



# Economic Regulation

IATA ECONOMICS BRIEFING N° 6



The case for independent economic regulation of airports and air navigation service providers.



IATA Economics Briefing N° 6:  
ECONOMIC REGULATION

Mark Smyth  
Brian Pearce

IATA, February 2007



# Key Conclusions and Recommendations

 There is a clear case for independent economic regulation of airports and ANSPs that have the potential to exploit (and are exploiting, in many cases) their natural monopoly position.

**An effective and efficient regulatory structure should not be a burden, but instead a strong mechanism to support and deliver a more efficient use of existing assets and the timely and cost-effective delivery of new investment.**

Airports and ANSPs are, for the most part, natural monopolies with market power. They face very limited competition for airline customers and routes. Indeed any competition, for example between major hub airports for transfer passengers, reflects competition between the fares, service and routes provided by different airlines rather than between the airports themselves.

Market power allows an airport or ANSP to arbitrarily raise its prices, resulting in excessive and unjustified profits and/or the inefficient delivery of services. Economic regulation is both necessary and desirable to constrain this market power in order to deliver continuous improvements in cost efficiency and service quality.

IATA believes that independent economic regulation, where needed, should involve detailed cost-efficiency targets and service quality standards. It should be preferably based upon price-cap regulation with single-till procedures. Such a system has been successful in improving efficiency where implemented and can be expanded and improved to meet changing investment needs. It can be highly effective in improving the aviation industry for the benefit of all stakeholders.

## THE SCOPE OF ECONOMIC REGULATION

All airports and ANSPs must be subject to ICAO principles in setting user charges, including transparency, consultation and cost-relatedness. However, more detailed economic regulation of user charges and service quality is often required where market power exists and can be exploited. The need for good, independent economic regulation exists whether an airport or ANSP is publicly or privately owned.

For airports, detailed economic regulation should be imposed unless they are small operators in relation to the market or, in exceptional cases, can clearly prove that they face significant market competition. As such, economic regulation should exist, unless:

- (i) an airport falls below an agreed threshold level based on their size relevant to the market,
- or
- (ii) in an exceptional case, an airport is above the threshold level, but a market contestability test can clearly demonstrate the existence of sufficient competitive market constraints (e.g. competition for seasonal leisure traffic, competition from other modes) to prevent them from exploiting any monopoly power.

However, in the case of (ii), it is also important to ensure that a clear process is established for the test to be reviewed, especially after a change of airport or ANSP ownership, and for economic regulation to be re-imposed if conditions have changed.

## THE MUTUAL BENEFITS OF GOOD REGULATION

A well-designed and effective framework can provide benefits for both users and for regulated companies. An incentive-led process helps to improve efficiency, often through consultation with users who experience several aspects of service quality and can provide constructive help. It can also improve the business investment planning process, delivering capital investment in accordance with the needs of existing users while also safeguarding the rights of potential new users. Independent and transparent economic regulation can reduce uncertainty on both sides, helping to reduce investor risks and financing costs.

Effective regulation can also support the sustainable development of airports and ANSPs. Major new investment decisions need to be based on long-term strategic plans that involve the input of all stakeholders, including airports, users and Governments. However, the existence and nature of economic regulation can provide appropriate incentives for timely and cost-effective investment. The stability provided by an effective regulatory framework can also attract longer-term investment finance into the industry, avoiding the potential volatility in infrastructure asset prices driven by short-term speculative finance.

## KEY PRINCIPLES OF INDEPENDENT ECONOMIC REGULATION

There does not exist a perfect “one size fits all” regulatory model, especially given the heterogeneous nature of airports and ANSPs. Nevertheless, there are several principles and processes that must be followed to ensure that the regulatory structure is both effective and responsive, optimising the benefits available for all.

### **Appropriateness.**

Regulation should focus on airports and ANSPs that have clear natural monopoly characteristics that allow them to exploit their market power in setting charges. The detail and complexity required for regulation should be considered on a case-by-case basis, in order to ensure that the cost of regulation does not exceed its potential benefits.

### **No cross-subsidisation.**

Regulation should be undertaken at an individual airport or ANSP level, with the decisions made on a basis appropriate to the key objectives in each case. System regulation, that sets a price cap for more than one airport or ANSP, can lead to sub-optimal decisions.

### **Non-discrimination.**

In accordance with ICAO policies, the regulatory structure should not distinguish between different types of users. The consultation process should be open to a range of stakeholders and the regulatory decisions should be applied on a non-discriminatory basis for users. Regulators should take into account the interests of existing users while safeguarding the rights for future potential users.

# KEY RECOMMENDATIONS FOR THE FRAMEWORK OF INDEPENDENT ECONOMIC REGULATION

## **Independence.**

Economic regulation should be independent from direct control by governments or airport authorities. An economic regulator should be established with clear objectives, or statutory duties and then provided with the resources and operational independence to meet these principles.

## **Transparency.**

This should be achieved for both the process by which regulatory decisions are made and for the expenditure and investment plans of the regulated company. Information on key historic and forecast performance indicators, business strategies and planned investments should be available for consideration. The detail required should be appropriate to each case, helping to minimise the regulatory cost.

## **Consultation.**

There should be a full and timely consultation process with airlines and other users on airport and ANSP operational and investment plans. The regulatory system should include measures (both incentive based and penalty related) to ensure that airports and ANSPs approach the consultation in an open and constructive manner. The complexity of ANSP investment plans, as well as some large-scale airport investment plans, may need further scrutiny from third-party experts.

## **Flexibility.**

The regulatory framework should only act in an oversight role – with powers to initiate, prompt and intervene – in areas, such as capital investment plans, that commercial negotiations can pursue more effectively. However, it should retain a credible role in deciding contentious issues, such as allowable rates of return and price profiles, that guide and enforce greater efficiency among the regulated companies. The structure should have a degree of flexibility to adapt to significant external shocks, appropriate to the level of risk the company can reasonably be expected to bear. However, this flexibility, if used, should not undermine the longer-term credibility of regulation.

## **A neutral dispute settlement mechanism.**

The regulated companies and the airline and other users should have a mechanism for appealing against the regulator's decisions. Typically the neutral body will be the national competition authority. This provides an additional safeguard within the framework against regulatory failure, minimising the risk that the regulatory body itself can reach sub-optimal decisions. However, in order to minimise regulatory delays and complexity, the neutral authority should have the ability to assess and, if necessary reject, an appeal against certain criteria (i.e. the grounds for the appeal) before undertaking a more detailed assessment.

## **Regulatory benchmarking.**

The heterogeneous nature of airports and ANSPs means that regulation should be undertaken at an individual level, and typically undertaken by a specialist national regulator. However, there will be many common aspects between the regulatory process for different airports and ANSPs. As such, a forum should be available for best-practice benchmarking, both in terms of revealing additional information for the regulator and for regulated companies and users to assess the performance of their regulators.

## **Length of agreements.**

Regulatory agreements should normally cover periods in the order of four to five years. This provides sufficient time for a regulated company to develop procedures, implement charges and extract cost efficiencies.

## KEY RECOMMENDATIONS FOR REGULATORY PRACTICE

### Cost efficiency targets end service quality standards.

The CPI-X mechanism, or a variant of it, is the most appropriate mechanism for incentivising improvements in efficiency. However, the mechanism must also be designed to provide a balance between the risk of excessive regulatory burden and the risk of setting charges on the basis of historic costs, rather than achievable lower costs.

### Single-till regulation.

A single till approach determines the level of revenue and return required and the user charges to be set on the basis of all services at an airport, irrespective of whether they are aeronautical or non-aeronautical. Single-till regulation can mean that charges are relatively low at capacity-constrained airports, but by itself does not produce a barrier to new investment. Instead, it provides strong incentives for efficiency and productivity improvements.

### Asset valuation.

It is essential that the asset base on which airports and ANSPs are allowed to earn regulated returns is set in accordance with the investment undertaken and the risk borne. Artificial increases in asset values should not be used to justify increases in charges, they simply hand a windfall gain to an airport or ANSP rather than reflect any improvement in service levels.

### Cost of capital.

The cost of capital needs to take closer account of actual financing costs. In some cases, the regulator has erred too much on the side of caution, allowing an overly generous cost of capital that exceeds the actual financing costs faced by the firm. The cost of capital should be set on the basis of projected or optimal gearing levels rather than historic levels. However, in order to provide a greater incentive for new investment, there is scope to explore the possibility of allowing a split between a lower rate on the existing capital base and a higher rate to reflect the risks associated with new investment.

### Commercial negotiations for investment.

Airline users should be closely involved in the planning, design and timing of new investment decisions. A mechanism should be in place that allows commercial negotiations to take the lead but provides regulatory oversight to ensure discussions can proceed on a fair and transparent basis. The success of this mechanism will be highly dependent on the amount of information the airport or ANSP is willing to reveal and on credible incentives to ensure agreed investment plans are delivered cost-effectively. Airline users and regulators can both have an important role in determining precise and measurable outputs and timescales for the investment process, as well as oversight of the level of resource inputs.

### Avoidance of user pre-financing of investment.

While it is important to involve airline users in the definition and design of new investment, the investment risks should not be passed on to airlines through a pre-financing mechanism. Airlines should only pay for investment once the assets are in operational use or, in the case of large investments, clearly defined milestones have been completed. Pre-financing by airlines is expensive, inefficient, impractical and unfair. There are more efficient financing mechanisms (e.g. capital market issues, special purpose investment vehicles) that can both incentivise and deliver cost-effective new investment.



**A regulatory structure that incorporates the recommendations set out above can improve the constructive engagement between airports, ANSPs and users, to the benefit of all stakeholders in the industry.**

# 01 | Executive Summary

Independent economic regulation of airports and ANSPs acts as a powerful catalyst for improving efficiency and delivering cost-effective investment.

Regulation is not costless; it will require additional resource inputs.

But the benefits available from a robust regulatory framework are significantly higher, for all stakeholders in the aviation industry.



The global aviation industry has changed significantly over the last twenty years. A key component of this change has been the growing trend for the commercialisation of airports and ANSPs – moving away from their roots as government organisations and towards a quasi or fully independent entity that operates on the basis of a commercial business. The trend encompasses many different options, from full privatisation to not-for-profit private sector entities to government owned companies. Commercialisation creates opportunities for greater financial and management discipline. However, it also provides significant market and pricing power to firms with natural monopoly characteristics that, if unchecked, can be exploited.

This report looks at the need for independent economic regulation in association with the commercialisation of airports and ANSPs, in order to protect the interests of infrastructure users (i.e. airlines and their customers) and to maximise the wider social and economic benefits created by the aviation industry. It discusses:

- The case for independent economic regulation of commercially-focused airports and ANSPs
- The options for an independent economic regulatory framework
- The experiences of independent economic regulation in some countries
- Recommendations for the design of good regulatory frameworks.

## WHY IS ECONOMIC REGULATION NEEDED?

Economic regulation is both necessary and beneficial where a firm has significant market power and, in line with a commercial focus, exploits this power to raise prices and receive excessive and unjustified profits. In many industries an effective competition law is sufficient to prevent the emergence and abuse of a monopoly position. However, infrastructure and utility industries often contain natural monopoly firms where, due to large fixed capital requirements, provision of the service by more than one firm can be less efficient. In these cases, additional economic regulation is required to protect customers and the wider economy from any potential abuse of a natural monopoly position.

In addition, airlines experience more dimensions of service quality than users in other industries with natural monopoly characteristics (e.g. electricity). The quality of service provided by airports and ANSPs directly impacts upon the quality of service an airline can offer to its customers and, therefore, must also be protected from any abuse of market power.

Regulation is a second-best solution to free market competition, but is both necessary and desirable where such competition does not exist. Airports and ANSPs do possess market power and natural monopoly characteristics. They are relatively low-risk providers of essential facilities and services, with a reasonable assurance of continuing demand for their services. In most cases, airlines do not have any countervailing power against the market power of airports and ANSPs, with no viable alternative airport to use if they wish to continue to serve the same market.

The size, location and ownership of an airport or ANSP, along with the nature of its main airline customers (e.g. network airlines or no-frills point-to-point operators), affect its ability to exploit its market power. For example, competition, or at least the threat of it, can exist between regional airports focused on leisure traffic, and this competition can be sufficient to constrain the airport's market power in setting charges.

By contrast, a major hub airport can exploit its significant market power over airlines that, due to the markets they serve and their investment in a route network, are captive customers for the airport. This market power is increased where the same parent company operates more than one airport in a city or region (e.g. BAA, Aeroports de Paris).

Therefore, economic regulation is justified for airports and ANSPs where constraints on market power are insufficient and where the exploitation of this market power has a greater cost, in terms of economic efficiency, than the cost of imposing a regulatory regime. In such cases, without regulation, user charges are likely to be higher and service levels poorer than is socially and economically efficient.

The value of the aviation industry – both to users and from the wider economic benefits it provides – can only be optimised through an independent and credible regulatory framework providing appropriate incentives for efficient service delivery and cost-effective new investment.

## SETTING THE SCOPE FOR ECONOMIC REGULATION

An economic regulatory framework can take many forms. There is no “one size fits all” framework that would be applicable to every case. Indeed, the design of an efficient and effective framework for an airport or ANSP is influenced by its location, circumstances and any social or economic policy objectives (e.g. the need for new investment) set by governments or other third parties. Nevertheless, there are certain factors that should be taken into account:

### **Market contestability.**

Regulation does involve costs (both in terms of resources and its impact on economic behaviour), so its implementation must weigh the potential benefits against these costs. All airports and ANSPs must be subject to ICAO principles in setting user charges, including transparency, consultation and cost-relatedness.

For airports, independent economic regulation should also be an industry standard, but one where in exceptional cases the Government (or the regulator) can use a market contestability test to exempt some airports from detailed price regulation (though not from the ICAO principles) if they face sufficient competitive power or are small operators in relation to the relevant market. Economic regulation should exist for all airports unless (i) they fall below a threshold level based on their size relevant to the market, or (ii) in an exceptional case, they are above the threshold level, but a market contestability test demonstrates that they face sufficient competitive constraints to prevent them from exploiting any market power.

However, in the case of (ii), it is also important to ensure that a clear process is established for the test to be reviewed, especially after a change of ownership, and for economic regulation to be re-imposed if conditions have changed.

### **The scope and flexibility of regulation.**

Economic regulation will be most effective on an individual airport or ANSP basis, given the difference in circumstances or objectives for each regulated firm – for example, a capacity constrained airport will primarily need new investment, an inefficient airport will primarily need improved productivity. However, regulation is, to some extent, time-dependent, with different periods offering different objectives and challenges.

As such, the framework should be flexible enough to adapt to different objectives. It should recognise the trade-off between the scope of regulation and the administrative burden. A flexible and effective framework makes regulatory decisions where necessary but also acts as an independent mediator where interests are best served through fair and transparent negotiations between users, airports and ANSPs.

### **Credibility and independence.**

The regulatory framework must have credibility amongst the regulated companies and their users in terms of the fairness and robustness of decisions and the threat of penalties in the event of poor performance. Ensuring that the regulator is independent from government departments and control is an important step in achieving credibility. Transparency and consultation are also key factors. The framework should also feature a neutral dispute settlement mechanism, where appeals can be made against the regulator's decisions and assessed by a separate body, such as the national competition policy authority.

### **Clear definition of the principles of regulation.**

An economic regulator should be established with clear objectives, or statutory duties and then provided with the operational independence to meet these principles. Experience of light-handed regulation systems in Australia and New Zealand has shown that with only vague principles for the framework and no clear definition of what an exploitation of market power would involve, the credibility and effectiveness of the system is undermined. The lack of clarity encourages price monitored firms to push the potential limits as far as possible, at the expense of economic efficiency.

## THE FOCUS OF ECONOMIC REGULATION

An effective economic regulatory framework will focus on the following aspects:

### **Incentives for efficiency.**

An effective regulatory structure should look to provide clear incentives for an airport or ANSP to improve their operating efficiency. Price-cap regulation (e.g. CPI-X) offers an effective mechanism for improving the efficiency and productivity of existing assets. However, it must look to mitigate the risks of regulatory “game-playing” in advance of each review and of decisions made on the basis of historic rather than potential costs, that simply provide the regulated firm with a rate-of-return on their incurred costs. In addition, effective regulation should ensure that the allowable rate-of-return and the asset base on which this is earned truly reflect the capital invested and the risks incurred by the regulated firm.

### **Incentives for capital investment.**

Major investment<sup>1</sup> decisions need to be based on a long-term strategic plan that involves the input of all stakeholders, including airports, users and governments. However, the existence and nature of economic regulation can provide appropriate incentives for timely and cost-effective investment. Sometimes, investment can be constrained by external factors, such as planning or environmental constraints. Nevertheless, an effective regulatory structure should provide clear incentives to expand or modernise capacity where necessary, and to do so in consultation with airline users. Greater transparency is needed in developing and agreeing investment plans with users in order to avoid excessive or “gold-plated” investments. Airline users should only pay for investments once they are in operational use.

### **Service quality standards.**

For airports and ANSPs, market power can also arise on the service quality side, where several dimensions of the quality provided by the infrastructure provider (e.g. terminal services, system delays) have a direct impact on the quality of service an airline is able to provide to its customers. As such, economic regulation should cover both price and service quality aspects, ensuring that targets on the price side are not simply met by lowering service quality standards below acceptable levels.

## THE MUTUAL BENEFITS OF GOOD REGULATION

A well-designed and effective framework can provide benefits for both users and for regulated companies. An incentive-led process helps to improve efficiency, often through consultation with users who experience several aspects of service quality and can provide constructive help.

It can also improve the business investment planning process, delivering capital investment in accordance with the needs of existing users while also safeguarding the rights of potential new users. Independent and transparent economic regulation can reduce uncertainty on both sides, helping to reduce investor risks and financing costs.

<sup>1</sup> A distinction should be made between compulsory investments from safety and security regulations, small-scale investments for day-to-day operations and necessary new investment (NNI) set out in a long-term strategy agreed between all stakeholders. The term “investment” used in this document refers to NNI unless otherwise stated.

## EXPERIENCES OF ECONOMIC REGULATION

The commercialisation and, in some cases, privatisation of airports and ANSPs over the last twenty years has resulted in a variety of regulatory systems being introduced across different countries. The experience of each highlights the advantages and challenges of regulation, along with the ongoing need for improvement and flexibility in regulatory structures:

### United Kingdom.

The UK Civil Aviation Authority imposes price control regulation on privately owned BAA's London airports, publicly owned Manchester airport and privately owned NATS, the air traffic control provider. The RPI-X mechanism has led to significant improvements in efficiency, but has faced increasing strain as the focus shifts from efficiency to delivering new capital investment. The 2003 review was criticised by both sides for being too administrative and by airline users for being overly generous in the size and timing of payments for new investments.

The current review has tried to encourage greater consultation between BAA and users, but with mixed results so far. The potential for detailed engagement with users is lower in the case of NATS, given the complexity of investments. Greater flexibility has also been introduced into the price-control regime for NATS, with the constraints it faced following a decline in traffic post-2001 showing that it is limited in the amount of risk it can take on.

### Continental Europe.

Several airports have been partially privatised in Europe, though are subject to a variety of regulatory models with mixed results on their effectiveness.

In Germany, price-cap regulation is imposed on Hamburg airport, rate-of-return regulation on Düsseldorf airport, while Frankfurt airport has looked to negotiate long-term contracts with airline users. Vienna airport is also subject to a degree of regulation but, like Düsseldorf, the regime has tended to encourage expensive and unnecessary over-investment. Copenhagen and, to a lesser extent Brussels, have light-handed regimes that impose a high-level cap and encourage voluntary agreements beyond that, but with weak incentives the airports do not need to maximise efficiency in order to maximise their profits.

In most cases, the regulator is not independent from national or local governments, in some cases leading to arbitrary decisions with little transparency or consultation.

### Australasia.

Australia's major airports were initially subject to price-cap regulation for five years following their privatisation in the 1990s, before moving to a light-handed price monitoring regime in 2002 (Sydney was privatised in 2001 and moved straight to price monitoring). The new regime has reduced regulatory costs, but at the expense of higher user charges and unjustified upward revaluations of land values at several of the airports.

These problems largely stem from the failure of the government or competition authorities to set clear principles for price monitoring or for defining the regulatory value of assets. The threat of reimposing price-cap regulation for poor performance is available, but the definition of poor performance was not made clear, and the threat does not appear to be credible. In New Zealand, a light-handed price monitoring regime was introduced at the time of privatisation. But even though the NZ Commerce Commission has recommended that Auckland airport face price control to curb its market power, no change has been made as the New Zealand Government will not make the appropriate legislative changes.

The vague principles on which light handed regulation is based in both countries create a strong risk that the system will revert to a cost-plus type of regulation, reducing the incentives for efficiency improvements.

### Asia.

Most airports and ANSPs in Asia are still publicly owned and tightly controlled. However, some of the key gateway airports (such as Hong Kong and Singapore) have established, or are in the process of establishing, a form of economic regulation. The Indian government also plans to establish an Airport Economic Regulatory Authority in 2007, in response to the increased privatisation of airports. Its role will be to regulate user charges and to establish uniform quality standards across airports.

### United States.

The vast majority of US airports are publicly owned, though several have rate-of-return regulation systems in place. The Federal Aviation Administration has very strict guidelines in association with the Federal grant program that allows airports to receive a subsidy for airport improvements. US airports often enter into legal contracts with airline users that detail the calculation and conditions of charges, while in some cases airlines lease or own terminal facilities on an exclusive use basis.

However, the rate-of-return mechanisms and restrictive lease contracts contain few incentives for an airport to improve efficiency or to increase revenues from non-aeronautical sources, with cost risk largely passed on to airlines and their users. It has also been associated in some cases with excessive investment bearing little relation to potential commercial returns.

### **Latin America.**

Many Latin American airports have been privatised without proper independent economic regulation. In most cases governments actually benefit from the privatisation by extremely high concession fees required from the concessionaire.

One exception is Mexico where most privatised airports have a Federal economic regulation that only allows their charges to rise with inflation minus an efficiency factor (similar to the UK system). The major flaw in that system however is there is no requirement for airports to consult their customers on the level of investment for airports. Airports are allowed to recover their investment costs with high rates of return through the regulated charges eventually leading to excessive pricing.

### **No regulation.**

In addition to these examples, there are several cases where the lack of independent economic regulation has led to excessive and unjustified user charges. For example, in advance of its privatisation, the French government allowed Aeroports de Paris to increase its charges by 5% in real terms for five years without any justification or transparency for the decision.

In Argentina, a failed concession leaves airlines with unacceptable charges levels and full freedom for the airport to raise more revenue through additional charges. Instead of independent economic regulation the government became a business partner with the airport at the expense of airlines and passengers.

In Germany, the government's proposals for privatising its ANSP, DFS, include plans to increase charges by 11%-12% and allow a return on capital of 9.4%, far too high for a low-risk, monopoly provider.

Examples like these highlight the need for an independent regulatory structure that takes into account the interests of customers, protecting them against artificial and unjustified increases in charges, including where these are used to boost the value of an airport or ANSP prior to privatisation.

## **IN SUMMARY**

Independent economic regulation is an important tool in improving the efficiency of operations and investment within the aviation industry. It is required for all cases where competition is not sufficient to restrain the market power of an airport or ANSP.

IATA's preference is, where regulation is needed, it should involve detailed cost-efficiency targets and service quality standards. It should preferably be based on price-cap regulation with single-till procedures. Such a system has been successful in improving efficiency where implemented and can be expanded and improved to meet changing investment needs.

Nevertheless, even where an alternative regulatory framework is chosen it must meet certain key principles – including independence, appropriateness, transparency and consultation – if it is to be effective in improving the aviation industry for the benefit of all stakeholders.

# 02 | Report Outline

**Airports and ANSPs are key partners for airlines. However, this partnership needs to be based on a fair and balanced relationship that protects, promotes and enhances the interests of all parties.**

**In many cases, due to the monopoly power held by airports and ANSPs, independent economic regulation is required to ensure that infrastructure services are delivered efficiently and in consultation with the needs of airline users and their customers.**

The cost of infrastructure use is a significant element of an airline's total operating costs. Airlines and their users pay an estimated US\$42 billion each year to airports and ANSPs, equivalent to 11% of the global airline industry's revenues. Increases in the unit rate of user charges can have an even larger marginal effect, having a direct impact on individual route profitability levels.

Of course, infrastructure costs have not been the main driver behind the US\$40 billion of losses incurred by the airline industry between 2001 and 2006. However, they must be part of the solution as airlines and the wider aviation industry seek to improve their financial performance and efficiency. With the global airline industry continuing to make significant gains in labour productivity, fuel efficiency and non-fuel cost savings, infrastructure suppliers cannot justify using monopolistic power to raise prices or to deliver inefficient or unnecessary services. It is essential that services are delivered cost-effectively across the supply chain and that risks and rewards are shared appropriately. Greater efficiencies in airline operations can provide spillover benefits to airports, ANSPs and others in the aviation supply chain, and vice versa, highlighting the advantages of combined efforts to improve efficiency within the industry as a whole.



## WHY IS INDEPENDENT ECONOMIC REGULATION NEEDED?

CHAPTER 3 discusses the case for implementing independent economic regulation of airports and ANSPs. It outlines the significant market power enjoyed by many airports and ANSPs and the potential and practice of this power being exploited. It recognises that where competition does exist it is preferable to regulation, but where it doesn't exist a robust regulatory framework is needed. It also notes that well-constructed regulation can have positive benefits for all parties.

## WHAT ASPECTS SHOULD REGULATION COVER?

CHAPTER 4 discusses the scope of activities that regulation can be used to cover. It argues that regulation is more effective at an individual airport or ANSP level, rather than on a system-wide basis, due to differences in priorities and circumstances. It sets out the case for a 'single-till' system of regulation and recognises that where 'dual-till' regulation is chosen additional safeguards are required to ensure that risks and rewards are shared appropriately.

## HOW CAN REGULATION BE IMPLEMENTED?

CHAPTER 5 discusses the different types of regulatory regimes that can be implemented. It argues that price-cap regulation is the most effective in improving efficiency, though recognises that additional incentives and consultative processes may be needed to encourage timely and cost-effective new investment. Light-handed regulation or price monitoring has been adopted for some airports, but in all cases needs a credible penalty mechanism in the event of abuse of market power (e.g. a return to price-cap regulation) if it is to deliver any sustainable benefits.

## WHAT EXPERIENCE DO WE HAVE OF AIRPORT AND ANSP REGULATION?

CHAPTER 6 discusses the experience, so far, of independent economic regulation of airports and ANSPs in several countries. It examines the different systems that have been put in place and assesses the advantages and disadvantages of each one. The different approaches reflect different circumstances and objectives for individual airports and ANSPs, but also highlight the problem of regulatory inconsistency in some countries.

## HOW CAN REGULATION BE USED TO IMPROVE EFFICIENCY?

CHAPTER 7 discusses how an effective regulatory framework can be used to deliver efficiency improvements, but notes how some forms of regulation can provide little incentive towards greater efficiency. Regulation should set clear targets for performance improvement among the regulated companies, reflecting the different objectives faced at individual airports or ANSPs. These targets can be informed by clear and concise benchmarking procedures. Benchmarking systems are already used to great effect in other industries, such as the electricity and gas markets in Europe, while IATA has developed its own benchmarking scorecard that it uses for airport or ANSP charges negotiations.

## HOW CAN REGULATION BE USED TO ATTRACT NEW INVESTMENT?

CHAPTER 8 discusses how the regulatory framework can be flexible in order to attract timely and cost-effective investment into the industry. It outlines options to improve investment incentives for airports and ANSPs, but also highlights the importance of open and constructive consultation between the infrastructure providers and airline users over the design, cost, timing and financing of new investment.

CHAPTER 9 provides a final summary of the key conclusions and recommendations.

# 03 | The Case for Independent Economic Regulation

Airports and ANSPs do have natural monopoly characteristics and, in several cases, the potential to exploit this to the detriment of airline users and wider economic efficiency.

Independent economic regulation is required where these market failures exist, but only where the cost of having no regulation is both material and not constrained by any current or future competitive forces.



In many industries, an effective competition law is sufficient to prevent the emergence and abuse of a monopoly position. However, infrastructure industries – including airports and ANSPs – often contain firms with natural monopoly characteristics where, due to large fixed capital requirements, provision of the service by more than one firm can be less efficient. In these cases, basic competition law may not be sufficient to protect customers and the wider economy from any potential abuse of a natural monopoly position and additional economic regulation is required. Market power allows a firm to raise prices in order to receive excessive and unjustified profits or to cover for inefficient delivery of services or both.

Therefore, economic regulation is justified for airports and ANSPs where constraints on market power are insufficient and where the exploitation of this market power has a greater cost, in terms of economic efficiency, than the cost of imposing a regulatory regime.

In such cases, without regulation, user charges are likely to be higher and service levels poorer than is socially and economically efficient. The value of the aviation industry – both to users and from the wider economic benefits it provides – can only be optimised through an independent and credible regulatory framework providing appropriate incentives for efficient service delivery and cost-effective new investment.

## MARKET POWER

The issue of market power and the degree to which this can be (and is) exploited is central to the case for regulation. Market power is most clearly demonstrated by an ability to determine prices with little or no reference to other suppliers or to customer demand. However, for airports and ANSPs, market power can also arise on the service quality side, where several dimensions of the quality provided by the infrastructure provider (e.g. terminal services, system delays) have a direct impact on the quality of service an airline is able to provide to its customers. As such, consideration of market power must cover both price and service quality aspects.

The existence of market power among airports and ANSPs and the potential negative impacts of this for wider economic efficiency are demonstrated by:

### Natural monopoly characteristics.

The capital intensive nature of airport and ANSP infrastructure means that it is inefficient, with an unnecessary duplication of resources, to have more than one firm providing the services at a particular location. Though natural monopolies are more productively efficient than duplication by another firm, they are still monopolies and will act as such. In the absence of regulation or competition, monopolies tend towards higher prices and lower quantity and quality of service provision than in a competitive market.

### Limited competition.

Most airports face only limited competition from other airports in their city or regional market, especially in terms of competition for airline customers and routes. Even where more than one airport exists within a city or region, they are often serving different types of airline and passenger markets. In some cases, the potential for competition is further constrained by a common ownership structure for all major airports within a city or region (e.g. BAA, Aeroports de Paris, Port Authority of New York). There is a degree of competition between major hub airports within a region for connecting passengers (for example, between Singapore, Hong Kong, Kuala Lumpur and Bangkok on Asia Pacific to Europe routes), but this primarily reflects competition between the fares, service and routes provided by different airlines rather than between the airports themselves.

### Limited countervailing power for airlines.

In addition to limited competition from other providers, airports and ANSPs also face limited countervailing power from airline customers to constrain changes in prices or service quality. In most cases, there is no viable alternative airport or ANSP for an airline to use if it wishes to continue to serve the same market, limiting their ability to restrain the pricing power of the airport or ANSP. Even if an alternative did exist, the cost of relocating an airline's investment in its facilities and network from an existing base is likely to be very high and generally prohibitive to any change. As such, a large proportion of the airline traffic for an airport or ANSP is captive to it. Users are neither homogeneous nor united, and one airline may support an investment that another would not be prepared to pay for but nonetheless will make use of it if it is provided.

### Stability of returns.

Airports and ANSPs are relatively low-risk infrastructure providers, with a reasonable assurance of continuing demand for their main services. There is, of course, the risk of a loss of traffic from major airline customers going bankrupt (e.g. Gold Coast airport and Ansett, Brussels airport and Sabena), but often new airlines emerge to meet market demand more appropriately (e.g. the immediate wet leasing of aircraft by Qantas and the rapid expansion of Virgin Blue quickly recovered and exceeded any loss of traffic for Australian airports from the collapse of Ansett when it was 42% of the market). An airport or ANSP (especially one with a broad base of users and of business and leisure traffic) can face short-term fluctuations but is exposed to far less volatility than its airline customers, yet can use its market power to derive high and stable returns.

Airports and ANSPs do have a higher proportion of geographically fixed assets than airlines – with aircraft, by their nature, being mobile assets. However, airports and ANSPs face less competitive pressure upon their returns and have a strong and stable base for demand within the local catchment area.

### Key enabling role within the industry and gateways to global markets.

Airports and ANSPs provide the key enabling infrastructure that allows airlines and the wider aviation industry to operate. The aviation industry plays an important role in supporting national competitiveness and trade.

Air freight accounts for 35% of international trade by value. For places like Singapore and Hong Kong, the airport is a key gateway in increasing and sustaining their national wealth. Therefore, if infrastructure providers can use their market power to set economically inefficient price or service levels it does not simply affect airline users, but has multiple effects in terms of negative impacts on users within the wider aviation industry and on the wider economic benefits that the industry provides.

## MARKET CONTESTABILITY

While airports and ANSPs do have potential market power, their ability to exploit this is contingent on a variety of operational and locational factors.

Independent economic regulation is needed to constrain monopolistic pricing power but is not costless, both in terms of resources required and the potential risk of simply replacing market failure with regulatory failure (i.e. inefficient outcomes from regulatory decisions)<sup>2</sup>.

Therefore, IATA proposes that independent economic regulation exists where there is a clear need to constrain the potential abuse of market power for an airport or ANSP, but only if the benefits of regulation in terms of improved economic efficiency clearly outweigh the costs of regulation.

All airports and ANSPs must be subject to ICAO principles in setting user charges, including transparency, consultation and cost-relatedness.

For airports, independent economic regulation should also be an industry standard, but one where in exceptional cases the government (or the regulator) can use a market contestability test to exempt some airports from detailed price regulation (though not from the ICAO principles) if they face sufficient competitive power or are small operators in relation to the relevant market.

A market contestability test assesses which airports have market power that is both material and facing limited constraints and should therefore be subject to regulation. Box 1 provides case studies of how such a test is used in the UK and Australia, including the uncertainties it can create if it is arbitrary or not clearly defined.

An effective market contestability test should not simply be based on arbitrary cut-off level, but should take into account the following three stages:

- **Is the airport of a sufficient size within its national or regional market to enjoy a position of market power?**

This test considers the relative, as well as the absolute, size of an airport within the market in which it operates. A degree of market power can be assumed to exist if an airport accounts for a certain percentage, for example 10%, of traffic within the relevant regional or national market.

<sup>2</sup> For example, the 1997-2002 CPI-X price-cap regulatory period for Australian airports is considered to have imposed too high an X value for some of the smaller airports, particularly Perth and Adelaide. If X is too high, the efficiency targets can be unachievable. This exposed the airports to greater financial instability and weakened support for price-cap regulation within the Australian government.

## BOX 1: MARKET CONTESTABILITY

### i) United Kingdom Airports:

Airports with an annual turnover in excess of £1 million must obtain permission from the Civil Aviation Authority (CAA) to levy airport charges. Once permission has been granted, the CAA may add conditions to regulate the conduct of the airport in relation to its users. To date, the CAA has not initiated any such conditions, but has added conditions where an investigation by the UK Competition Commission has found that an airport has been acting against the public interest. It has also accepted undertakings from airports in lieu of a condition as to future conduct.

In addition, in 1986 the Secretary of State for Transport designated four UK airports (Heathrow, Gatwick, Stansted and Manchester) to be subject to five-yearly price cap regulatory reviews. The government retains the right to designate additional airports or to remove price cap regulation from any of the existing four designated airports.

The government's original basis for designation was not published, but its review of regulation in 1995 defined four criteria against which the designation of an airport would be assessed:

- its market position, including the extent of competition from other airports and other modes;
- *prima facie* evidence of excessive profitability or abuse of monopoly position;
- the scale and timing of investments and their implications for profitability; and
- the efficiency and quality of service.

The original four airports remain designated. The CAA's initial proposals for the next regulatory period from 2008 for three designated London airports

argues for the de-designation of Stansted on the basis of strong competition with other airports focused on the LCC market. The Office of Fair Trading has also called for a review of whether Manchester should be de-designated. However, the final decision on designation remains with the Secretary of State.

### ii) Australia:

The price monitoring regulatory regime in Australia currently covers seven airports (Sydney, Melbourne, Brisbane, Perth, Adelaide, Canberra, Darwin) based on the Productivity Commission's (PC) assessments of market power. These assessments focused primarily on the ability for airlines, or their passengers, to substitute away from the services provided by the airport (towards another airport, another destination or another mode of transport).

The Productivity Commission has recently proposed a modified airport price monitoring regime to apply for five years from July 2007, that is intended to provide explicit provision for airports and those using monitored services to comment on the reasonableness of charging and related outcomes. It proposes excluding Darwin airport from this regime due to lack of market power.

However, the PC has consistently failed to provide definitive criteria for market power and its misuse that, in IATA's view, weakens the system. Despite clear evidence of unjustified price rises, the PC argues that there has been no misuse of market power without fully explaining at what level market power would be considered to have been misused. This is used to justify the continuation of light-handed regulation rather than a return to price-cap regulation. Chapter 6 contains further discussion of the Australian airport regulatory system.

## PUBLIC OR PRIVATE OWNERSHIP

- **Does the existence of competition, or the potential for it, provide a sufficient constraint on the market power of an airport?**

This stage takes into account the influence of location, ownership and the nature of major airline customers on the ability of an airport or ANSP to exploit its market power. For example, an airport focused on “footloose”, point-to-point, no-frills airlines is likely to face greater competition from other airports for airline traffic than a major hub airport at the centre of an airline’s route network.

- **If not, is the potential negative impact on economic efficiency sizeable and greater than the costs of imposing a regulatory framework?**

This stage assesses whether the size of the market failure is sufficiently large to justify regulation. For example, an isolated regional airport may not face substantial competition but, due to its small size, may not have a material effect on efficiency to justify the costs of regulation.

Therefore, economic regulation should exist for all airports unless (i) they fall below a threshold level based on their size relevant to the market, or (ii) in exceptional cases they are above the threshold level, but a market contestability test demonstrates that they face sufficient competitive constraints to prevent them from exploiting any market power.

However, in the case of (ii) above, it is also important to ensure that a clear process is established for the test to be reviewed, especially after a change of ownership, and for economic regulation to be re-imposed if conditions have changed. For example, an airport may not currently hold sufficient market power by itself and therefore be exempted from detailed regulation. But if that airport is then taken over by the owner of a nearby airport, a test must once more be undertaken to see if joint ownership means that economic regulation should be re-imposed.

The case for independent regulation is tied to the issue of market power of an airport or ANSP, not its ownership structure. Indeed, where market power exists, public sector ownership does not provide a sufficient constraint on the ability to exploit this power. Independent economic regulation has been introduced for public sector companies (e.g. Dublin Airport Authority) as well as private sector companies (e.g. BAA).

The assumption has often been that publicly or locally owned airports have the incentive to keep prices close to costs and to provide the range of services that users want. Local public sector owners are seen as having a strong interest in the performance of the airport, since it can stimulate local development and many of its users will be local residents. However, this assumption has often been far removed from reality. Public sector owners are often not as rigorous in improving cost efficiency and can be prone to empire building (i.e. constructing excessive new investments that are not needed by airline users). Empirical evidence does point to airports with public sector ownership being less efficient than airports in the private sector<sup>3</sup>.

Privatisation offers the potential to improve efficiency, bringing in commercial management incentivised by profits. Partial privatisation can also introduce commercial motivations, while retaining a public sector influence. However, privatisation without the constraint of competition or regulation creates the potential to exploit pricing power and to maximise profits without also maximising efficiency. Even retaining a degree of public sector interest or control through a partial privatisation is often too weak to constrain market power. Indeed, research has shown that partial privatisation where the public sector still has majority control can lead to conflicting priorities that create more inefficiency than under public sector ownership<sup>4</sup>.

Therefore, economic regulation is justified for airports and ANSPs where constraints on market power (in terms of both pricing and service quality) are insufficient, regardless of whether it is publicly or privately owned. Indeed, as shown by the examples in Box 2, independent regulation is particularly needed in advance of any transition from public to private ownership. In several cases, governments have raised charges and allowed returns in advance of privatisation in order to boost investor interest and their receipts from the sale. This exploitation of economic rents through market power comes directly at the expense of airlines and their users.

<sup>3</sup> See Oum, Adler and Yu, (2006) “Privatisation, corporatisation, ownership forms and their effects on the performance of the world’s major airports”, *Journal of Air Transport Management* 12.

<sup>4</sup> See Oum, Adler, Yu, *ibid*.

## BOX 2: EXPLOITATION OF RENTS PRIOR TO PRIVATISATION

### i) Aéroports de Paris:

The French Government used an Initial Public Offering to sell a 30% stake in Aéroports de Paris in June 2006. The sale raised over €1 billion in receipts for the government and valued ADP at around €4.5 billion.

Prior to the IPO, the French government announced that it would allow ADP to raise its user charges by 5% per annum between 2006 and 2010. This increase is additional to the 26.5% increase in charges introduced over the five years to 2005. Even before the proposed increase, Paris Charles De Gaulle airport was the second most expensive airport in Western Europe for airline users and the seventh most expensive in the world<sup>5</sup>. Decisions on future charges ultimately remain with the French government rather than an independent regulatory body.

IATA is undertaking a legal challenge to this rise. We believe that the increases were designed in part to boost the government's IPO receipts and the future share price rather than reflecting any improved service or agreed investment plans. IATA had proposed that charges be reduced by 3% per annum in line with achievable efficiencies.

Investors have noticed the availability of monopoly rents. By February 2007, the share price of ADP had risen by nearly 50% since its IPO, well above the 20% increase in the French CAC stockmarket index for the same period.

### ii) Deutsche Flugsicherung (DfS):

In 2006 the German government announced its proposals for the privatisation of DfS, the German ANSP. Though privatisation has been delayed until 2007, the government's initial proposals suggest that they are following a similar pattern of generous allowances to DfS in order to boost its sale price.

The privatisation proposals included plans to introduce a 12.8% increase in en-route charges and an 11.4% increase in terminal navigation fees. In addition, it allowed a very high 9.4% return on its asset base, over 2 percentage points higher than that allowed for its privatised UK counterpart, NATS, and excessive for the level of risk and investment involved. Airline users are also expected to cover the €780 million shortfall in DfS' pension fund, even though previous privatisations of Deutsche Telekom and Deutsche Post saw the federal government assume responsibility for any pension deficit.

The privatisation process should be focused on delivering safer and higher quality services with greater efficiency. It should not be used as a short-term fix to boost government revenue that comes at the expense of a negative impact on the user and wider economic benefits generated by the aviation industry.

<sup>5</sup> See Transport Research Laboratories (TRL), Review of Airport Charges 2005.

## A POTENTIAL WIN-WIN SITUATION

A well-designed and effective framework can provide benefits for both users and for regulated companies. An incentive-led process helps to improve efficiency, often through consultation with users who experience several aspects of service quality and can provide constructive help.

It can also improve the business investment planning process, delivering capital investment in accordance with the needs of existing users while also safeguarding the rights of potential new users. Independent and transparent economic regulation can reduce uncertainty on both sides, helping to reduce investor risks and financing costs.

An independent economic regulatory framework can both constrain the market power of an airport or ANSP and provide a long-term boost to efficiency and investment. In some cases, for example in Australia, the market power of airports is recognised but a price-cap regulatory system is not put in place because it is perceived as involving too high a cost and providing a disincentive for investment.

However, this does not appear to be the case in practice. If used correctly, regulation is not a “zero-sum” game, where a financial gain to one side is equivalent to a financial loss to the other. Both sides can benefit from good regulation, in terms of greater efficiency and low financing costs.

For airports, a key benefit comes from stable and low debt costs. A well-structured, independent regulatory regime is seen by credit rating agencies as a “credit positive”<sup>6</sup>, helping to boost credit ratings and lower debt financing costs. Fair and transparent regulation reduces – not increases – risk and uncertainty for airports. Less risk means that investors provide capital at stable and low rates, supporting investment for long-term growth.

Evidence from the credit rating agencies shows no sign that airports under effective, independent economic regulation have higher financing costs. Indeed, credit ratings for airports can actually suffer downward pressure when the airport looks to expand outside its core regulated business.

Regulation can also help to mitigate negative factors for credit ratings in the sector, for example:

- The frequency of regulatory reviews provides important safeguards.
- Good regulation provides clear and up-to-date information on costs, efficiency and outputs.
- Good regulation helps to provide sufficient liquidity for large investments, where efficiently delivered, and flexibility in the event of negative external factors.
- Regulation can provide investors with time-consistent assurances on the recovery of sunk costs, reducing the risk of any investment in assets becoming stranded.
- Airports remain customer focused through frequent consultations with end users.

The stability provided by an effective regulatory framework, and the boost this can provide to credit ratings, can help to attract longer-term investment finance into the industry that is appropriate for the long-term timescales of major new investments.

The capital intensive, infrastructure nature of airports and ANSPs requires long term investors with long term horizons. Regulation can help to avoid the potential volatility in infrastructure asset prices that is often associated with short-term speculative finance.

Effective regulation can act as a powerful catalyst to improve consultation and co-operation between infrastructure providers and users on both day-to-day operations and new investment. It can ensure that investment is undertaken for sound financial reasons, though requires openness and co-operation by all parties.

In effect, the catalyst for greater consultation can lead to less reliance on the regulator over time, though this requires retaining a credible threat that if negotiations fail a robust regulatory framework remains in place to protect airline users and their customers.

<sup>6</sup> See Standard & Poor's presentation “The Role of Rating Agencies” at Oxera's conference “The Future of Infrastructure Regulation”, May 2006, London.





# 04 | The Scope of Independent Economic Regulation

Once the case for independent economic regulation is established, an appropriate framework for regulation should be put in place. Regulation is most effective within a specific national aviation regulatory body, with reviews undertaken on an individual airport or ANSP basis.

The time-specific nature of regulation raises potential problems associated with regulatory consistency and regulator capture. As such, a degree of regulatory benchmarking at a “supra-national” level is welcome, in order to share best practices.



The regulatory framework must contain effective and credible institutions to implement regulatory decisions and a neutral body to which both airline users and the regulated infrastructure company can appeal to if there is a dispute. These institutions represent the necessary components of the regulatory framework and must be consistent with the key regulatory principles of independence and transparency.

However, regulation is, by its nature, time-dependent and location-dependent. Different time periods and different airports or ANSPs offer different objectives and challenges. As such, once an appropriate institutional framework is established, the regulatory process itself must also allow for a degree of flexibility to ensure regulatory decisions are optimal for each regulated company and for each regulatory period.

## A CREDIBLE REGULATORY FRAMEWORK

The regulatory framework must have credibility amongst the regulated companies and their airline users in terms of the fairness and robustness of decisions and the threat of penalties in the event of poor performance. Therefore, the institutional framework should reflect the following key factors:

### **Independence of direct control from government departments or airport authorities.**

Independence relates to the operational freedom of the regulatory body. In most cases, governments will set broad regulatory objectives, along with personnel and administrative budgets. However, once specific objectives (or statutory duties) and the level of resources are set, the regulator should then be allowed to make decisions on an independent basis.

### **Transparency and consultation.**

Transparency is a requirement of ICAO policies and recommendations and is a fundamental part of a country's obligation under the International convention. It is required for both the process by which regulatory decisions are made and for the expenditure and investment plans of the regulated company. Information on key historic and forecast performance indicators, business strategies and planned investments should be available for consideration. Airline users and other stakeholders should be consulted on these proposals and given the opportunity to comment on them and to propose alternative courses of action.

### **A neutral dispute settlement mechanism.**

Once a regulatory decision is reached, both the regulated company and its users should have the right to appeal against the decision to a neutral body. Typically the neutral body will be the national competition authority<sup>7</sup>. This provides an additional safeguard within the framework against regulatory failure, with the risk that the regulatory body itself can reach sub-optimal decisions. In most existing regulatory frameworks, the neutral appeal body is the national competition policy authority. In the case of the UK, each airport or ANSP regulatory price-cap review is automatically referred to the UK Competition Commission for consideration before it is finalised, sometimes with significant changes made to the initial regulator's decision<sup>8</sup>.

### **Enforceable penalties for poor performance.**

Effective regulation also requires a credible threat of penalty measures in the event of regulatory targets not being met. In other words, the regulated company must believe that penalties will be enforced if it is shown to have abused its market power. As discussed further in chapter 6, in Australia and New Zealand this has not been the case. Both Auckland and Sydney airports have been shown to have used their market power within a light-handed regulatory regime, yet the supposed threat of a return to tighter price-cap regulation has not been enforced.

<sup>7</sup> This neutral body will have a different term of reference to the airport or ANSP regulator and therefore can adopt a different approach. For example, for Australian airports the Productivity Commission is focused on economic efficiency, but the ACCC's role is focused more on the effects on consumers. Alternatively, an appeal body may review a regulator's decision solely on the basis of law and facts presented.

<sup>8</sup> For example, in its consideration of the UK CAA's proposals for the 2003-08 price-cap for the designated UK airports, the Competition Commission opposed the CAA's proposals to move from single-tilt to dual-tilt regulation on the basis that it could not be justified on economic efficiency or public interest grounds. However, the Competition Commission also proposed regulating the three London airports as a system, which was not implemented by the CAA who regulated each airport on an individual basis.

## REGULATORY TIME-CONSISTENCY

Regulation is time-dependent. The regulatory decisions that are appropriate for one time period may not necessarily be the best decisions for another. From experience, there does not appear to be any particular optimal length for a regulatory control period (especially as investment requirements were not as high as they currently are), though a period of between three and five years has typically been chosen. As such, regulatory decisions that affect both short and long term timescales are typically reviewed every three to five years.

The time-specific nature of regulation raises three key risks that need to be addressed:

### **Inflexibility against major shocks within a regulatory period.**

A regulated company does face the risk of external shocks impacting on its ability to meet its regulatory targets. In many cases, this is part of the risk-sharing burden and should not lead to any regulatory change. However, in extreme cases (such as for NATS in the UK post-9/11 or as proposed for Dublin Airport due to a significant change in investment plans) an interim review may be required. However, tight restrictions are required to ensure such reviews are for extreme cases only. For example, the August 2006 UK airport security scare was an external shock but one that could have been addressed through better contingency planning. It should not be used as an excuse to defer or even remove existing regulatory targets and service quality standards.

### **Regulatory inconsistency for long-term infrastructure investments.**

Major investment decisions need to be based on a long-term strategic plan that involves the input of all stakeholders, including airports, users and governments. However, regulation can have an impact on the timing and cost of this investment. Airports and ANSPs often argue that the long-term nature of major infrastructure investments is inconsistent with remuneration set by the regulator across a series of shorter regulatory periods. Therefore, they argue, investment is discouraged if they do not have the certainty that the regulator will provide consistent returns over a longer time-scale.

However, regulatory consistency does not and should not mean that investment should have risk-free, guaranteed returns into the future. A consistent and credible regulatory framework can provide a strong foundation for investment (as seen by the potentially higher credit ratings within a strong regulatory regime). In addition, chapter 8 discusses other measures, such as a split cost of capital, which can be used to provide greater incentives for long-term investment.

### **Regulator capture by the regulated companies.**

The last couple of years of a regulatory period can sometimes be characterised by regulated companies focusing their attention on the regulator rather than on their airline customers. Each stakeholder is involved in a regulatory game, providing proposals and evidence to the regulator to secure a more favourable outcome. In this game, the detailed information that the regulated company has on its costs and investment plans is not always revealed. The problem of asymmetrical information needs to be minimised, otherwise a regulator may base its decision on outturn expenditure levels (i.e. be 'captured' by the company's view) rather than provide incentives for more efficient expenditure levels to be reached. To minimise this problem, clear objectives of statutory duties must be established for the regulator at the outset. It also requires enforcement powers for the regulator to ensure that the regulated company shares its data, but also potentially an incentive structure for the regulated company to enter into more transparent negotiations with the regulator and with airline users<sup>9</sup>.

As such, the regulatory framework requires flexibility in its operational procedures to adapt to different objectives and to address the risks associated with relatively short regulatory time periods. It should also recognise the trade-off between the scope of regulation and the administrative burden. A flexible and effective framework makes regulatory decisions where necessary but also acts as an independent mediator where interests are best served through fair and transparent negotiations between users and airports and ANSPs.

<sup>9</sup> For example, the UK electricity regulator (Ofgem) offered the regulated electricity distribution companies a choice of different regulatory schemes offering different rewards. The choices are based on different outcomes of actual versus forecast expenditure – giving higher rewards for companies that have been honest and transparent about their expenditure plans.

## REGULATION BY INDIVIDUAL AIRPORT OR ANSP

Economic regulation will be most effective on an individual airport or ANSP basis, with the decisions made on a basis appropriate to the key objectives in each case. It should reflect the difference in circumstances or objectives for each regulated entity – for example, a capacity constrained airport will primarily need new investment, an inefficient airport will primarily need improved productivity.

System regulation, that sets a price cap for more than one airport or ANSP, can lead to sub-optimal decisions. Users at one airport may face higher charges in order to cross-subsidise users at another airport in the system. Alternatively, a company that is constrained in investing at one airport may do so at another even if the commercial returns are not feasible.

Cross-subsidisation is neither economically or operationally efficient. For example, evidence has shown that BAA has previously used its market power at Heathrow airport to develop new capacity at Stansted airport, well in advance of when it was needed, even though it was not commercially justified<sup>10</sup>. The use of an airport's own asset base and risk profile to set its allowable return reduces the ability of an airport owner to subsidise premature or gold-plated investment either at the airport or elsewhere within its group.

Nevertheless, regulation at an individual entity level does not mean a separate regulator for each entity. The significant resources and expertise involved in airport and ANSP economic regulation mean that there are economies of scale from having a single national aviation regulator to conduct reviews of each individual entity or, in the case of small countries, a national regulator of utility industries that includes regulatory jurisdiction over airports and ANSPs.

A “supra-national” regulator (e.g. one Europe-wide aviation regulator) is likely to be less efficient, potentially reducing average regulatory costs but also weakening the focus on the objectives and efficiency targets within each country. However, as discussed in the next section, a “supra-national” forum can be useful in terms of benchmarking regulatory performance and sharing best practice.

## REGULATORY BENCHMARKING

Regulatory frameworks, like the companies they regulate, will benefit from a performance assessment. This can minimise the risk of regulatory failure and provide an incentive for improved performance. As such, an international or regional forum can provide a useful role in benchmarking performance and in sharing new approaches to regulation and established best practice techniques. Benchmarking could assess the progress made by Governments in ensuring that an appropriate and independent regulatory framework is established. It could also assess the performance of regulators once in place, though with a focus on efficiency and investment outcomes rather than specific price-cap or service quality targets.

The European gas and electricity market provides an example of regulatory benchmarking. The European Commission produces an annual scorecard on each country's progress in liberalising its gas and electricity markets and in regulating distribution networks. It “names and shames” those countries that are slow in implementing liberalisation and whose markets are not efficient or not cost-effective. A forum is also established for European gas and electricity regulators to meet regularly and to share best practice.

A similar structure can be envisaged for the airport and ANSP sector. This is particularly relevant for Europe in light of a proposed airport charges directive, but could also apply to other regions. In the European case, the key is ensuring that the directive is both strong (focusing on the need for greater efficiency and cost-effective investment) and appropriate (covering only airports or ANSPs that can exercise market power). However, once a directive is in place, procedures can be established to:

- Provide annual reports on the functioning of the airport market and the implementation of the directive.
- Name and shame the countries that have not fully implemented the directive and whose airport markets are not efficient and cost effective.
- Publish benchmark costs and charges. If the airports or ANSPs disagree with the figures they should publicly explain why.
- Establish a European airport and ANSP regulators group.

<sup>10</sup> Starkie, D (2004), “Testing the Regulatory Model: The Expansion of Stansted Airport”, *Fiscal Studies*, vol.25, no.4.

## SINGLE-TILL VS DUAL-TILL REGULATION

The range of airport and ANSP revenues and costs that are subject to economic regulation is a crucial influence on regulatory decisions and outcomes. There is no uniform agreement on the scope of revenues and costs that are included, with actual and proposed regulatory systems typically adopting one of the following approaches:

### Single-till regulation

Under a single-till, all costs and revenues are taken into account in determining allowed rates of return and/or a general price cap, irrespective of whether those services can be defined as aeronautical or non-aeronautical or whether those services are considered to be contestable or not.

The regulated airport or ANSP determines its individual charges for aeronautical and non-aeronautical services within this overall revenue constraint. Examples of use of the single till system include the United Kingdom, Singapore's Changi airport and most airports in the United States.

### Dual-till regulation

Under a dual-till, aeronautical and non-aeronautical services are treated as distinct.

For aeronautical services, allowable revenues cover the directly attributable costs (including a return on assets) of providing these services, as well as a contribution to costs that are common to both aeronautical and non-aeronautical services.

Non-aeronautical services that are deemed not to be contestable are subject to the same regulation, i.e. revenues cover directly attributable costs and a contribution toward common costs. Non-aeronautical services that are considered to be contestable are not subject to regulation. Examples of use of the dual-till system include Australia, New Zealand and some airports in Germany.



IATA recommends a single till approach that determines the level of revenue and return required and the user charges to be set on the basis of all services at an airport, irrespective of whether they are aeronautical or non-aeronautical.

The approach is justified because there is an interdependency between the passengers airlines bring to airports and the non-aeronautical revenues (e.g. retail) they provide for airports. As airlines have delivered the customers to make non-aeronautical operations at airports profitable, it is reasonable that they should also share in their benefits.

The dual-till is more consistent with systems in place in other regulated utility sectors (e.g. electricity), but these other industries do not have the characteristics of interdependency seen in the aviation sector.

## A single-till approach is recommended for the following reasons:

### Greater productive efficiency.

Other things being equal, the single-till would lead to lower airport user charges over the longer-term than the dual-till, with the difference reflecting a proportionate share of non-aeronautical profits. This ensures that operators are incentivised to minimise costs on both the aeronautical and non-aeronautical sides<sup>11</sup>. Lower charges are also passed on to airline customers through lower fares,

encouraging more productive use of an airport's capacity. A switch to a dual till system would see a significant transfer of income to airports from airlines and/or their passengers, potentially undermining regulatory credibility and creating regulatory uncertainty.

<sup>11</sup> A Zhang, "Alternative Forms of Economic Regulation and their Efficiency Implications for Airports", concludes that airports under a single-till price cap have significantly higher capital input productivity. The paper also argues that single-till is less effective for dynamic efficiency (i.e. new investment) though this argument is not fully supported by evidence in other articles (see next footnote).

### **A greater constraint on market power.**

By calculating allowable revenues on the basis of total airport costs (including capital costs), it ensures that airport operators earn a reasonable return on total assets, while preventing them from exploiting their market power. A dual-till system leads to the derivation of monopoly rents, with an over-recovery of costs as commercial revenues are maximised and kept in full and aeronautical costs are fully recovered from airline users.

### **Practical to apply.**

Airport operators are free to recover costs through any charging structure they deem suitable. By contrast, under a dual-till system it is difficult, in practice, to allocate both investments and operating costs between aeronautical and non-aeronautical activities. To the extent that some of the judgements that have to be made are arbitrary, future disputes about cost allocation could harm relations between the airport and its users.

### **No clear evidence that it acts as a barrier to investment.**

Single-till regulation can mean that charges are relatively low at capacity-constrained airports but, by itself, this does not produce a barrier to new investment. Indeed, other factors such as planning constraints are likely to have a larger impact on investment decisions<sup>12</sup>. Instead, the single-till increases the efficiency and attractiveness of airports and ensures that operators take into account the total, not partial, returns from new investment

### **Investment and/or secondary slot-trading, not a dual-till system, better address congestion.**

Under the single-till, as traffic grows over time, increased retail profits would see the price cap set at a lower level in each review, even at congested airports. Therefore, it can lead to a situation where one of the busiest airports in the world has low and declining charges. However, higher demand volumes should provide a sufficient trigger for new investment decisions while other schemes, such as secondary slot-trading, may help to ease congestion in the short-term. There is no clear evidence that a dual-till system would automatically relieve congestion, instead it would provide greater monopoly rents to the airport.

Nevertheless, dual-till regulation has been adopted in some countries. Indeed, the objectives of some governments to maximise revenue from the lease or sale of airport infrastructure often results in their support for the dual till. The outcome often observed under the dual till system is consistent with some degree of over-recovery of costs.

A dual-till system may encourage greater dynamic efficiency in the provision of non-aeronautical services, but this can sometimes create the risk of lower service quality standards on the aeronautical side. For example, if an airport devotes too much space to commercial activities it can negatively impact upon the speed and comfort of passengers using the terminal.

It can also negatively impact on allocative efficiency, as price sensitive airline customers are deterred by higher fares as a result of higher user charges (i.e. airline load factors are reduced).

In such cases, the user charges will be higher than otherwise, so it is important that the regulatory framework contains sufficient credibility to pursue greater efficiency and productivity from airports, with mechanisms to share improvements with users and to punish poor performance. It is not sufficient to believe that the dual-till approach acts as an effective incentive by providing 'something to lose' (i.e. by a return to single-till in the future), as experience in Australia and elsewhere has shown that these threats are often not viewed credibly.

If a dual till is adopted, the airport operator must commit to a service charter that sets out the general performance principles, criteria and measures to be adopted to ensure that no deterioration of service standards occur. As airlines deliver customers to airports, a dual-till framework could also provide an option for airlines to invest (e.g. take an equity stake) in non-aeronautical investments to ensure that they are appropriate for user needs and to share the risks and rewards.

<sup>12</sup> See D. Starkie, "Investment Incentives and Airport Regulation", in the December 2006 edition of the Utilities Policy Journal. In addition, in 2003 the UK Competition Commission found no evidence that the single till system has led to under-investment in aeronautical assets at the three BAA London airports in the past, nor did it have any expectation that it would do so over the next regulatory period.

## DEFINING AND VALUING AN APPROPRIATE ASSET BASE

Another crucial influence on regulatory decisions and outcomes is the scope adopted in defining and valuing a regulatory asset base (RAB) on which an allowable return is calculated. In accounting terms, the RAB represents the capital investment in the business, for which a return is required, and its depreciation represents the use of capital over its life-cycle.

There are several different approaches to calculating a RAB. However, each approach must ensure that the RAB represents a true reflection of the capital invested by the airport or ANSP operator and the risk that it takes. It should not allow airports or ANSPs to exploit their monopoly power by artificially inflating asset values in order to increase their total returns.

For example, the standard approach adopted for utility industries (including airports) in the UK and Ireland is to calculate the RAB in accordance with the value that investors initially placed in the company at the time of privatisation, based on its enterprise (debt plus equity) value.

If the assets were undervalued at the time of privatisation it can result in a gain to the company (e.g. in terms of a subsequent uplift in equity market capitalisation) but not one that customers should be forced to pay for through higher charges on a revalued asset base. The RAB is changed for each regulatory control period on the basis of incurred capital expenditure, depreciation and expected inflation.

### BOX 3: LAND REVALUATION

#### i) New Zealand:

Auckland International Airport Limited (AIAL) revalued its own asset base in July 2006, increasing the valuation by NZ\$1.4 billion, or 123%. This asset revaluation led to a corresponding increase in the “property, plant and equipment revaluation reserve” included under Shareholder Equity on the AIAL balance sheet, reducing its gearing ratio from 66% to 33%.

The higher asset base and lower gearing ratio (that increases the weighted cost of capital through a higher equity share) are likely to be used as justification for higher user charges. If these artificially higher values were applied, airline charges could be expected to increase by NZ\$35-40 million (over 50%), despite using the same assets and with no change in efficiency or service quality.

AIAL is currently subject to light-handed regulation, despite having previously been found by the NZ Commerce Commission to have exploited its market power. In the absence of formal regulation, the freehold held by AIAL allows them to make the change through accounting practice, with no protection against the exploitation of market power over airline users unless (and very unlikely in the current climate) the government enacted new legislation to stop the revaluation.

AIAL's Earnings Before Interest and Taxation (EBIT) margin was 66% in its fiscal year 2006, by far the highest EBIT level among the top 50 airports in the world.

#### ii) Australia:

Several of the price monitored Australian airports attempted to raise their land values in keeping with increases in land prices in surrounding areas, and to reflect those higher values in higher aeronautical charges from 2007 onwards.

The Australian Productivity Commission's October 2006 Draft Report on its review of airports accepts that land revaluations can represent unearned windfall gains to airports but, due to it previously not having a stated view, proposes that “revaluations made by airports up to 30 June 2005...should be allowed to stand, but any subsequent revaluations should be excluded.”

While IATA fully supports the PC's stance that land revaluations should not be used to justify increases in airport charges, it does not see any justification for future increases in charges that can be based on revaluations made before 30 June 2005 (the last revaluation in the Regulatory accounts). Land revaluations represent unearned windfall gains. Its valuation should reflect the value at the time of privatisation and while the land is owned by government and/or restricted to an airport use only there can be no land revaluations.



By contrast, airports in Australia and New Zealand have attempted to use a more light-handed regulatory system to artificially increase their asset base in relation to the higher opportunity cost of the land they hold (see Box 3 for more details).

The resulting overvaluation of the asset base is unjustified, unfair and inefficient. It merely creates unearned returns (i.e. windfall gains) for airports, with no link or incentive for improved efficiency or service quality. In addition, much of the aeronautical land is either designated for aviation use or impractical for other uses.

When there is no feasible alternative use, the opportunity cost valuation has no clear basis.

In terms of calculating the RAB, land should be treated as a store of value for airports, unlike depreciating assets such as terminal buildings.

This investment value can be realised if the assets are sold, but changes in its value do not reflect changes in airport quality or efficiency. Therefore, the asset base (and, therefore, user charges) should only be adjusted where an additional cost is incurred in purchasing new land to expand or improve services, and this land is in operational use<sup>13</sup>.

## CALCULATING THE ALLOWABLE RETURN ON THE REGULATED ASSET BASE

A regulator also needs to determine an allowable rate of return on the regulated asset base of the company. This total return (i.e. rate of return multiplied by the regulated asset base) is the “profit” element for the regulated firm, and is added to operational expenditure to determine the total allowable revenue for the regulatory period.

The return that is allowed to be earned on a regulated asset base is typically based on the calculation of a weighted average cost of capital (WACC). The WACC is the level of expected return required by financial markets to provide capital to a firm for a given level of risk. The calculation of the WACC is often complicated, producing a range of possible values from which the regulator makes a determination of the actual value. However, it is an extremely important part of the regulatory model. Small changes in the WACC can have a major impact on the level of the price cap that is set.

**The basic calculation for the WACC is:**

$$\text{WACC} =$$

$$\begin{aligned} & (\text{SHARE OF DEBT} \times \text{COST OF DEBT}) \\ & + \\ & (\text{SHARE OF EQUITY} \times \text{COST OF EQUITY}) \end{aligned}$$

However, the final WACC determined by a regulator can vary, depending on whether it is calculated on the basis of pre or post-tax levels and whether it is in real or nominal terms. For example:

$$\text{WACC (PRE-TAX)} =$$

$$[g \times R_d] + [(1 - g) \times R_e]$$

$$\text{WACC (POST-TAX)} =$$

$$[(1 - t) \times g \times R_d] + [(1 - t) \times (1 - g) \times R_e]$$

NB. Where: *g* is the gearing level; *t* is the rate of corporation tax; *R<sub>d</sub>* is the pre-tax cost of debt; *R<sub>e</sub>* is the pre-tax cost of equity.

<sup>13</sup> The purchase or leasing of additional land should be set out in a long-term strategic development plan that has been discussed and agreed to by all stakeholders, including airline users and governments.

The WACC is typically fixed in advance for the whole regulatory period. The cost of debt is set in relation to the firm's balance sheet and its credit rating. The cost of equity component is calculated using the Capital Asset Pricing Mechanism (CAPM). The CAPM links the return an investor earns on an asset to the return on risk-free assets and the return on the equity market as a whole.

In other words, it sets the cost of equity in accordance with the risk for the firm against the market average. The weight applied to the debt and equity components is subjective, sometimes based on a projected or targeted gearing levels rather than the actual gearing level at the time of the review.

However, the process involved in calculating the WACC raises some issues that need to be taken into account:

#### **Regulatory discretion.**

On some occasions a range for the WACC has been calculated in detail, but the regulator has determined a value at the high end of the range based on its own perception of risk<sup>14</sup>.

#### **Changes in gearing levels.**

The gearing level of a regulated firm can change significantly, especially if new investment is funded primarily through debt. Firms can be allocated an excessive WACC based on their capital structure at the start of the period, even though debt funded new investment actually increases gearing levels and lowers the actual WACC.

A regulator can attempt to anticipate this by using a projected gearing level (e.g. for NATS in the UK) or an assumption of the optimal gearing level for the firm during the regulatory period.

#### **Low interest rates have given regulated firms a windfall.**

With historically low interest rates over the last few years, the actual WACC has typically been lower than levels allowed for by regulators. Though the WACC is set on the basis of the cost of equity and debt, firms have typically relied on debt as the main source of external finance for new investment.

For example, across all of the UK regulated infrastructure companies there have only been two equity rights issues since privatisation. Debt-led investment has not only enabled the difference between the lower cost of debt and the WACC to be reaped by regulated firms rather than customers, but it has also constrained the options for management with regard to new investment through the need for higher and faster cash-flow returns.

<sup>14</sup> For example, in the UK CAA's 2003 regulatory review of BAA's London airports it calculated a range of 5.67% to 8.76% for the WACC (midpoint 7.21%), but determined a final value of 7.75% based mainly on its own assumption of the risks associated with investment at Heathrow.





# 05 | The Options for Independent Economic Regulation

Price-cap regulation is the most effective regime for improving airport and ANSP efficiency. However, additional incentives and consultative processes must be built in to the standard CPI-X framework to ensure that an appropriate balance is achieved between greater efficiency for existing assets and timely and cost-effective new investment.

Light-handed regulation, designed to reduce the cost burden of regulation, can only work if there is a credible penalty mechanism. In many examples, this has not been the case.

From the airport and ANSP regulatory systems that have so far been implemented there is no evidence of any convergence towards a favourite model. Various systems have been used, reflecting differences in objectives and in operational structures. The advantages and disadvantages of each system are discussed below.

IATA believes that price-cap (CPI-X) regulation, or a variant of it, is the most appropriate mechanism for incentivising improvements in efficiency and service quality. However, to ensure that a price-cap regulation system can deliver both ongoing improvements in efficiency and sufficient incentives for timely and cost-effective new investment the system also needs to:

**Ensure it does not revert to rate-of-return regulation over time.**

Price-cap regulation requires significant amounts of information on cost levels and the potential for efficiency gains. Asymmetries in available information mean that the optimal cost level is often not revealed or is too resource intensive to discover. As such, price-cap regulation can be based on historic rather than potential costs, effectively turning the system into a rate-of-return regime. An appropriate balance is needed between the risk of excessive administration costs in obtaining the information and the risk of setting charges on the basis of historic rather than achievable lower costs to ensure that price-cap regulation remains effective over time.

**Contain sufficient flexibility and incentives to encourage new investment.**

Major investment decisions need to be based on a long-term strategic plan that involves the input of all stakeholders, including airports, users and Governments. However, regulation can have an impact on the timing and cost of this investment. As the focus shifts at capacity constrained airports or ANSPs towards the need for timely and cost-effective new investment, the price-cap system needs to be flexible. This may involve a variety of supplemental measures, such as consultation with users on investment plans and separate incentives on the timing and available return for large, long-term investments. However, an effective price-cap regime must still remain on existing assets, to ensure that efficiency in day-to-day operations is not neglected during a period of new investment.

## RATE-OF-RETURN REGULATION

A rate-of return regulation system, or weaker variants of it, is the traditional model for determining the level of revenues (and therefore user charges) for airports and ANSPs, especially those within the public sector. It is effectively a “cost-plus” system whereby airports and ANSPs are remunerated on a full cost recovery basis, plus an additional return as a profit or reserve component.

Rate-of-return regulation has largely fallen out of favour as airports and ANSPs have become increasingly commercialised and, in some cases, privatised. Nevertheless, in some cases, such as Düsseldorf airport, it has still been chosen as the main form of regulation for an airport that has recently been privatised.

Supporters of the system highlight the benefits it provides in terms of long-term consistency and incentives for investment, as airports and ANSPs are assured sufficient revenues. It also provides protection against external shocks for airports and ANSPs (though not for their airline users). However, these benefits are outweighed by some significant disadvantages:

**Little incentive for cost minimisation.**

As airports and ANSPs receive a full cost recovery there is little incentive for them to deliver those costs in the most efficient way. As well as no additional reward for further efficiency there is also no penalty in the case of poor performance.

**Too high an incentive for an over-expansion of capacity.**

As the additional return earned by an airport or ANSP is related to the size of its capital base, there is a strong incentive to increase this base through new capacity regardless of whether demand for this capacity exists. The incentive is not just for unnecessary new capacity but also for the “gold-plating” of new investment, delivering high-quality new facilities that have no practical or commercial need.

**Misallocation of resources.**

Therefore, a rate-of-return system can lead to scarce resources being misallocated to unnecessary or excessive investment rather than improved efficiency for existing assets. Moreover, it also leads to a misallocation of risks and returns within the industry, with infrastructure providers enjoying stable returns while airline users face the full cost burden of any external shocks.

## PRICE-CAP REGULATION (CPI-X)

There are alternative versions of a rate-of-return system that can partially address some of these problems. For example, in the United States a form of earnings sharing or profit sharing regulation is common, especially in cases where airlines have direct investment stakes in airport terminals and other facilities.

Such a system sets allowable costs in reference to actual costs, but not entirely. It creates some incentive for improved efficiency but still faces the fundamental problem of little control on an over-expansion of capacity and insufficient progress towards the optimal levels of costs and service quality.

Price cap regulation sets an allowable level of revenues for a regulated company – based on projected efficient cost levels and a cost-of-capital rate of return – along with a CPI-X profile<sup>15</sup> for user charges to reflect a sharing of efficiency gains (or of additional investment costs). Price-cap regulation has been adopted in the UK and Ireland and some parts of Continental Europe. It was also adopted initially in Australia, though the regime has since been changed to light-handed price monitoring.

The key objective of price-cap regulation is to give the regulated firm a strong incentive to deliver cost efficiency improvements and to eliminate its ability to exploit its market power to raise both user charges and profits. The regulated firm is incentivised to improve cost-efficiency because if actual costs are less than that projected by the regulator the firm can keep them as profits, but if they are higher than projected the extra cost will not be remunerated. The CPI-X price-cap is only for an average price. Airports and ANSPs can adopt different pricing structures within the overall price cap with regard to the type and weight of different aircraft and, in theory if not in practice, can also adjust costs according to peak times for capacity use.

Determining an appropriate X within the CPI-X price-cap is central to the viability and success of regulation. If too small an X is imposed (or too high an X value in a CPI+X determination) the regulated firm can earn excess profit and undermine the credibility of regulation. If too high an X is imposed the financial viability of the firm could be threatened and, as in the case of smaller airports in Australia, it could reduce the support of governments and investors for regulation. Therefore, the objective is to find an X value that provides a challenging, but not unachievable, target for firms and which promises to provide clear efficiency and productivity improvements<sup>16</sup>.

Setting a price-cap is intended to replicate the effect of competitive market forces. X should be zero if the firm is expected to increase its productivity and face the same rate of input cost inflation as other sectors in the economy. However, if it has the capability to improve productivity faster or limit its cost increases, these benefits should be passed on to users through an appropriate value for X. Therefore, X is determined after taking account of the regulator's view of demand growth, expenditure plans and efficiency potential. However, in some cases – such as London Heathrow airport since 2003 – an RPI+X profile

<sup>15</sup> CPI-X is the Consumer Price Index (i.e. the rate of inflation) adjusted for an efficiency component (i.e. X). It sets the level by which total nominal charges change each year within a regulatory period.

<sup>16</sup> See Bernstein and Sappington, "How to determine the X in RPI-X regulation: A User's Guide".

has been set to reflect increases in the asset base as major new investment is undertaken. An RPI+X profile can also provide efficiency incentives though, of course, it still relies on the correct value of X being set.

Price-cap regulation does have a strong track-record in terms of improving the efficiency of infrastructure assets. However, it does also encounter some practical problems that need to be addressed:

#### **Resource intensive.**

Price-cap regulatory reviews involve significant amounts of regulatory resource costs and time. In addition, the degree of complexity has increased over time as the objectives and practice of regulation have evolved. For example, in the UK the first review of BAA airports in 1991 took 12 months, determining a simple value of X. The review in 2002 took 32 months, setting a value of X with six trigger points and a service quality scheme covering 12 different parameters.

#### **Regulatory game playing.**

The regulated company has an incentive to take advantage of asymmetrical information in order to provide inflated expenditure and investment forecasts and to convince the regulator of the need for higher returns and a higher price cap. In particular, in the two years prior to each review the regulated company can be more focused on responding to the regulator rather than to the needs of customers.

#### **It can become based on actual rather than efficient costs.**

As discussed above, in light of asymmetric information and the need to reset CPI-X on a periodic basis, price-cap regulation can converge in practice towards a rate-of-return system if set on an actual rather than optimal level of costs. If, over time, the price cap starts or tends to resemble a cost-plus system, its ability to deliver ongoing incentives is reduced.

#### **An increase in volatility of profits for the regulated company.**

Setting price-caps across four to five year regulatory periods can also expose the regulated companies to volatility in profits, especially with regard to external

shocks. However, a large part of this potential volatility should be welcomed, as it represents a more appropriate sharing of risks within the industry. Airlines and their users cannot be expected to face the full burden of any external shocks. It should also incentivise the regulated firm to improve its contingency planning and response. Nevertheless, in extreme cases, force majeure clauses or an interim review can be used. However, in order to protect regulatory credibility it must remain the exception rather than the expectation in the event of an external shock.

#### **A potential, though unlikely, barrier to investment.**

Price cap regulation and its periodic reviews are sometimes argued to act as a barrier to new investment. Regulated companies are argued to face uncertainty over whether the regulator will "capture" future efficiency gains from investment and are subsequently deterred. However, experience does not provide any clear evidence that this is the case in practice. Indeed, the information asymmetries on capital expenditure plans may actually encourage investment in order to boost returns, while investment may also be undertaken as an entry-detering strategy against other airports<sup>17</sup>.

However, while these problems exist, as discussed above and in other chapters, they are not insurmountable. An effective and flexible price-cap regulation system can still provide significant incentives to improve efficiency and service quality, while also improving consultation with airline customers on their operational and investment needs.

There are costs involved in undertaking price-cap regulation. For example, in 2003 the New Zealand Commerce Minister found that "the direct costs of control (including both the regulators' and market participants' costs) for a single airport might be NZ\$1.1-\$2.2 million (US\$ 0.75-1.5 million) in a review year, and NZ\$0.5-\$1.1 million (US\$ 0.35-0.75 million) in other years. Over a five year period, with one review, this suggests an annual average of between NZ\$0.62-\$1.32 million (US\$ 0.43-0.9 million) per year at each airport"<sup>18</sup>.

As such, it is not something to apply to every airport, but only to those with clear market power and where the potential benefits of regulation outweigh the costs of its implementation.

<sup>17</sup> See Starkie, D (2004), "Testing the Regulatory Model: The expansion of Stansted Airport, in Fiscal Studies, vol.25, no.4.

<sup>18</sup> See: [http://www.med.govt.nz/templates/MultipageDocumentPage\\_10435.aspx](http://www.med.govt.nz/templates/MultipageDocumentPage_10435.aspx)

## LIGHT-HANDED REGULATION (PRICE MONITORING)

An alternative, more light-handed approach to regulation is to use a system of price-monitoring rather than price-caps among airports with actual or potential market power. Price monitoring regimes have been adopted in New Zealand and, since 2002, in Australia.

Price monitoring adopts a backward-looking view on actual price and service quality changes to assess whether market power has been exploited. Therefore, one of the key advantages of a price monitoring system, as opposed to price-cap regulation, is that it requires significantly less resources and avoids the asymmetrical information problems associated with projecting future efficient cost levels. In addition, one of the key arguments used in Australia is that price monitoring allows airports or ANSPs more flexibility to respond to external shocks and to avoid any significant volatility in their profit levels.

However, by its nature, a light-handed price monitoring system also has some disadvantages or uncertainties:

### **No clear incentive for efficiency.**

Under a price monitoring scheme the objective for an airport or ANSP is to show that it has not made excessive use of its market power, not that it has delivered costs and service quality and an efficient and optimal level. In effect, airports and ANSPs can continue to operate at inefficient levels as long as prices are not altered significantly from current levels.

### **Exploitation of market power not defined.**

In the Australian and New Zealand cases there is no clear definition under the price monitoring regimes of what an exploitation of market power would involve. If the definition revolves around differences between a firm's own prices and costs it simply reverts to a cost-plus, rate-of-return system. If it relates to excessive profits, it may actually deter efficiency improvements and encourage lazy, monopolistic behaviour. In either case, the lack of clarity encourages monitored firms to push the potential limits as far as possible.

### **Sanctions may not be effective or credible.**

In order for price monitoring to influence behaviour there needs to be an effective sanction in the event that market power is judged to have been exploited. Typically, the sanction proposed is a move to tighter price-cap regulation. However, this sanction may not be viewed as credible or time-consistent by the monitored firm and, therefore, the system has no control on market power.

Firms may not believe that governments wish to go to the expense of establishing or re-establishing a price-cap regime and, instead, will accept minor changes in the event of poor performance. The example of New Zealand, where Auckland Airport was found to have charged excessive prices but no regulatory change was made, demonstrates a lack of a credible sanction.

### **Unclear impact on new investment.**

The implementation of price monitoring has been justified in some cases as a means of providing greater commercial freedom for airports or ANSPs to undertake new investment. However, while airports and ANSPs may feel more comfortable to invest in light of future returns, there is little influence within the system to ensure that the investment is timely and in accordance with user needs.

Light-handed regulation does provide the advantage of a lower regulatory cost burden, both in terms of time and expenditure. However, as highlighted from the advantages above, the potential benefits from price monitoring are also likely to be significantly lower than with price-cap regulation.

Light-handed regulation critically rests on an effective sanction and clear criteria for triggering such a sanction. Experience so far shows that these conditions are not met in practice.

## CONSULTATION AND CONTRACT NEGOTIATION

An alternative option to direct regulation is to promote commercial negotiations between users and an airport or ANSP in setting price levels and investment plans. Such a system is used in Canada and the US, though primarily at airports that have public sector ownership and/or control.

The contractual option does allow airline users to have a greater input into operational and investment expenditure. It ensures that investment only proceeds if airline users are willing to pay for it and provides a mechanism for airlines to initiate new investment schemes. It also allows airlines to take their own equity stakes in airport investments and to have a key role in the project management.

However, while a more transparent approach, the contractual option by itself does not solve the problem of market power. The airport will still have more information about costs than the airline users and more discretion and bargaining power over the charges that are eventually set. In addition, airline users are not homogeneous and

are not often united in their commercial objectives. Therefore, not all airlines will support or be willing to pay for an investment, even though each airline (along with new entrants) will be able to use the investment once implemented.

The contractual option also contains no independent incentive to deliver efficiency improvements, with airports and airlines negotiating an agreed position rather than necessarily the optimal one. There is also no independent mechanism for resolving disputes, which are more likely to arise if the airport is privately-owned and focused on profit maximisation.

Therefore, while greater scope for commercial negotiations between airline users, airports and ANSPs is to be welcomed, it is more effective as a supplement to a price-cap regulatory system rather than on a standalone basis.



# 06 | The Experience of Economic Regulation

In countries where a form of economic regulation for airports and ANSPs has already been implemented a variety of systems have been used. The different approaches to regulation largely reflect different views and objectives in pursuing efficiency and investment.

There is no one standard model for regulation, but experience can provide important lessons on where best practice is shown and where problems can arise.



## NORTH AMERICA

### United States of America

This chapter discusses the experience, so far, of independent economic regulation of airports and ANSPs, focusing on North America, Australasia and Europe<sup>19</sup>. It examines the different systems that have been put in place and assesses the advantages and disadvantages of each one. The different approaches reflect different circumstances and objectives for individual airports and ANSPs, but also highlight the problem of regulatory inconsistency in some countries.

The experience of each highlights the advantages and challenges of regulation, along with the ongoing need for improvement and flexibility in regulatory structures.

The US is the largest aviation market in the world but has seen little change in terms of the ownership structure and regulation of airports since they were first established. The vast majority of US airports are publicly-owned, while air traffic control is provided through the Federal Aviation Administration (FAA) and funded through a specific and separate passenger charge.

US airports enter into legally binding contracts with airline users that detail the calculation and conditions of charges. At many airports, airlines will lease or own terminal facilities on an exclusive or joint-use basis. US airports source finance from commercial bonds, passenger facility charges and the Airport Improvement Fund, with the latter provided through the FAA and financed by general charges on airport users. This system provides a degree of longer-term certainty in terms of revenues for airports and user charges for airlines.

Consequently, US airports essentially operate under a cost-plus, rate-of-return system, implemented through two main approaches:

#### **Residual approach (e.g. used at Los Angeles International, San Francisco, Dallas Fort Worth, Miami).**

Airlines are responsible for paying the net operational costs of the airport after taking account of any commercial and non-airline sources of revenue (i.e. a cost-plus and single-till system). Under this approach airlines assume a large amount of operational risk at the airport, providing a guarantee that overall charges will be set so as to guarantee that the airport will break-even.

#### **Compensatory approach (e.g. used at Chicago O'Hare, New York JFK).**

Each airline pays agreed charges to the airport on the basis only of the cost of services associated with the facilities they use (i.e. a cost-plus and dual-till system). Under this approach, the overall airport operational risk remains with the airport operator.

However, regardless of which approach is adopted, the cost-plus nature of the system contains few incentives for an airport to improve efficiency or to increase revenues from non-aeronautical sources. There is no clear incentive to minimise costs, as it simply reduces

<sup>19</sup> Detailed accounts of many of the examples in this chapter are available from Forsyth, P, et al (2004), "The Economic Regulation of Airports", Ashgate Publishing.

revenues received, leading to the situation where several US airports (e.g. New York JFK and Newark) are among the most expensive in the world (see Appendix A), even though they provide fewer facilities and are less profit-maximising than elsewhere.

Cost-plus, rate-of-return regulation can also lead in many cases to excessive investment in runway and terminal capacity bearing little relation to potential commercial returns. It does not provide a great incentive for dynamic efficiency in terms of timely and cost-effective new investment, as there are no clear signals or incentives to demonstrate the need for and value of new investment.

## Canada

Greater commercial practices were first introduced for Canadian airports in the 1980s, removing active government participation in their management. The National Airport Program (NAP) transferred the operation of 26 major airports to local airport authorities (LAAs), with the federal government retaining ownership, while ownership and operation of smaller airports was transferred to provincial or municipal authorities. The NAP assumed that the 26 major airports would have the fiscal capacity to attract new investment capital and strong enough markets to generate sufficient revenues from their activities.

The major national airports operate as “not for profit” entities, with any profits reinvested in terms of new investment. As such, they operate under a similar cost-plus system to US airports, with similar advantages and disadvantages as noted above. However, the re-investment mechanism, as opposed to a change in charges if revenues are higher than costs, can exacerbate the ‘gold plating’ problem associated with investment and further reduce dynamic efficiency. For example, charges at Toronto airport remain among the highest in the world, even though it nominally operates on a “not for profit” basis, as they are used to finance expensive and inefficient investment in new facilities which are far in excess of airline needs.

## AUSTRALASIA

### Australia

Australia's major airports (except for Sydney, due to major investment in advance of the 2000 Olympic games) were privatised in the 1990s, with Sydney airport eventually privatised in 2002. All of the major airports now operate on a commercial, profit-maximising basis, under a long-term lease of the airport facilities from the Federal Government.

The privatised airports were initially subject to price-cap regulation on aeronautical services (i.e. a dual-till system) by the Australian Consumer and Competition Commission (ACCC) for the first five years after privatisation. The structure was reviewed by the Australian Productivity Commission (PC), with the intention to replace price-cap regulation with a price monitoring regime (for a probationary five year period from 2002), unless significant monopoly pricing behaviour was found. The PC undertook a second review in late 2006 that proposed maintaining the price monitoring system for a further five years. Following its privatisation, and significant increases in charges, Sydney airport is also subject to the light-handed price monitoring regime, though with price-cap regulation on its regional air services.

The PC's justification for a change from price-cap regulation to price monitoring was based on three perceived problems of price-cap regulation:

#### **Airport profit volatility.**

Airports were largely unprofitable under price-cap regulation and the collapse of the airline Ansett in 2001, which accounted for 42% of the domestic market, imposed an additional financial crisis upon them. However, in some cases unprofitability can be attributed to operational inefficiency as well as, for some such as Perth and Adelaide, a tight regulatory settlement. At the time of the Ansett collapse, there was a few months left of the first regulatory period so the Government allowed an immediate charges increase of 6-7% before moving to the price monitoring system in 2002. However, by replacing price-cap regulation, any additional flexibility was gained at the expense of removing strong incentive properties for greater efficiency.

#### **Weak investment incentives.**

Price-cap regulation was viewed as a potential barrier against new investment, yet there was little evidence of this especially after just five years of the price-cap system. Indeed, under the price-cap system airports could (and did) seek approval from the ACCC for charges to increase for compulsory regulatory changes and Necessary New Investment, subject to support from airline users.

### The high cost of regulation itself.

Price-cap regulation was considered to be too intrusive and too much of a financial burden. The ACCC had a detailed involvement; it could collect information on costs, profits and prices and report publicly on the results of its findings. However, the system could have been altered rather than removed in order to minimise regulatory costs while still taking account of the benefit it can provide to all stakeholders.

The price monitoring regulatory regime is based upon the PC's assessments of airport market power. These assessments focus primarily on the ability for airlines, or their passengers, to substitute away from the services provided by the airport (towards another airport, another destination or another mode of transport). The reasonableness of charges is typically assessed with reference to costs incurred, providing poor incentives for cost minimisation. Price monitoring does allow the effects of external events to be taken into account, but this can be more of a one-way process, with little incentive for airports to pass on any positive external impacts to users.

Price monitoring has reduced regulatory costs, but at the expense of higher user charges and unjustified upward revaluations of asset bases at several of the airports. While well below true monopoly levels, user charges are undoubtedly higher than they would have been under tighter regulation, especially at Sydney airport. The government still has the right to re-impose price-cap regulation in the event of poor performance, but the definition of poor performance has not been made clear. The threat also does not appear to be credible. Despite clear evidence of price rises, the PC argues that there has been no misuse of market power without fully explaining at what level market power would be considered to have been misused. The consistent failure to provide definitive criteria for market power and its misuse undermines the credibility of the system.

Indeed, the vague principles on which light handed regulation is based create a strong risk that the system will revert to a cost-plus type of regulation, reducing the incentives for efficiency improvements<sup>20</sup>. This is an important consideration for other governments in the region who are considering implementing a similar system, such as Papua New Guinea and Fiji.

## New Zealand

In the late 1990s the New Zealand government partially-privatised Auckland and Wellington airports and changed the structure of Christchurch airport to operate on a full commercial basis. A light-handed price monitoring regime was introduced at the time of these changes. However, the government does retain the right to implement price-cap regulation at its discretion. The system is also supported by a number of other domestic regulations that impact upon airports (e.g. the Commerce Act).

The light-handed regulatory regime has turned out to be both controversial and costly. Airlines have frequently been forced to take legal action over actions by airports. In addition, as in Australia, the system does not have a credible threat in the case of abuse of market power. The NZ Commerce Commission recommended in 2002 that Auckland airport should face price-cap regulation. However, no change has been made, with the proposal rejected by the NZ Commerce Minister in 2003 on the grounds of too high a cost for regulation.

Under the current system, Auckland airport generates exceptional profits both on a regional and global comparison. Its Earnings Before Interest and Taxation (EBIT) margin was 66% in its fiscal year 2006, by far the highest EBIT level among the top 50 airports in the world. In addition, it has revalued its asset base and used its market power to increase airline charges. If fully applied, airline charges could increase by over 50%, despite using the same assets and with no change in efficiency or service quality.

<sup>20</sup> See P. Forsyth, "Airport Policy in Australia and New Zealand: Privatisation, Light Handed Regulation and Performance", presented at the Fundacion Rafael del Pino conference, Madrid, September 2006.

## EUROPE

### United Kingdom – Designated Airports

The UK Civil Aviation Authority currently imposes price control regulation on four designated airports; the three London airports privately owned by BAA plus publicly owned Manchester airport. A price-cap is set for a five-year period at each airport, using a single-till system, along with a series of service quality standards. Each price-cap review is automatically submitted to the Competition Commission for review before it is implemented. The CAA must assess any recommendations from the Competition Commission but is not obliged to implement them.

The CPI-X price-cap mechanism has been relatively successful in improving the efficiency of use of existing assets, though severe congestion (especially at London Heathrow) has impacted upon service quality and highlights the urgent need for appropriate investment. CPI-X has led to charges at Heathrow below the market-clearing level, but the system has not itself been a major constraint on investment, with the planning system and environmental concerns providing greater barriers.

The UK regulatory framework needs to be flexible enough to meet a variety of different investment challenges. Heathrow airport is capacity constrained and needs to finance major investment in terminal facilities (a new runway is still under consideration) over a relatively short period of time. Airlines welcome new investment, such as Terminal 5, but are concerned that the regulator may be overly-generous in the size and timing of payments for the investment. By contrast, Stansted and Manchester airports have possibly taken advantage of the regulatory framework to over-invest in the past, on an uncommercial basis, and airlines are concerned that new investment may take place at these airports at a higher cost and earlier than required by users. Too great an incentive for investment may entail users paying more than they strictly need to for infrastructure, but too low an incentive may contribute to capacity bottlenecks.

In response to the challenges, changes to the regulatory system have been considered and, in some cases, implemented:

#### **Constructive Engagement (CE).**

The CAA has used the current review to encourage greater consultation between BAA and users, but with mixed results so far. CE encourages negotiations on investment plans, as well as traffic projections, service quality and operating spend. It creates a forum to negotiate the most appropriate investment and operational plans for users, but crucially depends on open and transparent information sharing by all parties. In all cases, but especially at Stansted, airlines believe the airport has not provided sufficient information within the CE process.

#### **Investment incentives.**

The long-timescale and complexity of major investments provides a challenge for the regulator in developing appropriate incentives. The regulator cannot bind successors to a certain price profile beyond the next control period, but does need to provide some assurance that efficient investment will be remunerated. The UK regulator adopted a dual approach in the 2003 review. Firstly, it set a (higher) RPI+6.5% profile for Heathrow in the next control period and referred to it as starting point for the 2008 review (though not a guaranteed profile) for the following period. Airlines argued that this was over-generous and involved a degree of pre-financing, though the regulator argued that a much higher (e.g. RPI+12%) and unsustainable profile would be required in the 2008 review otherwise. Secondly, the regulator set a series of trigger points for investment, whereby the expenditure incurred would be added to the regulatory asset base and begin to receive a return. These trigger points were high-level and time specific, though its unclear what impact they have on ensuring investment is delivered cost-effectively.

#### **Service quality.**

The regulatory system can have some adverse impacts on service quality. In particular, the last 2 to 3 years of a regulatory period can result in “game-playing”, where it potentially serves airports more to try and persuade the regulator than to meet the current needs of its users. Also, as highlighted by the problems following the August 2006 security alerts, a focus on revenue generation and/or efficiency in one area, may leave other areas exposed to poor contingency planning in the event of major shocks. The CE process is designed to leave scope for contracts (such as service level agreements) outside of the price cap for specific levels of service for individual or groups of airlines. However, the system also needs to ensure that effective minimum standards of service quality are in place, with appropriate penalties for failure to meet these standards.

### Focus on where regulator adds value.

By encouraging more consultation between airports and users, the regulator intended to focus on areas where the regulator can add a greater amount of value, especially those where the chances of any agreement between airports and users are remote. Setting an appropriate cost of capital return is a key area, with small changes in the cost of capital having significant impacts on price-caps. However, the regulator must also retain a clear and credible role in intervening in the overall public interest when agreement cannot be reached and in ensuring that the appropriate information is disclosed by both sides to encourage fair negotiations.

### De-designation.

The regulator believes that, subject to a comprehensive market power test, an airport should be de-designated from price-cap regulation if it is considered to operate in a competitive environment. De-designation reduces regulatory costs but may also help to ensure that further investment is undertaken on a fully commercial basis. The decision to de-designate rests with the government. However, the CAA has proposed that Stansted be de-designated due to the competition it faces, especially among no-frills airlines. In addition, the UK Office for Fair Trading has asked for further consideration to be given to the potential for de-designating Manchester airport.

The 2003 review was criticised by both sides for being too administrative, with the time taken for the review increasing from 12 months in 1991 to 32 months for the 2003 review. Changes to the system, such as CE and de-designation, should help to reduce the burden, though the process remains complex and significant time and financial resources are still required. The objective is to provide a thorough review, offering the regulated airport effective incentives for efficiency and investment (and penalties for poor performance), while ensuring that airlines operating in a competitive, cost-conscious environment can properly influence operational, quality and investment plans to meet their needs.

There will continue to be arguments from both sides over regulatory decisions. For example, the Regulator's initial proposals for a range of CPI+4% to CPI+8% for Heathrow in the 2008 review was criticised by the airport as being too mean and by the airlines as being too generous. The key is to ensure that an appropriate regulatory framework exists, where discussions and complaints can be raised by both sides and considered in a thorough and independent manner.

## United Kingdom – NATS

The UK air traffic control provider NATS was partially privatised in July 2001 through the sale of a 46% stake to a group of seven UK-based airlines (on the basis of a “not for commercial return” investment) and 5% to an employee group. The investment by airlines reflects their strategic interest in improving the efficiency of NATS. Nevertheless, the CAA still provides price-cap regulation and service quality incentivisation, both to further improve efficiency and to protect the interests of other airline users and passengers as a whole.

The nature and structure of NATS has led the UK regulator to argue that the airlines influence on the regulatory system is greater as owners than as customers<sup>21</sup>. NATS does have a direct link with its airline customers, but compared with airports there are fewer dimensions of service and less scope for airlines to influence how NATS operates. Consultation is through an annual Service and Investment Plan setting out service and capacity needs, but there is less scope for engagement on the complexities of how this is to be delivered.

Instead, it is as owners that airlines exert a direct and indirect influence on the regulatory structure. Firstly, with a highly-g geared structure, NATS is constrained in the amount of risk it can bear. This has led the regulator to focus on providing incentives for reducing delays, especially where they have the biggest commercial impact on airlines, rather than on wider performance. Full compensation to airlines for delays is neither feasible nor desirable, with the setting of clear targets (with bonuses and penalties) more effective. Nevertheless, flexibility is required in the framework, such as the interim review for NATS in 2003 in light of the impact on its revenues from lower than expected traffic after 9/11. A light-touch is also needed for investment incentives due to their complexity and lack of specific milestones (especially for software projects). Operational and service quality incentives are looked to as the catalysts for timely and cost-effective investment.

Airline ownership does mean that the process of regulation also changes. In particular, the incentives it provides should face a higher “hurdle-test” (i.e. in terms of the value it can add) than those for airports, as they are supplementary to ones already in the commercial interest of airline owners. It also means that the process is typically more transparent, with a greater flow of information from the company to the regulator. Nevertheless, price-cap regulation does provide useful incentives and can continue to protect the interest of all users, even if in the future airlines decide to sell their ownership stake.

<sup>21</sup> See Bush, H, “Regulation of airports and air traffic control: an evolving story”, in OXERA (2005), “The Future of Infrastructure Regulation”.



## Republic of Ireland

Price-cap regulation was initially established for the public sector airport operator, Aer Rianta, that operated Dublin, Cork and Shannon airports. Following the break-up of Aer Rianta in 2004, price-cap regulation concentrates only on the Dublin Airport Authority. Ireland shows that regulation can be both needed and beneficial for public sector airports, it isn't just a requirement for privatised airports. In particular, it shows that a stable regulatory framework is beneficial in advance, rather than after, any eventual privatisation of the airports.

The Commission for Aviation Regulation currently sets maximum levels of airport and aviation terminal services charges at Dublin Airport. The Commission is independent, but must comply with recommendations made by the government (similar to the ACCC and PC in Australia). Its statutory duties are to facilitate the efficient and economic development of the airport, to protect the reasonable interests of current and prospective users and to enable the airport to operate and develop in a sustainable and financially viable manner.

The CAR uses a CPI-X price cap and a single-till system. It has been relatively successful in delivering efficiency improvements and minimising charges, with strong traffic growth and airport commercial revenues benefiting both the airport and airlines. However, as in the UK, the focus is now shifting towards the need for capital investment. In 2005, the CAR determined charges at Dublin Airport for the period to 2009 with a CPI-4% price-cap. However, the further development of a major capital investment plan for Dublin airport since then has led the regulator to propose an interim review. The review would allow them to closely scrutinise the latest capital expenditure plans for the airport, allowing them and users to challenge the assumptions and estimates made by the airport. This demonstrates flexibility within the system to cope with major changes without removing underlying regulatory principles, but it must ensure that any interim review is seen as an exceptional case rather than an expectation in the event of any future shocks.

## Germany

The privatisation of some airports in Germany, or even just a more commercial operating focus, has encouraged the introduction of some form of regulation. However, it has tended to be regional or airport specific (largely due to legal restrictions under Germany's federal structure), with no national regulatory authority in place. In addition, where local regulators are established they are typically part of, rather than independent of, local governments – many of whom still have an ownership stake in the airport, creating potential conflicts of interest.

Though regulation has been introduced it has taken different forms for different airports:

### Hamburg airport (price-cap).

Hamburg airport has faced regulation since its partial privatisation in 2000, covering both a price-cap on charges and service quality targets. It is a dual-till CPI-X system, with X related to the projected growth in productivity. It prevents the airport from earning any windfall profits through a sliding scale of further reductions in charges based upon passenger growth beyond a trigger point. For example, the first regulatory period saw charges fixed at CPI-2%, but with further increases in X of 0.5% for every percentage point of traffic growth above 3%. If traffic growth is less than 3% there is no change to the CPI-2% formula. However, flexibility is built in to the system to cope with external shocks, with an agreed temporary abandonment of the sliding scale after 9/11 to allow the airport to recover faster from a sudden decrease in traffic. The system does not cover major investments, with each project subject to a separate public review.

### Düsseldorf airport (rate-of-return).

The privatisation of Düsseldorf airport following a major fire in 1996 concentrated on restoring operations quickly rather than an appropriate regulatory structure. As such, regulation was based on a loose cost-plus principle. The cost-plus nature contains similar disadvantages in terms of weak efficiency incentives and over-investment as discussed above for US airports. It has also led to protracted legal battles between the airport and airlines over proposed charge increases, for example in 2000 when a 7.1% increase in charges was granted by the local Government but was considered excessive by airlines.

### Frankfurt airport (long-term contracts).

The airport has entered into five-year contracts with airlines, covering all aviation charges and defining how they will change over time. The contract is based on a risk-sharing model that inversely links, on a sliding scale with no threshold, the growth in charges to the growth in passenger traffic (i.e. if traffic growth is higher than expected, charges growth will be lower). The model does provide a degree of certainty over future charges for both sides that can encourage investment. However, it does require open and transparent negotiations from both sides, for which a common will may exist at Frankfurt but may not elsewhere (e.g. Lufthansa holds a 9.1% equity stake in Fraport, the Frankfurt airport managing company). Risk-sharing does allow airlines to share the benefits of growth and to provide flexibility against external shocks. However, it is not yet clear how the system will impact upon efficiency and whether it contains sufficient incentives to reduce costs.

Given the complexity of airport regulation, the existence of several local regulators is both expensive and potentially inefficient, lacking the ability to use regulatory benchmarking and potentially less effective at driving efficiency gains. The example of other sectors in Germany (e.g. telecoms and post) shows that an independent national regulator can be introduced.

## Denmark

Copenhagen airport has a light-handed regime over its aeronautical charges, with a high-level price cap and voluntary agreements. This regime was implemented in 2000 when majority control was transferred to the private sector and revised in 2003 for a provisional five-year period.

Aeronautical charges are determined at Copenhagen airport by two main methods; negotiation and regulation. The airport authority is obliged to negotiate on a charges agreement with users in advance of the next regulatory period, and if agreement is reached this is the cap that is set. However, if no agreement is reached, the cap is set by CPI-X regulation from the Ministry of Transport.

The regime has been relatively successful at encouraging negotiation between airports and airline users. The threat of CPI-X regulation is credible and encourages more open participation in negotiations from the airport. Negotiations also allow for a greater degree of flexibility on charges and coverage of service quality issues too. However, the focus on negotiation can provide relatively weak incentives for efficiency, with the focus on actual rather than potential cost levels.

## Austria

Vienna airport is subject to regulation by the Austrian Civil Aviation Authority (ACAA), an independent body but one that is not obliged to consult with users or to publish its reports. The ACAA set an initial price cap in 1994 for a three year period, based on the single-till principle, and has rolled forward this cap since then. The price cap is applied to a basket of charges and not an average per passenger charge as elsewhere.

The price-cap system has produced improvements in efficiency. It also incorporates a degree of flexibility, with a basic risk adjustment mechanism that adjusts charges on a sliding scale relating to the actual rate of growth in traffic at the airport. However, the lack of transparency and consultation with users, combined with little change in the price cap over time, has tended to encourage investment that is expensive and beyond that required by airline users.





## OTHER REGIONS

### Latin America

Many Latin American airports have been privatised without proper independent economic regulation. In most cases the governments actually benefit from the privatisation by extremely high concession fees required from the concessionaire.

One exception is Mexico where most privatised airports have a Federal economic regulation that only allows their charges to rise with inflation minus an efficiency factor (similar to the UK system). The major flaw in that system however is there is no requirement for airports to consult their customers on the level of investment. Airports are allowed to recover their investment costs with high rates of return through the regulated charges eventually leading to excessive pricing.

### Asia

Most airports and ANSPs in Asia are still publicly owned and tightly controlled. However, some of the key gateway airports (such as Hong Kong and Singapore) have established, or are in the process of establishing, a form of economic regulation.

The Indian government also plans to establish an Airport Economic Regulatory Authority in 2007, in response to the increased privatisation of airports. Its role will be to regulate user charges and to establish uniform quality standards across airports.

## NO REGULATION

In addition, there are several cases across the regions where the lack of independent economic regulation has led to excessive and unjustified user charges. For example, in advance of its privatisation, the French government allowed Aeroports de Paris to increase its charges by 5% in real terms for five years without any justification or transparency for the decision.

In Argentina, a failed concession leaves airlines with unacceptable charges levels and full freedom for the airport to raise more revenue through additional charges. Instead of independent economic regulation the government became a business partner with the airport at the expense of airlines and passengers.

In Germany, the government's proposals for privatising its ANSP, DFS, include plans to increase charges by 11-12% and allow a return on capital of 9.4%, far too high for a low-risk, monopoly provider.

Examples like these highlight the need for an independent regulatory structure that takes into account the interests of customers, protecting them against artificial and unjustified increases in charges, including where these are used to boost the value of an airport or ANSP prior to privatisation.

Even in some of the examples above where a form of regulation is in place, if the regulator is not independent from national or local governments it can lead to arbitrary decisions with little transparency or consultation.

# 07 | Delivering Greater Efficiency and Productivity

An effective regulatory framework can be used to deliver efficiency improvements among airports and ANSPs. However, an ineffective regulatory framework can contain as little an incentive for efficiency as no regulation at all.

Therefore, regulation should provide clear incentives and targets for efficiency, with benchmarking to assess performance and potential improvements.

However, regulation by itself cannot deliver greater efficiency in all areas and, where appropriate, alternative mechanisms (e.g. slot allocation) should be refined in order to improve efficiency.

This chapter discusses how an effective regulatory framework can be used to deliver efficiency improvements, but notes how some forms of regulation can provide little incentive towards greater efficiency. Regulation should set clear targets for performance improvement among the regulated companies, reflecting the different objectives faced at individual airports or ANSPs.

These targets can be informed by clear and concise benchmarking procedures that allow for general comparison across companies, while taking due account of their different structures.

Benchmarking systems are already used to great effect in other industries, such as the electricity and gas markets in Europe, while IATA has developed its own benchmarking scorecard that it uses for airport or ANSP charges negotiations.

## TYPES OF EFFICIENCY

In considering the impact of regulation on efficiency, it is important to distinguish what is meant by the different types of efficiency. A particular framework may be strong in providing incentives for one form of efficiency but weaker in delivering improvements in other areas.

The three types of economic efficiency are:

### **Productive efficiency.**

This ensures that, for a given standard of quality, each level of output is produced at the minimum level of costs. The price-cap regulation framework contains strong incentives for regulated companies to improve their productive efficiency, with firms allowed to keep any cost savings below its target within each regulatory period but penalised for costs above target.

By contrast, rate-of-return regulation is much weaker in delivering productive efficiency, with costs reimbursed whether they are minimised or not.

### **Allocative efficiency.**

This ensures that prices are related to costs, with the level of output determined by where marginal cost equals marginal revenue (i.e. capacity is allocated to those who can maximise the financial and wider economic benefits from it). Regulation can help to improve allocative efficiency by improving transparency and in ensuring ICAO principles of non-discrimination are followed in setting charges.

However, where an airport or ANSP is capacity constrained, productive efficiency improvements can reduce costs far below the market clearing price. Allocative efficiency is affected as prices do not take full account of the wider cost of capacity constraints<sup>22</sup>.

### **Dynamic efficiency.**

This ensures that the level of quality and output improves over time to meet customer needs. In other words, it ensures that investment is delivered in a timely and cost-effective manner. Price-cap regulation, in particular the single-till system, is seen by some as a constraint on dynamic efficiency as it does not provide sufficient incentives (e.g. certainty on future returns) for investment.

However, there is no clear evidence of this, with other factors, such as the planning system, often being the key constraint on investment. Price monitoring, rate-of-return regulation or contracts can help to improve the timeliness of new investment but require additional safeguards to ensure it is delivered cost-effectively.

<sup>22</sup> In addition to congestion, there are other externalities, such as noise and local air pollution that can impact on allocative efficiency. Some airports have additional charges for these impacts, though they often fall outside the remit of economic regulation.

## REGULATORY FRAMEWORK

Effective economic regulation can provide both a carrot and stick approach to improving productive efficiency. The main mechanism through which this operates is by the regulator setting a reasonable profile for performance improvement over the next regulatory period.

This is based on the regulator's judgement of feasible improvements in efficiency, accounting for past performance and planned investments. It then provides an incentive for the company by allowing it to keep additional profits from performing more efficiently than anticipated by the regulator during the period, along with the penalty effect of costs higher than anticipated not being reimbursed by users.

However, the regulation framework needs to take account of the following issues to ensure that such a system provides effective incentives over time:

### **Regulatory game-playing.**

In advance of each regulatory review both regulated companies and their users have an incentive to negotiate their view with the regulator rather than with each other. Each side will try to convince the regulator of an appropriate profile for costs, charges and returns. Asymmetric information means that the airport or ANSP is at an advantage in having a clearer picture of its true cost base. The regulator must seek to overcome this barrier through incentives to reveal information that allow for a reasonable regulatory decision to be made (for example, through differences in allowed returns based on how close actual expenditure and investment outcomes were to those put forward to the regulator).

### **Clear cost and service quality targets set.**

The regulator should ensure that the targets set for cost efficiencies and service quality improvements are both clear and complementary. It should seek to avoid any perverse incentives where advantage can be gained by improvements in one area at the expense of service quality elsewhere. Security costs are a key area where an appropriate trade-off between cost and quality should be sought, ensuring that the costs are met efficiently but with enough flexibility (i.e. contingency planning) to cope with shocks.

### **Flexibility for major external cost shocks.**

The regulator cannot take account of all possible demand or cost scenarios in setting a reasonable profile. As such, a degree of flexibility is required that allows the system to cope with major external shocks. Interim reviews offer one possibility, though must be restricted in use to ensure they do not reduce the credibility of regulation. Alternative approaches (e.g. at Frankfurt and Hamburg airports) provide a risk-sharing mechanism that allows the burden of demand or cost shocks to be shared within a regulatory period, without renegotiations of a regulatory review or contracts.

### **Regulatory time-consistency.**

The regulator does need to provide a degree of certainty to the regulated company that it will not simply capture all of the benefits of exceptional performance at the next regulatory review. Of course, a company may benefit from asymmetric information in outperforming the





expectations set by the regulator without full knowledge of the true cost base. In that case, it is appropriate to use the new, lower cost level as the base for the next review period. However, to encourage further performance improvements, the system should have some scope for allowing exceptional efficiency gains to be recognised and rewarded in future period.

### **Potential rather than actual costs.**

The regulator needs to ensure that the profile for each regulatory period is based upon potential improvements rather than simply an extrapolation of trends in actual costs. Though a resource intensive process, the assessment of potential costs can provide significant efficiency benefits. If the system reverts to actual costs as the benchmark, the incentive for firms to minimise future costs is weakened.

### **Appropriate cost-of-capital allowance.**

The cost-of-capital return allowed needs to be a true reflection of the financing costs of the firm. If the allowed return is greater than the actual cost-of-capital, it increases the incentive for firms to add to their capital base (the Aversch-Johnson effect) regardless of user needs, as it increases their profits. This effect has been seen in several UK utility sectors, where firms have used cheap debt (as interest rates fell) to boost their asset base<sup>23</sup>.

As discussed in chapter 5, price-cap regulation, subject to adjustments to address the issues above, does offer a clear process for improving productive efficiency. It can also provide sufficient incentives for dynamic efficiency (see chapter 8) while supplementing alternative mechanisms to improve allocative efficiency where capacity is constrained (see below).

Other forms of regulation are less clear in their impact upon efficiency, with some potentially providing little incentive for improvement. However, all are typically less resource-intensive than price-cap regulation. Rate-of-return regulation contains little clear incentive for cost minimisation, with costs being reimbursed regardless of their level and this creates an incentive for excessive investment. Price monitoring requires competition, airline power or a credible threat in order for incentives for cost minimisation to exist, though experience has shown this typically not to be the case. Contract negotiations can provide clear targets for efficiency improvements and risk-sharing, though depend crucially on the willingness of both parties to enter into open and fair negotiations.

## **BENCHMARKING**

Regular and accurate performance assessments are required to assess the progress made in delivering efficiency improvements and the potential for further gains. Though airports, ANSPs and their regulatory frameworks are heterogeneous – each with different objectives and challenges – there are common standards that allow for the benchmarking of performance.

Benchmarking can be of benefit to the regulators themselves, allowing them to minimise the risk of regulatory failure and to share best practice. Chapter 4 discussed how an international or regional forum can be developed for regulators (following the example of the gas and electricity sectors in the EU). This could assess the progress of governments in ensuring an appropriate regulatory framework is established as well as the outcomes for efficiency and investment delivered under each system.

However, benchmarking is also of benefit at the individual airport and ANSP level, assessing how each performs across a range of criteria against a relevant peer group. These criteria can cover a range of cost and service quality indicators, reflecting the interaction between the two areas.

IATA has developed a performance benchmarking model for major airports and ANSPs, from which it openly shares information during charges negotiations (see Annex B for further details).

The model is based upon published information, with the requirement on airports and ANSPs to provide alternative evidence if they do not agree with the published figures.

<sup>23</sup> See OXERA, (May 2006), "The Future of Infrastructure Regulation", Conference, London



The airport model is based upon four main Key Performance Areas (KPA), each with four key indicators:

#### **Financial.**

This provides information on profitability and on the share of aeronautical revenues within total revenues. It illustrates areas where financial practices may have impact on the cost base, whether or not they are under the direct control of the airport.

#### **Productivity.**

This provides an indication of productive efficiency, with information on the level of passengers and air transport movements per employee and per unit of capital employed, while giving an indication of the potential for improved internal practices.

#### **Cost effectiveness.**

This quantifies the cost per unit of output of services including on assessment of unit cost for staff and operations.

#### **Quality of service.**

This provides an indication of available capacity and of the quality of existing service levels. It measures available terminal stand capacity per movement as well as passenger satisfaction.

The ANSP model follows a similar structure though with slightly different indicators. Each individual airport or ANSP is measured in its performance on each indicator against a relevant peer group, either in terms of region or size. It is given a red, amber or green signal for each indicator dependent on its performance relative to its peer group.

The benchmarking model is not exhaustive and cannot fully take into account operational differences across different airports or ANSPs. However, it does provide a concise and consistent view of performance in key areas, highlighting areas for greater improvement. Regulatory frameworks can benefit from a similar benchmarking exercise designed to assess how the regulated company currently performs, improvements it has made and the potential for further efficiency and productivity gains.

## **ALTERNATIVE ALLOCATION MECHANISMS**

As discussed above, where airports or ANSPs are capacity constrained, charges that are set in line with productive efficiency may be well below the market clearing level.

For example, London Heathrow airport has relatively low charges, largely as a result of price-cap regulation since the mid-1980s, but also has significant excess demand. In such a situation it is apparent that price structures alone, whatever the form of regulation, are not sufficient to ration capacity effectively. Therefore, additional mechanisms may be needed to help improve allocative efficiency; such as administrative rationing systems, mixed-mode runway operations or the trading of slots in a secondary market.

Regulation must therefore recognise its limits as well as its benefits. It should not be used as the prime tool to improve allocative efficiency if other mechanisms can be more effective. Regulation should firstly ensure that it is not a barrier to investment (discussed further in the next chapter). Consequently, higher demand volumes and open negotiations with airline users should provide a sufficient trigger for new investment decisions. It should then provide the flexibility to incorporate other mechanisms used to ease congestion in the short-term.

Discussion of the merits or otherwise of schemes such as secondary slot-trading is beyond the scope of this paper. The key concern is that regulation does not inhibit, or attempt to duplicate, other mechanisms that may be more effective at responding to capacity constraints at certain airports or ANSPs.

# 08 | Delivering Timely and Cost-Effective Capital Investment

Regulation needs to be designed so as to encourage new investment in consultation with the needs of users. It should help to support the long-term strategic plans, designed by industry stakeholders, in order to deliver timely and cost-effective investment where needed (albeit subject to external constraints such as planning laws).

It should also prevent unnecessary, early or excessive investment where it is not needed, encouraging instead the use of existing facilities in a more efficient and productive manner.

## STRUCTURAL AND REGULATORY CONSTRAINTS ON INVESTMENT

This chapter discusses how the regulatory framework can become more flexible in order to attract timely and cost-effective investment into the industry. It outlines options to improve investment incentives for airports and ANSPs, but also highlights the importance of open and constructive consultation between the infrastructure providers and airline users over the design, cost, timing and financing of new investment.

No ownership or regulatory approach for airports has yet demonstrated that it can deliver, in all circumstances, timely and cost-effective new investment. However, the regulatory structure is just one component in the investment decision. As such, it is important not to apportion excessive credit or blame to the regulatory structure for the level of investment undertaken.

Nevertheless, regulation can have an influence on the focus of investment, helping to direct capital to where it is most needed to address capacity constraints. The investment climate has been relatively benign over the last ten years, with relatively low and declining interest rates.

While this climate is unlikely to change significantly, there is little scope for further major declines in financing costs, raising the importance of factors such as regulation in providing a suitable climate for new and sustainable investment.

The complexities and long timescales involved in designing and constructing major new airport and ANSP investments, along with external planning and approval processes if necessary, means that major investment projects will be undertaken and need to be remunerated across several regulatory time periods. Even smaller, quicker investments – for example, those designed to improve service quality rather than provide additional capacity – will look to receive a return across a longer time horizon than one regulatory period.

Therefore, regulation – and in particular price-cap regulation – is argued by some to act as a constraint on investment (or an incentive for under-investment), partly due to the ‘hold-up’ problem whereby firms cannot be certain of returns in future regulatory periods and partly due to ‘ex-post opportunism’ by the regulated firm itself who may renege on part of the agreed capital expenditure in order to increase its return. For regulated prices to give the correct incentive for investment they should be at a level equal to the incremental cost of that capacity. However, with large and lumpy capital investment that could require sharp increases in charges and profits for the regulated company in the short-term, which would not be possible under price-cap regulation.

However, as discussed in previous chapters, there is little evidence that price-cap regulation has constrained investment – indeed with the allowed cost-of-capital return sometimes being higher than the actual financing costs many firms have had an incentive to over-invest<sup>24</sup>. For airports such as London Heathrow, the key factors that have delayed new investment are environmental and planning constraints, not the regulatory structure.

Indeed, there are other strategic factors that can help overcome the constraints of long-timescales upon investment<sup>25</sup>.

- First, under-investment risks imposing significant additional internal and reputational costs on the firm if the airport or ANSP is currently congested – especially for hub airports, where congestion delays can, in the long-term, affect the willingness of transfer passengers to use that airport.

<sup>24</sup> See Oxera, (May 2006), “The Future of Infrastructure Regulation”, Conference, London.

<sup>25</sup> See D Starkie, “Investment Incentives and Airport Regulation”, in the December 2006 edition of the Utilities Policy Journal.

- Second, an airport can still exploit asymmetrical information to increase its profits, beyond the level expected by the regulator, by expanding and gold-plating its asset base.
- Third, in imperfectly competitive markets, firms have sometimes used new investment as a strategy to deter any possibility of future competition (e.g. the rapid expansion of capacity at London Stansted airport in the 1980s resulted in a poor commercial return, but may partly have been driven by an objective to deter the threat of new investment at Luton airport).

Nevertheless, there are constraints to be addressed when using the regulatory framework to assess investment needs, timing and expenditure:

#### **Discrete large-scale projects.**

The large scale of many investment projects lead regulated companies to seek to reduce their risk through an assurance that their commitment to a large-scale project will receive a sufficient return from future users. In some cases, an investment project can be of higher value than the existing asset base. For large projects, such as a new runway, the decision, design and timing of the project is best implemented through a long-term strategic plan involving all stakeholders, including governments where necessary. However, the regulator also has a role to play. It needs to provide an appropriate balance between providing sufficient assurance to the regulated company about its long-term approach to rewarding investment and ensuring it does not provide too strong a regulatory commitment that simply transfers all of the risk of the project to users.

#### **Heterogeneous nature.**

The complexity of individual investment projects means there are few, if any, similar examples against which expenditure and project management can be benchmarked. As such, in benchmarking investment projects a regulator can focus on the process rather than the level of inputs. This could involve sharing best practice on the approach to procurement and risk-management, rather than a comparison of unit costs.

#### **High gearing levels.**

The use of debt rather than equity finance means that the regulated company and its external finance providers will typically adopt a more risk-averse approach. This may lead to less ambitious designs and a more incremental approach to investment. However, it may also result in firms looking to place more of the investment risks on to customers through, for example, pre-financing or protection against cost shocks. A regulator should help to ensure that risk is shared appropriately, not simply passed on to users.

For example, the UK CAA released a press notice during the takeover bid by Ferrovial for BAA Plc stating that it “will set caps on airport charges in accordance with its statutory duties and not in order to accommodate any particular financing arrangements adopted”<sup>26</sup>. In effect, it was stating that the risk posed by a high gearing level would not influence the efficiency and charges targets in their regulatory review.

#### **Risk-averse nature of the regulator.**

But regulators must also be wary of being too risk-averse themselves. Regulators want to avoid the risk of regulated companies being unable or unwilling to finance necessary new investment, but also the risk of the regulated company earning significant excess profits. The regulator may be too risk-averse towards the latter – resulting in a trade-off of a higher risk of the former occurring.

#### **Airline intransigence.**

Regulators should also recognise that airlines can, in some cases, be risk-averse or unsupportive towards new investment. Slots at capacity constrained airports can represent an asset, with airlines setting fares to reflect the shortage of capacity. In such cases, airlines may be less incentivised towards an increase in user charges to deliver longer-term increases in capacity for all airlines. As such, regulators need to take account the needs of all existing and possible future airline users when evaluating investment plans.

<sup>26</sup> CAA (2006), “Possible Offer for BAA plc: CAA Statement”.

## FINANCING AND DELIVERY OF INVESTMENT

The conventional approach to financing new investment has been to require airport or ANSP users to commit to paying for the investment, often in advance of delivery, even though they have little control over the management and delivery of the project. Therefore, airline users are sometimes asked to meet the cost of investment even if turns out to be uneconomic or not suitable for their needs.

IATA recognises the importance of user charges in providing a future revenue stream to provide a return on investment. However, as with a typical market-based investment, it is unrealistic to expect airline users to bear the full cost risks on a project yet have little influence in its project management.

While it is important to involve airline users in the definition and design of new investment, the investment risks should not be passed on to airlines through a pre-financing mechanism (i.e. increasing user charges in advance of new investment being delivered). Airlines should only pay for investments once they are in operational use or, in the case of large investments, clearly defined milestones have been completed.

However, in some cases, airline users may agree to a degree of pre-financing in respect of greater user and/or regulatory oversight of the project management and delivery.

In general, IATA is opposed to pre-financing of investment as it is considered to be:

### **Expensive.**

Raising investment funds from airlines users effectively means paying for the project where the source of financing is most expensive. Airlines have an estimated cost of capital of 7-8%, significantly higher than the cost of capital faced by airports, ANSPs or special-purpose financing structures.

### **Inefficient.**

Providing an upfront funding pool can distort incentives and reduce the cost-effectiveness of investment. For example, the use of funding from external sources means that the project seeks to maximise its cost-effectiveness to generate sufficient returns to repay the funding. By contrast, the use of pre-financing creates a fund to use, but fewer incentives on spending the money in the most effective way.

### **Impractical.**

The global airline industry continues to face significant financial pressures. Even though the industry is set to return to profitability, the rate of return on capital employed is still well below the 7-8% cost of capital level required for long-term sustainability<sup>27</sup>. Airlines also continue to face significant risks to profitability from volatile fuel prices and burdensome regulations.

### **Unfair.**

The airlines required to pay upfront for a new investment may not necessarily be the same airlines that use the facilities when in operation. In particular, new entrants can gain access to a new investment once open without having to pay the upfront charges. A major airport or ANSP investment also creates benefits far beyond the airline industry, and these other stakeholders may also have a role in financing the new investment.

There are more efficient financing mechanisms (e.g. capital market issues, special purpose investment vehicles, securitised cash flows) that can both incentivise and deliver cost-effective new investment. Efficiency requires that investment risks should lie with those best placed to manage it. In the project management stage that is the airport or ANSP and their external finance arrangements, not airline users. The role of airline users – and regulators if commercial agreement cannot be reached – is in determining the efficient level and timing of when investment is added to the regulatory asset base, including agreed project milestones, along with the rate of return for the investment. As discussed in chapter 3, an effective regulatory framework can benefit both sides by helping to provide greater certainty that investment carried out to agreed standards will be remunerated, thereby helping to lower financing costs.

In a high capital expenditure project there are two key considerations; the cost of capital and the ability to manage the project efficiently. As capital expenditure rises, and the investment risk increases, an appropriate gearing level and equity risk buffer needs to be provided. Debt has been used in many infrastructure industries, including privatised airports, even though it is inefficient to use debt financing to bear equity risk on a project, as that risk is typically passed on through higher charges. As such, as the next section discusses, an effective regulatory structure can also look to provide appropriate incentives not just for the targeting of investment but also to ensure it is financed in an efficient way.

<sup>27</sup> See IATA (2006), "Value Chain Profitability", Economics Briefing Note no. 4.

## OPTIONS AND REGULATORY PRINCIPLES TO INCENTIVISE INVESTMENT

IATA's preference is for effective and independent price-cap regulation, where the benefits of regulation are greater than any resource or behavioural costs it may impose. It provides greater incentives for cost-effective investment than price monitoring or rate-of-return regulation.

Contractual negotiations can lead to effective investment plans but, with the existence of asymmetric information, requires a fair and transparent approach to negotiations from both sides that does not always exist. As such, price-cap regulation can provide additional support to negotiations by providing an independent arbitration role towards investment plans in the event that commercial agreement cannot be reached.

Price-cap regulation can provide sufficient incentives for new investment. However, there are additional options that can be implemented within the overall regulatory framework to provide further support for new investment or to reduce the burden of regulation on the overall investment decision.

Potential options include:

### **Support for commercial negotiations.**

Airline users should be closely involved in the planning, design and timing of new investment decisions. Regulators can allow commercial negotiations to take the lead but provide regulatory oversight to ensure discussions can proceed on a fair and transparent basis. The success of this mechanism will be highly dependent on the amount of information the airport or ANSP is willing to reveal and on credible incentives to ensure agreed investment plans are delivered cost-effectively. As such, the regulatory structure should include a mixture of carrot and stick measures that provide incentives to engage users in a constructive manner, with appropriate penalties where this is not the case. Airline users and regulators can both have an important role in determining precise and measurable outputs and timescales for the investment process, as well as oversight of the level of resource inputs.

### **Mitigating regulatory uncertainty.**

Certain tools can be used to help reduce the uncertainty of returns on major investments without transferring too much of the risk on to users. For example, realistic contingency margins can be built into investment estimates and shared between the regulated company and users if they are not needed. Trigger mechanisms can also be used, allowing for a gradual increase in user charges for discrete large-scale investments (e.g. Heathrow Terminal 5), based upon agreed project milestones being met, rather than a very large increase once the project is completed. However, the degree of pre-financing involved in the use of trigger mechanisms must be minimised.

### **Increasing the potential rewards in return for bearing greater risk.**

Allowing a premium to be earned on the cost of capital in return for bearing greater risk could influence both the nature and financing of investment projects. For example, a split cost of capital – providing a higher return for new investment than for the current asset base – can increase the incentive for equity-financed new investment, while ensuring that the cost of capital is appropriate to remunerate past investment. Ring-fencing of high-risk elements within an investment project could also be used. However, careful consideration should be given to ensure that premiums for investment projects do not leak through into higher returns for all assets once an investment is completed and added to the overall asset base.

### **Adapt regulation to reduce asymmetrical information.**

Companies face uncertain demand for investments, but their understanding of the true level of and need for investment is better than that of the regulator. Therefore, as discussed in chapter 4, incentive schemes can be introduced to reduce asymmetrical information and to encourage the regulated company to enter into more transparent negotiations with the regulator and with airline users. For example, the UK electricity regulator offered different rewards based on the difference between planned and actual expenditure – with greater rewards for companies that revealed the true nature of their expenditure and investment plans<sup>28</sup>.

### **Competition between airports.**

Regulators may need to examine the impact of a concentration of ownership of airports within a region on charges and investment plans. They should ensure that common ownership does not allow an airport group to cross-subsidise an uncommercial investment at one airport within the group at the expense of airline users. General competition regulators may also be involved in examining regional airport markets.

### **Competition within airports (terminals).**

While competition between airports is often limited, competition could potentially be introduced within an airport through the separate ownership or operation of different terminal facilities. From a regulatory viewpoint, competing terminals would raise specific legal and regulatory issues – such as whether a different terminal effectively becomes a second airport with a separate regulated charges scheme – that are complex but not insurmountable. However, a greater concern is over its impact on efficiency and whether any gains from competition are outweighed by a duplication of costs and a reduction in terminal co-ordination. It may also, as in the case of Dublin airport, add additional complexity and delay to a new investment decision.

### **Competition within airports (airport services).**

Nevertheless, there are strong benefits to be gained from greater competition in some airport services, if not in terminal ownership, and this option should be kept under review in the future. For example, at Hong Kong airport, the management company introduced internal competition through open tenders for the provision of several services (e.g. maintenance) within the airport. In Europe, ground handling services have been opened up to greater competition.

### **Airline equity investment.**

In certain cases, airline users may also look to take an equity stake in an investment project in order to share directly the potential benefits as well as the potential risks of a project. In particular, airlines may look to contribute towards non-core investments that enhance the passenger experience though not the passenger capacity of an airport. For example, an airline equity stake in retail developments, especially those beyond the immediate airport boundary, can help to share the benefits derived from airline passengers while operating beyond the scope of a single-till regulatory system.

A full examination of each of these options is beyond the scope of this paper. However, IATA recommends that these and other potential options be kept under review for their ability to improve the existing or future regulatory framework. Strong and effective regulation is not incompatible with new investment.

The existence of these options ensures that a regulatory framework can continue to evolve and adapt to a change in priorities from improving the efficiency of existing assets to delivering significant new investment.

Where monopoly power does exist for an airport or ANSP, a good regulatory system is an essential tool. It helps to deliver timely and cost-effective new investment while ensuring that existing assets are used efficiently and meet the service quality needs of users.

<sup>28</sup> For further details see NERA Economic Consulting (Aug 2005), "Energy Regulation Insights", Issue 25.



# 09 | Summary

Independent economic regulation is an important tool in improving the efficiency of operations and investment within the aviation industry. It is required for all cases where competition is not sufficient to restrain the market power of an airport or ANSP. However, the costs of regulation must also be taken into account.

Regulation should be focused on where its potential benefits outweigh any resource or behavioural costs arising from its implementation.

This report has discussed the case for independent economic regulation for airports and for ANSPs. It also looks at the lessons available from the experience of different forms of regulation across several countries.

This discussion is important in the current climate where aviation infrastructure providers are adopting an increased commercial focus or, in several cases, are being transferred into private sector ownership. It is also important in the context of policy discussions of the airport/airline relationship in some regions – for example, the proposed EU airport charges directive.

The report provides the following key conclusions:

### **Independent economic regulation is often necessary.**

Economic regulation is justified for airports and ANSPs where constraints on market power are insufficient and where the exploitation of this market power can have a significant cost in terms of economic inefficiency. In such cases, the value of the aviation infrastructure – both to users and from the wider economic benefits it provides – can only be optimised through an independent and credible regulatory framework providing appropriate incentives for efficient service delivery and cost-effective new investment.

### **Regulation can provide significant benefits.**

Infrastructure industries – including airports and ANSPs – often contain firms with natural monopoly characteristics. In these cases, basic competition law may not be sufficient to protect customers and the wider economy from any potential abuse of market power, allowing a firm to raise prices in order to receive excessive and unjustified profits or to cover for inefficient delivery of services, or both. Effective regulation can provide important incentives for greater efficiency, improved service quality and investment in accordance to user needs – incentives that wouldn't otherwise exist.

### **However, regulation is not costless.**

Regulation is a second-best solution to free market competition. It does involve costs, in terms of both resources needed and the risk of regulatory failure in responding to insufficient or asymmetric information. Therefore, regulation is necessary only where there is a clear need to constrain the existence of market power for an airport or ANSP, and where the benefits of regulation in terms of improved economic efficiency clearly outweigh the costs of regulation. A market contestability test can be used to assess which airports have market power that is both material and subject to limited constraints.

### **The type of regulation chosen is important.**

Economic regulation for airports and ANSPs is available in a variety of different models, several of which have already been implemented in some countries. The different approaches to regulation reflect different views and objectives in pursuing efficiency and investment. Experience can provide important lessons on where best practice is shown and where problems can arise. In IATA's view, price-cap regulation is the most effective regime for improving airport and ANSP efficiency.

### **Regulation should be flexible enough to respond to changing objectives.**

Given the heterogeneous nature of airports and ANSPs, there is no perfect regulatory model to fit all situations. Instead, the principles of good regulation should be established within a robust and credible framework. Additional incentives and consultative processes can then be built in to the standard framework to ensure that an appropriate balance is achieved between greater efficiency for existing assets timely and cost-effective new investment and flexibility for the model to adapt to major external cost shocks.

### **An effective regulatory framework can provide benefits for all.**

An incentive-led process helps to improve efficiency and the business investment planning process, delivering capital investment in accordance with the needs of existing users while also safeguarding the rights of potential new users. In addition, a well-structured, independent regulatory regime is seen a “credit positive”, helping to boost credit ratings and lower debt financing costs for the regulated company. Fair and transparent regulation can reduce – not increase – risk and uncertainty for airports and ANSPs.

The need for good regulation exists whether an airport or ANSP is publicly or privately owned. A regulatory structure that incorporates the key principles discussed in this report can improve the constructive engagement between airports, ANSPs and users, to the benefit of all stakeholders in the industry.

IATA's preference is, where regulation is needed, it should involve detailed cost efficiency targets and service quality standards. It should preferably be based on price-cap regulation with single-till procedures. Such a system has been successful in improving efficiency where implemented and can be expanded and improved to meet changing investment needs. Nevertheless, even where an alternative regulatory framework is chosen it must meet certain key principles – including independence, appropriateness, transparency and consultation – if it is to be effective in improving the aviation industry for the benefit of all stakeholders.

## APPENDIX A: AIRPORT REVENUES AND CHARGES

	Financial Performance 2005				Airport Charges Index 2005	
	Revenues (US\$m)	Operating profit (US\$ m)	Operating Profit Margin	Return on Capital Employed	Rank (Highest = 1)	Charge Index (Highest = 100)
BAA Plc	4,040	1,261	31.2%	5.4%	-	-
Heathrow	1,950	809	41.5%	13.0%	27	58
Gatwick	590	181	30.7%	6.6%	44	35
AENA	2,900	n/a	11.9% (2004)	3.5%	-	-
Madrid	-	-	-	-	39	40
Fraport AG	2,652	386	14.6%	9.0%	9	72
Aeroports de Paris	2,371	439	15.2%	10.0%	-	-
Paris CDG	-	-	-	-	7	77
Port Authority of NY and NJ	1,792	388	21.7%	n/a	-	-
New York JFK	-	-	-	n/a	5	88
Newark	-	-	-	n/a	1	100
Narita International Corp	1,506	369	24.5%	0.3%	8	75
Schiphol Group	1,174	385	32.8%	6.2%	12	69
Kansai International Corp	920	200	21.7%	0.7%	4	91
Hong Kong International	911	548	60.2%	1.5%	46	32
Flughafen Munich	848	19	2.3%	-0.2%	18	60
Avinor (Oslo)	812	125	15.4%	5.8%	29	55
Great Toronto Airports Authority	788	-97.8	-12.4%	1.0%	2	99
Seoul Incheon International	776	337	43.4%	n/a	31	54
Luftfartsverket (Sweden)	755	72	9.6%	-1.1%	22	59
Infraero	725	11	1.5%	n/a	-	-
Sao Paulo GRU	-	-	-	n/a	35	48
Aeroporti di Roma	719	182	25.3%	8.2%	33	52
Manchester Airports Group	684	149	21.8%	5.1%	n/a	n/a
Dublin Airport Authority	651	116	17.9%	n/a	41	38
City of Chicago Dept of Aviation	625	7.3	1.2%	1.9%	15	63
CAA of Singapore	623	240	38.5%	4.4%	45	32
Aeroporti di Milano	589	274	46.5%	8.9%	32	52
Miami Dade County	585	132	22.6%	1.7%	30	55
Los Angeles World Airports	574	-1	-0.2%	5.7%	47	31
Unique Zurich	561	140	24.9%	2.5%	10	71
Flughafen Wien AG	537	114	21.3%	14.1%	16	63
Denver Aviation Dept	495	31	6.3%	n/a	n/a	n/a

San Francisco International	477	58	12.2%	3.8%	34	49
Metro Washington Airports	477	63	13.2%	0.5%	21	60
Southern Cross (Sydney)	466	266	57.2%	5.0%	14	65
Copenhagen Airports	455	161	35.5%	10.8%	23	59
Airports of Thailand	422	n/a	54.9% (2004)	12.3%	42	36
Flughafen Düsseldorf	418	30	7.1%	n/a	25	59
Brussels International	415	122	29.4%	5.6%	19	60
Athens International	410	153	37.2%	6.0%	3	97
Dallas Fort Worth International	389	16	4.1%	n/a	28	57
Beijing Capital	379	164	43.4%	n/a	n/a	n/a
Massachusetts Port Authority	375	165	44.2%	n/a	n/a	n/a
Chiang Kai-Shek Airport (Taipei)	350	213.7	61.1%	n/a	43	35
Airports Company South Africa	340	212	62.5%	24.9%	38	43
Aeroporos de Portugal	306	64	20.9%	11.8%	26	59
Finavia (Helsinki)	301	29.2	9.7%	3.6%	37	43
City of Atlanta	299	195	65.5%	7.4%	n/a	n/a
Malaysia Airports Holding	294	74	25.0%	3.1%	48	28
Vancouver International	272	n/a	50.7% (2004)	6.7%	11	70
Flughafen Berlin	271	37	13.7%	-1.8%	20	60
Polish Airports State Enterprise	265	75	28.4%	n/a	24	59
APAC Melbourne	243	82	33.8%	9.7%	n/a	n/a
Budapest Ferihegy Airport	238	64	27.1%	n/a	13	66
Czech Airports Authority	182	113	62.2%	n/a	17	61
Brisbane Airport Corp	172	122	70.7%	5.2%	n/a	n/a
Auckland International	152	82	54.3%	16.3%	n/a	n/a
Moscow Airport	n/a	n/a	n/a	n/a	6	77
Mexico City Airport	n/a	n/a	n/a	n/a	36	47
Jeddah Airport	n/a	n/a	n/a	n/a	40	39
Dubai Airport	n/a	n/a	n/a	n/a	49	23
Mumbai Airport	n/a	n/a	n/a	n/a	50	22

Source: Airline Business magazine, Dec 2006 edition, "Airport Financial Performance"  
 Transport Research Laboratory (Oct 2005), "Review of Airport Charges 2005"<sup>29</sup>.  
 Transport Research Laboratory (Sept 2005), "Airport Performance Indicators 2005"

<sup>29</sup> Largest airport taken for each Group unless otherwise stated.

## APPENDIX B: THE IATA AIRPORT BENCHMARKING INITIATIVE

IATA has developed and successfully used a simple but effective benchmarking model to:

- **Compare** performance with other airports.
- **Identify** improvement areas.
- **Track** performance development and lead cost reduction campaigns.

### Basic Framework of Analysis:

The focus of the benchmarking is on the main cost drivers for services to the users. There are four main areas of analysis to provide a balanced comparison across airports in any given region.

**Figure 1.**  
**Areas of Assessment for Cost Efficiency**



These areas ensure a logical flow of cost impacts:

- **Financial** illustrates areas where financial practices may have an impact on the cost base, whether or not they are under the direct control of the airport.
- **Productivity** is a measure of unit output per unit input and defines the level of utilisation of staff and capital, while giving an indication of the potential for improved internal practices.
- **Cost-effectiveness** quantifies the cost per unit of output of services including assessment of the unit cost for staff and operations.
- **Quality of service** qualifies the quality of the out puts as additional customer impacts from the service provided.

### Indicators and Metrics:

The Benchmarking uses a standard set of 16 indicators to populate the four areas:

**Figure 2.**  
**Indicators Used for the Assessment Areas**  
[Key Performance Indicator (KPI): metric]

#### Financial

Revenue sharing: *aeronautical revenue as a percentage of total revenue*

Depreciation impact: *depreciation cost as a percentage of total revenue*

ROCE: *return on capital employed*

Operating profit: *operating profit as a percentage of total revenues*

#### Productivity

ATM staff productivity: *aircraft movements per employee*

Pax. staff productivity: *passenger throughput per employee*

ATM capital productivity: *aircraft movements per capital employed*

Pax. capital productivity: *passenger throughput per capital employed*

#### Cost-effectiveness

Unit ATM service cost: *total revenue per aircraft movement*

Unit pax. service cost: *total revenue per passenger*

Unit staff employment cost: *total staff costs per passenger*

Unit operating cost: *total operating costs per passenger*

#### Quality of service

Stand availability: *stand availability per landing*

Runway capacity availability: *average throughput capacity vs. maximum capacity*





Passenger satisfaction: *aggregated output of passenger satisfaction surveys*

Baggage system availability : *aggregated serviceable hours of systems vs. desired hours*





The Benchmarking Model allows the outputs from the indicators to be displayed in the form of cost efficiency scorecards. These provide a clear representation of the performance of any airport against other airports in the region.

**Figure 3.**  
**Scorecard Outputs**

### Financial

Measures	Act.	Reg. Avg.	Reg. Group
Revenue sharing	40	60	
Depreciation impact	30	15	
ROCE	12	8	
Operating profit	10	34	





### Productivity

Measures	Act.	Reg. Avg.	Reg. Group
Staff productivity per ATM	0.64	0.42	
Staff productivity per Pax.	5.06	1.93	
Capital productivity per ATM	3.68	3.86	
Capital productivity per Pax.	1.15	1.42	

### Cost-effectiveness

Measures	Act.	Reg. Avg.	Reg. Group
Unit ATM service cost	376	388	
Unit Pax. service cost	109	106	
Unit staff employment cost	40	52	
Unit operating cost	24	36	

### Quality of service

Measures	Act.	Reg. Avg.	Reg. Group
Stand availability	0.95	0.92	
Runway capacity availability	0.95	0.94	
Passenger satisfaction	68	64.5	
Baggage system availability	97.6	99.2	



### Use of Outputs:

The Benchmarking model allows comparison of scorecards across airports or the change in performance for a particular airport over time. The scorecards are complemented by graphs showing:

- Passenger traffic growth and aircraft movement growth.
- Evolution of aeronautical charges for a B747 and A320.
- Local variances in purchasing power.

These elements provide a consistent basis for understanding airport performance, allowing engagement in more strategic discussions with respect to cost reduction opportunities, airport investment controls or longer term pricing.

The case for independent economic regulation of airports and ANSPs is clear.

- It improves efficiency and productivity throughout the industry.
- It encourages cost effective new investment.
- It benefits all stakeholders, from the regulated airports and ANSPs to the customers and the wider economy.





[www.iata.org](http://www.iata.org)