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Airport economic regulation and capital investment: lessons from the United Kingdom experience

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Abstract

The paper explores the relationship between airport economic regulation and capital investment incentives with specific reference to the United Kingdom experience. It is shown that little evidence can be found of under-investment at those airports subject to price-cap regulation. Indeed, several examples were found which shows that there may have been a tendency to over-investment at various price-capped airports. UK competition authorities believe that there has been reluctance on the part of BAA to expand capacity and appear to be pressing for competition between London airports to alleviate the problem. The paper argues that expanded capacity is more likely if BAA retains its control of the three main London airports. Also, given that the process of economic regulation has become more complicated and costly, it is recommended that price-cap regulation is replaced by a more light-handed approach (prices surveillance or reserve power regulation).

Introduction

In 2003, the UK Government published a white paper on the future development of airports [1]. This document presented options for each region on the scale and location of airport investment needed to meet future air passenger demand. One important recommendation was that additional runway capacity was needed in the London area. The Government recommended that two new runways should be built; one at Heathrow and one at Stansted.

Twenty years ago, the government started the process of privatising UK airports. The 1986 Airports Act transferred the British Airports Authority from state to private ownership and required most local authority-owned airports to be managed by commercially-orientated limited companies [2]. The Act effectively initiated the transfer of airport investment decision-making from the public to private sector. The Act also subjected four airports (Heathrow, Gatwick, Stansted and Manchester) to price cap regulation of their aeronautical charges. The use of price-cap regulation was intended to protect the interests of airlines against potential abuse of market power by the airport companies and to encourage greater efficiency in their operations and investment. Since 1987, the UK regulator, which is the Civil Aviation Authority (CAA), has had to strike a balance between a requirement to protect airline interests on the one hand with, on the other hand, the need allow airports to earn sustainable rate of return which provides a sufficient incentive for timely investment in additional capacity. The aim of this paper is to investigate what

[1] Department for Transport (2003)
[2] Most of these regional airports were either fully or partially privatised (e.g. Birmingham, East Midlands, Newcastle etc). Manchester Airport is the only airport of significant size in the UK to be still fully owned by a local authority.

effects economic regulation has had on airport capital investment in the UK and to identify some implications from this experience for future regulatory policy.

Prior to privatisation in 1987, the government needed to decide whether to sell the BAA as a group or as individual airports. BAA directors had managed to persuade the government not to break-up the company arguing that the scope for competition between airports was limited and that separate ownership would have complicated the application of traffic distribution rules which regulated the type of air services that could be accommodated by each London airport (Starkie, 2001). Because of the decision to sell BAA as a single entity, the government needed to establish a system of economic regulation to prevent the company from potentially abusing its dominance of the London airport market [3]. Examples of monopolistic abuse include setting excessively high user charges, reducing the quality of services to airlines and passengers, engaging in exaggerated investment programmes and passing on the costs to airlines, or withholding investment in order to secure higher rates of return.

The method of economic regulation that was adopted had been previously tested on privatised public utility companies operating in the electricity, telecommunications and water industries. Under this system of incentive–based price-cap regulation, BAA and Manchester airports were permitted to adjust their aeronautical charges so that in each year the projected increase in average aeronautical revenue per passenger did not exceed the forecast inflation rate (RPI) minus a factor *X*. The scope of the price-cap was limited to aeronautical charges because it is in the supply and pricing of aeronautical services where the airport is deemed to have the potential to exert market power. Only the three BAA London airports were subject to price cap regulation - Aberdeen Edinburgh and Glasgow were excluded. Nonetheless BAA decided to apply a voluntary *RPI*-3 to aeronautical revenue generated at its Scottish airports following privatisation. The *RPI-X* formula, which was to be reviewed every five years (one control period), incentivises the airport operator to become more efficient while at the same time ensuring that it is able to generate a reasonable rate of return. In fixing the value of *X* for the forthcoming control period, the regulator takes into account efficiency gains that the airport would be expected to achieve, anticipated revenue from non-aeronautical activities (e.g. retail), the allowed rate of return, planned capital investment and forecast traffic and operating costs. According to Starkie (2005), this approach is regarded as providing strong incentives for improved efficiency since the airport operator is able to generate higher than expected profits from cost savings not anticipated when setting *X*. The opportunity to outperform the price cap assessment over the control period provides the incentive to minimise costs. A high positive *X* (i.e. *RPI-X* leading to lower real charges) might indicate that the regulated airport revealed substantial cost savings in the previous control period or it may indicate that the regulator expects there to be considerable scope for further efficiency improvements in the following control period. A high negative *X* (i.e. RPI+X, allowing a real charge increase) is an indication that the regulator might be placing more emphasis on the regulated airport's planned investment programme (Hendriks and Andrew, 2004).

[3] At that time, the non-BAA London airports of Luton and City had an insignificant share of the market.

Another important feature of the system of airport economic regulation in the UK was the requirement on BAA to maintain the single-till system as the basis for setting aeronautical charges. Under the single-till, aeronautical charges are set to recover the airport's net operating and capital costs after deducting revenues from non-aeronautical activities (i.e. retail, car parks). In other words, revenues from retail operations are used to cross-subsidise low aeronautical charges. Not surprisingly the single-till system has strong support in the airline industry. The dual-till, in contrast, is where aeronautical charges are set to recover aeronautical operating and capital costs. Given that aeronautical operating and capital costs can account for in excess of 50% of an airport's total costs, user charges would be expected to be much higher than under a single-till system. It is because of this that airlines have been opposed to the adoption of dual-till pricing.

Economic regulation and investment incentives

At some stage in an airport's long-term development, large scale capital investment projects designed to expand capacity will need to be undertaken, for example, the construction of a new runway or passenger terminal. Assuming that airport directors are rational and driven by profit maximising goals only, the decision on whether to proceed with such large scale developments would be based primarily on commercial judgement. Commercial judgement is critical in that large projects can represent significant sunk and irreversible financial commitments. For example, should traffic forecasts used to justify a second runway fail to materialise, there will be few alternative uses for this sunk investment and the airport operator will be left with a costly and under-utilised asset. How is investment treated under different models of ownership?

Helm and Thompson (1991) cite the problem of infrastructure over-investment under public ownership. For example, if an airport is publically owned it is possible that the managers (agents) and the shareholder (principal) could hold very divergent views on an airport's capital investment requirements. Take the example of a publically-owned airport considering whether to extend its main runway. Their ambitions are driven by the prospect of enabling the airport to accommodate long-haul aircraft operations thereby improving connectivity to important overseas destinations. The managers' investment appraisal may conclude that a runway extension is not commercially viable because the estimated marginal capital and operating costs would exceed the benefits in terms of the incremental revenues generated from new long-haul services. On the other hand, the public shareholder could take a different view and instruct the managers to proceed with the investment on the basis that there are significant wider social and economic benefits to extending the runway as this has the potential to improve the region's accessibility to world markets.

In contrast, a privately–owned airport, subject to economic regulation, may operate differently. Helm and Thompson (1991) identify what is commonly referred to as a "hold-up" problem in an environment where the regulated entity is subject to *RPI-X* price cap regulation. For example, the airport may invest during the control period at levels below that planned at the regulatory review.

This would have had the effect of increasing the rate of return to the regulated airport over the control period. The "hold-up" problem is particularly relevant in the case of long-term investments that are both sunk and irreversible in nature where there are is a considerable divergence between the life of the asset (e.g. 30 years for a terminal) and the typical length of a regulatory control period (5 years). Furthermore, there may be a temptation on the part of the airport to engage in acts of strategic manipulation or gaming. This is achieved through lowering investment below planned levels in the hope that there is a relaxation in the price-cap to be applied for the forthcoming control period. However, as pointed out by Starkie (2004), the regulator may react to strategic manipulation by adjusting the value of *X* against the commercial interests of the regulated airport at the forthcoming review. This is because the regulator, as well as projecting forward into the next control period, may decide that an excessive rate of return achieved through under-investment was secured by the airport during the previous control period. However, having said all of this, there may appear to be stronger arguments in favour of the view that an airport may exaggerate its planned investment during the regulatory review. This is likely to occur where the regulator is committing a disproportionate level of attention on the regulatory asset base and the rate of return in the determination of *X*. If this is the case, the airport would be incentivised at the review to confidently expand its asset base with a high probability that *X* will be set to ensure that it receives an adequate rate of return over the control period. The result is higher charges and inflated profits. The application of *RPI-X* regulation could therefore lead to the same dysfunctional effects as rate of return regulation (Averch-Johnston effects [4]). The problem is compounded by the presence of information asymmetries between the regulator and regulated entity. Regulators in most cases will not possess sufficient knowledge of the airport's cost function to validate or challenge proposed capital investment plans. But why would an airport engage in exaggerating the expansion of its asset base in the first place? Starkie (2006) offers two explanations. Firstly, he believes that while under-investment may increase the rate of return, it is also a strategy associated with many risks. Under-investment could lead to increased queuing and congestion which would have adverse implications for the quality of service in airports experienced by both passengers and airlines. Such an outcome would damage the reputation of the airport probably leading to conflict with airlines and the risk of more intrusive regulation in the future. Airport managers may prefer the comforts of over-investment to the future risks, uncertainties and dangers associated with under-investment. Secondly, Starkie refers to what appears to be a culture of expansionism amongst airport directors where their ambitions to manage larger organisations would lead them to over-expand assets. There may be some truth to this assertion although there is very little supporting evidence in the literature. At best, one would need to refer to anecdotal evidence such as the numerous airport websites and annual reports that boast of ambitious projects frequently citing the amounts of spending involved. "Gold-plating", in the airport context has been recognised as a fairly significant problem, particularly amongst airlines. This is where newly constructed assets have either been excessively decorated or have been designed to deliver a level of service and functionality in excess of that

[4] The Averch-Johnston effect applies where a regulated monopoly subject to rate of return regulation engages in an excessive expansion of its asset base in order to increase the magnitude of its profits.

demanded by users. Barrett (2004) argues that gold-plating has been a particularly common charge levelled by low cost airlines against airports. IATA (2005) also highlights the problem of airports "gold-plating their assets" where Toronto Pearson Airport in Canada is cited as one specific example. "Gold-plating" can occur at different phases of the development process. At the design phase of a project, airport architects, incentivised by the prospects of gaining prestigious awards, are granted the creative latitude by airport directors to design ostentatious terminal facilities with very little reference to cost efficiency or commercial imperatives. Payment mechanisms linked to the value of the project, known to exit in some quarters of the industry will excacerbate this problem. In these circumstances, airport directors may be driven by a desire to create and showcase decorated airport facilities that a generate a poor financial return and can only be remunerated through passing on excess costs as higher charges to airlines. Because of information asymmetries it can be difficult for regulators to detect gold-plating without more intrusive surveillance of the airport's activities.

The confused signals emanating from price-capped charges that are economically inefficient can also potentially lead to over-investment in airport facilities. It is for this reason that long-run marginal cost pricing has long been advocated for capital intensive industries (Doganis, 1992). If charges paid by existing airlines are based on the costs of providing extra capacity in the long-term, airport managers will be able to determine how much true demand there is for using the additional capacity and whether the new investment can be financially remunerated. In this context there is a role for peak-period pricing since new capacity is always driven by peak-period users. For example, consider the case of an airport seeking to build a second runway. Airlines operating during peak periods would be charged fees based on long-run marginal cost of building the second runway. Those airlines who did not value access to the peak period as highly as the long-run marginal costs of producing the additional capacity would switch to operating at an off-peak time as the charge would be substantially lower, probably based on the short-run marginal costs of operating during the off-peak period. However, those airlines who value operating during the peak period at least as highly as the long-run marginal costs of building a second runway would continue to operate during the peak. This would provide the necessary signals for whether to proceed with the new investment or not.

The role of pricing in improving investment incentives can also be considered in the context of the relative efficiencies of both single and dual-till charging systems. The Dual-till approach is known to have superior incentive properties to the single-till. Oum et al (2004), for example, provides evidence that under a price-capped environment, the scale of under-investment is much less where charges are based on the dual as opposed to single-till principle. Investment incentives are more effective if the airport is allowed to earn a rate of return on its aeronautical assets without any reference to non-aeronautical revenues. Starkie (2001) argues that there is much to be gained from removing the single-till approach and replacing it with a dual-till framework.

The UK experience

RPI-X

Since 1987, BAA and Manchester Airport have been subjected to 4 price control periods. In 2008, the CAA set a series of price controls for the fifth period (2008-13) and at the same time decided to de-designate Manchester airport from price-cap regulation altogether. In the first control period between 1987 and 1992 the three BAA London airports were subject to the same *RPI-1* price cap for each year within the control period. In the second control period (1992-1997), the CAA limited the increase in aeronautical revenue to *RPI-8* in the first two years, *RPI-4* in year 3 and *RPI-3* in the last two years. In the 1998-2003 period, there was a separation in the price caps applied to Stansted. Stansted's cap was set at *RPI+1* while the CAA subjected both Heathrow and Gatwick to *RPI-3* for the entire period. There was a significant shift in emphasis for the fourth review period (2003-2008) where, because of the scale of investment proposed by BAA (Terminal 5), the price-cap was set at *RPI+6.5* for Heathrow and *RPI-0* for both Gatwick and Stansted for the entire period. In the early period shortly after privatisation, investment requirements were comparatively low, BAA had completed new terminals for both Gatwick (North Terminal) and Heathrow (Terminal 4) just prior to privatisation. Although both airports appeared to be operating close to full capacity at that time in terms of runway utilisation, Stansted was handling traffic significantly below its planned capacity so the urgency for additional runway capacity in the South East at that time appeared much less pressing than in 2008. Indeed, while the price-cap for Stansted appeared to be more relaxed than at the other airports post-1998, competition from Luton Airport ensured that aeronautical charges at Stansted were set to generate revenue at a level below the *RPI+1* limit.

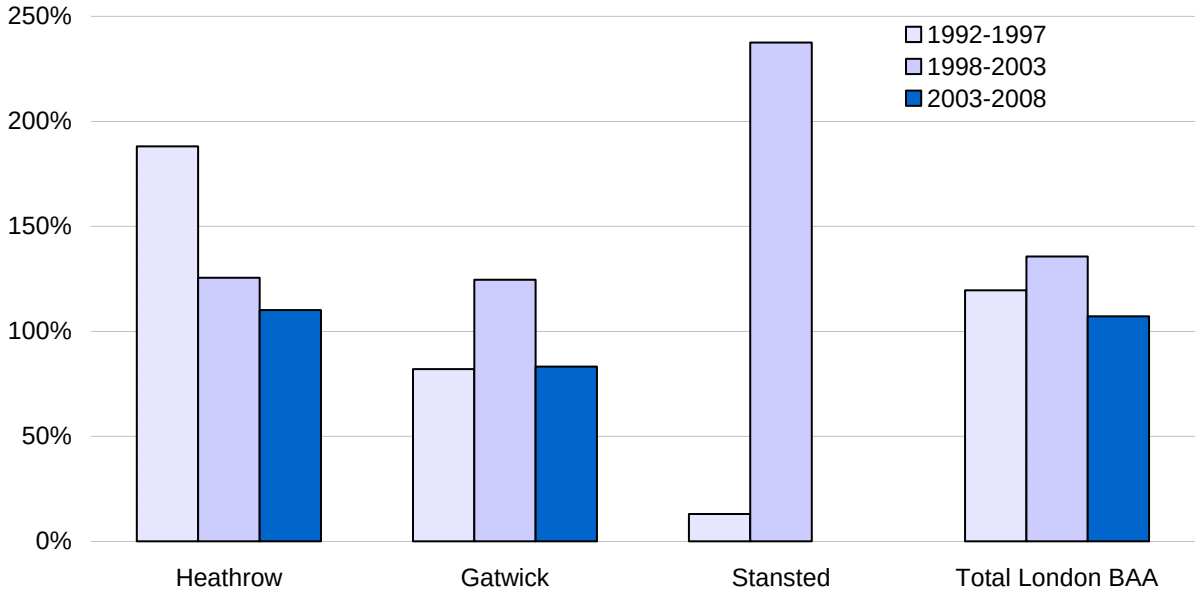
Capital Expenditure

In the second control period 1998-2003, there was an expectation that BAA would begin construction of Terminal 5 hence there was a relaxation of the price cap which was followed by further relaxation in the third and fourth control periods. However, there were significant delays in the construction of Terminal 5 due to the protracted planning process. According to Figure 1 below, actual delivered capital investment was below that planned for the second control period. If one compares BAA's past performance, for each of the last three control periods, actual investment has exceeded planned investment.

The divergence between planned and actual investment can be explained by the effects of unexpected market developments on air traffic volumes that materialised during control periods. For example, in the period 1992-1997, the removal of traffic distribution rules at Heathrow meant that traffic was greater than that forecast and BAA was required to spend additional investment on its facilities. Similarly, in the 2003-2008 period, BAA under-spent at Gatwick because of lower

than forecast traffic and an unanticipated decline in long-haul aircraft operations. Stansted invested, in the 1998-2003 period, substantially more than planned receiving a capital expenditure allocation originally earmarked for Terminal 5 at Heathrow which was subject to lengthy delay. Rather than a withholding problem, there could even be evidence of in this particular example of over- investment.

Figure 1: BAA actual investment as a % of planned investment last three price-cap control periods



Source: Monopolies and Mergers Commission & Competition Commission

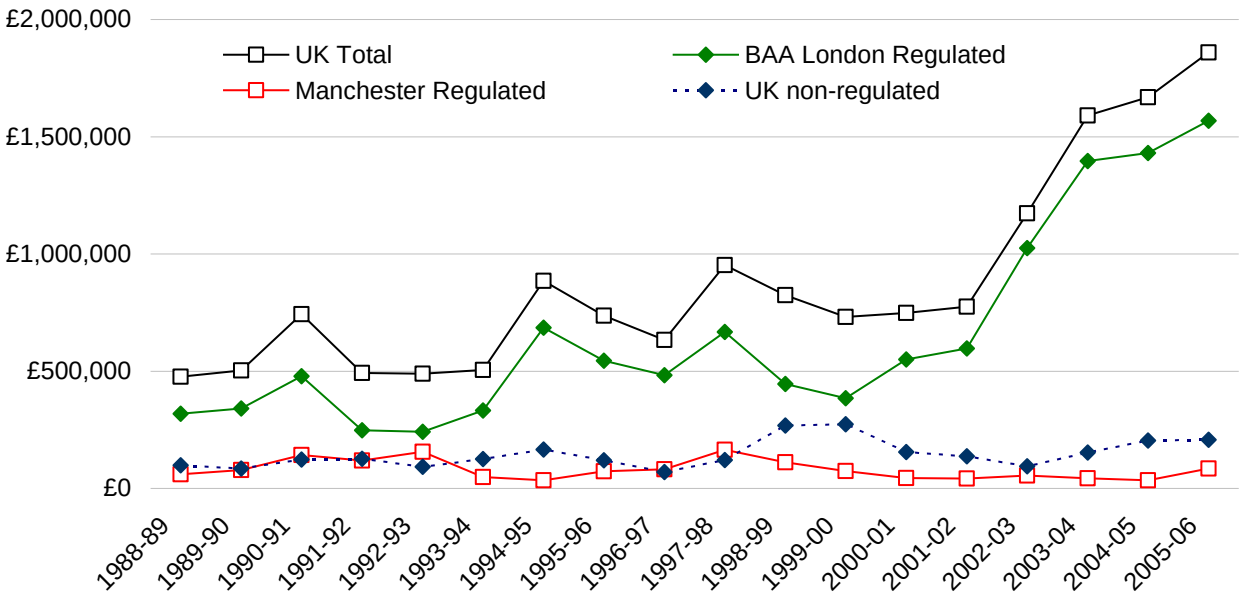
Figure 2 contrasts capital investment trends over the 1988/89 to 2005/06 period for UK airports. Total UK airport capital investment does show a marked increase post 2003/03. This is largely attributed to BAA spending on Terminal 5. Overall the average annual percentage change in UK airport capital expenditure over the period 1988/89 to 2005/06 was 17% in contrast to an annual passenger growth rate of 8.1%. For the BAA regulated airports the contrast is even more significant – 23% annual investment growth as opposed to 6% annual traffic growth. For both Manchester and the non-regulated airports, average annual passenger growth out performs the annual growth in capital investment. From these trends it is difficult to defend the argument that there has been an airport investment withholding problem in the UK.

Starkie (2006) argues that exactly the opposite may have happened. Two examples are cited; Stansted and Manchester. In the case of Manchester, the airport operator was criticised for failing to test the application of long-run marginal cost pricing when evaluating the second runway even when it was encouraged to do so at its first regulatory review in 1991. Starkie further speculates that the second runway may have been aimed at pre-empting competitive developments at Liverpool and even suggests that pre-emption was behind Stansted's expansion in the 1990s. In the case of Stansted, he argues that the airport developed too rapidly in the late 1990s leading to

excess capacity. This was mainly due to a strategy adopted by BAA directors to grow the company given the presence of planning restrictions at both Heathrow and Gatwick. Because of delays in the planning process, funds committed for Terminal 5 were used to expand Stansted. BAA was allowed to leverage its financial muscle at Heathrow to expand Stansted because at that time the price-cap was set on the BAA London airports as an integrated-whole.

The argument of over-expansion appears to be supported by Francis and Humphreys (2001) who claim that airport economic regulation has resulted in a variety of unforeseen dysfunctional effects. They argue that price-cap regulation has kept charges low at Heathrow and Gatwick which has artificially stimulated demand leading to pressure to expand capacity. This has contributed to an expansionist planning mentality that has encouraged the development of large-scale projects such as Terminal 5. The failure to apply the principle of long-run marginal cost pricing (LRMCP) is a key issue in this regard though this was not through want of trying. In the early 1980s BAA evaluated the application of LRMCP in advance of the construction of Terminal 4. Fearing higher costs, these proposals were rejected by the airline industry.

Figure 1: UK airport capital investment 1988-89 to 2005-06 in £000 (in real terms)



Source: Centre for Regulated Industries

Francis and Humphreys also claim that economic regulation has had the effect of orientating the attention of BAA towards non-regulated activities such as retail at the expense of passenger service. Expansion in the volume of retail space at Heathrow at the expense of improving passenger processing efficiency is cited as an example. They argue that more space for core aeronautical service delivery usage would reduce the requirement to build additional terminal capacity. This raises the question of whether there is an inherent trade-off between developing airport retail and maintaining acceptable levels of passenger comfort and processing efficiency.

Price regulation of aeronautical charges reduces the rate of return that can be earned on investment in aeronautical facilities and infrastructure. The airport's rate of return, therefore, has to be earned on non-aeronautical facilities such as retail and car parks. As a consequence there is an incentive under a price-capped regime to increase terminal space allocated to non-aeronautical activities and to focus management efforts into expanding and developing retail. Differences in the typical rates of return that could be earned from aeronautical and retail activities can be quite substantial. For example, Manchester Airport, which was price-capped until very recently, incurred an operating loss of £6.7 million in 2005/06 on its aeronautical activities. In contrast, £78.5 million in operating profit was earned from its non-aeronautical / commercial activities. The authors, in their criticism of the priorities of BAA, imply that there is too much retail space at BAA airports, particularly Heathrow. On the other hand it could be argued that BAA is simply responding to firstly, price-cap regulation and secondly, customer demand. Research work undertaken by Entwistle (2007) based on a survey of airport passengers reveals that nearly all respondents preferred the availability of shops in an airport with around 95% agreeing that shops add colour and atmosphere to an airport terminal. The research also showed that around 60% of passengers planned to make a retail purchase prior to their arrival at the airport. How much value they place on retail *vis a vis* processing efficiency, comfort and level of service is an interesting question that has yet to be researched. However, what is important is the complimentary relationship between processing efficiency and spend in the retail areas. As outlined by Gray (2005), there is a very clear correlation between dwell time (time available to spend in the airside retail zone) and the level of spend by passengers in those retail outlets. Therefore, it is in the commercial interests of the airport operator to ensure that processes (check-in, passenger security screening) are streamlined to enable passengers to have sufficient dwell time before their flight departs. This means there needs to be investment on the part of the airport operator for sufficient security resources in order to minimise queuing time. Recent changes in security requirements at European airports, for example, have had a marked effect on passenger processing efficiency. In many airports, confusion and security resources struggling to cope with queuing has brought the retail versus processing efficiency / passenger comfort debate into much sharper focus.

Given that economic regulation appears to have had some unintended consequences, what are the prospects for reform in the UK?

Airport deregulation / liberalisation: the implications for capital investment

Following pressure from some UK carriers, in 2006, national competition authorities (Office of fair Trading and Competition Commission) launched an investigation into the market structure of the UK airport industry. The focus of their enquiry, which is expected to be completed in 2009, was on whether BAA's dominance of the airport markets in London and Central Scotland was working in the best interests of passengers. Preliminary findings released in April 2008 show that the Competition Commission supports the view that BAA's common ownership of airports may not be

serving the best interests of airlines or passengers (Competition Commission, 2008). Assuming that there is a recommendation requiring BAA to dispose of a number of its airports, what would the expected implications be for both economic regulation and capital investment?

Price cap regulation is, in effect, a substitute for airport competition. Where there is airport competition – the rationale for maintaining price caps disappears as independently operated airports have incentives to compete for new airline services in terms of price and quality of service. The Competition Commission's report recognises the existence of a significant degree of competition between airports in other regions of the UK (e.g. West Midlands, South West and Wales. North West). Furthermore the report cited examples of airlines using their bargaining leverage between airports to secure commercially advantageous terms and conditions. One common feature of these examples of airport competition is that they exist in regions that have no urgent or pressing need for new runway capacity. The 2003 white paper recommended that there should be two new runways built outside of London; one in Birmingham and the other at Edinburgh. Whilst Birmingham initially developed a proposal for a second runway in a draft master plan, this has since been withdrawn due to substantial revisions to traffic forecasts in light of changes in its business environment not anticipated at the time of publication of the White Paper. Where spare capacity exists, regional airports will continue to compete on price and quality of service in order to expand passenger and aircraft throughput.

In contrast, the situation facing the London airport market is very different. According to Eddington (2006), 40% of delays at Heathrow and Gatwick airports are caused by late arriving flights due to a shortage of runway capacity. Now assuming that the three airports are managed by separate operators and price-cap competition is lifted, it is unlikely there will be a downward movement in charges. Stansted, because of the greater availability of spare capacity may engage in price competition but this is unlikely to lead to substantial increased demand. The reason is that airlines consider factors in addition to airport charges when deciding on which airport to operate services from. For example, variables such as yield, accessibility to target catchment area and value of the airport to passengers may be more important. This is particularly applicable to long-haul airlines where less than 10% of their direct operating costs are accounted for by airport charges. Indeed, historically airport charges have been much lower at Stansted compared to Heathrow and Gatwick, primarily because of competition from Luton. Low charges at Stansted did not lead to significant switching of airline routes from Heathrow. Indeed, removing the price-cap would probably lead to higher charges, particularly at Heathrow. This is why airlines in the UK, such as British Airways are in favour of maintaining price-cap regulation even in the event of airport ownership liberalisation in the London area. They point to the risks that would face large fixed base carriers such as British Airways who operate their entire network from Heathrow and have a number of substantial sunk investments at the airport. The switching costs associated with transferring to another airport in the London area would be far too high and indeed would be impossible to achieve as there are no alternative airports in the London area that could accommodate the scale of British Airways' network of services at Heathrow. The likely benefits of

competition may in fact be in quality of service where the presence of different operators in the London airports would create diversity and vitality that presently appears absent. How could these very real concerns relating to airport market power even in an environment of competition be addressed through another form of regulation?

One possible solution is to adopt a "light handed" approach to regulation. There are two approaches that have already been tested, prices surveillance as has been applied to airports in Australia and reserve power regulation as adopted in Copenhagen. In both cases the regulator accepts their own limitations with regard to determining appropriate levels of charges, quality of service and capital investment and transfers this responsibility to the airport and the airlines. The adoption of "light-handed regulation" also potentially reduces high transaction costs associated with heavy-handed regulation. Toms (2004), for example, cites the increasing amount of time taken to complete successive regulatory reviews in the UK.

Airports are left to negotiate with airlines on charges and capital investment with the regulator holding reserve powers. Here there are strong incentives on the airlines and the airport to reach an agreement since there is a risk that in the event of a breakdown in the relationship the regulator may intervene with a settlement that may have adverse consequences for either one of the parties. Given the rather fractious nature of airport-airline relations generally, how easy would it be for them to reach agreement? Klenk (2004) provides an example from Frankfurt where, from 2002, a reasonably successful five-year risk sharing airport charges agreement has been in place between the airport operator and its airline customers. However, in situations where there are significant differences between airlines, to what extent is it possible to reach a common understanding with the airport? As far as capital investment is concerned, would existing incumbent airlines, especially low cost carriers, support the expansion of capacity with possible repercussions on the level of charges? Would incumbent airlines block attempts to expand capacity in the interests of reducing the risk of competition from new entrants?

The Competition Commission Report suggests that BAA's common ownership was originally intended to facilitate capacity expansion. They argue that this has not happened and that BAA has over the years taken a modest view on capacity expansion in the London area. It argues that BAA's development has been too late to meet demand. Common ownership, according to the report, had led to a sequential approach to capacity expansion. What is likely to be the view on capacity expansion under conditions where all three airports are owned and operated by separate entities?

Given forecasts for substantial growth in air travel demand from and to the London area, the three airports may take a very optimistic view on future business prospects. If one assumes for the moment that there are no planning approval requirements, it is possible that the operators of Heathrow, Gatwick and Stansted could seek to gain first mover advantage by proceeding with development plans for a second runway each. This would, in effect, substantially alleviate

congestion problems in the London airport system. However, there may be factors which would act as a disincentive to expand capacity. First, new owners would have to initially finance the cost of purchasing the airport followed by securing funding to build the new runway. Assume that BAA / Ferrovial sold Stansted to an independent operator. This operator could possibly have to pay around £700 million to £1 billion for the airport if one adopts a conservative assumed Enterprise Value / EBITDA multiple of 10 [5]. Assume that the operator accepts BAA's estimate of the cost of building a second runway to be £1.5 billion, its total financial commitment in relation to Stansted could amount to £2.5 billion. Under these circumstances it is unlikely, even in a scenario of a liberalised planning regime, that the operator would commit to a second runway. Now, assuming that the existing planning approvals process is in place, a new owner of Stansted would face the added complication of navigating itself through a very lengthy and costly planning approvals process in addition to facing the prospects of intense and well organised opposition from environmentalists and local pressure groups. Experience from recent major UK investment projects such as Manchester's second runway and Heathrow's Terminal 5, shows that airport planning processes can take up to 10 years. With considerable environmental and local opposition to runway expansion and reluctance on the part of the airlines to accept higher charges that would be needed to finance the second runway, a new owner of Stansted airport may in fact be very reluctant to expand capacity. The incentive to expand capacity may in fact be offset by expectations of having to subject itself to an onerous and costly planning process should a decision be taken to expand capacity.

BAA has already submitted a planning application to build a second runway at Stansted, scheduled to open in 2015 while it has also outlined its intention to build a third runway and sixth terminal at Heathrow by 2019. The case for airport liberalisation, if the primary policy objective is to expand capacity, may not, in light of these issues, be particularly persuasive. In fact the existing BAA expansion plans, delivered by one integrated company on the strength of a balance sheet that is supported by the assets of all the airports, provided they are approved by the relevant local and national authorities, represent the best prospects for capacity expansion in the London area.

Concluding comments

This paper has shown that it is difficult to find a strong case in favour of the argument that price cap regulation led to under-investment in airport capacity. In contrast, there may even be an argument to support the view that there was excess investment. Examples cited include Manchester Airport's second runway, Stansted Airport's expansion in the 1990s and the development of Heathrow's Terminal 5. Price-cap regulation, in particular reliance on the single-till mechanism, has had the effect of obscuring the signals for investment that would have been present had charges been set on the basis of economic efficiency (i.e. long-run marginal cost or market clearing). Instead the persistence of comparatively low charges levied by BAA London

[5] According to Graham (2003), Enterprise Value / EBITDA multiples of around 15 were achieved on some privatisation transactions in the late 1990s

airports appears to have artificially stimulated demand fuelling the rationale for capacity expansion. A well organised and vocal airline industry lobby ensured, in the first place, that *RPI-X* was the preferred model of economic regulation. This has provided them with the opportunity to extract considerable economic scarcity rent from their Heathrow route networks for at least twenty years. Their very persuasive hold on the direction of UK government policy towards air transport means that proposals to reform economic regulation in the UK are invariably shelved. Their considerable influence prompted the competition authority investigations into BAA's alleged dominance of the airport market with the aim being to liberalise ownership of London's principal airports. It is unlikely that a liberalised London airport market will be able to deliver capacity expansion. Highly leveraged independent operators will be constrained by a complex, lengthy and onerous planning system and resistance from highly organised, well connected and vocal pressure groups. BAA's ownership of the three London airports should be maintained as this represents the only credible option of delivering additional capacity. The UK could also benefit from light handed economic regulation with BAA and its airline customers encouraged to reach an agreement on what level of capacity is needed for the future and how this should be remunerated.

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