ECONOMIC PRACTICES AT BRITISH AND AMERICAN AIRPORTS

by

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ABSTRACT

This thesis is a presentation of economic practices at British and American airports. It examines particularly the revenue side and pricing policies at those airports. The emphasis is on practices in use in large air carrier airports, especially international ones. The purpose is to provide a common base for possible comparison and analysis. The last chapter concerns this aspect as well as a look at foreseeable future developments in this field.

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INTRODUCTION

In this study I focused on the revenue side of airport economics and particularly on user charges. I also concentrated on major airports where the size of those incomes is important enough to allow an analysis and a comparison.

The first chapter is a general presentation of ICAO's* recommendations concerning user charges. They constitute a common base of reference since the majority of international airports throughout the world follow most aspects of those recommendations.

Although it might seem dangerous to separate the economics of major airports from the economics of smaller regional airports, this work emphasizes practices at large carrier airports for different reasons:

- As already mentioned, it provides a base for comparison.

- In the United Kingdom, attempts have been made to plan for the airports' development at the national level. However such attempts never came through** which led to the creation of relatively independent and autonomous authorities like the BAA.*** It is therefore safe to consider each case separately.

- Large airports throughout the world tend to be operated by

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*International Civil Aviation Organization.

**The reasons will be examined in detail in Chapter II.

***British Airports Authority.

independent authorities as they expand. Those authorities have more and more operating freedom and tend to develop their own economic policies.

I also limited this study to the examination of the revenue side and user charges practices as well as rents and concessions practices, and this for the following reasons:

- The study of the cost structure of airports would involve the presentation of the different financial and accounting techniques in use which are not the subject of the thesis and are not relevant to its purpose.

- The examination of the revenue side provides information concerning the cost side. Generally the common goal of airport management is to cover the operating costs and the revenue policy in use in an airport reflects to a certain extent the cost structure of the airport.

Chapter 2 examines the economics of British airports. A historical background was necessary to highlight the particularities of the airport industry in this country and to understand the institutional set ups of British airports. The BAA's pricing policies in particular are examined in detail in this chapter. Most of the data used in this chapter is drawn from a study on British airports' economics carried out by the Transport Studies Group of the Polytechnic of Central London (Ref. 6).

Chapter 3 presents the most common economic practices in U.S. large carrier airports. The presentation is illustrated by examples of user charges and pricing policies in effect in selected major American airports.

Finally, the subject is concluded by examining the philosophy behind practices in both countries, the differences in those practices and the outlook for the future of this issue.

CHAPTER 1

INTERNATIONAL STANDARDS ON USER CHARGES

There are basically two types of agreements that govern user charges practices in major international airports.

1) The first type of agreements are bilateral agreements. The most famous example is the Bermuda II agreement between the United States and the United Kingdom (1977). The major aspects of this bilateral agreement with respect to airport charges can be outlined as follows (Ref. 4):

- Each party must ensure that user charges imposed in airports in use by the other party's carriers are "just and reasonable." To this effect, charges imposed on the foreign carriers must be comparable to charges collected from the national carriers and those charges must reflect only the cost of providing services to the user in question.

- Consultations between users and airport authorities are encouraged to discuss this issue. Airlines, in particular, should be allowed to present their views concerning charges in use as well as revisions of these charges.

The major characteristic of such bilateral provisions is that they are not easily enforceable. There is no indication as to what "reasonable" levels of charges are and the cost of providing services is difficult to estimate from one airport to the other. The result is

that airport authorities are generally reluctant to begin a dialogue with airlines on those issues and consultations are very unusual.

2) At the purely international level the issue of user charges was first addressed at the 1944 Chicago Convention. A series of recommendations to member countries concerning this question was issued in Article 15 of chapter II; some aspects of the recommendations are (Ref. 4):

- "Any charges that may be imposed or permitted to be imposed by a contracting state for the use of such airports and air navigation facilities by the aircraft of any other contracting state shall not be higher,

a) As to aircraft not engaged in scheduled international air services, than those that would be paid by its national aircraft of the same class engaged in similar operations, and

b) As to aircraft engaged in scheduled international air services, than those that could be paid by its national aircraft engaged in similar international air services."

- "No fees, dues or other charges shall be imposed by any contracting state in respect solely of the right of transit over or entry into or exit from its territory of any aircraft of a contracting state or persons or property thereon."

The first aspect concerns the non-discriminatory character of user charges, the second prohibits charging users for services they do not use. At the time the level of user charges collected at international airports was low and it was not until the 1960s, when user fees

started to be a sizeable part of airlines' operating costs, that this issue was addressed in more detail. The International Civil Aviation Organization, created after the Chicago convention in 1947, focused in greater detail on this aspect, and held conferences in 1967 and 1973 which resulted in more specific recommendations concerning user charges. ICAO's recommendations (Ref. 14) can be outlined as follows:

Landing Fees:

- The landing fee level should reflect the cost of accommodating the aircraft movement with respect to airport services as well as terminal area air traffic control services.

- The fee should be based on maximum gross takeoff weight (MGTOW) for each type of aircraft.

- A rate per 1,000 kg or 1,000 lbs has to be specified. This rate can vary for different levels of weight.

- This rate, however, should not depend on distance travelled by the aircraft.

En-route Air Navigation Charges:

- The level of this charge should reflect the cost of the facilities and services used by the aircraft in question.

- The charge may depend on both the weight of the aircraft and the distance traveled in airspace.

In general, the ICAO recommends that "ability to pay" should not be taken into account until all charges are assessed. Therefore adjustments can be made only if they do not produce increased charges for any user. This means, for example, that not charging a full fee for local flights can only be done if fees for other flights are not increased as a result.

Some observations can be made concerning those recommendations:

Landing Fees:

- There is no indication as to what a reasonable level of landing fee is.

- Landing fees based on MGTOW might not necessarily reflect the cost incurred. If we consider a congested situation, where delay costs on other aircraft should be taken into account, it is very likely that a landing fee based only on MGTOW underestimates the costs imposed on other users by light aircraft.

En-Route Air Navigation Charges:

Following ICAO's recommendations, a typical formula used by Eurocontrol for air navigation charges is:

$$\text{charge (per service unit)} = \frac{\text{distance}}{100} \times \frac{\text{MGTOW (in tons)}}{50}$$

It is obvious that such a formula does not reflect the cost of services used by a particular aircraft. The distance used is the distance flown over the country which is supposed to be a measure of the amount of services used. If we consider how different the levels of speed and how different the degrees of sophistication of avionic equipment are of aircraft using the same system, it appears that such variables should also be taken into account when assessing En-Route Air Navigation charges.

CHAPTER 2

BRITISH AIRPORTS

2.1 Historical and administrative background of British airports

Before the second World War, most of the civil airports of the United Kingdom* were owned and managed by either municipal authorities or private enterprises. This was possible because of the very low capital cost and operating cost of airports at this period. However, following the Maybury Committee recommendations in 1937-1938, technical services such as air traffic control, radio and meteorological services became the responsibility of the central government.

British airports saw their major development during World War II. Civil aerodromes were taken over by relevant Ministries which improved the situation in two ways: New airports were built in order to accommodate the military needs while existing facilities were remodeled for the same purpose.** Most of the new facilities were potentially adaptable to civil air transport.

The post-war elected Labour Government decided that airfields judged necessary for scheduled air services would be acquired and operated by the Ministry of Civil Aviation. At the same time the

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*Except Croydon, Heston and Lympue.

**A total of 700 airfields were available at the end of the war.

Labour government decided that the air transport industry should as well be owned and managed by state corporations.* These decisions came from the concern that planning of air transport as well as of airfield development and operation was necessary and that cooperation between several ministries was required.** However, when in 1951 the Labour Party fell from power, there was still no airport plan and many of the airports in the acquisition program were still to be acquired. The reason being that the scarce resources were concentrated on airports used by the different air corporations and more especially the BEA. Between 1950 and 1955, the heavy financial operating and capital losses of airports reversed the trend and forced the Ministry to surrender many airports to the local authorities. The Ministry of Civil Aviation was left only with airport licensing powers and was just consulted for loans on airport matters. The result was that the Ministry felt no incentive to use those limited powers for planning and no planning of the national airport network was established during this period.

In 1961 the growing municipalization of the British airports led the Conservative Government to surender a total of 22 airports under Ministry of Aviation ownership to local authorities and to limit state assistance to "en-route" services and navigational facilities for some major airports. Under these provisions the airports should be considered as business enterprises and only seven airports remained under

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*The BEA, BOAC and British South American Airways were those three state corporations for air transport services.

**From the Parliamentary Secretary of the Ministry of Civil Aviation, House of Commons, 24 January 1946: "If we are to secure the orderly development of Transport Aerodromes in the right place and up to the right standards, it is necessary to have a central plan" (Ref. 6).

the Ministry's control.*

In 1965 the Airports Authority Act created the British Airport Authority (BAA) to control four major international airports.** The government would continue to subsidize airports under certain conditions:

- If the airport was considered as indispensable to the national transport system and if the local authority in charge was unable to cover the costs.

- If the airport's existence was deemed essential to the region's economy. This was the case of nine airports in the Highlands and the Islands of Scotland.

Evidently the situation at the end of the 60s was very confused. No planning at the national level was accomplished. There were two major aspects to the situation:

Diffusion of Ownership:

- Most airports were owned by local authorities or a consortium of local authorities.

- A few were owned by private companies.***

- Some were owned by the Board of Trade.

- The Ministry of Defense owned military airfields used for civil air transport as well.

- Finally the BAA owned the three London airports as well as Prestwick Airport in Scotland.

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*Those airports were considered serving necessary national needs and thus eligible for financing through general taxation. In 1967 only four of the seven airports remained under the control of the Board of Trade.

**Heathrow, Gatwick, Stansted and Prestwick Airports.

***Chester (Hawarden) and Hull (Brough) Airports were operated by aircraft manufacturing companies.

Diffusion of Responsibilities:

The different administrations and agencies involved in airport planning and development had different views on the question.

The Air Transport Licensing Board (ATLB) was primarily concerned with the economic regulation of air transport services. This Board considered the London area as a priority for development and encouraged regional airports to focus their attention on "providing regular and speedy communications with the London airports."* The result was that smaller airports authorities had no certainty of growth of service. The ATLB had no power to force the scheduled airlines to maintain minimum services to regional airports.**

The Board of Trade had different roles:

- It licensed airports and airfields.
- It was consulted for airport loan applications.
- It owned a number of small regional airports.
- It was also responsible, along with the Ministry of Defense, for providing en-route navigational services throughout the country. Although the Board of Trade introduced in 1964 a navigational services charge, it still faced an annual operating deficit of £1.75 million. The Board of Trade had the responsibility of air traffic control at the vicinity of the following airports: All the airports owned by the Board of Trade, all the airports owned by the BAA, and five airports owned by local authorities.*** The remaining local airports had to provide for these services themselves.

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*Fourth report of the ATLB (31 March 1964) (Ref. 6).

**Before deregulation in the U.S., the Civil Aeronautics Board had the power to do so.

***Birmingham, Glamorgan, Glasgow, Liverpool and Manchester.

1967 was a turning point for air transport in the U.K. In July 1967 the Committee of Inquiry into Civil Air Transport was set up. It was concerned about civil air transport as well as airport development and planning. Concerning airports the Committee came to the conclusion that the Civil Aviation Authority (CAA)* should take over all the responsibilities of the Board of Trade to be able to coordinate airport planning according to the needs of the civil airlines industry. However the CAA, which assumed its functions on April 1, 1972, had only advisory powers concerning airport planning and was only issuing recommendations to the secretary of state on that matter.

Therefore, despite pressures from numerous concerned bodies including the BAA, airport planning remained very much a local concern and the CAA's role was only to assist the different local communities for any studies they would undertake. During this same period:

- The Board of Trade divested itself of three of the four local airports on its hands.

- In April 1971 the BAA added a fifth airport to its group of four.**

- The government now owns and operates only the Highlands airports and the airports in the Islands of Scotland, including Aberdeen.

- The rest of the airports are separately owned.

- The CAA is responsible for air navigation services.

The 1970 European Civil Aviation Conference recommended that carriers should bear full costs for air navigation facilities in all member

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*Government agency.

**Edinburgh.

countries.*

In short, the situation throughout the 70s was the following:

Department of Trade (previously called the Board of Trade):

Airport planning powers. However restrictive powers rather than constructive powers because its main function is to control loan sanctions. The department used this power only to restrict the development of certain airports.

Department of the Environment:

Physical planning control of airports. No ability to use it as a medium for airport planning.

Civil Aviation Authority (CAA):

The CAA issues only recommendations on airport planning but has no powers to enforce them. It has, however, the route licensing authority and can in this way influence the development of particular airports.**

British Airport Authority (BAA):

The BAA operates several airports and has freedom of planning and financing the development of its network. The BAA works closely and is rarely in conflict with the Department of Trade.

2.2 Capital financing of British airports

Airports owned by local authorities have two sources of financing. Airport buildings, airport roads, airport parking, as well as aprons and taxiways are financed from the global sum spent each year by the

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*Another decision was that individual passenger charges should be covered by airlines and not by passengers individually.

**The CAA clearly used this influence in 1976 when it stimulated the use of Gatwick for scheduled services following the guidance of the 1976

local authority on all its projects investments and coming from the collection of general taxes. The sum allocated to airports is subject to approval from the Department of the environment. On the other hand, the construction or extension of runways must have approval, for its capital expenditures and the loan involved, from the Secretary of State Department of the Environment. This Department takes advice on airport loan sanctions from the Department of Trade.

This form of financing is considered as the normal one. However, a small number of airports have obtained finances directly from the Department of Trade as a mutual consent. This financing takes the form of interest-free and non-repayable grants. The most recent cases are Edinburgh and Aberdeen airports which received substantial grants from the government as part of the agreements whereby the BAA took them over from the CAA.*

That brings us to the case of the BAA which has a different position with regard to both planning and financing compared to local authorities. The BAA does not require loan sanctions for key projects as the local authorities do. Due to its good financial record, the BAA is able to finance its projects from internally generated funds. The BAA can, however, be restricted on its capital expenditure decisions in two different ways. All its investment decisions involving more than £5 million at Heathrow and more than £1 million at other

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White paper on "Future Aviation Policy."
The CAA also used this power on different occasions after 1976. As already mentioned, the CAA also provides ATC services at certain airports.

*Edinburgh received £13.5 million for the development of its airport and Aberdeen received £8.0 million to build a new terminal that will accommodate the traffic resulting from North Sea oil operations (Ref. 6).

airports are subject to the approval of the Department of Trade. However, as already mentioned, the Department of Trade has always been involved in the decision process at an early stage by a constant cooperation with the BAA and such approvals are virtually automatic. The other obstacle can be that local authorities, opposing a particular project, can call for a planning inquiry by appealing to the Department of the Environment.*

2.3 Financial performance of British airports

The vast majority of British airports have proven to be unprofitable throughout their history. The same observation can be made for most major airports throughout Europe and there is one common reason for that. In England, as well as in many European countries, airports have always been considered as public utilities, mainly because of the argument that they generate substantial indirect economic and social benefits to the community they serve. Such large public projects are traditionally financed and managed by the central government** or by a special agency established and directly controlled by this government. Therefore the purely economic viability of an airport has never been the major factor and airports are not run on commercial grounds. The central government has always been prepared to accept substantial operating losses and to cover capital investments. This attitude has strongly influenced the way airports are managed and particularly the financial policies involved. Later in this chapter, I will describe

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*This only happened in 1977 when proposals for a fourth terminal at Heathrow were opposed by the Borough of Hillingdon, the Secretary of State instituting a special planning inquiry in the summer of 1978.

**Generally through the Ministry of Transportation.

those financial practices in greater detail.

However, attitudes toward this problem are changing and airports are considered more and more as commercial enterprises for different reasons. The local authorities find it increasingly difficult to assist their airports financially and to meet continuing annual losses. At the same time the central government's policy toward air travel has changed. The idea of subsidizing air travel is losing ground and governments nowadays often advise airports to adopt a pricing policy that reflects more closely the cost of providing services.* For several years now, the British Government has been instructing airport authorities to institute a pricing system that will both reflect the cost of providing services and enable the airports to cover the replacement of capital including a reasonable return on that capital.

Table 2-1** shows the reported financial situation of major British airports in 1975/76. We note that overall the airport industry reported a surplus of £7.6 million; this figure, however, is misleading for two reasons:

- If we ignore Heathrow's results, we see that the situation is rather a deficit of £7.6 million. The rest of the airports are far from being able to cover costs, and only five airports report rather insignificant surpluses.

- On the other hand, the reported Surpluses/Deficits do not reflect the actual financial state of the industry. They are distorted

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*The 1978 White Paper states (para. 29): "The Government does not consider that there is any justification for air transport facilities in general to be subsidized by the Taxpayer and the rate payer" (Ref. 6).

**Source: (Ref. 6).

Table 2-1: Reported Financial Situation in 1975/76

Reported Surplus/Deficit 1975/76 LONDON AREA AIRPORTS	£000's
Heathrow	+15,557
Luton	- 50
Stansted	- 394
Gatwick	- 1,288
Total	+13,825

REGIONAL	£000's
Aberdeen	+ 89
Manchester	+ 64
Jersey	+ 25
Guernsey	+ 6
Prestwick	- 2
Birmingham	- 199
Blackpool	- 117
Belfast	- 128
Southend	- 145
Leeds/Bradford	- 198
Edinburgh	- 244
Bristol	- 298
Glasgow	- 356
Tees-side	- 388
Isle of Man	- 399
East Midlands	- 554
Newcastle	- 554
Glamorgan	- 1,379
Liverpool	- 1,544
Total	- 6,222
Overall Total	+ 7,603
Total Except Heathrow	- 7,603

measures for two major reasons:

(i) At certain airports* the CAA provides the navigation services and the corresponding costs and revenues do not appear in the reported figures. Yet those costs and revenues appear in the accounts of airports which provide air traffic control services for their facilities.

(ii) Some airports have received financial support from the central government** which does not appear in the airport's accounts.

In a study by the Transport Studies Group of the Polytechnic of Central London*** adjustments were made on the reported figures to take those distortions into account. Table 2-2*** shows the "Adjusted" financial situation of the same airports during 1975/76. We note that the situation now appears far worse. The overall surplus is now only £326,000 and again, if we exclude Heathrow's result, the remaining deficit is as big as £15.4 million (twice the reported deficit). This amount can also be interpreted as the "Hidden" direct and indirect subsidy from the government to the airport industry.

Another way to look at this situation is through subsidy or net earning per terminal passenger in each airport. Again, here we can consider the reported subsidy (or more rarely earning) from the published financial accounts of each airport. These figures can be interpreted as subsidies per passenger that have to be covered from local funds† (i.e., the tax-payer). However the same adjustments for the cost of the CAA

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*Heathrow, Gatwick, Stansted, Edinburgh, Aberdeen, Birmingham, Prestwick, Belfast, Liverpool, Glasgow, Glamorgan and Manchester.

**Generally in the form of grants toward capital investment or written-off debts.

***Ref. 6.

†In the case of the BAA's seven airports, these losses are met by cross-subsidies from the profitable airports to the unprofitable ones.

Table 2-2: The "Adjusted" Financial Situation in 1975/76

Adjusted Surplus/Deficit 1975/76 LONDON AREA AIRPORTS	£000's
Heathrow	+15,702
Luton	- 50
Stansted	- 978
Gatwick	- 2,388
Total	+12,286
REGIONAL AIRPORTS	£000's
Jersey	+ 25
Guernsey	- 89
Blackpool	- 117
Southend	- 145
Leeds/Bradford	- 198
Aberdeen	- 219
Bristol	- 298
Prestwick	- 362
Isle of Man	- 399
Tees-side	- 402
East Midlands	- 554
Newcastle	- 577
Belfast	- 656
Manchester	- 665
Birmingham	- 697
Glamorgan	- 1,494
Glasgow	- 1,501
Liverpool	- 1,790
Edinburgh	- 1,822
Total	-11,960
Overall Total	+ 326
Total Excluding Heathrow	-15,376

providing aerodrome navigation services and government grants can be made and the new figure can be interpreted as the full subsidy directly paid by the local tax-payers or indirectly by the CAA and the central government (Table 2-3).* We can again observe that the resulting subsidies are higher than the reported ones which reflects, in part, the losses in providing ATC services by the CAA.

2.4 Revenues at U.K. airports

2.4.1 Introduction

International airports have traditionally two major sources of revenues:

(i) Aeronautical revenues are revenues associated directly with aircraft movement. They are also called operating revenues and include revenues from landing fees, aircraft parking and hangarage fees, passenger charges, charges for air traffic control and so on. In short, they are revenues associated with the air-side activities of an airport.

(ii) Non-aeronautical revenues are those generated on the land-side of airport activities. They include revenues from rents, concessions, car parkings and so on. In the following discussion, I will purposely include aircraft hanger rents as well as terminal area rentals to airlines in this category of revenues for practical reasons, even though they can be considered as aeronautical revenue.

The following is a presentation of practices in use in major British airports with regard to these revenues. Most tables used to illustrate quantitatively this presentation are derived from the 1978 study by the Transport Studies Group at the P.C.L. (Ref. 6).

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*Source: Ref. 6.

Table 2-3: Subsidy (or net earnings) Per Terminal Passenger Handled--1975/76 (£s)

	Airport (ranked according to column two)	Based on "Reported" Financial Results	Based on "Adjusted" Financial Results
1.	Heathrow	(0.72)	(0.73)
2.	Guernsey	(0.01)	(0.17)
3.	Jersey	(0.02)	(0.02)
4.	Luton	0.03	0.03
5.	Manchester	(0.02)	0.26
6.	Gatwick	0.24	0.44
7.	Belfast	0.11	0.54
8.	Birmingham	0.09	0.68
9.	Leeds/Bradford	0.71	0.71
10.	Glasgow	0.18	0.77
11.	Southend	0.73	0.77
12.	Newcastle	0.91	0.95
13.	Blackpool	0.97	0.97
14.	Prestwick	0.01	0.98
15.	East Midlands	1.01	1.01
16.	Isle of Man	1.03	1.03
17.	Bristol	1.53	1.53
18.	Edinburgh	0.29	2.13
19.	Tees-side	2.23	2.31
20.	Stansted	1.63	4.05
21.	Liverpool	3.78	5.12
22.	Glamorgan	6.71	7.86

2.4.2 Aeronautical Revenues

Aeronautical revenues represent the major source of income at British airports. We can estimate that about two-thirds of total revenues are generated from the air-side activities.

I will particularly emphasize the pricing policy aspect of the question. Whereas some U.K. airports have tended to stick to international standards in their pricing policies, the BAA has been more innovative and has established for a long time such practices as peak-hour surcharges in its airports. Special attention will be given to BAA's pricing structure and its results.

There are mainly three trends of charging policies in the U.K.:

- The structure of charge at airports following the Aerodrome Owners Association (ADA) recommendations.

- The structure of BAA-Scottish charges.

- The structure of BAA-South East charges.

I will examine each one of them separately by describing the structures of charges as well as the underlying philosophies that they reflect.

(i) Charging practices at airports following ADA's recommendations

The vast majority of regional airports agreed in 1971 to adopt ADA's recommendations concerning charges and to implement a common structure of charges. This structure of charges is more simple than the BAA's one and only the level of charges is altered throughout the years.* The reason for that is simply a need of practicality since the ADA is only an association of member airports and it is more expedient to alter price

*Whereas the BAA frequently altered the structure of charges.

levels instead of charging a whole structure to meet financial targets. This is definitely not a cost-based approach to airport charges and we will see that the trend is toward a simplification of charges structure that do not necessarily reflect costs.

From November 1970 to March 1973, the charges remained unchanged. They include:

1. A fixed rate landing fee increasing relatively to aircraft weight (Table 2-4). Three weight categories are distinguished:

- The first 26,000 lbs are charged at a lower rate than the remaining weight.

- From 26,001 lbs to 200,000 lbs a higher rate is charged.

- Over 200,000 lbs the highest rate is applied.

2. A passenger service charge collected on each international arriving passenger.

3. An international surcharge discriminating non-European passengers.

A simplification of those charges occurred in April 1973; it includes:

1. A separation of the navigational service charge from the landing fee, the landing fee being simplified to a basic rate per ton.

2. A passenger load supplement was installed for domestic passengers in 1975, the fee for international passengers remaining much higher.

Those charges were intended to serve different purposes:

- The introduction of the passenger load supplement (PLS) became of growing importance within the charging structure. The consequence was that the landing fees became lower than what they would be without

Table 2-4:* Changes in the Structure and Levels of AOA Recommended Charges

(1) Landing Fee Increasing Relative to Weight (June 1957 to March 1973)

	1957 June	1959 July	1969 Nov	1970 Nov**
Standard Landing Fee (including Navigation Service Charge) (per 1,000 lb)				
Up to 26,000 lbs	45.0p	45.0p	52.5p	62.5p
26,000 lbs - 200,000 lbs	52.5p	52.5p	62.5p	72.5p
Over 200,000 lbs	57.5p	57.5p	65.0p	75.0p
Passenger Service Charge (per International Arriving Passenger Only	25.0p	37.5p	37.5p	50.0p
Intercontinental Surcharge (On Standard Landing Fee Only)	66.6%	66.6%	66.6%	80.0%

(2) Fixed Landing Fee per Ton (April 1973 to March 1977)

	1973 April	1974 April	1975 April	1975 Nov	1976 April
Basic Landing Fee (per ton)	£1.00	£1.00	£1.20	£1.20	£1.50
Navigation Service Charge (per ton)	65p	65p	75p	£1.00	£1.40
Passenger Load Supplement					
Domestic	-	-	50p	60p	60p
International	50p	50p	£1.00	£1.50	£1.50
Intercontinental Surcharge (on basic landing fee only)	80%	80%	80%	80%	80%

*Source: Ref. 6.

**No change in charges between November 1970 and March 1973

the PLS which is a clear encouragement for general aviation activity as well as freight traffic. This also marks an emphasis on passenger related charges rather than aircraft related charges.

- The differential international PLS constitutes an attempt to related charges to "what the traffic will bear."

In short, the ADA's pricing policy is based on the average cost principle. Mainly two categories of users are recognized, domestic and international passengers, and the charges reflect the average cost allocated to each category per unit passenger. The increases in passenger related charges have been more important than the increases in landing fees. For example, substantial increases in fee levels occurred in 1975 following the oil-crisis with more emphasis on the passenger load supplement (Table 2-4). Those measures did not significantly improve the financial position of regional airports.

(ii) Charging policies at BAA--Scottish airports

Before 1975, the BAA's charging system was almost identical for all the airports it was running. In 1975, the BAA decided to introduce time periods considerations, but applied them only to its South East airports.* The Scottish airports** were not affected by this radical change in charging policy.

The structure of charges at BAA--Scottish airports includes:

- A standard landing fee per ton, increasing according to two weight categories. Landing fees are also discriminated on the basis of domestic, European and intercontinental flights (Table 2-5).

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*Heathrow, Gatwick and Stansted serving London.

**Glasgow, Edinburgh, Prestwick and Aberdeen in Scotland.

Table 2-5:* Changes in the Structure and Levels of Charges --BAA (Scottish) Airports

(i) The 1970/71 Scale of Charges effective at BAA (Scottish) was virtually identical to that of the BAA (South East).

(ii) Scales Effective in 1974/75, 1975/76 and 1976/77:

Standard Landing Fee	Rate per Ton		
	1974/75	1975/76	1976/77
First 16 tons:			
Domestic	50p	67½p	120p
European	60p	81p	160p
Intercontinental	60p	81p	240p
17-50 tons:			
Domestic	60p	81p	120p
European	60p	81p	160p
Intercontinental	120p	162p	240p
Over 50 tons:			
Domestic	70p	95p	150p
European	70p	95p	200p
Intercontinental	140p	190p	300p
Passenger Load Supplements (per arriving passenger)			
Domestic	20p	27p	60p
European	40p	54p	70p
Intercontinental	80p	108p	140p

*Source: Ref. 6.

- A passenger charge also discriminated on the same basis and similarly to this imposed at BAA--South East airports.

Table 2-6 shows the level of charges at Scottish airports in 1977.

Table 2-7 shows the level of those charges in 1980.

(iii) Charging policies at BAA--South East airports

The BAA has been the most innovative in its approach to pricing policy at its London airports. Since April 1972, the BAA introduced a number of important innovations and clearly shifted away from the traditional approach especially from IATA's recommendations on user charges. The BAA's intentions were to better reflect long-run marginal costs by establishing a charge structure that will also serve other different goals:

- Optimizing the use of existing facilities.
- Providing a guide to investment decisions.
- Allowing the Authority to meet its financial targets, including a return on investment.
- Being simple and feasible.

With regard to these requirements, four important innovations were introduced in 1972:

1. A peak period aircraft charge. All runway movements at Heathrow paid a peak period surcharge of £20.00 between 09:00 and 12:59 hours on 150 designated days of the year. This provision served two objectives:

- To make airlines aware of the capacity cost they impose on peak periods.
- To lower the standard landing fees by compensating with the revenues of the peak period surcharge.

Table 2-6:* Scottish Airports
(Glasgow, Edinburgh, Prestwick and Aberdeen)

LANDING FEES

	Per metric ton or part per landing		Per Terminal Arrival Passenger[1]
	First 50 tons	Thereafter[2]	
Domestic	£1.00	£1.80	£1.20
International:			
Up to 1000 miles	£1.00	£1.80	£1.20
1000-2500 miles	£1.30	£2.40	£1.50
Over 2500 miles	£2.00	£3.70	£3.00

[1]Passenger element of landing fee is applicable to aircraft with a maximum authorized weight in excess of 5 metric tons

[2]e.g., Aircraft weight 69.5 tons on domestic flight
(50x£1.00)+(20x£1.80) = £86

MINIMUM LANDING CHARGE

All aircraft	£5.00 per landing

AIRCRAFT PARKING CHARGES

Maximum weight of aircraft:	Charge per hour in excess of 2 hours
Up to 2 metric tons	50p
2-5 tons	75p
5-10 tons	£1.25
10-15tons	£1.75
15-20 tons	£2.25
20-30 tons	£3.00
30-45 tons	£3.75
45-70 tons	£5.00
70-100 tons	£6.25
For each additional 30 tons, or part thereof, over 100 tons	£1.25

*Source: Ref. 8.

Table 2-7:* Scottish Airports

	Glasgow, Edinburgh & Prestwick		Aberdeen
Landing Fee	Not exceeding 50 tons: £2.00 per ton Over 50 tons: £100.00 + £6.00 (perton in excess of 50 tons)		Same Same
Passenger Charge	Only for aircraft with max. authorized weight in excess of 5 tons: £2.00 per passenger (Domestic) £3.50 per passenger (International)		Only for aircraft with max. in excess of 2 tons: Same Same
Minimum Charge	£10		£25
Aircraft Parking Charges		Per hour in excess of 2 hours: / Per 24 hours:	Per hour in excess of 2 hours:
	up to 2000kg	- / £6.00	30 pence for all aircraft
	2001-5000kg	- / £8.00	
	5001-10000kg	- / £16.00	
	10001-15000kg	- / £24.00	
	over 15000kg	12 pence / -	

*Source: Ref. 1.

2. A new standard landing fee based on ability to pay. Three categories of flights are recognized: Domestic, European and Intercontinental.

3. A discriminatory passenger charge on arriving passengers paid by the airlines. This charge used the same categorization of flights (Domestic, European and Intercontinental).

4. A minimum charge of £5.00 at peak hours at Heathrow and Gatwick to discourage light aircrafts from using the facilities at these hours.

Table 2-8 illustrates the changes in charging structure at BAA's London airports from 1970 to 1975.

In April 1976, three time periods were introduced (Table 2-8). The three time periods were: peak, standard and off-peak. The corresponding periods were different at Heathrow, Gatwick and Stansted. The passenger charge was payable for both arriving and departing passengers.

In 1977, the concept of time periods was extended to the basic weight-related landing fee with a 50% fee reduction for all landings during off-peak periods.

From Table 2-9 we note that the categorization of flights into Domestic, European and Intercontinental was replaced by a categorization into stage length. This was done to better reflect a flight's "ability to pay." The previous system allowed anormalities like intercontinental flights (to North-Africa, for example) paying more than some European flights (Cyprus-London) traveling twice as far.

The navigation service charge (imposed by the CAA) is imposed on a flat rate per ton. It also discriminates international flights by charging about one-third more than for domestic flights.

In conclusion, the BAA seems to have completely abandoned any

Table 2-8:* Changes in Structure and Levels of Charges
BAA (South East) Airports

(i) Scale Effective in 1970/71:

Standard Landing Fee	Rate per Ton
First 10 tons	50p
10-100 tons	80p
Over 100 tons	90p

Surcharges/Rebates on Standard Landing Fee	
Cargo flights	20% rebate
International flights	10% surcharge
Intercontinental flights	80% surcharge

Passenger Load Supplements	None

Navigation Service Charge (CAA)	
Rate per ton - domestic	33p
international	37p

(ii) Scale Effective in 1972/73

Flight Category	Standard Landing Fee Rate per Ton Up to 45 tons	Thereafter	Passenger Load Supplement (per arriving passenger)	Navigation Service Charge (per ton)
Domestic	30p	35p	20p	33p
European	55p	65p	40p	37p
Intercontinental	110p	130p	80p	37p

Peak Surcharge:

£20 per runway movement (landing or take-off) at Heathrow between 09.00 and 12.59 hours on 150 designated summer days.

Minimum Peak Landing Fee:

£5 minimum landing fees at designated peak times on designated days at Heathrow and Gatwick.

*Source: Ref. 6

Table 2-8 (continued)

(iii) Scale Effective in 1974/75:

Standard Landing Fee

	1st 16 tons	17-50 tons	Over 50 tons
Domestic	50p	23p	28p
European	60p	46p	56p
Intercontinental	60p	92p	112p

Passenger Charge (per arriving passenger)

Domestic	20p
European	40p
Intercontinental	80p

Peak Movement Surcharge

At Heathrow only surcharges of 20 or 50 were payable for landings or take-offs at particular peak times.

Navigation Service Charge (CAA) (per ton)

Domestic	33p
International	37p

(iv) Scales Effective in 1975/76

Charges were substantially increased in April 1975 and again in November 1975 though changes to the structure of charges were minimal.

Table 2-9:* BAA Charges at its South East Airports
(Heathrow, Gatwick, Stansted: April 1976 to March 1978)

LANDING FEES

	Pence per metric ton or part, per landing	
	First 50 tons	Thereafter
Domestic	40p	60p
International: up to 500 miles	64p	96p
500-2000 miles	80p	120p
2000-4000 miles	128p	192p
over 4000 miles	160p	240p

PASSENGER ELEMENT

Fee payable per Terminal Arriving *AND* Terminal Departing Passenger on aircraft with a maximum authorized weight in excess of 16 metric tons.

Period	Heathrow	Gatwick	Stansted
Off Peak Charge: NIL	Nov.-Mar.	Apr.-Jun. also Oct. (Mon-Fri) & Nov.-Mar. (Daily)	Oct.-May (Daily) & Jun.-Sept. (Mon-Thurs)
Standard Charge: Domestic 25p International 50p	Apr.-Oct. (except peak times below)	Jul.-Sept. (Mon-Fri) & Apr.-Jun., Oct. (Sats & Suns)	Jun.-Sept. (Fri, Sats & Suns)
Peak Charge: Domestic 50p International £1	Apr.-Oct. (05.00-08.59) Arrivals (10.00-13.59) Departures	Jul.-Sept. (Sats & Suns)	None

RUNWAY MOVEMENT CHARGE

At Heathrow the following Runway Movement charges will be payable for each landing and each take-off by fixed-wing aircraft on the following dates and between the following times:

1st April - 31st October		1st November - 31st March	
Time (GMT)	Charge	(Mondays - Fridays only)	Charge
08.00-08.59	£40	09.00-11.59	£40
09.00-10.59	£100		
11.00-12.59	£40		

*Source: Ref. 6.

attempt to implement IATA's recommendations regarding a simple fee structure. The major features of the BAA's multipart charging structure and its philosophy can be outlined as follows:

a) Recognizing that terminal capacity is becoming the major constraint, the BAA has progressively adopted a charging structure more closely related to the passenger load than to the weight of the aircraft and particularly so during peak periods. In 1976/77 the passenger element represented more than one-third of the BAA's charges on international flights at a "standard" period and more than half at a "peak" period. This change in emphasis served the needs of freight operations as well as business aircraft operations which seems logical since neither of them uses the main-passenger terminals.

b) The BAA's charging structure appears to be very peak-cost oriented, especially since 1977 when the weight-based landing fee was also varied according to the period of the year. Furthermore it recognizes the different levels of capacity utilization of each of the London airports since the "peak" and "standard" periods are different from one airport to the other, which provides some inducement to airlines not only to shift services from "peak" to "off-peak" periods but from one airport to another airport where facilities may be under-utilized.

c) The taxation approach or "what the traffic will bear" approach to pricing is in use in different aspects. Landing fees, as well as passenger charges, vary by stage length. The landing fee per ton is higher beyond the first 50 tons.

Table 2-10 shows the level of landing fees at BAA - South East airports in 1980.

Table 2-10:* 1980 Passenger Fees at BAA - South East Airports

Airport	Time of landing or take-off	Charge: Domestic Flights (for aircraft weight > 16 tons)	Charge: International Flights (for aircraft weight > 16 tons)
Heathrow	Peak		
	1st April - 31st October Departures: 1000-1459 GMT	£3.00	£8.00
	Standard		
	1st April - 31st October Other times	NIL	NIL
	Off-Peak		
	1st November - 31st March	NIL	NIL
Gatwick	Peak		
	1st June - 30th September Departures Thursdays to Mondays inclusive	£0.85	£3.20
	Standard		
	1st April - 31st October Other days	NIL	NIL
	Off-Peak		
	1st November - 31st March	NIL	NIL
Stansted	Standard		
	All year	NIL	NIL

+Source: Ref. 1.

(iv) Impact of peak-period charges at BAA's London airports

The impact of peak-period charges at Heathrow airport is that landing fees can double from the level of off-peak charges. It has been argued by airlines that their schedule is not elastic to such a change for different reasons:

- Landing fees represent only a small percentage of airlines' operating costs.

- It will be more costly to alter schedules than to pay the extra-charge.

- Airline schedules are more sensitive to demand than to operating cost, therefore airlines will continue to operate in peak-demand periods regardless of the corresponding landing fee level.

- International service (particularly Transatlantic service) is very constrained in terms of feasible departure time because of aircrafts' utilization rates considerations and time differences.

In spite of these considerations, Tables 2-11, 2-12, and the following graph show that peak-period charges have had a small but noticeable impact on demand both at Gatwick and Heathrow.

At Gatwick the peak periods are seasonal because most of the airport's international traffic is formed by non-scheduled charter operators. The peak periods considered at Gatwick are:

- Seasonal peaks between July and September which correspond to summer vacations.

- Weekly peaks, Saturdays and Sundays, which correspond to week-end vacations.

Table 2-12 shows the comparison between actual and expected (by

Table 2-11: Gatwick Airport: Traffic Pattern by Day of Week 1975-81
(Departing terminal passengers, 000's)

	1975	1976	1977	1978	1979	1980	1981
April, May & October							
Week	48.5	54.1	64.7	71.9	86.2	93.7	103.9
Sat, Sun	18.5	19.0	21.6	24.6	27.2	29.7	35.5
% of Week	38.1	35.1	33.4	34.2	31.5	31.7	34.2
Mon, Thurs, Fri	19.2	22.9	28.1	31.3	39.2	42.7	44.9
% of Week	39.6	42.3	43.4	43.5	45.5	45.6	43.2
Tues, Wed	10.8	12.2	15.0	16.0	19.8	21.3	23.5
% of Week	22.3	22.6	23.2	22.3	23.0	22.7	22.6
June							
Week	66.3	68.1	78.8	95.3	99.0	116.0	132.7
Sat, Sun	25.5	25.0	28.3	34.0	32.1	39.7	46.0
% of Week	38.5	36.7	39.5	35.7	32.4	34.2	34.7
Mon, Thurs, Fri	25.7	27.4	33.2	39.7	45.3	50.5	55.8
% of Week	38.7	40.2	42.1	41.6	45.8	43.5	42.0
Tues, Wed	15.1	15.7	17.3	21.6	21.6	25.8	31.0
% of Week	22.8	23.1	22.0	22.7	21.8	22.3	23.3
July, September							
Week	79.1	84.4	92.5	111.7	122.6	140.8	156.4
Sat, Sun	28.9	29.9	30.9	38.2	39.2	46.5	52.7
% of Week	36.5	35.4	33.4	34.2	32.0	33.0	33.7
Mon, Thurs, Fri	31.2	34.3	38.7	46.8	55.3	61.4	66.5
% of Week	39.5	40.7	41.8	41.9	45.1	43.6	42.5
Tues, Wed	19.0	20.2	22.9	22.9	28.1	32.9	37.2
% of Week	24.0	23.9	24.8	24.8	22.9	23.4	23.8

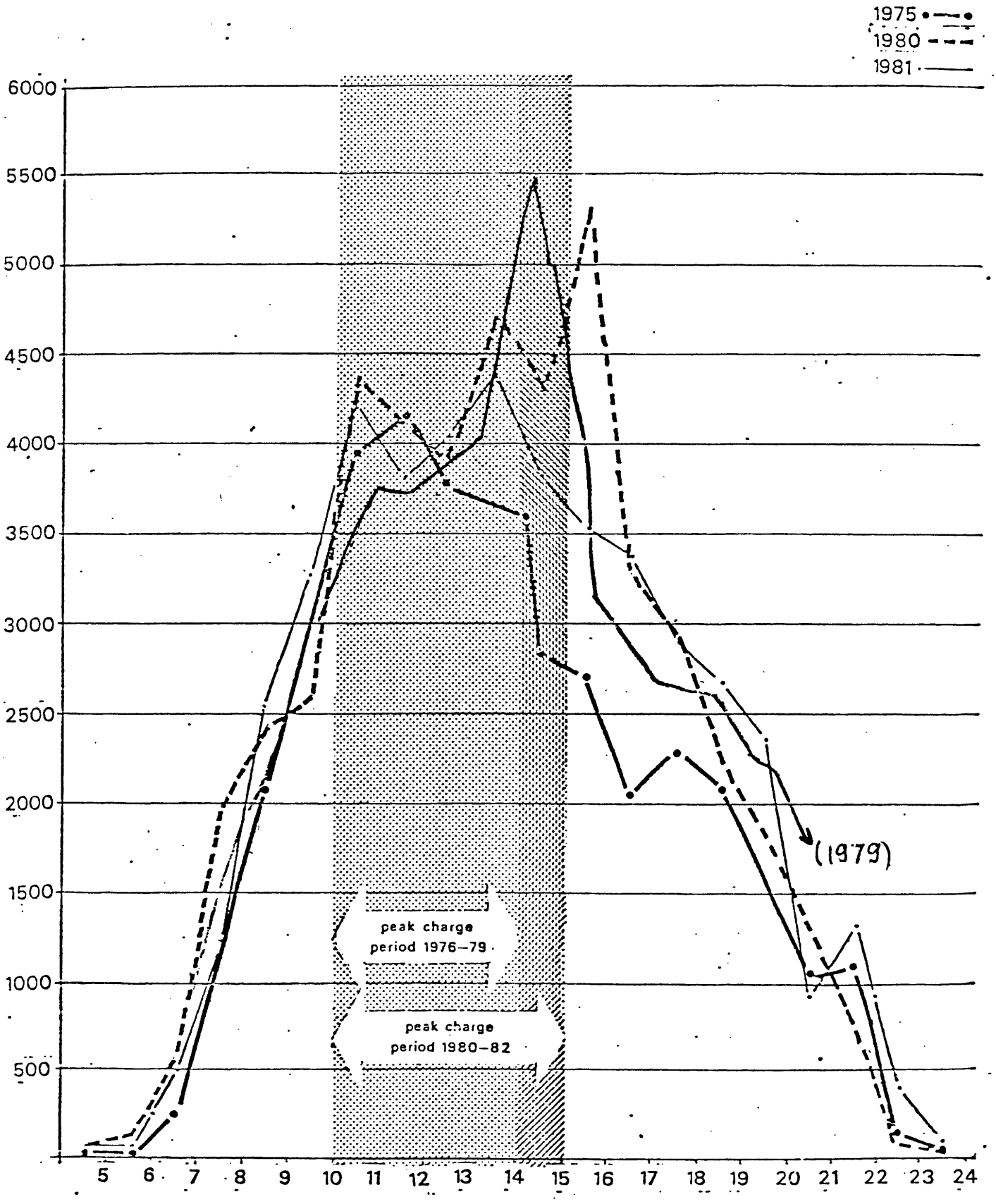
Table 2-12: Actual and Expected Changes in Traffic Patterns

Days of Week and Period			Change in Share of Week's Traffic	
			Expected	Actual*
April, May, October				
Sat, Sun	1975-79		-	-3.3
	1979-81		+	+1.3
Mon, Thurs, Fri	1975-79		+	+2.0
	1979-81		-	-0.8
Tues, Wed	1975-79	Small	+	+0.3
	1979-81	Small	-	-0.2
July, August, September				
Sat, Sun	1975-79		-	-2.2
	1979-81		+	+0.8
Mon, Thurs, Fri	1975-79		+	+1.9
	1979-81		-	-0.9
Tues, Wed	1975-79	Small	+	-0.5**
	1979-81		+	+0.5
June				
Sat, Sun	1975-79		-	-3.0
	1979-81		+	+0.7
Mon, Thurs, Fri	1975-79		+	+2.4
	1979-81		-	-1.3
Tues, Wed	1975-79	Small	+	-0.5**
	1979-81		+	+0.7

*Expressed as a change in percentage points per day from Table 2-11

**Results contrary to expectations. Others are in accordance.

Heathrow — Hourly flow of Departing Terminal Passengers — August daily average



Times - GMT (For local time add one hour)

the BAA) changes in traffic. We observe that most results are in accordance with the BAA's expectations, but represent only a small percentage (less than 4%) of total traffic.

The graph on page 41 shows the hourly flow of departing passengers in 1975, 1979, 1980 and 1981. Several observations can be made: The establishment of the peak charge in the period 1976-1979 did not produce a measurable drop of demand during this peak period but rather shifted demand to a second "artificial" peak period situated right after 14:00 hours (1979 demand on 1980 demand curves). Responding to this phenomenon, the BAA has increased the range of the peak period from 10:00 to 13:59 hours (Table 2-10). The 1981 demand shows that the peak of traffic is not as steep as it used to be. Quantitatively we note by comparing the 1980 demand and the 1981 demand that the difference of hourly peak flow is about 1,000 departing passengers. One has to be careful to derive from this observation any conclusions concerning the pure effects of peak hour charging policy and the general trends of traffic have to be considered to reach any positive conclusion. A thousand passengers represents three wide-bodied aircrafts and can represent considerable savings in terminal investments, the critical issue at Heathrow, since it could mean the delaying of additional capital investments for a couple of years.

2.4.3 Non-aeronautical revenues

This aspect of airport revenues has for long been ignored in the United Kingdom. We have seen that for historical reasons airports have not been considered as commercial entities by managers who have neglected this source of income. However, the pressing need to raise more revenue

to offset the considerable operating losses of most U.K. airports has made airport managers more and more aware of this issue for the past decade and we can discern a clear trend toward the development of non-aeronautical revenues among airport operators.

Not any type of airport can derive important non-aeronautical revenues and many factors command the profitability of such operations, among them:

- The volume of passenger flow. Commercial enterprises are not viable below a certain number of patrons.

- The type of traffic. International passengers are more inclined to spend more in an airport because they wait a longer time than domestic passengers do at the airports. They generally have more money to spend too.

These reasons are why only major international airports such as the London airports have been able to raise a considerable amount of income (almost half of all revenues) from non-aeronautical operations (Table 2-13).

Table 2-14 shows the share of the different sources of non-aeronautical income for different airports. We note that the most important source of income from commercial operation is derived from concession activities (56% for the industry in 1976/77). In Table 2-14 rental activities correspond to the utilization of facilities with payment of a fixed sum to cover a certain period of time (e.g., a fixed annual rent). Recharge to tenants corresponds to such items as electricity, water, gas, telephones, etc., and concessions activities correspond to the utilization of facilities with both payment of a fixed sum and a percentage of revenues.

Table 13:* Aeronautical/Non-Aeronautical Revenue Mix (1976/77) (excluding income from non-aviation users)**

Airports	Aeronautical Revenue Proportion	Non-Aeronautical Revenue Proportion
Stansted	50%	50%
Heathrow	54%	46%
Gatwick	57%	43%
Manchester	62%	38%
Isle of Man	65%	35%
Glamorgan	66%	34%
Blackpool	69%	31%
Luton	70%	30%
Birmingham	71%	29%
Glasgow	74%	26%
East Midlands	75%	25%
Prestwick	77%	23%
Bristol	78%	22%
Newcastle	78%	22%
Jersey	79%	21%
Aberdeen	80%	20%
Leeds/Bradford	81%	19%
Southend	81%	19%
Tees-side	81%	19%
Edinburgh	83%	17%
Belfast	85%	15%
Guernsey	85%	15%
Weighted "industry" average	58%	42%
Industry (excluding Heathrow)	63%	37%

*Source: Ref. 6.

**For example, manufacturing firms using hangar space.

Table 2-14:* Total Non-Aeronautical Income Derived from the Following Sources: (totals across equal 100%)

Airports	Rents	Recharges to Tenants	Concessions	Car Parking (if not a concession)	Non-Aviation Related Users	Miscellaneous Incomes
Belfast	32%	10%	57%	nil	nil	1%
Birmingham	23%	10%	67%	nil	nil	nil
Blackpool	47%	12%	13%	10%	6%	11%
Bristol	15%	11%	30%	36%	nil	6%
East Midlands	45%	21%	32%	nil	1%	1%
Glamorgan	28%	15%	14%	nil	insig	42%
Guernsey	57%	6%	15%	18%	2%	2%
Jersey	38%	8%	22%	7%	insig	25%
Leeds/Bradford	24%	8%	64%	1%	2%	insig
Luton	34%	11%	17%	32%	nil	6%
Manchester	14%	8%	53%	22%	insig	3%
Newcastle	24%	33%	38%	nil	nil	4%
Southend	70%		9%	18%	nil	3%
Tees-side	21%	11%	43%	1%	23%	1%
Heathrow	17%	18%	57%	7%	insig	1%
Gatwick	16%	5%	77%	nil	insig	1%
Stansted	29%	18%	49%	1%	4%	2%
Glasgow	20%	8%	71%	nil	nil	1%
Edinburgh	11%	25%	64%	nil	nil	insig
Prestwick	29%	24%	45%	nil	1%	2%
Aberdeen	36%	20%	39%	4%	nil	1%
Weighted Average	18%	15%	56%	9%	insig	2%

*Source: Ref. 6.

I will now examine each one of the non-aeronautical income sources and the correspondant practices in use at U.K. airports.

A. Usual practices concerning rents and concessions at U.K. airports

Different methods of payment are in use regarding rents and concessions at U.K. airports:

a) Payment by fixed annual rental is the most commonly used. In such cases, short-term contracts (under five years) is the general rule. To protect airports from the effects of inflation contracts may have review clauses.

b) Another system is payment based on percentage of turnover (% of revenue). Contracts can cover a period of five to ten years and may contain review clauses.

c) A small portion of contracts is based on payment of a fixed sum based on any given unit (e.g., a given sum per passenger, per gallon of fuel, etc.).

d) Another small portion of contracts is based on a combination of systems (a) and (b). They contain a fixed annual rent as well as a percentage of revenues (mostly used for fuel and oil companies providing for the airlines).

It is interesting to note that no contracts are based on a percentage of profit which is sometimes the case in the U.S. This is due to the administrative and accounting difficulties in assessing profits.

Table 2-15 is derived from a questionnaire sent to a number of U.K. airports for the purpose of the already mentioned study conducted at the Polytechnic of Central London. A few observations can be made:

- Contracts are generally of a short-term nature (less than 5 years).

Table 2-15:* General Nature of Airport Concession and Rental Contracts

TYPE OF CONCESSION/ RENTAL	No. of Respond. Airports	CHARACTERISTICS OF CONTRACTS: Length of Contract Less than 5 yrs	5-10 yrs	Over 10 yrs	Are contracts subject to review before their eventual expiry? % Yes	Is the Contract put out to tender? % Yes	BASIS OF PAYMENT: Please indicate whether contracts are based on: (a) Fixed Annual Rental	(b) % of turn-over	(c) Unit Basis	(a+b)
Catering Facilities	21	24%	57%	19%	52%	90%	nil	90%	-	10%
Bars	21	24%	57%	19%	52%	90%	-	90%	-	10%
Duty Free Shop	9	33%	56%	11%	33%	100%	-	100%	-	-
Other Shops	21	52%	43%	5%	52%	90%	10%	80%	-	10%
Banks	13	62%	38%	nil	31%	54%	65%	-	35%	-
Airline Offices	18	67%	11%	22%	39%	nil	100%	-	-	-
Airline Desks	19	74%	16%	10%	37%	nil	100%	-	-	-
Aircraft & Baggage Handling Enterprises	4	nil	100%	nil	25%	25%	-	100%	-	-
Hangars (in Aviation-related use)	17	41%	29%	29%	71%	nil	100%	-	-	-
Hangars (in non-Aviation related use)	9	78%	11%	11%	21%	11%	100%	-	-	-
Fuel & oil companies	19	21%	26%	53%	68%	32%	37%	37%	10%	16%
Car Parking	12	8%	42%	50%	58%	58%	-	92%	-	8%
Car Hire Firms	21	57%	43%	nil	29%	91%	19%	71%	-	10%
ALL CONTRACTS	204	44%	38%	18%	46%	51%	43%	50%	3%	6%

*Source: Ref. 6.

- Two methods of payment are favored: fixed annual rentals and percentage of turnover.

- Most retail contracts based on percentage of turnover (catering facilities, bars, duty free shops, shops, etc.) are generally put out to tender (bidding system).

- Fixed rental contracts (airline offices, airline desks, hangars, etc.) are not put out to tender.

Most of the airports are left free to determine the terms and conditions of lessees' ahd concessionaires' contracts. This is particularly the case for the BAA which is the most successful at securing high commercial revenues. At some regional airports the negotiations are controlled by a local authority department if the airport management is not qualified or lacks personnel for that purpose.

B. Yields from concessions and rents

We can see from Table 2-16 that, as might be expected, major international airports have been able to raise a higher concession income per terminal passenger than smaller airports. The presence of a duty-free shop is a major additional source of revenue; it does not justify by itself the difference of income but it is an indication that international passengers (who spend more) are a large proportion of traffic. It is also interesting to note that if we ignore Prestwick and Stansted, the airports' rank in terms of concession income per passenger is precisely the same as their rank in terms of total number of passengers for those airports which have a duty-free shop (Table 2-17).

On the other hand, income from rents at airports is likely to be influenced by both passenger and freight levels of activity. This

Table 2-16:* Concessions Income per Terminal Passenger (Financial Year 1976/77)

		Income per Terminal Passenger
Prestwick	(DFS)	155p
Stansted	(DFS)	134p
Heathrow	(DFS)	96p
Gatwick	(DFS)	88p
Manchester	(DFS)	80p
Glasgow	(DFS)	52p
Birmingham	(DFS)	36p
Tees-side		31p
Edinburgh	(DFS)	25p
Bristol		24p
East Midlands		23p
Leeds/Bradford		22p
Aberdeen	(DFS)	19p
Belfast		18p
Glamorgan		17p
Blackpool		11p
Luton		11p
Jersey		7p
Southend		5p
Guernsey		3p

DFS = Duty Free Shop

*Source: Ref. 6.

Table 2-17:* Relation Between Concessions "Yield' and Traffic Throughput (1976/77)

	Concessions Income per Passenger	No. of Passengers Handled (millions)
Heathrow	96p	23.7
Gatwick	88p	5.9
Manchester	80p	2.8
Glasgow	52p	1.9
Birmingham	36p	1.14
Edinburgh	25p	1.04
Aberdeen	19p	0.86

*Source: Ref. 6.

type of income allows airports with relatively low levels of both domestic and international passenger traffic to still raise some revenues because of other activities such as freight, aircraft maintenance and so on.

CHAPTER 3

U.S. AIRPORTS

3.1 Classification and institutional set-ups of U.S. airports

As was the case in many western countries, World War II was a turning point for U.S. airports development. During this period two major aspects of airport development occurred:

- Many existing facilities were expanded to accommodate larger military aircraft and to provide for pilot training.

- New airports were constructed for the same purposes. After the war, most of the airports were turned over to local communities and were re-adapted to civilian service purposes.

The exact number of airports in the United States is difficult to estimate. Approximately 12,000 airports varying from short turf strip type of facilities to major air-carrier facilities can be counted. Different types of classification of those airports can be utilized:

(i) classification by size (number of passengers)

(ii) classification by function:

- air-carrier airports
- commuter airports
- reliever airports
- general aviation airports

(iii) by ownership

- government
- state
- private

(iv) The air-carrier airports are usually classified according to the traffic hub served by the airport. The different categories used for this classification are:

- Large hub: This subdivision represents airports that accommodate 1% or more of the total national traffic (Domestic). 35 airports serving 25 hubs are in this category.

- Medium hub: Between 0.25% and 0.99% of national traffic. Approximately 40 airports are in this category.

- Small hub: Between 0.05% and 0.25% of the national traffic (approximately 100 airports).

- Non-hub: Less than 0.05% of national traffic (approximately 400 airports).

Different types of institutional set-ups may exist for air-carrier airport administrations:

(i) Independent, publicly-owned airport authority. It is the most common case for large airports in the United States. The airport is run by a board of directors appointed by the governmental entity that owns the airport (generally state ownership). Operations are generally subject to the following characteristics:

- The airport is not required to pay taxes. "Contributions" to owner are made in lieu of those taxes.

- The airport authority is authorized to issue tax-exempt revenue

bonds for financing its capital investments.

- The management is free to adjust user charges to cover costs as well as to negotiate with airlines and commercial enterprises providing services at the airport on its own terms.

In some cases* those independent authorities can also be responsible for a number of seaports, bridges, tunnels and other airports of the area.

Less common institutional set-ups include:

(ii) Privately owned airports, run by profit-seeking corporations (case of Las Vegas, Phoenix and Salt Lake City airports).

(iii) Airports run by an agency of a municipal or regional government (state or city government). This is the case for some small town airports. They are generally run by an Airport Commission directly responsible to the Aviation Department of the local authority. It can also be the case for some large airports (Chicago's O'Hare Airport and Philadelphia Airport, for example).

(iv) Finally, two airports are owned and run by a government agency (FAA**). Those two airports are Washington National Airport and Washington Dulles Airport.

3.2 Financing of U.S. air-carrier airports

Financing of capital expenditures of air carrier airports in the United States comes from several sources. The construction and development of airfield facilities is financed mostly through the Federal Air-

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*The Massachusetts Port Authority and the New York and New Jersey Port Authority are examples.

**Federal Aviation Administration.

port Air Program:

- Between 1946 and 1969 this program required that Federal aid to airports be equally matched by local government funding. During this period nearly $2.5 billion was used on airports with $1.2 billion coming from Federal sources.

- Between 1970 and 1980, 75% to 90% of funds for airside expenditure came from Federal funds. The Airport and Airways Trust Fund was created in 1970 for that purpose and was administered by the FAA. Along with air traffic control operations, the FAA was responsible for raising revenues for this fund through passenger ticket taxes, international passenger fees, way bills and fuel taxes. Airports eligible under the Airport Development Program (ADAP) received grants from this trust fund for land acquisition, runway construction, apron and taxiway construction, etc. Figure 3-1 shows the levels of federal funding from 1946 to 1980.

- In 1980 the Airport Development Aid Program ended and the "de-federalization" of airport financing started. As a result, airports have now become more dependent on local sources for funding.

A new program is now being considered by Congress. This new program will mainly confirm the "de-federalization" of large airports.

It is very probable that under the new version of ADAP large airports will be required to become responsible for the entire financing of their capital expenditures for land-side facilities. Different sources of funds are available to them for that purpose.

- Revenue Bonds represent a large part of large airports' sources of financing. These are tax-free bonds (no taxation on interest) but present no guarantee for debt service. Generally an earnings report, including forecasting of revenues and expenses during the life of the bond issue, is prepared before issuing revenue bonds. It is common that

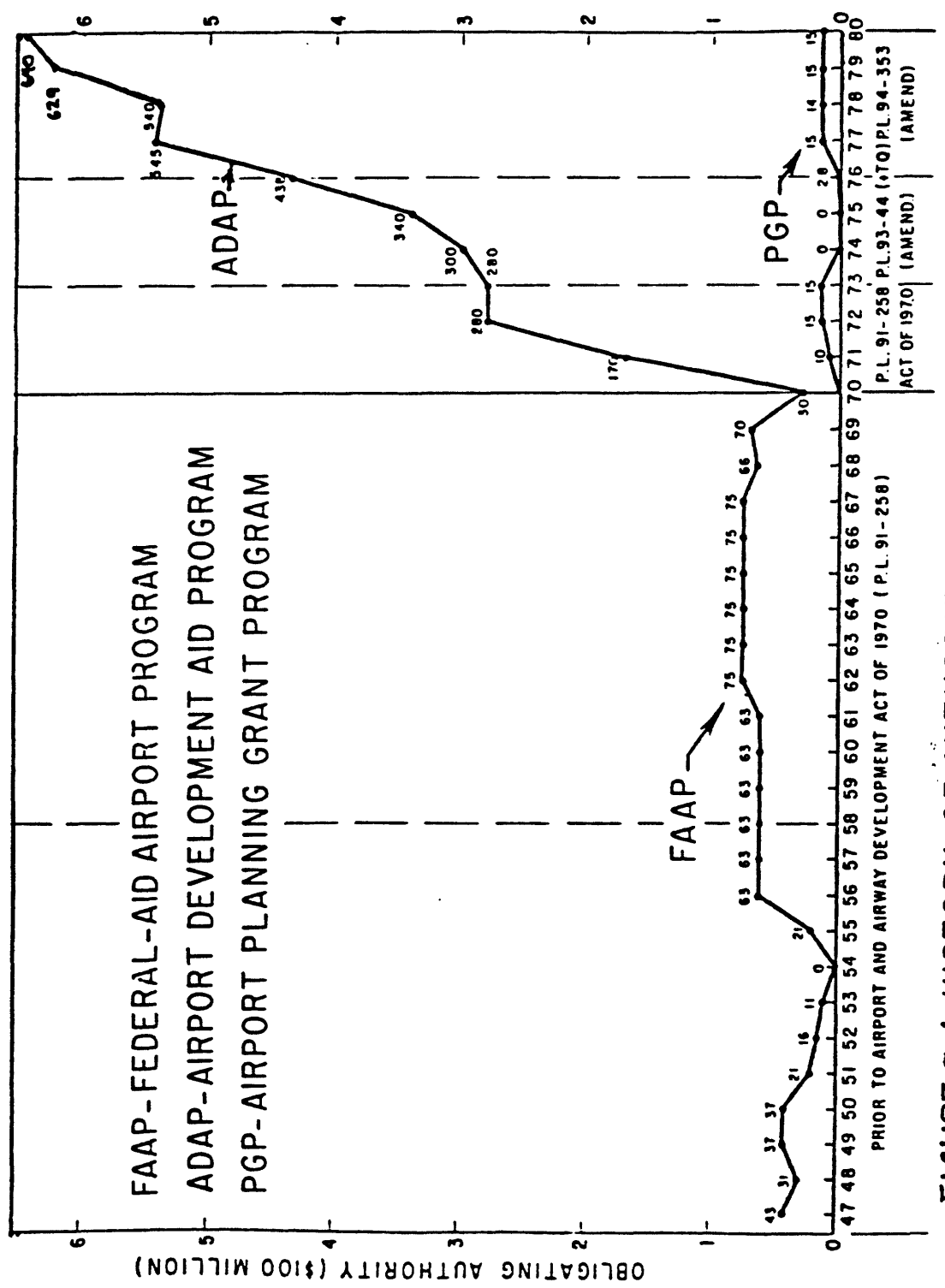

FIGURE 3-1 HISTORY OF AUTHORIZED GRANT-IN-AID PROGRAMS

Source: FAA

agreements are negotiated with airlines under which the airlines will guarantee to meet the airport's obligations with respect to the issue. In return, the airlines may demand to participate actively in capital decisions, a restriction which sometimes is not very well accepted by airport operators.

- General Obligation Bonds are more often used by smaller airports. They are also tax-free bonds but their yield is secured by the other revenue sources of the issuing entity (generally from local city-taxes). This guarantee is necessary to insure bond-holders from the often shaky financial performance of small airports.

- Finally, airports can be directly financed through local taxes. This system can be used for small municipal airports. It is, however, unpopular with tax payers since they may be paying for services they do not use.

3.3 Aeronautical revenues

Unlike the practices in use at BAA airports the vast majority of large American airports price their airfield services more according to international standards on that matter. These charges usually include four items:

(i) A landing fee based generally on Maximum-Gross-Landing-Weight (MGLW). The landing fees are determined by a fixed rate per thousand pounds. A limited number of airports* have instituted a minimum fee to limit the number of General Aviation movements during peak periods. At some airports the landing fee rate is different for tenant and non-tenant airlines.** In this case the rate per thousand pounds is higher for air-

*Logan, J. F. Kennedy, Newark and La Guardia.

**Airlines under use agreement as opposed to non-signatory airlines.

lines that do not have a use agreement with the airport.

(ii) A passenger charge can be collected in various cases. If the airline carrying the passengers is not under use agreement with the airport, this charge is intended to cover the cost of using terminal facilities by non-tenant airlines (which do not pay a rent). Most airlines, however, have use agreements and operate their own terminal building or part of a terminal building.

(iii) At a small number of airports a fuel-flowage fee is collected. Examples are Honolulu International Airport and Anchorage International Airport.

(iv) Finally, aircraft parking fees are generally determined by weight of the aircraft and the duration of stay. A few airports impose a minimum charge per day to discourage General Aviation users if the aprons capacity is a critical factor.

The most important part of the revenues from the charges outlined above is constituted by the income from landing fees. The computation method used to evaluate the landing fee levels varies given the type of airport considered:

(i) Public utility airports use the landing fee income to cover the deficit between total expenses and all other revenues. In this manner landing fees only cover the operating costs of airfield services. The usual practice is to first maximize revenues from other sources before determining the adequate landing fee that will complement those revenues. The result is a minimization of the cost for airlines with respect to landing fees.

(ii) At commercial airports the goal of management is to maximize profits from all possible sources of revenues. The landing fees are intended not only to cover the operating costs of airfield services but also

have a share in covering the indirect general operating cost (overhead cost, administrative cost, etc.). Unlike Public Utility airport operators, commercial airport operators do not seek to minimize the landing-fee cost for airlines. Under this state of affairs, airlines sometimes feel that they may be paying for services they do not use. This has on occasion led to disputes between the airlines and the airports involved.

The following examples illustrate methods used at two major airports for the computation of the landing fee. The first example is the landing fee determination method used by the Massachusetts Port Authority for Boston's Logan International Airport.

The following costs are assessed:

1) A = Capital cost of public aircraft facilities

The so-called public aircraft facilities include:

- Runways
- Taxiways
- Some common apron areas (excluding aprons exclusively leased by an airline)

We note that terminal buildings are not included.

2) B = Amortization cost

This represents 4% of A (amortization over 25 years).

3) C = Interest at 6% (from the past year)

4) D = Depreciation cost of equipment

It is estimated at 10% of equipment costs related to airfield operations (snow plows, de-icing devices, etc.)

5) E = Interest on equipment (6% on average balance)

6) F = Administration, maintenance and operation costs (includes pension costs)

7) G = Allocated portion of estimated tax liability

The Massachusetts Port Authority is not required to pay taxes but, instead, contributes each year to Boston area communities an amount which currently amounts to approximately $5 million. Since the Authority also runs some of Boston's bridges, the Harbor Tunnel and the Sea-port, the amount G is the portion of the $5 million allocated to Logan Airport. (Method of allocation unclear.)

8) H = Contract cost for snow removal

9) I = Credits applied (from the previous year)

The sum of items B+C+D+E+F+G+H+I = TC represents the total cost of public aircraft facilities for the year in question.

The next step is to estimate W, the projected weights of aircrafts that will use the facilities. This projected weight is expressed in thousands of pounds and the resulting landing fee (per 1,000 lbs) is given by:

$$LF = \frac{TC}{W}$$

The following page shows a numerical example of this computation for the year 1982.

The second example is the computation of the landing fee used at Chicago's O'Hare International Airport:

Step 1: Computation of X = Revenue target

X is given by:

X = Expenses + amount to assure an acceptable rate of return

Step 2: Estimation of concession revenues = Y

Landing Fee Computation at Logan International Airport
(Massachusetts Port Authority; F.Y. 1982)

A.	Capital cost of public aircraft facilities*	$128,518,266
B.	Amortization at 4% per year	5,140,730
C.	Interest at 6% on average balance	3,855,548
D.	Depreciation of equipment at 10%	94,765
E.	Interest on equipment at 6% on average balance	28,429
F.	Administration, maintenance and operations (including pension increment)	7,579,532
G.	Allocated portion of estimated tax liability**	1,365,532
H.	Contract snow removal	780,000
I.	Credits applied (from previous year)	(390,676)
J.	(Items B-I =) Annual cost of public aircraft facilities	18,453,409
K.	Projected scheduled air carrier weights (in 000 lbs)	16,400,000
L.	Landing fee (per 000 lbs) (= J/H)	1.1252***

*Does not include costs covered with ADAP funds.

**Voluntary contribution by Massport. This sum is the portion of 5 million allocated to Logan airport.

***The new landing fee rate in effect until June 1982 is $1.2386. In addition to the landing fee, a minimum dialy use fee is in effect:
- $20 per day for fixed wind aircraft (landing or take-off)
- $50 per day if operation occurs within the following periods:
  Monday-Friday → 8:00 am to 10:30 am and 3:00 pm to 8:00 pm
  Sundays → 3:00 pm to 8:00 pm

Step 3: The aeronautical revenues must be: Z = X-Y to cover expenses and reach the revenue target

Step 4: Estimate W = projected weight of scheduled traffic

The corresponding landing fee is: $LF = \frac{Z}{W}$

These two examples are characteristic of practices concerning landing fee computation in Public Utility Airports which represent a majority of U.S. air carrier airports. We observe that the resulting landing fees only cover the airfield (or aeronautical) costs for capital expenses and for operations in exclusion of costs related to terminal buildings. The approach is clearly to minimize the cost to airlines given that the revenues from land-sider operations have been maximized.

Tables 3-1 through 3-4 show the level of aeronautical charges at selected major American airports for the year 1980 and the year 1982.

Finally, Table 3-5 shows the financial performance of selected U.S. airports. We note that major air carrier airports generally report a surplus. This surplus is more accentuated for airports with sizeable international traffic.

3.4 Non-Aeronautical revenues

The non-aeronautical (land-side) revenues at U.S. airports can be classified into two general groups:

a) Concession revenues

The pricing system used for concessions is generally a combination of a fixed rental rate and a percentage of the gross income. Whereas the fixed rental rate is intended to cover the cost of providing and maintaining the corresponding space, the percentage of gross income is

Table 3-1:* Landing Fees at Selected U.S. Air Carrier Airports (1980)

Airport	Rate (per 1000 lb)	Observations
Anchorage	$0.30 MGTW**	+ Fuel Flowage Fee: $0.023 (per gallon)
Baltimore-Washington	$0.445 MGLW***	$0.636 for carriers with no use agreement
Boston	$1.1252 MGLW	Minimum daily use fee = $20.00 (G.A.),**** during peak periods $50.00
Chicago	$1.029 MGLW	Adjusted semi-annually
Los Angeles	$0.70 MGLW	$0.75 for non-signatory carriers
Newark (NY)	$1.50 MGTW	$20.00 minimum charge (G.A.)
John F. Kennedy (NY)	$0.60 MGTW	$20.00 minimum charge (G.A.) (3 pm to 10 pm)
La Guardia (NY)	$1.50 MGTW	$20.00 minimum charge + $50.00 surcharge between 8 am and 9 pm
Washington National Airport	$0.3277 MGLW	
Washington-Dulles	$0.3431 MGLW	

*Source: Ref. 1.

**MGTW = Maximum gross take-off weight

***MGLW = Maximum gross landing weight

****To discourage General-Aviation users

Table 3-2:* Passenger Charges at Selected U.S. Air Carrier Airports (1980)

Airport	Passenger Charge	Observations
Anchorage	$18.00 per flight for international lounge usage	
Baltimore-Washington	International arrival fee = $2.30 Terminal facilities fee = $0.90	only for non-tenant carriers
Boston	International arrival fee = $3.96 Departure fee = $1.27 Trans-border fee = $2.97	on inbound flights on outbound flights on inbound flights
Chicago	Charge per flight	differentiated by type of aircraft
Los Angeles	None	
Newark (NJ)	$1.00	Government inspection services used (international passengers) additional $1
John F. Kennedy (NY)	$3.85 +$2.6	Government inspection charge Use of international arrival building
La Guardia (NY)	None	
Washington-National	None	
Washington-Dulles	$1.16 per international passenger	per passenger--carrying lounge trip: $49.21

*Source: Ref. 1.

Table 3-3:* Landing Fees at Selected U.S. Airports (1982)

Airport	Rate (per 1000 lbs)	Observations
Baltimore-Washington	$0.685 MGLW	$0.979 for non-tenant
Boston	$1.2386 MGLW	Minimum daily use $20.00, $50 during peak periods (G.A.)**
John F. Kennedy (NY)	$0.78 MGTW	$0.80 for non-signatory airlines Minimum $20, $50 for operations between 3 pm and 10 pm (G.A.)
La Guardia (NY)	$2.40 MGTW	Minimum $20, $50 for operations between 8 am and 9 pm (G.A.)
Neward (NJ)	$1.70 MGTW	Minimum $20 (G.A.)
Washington-National	$0.4661 MGLW	
Washington-Dulles	$0.4961 MGLW	

*Source: Ref. 2.

**General aviation.

Table 3-4:* Passenger Charges at Selected U.S. Airports (1982)

Airport	Passenger Charge	Observations
Baltimore	Commuter area: $0.60 International area: $0.38	 $0.90 for non-tenant airline passengers
Boston	International arrival fee: $4.26 Departure fee: $0.64 Trans-border fee: $3.67	on inbound flights on inbound flights
John F. Kennedy (NY)	$3.85 $2.6	Government inspection charge use of International arrivals building
La Guardia (NY)	None	
Newark (NJ)	$1.00	If government inspection services used: additional $1
Washington-National	None	
Washington-Dulles	For international passengers (not precised)	

*Source: Ref. 2.

Table 3-5:* Large Hub Airports Total Revenue and Cost (1976)

Airport	Total Revenue	Total Cost	Absolute Surplus (Deficit)
Sky Harbour International (PHX)	$11,194,960	$ 6,236,680	$ 4,958,280
Los Angeles International (LAX)	56,469,154	33,221,040	23,248,114
San Francisco International (SFO)	33,399,946	20,583,541	12,816,408
Stapleton International (DEN)	18,784,129	7,994,800	10,789,329
Washington National (DCA)	17,241,350	9,858,467	9,228,542
Miami International (MIA)	43,082,353	29,344,699	13,737,653
Tampa International (TPA)	12,312,158	10,631,851	1,680,308
Hartsfield Atlanta Int'l (ATC)	37,271,852	28,110,388	9,161,465
Honolulu International (HNL)	44,908,446	32,539,047	12,369,402
O'Hare International (ORD)	59,984,402	56,911,986	3,072,417
New Orleans International (MSY)	6,395,029	4,075,407	2,319,622
Detroit Metropolitan Wayne County Airport (DTW)	25,283,710	21,388,322	3,895,348
Kansas City International (MCI)	12,266,964	8,702,946	3,564,518
Lambert-St. Louis Int'l (STL)	12,282,514	8,124,931	4,157,583
McCarrom International (LAS)	11,629,051	6,936,823	4,692,228
Cleveland-Hopkins (CLE)	12,022,524	7,809,819	(5,727,295)
Philadelphia International (PHL)	20,981,822	15,361,461	5,620,569
Greater Pittsburgh (PIT)	17,955,985	12,884,789	7,544,238
Puerto Rico International (SJU)	12,416,142	9,228,401	3,187,741
Dalls-Ft. Worth Regional (DFW)	61,084,000	57,635,000	3,449,000
Houston Intercontinental (IAH)	12,981,232	9,213,081	3,768,151
Sea-Tac International (SEA)	30,936,550	14,651,398	16,285,152
Total	$570,884,223	$411,444,878	$159,439,345
Average for Airport	$25,949,282	$18,702,040	$7,247,240

*Source: MIT, 1976 Survey

intended to reflect the level of commercial activity generated by the concession.

The concessions are generally awarded through a bidding system. It is, however, common that airport operators limit this opportunity only to reputable firms. It is even possible that the airport management will just negotiate with different firms without any competitive bidding taking place. This is intended to protect the level of services to be provided by insuring that only qualified operators will prevail.

The term of life of the concession leases depends generally on the type of activity considered. A compromise between two opposed interests has to be reached:

- A long term contract benefits the concessionnaire who can recover costs and make profits more easily with time.

- A short term contract benefits the airport operator who can adjust rent levels faster to cover his expenses.

A compromise can be found by including clauses in the contract that allow the airport management to revise the rental rates every pre-fixed period. Generally, concession leases run from three to five years.

The various types of airport concessions include items such as:

- Airport parking
- Auto rentals
- Restaurants and Lounges
- Shops (duty-free, gift shops, newstands, etc.)
- Ground transportation (limousine, taxi, etc.)

- Flight insurance
- Advertising
- Hotels and Motels

Along with airfield area revenues, concession revenues represent a major component of air carrier airport revenues. The monopolistic nature of such businesses allows the operators to price their goods and services at higher levels than those prevailing outside the airport's boundaries. On the other hand, the percentage of revenues collected by the airport operators can be as high as 25% for certain concessions.

Table 3-6 shows the level and distribution of concession revenues for air carrier airports classified as large, medium, small hub, and non hub.

Table 3-7 shows the distribution of total revenues of those airports. We note the high percentage of concession revenues (comparable to airfield revenues).

b) Rental revenues

Rentals are distinguished from concessions by the form of payment and the pricing system used. The users pay a flat fee based on the total cost of providing the facility. The common method used is a rate per square foot per annum. The fee level must be able to cover different costs:

- Depreciation cost
- Interest on capital used
- Operating cost (electricity, water, etc.)
- Administration cost
- Return on investment cost (for revenue bond financing)

Table 3-6:* Concession Revenues for the Air Carrier Airports

	Air Carrier Airports			
	Large Hub	Medium Hub	Small Hub	Non Hub
Concession Rev. (Ag.)	$7.9 m	$1.47 m	$0.46 m	$0.04 m
Airport Parking	44.4%	38.2%	44.7%	15.7%
Auto Rental	19.0%	23.3%	29.4%	51.3%
Restaurants & Lounges	7.6%	11.6%	9.1%	14.7%
Shop Leases	9.2%	13.6%	1.3%	3.9%
Advertising	1.3%	1.7%	1.9%	2.3%
Ground Transportation	4.3%	1.1%	2.0%	2.1%
Flight Insurance	1.6%	1.3%	0.9%	0.1%
Hotel/Motel	2.8%	3.4%	1.8%	0.4%
Miscellaneous	9.8%	5.8%	8.9%	9.5%
Total	100%	100%	100%	100%

*Source: MIT, 1976 Survey

Table 3-7:* Operating Revenues for the Air Carrier Airports

	Air Carrier Airports							
	Large Hub		Medium Hub		Small Hub		Non Hub	
	$ m	%	$ m	%	$ m	%	$ m	%
Airfield Area	8.65	36.5	1.26	34.2	0.38	30.4	0.07	30.4
Hangar and Building Area	2.71	11.4	0.40	10.9	0.14	11.2	0.04	11.2
Terminal Area	3.9	16.4	0.53	14.5	0.18	14.4	0.02	14.4
Systems and Services	0.56	2.4	0.02	0.5	0.09	7.2	0.01	7.2
Concessions	7.9	33.3	1.47	39.9	0.46	36.8	0.03	36.8
Total Operating Revenue	$23.72 m		$3,68 m		$1.25 m		$0.17 m	

*Source: MIT, 1976 Survey

The major component of those rental revenues is formed by hangar and terminal area fees collected from airlines.* The usual practice on those items is to impose a 20 years full payment period by airlines after which time the facilities belong back to the airport. This system insures the airlines of the exclusive use of the rented facilities (generally a whole terminal building or a distinct portion of a large terminal building). However, the under-utilization of facilities generated by long term exclusive use contracts has pushed certain airport managers to seek other alternatives. Shorter periods may be used (10 years) or contracts with airlines may include clauses that allow use of the same facilities by other airlines under certain conditions.

The same concern for optimization of the use of terminal facilities means that in some international airports the rental practices in use at the International Building are comparable to the European system: the same facilities are shared by a number of different airlines and the contracts are established on a year-to-year basis which allows for more flexibility.

The rates used for airline space rentals may vary from $10 to $50 per square foot, depending on different factors:

- Type of space usage: counter, office, baggage claim, lounge etc.
- Type of terminal building (different operating costs for different types of buildings)
- Type of airport: higher rates at commercial airports than at public-utility airports.

Other users of rentals at an airport can be:

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*As already mentioned, those items can be considered as aeronautical revenues. I included them in this subdivision because the practice in use is to charge fixed annual rentals.

- Government agencies
- Telephone companies
- Banks
- Ground transportation companies for counters (also considered as concessionnaires)
- Freight consolidators
- Industrial firms
- Car rental firms for counters

Table 3-8 shows the levels and percentages of different rental revenues.

Table 3-8:* Hangar and Building Area and Terminal Area Revenues

	Air Carrier Airports		
	Large Hub	Medium Hub	Small Hub
Hangar & Building Area Rev. (Av. Total)	$2.71 m	$0.40 m	$0.14 m
Hangar Rental	50.3%	15.5%	17.6%
Commercial/Industrial Lease	41.9%	35.5%	39.4%
Ground Site Leases	3.3%	25.8%	17.1%
Government Leases	1.2%	12.5%	9.7%
Fixed Base Operation	3.3%	10.7%	16.2%
	100%	100%	100%
Terminal Area Rev. (Av. Total)	$3.90 m	$0.53 m	$0.18 m
Airline Rental	89.9%	73.3%	82%
Government Leases	0.6%	2.4%	13.5%
Miscellaneous Rental	14.5%	24.3%	4.5%
	100%	100%	100%

*Source: MIT, 1976 Survey

CONCLUSION

It is misleading to compare British and American economic practices at airports with respect to level of charges. The accounting system used as well as the general approach to user charges is different from one country to the other, therefore the cost allocation approach might be variable. The user charges for a particular item depend on the type of costs allocated to the activity and comparing directly the levels of charges is irrelevant. However, it is interesting to compare those practices on the basis of their rationale and their general trends.

a) Air-Side practices

The structure of user charges pertinent to aeronautical activities is more complex for airports managed by the BAA. We have observed that the practices in use at the London Airports include innovations such as peak-hour charges and differentials by stage-length. The stated purpose of the BAA concerning those practices is to relate prices more closely to costs incurred as well as to the "ability to pay."

In theory, such practices tend to a more efficient use of facilities if they shift demand from peak periods to off-peak periods and thereby increase the overall capacity of airports.

In the United States the congestion problem has been approached differently. Recognizing that General Aviation operations during peak

hours at air carrier airports is a critical issue, a few airport authorities (the Massachusetts Port Authority and the New York and New Jersey Port Authority) have implemented minimum charges with higher levels during those peak hours to discourage General Aviation users. At the same time the FAA imposed quotas on operations with allocations to different types of users in airports with critical congestion problems.

The future of peak hour pricing depends mostly on the response from airlines. It has been argued that scheduled airlines operations are not elastic to such surcharges, but the results observed at BAA airports tend to contradict this point of view. Some observations can be made concerning the feasibility of peak period surcharges in the U.S.:

- The airfield side capital expenditures in U.S. airports has been partially covered from Federal Funds. It will therefore be controversial and difficult to implement surcharges that will particularly discriminate against certain types of users, namely General Aviation and Commuter operators, more than others on activities involving financing by general tax payers. The "de-federalization" of airports might, however, help more independent airport authorities to justify such a pricing system in the future.

- Authorities running an airport directly in competition with other airports will be opposed to peak-hour pricing fearing the loss of traffic to competitors. This system will be more easily accpeted by authorities running one airport or a group of airports with no direct competition (all New York airports, for example, are run by the same Authority). Like the BAA, they can use this approach to shift demand from a congested airport to a less congested one.

In any case, it seems that the most feasible system is a hybrid one. Administrative measures (quotas) combined with economic measures (peak period surcharges, minimum daily charges) are likely to give the best results, the extent of implementation depending on the particular economic and traffic conditions of the airport.

Passenger related charges, on the other hand, are likely to become a growing component of user charges and this for one major reason:

- The introduction and the growing use of wide-bodied aircraft has created a pressure on terminal capacities. In major airports, terminal congestion rather than runway capacity is the critical issue. The number of passengers carried by an airline is a good indicator of the costs imposed in terms of terminal facilities as well as a good measure of the "ability to pay."

b) Land-Side practices

The development of concession and rent incomes is becoming an important component of airport economics. The "de-federalization" of airports is a factor of this trend since it puts more pressure on Airport Authorities to be self-sufficient. The same trend might be expected in the United Kingdom and throughout the world where major airports will more and more tend to be run by independent, self-supporting agencies.

The amount of concession activities is a function of different factors: type of traffic, equilibrium between free flow of traffic and space available for concessions, etc.

The practices in use are similar in the U.S. and the U.K. They include an average contract duration of 5 years and incomes from fixed rents as well as a percentage of revenues.

Rental activities have different characteristics in the two countries, especially concerning rentals to airlines:

- British airports use the "European" system. Different airlines share the same facilities and contracts are revised on a short period basis for more flexibility (generally yearly revision of contracts).

- American airports provide individual facilities for airlines with rental contracts over a longer period (10 to 30 years). This system generates an under-utilization of space. Recognizing this inefficiency in terminal facilities utilization, some Airport Authorities in the U.S. are seeking shorter-term contracts with airlines with provisions for joint utilization or sub-rentals to other airlines if the conditions require it.

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