



## **Economic Regulation Of Airport Charges In Ireland**

CP2/2001: Consultation Paper on the Maximum Levels of Airport Charges to be levied by an Airport Authority under the Aviation Regulation Act, 2001

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## 1. Introduction

The Commission for Aviation Regulation ('the Commission') was established under the Aviation Regulation Act, 2001 in February 2001. The Act requires the Commission, no later than 6 months from its establishment, to make a determination specifying the maximum levels of airport charges that may be levied by an airport authority at any Irish airport with more than one million passengers in the previous year. The airports meeting this threshold in 2001 are Dublin Airport, Shannon Airport and Cork Airport.<sup>1</sup> This threshold may be varied by Ministerial order.

This consultation paper sets out the issues that the Commission considers relevant to the setting of maximum airport charges. It is arranged in 4 sections. Section 1 describes the purpose of the document and outlines the legislative background. Readers are also referred to, "CP1/2001: Process for Determination of Airport Charges". In Section 2, some of the key ideas in the economics of regulation are summarised. The approaches to the economic regulation of airports used in a number of other countries are sketched in Section 3. In Section 4, the Commission sets out some preliminary observations and poses some questions about choices facing the Commission in making a determination on airport charges, based on the objective set out in the Act, and the statutory factors to which it must have due regard.

### ***1.1 Statutory background***

In making its determination, the Commission is required by law to "aim to facilitate the development and operation of cost-effective airports which meet the requirements of users" (section 33). In its attempt to realise this statutory objective, the Commission is required to have due regard to each of the following:

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<sup>1</sup> As the context generally makes clear that reference is being made only to the regulated airports, these are generally referred to simply as 'airports'.

1. the level of investment in airport facilities, in line with safety requirements and commercial operations, in order to meet current and prospective user needs;
2. a reasonable rate of return on capital employed in that investment in the context of the airport's sustainable and profitable operation;
3. efficiency and effectiveness in the use of all of the airport authority's resources;
4. the contribution of the airport to the region in which it is located;
5. the airport authority's level of income from airport charges and other revenue at the regulated airports or elsewhere;
6. the airport authority's operating and other costs at the airport;
7. the level and quality of the airport's services and the reasonable interests of service users;
8. the airport's cost competitiveness and operational efficiency vis-à-vis international practice;
9. the minimisation of restrictions on the airport authority consistent with the Commission's functions; and
10. relevant national and international obligations.

The Commission will aim to determine the extent to which reliance on each of the factors assists in achieving its statutory objective of facilitating the development and operation of cost-effective airports which meet the requirements of users.

### ***1.3 Purpose of the Consultation Paper***

This consultation paper is intended to serve a number of purposes. It outlines the possible regulatory approaches that the Commission might adopt in its determination of maximum airport charges. It lays out the issues that the Commission considers relevant in airport regulation and, finally, it requests interested parties to submit their views on the contents of the paper as well as on any other matters relevant to the Commission's regulation of airport charges.

### ***1.4 Call for Submissions and Submission Guidelines***

The Commission for Aviation Regulation requests interested parties to submit responses to the questions raised in this consultation paper. Submissions should be addressed to:

Cathal Guiomard,  
Head of Economic Affairs,  
Commission for Aviation Regulation,  
36 Upper Mount Street,  
Dublin 2.

Submissions should be sent to the Commission either on floppy disk or by email to [info@aviationreg.ie](mailto:info@aviationreg.ie) and should be either in Microsoft Word (".doc") or portable document format (".pdf").

## 2. Economic Analysis of Regulation

This section presents some of the central aspects of the economics of regulation by way of background to the Commission's task of regulating airport charges.

### 2.1 *Why Regulate?*

A competitive market is characterised by three kinds of efficiency: productive, allocative and dynamic. Full productive efficiency (the absence of waste) requires a firm to produce a given level of service at minimum cost. Full allocative efficiency requires that all consumers who are willing to pay a price equal to or greater than the (marginal) cost of production be able to obtain the good or service in question.<sup>2</sup> Dynamic efficiency requires productive and allocative efficiency over time and can refer, in particular, to investments in the pursuit of long-term cost-savings. Competition achieves allocative efficiency as each firm attempts to bid business away from its competitors. Firms will also strive to minimise costs (in a static and dynamic sense) in order to enable further price reductions, thus achieving productive and dynamic efficiency.

In a market for a good or service where competition is not feasible, either for legal or technical reasons, economic regulation is typically concerned with emulating the market outcome that would otherwise be provided by competition. A technical reason why competition and its associated efficiencies may not be feasible is the existence of 'natural monopoly' conditions. Natural monopoly describes a situation where a single firm can supply the good or service in question at lower cost than could two or more firms in competition. Examples include industries where a costly physical infrastructure must be constructed in order to supply a service. Airports may be natural monopolies if duplication of their infrastructure would be uneconomic. The investment costs involved in duplicating runways, terminal

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<sup>2</sup> Marginal cost is the cost, at a particular level of output, of producing one more unit of output.

buildings and other infrastructure are ultimately paid for by airport users. This cost duplication may cause prices to rise by more than the price falls due to the competitive efforts of the airport operators to bid business away from their rivals.

Without the threat of competition, the type of monopolies described above may possess market power (the ability to sustain high prices), enabling them to charge higher prices and earn excess profits. The result, therefore, may be allocative inefficiency: some consumers who would have bought the service at the lower (competitive) price do not do so at the higher (monopoly) price. There may also be productive inefficiency because monopolies do not face pressure from rival firms to reduce prices by minimising costs. For these reasons, some form of economic regulation may be required.

However, it is worth noting that weak or non-existent competition may not, in itself, be a sufficient reason to introduce regulation. For such regulation to be justified, the regulatory framework must promote economic efficiency in a way that would not otherwise occur in the market.

In regulating monopolies that arise for the reasons outlined above, regulators typically seek to emulate the economic efficiency that characterises competitive markets.

## ***2.2 Possible Approaches for the Economic Regulation of Irish Airports***

A number of approaches may be taken by a regulator in the pursuit of economic efficiency. Each has certain attractions and drawbacks. The first option is to regulate profits. This has been popular in the US and is termed 'rate-of-return regulation'. A second approach, originating in the UK and increasingly popular in the US, is to provide the incentives to the regulated firm to pursue economic efficiency. This is known as incentive regulation and

its most common application is the regulation of prices, that is, CPI-X price regulation. Such price regulation may be linked to performance targets.

### **2.2.1 Rate-of-return Regulation**

Rate-of-return regulation places a limit on the returns that a regulated firm can earn. Its shortcoming lies in the fact that, although profits are capped, costs are not. The airport operator has little incentive to minimise operating costs, since this will have no impact on the return earned from the facility. Rate-of-return regulation gives a guaranteed reward for investment, which would give the airport operator the incentive to provide sufficient airport capacity. However, it may also give the operator the incentive to over-invest in the airport ('gold plating') regardless of whether the project generates value for users.

Rate-of-return regulation faces a more fundamental drawback (although one shared to some degree by all forms of regulation), that of the informational asymmetry between the regulator and the regulated firm. The firm may have better information than the regulator about costs and the potential impact of future investment plans and may have the incentive to withhold or disguise that information if the regulator's objectives conflict with its own. To overcome this asymmetry, regulators have concentrated on providing the correct incentives to the firm to achieve economic efficiency.

### **2.2.2 Incentive Regulation**

Incentive regulation attempts to address the trade-off between reducing prices to users of the service and giving the regulated firm the incentive to reduce costs.

The most common application of incentive regulation is the CPI-X price cap formulation. In general, the requirement is for the regulated firm's average real prices to change annually by a factor of CPI-X. In other words, prices must fall in real terms by X, which reflects the productivity of the firm and its consequent ability to reduce prices without threatening its financial integrity.

By way of example, assume that the change in the CPI (inflation) was 5% in the previous year, and the regulator decides to set  $X$  at 8%. This requires the firm to reduce prices in nominal terms by 3% in the current year. This is an 8% reduction in real terms because inflation was at 5% and prices have not increased.

By setting maximum prices, the firm can retain any cost reductions (in excess of  $X$ ) that it succeeds in making during the period of the cap, thus encouraging cost minimisation. When the cap is fixed in advance for a number of years (as is usually the case), the operator has an incentive to seek *additional* longer-term cost savings through investments, thereby encouraging dynamic efficiency.

A potential shortcoming of this type of price regulation is that of regulatory commitment. In particular, if the monopolist were to achieve cost reductions far in excess of  $X$ , the regulator may be tempted to increase  $X$ . Without guarantees of commitment for the period of the cap, the incentives to achieve such efficiency levels may be dampened. The regulator must also be aware that price regulation may, in the absence of explicit flanking measures in respect of quality, give the regulated firm an incentive to reduce quality in order to achieve cost reductions and boost retained earnings.

There are a number of alternative mechanisms by which a price cap can be operated. Their details and associated incentives are discussed in sections 4.2, 4.3 and 4.4. An important consideration in setting the level of  $X$  in a price cap is the power of the incentives that the regulator wishes to give to the regulated firm. A very tight price cap (a large  $X$ ) would bring immediate benefits to users of the service (allocative efficiency), but would leave less scope for future investment from retained earnings (dynamic efficiency). A very loose price cap (a small  $X$ ), on the other hand, would effectively sacrifice user benefits in the short term to allow the firm to earn profits that

would be sufficient to engage in cost-saving investments that would (if made), in the longer term, yield greater benefits to users.

*Question 1: Are there other types of framework that should be considered by the Commission in the regulation of airport charges?*

*Question 2: What regulatory framework do you advocate for the economic regulation of airport charges?*

### **2.3 The Structure of Charges**

The last two subsections dealt with the level of the airport charges that the airport authority should be allowed to levy. Another important consideration may be the structure of those charges. Section 2.1 dealt with the concept of allocative efficiency. Allocative efficiency requires that airport services be made available to users that express the greatest willingness to pay for those services.

Airport services – for example, landing slots – are more valuable at peak times when there is a high proportion of business travellers on a flight. Moreover, if an airport is congested, capacity is most likely to be scarce at these times. The right to use this scarce capacity will be more valuable to some airlines (and passengers) than to others and, consequently, the former will be willing to pay more for that right. Therefore, an argument could be made that airport charges be higher at these times so that those airlines that value airport services the most purchase them. In addition, these higher airport charges would serve to discourage usage of the airport at those times and would, consequently, help to alleviate any congestion.

On the other hand, an airport will usually be dimensioned in order to be able to meet demand at peak times. Therefore, there could be excess capacity during off-peak times. In this case, allocative efficiency would suggest that

airport services be priced lower in order to encourage greater use of the airport during these quiet times.

When high fixed costs must be allocated across multiple products or services (as with airports), economic theory suggests that Ramsey prices minimise the efficiency losses associated with prices that are (necessarily, due to high fixed costs) not fully efficient. Ramsey prices involve raising prices inversely to the price sensitivity (or elasticity) of demand. In other words, those airport users with low price sensitivity would pay higher prices. Those higher prices would reflect their greater willingness to pay, as seen by the fact that a price increase produces only a small reduction in their demand for the service. The practical implementation of such a structure could reflect demand patterns according to customer type. For example, business travellers have relatively inelastic demand for airline services, which would, in turn, be reflected in the airlines' demand elasticities for airport services when there are a high proportion of these travellers on board. Therefore, airport charges could be set according to the proportion of the different types of traveller on board.

Another alternative is peak-load pricing, whereby prices would vary to reflect variations in the cost imposed on the airport through its usage at different times. Peak-load pricing would serve to discourage usage at times when there is scarce capacity by setting higher prices at peak times, while off-peak prices would be lower to encourage usage of excess capacity. The practical implementation of this structure would involve the de-averaging of airport charges according to, for example, time-of-day or seasonal demand patterns.

*Question 3: What structure of pricing would be most effective in achieving allocative efficiency at Ireland's regulated airports? Responses should include relevant quantitative evidence to support opinions.*

## ***2.4 Conclusion***

This section has briefly reviewed the reasons for, and objectives of, economic regulation. It has introduced some of the main existing frameworks of regulation. Finally, it has raised issues related to the structure of regulated charges.

### 3. Current International Regulatory Practice

In this section of the paper, the approach to airport economic regulation currently applied in the UK, Australia, New Zealand, and the arrangements followed in the continental EU economies (and previously in Ireland) are briefly set out.<sup>3</sup>

#### 3.1 The UK

The economic regulation of the UK airports is governed by the Airports Act of 1986. Under its provisions, airport charges have been capped for five yearly periods according to a  $CPI - X$  formula.

In carrying out its duties of economic regulation, the Civil Aviation Authority (CAA) is required to further the reasonable interest of airport users in the UK, to promote the efficient operation of airports, to encourage investment in new facilities and to impose the minimum of restrictions consistent with the performance of its functions.

For the first five years of these arrangements (1987-1991), the value of  $CPI - X$  was set for the London airports without the involvement of the CAA or the MMC, by the UK Secretary of State for Transport, at  $CPI - 1$ . In the second quinquennium (1992-96), the CAA set a cap of  $CPI - 8$  for the first two years,  $CPI - 4$  for the third year and  $CPI - 1$  for the final two years. In the most recent period (1997-2002), the formula was set at  $CPI - 3$  for Heathrow and Gatwick combined, and at  $CPI + 1$  for Stansted. There was no cap set for the London airports as a system.

In July 2000, the CAA started a consultation process with airlines, airports and other interested parties as part of its latest Airports Review which will

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<sup>3</sup> This brief survey draws mainly on two sources: "Airport Regulation – The Policy Framework" by Martin Kunz in *Airports and Air Traffic: Regulation, Privatisation and Competition*. Pfhähler, Niemeier and Mayer (eds), Peter Lang, Frankfurt, 1999 and the papers delivered to the *Incentive Regulation and Overseas Developments* Conference organised by the Australian Competition and Consumer Commission, November 1999.

lead to the setting of new price caps in late 2002 that will be in effect for the five years beginning April 2003.

### ***3.2 New Zealand***

New Zealand aims for 'light handed' economic regulation of its airports in order to minimise the costs of regulation for taxpayers and the aviation industry.

There is no direct regulation of airport charges. Airlines and airport users are judged strong enough to bargain successfully with airports about prices and other aspects of airport operations. In support of this approach, there is a statutory obligation on airports to consult with users, backed up by a legal obligation on airports to disclose to users detailed information about airport costs and revenues.

Where such negotiation is judged to have failed, the Commerce Act of 1986 in certain circumstances allows the imposition of price controls on airport charges.

This approach to airport economic regulation has been criticised on the grounds that it overstates the power of airlines to bargain with a local airport monopoly. The approach can generate substantial albeit indirect costs of regulation, as well as regulatory uncertainty, in the form of legal challenges to airport decisions. Also, without an expert body to adjudicate on the appropriate price ceiling, the power to impose price controls may be difficult to implement.

In 1995, the New Zealand government undertook a review of airport regulation that led to measures to strengthen the consultation process and to widen the disclosure requirements on airports.

In 1998 and in line with the provisions of the Commerce Act, the New Zealand government requested the Commerce Commission to investigate by December 1999 whether controls should be introduced on certain aviation charges at a number of New Zealand airports. Following a change of government, the deadline for the Commerce Commission's report was extended to August 2002. This study is currently proceeding.

### ***3.3 Australia***

The broad approach to airport regulation in Australia falls in-between the UK and New Zealand approaches. Institutionally, there is a single body charged with promoting competition and performing sectoral economic regulation. This is the Australian Competition and Consumer Commission (ACCC).

During 1997/98, the Australian federal government granted long-term leases on most large Australian airports. The regulatory regime to apply to the privatised airports was laid down in the Airports Act of 1996. This focused on the 'essential facilities' nature of airports and the need to ensure access by airlines and airport users to such facilities on reasonable terms and conditions. In addition a CPI – X price cap applies to aeronautical charges and there is a procedure for monitoring aeronautically related services.

The Airports Act provides for a dual approach to access. Airports may offer an 'access undertaking' specifying terms of access and setting out a process for negotiation and dispute resolution. If the undertaking is acceptable to airlines, the ACCC may either endorse or reject it within 4 months.

As an alternative, an airline may seek to have an airport service declared a 'bottleneck' service, in which case the airline has a legal right to negotiate terms of access or, if negotiations fail, to seek binding independent arbitration.

The intention of the Australian legislation is to give airports an incentive to offer reasonable terms of access to airport users and thereby to save the time and expense of negotiation and dispute resolution. However, if this approach fails, there is recourse to arbitration before an expert body.

As an additional safeguard, under the Prices Surveillance Act of 1983, the ACCC also has a role in the surveillance of the most important aeronautical services - aircraft movements and passenger services - which are price-capped for core airports. Non-aeronautical services such as retail shops and parking are neither price-capped nor subject to price surveillance. Moreover, price caps are seen as a temporary measure to apply for an initial five years to be replaced afterwards by direct negotiations supported by dispute arbitration.

In early 1998, Sydney Airport applied to the ACCC under the Prices Surveillance Act to raise its airport charges. The ACCC's draft decision was issued in February 2001. After consultation with interested parties, a final decision by the ACCC is expected in March 2001.

### ***3.4 Continental EU (and previous Irish) arrangements***

Amongst the continental EU states, arrangements for the economic regulation of airports are broadly similar to the approach used in Ireland prior to the passage of the Act. This approach consists of two main elements. First, the aims of public policy are pursued by means of public ownership seen as a substitute for independent regulation. Second, national competition laws apply, to varying degrees, to airport businesses.

In Ireland, prior to the establishment of the Commission, maximum airport charges were set by the Minister for Public Enterprise following negotiations between officials of the Department and the representatives of airlines and the airport operator. Charges were last fixed in 1987. Aer Rianta operated a series of discounts from these maximum airport charges on services

satisfying certain conditions. However, such discounts were withdrawn at the end of 1999.

### **3.5 Conclusion**

A number of very different frameworks for the economic regulation of airports are used around the world, ranging from public ownership to independent regulation to reliance on bargaining between airport operators and users. While the Act lays down that the economic regulation of Irish airport charges is to be determined by the Commission, there may still be useful lessons to be learned for economic regulation in Ireland from considering the regulatory practices used abroad.

*Question 4: In the context of any knowledge or experience that you may have in terms of the successes or failures of economic regulation of airports abroad, are there lessons to be applied in Ireland drawing on such international experience?*

## **4. Issues for Discussion in setting the Regulated Charges**

In this section of the consultation paper, some of the issues that may arise in the course of the Commission's work on airport charges are discussed.

### ***4.1 Scope of airport charges***

The Act adopts the definition of airport charges as it is set out in the Air Navigation and Transport (Amendment) Act of 1998, section 2 of which states that 'airport charges' are:

- (a) charges levied in respect of the landing, parking or taking off of aircraft at an aerodrome including charges for airbridge usage but excluding charges in respect of air navigation and aeronautical communications services levied under section 43 of the Act of 1993,
- (b) charges levied in respect of the arrival at or departure from an airport by air of passengers, or
- (c) charges levied in respect of the transportation by air of cargo, to or from an airport.

The expression 'airport charge' therefore covers five *specified* charges: those related to (i) landing, (ii) taking off and (iii) parking of aircraft at an airport, in addition to those for (iv) passenger arrival or departure and (v) cargo transportation at an airport. However, it is clear that any airport provides a multidimensional package of aeronautical and other aviation-related services to its users. Fully itemised, the list would be very long. For information, Appendix 1 contains the list of services considered by the BAA to fall within by its airport charges at London airports. Appendix 2 is the ICAO Council's guide to those services and facilities to be taken into account in determining airport costs.

For the purpose of determining maximum airport charges at regulated Irish airports, a crucial question concerns the services that should be covered by the five charges detailed in the Act and how any others should be paid for.

*Question 5: What set of services provided by an airport operator should be considered to be financed from the five airport charges specified in the Act?*

*Question 6: How should the costs of other airport services be paid for?*

***4.2 The choice between maximum charges for each individual airport, for all airports together, or for some combination of airports.***

In setting maximum airport charges, section 32(4) of the Act allows, but does not require, the Commission to treat on an aggregate basis two or more airports that are operated as a group by the same airport authority. In such cases, a maximum charge may be set for one airport by reference to the aggregate of charges levied at that and at the other airports.

Setting a maximum for all airports together would leave the airport operator with the maximum flexibility to rebalance charges at different airports. This may be desirable if, for example, one of the airports faced intense competition or demand exceeded available capacity. On the other hand, a maximum for each individual airport could be more effective in providing incentives that are specific to conditions at those airports. This may be desirable if conditions at the three Irish airports were very different.

As noted in section 3 above, the regulated London airports are treated on an aggregate basis. During certain quinquennia, therefore, UK practice has applied an overall cap to the three airports. However, the ability to rebalance between airports has been restricted through the application of sub-caps on individual airports.

*Question 7: What are the advantages and the disadvantages of regulating a number of airports on an aggregate basis?*

*Question 8: Should Dublin, Cork and Shannon airports be regulated separately or on an aggregate basis?*

It should be noted that the Commission's statutory powers relate only to setting maxima for airport charges; how the resulting revenues are allocated to fund services at different airports is a decision for the airport operator and its shareholders. Therefore, for example, the use of revenues from one airport to subsidise operations at another, remains open to Aer Rianta, subject to any applicable legal constraints.

#### ***4.3 The choice between an aggregate maximum, maxima for individual categories of charges or applying a maximum to a basket of charges***

Setting a maximum for an aggregate of charges, under Section 32(6) of the Act, (through one of the mechanisms outlined in section 4.4 below) would leave an airport operator with considerable discretion to set individual charges within the overall limit. Correspondingly, the larger the number of individual maxima that are set, the less price-setting discretion is left to the airport authority. The relevant trade-off is between allowing the airport operator discretion in setting individual charges to allow for re-balancing, which may be desirable, and mitigating the potential incentives to cross-subsidise by charging excessive prices for certain services. The application of an overall ceiling with sub-caps on individual charges, or overall ceilings on certain baskets of services is also possible.

*Question 9: Should the maximum charges set by the Commission apply to individual charges, to a basket of charges or to the total of charges?*

*Question 10: If more than one limit, on which categories of charges?*

#### ***4.4 Setting charges “whether by reference to any formula or otherwise”***

Price caps are generally expressed by reference to a formula, in order to allow the utility operator to compute the exact value of the maximum charge. However, the Act allows the Commission to make a determination “whether by reference to any formula or otherwise” (Section 32(6)(b)). The Commission therefore has some latitude in how it formulates and structures its price determination. There are a number of alternative formulations by which a price cap can be operated. Each formulation gives somewhat different incentives to the regulated firm in terms of cutting costs, changing output and setting prices.

##### **4.4.1 A cap on individual charges**

This allows for a maximum percentage change in the individual charges of the regulated firm. The firm retains the difference between these charges and costs, so the incentive is to minimise the latter in order to boost profits. Moreover, total revenues rise or fall in line with output, so there are strong incentives to increase output in the presence of large fixed costs. However, the firm’s revenues will also vary with deviations from the projected demand forecasts that were used in setting the cap.

##### **4.4.2 A total revenue cap**

This allows for a maximum percentage change in the total revenues of the regulated firm. In a similar manner to the cap on individual tariffs, the firm retains the difference between total revenues and total costs, so the incentive is to minimise the latter in order to boost profits. There is certainty in the face of deviations from forecasted demand patterns because total revenues are constant. However, there is no incentive to expand output because, in order for total revenue not to exceed the cap, prices would have to fall. Moreover, the existence of variable costs would allow the firm to cut total costs by reducing output and by raising prices in order to reach the revenue ceiling. In the presence of deviations from projected demand

forecasts, prices would move inversely with those deviations. This could generate uncertainty about future charges.

#### **4.4.3 A hybrid of a cap on individual tariffs and a total revenue cap**

This would allow for a maximum percentage change in some proportion of the regulated firm's total revenues, while allowing the remainder to vary with output through a simultaneous allowance for a maximum percentage change in some or all of the firm's prices. The incentive to expand output is less strong than with a cap on individual tariffs, but the tendency for frequent price changes because of deviations from forecasted demand patterns is reduced relative to a cap on total revenue. Such a price control mechanism would seek to reflect the factors determining the costs of the business. In particular, where the majority of costs are variable, there would be a tendency towards regulating individual charges. This would serve to neutralise the incentive to reduce output in order to reduce total costs. However, it would incentivise the minimisation of the variable cost per unit. Where the majority of costs are fixed, there would be tendency to regulate total revenues. This would serve to neutralise the incentive to expand output in order to reduce the fixed cost per unit (which would boost retained earnings under a system of capped individual charges), and incentivise the minimisation of total fixed costs.

#### **4.4.4 A revenue-yield price control**

This allows for a maximum percentage change in revenue per unit of output. To date, the CAA has applied this mechanism in the regulation of UK airports by capping the change in revenue per passenger in a given year. The regulated firm retains the difference between average revenue and average cost, so there are strong incentives to minimise the latter in order to boost profits. Total revenues rise and fall in line with output and, so, there are strong incentives to increase output in the presence of large fixed costs. Such a control could create the incentive for the firm to raise prices in areas or during times when demand for airport services is relatively inelastic, which

would serve to boost total revenues without affecting passenger numbers, thereby boosting revenue per passenger.

#### **4.4.5 A Cap on a Basket of Charges**

This allows for a maximum percentage change in the overall price of a basket of services, where each service is weighted according to its share of total revenue. This mechanism has similar incentives to the cap on individual charges, but permits some discretion for the regulated firm to rebalance charges within the basket. Having regard to the options contained in Section 32 (6) of the Act, this may be desirable if such rebalancing involved moving to prices that reflected, for example, demand elasticities.

*Question 11: How should the determination on maximum airport charges be expressed, having regard to the options contained in Section 32 (6) of the Act?*

In addition to the permitted changes in prices or revenues that operates over the five year period, a re-basing of the initial charges could be considered necessary, if these were judged to be generally too high or too low at the start of the control period.

#### **4.5 Section 33 of the Act**

In making its determination, the Commission is required by law to “aim to facilitate the development and operation of cost-effective airports which meet the requirements of users” (Section 33). In doing so, the Commission is required to have due regard to ten specified factors:

1. the level of investment in airport facilities, in line with safety requirements and commercial operations, in order to meet current and prospective user needs;
2. a reasonable rate of return on capital employed in that investment in the context of the airport’s sustainable and profitable operation;
3. efficiency and effectiveness in the use of all of the airport authority’s resources;

4. the contribution of the airport to the region in which it is located;
5. the airport authority's level of income from airport charges and other revenue at the regulated airports or elsewhere;
6. the airport authority's operating and other costs at the airport;
7. the level and quality of the airport's services and the reasonable interests of service users;
8. the airport's cost competitiveness and operational efficiency vis-à-vis international practice;
9. the minimisation of restrictions on the airport authority consistent with the Commission's functions; and
10. relevant national and international obligations.

### **Statutory Objective**

The objective contained in Section 33 of the Act is that airport charges be regulated so as to facilitate the development and operation of cost-effective airports that meet user requirements. It falls to the Commission to decide how this aim is to be attained having due regard to the factors specified in Section 33 of the Act.

The objective contained in section 33 comprises two elements. First is to further the development and operation of cost effective airports. Cost effective corresponds to the economic concept of productive efficiency that was introduced in section 2.1. It will be recalled that productive efficiency refers to a situation where the regulated firm produces a given level of service at the minimum cost.

In addition, as part of the first element, the Commission must also be concerned with the 'development' of the airports which would appear to import a concern that the airport operator makes appropriate investment decisions concerning the development of the airport. This would appear to correspond to the economic concept of dynamic efficiency (also introduced in section 2.1).

The second element of the statutory objective operates as a qualifier to the first, in that it is concerned that the development and operation of the airports be such as to meet the requirements of users. Users are not defined in this section of the Act, and so it would seem to comprise the interests not just of airlines but also of consumers of airport services generally. This element would appear to broadly correspond with the economic concept of allocative efficiency, that is, all users who are willing to pay for the service are able to avail of it, without threatening the financial viability of the regulated firm.

Based on the above, in aiming to facilitate the development and operation of cost-effective airports which meet the requirements of users, the Act is concerned with productive, dynamic and allocative efficiency. Where all three are observed, economic welfare is maximised. Economic welfare may be expressed as the excess of the total *value* of a service to society over its total *costs*. On this principle, regulatory choices would be made so as to maximise economic welfare from a given service (such as airport services). Accordingly, in having due regard to each of the ten factors specified in Section 33, the Commission will aim to determine the extent to which reliance on each of the factors maximises economic welfare from the airports. By using this test, the Commission will be in a position to determine with greater accuracy, the extent to which reliance on each of the 10 factors furthers the objective of the Commission to facilitate the development and operation of cost effective airports which meet the requirements of users.

*Question 12: Are there any alternative ways by which the contribution of each of the factors specified in section 33 to the achievement of the statutory objective may be assessed?*

## Statutory Factors

### **4.5.1 The level of investment in airport facilities, in line with safety requirements and commercial operations, in order to meet current and prospective user needs**

Safety is paramount in aviation. This objective is ensured by the application of a set of safety standards that are devised, monitored and enforced by independent safety regulation provided by Irish Aviation Authority. In carrying out airport *economic* regulation, the Commission shall assume that the regulated companies continue to meet the safety standards set by the IAA and to maintain a strong corporate safety culture.

Airports are capital-intensive businesses and it is necessary that their economic regulation be consistent with a level of investment in facilities that allows the needs of users to be met. Equally, investments in airport infrastructure are very costly, and made against a background of considerable uncertainty as to future passenger demand and future economic conditions. So economic regulation must seek to avoid excessive or excessively early investments that have to be paid for by raising airport charges.

The level of capital investment (Capex) that is required at an airport will depend, *inter alia*, on the level of current and projected demand, desired improvements in quality and the age of the existing facilities. An assessment as to the required Capex programme and its efficiency is therefore a central element of the economic regulation of airports.

Capital expenditure increases a firm's assets. For a regulated firm, whose prices are set in part to allow a certain rate of return to be paid on those assets, there may be an incentive to err on the side of over-investment since this will cause regulated prices to be higher than otherwise. Consistent with this, there may be under-spending on *actual* investment by regulated utilities

compared with investment projections made at the time of airport price reviews. Therefore, it is necessary that a regulated firm's investment plans be carefully scrutinised as to their timing and efficiency.

*Question 13: How should an airport operator relate Capex decisions to current and prospective user needs? How should the Commission assess the degree to which the airport operator is doing so successfully?*

*Question 14: How should Capex be funded? Should one of the five regulated charges be earmarked for investment spending or, instead, should the revenue from charges be pooled (perhaps along with other income as allowed for under the Act) to fund both Opex (operating expenditure) and Capex?*

*Question 15: When should investments be included in the assets on which a reasonable return is applied in the calculation of airport charges – before construction of the new facility commences, once the investment is in progress, or only once it is in use?*

#### **4.5.2 A reasonable rate of return on capital employed in the investment in the context of the airport's sustainable and profitable operation**

This factor requires the Commission to establish, or estimate, the magnitude of three critical economic parameters:

- (a) the value of the airport assets used to provide services, charges for which are regulated, and services, charges for which are not regulated;
- (b) the cost of capital to the airport operator;
- (c) the appropriate rate of return that the airport operator should be allowed to earn on those assets.

A number of different approaches to asset valuation are available for consideration, including historic and current book values, current market value (in the case of a company with publicly traded shares) and net present value.

*Question 16: What assets should be included in the regulatory base?*

*Question 17: On what basis should those airport assets that are used to provide airport services and other services at Irish airports be valued?*

There are several possible measures of the rate of return earned by a business. Two of the most popular are the return on assets and the return on equity, although others are also used.

*Question 18: How should the rate of return of the airport operator be defined and measured?*

The Act requires that, in achieving the statutory objective, the Commission must have due regard to a reasonable rate of return on capital employed in airport facilities, in the context of the sustainable and profitable operation of the airports. Economic analysis suggests that the reasonableness of a rate of return is best judged by comparing the rate of return with a company's cost of capital. The cost of capital is a measure of the cost to a company of obtaining investible funds. The return is some measure of the profit earned on the company's investments. Over the medium term, unless the rate of return matches the cost of capital, the company will be unable to replace its stock of assets, thereby jeopardising the sustainability of the company's future operations. By contrast, if the rate of return of a business consistently exceeded the cost of capital then – in a competitive industry – new firms would be attracted into the industry by the profits to be earned there. This increased competition would serve to lower prices and lower returns nearer to the cost of capital. This reasoning would suggest that a regulator should

allow a rate of return equal, over the medium term, to the company's cost of capital.

*Question 19: How should the cost of capital of the airport operator be calculated?*

*Question 20: Has the capital asset pricing model a role to play in estimating the cost of capital, given that the equity of the company is not publicly traded? What firms or industries in Ireland or elsewhere have similar risk profiles to the airport operator and could therefore be used as benchmarks for determining the value of beta in the CAPM?*

The rate of return earned on capital investment is, effectively, an element of the cost of operating an airport. Therefore, all other things being equal, the higher the rate of return permitted by the regulator, the higher will be airport charges.

*Question 21: What rate of return should the airport company be allowed to earn relative to its cost of capital?*

#### **4.5.3 Efficiency and effectiveness in the use of all of the airport authority's resources**

The Commission is required to have due regard to the efficiency and effectiveness of resource use by the airport authority.

*Question 22: How should the efficiency and effectiveness of resource use by the airport authority be assessed?*

*Question 23: At the overall level, relative to comparable airports or businesses, is there evidence of either inefficient or ineffective use of resources by the Irish airport operator?*

*Question 24: In the event that Irish airport charges change, does efficiency and effectiveness in the use of all of the airport authority's resources require that change to be phased in over the period of the control or implemented in full at the beginning of that period?*

#### **4.5.4 The contribution of the airport to the region in which it is located**

An airport can make an important contribution to the region in which it is located in a number of different respects. A good aviation infrastructure can influence business location decisions and so employment in that region. Firms may be especially concerned about flight frequency and reliability. Similarly, airports can provide an important basis for regional tourism. In this case, seat availability at keen prices is likely to matter most.

*Question 25: How should the contribution of the airports to the regions in which they are located be assessed?*

*Question 26: What is the contribution of the airports to the regions in which they are located?*

#### **4.5.5 The airport authority's level of income from airport charges and other revenue at the regulated airports or elsewhere**

In making its price determination, the Commission must take due account of two sources of income available to the airport operator. One is income from airport charges and the other is the airport operator's 'other revenues' at regulated airports (from retailing, catering, car parking, concessions, rent and so forth) or elsewhere. If the regulator takes full account of both income streams, regulation is said to be 'single till'. In other words, airport charges are a residual after allocating the surplus of an airport's 'other income' (over the costs of providing 'other services') to financing aeronautical services. Whereas if airport charges alone fund aeronautical services (without reliance

on 'other income') this different treatment by the regulator of the two income streams is termed 'dual till' regulation.

One of the advantages of a single till is that commercial profits can be used to reduce charges for airport services. This could serve to improve efficiency if there was excess capacity because lower airport charges would encourage greater use of the airport. However, under a single till, in combination with cost-based regulation (that is, price regulation that is designed to cover costs), the incentives for productive efficiency in the provision of airport services may be weakened. There may also be a tendency towards over-investment.

Under a dual till, there may be greater incentives to achieve productive efficiency in the provision of airport services. There may also be stronger incentives to invest efficiently. Therefore, if an airport faced capacity constraints, the case for a dual till is likely to be stronger because higher prices could ensure allocative efficiency (that is, airport usage by those who are not willing to pay the efficient charges could be discouraged), which may itself contribute to the alleviation of the congestion, and dynamic efficiency because the higher prices may encourage efficient investment in the capacity that is required to solve the congestion problem.

*Question 27: Should airport users obtain any financial benefit from other income that the airport company derives from airport activities? In other words, should airport regulation be based on a single or a dual till principle?*

*Question 28: If a single till principle is to be used, what other revenues should be included in it and how should the airport charges relate to them?*

#### **4.5.6 The airport authority's operating and other costs at the airport**

A business will ordinarily seek to recover through its charges the capital and operating costs of the business together with a return on capital invested. In respect of the operating costs, the statutory objective of the Commission – the development of cost-effective airports which meet the needs of users – means that the Commission will seek to ensure that operating costs at regulated airports are no higher than necessary in order for services of a given quality to be provided to users.

*Question 29: How should the cost-effectiveness of Irish airports be assessed?*

In seeking to ensure that operating costs at regulated airports are no higher than necessary in order for services of a given quality to be provided to users, a regulator must be able to distinguish between the direct costs of providing a service and the joint costs associated with the provision of a wide range of services that, for example, requires the use of common facilities.

*Question 30: What costs of operating an airport are joint costs? How should such joint costs be allocated among users?*

*Question 31: Should some of the costs of operating an airport be recovered directly from passengers?*

#### **4.5.7 Service quality and the reasonable interests of service users**

A maximum price protects the consumer only if it is not offset by a reduction in service quality; appropriately calibrated, rising prices and falling service quality are equivalent. However, given the very different levels of service that are acceptable to different sets of airline passengers, it would be difficult for a regulator to seek to impose standardised levels of service quality.

*Question 32: How should the Commission seek to prevent a price maximum being evaded by a lessening of service quality? What incentives could an airport operator be given to provide appropriate service quality?*

#### **4.5.8 International cost competitiveness and operational efficiency vis-à-vis international practice**

As previously noted, the statutory objective set for the Commission is the development of cost-effective airports that meet the needs of users. In achieving this objective, the Commission must have due regard to international cost competitiveness and international practice on operational efficiency. This may involve the use of benchmarking, that is, comparing the regulated Irish airports to airports elsewhere in the world that have similar characteristics, such as size, number of passengers etc. Although benchmarking has many obvious advantages, distortions could be introduced if incorrect comparisons were made.

*Question 33: How should the international cost competitiveness of Irish airports be assessed?*

*Question 34: Does benchmarking have a role to play in evaluating the efficiency of Irish airports? If so, against which entities should Irish airport efficiency be benchmarked?*

*Question 35: Are there any difficulties associated with reliance on international comparisons?*

#### **4.5.9 Minimisation of restrictions on the airport authority consistent with the Commission's functions**

As discussed in section 2 above, economic regulation is generally applied where competition is weak or absent. One way therefore to pursue the minimising of restrictions would be to consider the degree of competition faced by different airports, or for different airport services. The emphasis of

regulation could then be placed on those airports or services where competition is limited or absent.

*Question 36: Is it appropriate to minimise regulatory restrictions according to the extent of competition faced by an airport operator or airport service provider? Is there a more appropriate method?*

*Question 37: Which airport services, if any, at the regulated airports are exposed to competition? Are there services for which airports possess market power? Are there services where the degree of competition faced by suppliers might be increased?*

A further consideration in keeping regulatory restrictions on the airport operator as light as possible is the degree to which users are satisfied with the present standard of services and the associated prices of the airport operator.

*Question 38: Are current airport services and the associated prices satisfactory to airport users? Is the present combination of services and prices such as to warrant some form of performance measurement as a condition of a determination on airport charges?*

Countries that seek light airport economic regulation (see section 3 above) generally rely on the scope for negotiations between the airport operator and users (without the involvement of a regulator) to produce outcomes broadly satisfactory to those involved.

*Question 39: In the current extent of industry consultation about airport services, prices and related matters satisfactory? In particular, are the arrangements for consultation and negotiation such as to suggest that, in some areas, agreement could be reached by those involved without recourse to the regulator?*

*Question 40: With a view to minimising regulatory restrictions, which services should form part of the regulatory regime? In what areas might regulation be unnecessary or ineffective even in the absence of market competition?*

#### **4.5.10 Relevant national and international obligations**

*Question 41: What national and international obligations are relevant to the regulation of airport charges?*

### **4.6 Conclusion**

In Section 4 of this Consultation Paper, the Commission has made some preliminary remarks and has posed some questions about a number of the policy choices facing the Commission in setting airport charges, based on the objective set out in the Act contained in Section 33, as well as the 10 specified factors.

## **5 Conclusions**

This consultation paper has outlined some regulatory approaches the Commission might consider to determine maximum airport charges. It has laid out what the Commission considers as the issues of relevance in airport economic regulation. Included with that, the Commission has given a brief description of international practice. It has also sought the views of interested parties and the public on the contents of the consultation paper. When responses have been received and considered by the Commission, it will make its draft determination. Interested parties may make representations on the draft determination which will be considered by the Commission prior to making its final determination.

## Appendix 1

### Services and facilities covered by BAA airport charges in London

Runway provision and maintenance  
Taxiway provision and maintenance  
Airfield lighting  
Bird scaring  
Airfield supervision  
Fire service (airfield and terminals)  
Snow clearance  
Airside and perimeter security, including access control and patrolling  
Apron control and allocation of aircraft stands  
Apron and aircraft parking area provision and maintenance  
Guidance systems and marshalling  
Loading bridges  
Piers and gaterooms  
Check-in concourses  
Toilets and nursing mothers' rooms  
Airside lounges  
Customs and Immigration halls  
In-bound baggage systems, including baggage reclaim  
Arrivals concourses and meeting areas  
Trolley service  
Signing  
Information desks and staffing  
Flight information and PA systems  
Scheduling Committee support  
Lost property service  
Chapels  
Airside and landside access road and forecourts, including lighting, traffic signals, signage and monitoring  
Staff search (except for issuing of ID passes to non-BAA staff)  
Passengers and hand baggage search  
Policing and general security  
Cleaning, heating, lighting and air conditioning of public areas  
Lifts, escalators and passenger conveyors  
Landscaping and horticulture  
Noise insulation/soundproofing  
Refuse disposal  
Foul and surface water drainage, other than to leased properties  
Inter-terminal tracked transit systems  
Facilities for the disabled

## CP 2 Airport Economic Regulation

Source: Appendix 3.2 of "A report on the economic regulation of the London airports companies", Monopolies and Mergers Commission, June 1996, London.

## Appendix 2

### **ICAO Guide to the facilities and services to be taken into account in determining airport costs\***

Landing area with cleared approaches and taxiways with necessary drainage, fencing, etc. Also, lights for approach, landing, taxiing and take-off, as well as communications and other special aids for approach, landing and take-off (sometimes provided by other than the airport operator).

Approach and aerodrome control: air traffic control for approach, landing, taxiing and take-off with necessary communications, including satellite services. (Approach and aerodrome control is sometimes partly or wholly provided by other than the airport operator. See also Appendix 2.)

Meteorological services (frequently provided by an entity other than the airport operator). (See also Appendix 2 as to when an allocation of the costs of these services, proportional to their utilisation for airport operations, should be considered.)

Fire and ambulance service in attendance.

### **Terminals, aircraft parking space, hangars and other facilities and services provided for aircraft operators**

Passenger and public waiting rooms and concourses with necessary heating, lighting, janitor service, approach roads, etc.

Accommodation for airline offices, traffic counters and air crews, and for the handling of passengers and cargo.

Assistance in handling passengers and cargo, and necessary equipment.

Special servicing of aircraft (air conditioning, cleaning, etc.)

Towing and other handling of aircraft.

Space for parking and long-term storage of aircraft.

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\* Further guidance on airport accounting is provided in the ICAO *Airport Economics Manual*, Chapters 3 and 4.

Hangar, workshop, stores, garage and other technical accommodation.

Land leased to aircraft operators for various purposes.

Provision of aircraft fuel (usually via concessions) and other technical supplies, and also of maintenance and repairs for aircraft.

Communication facilities (aircraft operating agency messages- Class B).

Common services such as the provision of light, heat, power and heating fuel.

### **Security measures, equipment, facilities and personnel for the following functions**

Inspection/screening of passengers and cabin baggage.

Security in departure/arrival lounges, including transfer/transit lounges.

Security of airside areas.

Security of landside areas.

### **Accommodation for other than aircraft operators**

Accommodation for shops, hotels, restaurants, ground transport providers, banks/money exchanges, post office, telegraph office, etc.

Facilities paid for directly by the public (car parking, sightseeing, etc.)

Accommodation for necessary government activities, customs, immigration, public health, agricultural quarantine, etc.

Land rented to other than aircraft operators (including grazing rights, etc.)

### **Noise alleviation and prevention**

Noise monitoring systems, noise suppressing equipment and noise barriers.

Land or property acquired around airports.

Soundproofing of buildings near airports and other noise alleviation measures arising from legal or governmental requirements.

Source: Appendix I, Statement by the Council to Contracting States on Charges for Airports and Air Navigation Services, ICAO, Montreal, Canada.