



Productivity Commission's draft report on price regulation of airport services

Comments on New Zealand experience and
incentives for monopoly pricing

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Contents

<u>1</u>	<u>Overview</u>	4
<u>2</u>	<u>New Zealand experience with price monitoring</u>	5
<u>2.1</u>	<u>Comparison of PC proposal and New Zealand model</u>	5
<u>2.2</u>	<u>Criticism of New Zealand model</u>	6
<u>3</u>	<u>Incentives for monopoly pricing</u>	10
<u>3.1</u>	<u>Price elasticity of demand for aeronautical services</u>	11
<u>3.2</u>	<u>Proper price comparison</u>	14
	<u>Appendix A: Simple model for the price choice of a multiproduct firm</u>	15

1 Overview

In an earlier report dated September 2001, NECG critically analysed land valuation and congestion issues arising out of the draft report of the Productivity Commission (the “PC”) entitled *Price Regulation of Airport Services* and dated August 2001 (the “Draft Report”).

The purpose of this report is to briefly canvass two further issues raised by the Draft Report, namely:

- an apparent failure by the PC to reconcile the unsuccessful New Zealand experience of airport price monitoring with its recommendation of a very similar scheme for Australian airports; and
- an argument put by the PC that the desire to maximise non-aeronautical profits would temper airports’ desire to set monopoly prices for aeronautical services, if the latter were unregulated.

On the first issue, there is a strong dissonance between the PC’s own account of why price monitoring has not worked as intended in New Zealand and their recommendation of a very similar system here. At the very least, this inconsistency suggests that some care is needed in advocating the approach New Zealand initially adopted. The lessons drawn from New Zealand should be articulated, and the recommended regime should be described in sufficient detail to ensure that Australia does not repeat that unsuccessful experience.

On the second issue, the PC’s argument appears misconceived in two important respects. First, the price elasticity of demand for aeronautical services at the major capital city airports is, by the PC’s own account, very low. Secondly, the PC’s argument is predicated on a comparison of two unregulated prices, but the relevant comparison is between an unregulated price and a regulated one. As a result of these apparent misconceptions, the PC’s conclusions arguably do not hold.

Each of these issues is discussed in turn below.

2 New Zealand experience with price monitoring

2.1 Comparison of PC proposal and New Zealand model

The PC's Draft Recommendation 12.1 sets out a new industry-specific monitoring regime to be introduced for major airports for a probationary period. The key features of this monitoring regime are that:

- during the five year probationary term, the regulator should not have the power to alter the monitoring regime or impose price regulation;
- information disclosure requirements are to be specified at the commencement of the period and should not be amended during the period;
- voluntary commercial agreements should be encouraged through the use of guidelines;
- near the end of the period of the regime, an independent public review of the success of price monitoring should be conducted by a party other than the regulator; and
- access provisions that mirror the generic declaration criteria under Part IIIA of the Trade Practices Act 1974 (Cth) would apply, although declaration of core airport facilities should not proceed unless the Minister is satisfied that price monitoring has failed demonstrably and irrevocably and that an airport's behaviour was causing significant efficiency losses.¹

The PC's recommended price monitoring scheme bears a striking similarity to the price monitoring regime for New Zealand airports, as described in Appendix G of the Draft Report. For example, the PC states that:

“The New Zealand approach to economic regulation of airports is in line with the approach the Government adopted with former state-owned industries in the 1990s. In general, this approach focused on:

¹ Draft Report, pages 312-313.

- requiring the disclosure of prices, terms and conditions for contractual arrangements, costs, performance measures, and financial performance indicators;
- the use of the Commerce Act 1986 to control anti-competitive behaviour; and
- threats of further regulation, such as price control if market dominance is abused, but perhaps in a different form than was previously employed in New Zealand (PSA 1995).

The desired outcome of this type of light-handed regulation was negotiated outcomes between parties, without the need for direct intervention by the Government.”²

2.2 Criticism of New Zealand model

Unfortunately, as the PC itself notes in the Draft Report, the New Zealand price monitoring regime has been the subject of significant criticism. The main concerns with the New Zealand form of price monitoring are summarised by the PC as including that:

- in practice, it appears a number of the objectives of light-handed regulation have not been met;
- the costs of using the system, both to airports and airport users, appear to have been high;
- the regulatory system appears to have been characterised by a high degree of uncertainty, both in terms of implementation, and how it might evolve over time. Since 1989, for example, there have been three reviews of the regulatory system; and
- the regulatory system has resulted in a relatively high incidence of litigation between airport users and airport operators and (in some instances) the

² Draft Report, page G.9.

Government, in part over interpretation of key elements of the legislative framework.³

Furthermore, as the PC also notes, the Commerce Commission of New Zealand (the “Commerce Commission”) recommended, in its recent draft report to the Minister of Commerce of New Zealand on whether price control should be imposed over charges for aeronautical activities at Auckland, Wellington and Christchurch Airports,⁴ that price controls be introduced at Auckland Airport.⁵

In reaching its draft conclusion, the Commerce Commission first considered allocative, productive and dynamic inefficiencies that stem from the light-handed price monitoring scheme. It then conducted a cost-benefit analysis of the necessity to, or the desirability of, controlling the price of aeronautical services (considering the acquirers of such services) and, finally, examined whether the market conditions were such that price control should be imposed.

The Commerce Commission concluded that:

“The requirement in section 52(a) of the Commerce Act is satisfied for all three airports. There is evidence that airfield activities (as defined in the Airport Authorities Amendment Act 1997) provided by [Auckland, Wellington and Christchurch Airports are] supplied or acquired in a market in which competition is limited or is likely to be lessened.

The requirement in section 52(b) of the Commerce Act is satisfied for two airports. There is evidence that it is necessary or desirable for the prices of the airfield activities supplied by [Auckland and Christchurch Airports] to be controlled in accordance with the Commerce Act in the interests of the acquirers of airfield activities.

³ Draft Report, page G.12.

⁴ Commerce Commission, *Price Control Study of Airfield Activities at Auckland, Wellington, and Christchurch International Airports*, Draft Report, Wellington, July 2001 (“CC Draft Report”).

⁵ Draft Report, page G.11.

Based on an assessment of the net efficiency benefits, the Commission's preliminary view is that market conditions are such that only the airfield activities supplied by [Auckland Airport] should be controlled.”⁶

Given these acknowledged shortcomings with airport price monitoring in New Zealand, the question naturally arises as to why the PC has put this solution forward as its preferred option in the Australian context. In what ways does the PC's preferred option differ from price monitoring as it has been practised in New Zealand? To what extent might any such differences prove crucial in overcoming the shortcomings observed in the New Zealand regime?

To the extent that these questions are addressed in the Draft Report, the answers are not clearly articulated. Following a discussion of these issues in section 11.1 of the Draft Report - in which the New Zealand experience is specifically mentioned - the PC reaches its Draft Finding 11.1 which does not appear to reflect or recognise the negative aspects of the New Zealand experience as detailed by the PC in its very same Draft Report:

“DRAFT FINDING 11.1

Price monitoring has potential to reduce compliance costs, promote commercial negotiation and reduce incentives for gaming of the regulatory system. If there is no scope for day-to-day regulatory intervention in firms' pricing, the risk of regulatory failure may be reduced and efficient outcomes promoted. But if it is highly intrusive it could have high compliance costs and reduce efficiency. To provide an effective restraint on the exercise of market power, price monitoring must be supported by a well-defined and credible threat that stricter forms of price regulation could be introduced.”⁷

In practice, it is likely that any system of price monitoring in Australia will be more detailed than the New Zealand arrangements (which have not involved much more than an obligation on the airports to consult with airport users) have been to date. It could therefore be argued that some of the difficulties that have marked the New Zealand experience as a

⁶ CC Draft Report, paragraph 141.

⁷ Draft Report, page 274.

result of a certain lack of clarity, might be avoided. Yet it is worth noting that the approach recommended in the Draft Report would create difficulties of its own, in some respects more acute than those encountered in the light-handed New Zealand regime.

More specifically, the Draft Report essentially creates a power for intervention to occur if it is clear that the price monitoring arrangements have broken down. This is the “well-defined and credible threat that stricter forms of price regulation could be introduced” that the PC recommends. NECG has experience of similar provisions in other jurisdictions, most notably in New Zealand telecommunications. The fundamental difficulty these provisions create is that they substantially alter the pay-off to the parties from adopting confrontational strategies. For example, those who would benefit from the introduction of stricter forms of price regulation will have incentives to ensure that the price monitoring arrangements fail, or at least are not seen to work. Moreover, for the threat to be at all credible, there must be plausible circumstances in which it will be acted upon; this can make it difficult for the Government to resist the pressures that come, for example, from highly visible and well-publicised litigation.

Since this will be known, there is a likelihood that the price monitoring arrangements will be seen as merely temporary – simply a question of time until the shift to one of the “stricter forms of price regulation” occurs. This alters incentives further, as the access provider may now have less interest in moderating access charges – all the more so if the charges in place when stricter regulation is introduced are likely to act as a base or reference point for future charging. Even putting this aside, the access provider may be faced with heightened regulatory risk, as the durability of the regulatory regime is uncertain. This in turn can legitimately raise costs and hence charges.

Furthermore, such regulatory risks - and associated increases in costs and charges – do not only follow as a result of uncertainty as to the *durability* of the regulatory regime. Such risks can also follow from the very *generality* of the regulatory regime. An example of this can be found in the New Zealand experience of telecommunications price monitoring. Although users made frequent complaints to regulatory authorities about the incumbent’s prices and pricing behaviour, it proved impossible to conclude one way or the other whether those prices fell foul of the relevant rules. Nonetheless, the incumbent became the subject of continuous investigations leading to a high degree of regulatory uncertainty and placing the incumbent in a difficult position as to the validity of its actions and pricing behaviour. At the same time, the experience demonstrated that, by its very nature, price monitoring *per se* affords a very weak level of protection for users and industry participants more generally.

As a result, while it is indeed true that more conventional forms of regulation are vulnerable to gaming, it cannot be said, at least without further details as to how the proposed regime would work, that price monitoring will “reduce incentives for gaming of the regulatory system”; rather, experience suggests that powerful incentives for regulatory gaming can occur under even very light-handed regimes.

3 Incentives for monopoly pricing

As noted in the overview to this report, the PC argues in its Draft Report that the desire to maximise non-aeronautical profits would temper airports’ desire to set monopoly prices for aeronautical services, if the latter were unregulated. More specifically, the PC has not been persuaded that there is a strong case for continuation of strict price control (namely, price caps) for any privatised core-regulated airports because, *inter alia*:

“... though these airports have market power, the case that they will act as monopolists that bring significant economic inefficiencies in the absence of strict price regulation has not been established - there appear to be strong commercial incentives, including the scope for increased profits in non-aeronautical activities from increasing passenger volumes, pulling in the other direction ...”.⁸

This interesting contention is canvassed in some detail in Appendix C.1 of the Draft Report. The argument, as set out there, is that if airports are able to earn additional profits from non-aeronautical activities, and if these profits depend on the passenger traffic volumes, then airports will have an incentive to reduce the prices of aeronautical activities below the stand-alone profit maximising level, provided that the demand for aeronautical services responds to price.

The line of reasoning requires that profits from non-aeronautical services depend on passenger throughput, which in turn depends on demand for air travel. The demand for air travel, however, depends on the price of airline tickets which partially reflects the price of the aeronautical services sold to the airlines by the airport.

⁸ Draft Report, page 310.

This line of argument may be criticised on at least two grounds. First, it is apparent from the PC's own statements that airport charges comprise a small proportion of airline costs, and that the demand for aeronautical services at the major capital city airports in Australia is extremely insensitive to price. At the same time, because there is virtually no alternate source of supply for air travel, the demand is relatively price inelastic. Secondly, even if an airport were motivated, for the sake of maximising profits from aeronautical and non-aeronautical services combined, to set aeronautical prices below the stand-alone profit maximising level, the new level is still likely to be well above the cost-reflective aeronautical price level which would result from either a workably competitive airport market or from cost of service regulation of airports. Consequently, the contention that a desire to maximise the combined profitability on aeronautical and non-aeronautical services would neutralise the allocative inefficiency arising from unregulated aeronautical prices, is not well supported by the evidence contained in the Draft Report.

Both of these criticisms is discussed below in further detail.

3.1 Price elasticity of demand for aeronautical services

As noted above, it is apparent from the PC's own statements that the demand for aeronautical services at the major capital city airports in Australia is extremely insensitive to price.

The PC sets out, in Box 5.2 of the Draft Report, four conditions that influence the price elasticity of demand for the services provided by airports, namely:⁹

- elasticity of demand for the final product or service;
- availability of alternative sources of supply of the service;
- proportion of total cost represented by the intermediate (aeronautical) services; and
- elasticity of supply of other inputs.

⁹ Draft Report, page 98.

Table 5.5 of the Draft Report summarises the PC's own conclusions on conditions 1, 2 and 4.¹⁰ There is virtually no alternative to air for international travel to and from Australia and, within Australia, 70 per cent of business travellers use air transport.¹¹ For the principal airports located in Sydney, Melbourne, Brisbane, Perth, Canberra and Adelaide, all of which operate mainly in the business/VFR market segment, the PC found that the potential for destination substitution was low, as was the potential for airport substitution.

Condition 3, according to statistics quoted by the PC itself, supports an interpretation that the price elasticity of demand is low for aeronautical services at the major capital city airports. For example, airport charges levied by those Australian airports comprise less than 1 per cent of the total average international airfare. Aeronautical charges comprise about 4 per cent on average of airline costs.¹² For domestic passengers, airport charges comprise 2 to 3 per cent of the average airfare, while on the Sydney-Melbourne route they amount to less than 1 per cent, and for Canberra-Brisbane they are less than 0.8 per cent of the full fare.¹³

The PC noted:

“Of itself, the fact that airport charges comprise a relatively low proportion of airline costs and airfares suggests that the price elasticity of demand for aeronautical services could be relatively low.”¹⁴

In fact, it was largely this analysis of price elasticity that led the PC to find that the major airports at Sydney, Melbourne, Brisbane and Perth have the most market power.¹⁵ Given this lack of price elasticity, substantial increases in aeronautical prices above the competitive level

¹⁰ Draft Report, page 120.

¹¹ Draft Report, page 106.

¹² Draft Report, page 116.

¹³ Draft Report, page 115.

¹⁴ Draft Report, page 116 (footnote omitted).

¹⁵ Draft Finding 5.1, page 122.

would have to occur before there were major impacts on passenger usage of the capital city airports.

Would the extent of these increases be tempered by the airports' desire to secure earnings from non-aeronautical services? Yes, they would, but there is no *a priori* reason to assume, as the PC seems to, that the tempering effect would be material.

Thus, as a general matter, the extent of the tempering effect will depend on the pattern of cross-price elasticities, as well as on the absolute area under the respective demand curves (for aeronautical and non-aeronautical services). On standard assumptions, it seems difficult to believe that the amount that could be lost in non-aeronautical revenues from price rises for aeronautical services towards the stand-alone monopoly level could be such as to induce price moderation. In effect, this would seem to require: (1) that the infra-marginal profit (the monopoly rent added to the normal profit) on aeronautical services must be less than that available from non-aeronautical services; and (2) that passenger numbers are very significantly affected by consumer prices for airline service (which in turn are affected by airport aeronautical charges). The first assumption seems implausible if there are better substitutes for non-aeronautical services than for aeronautical services, as must surely be the case;¹⁶ the second seems unlikely other than at price extremes. A more detail model of these effects can be found in Appendix A to this report.

The likelihood of any such tempering effect is even smaller if there is some price discrimination by airports and airlines. This is because the discrimination, even if it is highly imperfect (so that the price rises still lead to welfare costs), will weaken the effect on passenger numbers of changes to airport aeronautical charges.

Accordingly, the PC's conclusion that airports will have an incentive to reduce the prices of aeronautical activities below the stand-alone profit maximising level does not appear to be robust.

¹⁶ If this were not the case, then the argument simply says that the airport has and uses substantial market power in non-aeronautical services. This merely points to single till regulation, rather than being an argument suggesting that aeronautical charges will be set "too" high.

3.2 Proper price comparison

The second principal objection to the PC's conclusion that an airport's desire for non-aeronautical profits would temper its desire to raise aeronautical prices, concerns the fact that the PC couched its argument in terms of the comparison between the *unregulated* price of a *stand-alone* aeronautical services monopoly with the *unregulated* price of a *combined* aeronautical and non-aeronautical services monopoly.

In fact, the proper comparison of interest is that between the unregulated and regulated prices of a combined monopoly. Whether the unregulated prices of the stand-alone and combined monopolies are similar or not, the unregulated price of a combined monopoly is almost certain to be significantly higher than a cost-of-service-regulated price by virtue of the very low price elasticity of demand for aeronautical services. While the welfare consequences of this will depend on a variety of factors – including the extent of any price discrimination and the quality of the regulation applied – the mere fact of the potential profitability of non-aeronautical services does not, in and of itself, seem to deserve quite as much weight as the PC gives it in its analysis.

Appendix A: Simple model for the price choice of a multiproduct firm

To analyse the likelihood that *the desire to maximise non-aeronautical profits would temper airports' desire to set monopoly prices for aeronautical services, if the latter were unregulated*, it is useful to consider the optimisation behaviour of an airport that provides related and hence dependent services. To model this scenario, we consider a multiproduct firm using a general Ramsey-Boiteux framework, which captures the cross-elasticities between the products.

Consider an airport that produces aeronautical services and non-aeronautical services. Let $i=1$ represent the former and $i=2$ the latter. The airport charges p_i for the service i , whose demand is D_i . Assume $D_i=D_i(p_i, p_j)$. Let $C(q_1, q_2)$ be the total cost of producing q_1 of service 1 and q_2 of service 2. Assume $C(q_1, q_2) = C_1(q_1) + C_2(q_2)$, that is the cost function is separable. In other words, the costs of supplying aeronautical services is independent from the costs of supplying non-aeronautical services.¹⁷

The airport's profit with respect to the prices is then given by:

$$(1) \quad \pi(p_1, p_2) = p_1 \cdot D_1(p_1, p_2) + p_2 \cdot D_2(p_2, p_1) - C_1(D_1(p_1, p_2)) - C_2(D_2(p_2, p_1))$$

The airport maximises its profits by equating the marginal revenue and the marginal cost for each service.

$$(2) \quad D_i(p_i, p_j) + p_i \cdot \frac{\partial D_i(p_i, p_j)}{\partial p_i} + p_j \cdot \frac{\partial D_j(p_j, p_i)}{\partial p_i} = \frac{\partial C_i}{\partial q_i} \cdot \frac{\partial D_i(p_i, p_j)}{\partial p_i} + \frac{\partial C_j}{\partial q_j} \cdot \frac{\partial D_j(p_j, p_i)}{\partial p_i}$$

for $i \neq j$ and $i=1,2$.

The marginal revenue is decomposed into two parts. The first two terms of the left-hand side represent the classic effects of the change of one price on the revenue associated with that service. The third term of the left-hand side represents the indirect effect of cross-elasticity of

¹⁷ We contend, first, that it is likely to be the case and, secondly, that the main result would hold – although more algebraically involved – if it were not.

demand. This effect may be positive or negative, depending on the substitutability/complementarity of the two services.

Let us define the own-price elasticity of demand as $\epsilon_{ii} = -\frac{\partial D_i(p_j, p_i)}{\partial p_i} \cdot \frac{p_i}{D_i(p_j, p_i)}$. This is a positive number – as lower price raises the associated demand.

Define the cross-price elasticity of demand as $\epsilon_{ij} = -\frac{\partial D_j(p_j, p_i)}{\partial p_i} \cdot \frac{p_i}{D_j(p_j, p_i)}$ for $i \neq j$. For the case of substitutable services, this number is negative; for the case of complementary services, this number is positive.

With these definitions, and by substituting into equation (2), the optimised equality between marginal revenue and the marginal cost can be expressed as:

$$(3) \quad \frac{p_i - \frac{\partial C_i}{\partial q_i}}{p_i} = \frac{1}{\epsilon_{ii}} \cdot \left(1 - \frac{\left(p_j - \frac{\partial C_j}{\partial q_j} \right) \cdot D_j \cdot \epsilon_{ij}}{p_i \cdot D_i} \right)$$

This result is similar to those obtained by Baumol and Bradford,¹⁸ among others.

Assume the demands for the two services are independent; that is, the cross elasticities are zero. This is the textbook monopoly pricing scenario where the price is set such that the mark-up (the Lerner index) equals the inverse of the price-elasticity of demand:

$$(4) \quad \frac{p_i - \frac{\partial C_i}{\partial q_i}}{p_i} = \frac{1}{\epsilon_{ii}}$$

However, when the two services are not independent, pricing of aeronautical services might be tempered by the incentives not to restrict the number of passengers who will spend on

¹⁸ Baumol and Bradford, (1970), “Optimal Departures from Marginal Cost Pricing” *American Economic Review*, Vol 60, No 3, pages 265-83.

non-aeronautical services. In other words, the fact of complementary services would act as a self-imposed constraint on the use of market power. The fact that the term inside the brackets may be less than unity illustrates this possibility.

This analysis enables us to characterise the condition under which this is *significantly* correct.

The closer $\frac{\left(p_j - \frac{\partial C_j}{\partial q_j}\right) \cdot D_j \cdot \dot{a}_{ij}}{p_i \cdot D_i}$ is to unity, the stronger is the incentive to move away from monopoly pricing.

We can decompose this term into $\frac{\left(p_j - \frac{\partial C_j}{\partial q_j}\right) \cdot D_j}{p_i \cdot D_i}$ and \dot{a}_{ij} .

All other things being equal, the latter term has to be high in order to provide an incentive not to charge a monopoly price.

To give some insight, assume a constant marginal cost. Then, $\frac{\left(p_j - \frac{\partial C_j}{\partial q_j}\right) \cdot D_j}{p_i \cdot D_i}$ expresses the ratio between the profit on non-aeronautical services and the revenue from aeronautical services.

Similarly, a high cross elasticity is needed for the cross-effect explained above to play a significant role. In other words, for the tempering effect to hold to any material degree, the lower price on one service must lead to a significant increase in the demand for the other service.