

Chapter 1

Introduction and Overview

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One of the themes in an earlier German Aviation Research Society (GARS) book, *The Economic Regulation of Airports* (Forsyth et al., 2004), was that ‘strong competition between airports is not feasible’ (xxviii); we argued this might change in the future. That book raised, under the heading of future challenges, the ‘bigger question of whether, in more competitive circumstances, there is a continued need for formal price regulation’ (xxix). In this current book we take up the issue of airport competition, with particular reference to Europe. We explore whether and where it exists, how strong it is and what policy implications it has.

Since the publication of the earlier book, developments have amplified the challenges and have put them on top of the agenda of airport policy in some jurisdictions. Three events stand out: the proposed break-up of BAA, the blocked takeover of Bratislava Airport by Vienna Airport and the prohibition of subsidies to Ryanair by Brussels South Charleroi Airport.

In 2008, the UK Competition Commission recommended that BAA be forced to divest itself of two of its three London airports, and to sell either Glasgow or Edinburgh Airport. The stated objective is to promote competition between the airports.

- On 18 October 2006 the Slovak government made a final decision to stop the sale of Bratislava Airport to neighbouring Vienna Airport because it had not been approved by the Slovenian anti-monopoly office. This case is similar to the BAA case, but it raises some additional issues. There was a concern that Bratislava Airport had the potential to compete with Vienna Airport, at least in some markets.
- On 3 February 2004 the European Commission prohibited direct aid granted by the Walloon Region and Brussels South Charleroi Airport to Ryanair. Ryanair appealed this decision and were successful in having the case overturned; a decision by the European Court of First Instance (2008) in December 2008. Nonetheless, the issue of state subsidies to low-cost carrier (LCC) airports, as well as to major airports served by full-service airlines, has remained a contentious issue. For example, Ryanair has complained to the European Commission about state aid of over €400 million per annum to Schiphol Airport and to KLM/Air France. The Charleroi decision involves a horizontal aspect of competition among airports, along with a vertical aspect of how distortions of airport competition affect competition between airlines in the downstream market.

The case for regulation of airports comes about because of a lack of competition between airports, and their consequent possession and use of market power. This lack of competition may come about for two types of reason: locational reasons and natural monopoly reasons.

The locational explanation argues that for most airports there are no close substitutes as attractive locations are limited (Forsyth, 1997). It is very difficult to obtain permission to build airports in cities with existing airports, for example, to build a competing airport next to hubs like Frankfurt or Paris airports. Such airports have a de facto monopoly reflecting planning and

environmental restrictions and they have market power in the provision of aviation services which suggests a case for regulation.

The other explanation relies on economies of scale in airport provision. Thus, a monopoly is efficient as two or more airports would lead to higher average costs. If there is more than one airport, and competition is present between the airports, this competition will break down, since the airport which is able to gain more traffic will be able to enjoy lower costs and may be able to force the other out of the market. The existence and extent of scale economies at airports is disputed, though the presence of large indivisibilities, especially in the provision of runways, means that only large cities are likely to be able to have several runways and several airports. If natural monopoly is present, a profit-oriented airport will have an incentive to use its market power and increase prices. Alternatively, a non-profit-oriented airport might charge high prices and allow costs to rise. Governments might regulate airports to prevent this from occurring.

These explanations are not mutually exclusive. Whatever the explanation, few cities other than very large ones have more than one airport. This said, there may be secondary airports on a city's fringes that can compete, at least for some traffic, with the main airport. In addition, in the densely populated regions of countries such as the UK and Germany, there may be several airports that residents regard as equally accessible. Thus competition can exist, though often does not.

In this study, we find that competition between airports does exist in several regions. Thus, there is competition between the airports in the UK outside London, and this competition appears sufficiently strong to discipline their pricing. There are also many examples of monopoly airports where there is only one airport in a city and the nearest other airport is too far away to provide effective competition. In between, there are many situations where there is competition between airports for some traffic, for example between a fringe secondary airport and a major city airport for (LCC) traffic. Airports, though distant from one another, can compete in some markets, for example, for duty-free goods or as bases for LCCs. Major airports may be able to compete for hub traffic. Competition can also take place within airports, for example, between separately owned terminals.

The issue of competition between airports is of interest for several reasons:

- If it is strong, it may be feasible to dispense with direct regulation of airports. Granted that regulation can be costly in efficiency terms, even imperfect competition may be preferable to imperfect regulation.
- Even if competition is not strong enough to dispense with regulation, it may still provide a spur to improved performance.
- When several airports are being privatized, governments must assess whether the benefits from selling them as a group to one owner outweigh any gains that might be achieved through selling them separately to facilitate competition.
- With many airports now being privately owned, the issue arises of whether mergers or alliances between potentially competing airports should be permitted – the case of Schiphol and Paris Charles de Gaulle, which can compete as hubs, being a case in point.

We have organized the chapters under the following headings:

- How do airports compete and how robust is competition between them? This section provides an overview of the state of competition and explores whether the current form of competition can increase efficiency and economic welfare. Airports seem to compete in various ways, but is there evidence of strong competition? In our view the evidence is not clear and it varies from country to country and region to region. Furthermore, the

development of competition does not mean that the outcome is necessarily beneficial; more competition does not guarantee an improvement in economic welfare.

- How do travellers choose an airport and how does this affect the competitive process? This is an essential aspect of competition. In some less densely populated countries, travellers have little choice as to which airport to use. In Europe, with a well-developed land transport infrastructure, this can be different; but time and travel costs play an important role. Similarly, long-haul connecting passengers have a choice of a number of airports they can use, which can result in airports which are a long distance apart being in the same market. Imagine a world in which travel and time to access airports were reduced to minimal levels – in such a world, all airports would become close substitutes. However, even with high-speed trains, time and travel costs remain important, and congested motorways add to the complexity of the traveller choice problem.
- What is the evidence for competition in the airport industry? As the intensity of competition varies from country to country we have selected case studies from Greece, Germany and the UK.
- What issues for airport and competition policy emerge? Here we deal with the issues identified earlier of market power, through joint ownership of potentially competing airports.

How Do Airports Compete and How Strong is Competition?

In Part A of the book empirical evidence on the nature of competition is presented. Morrell provides an overview of how airports compete in Europe. He notes that airports are intermodal hubs through which passengers are transferred from work or home to their final destinations, combining different transport modes. Airports compete with one another to attract airlines and he gives many examples for the different ways how, and against whom, they compete. Morrell emphasizes that airports offer airlines incentives and even subsidies to attract new routes or to base aircraft at their airport. The EU Commission views state aid as discriminatory if it is not open to all airlines. Morrell analyses several cases and highlights their importance (see chapters by Kristoferitsch and Elliott).

Müller-Rostin et al. analyse a particular, though important, aspect of competition. In other industries, entry and exit are drivers of the competitive process and lead to welfare maximizing results in the long run. Compared to other industries, only a few airports have entered or exited the European airport sector. This suggests that the intensity of competition depends more on how the incumbents behave than on new entry.

There are two chapters that look at the issue of competition in relation to airlines. Pels and Verhoef argue that, without congestion, the ability by airports to abuse market power is limited if airlines are forced, through competition, to set fares equal to marginal cost. With congestion and with monopolistic behaviour of the airlines the airport can use its dominant position to raise charges above the competitive level.

Even large hubs are small firms compared to many airlines, which typically are part of an even larger airline alliance. Airports blamed for excessive market power claim that this fact has been overlooked. Instead of exploiting their users, they are facing substantial countervailing power from airlines. Button reviews this concept first developed by Kenneth Galbraith in 1952. While it was criticized by mainstream economists, he sees some relevance as it highlights outcomes which are either monopolistic or competitive. Applying it to the airport industry Button finds that countervailing power is hard to test. He analyses possible outcomes for traditional airlines and

LCCs and for collective action of airlines, and discusses forms of price discrimination by airports as an indication of the strength of countervailing power.

Forsyth takes up the topic of Morrell's chapter, namely increased competition between the major and the secondary airport combined with subsidies for secondary airports served by LCCs. He points out that the popular belief that 'more competition leads to improved efficiency' might not be true for airports where subsidies are present. While not denying that competition can have positive effects, he doubts that this is necessarily the case in the airport industry with indivisibilities, significant sunk costs, imperfect regulation of major airports and subsidies available to some secondary airports.

Cost conditions are recognized as an important driver of the feasibility of competition. Pels et al. analyse how airport costs vary with size across a sample of airports from around the world, using a translog cost function. They conclude that short run average operational costs decrease with output, with passenger numbers being more closely associated with falling costs than air transport movements. However, when a quality variable is introduced, the elasticity of cost with respect to output is decreased in some specifications.

The chapters by Graham and by Kincaid and Tretheway analyse strategies of airports facing competition. Graham uses Porter's 'five forces' analysis to determine the threats and opportunities airports face. Regarding new entrants and substitutes, the threats are low compared with other industries. The forces of supply and consumer power, as well as internal rivalry, differ and cannot be generalized. Airports so far have been reluctant to adopt generic competitive strategies such as cost leadership and product differentiation, except for some niche markets such as LCCs and freight. Graham observes no head-to-head competition, but a growing demand for applying competitive strategies. Kincaid and Tretheway, on the other hand, tend to be more optimistic about the competitive nature of the industry than Graham. They emphasize the change of airports from passive service providers to active promoters of their business and region. Airports have developed marketing strategies and search on their own for new service opportunities, which they actively present to airlines to develop. They show how airports can define their product and price, and promote and distribute them. They provide examples of best practice, such as differentiating their product by developing specific features. These include passenger facilitation and baggage handling; pricing airlines differently at different stages of their business relationship; creating awareness of specific services and promoting their airport through websites; and good placement in computer reservation systems.

Tretheway and Andriulaitis describe the general evolution of the air cargo market and the trend towards a more competitive environment. Air cargo has been capturing an increasing proportion of trade, partly because of a growing proportion of high-value and often low-volume goods that are being transported. The addition of new passenger gateways in major areas of economic activity has helped enormously in pushing up air cargo volumes. The development of secondary airports has provided additional, more cargo-friendly options.

By analysing the whole value chain the authors show how the bargaining power of the individual players have shifted and what the likely effect is on airports. They emphasize the growing influence of freight forwarders, the emergence of specialized air cargo freighters and the combination of air freight with trucking that led to the expansion of the geographic scope of an airport's catchment area. This development has opened up new, and more competitive, options for shippers as numerous combinations of gateways/air service providers are now available to a wider range of shippers.

Traveller Choice and Airport Competition

Traveller and shipper choice lies at the heart of the airport competition issue – the strength of this competition depends on how good as substitutes travellers regard different airports to be. Hess reviews ‘Modelling Air Travel Choice’ and how econometricians have studied this choice by passengers. He outlines first the nature of air travel choices, which involves also the choice of airport, and then looks at how well the models have captured the complexity. Hess is highly critical, as most discrete choice models have incorporated only a subset of the choices – something which might seriously bias the results. He suggests various ways to improve the quality of the models, including the quality of the data.

Hess and Polak compare the methods and results of three studies on the way passengers choose airports in the San Francisco Bay area, with three main airports, and in Greater London with five airports. In general these studies confirm that passengers have a strong preference for their local airport. Convenient and fast access is important and only LCCs with massive fare reductions can overcome the disadvantage of less accessible airports. Even travellers visiting friends and relatives are willing to pay a premium of \$28 to fly from their closest airport. Furthermore, the way business travellers value frequent flier programmes is instructive for airport strategy. These travellers are willing to pay a premium of up to \$125 for flights covered by such programmes and are therefore less willing to substitute airports.

An accessible treatment of the complexities of modelling the demand for air travel, and of airport choice models, is provided by Gaudry. He presents a detailed treatment of a critical feature of demand modelling practice that has important implications for airport competition and hub stability – specifically the ‘independence of irrelevant alternatives’ assumption which imposes strong substitution assumptions on the models. He notes that in the modelling effort the treatment of the fastest growing component of air passenger demand, non-business trips, is particularly challenging. To model these types of trips within the current modelling framework there must be clear reference to alternatives in mode and path or airline company choice representation procedures. This arises because passenger flows are interdependent and therefore the utility derivable from the alternatives cannot be defined only by reference to own transport conditions.

Gaudry also provides a comprehensive summary of how Standard Box-Cox endogenous form specifications contribute to a much improved representation of the role of transport characteristics and performance within the current demand modelling structures. He argues that in order to include the rapidly growing leisure passenger component into the models investigating competition among airports requires the use of spatial correlation processes in Generation-Distribution models, as well as the use of Generalized Box-Cox specifications. These newer modeling approaches should be used in both mode choice as well as route choice analysis. In both cases, the strong substitution assumptions of choice modeling are avoided. Specifically, the Independence of Irrelevant Alternatives (IIA) assumption is avoided in realistic ways.

Case Studies of Airport Competition

We have selected a few case studies to analyse in depth the nature and strength of airport competition in Germany, Greece and the UK.

Germany has one of densest airport networks in Europe, and also a comparatively well-developed, high-speed motorway system. Malina develops a measure for market power taking account also of intermodal competition. He shows that most of the small airports face competition,

but that the large airports such as Berlin, Frankfurt, Hamburg, Munich and Stuttgart lack good substitutes. Competition could be enhanced if, for example, the airports in the metropolitan region of Berlin were operated independently.

Strobach analyses the catchment areas of airports in southern Germany with a view to developing an indicator of competitiveness between airports for residents of different zones in the region. He develops an index based on access (time and cost) to potentially competing airports, on airport quality (including flight frequency) and parking availability. He evaluates the index for nine airports in the broader region. This index indicates which airport is likely to prove most competitive in attracting passengers from a given zone.

Papatheodorou examines the extent of concentration of passengers using the airports of Greece. Airport passenger traffic tends to be regionally based, with traffic being closely related to regional population or gross domestic product (GDP). Greek airports have some scope to gain more traffic by competing for direct flights from the main origin airports. However, while some airports could prove competitive, it is likely that they would need to make considerable financial commitments to develop their facilities.

In contrast to the more sceptical views on the strength of competition in continental Europe, Starkie argues that the UK airport industry is a competitive one; but even small airports are at least breaking even, and high fixed costs are not an obstacle for entry. This is largely due to the fact that there is an abundance of former military airfields which can be turned into airports and which, like the example of Doncaster airport, show that new or small airports can challenge incumbent airports such as Manchester effectively. As most airports are only about an hour's driving distance apart, the hinterland of airports overlap. Airports can be good substitutes, especially if they cannot price discriminate among passengers. Starkie challenges the view that takes for granted that airports are natural monopolies which automatically have to be regulated. Regulation might be necessary for some airports, but airport policy should adopt the view that 'a competitive framework is an achievable objective for a national airport policy' and this can be achieved by structuring ownership to ensure a reasonably competitive environment

Lei et al. explore the impacts of low-cost carriers on UK airports. Smaller airports often compete to attract low-cost carrier traffic, which is relatively uncommitted to any one airport. Econometric estimates suggest that while low-cost carriers do not contribute as much by way of aeronautical revenue as charter or full-service carriers, they do contribute slightly more non-aeronautical revenue than these other airlines at the smaller airports – though they contribute less than the other airlines for airports on average.

Policy Issues

With competition between airports being feasible in some but not all circumstances, and with the strength of this competition being quite variable, there are few simple and straightforward policy implications.

Forsyth and Niemeier assess the prospects for competition between the major London airports, Heathrow, Gatwick and Stansted, if the current owner were forced to divest two of its London airports. They explore the scope for competition between the airports; note that there are some aspects of competition which would emerge; and provide a spur for better performance. However the excess demand situation, along with the difficulties in expanding capacity, is likely to limit the effectiveness of competition. Thus it is likely that the problems recognized with the London

airports would also need to be addressed through the reform of regulation as well as breaking up BAA.

Forsyth, Niemeier and Wolf explore the possible impacts of airport alliances and the emerging multi-airport companies on the intensity of competition. It has been suggested that airport alliances and international multi-airport companies will emerge and gain a dominant position comparable to that of the airline industry. However, they are sceptical about these trends. Furthermore, they analyse the rationale behind the decision to prohibit Vienna Airport from taking over neighbouring Bratislava Airport.

At airports where neither competition nor regulation seems to deliver results favored by the public, the issue of terminal competition has emerged. Reynolds-Feighan analyses the economics and politics of the proposal to separate the terminal ownership at Dublin airport. She argues that there might be efficiency gains through competition, but also higher coordination costs. She further points out that while the expert group recommended separate ownership on the grounds of a carefully designed tender process, the politics changed after a cabinet reshuffle. Reynolds-Feighan concludes that 'The Irish case is now added to the shortlist of examples cited by monopoly airport operators claiming that terminal competition is unworkable. However terminal competition, as proposed in the Irish circumstance, remains an untested policy option to date' (Chapter 21, p. 353).

Kristoferitsch and Elliot examine the Charleroi case and the emerging EU legal framework covering state aid for public airports. The EU Commission based its decision on the assumption that the Walloon Region acts as legislative and regulatory authority separated from its commercial activity as owner and operator of Brussels South Charleroi Airport (BSCA). The Walloon Region was charged for discriminating against other carriers and granting Ryanair lower charges. BSCA was charged with not acting as a private investor by accepting too generous conditions. The Court of First Instance ruled against the Commission stating that the Commission should have treated the Walloon Region and BSCA as a single entity. Under such circumstances, this single entity would have taken the broader economic impacts of Ryanair's services on the region into account and therefore could be seen to be acting according the private investor principle and not simply subsidizing Ryanair.

Kristoferitsch and Elliot both return to the initial decision and analyse its weaknesses from both legal and economic perspectives. Kristoferitsch points out that the framework remains fragmentary and is not legally binding on the Member States. Reductions in charges are allowed as a part of a general scheme, published in advance and open for all airlines. Kristoferitsch foresees a trend to circumvent the restrictions of the EU framework by semi privatising airports. Elliot looks at the economic aspects of subsidies received by airlines for the use of regional airports and considers the specific ways in which public subsidies could impact inter-airline or inter-airport competition. In his analysis, he focuses in particular on the Charleroi case and analyzes whether the EU Commission's position is consistent with the promotion of economic efficiency. He notes the problems of identifying the competitive benchmark and the requirement that any subsidies are not exclusive to one operator.

Ground handling is another area of airport operations that can be opened up to competition. Templin analyses the evolution of the market structure for the European ground handling services that had been deregulated as a consequence of the European service directive in 1998. Her study focuses on the six largest European airports. She raises the more general question of how the value chain between airports and airlines should be organized and how government regulation and market forces have been performing in finding an effective division of labour – both horizontally and vertically – in allowing more multi-airport service organizations to develop internationally

Lewisich looks at airport markets where, because of the absence of competition, antitrust rules would be applied. In his analysis he looks at how to apply the bottleneck concept to limit regulation to the key aspects; where the essential facilities doctrine could be used; how to deal with an abuse of a dominant market position; and how sector-specific competition law can be applied to airports. This also includes looking at issues such as vertical foreclosure and the refusal to deal.

The European Focus

In this book we have focused on airport competition in Europe, though in some cases reference has been made to other continents. Competition between airports does exist on other continents. For example, where there are several airports in large US cities, competition is feasible (though does not always occur because of common ownership, as in New York). Also in the more densely populated regions of the US, such as the north-east, travellers may have a choice of airports. Airports in Asia, such as those at Singapore, Kuala Lumpur and Bangkok, compete for hub traffic. In countries with low population densities, such as Canada and Australia, airports are separately owned, but they only have limited scope to compete because they are mostly very far apart. However, in several cases Canadian airports compete with nearby US airports for transborder and international traffic; for example Vancouver and Seattle, and Toronto and Buffalo.

However, it is probably Europe which provides the best case study of airport competition. Europe has a number of regions which are densely populated and which are served by several airports. The presence of former military airports has facilitated entry of smaller airports. There is a variety of institutional arrangements for European airports, with more privately owned airports in Europe than in other continents. Issues of competition between and within airports have attracted much more attention from competition authorities and regulators than elsewhere, and the trade-off between competition and regulation is being actively considered. In Europe, policy decisions are now being made to promote competition, something which is rare elsewhere. Airport competition is still in its early stages in Europe – one or two decades ago there was little attempt by the mainly government owned airports to compete. However airport competition is now a reality, though how extensive and intensive it will become remains to be seen.

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