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Privatising London's airports

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PRIVATISING LONDON'S AIRPORTS

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PREFACE

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The authors remain responsible for the views and analysis in this Report.

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CHAPTER 1

INTRODUCTION

The present pattern of ownership of civil airfields in Britain is a complex mixture reflecting in part the ebb and flow of post-war policies towards public ownership. The latest policy is to give effect to the 1983 Conservative Manifesto's pledge that 'as many as possible of Britain's airports shall become private sector companies'. Some strands of this policy are now evident but the most important decisions — concerning the British Airports Authority (BAA) — have yet to be made or legislated upon.

The Authority was established by the Airports Authority Act of 1965. It owns Heathrow, Gatwick and Stansted airports in the south-east and Edinburgh, Glasgow, Prestwick and Aberdeen airports in Scotland. In this Report we have concentrated on BAA's London airports for two reasons. First, these three airports handle the bulk of BAA's business contributing 87 per cent of turnover in 1983/4. Second, it is in the south-east that the most important issues arise regarding the effective use of capacity and investment in new facilities. The basic objective of the Report is to examine privatisation options for BAA's three London airports.

The Department of Transport's Memorandum of April 1984 to the House of Commons Transport Committee's inquiry into airports (House of Commons, 1984) canvassed a number of broad options for a privatised BAA. These options included the sale of the Authority's airports as a whole, individually or in groups, and the introduction of private capital and management either by the sale of selected airport assets or by increased franchising and contracting out. Much of the evidence taken during the inquiry centred on these options and particularly the issue of grouped or individual ownership.

Those giving evidence to the Committee adopted various and conflicting views. BAA favoured retaining all seven airports as a single grouping and its Chairman was adamant on the need to maintain common ownership of the south-east airports.¹ On the latter point the Authority was supported by the CAA and British Caledonian in addition to groups like the Heathrow and Gatwick consultative committees and the Aerodrome Owners Association. Those in favour of breaking up the ownership of BAA's London airports included the National Consumer Council and the Air Transport Users Committee (although a majority of the latter favoured common ownership of Heathrow and Gatwick), as well as

‘... organisations most likely to benefit from it’ (House of Commons, 1984, Report, para. 89).

A number of other interests, such as British Airways, took a more ambivalent view, a view which might be said to characterise the response of the Select Committee. Their recommendations were for the separate sale of the Scottish airports as a group and a ‘hybrid’ solution for the south-east airports where the individual airports would operate initially as semi-autonomous subsidiaries beneath a Holding Board. This would have particular responsibility for investment planning. In the longer term the Holding Company would not be precluded from selling individual airports as separate companies, if and when this was seen as appropriate. (See House of Commons, 1984, para. 33.)

In this Report we have approached the BAA privatisation question on the basis that all options are open still. Until legislation is brought in we believe that it is advantageous to adopt such a view.

In analysing the options we have used the bench-mark of economic efficiency and drawn the usual distinction between two types of efficiency — productive efficiency and allocative efficiency. Productive efficiency addresses the question of whether an organisation produces a given level and quality of output at minimum cost. Minimum cost production is achieved when the best available technology is utilised and when the mix of inputs used in the production process is consistent with their relative prices. Analysis of productive efficiency is complex and demanding of data (see, for example, Ashworth and Forsyth, 1984). For these reasons, and for others which will become apparent, the general emphasis in this Report is upon allocative efficiency.

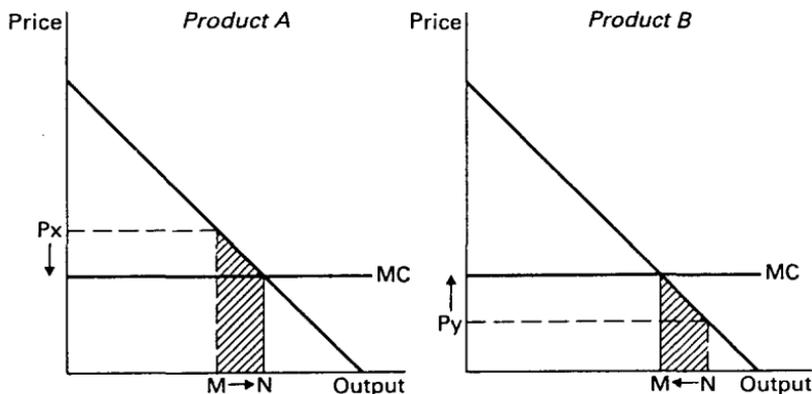
Allocative efficiency addresses the question of whether the correct level of output is being provided (i.e. whether the level and quality of output chosen yield maximum overall benefits). In this context the emphasis is upon prices and their relationship to marginal costs (the costs of an extra unit of output). A basic rule of economic theory is that equating prices with the marginal costs of production ensures that resources are allocated between users so that benefits to society are maximised. If prices exceed marginal costs (including a normal rate of return on capital) there will be a loss of potential output from which consumers would have derived benefits in excess of the value of the inputs required to produce it. Conversely, if prices are less than marginal costs, resources will be squandered in excess output; benefits derived from consuming the excess output will be less than the market’s valuation of the resources used to produce it. Adjusting

prices in these circumstances has the effect of transferring resources to sectors where the marginal product has a relatively high value from sectors where it has a relatively low value.

This point is illustrated by the graphs in Figure 1.1, drawn so that units of money are shown on the vertical axis and quantities horizontally. There are two products A and B which, to simplify matters, we have assumed have identical demands and production costs and have constant marginal costs per unit of output. Product A is over-priced (P_x) and product B under-priced (P_y). By adjusting the prices (and quantities) for both products so that price equals marginal costs, a given quantity of resources ($N-M$) is transferred from the production of B to the production of A. The shaded areas show the respective gains and losses in gross consumer benefits from the resource transfer. Overall, there is a net gain in gross benefits: the gains in A exceed the losses in B.

FIGURE 1.1

Pricing and Allocative Efficiency



Competition tends to bring about adjustments of this nature. Excess profits, when prices are above costs, attract new entrants and this forces prices down. This makes it difficult for firms to cross-subsidise those products and services where prices are less than marginal cost.

The following nine chapters of the Report loosely fall into three groups. The next three chapters describe the functions of BAA, how it is structured, the regulatory framework within which it operates,

its policies regarding the provision of commercial services to both airlines and passengers and its traffic charging policies. These policies are critically examined.

In Chapters 5 and 6 we discuss some of the economic factors that have an important bearing on the feasibility of adopting different options. Chapter 5 considers BAA's existing markets and the possible responsiveness of airport demand to relative prices, whilst Chapter 6 considers questions relating to the underlying nature of the cost functions in the airport industry.

Chapters 7 to 10 are prescriptive. Chapter 7 analyses the value of the proposed limit on annual air transport movements at Heathrow and the mechanisms that could be used to ration use. Chapters 8 to 10 discuss the opportunities for introducing more competition into the airport market and the pros and cons of the different options.

Each chapter concludes with a summary of the main points. Chapter 10 also summarises much of the analysis and argument contained in the preceding nine chapters.

FOOTNOTE

1. Sir Norman Payne appeared before the Committee on two separate occasions, once as Chairman of BAA and once as Chairman of the Aerodrome Owners Association.

CHAPTER 2

A PROFILE OF BAA

Introduction

When BAA was set up in 1966, it owned four airports — three in the south-east (Heathrow, Gatwick and Stansted) and one in Scotland (Prestwick). Since then it has acquired a further three airports — Edinburgh in 1971 (from the Department of Trade and Industry), Aberdeen in 1975 (from the Civil Aviation Authority) and Glasgow also in 1975 (from Glasgow Corporation). Together BAA's seven airports handle about three-quarters of passenger traffic at UK airports (see Table 2.1 and Appendix A), and 85 per cent of air cargo. Heathrow and Gatwick are, of course, the two largest airports in the country and both rank amongst the largest airports in the world.

TABLE 2.1

Largest UK Airports Ranked by Number of Terminal Passengers, 1982

Airport	Terminal passengers (thous)	Percentage of passengers at all UK airports (%)
Heathrow ¹	26 406	44.9
Gatwick ¹	11 155	19.0
Manchester	4 980	8.5
Glasgow ¹	2 405	4.1
Luton	1 800	3.1
Aberdeen ¹	1 648	2.8
Birmingham	1 564	2.7
Belfast	1 434	2.4
Edinburgh ¹	1 203	2.1
Newcastle	1 002	1.7
Other UK airports	5 182	8.7
	<u>58 779</u> thous	<u>100.0</u> %

Source: CAA Statistics

1. BAA airport.

This chapter provides an overall picture of BAA and the part it plays in the provision of airport services in the UK. The next section analyses the structure of BAA's income and expenditure and shows where BAA's profit is generated. The third section reviews the

various regulatory controls which the Government applies to BAA. A final section reviews BAA's track record over the last ten years, looking at trends in expenditure, income and profitability.

Financial Performance

In 1983/4 BAA had a total turnover of £316 million. Its income can be divided into two broad categories — income from air-traffic services and income from commercial services (see Table 2.2). Air-traffic income includes revenue from landing charges and from charges on departing passengers (the most important items), revenue from parking fees and revenue from apron services (e.g. use of air-bridges). At the Scottish airports, income is also earned from the ground-handling of aircraft; at the south-east airports, however, these services are provided either by the airlines or by franchisees (see Chapter 3). Air-traffic control and navigation services are provided separately by the Civil Aviation Authority.

TABLE 2.2
BAA's Income, 1983/4

Income category	Income (£ million)	Percentage of total income
<i>Air-traffic services</i>		
Landing fees ¹	127.5	40
Parking fees	28.2	9
Apron and other services	11.1	4
Total air-traffic services	166.8	53
<i>Commercial services</i> ²		
Concessions	98.8	31
Rents and services	49.9	16
Miscellaneous	0.6	-
Total commercial services	149.3	47
<i>All income</i>	£316.1m	100%

Source: BAA, 1984b

1. Includes income from passenger-related charges.

2. A more detailed breakdown of BAA's commercial income is shown in Chapter 3.

Income from commercial services includes income from concessions, rents and services. As explained in Chapter 3, BAA does not itself

provide commercial services, such as catering facilities at airports; instead it franchises these operations to specialist firms in the private sector (for example, Trusthouse Forte). BAA's income from these services includes the payments made by franchisees for the operation of the franchises. Income from services includes payments by tenants for heating, electricity, water etc. Income from all commercial services accounts for 47 per cent of BAA's total turnover whilst income from concessions alone accounts for 31 per cent (see Table 2.2). Retail outlets are the most important source of concessionary income and, in particular, duty-free and tax-free goods provide broadly half of BAA's concessionary income.

BAA's total expenditure in 1983/4 was £265 million yielding a trading profit (after depreciation but before interest, tax and extraordinary items) of £51.6 million. A categorisation of BAA's expenditure is shown in Table 2.3. Broadly a third of total expenditure is accounted for by depreciation charges and payments for rates and rents. Expenditure on maintenance and on materials and services which are bought in, together account for broadly a further third of total expenditure. Bought-in services include operations such as cleaning (categorised under utility and general services in the table) which are contracted out to private companies. Finally, staff costs account for the remaining third of total expenditure (although the substantial contracting-out of services has had the effect of reducing BAA staff inputs relative to other inputs).

TABLE 2.3

BAA's Expenditure, 1983/4

Expenditure category	Expenditure (£ million)	Percentage of total expenditure
Staff costs	86.4	33
Rents and rates	18.9	7
Utility and general services	33.2	12
Equipment and supplies	9.6	4
Maintenance and repairs	19.6	7
Other expenses	29.0	11
Depreciation	67.9	26
Total expenditure	£264.6m	100%

Source: BAA, 1984b

BAA's total expenditure can be divided between air-traffic services and the support of commercial services. The analysis in Table 2.4 shows that, in 1983/84, BAA made a profit (after depreciation but before tax etc) of £77.7 million on commercial services which offset a loss of £26.1 million on air-traffic services, to yield an overall profit of £51.6 million. However, no tax was charged with respect to these profits: as a result of BAA's substantial investment in fixed assets it has unused allowances and, in 1983/4, it recorded a tax loss.

TABLE 2.4

BAA's Income and Expenditure, 1983/4

	<i>£ million</i>
<i>Air-traffic services</i>	
Income	166.9
Expenditure:	
Fire and ambulance	9.9
Runways, taxiways and aprons	107.5
Passenger transit areas	75.6
	<hr/>
Total	193.0
	<hr/>
Profit/(loss)	(26.1)
<i>Commercial services</i>	
Income	149.3
Expenditure	71.6
	<hr/>
Profit/(loss)	77.7
	<hr/>
<i>Total profit/(loss)</i>	£51.6m

Source: BAA, 1984b

An analysis of the income, expenditure and profitability of BAA's London airports is shown in Table 2.5. This shows the overall importance of Heathrow and Gatwick both to the structure of BAA's operations and, in particular, to BAA's profitability. In 1983/4, almost two-thirds of BAA's total turnover arose at Heathrow and a further 22 per cent at Gatwick. Heathrow was the only BAA airport to make a profit on air-traffic services. This, together with the far more substantial profit made on commercial services, means that Heathrow contributed £50.3 million to BAA's overall profit of

£51.6 million. At each of the other six airports profits were made on commercial services but losses were incurred on air-traffic services. In some cases (Gatwick, Glasgow and Aberdeen) profits from commercial services were more than sufficient to outweigh losses incurred on air-traffic services; in the case of the other three airports (Stansted, Edinburgh and Prestwick) this did not happen and an overall loss was recorded, albeit small in the case of Edinburgh.

TABLE 2.5
Performance of BAA's London Airports in 1983/4¹

	<i>£ million</i>			
	Total, all BAA airports	Heathrow	Gatwick	Stansted
<i>Income</i>				
Air-traffic services	166.9	106.3	31.3	1.0
Commercial services	149.3	98.2	36.9	1.9
Total	316.2	204.4	68.2	2.9
<i>Expenditure</i>				
Air-traffic services	193.0	104.7	48.0	5.4
Commercial services	71.6	49.5	14.3	1.4
Total	264.6	154.1	62.3	6.8
<i>Profit/(loss)</i>				
Air-traffic services	(26.1)	1.6	(16.7)	(4.4)
Commercial services	77.7	48.7	22.5	0.5
Total	51.6	50.3	5.8	(3.9)

Source: BAA, 1984b

1. Rounding errors apply.

Regulation and Control of BAA

The current regulation of BAA can be divided into four parts. First, in common with other nationalised undertakings BAA is subject to various financial controls and statutory duties. Second, there are various statutory controls applicable to all airports and to which BAA is subject. Third, in common with other airports BAA's market for air-traffic services is influenced by policies for the licensing of air services. Finally, BAA is subject to general planning controls.

Financial Controls and Statutory Duties

BAA's statutory duties are in the usual form for a nationalised industry. They require it to provide services having regard 'to efficiency, economy and safety of operation'. Less typically BAA has a duty to consult both users and other parties (such as local authorities) affected by the operation of its airports. BAA is subject to a number of government financial controls the most important of which are:

- government approval of the total level of capital expenditure and of individual capital investment projects with expenditure above £15 million;
- an external financing limit (EFL) specified by the Government which sets a limit each year on the amount which BAA is allowed to borrow (or the cash surplus which it is required to generate);
- a requirement to break even on revenue account (after making provision for depreciation and renewal) taking one year with another.

In addition, BAA is set separate targets by the Government relating to its profitability, expenditure and productivity. For the fiscal years 1983/4 through to 1985/6 they are:

- a specified return on average net assets (a minimum 3 per cent per year);
- a specified reduction in expenditure (excluding depreciation) per passenger (a minimum of 0.5 per cent per year);
- a specified increase in labour productivity measured in terms of passengers per pay-roll hour (a minimum of 0.5 per cent per year).

Each of these targets is specified in two parts, a minimum level plus an increment linked to growth in traffic (see BAA, 1984b). This reflects a belief that the target indicators are demand-sensitive.

Airport Controls

The Government has reserve powers to set a maximum limit for charges at any airport (Air Navigation Order 1980). The Government also has powers to regulate aircraft noise at various airports. It can stipulate quotas for night flying, limit noise levels on take-off and landing, and specify minimum noise routes. In common with other airports BAA is subject to various regulatory controls relating to the security and policing of airports.

Air Service Licensing

International air services can only be operated under the provisions of a bilateral air service agreement. In many cases these agreements will specify the airline(s) and the routes, and in some cases will also specify service frequencies and capacity and place limits on fare levels. In some, but not all, cases the agreements will also specify the airports of origin and destination.

Development Control

BAA is regarded as a statutory undertaking under the relevant planning legislation (Town and Country Planning General Development Order 1977) and, in consequence of this, it is automatically granted planning permission for development on operational land (but subject to consultation with local planning authorities). This provision does not, however, apply to the building or extension of runways. Because of this, and because some proposed developments have been on non-operational land, in practice BAA has had to seek planning permission for most major developments, including Terminal 4 at Heathrow, runway extensions at Gatwick, a second terminal at Gatwick, a new terminal and runway at Edinburgh and a new terminal at Stansted; these have involved public inquiries.

Trends in BAA's Performance

Assessing BAA's performance is not a straightforward task. A major difficulty lies in devising a satisfactory measure of BAA's output. BAA's airports provide both air-traffic services and commercial services and, as shown in Appendix A, they serve a complex mix of different types of traffic (domestic and international, scheduled and charter, business traffic, cargo, mail etc) each with its differing requirements. The output measure used by the Government in setting targets for BAA is the number of passengers handled. This is the measure we have used in Table 2.6 which shows the trend in the number of passengers handled by BAA, the trend in BAA's income per passenger, the trend in expenditure per passenger and the resulting trend in profits per passenger. All these figures are shown in real terms (that is after allowing for the effect of inflation by deflating by the retail price index).

Interpreting these trends is made difficult by two factors. First, as explained earlier, since 1966 the number of airports operated by BAA has increased from four to seven. For this reason the

TABLE 2.6

Trends in BAA's Performance

	<i>Index, 1975/6 = 100</i>				
	1976/7	1978/9	1980/1	1982/3	1983/4
<i>Output</i>					
Number of passengers	110	128	136	139	146
<i>Income</i>					
Traffic fees per passenger	106	131	158	128	126
Total income per passenger	105	115	126	115	116
<i>Expenditure and productivity</i>					
Expenditure per passenger (before depreciation)	95	118	126	116	113
Passengers per employee	104	89	89	96	103
<i>Profits</i>					
Trading profit per passenger (before depreciation)	123	109	124	114	122

Source: BAA, 1984b

Note: All financial indicators are deflated by the retail price index.

comparisons shown in the table are bench-marked to 1975/6, the first year in which BAA operated its present network of seven airports. Second, responsibility for airport security was changed in 1978 and in 1983; on both occasions the effect of this was to increase BAA's costs.

BAA's charges for air-traffic services (aircraft landing and parking fees and charges per passenger) appear to have increased significantly in real terms since 1975/6. However, this substantially reflects changes in responsibility for various airport security services. Up to April 1978 functions such as passenger search were carried out by the airlines. From 1 April 1978 BAA assumed responsibility for these functions. BAA currently incorporates a charge of £1.21 per departing passenger to cover the costs of this. If these security charges are netted out, the present level of charges is only marginally higher, in real terms, than in 1975/6 at the beginning of the period considered.

Total income per passenger has increased in real terms but less quickly than traffic charges (including the security element); this is because over the period the level of receipts per passenger arising from commercial services has risen broadly in line with inflation.

The trends in expenditure and labour productivity shown in the table suggest static productivity and rising real costs. However, changes in security arrangements in 1978 and 1983 have affected this picture. BAA estimates the cost of the security functions which it took on in 1978 as £1.21 per departing passenger. This is equivalent to almost 15 per cent of total expenditure per passenger. Additionally, from April 1983 BAA assumed responsibility for the costs of policing its airports; it is estimated that this factor increased BAA's costs by 3 per cent in 1983. If the trend in expenditure per passenger is adjusted on this basis, then expenditure per passenger in 1983/4 was 6 per cent lower in real terms than at the start of the period considered (see Table 2.7).

TABLE 2.7

BAA's Trends in Expenditure per Passenger

	<i>Index, 1975/6 = 100</i>		
	Actual trend in expenditure	Trend adjusted for changes in security charges	Trend 'achievable from traffic growth'
1975/6	100	100	100
1983/4	113	94	82

Notes: All trends are deflated by the retail price index.
 Expenditure excludes depreciation.
 Actual expenditure trends are from BAA, 1984b.
 Adjusted trends are calculated as described in text.

BAA has been set performance targets on the basis that performance is sensitive to traffic growth. Therefore, it is instructive to compare the 6 per cent decline in real expenditure per passenger with what might have been expected after applying the growth sensitivity factors on which the current government targets are based (see Table 2.7). The calculation indicates that traffic growth should have enabled BAA to reduce its real expenditure per passenger by 18 per cent between 1975/6 and 1983/4 instead of the 6 per cent achieved. It is far from certain, however, that there are significant economies of scale in airport operation (see Chapter 6) and, therefore, the growth sensitivity factors used to set performance targets over a period of two or three years may not be appropriate and accurate for estimating the effect of substantial increases in traffic levels over a period of eight years.

Summary and Conclusions

BAA's income comes from two major sources: from air-traffic services and from commercial services with the latter accounting for nearly half of the total. Terminal retailing is the major source of this commercial income. Expenditure is divided fairly evenly between depreciation, rent and rates; maintenance, materials and services; and staff costs. Staff costs are comparatively low because of the extensive franchising that takes place within the commercial services sector. (At Heathrow alone the total turnover of the franchises is more than three times BAA's revenue from Heathrow.)

BAA is subject to a large number of operational constraints some of which are general to nationalised industries and some peculiar to the Authority. These include financial controls, related to which are a number of performance targets.

BAA's expenditure per passenger increased in real terms by 13 per cent between 1975/6 and 1983/4. However, after making allowance for changes which took place in security arrangements in 1978 and 1983 it is estimated that, on a consistent basis, expenditure per passenger fell by 6 per cent in real terms. Traffic growth over the period may, however, have helped BAA to reduce the level of expenditure per passenger. On the basis of the traffic sensitivity factors which the Government uses to set performance targets for BAA, a greater reduction than 6 per cent in real terms should have been possible.

CHAPTER 3

COMMERCIAL SERVICES

Introduction

Commercial services make a substantial contribution to the income earned by BAA; over the last ten years revenue earned on commercial services has been broadly equal in size to revenues earned from air-traffic charges (from landing fees, aircraft parking charges and charges for apron services).

The significance of commercial services in BAA's overall profit performance is even greater. In 1983/4, commercial services yielded a profit of £77.7 million (on an expenditure base of £71.6 million). This served to offset a loss incurred on services for air-traffic of £26.1 million. In fact, in recent years only Heathrow has made a profit (albeit a marginal one) on air-traffic services. The pattern at the other six BAA airports is one of losses on air-traffic services being offset, either partially or wholly, by profits on commercial services. The substantial profit made on commercial services at Heathrow (£48.7 million in 1983/4) has generated a large share of BAA's overall profitability.

In this chapter, we consider the composition of commercial services, how they are organised, which elements are the major source of income and profits and, importantly, why these services are so profitable.

The Organisation of Commercial Services

Airport services fall into a number of broad groups. First, there are what are termed by BAA essential services — security, fire and rescue services, snow clearance etc — which it is the Authority's policy to provide directly. Second, there are services provided for the airlines, such as the handling and cleaning of aircraft, refuelling etc. And third, there are the services provided for passengers mostly within the airport terminals — retailing, catering, banking, car hire etc. The term commercial services applies basically to services falling into the latter two groups.

It is BAA's policy that commercial services should, wherever possible, be provided by specialist companies. The mechanism used to achieve this aim is for BAA to award a service franchise (a concession, licence or lease) to a company using basic accommodation and equipment provided by BAA; the franchisee is

limited to supplying the staff and supplies. Most franchises are let initially on a five year term and are subject to some form of tendering procedure. Table 3.1 illustrates the extent to which BAA has franchised services to passengers. (Services to airlines are almost exclusively franchised.) Most areas which it is possible to franchise have been franchised; the possible exception is in the provision of portorage and trolley services both of which are franchised at certain airports overseas (e.g. Los Angeles International).

TABLE 3.1

Responsibilities for Airport Services/Facilities for Passengers

Service/facility	Responsibility
Car parks — short-term	BAA franchisee
Car parks — long-term	BAA franchisee
Courtesy bus service to/from long-term car park	BAA franchisee
Check-in	Airline or BAA franchisee
Flight information	BAA, with airline input
Security — passenger search	BAA
Catering — buffet, bars, restaurants	BAA franchisee
Banks	BAA franchisee
Duty-paid shops	BAA franchisee
Duty- and tax-free shops	BAA franchisee
Post office	Post Office
Telephones	British Telecom
Porters	BAA
Trolleys	BAA
Hotel booking services (off-airport)	BAA franchisee
Hotels (on-airport)	BAA franchisee
General airport information	BAA
Car hire	BAA franchisee
Customs	HM Customs and Excise
Immigration	HM Immigration

Source: Adapted from House of Commons, 1984, Evidence, p. 89.

This extensive franchising of services to the private sector has an impact both on the structure of employment at BAA's airports and on the source of BAA's revenues. For example, concessionaires at BAA's airports employ more than twice as many persons as does the Authority (13,560 compared with 6969). Franchises also provided the Authority with over 30 per cent of its total 1983/4 revenue of £316 million and two-thirds of its commercial income.

Income from companies running duty-free shops is of particular

significance and is estimated by BAA to amount to broadly 30 per cent of total commercial income. Other important sources of commercial income are the rents paid for the use of facilities at airports (e.g. by airlines) and the charges made for supplying services (e.g. electric power) to tenants and to franchisees (see Table 3.2).

TABLE 3.2

BAA Commercial Income, 1983/4

	Commercial income (£ million)	Percentage of total commercial income
<i>Concessions:</i>		
Retail outlets	64.7	43
Catering	5.3	4
Advertising	1.3	1
Car hire	4.2	3
Public car parks	13.9	9
Other	9.5	6
Total concessions	98.9	66
<i>Rents and services:</i>		
Rents	24.8	17
Services	25.0	17
Total rents and services	49.8	34
Miscellaneous income	0.6	-
<i>Total commercial income</i>	£149.3m	100%

Source: BAA, 1984b

Services and Efficiency

In spite of this infusion of the private sector on a considerable scale, the difference it makes in terms of productive or allocative efficiency in airport services is in fact circumscribed. The effect on efficiency is determined by whether the franchising arrangements change the operating environment in two respects: whether they introduce profit-maximising behaviour and whether they introduce competition. If they introduce the first but not the second, then productive efficiency alone will have been improved. If they also introduce competition, an improvement in price/output

combinations will also accrue. Transferring the production of goods and services to the private sector either by transferring assets or by franchising, does not by itself achieve lower prices and/or improved quality of service. It is the conditions and circumstances which attach to the transfers that are important.

It is BAA's policy to 'maximise profits in its commercial [i.e. non-traffic] affairs' (consistent with its long-term credibility and public enterprise obligations). If the Authority achieves this aim one can be assured that it is operating efficiently in this sector (in terms of minimising the costs of its output). Indeed, the fact that BAA has chosen to franchise such a large part of its commercial operations is indicative that it is pursuing a profit-maximising/cost-minimising objective. Rather than attempt to provide directly services with, at Heathrow for example, an annual turnover of £700 million, BAA has adopted the view that it can generate more net income by leaving matters to specialist contractors. If its judgement is correct, services will be provided at a minimum cost.

On the other hand, BAA does have an incentive to reduce or minimise the degree of competition that the franchisee faces. With reduced competition, franchisees will be able to charge higher prices than they would otherwise be able to do and, consequently, they will be able to increase their bids for the rights to operate franchises.¹ Thus, BAA, with its general policy of awarding contracts to companies offering the highest percentage of income to the Authority, has a strong incentive to award exclusive contracts or to set the terms of the franchises in such a manner that competition is reduced.

In practice the degree to which BAA restricts competition in awarding franchises varies (see Table 3.3). At BAA's London airports the most competitive area is in the provision of services to airlines — ground-handling, fuel and flight catering. For example, at Heathrow, eight airlines undertake all ground-handling services including check-in, reservations, ticketing and baggage-handling, and, in competition with each other, offer these services to other airlines; some of the latter also provide some of these services for themselves.

TABLE 3.3

Number of Franchises at BAA Airports

Activity	AIRPORT ¹						
	LHR	LGW	STN	GLA	EDI	PK	AB
<i>A. Services to airlines</i>							
A1. Aircraft handling and cleaning	8	3	3	1	1	none	4
A2. In-flight catering	5	5	2	2	1	1	2
A3. Fuel supplies	9	4	2	2	2	2	2
<i>B. Services to passengers</i>							
B1. Shops — duty-free, liquor and tobacco	3	1	1	1	1	1	1
B2. Shops — tax-free	3	1	1	1	1	1	1
B3. Shops — tax-paid	6	2	1	1	1	1	1
B4. Public catering	3	1	1	1	1	1	1
B5. Banking	3	2	1	1	1	1	1
B6. Car hire	4	3	1	3	4	3	4
B7. Car parking	2	2	none	1	1	1	1
B8. Petrol filling station	1	1	none	1	none	none	none
B9. Hotels	1	2	none	1	none	none	1
<i>C. Other services</i>							
C1. Advertising	1	1	1	1	1	1	1

Source: Adapted from House of Commons, 1984b, Evidence, p. 86

1. LHR = Heathrow
 LGW = Gatwick
 STN = Stansted
 GLA = Glasgow
 EDI = Edinburgh
 PK = Prestwick
 AB = Aberdeen

In contrast, and with the notable exception of the self-drive car hire franchises, passenger services generally are subject to little or no competition within the individual terminals. Some competition for these services is provided by off-airport facilities — hotels, garages, long-term car parks and car hire. But with duty-free and tax-free goods and convenience goods, such competition is very restricted. In these circumstances one would expect prices and output to be set at monopolistic levels or a more restricted range of services to be provided. Evidence on both counts was presented to the House of Commons Transport Committee (1984), specifically with respect to the price of duty-free spirits and the range of periodicals on display at airport bookstalls.² In addition, the Director General of Fair Trading

judged recently that BAA was acting anti-competitively when determining the chauffeur-driven car hire concession at Gatwick.³

Summary and Conclusions

Commercial services are a major source of revenue to BAA. They are also *the* source of the Authority's profits with the surplus from commercial services offsetting trading losses on air-traffic services. It is the Authority's policy to maximise these profits. It effects this policy through an extensive system of franchised operations. In many respects the Authority is essentially a management company co-ordinating the activities of many separate specialist enterprises each of which is responsible for the direct provision of services to airlines and to passengers. By using this approach BAA is ensuring that the provision of commercial services is productively efficient, i.e. provided at minimum cost. However, it is also in BAA's interest to provide its cost-conscious, profit-maximising specialist franchise operators with 'local' monopolies, thus ensuring that their turnover and the Authority's fee income are maximised.

Exclusive or limited competition franchises for this purpose have not been granted in the case of services to airlines (possibly because of their more powerful influence); but they have been granted for the provision of services to passengers. With some services, catering for example, the Authority maintains control over both the price and the quality of standard lines. With other services such controls are less effective or absent and the indications are that substantial monopoly profits are being earned by BAA at the expense of the airport user.

FOOTNOTES

1. Alternatively, where BAA sets the price (as in catering), the price can be set higher than the competitive equilibrium price.
2. See, for example, House of Commons, 1984, Appendices 12 and 29 to the Minutes of Evidence.
3. Director General of Fair Trading, 1984.

CHAPTER 4

CHARGING POLICIES

Introduction

If resources are to be used efficiently prices need to be set equal to marginal costs. When an airport is operating with spare capacity, marginal costs will be the direct costs of servicing an extra unit of traffic. As demand develops and capacity becomes a constraint, marginal costs will rise reflecting the rationing of available capacity between competing users. Once additional capacity has been added, marginal costs will tend to fall and, if the additional capacity is more than is required for immediate needs, marginal costs once again are the direct costs of handling extra traffic units.

The degree to which marginal costs oscillate with increases in demand depends upon the ease with which capacity can be adjusted. If capacity is difficult to adjust, possibly because there are technical problems in expanding a site or because extra capacity has to come in big 'lumps', marginal costs, and consequently prices set equal to marginal costs, will vary a great deal over time. This has led to suggestions that frequent, large or sudden variations in price may create a detrimental level of uncertainty in the market-place and that with excess capacity low current prices give misleading signals for the longer term. The suggestion is that prices should reflect the costs of adjusting capacity at the margin, thus ignoring the pricing implications of 'temporary' shortfalls or excesses of capacity. This is the basis for long-run marginal cost (LRMC) pricing.

BAA's stated policy in the south-east is to base traffic charges on long-run marginal costs,¹ the implication being that the Authority does face some difficulty in fine-tuning capacity in response to changing demand so that capacity is not always optimally adjusted (i.e. short-run and long-run marginal costs are not always equal). This is particularly evident in the case of Heathrow where the expansion of airside capacity is limited by site restrictions. However, it is not clear in such cases, when the discrepancy between existing capacity and optimal capacity is of a long-term nature, why BAA does not set prices so that scarce capacity is rationed between competing users. With capacity restricted in the long term, pricing at long-run marginal cost is not justifiable. For this reason BAA's policy can be judged inefficient and, because the capacity shortfall at Heathrow is considerable, these inefficiencies are serious.

In the rest of this chapter, we focus on how well BAA has implemented its chosen policy of basing traffic charges on long-run marginal costs. In the next section the changes that have taken place in the structure of charges since the present policy was introduced are described. This is followed by an analysis of whether charges do cover long-run marginal costs as intended by BAA. The third substantive section considers the implications of long-run marginal cost based charges for BAA traffic revenues and for different groups of airlines.

The Charging Structure

BAA adopted LRMC pricing for the south-eastern airports in the early 1970s 'to help to produce the best possible investment decisions' (Little and McLeod, 1972). Until 1972 the charging system had been based wholly on the maximum permitted all-up weight of the aircraft which was probably regarded as a measure of willingness to pay (although the logic of the charge was not entirely clear). Since then such charges have been supplemented by a peak usage charge on the basis that 'the need for new capacity is determined only by peak demands — and a pricing policy which does not reflect this cannot be helpful for investment decisions'.

The charging schemes have been subject to frequent change since 1972 and the details are complex (see Appendix B). The initial peak charge element was applied to runway movements at Heathrow during the busiest summer hours. There was also a differential in the landing fees at various times at both Heathrow and Gatwick. A peak charge on passenger movements was not introduced until 1976.² It was applied initially to all three airports — Heathrow, Gatwick and Stansted — although the period of application was longest at Heathrow and shortest at Gatwick. In 1978 a further peak element was introduced at Heathrow only, via aircraft parking charges (by counting each peak minute as one-and-a-half off-peak minutes). There were also changes of detail (peak period definition, size of differential etc) concurrent with these changes and in intermediate years. Major changes were introduced in 1980 when movement charges with their peak differential were abolished and passenger charges were levied on departing passengers only (except at Stansted where no passenger charge applied at all). After numerous changes of detail during the early 1980s, in 1984 the peak/off-peak distinction in landing charges was abolished at Heathrow (but not at Gatwick or Stansted). The peak charge elements applying in 1984/5 are shown in Table 4.1.

Although the main features of BAA's charging scheme are apparent, little information has been published in a form that would enable a detailed assessment of the structure of charges in the light of its aims. For example, the contribution of the peak charge elements to total traffic fees is not known. But there are, on the face of it, some curious features that must throw doubt on its efficacy.

First, it is difficult to reconcile the fact that there appears to have been little change in the real level of peak charges in spite of a large increase in the capital spending programme in the last few years. The 1983/4 Annual Report and Accounts, for example, refers to 'BAA's massive capital programme' and notes that investment is more than double the level of four years previously. In spite of this, 'landing charges at Heathrow have ... remained virtually constant over the past six years'.³ Similarly, the peak passenger charge (after allowing for the incorporation of the government security charge in 1982) is no greater in real terms than it was at the start of the decade.

Second, the numerous changes of detail and the not infrequent changes of a more fundamental nature (e.g. abolition of charges on arriving passengers) are surprising. One would not expect to see such a degree of change in a charging structure based firmly on an assessment of long-run marginal costs. Indeed, one of the chief arguments in favour of the long-run approach is that it avoids the oscillations of short-run marginal cost pricing and provides a more stable planning environment for the airlines.

Do Charges Cover Long-Run Costs?

In 1980 a number of airlines brought legal proceedings against BAA, arguing that BAA's charges were discriminating and therefore contrary to the terms of the Chicago Convention of which the UK was a signatory. In preparation for the case (which was subsequently settled out of court)⁴ BAA carried out a refined analysis of the marginal costs incurred at both Heathrow and Gatwick airports. The basis of the costing was Terminal 4 at Heathrow and Terminal 2 (Northern Terminal) at Gatwick.⁵ Although both terminals were by then committed, it was argued that these, nevertheless, provided best estimates of economic costs in the absence of decisions on how further growth could be accommodated.

The costs of construction and operation of the two terminals were available in some detail. These costs were broken down into various categories and capacity/fixed costs were allocated to peak traffic.

TABLE 4.1

Traffic Charges at South-East Airports, 1984/5

Weight Charge on Landing¹

	DOMESTIC AND INTERNATIONAL FLIGHTS				
	Heathrow	Gatwick		Stansted	
	1 Apr - 31 Mar	1 Apr- 31 Oct	1 Nov- 31 Mar	1 Apr- 31 Oct	1 Nov- 31 Mar
Fixed charge:					
Helicopters	30	30	15	15	15
Other aircraft up to 16 MT ²	80	40	20	15	15
Other aircraft over 16 MT	117	60	30	30	30
Plus per metric tonne or part in excess of 50 MT	1.17	2.30	1.15	2.30	1.15

Passenger Charge³

	Heathrow	Gatwick	Stansted
Aircraft from 5 to 16 MT	1.21	1.21	1.21
Aircraft over 16 MT, off-peak	1.21	1.21	1.21
Aircraft over 16 MT, peak: ⁴			
Domestic services	5.31	3.51	1.21
International services	12.71	6.86	1.21

Aircraft Parking Charge

	First 20 MT	Thereafter
HEATHROW ⁵ — per tonne per hour or part	41p	20p
GATWICK — per tonne per hour or part	46p	23p

STANSTED

0 - 2 MT	£ 5 per 24 hours or part in excess of 24 hours
2 - 5 MT	£10 per 24 hours or part in excess of 24 hours
5 - 10 MT	£15 per 24 hours or part in excess of 24 hours
10 - 15 MT	£23 per 24 hours or part in excess of 24 hours
Over 15 MT	15p per tonne per hour or part in excess of 2 hours

Source: BAA, 1984a

1. Reduced by 20% for non-jets and aircraft meeting stipulated noise standards.
2. Metric tonnes.
3. Fee payable per terminal departing passenger. The passenger charge includes £1.21 as a notional element to recover costs previously reimbursed through the Aviation Security Fund.
4. Peak passenger period — Heathrow: 10.00 - 14.59 GMT, 1 April - 31 October
Gatwick: Thursdays through Mondays, 1 June - 30 September.
5. Peak parking period; at Heathrow 07.30 - 12.29 GMT, 1 April — 31 October: each minute counts as 4 minutes.

Different definitions of what constituted the peak were used although in all cases the peak was broadly defined. Capital was discounted at 8 per cent⁶ and a twenty-five year life for the terminal buildings was assumed whilst equipment had various assumed lives. An allowance was made for the fact that much of the terminal infrastructure is peculiar to the characteristics of international traffic, so that domestic traffic was not allocated costs which would be incurred if such traffic did not use the terminals.

Runway costs were treated differently from terminal costs, on the basis that additional runway capacity could not be provided at either Heathrow or Gatwick. Consequently, these costs were based on the costs of delay imposed on other airlines (e.g. increased fuel consumption) by each air transport movement; the cost of delay to passengers was not included. An analysis of movement delays at Heathrow in 1980 indicated that at times of peak demand (in the hour previous to and during the hours when demand exceeded 85 per cent of existing runway capacity), the marginal congestion costs imposed by an extra flight were about £125. During the rest of the main operating period these costs averaged about £50. Using these figures as a basis, the delay costs used were £50 for Heathrow and a peak hour cost of £100 for Gatwick.

The overall results of the analysis suggested a need to restructure charges substantially. In particular, there seemed to be no case on cost grounds for maintaining landing fees based on aircraft weight (although there was a case for having a flat-rate runway movement charge). Most costs arose from passenger-related activities, or were associated with the parking of aircraft.

In relation to the latter costs, there were alternative ways of reflecting these (either in dimension-related or weight-related charges) but the basic conclusions implied that a substantial change in aircraft parking fees was called for. What in particular were implied were a large increase in peak parking charges at Heathrow and a very large increase at Gatwick but a small downward adjustment at both airports on wide-bodied aircraft during the off-peak period. Off-peak parking charges on smaller aircraft were generally appropriate.

Similarly, a substantial restructuring of passenger charges was also implied by the findings. This is illustrated in Table 4.2 for one particular definition of the peak (different definitions had little effect on the resulting marginal costs). The results suggest especially a case for introducing charges on passengers arriving during peak periods.

TABLE 4.2

**Peak and Off-Peak Passenger Charges Implied by
Cost Analysis and Those Applying in 1983/4**

	HEATHROW		GATWICK	
	Actual charge, 1983/4	Implied charge	Actual charge, 1983/4	Implied charge
<i>£ per passenger</i>				
<i>Peak charge</i>				
International departures ¹	11.71	13.14	6.86	8.65
International arrivals	nil	6.71	nil	8.65
Domestic departures ¹	4.96	7.59	3.51	5.06
Domestic arrivals	nil	2.00	nil	5.06
<i>Off-peak charge</i>				
International departures ¹	1.21	1.66	1.21	0.81
International arrivals	nil	0.46	nil	0.81
Domestic departures ¹	1.21	1.25	1.21	0.52
Domestic arrivals	nil	0.18	nil	0.52

Source: BAA, 1983a, Table 7.6; BAA, 1983b, Table 9.2

1. Includes security cost.

Table 4.3 summarises on a consistent basis for Heathrow and for Gatwick what marginal cost based charges imply for selected aircraft types and services. For example, revenue from charges associated with a typical 747 service at Heathrow would need to rise by nearly 50 per cent (and fall by a little less in the off-peak) and at Gatwick by nearly 200 per cent (and be reduced by nearly a half in the off-peak). For smaller aircraft the difference between revenues and marginal costs was greater still. The difference for a BAC 111 operating a typical domestic service from Gatwick was such as to require a fourfold increase in revenues associated with peak charges (but a cut of about 40 per cent in off-peak revenues). Thus, in 1983/4 peak charges were failing to cover long-run marginal costs by a very substantial margin.⁷

The effect of the posted tariffs introduced for 1984/5 was to leave the passenger charges structure unchanged (i.e. a peak surcharge on departing passengers at Heathrow and Gatwick only) but to increase the rate by 10 per cent at Gatwick and by a lesser proportion at Heathrow.

TABLE 4.3

**Peak and Off-Peak Charges Implied by Cost Analysis
and Those Applying in 1983/4 and 1984/5**

	<i>£ per turn-round</i>					
	APRIL 1983 CHARGES		APRIL 1984 CHARGES		COST-BASED CHARGES	
	Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
<i>Heathrow - International</i>						
B747 (335 tonnes)						
265 passengers, 4 hr turn-round						
Aircraft weight/movement	656	328	450	450	100	100
Passengers (incl. security)	3 103	321	3 368	321	5 260	562
Parking	1 233	308	1 139	285	1 912	88
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	4 992	957	4 957	1 056	7 272	750
B737 (53 tonnes)						
80 passengers, 1 hr turn-round						
Aircraft weight/movement	103	52	121	121	100	100
Passengers (incl. security)	937	97	1 017	97	1 588	170
Parking	49	12	59	15	253	14
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	1 089	161	1 197	233	1 941	284
<i>Heathrow - Domestic</i>						
SD330 (11 tonnes)						
20 passengers, 1 hr turn-round						
Aircraft weight/movement	72	36	80	80	100	100
Passengers (incl. security)	24	24	24	24	192	29
Parking	10	3	18	5	219	12
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	106	63	122	109	511	141

£ per turn-round

	APRIL 1983 CHARGES		APRIL 1984 CHARGES		COST-BASED CHARGES	
	Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
<i>Gatwick - International</i>						
B747 (335 tonnes) 265 passengers, 4 hr turn-round						
Aircraft weight/movement	595	297	616	308	200	-
Passengers (incl. security)	1 646	321	1 818	321	4 585	429
Parking	308	308	326	326	2 703	88
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	2 549	926	2 760	955	7 488	517
B737 (53 tonnes) 80 passengers, 1 hr turn-round						
Aircraft weight/movement	42	21	67	33	200	-
Passengers (incl. security)	497	97	549	97	1 384	130
Parking	12	12	17	17	267	14
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	551	130	633	147	1 851	144
<i>Gatwick - Domestic</i>						
BAC 111 (48 tonnes) 75 passengers, 1 hr turn-round						
Aircraft weight/movement	45	23	60	30	200	-
Passengers (incl. security)	241	91	263	91	759	78
Parking	11	11	15	15	260	13
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	297	125	339	136	1 219	91

Source: Derived from BAA, 1983a, Tables 8.2 & 8.3; BAA, 1983b, Tables 10.2 & 10.3

Note: The cost-based charges shown are for pier-served aircraft stands. Appropriate charges for remote stands, from where passengers are bussed, are less.

With respect to aircraft parking, by roughly doubling the charge rate on the first 20 metric tonnes the 1984 charges appropriately adjusted the incidence between large and small aircraft. But Gatwick continued without a peak period surcharge and the peak/off-peak differential at Heathrow was unaltered.

Changes to landing fees at Heathrow in 1984 were more significant. Their effect was, broadly speaking, to delete the peak landing charge on a wide-bodied jet, so that one rate (slightly higher than the 1983 off-peak rate) applied across the board. With the medium and small aircraft the reverse case applied. The new flat rate was just about the same as the charge that had applied in the 1983 peak. The overall impact of these radical changes was intended to be neutral in revenue terms.⁸ At Gatwick and Stansted, however, a peak/off-peak differential based on aircraft weight continued and at Stansted the differential on wide-bodied aircraft was increased significantly.

The effect of these revised charges is illustrated in Table 4.3. In terms of the selected aircraft types there has been no change of substance. The serious shortfall at both airports in parking and passenger charges during the peak remains, and there has been little change in the Gatwick/Heathrow price/cost ratios. Judged by the 1983 cost analysis, charges overall remain grossly inefficient.

Some Implications

In this section we consider what the complete adoption of long-run marginal cost pricing would imply for BAA traffic revenues; which groups of airlines are benefiting most from charges set below marginal costs; and how BAA's south-eastern airports would compare on the basis of average charges, with other airports, if marginal cost pricing were adopted.

The 1983 marginal cost analysis, having calculated the appropriate level and structure of cost-based charges, then went on to calculate what these charges might mean to BAA in terms of revenues. The calculation was done on the basis of the 1982 pattern of traffic (i.e. aircraft movements of different types) and, consequently, does not allow for likely adjustments, especially in response to a change in the level and structure of charges. For example, the proportionately larger increase in charges on smaller aircraft could be expected to lead to an alteration in the 1982 ratio of small/large aircraft. Moreover, the degree of change implied by the cost-based charges suggests that the pattern of traffic could alter significantly. With this caveat in mind, the results of the analysis suggest the figures shown in Table 4.4.

TABLE 4.4

**Traffic Revenues Implied by Cost Analysis compared with 1983/4
Charges (1982 Traffic Pattern)**

	<i>£ million</i>			
	HEATHROW		GATWICK	
	April 1983 charges	Cost-based charges	April 1983 charges	Cost-based charges
Aircraft weight/ movement	20	10	6	6
Passenger charge (incl. security)	52	86	17	29
Parking	20	34	4	15
	—	—	—	—
	92	130	27	50

Source: BAA, 1983b, Table 10.1; BAA, 1983a, Table 8.1

These figures can be compared with 1982 expenditures on traffic services (including depreciation charges but excluding adjustments to the life of assets) of £98 million at Heathrow and £41 million at Gatwick. We conclude that, after making some allowance for price elasticities, traffic charges set equal to long-run marginal costs would cover total traffic expenditure at both Heathrow and Gatwick. An efficient charging system appears to be compatible with the setting of commercial objectives.

The difference between actual 1983 charges and those based on an analysis of marginal costs varied considerably between type of aircraft and type of flight (i.e. international vis-à-vis domestic). Although, in proportional terms, the under-charging during the peak was greater for smaller aircraft, the absolute amounts were positively correlated with size of aircraft. The typical 747 service was under-charged during the peak by more than £2000 at Heathrow and by nearly £5000 at Gatwick. On the other hand, for the short-haul B737 on an international flight the corresponding figures were £850 and £1300. Consequently, the failure to charge marginal costs will benefit different airlines to varying degrees, depending upon their pattern and type of operation.

We have not been able to analyse the precise situation for different airlines allowing for differences in equipment, routes and timing of

flights, but we are able to give some indication of differences in terms of the last for Heathrow.

The 1983 marginal cost analysis suggested a number of periods which could be used to define the peaks for arriving passengers, departing passengers and the parking of aircraft. Generally, these periods overlap and the consequences of adopting one rather than another are not of great significance. The results used in the preceding section have been based on an arrivals peak for Heathrow of 06.00-11.59 hours, April to October and a departures peak of 09.00-14.59 hours, also from April to October. These hours were used in conjunction with the pattern of Heathrow flights for a busy day — a Friday — in July 1984 to analyse the concentration of flights by different categories of airline. The chosen categories were British Airways, other UK airlines, European airlines, US airlines and others. The findings are shown in Table 4.5.

TABLE 4.5
**Percentage of Heathrow Flights by Airline Category
 Occurring in Defined Passenger Peaks**

	AIRLINE CATEGORY					<i>Per cent</i>
	BA	Other UK	European	US	Other	All
Arrivals	36.2	41.9	39.2	75.7	50.0	42.7
Departures	47.8	39.1	42.3	75.0	51.9	48.5

Source: ABC, 1984

These suggest that US airlines in particular are the major beneficiaries from charges set below marginal costs. Three-quarters of both their arrival and their departure flights occur during the defined peak. These operations will be by 747 or other wide-bodied jets under-charged by about £2000. Similarly, other non-British/European airlines, probably operating the larger long-haul jets, have a concentration of flights during times when charges are below costs.

In spite of the 1983 analysis indicating that both Heathrow and Gatwick were failing to cover marginal costs, there is a pervasive view that BAA's London airports, and particularly Heathrow, are comparatively expensive airports to use. Thus, the Transport

Committee referred to the 'very high levels' of landing charges reached in 1980/1 at Heathrow.⁹ Many airlines using Heathrow have fostered this view and naturally have an interest in doing so.¹⁰ It is not evident that this is the case. Comparisons of this type are invidious because of different bases that can be selected for comparison (e.g. different types of aircraft). Also there can be marked differences in the periods when peak/off-peak charges apply. At Heathrow, for example, the proportion of passengers using the airport in 1983 who were subject to a peak passenger charge was about 30 per cent. The percentage of total air transport movements at Heathrow falling within the peak period was about 60 per cent in 1983. The corresponding proportions at Gatwick were (approximately) 39 per cent and 68 per cent.¹¹ Consequently, the impact of higher charges during the peak has to be set against the large proportion of passenger and aircraft movements which fall into the off-peak.

Once this dilution is allowed for, a very different picture emerges. Table 4.6 shows annual traffic revenues divided by annual passengers for each BAA airport from 1978/9 to 1983/4. The resulting yields per passenger are expressed in 1983/4 prices. The yield for Heathrow is, in fact, less than those for Prestwick and Glasgow and about half the average yield for local authority airports.¹²

TABLE 4.6

Landing and Parking Fees¹ per Passenger for Individual BAA Airports

	<i>£ per passenger, 1983/4 prices</i>					
	1978/9	1979/80	1980/1	1981/2	1982/3	1983/4
Heathrow	3.73	3.49	4.66	4.38	3.92	3.74
Gatwick	2.59	2.33	2.78	2.58	2.11	2.31
Stansted	3.01	2.29	2.97	3.04	2.25	2.71
Glasgow	2.75	2.65	3.66	3.64	3.27	3.76
Edinburgh	2.87	2.78	3.76	3.73	3.33	3.69
Prestwick	9.29	8.63	10.43	10.12	10.02	8.35
Aberdeen	2.72	2.45	3.67	3.49	2.95	3.11

Source: Adapted from House of Commons, 1984, Appendix B10, BAA Minutes of Evidence.
1. Includes passenger-related charges.

How would the Heathrow and Gatwick figures be affected by charges fully covering long-run marginal costs? Using the revenue figures from cost-based charges shown in Table 4.4 and 1982 traffic figures (which formed the basis of the revenue calculations), the yield for Heathrow increases to £5.26 per passenger and that for Gatwick to £4.35 per passenger. Thus, even if long-run marginal costs had been fully covered at both Heathrow and Gatwick in 1982/3, the overall average charge at these two airports would have remained below that for Manchester, Birmingham and most other non-BAA airports. Manchester International, for example, had an operational income per passenger of £6.69 in 1983/4.

Summary and Conclusions

BAA's stated policy of charging on the basis of long-run marginal costs does not appear to have been applied consistently or thoroughly. The 1983 cost analysis showed that the costs of expanding capacity at both Heathrow and Gatwick were not, at that time, reflected adequately either in the structure or in the level of charges at either airport. The discrepancies were large and the past trends in charges and in capital expenditure strongly suggest that prices have been inadequate for some time.

Alterations to the level and structure of charges since 1983 do not appear to have changed the situation. It is difficult to reconcile the recent degree of change with a requirement for more radical change implied by the cost analysis. With major expansion to terminal facilities at Heathrow and Gatwick committed and well on the way to completion — T4 (Heathrow) is due to open late in 1985 and T2 (Gatwick) in 1987 — it might be argued that the previous calculations are no longer relevant in determining current charges. What then become relevant are the costs associated with the next most likely tranche of capacity. At Heathrow this is Terminal 5 (T5). But evidence presented at the Stansted inquiry suggests that the cost of this capacity is higher than that for T4, in which case charges at Heathrow continue to be far too low even within the context of BAA's long-run marginal cost approach.

These serious inadequacies in BAA's present charges also concern Stansted airport which makes a loss and is cross-subsidised. Cross-subsidy between airports will be efficient only to the extent that subventions are used to meet the difference between average costs and marginal costs. Charges, nevertheless, should continue to cover the latter. It is BAA's policy to expand capacity at Stansted greatly in the immediate future. If BAA's policy of long-run marginal cost

pricing is to have any credence at all then the pricing signals at Stansted should reflect this forthcoming expansion of capacity. BAA proposes to increase Stansted's annual capacity to 15 million persons compared with its current capacity of about 2 million persons. On the basis of figures presented at the Stansted inquiry the unit cost of this additional capacity is not too dissimilar from the unit cost of constructing T4 (Heathrow) and T2 (Gatwick). This would suggest that the Heathrow/Gatwick cost analysis gives a reasonable indication of appropriate long-run charges for Stansted. Current charges bear little resemblance.

We conclude that BAA's policy of basing prices on long-run marginal costs is ineffectual. If it were truly to adopt this policy it is most likely that traffic income received would cover traffic expenditure. Instead, BAA has chosen to set traffic charges below long-run marginal costs (and at Heathrow and Gatwick well below short-run marginal costs) and to balance the books from monopoly rents gained from commercial (retailing) activities.

FOOTNOTES

1. BAA, 1984b, p. 80.
2. Note BAA's charging year is 1 April — 31 March. Therefore all charges relating to a particular year are introduced as from 1 April.
3. House of Commons, 1984.
4. The airlines withdrew their action on the basis of a Memorandum of Understanding and Settlement Agreement which set out BAA's charges policy. The US Government had also initiated action under the Bermuda 2 Agreement. This action was also discontinued on the basis of a Memorandum of Understanding setting out the UK Government's policies.
5. See BAA, 1983a and BAA, 1983b.
6. This was considered the appropriate *ex ante* rate in order to have an acceptable probability of achieving an *ex post* rate of 5 per cent (the target rate on new investment as recommended by the Treasury).
7. The strength of this conclusion differs from that in the BAA reports because, in the latter, surpluses from commercial activities (these surpluses derive from monopoly profits) were treated as an offset item. We believe that this is inconsistent with a marginal cost pricing approach and therefore the figures presented here exclude the offset adjustment.
8. See House of Commons, 1984, BAA Evidence, Part B, para. 20.
9. House of Commons, 1984, para. 13.
10. For dissenting views by an airline see House of Commons, 1984, Q215.
11. These statistics are based on data in BAA, 1984c, p. 242.
12. Unlike the BAA accounts, charges at some airports include revenues from air navigational fees but the overall effect of these is small.

CHAPTER 5

MARKET STRUCTURE

Introduction

Airports provide services to airlines and services directly to passengers. In providing services to airlines, airports are an intermediate good. There is a general rule that the elasticity of demand for an intermediate good (factor of production) depends upon three things:

- the elasticity of demand for the final product, e.g. holidays in Spain etc;
- the share of the factor in the total costs of the final product;
- the substitution between factors, e.g. between airports.

Discussion of this issue is inclined to focus on the first and especially the second factor and ignore the third almost entirely. Thus, one finds statements such as '... the fact that airport charges represent only about 5 per cent of airline costs, means that airline demand for airports is price inelastic to airport charges'.¹ This is not an untypical view but it is open to challenge for two reasons.

First, like most average figures, that used in the statement conceals a large measure of variation. As distance flown varies, the proportion of an airline's costs made up by airport charges tends to vary also. Consequently, for short-haul flights airport charges may be quite high. On the London-Glasgow route, for example, BAA's traffic charges in 1983/4 were nearly 10 per cent of the ticket price.²

Second, and more importantly, the statement ignores the factor which is of most significance: the degree to which one airport is a substitute for another. This determines the size of the cross-elasticities. Consequently, if two competing airports are regarded as close substitutes for each other then the demand for one will be very sensitive to changes in prices at the second airport: the cross-elasticities will be high. Thus, while it is reasonable to conclude that if all competing airports raised airport charges there would be little effect,³ it is misleading to suppose that there would be an equally small effect on the demand for a particular airport if it, and it alone, increased charges.

In this chapter, we focus on two issues. First, we consider the degree of substitutability between BAA's London airports and other airports. Second, we consider the comparative advantage of BAA's

three south-east airports with respect to each other and the potential for competition between them. The analysis is in terms of sub-markets which, in turn, are divided into two broad traffic categories referred to as transfer traffic and terminating traffic.

Transfer Traffic

BAA's transfer traffic is made up of two basic categories: traffic interlining between one international flight and another and UK traffic which starts or finishes outside the south-east region (and travels to London either by surface transport or by air). This market accounts for a third of BAA's London passenger traffic. In general terms it is competitive, with BAA facing competition from both regional and continental airports.

In 1980 the rest of the UK outside the south-east generated a total international traffic demand of about 15 million passengers per annum. About half of this traffic was catered for by the regional airports. This regional share, however, differs greatly region by region. For example, more than three-quarters of the total traffic generated within the north-west region passed through regional airports, but in the case of the south-west region, all but 13 per cent went via the London system (including Luton).

The regional share also varies greatly according to the nature of the traffic. The non-scheduled inclusive-tour charter market in particular makes use of the regional airports. During the summer 1983 season about three-quarters of this trade generated within the regions used airports outside London.

Such general statistics do not, of course, address particular markets and the possibility that in many of these London retains a powerful position. (Although whether it has the ability to discriminate to an equally specific extent is another matter.) For example, if only London has direct flights from the UK to Vancouver then London might appear to command the UK/Vancouver market. Similarly, if Norwich (unlike Manchester and Glasgow) does not have direct flights to Milan, then again London might appear to monopolise East Anglia-Milan traffic (but not the Milan traffic from the north-west or from Scotland). Consequently, the ability of a regional airport to develop direct services has been viewed as a crucial factor in determining the degree to which London holds an advantage;⁴ the broader the range of services offered, the more competition London is seen to face.

This focusing on direct flights from the regions oversimplifies the

situation in one very important respect. It neglects the possibility of the regional traffic flows using a local airport to fly indirectly not through London but through continental rivals. There are three rivals of significance — Frankfurt, Amsterdam and Paris (Orly plus Charles De Gaulle).

On the basis of crude figures⁵ the total number interlining through Frankfurt is very similar to the combined total for Heathrow/Gatwick (6.5 million) which, in turn, is about double the figures for Amsterdam and for Paris. The UK regional airports are well connected to these continental hubs especially to Amsterdam and Paris (see Table 5.1). For example, the number of UK regional airports connected directly to Amsterdam is similar to the number connected to Heathrow. The weekly frequencies between the UK regional airports and the continental and London hubs are shown in Table 5.2. Generally the frequencies in the case of each continental airport are much inferior to those for Heathrow but the combined frequencies compare favourably. The major exceptions are Glasgow, Belfast and Edinburgh from where shuttle flights greatly enhance the London frequencies.

TABLE 5.1
**Heathrow Services compared with Other Major European
 Airports, August 1982**

Airport	International destinations served	Weekly international departures	UK regional airports served directly
London Heathrow	193 ¹	1 739	19
Amsterdam Schiphol	186 ²	1 448	18
Frankfurt	172 ¹	1 300	2
Paris CDG	120 ²	1 305	8

Source: Stansted inquiry document, BA72

1. Scheduled only.

2. Includes some charter destinations.

TABLE 5.2

**Weekly Frequencies Between UK Regions and
London/Continental 'Gateways'**

FROM AIRPORT	TO AIRPORT		
	London Heathrow	London Gatwick	Amsterdam, Frankfurt, Paris
Manchester	53	27	47
Birmingham	31	20	32
East Midlands	33	20	18
Newcastle	30	12	17
Leeds/Bradford	25	12	22
Cardiff	—	10	7
Bristol	—	10	7
Southampton	—	—	17
Glasgow	103	26	23
Aberdeen	40	16	27
Edinburgh	100	26	24
Belfast	101	21	5
Exeter	—	10	—
Humberside	18	—	17
Jersey	28	47	19
Liverpool	26	12	—
Norwich	18	10	24
Plymouth	17	11	—
Tees-Side	26	12	7

Source: ABC, 1984

Both Schiphol and Frankfurt have been marketing themselves aggressively in the UK as an interlining alternative to London. One specific example of this was Lufthansa's 'Fly from Frankfurt' advertisements which appeared in the northern editions of the *Daily Telegraph* in October 1983 emphasising that it was easier to transfer flights at Frankfurt than at Heathrow.⁶ In Schiphol's case its marketing has been facilitated by a single terminal and a design which allows for easy connections between flights. The market appears to have responded. In 1972 only 17 per cent of its UK traffic was from or to the UK regional airports; by 1982 volumes had more than trebled and the regional proportion had increased to 36 per cent.⁷

Nevertheless, this competition is subject to constraints, in particular restricted traffic rights and a limitation on the pro-rating of fares.

However, from 1 July 1984, the Dutch gained 'sixth freedom' rights between the UK and the Netherlands; that is, the right to pick up passengers in the UK and carry them, via the Netherlands, to a foreign destination at the same fare that the UK airlines charge for their direct flights from the UK. Where that direct flight is from London the carrier will now have to pro-rate fares from the regional airports served by KLM and subsidiaries (Belfast, Birmingham, Glasgow, Jersey, Manchester) if it is to compete successfully. Consequently Schiphol must now be considered a very real competitor for the UK regional traffic passing through BAA's London airports (and for traffic on direct flights from regional airports).

BAA has long recognised the threat posed by the continental hubs with respect to its interlining traffic between international flights. It is now responding also to this enhanced rivalry for the regional traffic and in the 1983/4 Annual Report announced a fresh impetus to a promotional campaign 'to combat the threat posed to Heathrow by Continental airports ...'

Terminating Passengers

Terminating passengers, defined as those with an origin or destination in south-eastern England, including London, account for about two-thirds of the traffic passing through BAA's London airports. London's airports basically serve a local market; it so happens that in this case the local market is very large.

Approximately six million of the twenty-five million terminating passengers using BAA airports in 1980 were using inclusive (package) tour flights operated by charter aircraft. In this segment of the market, BAA does face one competitor, the local authority-owned airport at Luton. An indication of Luton's share of the south-eastern inclusive-tour market is shown in Table 5.3. The table shows the departure airport for inclusive-tour holidays booked in London and the south-east during the summer 1983 season. Luton's share for the outer part of this region (i.e. excluding the GLC) is small but significant and it must be considered to have some, albeit limited, potential for influencing BAA's prices in relation to the short-haul charter market (the airport is not suitable for wide-bodied long-haul jets).

The remaining part of the London and south-east market is divided between terminating leisure and terminating business passengers. It is in this market sector that BAA as presently constituted does have

TABLE 5.3

Airport of Departure for Holidays Booked in London and the South-East

Departure airport	<i>Per cent</i>	
	GLC	South-East ¹
Gatwick	76	64
Heathrow	11	11
Luton	7	17
All other	6	8
	100%	100%

Source: British Market Research Bureau, 1983

1. Excludes GLC.

decidedly strong market power: at the present time it has no real competitor. However, the application to construct a short-take-off-and-landing (STOL) airport in the London Docklands, to the east of the City, does introduce a possible new element of competition.

The proposal is geared to the City of London business sector and studies carried out for Mowlem, the developers, indicate that the STOL-port could generate between 1.3 million and 2 million passengers by 1990, about 80 per cent drawn from existing services. However, it is likely that approval would be linked to restrictions placed for environmental reasons on the number of daily flights. This would limit capacity to the bottom end of this range. The whole of Inner London currently generates in the region of 6 million business trips per annum, possibly half of which start or finish in the City. Consequently, if the STOL-port is approved (and assuming that the proposed services obtain the necessary route licences), it should challenge the BAA monopoly in this market.

After excluding inclusive-tour traffic and the Inner London business market, there remains a residual element of terminating traffic exceeding 10 million passengers per annum (mostly incoming tourist traffic) for which BAA's three airports have neither an existing nor a potential competitor of significance. For this market segment, the possibilities for competition depend upon the scope for competition between BAA's three London airports.

The generally accepted view is that Heathrow has a dominant if not overwhelming advantage over Gatwick and Stansted in the south-east. This advantage is seen to derive from two factors: better access

to the regional market and a greater variety and frequency of flights. These advantages, however, are decreasing progressively and with respect to the former may now have all but disappeared.

A major shift in the comparative advantage of Heathrow over Gatwick has taken place with the improvement of the train services to Gatwick from Victoria and the upgrading of check-in facilities at Victoria. It is an arguable point whether Gatwick does not now have a faster, more frequent public transport link to Central London (albeit priced at a premium) than does Heathrow. The construction of the circumferential M25 motorway is also improving the position of Gatwick with respect to the other major market area — outer London and the Home Counties. This geographical area accounted for approximately one-third of terminating passengers in 1978. With the continued dispersion of economic activity from the centre to the periphery of the London region, the locational advantage that Heathrow has traditionally enjoyed should be eroded still further.

Evidence that Heathrow has lost much of its traditional advantage in terms of access is provided by an analysis we conducted of the choice of departure airport for inclusive-tour holidays (see Appendix C). The analysis was conducted on a data set for which the timing of Heathrow and Gatwick flights was similar and for which the holiday purchased was identical except for the airport of departure. The results indicate that when the package price was unaffected by the airport used, Gatwick was preferred by 82 per cent of tourists.

The basic conclusion that we draw from this analysis is that Heathrow's advantage now stems largely from the variety of destinations and frequency of flights that it has to offer, although this advantage too is being progressively eroded as Gatwick extends its network of scheduled flights. Gatwick's scheduled network is expanding rapidly (ten new routes — five domestic and five international — were added in 1983/4), and, as expressed by BAA, 'there are more direct services to cities in the U.S.A. from Gatwick than from any airport outside North America'. About 40 per cent of the destinations directly served from Heathrow also have direct flights from Gatwick.

The other conclusion that we have drawn from the same analysis is that in this large sector of the market, air travellers may be highly responsive to small differences in price (each £1 added to the package price for Heathrow departures led to 0.5 per cent of the market switching from Heathrow to Gatwick). It is a price sensitivity that is likely to carry over to the charter market generally and to specialist

low fare transatlantic scheduled operations (e.g. People Express, Virgin).⁸ This market sector accounts for much of the activity at both Gatwick and Stansted (sixty per cent of passengers and forty per cent of total aircraft movements at the former in 1983/4). The indications are that these two airports could compete quite effectively in this large market.⁹

Summary and Conclusions

Once BAA's traffic is analysed on the basis of market segments, it is evident that the Authority's power in the market varies greatly. We would judge the cross-elasticities to be fairly high in most of what we have termed the transfer market. This accounts for approximately a third of the passenger traffic through BAA's London airports at the present time.

BAA's real strength lies in the very large number of journeys which terminate within the London region. Except for Luton's limited activities in the short-haul inclusive-tour charter market, BAA remains, in effect, unchallenged. However, if the STOL-port in London Docklands is opened and the proposed services obtain licences, large numbers of business trips generated in the Central London area, and especially in the City, will have the choice of an alternative airport for flights to a number of domestic and western European destinations. This would leave the Authority favourably placed in a market that generates ten million or more passenger movements through its London airports. This traffic represents between a quarter and a third of its total traffic.

Even in this residual sector, however, there are limitations on BAA's ability to exploit its monopoly powers. The extent to which it could do so depends upon the extent to which markets with different elasticities make use of different flights. For example, mixing of traffics with different elasticities is of clear relevance to domestic flights. Domestic flights, which account for almost a quarter of Heathrow's air transport movements (ATMs), carry a mix of terminating and transfer traffic with the latter often forming a substantial proportion of the whole.

Our basic conclusion, however, is that BAA's south-eastern airports could compete with each other quite effectively for a large proportion of the market that is currently captive to the Authority. Analysis indicates that the cross-price elasticities between London's airports are likely to be high in specific but large segments of this market.

FOOTNOTES

1. House of Commons, 1984, p. 308.
2. House of Commons, 1984, p. 72.
3. If there are no opportunities for substitution, the elasticity of demand is the product of the elasticity of demand for the journey multiplied by the fraction of total journey costs that the airport charge represents.
4. BAA's evidence at the Stansted inquiry stressed this factor: 'The most crucial factor which will determine the number of passengers which can be diverted back to the regions is the number of new direct services which can be inaugurated' (Stansted inquiry document, BAA 133, para. 89).
5. The respective proportions of international and domestic interliners are not known.
6. BAA claims that Lufthansa's advertising was 'smartly rebuffed' when BAA responded swiftly by placing counter-advertising 'emphasising the superiority of Heathrow and its strategic importance as the crossroads of world aviation'. This reflects BAA's sensitivity on the issue.
7. See Lloyd's Aviation Economist, 1983.
8. For example, general counsel to People Express has expressed the view that 'Providing the fare is right, People Express consider that their customers are relatively indifferent about the airport into which they fly'. Reported by Boyfield (1984).
9. Operators in this market tend to have lower overheads and probably a lower proportion of their costs sunk into airport operations. Consequently one might expect the short-term cross-price elasticity for aircraft movements to be similar to that for passengers in this section of the market.

CHAPTER 6

COSTS AND THE QUESTION OF SCALE

Introduction

A widely held view in the airline industry is that 'there are large economies of scale to be enjoyed at airports which make it almost impossible for a competitor to emerge for any airport already in existence'.¹ Although it is now recognised that economies of scale are not the sole reason for the existence of natural monopolies, nevertheless they are an important factor. In this chapter we consider whether and to what extent they are important in relation to BAA.

At the outset it is useful to note that the debate on scale effects is conducted on several levels. First, there is the short-run fixed cost context. If an airport service is to be provided at all, then a minimum outlay is required on runways, handling facilities, control facilities and staff. Even if there is only one, infrequent air service, a commitment to provide some fixed capital is required. As the service becomes more frequent, the initial fixed costs of establishing the airport will be spread over more units of output and unit costs will fall.

At some point, however, if the airport is to grow, further investment will be required. This introduces a new dimension: the question of what is happening to unit costs when, at each stage in the expansion cycle, fixed costs are fully spread over planned capacity. If unit costs at planned capacity are falling then the airport industry is a long-term decreasing cost industry displaying economies of scale.

A further dimension is added by the idea that several airports may be operated more cheaply as a single entity if the separate management or overhead functions are combined. This is really a special case of spreading fixed factors over larger outputs. In this instance the lumpy fixed factor is management expertise.

Thus there are three strands to the argument. First, do resources *have* to be committed to airports in large indivisible lumps (and if so, how large)? Second, do larger airports have a potential for lower average costs? Third, will costs be lower if several airports are managed as a single entity?

Fixed Costs and Returns to Scale

It is difficult to make convincing generalisations about the pattern of airport costs from casual observation. Nevertheless, there are a

number of reasons for believing that indivisibilities are not a major problem and that a large number of small steps are available for expanding airport capacity. Even the initial step is not unduly large: paved runways are not required, navigation aids can be quite simple and passenger facilities rudimentary. The experience of a number of civil airfields operating scheduled services testifies to this simple first step.

As demand increases and the need to expand capacity arises, runways are first paved and then lengthened and strengthened to take larger aircraft. To extend the operational period of the airport both in bad weather and during hours of darkness (thus adding to notional capacity), airfield lighting can be installed and navigation aids upgraded. The provision of taxiways and runway turn-offs, and then the widening of these, are stages which add still further increments to airside capacity without especially large commitments of capital.²

Landside facilities are also capable of gradual, piecemeal extension: additional arrival and departure gates can be added together with more, and later sophisticated, baggage-handling facilities. As still more passenger through-put is required, arriving and departing passengers can be streamed through separate areas or levels, then through quite separate facilities. Then each in turn can be added to and enlarged bit by bit.³ There are numerous possibilities.

The second question is do larger airports have a potential for lower average costs? Again, it is difficult to generalise from the particular, but there are reasons for believing that long-run scale economies are limited. The limiting factor is probably the difficulty of maintaining adequate access between aircraft receipt facilities and passenger baggage-handling facilities; that is, between airside and landside activities. Increased airside activity, often associated with bigger aircraft, leads to a spreading of aircraft stands and gates over large areas. A limited spread of activity can be tied into the central core of the airport terminal by fingers and piers. But further development may lead, as at Gatwick, to the development of satellite terminals or separate terminals specialising in different market segments.

Quite often the result is sophisticated and expensive airside technology. This is evident, for example, in Gatwick's rapid transit link connecting the main and satellite terminals, in the moving walkways installed in the Heathrow terminals, and in the installation of expensive air-bridges.

A similar situation appears to prevail with respect to landside access

with the upgrading of roads, car parks and links to public transport facilities. For example, car parks may be provided as multi-storey structures instead of simple, at-ground facilities; roads are constructed at different levels with ramps and sometimes tunnels; and moving walkways are required to connect passenger terminals and public transport terminals.

Intense pressure on space can lead to proposals for developing airport facilities at or beyond existing airport boundaries. This complicates the technical problems of access and, undoubtedly, the organisation and management problems too. But adding to the airport at the periphery can be a costly undertaking especially if other activities have to be displaced. Developing a fifth terminal at Heathrow on the Perry Oaks site for example would involve, prior to construction, the relocation of a large sewage works. Constructing a second (north) terminal at Gatwick required the diversion of the River Mole.

Subjecting these arguments to quantitative examination is a difficult task and little has been accomplished in relation to UK airports or BAA in particular. There are the usual difficulties of establishing an appropriate measure of output in an industry producing a non-uniform product. The wide range of services provided at many airports (scheduled, charter, executive, cargo), each with its different service requirements, accentuates the problem of establishing a standard but realistic measure of output. But perhaps the greatest difficulty the analyst faces, should he approach the measurement problem by comparing airports, stems from the complexity of ownership and therefore of objectives pursued and management styles practised. Because airport managers are not always pursuing cost-minimising policies and are not always operating on the efficiency frontier, a comparative (cross-section) approach would reveal little about the true nature of the cost functions.⁴

An alternative approach is to analyse specific investment projects providing different tranches of capacity, examine the economic costs associated with both their construction and their operation and assign these to the different increments of output provided. (See Farrell, 1957.) A good example of this is provided by a BAA position paper calculating charges for Heathrow based on long-run marginal costs.⁵ Terminal 4 was used as a basis and the anticipated costs associated with the construction and operation of the terminal were available in some detail. This enabled the marginal costs of different types of traffic to be calculated. Unfortunately, the BAA study provides, in effect, just one point on the curve: the costs associated with one tranche of capacity. It provides the basis for an approach but it does not provide the answers.

However, it is possible to make a more limited comparison of incremental costs and capacity along these lines by combining data from the Terminal 4 (T4) study with estimates for constructing a fifth terminal (T5) at Heathrow. The latter were submitted at the Stansted inquiry.⁶ They relate only to an analysis of capital costs and do not provide operating costs which also need to be taken account of in a complete analysis. As far as one can ascertain, the T4 and T5 data appear to be on a basis to enable a fair comparison — professional fees are included in both cases for example. The only difference is that the T4 costs are based on 1982/3 prices and those for T5 on 1981 prices. We have inflated the latter by a conservative 10 per cent. Dividing total costs by the respective design capacities gives an incremental cost per capacity unit of £30 for T4 and £37 for T5. The indications are that unit capital costs are increasing.

The third issue is whether there are economies of scale to be achieved by operating several airports as a system. This argument has been advanced in relation to BAA's airports and specifically the London airports, with the suggestion that '... it may be reasonable to regard the south-east system as a natural monopoly in which a single entity is the least-cost method of provision ...'⁷ The advantages are thought to lie with bulk buying, lower overhead and personnel costs and increased management expertise.

Again these propositions have not been subject to rigorous examination either in the context of BAA or in other instances when airports in separate locations are subject to common managements. Although the arguments put forward are plausible, there are counter-arguments. The added scale involved might lead to diseconomies, and the centralisation of functions (which is implicit in the notion that combining airport management leads to economies) may lead also to difficulties of communication. There is some evidence that this latter problem has arisen: with expansion of the number of BAA airports in Scotland in the 1970s, it was decided to establish a separate Scottish airports head office.

We have found it difficult to test the proposition because BAA's accounts do not show a separate item for supporting services. The cost of head office centralised services, for example, is allocated to airports in proportion to their income. However, separate statistics on the number of staff located at head office are available. We have made the assumption that head office costs are proportional to staff numbers employed there. This has its limitations because of the possibilities for substitution between capital (e.g. computer information systems) and labour. Also the structure of head office

employment may change so that staff costs are not directly proportional to numbers.

With these caveats in mind we conducted a simple test of the proposition that there are economies of scale in management with respect to the number of airports. We analysed the trend in head office numbers to see how this was affected by the take-over of Edinburgh (1971), Aberdeen (1975) and Glasgow (1975) airports. There were strong indications from the results of the analysis that head office costs (staff numbers) were output-related and that the number of airports added to these costs *pro rata*, i.e. there were constant returns to scale with respect to airport numbers (see Appendix D).

Summary and Conclusions

It is said that only a small number of airports can be viable because their fixed capital comes in large lumps and because larger airports exhibit lower unit costs. Although these views are frequently expressed, there is evidence, albeit equally circumstantial, that might lead one to adopt an opposing view. There are, as the BAA Annual Reports testify, numerous instances of a gradual bit by bit approach to airport expansion. The very large project is the exception rather than the rule and is restricted to airports with a considerable volume of traffic, expectations of rapid growth and a market in which competition is limited by institutional frameworks and regulation. But there are indications too that these larger airports face long-run diseconomies of scale. The problems of growing on a restricted site and the sophisticated designs that this calls forth pose the strong possibility that airports at an early stage in their development cycle are faced with rising unit costs.

An added argument, canvassed recently, specifically in relation to BAA, is that operating several airports under the one management may achieve lower total costs than operating each one independently. It is a proposition that has not to our knowledge been examined previously. Although superficially an appealing idea the simple test we applied to the limited data available suggested that there were neither economies nor diseconomies of scale to management; BAA head office 'costs' were directly proportional to airport numbers.

Either way, the hard, measured evidence has yet to emerge; but with private enterprise proposing to construct a new international airport within the London system, it appears difficult to sustain the argument that economies of scale make it 'almost impossible' for new

entrants to challenge existing airport services. Nevertheless, entry will remain difficult and the associated costs often high.

FOOTNOTES

1. House of Commons, 1984, Appendix 20 (Memorandum submitted by 15 international airlines). See also the Memorandum submitted by the Department of Transport which refers to the 'very substantial economies of scale in the airports industry' (para. 9).
2. One example is the widening of the main taxiway at Glasgow Airport completed mid-1984 at a cost of £1.73 million. This widening from 18 to 23 metres will allow for the handling of aircraft up to B747 size.
3. This incremental approach can be illustrated by the 1983/4 programme of developments to Terminals 1 and 2 at Heathrow. A new lounge for T1 has been created on top of the pier serving domestic flights; T1's international pier was widened and larger rooms at the gates constructed; in T2 work continued on an extension to the arrivals baggage reclaim hall (BAA, 1984b, pp. 31-32).
4. Carlsson (1972) points out that averages estimated in this way have little economic meaning. The economically relevant concept is the frontier function which consists of only the most efficient observations in the sample. This problem was recognised in one of the few studies of airport performance in the UK (see Doganis and Thompson, 1975) but unfortunately was not allowed for in the subsequent analysis.
5. BAA, 1983a.
6. Stansted inquiry documents, BA14A and BA98.
7. Foster, 1984.

CHAPTER 7

RESTRICTIONS ON THE USE OF HEATHROW

Introduction

One issue that will have to be clarified before BAA's assets are privatised is the restrictions or requirements placed for environmental reasons on the use of the airports. Important in this context is the proposed limit on annual air transport movements (ATMs) at Heathrow Airport. But there are also subsidiary matters such as the separate restrictions on night flights at Heathrow and Gatwick and the Noise Insulation Grant Scheme at the same two airports.

The indications are that the proposed limit on ATMs at Heathrow will lower the effective capacity of Heathrow Airport by a considerable margin and act as a major restraint on the growth of traffic. The opening of T4 late in 1985 will add approximately 25 per cent to its terminal capacity but by that stage, on present trends, the airport will be operating at or very close to the proposed annual limit. The value of Heathrow to private investors will be affected by the limit and by the method used to enforce that limit.

The restrictions on night flights will have a less important bearing on the price realised for BAA's assets at Heathrow and Gatwick. We might expect flights at less convenient times to be used by low-revenue-yield traffic. With marginal costs of operation higher at night, BAA's net revenues will be lower. In fact, a profit-maximising monopolist might choose to withdraw completely from this market particularly at Gatwick where night-time all-cargo flights are of less significance.

The Noise Insulation Grant Scheme requires the Authority to insulate houses within a defined area around Heathrow and Gatwick at the Authority's expense. The current Scheme closed for applications in March 1983 and all work has to be completed by March 1985. Expenditures are treated as intangible fixed assets in the Authority's accounts, entered at historic cost and written off over a period of ten years. The current Scheme does not, therefore, have a material effect on BAA's sale price as all contingent liabilities will be met before privatisation. A more important consideration is whether the Government will choose to introduce a new scheme — as it has done on several occasions previously.

In this chapter we focus particularly on the proposed ATM limit.

First we consider the intentions of the scheme and whether there is a case for having such a limit. We then consider the best way to implement such a scheme.

The Proposed ATM Limit

A limit on the number of ATMs at Heathrow for environmental reasons was suggested by the Planning Inspector as a means of reducing the impact of Terminal 4. When the Government accepted the Inspector's recommendations in 1979, it proposed that Heathrow should adopt an annual limit of 275,000 movements and it should come into effect from the opening of the new terminal; the limit was defined in terms of air transport movements. The number of ATMs in recent years is illustrated in Table 7.1.

TABLE 7.1
Heathrow Traffic Movements 1978/9-1983/4¹

	<i>Thousands</i>				
	1979/80	1980/1	1981/2	1982/3	1983/4
Air transport movements	281	267	246	253	263
General aviation and other	23	21	21	22	24
Total	303	288	266	275	287

Source: BAA, 1984b

1. Rounding errors apply.

In the absence of administrative limits, Heathrow's existing operational capacity is thought to be close to 330,000 annual aircraft movements. The proposed limit allows for fewer ATMs than actually occurred in 1979/80 even though the measured level of noise is declining. This decline is partly a result of other government initiatives on aircraft noise, and partly a result of technological progress in engine design, the latter stimulated by a world-wide concern regarding aircraft noise. The new range of Boeing aircraft, the Airbus and smaller jets like the British Aerospace 146 are appreciably quieter than their immediate predecessors and very different from the older, first-generation jets — Boeing 707s, Tridents. These latter are now rapidly disappearing as legislative bans on their use are introduced: noisy subsonic jets on the UK register will be banned from UK airports after 1 January 1986.

As a consequence of this development in technology, the areas around Heathrow subject to certain levels of noise have shrunk in recent years. For example, the contour for the Noise Number Index of 35 (the value at which people normally do not experience annoyance) in 1972 enclosed an area in which 2.1 million people lived. By 1982 the area was much smaller; the number living within it was just over 1 million.¹

At the same time as the trend in emitted noise has been decreasing, an increasing number of homes around Heathrow (and Gatwick) have taken advantage of grant aid for installing sound-reducing double-glazing.

The initial schemes came into operation at Heathrow in 1966 (and at Gatwick in 1973) but these have been extended on several occasions. The latest schemes came into force in April 1980 — after the Government accepted the idea of an ATM limit at Heathrow. Approximately 12,000 of the 30,000 eligible householders around Heathrow had responded to the latest scheme by the 1983 closing date.²

As a consequence of these and other developments — such as the fixed quota on night-time flights and the progressive run down in noisier night-time movements — the situation is improving in relative terms. The Government obviously was aware of this at the time it proposed the 275,000 limit and mentioned that the limit 'would be reviewed in the light of progress on the prohibition of noisier aircraft and the introduction of quieter aircraft'.³ Notwithstanding the technological progress that has been made and, since 1979, an additional expenditure on sound-proofing homes of around £25 million, the Government has decided to legislate on the basis of the original 1979 proposal.⁴

However, we question whether the benefits of the proposal do exceed the costs. The benefits depend upon the difference between the levels of noise with and without the limit and the perception of this difference by the affected population. The difference in noise is uncertain and will depend upon how the limit is imposed. In some circumstances the difference could be quite small. Equally, the perception of this marginal change is likely to be small for a population used to high levels of noise. The costs too are uncertain at this stage, but on the basis that 15,000 average ATMs per annum are suppressed, the loss of traffic revenue alone would be about £6 million at 1983/4 prices.

Rationing by Price

The objective of the limit is to reduce aircraft noise: putting a ceiling on air-traffic movements is only a means to that end. At any one time the relationship between ATMs and the noise environment is not constant. Individual ATMs can have a varying effect depending upon aircraft type and a range of operating variables. Consequently, it would be more in keeping with the objective to define a target noise level and convert this into a number of noise units. The airlines can then decide amongst themselves who has use of the noise units using the existing Scheduling Committee as a forum.

Alternatively, and preferably, the noise units can be auctioned on a biannual basis or for whatever period is considered appropriate. The advantage of doing this is that airlines operating noisier aircraft would have to pay more per aircraft (i.e. would have to buy more units) and vice versa, and this would encourage the use of quieter aircraft.⁵ Also, it might allow new entrant airlines easier access than if they had to negotiate with incumbents in the Scheduling Committee. Such an approach extends the principle already employed at BAA's London airports of reducing landing charges for non-jets and aircraft meeting the ICAO Annex 16 requirements on noise; but it is more complex than dealing with a fixed number of movements.

In this latter context we also favour using market mechanisms rather than regulatory intervention. By definition, restricting access to Heathrow has the result of making access more scarce; the traditional means of ensuring that scarce resources are used by those who value them most is to utilise the price mechanism. The way this could be done in the context of an annual limit on movements is to sell what, in aviation jargon, are referred to as 'slots'; basically, a slot is an entitlement to land at a particular airport at a specified time. With a fixed number of slots available, the airport owner could invite bids in the same way that BAA invites bids for its franchised commercial operations. Slots would then be allocated to the highest bidder.

There is now considerable interest in the idea of auctioning landing rights in the US where severe congestion is encountered at a number of airports.⁶ Auctions for entitlements could be organised on the basis of any specified period but an alternative approach, mentioned in the Department of Transport Consultation Paper, would be to hold an initial sale and then permit the holders to trade entitlements amongst themselves.

However, one can anticipate objections from existing users who

currently enjoy unrestricted access to Heathrow and consider themselves in a position powerful enough to maintain the status quo. Objectors will seek to muddy the waters still further by arguing that such proposals are contrary to the UK's international obligations or specific bilateral agreements and that to introduce a price mechanism invites retaliation.⁷

If such problems are considered insuperable then there is an alternative approach. It is one suggested in last year's analysis of British Airways (Ashworth and Forsyth, 1984, p. 138); it involves giving, as a right, slots to present incumbents and allowing them to sell them or pass them on. Thus existing Heathrow users (foreign airlines or British) would have the same rights as they now enjoy, but they would have an opportunity to sell voluntarily such rights. An advantage of this approach is that it does not require the agreement of all the airlines before it can be put into operation.

We could therefore expect a market in entitlements to develop with the clearing price determined by supply and demand. The allocation will be efficient because those who value access at the going rate will be able to purchase access from those airlines who value their entitlement at less than the market price.

To ensure that the market does work efficiently when landing rights are traded, it will be important to ensure that airlines do not trade *directly* with each other. To permit this might encourage predatory-type practices where airlines refuse to sell to specific competitors. Consequently, a brokerage operation arranged and perhaps managed by BAA or the Civil Aviation Authority would be an important requirement.⁸

One objection raised to the idea of selling access in any form is the argument that smaller airlines are disadvantaged because they command fewer financial resources and could not afford to buy in to the market. Under the present system of allocation, small airlines and new entrants already are at a disadvantage.⁹ The issue, therefore, is whether their circumstances would be better or worse if access rights were auctioned. We do not see limited financial resources constituting a barrier to entry because saleable rights to access would represent a fixed but not a sunk cost. The airline would be purchasing an asset for which there was an organised resale market with good long-term prospects. An entrant airline should have no difficulty raising the necessary capital. When it would be at a disadvantage (albeit small) is if existing users were given their slots. The entrant, unlike the incumbent, would have to service the capital used for the slot purchase. But if initial rights of access were to be

sold, incumbents and entrants would then be competing on an equal basis.

Alternative Measures to Constrain Demand

The Consultation Paper on the Heathrow ATM limit mentions a number of criteria that could be used to regulate ATMs to achieve the prescribed limit. BAA has also suggested a measure. These approaches are based on the selected exclusion of various service types or aircraft categories.

The Department of Transport's preference is to divert from Heathrow to Gatwick services which will have the most favourable impact on the latter but least impact on Heathrow's attractions as an interlining point. Consequently, the exclusion of small aircraft is not favoured because it 'would not help with the balanced build-up of Gatwick'. Transfer of services with a low interlining content is viewed in a more favourable light. Similarly, to limit the frequency of services on routes which have the largest number of daily flights from Heathrow is also thought to be less detrimental to Heathrow's competitive position vis-à-vis western European airports. The latter approach could, it is thought, provide considerable savings and the estimate is that if frequencies were limited to five services a day per carrier on all routes, international ATMs would be reduced by 5000 a year and domestic ATMs by 10,000. BAA's preference is to introduce a quota for domestic flights 'which would permit further growth in international services, and enable Terminal 4's excellent facilities to be fully utilised'.

None of these administered approaches, however, focus upon the central issue — reducing disturbance caused by aircraft noise. On the contrary, schemes which have the effect of replacing smaller domestic aircraft with larger transcontinental jets will most likely increase noise levels. If noise is the essential factor there seems little point, whatever method is chosen to ration demand, in defining a limit in terms of air transport movements and excluding general aviation and other movements from it. On the one hand, movements by quiet turbo-props are included (there were, for example, over 10,000 movements by Short 330/360s and Dash 7s in 1983/4), but on the other hand flights by executive jets are excluded. Although the latter are relatively quiet, they are not quieter than most turbo-props. It is arguable also whether the noise impact of a BAe 125 executive jet is any less than that of the new generation ultra-quiet medium-size jets such as the BAe 146.

The more sensible approach would be to draw a limit in terms of all

movements and not just ATMs, but to exclude selected noise-certified aircraft. This in fact is the approach taken with respect to restrictions on night flying at Heathrow and Gatwick. Twin-engined propellor-driven aircraft and the smaller noise-certificated jets are exempt from restriction.

Summary and Conclusions

In 1979 when the Government proposed a limit of 275,000 air transport movements at Heathrow, it commented that the limit would be reviewed taking into account progress on the prohibition of noisier aircraft and the introduction of quieter aircraft. Critics of the proposed limit argue that developments have been such that a higher limit is now justified. But perhaps a better case for increasing the limit is that since 1979 the grant aid scheme for sound-proofing houses around Heathrow has been extended and an additional £25 million expended.

We are in any case sceptical that the introduction of a limit at Heathrow will result in a positive net benefit. The limit *might* have the effect of accentuating the reduction in noise that is occurring already, but this is by no means certain. First, consider the situation in pricing terms. The limit will result in a market clearing price higher than would otherwise be the case. If the users of relatively noisier jets (i.e. larger heavier jets) are on average less price-elastic, the limit, by excluding only the relatively quieter aircraft, will make little difference. Second, if (instead of prices) directives or quotas were used to ration demand, it is possible that quieter aircraft might be excluded to allow more room for noisier aircraft thus making the situation worse.

Because of the distorting effect on allocative efficiency that non-price rationing methods have, we consider it important that limited, but valuable, access to Heathrow be rationed using the price mechanism. Slots can be sold in a number of ways: by conducting periodic auctions; by having an initial auction and then permitting airlines to resell; by having an initial auction of limited tenure slots and then posted prices; or simply by giving slots to present incumbent airlines and permitting resale. All these approaches will have a broadly similar effect on allocative efficiency (although the implications for the sale of Heathrow's assets will differ significantly).

The value of Heathrow to private investors will be affected by the proposed ATM limit although by how much depends upon how the limit is operated. Because there will be substantial terminal capacity on completion of Terminal 4, a tight limit on ATMs will have a

depreciating effect on the value of the terminal assets. However, the value of the airside assets need not be affected by much. Although the limit will reduce the potential output of the runways, the limit might have little effect on the value of these assets. A profit-maximising owner with monopoly power might choose to restrict output, possibly to a level similar to that proposed. On the other hand, if property rights are transferred by giving the slots to the airlines (with resale rights), the owner of the airside assets will be denied potential rents.

FOOTNOTES

1. *Hansard*, 1 March 1983, PQ.
2. Extensive details of the earlier schemes will be found in Starkie and Johnson, 1975.
3. Department of Transport, 1984.
4. Civil Aviation Bill.
5. See, for example, Alexandre, Barde and Pearce, 1980.
6. See Koran and Ogur, 1983 and Graham, Kaplan and Sharp, 1981.
7. If similar problems are encountered at overseas airports, then a similar solution may not be undesirable. If there are no access problems and some capacity is unused, it is difficult to envisage what form the response could take and yet avoid being discriminatory.
8. At the time when the US Federal Aviation Authority permitted the sales of 'slots', at least one private firm, National Transportation Research Corporation, initiated a slot brokerage operation. See Koran and Ogur, 1983.
9. See, for example, House of Commons Paper, 1984, paras. 240-247.

CHAPTER 8

BREAKING UP BAA SOUTH-EAST: PROS AND CONS

Introduction

BAA has argued very strongly against breaking up the ownership of its airports on privatisation. The Authority favours retaining all seven airports in common ownership and its Chairman has been particularly adamant on the need to maintain the unity of its south-eastern airports.

In its most recent Annual Report and in evidence to the House of Commons Transport Committee,¹ the Authority set out its case in favour of an all-embracing Authority. It argued that the Government will be able to achieve its privatisation aims more quickly and in the most financially beneficial manner by maintaining common ownership and that there will be no competitive gain from divided ownership, but division will reduce the attractiveness of the assets to potential investors.

Specifically the argument appears to be that by maintaining Heathrow, Gatwick and Stansted in common ownership, surplus cash generated by Heathrow and Gatwick could be used to finance the development of Stansted; at the same time capital allowances at Gatwick and Stansted and losses at Stansted could be offset against Heathrow profits for tax purposes. On the other hand, airports on their own would face higher risks '... and in such circumstances they would not only have difficulty raising capital but also would probably have to pay more for it'. As a result of higher risks and tax penalties, landing charges at Heathrow and Gatwick would be more likely to rise: '... Gatwick's charges would probably have to be raised to achieve a reasonable profit margin'. In fact, breaking up BAA might mean that the Government is left with the unsaleable airports (i.e. Stansted and Prestwick), which would therefore have to be run at the public's expense and could require major injections of public capital.

In this chapter we consider these arguments against dividing BAA and also factors which might favour such a case. We do this under four headings which reflect BAA's arguments. In the next section we consider the fiscal and financial aspects of BAA's case. This is followed by a section which discusses the extent to which breaking up BAA might, contrary to the Authority's view, increase competition in the market and thereby increase allocative efficiency in the industry. A third section discusses the specific case of Stansted and

BAA's surmise that it is unsaleable as a separate entity. A final section considers BAA's argument that division will lead to uncoordinated investment and therefore increased risks.

Fiscal and Finance Matters

The substance of BAA's taxation argument has already been altered by the provisions of the 1984 Budget. In particular, the phasing out of investment incentives for tax purposes by the end of the financial year 1985/6 means that it will no longer be possible to offset to the same extent development costs at Stansted against trading profits at Heathrow/Gatwick. Until now the BAA has been able to obtain the highly beneficial first year allowances on capital expenditure for tax computation at the rate of 100 per cent on plant and machinery and 75 per cent on industrial buildings. From 1986/7, depreciation rates will be 25 per cent on plant and machinery and 4 per cent on industrial buildings. With about 70 per cent of BAA's recent capital programme being tax classified as industrial buildings, the impact of these changes is significant.

From the point of view of the combined proceeds to the Treasury from privatisation and from taxation these changes of course do not make a great deal of difference. If the potential purchasers of BAA face the same discount rate as the Exchequer, then the present value of a higher stream of taxes to the Treasury will be the same as the lower value of the after-tax income stream accruing to BAA (with the latter influencing investors' assessment of BAA's value). In so far as the discount rates differ, the equality between the change in the capitalised value of BAA and the change in the present value of the expected stream of taxes will not hold. But we can expect such differences to be small and on the margin. From the national viewpoint, the taxation argument is not one of substance.

The same basic point applies with respect to the idea that with all airports in the one stable, surpluses and losses can be balanced out in-house; the public sector no longer has to face a prospect of being left with airports 'which in aggregate make losses and have large capital requirements'. It is difficult to comprehend why, if there is a rump of loss-making assets, the private sector should wish to maintain them, let alone expand their capacity. There are many questions begged by BAA's scenario. But let us for the moment put aside different constraints applying to, and differences of motivation between, public and private sector companies.

Suppose that the conditions of sale are such that BAA plc is required to maintain loss-making operations *and* expand their capacity. If this

is the case, then the presumed gains to the public sector from unified ownership are illusory — a case once again of swings and roundabouts. By lumping the Stansted's of this world with the Heathrows, investors will discount Stansted's losses in their offer price: the Treasury will realise a lower sale price for BAA amalgamated. The difference in price will be equivalent to the capitalised value of the public sector outlay necessary to operate/develop the 'unsaleable' airports. This, of course, is to oversimplify the situation. There are different perceptions to take account of and once again possible differences in rates of discount adopted by the Treasury, on the one hand, and BAA plc on the other. But the substance of the argument remains valid. In fundamental terms it makes no real difference whether the losses are hidden within the sale price or accounted for separately.

BAA's argument that keeping Stansted and Heathrow together allows for surplus cash from the latter to be used to finance development at the former also has a curious ring to it. It appears to negate the basic argument put forward by BAA in favour of privatisation *per se* — namely better access to capital markets and the absence of constraints on raising capital and the spending of it.² If the development of Stansted is a commercially sound proposition, then equally there should be little difficulty in raising the necessary capital in the commercial market. Indeed, there would be nothing to prevent an independent Heathrow company lending on suitable terms to Stansted plc. If development proposals at Stansted are not commercially attractive, then it would be imprudent to use surplus funds generated by Heathrow/Gatwick for this end. A commercially-minded organisation will direct its own surpluses according to the opportunities it faces and will seek to maximise its returns. Consequently, we do not see that division or unification of BAA has any direct bearing on the funding issue.

Competition in the Market

In Chapter 5 we argued that it would be wrong to exaggerate the market power of BAA in the south-east. About one-third of its total traffic was subject to a reasonably high degree of competition from regional and continental airports with another third subject to more moderate competition. Nevertheless, this left about one-third — or in excess of ten million passenger movements — with little alternative. Consequently, BAA faces in the south-east a fairly inelastic demand for its services, especially from those starting or finishing their journeys in the London and south-east region.

Presented with this situation a private sector company acting as a profit-maximising enterprise would first seek to isolate, in its marketing and pricing strategies, the more inelastic local market. If it were able to do this it would then have the potential to earn monopoly profits from the London system by lifting prices and restricting output. In effect, it would view its demand in each market segment in an overall sense and would have an incentive to reduce capacity provided for the inelastic market at the margin of the airport *system*. It might wish, for example, to close down entirely marginal capacity such as Stansted Airport or to restrict the period of time during which Gatwick or Heathrow Airports were operational.

This can be contrasted with a situation in which each London airport is separately owned. (See Appendix E.) Compared with the system-wide monopolists' demand curve, the curve for each individual airport would now be more price-elastic (to the degree that each airport faced actual or potential competition from other London airports). Airports like Heathrow would be able to command in the market a location rent to the extent that they offered a superior level of service to part of the market. But, to the extent that Gatwick (Stansted) offered a degree of competition, Heathrow (Gatwick) would face a more elastic demand and this would reduce the degree to which the owner could extract true monopoly profits.

The substance of this argument is altered little if there are technical and political constraints which prevent the expansion of capacity at an airport when it is operating at full capacity. It has been suggested, for example, that Heathrow is nearly 'full' and that in these circumstances competition cannot bring about a more efficient allocation of traffic between airports. But Heathrow's runways (the binding technical constraint)³ are not used at capacity all of the time; technical advances may provide additional capacity;⁴ and the demand curve for Heathrow may shift to the left as well as the right.⁵ There are a number of imponderables, and there may be quite significant periods in the future when competition from Gatwick or Stansted has favourable price and output consequences.

A similar point has been made regarding Air Service Agreements and other administrative constraints placed on the pattern of air services.⁶ (No new international services from Heathrow have been permitted since 1978; at the same time whole-plane charters were disallowed.) Most Air Service Agreements negotiated internationally merely designate London;⁷ it is the operating licence or permit that stipulates the airport. Consequently, airlines are free to apply to alter the terms of their licence — the renegotiation of Agreements is not

involved. If an airline in response to competitive forces wished to transfer its flights to Gatwick or to Stansted, it is difficult to see why the CAA, as licensing authority, should wish to prevent this.

Thus, what we have is a situation whereby, in interlining terms, Heathrow is a superior airport to Gatwick and in turn Gatwick is superior to Stansted. On this basis alone we might expect Heathrow to be priced at a premium compared with Gatwick and, similarly, Gatwick vis-à-vis Stansted. However, the ability of a Heathrow (Gatwick) owner to extract, in addition, monopoly profits — by increasing prices and restricting output — would be reduced by Gatwick's (Stansted's) ability — potential as well as actual — to offer an alternative. And as we saw in Chapter 5, Gatwick's potential appears to be considerable. The existence of a competing Gatwick and Stansted means that the demand for Heathrow is more elastic than it would otherwise be. But with all airports owned in common the balance of advantage changes. An owner commanding all three airports would be faced with a much less elastic demand and would have the capability to extract much greater monopoly rents.

The Stansted 'Problem'

Stansted made a loss, before depreciation charges, of £1.8 million in 1983/4 and £1.6 million in 1982/3. It is heavily cross-subsidised.⁸ Because of this, BAA has implied that Stansted may be an unsaleable asset and it would be left within the public sector if attempts were made to divide the ownership of the London system.

If BAA is correct in its assumption, the Government would then be faced with a choice of closing down Stansted entirely, placing it on a care and maintenance basis, or continuing to subsidise its operations. If it chose the last option it could, for example, invite tenders from the private sector for it to be operated, like Exeter Airport, under a management contract. There are, however, a number of questions begged: in particular why should the Government choose to subsidise an airport if the private sector considers it unviable? We concluded in Chapter 6 that there were no pronounced economies of scale or indivisibilities in the supply of airport services; it is difficult to argue a strong case for subsidy on allocative efficiency grounds. But why should Stansted be considered an unsaleable asset and why does Stansted fail to cover its operating expenses?

The data in Table 8.1 suggest that there is no inherent reason why an airport with Stansted's through-put should not at least break even on the revenue account. The table shows the operating surplus for

Stansted and for several UK regional airports handling a similar number of air transport movements (there are loss-making regional airports; the point here is to show what is possible at this level of output). Table 8.2 gives an indication of where the problem might lie. The table shows operating expenditure and revenue yields per terminal passenger for Stansted and for the selected regional airports.

TABLE 8.1

Stansted and Selected Regional Airports' Revenue Accounts and Outputs, 1982/3

	Surplus/(deficit) (£ thous)	Terminal passengers (thous)	ATM ¹	WLU ² (thous)
Stansted	(1 600)	299	7 733	414
Bristol	297	303	8 255	354
Leeds/Bradford	831	407	14 120	411
Norwich	87	167	11 772	182
Southampton ³	surplus	276	11 600	283

Source: BAA, 1984b and Daniel, 1984.

1. ATM or air transport movement.

2. WLU or work load unit. One passenger or 200 lbs of cargo including mail is equivalent to 1 WLU.

3. Southampton data for calendar year 1983. As a private operation we have assumed that it will normally return a surplus.

TABLE 8.2

Stansted and Selected Regional Airports' Revenue Yields and Expenditures, 1982/3

£

	Revenue yield per passenger		Operating costs per terminal passenger ²
	Total	From traffic and air navigational charges ¹	
Stansted	7.73	2.21	13.08
Bristol	9.04	6.94	8.06
Leeds/Bradford	6.52	5.26	4.48
Norwich	10.22	7.23	9.70

Source: BAA, 1984b and Daniel, 1984.

1. Except at Stansted where air navigational charges are excluded.

2. Total operating expenditure per terminal passenger.

Stansted's reasonable yield performance, shown in Table 8.2, is the result of comparatively high income from commercial activities, particularly duty-free related retailing; yields from traffic charges remain well below average. For example, yields from charges at Bristol (where the pattern of traffic is reasonably similar to that at Stansted) were nearly £7 per passenger (although this does include an element for air navigational services provided).

The expenditure figures shown in Table 8.2 are not computed on a strictly equivalent basis; different airport authorities contract services to varying degrees, but this should not affect the broad picture.⁹ The major difference is that the three local authority airports provide their own air-traffic control services whilst these services are provided on behalf of BAA by the CAA at Stansted; the CAA directly charges the airlines. This has the effect of deflating Stansted's costs vis-à-vis the three local authority airports and placing Stansted in a less unfavourable light. In spite of this, operating costs per passenger are one-third higher at Stansted than at Norwich and almost three times as high as at Leeds/Bradford.

This discrepancy between Stansted's performance and that of selected regional airports is quite considerable. It is difficult to explain simply in terms of a difference in the character of traffics (Bristol, for example, had a not too dissimilar pattern of scheduled/non-scheduled and domestic/international traffic), or a marked difference in the unit price of labour, materials and other purchases.

The more likely explanation for Stansted's comparatively poor performance (and especially for its high levels of expenditure per traffic unit) is that it is providing too high a level or quality of service in relation to demand. As British Airways commented in its evidence to the House of Commons Transport Committee, 'the standards and levels of service maintained there [Stansted and Prestwick] cannot be justified on financial grounds'.¹⁰ For example, it seems extravagant, considering the level of traffic, to keep the airport open on a 24-hour basis making it necessary to operate three shifts.

The prospects of a financially viable Stansted in the longer term appear quite good (although it is not readily apparent that it could sustain in the immediate future a significant programme of expansion and remain viable). There would appear to be considerable scope for reducing Stansted's expenditures. There is some scope for improving revenues, although an independent operator would face competition from Luton¹¹ and from Gatwick.

Consequently, the emphasis will have to be on cutting expenses. There must remain, therefore, an element of doubt regarding Stansted's short-term viability. The shortfall on revenue account is large and it is not clear that a cost-conscious private operator could achieve the necessary economies quickly without incurring substantial penalties for terminating staff and service contracts. The final balance will lie between the scale of losses unavoidable in the short term and future prospects, with the investor's preference for present and future income, evident in the rate of discount, determining the outcome. Nevertheless, we are optimistic that there would be a willing purchaser.

Investment Co-ordination and Risk

The remaining argument advanced by BAA is that maintaining the Authority as one unit permits the co-ordination of investment between airports and therefore reduces risks. This, in turn, means that capital can be secured on more favourable terms. The associated point has been made that, because airport investment has long gestation periods, it is necessary to make long-term forecasts of usage and again this is made more difficult if airports are separated.¹² Similarly, most airport investment is sunk or committed irretrievably to a particular market and it is suggested that divided ownership will lead either to under-investment or over-investment leading to price-cutting wars.

These arguments have been advanced with respect to the Authority as a whole and not just to its south-eastern operations. Extending the logic of the argument would support incorporation of regional airports and thus increasing the number of airports in BAA's stable. (This idea of extending BAA's role to that of a National Airports Authority has been suggested in the past.) But, as matters stand, the Authority does not control investment across-the-board. It does not, for example, control the investment programme at Luton which is a direct competitor for Stansted's and Gatwick's inclusive-tour traffic. It has to come to terms with the possibility of investment in 'green field' sites such as London Docklands and it has no direct influence over competing investments by its continental rivals in Amsterdam, Frankfurt and Paris. It is, therefore, not in a position, even if maintained as presently constituted, to act as a grand co-ordinator of investment.¹³

However, it would be wrong to presume that the current position is simply one where BAA co-ordinates x per cent of the national investment in airports and must come to terms with the possibility of

'unco-ordinated' investment by Luton etc. Such a view neglects the important co-ordinating role achieved via the Town and Country Planning legislation: except for a servant or agent of the Crown, planning permission is required for any physical development.¹⁴ Applications for airport development are open to objection and public inquiries and, if the proposal is significant and is 'called-in' or subject to appeal, the Secretary of State for the Environment will act as final arbitrator. In recent years BAA has sought planning permission and been involved in public inquiries for runway extensions at Gatwick, a new terminal and new runways at Edinburgh, a fourth terminal at Heathrow, a second terminal at Gatwick and a new terminal at Stansted.

BAA's application for a new terminal at Stansted illustrates well the *de facto* co-ordination role of public inquiries. The application was called-in by the Secretary of State and at the public inquiry the case for developing regional airports instead of Stansted was put forward by West Midlands County Council, the North of England Regional Consortium and Scottish Councils; an application to build a fifth terminal at Heathrow as an alternative to Stansted was submitted and supported by Hertfordshire and Essex County Councils and British Airways. The inspector and his assessors were required to judge the case for these rival investments. Consequently, there is already a process at work which provides a check on not only BAA's in-house investments but also airport investment as a whole. The planning inquiry system provides a forum for arguing whether competitive investments really are 'wasteful'.

It is an arguable point also whether or not the long gestation periods associated both with obtaining planning permission and with construction do not have the effect of reducing the risks involved. Investment proposals cannot be hidden from view; what is proposed is apparent and the gestation periods involved allow time for adjustments. In this respect the airport industry is no different from other industries in the private sector with investments large in scale and irretrievably committed to a particular location — the petrochemical industry, the large supermarket/hypermarket retailing chains and the port industry for example.

It would be wrong also to exaggerate the scale of the commitment required. As a general rule airport facilities are capable of being expanded bit by bit (see Chapter 6) and a change in perceived risk can be expected to lead to a more flexible pattern of investment. For example, an independent company expanding Stansted is most unlikely to add substantially to terminal capacity in one tranche but

is likely to add incrementally to a modular-designed terminal. It might choose also to commit less irretrievable capital to air-bridges and, instead, invest in the type of capital on wheels seen at overseas airports like Dallas International (Washington, DC) — mobile lounges.

Nevertheless, if it is thought that divided ownership of BAA's airports would increase the risk factor to a level exceptional for the private sector, there is an alternative to the status quo. This would involve some separation of operational management from the planning/investment function. There are a number of options. One example has been proffered by the House of Commons Transport Committee¹⁵ — an Airports Holding Board with overall financial control. We would prefer to see the individual airports as autonomous, competing companies with, if necessary, investment proposals subject to perusal by a suitable quango (with the private companies having the right of appeal to the Secretary of State). The Civil Aviation Authority has, already, powers to advise the Government on airport planning matters and would be an obvious candidate for fulfilling this role.¹⁶

Summary and Conclusions

Overall, we do not find BAA's case in favour of maintaining the unity of the present organisation very convincing. Its taxation argument has in large measure been overtaken by events and the ability to fund capital expansion at one airport out of surpluses earned elsewhere would seem to be an argument of no consequence in a commercial environment. Similarly, the ability to 'hide' loss-making operations which would otherwise be a burden on the public sector is specious. Nor do we think that breaking up the empire will change the risks faced by the industry to any appreciable degree — the planning procedures act as a suitable brake on the rate at which the capacity of the system can be added to.

On the other hand, we do believe that there are advantages in divided ownership although what these advantages are depends upon the business objectives of a privatised, unified BAA. If BAA was to act as a profit-maximiser, divided ownership, by introducing more competition into the system, would have the effect of tempering the power that BAA would otherwise have to push up prices and restrict output. For example, we believe that Stansted and Gatwick could compete quite effectively in the inclusive-tour, quasi-charter market. Gatwick is also shaping up as a promising competitor to Heathrow

although we recognise the existence of administrative and capacity constraints which need to be taken into account.

Alternatively, BAA might be inclined to pursue some other goal wasteful of resources, such as maximising market shares or output. It might wish, for example, to continue to provide uneconomic subsidy for Stansted, and to invest there on a substantial scale, a scale incompatible with market demand. In theory, a privatised BAA would be limited in its ability to pursue such uneconomic policies by the threat of take-over. But there is the possibility that, undivided, BAA's size or command of specialist resources could make it difficult to take over, thus allowing it more scope to pursue uneconomic pricing and investment policies. Breaking up BAA would remove or greatly reduce this possibility.

FOOTNOTES

1. House of Commons, 1984, Evidence, pp. 78-80.
2. 'Privatisation would bring to the BAA the immediate benefits of access to the capital markets and other services of private sector finance ... the new company ... would be able to finance its development programme from new capital [private sector sources] and retained earnings, with a great deal more flexibility in choosing between the two than the BAA has enjoyed in the past.' (House of Commons, 1984, BAA Evidence, p. 78, para. 4.)
3. The proposal to limit the annual number of ATMs at Heathrow is an alternative constraint. We consider the latter ill-advised and have discussed this issue in Chapter 7.
4. For example, use of the cross-runway by STOL aircraft has been suggested as a way of relieving pressure on Heathrow's main runways, but the gains from such a development are disputed.
5. Although the market is complicated by administrative restrictions, it is interesting to note that annual scheduled ATMs at Heathrow have decreased on four occasions during the last ten years. Between 1979 and 1981 the decrease was 35,000 or 12.5 per cent.
6. Note that 25 per cent of Heathrow's ATMs are operating scheduled domestic services and are unaffected by Air Service Agreements.
7. *Hansard*, 6 February 1984, PQ.
8. A major beneficiary of this largesse appears to have been Scandinavian tourists. Three-quarters of Stansted's 1982/3 traffic were overseas residents and nearly three-quarters were carried to or from Scandinavia.
9. BAA claims that some of the difference between BAA costs and local authority costs is probably accounted for by the under-recording of goods and services provided to the regional airports by their parent authorities. This is unlikely to account for more than a very small proportion of the difference.
10. House of Commons, 1984, Evidence, p. 160.
11. Luton has an annual passenger traffic of nearly two million and recorded an operating surplus of nearly £2.5 million in 1982/3.
12. Foster, 1984.
13. The public expenditure provision for 1984/5 for local authority capital expenditure on airports was £33 million.
14. BAA is regarded as a statutory undertaking under the relevant Planning Orders and thus is granted planning permission, with certain exceptions, for developments on land defined as operational. The Authority is still required in such instances to consult with

the planning authority. Most large-scale developments have involved the use of non-operational land and in any event the construction of new runways, or extension of existing runways, is not exempted in this way.

15. House of Commons, 1984.

16. It is worth noting that privatisation in the ports sector has been accompanied by the *abolition* of the National Ports Council. The Council's role included advising the Government on the industry's investment proposals.

CHAPTER 9

COMPETITION AND PASSENGER SERVICES

Introduction

Thus far we have considered the privatisation question in relation to airports as a whole and discussed the degree of competition between airports and the consequences of privatising airports singularly or in groups. An alternative (and possibly in some circumstances complementary) approach is based on the observation that airports are amalgamations of functions or areas of activity which to a greater or lesser degree are discrete. The approach is to emphasise the discrete nature of these functions and consider competition and efficiency in this context.

Such an approach is adopted in this chapter. The focus is upon the area of commercial services where competition is least effective at the present time — namely services to passengers within terminals. (Airside services such as aircraft refuelling generally are competitive.) In particular, we consider whether competition might be enhanced by encouraging competition between terminals. In the final section we consider whether regulation in some form can generally improve matters. But we start by considering duty-free retailing; it has features which suggest a need for a distinctly different approach.

Duty-Free Retailing

The major source of monopoly profits in the current system is the sale of duty-free and tax-free goods in the specialised retail units within the airport terminals. Competition for this trade is limited. Some airlines sell in-flight duty-free goods but the competitive margin is set basically by the non-concessional prices charged in 'High Street' shops. The duty on most dutiable goods is considerable and, therefore, the airport shops are able to undercut the normal retail price by a large margin and this, in turn, is reflected in the substantial fees offered to BAA for the award of the concession.

It is possible to devise methods for ensuring that the air traveller enjoys proportionally greater benefits. Australia, for example, has evolved a system whereby most of the concession is passed on to the consumer. Duty-free purchases in Australia can be made at dedicated duty-free shops in many city centres — there are well over a hundred nation-wide — which compete with each other. Overseas

travellers holding a valid ticket for an international flight are able to make and collect their purchase in the off-airport duty-free stores usually two days before departure. The goods are placed in a sealed bag which must be presented for inspection at the airport of departure. The effect of this system has been to reduce duty-free prices, especially on more expensive goods, e.g. home electronics and photographic equipment. (See Appendix F for further details.)

Such an arrangement contravenes the regulations of the International Customs Union and those of the EEC. Consequently, attempts to distribute more of the tax-free benefit to the consumer/traveller at BAA airports would have to be made via competitive outlets on-site. Limitations on space within terminals suggest that this may have only a limited effect on prices, so that BAA will still obtain (via its sale of trading concessions) very substantial rents in this sector.

However, allowing new entrants to compete in the duty-free sales market and thus to drive prices down to prices net of duty/tax will not necessarily have the usual consequences in terms of allocative efficiency. This is because duty-free concessional imports are subject to quantity controls in nearly all countries, i.e. x litres of spirit, y cigarettes etc. If these limits on personal imports of duty/tax-free items are set tightly so that the limits rather than price are the binding constraint on quantities currently purchased, reducing prices will not lead to an increase in total sales. In these circumstances the issue tends to resolve itself not to one of allocative efficiency (as with other types of airport sales) but to one of (re)distribution, or who should get the benefit of the tax concession.

A legitimate claimant on these rents is the Government, representing the tax-payer at large. The duty-free concession is, in a manner of speaking, a tax distortion, whereby a particular group of persons (overseas travellers) are given a concession with respect to indirect taxes (not enjoyed by most of the resident population) for reasons which are not clear. In these circumstances, it can be argued that the Government should seek to minimise the distortion by raising prices close to 'High Street' levels and then expropriate the rents for the Exchequer. Privatisation should have this effect. The offer price for BAA's airports should reflect the earning power of the duty-free concessions; the stream of future rents will be capitalised in the bid. However, such future rents are difficult to forecast thus adding a further complication for prospective investors. Consequently, investors may be inclined to discount heavily this source of future earnings. An alternative approach is for the Government to take

duty-free sales off the privatisation agenda. This it could do by controlling the award of trading concessions for duty/tax-free goods so that fees from the concessions, present and future, flow directly (or indirectly through an appointed agent) to the Exchequer.

Competing Terminals

The peculiar set of circumstances applying to duty-free goods does not extend to other airport services. In these cases the benefits from increased competition are unequivocal. But introducing more competition when one company owns or controls all assets at an airport is difficult. The basic problem is that the company has little incentive to promote or introduce the competitive supply of on-site services. The position might be improved by facilitating competition from companies operating from outside the airport. Competition of this nature exists already in certain areas — car parks, garages, car hire — and at certain airports. It is only partly effective because of the considerable disadvantage of location faced by such competitors. Thus, facilitating competition from off-site sources might help but it is unlikely to make much of an impression on the on-site monopolies.

An alternative approach suggested is to introduce or reorganise operations on the basis of separately owned (or leased) terminals (Forsyth, 1984). Assigning terminal leases to different operators is a common practice in the US. Airlines frequently lease terminals constructed by airport authorities for their exclusive use, or, as in the case of British Airways at JFK, New York, have built their own facility. Another variant is for airlines to lease for exclusive use certain areas of a terminal with the airport authority retaining responsibility for common areas (e.g. O'Hare, Chicago). Alternatively, but rarely, terminals are leased not to airlines but to private operating companies (e.g. Atlanta, Georgia).

The generally accepted view is that terminals leased to airlines in the US have retarded rather than enhanced competition between airlines. Incumbents have denied potential entrants access to spare capacity in their terminals. Although leases are now assigned for much shorter periods with 'use it or lose it' clauses, the basic circumstances are not conducive to an efficient allocation of terminal capacity. Consequently, if competition between terminals is to be effective, control has to be exercised by companies disassociated from the airlines. Within this context there may well be scope for selling to the private sector the separate terminals at Heathrow and Gatwick and/or the construction of additional, competing terminals at these airports and at Stansted.¹

One difficulty that does arise is that terminals have been designed by BAA around a particular type of traffic (domestic, short-haul, long-haul) and they cannot be switched between traffic types without, in some cases, structural alterations and without the co-operation of Customs and Immigration. However, it is possible that this specificity of terminal operation imposed by BAA is a current source of inefficiency at Heathrow. There are differences in patterns of terminal usage by different types of traffic. For example, international traffic through Terminals 1 and 2 peaks in July, whilst August is the busiest month for Terminal 3. Similarly, there is a degree of complementarity in the hourly pattern of departure traffic from Terminal 1 (international) and Terminals 2 and 3.

Consequently, it is possible that competing terminal companies could, subject to technical constraints, produce a more balanced use of Heathrow's terminal capacity (and therefore lower unit costs). Separating terminals in this way would also help to ensure that the expansion of terminal capacity was based on appropriate pricing signals and was not complicated by cross-subsidies to or from airside operations.²

On the other hand, the degree to which the passenger will gain directly from competing terminals is uncertain. The passenger, having made his flight choice, is captive to a specified terminal. Pressure on the terminal operator to provide efficient customer service will come, therefore, from the airlines if they consider that the price/quality of customer services in a terminal is a material factor in the passenger's choice of airline. In so far as terminal and airside services to airlines (as opposed to services to passengers) are more efficient, this might reflect itself in the ticket price or quality of service on competitive routes. However, if there are capacity constraints on the use of an airport as at Heathrow, under the present system most of the gains from a more efficient service are likely to accrue to the airlines.

Scope for Regulation?

The difficulties of increasing competition in the supply of commercial services and the tendency towards monopoly practices inherent in the existing monolithic structure of ownership invoke the question of whether regulation could be used to promote allocative efficiency in this area. For example, one solution might be to require multi-franchise operations in each terminal. Alternatively, could the objective be achieved by some form of price control or cost-related pricing?

One problem with the multi-franchise 'solution' is that of limited space and congestion. At Heathrow the proliferation of ground-handling equipment belonging to airlines offering competing services has been the cause of some congestion and, as a consequence, BAA has limited the number of airlines/companies selling ground-handling services at Gatwick to three. Although in this case competition is not precluded, it is an illustration of the problems faced when trying to introduce more competition in this way. The problem is a real one within existing terminals at Heathrow and Gatwick where space is at a premium and it would be difficult to introduce competing franchises for retailing and catering. It is understood that this would be less of a problem in the new terminals, T4 at Heathrow and T2 at Gatwick. Nevertheless, increasing the number of franchise operators in each terminal could produce a net loss to the user if, as a result, congestion was increased or other services curtailed.

The alternative approach of intervening in the setting of prices is basically the solution adopted by the Director General of Fair Trading for the chauffeur-driven car hire concession at Gatwick Airport. BAA is now required to invite tenders on a three-yearly basis and to award a contract to the tenderer offering the lowest overall fare structure. Such an award is subject to BAA being satisfied that the tenderer is able to meet specified standards of service and is able to pay a specified fee to BAA 'in respect of the provision of services and facilities by BAA'.

Superficially this would seem to be an admirable solution for providing services at competitive prices; instead of BAA choosing as it normally would do the tenderer offering the highest fee, it is now required to accept the tender offering the lowest prices. However, there are problems with this approach. First, it is difficult to see how the criterion could be applied to franchises not operating on a posted-price basis for their complete range of services, e.g. garage repairs, banks. And, second, there will be a strong incentive for BAA to inflate its 'fee' for equipment supplied to concessionaires.

Summary and Conclusions

Commercial services are a major source of income to BAA and the prime source of the Authority's profits. Most of these profits come from the award of concessions and most of this concession income comes from services provided to passengers, especially from the sale of duty-free and tax-free goods at prices well above marginal costs.

In the special case of duty-free goods, increasing competition will not necessarily lead to improvements in allocative efficiency. But with other services — catering, banking, convenience goods — allocative efficiency would be improved if competition was established or increased. Trying to achieve this is difficult. There might be scope for increasing competition from off-airport sales points. But an alternative approach that has been suggested, especially for Heathrow and Gatwick, is to introduce competing terminals. Provided that airline companies or their associates were precluded from buying in to such ventures, we believe that, contrary to received wisdom, the utilisation of terminals could be increased. Also by separating terminal and airside functions in this way, investment in terminal capacity is more likely to be related efficiently to appropriate pricing signals. However, it is unlikely that passengers will benefit much from lower prices.

On the other hand, intervention in the setting of prices is difficult especially where franchises do not operate on a posted-price basis. There may be some, possibly limited, scope for prescribing the number of competing outlets or franchises on a terminal-by-terminal basis; if intervention of some form is considered necessary we suggest that it be directed to this end.

FOOTNOTES

1. It is interesting to reflect on the price that might be realised for T4, Heathrow. If the offer price on completion is less than the costs of construction, this would indicate that BAA has provided too large an increment of capacity.
2. Note that to obtain a better utilisation of terminal capacity and to eliminate cross-subsidy between commercial and traffic operations does not require terminal assets to be divided between companies. One would expect the same results if a profit-maximising company owned all the terminal assets.

CHAPTER 10

THE OPTIONS SUMMARISED

Introduction

BAA claims to be one of the world's most successful airport authorities. By most criteria this is probably a correct judgement. But, in spite of its undoubted successes, the Authority has failed to produce the most efficient level of output at the most efficient set of prices: it has failed to be efficient in an allocative sense.

This situation is manifest in a number of ways:

- traffic charges which fail to ration demand to available capacity with the result that during peak periods access does not necessarily go to those passengers with the highest marginal benefit;
- traffic revenues at Stansted which fail to cover by a large margin expenditure on staff, maintenance and the purchase of services — it is most likely that charges are below short-run marginal costs;
- traffic charges which at all three airports do not cover long-run marginal costs in spite of this being the basis of BAA's charging policy (at Heathrow, BAA's most profitable airport, the return on traffic assets is only about 1 per cent);¹
- prices for airport retailing facilities that are much higher than they need be if (marginal) costs are to be covered.

Thus, in some areas the Authority produces too little output at too high a price and in other areas it produces too much output at too low a price. The result is that BAA cross-subsidises between different areas of activity and between different airports on a scale that is inefficient.

Competition and Privatisation

There are a number of factors that might contribute to this state of affairs. First, as a public enterprise BAA is not expected to maximise profits and is sheltered from take-over by organisations identifying opportunities for increased returns on capital. The Government does set a financial target (the agreed target for the London airports for the current period is a minimum rate of return on average net assets of 3 per cent plus a growth-related increment), but it is difficult for the Government to judge how efficient the Authority could be. Although the Authority will aim to achieve the agreed targets,

nevertheless, it has no real incentive to maximise its return and therefore cover costs across all its outputs.

Second, the Authority is subject to pressures from a range of organisations which seek to modify its practices in their favour and the statutory consultation requirements placed on the Authority provide a convenient avenue for such pressures. The airlines in particular are adept at putting pressure on the Authority. They gain substantially from the Authority failing to charge economic prices for the use of traffic facilities and consequently they are prepared to expend substantial resources on keeping down traffic charges. Because the Authority, unlike many airlines, does not itself seek to maximise profits and is not subject to pressures from commercial investors, its ability and its resolve to resist pressures to act inefficiently are heavily compromised.

Third, and related to the preceding factors, because the Authority is not required, or motivated, to maximise the return on its invested capital, it could have an incentive to pursue the alternative goals of maximising output or maximising the scale of its capital assets. Its under-charging of traffic services (cross-subsidised from retailing activities) and its powerful advocacy of an enormous investment in Stansted in the absence of clear signals by the market that such an expansion is justified financially, are features consistent with such a goal.²

If these factors do contribute to the Authority's failure to be efficient in an allocative sense, then the solution might appear to require BAA to pursue a policy of maximising profits. This should, for example, remove the incentive to cross-subsidise one set of activities by another; the Authority instead would withdraw from its loss-making activities (e.g. those services at Stansted which are unprofitable) and thereby increase the efficiency with which resources are used.

However, a firm pursuing a policy of profit-maximisation will not produce an efficient price/output combination if, through lack of competition, demand for the firm's output is price-inelastic. In these circumstances the profit-maximiser will set prices in excess of marginal costs and gain monopoly profits (rent). BAA currently earns such rents from many of its commercial services and a widely held view is that it has considerable potential to do so in relation to its traffic services. Although BAA faces significant competition from other airports for one-quarter to one-third of its existing passenger traffic, this view is substantially correct.

One option in these circumstances is to attempt to regulate the

potential monopoly along American lines, although this experience shows that such regulation is difficult to achieve without introducing other distortions into the market. The lesson appears to be that if regulation is used only to supplement, as necessary, competitive forces, it is more likely that the final outcome will be efficient. Regulation which supplements competition has the advantage of drawing upon competing sources of information and opinion. Thus, a major consideration is the degree to which competitive forces in the south-east can be enhanced.

There is considerable scope for increasing competition in the south-east provided that the ownership of BAA's airports is divided. Separate ownership of BAA's London airports would introduce more competition into the large market associated with travel to and from London and the south-east region. Specifically, Stansted and Gatwick have the potential to compete strongly with each other (and with Luton) in the large and 'foot-loose' inclusive-tour and intercontinental discount fare market. There are indications that the cross-elasticities are high in this market segment. In addition, Gatwick is shaping up as a promising competitor to Heathrow; it now serves more UK regional centres and more cities in the US than does Heathrow. (And if the Docklands STOL-port and its proposed services obtain approval this will add a further, albeit small, competitive element.)

Separate ownership will not eliminate monopoly power at the south-eastern airports. Heathrow especially will retain such power to a considerable degree in specific segments of the market. But, with divided ownership, these segments will be fewer and, overall, the demand curve for any one airport will be much more elastic than if Heathrow, Stansted and Gatwick are maintained in unified ownership.

BAA has argued that breaking up the Authority's airports will introduce a number of disadvantages, but these seem to be more apparent than real. There do not appear to be any marked economies to be gained by keeping the airports as one management unit. Nor do we foresee, from an investment perspective, problems arising. It is possible to expand many airport facilities by small increments and we would expect this to become a more common approach under a competitive regime. On the whole, the investment problems alluded to are not, in either content or scale, really different from those faced by a number of other economic sectors in which large sunk costs and competition are the norm, e.g. large-scale retailing, chemical industries.

On the other hand, competition between airports is most unlikely to reduce the monopoly rents currently earned from commercial services. At Heathrow and at Gatwick, where there are multiple terminals, it has been suggested that these assets might be set up on a competing basis. If passenger services within these terminals continue to be awarded to franchisees on an exclusive basis this is unlikely to be effective. A better option would be to introduce or extend competition in the actual provision of these services within the terminal building, although in some cases there are physical constraints which make this difficult to achieve.

At the present time a small degree of competition is introduced by off-site facilities (e.g. in-flight duty-free sales by airlines and car hire firms operating from perimeter hotels). A more radical departure along these lines would be to permit the sale of duty-free items at selected retail outlets in city centres. This is done on a large scale in Australia where it has had the effect of reducing prices across a wide range of tax-free goods.

There is a strong case, however, for regarding the duty-free concession as a tax distortion, so that the large margins at airport duty-free shops have the desirable effect of nullifying or partly correcting for this distortion. If this argument is accepted, the object should not be to reduce prices on the sale of duty-free items. Equally there is no reason why the monopoly rents earned should go towards the expansion of the airport industry as an implicit subsidy. Privatisation should have the effect of returning these rents to the Exchequer (they should be reflected in the bid price), but a preferred approach is for the Government (perhaps through an agency) to award the concessions and recoup the rents directly.

Overall, the introduction of more competition between airports and within airport services we see as an essential element in the case for privatisation. Privatisation without establishing a more competitive structure will require a degree of regulation and intervention that must place a question mark over the basic case for privatisation. Thus, if dividing the ownership of the London airports is ruled out, to retain BAA's airports in the public sector and use the various powers the Government has to encourage a more efficient outcome, is an option which must be given serious consideration. Such intervention would be unpopular, it would be contrary to the Government's predilection to intervene less and it would place the Government increasingly in the role of second-guessing the market. But if it is not possible to establish a competitive market this might be the best way to proceed.

Regulation and Privatisation

Dividing the ownership of London's airports would introduce more competition but individual airports would still retain a degree of market power; there remains a case for adding to existing regulation. For example, it has been suggested that there should be rate of return regulation exercised by a specialist body similar to the Office of Telecommunications.³ The basic idea of rate of return regulation (a common practice in the US for regulating public utilities) is that the regulated firm is allowed a 'fair' rate of return on its 'rate base' — a measure of the firm's capital assets. A major limitation of this approach is the well-known over-capitalisation or Averch-Johnson (1962) effect. The firm can increase total profits by expanding the assets (rate base) on which a proportionate return is allowed (provided that the allowed rate of return exceeds the cost of capital to the firm). Consequently, there is a tendency towards over-investment.

Sherman and Visscher (1982) have shown that rate of return regulation also has an effect on the structure of prices — it encourages the use of multipart tariffs, price discrimination and, in some circumstances, the setting of marginal price below marginal cost for those activities which require marginally more capital. Therefore, rate base regulation results in inefficiencies of the type that appear to be associated with the current system of specifying for BAA a target rate of return on assets. Indeed, if there are pressures not to exceed the target or penalties in doing so (e.g. the threat of litigation from disgruntled airlines), then the target rate of return will produce exactly the same undesirable effects as rate regulation.

The alternative to rate base regulation that has been suggested is to regulate monopoly power by specifying an acceptable rate of growth in charges and tariffs (Littlechild, 1983). This approach has been adopted in the case of British Telecom and articulated in the form of RPI-X (i.e. increases are permitted only up to a level set at X percentage points below the change in the retail price index). The absolute or proportional size of the return on capital is not limited by this method and thus the problem of over-capitalisation is avoided. There remains an incentive to efficiency.

In the case of British Telecom (where prices are regulated until July 1989), the weighted average of line rentals and prices for inland dialled calls by subscribers is not permitted to increase by more than RPI less three percentage points, i.e. average tariffs are to fall in real terms by three per cent per annum. However, the prices of international calls, of public call-box calls and of telephone apparatus

are uncontrolled. Applying this approach to BAA's airports suggests that prices charged by airport retailers could be subject to an RPI-X formula; charges for traffic services (which are now set below marginal costs) could be subject to a formula once prices had risen to cover marginal costs.

Thus, the RPI-X approach could require a careful interpretation of the situation, particularly when some services prior to privatisation are charged below costs. Such an interpretation would be facilitated if the regulated body was willing to co-operate in the provision of information, but co-operation is neither certain nor likely. Consequently, there are problems associated with both rate base regulation and price restraint formulae but, of the two, we think the latter is to be preferred.

The related issue is whether restraint is to be exercised by a new specialist body (as suggested by a number of airlines) or whether (as BAA has argued) the existing package of reserve powers is adequate. These existing powers include the investigatory powers of the Monopolies and Mergers Commission and specifically Sections 3 and 5 of the 1980 Competition Act. Also important is the power that the Secretary of State currently has under the Air Navigation Order 1980 to determine, at any aerodrome licensed for public use, the charges which may be applied for *any* services. In theory it appears that the capability currently exists to implement an RPI-X approach.

To combine these existing powers into the one body is an attractive idea to those who stress order and neatness. Nor is doing so without potential efficiency gains if it reduces the costs of several agencies interacting and firms having to deal with more than one agency. But there are advantages also in divided powers. First, the dissipation of powers reduces the risks that a specialist agency might develop its own self-justifying objectives; and second, it reduces the risks of the regulator being 'captured' by the regulated.

The airlines have argued that a new specialist body is required because existing powers had been ineffective and had not prevented the abuse of a monopoly by BAA. But this 'abuse' has been confined to retailing services to passengers and has not affected ground services to airlines, and certainly not traffic charges. On balance we do not think that there is a powerful case for a specialist agency. There is a case for strengthening existing powers (as the Government was proposing in the Civil Aviation Bill), and for adding to these powers some explicit constraint (e.g. RPI-X), whilst maintaining the essence of their present distribution.

Privatisation Recoups

The regulatory question has an obvious implication for the monies that the Government will realise from the sale of BAA's assets. Restructuring BAA's assets prior to privatisation also raises questions as to whether and to what extent there will be an effect on the aggregate sale proceeds received by the Treasury.

Increasing competition in the market reduces the potential scope to generate monopoly rents. For this reason it may be argued that the options which enhance competitive forces in the airport industry will have an adverse effect on the sale price of the assets. A desire by the Government to maximise the proceeds from privatisation appears to be in conflict with the object of increased allocative efficiency; if the south-eastern airports are divided between different owners and this increases competition between, for example, Gatwick and Stansted, then privatisation proceeds will be reduced. This is to oversimplify the issue. If the profits generated by a privatised BAA are regulated (either directly or through the regulation of prices) then dividing ownership and enhancing competition will have only a limited impact on the sale price.⁴

There is also little substance to the notion that, because divided ownership reduces the opportunities for economies of scale or cross-subsidisation, it also reduces Treasury recoups. First, it is doubtful that there are economies of scale to be realised by multi-airport ownership. The one test we conducted, admittedly a limited test, indicated constant returns to airport numbers. Second, it was a strong conclusion in Chapter 8 that it makes little difference whether loss-making activities are wrapped up in a large asset portfolio or disposed of separately. Because losses can be offset against profits for tax purposes, a broad portfolio will reduce the tax burden and thereby increase the sale price. A narrow portfolio (i.e. Heathrow, Gatwick and Stansted separated) will increase the Treasury's tax recoups but will reduce the sale proceeds. The plus and minus will tend to balance out to produce a similar sum.⁵

Another factor with a bearing on the sale price is the extent to which restrictions are placed on rates of return, on prices that are charged, or (through an air transport limit at Heathrow) on levels of output. Price or rate of return regulation, by constraining the profit-earning potential of the assets, will depress the offer price. Such restrictions are likely to be a potent depressant of asset values, although they will not necessarily have a favourable effect on allocative efficiency. In particular, rate base regulation is likely to have a distorting effect on investment.

The effect of the air transport limit at Heathrow depends upon how this policy is operated. Because spare capacity will be available on completion of Terminal 4, a tight limit, as proposed, will have a depreciating effect on the value of the terminal assets. The value of airside assets is more likely to be depressed if non-price-rationing solutions are adopted or if slots, together with resale rights, are given to the airlines. Alternatively, if the owner of the airside assets retains these rights and is able to ration by price, their value will be enhanced considerably.

A final, and important, factor to take account of is the possibility of litigation — a repeat of the Pan Am Case. This can be expected to have a depressing effect on asset values. The previous dispute was ‘set aside’ and a future action could, it seems, invoke previous contentions. The dispute was set aside on the basis of a memorandum of understanding between the American and UK Governments (see Appendix G). None of the preferred privatisation policies we have discussed appear to contradict in principle the elements of the memorandum. This does not prevent a different interpretation by the airlines and, therefore, the threat of litigious action can be expected to remain in the background. There is no simple solution to this problem, although one way forward would be for the UK Government to adopt the risks involved. It could do this by assuming liability for past claims set aside and it could agree also to accept responsibility for a proportion of any settlements that might arise from new claims.

Conclusions

It is the Government’s view ‘... that there is no justification for air transport facilities in general to be subsidised ...’⁶ Our analysis of the economic case supports this view and is consistent with the Government’s intent to place more reliance on market forces to resolve airport problems in the south-east and to encourage the transfer of services between airports rather than rely on compulsion.⁷ It is consistent also with the Secretary of State’s expectation that competent charging authorities will ‘ensure that ... charges more closely reflect actual differences in the full costs of supplying airport services and facilities [and] are based on sound economic principles ...’⁸

These policies will be strengthened by a privatised, competitive airport industry. Such an industry can be expected to place more reliance on the price mechanism and to be more disciplined by cost considerations. It will be less inclined to develop facilities without

proven demand; it will be less inclined to cross-subsidise and view size or output as an end in itself. As a result, once the system has adjusted to a new mode of conduct, the Government is likely to find itself less involved in often politicised, controversial decisions.

One can speculate endlessly on what might have been, but we suspect that if London's airports had been privatised and their ownership divided two decades ago, the Stansted saga would never have occurred and certainly not in the form in which it has. Even now, it is unlikely that an independent, privatised Stansted will push to increase capacity to fifteen million units or even half that figure. It is not evident that existing forecasts of demand will be sustainable if Stansted's users have to cover the costs of expanding capacity. And it is not certain how quickly demand will grow if charges at Heathrow and Gatwick too are based 'on sound economic principles'. At the moment these charges are far from being economic or soundly based.

FOOTNOTES

1. House of Commons, 1984, Appendix 32, p. 97.
2. Whitbread (1971) for example, argued that the Authority's early behaviour was that of an output-maximiser.
3. See House of Commons, 1984, Appendix 20.
4. The Government will have to decide upon its priorities between competition and proceeds although the Secretary of State has indicated that increased competition and the introduction of private sector disciplines are the 'key' objectives. (See House of Commons, 1984, Q661.)
5. There will be a (small) difference in the combined proceeds from privatisation and taxation in so far as the Treasury's discount rates differ from those of private investors. There is a difference also in the Treasury's treatment of the two forms of income: tax receipts as revenue, privatisation proceeds as negative expenditure.
6. House of Commons, 1984, p. 304.
7. Government Statement, 9 October 1979.
8. Memorandum of Understanding between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland on Airport User Charges, 6 April 1983, which is reproduced in Appendix G.

APPENDIX A

TRAFFIC AT BAA's LONDON AIRPORTS

TABLE A.1

Traffic at BAA's London Airports, 1983/4

	Total, all BAA airports	Heathrow	Gatwick	Stansted
<i>Passengers</i>				
Total (millions)	46.53	27.29	12.91	0.37
% scheduled terminal	77	99	39	11
% non-scheduled terminal	22	-	60	87
% transit	1	1	1	2
<i>Origin/destination of terminal passengers</i>				
Domestic	21	17	8	3
Europe	48	47	61	82
North America	15	17	16	1
Rest of world	16	19	15	14

	Total, all BAA airports	Heathrow	Gatwick	Stansted
<i>Aircraft movements</i>				
Total	781 683	286 909	152 842	34 926
% scheduled	55	92	49	10
% non-scheduled	19	-	40	14
% general aviation	16	7	7	44
% other	10	1	4	32
<i>Average passengers per aircraft</i>				
Scheduled	n.a.	107.8	72.5	11.5
Non-scheduled	n.a.	-	130.6	115.7
All passenger aircraft	n.a.	107.8	101.0	54.0

Source: BAA, 1984b

Notes: A terminal passenger is a passenger who joins or leaves an aircraft at the airport.

A transit passenger is a passenger who arrives and departs on the same aircraft.

A scheduled service is a service publicly advertised by an airline through its issued timetables and notices including relief services to a scheduled service.

A non-scheduled service is other flights by airlines carrying passengers or cargo from one airport to another.

An aircraft movement is a landing or take-off.

A general aviation movement is a passenger- or cargo-carrying movement other than a scheduled or non-scheduled service; general aviation movements include flying clubs, training and pleasure flights.

Other aircraft movements include movements by military aircraft and movements for testing civil aircraft or aerodromes.

The measure of 'Average Passengers per Aircraft' indicates that the ratio of aircraft movements to passengers handled varies substantially between the different airports; this is a reflection of the different mixes of traffic (e.g. domestic and international) handled.

APPENDIX B

SELECTED CHANGES IN BAA'S CHARGING STRUCTURE

In April 1972 a new structure of charges was introduced at BAA's south-eastern airports which, for the first time, introduced peak charges in accordance with a policy of long-run marginal cost pricing. In summary, the new pricing system was as follows:

- Standard fees were levied for air transport movements at all three airports at all times of the day and year at the following rates:

FLIGHTS	PER TONNE ALL-UP WEIGHT		<i>Pence</i>
	First 45 tonnes	Excess over 45 tonnes	PER PASSENGER ARRIVING AT TERMINAL
Domestic	40	35	20
European	55	65	40
Intercontinental	110	130	80

- At Heathrow, between the hours of 09.00 and 12.59 BST on 150 designated summer days, a peak surcharge of £20 was levied on every runway movement, whether landing or take-off.
- At Heathrow, between the hours of 13.00 and 17.59 BST on the same 150 designated summer days, there was a minimum landing fee of £5.
- At Gatwick, between the hours of 09.00 and 18.59 BST on 15 designated weekends (Saturday and Sunday), there was a minimum landing fee of £5.
- Apart from the £5 minimum fee, there was a standard minimum fee of £2 at all three airports.

The following is a listing of selected changes in charging criteria after the long-run marginal cost pricing policy was introduced:

	MOVEMENT/ LANDING	PASSENGER	PARKING
1972/75	(1) Introduction of charge for movements in peak shoulders (including winter peak) at Heathrow		
1976/77	(2) Charges divided into five categories according to distance instead of geographical classification (i.e. domestic, European, international)	(1) Peak passenger charge introduced (double standard charge and off-peak set at zero)	
1977/78	(3) 50% rebate during defined off-peak periods introduced		
1978/79	(4) Abolition of distance-related element in weight charges		(1) Heathrow - Peak parking multiplier (1.5) introduced
	(5) Introduction of break points at 60 and 160 MT (domestic = 50% of international charges)		
1979/80	(6) 15% rebate on quiet aircraft		(2) Multiplier = 2

	MOVEMENT/ LANDING	PASSENGER	PARKING
1980/81	(7) Abolition of landing fees per movement; replaced by fixed element in weight charge such that Heathrow higher than Gatwick higher than Stansted	(2) Standard = Off-peak period	(3) Multiplier = 4 (4) Removal of free parking period at Heathrow and Gatwick
	(8) Abolition of variable weight charges up to 60 MT (i.e. fixed up to 60 MT); only 1 break point (i.e. no 160 MT point)	(3) Charges on departures only (on aircraft exceeding 16 MT) instead of both arrivals and departures	(5) Gatwick and Heathrow changed to charge per tonne per hour
	(9) Abolition of differential weight charge between domestic and international		
	(10) Changes in the definition of peak periods		
1981/82	(11) 20% rebate for quiet aircraft instead of 15%		

	MOVEMENT/ LANDING	PASSENGER	PARKING
1983/84	(12) Variable charge starts at 50 MT instead of 60 MT; (per unit charges adjusted accordingly)	(4) Government security charge (£1.21) incorporated into departure charge	
	(13) Changes in definition of peak at Gatwick	(5) Time periods changed from peak, standard, off-peak to peak, off-peak (i.e. standard period abolished)	
1984/85	(14) No division into peak and off-peak at Heathrow (i.e. 50% rebate applies at Gatwick only)		

In addition to the above changes in criteria, there were many other more minor changes (e.g. minor changes in definition of periods) and numerous changes in the scale of charges.

APPENDIX C

CHOICE OF AIRPORT: SOME NEW EVIDENCE

A number of inclusive-tour operators sell overseas 'package' holidays with an option that the customer can choose an airport of departure. In most cases the price of the package will vary according to which departure airport is used. This provides a basis for measuring cross-price elasticities between airports.

We were able to obtain data from four tour operators offering a choice of flight from/to Heathrow or Gatwick on the same day at fairly similar timings during the 1984 summer season. The Heathrow flights were on scheduled services whilst the Gatwick flights were whole-plane charters. Except for this difference the product purchased was identical. All four operators charged a premium (supplement) for Heathrow departures but the size of the premium varied. Data were available on total sales, the proportions using Heathrow and Gatwick and the premium charged (this varied between £7 and £26) for nine specific holiday packages.

These data were modelled in the form of a conditional probability; for each package the percentage of the season's total sales selecting the Heathrow option was regressed against the Heathrow price premium. The result was:

$$\text{PERCENT LHW} = 17.61 - 0.52 (\text{£, PREM}) \\ (6.71) \quad (-2.59)$$

Both the constant term and the price variable were significant (*t*-values given above in parentheses); the latter is significant at the 3 per cent level.

These statistics indicate that if no premium was charged for the use of Heathrow flights, 82 per cent would have departed via Gatwick. This suggests that, given an equivalent choice of flight, Gatwick is much preferred, possibly because it is perceived as having easier access and/or better standard facilities and/or a less congested environment. Each £1 added to the package price for Heathrow departures results in 0.5 per cent (approximately) switching from Heathrow to Gatwick so that at a premium of £34 all departures would be made via Gatwick.

These results relate, of course, to a particular sub-market, albeit an important one accounting for about 25 per cent of BAA's total south-eastern market, but they do suggest that air travellers may be highly

responsive to small differences in price. And they emphasise the point that because airport charges form a very small part of the total air fare this does not mean that users are necessarily insensitive to changes in airport charges. In the cases analysed the Heathrow premium was being added to a package costing typically £200 to £300.

APPENDIX D

ECONOMIES OF SCALE TO MANAGEMENT

The analysis of BAA head office 'overheads' was based on time-series data for the period 1969 to 1981 during which BAA incorporated Edinburgh (1971), Aberdeen (January 1975) and Glasgow (April 1975) airports. Prior to 1967 there were important changes to head office functions (e.g. transfer of the Finance Branch) and after 1981/2 there was a discontinuity reflecting the centralisation of head office staff to a new Gatwick Head Office.

Head office staff numbers (a proxy for costs) were regressed against the number of airports and average output per airport. The output measure used was total aircraft movements (in units of one thousand) thus reflecting all types of passenger and non-passenger traffic.

The results were as follows:

Independent Variable	Coefficient (B)	Significance (t)
Movements (thous) per airport	4.5	7.1
Number of airports	51.3	18.3

$n = 13$, $R^2 = 0.97$

The constant term was not significantly different from zero.

The indications are that head office costs (staff numbers) are a linear function of the number of airports and of airport output. Each additional airport adds 51 staff to the workforce. The very high degree of variance explained suggests that there are no economies of scale (i.e. no non-linearities) in the function. The Durbin-Watson statistic was 2.17 suggesting no autocorrelation. There was no multicollinearity between the two independent variables.

APPENDIX E

COMPETITION AND DIVIDED OWNERSHIP

In Chapter 5 it was noted that BAA faces an inelastic demand in some of its sub-markets and especially in the market for journeys starting or finishing in the London and south-east region.

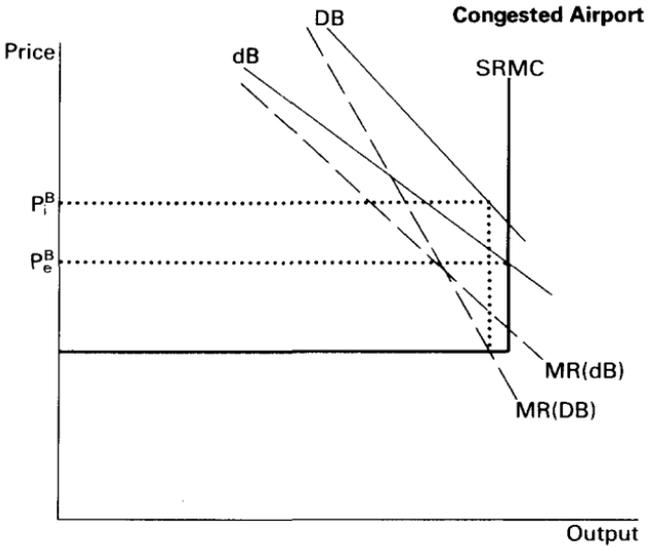
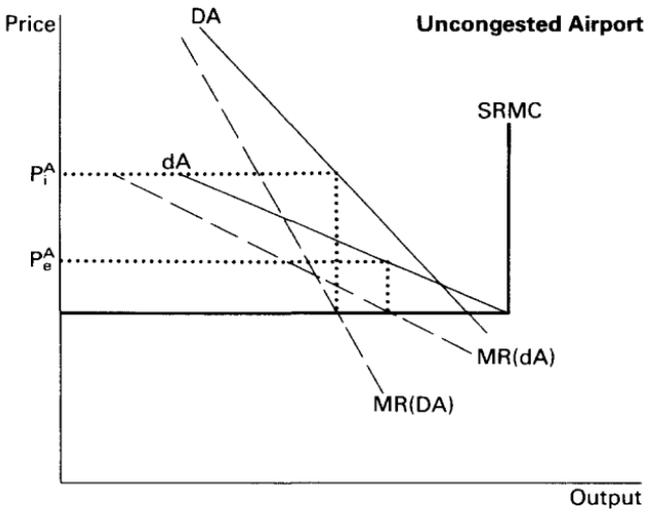
As a profit-maximising enterprise, BAA would have an incentive to increase prices and restrict output in these markets. This is illustrated in Figure E.1, the top half of which represents an airport with spare capacity (e.g. Stansted, Gatwick off-peak) and the bottom half a comparatively congested airport such as Heathrow. Curves DA and DB represent demands under unified ownership. These demands will be relatively inelastic and of the same elasticity. They each represent fractional parts of the same market demand and with common ownership of the three airports it is assumed price changes would be co-ordinated and concurrent. The overall elasticity of the D curves is determined by competition at the margin (e.g. from Luton, Birmingham, Schiphol etc). BAA will maximise profits by equating marginal cost and marginal revenue, the latter shown by the dashed curves, and by charging prices P_i^A and P_i^B . In both cases output is restricted below its welfare-maximising level. Shifts in demand will lead to changes of output leaving prices unchanged (assuming constant costs up to capacity).

Dividing the ownership of the three airports between non-colluding owners will result in an increase in demand elasticities. The curves dA and dB show the demand/price relationship at each airport on the basis that each owner acts unilaterally and assumes that competitors will sustain prices. The increase in elasticities results in profit-maximising prices P_e^A and P_e^B . These are lower than the profit-maximising prices under unified ownership. Note also that at the relatively congested airport there is an actual increase in output.

The illustrated case is a specific version of Chamberlin's (1962, pp. 81-100) analysis of group equilibrium in monopolistically competitive markets with product differentiation.

FIGURE E.1

Airport Pricing and Competition



APPENDIX F

THE REGULATION OF DUTY-FREE SALES

Duty-free facilities in the UK are licensed at major airports, on cross-Channel ferries and at Dover Hoverport. In the UK, as in most other countries, duty-free shops are licensed for outgoing traffic only. Customs and Excise generally require that an airport handles at least 100,000 departing international passengers before it is permitted to have a duty-free facility; this is because they believe that a smaller passenger through-put would not justify the cost of administration and supervision. Currently fourteen airports have duty-free shops and licences will also soon be granted to additional airports.

An airport meeting the 100,000 passengers criterion is granted a licence by Customs and Excise. The airport is responsible for the selection of a franchisee to operate the duty-free facility. Customs and Excise will assess the financial probity and experience of the applicant; subject to these factors the airport has a free choice of franchisee. Customs then enters into an agreement with the selected franchisee which provides that the franchisee has legal responsibility for ensuring that the bonded warehouse is operated in accordance with the law. Customs regulations relate mainly to ensuring the security of bonded goods — for example stocktakes are required once a month and Customs may on occasion carry out spot-checks. Customs also specifies minimum quantities for the sale of some goods to prevent the proliferation of small lines.

Apart from this, Customs regulations do not put any limitation on the range of duty-free goods offered. Nor is any limit put on the prices which are charged to the customer; this is at the discretion of the airport or the franchisee. In the case of BAA's airports the price of goods in duty-free shops is generally specified by the Authority; this is a consequence of BAA's policies on the development of commercial services (described in detail in Chapter 3) and is not required by Customs and Excise regulations.

In principle there are a number of alternative ways in which BAA could operate its duty-free facilities without contravening Customs and Excise regulations. For example it would be possible for BAA to operate competing duty-free shops at major airports. Establishing competing duty-free facilities at existing airports would in many cases require some redesign of terminal lay-out, although the lay-out at Heathrow Terminal 4 already provides scope for competing duty-free facilities.

Within the EEC, duty-free sales are regulated by directive 69/169. Although some uncertainty surrounded the provision of duty-free facilities pending amendment of this directive, in practice the position of duty-free sales has been safeguarded by a recent European Court ruling (Rewe 2). There is also some current disagreement on the level of allowances (e.g. the numbers of cigarettes); the UK is already conforming to EEC standards, however, and there is, therefore, no prospect of UK regulations being affected by the settlement terms.

In Australia a different system operates centred on more than a hundred city centre duty-free shops. To buy goods 'duty-free' a customer needs a valid passport and an overseas ticket. In Canberra he/she can get the goods up to three working days before he/she leaves. In other locations this is limited to two working days. Prior to the customer taking the purchase from the shop, the goods are sealed in plastic bags or cartons and a telex is sent by the duty-free shop to the Customs at the point of departure. This must be done at least two-and-a-half to three hours before the customer's flight leaves.

When the traveller reaches the Customs area, the seal on the goods is 'uplifted'. This is done by members of Duty Free Security, a private organisation employed by the Duty Free Association. (All duty-free shops not on airport premises must be members of the organisation.) These seals are then passed to Customs who reconcile them with the telexes. In the event of them not matching, a 'miss' is recorded, i.e. the customer did not present his/her seal for removal. This occurs for less than 1 per cent of purchases. In such cases the retailer pays the duty to Customs.

APPENDIX G

MEMORANDUM OF UNDERSTANDING BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND ON AIRPORT USER CHARGES

1. The Government of the United States (USG) and the Government of the United Kingdom (HMG) have been in dispute about the pricing policies of the British Airports Authority (BAA), the policies of HMG in relation thereto, and in particular the charges imposed by the BAA at London (Heathrow) Airport from 1976 to date. The present dispute has arisen under Articles 10 and 11 of the Agreement between the two Governments concerning air services signed at Bermuda on 23 July 1977, as amended (Bermuda 2). The dispute is reflected, inter alia, in the Diplomatic Notes of 7 April, 19 June, 27 July, 16 September and 19 October 1981 from the USG, and of 30 April, 27 July, 10 August and 28 September 1981 from HMG; in papers presented during consultations and in the Memorandums of Consultations resulting therefrom dated 7 October and 13 November 1981.

2. Her Majesty's Secretary of State for Trade (the Secretary of State), the BAA and a number of airlines of the United States and other countries have also been involved in legal proceedings in the High Court in England. On 22 February 1983 the parties to those proceedings concluded a Memorandum

of Understanding and Settlement Agreement ("the Settlement") to take effect when a Memorandum of Understanding has been entered into between HMG and the USG. This document constitutes that Memorandum between the two Governments.

3. HMG maintains that it has complied with its obligations under Articles 10 and 11 of Bermuda 2 with regard to user charges imposed by the BAA. The USG maintains that HMG has been in breach of those obligations in relation to user charges imposed by the BAA from 1976 to date. Nevertheless, while differences remain between the USG and HMG concerning those user charges, the USG and HMG share the hope that the policies of HMG relating to the imposition of user charges in the United Kingdom will no longer be the subject of dispute between them.

4. As a result of discussions between the two Governments, the following understandings are recorded:

(a) Without prejudice to the right of either Government to contend that from 1976 to 31 March 1983 the other Government has been in breach of its obligations under Articles 10 and 11 of Bermuda 2 and the right of either Government to contend that it has fully complied with such obligations, the USG and HMG acknowledge that their disputes with respect to user charges from 1976 to 31 March 1983 have been set aside.

Accordingly neither Government will proceed to an arbitration under Bermuda 2 concerning the fulfillment by the other Government of its obligations with respect to user charges under Articles 10 and 11 of Bermuda 2 in respect of the period up to and including 31 March 1983. In the event a dispute arises concerning fulfillment by either Government of its obligations with respect to user charges after 31 March 1983, both Governments may refer to and rely on their contentions to date concerning user charges and the history of this dispute, including the materials referred to in paragraph 1 above.

(b) Borrowing is often required by sound financial practice, and, therefore, within the framework of and subject to the duties and powers applicable, the Secretary of State in exercising his statutory powers over the borrowings of the BAA recognizes that it may be necessary to seek external financing. If the BAA incurs major capital expenditure, such as the capital investments currently planned, there will be occasions when the BAA's after-tax cash flow, including user charges, is insufficient to cover the BAA's requirements for capital expenditure in a given year, and in such circumstances it would be necessary and appropriate for the BAA to fund all or part of its capital expenditure programme

from other sources as permitted by existing legislation or as may be permitted by future legislation.

(c) In formulating financial targets with the BAA, HMG acknowledges the need to secure efficient use of the public resources employed by the BAA, and looks for no more than a reasonable rate of return on investment. In computing revenues that contribute to the rate of return on assets, no distinction will be made as to the sources of revenue, including duty-free sales and other commercial revenues.

(d) In using its best efforts, HMG expects the charges determined and imposed by the competent charging authorities at UK airports served by U.S. carriers to be just and reasonable, and equitably apportioned among categories of users and in accordance with the principles set forth in Article 10 of Bermuda 2. In particular, the Secretary of State expects the competent charging authorities to ensure that the charges more closely reflect actual differences in the full costs of supplying airport services and facilities, are based on sound economic principles and on the generally accepted accounting practices within the United Kingdom, and are reasonably related to and do not exceed the full costs, including depreciation and a reasonable rate of return, of supplying the services and facilities concerned.

5. Both Governments acknowledge in principle that an acceptable system of peak charges reflecting airport costs might be constructed in appropriate circumstances. Further, both Governments welcome the arrangements agreed upon by the BAA and the airlines for a collaborative review of peak charges. The USG has expressed a number of concerns about the BAA's peak pricing practices. In particular, the USG believes that (1) all traffic should bear at least some capital costs; (2) all traffic should bear its share of operating costs; (3) peak periods, where established at any airport, should encompass all periods of comparable activity at that airport; and (4) no peak charge should be assessed with respect to any service or facility unless a charge is also assessed for such service or facility during off-peak periods. HMG sees force in the last three of these views and will commend them to the BAA, as well as drawing all the USG concerns to the attention of the BAA so that they may be taken into account in their collaborative review of peak pricing.
6. The undersigned, being duly authorized by their respective Governments, hereby confirm that the foregoing correctly

represents the understandings of the two Governments in this matter and that these understandings will take effect if on or before 12 April 1983 Actions 1980 A No: 4127 and 1980 P No: 4245 are discontinued as contemplated by the Settlement.

Done at Washington this sixth day of April, 1983, in duplicate.

For the Government
of the United Kingdom

Handwritten signature of Robert Brattin in black ink.

For the Government
of the United States

Handwritten signature of William J. Casey in black ink.

REFERENCES

- ABC (1984), *World Airline Guide*, July.
- Alexandre, A., Barde, J.P. and Pearce, D.W. (1980), 'The practical determination of a charge for noise pollution', *Journal of Transport Economics and Policy*, 14, 205-220.
- Ashworth, M.H. and Forsyth, P.J. (1984), *Civil Aviation and the Privatisation of British Airways*, IFS Report Series no. 12, London: The Institute for Fiscal Studies.
- Averch, H. and Johnson, L. (1962), 'Behaviour of the firm under regulatory constraint', *American Economic Review*, 52, 1053-1069.
- Boyfield, K. (1984), *Civil Aviation and Airports in the USA: A Report on a Fact Finding Visit*, London: The Faculties Partnership Ltd.
- British Airports Authority (1983a), 'Heathrow traffic — cost related charges', BAA Position Paper TCG/BAA 1.
- (1983b), 'Gatwick traffic — cost related charges', BAA Position Paper TCG/BAA 5.
- (1984a), *Landing and Parking Fees at BAA Airports*.
- (1984b), *Annual Report and Accounts 1983/84*.
- (1984c), *Patterns of Traffic at the BAA Airports — 1983*, BAA Planning Department, 84-242.
- British Market Research Bureau (1983), holiday booking index, whole season analysis, summer.
- Carlsson, B. (1972), 'The measurement of efficiency in production: an application to Swedish manufacturing industries 1968', *Swedish Journal of Economics*, 74, 4, 468-485.
- Chamberlin, E.H. (1962), *The Theory of Monopolistic Competition*, Harvard University Press, 8th edition.
- Civil Aviation Authority (1980), 'Passengers at London area airports in 1978', CAP 430, London.
- Daniel (1984), *Local Authority Airports — Accounts and Statistics 1982/83*, London: CIPFA.
- Department of Transport (1984), 'Heathrow air transport movement limit', Consultation Paper.
- Director General of Fair Trading (1984), *The British Airports Authority*.

- Doganis, R.S. and Thompson, G.F. (1975), 'Airport profitability and managerial effectiveness', *The Manchester School*, 4, 331-352.
- Farrell, M.J. (1957), 'The measurement of productive efficiency', *Journal of the Royal Statistical Society*, A, 120, 253-290.
- Forsyth, P.J. (1984), 'Airlines and airports: privatisation, competition and regulation', *Fiscal Studies*, 5, 1, 61-75.
- Foster, C.D. (1984), 'Privatising British airports: what's to be gained?' in *Privatising British Airports Authority*, London: Public Money Publications.
- Graham, D., Kaplan D. and Sharp, K. (1981), *A Proposal to Adopt Noise and Congestion Fees at Washington National Airport*, Washington DC: Office of Economic Analysis, Civil Aeronautics Board.
- House of Commons (1984), *The Organisation, Financing and Control of Airports*, Second Report from the Transport Committee, Session 1983-84, House of Commons Paper 319.
- Koran, D. and Ogur, J.D. (1983), *Airport Access Problems: Lessons Learned from Slot Regulation*, FAA Bureau of Economics Staff Report to the Federal Trade Commission.
- Little, I.M.D. and McLeod, K.M. (1972), 'The new pricing policy of the BAA', *Journal of Transport Economics and Policy*, 6, 101-115.
- Littlechild, S.C. (1983), *Regulation of British Telecommunications Profitability*, London: Department of Industry.
- Lloyd's Aviation Economist (1983), 'Schiphol: determined to remain in the Big League', 1, 3, 20-22.
- Memorandum of Understanding between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland on Airport User Charges (1983), 6 April.
- Sherman, R. and Visscher, M. (1982), 'Rate of return regulation and two-part tariffs', *The Quarterly Journal of Economics*, 97, 27-42.
- Stansted Inquiry Documents: BA14A, BA72, BA98, BAA133, BAA228, BAA231.
- Starkie, D.N.M. and Johnson, D.M. (1975), *The Economic Value of Peace and Quiet*, Farnborough: D.C. Heath.
- Whitbread, M. (1971), 'A framework for the efficient production of airport services', *Regional Studies*, 5, 121-134.