

Breaking Up BAA?

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Abstract**Competition and the London Airports: How Effective will it be?****Peter Forsyth****Hans-Martin Niemeier**

The breakup of the airports operator BAA is now likely, with a UK Competition Commission inquiry recommending it. The main interest concerns the prospects for competition between the major London airports, Heathrow, Gatwick and Stansted. If these airports were independent and competed strongly, the current price regulation of the airports might be able to be relaxed or removed. This would lead to the reduction or elimination of problems associated with this regulation, such as its poor or ambiguous incentives for quality and investment. Here we explore the scope for competition between the airports. We note that there are some aspects of competition which would emerge, and provide a spur for better performance. However the excess demand situation, and the difficulties in expanding capacity, are likely to limit the effectiveness of competition. Regulation will itself influence the ability of the airports to compete. Separating the airports is unlikely to result in strong enough competition to dispense with regulation, though it is likely spur some performance improvements. How well competition works will depend on how well the system is regulated.

Key words: BAA, Heathrow, Gatwick, Stansted, Price cap regulation, investment,

1 Introduction*

The performance of the London airports has long been controversial. The major airports, Heathrow, Gatwick and Stansted, all owned by BAA, have been criticised for providing inadequate capacity, being too crowded, offering poor quality of service, and having excessively high costs and charges. Criticism in the press has been longstanding (see the Economist, 1995). After several crises in recent years, with the takeover of BAA by Ferrovial in 2006 and culminating in the problems associated with the opening of Terminal 5, the performance of the London airports has become a live public policy issue. Breaking up BAA, and allowing competition between the London airports, is seen as either the primary way, or at least a major way in which improved performance of the airports can be stimulated (the Economist, 2008a and 2008b, reflects these views). BAA also owns three airports in Scotland, including Edinburgh and Glasgow airports, which may be able to compete. The UK Competition Commission has provisionally recommended BAA be required to sell two of its London Airports and either Edinburgh or Glasgow airport in Scotland (Competition Commission, 2008b). Its final report is expected in early 2009.

While BAA performance has been seen lately as being poor, there are several factors beyond its control which have impacted upon it. BAA is subject to regulation which influences the incentives it faces to invest and deliver on quality. Its ability to invest is constrained by environmental considerations, which have resulted in detailed planning procedures and explicit government intervention. Capacity at London's Heathrow and Gatwick airports is very tight, and this has resulted in congestion and lower quality services. BAA has not been free to invest where and when it wished. If the London airports are separated, it is probable that their ability to compete will continue to be limited by these factors. Thus the question arises of how effective competition between the airports will be, both in the short and long terms.

In this chapter, we concentrate on the competition issue. Separating the London airports involves more than this. Separation means ownership changes, and these could impact on performance. It also means that many advantages from coordinating investments between airports, by a common owner, would be lost (though as noted later, actual investment programs are very much influenced by regulators, planning controls and government policies).

The historical setting is obviously important to understand and evaluate the demand for breaking up BAA¹. Therefore we start with a historical overview of how BAA managed its efficiency

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¹ We focus on the break up of BAA's three London airports and do not evaluate the demand to separate the Scottish airports of BAA.

problems and how decisions concerning the regulatory framework and ownership were taken. In the next section we define more precisely the efficiency issues. Thereafter we focus on the following research questions:

- Does separation increase competition so much that regulation is not necessary? (Section 4)
- If regulation is still necessary, how effective is separation in promoting competition and does it increase efficiency (Section 5)?

Thereafter we summarize our results addressing the question what separation achieves and does not.

2 Background

The British Airports Authority was established in 1965 as the owner of the major London airports, Heathrow and Gatwick, and in addition Prestwick in Scotland (see Table 1). Later on it acquired Aberdeen, Edinburgh and Glasgow in Scotland. The airports were run as public utilities. The stated objective of BAA was to maximize social welfare. In 1972, like other public utilities, it ostensibly adopted the recommend pricing scheme of Long Run Marginal Cost Pricing (Little and McLeod, 1972). Efficient pricing is linked to the need to provide optimal capacity at the right time (Forsyth, 1972). From the 1970s onwards Heathrow, and later on Gatwick faced excess demand at certain hours a day. Peak pricing was strongly opposed by airlines (Toms, 1994), but according to Starkie and Thompson (1985) the level of charges was below long run marginal costs and the peak charges did not clear the market. As with other airports, slots were used to clear the market.

Table 1 Overview of regulatory milestones of BAA (about here, see end of paper)

Table 2 Passenger Numbers at London airports (millions) (about here, see end of paper)

In 1985 the Department of Transport announced its policy on capacity and ownership in its White Paper on Airport Policy and proposed privatisation of BAA as a group. Starkie and Thompson (1985) criticized this because the “disadvantages of divided ownership have been exaggerated” (Summary, point 10). They found hardly any empirical evidence for economies of scale in an airport system and no operational cost savings from common overhead costs (p.50 ff). They criticized the cross subsidization of Stansted as mainly due to providing excessive quality and thereby potentially distorting competition with Luton. The central message was that effective competition between separated airports was possible because “Stansted and Gatwick would compete for charter and long-haul discount fare traffic; Gatwick and Heathrow (and, if approved, the Dockland STOL-port) would compete in other sectors.” (Summary, 9) This competition should be combined with regulation as the break up “will not remove the need for continued

regulation.” *ibid*, 13 Regulators with separate ownership would be more effective as “divided ownership will generate alternative and competing sources of information.” (*ibid*) However the Government privatised BAA as a group for a price of £ 1.5 billion. Price cap regulation was established on 1 April 1987. The cap was based on the single till principle for each airport and on average revenues per passenger. Vickers and Yarrow (1988) were critical of privatisation and regulation because “privatisation of BAA was simply the transfer to private hands of a monopoly with valuable assets” (p 366), which will not “improve the economic efficiency of airport operations: it was primarily a financially designed operation designed to serve other objectives (p 366).

During the nineties the break up was discussed in 1991 by the Monopolies and Merger Commission (see Toms, 2004) and in 1996 by the House of Commons Transport Committee (1996) and in the end rejected. In 1999 the Government investigated again the issue, but concluded that a break up would not enhance competition because “the scope for such competition was currently constrained by the lack of unused capacity and the planning system which means that decisions on whether there should be substantial new airport infrastructure in South East will in practice be a matter of government.” (Department of Environment, Transport and the regions, 2000, par. 220).

Price cap regulation reduced the level of charges substantially (see below table 3) at the London airports. This was largely due to the single till principle, the duty free tax exemption and the very innovative non aviation strategy of BAA management led high revenues and profits which in turn raised the X-factor and lowered the level of charges. As excess demand is rationed by slot allocation it created substantial rents and slot a situation in which airport charges at Heathrow are lower than at other London airports which have less scarce capacity. The CAA made several attempts to suggest a pricing structure reflecting these scarcities, but BAA was reluctant to follow them given the opposition of airlines. In 2001 the CAA was preparing to deal with the investment in new terminal capacity. It found that historic accounting values of land were below the opportunity costs. The standard model with average accounting costs on a single till basis was inappropriate as it would lead to the greatest divergence of prices from their market clearing level and proposed a revised regulatory cost base on dual till basis. (CAA 2001 a) This move to the dual till principle was backed by study of Starkie and Yarrow (2000) on the advantages and disadvantages of the single till principle. The Competition Commission found the “arguments and current evidence for moving to the dual till ... not persuasive” (CAA, 2002a). In the end the CAA compromised with a price cap on a single till but with similar high charges as under a dual till (CAA, 2003, Hendriks and Andrew, 2004).

Table 3: Regulation X-factor (about here, see end of paper)

In 2006 two parallel events happened. In February Ferrovial, a Spanish construction and infrastructure company, announced to bid for BAA (Economist 2006a) and succeeded on Tuesday June 6th. BAA was sold about at £10.3 billion (Economist 2006b). In this process on 25 May 2006 the Office of Fair Trading announced its decision to start an inquiry in the market structure of the airport market, and informed the bidders that they might recommend a break up. The political mood had changed and the demands for a break up were gaining weight (Economist 2006c). As a result of a reference from the Office of Fair Trading, the Competition Commission commenced an investigation into breaking up BAA in London (Competition Commission, 2006). On August 20, 2008 the Competition Commission (2008b) recommended the break up and announced that it will inquire how the two the London airports might be sold and how regulation might be reformed.

3 Efficiency and Ownership of the London Airports

Efficiency and Distributional Aspects

The London airports are not regarded as particularly efficient providers of airport services, and there are several distinct aspects of efficiency which the introduction of competition, with or without deregulation or regulatory reform, might impact on. In addition, the distribution of the benefits from airport services will change with structural or regulatory change. Some key aspects of efficiency are:

Price levels. In some markets, price levels are often an important determinant of allocative efficiency – high prices create a deadweight loss. If price discrimination is present, this deadweight loss is lessened. In the case of the London airports, overall price levels for Heathrow and Gatwick are below market clearing levels, thus there is no deadweight loss arising from prices being too high. If the airports were deregulated, price levels could be much higher. However, airports are effective at distinguishing between users, and charge more to users with higher expected willingness to pay, through their passenger or weight related price schedules. Thus, while price levels will have a big impact on the distribution of the gains from airport service provision, they are not likely to have a significant impact on allocative efficiency.

Congestion and Slot Availability. The London airports are slot constrained, and the level of congestion, especially on the runway side, will be determined by the number of slots that are made available, along with other factors such as weather. There is an issue about whether the number of slots made available at the London airports is optimal (see Forsyth and Niemeier, 2008a). Slot availability is not something which emerges out of the competitive or price

regulatory processes – rather there is a separate regulatory process. Thus we do not discuss this here.

Provision of Service Quality. Choice of the service quality to provide is potentially an important quality issue for airports, and especially the London airports. It could be maintained, (and indeed the Competitive Commission (2008 a and b) makes the point strongly) that the BAA airports have provided too low a quality of service, and that users would be willing to pay for higher quality levels. Increasing quality requires the airports to incur higher operating costs and to invest more in facilities. It is well recognised that firms which are subject to price caps have an incentive to undersupply quality (Rovizzi and Thompson, 1992). The London airport regulator does recognise this, and offers incentives for increased quality, though whether these incentives have been set at the right level is an issue (see for example CAA 2001a). If the airports were separately owned, they might compete on quality (depending on the regulation to which they were subject), though whether this would be so, and the extent to which competition would solve the quality problem requires investigation.

Productive Efficiency. Two aspects of productive efficiency are relevant in the case of airports. Firstly, there is productive efficiency in operations, which deals with whether operating costs are being minimised. Secondly there is productive efficiency in the provision of capacity, which deals with whether the costs of additions to capacity are being minimised. There is some evidence that the operating costs of the London airports are relatively high (ATRS, 2008), and there are questions as to whether the costs of building new capacity have been minimised. Where competition is strong, firms are forced to be productively efficient, since those which are not will not be able to cover their costs. Thus whether separation of the London airports will lead to pressure for improved productive efficiency is a question worth investigating.

Price Structures and Capacity Utilisation. With facilities which are in high demand, the effectiveness with which existing facilities are used is an important efficiency issue. Price structures can have an impact on capacity utilisation. The current price structure at the London airports is one which embodies a high per passenger charge, with a low per movement charge. This is not one which would optimise utilisation. Runway capacity is in short supply at Heathrow and Gatwick, and till recently, terminal capacity at Heathrow has been very constrained. It may remain somewhat constrained for some time as old terminals are redeveloped. A higher per movement charge, coupled with a lower per passenger charge, would induce better utilisation of the airports, as long as there is some scope to handle the extra passengers. Price caps which are based on average revenue per passenger should give the airports an incentive to structure their charges so as to increase passenger numbers, by putting greater weight on movement charges (Forsyth and Niemeier, 2008b). It is possible that terminal constraints have prevented BAA from moving in this direction in the case of Heathrow, though terminals are not a constraint for Gatwick. Given the high premia that passengers are prepared to pay to use Heathrow and Gatwick airports, there are potential efficiency gains from increasing passenger numbers. In

addition, there can be some efficiency gains from introducing peak charges at Stansted. Competition between the airports might stimulate a move to more efficient price structures.

Optimisation of Commercial Revenues. It is desirable that the airports make effective use of their opportunities to generate commercial revenues (though to an extent, they may be exercising market power when maximising these). The form of regulation will affect incentives to pursue commercial revenues, with dual till regulation creating stronger incentives than the single till regulation which is currently in place (Starkie and Yarrow, 2000). Competition between airports has the potential to influence performance, especially through limiting the use of any market power the airports might possess.

Investment and Provision of Capacity. Airports are capital intensive facilities, and their efficiency depends critically of the level of capacity provided. With Heathrow and Gatwick both being subject to strong excess demand, there is evidence that capacity provided is too low. It is well recognised that a primary constraint on capacity provision at the London airports, as with other airports worldwide, has been the presence of environmental externalities which make expansion difficult, and the reliance on slow planning procedures. Nevertheless there is a question of whether the owners have a strong enough incentive to push for additions to capacity, and whether competition between them might strengthen this incentive.

Slot Allocation and Rents. Both Heathrow and Gatwick are currently slot constrained, and slot values for Heathrow are very high. One efficiency issue concerns the allocation of slots- the current system of allocation, though grandfathering, does not guarantee an efficient allocation, especially when secondary trading is not extensive. In addition, even if slots are allocated efficiently, they may be not being used efficiently- slot rents might be being dissipated through higher costs or inefficiency (Starkie, 1998). Airlines using the London airports gain very large slot rents, and it is not evident that these are all translated into higher profits. Dissipation of slot rents could be affected by regulation or competition between airports. Under deregulation, high airport prices would eliminate slot rents, since profit maximising airports would charge at least market clearing prices. Investment in additional capacity would lower, though not eliminate slot rents, thus minimising any efficiency losses from poor slot allocation or slot rent dissipation.

Distributional Aspects. The sharing of the gains from provision of airport services, as well as the size of these gains, will depend on price levels and structures, slot arrangements and the extent of provision of capacity. Distributional aspects may well influence public policy, which may not be directed solely towards maximisation of efficiency. In the London situation, regulation has sought to keep overall price levels close to cost or even below long run marginal costs, below market clearing levels, which in combination with the slot system, ensures that rents accrue to airlines rather than airports or their passengers. Differing competitive and regulatory arrangements will have implications for distribution, which need to be recognised, though there

is no attempt made here to distinguish between the relative desirability of different distributional outcomes.

Ownership and Incentives

Issues of ownership, per se, and the incentives associated with them, are not the primary focus of this chapter; however they are relevant for determining how competition works. An airport which does not seek to maximise profits will respond differently to competition than one which does seek profits.

The traditional approach to modelling private firm behaviour is to assume profit maximisation. BAA is a private firm which has recently been taken over, and thus the starting point would normally be to make this assumption. However, in the past, it has behaved in many instances in ways which appear contrary to this assumption. It has arguably cross subsidised the development of Stansted in the past, lessening its overall profits by doing so. It has shown reluctance to increase capacity; this may be because it believes investment will be blocked by planning controls, or it may be because it is a profit maximiser which is subject to a very cost based form of regulation. Nevertheless, one might expect a profit maximising airport company subject to excess demand to press harder for a regulatory environment under which it can profit from providing more capacity (Competition Commission, 2008b). It has been unwilling to allow other parties to build or operate terminals at its airports – a profit maximising firm would be open to the possibility since, if others can provide or operate terminal capacity more efficiently, it can add to profits by creaming off some of the rents. Finally, its attitude to the break-up question itself seems more consistent with a non profit maximising firm than a profit maximising firm. Break-up could well increase the profitability of the current BAA company- if BAA could secure more light handed regulation for itself if it were to agree to sell off some of the London airports once light handed regulation comes into effect, it could become a smaller, though more profitable firm. Perhaps BAA should be arguing that the London airports would be very competitive if separately owned, and thus there is no need for anything beyond light handed regulation (which would enable the airports to increase prices and profits, (as has happened in Australia and New Zealand) BAA seems to be opposing break – up no matter what the upside for it might be.

It is possible that the new owners are more focussed on profits than the previous management (though they have yet to demonstrate this). Separation of the London airports could result in some owners being more profit focussed than the current owners of BAA. This would influence their behaviour – they would be more aggressive towards opportunities, and would be more reluctant to give priority to investments which do not appear to be highly profitable, such as additional runway capacity at Stansted. If one or two of the owners of London airports were strongly profit oriented, this would put pressure on the others to sharpen their focus on profit.

For present purposes, we can identify the key stakeholders as travellers, airlines and the airports. In the current situation, two of the three BAA London airports have limited capacity and are subject to excess demand, which is rationed by slots. This means that passengers are paying a premium to use the two busy London airports, and the airlines are earning rents from their highly valuable slots. BAA is constrained by price regulation which limits its profitability. In this excess demand situation, it is the airlines which gain from price regulation- higher prices would increase BAA's profits at the expense of these of the airlines. Travellers would be unaffected.

The existence of excess demand rationed by slots has implications for the interests that different stakeholders have in policy options.

Consider first the quality issue. It is recognised that price capped firms have a weak incentive to either provide higher quality at a higher operating cost or as a result of investment. Regulators need to take this into account by offering higher prices in return for spending on quality. Airlines pay directly for the higher quality. They may gain directly, through cost savings. If it is the passengers who gain directly (e.g. through less crowded terminals), their willingness to pay to use the airport will increase, and airlines will be able to raise fares to capture this. If the quality improvements are efficient, in the sense that the airline cost savings or passenger gains are equal to or greater than the costs of providing the higher quality, the airlines will gain, since the benefits they enjoy from the higher quality are greater than the increase in price. If the quality improvements are not worth their expense, it will be the airlines that lose, since their cost savings or fares increases will be smaller than the increases in airport charges they face.

It is with investments in capacity that the slot system sets up divergent interests. If capacity and output is increased, fares will fall- passengers are unambiguous gainers from this. The airport could gain, depending on how it is regulated- if it faces a price cap which is above the cost of additional output made possible by investment, it will gain profits. Unless the starting point is capacity which is very seriously constrained, airlines will lose. At the limit, if investment is sufficient to eliminate excess capacity, they would lose all their slot rents (though this level of investment would be excessive if demand is not uniform over time). Airports and regulators determine capacity, and by limiting capacity, they are doing the airlines a service. Airlines themselves are too competitive to limit output and raise their fares, but if airport capacity is limited and there is excess demand, market clearing fares will be above airline costs.

If capacity is inadequate, investment to increase capacity will increase overall efficiency, and it will be to the interest of passengers. Airlines will be unambiguous losers from it, and airport owners may gain somewhat, though by how much depends on how they are regulated.

This poses a conundrum in interpreting public positions on London airport expansion. BAA, which should have an interest in expansion, appears relatively unwilling to press hard for it. This could be because it is not maximising profits, or could be because it sees itself as being

subjected to a very cost based form of regulation which gives it little scope to profit from handling more output. Airlines have been the most vocal in calling for expansion, even though this would not appear to be in their interest. It may be in the interests of some airlines to support expansion, especially those without large slot endowments. It is possible that airlines are simply saying what they are expected to say, for public relations purposes, or that they do not perceive the full implications of capacity expansion for their yields. If BAA is being reluctant to invest so as to protect the position of the airlines, why should it do this, given that it does not gain from this action? It could be that BAA is acquiescing in the inadequate capacity situation because, with excess demand, competition amongst the London airports is not going to be very effective, and thus the case for the breakup of BAA is weakened.

Slots also imply that airlines have an interest in opposing peak pricing, at airports with a peak problem, such as Gatwick and soon, Stansted. Airlines strongly oppose airport peak pricing – something which appears strange given their own extensive use of it. However, if slots are used to ration demand at the peak, a revenue neutral shift to peak pricing will raise prices at the peak, which the airlines will pay, and reduce prices at the off peak, which the airlines will be forced, by competition, to pass on to passengers. On balance, the airlines will lose. With full airports, such as Heathrow, peak pricing is irrelevant. However, if investment adds to capacity such that there is spare capacity in the off peak, the airlines would lose out from peak pricing. Hence it would be in their interest to oppose it, even though it would improve the utilisation of the airport.

4 Separation and Competition under Deregulation

If the London airports operate under separate ownership, the market will be oligopolistic. In some but not all respects, the airport market will resemble an airline route market with a few independent firms. In the short run, there will be excess demand for Heathrow and Gatwick, though Stansted will have free capacity for a time. Prices can be set at market clearing levels at the very least, and airlines' slot rents will be eliminated- most likely, they will be set higher, depending on the competitive strategies of the firms. With low demand elasticities, prices are likely to be much higher than at present, though below monopoly price levels. The airports will make use of their ability to price discriminate, though they may not have the same scope to do this as a monopoly. The airports will have the ability to charge more for a higher quality product, and so they will seek to provide the quality level that users are willing to pay for. If the airports are strongly profit oriented, they will keep their costs down. If they are not, they will have the scope to allow their costs to be higher than the feasible minimum- in short, productive inefficiency is a possibility. However, if one airport is achieving lower costs, and using lower charges to gain market share, this puts pressure on other airports to respond, though lowering

their own costs. However, if airports fear that high profits could provoke re regulation, they may not minimise costs.

In the long run, the airports will invest and this will increase capacity. However, since they are using their market power and keeping prices high and output down, they will invest less than the optimal level. It is unlikely that there will be free entry which would force the incumbents to reduce their prices. While, with three or four competitors, there could be strong competition, with excess capacity and price wars in the longer run, it is not likely that this will happen. They could also be tacitly collusive, restrict investment and keep prices and profits high.

In terms of efficiency, the outcome could be quite good. Prices are likely to be high, but the deadweight loss from this will be small, because the airports are able to use price discrimination effectively to minimise the loss of output when capacity is adequate. The airports will under invest unless strong competition breaks out between them. Oligopolistic airports should have a strong incentive to invest to provide quality, since they will be able to enjoy higher prices for higher quality service. If the owners are not highly profit oriented, productive efficiency is not guaranteed – the airports will have high prices which gives them scope to allow their costs to be excessive. They are not forced by their competitors to keep costs low. Excessive investment and too high a quality level are probably not much of a risk, as they could be in a regulated setting.

Thus, apart from the concerns about productive efficiency, a deregulated airport market could deliver well in terms of efficiency. However, it would lead to very substantial shifts in stakeholders' positions. Passengers will lose because of the higher prices. Airlines will lose from higher prices and from the elimination of their slot rents. In the short run, with limited capacity, the airports will gain much higher profits. These effects will be lessened in the long run if the airports compete and add to capacity. There is some chance of capacity and price wars, which would improve the position of the passengers at the expense of the airports, with the airlines being relatively unaffected.

Whether these distributional outcomes are acceptable is a matter for judgement. However governments have not been comfortable with industries with strong market power earning high profits, even when they are operating efficiently. Governments have been willing to regulate prices such that they deliver modest profits, even when this simply involves shifting rents from airports to airlines. Interestingly the Competitive Commission (2000b) does not recommend a full deregulation and recommends separate ownership under a regulatory regime.

5 Separation and Competition under Regulation

The incentives facing the London airports, to compete, keep costs down, deliver efficient levels of quality, and invest will all depend on the form of regulation they are subject to. For present purposes we distinguish between cost based regulation and incentive regulation, in the form of price caps. With cost based regulation there is rapid of adjustment of prices to costs – if costs fall, regulated prices also fall soon after. With price caps, the maximum allowable price that the airports can charge is set for a number of years, and the airports can keep any profits they make during the price period. With a pure form of price cap, the airport's costs would not be used during the setting of prices for the next price period – rather, prices would be set according to external benchmarks, which would give rise to the strongest incentives. In reality, regulators usually employ a hybrid form of regulation, relying on price caps for a period, but revising these so that prices are just sufficient to cover expected future costs in the new price period. In the discussion of the scope for airport competition below, we shall take a pure form of price cap as the basis, while recognising that actual price caps embody cost based elements.

It is also worth noting that different aspects of the regulatory task may make different reliance on cost based and price cap forms of regulation. In the short term price caps might be employed, and the regulator may pay little or no attention to the airports' operating costs. However, in the long run, the regulator may shift price caps up or down according to the expected actual cost of capacity expansion. The regulator may rely on the airports' own estimates of the cost of this expansion when setting the price caps. To this extent, the regulator may be employing an essentially cost based approach when it comes to investment, but a more incentive based approach when it comes to current costs. The airports would have a strong incentive to keep operating costs down, but would not face a strong incentive to keep the costs of capacity expansion as low as possible. The same regulator could be more cost based when it comes to investment than when it comes to current costs.

If regulation is closely based on costs, the incentive to compete between airports is likely to be quite weak. Firms compete if they think they can gain an advantage, through gaining more market share and adding to profits, if they cut prices, increase quality or invest in additional capacity. However, if profits are determined by the regulator, and there is little scope to add to profits by adding to output, there will be little point in competing. Firms which seek to maximise size rather than profit might compete, however, and firms which are subjected to close cost based regulation may transform themselves in to size maximisers given the constraints they face on adding to profits.

In the discussion below, it will be taken that regulation takes the form of a fairly pure price cap, since it is under this form of regulation that the possibility of competition becomes more real.

Competition in the Short and Long Run

For firms to have an incentive to compete, they need to be able to increase their profits by increasing their output. By selling more, with (at least, perceived) prices above marginal cost, profits are increased. As has been noted, this poses problems for airport competition in London in the short run. Runway capacity is fixed and fully or nearly fully used at Heathrow and Gatwick, and terminal capacity has been in short supply at Heathrow. While the opening of Terminal 5 at Heathrow has eased the constraint, the redevelopment of other terminals will take capacity out of the system, so that the increase in effective capacity will not be as great. Hence there is little point in the airports competing on price levels since, if they gain additional demand, they cannot handle it. The same would be true if they competed on quality- improved quality would be costly, but the airports would not be able to profit from it by handling greater output.

The one form of competition which seems feasible in the short run would be that based on price structures. As noted before, the capacity constrained airports are not making the best use of their price structures in optimising the use of their capacity. It is possible that separate airports will have a stronger incentive than at present to structure their prices so as to increase utilisation of their facilities. In particular, if Heathrow and Gatwick can handle more passengers, if not more flights, there will be pressure on them to reform their price structures. This possibility is recognised by the Competition Commission (2008b), though its comments appear optimistic, given the need for airlines to maintain frequency and the difficulties in increasing average aircraft size significantly in the short term.

In the long run, capacity can become greater, and the airports will have the scope to win traffic from one another through competing on price or quality. It would be unlikely that the London airports would have ample capacity throughout the whole day or year. Efficient investment in airport capacity implies that capacity will not be sufficient to handle demand all of the time- it will need to be rationed at some periods, in peak hours and peak seasons. Airports involve lumpy investments, so it is possible that there will be some years in which capacity is ample, followed by years in which capacity is short. Furthermore, as is well known in the London context, investment in airport capacity lags the growth of demand, because of environmental and planning factors. Thus, except after large additions to capacity have been made, airports at any point of time are likely to be partly capacity constrained, at peaks. They will be able to compete to attract traffic from one another to the off peak, though not the peak. The airports will also be able to compete in investing, so as to be the one which has the greatest scope to attract the peak traffic. They will be able to compete for the peak traffic, but once capacity has been sunk, the scope for competition will be over.

Competition through Price Structures in the Short Run

The price structures of the busy London airports do not optimise their utilisation (Forsyth and Niemeier, 2008). While there is a fixed element in the price schedule, charges are primarily per passenger based. This is in spite of runways being the critical constraint at Gatwick, and one of the two critical constraints at Heathrow. Before the recent addition to terminal capacity at Heathrow, the passenger constraint may have been binding, however, with additional capacity, this should not be the case (though terminal redevelopment will take away from effective capacity). British Airways will be able to handle more passengers in Terminal 5 once it is fully operational. Thus there are potential gains to be made from altering the price structure to encourage airlines to increase the number of passengers per aircraft (mainly though using larger aircraft). This can be encouraged by increasing the weight of the per flight component in the price schedule to be at least half the average charge (and, arguably more in the case of Gatwick). The Competition Commission sees “substantial scope for competition” (2008b, p. 244) by rebalancing the structure and increasing ratio of passengers per movement, but gives unfortunately only anecdotal evidence of airlines substituting larger aircraft as a reaction to relative price changes.

Granted that BAA is subject to a price cap which takes the form of average revenue per passenger, it already faces an incentive to increase passenger numbers by altering its price schedule. However, to some extent, the gains that one airport makes from encouraging more passengers are lost because some of these passengers switch from other BAA airports – the net gain to BAA in passengers and revenue is less than the net gain to any individual airport. This is moderated by the fact that per passenger charges, and possibly profit margins, at Heathrow are higher than other airports such as Stansted, and thus BAA gains from shifting passengers to Heathrow. In short, the incentive for airports to win more passengers by reforming their price structures will be considerably stronger if the airports are separated.

In the short to medium term, this could be the strongest positive for break up. BAA has had some incentive, and the discretion, to improve the utilisation of its airports by reforming its price schedules, however it has not been effective in exercising this discretion. As the values of slots at the London airports indicate, the premium that passengers are prepared to pay to use the airports, especially Heathrow, are high, and thus even a small gain in passengers per flight would produce a useful efficiency gain. At a premium of £10 per passenger (Forsyth and Niemeier, 2008a, based on £10m per slot pair), a 5% increase in passengers per flight at Heathrow would produce a gain of around £35 per annum. With recent slot prices of £25m per pair, this would rise to an efficiency gain of around £85-90m.

The Scope for Price Competition in the Long Run

In a situation where the regulator sets a price cap, price competition is feasible, though unlikely. An airport could reduce the price it charges below the level which it is permitted to charge. This would be worthwhile if the price reduction increases profits (with other airports maintaining price, the price reduction will have to increase the airport's output by enough such that the additional profit on the output increase outweighs the cost of the price reduction). If there were identical airports, and infinitesimally small price reductions would result in the price cutting airport gaining the whole market, and this could result in higher profits, at least temporarily. However the London airports are far from identical and the response to a price cut by one would not be so dramatic - with a smaller quantity response, the likelihood of a profitable price cut is lower. In the past, Stansted airport has sometimes charged less than it has been permitted to do so given the price cap- it has done this because it has ample capacity and it has been able to win traffic from other airports in the region, such as Luton by doing this. It may not choose to act in this way if and when demand pushes against capacity.

Even if price cutting is temporarily profitable, it does not follow that this strategy is profitable in the longer run. Airports would be well aware of the longer term implications of their actions, and would seek to avoid price wars. They are players in a repeated game, and should find it relatively easy to maintain prices at the regulated level. This will be more the case granted that airport capacity will normally be constrained, at least at the peak.

If the price competition scenario is considered likely, then it would not be necessary to impose price regulation. Airports are unable to keep prices high, and one might as well deregulate them. Thus, if it is considered necessary to regulate the airports to keep prices down to an acceptable level, then it is also implicitly the case that price competition is unlikely.

Competition and Quality in the Long Run

An airport can compete and increase output by offering a higher quality at a constant price. Quality competition is similar to price competition- the gain in profits from the increased output has to be balanced against the cost of the increased quality. In principle, competition could result in a quality war, with quality being bid up to the extent that costs equalled the regulated price. Depending on the price that is set by the regulator, this could lead to excessive or inadequate quality. Again, the likelihood of such strong competition in an oligopolistic setting, with fixed capacity in the short run, is not very great. If this outcome were regarded as a real possibility, it would be preferable to deregulate the airports. This would result in prices being competed down to a feasible minimum, and competition would also result in the optimal, rather than regulated level, of quality being supplied.

There is a well recognised problem of price capped firms not having an incentive to supply the right quality. Profits are higher if they cut quality and thereby cut costs. Suppose a quality improvement which users are willing to pay for. The firm's demand curve shifts upwards.

However, with price being regulated, the firm can gain only a small share of the overall welfare improvement. In Fig 1, the firm faces a regulated price of P , and its average costs are c_1 . If it offers a higher quality level, its costs rise to c_2 . This results in a demand shift from D_1 to D_2 . The firm's output increases from X_1 to X_2 . The gain from this is small relative to the cost of supplying the higher quality, and thus it does not offer the higher quality. This is an inefficient outcome, since the upward shift in willingness to pay exceeds the upward shift in costs- users would be willing to pay for the quality improvement.

Fig 1 Price and Quality (about here, see end of paper)

Introducing competition between the airports will give them a stronger incentive to supply higher quality. If BAA is an integrated company, it can increase its output through offering higher quality by increasing the use which its existing passengers make of its airports, and by winning passengers from other, non BAA airports in the region. However, if the airports are separated, an individual airport, such as Gatwick, can also attract traffic from the other ex BAA airports, Heathrow and Stansted. The demand curve for the individual airports will be more elastic than that for BAA London airports as a whole. A quality improvement will induce the individual airport's demand curve to shift from D_3 to D_4 . The output increase is greater, as is the impact on profit. It will still be the case that supplying higher quality will normally be unprofitable for the airport, however, the incentive to increase quality is less weak than before. If quality improvements are highly valued by users, and if they are cheap to supply (i.e. quality has been seriously undersupplied in the past), an airport may find it profitable to supply the higher quality. Ultimately, for the airport to increase quality, it will need to be given an incentive by the regulator to do so, through the regulator allowing a higher price conditional on the higher quality.

In summary, separating the airports will give them a stronger incentive to supply quality, but this incentive is still quite weak, and it will still be necessary to adapt regulation so as to create stronger incentives to supply quality. As with price competition, quality competition between the airports will not be very strong in a regulated setting, and if price competition is not regarded as strong enough to enable regulation to be dispensed with, the existence of quality competition will not alter this judgement.

Productive Efficiency and Yardstick Competition in the Long Run

If airports are subject to price caps they will have the incentive to be productively efficient, but they will have some scope to be productively inefficient, and allow costs to rise to the level of the price cap. Separation, per se, will not change this. If one airport is more productively

efficient, it will enjoy higher profits. Unlike the situation of unregulated competition, this will not necessarily put any pressure on other airports to perform better. However, if the regulator employs yardstick regulation, lower costs of one airport could induce the regulator to set lower price caps for the other airports. This would put pressure on them to increase their productive efficiency. Separation of the London airports is not necessary for yardstick regulation, since the airports can already be benchmarked against airports in other countries. In practice, regulators have found it difficult to implement yardstick regulation, but separation does give them more options.

Competition in Capacity Provision in the Long Run

Investment in capacity enables airports to increase their output. If the regulated price cap is above the incremental cost of output, a profit maximising airport will invest. As with the incentives to make more effective use of existing capacity, a profit maximising airport will find it worthwhile to invest whether or not it faces competition from other airports. However separation will increase the market open to the firm, since separated airports will be able to win traffic from one another. Underinvestment also leads to the risk that an airport will lose some of its market if the airports are separated. Thus if anything, separated airports will have a stronger incentive to invest in additional capacity than horizontally integrated airports.

As noted above, the existence of spare capacity is needed for strong competition. It is significant that all of the examples of airport competition noted by the Competition Commission (2008b) involved smaller airports with spare capacity. If the London airports were not subject to constraints on capacity expansion, there would be periods of spare capacity and periods of tight capacity. Efficient capacity expansion in a context of indivisibilities would give rise to this pattern. However, environmental sensitivities are not likely to go away, and airports are not likely to have a free hand in investing. This will result in less rather than more investment, and thus will increase the duration of periods of inadequate capacity, and of periods in which competition is limited. Better environmental regulation, under which airports are faced with more effective pricing of the externalities they generate, could result in fewer hold ups of capacity expansion, and thus more scope for competition.

Separation, under well designed regulation, will make the airports keener to increase output, and to invest to enable this to happen, than single ownership. Airports have an incentive to press more strongly against planning constraints, and to seek out smaller, less constrained investments, which can make short to medium term increases in capacity and output feasible. It is not likely that separation would result in capacity wars and excess capacity in London, in a context where regulation and planning controls are likely to continue to have a major influence on the amount of investment incapacity which is undertaken.

The Role of Regulation

Since competition is unlikely to be seen as strong enough to dispense with regulation, the airports will be competing in an environment of regulation. This regulation will affect their ability to compete. Price regulation will often rule out price competition, and it will make it difficult for airports to compete on quality, since they will not be able to increase prices to cover the cost of quality improvements which users are willing to pay for. Regulation also is a key determinant of investment, and thus the availability of capacity in the future which the airports will need to have to compete. Most price regulation focuses on monopolies, rather than capacity constrained oligopolies. Facilitating competition in this environment poses now problems for regulators.

Since increased competition can only make a modest contribution to improving performance, much of the task will fall on improved regulation. This has been recognised, though it is not clear what the difficulties in designing such regulation have been. Getting regulation right in complex utilities such as airports is very difficult. The Competition Commission (2008b) plans to review current regulation. However, the list of points to be reviewed such as “change of control provisions and conditions for revoking the licence, more powers to intervene between quinquennial reviews, a greater role in facilitating agreement between BAA and airlines on service and investment” does not seem to address the real issues of incentive regulation. Intervening in the price cap period contradicts the principle of price cap regulation and might lead to gaming. The CAA (2002a) had proposed a number of substantive measures to reform regulation, such as different price path conditional on investment, a dual till approach, separated price caps and benchmarking. These were all dismissed by the Competition Commission (2002). The peculiarity of rival regulators with different approaches has not only been criticised by the regulated firm (Toms, 2004) and does tend to make regulation more costly and less reliable (Hendricks and Andrew, 2004)

6 Conclusions: How Effective will Competition be?

In this paper we have explored the ways in which breaking up BAA, to enable separate ownership of the London airports to allow competition between them, can impact on their performance. Separation will give rise to the scope for more competition between the airports in the long run, especially if they are permitted to invest as they wish and choose their output

levels. However, environmental and planning controls will restrain investment and the scope for competition. In addition, efficient capacity expansion would lead to only occasional periods of spare capacity, and hence the scope for strong competition.

Separation with deregulation would lead to a tight oligopoly market, and the most likely consequence would be desirable from a pure efficiency perspective, but airport prices and profits would be very high. Granted past public policy preferences, this would not be acceptable and price regulation would be seen as necessary. This regulation will impact significantly on how completion works – regulation, in itself, lessens the ability of the airports to compete.

Separation is likely to lead to competition in several dimensions:

- The only real form of competition in the short run is likely to be competition in price structures, which can increase the utilisation of the airports' fixed capacity;
- Price competition is unlikely under price caps, even in the long run;
- Quality competition is likely to be weak in the long run, but it is likely to be slightly stronger under separate rather than single ownership;
- Under separation, the airports will have a stronger incentive to invest in additional capacity, though they will still be under significant constraints, and the form of regulation will have a major influence on investment choices.

Thus, overall, separation can have some positive impacts on performance through opening up the possibility of competition, even though this competition will not be strong, especially in the short run. These benefits need to be compared to any costs in breaking up the single owner, BAA—these costs have not been considered here. For this competition to be effective, regulation will need to be very well designed, since cost based regulation will dampen or eliminate the pressures discussed here. While separation will enable some competition and will encourage some improvement in performance, it is not the magic bullet that many commentators believe it is.

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Table 1 Overview of regulatory mile stones of BAA

Year	Major Events
1965	Airports Act sets up British Airport Authority with Heathrow, Gatwick Stansted and Prestwick
1971 and 1975	Acquires Edinburgh, Aberdeen and Glasgow
1972	BAA applies Long Run Marginal Cost Pricing with peak pricing
1977	Government establishes traffic distribution rules
1983	Memorandum of Understanding between US and UK on airport user charges with single till principle
1985	Department of Transport White Paper on Airport Policy on capacity, ownership and regulation
1985	Study of Starkie and Thomson on privatising London's airports recommends a break up
1986	Airports Act announcing the sale of BAA as a single entity in 1987
1987	BAA plc was floated.
1991	Traffic distribution rules are abolished
1991	The Monopolies and Mergers Commission rejected a break up
1996	Transport Committee recommends to separate Heathrow from Gatwick and Stansted but the Government prefers joint ownership
1999	Government investigation rejects break up
2002	CAA recommends move to dual till and investment incentive mechanism but Competitive Commission disagrees. In the end the single till prevails and price-caps are adjusted for cost of capital expenditure
2003	White paper "The Future of Aviation" proposed a second runway at Stansted (2011/12) and a third runway at Heathrow(2015-20) under environmental standards or if these are not met a second runway at Gatwick (after 2019)
2006	Office of Fair Trading inquires whether the market structure works well for the consumer.
2006	Ferrovial buys BAA
2007	Competition Commission starts investigation into the break up of BAA
2008	Terminal 5 starts operating and causing substantial delays
2008	Competition Commission recommends break up of BAA

Sources: Graham, House of Commons Transport Committee, Starkie and Thompson, Toms, Vickers and Yarrow,

Table 2 Passenger Numbers at London airports (millions)

	1987	1990	2000	2005	2007
Heathrow	34.7	42.6	64,3	67.7	67,8
Gatwick	19.4	21.0	31.9	32.7	35,1
Stansted	0.7	1.2	11.9	22	23,8
Luton	2.6	2,7	6,2	9,1	9,9
Manchester	8.6	10.1	18.4	22.1	21,9
All airports (UK)	80.5	102.4	179,9	228,2	240,7

Source: CAA

Table 3: Regulation X-factor

Airport	X-value						
	1987- 1991	1992 -1993	1994	1995-1996	1997-2002	2003-2008	2009 - 2013
Heathrow	1	8	4	1	3	-6.5	-7.5*
Gatwick	1	8	4	1	3	0	-2*
Stansted	1	8	4	1	-1	0	

Source: Graham (2006), CAA

Additionally the base of the price cap was raised.

Fig 1 Price and Quality

