

APPENDIX F

Evidence and analysis on competitive constraints by passenger switching

Introduction

- F1 This appendix evaluates the strength of the competitive constraint that Gatwick Airport Limited (GAL) might face from marginal passengers switching away from the airport in light of a price increase or decline in service quality. This form of constraint could supplement the potential competitive constraints that could be imposed by airlines switching marginal services away from an airport.
- F2 Apart from this introductory section, this appendix consists of three sections.
- Section 1 sets out a summary of the CAA's Consultation on Gatwick market power assessment (the Consultation) and a summary of stakeholders responses on passenger switching.
 - Section 2 is an evidence section where the CAA:
 - considers the characteristics of Gatwick's passengers, to identify which passengers have a choice of airport and general trends in their preferences;
 - estimates the required critical loss of passengers that GAL would have to lose to make a small but significant non-transitory increase in price (SSNIP) unprofitable, and derives the corresponding critical price elasticities of demand; and
 - estimates a range for Gatwick airport charge elasticity of demand.
 - Section 3 sets out the CAA's conclusion on competitive constraints by passenger switching.

Passenger switching in derived demand

F3 The ability and willingness of passengers to switch airports depends, in part, on the extent to which they regard services at different airports as reasonably close substitutes and the costs they face in switching demand to the next best alternative.¹ The availability of suitable alternative flights to the same destination as well as the willingness of passengers to follow an airline to an alternative airport is likely to be important to their willingness to switch.

F4 As discussed in appendix D, passengers' demand for airport services is derived from their demand for air travel. The derived nature of passenger demand means that the exposure of passengers to increases in airport charges are likely to be muted, as these are levied directly on airlines but only faced indirectly by passengers in airfares. Two factors are likely to reduce passenger exposure to increases in airport charges.

- First, airfares may not always reflect airport charges or be priced according to an airline's costs. Some airlines may decide to absorb the price increase rather than pass it on to passengers, depending on the conditions of competition in the downstream air transport market. For example, British Airways (BA) has told the CAA:

Over the last 10 years, it should have increased its prices by [X] to cover price increases, but managed to have an increase of only [X], as the market would have not supported higher fare increases.²

- Second, as illustrated in appendix E, airport charges only constitute around 10 to 20 per cent of an airline's variable cost base. This implies that a 10 per cent airport charge increase, even if passed through completely into fares³, would represent a 1 to 2 per cent increase faced by passengers.

¹ The CAA's Guidance on the assessment of airport market power (the Guidelines) dated April 2011 can be accessed via the CAA's website at:

<http://www.caa.co.uk/docs/5/Final%20Competition%20Assessment%20Guidelines%20-%20FINAL.pdf>.

² Source: BA, [X].

³ There are also other costs associated with air travel, such as surface access costs and cost of accommodation which mean that airport charges are an even smaller percentage of the total cost of air travel.

- F5 Connected to the (first) point outlined above, Lufthansa told the CAA that:
- LH fare pricing is not directly based on the costs it faces. Rather, it is based on the prices the market will bear.*⁴
- F6 Another airline, [redacted], also told the CAA that:
- In light of a 10 per cent price increase at LGW, its first reaction would be to [redacted].*⁵
- F7 Overall, the evidence suggests that:
- airport charge increases are unlikely to have a significant impact on airfares, particularly in the short run but may have a larger effect in the longer run; and
 - marginal passengers at Gatwick, as noted in section 2.3 of this appendix, are unlikely switch away in significant numbers in light of a 5 to 10 per cent increase in airport charges.
- F8 However, it is important to consider the number of marginal passengers, and what factors would drive this ‘marginality’. Estimates of the likely actual scale of passenger switching can then be compared to estimates of the required scale of passenger switching to undermine the profitability of an airport charge rise (the critical loss), to establish whether a price increase might be profitable.
- F9 In this appendix, the CAA's analysis categorises passengers according to whether they travel on domestic and short-haul, or long-haul journeys⁶ as it considers that analysis according to sector length is helpful in understanding passengers' choices.

⁴ Source: Lufthansa, [redacted].

⁵ Source: [redacted].

⁶ Long-haul passenger journeys are journeys where the ultimate air destination of a passenger is an airport beyond geographical Europe and North Africa. Domestic passenger journeys are journeys to the UK or crown dependencies.

Section 1: The Consultation

- F10 In the Consultation, the CAA considered the extent to which passengers currently using Gatwick are able to switch to alternative airports. In principle, GAL's ability to exploit market power could be constrained by the switching behaviour of passengers.
- F11 The CAA also considered that passenger switching would only arise to the extent that increases in airport charges were passed on by airlines to passengers. It found that passengers using Gatwick had a preference for booking inclusive tour packages⁷, implying that only a proportion of passengers in catchment overlaps would be prepared to switch to alternative airports. Furthermore, if increases in airport charges were passed onto passengers, passenger switching would be less than the level required to constrain the airport operator's behaviour.

Stakeholders' views

- F12 GAL disagreed with the CAA's analysis of the competitive constraints that it faced from passenger switching. GAL considered that much of the evidence presented in the passenger switching chapter of the Consultation supported the view that many passengers have a significant choice of which airport to fly from.
- F13 On critical loss analysis and estimates of airport charge elasticity, GAL considered that airport charges are below the competitive price level and it was therefore unsurprising that, at current (regulated) prices, switching was likely to be muted (i.e. a reverse Cellophane fallacy). This lack of switching should not be taken as an indication of GAL having substantial market power (SMP).⁸
- F14 Compass Lexecon (an economic consultancy working for GAL)⁹, considered that price elasticity of demand for airlines should be higher than price elasticity of passengers mainly because airlines have more options to switch airport than passengers do. Airlines can reallocate their capacity to wherever is more profitable to operate, whereas passengers have preference for airports' characteristics.

⁷ Inclusive tour packages are, typically, a bundled holiday product consisting of a flight and accommodation (and possibly other services).

⁸ GAL, Response from Gatwick Airport Limited, 26 July 2013, paragraph 3.35.

⁹ Compass Lexecon, The CAA report's market definition, 6 November 2013.

- F15 Compass Lexecon also compared the critical loss (as calculated by the CAA) to the size of segments of demand that it considered “highly elastic” and noted that they were much bigger than the critical loss. From this analysis Compass concludes that the relevant market should be at least London-wide, which puts the claim that Gatwick has SMP in serious doubt.
- F16 The airlines agreed with the CAA's conclusions on passenger switching that an increase in airport charges is unlikely to constrain GAL's pricing behaviour.

Section 2: Evidence and analysis

- F17 To consider the scale of passengers required to switch to impose a constraint on GAL, the CAA has examined:
- The characteristics of Gatwick's passengers, to identify which passengers have a choice of airport and general trends in their preferences.
 - The estimates of the critical loss of passengers required to make an increase in airport charges unprofitable.
 - A range of modelled elasticities to estimate the likely scale of switching; the estimates of critical loss and actual loss of marginal passengers were compared to reach a judgement on the extent that marginal passengers switching would constrain GAL's pricing.

Section 2.1: Characteristics of passengers using Gatwick

- F18 Different groups of passengers have different reasons for choosing a particular airport from which to fly. The variation in passengers' preferences can influence how likely they would be to switch away from Gatwick, on the assumption that a 5 to 10 per cent increase in airport charges is passed through in airfares.
- F19 Passengers' preferences at Gatwick, as well as at airports more generally, can vary according to a number of factors, including:
- whether they begin or finish their journey in the airport's catchment area (surface outbound and terminating passengers) or connect onwards at the airport;
 - journey purpose;
 - why they choose to travel to/from Gatwick; and

- flight duration.

F20 Each of these factors is considered, in turn, below for passengers at Gatwick. At the centre of the analysis of marginal passengers is their sensitivity to an increase in airport charges that airlines pass through in the form of higher airfares. This section therefore focuses on establishing the potential characteristics of cost-sensitive, marginal passengers.

Connecting passengers

F21 According to the CAA Passenger Survey (2012), at least 92 per cent of Gatwick's 34 million passengers travelled to the airport by surface access transport, leaving 8 per cent of passengers either self-connecting or inter/intra-lining¹⁰ between flights.

F22 In 2012, approximately 2.8 million passengers connected between services at Gatwick. On domestic routes, connecting passengers accounted for 23 per cent of total passengers, 14 per cent on long-haul services and 5 per cent only short-haul routes.¹¹ Typically, connecting passengers were much more likely to use full service carriers, which facilitate connecting (with their own and/or their partner airlines' services at Gatwick), in contrast to low cost carriers (LCCs) or charter carriers.¹²

F23 However, the increase in airport charges that is passed through to passengers in the form of higher airfares is expected to be small, compared to the airfare that a (connecting) passenger would already be paying. Furthermore, airlines may price to the market (i.e. the strength of passenger demand), rather than to fully reflect their cost base. This means that an increase in airport charges may not be passed through to passengers in the short run, if at all. As a result, it is unlikely that a 5 to 10 per cent increase in airport charges would lead to significant switching by marginal connecting passengers.

F24 Overall, the CAA does not consider that competitive constraints resulting from marginal connecting passengers switching to connect at an alternative airport is likely in itself to be material, due to the relatively small proportion of these passengers at Gatwick.

¹⁰ Passengers interline when connecting between two flights operated by different carriers, for example from BA to American Airlines. Passengers intraline when connecting between two flights operated the same carrier, for example between two BA flights.

¹¹ CAA Passenger Survey, 2012.

¹² CAA Passenger Survey, 2012.

- F25 However, the level of connecting passengers at the airport is more determined by the airlines' route offering at the airport, its schedules and business models than by airport charges increases.
- F26 In addition, it is the aggregate constraint from marginal passengers and airline switching that need to be considered. This is analysed in appendix E and in sections 2.2 and 2.3 of this appendix, where the critical loss of passengers is compared against the estimated actual passenger response.

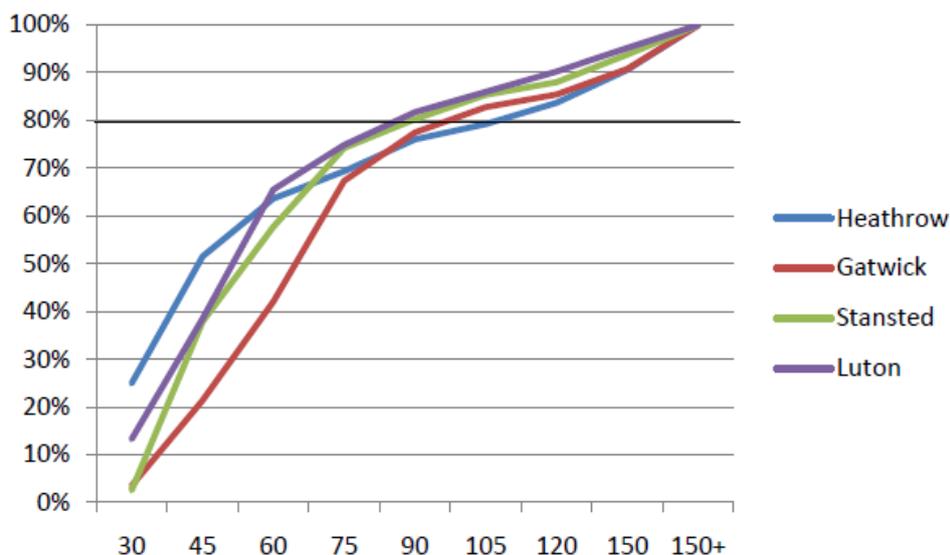
Surface travel time and catchment area analysis

- F27 The point of origin for a surface passenger, and whether they originate from a location covered by more than one airport's catchment area, can influence the amount of time they spend travelling to an airport. This section considers what impact these considerations could have on the degree of airport choice faced by passengers.

Surface travel times

- F28 Figure F.1 shows the travel time distribution for all passengers accessing the four biggest London airports by surface access transport. Overall, approximately 80 per cent of passengers at each of Gatwick, Luton and Stansted have an estimated travel time of at most 90 minutes. Also, 80 per cent of Heathrow passengers are within 105 minutes of the airport.

Figure F.1: Surface travel time (minutes) by airport



Source: CAA Passenger Survey and DfT's Surface Access times

- F29 However, different passenger types have different preferences for travel time to the airport.¹³
- Passengers travelling for business typically prefer shorter surface travel times, compared to VFR (visiting friends and relatives) and holiday passengers who are willing to travel for longer periods of time to reach their departure airport.¹⁴
 - Long-haul passengers are typically willing to travel to the airport for longer than those on short-haul and domestic services, reflecting the fact that the surface journey represents a smaller proportion of long-haul passengers' total journey time.
 - Passengers residing in the UK tend to have longer surface travel times than passengers residing abroad (foreign visitors who are likely to stay in central London and/or plan their visit so they are close to the airport when they arrive or depart).

Catchment area analysis

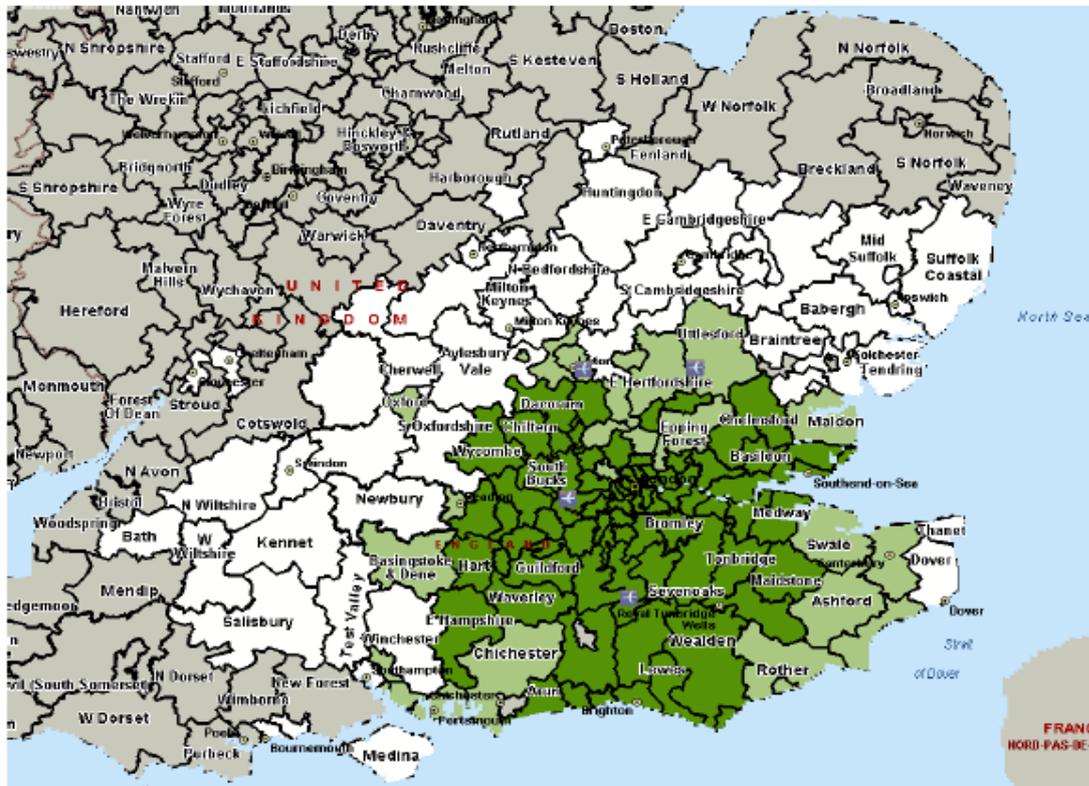
- F30 An airport's catchment area is an estimate of the geographic area from which a large proportion of an airport's outbound passengers originate and inbound passengers travel to. It can also represent the geographic distribution of passengers within this area. The extent to which catchments of different airports overlap is useful in assessing the extent to which passengers might consider airports to be substitutes, based on their location alone.¹⁵
- F31 Figure F.2 shows the districts from which Gatwick would draw passengers, based on surface travel time from the districts to Gatwick, with the dark and light green areas together accounting for 80 per cent of Gatwick's total passengers.

¹³ Full supporting details can be found in the CAA's working paper on Catchment Area Analysis, October 2011.

<http://www.caa.co.uk/docs/5/Catchment%20area%20analysis%20working%20paper%20-%20FINAL.pdf>

¹⁴ This reflects DfT estimates that business passengers are likely to have a higher value of time than other passengers. For example, the DfT assumes a value of time of around £50/hour for business passengers and of around £11/hour for leisure passengers (holiday and VFR) in their modelling.

¹⁵ For full details of this analysis, please see the CAA working paper on Catchment Area Analysis, October 2011.

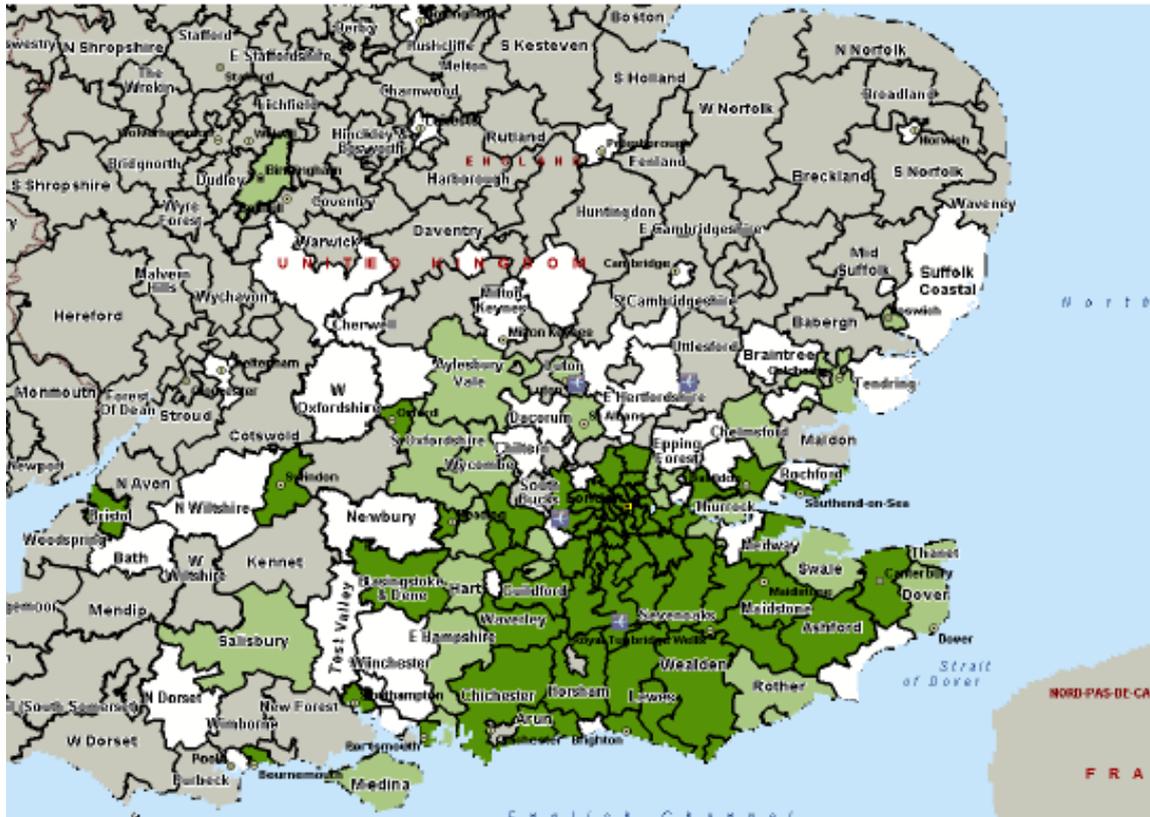
Figure F.2: Gatwick overall surface travel time catchment area

Source: CAA analysis of the CAA Passenger Survey 2010 and DfT surface access data.

Note: Shading shows cumulative proportion of passengers attending Gatwick when districts are ranked by travel time to the airport; Dark green – the first 70 per cent of passengers, Light green – the 70th to 80th percentile, White – the 80th to 90th percentile.

F32 However, using CAA Passenger Survey data on the historical use of Gatwick (i.e. when the districts are ranked by number of passengers using Gatwick, rather than surface travel time to the airport), the airport's catchment area has a different distribution.¹⁶ Notably, some of the dark and light green districts are more distant from London (i.e. they have a high proportion of Gatwick's passengers even though they may not be close to Gatwick – for example Bristol).

¹⁶ This approach used CAA Passenger Survey data to rank districts according to number of Gatwick passengers, from which a cumulative distribution is obtained.

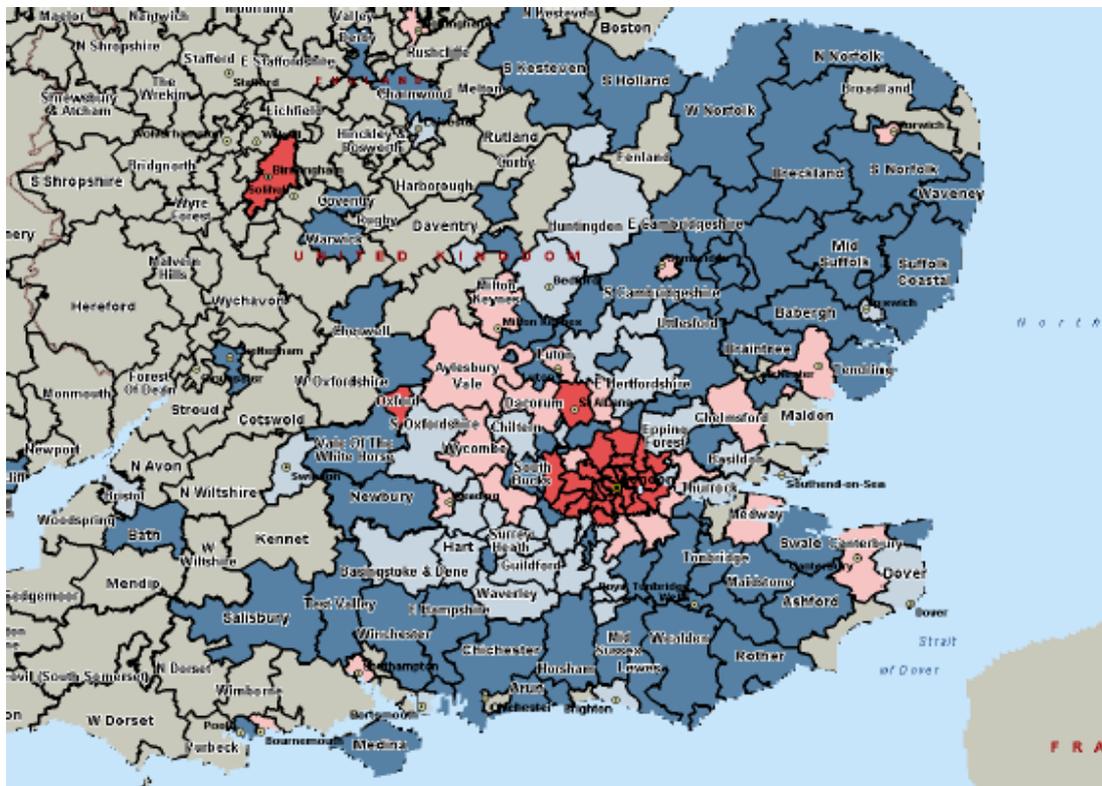
Figure F.3: Gatwick historical usage catchment area

Source: CAA analysis of the CAA Passenger Survey (2010).

Note: Shading shows cumulative proportion of passengers attending Gatwick when districts are ranked by passenger numbers; Dark green – the first 70 per cent of passengers, Light green – the 70th to 80th percentile, White – the 80th to 90th percentile

F33 The degree of passengers' choice regarding which airport to fly to/from can be influenced by whether their point of origin lies within an area of catchment overlap of two or more airports. Figure F.4 illustrates the catchment area overlaps based on historical usage between the four largest London airports (Heathrow, Gatwick, Stansted and Luton) for 80 per cent of passengers within each airport's catchment area, while Figure F.5 sets out the underlying proportions.

Figure F.4: Overlaps of historical usage catchment areas (using 80 per cent cut-off)



Source: CAA analysis of the CAA Passenger Survey (2010)

Note: Dark Blue: 1 airport (no overlap), light blue: 2 airport overlap, pink: 3 airports, red: 4 airports.

Figure F.5: Gatwick's historical catchment area overlaps quantification

Catchment overlap zones	#Districts	4 Airport Pax (m)	Gatwick Pax (m)	Proportion (4 airports) (%)	Proportion (Gatwick) (%)	Gatwick Share
LGW	23	5.5	3.6	6	13	66
LHR/LGW	21	9.9	4.9	10	18	49
LGW/STN	4	1.3	0.5	1	2	41
LHR/LGW/STN	7	3.5	1.6	4	6	46
LHR/LGW/LTN	8	5.5	1.7	6	6	30
LHR/LGW/STN/LTN	28	40.6	9.4	43	34	23
Total LGW Catchment	91	66.3	21.8	70	78	33
Out of Catchment		28.7	6.1	30	22	21
Total		95.03	27.9	100	100	29

Source: CAA analysis of the CAA Passenger Survey (2010).

Note: There are no districts with a LGW/LTN and a LGW/STN/LTN overlap as these always include LHR.

- F34 Figure F.5 shows that, around 65 per cent of Gatwick's passengers originate from a district where the airport's catchment area overlaps with that of at least one other airport.¹⁷ In particular, 34 per cent of Gatwick's passengers – and 43 per cent of passengers using one of the four airports, begin, or end, their journey in a district lying in a four-way overlap of the catchment areas of Heathrow, Gatwick, Stansted and Luton. From Figure F.4, it can be seen that this overlap is mainly made up of the districts in and around central London. By contrast, only 13 per cent of Gatwick's passengers originate from a district which is only covered by Gatwick's catchment area.¹⁸
- F35 Based on catchment area analysis alone, it appears that a significant proportion of Gatwick's passengers might be able to consider flying from another of the four largest London airports and that many passengers start their surface journeys to the airport in areas where there is a high usage of at least one other airport. However, the CAA notes that this analysis does not consider the following factors that, among others, can affect passengers' choice of airport:
- the importance of journey purpose;
 - the importance of passenger preferences; and
 - the airline offering available at each airport (business models, destinations and frequencies and passengers' preference for them).
- F36 These additional considerations can significantly alter a passenger's scope for choosing to fly from another airport in response to an increase in the price of using Gatwick. Each of these issues is considered below.

Journey Purpose

- F37 A passenger's journey purpose can influence their choice of airport, as it is likely to imply particular preferences. For example, preferences regarding the quality and speed of an airport's surface access links and the particularities of the services provided by airlines including price, destinations and frequencies might all vary according to the purpose of a passenger's journey.

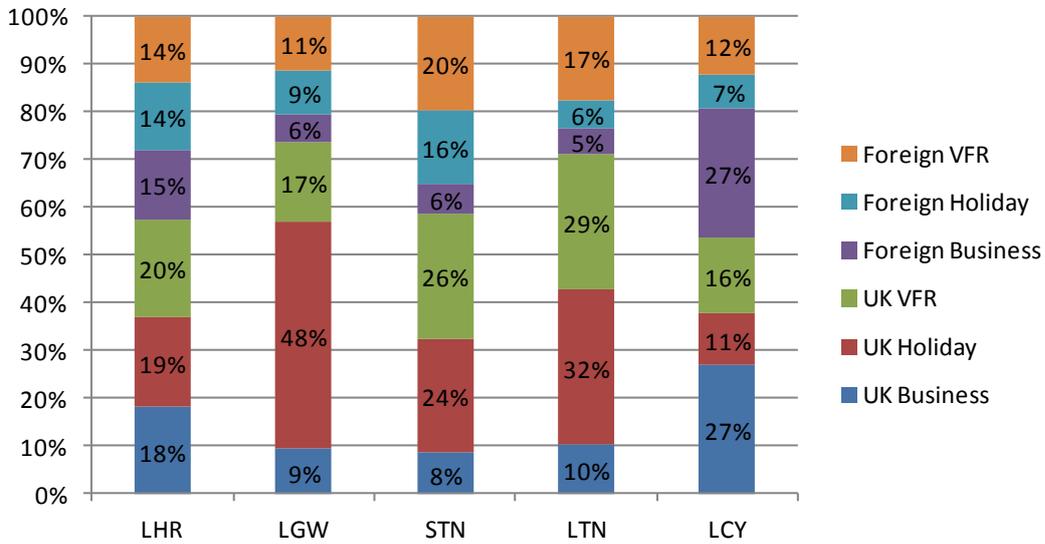
¹⁷ The sum of the passengers proportions in the LHR/LGW, LGW/STN, LHR/LGW/STN, LHR/LGW/LTN and LHR/LGW/STN/LTN overlaps.

¹⁸ Approximately 20 per cent of Gatwick's surface passengers are outside its catchment area. Those passengers are very likely to originate within the catchment area of other London airports (north and west of Gatwick's catchment), as the 90 per cent zone of Figure F.3 indicates. This analysis is dependent on the catchment definition and cut-off used; however, the result that there are significant overlaps over central London is robust.

- F38 Based on the CAA Passenger Survey, as well as previous discussions with stakeholders¹⁹, passengers can be categorised into three different types of journey purpose:
- Holiday passengers – these passengers tend to be the most cost-sensitive, but less time-sensitive and have a potentially broader choice of potential destinations.
 - VFR passengers – these passengers tend to have more destination-specific preferences.
 - business passengers – these passengers are likely to be most time-sensitive and have destination-specific preferences.
- F39 Cost-sensitive passengers would be more likely to consider switching away from Gatwick in light of an increase in the cost of using the airport than those for whom cost is less important. Therefore, GAL's holiday passengers would be more likely to switch than VFR or business passengers.
- F40 Figure F.6 sets out CAA Passenger Survey data on the journey purpose for Gatwick's surface passengers, also taking into account whether or not they are domiciled in the UK. Passengers travelling on holiday (57 per cent) are the largest group, with the majority being UK residents. VFR is the second most common journey purpose (28 per cent), followed by business (15 per cent).
- F41 Compared to the four other largest London airports, Gatwick has a considerably larger proportion of holiday passengers as a share of its total passengers than Heathrow (33 per cent), Stansted (40 per cent), Luton (38 per cent) and London City (18 per cent). By contrast, business passengers constitute the lowest proportion of Gatwick's passengers (15 per cent), which is comparable to that of Luton and Stansted but considerably smaller than that of Heathrow (32 per cent) and London City (54 per cent). Together with London City, Gatwick also has the lowest proportion of VFR passengers (28 per cent) and the lowest proportion of foreign usage (26 per cent).

¹⁹ These categories reflect stakeholder views in the context of the CAA's work on preparing for a more competitive airport sector. See for example, the August 2010 Competition Guidelines Issues paper: <http://www.caa.co.uk/docs/5/ergdocs/CompetitionGuidelinesIssuesPaper.pdf> paragraph 3.149.

Figure F.6: Proportion of Surface Passengers by residence by purpose

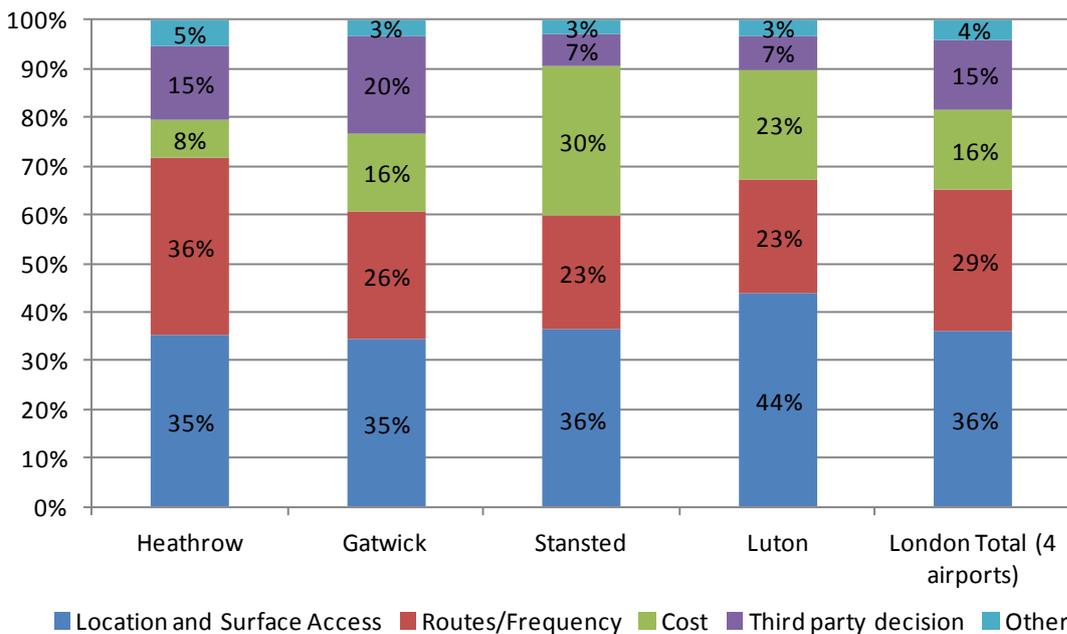


Source: CAA Passenger Survey 2012

Reason for airport choice

F42 As well as their journey purpose, passengers might have a specific reason why they chose to travel to and from a particular airport. Figure F.7 sets out the responses to the CAA Passenger Survey for the four largest London airports.

Figure F.7: Reason for airport choice for surface access passengers



Source: CAA Passenger Survey 2012

F43 For each airport, its location and surface access (on average 36 per cent) is the most common reason why passengers chose to fly from a particular airport. This reflects the airline evidence that each airport has a 'core catchment' area, as discussed in appendix D. This suggests that location and surface access is the most important single reason behind a passenger's choice. The second most important reason is to do with number and variety of air services available at the airport. Two other reasons are approximately equal (with 15 per cent each) as the joint third most common reason for airport choice: the cost of using the airport (including airfare and surface access cost), and third party decisions.²⁰ These three reasons are directly related to the airline services available at the airport. This shows the importance of analysing factors other than location and cost in understanding the likely propensity of passengers to switch airports.

Third party decisions

F44 Approximately 20 per cent of passengers at Gatwick chose to fly from the airport because of a third party decision. This might be when holiday passengers have booked a package holiday, or business passengers travel according to the terms of a corporate contract that their company has with airlines. At Gatwick, holiday passengers originating in the UK are the group for which a third party decision was most often the reason for choosing to fly from the airport (30 per cent), while, for other passenger groups taken together less than 10 per cent cited this reason.

F45 Figure F.8 shows that Gatwick served far more UK resident holiday passengers than any other London airport. For many of those passengers (51 per cent) their flights were booked as a part of a package. This is likely to reflect the large presence of charter airlines at Gatwick, although full service carriers and increasingly LCCs also carry passengers whose tickets were part of a package (32 per cent of UK resident holiday passengers that used Heathrow could be classified as 'Inclusive Tour' passengers). However, passengers whose use of airport is determined by a third party decision are less likely to have a choice of airport. In addition, even though inclusive tour passengers are considered price sensitive, a 5 to 10 per cent increase in airport charges represents a smaller proportion of the price paid for the package than the price paid by passengers that book flight tickets separately.

²⁰ Due to the sample size, the proportions of these passenger groups are unlikely to be statistically different from each other.

Figure F.8: Inclusive Tour proportion of UK resident holiday passengers at London airports

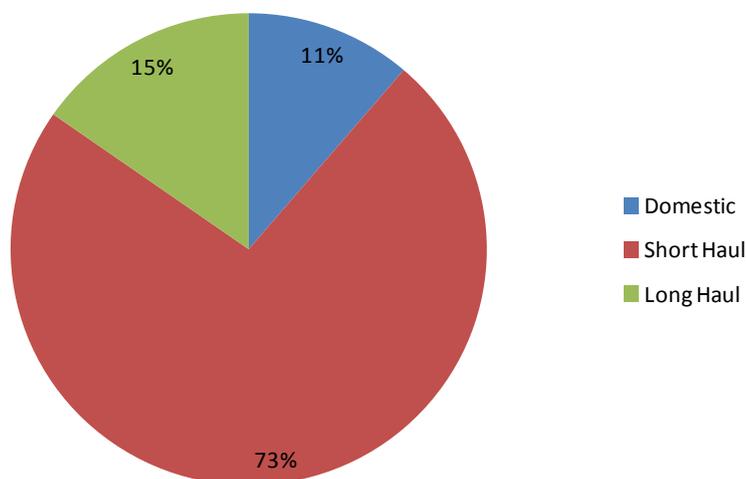
	UK resident passengers - inclusive tours (m)	Total UK resident holiday passengers (m)	% Inclusive Tour
Gatwick	8.0	15.6	51
Heathrow	3.1	9.9	32
Stansted	0.9	4.1	22
Luton	0.8	3.0	26

Source: CAA Passenger Survey 2012

Length of the flight

F46 Passengers at Gatwick, as shown in Figure F.9, fly predominantly to short-haul destinations (73 per cent), with long-haul (15 per cent) and domestic routes (11 per cent).²¹ This section considers in more detail the characteristics of these passengers to determine whether, or to what extent, they are likely to constitute Gatwick's marginal passengers.

Figure F.9: Proportion of Gatwick passengers by destination type



Source: CAA Passenger Survey, 2012

²¹ Short-haul passenger journeys are journeys where the ultimate air destination of a passenger is within geographical Europe and North Africa. Long-haul passenger journeys are journeys where the ultimate air destination of a passenger is an airport beyond geographical Europe and North Africa. Domestic passenger journeys are journeys to the UK or crown dependencies.

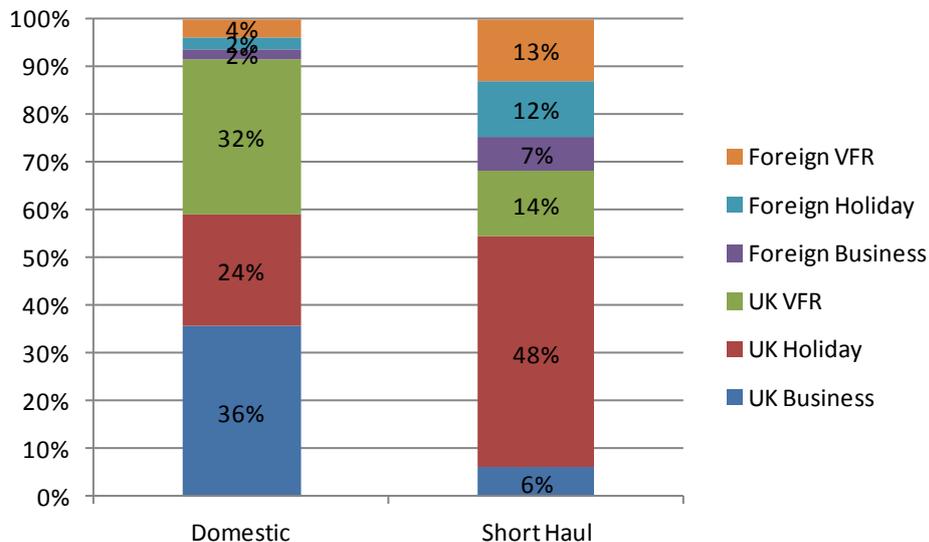
Passengers on domestic and short-haul flights

F47 Passengers travelling to domestic and short-haul destinations together account for approximately 85 per cent of Gatwick's passengers. This subsection considers in more detail the characteristics of these passengers to determine whether, or to what extent, these passengers are likely to constitute Gatwick's marginal passengers.

Journey Purpose

F48 Figure F.10 shows that approximately 74 per cent of Gatwick passengers on domestic services travel for business or VFR purposes. These purposes tend to be typically destination-specific and, in the case of business passengers, they are more time-sensitive. In contrast, over half (60 per cent) of short-haul passengers at Gatwick travel on holiday, a purpose which is associated with cost sensitivity. This suggests that cost-sensitive marginal passengers are more likely to be flying on short-haul than on domestic routes.

Figure F.10: Proportion of Surface Passengers by residence by purpose



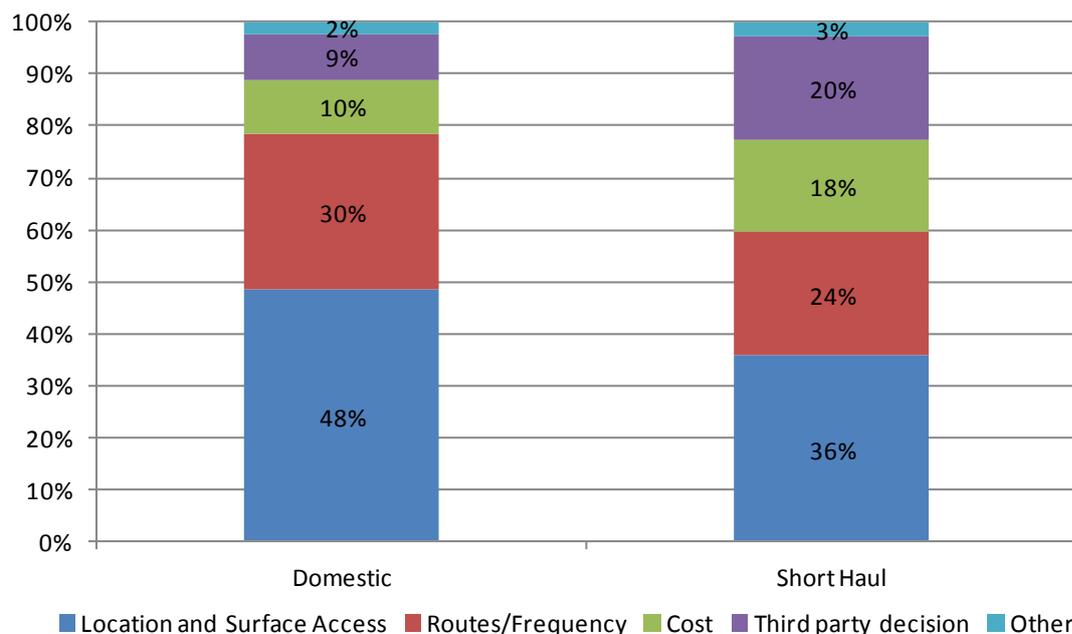
Source: CAA Passenger Survey 2012

Reason for airport choice

F49 Figure F11 shows that for short-haul passengers, cost was only the fourth most cited reason influencing airport choice: location and surface access was the most mentioned by 36 per cent of passengers to justify their choice of airport. Availability of particular routes/frequency was mentioned by 24 per cent of passengers, third party decisions by 20 per cent and cost by 18 per cent. For domestic passengers location and surface

access reason, as well as route/frequency availability were much more important with cost mentioned by only 10 per cent of domestic passengers.

Figure F.11: Reason for airport choice for domestic and short-haul passengers at Gatwick



Source: CAA Passenger Survey 2012

Route overlaps

F50 Route overlaps illustrate the extent to which passengers might be able to fly to the same destination from another London airport. Figure F.12 shows that 11 of Gatwick's 12 domestic routes (92 per cent), and at least five routes at Gatwick, overlap with Stansted, Luton and London City.

Figure F.12: Number of domestic route overlaps between London airports

DOM	Routes	Overlaps	% Overlap	1.LHR	2.LGW	3.STN	4.LTN	5.LCY	6.SEN
1.LHR	7	7	100%		7	4	4	3	1
2.LGW	12	11	92%			5	7	5	2
3.STN	6	5	83%				3	2	1
4.LTN	7	7	100%					5	2
5.LCY	6	5	83%						1
6.SEN	2	2	100%						

Source: CAA Airport Statistics, 2012

Notes: UK Cities served with more than 10,000 passengers.

F51 Figure F.13 shows that 80 per cent of short-haul routes at Gatwick overlap with other London airports, with Stansted, Heathrow and Luton airports having the highest degree of overlap.

Figure F.13: Number of short-haul route overlaps between London airports

SH	Routes	Overlaps	% Overlap	1.LHR	2.LGW	3.STN	4.LTN	5.LCY	6.SEN
1.LHR	77	65	84%		54	29	28	15	3
2.LGW	138	111	80%			77	53	19	8
3.STN	147	97	66%				56	14	8
4.LTN	86	73	85%					11	9
5.LCY	28	23	82%						7
6.SEN	9	9	100%						

Source: CAA Airport Statistics, 2012

Notes: Geographical Europe Cities²² with more than 10,000 passengers.

F52 Similar to catchment area analysis, route overlap analysis has a number of limitations.

- As it is only a measure of whether a route is available at another airport, route overlap analysis omits related passenger considerations such as the daily and weekly schedule differentiation for a given route across the airports at which it is available.
- The analysis assumes that a suitable flight to the same destination is available when for example; a charter route would not be a substitute for a scheduled one. Differences in scheduling can also affect substitutability.
- As route overlap takes no account of service differences, it is likely to overstate the extent of passenger switching that could occur in reality. It also ignores the possibility that passengers could decide to use a different airport to fly to a different destination.

F53 The CAA considers that the most marginal passengers are likely to be the ones that:

- originate in an area of catchment area overlap of at least two airports, as they are more likely to be able to access conveniently a different airport, and
- have the choice of route available from each of those airports.²³

²² A city can be served by multiple airports (e.g. Paris - Charles de Gaulle and Paris- Orly).

²³ Some passengers might also have a choice of alternative destinations.

Short haul airline competition across London airports

F54 Another way to assess the potential for passenger switching across airports is to consider the extent to which airlines compete across airports. A 2008 working paper by the Competition Commission (CC) analysed airline yield data and found some evidence that BAA airports (Heathrow, Gatwick and Stansted) were substitutes for passengers. In that analysis, the CC considered that:

It is not possible to estimate cross-price elasticities [faced by airports] directly: historical joint-ownership has prevented competition between the airports and so we observe only a few instances of switching behaviour by airlines. This means we must look to passenger willingness to substitute between airports in response to relative airfare changes instead to guide our view on incentives for airlines to switch in response to changes in relative airport charges.

F55 The CAA has analysed easyJet route revenue and profitability data. The CAA constructed a panel dataset of easyJet's annual revenue and annual profitability on its London routes. This data was supplemented with information for each route from the CAA Airport Statistics about alternative seat capacity at the same airport and at other London airports over a five year period between 2007 and 2011.

F56 This data was used to try to understand the extent to which there is competition between airlines across the London airports and to aid in understanding the extent to which passengers substitute between London airports.

F57 The CAA fitted a panel fixed effects model²⁴ where easyJet revenue was regressed against easyJet seat capacity and seat capacity provided at alternative airports to assess the extent to which airport seat capacity at other London airports constrains easyJet route revenue and profitability at Gatwick (as well as at Stansted and Luton).

F58 The results for easyJet's Gatwick routes suggest that:

- One extra seat provided at another London airport to the same destination on average reduces easyJet's revenue on the route operated from Gatwick by approximately [X]. One extra seat provided at Gatwick by another airline but to the same destination on average reduces easyJet revenue on that route by approximately [X].

²⁴ An econometric model that controlled for route and time specific effects, allowing the relationship between revenue and seat capacity to be measured.

- There is some evidence that Heathrow and Luton seem to be constraining route revenue at Gatwick, [3<].
- F59 While elasticities of demand were not derived from this analysis, it can be concluded that:
- There are signs of airline competition for passenger demand at and across London airports.
 - Competition between airlines at the same airports appears to be stronger than competition between airlines at different airports in London.
 - [3<].
 - Air services from different London airports may place different constraints on easyJet routes, although it is unclear from which airport the constraint is largest.

Summary on short-haul passengers

- F60 Analysing catchment area overlaps, reasons for airport choice and route overlaps suggests that a significant number of domestic and short-haul passengers face a degree of choice with regards to flying to the same destination from a different London airport. Econometric analysis of fares also suggests some potential for competition across London airports.
- F61 In addition, approximately 10 and 18 per cent respectively of domestic and short-haul passengers report cost as being the main reason that they chose to travel through Gatwick (although this does not necessarily mean that they would all move following a 5 to 10 per cent increase in airport charges). Furthermore:
- Airport charges account for a relatively small proportion of an airline's operating costs (at most 20 per cent). A 10 per cent increase in these costs would lead to an increase of less than 2 per cent in airfares.
 - Airlines might not always pass the increase in airport charges through to passengers.

Passengers on long-haul flights

- F62 Passengers on long-haul flights account for 15 per cent of Gatwick's total passenger traffic. Typically, their surface travel time to the airport tends to be longer than for domestic and short-haul passengers, as it is a smaller

proportion of their overall journey time.²⁵ This section considers the extent to which long-haul passengers might have a choice of alternative airport to which they could switch in light of an increase in airport charges. As with domestic and short-haul passengers, the degree of switching by marginal passengers is likely to depend on the extent to which the airport charges increase is passed through.

GAL's paper on long-haul switching²⁶

F63 GAL submitted a paper in September 2012, commissioned from aviasolutions, regarding passenger switching on long-haul routes. Its main argument is that in 2011, 5 million passengers were travelling to/from Gatwick on long-haul services. In this context, aviasolutions argued that 3.5 million passengers (70 per cent of long-haul passengers) had good switching opportunities:

- 0.7 million passengers (15 per cent) transferred at Gatwick;
- 0.7 million passengers (15 per cent) connected at their next destination;
- 1 million passengers (19 per cent) were point-to-point passengers flying on a route which had a directing competing service from Heathrow; and
- 1.1 million passengers (22 per cent) were point-to-point passengers flying on a route which did not have a direct service from Heathrow but where there is evidence from the CAA survey of a material volume of passengers taking an indirect routing from Heathrow.
- The analysis has been undertaken at a geographic region level as well as at an aggregate level.
- It could be argued that the vast majority of passengers travelling on services to North America (strong competition from Heathrow), Asia (strong competition from Heathrow) and Middle East (strong transfer and onward connecting flows) had good switching opportunities.
- While switching opportunities appear to have been more limited for passengers travelling to destinations in the Caribbean and Mexico, approximately one third of passengers were either transferring, had onward connections or had the option to use a competing indirect service at Heathrow and therefore had switching opportunities.

²⁵ For more details, please see the CAA's working paper on Catchment Area Analysis, October 2011.

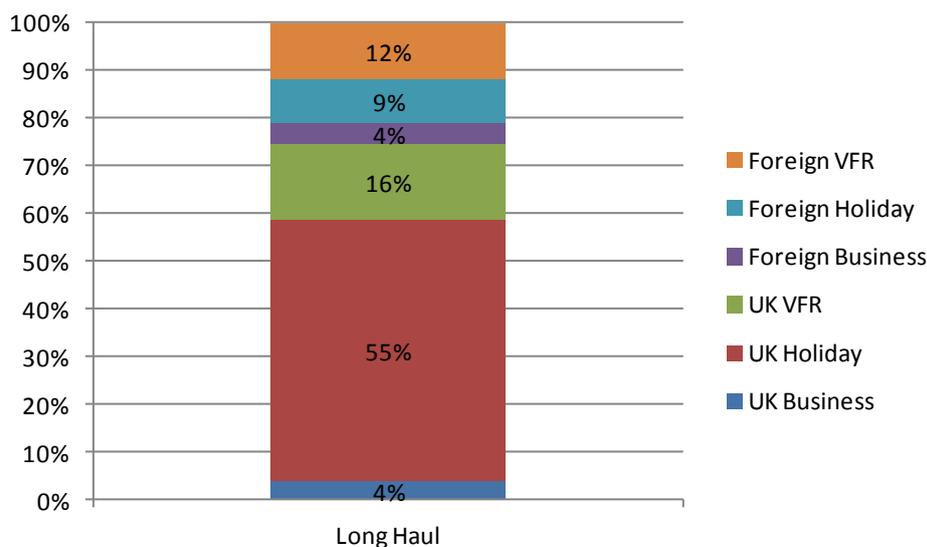
²⁶ Source: GAL, [3<].

- F64 The paper does not explicitly consider whether, and to what extent, these passengers can be considered to be marginal passengers who would be likely to switch in light of a 10 per cent price increase to airlines.
- F65 GAL also notes that long-haul is not defined as a separate relevant economic market for and that the CAA must examine in greater detail whether GAL would have the ability and incentive to exploit the set of passengers that are materially affected by any absence of overlapping services.²⁷

Journey purpose

- F66 Figure F.14 shows that 64 per cent of Gatwick's long-haul passengers are flying on holiday, with 28 per cent visiting friends and relatives and 8 per cent flying for business.

Figure F.14: Proportion of long-haul surface passengers by residence by purpose



Source: CAA Passenger Survey 2012

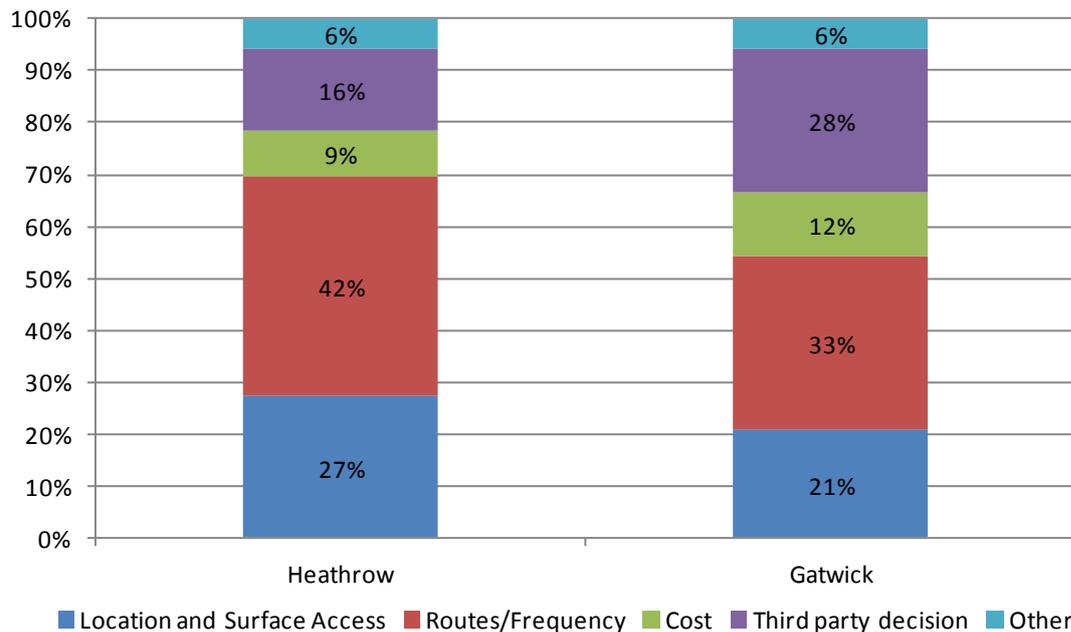
Reason for airport choice

- F67 As discussed before, cost-sensitive passengers are most likely to respond to an increase in the cost of using the airport by switching away. Figure F.15 shows that the most common reasons why passengers choose to fly from Gatwick are because of the availability of a particular route and/or frequency (33 per cent), and due to third party decision (28 per cent), which probably reflects the activity of charter and tour

²⁷ Source: GAL, [redacted].

operators at Gatwick. In contrast to domestic and short-haul passengers, only 21 per cent of long-haul passengers cite Gatwick's location and surface access as the main reason for the choosing to fly from the airport. Cost was cited by the smallest proportion of passengers (12 per cent). This implies that fewer long-haul passengers are likely to be marginal to an increase in fare equivalent to a 5 to 10 per cent increase in airport charges.

Figure F.15: Main reason for airport choice – Long haul



Source: CAA Passenger Survey 2012

Route overlaps

- F68 Route overlaps between Gatwick and the other London airports can indicate whether a passenger could find a flight to the same destination from another airport in London that might be a substitute for their flight from Gatwick.
- F69 Route overlaps with other London airports for long-haul routes are considerably fewer than for short-haul routes, and only arise between Gatwick and Heathrow. Figure F.16 suggests that 14 of the 44 scheduled routes at Gatwick (32 per cent) overlap with services from Heathrow. In addition, another 14 routes are operated by long-haul charter airlines at Gatwick and are not operated elsewhere at London airports by another charter airline.

Figure F.16 Long-haul route overlaps for London airports

LH	Routes	Overlaps	% Overlap	1.LHR	2.LGW	3.STN	4.LTN	5.LCY	6.SEN
1.LHR	89	15	17%		14	0	0	1	0
2.LGW	44	14	32%			0	0	0	0
3.STN	0	0	0%				0	0	0
4.LTN	0	0	0%					0	0
5.LCY	1	1	100%						0
6.SEN	0	0	0%						

Source: CAA Airport Statistics

Notes: Non-European cities served with more than 10,000 passengers in 2012.

F70 With regards to long-haul passenger switching, GAL argues that:

...Therefore, a more appropriate interpretation of the evidence cited above is that for 40 per cent of long haul routes there is a very close substitute available to passengers. Similarly, the fact that some passengers do not view two airports as close substitutes is significantly less relevant to a competition analysis than the proportion of passengers that do consider that they are close substitutes. From the data presented by the CAA, it is clear that the majority of Gatwick's customers are not "captive". This is not consistent with any claim that Gatwick derives market power due to any preference by South East passengers to use Gatwick, whether in respect of point-to-point services or otherwise.²⁸

F71 However, since 2012 the airlines and the services they operate at Gatwick have changed. Of the 14 routes overlapping with Heathrow, only nine routes are still currently operated at Gatwick. The routes that have been dropped are to:

- Atlanta, operated by Delta;
- Hong Kong, operated by HK Airlines;
- Seoul (Incheon), operated by Korean Air;
- Kuala Lumpur, operated by Air Asia X; and
- Lagos, operated by Air Nigeria.

F72 In 2012, these routes accounted for 125,000 passengers. This reduces the number of passengers cited by aviasolutions as having a direct route alternative at Heathrow from 1 million to 875,000 passengers.

²⁸ Source: GAL, [3<].

- F73 In addition, five of the overlap routes (to Canada) are overlaps between Air Transat at Gatwick – a low cost and charter long-haul airline – and Air Canada and other full service carriers (FSC) at Heathrow. FSC airfares can be up to twice the price of those of charter services.²⁹ These routes represent 444,000 passengers. The CAA considers that it is extremely unlikely that a 10 per cent increase in airport charges, which is likely to translate to approximately a £1 increase in airfares if passed through, would lead GAL's marginal passengers on these routes to switch to an alternative supplier of the same route whose airfares are approximately double the price. As a result, this route overlap cannot be considered realistic for the purposes of substitution by marginal passengers, and this reduces the direct route overlap to account for 431,000 passengers.
- F74 Further, several route overlaps are the result of the same airline operating at both Gatwick and Heathrow. Emirates serves Dubai from both Gatwick and Heathrow. Airline's pricing is unlikely to encourage “cannibalistic competition” between its own services, although it provides passengers with an opportunity to switch between airports. As Emirates told the CAA:
- It noted there is a geographic and market distinction between LHR and LGW in that they both serve different catchments and markets:*
- *LGW has built a reputation as a “leisure based airport” for charter airlines*
 - *Although this perception is deep rooted, it noted that it is slowly changing under LGW’s new ownership*
 - *There is a huge catchment overlap between the two airports (i.e. Guildford), but LGW serves a separate market.³⁰*
- F75 Similar considerations apply to BA's services to Las Vegas, which is served from both Gatwick and Heathrow.
- F76 Taking account of these situations where an overlap route is unlikely to act as an adequate substitute leaves only two current overlap routes where passengers are likely to face realistic direct alternatives of different airlines serving the same destination at Heathrow and Gatwick. However, the CAA notes that the number of long-haul destinations can vary relatively quickly, for example with the entry of a new carrier, so the number of overlapping routes can increase in the short to medium term.

²⁹ This is based on a comparison of prices on the airlines' websites.

³⁰ Source: Emirates, [3<].

- F77 While the scope for marginal passengers to switch to alternative direct services at other London airports appears very limited, the CAA acknowledges that passengers may also consider indirect routes from other airports as alternatives for direct services from Gatwick. This could increase the choices available to passengers flying on long-haul routes who are not time-sensitive or where a direct route is not available from either airport. The CAA also considers that there remains scope for long-haul passengers to switch to other long-haul destinations at Gatwick or Heathrow, and potentially to short-haul or domestic routes.

Summary on long-haul passengers

- F78 The scope for passengers on long-haul services at Gatwick to switch to alternative long-haul routes is restricted to switching between routes at Gatwick and at Heathrow. While the majority of long-haul passengers at Gatwick travel on holiday, only 12 per cent of such passengers cite cost as the reason why they chose to fly from Gatwick. This represents approximately 600,000 passengers at the airport (less than 2 per cent of total passengers using Gatwick during 2012). Further, although the catchment area analysis discussed above suggests considerable overlap, the route overlap analysis indicates that the scope to switch airport and fly to the same destination appears limited in practice.
- F79 Overall, and in contrast to domestic and short-haul passengers, the scope for surface long-haul passenger switching appears to be limited. In addition, as discussed with regards to domestic and short-haul passengers, the effect on airfares of a 5 to 10 per cent increase in airport charges – which itself could be limited by airlines not passing through the cost increase – is unlikely to increase prices for passengers to the extent that marginal long-haul passengers would switch in significant numbers. Here we note that airport charges for long-haul passengers are a much smaller proportion of overall ticket prices than for short-haul passengers.

Stakeholders' views

- F80 In its response to the Consultation, GAL considered that the significant catchment overlaps of passengers' actual usage of airports demonstrate that passengers have a significant choice of which airport to fly from, and that this choice was exercised even when the airports were under common ownership.
- F81 GAL also considered that this analysis supports the case of a London and the Southeast of England wide passenger market geographic definition and that the CAA in its Stansted de-designation advice to the DfT and the CC BAA market investigation has considered before that catchment

evidence demonstrated that passengers had significant choice as to which London airport to fly from. GAL also referred the CAA to some airline competition cases such as Ryanair/Aer Lingus and scarce capacity allocation decisions by the CAA where airlines accepted there was a London-wide market.

- F82 Compass Lexecon also compared the critical loss (as calculated by the CAA below) to the size of segments of demand that it considered “highly elastic” in terms of both airlines and passengers.³¹ For instance, Compass Lexecon noted that 28 per cent of passengers at Gatwick are inbound and noted that they were much bigger than the critical loss. Compass Lexecon also compared the critical loss to what it considered “most elastic airlines” and estimates of available capacity at other London airports.
- F83 Compass Lexecon found that the highly elastic segments of demand were much bigger than the critical loss and concluded that the relevant market should be at least London-wide and that puts the claim that Gatwick has SMP in serious doubt. However, Compass Lexecon does not claim that all those price elastic segments of demand would switch in response to a SSNIP.
- F84 easyJet supported the conclusions set out by the CAA in its analysis of passenger preferences and behaviour. easyJet particularly welcomed the CAA's conclusion that a simple assessment of catchment overlaps may overestimate the competitive constraint from passenger switching as it only considers passengers' location and travel times and does not take into account passengers' price sensitivities.
- F85 easyJet agreed with the CAA's view that flights at other London airports constrain fares offered at Gatwick and that there is airline competition for passenger demand at and across London airports.

CAA views

- F86 Many of the references by GAL to airline competition cases and to the CC's BAA market investigation, because they are addressing a different question to this assessment, are unlikely to be relevant and/or sufficiently strong precedent for the purposes of this assessment.
- F87 There are strong signs of competition in the downstream market for air transport services. However, the analysis above is not sufficient to conclude on the extent to which competition in the downstream (airline-

³¹ Compass Lexecon, The CAA report's market definition, 6 November 2013, p.6.

passenger) market constrains pricing by the airport operator in the upstream airport-airline market. This is particularly because airport charges are just a small part of passenger ticket prices and because the extent to which airlines pass on any increase in airport charges to passengers will vary.

- F88 This section has considered broad trends in passenger characteristics at Gatwick compared to other London airports. While catchment area analysis suggests that a significant proportion of the airport's passengers is likely to be able to travel to/from at least two London airports, this does not take into account the other factors that influence passenger preferences in choosing an airport.
- F89 The majority of Gatwick's passengers are holiday passengers, who are typically more likely to be cost-sensitive than business and VFR passengers and also less likely to prefer a specific destination. However, only around 17 per cent of such passengers state cost as the reason for their airport choice were travelling for holiday purposes. Indeed, route and frequency availability and third party decisions also appear to be common reasons why holiday passengers choose to fly from Gatwick.
- F90 Almost three quarters of passengers at Gatwick travel on short-haul flights, followed by long-haul and domestic services, which reflects the air transport services made available by airlines at the airport. The extent of route overlaps for these different flight durations could affect passengers' choice of airport.
- F91 Analysing catchment area overlaps, reasons for airport choice and route overlaps suggests that a significant number of domestic and short-haul passengers seem to face a degree of choice with regards to flying to the same destination from a different London airport than Gatwick. Econometric analysis of fares also suggests some potential for airline competition across London airports.
- F92 However, as GAL acknowledges in its response to the Consultation³², this does not necessarily mean that all domestic and short-haul passengers would constitute GAL's marginal passengers in light of increases in airport charges. As discussed in section 2.3:
- A hypothetical 10 per cent increase in these costs would be likely to lead to an increase of only 1 to 2 per cent in airfares.

³² GAL, Response from Gatwick Airport Limited, 26 July 2013, paragraph 3.35.

- Airlines might not pass through to passengers the increase in airport charges, as airfares are not always priced to fully reflect costs.

F93 These two factors are likely to reduce the scale of switching by marginal passengers. The likely loss of passengers following such an increase is estimated in section 2.3 below.

Section 2.2: Critical loss analysis

Evidence

F94 Critical loss analysis examines the level of passenger demand reduction and flight/aircraft withdrawal by airlines that would be required for an airport charge increase to be unprofitable for the airport operator. The analysis considers an increase in airport charges of 5 to 10 per cent.

F95 The analysis examines the impact of an increase in revenue from airport charges on top of GAL's current total revenue per passenger, which includes commercial revenue. Due to the vertical nature of the relationships between the airport, airline and passengers, the following critical loss analysis focuses on increases in airport charges to airlines. However, the analysis takes into account the potential loss to GAL of both the aeronautical and non aeronautical revenue for each passenger switching away.

F96 The analysis uses regulatory accounts information for 2012/13 and takes into account the impact of a change in charges on operating costs and commercial revenues. The analysis makes the following assumptions:

- Operating cost elasticity with respect to output of 0.5 based on analysis undertaken by Steer Davies Gleave (SDG) as part of the Stansted airport (Stansted) mid-Quinquennium review, using a sample of airports.³³ An alternative elasticity of 0.3 has been used based on work undertaken by the CC as part of STAL's Q5 review.³⁴

³³ SDG, Stansted airport: Review of operating expenditure and investment consultation (Annex D): Mid-term Q5, May 2012, p. 57. This document can be accessed at: <http://www.caa.co.uk/docs/5/SDGStanstedReport.pdf>. The elasticity is quoted as 0.44 but increases to 0.5 in periods with declining traffic. As an increase in charges is likely to lead to a decline in traffic the elasticity of 0.5 has been used.

³⁴ CC, Annex 5 of Appendix H, Stansted Airport Ltd: Q5 price control review. This document can be accessed at: http://www.competitioncommission.org.uk/assets/competitioncommission/docs/pdf/non-inquiry/rep_pub/reports/2008/fulltext/539ah.pdf

- Assumptions regarding non aeronautical revenue variability are shown in Figure F.17. For the purposes of this analysis aeronautical revenue from non passenger aircraft is included with non aeronautical revenue as non passenger traffic is assumed not to vary with passenger traffic.

Figure F.17: Non aeronautical revenue variability assumptions

Non aeronautical revenue category	2011/12 revenue (£m)	Proportion variable (%)	Variable revenues (£m)
Other traffic related	3.3	0	0
Retail	163.7	100	163.7
Property	34.8	100	34.8
Other	37.4	30	11.2
Non passenger traffic	2.2	0	0
Total	241.4	87	209.7

Source: GAL Regulatory Accounts for the year ended 31 March 2013 and CAA analysis

- F97 Figure F.18 shows the critical loss analysis. The analysis shows that a 5 to 10 per cent increase in aeronautical charges would increase aeronautical revenue from an average of £8.19 per passenger (representing the price cap for 2012/13) to £8.60 and £9.00 per passenger respectively. For the same number of passengers, this results in total revenue increasing by £14 and £28 million respectively.
- F98 Based on this, and taking into account the potential reduction in operating costs and loss of non aeronautical revenue from lower passenger numbers, this results in a critical loss of passengers of 1.15 to 1.34 million for a 5 per cent increase in aeronautical charges, and 2.23 to 2.59 million passengers for a 10 per cent increase.³⁵ This is the reduction in passengers required for the aeronautical charge increase to be unprofitable for the airport operator.

³⁵ This is calculated as follows: $[\text{Increase in total revenue}] / ([\text{variable revenue per passenger}] - [\text{operating cost per passenger}] * [\text{Opex elasticity}])$

Figure F.18: Critical loss in terms of passengers

SSNIP increment	Increase in aeronautical revenue	
	5%	10%
<i>Background data</i>		
Passengers (mppa)	34.241	34.241
Aeronautical Revenue (£m)	280.3	280.3
Non Aeronautical Revenue (£m)	241.4	241.4
Total Revenue (£m)	521.7	521.7
Operating Costs (£m)	294.2	294.2
Aeronautical Revenue per Passenger (£ per pax)	8.19	8.19
Non Aeronautical Revenue per Passenger (£ per pax)	7.05	7.05
Variability of non aero revenue (%)	87	87
Total Revenue per Passenger (£ per pax)	15.24	15.24
Operating Costs per Passenger (£ per pax)	8.59	8.59
<i>After price increase</i>		
Aeronautical Revenue per Passenger (£ per pax)	8.60	9.00
Non Aeronautical Revenue per Passenger (£ per pax)	7.05	7.05
Total Revenue per Passenger (£ per pax)	15.65	16.05
Variable Revenue per Passenger (£ per pax)	14.72	15.13
Increase in Revenue (£m)	14.02	28.03
Critical loss (mppa) (SDG opex elasticity)	1.344	2.587
Critical loss (mppa) (CC opex elasticity)	1.154	2.233

Source: GAL Regulatory Accounts for the year ended 31 March 2013 and CAA analysis

Critical elasticity

F99 Based on the above critical loss figures, the implied critical elasticity can be derived. Figure F.19 shows the implied elasticity from the change in passenger numbers. The reduction in passengers implies that if the airport charge elasticity is below an elasticity of 0.66 to 0.77 then the airport operator can profitably increase charges by 5 to 10 per cent.

Figure F.19: Passenger demand elasticity required to render SSNIP unprofitable

SSNIP increment	Increase in aeronautical revenue	
	5%	10%
Critical loss (mppa) (SDG opex elasticity)	1.344	2.587
Critical loss (mppa) (CC opex elasticity)	1.154	2.233
Change in passengers SDG (%)	3.9	7.6
Change in passengers CC (%)	3.4	6.5
Implied elasticity SDG opex elasticity	0.79	0.76
Implied elasticity CC opex elasticity	0.67	0.65

Source: GAL Regulatory Accounts for the year ended 31 March 2013 and CAA analysis

F100 Figure F.20 below converts the critical loss in passenger numbers calculated above and converts it into estimates of the number of flights and aircraft that would need to be withdrawn to make a price increase unprofitable. This conversion takes the average number of passengers per flights at Gatwick in 2012 (142) and assumes that each Gatwick aircraft operates on average 6 Gatwick flights a day. Overall, this implies that based operators at Gatwick would need to withdraw the equivalent of 8,000 to 18,000 flights per annum or between 4 and 8 "Gatwick aircraft", year round, to make a small but significant price increase unprofitable for the airport operator.

Figure F.20: Implied passenger, flight and aircraft loss required to render a SSNIP unprofitable

Critical Loss	5% - CC Opex Elasticity	5% - SDG Opex Elasticity	10% - CC Opex Elasticity	10% - SDG Opex Elasticity
Passengers (mppa)	1.154	1.344	2.233	2.587
Flights per annum	8,127	9,465	15,725	18,218
Flights per day	22	26	43	50
"Gatwick aircraft"	3.7	4.3	7.2	8.3

Source: CAA Calculations

Stakeholders' views

F101 GAL acknowledges that the CAA's critical loss calculations take into account the effect of variation of passenger volumes on non aeronautical revenues. However, it considers that different passengers and different airlines (especially FSCs and feeder airlines) make different contributions to non aeronautical revenues. GAL considers that the CAA's critical loss analysis contradicts the CAA's views on the multi-sided nature of airports.³⁶

CAA views

F102 The effect of lower passenger volumes on non aeronautical revenue is fully reflected in the critical loss analysis and this is consistent with a vertical market analytical approach, as discussed in appendix D. The fact that non aeronautical revenues vary with different passengers and airlines is expected in a competitive market and will form part of the airport operator's pricing decision³⁷. It does not impact on the derived demand analysis.

F103 From the analysis above the CAA concludes that the critical airport charge elasticity of demand (CED) is likely to be between 0.66 and 0.77. That means that if estimates of actual airport charge elasticity of demand are below this interval then that would be indicative of GAL being able to profitably increase airport charges.

Section 2.3: Estimating Gatwick's airport charge elasticity of demand

Evidence

F104 In this section, estimates of the airport charge elasticity of demand (CED) for GAL's airport charge for passengers³⁸ are calculated. That is the degree to which airport demand varies with respect to changes in airport charges (aeronautical revenue per passenger)³⁹. Those elasticity

³⁶ Source: GAL, [§<].

³⁷ The CAA considered all types of airlines and passengers together in this analysis.

³⁸ The ability of airlines to switch is considered in appendix E.

³⁹ The relevant price elasticity varies depending on what is considered as the relevant initial price (ideally the competitive price level). However, this appendix focuses on the extent to which passengers respond to a price increase rather than on what is the competitive price level at Gatwick (which is discussed in appendix D). Sometimes the modelling will use explicit or implicit assumptions on price, which cannot be changed. However, any assumptions with regards initial airport charges for the calculation of CEDs are shown.

estimates are then compared with the critical CED i.e. the elasticity threshold above which a SSNIP would be unprofitable.

- F105 The CAA considers a number of methodologies that have been used to calculate Gatwick's CED.
- Methodologies based on DfT's aviation forecasting model including:
 - analysis carried out by Frontier Economics on behalf of easyJet; and,
 - analysis carried out by the CAA.
 - A methodology developed by Frontier Economics using easyJet booking data.
 - The results of the CAA's stated intentions passenger survey.
- F106 The CAA notes that estimating actual loss is a more difficult task than estimating the critical loss as it involves more economic data analysis and, to some extent, judgement. For each of the three approaches outlined above, the CAA describes the methodology, their merits and limitations, as well as its relevance to the estimation of Gatwick's CED. The CAA also derives estimates of Gatwick's CED. A tabular summary of the range of elasticity estimates is provided in Figure F.24.

Analysis using the DfT aviation forecasting model

- F107 A number of approaches to estimating the elasticity of demand are based on the DfT's aviation forecasting model, NAPALM. In the Initial Views, the CAA stated that, while the NAPALM model is primarily designed to estimate long run passenger demand forecasts, using the model to estimate short run elasticities was a useful contribution to assessing passenger impacts at Gatwick.⁴⁰ An advantage of NAPALM is that the model is based on research of past passenger behaviour. As such, it may be a more reliable means of assessing passengers' reactions to a price increase than survey responses or inferences drawn from catchment overlaps.

Frontier Economics' 2011 estimates

- F108 In section 5.2 of its report⁴¹, Frontier Economics estimates how much of the demand at Stansted and Gatwick would switch to other UK airports as

⁴⁰ The Initial Views, paragraph 3.132.

⁴¹ Source: http://www.caa.co.uk/docs/5/rpt-easyJet%20Competition%20Assessment%20Final%20Report_Abridged.pdf (accessed March

a result of a cost equivalent to 10 per cent of airport charges being added to the cost of accessing those airports. It does this by using the underlying allocation model of the DfT's forecasting methodology.

GAL's submissions regarding Frontier Economics' analysis

F109 GAL objected to the critical loss study conducted by Frontier on the basis that it did not use the competitive level as the initial price:

Critical loss analysis of competition in a market needs to take the competitive price level as the starting point Frontier erroneously assumes that current airport charges are the best proxy for the competitive price level – in GAL's view, the competitive price level is likely to be higher than the level of the current charge.⁴²

F110 GAL's arguments regarding the competitive price level are considered in appendix D. For the reasons explained there, the CAA considers that GAL prices used in the analysis are within a reasonable range of the competitive price benchmark for Gatwick.

F111 GAL also raised the following objections to the Frontier critical loss study:

- *Frontier errs in focussing exclusively on passenger sensitivity to price changes. This ignores the fact that "airline reactions to price increases may be substantially larger than implied by passenger price sensitivity alone".⁴³ Reasons for this include:*
 - *Some airline services may switch in their entirety to a rival London airport. The airport charge increase at Gatwick, and the response of marginal passengers to it, may be enough to "tip the balance" of profitability of operating at Gatwick compared to a rival;*
 - *Some airline services at Gatwick will simply become unprofitable and be withdrawn in their entirety;*
 - *Some airlines will relocate aircraft capacity currently allocated to Gatwick to routes at other airports in Europe; and*
 - *Some airlines will exert buyer power, acting strategically to discipline Gatwick's pricing.*

2013).

⁴² Source: GAL, [redacted].

⁴³ Source: GAL, [redacted].

- *Indeed, the interaction of passenger and airline switching amplifies the impact of passengers' switching as their switching undermines the economics of services, bringing forward switching or termination of airline services.*

F112 The evidence regarding airlines likely responses to a 5 to 10 per cent airport charge increase is discussed in appendix E. Overall, it suggests that airlines are most likely to absorb the cost increase in the short run (the period over which Frontier estimates passenger responses), potentially passing them through to passengers in higher airfares at a later stage. The CAA sets out its views of the limitations of Frontier's model estimates in paragraph F122. GAL also argued that Frontier's conclusions are difficult to reconcile with prior findings by the CAA and the CC.⁴⁴

F113 The issues considered and the analysis undertaken by the CC as part of its investigation into 'the effects of features of such market or markets for airport services in the United Kingdom as exist in connection with the supply of airport services by BAA'⁴⁵ is a different regulatory exercise to a market power assessment of a particular airport. With regards to passenger switching, the CC found that:

*...the evidence we have seen suggests significant substitutability of passenger demand between the BAA London airports, with significant overlaps between their catchment areas, although to an extent that varies between different categories of passenger: evidence that, in the absence of common ownership, there would be competition between them.*⁴⁶

F114 The CC's finding with regard to catchment areas is consistent with the analysis in section 1. However, the limitations of catchment area analysis are such that other factors and indicators of passenger marginality and substitution need to be considered.

F115 The CC also found that:

⁴⁴ Source: GAL, [3<].

⁴⁵ OFT, Terms of Reference for CC's BAA airports market investigation, available at: http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/inquiry/ref2007/airports/pdf/core_terms_of_reference.pdf.

⁴⁶ CC, BAA airports market investigation, p. 10, available at: http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/non-inquiry/rep_pub/reports/2009/fulltext/545.pdf.

The results of surveys carried out for the CAA and BAA also suggest that passengers regard BAA's three London airports as better alternatives for each other than non-BAA airports. As with our own survey for Scotland, the CAA's survey also indicated that relatively passenger sensitivity to fare increases (83 to 91 per cent of passengers not switching in response to a £5 increase in air fares, equivalent to an increase of approximately 50 to 100 per cent in airport charges).⁴⁷

- F116 In 2011, the CAA working paper on passengers' airport preferences suggested that 20 per cent of short-haul and 31 per cent of long-haul passengers might switch away in light of an increase in their cost of using the airport. However, for short-haul passengers the price increases in question were £5 for a one-way and £10 for a return airfare. These respectively represent an increase of approximately 63 and 126 per cent on 2011/12 airport charges⁴⁸. For long-haul passengers, the price increase in question of £50 represented 630 per cent on 2011/12 airport charges.⁴⁹
- F117 Neither of passenger survey results ask a comparable question to the critical question for a market power assessment; that is, the level of marginal passengers switching in light of a 5 to 10 per cent increase in airport charges. Those are likely to represent 1 – 2 per cent of the total airfare.
- F118 GAL argues that historic evidence on the impact of increases in airport charges does not provide reliable guidance because the evidence is affected by a number of factors which are specific to particular airports and their increases.⁵⁰ The CAA acknowledges that historic evidence of responses to increases in airport charges may be influenced by other contemporaneous factors.

Frontier Economics' estimates

- F119 According to the Frontier report, a 10 per cent increase in airport charges (76 pence at Gatwick) would lead to a reduction of 1.28 million passengers at Gatwick in 2010. This figure falls to 0.95 million when the model assumes that Heathrow and London City are capacity constrained.

⁴⁷ CC, BAA airports market investigation, paragraph 3.134 c, available at: http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/non-inquiry/rep_pub/reports/2009/fulltext/545.pdf.

⁴⁸ This uses the price cap of £7.946.

⁴⁹ Using £7.946 as price cap.

⁵⁰ Source: GAL, CAA review of airport competition: Comments on Frontier Economics' report by easyJet and RBB Economics report for Ryanair, Ref: Q5-050-LGW06, page 3.

F120 This implies an airport CED in the region of 0.3 to 0.4 for Gatwick for the unconstrained and constrained cases respectively, given the initial price used by Frontier of £7.60⁵¹ and the initial passenger number⁵² of 31.6 million.

F121 Figure F.21 shows where passengers who switch away from Gatwick would switch to under the two scenarios considered by the report.

Figure F.21: Impact of a 10 per cent increase in GAL's airport charge on passenger numbers (million passengers in 2010)

	Base Case	No Capacity available at Heathrow and London City
Gatwick	-1.28	-0.95
Stansted	0.51	0.55
Luton	0.14	0.16
Heathrow	0.40	0.00
London City	0.03	0.00
Out of London	0.19	0.24

Source: Frontier Economics

F122 The Initial Views stated that the modelled responsiveness of passengers appeared high, considering that a 10 per cent rise in the airport operator's revenues would only constitute a small proportion of passengers' total travel costs.⁵³ Nevertheless, there were a number of concerns with the modelling, which might suggest that the elasticity range derived from this analysis could be considered an underestimate. For example, this analysis uses the passenger allocation methodology of DfT's forecasting model and not the overall model, thus a price increase at an airport only generates passenger switching to other alternatives, rather than passengers choosing not to fly. Also, it is a one-year static analysis taking the existing route network at UK airports as given. It does not take into account capacity constraints except for the option of not allowing any switching to Heathrow and London City. Finally, it treats passenger

⁵¹ The price cap in 2010/11.

⁵² From Table 8 of Frontier Economics' report.

⁵³ Paragraph 3.134 of the Initial Views (Feb 2012), available at: <http://www.caa.co.uk/docs/5/GatwickMarketPowerAssessment.pdf> (accessed in March 2013).

demand using LCCs, charters and FSCs as separate categories, which limits the substitution possibilities.⁵⁴

CAA analysis

- F123 To take account of some of the drawbacks highlighted above⁵⁵, the CAA asked DfT to run its aviation forecasting model in a number of scenarios to simulate the effect of an airport charge increase at Gatwick. DfT provided the CAA with the outputs of the Central Case of its latest forecasts (August 2011⁵⁶) as well as the results of a run that tried to replicate an airport charge increase at Gatwick that was passed onto the customer in its entirety. Given the setup of the model, DfT advised that the best way to model a Gatwick price increase was to increase the surface access cost of using Gatwick. In fact, this approach is consistent with those adopted by Frontier Economics in their 2011 report and by HM Revenue and Customs (HMRC) in a 2012 report.⁵⁷
- F124 Figure F.22 shows that over a period of one year it is estimated that GAL would lose 6.4 per cent of its passengers if it were £1 more expensive to use Gatwick from 2014 from a base of £7. Over the five years between 2014 and 2018, it is estimated that Gatwick would lose 10 per cent of its total passengers over that period. This translates to a 14 per cent increase in airport charges that is fully passed through by airlines. The majority of those passengers would travel from Luton or Stansted instead. Over a period of just one year the amount of switching would be smaller: it would lose 6.4 per cent (2.1m) of its passengers.

⁵⁴ A full list of the concerns is given in paragraph 3.133 of the Initial views (Feb 2012) available at: <http://www.caa.co.uk/docs/5/GatwickMarketPowerAssessment.pdf> (accessed in March 2013).

⁵⁵ Namely, the use of the overall forecasting model and to gauge the size of dynamic effects of switching effects.

⁵⁶ <http://assets.dft.gov.uk/publications/uk-aviation-forecasts-2011/uk-aviation-forecasts.pdf>.

⁵⁷ The HMRC report aimed to understand the impacts of potential price changes resulting of the devolution of Air Passenger Duty to Scotland and Wales, as well as hypothetical APD increases at Heathrow and Gatwick. The report states that “the model is designed to capture the key inter-relationships between demand at different airports” but also acknowledges that “as with all models, it is a simplification of reality and can never capture the full complexity of the aviation sector.” This report is available at: <http://www.hmrc.gov.uk/research/report188.pdf> (accessed March 2013).

Figure F.22: Forecast passengers (million) using DfT's forecasting model

Period	2014				2014-2018			
	Base Case	Gatwick increases £1	Absolute Change	% Change	Base Case	Gatwick increases £1	Absolute Change	% Change
Heathrow	73	73	0.6	0.8	375	377	2.0	0.5
Gatwick	33	31	-2.1	-6.4	170	153	-17.0	-10.0
Stansted	19	20	0.7	3.7	100	105	5.3	5.3
Luton	9	10	0.4	3.8	49	55	5.2	10.5
London City	3	3	0.1	1.8	21	23	1.5	7.1
Southend	0	0	0.0	-0.1	1	1	0.0	0.9
Other Airports	93	93	0.3	0.4	495	497	1.5	0.3
Total	231	231	-0.1	-0.1	1212	1210	-1.6	-0.1

Source: CAA analysis of outputs of the DfT's Aviation Forecasting Model

F125 Using the results in Figure F.22 and assuming an initial airport charge of £7 (the approximate 2010 average aeronautical revenue per passenger for GAL in 2008 prices since the £1 increase is on that basis):

- The implied price elasticity of demand is 0.45 for a response over one year.
- The implied price elasticity of demand for a longer-run response (over 5 years) is 0.7.

F126 The estimates in Figure F.22 are based on a 14 per cent increase in airport charges. By assuming a constant elasticity of demand (CES), it is possible to derive an indicative actual loss estimate for a 10 per cent price increase, which would be more comparable to the critical loss estimate.⁵⁸ For the short run response over one year, a 10 per cent price increase with a price elasticity of demand of 0.45 would lead to around 1.485 million passengers switching away from Gatwick. For a 5 per cent price increase, the figure would be 742,500 passengers.

⁵⁸ This figure is sensitive to the assumption of demand elasticity. While it is possible that the elasticity of demand is linear and airport services are a normal goods, this would suggest that using the elasticities derived from a 14 per cent increase would be over-estimating the response to a 10 per cent price increase.

- F127 Estimating passenger switching over 5 years, a 10 per cent price increase with a price elasticity of demand of 0.7 would lead to approximately 11.9 million passengers switching away from Gatwick. For a 5 per cent price increase, the figure would be 5.95 million passengers.
- F128 Using this model to estimate the extent of passenger substitutability across airports is informative as the model attempts to reflect actual passenger behaviour based on survey data. However this model also has its limitations. In particular, although the model allows routes to be dropped and started at different airports, it does not explicitly model airline behaviour and how this might affect passenger switching. The model works with the underlying assumption that (route) supply will follow (passenger) demand. As a result, the model would be able to capture effectively the dynamics of passenger-led switching, which is an important determinant of the economic viability of a particular route. However, as airline-led switching is not directly modelled, the dynamics of this kind of switching are not captured. The CAA separately considers the effects of airline-led switching by analysing the likely type and scale of airline switching in appendix E for the relevant market.
- F129 In addition, the modelling approach outlined above assumes a full pass through of increased airport charges to passengers and no supply-side response from the airlines (i.e. airline route switching above that is induced by passenger-led switching).⁵⁹ Increases in airport charges are, however, not always passed through to passengers in the short-run in the form of rises in airfares. While this might occur in the longer term, there might also be some switching of marginal services by airlines. A lower airport charge increase by the airline would be expected to result in a lower elasticity, while a larger scale response of airlines would increase the elasticity estimates.⁶⁰ The CAA considers that, at an airport where there are periods of excess demand for airport operation services, the assumption of full pass through of airport price charge increases by airlines to passengers is unlikely to be reliable and this can result in a significant overestimate of the CED.

⁵⁹ This is a common assumption to modelling passenger switching.

⁶⁰ This assumes a linear demand curve, where point elasticities of demand can vary with the size of the price increase.

Frontier Economics (2007⁶¹): passengers' airport switching using easyJet booking data

- F130 Frontier used easyJet booking data for a sample of routes, where the routes were served by easyJet from more than one London airport, to construct an airport choice model for easyJet's passengers. Among other controls, the probability of passengers choosing an airport (where easyJet had a service) was modelled against the travel distance and the price of easyJet flights at each alternative airport.
- F131 The report stresses that the high travel time elasticities that were found suggest that passengers are unlikely to switch airports if they have to travel much longer to the alternative airport.
- F132 However, from the analysis in the report the CAA also found equally high fare elasticities of demand, which suggests that passengers are quite willing to substitute airports if the airfares at an airport increase.
- F133 Although not explicitly mentioned in the main part of the report, the confidential annex contains airfare elasticities of demand for 12 routes served out of Stansted, Luton and Gatwick by easyJet. Figure F.23 below summarises the fare elasticities found for each route.

Figure F.23: implied route own price elasticities of demand reported

	Implied Fare Elasticity of Demand		
	Stansted	Luton	Gatwick
Low (4th smallest elasticity)	[X]	[X]	[X]
Average excluding top 3 and bottom 3 elasticities	[X]	[X]	[X]
Median	[X]	[X]	[X]
Average (12 routes)	[X]	[X]	[X]
High (4th highest elasticity)	[X]	[X]	[X]

Source: CAA analysis of Annex 1 of Frontier's 2007 paper

⁶¹ Frontier Economics, The De-designation of Stansted Airport, October 2007 http://www.frontier-economics.com/_library/publications/Frontier%20paper%20-%20de-designation%20of%20Stansted%20airport%20Oct%202007.pdf (accessed March 2013).

F134 [~~✗~~].⁶²

F135 The main limitation of these estimates is that it only uses easyJet booking data. This restricts the switching options available to passengers. The elasticities are also computed on a route-by-route basis, which does not allow for route substitution.

CAA stated intentions passenger survey

F136 In November 2011, the CAA reported in one working paper⁶³ the results of a passenger survey conducted at some London airports. Short-haul passengers were asked whether they would switch to another airport or not travel if the cost of using the airport went up by £5 (one-way). Of those, 17 per cent of passengers at Stansted, 20 per cent of passengers at Gatwick and 10 per cent of passengers at Heathrow responded that they would no longer use that airport. In the case of Gatwick, assuming an airport charge in the region of £8, it translates into an implied CED of around 0.3.

F137 However, given the relatively small sample size and potential biases, the CAA considers that only an approximate CED can be derived from this analysis.

Stakeholders' views

F138 In its response to the Consultation, GAL reiterated its view that historic prices are below the competitive level.

F139 GAL considered that the CAA focused only on airport switching by passengers in response to a price change and that in doing so the CAA ignored the impact of a loss of passengers on the profitability of airlines' most marginal routes. The withdrawal of such routes could entail further significant passenger loss.

F140 GAL considered that the CAA's analysis ignored the fact that non-price elements such as quality of service, airport facilities and ambience, route availability and route frequency are all factors that determine passenger choice of airport.

F141 GAL also considered that the elasticity estimates in the CAA's analysis were imprecise, had methodological problems and were not significantly

⁶² This implied elasticity would increase if it was assumed that the airport charge represented a higher proportion of the ticket price.

⁶³ CAA, Passengers' airport preferences Results from the CAA Passenger Survey, Figure 12.
<http://www.caa.co.uk/docs/5/Passenger%20survey%20results%20-%20FINAL.pdf>.

below the critical elasticity estimates, which reduced the degree to which the CAA should be relying on this analysis to support its conclusion.

- F142 GAL noted that the CAA had not assessed the switching opportunities available to inbound passengers. GAL considered these passengers were more indifferent than UK residents on their preferences for London airports because they all travel to central London rather than outlying conurbations.
- F143 However, GAL agreed with the CAA that switching by passengers in response to an increase in aeronautical charges from the current regulated level would be constrained.⁶⁴ GAL also considered this was because there was unlikely to be any significant pass through of an increase in charges, as airlines do not price on a cost basis, but instead set fares in relation to underlying demand.
- F144 GAL considered that there was likely to be little change in airfares in response to an increase in airport charges from current regulated levels, given the situation of excess demand. Instead, an increase on airport charges would be likely to lead to a reduction in airline profitability.
- F145 As reported in paragraph F82 above, Compass Lexecon found that the highly elastic segments of demand were much bigger than the critical loss and concluded that the relevant market should be at least London-wide and that puts the claim that Gatwick has SMP in serious doubt. However, Compass Lexecon does not claim that all those price elastic segments of demand would switch in response to a SSNIP.
- F146 Compass Lexecon also considered that the most important issue for the competition assessment is not how passengers will react but how airlines will react. Compass Lexecon considers that airline price elasticity of demand is higher than passengers' price elasticity because airlines are able to reallocate their demand for airport services airports elsewhere to take advantage of more profitable opportunities, implying that passengers have a stronger preference for a more restricted set of airports. From this, it concludes that looking at the price elasticity of demand of passengers the CAA will have underestimated the likely response to an increase in airport charges.⁶⁵
- F147 easyJet supported the CAA's assessment that Gatwick's passenger base's elasticity (to airport charges) is likely to be very low, due to the

⁶⁴ GAL, Response from Gatwick Airport Limited, 26 July 2013 (paragraph 3.35).

⁶⁵ Compass Lexecon, The CAA report's market definition, 6 November 2013, p. 5.

gearing effect between airport charges and airfares (as airport charges are only a proportion of the airfare).

- F148 easyJet considered that the CAA may have been conservative in estimating this elasticity. easyJet would expect Gatwick's passenger price elasticity (to airport charges) to be below 0.25.

CAA's response

- F149 For the reasoning discussed in appendix D, the CAA considers that GAL's regulated price to be reasonably within the range that would be seen in a competitive market. On that basis, the CAA concludes that the Gatwick CED is below the critical elasticity of 0.66 to 0.77.
- F150 The CAA acknowledges that there is always some uncertainty involved in estimating an airport price elasticity of demand. The CAA acknowledges that airport service quality, route availability and route frequency can affect passengers' choice of airport. Airline switching is taken into account in appendix E. Using models such as NAPALM, specifically account for frequency choice and dynamic route development. In addition, the CAA notes that if passenger demand is unwilling to switch an airport, airlines will also be unwilling to move away as airlines are unlikely to leave large segments of passenger demand unserved, if there is a profitable way to serve it.
- F151 The analysis takes into account both inbound and outbound passengers. The catchment overlap analysis takes into account that most inbound passengers have a strong preference to access central London. The CAA also notes that the NAPALM model also take into account the inbound and outbound passenger demand and their preferences.
- F152 The CAA welcomes and concurs with GAL's view that passenger switching in response to an increase in airport charges from current regulated levels is likely to be small because of limited pass through.

Assessment of Gatwick's airport charge elasticity of demand

- F153 Based on the above methodologies, the CAA concludes that Gatwick CED is likely to be subject to a degree of uncertainty, as some research suggests that it can be above 0.5 whilst other research points to a CED as low as 0.2. Figure F.24 summarises the results described above and provides a brief description of each piece of analysis. The CAA also notes that airlines' ability to switch services in the face of airport charge increases is considered in appendix E.

Figure F.24: Summary table

	Gatwick Airport Elasticity	Brief Description
Frontier 2011 (using NAPALM)	~ 0.3 to 0.4	Passenger-led switching of passengers no dynamic effects
Full DfT forecasting runs (£1 increase in 2014)	~ 0.45 over 1 year and 0.7 over 5 years	Passenger-led switching of passengers and routes. The estimate of response over 1 year has no dynamic effects
[<]	[<]	[<]
Stated intentions passenger surveys	~ 0.3	20% of short-haul passengers at Gatwick say they would switch airport if it was £5 more expensive to fly from Gatwick (representing a 62 per cent increase in airport charges)

F154 All of the models used inevitably provide an imperfect representation of reality and each makes different assumptions that affect the results in one direction or the other. In reality many factors will affect the relevant/true Gatwick CED. On the available evidence, the CAA considers that a 0.3 to 0.5 range for a short-run response is reasonable for Gatwick passenger-led CED. These estimates are below the critical elasticity ranges of between 0.66 and 0.77. Therefore, the expected level of actual switching is not sufficient to make a SSNIP unprofitable. For the modelled passenger response over a period of five years, the estimated elasticity was 0.7.

Section 3: Conclusion on passenger switching competitive constraints

F155 This appendix has considered the likely characteristics of GAL's marginal passengers and analysed how likely they would be to switch away. Overall, passengers on domestic and short-haul routes appear to have more scope for switching away from Gatwick than passengers on long-haul services.

F156 The majority of Gatwick's passengers are holiday passengers, who are typically more likely to be cost-sensitive than business and VFR passengers and also less likely to prefer a specific destination. However,

only around 17 per cent of passengers giving cost as the reason for airport choice were travelling for holiday purposes. Indeed, route and frequency availability and third party decisions also appear to be common reasons why holiday passengers choose to fly from Gatwick.

F157 Furthermore, catchment area analysis suggests that a significant proportion of the airport's short-haul passengers are likely to be able to travel from at least two London airports.

F158 The CAA acknowledges the existence of airline competition for passenger demand that to some extent operates across London airports. Passengers appear to have a certain degree of airport choice in making their air travel purchasing decision.

F159 However, the scale of passenger switching is likely to be highly dependent on the pricing response of airlines to an increase in airport charges. Two factors are likely to considerably limit the scope of passenger switching:

- First, airport charges are at most approximately 20 per cent of an airline's operating costs, so a 10 per cent increase in airport charges would be at most a 2 per cent fare increase.
- Second, evidence suggests that some airlines price to what the passenger market will bear and compete on price with other airlines, rather than fully reflect their cost base. As a result, airlines are unlikely to pass through cost increases in the short run. This is likely to reduce the likelihood and scale of marginal passengers switching.

F160 In sections 2.2 and 2.3 respectively the CAA has presented the critical loss of passengers required to make a SSNIP unprofitable for GAL, and has estimated the likely scale of actual marginal passengers switching. Comparing the critical loss level of marginal passengers with the estimated levels of actual switching that would be likely to occur can indicate whether a 5 or 10 per cent price increase GAL is likely to be profitable. Figure F.25 shows critical and actual losses in terms of passengers and translates them into aircraft numbers. This shows that GAL is likely to be able to profitably sustain an increase in its airport charges, whether on a 5 or a 10 per cent basis.

Figure F.25: Comparison of critical loss and actual loss estimates

Ranges	5 per cent SSNIP	10 per cent SSNIP
Critical loss (mppa)	1.15-1.34	2.23-2.59
Estimated likely loss (mppa)	0.34-0.86	0.68-1.71

Source: CAA analysis

- F161 Based on the methodologies summarised in Table F.24, Gatwick CED is likely to be subject to a degree of uncertainty, with some research suggesting that it can be above 0.5 whilst other research points to as low as 0.2. Airlines' ability to switch services in the face of airport charge increases is considered in appendix E.
- F162 All of the models used inevitably provide an imperfect representation of reality and each makes different assumptions that affect the results in one direction or the other. On the available evidence, the CAA considers that a 0.3 to 0.5 range for a short-run response is reasonable for Gatwick passenger-led CED. These estimates are below the critical elasticity ranges of between 0.66 and 0.77.
- F163 Overall, the CAA considers that switching by marginal passengers as a short-run response to an increase in airport charges to airlines, as well as in the longer term, is unlikely to be sufficient to constrain GAL to the point of making a 5 to 10 per cent increase in airport charges unprofitable.