

# **Replacing Regulation: Airport Price Monitoring in Australia**

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**Abstract****Replacing Regulation: Airport Price Monitoring in Australia****Peter Forsyth****Department of Economics****Monash University**

Australia's decision to abandon price regulation of airports and to replace it with price monitoring is examined in this paper. The history of price regulation of airports in Australia is outlined. The problems which emerged with price regulation as implemented, along with the problems which were expected to develop, are analysed. The long term problems of ensuring an inefficient level of investment was a factor in the rejection of regulation. However the problem which brought the issue to a head was that of profit volatility and risk of firm failure. Rather than redesign regulation to cope better with these problems, the government chose to replace it with price monitoring. The system adopted involves monitoring of price behaviour and re imposition of price regulation should behaviour prove unsatisfactory. The criteria for satisfactory behaviour are critical. There is a real possibility that cost plus criteria will be used, leading to poor incentives. Alternatively, criteria more consistent with incentive regulation could be used, with better implications for productive efficiency. While price monitoring has not been introduced for this reason, it has a potential advantage, that of greater flexibility to take into account external factors which impact on the airports' performance. Such flexibility would have been valuable in the past, granted the airports' financial history, though it would have come at some cost in terms of additional discretion on the part of the monitoring body.

## **Introduction**

Australia provides an interesting case study of airport regulation. In the mid to late 1990s, most of the major airports in Australia were privatised, and subjected to price-cap regulation. Yet, within five years this regulatory system had been rejected, and replaced by price monitoring.

One objective of this paper is to explore why this occurred. Price regulation had given rise to several problems, and further problems were expected to emerge. Critically, airports had been unprofitable under regulation, and the events of September imposed a financial crisis on them. The governments response was to remove or modify regulation, on a temporary basis. It later decided to remove regulation altogether, and replace it with price monitoring. This reflected a concern with the financial implications of regulation, and the longer term implications for incentives to pursue efficiency.

A second objective is to explore how price monitoring might work. The details of the monitoring regime to be imposed are sketchy. The system does embody a sanction for unsatisfactory performance- the return to direct regulation. Critical to the working of a monitoring system are the triggers for the imposition of the sanction; these are yet to be determined. There is some chance that they will be cost based, depending on the actual relationship of costs to revenue. If so, they will embody poor incentives for productive efficiency. It is not necessary for this to be so however- the triggers for sanctions could be designed so as to be consistent with incentives for productive efficiency.

Another aspect of monitoring is the scope for flexibility. This could be important in the light of history , whereby regulation proved too rigid to allow for adverse external effects impacting on the airports. Ex post assessment of performance can allow for the impact of external factors on the airports more readily than regulatory rules set in advance can. This aspect of monitoring is analysed. The flexibility advantage could be a real one, though it comes at the cost of greater discretion on the part of the monitoring body.

The paper begins with a brief review of developments in price regulation of airports in Australia. The problems which arose with regulation, and led to its replacement, are considered. Some of these problems could have been mitigated by better design of regulation. The new price monitoring arrangements, and the options as to how it might work, are analysed. This move to price monitoring does present opportunities for introducing more flexibility. The paper concludes with some lessons from the Australian experience.

## **Airport Policy: A Brief History**

Until 1996, nearly all of the airports serving passenger traffic were either owned by the federal government, or by local authorities. All of the large, international airports, with

the exception of that at Cairns, were owned by the federal government, and were operated by a public enterprise, the Federal Airports Corporation (FAC). These airports were not directly price regulated, though they were subject to a form of price monitoring, called “prices surveillance”, by the Prices Surveillance Authority (PSA), which was merged into the main competition regulator, the Australian Competition and Consumer Commission (ACCC) in 1995. The PSA produced one report into airport charges in 1993 (PSA,1993).

From the mid 1990s, all the airports owned by the FAC were privatised, beginning with the second and third biggest, Melbourne and Brisbane, and Perth, in 1997. Most of the other airports followed a year later, however the largest airport, Sydney, was held back from privatisation, partly because of the problems it posed for future development. The airports were sold in trade sales, and major investors in them included BAA (Melbourne) and Schiphol Airport (Brisbane).

Formal price regulation, to be implemented by the ACCC, was introduced at the time of privatisation (for more details, see Forsyth 2002). Five year price caps of the CPI-X form were set individually for each of the airports. The “X” factor was set with reference to expected traffic growth; for example, the “X” for Brisbane was set higher than that for Melbourne because of higher expected traffic growth. There was provision for an inquiry into regulation at the end of the five year period. Price-caps of this form had been used to regulate a number of industries in Australia, and some of the problems which could emerge had been anticipated. For example, the risk of reductions in quality were noted, and quality of service monitoring was put in place. The problems with inadequate investment under price-caps was also recognised, and a mechanism was put in place such that the airport could obtain an upward adjustment to the price-cap if it undertook investment which was approved by the regulator (ACCC,2000).

Sydney airport remained in public ownership, though it was slated for privatisation in 2001. Prior to this, the airport sought a price increase of over 100%. Using its prices surveillance powers, the ACCC undertook a review of this increase- it initially suggested that an increase of 76% would be in order. However the government did not accept all of the ACCC's analysis, and it instructed it to allow items (including a dual till) which would have the effect of making the allowable price increase about 100% (ACCC,2001). This was implemented in 2001. The privatisation of Sydney did not take place until June 2002; this was because the events of September 2001 (the September 11 terrorism incident and the collapse, a few days later, of Ansett, the second largest domestic airline) caused a sharp drop in traffic and considerable uncertainty. Curiously, the government offered the airport for sale before it had determined what regulatory environment it was to operate under, even though this was likely to change from the price surveillance which had been implemented up to that time. It had just received a report on price regulation, but had not announced its policy, when it took bids for Sydney, though it had announced its policy changes when final bids were put in.

The government entrusted the five year review of airport price regulation to the Productivity Commission (PC), its main microeconomic advisor. The PC commenced a

review in late 2000, and produced a draft report in August 2001. This report canvassed the option of relying solely on price monitoring rather than regulation, but it also raised the possibility of continuing price regulation (of the price-cap form) on the major airports, with price monitoring or no regulation for the smaller airports. The airports strongly supported the first of these options; they had been critical of price regulation, partly because most had been unprofitable, and because they saw regulation as too intrusive.

The September crisis had a major impact on the airports- some lost nearly a half of their traffic in a week. The airport, which had not been profitable, asked the government to remove or modify price regulation. In October, the government suspended price regulation of most of the airports, though it maintained price surveillance of Sydney airport, and it maintained regulation of Melbourne, Brisbane and Perth airports, though it adjusted their price-caps upwards by about 6-7% (Forsyth, 2002, forthcoming). With their now found pricing freedom, the airports increased their aeronautical charges, in some cases by over 100%.

The PC delivered its final report to the government in January, 2002 and the government released it publicly in May (Productivity Commission, 2002a). The report advocated the removal of direct price regulation and the imposition of price monitoring for the major airports, to be reviewed in five years' time. Price regulation could be re-introduced if the airports had abused their pricing freedom. The government accepted the Commission's recommendations, and from June 2002, all price regulation was removed. The larger airports, including Sydney, are now subject to price monitoring, and the smaller airports are not subject to any controls. The competition regulator, the ACCC, is currently devising a system of price monitoring.

### **The Experience with Price Regulation**

Price regulation of Australian airports was replaced after only a short period of operation. This came about partly as a response to problems which had developed, and partly as a response to problems which were anticipated to develop. As the September events and the government's response to them shows, price-caps became very difficult for governments to adhere to- they caused too much profit volatility, and threatened the viability of the regulated firms. Apart from this, other problems with price regulation had become evident during the reviews of pricing- most of these are the normal problems associated with regulation.

The problems which develop are symptomatic of the form of regulation. If cost plus regulation (such as rate of return regulation) is implemented, several problems can be anticipated. Most seriously, the incentive to minimise costs and produce efficiently is weakened, since the firm can simply pass on cost increases. In addition, the firm will have an incentive to over-capitalise, since it can make more profits with a large capital base than with a small one (the Averch and Johnson effect). To the extent that quality is a problem, it is likely that the firm will "gold plate" and supply a level of quality in excess

of that required by its customers. Cost plus regulation does not run the risk of bankrupting the firm, since prices can be adjusted upwards if the firm is incurring a loss.

Incentive regulation has been implemented in many countries since the 1980s in response to these problems. The essence of incentive regulation is that the price which the firm is allowed to charge does not depend on its costs. This is achieved via a price-cap, one form of which is CPI-X regulation. If it achieves low costs it is allowed to retain the profits; on the other hand, if revenues fall short of costs, the firm must bear the loss. Thus one problem which does emerge with incentive regulation is that of profit volatility- profits may be very high (which is awkward for a regulator or a government), or negative (this is even more difficult for the government because the supply of an essential service is threatened). Other problems associated with incentive regulation can be a degradation of quality of service, and inadequate investment. On the other hand, incentive regulation does promote efficient production, since the firm has a strong incentive to keep costs down.

Systems of regulation, as actually implemented, rarely fit perfectly into one or other of these types. In particular, when price-caps are revised, as they are periodically, regulators usually take the firm's actual costs into account, and set prices such that they cover expected costs over the regulatory period. There is some concern that "incentive regulation" may degenerate into cost plus regulation over time, as regulators pay close attention to the firm's costs when setting prices. In Australia, price-cap regulation is often implemented with cost based resets at the end of regulatory periods- nevertheless, regulation as it is implemented does have some of the properties of incentive regulation. Effectively, in Australia, most of the airports were subject to price-caps, which were due to be revised if such regulation was to continue- this revision might have been partly cost based. Sydney airport had been effectively subject to cost plus regulation.

The problems which have emerged at Australia's regulated airports are all those which could be expected from the type of regulation. Three types of problems have been of greatest concern; investment problems, problems with incentives to minimise costs, and profit volatility problems. There are other problems which can arise with regulation, for example, quality problems. These had been anticipated, and dealt with adequately. For example, the quality problem was addressed through the implementation of a quality monitoring system. Attention will be concentrated on the three main problem areas.

### *Investment Adequacy*

When price-caps were introduced for the privatised airports, it was recognised that ensuring adequate investment could be a difficulty. As a result, a specific investment incentive was built in. This took the form of the "necessary new investment" provisions (ACCC,2000). When airports undertook investments to increase capacity to cater for increased demand, or to improve the quality of the service (for example, improving landside access or extending a runway) they could apply to the ACCC to obtain a price increase to cover the cost of the investment. The ACCC might or might not approve the price increase; in several cases it did approve increases, but it did not do so in all cases. It

was guided by the responses of the airlines to the proposed investments- if they were in favour, it would be likely to approve them.

The curious feature of these arrangements was that they enabled price increases when investments to enable additional traffic to be handled. Normally, additional demand would lead to additional revenue, which would cover the cost of the expansion in capacity. Assuming that this did not entail increasing per unit costs, an airport should have an incentive to invest in capacity to cater for additional demand. A price rise should not have been needed. On the other hand, when the benefits of the investment accrue to the users, as they would with a runway extension, the airport would need some incentive to invest- a price rise would achieve this.

In fact, these arrangements served to correct another problem which was becoming evident- the initial price caps had been set too low to enable the airports to invest in extra capacity and cover their costs. Price rises for capacity expansion were used to compensate for price-caps which were too low.

The airports were critical of the way these investment provisions were implemented by the ACCC. In particular, they resulted in very detailed intervention by the regulator, which was needed to make an assessment even for quite minor investments - this led to high compliance costs. These provisions may have been simplified if price regulation had been continued.

These sorts of problems did not emerge with the more cost based regulation of Sydney airport. If anything, the reverse problem of excess investment may have been present. The airport undertook a major investment program in the late 1990s in preparation for the Sydney Olympic Games, and it was subsequently allowed to increase its prices very sharply. Whether all the investments it undertook were economic remains to be seen.

Getting investment right is particularly difficult in the case of regulated airports- perhaps more so than in the case of other regulated industries. This is because there is no well behaved long run cost function for airports. There are many indivisibilities, and the cost of additions to capacity vary widely from case to case. For a given airport, increasing capacity by 20% may be quite inexpensive, but increasing capacity by 30% may be extremely expensive, since a new runway on a constrained site may be needed. It is not possible to set prices which simultaneously cover current costs (approximately) and which also will be just sufficient in the longer term to cover the costs of investment.

This inevitably involves the regulator in having a detailed role in the assessment of investment. Some expansions of capacity can only be funded if the airport is granted a price increase, and the regulator will need to evaluate the airport's case. In doing so it will be at an information disadvantage, and it will need to rely heavily on the airport for information (and the airport need not have an incentive to provide accurate information).

This was a problem which the Productivity Commission paid particular attention to in its report (it has been particularly concerned about investment adequacy in other regulatory

contexts- Productivity Commission, 2001). Whether regulation takes the form of incentive regulation or cost plus regulation, the regulator will need to be closely associated with the evaluation of investment. Certainly, light handed regulation is not feasible. However, this may not be the main problem. Given the information asymmetries, there is a high chance that the regulator will get it wrong, refusing price increases when investment is needed, and granting price increases when they are not necessary.

With the price-caps as they were applied to the Australian airports, significant problems of inadequate or excess investment had not had time to develop. The main difficulty which had developed with the price-caps so far was that of the intrusiveness of the regulation. It probably would have been possible to have revised the arrangements so that the airports were given more discretion over their investment programs, and to have lessened the close involvement by the regulator in assessing major investments. However this would not have solved the information asymmetry problem; for major investments, the regulator would need to be involved, and it would have been making decisions based on inadequate information.

#### *Incentives for Productive Efficiency*

The primary rationale for incentive regulation is that it gives the regulated firm an incentive to keep costs at a minimum, though achieving productive efficiency. Most of the Australian airports were subject to incentive regulation in the form of CPI-X regulation. Interestingly, none of the parties to the reviews which took place sought to test whether it had achieved this aim. The ACCC was in favour of continuing price-caps; however it did not present any evidence on how well they were working in terms of productive efficiency. None of the parties wishing to replace price-caps, for example with monitoring, examined the impacts which regulation had had on productive efficiency.

The way the price-caps worked in the case of the Australian airports should have been fairly conducive to productive efficiency. For nearly five years (until they were adjusted in response to the September 2001 crisis), price-caps were set independently of the airports' actual costs. During this period, the airports had been experiencing poor profitability- partly because of excessively optimistic demand projections, the price-caps which had been set were probably too low for long term viability. In such circumstances, the airports should have been very keen to ensure costs were at a minimum. They may have expected cost based resets of the price-caps at the end of the five year periods (Australian regulators, especially the ACCC, tend towards cost based resets of price-caps). If this were so, they would have expected that efficiency gains would be taken away from them at the time of the resetting of the price-cap. Even so, they would have had a considerable incentive to minimise costs for the time of the current price period. While, over time, they may have done so, the price-caps as implemented had not yet degenerated into cost plus regulation.

As mentioned earlier, not all airports were subject to price-caps: Sydney airport was subject to a cost plus form of prices surveillance or monitoring. The pressure on Sydney

airport to minimise costs was less than that on other airports. Since the doubling of aeronautical charges in 2001, Sydney airport has the highest charges of major airports in Australia. One might have expected that scale economies would have enabled it to have lower per unit costs than smaller airports.

It is difficult to assess how productively efficient the Australian airports are, granted the lack of analysis. Such benchmarking studies as exist suggest that they are not poor performers. Low productive efficiency has not been perceived as a significant problem, and the rejection of direct regulation was not the result of an efficiency problem. The Productivity Commission was sceptical of all price regulation, possibly because it considered that even strong incentive regulation would be diluted over time and end up as a variant of cost plus regulation. To this extent its recommendations would have been conditioned by the expectation of future productivity problems rather than the experience of past problems.

#### *Profit Volatility and Firm Failure*

As implemented, price-caps for airports in Australia have constituted a form of incentive regulation. Under incentive regulation, prices are set without reference to the firm's own costs. This gives the firm a strong incentive to minimise costs, since it can keep the profits it earns. However it also imposes considerable risks on the firm.

The price of strong incentive effects is high risk. Some of the variables which affect cost and profitability are under the control of the firm. However many are not. When external events impact on cost or demand, it is not possible for the firm to vary the price; it must absorb them in changes to profit. Sometimes the firm may do unexpectedly well and it may be able to earn, and keep, high profits. On the other hand, external factors may be adverse, and the firm may earn a less than anticipated profit, or incur a loss. Within the normal price-cap, there is no mechanism for external events to be taken into account and for the price cap to be revised. To a degree this is recognised in actual regulatory structures; in Britain and Australia, cost based resets of the price cap act to lessen the volatility of returns (see Mayer and Vickers,1996), and in the US, earnings sharing formalises this by making the allowable price such that profits are shared between the firm and its customers (Sappington and Weisman,1996). Even when this is done, the firm may still be subject to considerable risks; for example, cost based resets of the price cap for the Australian airports would not have avoided the revenue crises which occurred in 2001.

If profits are volatile and unpredictable, there is a risk for the firm, and this risk can be costly. However, the firm does not bear all this risk- typically, the government will be very risk averse towards the returns of the firms it is regulating. If profits are high, there will be a political problem for the government- a monopoly it is supposed to be regulating in the public interest is seen as exploiting its market. Even where the regulated airport earns high profits because it has been able to achieve high efficiency, it is unlikely to be seen as this. The government is likely to have even more difficulties if the firm incurs losses, especially if there is a risk to its survival. Governments are responsible for

continued supply, and losses incurred by regulated firms pose a threat to this supply. Even when there is no genuine likelihood of the firm failing, the regulated firm will claim that it may fail, to obtain favourable treatment from the government or regulator. Governments cannot take the risk, knowing that they will be held responsible for interruptions in supply. With airports, sunk costs are a major proportion of total costs, and even if the firm which owns the airport fails, the airport itself is likely to remain viable under a new owner. Long term closure is unlikely, but if the owner of an airport collapses, it may take some time for ownership to be transferred and all property rights to be determined. The interregnum could be very damaging, and would amount to a political crisis for the government.

The attitudes of governments towards profit volatility and firm failure are also reflected in the actions of regulators. Regulators are risk averse. A regulator will be blamed if the firm it is regulating earns high profits- it will not be seen to be doing its job. The regulator will be in even greater difficulty if the firm it is regulating fails, and supply is interrupted. It is not surprising that regulators tend towards cost plus regulation. Often, when regulation is first set up, it incorporates strong incentive properties, but over time, regulators pay more attention to the firm's actual costs when resetting allowable prices. The initial regulatory system is usually recommended by treasury departments, who have a strong interest in promoting efficiency, but will not have responsibility for day to day implementation of regulation. Regulators will be more pragmatic and risk adverse. The price-cap regulation introduced for most airports in Australia was designed by treasury and transport departments; the much more cost based regulation for Sydney airport was designed by the regulator, the ACCC.

It must be questioned whether governments can commit credibly to incentive regulation. In Australia (Melbourne urban transport, airports), the US (California electricity) and the UK (electricity, Railtrack) governments have implemented price-caps as part of a regulatory package designed to improve incentives for productive efficiency. In all of these cases they have been forced, because of excessively high profits or losses, to modify the price-cap, initiate bailouts or simply remove the regulation. In some cases they may not have needed to act to enable the regulated firm to survive, but (in most cases) they were unwilling to risk its failure.

The revenue crisis of September 2001 was the proximate cause of the removal of regulation of Australian airports. This crisis had been precipitated by the September events, but it had been conditioned by the longer term unprofitability (revenues being above running costs but below total costs) of the airports under price-caps. This problem may have been exacerbated by airport owners paying too much for the airports when they were privatised- if so this winners curse is afflicting the seller as well as the buyer, and the government may not have been easily able to avoid it. The government responded to the crisis by adjusting the price-cap (in the case of the three largest private airports) or by removing regulation altogether, and implementing monitoring of some airports. Once the government had done this, it would have been difficult for it to have reinstated tight price regulation had it desired to do so.

### *Could these Problems have been Avoided?*

The government's response to the problems which were being encountered with price regulation was to remove it entirely, and replace it with a system price monitoring, which has yet to be designed. An alternative course of action would have been to improve price regulation.

As noted, one of the main problems with regulation as implemented was that of profit volatility. Incentive regulation inevitably imposes some profit risks on the firm because it sets prices which the firm is unable to alter even when it is incurring a loss. Some of the risk associated with profit is subject to the firm's control- giving it the incentive to minimise costs- but some of the risks are associated with factors outside the firm's control. If it is possible to design regulation such that factors outside the firm's control can lead to adjustment of the price-cap, it would be possible to reduce the volatility of profits without diminishing the incentives to produce efficiently. There are some ways in which this could be done.

#### Demand contingent price-caps or fixed revenue caps.

A demand contingent price-cap is one in which the regulated firm is permitted to alter prices if demand changes; for example, if demand is unanticipatedly low, it can increase its prices. A system such as this is in operation at Hamburg airport (see Niemeier, 2001). Alternatively, it may be subject to a cap on total revenue. It is possible to adjust price-caps for other factors which are beyond the firm's control but which may impact on revenue and profitability. In each of these options, if demand falls, revenue, and hence profits, need not fall as sharply, and the volatility of profits is reduced. There are some costs; allocative efficiency is not enhanced, since prices are increased when capacity is most readily available, and the airport will have a reduced incentive to add to traffic (the scope of an airport to increase traffic is often quite limited however). The airport also may not have a strong incentive to invest to cope with demand variability. In spite of these qualifications, if price volatility is a real problem, it can be reduced by mechanism such as these.

#### Use of Input Prices in Price-caps.

One source of profit volatility lies in variations in the prices the regulated firm pays for its inputs. Firms are typically permitted to adjust prices in line with a general price index, such as the CPI. This is an inappropriate price index for regulatory purposes, because input prices need not have any strong relationship to general prices. Replacement of the CPI by an input price index (which does not include prices over which the firm has some control) would lessen profit volatility while preserving incentives.

#### Ex Post Adjustments for External Factors.

If external factors impact, positively and negatively, on the firm's profit, it would be possible for the regulator to adjust the price-cap to take account of them. The regulator

would need to be convinced that the factors were genuinely outside the control of the firm before it permitted a variation of the price cap. Incentive properties would be preserved but profit volatility would be reduced. Essentially this is what happened when the Australian government allowed the three largest private airports to increase their prices in October 2001. While some might see this as weakening of incentive regulation, it could be interpreted as a practical response which preserved the integrity of the incentive regulation. The downside of this option is that it would give the regulator considerable discretion, which it would be under pressure to exercise when inappropriate. The price monitoring option, which has been adopted in Australia, can be seen as a variant of this option, since it involves review of pricing behaviour after the end of the period (see below).

#### *Yardstick or Benchmark Regulation.*

Yardstick regulation operates by setting the allowable prices for the firm with reference to the costs of yardstick firms. It may add to profit volatility. However, if all the yardstick firms are similar to the regulated firm (e.g. they are other airports operating in the same country), and are subject to similar shocks from external factors, reliance on yardstick firms' costs can decrease the volatility of returns.

Thus there are several ways in which the problem of profit volatility might be mitigated by better design of regulation. They would not eliminate volatility entirely; some of this is under the control of the firm, and it is desirable that remain to preserve incentives. Furthermore, the regulatory contract is inevitably an incomplete contract- it is not possible to specify every thing which may impact on the firm's profitability and make allowance for it. It may be possible to allow for more factors ex post than ex ante. These options also only address the profit volatility problem- they do not address the problem of setting prices which are consistent with, and encourage, the efficient level of investment. Incentive regulation probably requires the regulator to have considerable involvement in investment assessment as a prelude to making adjustments in price-caps to accommodate capacity expansion plans.

The Australian move away from price regulation can be seen as a response to the problems which the former regulatory system was encountering, or expected to encounter. The problem of profit volatility and the risk of firm failure were important factors in the decision. In the light of the Productivity Commission report, the government was also concerned about the difficulties of ensuring efficient levels of investment under regulation. It was also unconvinced of the general efficiency case for regulation. While regulation may improve allocative efficiency by keeping prices closer to costs (this must be qualified by the recognition that at airports, marginal costs may be well below or above average cost, to which prices are set close to), it may come at a greater cost of productive efficiency. All regulation has a cost element to it which diminishes incentives for productive efficiency, and over time, the likely move towards cost based regulation this problem becomes greater. Less rigid regulation or monitoring might promote efficiency while lessening the risk of firm failure.

### **Living Without Regulation: The Price Monitoring Alternative**

As from the middle of 2002, none of the privatised airports, now including the largest, Sydney, will be subjected to direct price regulation. Instead they will be subjected to a system of price monitoring. In addition, Australia has in place a system of access regulation, whereby a right of access under regulated terms can be obtained for essential facilities owned by a natural monopoly- in principle, airport facilities might be subject to this form of regulation, though it is not clear what this might entail.

The government's response to the Productivity Commission Report, released in May 2002, was to accept most of its recommendations. Price regulation of the airports would be replaced by price monitoring for a period of five years. After this period is up, there is to be a review of performance under monitoring. If an airport's performance has not been satisfactory, it may re-regulated. What constitutes satisfactory performance has yet to be determined. The Productivity Commission suggested some broad criteria, but did not go beyond them. The body in charge of monitoring will be the ACCC, and it is currently determining which variables it will require the airports to report on. Ideally, the criteria for satisfactory performance should be set out at the beginning of the probationary period, so that firms can know what is expected of them.

The ACCC has had considerable experience of "prices surveillance" of firms with market power. This has essentially meant that it has reported to the government as to what level of prices it considers is appropriate- in the main, it has assessed the reasonableness of prices with reference to costs. Sydney airport was subject to prices surveillance by the ACCC while in government ownership, and the other airports were also subject to this while they were in government ownership. The sanction for unsatisfactory performance has been decidedly vague, though government owned firms like the airports were not willing to charge prices in excess of those which the government had signalled it approved of. Privately owned firms with market power were also subjected to prices surveillance. In the main they have held to the ACCC's recommendations, but recently tugboat companies increases their charges above the level the ACCC approved- they do not seem to have been penalised for doing so (Productivity Commission, 2002b).

The system of prices monitoring suggested by the Productivity Commission is more explicit than prices surveillance because it does contain a sanction- that of re imposition of price regulation. Nevertheless there has been little analysis of how price monitoring might work. If monitoring is to amount to more than a regime for collecting data which are not explicitly acted upon, then it will need to consist of two aspects: first, a set of criteria for satisfactory performance, and second, a sanction for unsatisfactory performance. These two will be sufficient to alter the behaviour of the firm. Price monitoring can amount to a system of flexible regulation, and some of its properties can be desirable.

#### *Sanctions for Poor Performance*

Consider, first of all, the sanctions proposed for the airports. Will they be sufficient to deter unsatisfactory behaviour (what ever this is)? If the sanction is imposed, the airport will be price regulated, and probably profits will be modest- the regulator will aim to set prices which cover all costs and no more. Without this regulation, the airport will have more pricing flexibility, and will be able to earn higher profits in the long run, at least after the decision has been taken not to implement regulation. One option for the airport is to “make hay while the sun shines”, and charge profit maximising prices in the period before the review. While this may result, almost certainly, in re imposition of regulation, the gains in the short term may outweigh the reductions in profit in the long run. If so, the threat of re imposition of regulation would not act as a constraint on pricing behaviour. If the long run profits under continued monitoring were greater than those under short run profit maximisation, the airport would moderate its pricing in the short run- the sanction would work, to an extent.

The sanction may be seen as discrete, either being imposed or not. However, its impact need not be discrete. The airport will realise that the probability of the sanction being imposed will vary according to its behaviour. The more it raises its price above what it considers the safe level, the greater will be the probability of the sanction being activated. The airport will have to choose a price level for the short term which maximises expected profits over the long term, and the risk of price regulation will motivate it to keep its prices below the short run profit maximisation level. Thus the threat of imposition of regulation will be a real sanction, though how strong a sanction it will prove to be has yet to be seen. The effectiveness will depend on how precise the relationship between exceeding the bounds of satisfactory performance and activation of the sanction is. If the sanction is automatically activated even for very small deviations from satisfactory performance, it will be a moderately strong sanction. If considerable leeway is given between actual and defined satisfactory performance before the sanction is activated, the sanction will be less effective.

#### *Criteria for Satisfactory Performance*

The effect of monitoring will also depend on how the guidelines for satisfactory performance are set. There are two aspects to this- how tightly the guidelines are set and on what variables they are made dependent.

The guidelines might be set out in terms of the relationship of price to cost, or revenues to costs. If the guidelines are set very tightly, in the sense that unsatisfactory performance is defined as revenues at all above costs, the monitoring system may appear tight, but it will give strong incentives to the airports to price high in the short term and maximise profits, since there is little advantage in the short or long run in keeping behaviour satisfactory. On the other hand, if allowable prices are above costs, there may be an advantage in keeping prices within allowable bounds in the short term so as to be able to earn higher profits in the long run. If the relationship of prices to costs is the measure of satisfactory behaviour, the minimum ratio which will be sustainable in the long run without provoking sanctions for unsatisfactory behaviour (short run profit maximisation)

will be the that which delivers the airport this level of profit (in present value terms) over the long run.

The content of the criteria for satisfactory performance is of critical importance. This determines how price monitoring will work. If a cost based criterion is imposed, price monitoring will have the same incentive properties as cost plus regulation. Alternatively, if the criterion for satisfactory performance is that prices do not exceed some level set without reference to the firm's own cost, then price monitoring will function as a form of incentive regulation.

The indications are that the criterion for unsatisfactory performance by an airport will be that of earning high profits, or having revenues in excess of costs. The ACCC has normally adopted the criterion of the relationship of revenues to costs when it has undertaken prices surveillance, for example, in its prices surveillance of Sydney airport. It has recently issued preliminary guidelines for data collection from price monitored airports- these suggest it will adopt a cost based approach to monitoring (though the data collected could be used for incentive monitoring) (ACCC,2002). When the New Zealand Commerce Commission reviewed pricing at the three major airports, it used a rate of return criterion to determine whether they should be price regulated; while it recognised the relevance of productive efficiency, it gave it little attention (New Zealand Commerce Commission, 2002). It determined that Auckland airport's rate of return had been higher than its cost of capital and recommended price regulation on this basis. Thus it seems quite likely that the ACCC will adopt a cost plus approach to price monitoring. If so, the incentive properties will be poor; an airport which increases its profits by achieving efficiencies will be penalised by the imposition of price regulation. The incentive properties of such a system would be worse than those of a mixed system such as price-caps periodically reset by reference to the firm's own costs, the approach favoured by Australian regulators.

However, there is no need for a system of price monitoring to be cost based. The criterion for satisfactory performance can be one of prices which are no higher than those set with reference to external benchmarks, not the firm's own costs. For example, having prices higher than the average of costs for a group of comparable airports could be the trigger for the implementation of sanctions. Significantly, when the Productivity Commission recommended price monitoring, it suggested that the relationship of prices to the *efficient* level of costs be the trigger (Productivity Commission, 2002a, p353). An airport could keep higher profits which were the result of greater efficiency without triggering the sanction. If need be, adjustments can be made in the allowable prices to take into account external factors which may influence costs, such as unexpected changes in demand (in the same way as a demand contingent price-cap might work). If it were considered that a performance criterion which was solely related to external information, such as benchmark airports' costs, imposed too great a risk on the airport, it would be possible to also take into account the airport's own costs. The price monitoring system would then be comparable to earning sharing or sliding scale regulation - this might be considered to embody the best balance of risks and incentives. Indeed, it is possible to develop a price monitoring counterpart of any regulatory system- rate of return regulation, CPI-X

regulation of any mixed system. Ideally, the monitoring system should embody criteria for sanctions which are the counterpart of the regulatory option which would be chosen were price regulation to have been implemented.

### *The Properties of Monitoring*

A price monitoring system will differ from price regulation in terms of its flexibility of operation. The monitored airport is allowed to price as it chooses for a period, after which its behaviour is reviewed- if behaviour is deemed unsatisfactory, a sanction is imposed. Regulatory systems are more rigid- the airport must set prices no greater than those set by the regulator in advance. Even when circumstances change, perhaps dramatically, the airport is not permitted to change its prices.

The advantage of price monitoring is that it is possible for the effects of external events which impact on the firm's costs to be taken into account. When the firm's behaviour is reviewed, it is not penalised for increasing prices in response to adverse events beyond its control. It may be penalised for not passing on to customers the benefits of unexpected good fortune however. Even with more flexible forms of regulation, e.g. with demand contingent price-caps, it is not possible to allow for all contingencies in advance; there will always be some unexpected factors which impact on the firm's costs which ex ante regulation cannot allow for. Under a monitoring system with ex post review, it is possible to allow for these. Thus if a firm increases its prices to compensate for an unexpected external event, it will not be penalised.

The downside of monitoring is that it increases the discretion of the regulator/reviewer, especially if it attempts to move away from de facto cost plus regulation. Monitoring might work with the monitoring body collecting data on costs, prices and profits, and the review comparing these and imposing the sanction if revenues over the period exceed costs (in the manner that the New Zealand Commerce Commission operated). If a simple costs to revenue or rate of return criterion is adopted, monitoring is straightforward and easy. On the other hand, if the review body seeks to implement price-caps, set with reference to benchmarks, with flexibility, it will need to exercise discretion. It will need to determine which factors affecting costs were external to the firm and which were not. Some of these factors will be easy to allow for- for example, external demand shocks. Others may pose more difficulties. If it wished, the monitor/reviewer could impose pricing criteria without flexibility, and impose the sanction on the firm regardless of why it priced above the trigger level. If it operated in this way, the monitoring system would have no advantage over rigid price regulation. Ex post flexibility has the advantage that the volatility of profits and the risk of firm failure can be reduced, even when compared to a fairly flexible structure of ex ante price regulation. The price of this flexibility is increased discretion on the part of the monitor/ reviewer. This flexibility/discretion trade off has a precedent in the airport regulation system which has just been replaced. Airports were permitted to increase prices to cover the cost of necessary new investment. This gave them more flexibility, however they needed to convince the regulator that the investments met the criteria- this gave the regulator additional discretion.

Price monitoring, per se, does not make a large difference to the way in which investment and quality issues are handled. Its primary effect will be on the frequency of regulatory intervention. If an essentially cost plus approach to monitoring is taken, the impact on investment will be much the same as with formal cost plus regulation. The firm will have no incentive to invest wisely, since it can pass on the costs of excess investment to its customers. At the time of the review of performance, the review authority will assess whether revenues are in excess of total costs, including the costs of capital. The sanction will not be imposed if revenues are not above costs, even if costs are higher than they need be.

Alternatively, if an incentive approach to monitoring is adopted, the issue of how prices should change in response to investment arises. When the airport invests to increase quality, or to cater for additional traffic, its per unit costs may increase, and a price rise may be warranted. Under price regulation, as in the system recently replaced, the regulator will need to assess the investment proposal, and determine what price adjustment if any is to be permitted. Under monitoring, the assessment takes place after the event; the review body examines the investments undertaken during the period, and assesses what impact they could be expected to make on unit costs; if the airport has increased prices beyond the level warranted, given its investment, the sanction will be imposed. Individual investments are not assessed, but the investment program will need to be. The review body can use similar criteria to those which a regulator might use- for example, investments which have met with the approval of the airlines could be approved for price adjustment purposes. The review body still has considerable discretion, but exercises it only once, not continuously as under regulation. Again, regulatory discretion ins the price of flexibility.

Price monitoring is more “light handed” than direct regulation in that it involves less day to day involvement by the regulator in the decisions of the regulated airport. It may, however result in greater use of litigation (this seems to have been the case in New Zealand). If an airport is setting excessive prices, the airlines may take little comfort in the likelihood that the airport will be penalised at the time of the review, which may be several years away. If they do have any legal options to restrain the airport’s behaviour they will use them. Guidelines for behaviour which are clearly set out and embody flexibility may lessen the likelihood of litigation.

Formal imposition of sanctions if behaviour is not satisfactory is not the only way in which price monitoring might work. Monitoring sometimes has an effect through “shaming” firms that are behaving badly. Sometimes the purpose of monitoring systems is to highlight poor performance, and thereby encourage government or community disapproval. This disapproval may then work to moderate the poor behaviour. While this may appear to be a form of light handed regulation, it is unlikely to promote good incentives. Inevitably it will degenerate into weak cost plus regulation. This is because in the public arena, high profits enjoyed by a monopoly will be interpreted as poor behaviour; it will be assumed, always, that high profits are the result of exercise of market power. The possibility that they could be the consequence of efficient production is too subtle to be appreciated. When the price capped electricity firms in the UK earned

high profits, the government and regulator were forced by public opinion to alter the price cap to reduce them. Public opinion is a poor means of regulating firm behaviour.

How price monitoring works depends on the criteria set for satisfactory behaviour, and on the severity of the sanctions imposed for unsatisfactory behaviour. If there are strong sanctions, monitoring will work rather like regulation. If the criteria for poor performance are essentially cost plus criteria, then the system will work like cost plus regulation. If the criteria pay explicit attention to vectors beyond the firm's own control, then monitoring will work like incentive regulation but with an added degree of flexibility, to allow for external events which impact on the firm's performance.

Alternatively, if the sanctions are weak, the firm is given more pricing flexibility. It will have a smaller incentive to keep prices down to the level of its own costs, or the efficient level of costs. On average, prices will tend to be higher than warranted on allocative efficiency grounds (at least for airports which are not subject to excess demand or where the excess demand is rationed by non price means). There may be an offsetting advantage, in that weak sanctions lessen the link between costs and prices- this link is strongest with cost plus regulation, but is still present with price-caps as implemented, with some reference to the firm's costs. If this happens, the firm will have a stronger incentive to pursue productive efficiency. Monitoring with weak sanctions can be seen as moving towards a deregulated situation, under which the incentives for productive efficiency are strongest, but also the scope for the exercise of market power is also greatest.

#### *Access Regulation as a Substitute for Price Regulation*

Australia has a system of access regulation for natural monopoly essential facilities (see Productivity Commission, 2001). A competitor to an integrated firm with natural monopoly facilities can apply for access to these facilities, and if successful can negotiate conditions with the owner. If these negotiations are not successful, there is provision for the ACCC to arbitrate. Thus, a mobile phone company can obtain access on regulated terms to the local loop facilities of the vertically integrated telecommunications carrier. This system applies to airports, and its provisions have been used. In 1999 a car hire firm obtained access to the kerbside owned by an airport which it needed for its operations.

The issue is whether this right of access regulation could be used by an airport's customers as a substitute for price regulation. Suppose that an airline was unhappy with the prices charged by an airport because these charges were well above the airport's costs. The airline could seek access to the airport's natural monopoly facilities- its runway, taxiways, aprons and perhaps, terminal. With these it could effectively package its own airport services (and if need be it could sell to other airlines). If negotiations with the airport over charges for these facilities failed, it could ask the ACCC to arbitrate. The ACCC is likely to set cost based charges. The all up cost of obtaining the airport services package by access would be less than the price the airport charges for the package itself. If this were to happen, access regulation could be used by customers to undermine the high prices charged by the non regulated airport.

In principle this is possible, though it is not clear how practical an option it is. For a start, would all the facilities necessary for operation be declared for access? Furthermore, the access arrangements in Australia are very slow to implement, with much scope for the incumbent to delay proceedings. Nevertheless, the access route could provide a limit on the extreme use of market power by airports.

There is also the question of whether airlines would wish to go down this route. If an airline pays a high price at an airport, its competitors will be paying the same high price. If airport charges are increased, the airline will normally be able to pass the increase on to travellers (except when excess demand for the airport is rationed by non price means). Thus an airline or group of airlines is unlikely to have a strong incentive to incur the costs of mounting an access claim, which may not be successful. There may be some situations where an access attempt could be worthwhile, however. If an airline had a large share of the airport's total traffic, a successful access action might enable it to achieve lower costs than its rivals, and it could profit from this.

## **Conclusions**

In Australia, regulation of airports has been replaced by monitoring- this has been a response to the problems of regulation, both in ensuring efficiency, and more immediately, in ensuring the viability of the regulated firms. As implemented, price regulation was threatening the financial viability of the airports. This problem is not unique; it has occurred in several industries and several countries. Significantly, regulation had not degenerated into cost plus regulation, and there was no evidence of productive inefficiency. Regulation was replaced rather than redesigned- it would have been possible to have redesigned regulation to impact less on profitability while still preserving the desirable incentive properties. Governments find continued commitment to incentive regulation difficult.

Another factor behind the decision to replace regulation was the view of the government's advisor, the Productivity Commission, that regulation was not conducive to efficiency. The allocative efficiency gains from keeping prices close to costs were likely to be outweighed by productive efficiency losses from regulation.

The government opted for price monitoring, though the parameters of this are vague. The effectiveness of price monitoring in keeping prices close to costs depends on the strength of the sanction imposed for poor performance. The sanction proposed, that of re imposition of price regulation, will have some effect, though it is not sufficient to force prices to be equal to or close to costs.

The criteria for triggering sanctions are crucial. These can parallel the content of regulatory systems. Criteria can be cost based, triggering the sanction if the airport earns profits, regardless of whether these are the result of the use of market power or achievement of productive efficiency. Alternatively, they can be based on the

relationship of prices to the efficient level of costs. This would be consistent with incentives to achieve productive efficiency. Within a monitoring system it would be feasible to allow for the impact of external factors thereby reducing the volatility of profit and the risk of firm failure.

Price monitoring can work like price regulation, though, depending on how it is implemented, it can allow more pricing freedom for the airport. Monitoring has an advantage in that it can allow more flexibility, since it is always possible to allow for unexpected external factors which impacted on the airport's performance at the review stage. This flexibility is not costless, as it involves more discretion on the part of the monitoring body. However, in the light of the recent history of the Australian airports under regulation, this flexibility would be valuable.

The prospects for airport price monitoring in Australia are problematic. The approach to monitoring, and the objectives which it might achieve, have been ill thought out. The criteria for poor performance are vague, but there is a real chance that high profits, per se, will be taken as the criterion of poor performance. This would be consistent with the ACCC's history as a price monitor, and its suggested guidelines for data collection. In short, there is a distinct risk that monitoring may become a form of light handed cost plus regulation.

This outcome is not inevitable. Price monitoring could be consistent with incentives for efficiency, and it could operate in a more flexible manner than the price regulation did. It can combine strong incentives for efficiency with flexibility to allow for external factors which impact on the airports' performance, thereby lowering the risks of profit volatility and firm failure. To achieve this, it is necessary that clear criteria for poor performance, which are consistent with incentives for efficiency, be established. Relying on vague criteria will increase the likelihood that monitoring will degenerate into a form of cost plus regulation.

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