDP and income elasticities of demand by country;
- **Green**: Commissioned forecasts to 2022 group.

Figure D4-1: Projected number of international visitor nights in 2036 (thousands) arrived at by each of the eleven model methodologies
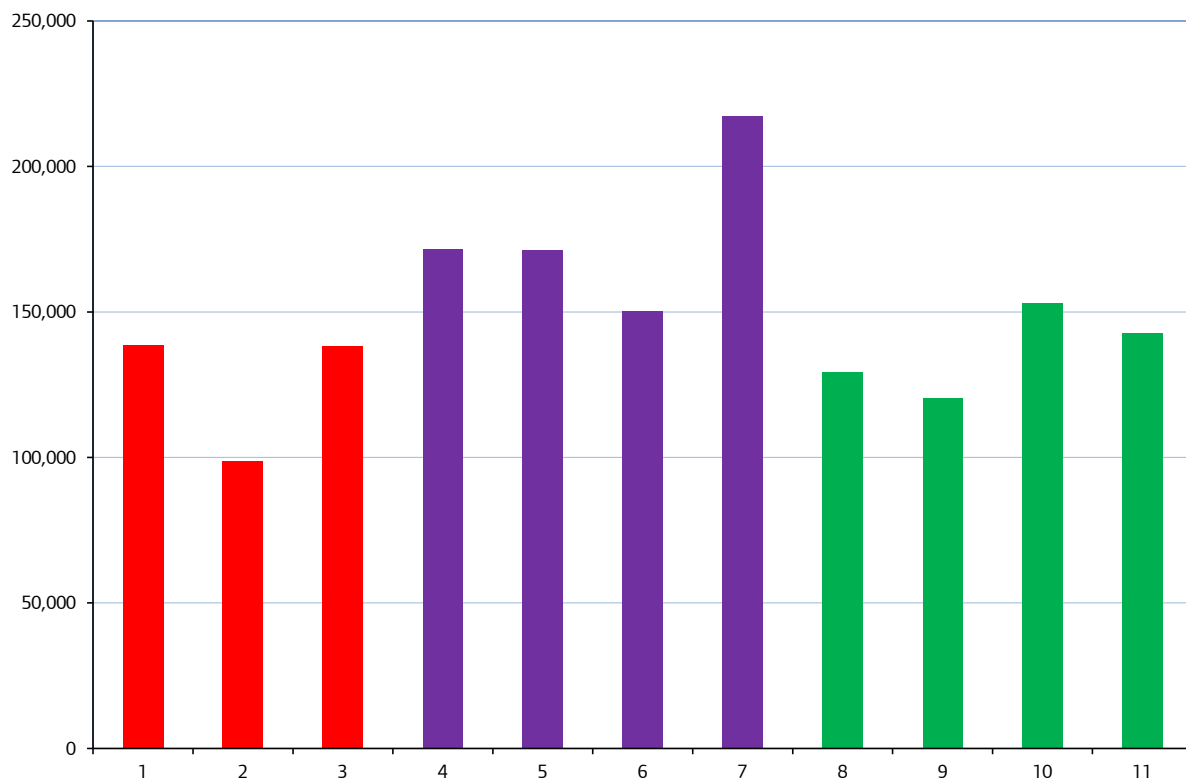
The two 'outliers' (model 7 which generates a lot of growth through a combination of the use of academic incomes elasticities of demand and OECD forecasts for growth and model 2 which never gets back to the pre-recession peak) form the upper and lower borders for the fan chart range of possibilities. However, both of these two extremes were removed prior to the calculation of the central projection. This had the net effect of slightly lowering the central projection.

With the two outliers removed, there was a much tighter range of results. Six out of the nine remaining projections fell between a much narrower range so that forms the first interval around GLA Economics' central forecast. It should be noted here that there is no reason for symmetry in the results around the central forecast.

However, given the scale of the domestic market as a share of the total market (around 37 million nights compared to 146 million international nights), this might not be considered all that important. However, note that the range of 34.3 million to 39.9 million domestic visitor nights is slightly lower than Grant Thornton's central estimate would have been if simply extrapolated forward to 2036. The central estimate is formally 37.4 million nights.

Figure D4-2 shows the results for each individual model once a range of between 34.3 and 39.9 million extra nights has been added on for the domestic market, with the central projection still represented by the top of the coloured column). Since the domestic market projection does not vary by model variants 1 to 11, there is obviously no change in the relative orders.

Figure D4-2: Total projected tourism nights in London in 2036 by modelling methodology (thousands)
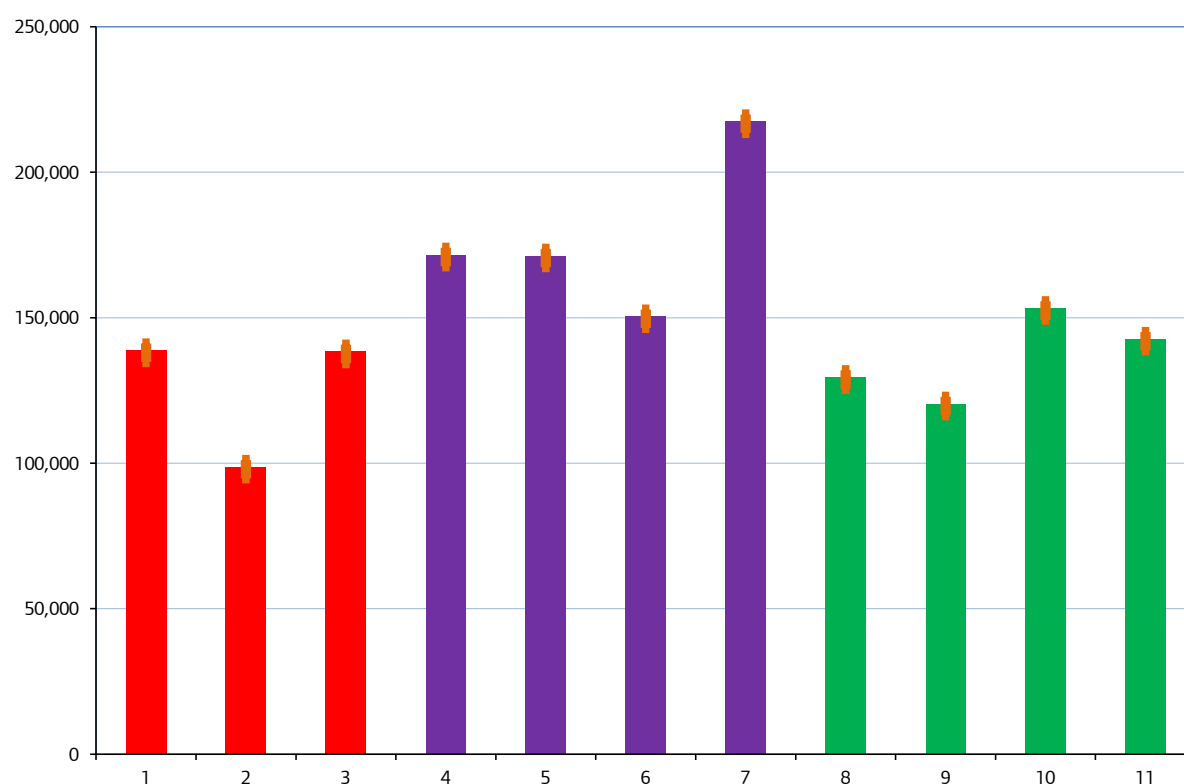
Source: GLA Economics
Note here that the orange bands represent the upper and lower bounds variations within the domestic visitor nights forecasts.

Appendix D-5: Methodology of conversion of visitor nights to room demand in 2036

The projected number of nights passed by tourists – international and domestic – in the capital is a means to an end and not actually an end in itself. The real point of interest is how many rooms are going to be required by 2036. The methodology used for conversion is critical. This appendix examines the methodology used by GLA Economics.

Let us start by examining what would be needed under ideal circumstances to calculate accurately the number of rooms required.

In an ideal situation, the following would be required:

- Our central estimate of the projected number of tourist nights in London to 2036;
- The number of beds to a room. This can actually fall-out from the supply-side;
- A database which was specifically constructed for this project. The accommodation census which ran up to the end of 2010 (and which formed part of the supply-side database) had reasonable records on this within it;
- Levels of occupancy: Central London chains are well-covered but it is less easy to estimate occupancy levels in the Outer London boroughs and within the non-chain sector;
- Types of tourist: this can be done as well because GLA Economics brought in that data. But there are inherent assumptions with this regarding what types of tourists are using what rooms: business tourists are using the room alone, leisure tourists are not, VFR tourists are not using one at all etc.

In the end, although it looks like the detailed way of doing things, the range of assumptions probably mean that it is actually unreliable.

Therefore GLA Economics worked upon the basis of a completely different premise: namely, that room supply in the past has been broadly adequate to meet levels of demand. The ratio between the total number of visitor nights passed in London in any given year and the supply of rooms available in that year has varied but historical analysis suggests that the ratio has moved within relatively fixed bounds.

This analysis was undertaken for two separate ratio series, defined as follows:

- Total number of visitor nights (domestic and international) / Total supply of visitor accommodation rooms
- Total number of visitor nights (domestic and international) / Total supply of *serviced* accommodation rooms

Central estimates and upper / lower bounds were calculated on the basis of the averages of series and the maximum / minimum over the historical period.

All room requirement

Figure D5-1: Historical ratio for tourism nights to all rooms

Table D5-1: Central estimate, upper and lower bounds for all room requirement

Methodology	Ratio assumption	Total projected 'serviced' requirement	Net build requirement (serviced rooms)
GLA Economics Central	823	226,200	60,500
GLA Economics Lower	959	194,300	28,600
GLA Economics Upper	674	276,200	110,500

Figure D5-2: Historical ratio for tourism nights to serviced rooms only
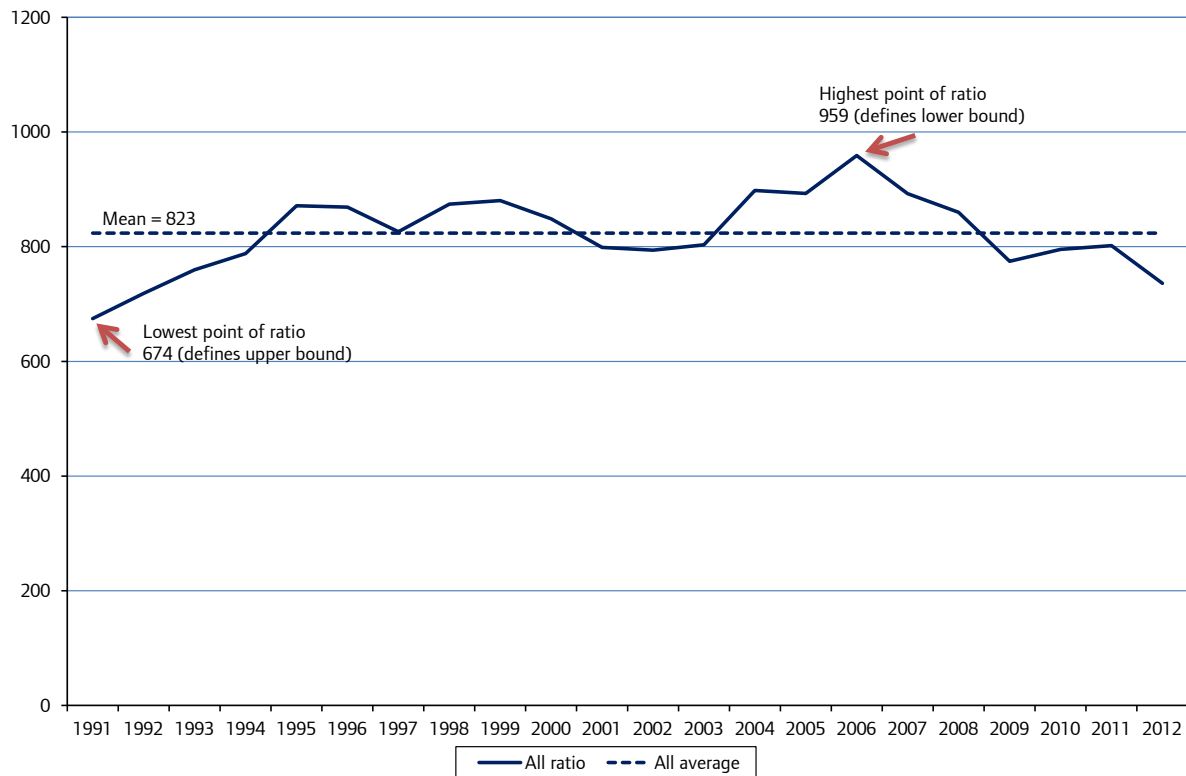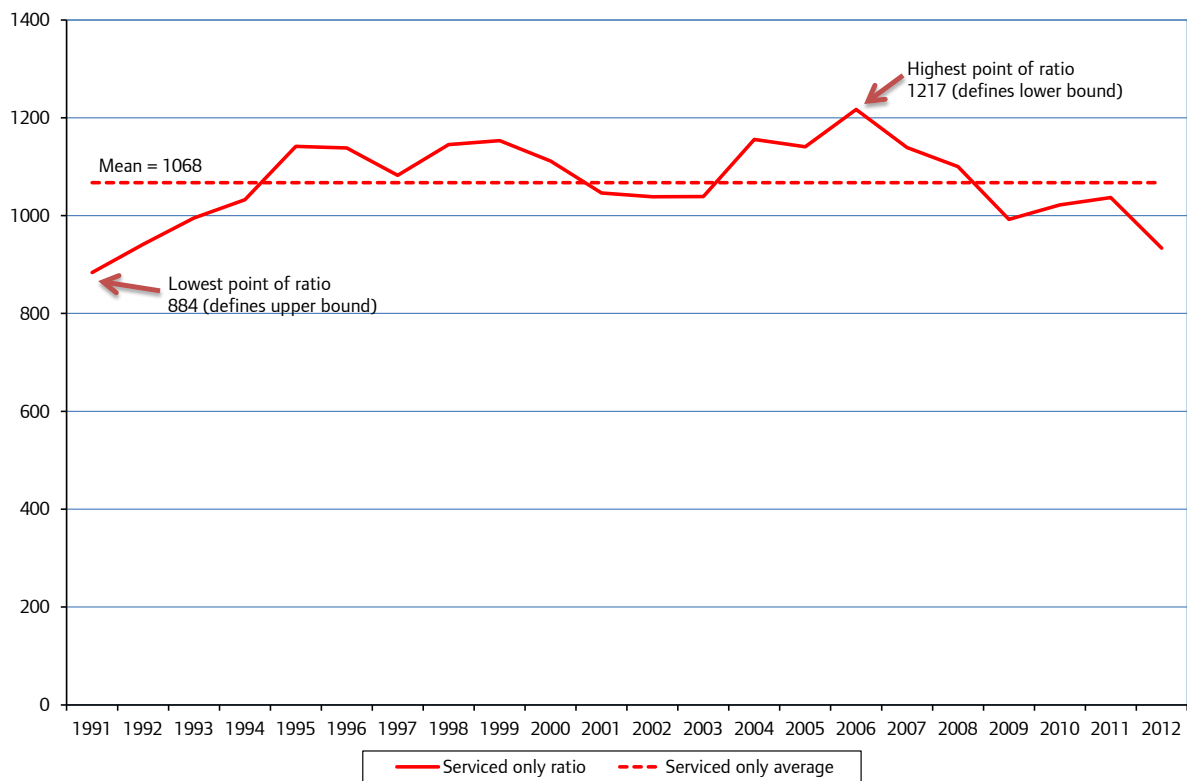

Table D5-2: Central estimate, upper and lower bounds for serviced room requirement

Methodology	Ratio assumption	Total projected 'serviced' requirement	Net build requirement (serviced rooms)
GLA Economics Central	1068	174,500	42,900
GLA Economics Lower	1217	153,100	21,500
GLA Economics Upper	884	210,900	79,300

Appendix D-6: The Grant Thornton methodology applied to GLA Economics' figures

Previous appendices have outlined the methodologies which have actually been used in this report. This appendix is different in that it outlines an alternative approach to the conversion of projected visitor nights to room demand based on that used by Grant Thornton in their 2006 work for the last London Plan. It takes the visitor nights projection work by GLA Economics as a given.

However, GLA Economics has not just taken Grant Thornton's calculation assumptions; it has revisited their sources, updated them where possible and attempted to use them as the basis for a split between 'serviced' and 'unserviced' rooms. This has been made worthwhile on account of the potential comparisons with other methodologies used in this report. In a few cases, it has proved difficult or impossible to update sources and, under such circumstances, GLA Economics has used 'reasonable' assumptions. These are all laid out clearly below. Note here that, in the process, GLA Economics has also changed some of the baseline assumptions made by Grant Thornton.

The calculation starts with the central projection of 183.6 million visitor nights by 2036. However, not all these nights will actually be taken in hotel rooms. Some visitors will be staying elsewhere such as with friends or relatives or in student accommodation (because the International Passenger Survey includes details of those students here on courses of up to one year.) Obviously the calculations need to take full account of this fact. The Grant Thornton study's actual methodology took a couple of data points from the accommodation part of the IPS and fitted a logarithmic decay curve through these out to the projection horizon. However, in purely empirical terms, the overall share does not seem to be demonstrating a significant decline.

Figure D6-1 shows accommodation type in use by international visitor numbers from the 2011 IPS. Note here that the calculation is making an implicit assumption that UK domestic tourists to London will exhibit the same types of accommodation behaviour as international tourists – which may well not be the case. The IPS accommodation classes are designed to fit EUROSTAT definitions and are not always completely helpful. For example, whether the accommodation someone is staying in should be classed as a 'guesthouse' or 'bed and breakfast' may not be of great relevance. However, 62 per cent of respondents said that they stayed in a hotel, guesthouse or B&B. The 29 per cent staying with friends and relatives do not require accommodation. However, the remaining shares are less clear in terms of their accommodation needs.

Figure D6-1: Accommodation by international visitors (London) – shares, 2011[14]
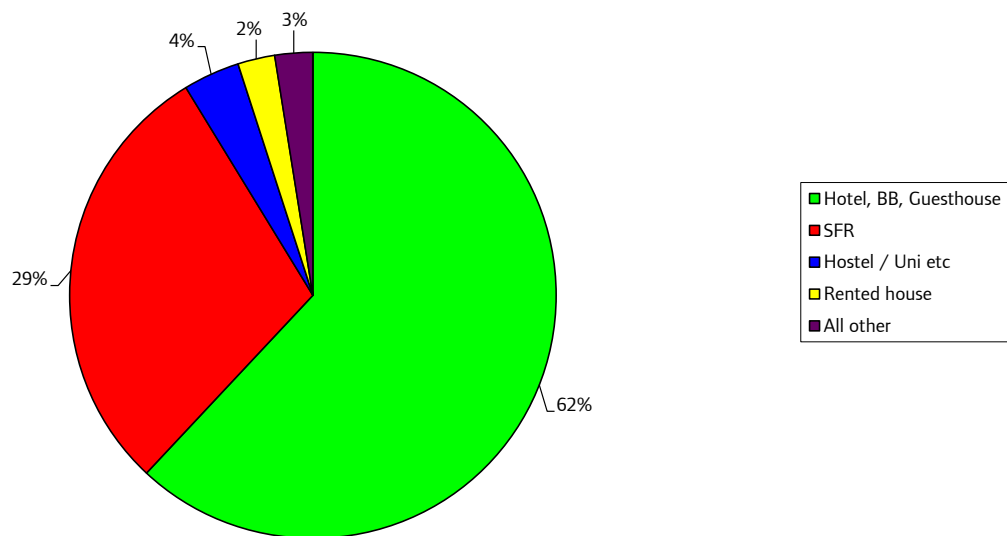
Source: International Passenger Survey, 2011

However, the above shares will over-exaggerate the need for room provision. Visitor numbers are not the same as visitor nights because some types of visitor tend to stay longer – and they are often the ones who don't actually require a room, such as students who are staying in student accommodation. Even those visiting friends and relatives have a longer average length of stay than the other main types of visitor. For this reason it is necessary to look at the shares from the IPS by nights as is shown in Figure D6-2.

This is the first time an attempt has been made to split these data into 'serviced' and 'unserviced' rooms as follows in Table D6-1.

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[14] Note here that a comparable calculation for 2012 is not possible on the basis of publicly-released IPS data at the time of writing. It would be very unlikely for a one year change to make any significant change to the overall pattern of accommodation behaviour.

Figure D6-2: Accommodation by international visitor nights (London) – shares, 2011[15]
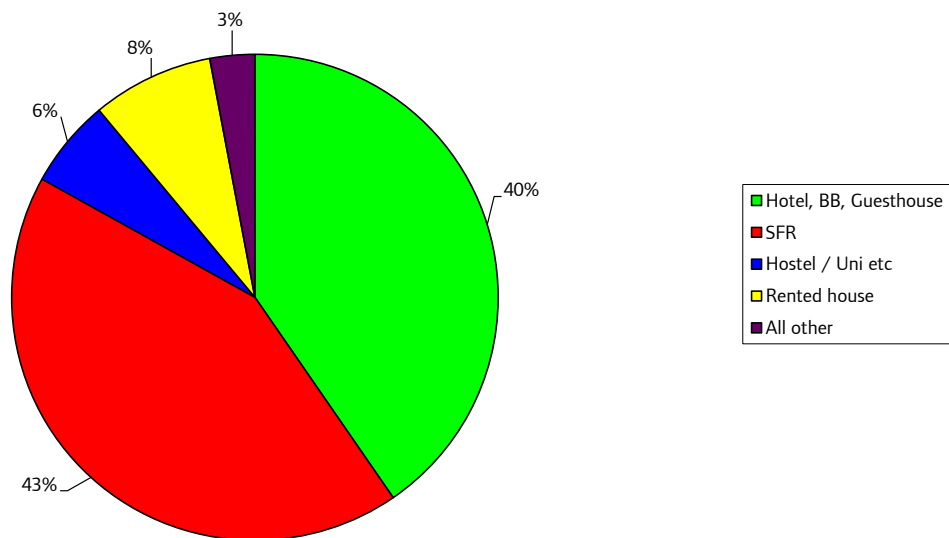
Source: International Passenger Survey, 2011

Table D6-1: Approximation of serviced and unserviced rooms from the International Passenger Survey accommodation data

All rooms	Serviced rooms only	Not requiring room provision
Hotels, B&Bs, guesthouses (40%)	Hotels, B&Bs, guesthouses (40%)	Staying with friends and relatives (43%)
Rented house (8%)		
Hostels (3% - arbitrary split)	Hostels (3% - arbitrary split)	
University accommodation (3% arbitrary split)		
All other (3% - will include apartments, caravans etc.)		
57% in total	**43% in total**	**43% in total**

As can be seen 43 per cent of nights require no room provision at all whereas 57 per cent require some type of room. Note here that an arbitrary split has been needed to be made between hostel rooms and university accommodation rooms on account of the EUROSTAT category aggregations.

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[15] Again, note here that a comparable calculation for 2012 is not possible on the basis of publicly-released IPS data at the time of writing. It would be very unlikely for a one year change to make any significant change to the overall pattern of accommodation behaviour.

However, of this 57 per cent, only 43 per cent are actually serviced rooms with the other 14 per cent being unserviced. The central forecast of 183.6 million visitor nights is now put through these proportions to produce estimates for both serviced and 'all' rooms as shown in Table D6-2.

Table D6-2: Central forecast for 2036 converted to room requirement using the replication of the Grant Thornton methodology for services and 'all' rooms

All rooms		Serviced rooms	
Visitor nights	183,600,000	Visitor nights	183,600,000
Share	0.57	Share	0.43
Nights staying	104,652,000	Nights staying	78,948,000
Per night	286,718	Per night	216,296
Minimum room requirement	191,145	Minimum room requirement	144,197
Adjusted for occupancy	254,860	Adjusted for occupancy	192,263
(Less existing)	(165,700)	(Less existing)	(131,600)
Rounded net requirement	**89,200**	**Rounded net requirement**	**60,700**

Looking only at the 'all' rooms figures (on the left hand side of the table), the number of nights for which a room is actually required is not 183.6 million but 104.7 million (57 per cent of it). Making the false assumption that rooms are utilised equally throughout the year, this figure is divided by 365 to get a per night figure. On the basis of 1.5 people per occupied room, this would imply that there would be a minimum room requirement of just over 191,000 rooms. However, it needs to be kept in mind that that would represent 100 per cent occupancy – and, in practical terms, it would mean that at peak times of the year there would be a marked shortage of rooms. GLA Economics sought further advice on this coefficient from the Office for National Statistics but there was no obvious improvement available.

The Central London chain occupancy rate of 80 per cent could be applied. However, this only really applies to the specific environment of Central London and to chain type hotels. Therefore, it is likely to be a significant overestimate for Greater London as a whole. Since only very limited data is available for Outer London hotel occupancy rates, GLA Economics has assumed that Outer London exhibits the same characteristics as what most survey groups refer to as 'the provinces'. However, note that data collected for hotels outside London is still largely restricted in favour of chain hotels.

A 24-month average of monthly occupancy rates in the provinces resulted in broadly 68 per cent occupancy and this rate is taken by GLA Economics as indicative of the occupancy in the 'rest of London'. Using the supply-side database four 'central area' boroughs were identified:

- Westminster
- Camden
- City of London
- Kensington and Chelsea

These four boroughs account for 56 per cent of rooms in Greater London (with two of them – Westminster and Camden – alone accounting for 41 per cent). Obviously, there could be other ways of defining the central area – either more broadly or more restrictively but the difference

in the result of the calculation would only be marginal. Furthermore, if the Central area of London becomes too saturated in terms of available land space, there may be some shift in the above ratio but there may also be some shift in how occupancy rates behave in the 'outer' boroughs.

Overall across London, the 'revised' occupancy rate would need to be in the order of 75 per cent. This means that the room requirement of 191,100 at 100 per cent occupancy should be increased to a room requirement of 254,900 at 75 per cent occupancy. Currently, in London, there are 165,700 rooms. Therefore, this methodology results in a need to construct 89,200 rooms. Note that this figure is exclusive of a significant number of rooms which need to be built to replace hotels which have closed down.

The comparable calculation for serviced rooms is shown on the right hand side of the table. This shows a rounded net requirement for 60,700 serviced rooms. Note that the figure that has been deducted here is 131,600 – the estimated existing stock of serviced rooms.

Test of methodology: the 'no change' scenario

In order to test the calculation of the room requirement along the 'Grant Thornton' methodology, GLA Economics has devised a scenario whereby there is no growth whatsoever in London tourism nights – in other words, visitor nights remain at 2012 levels (around 121.1 million) right through to 2036.

Based on the existing assumptions about the proportion of visitor nights which actually require accommodation, this would imply that 54.5 million visitor nights actually required a room or 149,300 per night. That implies a minimum room requirement of 99,500. Adjusted for 75 per cent occupancy, that is 132,700.

However, in total, there are already 166,000 rooms ('all rooms'). That means that London would have a 'surplus' of 33,300 rooms. As a result, GLA Economics' preferred method for converting nights to rooms is that set out in the main body of this report.

Appendix D-7: Derivation of income elasticities of demand for tourism to London

The calculation of income elasticities of demand for tourism to London from individual countries has been on the basis of the following equation. Note here that – unlike most academic studies – GLA Economics' estimates have been based on visitor nights rather than visitor numbers or spend. This is an important consideration.

$$E_Y = \frac{\Delta D/D}{\Delta Y/Y}$$

E_Y = coefficient of income-elasticity;
ΔD = change of tourism demand;
D = tourism demand;
ΔY = change of income;
Y = income.

An associated idea here is a 'luxury good', the definition of which is driven by the above equation. A luxury good will have an income elasticity of demand greater than one, implying that a more than proportionate increase in tourism demand would result from an increase in income. Of course, some of London's key 'traditional' inbound markets have actually been experiencing falls in national income in very recent years and having an income elasticity of demand greater than one should also imply that demand for tourism to London would fall more than proportionately following a fall in income. However, the relationship between demand for tourism to London and national income is more complex than it first appears.

Overall, tourism can probably be said to be a luxury good. However, the income elasticity of demand for tourism may be different over different phases of development and this becomes more complicated still when competing destinations are introduced. Let us take an example.

Blackpool was the first UK mass tourism destination driven by cotton mill 'wakes' and the 1906 agreement on unpaid holidays for mill workers. There is no doubt that incomes have risen enormously since then and a greater proportion of it has become 'disposable'. As people had greater disposable incomes they spent more on tourism – but not in Blackpool because they aspired to what seemed more adventurous locations. At the same time, there were also associated changes in technology such as charter flights to Costa del Sol. London is a relatively expensive destination but there is no guarantee that, say, people from Rio de Janeiro will want to spend their additional income on going to London. They might spend it on going to Abu Dhabi or China.

Therefore, these concepts become more complex as one starts to look at specific geographies and specific time periods – and, critically, specific origin countries.

In all cases, of course, accurate modelling is reliant on data availability and the quality of that available data. In spite of methodological improvements to the International Passenger Survey, there remain difficulties regarding the allocation of nights (specifically) to particular geographic regions of the UK. This may have led to some continuous overestimation of tourism nights in London but that issue has not been addressed by this report but is a consideration which policy-makers perhaps need to keep in mind.

What follows is one worked example of the calculation undertaken.

**Worked example derived empirical income elasticity of demand for tourism nights in London: Spain**

Purchasing power parity adjusted GDP in real prices (in this case $US 2005) were collated. Business and non-business nights series supplied by ONS were aggregated together to form a total nights series. A more detailed analysis could have involved separate elasticities for different tourist types since business, leisure and those visiting friends and relatives tend to respond rather differently to, say, a downturn in the economy. However, time was relatively limited for the work.

Both series were then indexed to 1997. The period 1997 to 2011 is a convenient one because it encapsulates (for many countries) a period of relatively strong growth followed by a more difficult period in the latter part of the series. Linear trends were then created for both series. Note that this process in effect creates a separate series so that the data observation for any particular year is overwritten. This will include the start year, 1997. This process identifies the overall trend and removes 'noise' from the series. The relationship between these two linear trends was then examined to look at the ratio of growth (or decline) in one to that of the other.

Table D7-1: Worked example: Spain – calculation detail, 1997 - 2011

Year	PPP adjusted GDP series	Business nights	Leisure / other visitor nights	Total nights series	Index GDP	Index nights	Re-modelled nights trend index	Re-modelled nights	Re-modelled GDP trend index	Re-modelled GDP
	World Bank $US 2005	ONS thousands	ONS thousands	ONS thousands	1997= 100	1997= 100		Thousands (trend)		$US 2005 (trend)
1997	880,806	293	2,629	2,922	100.0	100.0	101.23	2,958	104.95	924,398
1998	920,162	600	4,114	4,714	104.5	161.3	106.44	3,110	108.22	953,193
1999	963,832	390	2,513	2,903	109.4	99.3	111.65	3,262	111.49	981,987
2000	1,012,504	358	2,224	2,582	115.0	88.4	116.86	3,415	114.76	1,010,782
2001	1,049,657	374	2,312	2,686	119.2	91.9	122.07	3,567	118.03	1,039,576
2002	1,078,105	489	2,742	3,231	122.4	110.6	127.27	3,719	121.29	1,068,370
2003	1,111,412	536	3,027	3,563	126.2	121.9	132.48	3,871	124.56	1,097,165
2004	1,147,637	501	3,692	4,193	130.3	143.5	137.69	4,023	127.83	1,125,959
2005	1,188,764	496	3,790	4,286	135.0	146.7	142.90	4,176	131.10	1,154,754
2006	1,237,220	733	4,447	5,180	140.5	177.3	148.11	4,328	134.37	1,183,548
2007	1,280,266	523	4,691	5,214	145.4	178.4	153.32	4,480	137.64	1,212,343
2008	1,291,682	386	4,109	4,495	146.6	153.8	158.52	4,632	140.91	1,241,137
2009	1,243,311	458	4,606	5,064	141.2	173.3	163.73	4,784	144.18	1,269,931
2010	1,239,335	436	4,096	4,532	140.7	155.1	168.94	4,936	147.45	1,298,726
2011	1,244,514	504	4,281	4,785	141.3	163.8	174.15	5,089	150.72	1,327,520

It can be seen from Table D7-1 that the linear trend in nights grows faster over the period than the linear trend in GDP. Note from Figure D7-1 however, that the trend in GDP growth has been affected heavily by the economic performance of the Spanish economy post-2008. The spike in nights in 1998 and the subsequent trough are removed by the trend series

Figure D7-1: Index of total nights spent in London by tourists from Spain against index of Spanish real GDP, 1997 – 2011
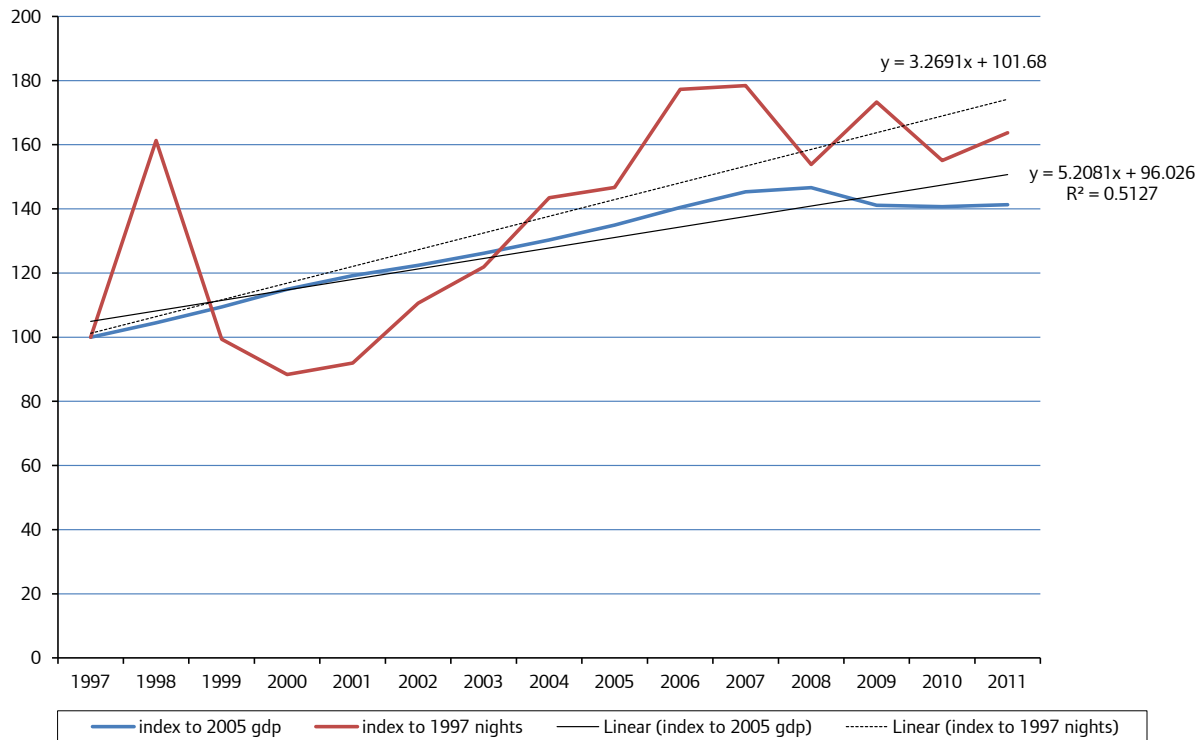
Source: GLA Economics

The ratio of trend growth in tourism nights to the ratio of trend growth in the Spanish economy is 1.65. This is then applied to forecast GDP growth between the current time period and 2036 – with the exact specification depending on the model. This was done for the top 50 inbound markets for London as at 2011.

This derived income elasticity is rather higher than most academic estimates for the income elasticity of demand for tourism to the UK from Spain. Typically, that is estimated to be about 0.93. However, these are in fact qualitatively different, not only because the GLA Economics study is focused solely on London but also because it is concerned specifically with tourism nights.

Inbound markets for which trends were analysed to produce 'empirical' income elasticities of demand for tourism to London
The following presents a list of countries for which the derived elasticities were calculated. Each one has an associated table similar to the one for Spain above.

1   Argentina
2   Australia
3   Austria
4   Belgium
5   Brazil
6   Bulgaria
7   Canada
8   China (with Hong Kong - aggregated)

9   Colombia
10 Cyprus (with Northern Cyprus integrated)
11 Czech and Slovak Republics (in aggregate)
12 Denmark
13 Finland
14 France
15 Germany
16 Greece
17 Hungary
18 India
19 Iran
20 Ireland
21 Israel (including Palestine)
22 Italy
23 Japan
24 Kuwait
25 Latvia
26 Lithuania
27 Malaysia
28 Mauritius
29 Mexico
30 Netherlands
31 New Zealand
32 Nigeria
33 Norway
34 Pakistan
35 Poland
36 Portugal
37 Romania
38 Russia
39 Saudi Arabia
40 Singapore
41 South Africa
42 South Korea
43 Spain [shown above in full]
44 Sri Lanka
45 Sweden
46 Switzerland
47 Thailand
48 Turkey
49 United Arab Emirates (UAE)
50 United Kingdom – domestic market (subsequently dropped)
51 United States

The share of London's inbound international tourism market (in terms of nights) covered by these fifty countries varies from year to year. It is a high proportion but has been falling progressively.

Figure D7-2 A - C: Share of international inbound market (as measured in terms of visitor nights) covered by the above income elasticities in the Appendix D5 list (various years)

1997

- Covered by elasticities
- Not covered by elasticities

2011

- Covered by elasticities
- Not covered by elasticities

Projected 2036

- Covered by elasticities
- Not covered by elasticities
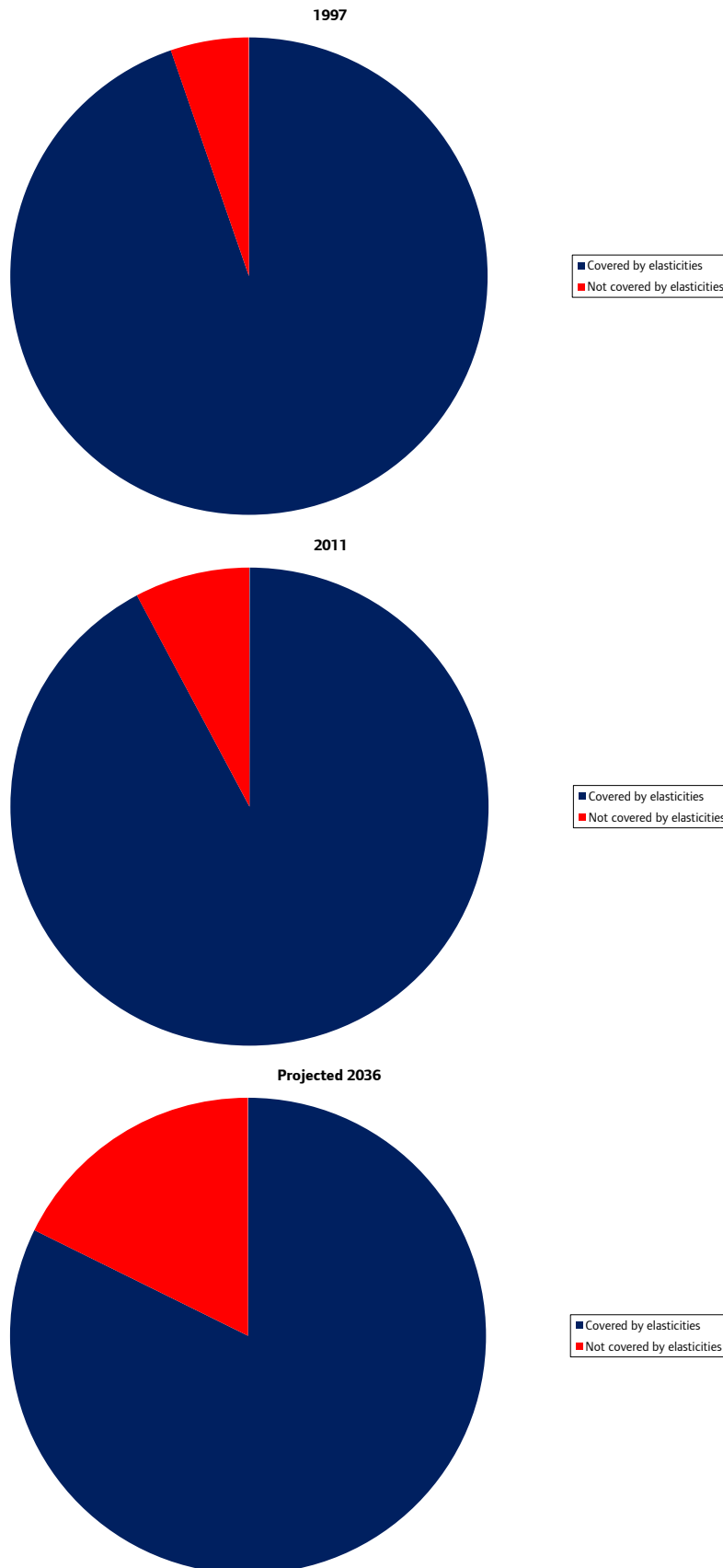
Figures D7-2A to D7-2C above demonstrate that whilst the share of the inbound market to London not covered by the 50 countries under examination in the income elasticities calculations has been increasing in recent years and is projected to increase further over the projection period, it is still not expected to exceed more than 17 per cent by 2036. Furthermore, in reality, it may be the case that the income elasticities of demand for tourism to London from these countries falls somewhat over the course of the projection period, reducing the red share of D7-2C.

Appendix D-8: Sensitivity testing of assumptions

Table D8-1 presents results of a sensitivity test originally devised for using the Grant Thornton methodology on the GLA Economics visitor night projections but which can also be applied to GLA Economics' own methodology. Variations in two key variables are presented:

(i)   The **assumed occupancy rate** – i.e. that for Greater London as a whole. The table presents results of varying this from 55 to 100 per cent. Note here that 100 per cent represents an unrealistic assumption as this would have to be the average of peak and trough periods over the year.

Remember that the GLA Economics approach has been to assume that the historic ratio between visitor nights and rooms has been satisfactory. However, within that historical ratio is an implicit assumption about occupancy rates continuing to be the same as they have been. But what if there were to be some fundamental shift in occupancy rates across Greater London?

(ii)   The **people per room ratio**. Again, unlike the Grant Thornton methodology, GLA Economics' methodology does not actually use this to arrive at estimates but it implicitly assumes it as it is a factor in determining the historical ratios.

It seems unlikely that this could veer particularly close to either 1.0 or 2.0 but this is the range presented.

Note here that the colourations are based on the GLA Economics serviced room only central estimate.

Table D8-1: Sensitivity test on GLA Economics' central estimate for serviced room requirement only (2036)

People per room ratio	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
Assumed occupancy rate 55	250,400	213,000	181,800	155,400	132,800	117,200	96,100	80,900	67,500	55,500	44,600
60	216,100	181,800	153,200	129,100	108,300	94,000	74,600	60,800	48,400	37,400	27,500
65	187,100	155,400	129,100	106,700	87,600	74,300	56,500	43,700	32,300	22,100	13,000
70	162,200	132,800	108,300	87,600	69,800	57,500	40,900	29,100	18,500	9,000	500
75	140,700	113,200	90,400	71,000	54,400	42,900	27,500	16,400	6,500	- 2,300	- 10,300
80	121,800	96,100	74,600	56,500	40,900	30,200	15,700	5,300	- 4,000	- 12,300	- 19,700
85	105,200	80,900	60,800	43,700	29,100	18,900	5,300	- 4,500	- 13,200	- 21,000	- 28,000
90	90,400	67,500	48,400	32,300	18,500	8,900	- 4,000	- 13,200	- 21,400	- 28,800	- 35,400
95	77,100	55,500	37,400	22,100	9,000	-	- 12,300	- 21,000	- 28,800	- 35,800	- 42,000
100	65,200	44,600	27,500	13,000	500	- 8,100	- 19,700	- 28,000	- 35,400	- 42,000	- 48,000

When a different scenario is presented, the colourations change. Therefore, if the GLA Economics lower estimate for serviced rooms only is now presented and the assumptions regarding room occupancy and occupancy of rooms are superimposed, the colourations shift

slightly upwards and to the left – so that the overall colouration of the table becomes redder as in Table D8-2.

Table D8-2: Sensitivity test on GLA Economics' lower estimate for serviced room requirement only (2036)

People per room ratio	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
Assumed occupancy rate 55	229,000	191,600	160,400	134,000	111,400	95,800	74,700	59,500	46,100	34,100	23,200
60	194,700	160,400	131,800	107,700	86,900	72,600	53,200	39,400	27,000	16,000	6,100
65	165,700	134,000	107,700	85,300	66,200	52,900	35,100	22,300	10,900	700	- 8,400
70	140,800	111,400	86,900	66,200	48,400	36,100	19,500	7,700	- 2,900	- 12,400	- 20,900
75	119,300	91,800	69,000	49,600	33,000	21,500	6,100	- 5,000	- 14,900	- 23,700	- 31,700
80	100,400	74,700	53,200	35,100	19,500	8,800	- 5,700	- 16,100	- 25,400	- 33,700	- 41,100
85	83,800	59,500	39,400	22,300	7,700	- 2,500	- 16,100	- 25,900	- 34,600	- 42,400	- 49,400
90	69,000	46,100	27,000	10,900	- 2,900	- 12,500	- 25,400	- 34,600	- 42,800	- 50,200	- 56,800
95	55,700	34,100	16,000	700	- 12,400	- 21,400	- 33,700	- 42,400	- 50,200	- 57,200	- 63,400
100	43,800	23,200	6,100	- 8,400	- 20,900	- 29,500	- 41,100	- 49,400	- 56,800	- 63,400	- 69,400

For example, looking at Table D8-1, this implies that whilst GLA Economics' central estimate for the number of additional rooms needed by 2036 is 42,900, if we assume that occupancy rates across Greater London of 90 per cent could be tolerated and room occupancy could be pushed up to 1.6 persons per occupied room, then there would actually be a negative net new serviced room requirement (-4,000). Applying this scenario to the lower bound GLA Economics estimate would make the figure more significantly negative (-25,400).

Table D8-3 presents the comparable test for the GLA Economics upper bound on serviced rooms only.

Table D8-3: Sensitivity test on GLA Economics' upper estimate for serviced room requirement only (2036)

People per room ratio	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
Assumed occupancy rate 55	286,800	249,400	218,200	191,800	169,200	153,600	132,500	117,300	103,900	91,900	81,000
60	252,500	218,200	189,600	165,500	144,700	130,400	111,000	97,200	84,800	73,800	63,900
65	223,500	191,800	165,500	143,100	124,000	110,700	92,900	80,100	68,700	58,500	49,400
70	198,600	169,200	144,700	124,000	106,200	93,900	77,300	65,500	54,900	45,400	36,900
75	177,100	149,600	126,800	107,400	90,800	79,300	63,900	52,800	42,900	34,100	26,100
80	158,200	132,500	111,000	92,900	77,300	66,600	52,100	41,700	32,400	24,100	16,700
85	141,600	117,300	97,200	80,100	65,500	55,300	41,700	31,900	23,200	15,400	8,400
90	126,800	103,900	84,800	68,700	54,900	45,300	32,400	23,200	15,000	7,600	1,000
95	113,500	91,900	73,800	58,500	45,400	36,400	24,100	15,400	7,600	600	- 5,600
100	101,600	81,000	63,900	49,400	36,900	28,300	16,700	8,400	1,000	- 5,600	- 11,600

Note here that even with the scenario outlined above, there would still be a need for some 32,400 net new rooms.

For comparative purposes, the central estimate from the GLA Economics work on an 'all' rooms basis and the 'Grant Thornton methodology' (see Appendix D6 for further details of this

specification) applied to the GLA Economics visitor nights projection are presented as Tables D8-4 and D8-5 respectively. Note that these two scenarios are very close.

Table D8-4: Sensitivity test on GLA Economics' central estimate for all rooms (2036)

People per room ratio	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
Assumed occupancy rate 55	268,000	230,600	199,400	173,000	150,400	134,800	113,700	98,500	85,100	73,100	62,200
60	233,700	199,400	170,800	146,700	125,900	111,600	92,200	78,400	66,000	55,000	45,100
65	204,700	173,000	146,700	124,300	105,200	91,900	74,100	61,300	49,900	39,700	30,600
70	179,800	150,400	125,900	105,200	87,400	75,100	58,500	46,700	36,100	26,600	18,100
75	158,300	130,800	108,000	88,600	72,000	60,500	45,100	34,000	24,100	15,300	7,300
80	139,400	113,700	92,200	74,100	58,500	47,800	33,300	22,900	13,600	5,300	- 2,100
85	122,800	98,500	78,400	61,300	46,700	36,500	22,900	13,100	4,400	- 3,400	- 10,400
90	108,000	85,100	66,000	49,900	36,100	26,500	13,600	4,400	- 3,800	- 11,200	- 17,800
95	94,700	73,100	55,000	39,700	26,600	17,600	5,300	- 3,400	- 11,200	- 18,200	- 24,400
100	82,800	62,200	45,100	30,600	18,100	9,500	- 2,100	- 10,400	- 17,800	- 24,400	- 30,400

Table D8-5: Sensitivity test on central estimate of 'Grant Thornton methodology' applied to GLA Economics' visitor nights projection (2036)

People per room ratio	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
Assumed occupancy rate 55	269,100	231,700	200,500	174,100	151,500	135,900	114,800	99,600	86,200	74,200	63,300
60	234,800	200,500	171,900	147,800	127,000	112,700	93,300	79,500	67,100	56,100	46,200
65	205,800	174,100	147,800	125,400	106,300	93,000	75,200	62,400	51,000	40,800	31,700
70	180,900	151,500	127,000	106,300	88,500	76,200	59,600	47,800	37,200	27,700	19,200
75	159,400	131,900	109,100	89,700	73,100	61,600	46,200	35,100	25,200	16,400	8,400
80	140,500	114,800	93,300	75,200	59,600	48,900	34,400	24,000	14,700	6,400	- 1,000
85	123,900	99,600	79,500	62,400	47,800	37,600	24,000	14,200	5,500	- 2,300	- 9,300
90	109,100	86,200	67,100	51,000	37,200	27,600	14,700	5,500	- 2,700	- 10,100	- 16,700
95	95,800	74,200	56,100	40,800	27,700	18,700	6,400	- 2,300	- 10,100	- 17,100	- 23,300
100	83,900	63,300	46,200	31,700	19,200	10,600	- 1,000	- 9,300	- 16,700	- 23,300	- 29,300

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