



**Australian Competition and  
Consumer Commission**

**Price Regulation of Airport Services**

**Submission in Response to the Productivity  
Commission's Draft Report**

**October 2001**

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### **Attachments:**

- A. Report by NECG, “Productivity Commission draft report on price regulation of airport services: Comments on land valuation and congestion issues”
- B. Report by Dr Colin Gannon, “Selected Comments on ‘Price Regulation of airport Services’, draft report by the Productivity Commission: Land Valuation and Congestion Pricing”
- C. Report by NECG, “Productivity Commission draft report on price regulation of airport services: Comments on New Zealand experience and incentives for monopoly pricing”
- D. Detailed comments on the Productivity Commission report

## **Introduction**

The Productivity Commission's (PC's) report provides a detailed analysis of market power in the provision of airport services. In general the Australian Competition and Consumer Commission (Commission) agrees with the PC's conclusions about which airports and which services should be regulated.

The PC's report also provides a detailed analysis of the options for regulating airport services. The model proposed by the PC (option B: "Continuing reform") relies on prices monitoring and the Part IIIA access regime. The Commission considers that this model will not achieve the principles of good regulation identified in the PC's report. In the Commission's view the current arrangements or the PC's option A (labelled "Modified status quo") would give better outcomes.

This submission draws on the airport regulatory experience in New Zealand and the Australian experience to date with access arrangements in the aviation and telecommunications sectors. The submission also draws on detailed reports by NECG and Dr Gannon. The report at attachment A (NECG) provides comments on the PC's analysis of congestion and land valuation. The paper by Dr Colin Gannon also addresses these issues (see attachment B). A review of the New Zealand experience by NECG is provided at attachment C. This report also considers the likely conduct of unregulated airports (see attachment C).

The advice from independent experts (see attached reports) suggests that there are shortcomings in aspects of the PC's economic analysis. The Commission is also concerned that the report provides little empirical analysis and contains a number of factual errors. A number of these issues are addressed in this submission and in the consultancy reports. Attachment D provides further details.

## **Prices monitoring – a failed model**

The need for some form of economic regulation of airport services has been widely recognised. It is also recognised in the PC's report. Governments in every developed country regulate prices at privatised airports – except in New Zealand. In the U.K. and Australia through price caps, in the U.S. through controls on rates of return, and in Europe through a mix of the two.

When the New Zealand Government privatised Auckland Airport in 1988 it did not impose price controls, but instead relied on prices monitoring and the threat of price controls. The Government also adopted this approach to regulation of electricity transmission and distribution and telecommunications services. The aim was for a 'light handed' approach which would minimise the possible disadvantages associated with formal price controls.

The PC's monitoring recommendation seems to follow this approach.

The problem with this approach is that it has been tried in New Zealand (for over a decade) and is widely recognised as having failed. In New Zealand airport charges are considerably higher than Australia, and airport operators and their customers have been involved in lengthy and costly litigation processes.

The high social costs of the results to date have prompted the New Zealand Government to reconsider the 'light handed approach' to regulation airports. The Government asked the New Zealand Commerce Commission to review the existing arrangements. In its draft report (released in July this year) the Commerce Commission's preliminary conclusion was that "Both AIAL [Auckland Airport] and CIAL [Christchurch Airport] have used their market power in airfield activities by raising prices above the competitive level in a sustained fashion". The draft report recommends introduction of price controls at Auckland Airport.

Similarly the shortcomings of the 'light handed' approach have been recognised in other industries. The New Zealand Government is now moving to re-regulate, with new regulatory arrangements in the electricity and telecommunications sectors.

In October 2000 the Government announced a package of reforms to regulation of the electricity distribution and transmission services in response to the Caygill Review<sup>1</sup>. The reforms establish a new regulatory body and establish a mechanism for setting prices based on specified pricing principles<sup>2</sup>.

In relation to telecommunications the New Zealand Government commissioned an inquiry to examine regulatory arrangements in the sector<sup>3</sup>. The inquiry found that "the existing regulatory regime [of relying on the Courts, arbitration, or industry self-regulation to resolve access disputes (e.g. terms and conditions of interconnection, number allocation and portability)] is not best suited to achieving the Government's objective [that the regulatory environment delivers cost-effective, timely and innovative telecommunications services]." The inquiry concluded, "industry specific regulation ... is required."<sup>4</sup>

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<sup>1</sup> Inquiry into the Electricity Industry, Final Report to the Minister of Energy, June 2000. The report is available on the web site [www.electricityinquiry.govt.nz](http://www.electricityinquiry.govt.nz).

<sup>2</sup> For details see attachment A to the Commission's submission to the Productivity Commission's review of the National Access Regime.

<sup>3</sup> Final Report of the Ministerial Inquiry into Telecommunications, October 2000. The report is available on the web site [www.teleinquiry.govt.nz](http://www.teleinquiry.govt.nz).

<sup>4</sup> In particular, the Inquiry considered that:

- the existing regulatory regime:
  - has resulted, and is likely to continue to result, in significant delays and associated costs
  - is not able to provide consistent and clearly articulated guidelines in respect of access issues;
- and
- there is considerable scope for Telecom and, in some cases, other network operators, to:
  - refrain from passing cost reductions on to consumers
  - charge inefficient non-cost-based access prices
  - inhibit or delay competition, without necessarily breaching the Commerce Act.

The telecommunications experience suggests that the prices monitoring approach is unsatisfactory from everyone's point of view. It provides weak protection for users and puts facility owners in a difficult position. The experience was that there were continuous and constant complaints from users about what the service provider did. This was a one way street because they could not be shown to be right or wrong. Such expressed unhappiness lead to a lot of uncertainty. The telecommunications service providers just had to work on the assumption that the regime would not continue to exist. This led to less incentive to restrain pricing – “may as well make hay while the sun shines because the sun won't shine for long” was the approach (for a discussion about this see NECG's report on the New Zealand experience (at attachment C)).

To some extent the PC seems to have recognised the limitations of regulation by threat of regulation. It has proposed criteria which would “provide guidelines for what would be regarded as ‘good behaviour’ by the airports”.

The Commission considers that the proposal for ‘guidelines’ will not meet the objectives of good regulation set out by the PC in its report. If the guidelines are tightly defined the approach resembles price controls. On the other hand if they are loosely defined they will provide little or no guidance – leaving us with the New Zealand experience.

The Commission also has concerns about the process adopted by the PC in suggesting guidelines for good behaviour. Normally the PC's draft recommendations form the basis for comments from interested parties. In this case the PC has recommended guidelines but has not developed any specific proposals for comment. This means that interested parties will not have the opportunity to comment on guidelines developed by the PC. The Commission urges the PC to consult further with interested parties in the event that it chooses to pursue the option of ‘good behaviour guidelines’.

## **Reliance on Part IIIA of the Trade Practices Act**

A general theme in the PC's report is the idea that airport pricing issues should be addressed through voluntary commercial agreements. Such agreements could take the form of access undertakings under Part IIIA of the *Trade Practices Act 1974*.

This approach works well where both parties to negotiations have bargaining power. They do not work if the bargaining position is one sided. In such circumstances “take it or leave it” negotiations would be expected, an outcome experienced in airport negotiations in New Zealand.

In a normal competitive environment potential users have bargaining power because they can use an alternative supplier. This option is not generally available for users of major airports. Indeed at major airports users have very limited bargaining (or countervailing power), a point made by Professor Forsyth<sup>5</sup> and Professor King<sup>6</sup>.

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<sup>5</sup> Peter Forsyth, *Airport Price Regulation: Rationales, Issues and Directions for Reform*, Submission to the Productivity Commission Inquiry into Price Regulation of Airport Services, March 2001, page 4.

One area where airport users may have countervailing power is through recourse to regulatory provisions. The Commission considers that recourse to Part IIIA arbitration is likely if the PC's recommendations are adopted. The absence of price caps or other price controls would leave arbitration, or the threat of arbitration, as the only real bargaining chip available to airlines in negotiations with major airport operators. The Commission's experience in regulation of telecommunications services suggests that negotiated outcomes are unlikely. Instead the experience suggests that the parties would resort to arbitration. So far over 40 arbitrations have been notified to the Commission. Similarly the Commission's experience in regulating airports suggests that it is unlikely that airport operators and airlines will reach negotiated agreements on aeronautical charges.

The Commission does not favour use of Part IIIA or other negotiate-arbitrate models as the *primary* means for price regulation of airports. The experience with negotiate-arbitrate models to date suggests that they have a number of fundamental limitations, including:

- the high propensity for the parties to seek arbitration rather than negotiate outcomes;
- time consuming and costly processes;
- lack of certainty for both airport users and airport operators; and
- the potential in an airport context for the regulator to be drawn into micro-management of aspects of airport operations.<sup>7</sup>

The negotiate-arbitrate model was originally described as a 'light handed' model with arbitration only as a last resort. The experience since then suggests this is not the case.

In Australia the primary application of the negotiate-arbitrate model has been in telecommunications. Procedural requirements and the complexity of the issues means that the process has been slow. Two of the Commission's final determinations are subject to appeal to the Australian Competition Tribunal. The Tribunal is required to re-arbitrate the dispute. Again procedural requirements and the complexity of the issues mean that this process will take some time. The Tribunal has flagged that its processes will take a further two years. Further appeals are available after the Tribunal has made its decision.

Similarly, the airports experience with Part IIIA is not encouraging. In 1996 Australian Cargo Terminal Operations (ACTO) sought declaration of certain airport facilities owned by the Federal Airports Corporation. The final determination was made in March 2000. In all the process took over three years. This is before arbitration or appeal processes. These processes could add a two or more years.

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<sup>6</sup> King, S., *Market power and airports*, Report to the Commission, January 2001, page 23.

<sup>7</sup> See for example the Commission's Delta Car Rentals determination (discussed in chapter 5 and 13). The issues of concern to Delta raised a number of ground access operational issues which the Commission could be obliged to consider as part of an arbitration.

The PC sets out several principles for good regulation. These are that regulation should promote efficiency, minimise the regulatory burden on industry consistent with efficient outcomes, be transparent and low cost, be predictable and promote certainty, and be open to scrutiny and regulatory review. By relying so heavily on Part IIIA the PC's 'option B' does not meet the principles identified. Use of the negotiate-arbitrate provisions in Part IIIA:

- is *inefficient* in that it does not effectively constrain prices in the short to medium term. The regulated company would be free to set high prices while the declaration and arbitration process is running<sup>8</sup>;
- could make it difficult to achieve efficient pricing outcomes since the negotiate arbitrate model results in consideration of disputes on an ad hoc basis as they arise rather than considering regulated airport services as a whole;
- imposes a *high regulatory burden* on all parties, both in terms of the administrative costs and the delays involved;
- is *not transparent* since arbitrations are not public processes;
- may not be predictable and *will not promote certainty*. The PC states that: "Though compliance costs can be high, once precedents are set, the need for arbitration may decrease"<sup>9</sup>. This is not the case with Part IIIA arbitrations since they are not public processes. Arbitration outcomes are not made publicly available<sup>10</sup>;
- could deter investment because of the lack of certainty; and
- *limits scrutiny* because arbitration outcomes are not known to parties other than those directly involved.

Importantly the approach fails where regulation is most needed. The time frames involved make the process virtually irrelevant for new entrants. Similarly the costs involved may make the process inaccessible for small users such as new entrants and regional airlines.

The negotiate-arbitrate model makes most sense where flexibility is required. In the case of telecommunications, for example, Telstra is vertically integrated so has

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<sup>8</sup> Note this problem does not arise in the Telecommunications access regime since the regime allows for interim pricing arrangements.

<sup>9</sup> Productivity Commission, *Price Regulation of Airports*, Draft Report, Melbourne, August 2001, page 285.

<sup>10</sup> It could be argued that the 'good behaviour' guidelines proposed by the PC for purposes of prices monitoring would provide some certainty about arbitration outcomes. However, Part IIIA requires the Commission to have regard to specified criteria in carrying out arbitrations. The 'good behaviour' guidelines would not be directly relevant to those criteria and might or might not be relevant to the Commission consideration of a dispute. Furthermore, it could be difficult to give effect to the guidelines to the extent that they would relate to pricing of aeronautical services as a whole, while arbitrations relate to the specific services in dispute.

incentives to deny access. It could use non-price as well as price methods to do this. Arbitrations have the flexibility to deal with such matters.

In the case of airports the service providers are vertically separated. In general the operators should have every incentive to encourage access. The question then becomes one solely of price. In this case the flexibility advantages of the negotiate-arbitrate model would seem to add little. Because of this the Commission favours ongoing use of incentive regulation in the form of CPI-X price caps. Price caps provide clarity and certainty for all of the parties about pricing outcomes. They also provide strong incentives to service providers to reduce production costs. If well designed they can also provide good incentives for new investment<sup>11</sup>. The approach is consistent with the approach adopted in regulating electricity and gas transmission and distribution in Australia and airports in the U.K.

## Impact of recommendations - high prices

The PC states that its recommendation “rests on a *judgement* about likely behaviour of major airports. During the proposed five-year probationary period, the onus largely will rest on regulated airports to demonstrate their willingness to operate without exercising market power”(emphasis added)<sup>12</sup>. A repeated theme in the report is that there will be price increases, but that these will not have a significant impact on economic efficiency. As acknowledged by the PC this is a judgements call. There is no empirical analysis to support the conclusion. The Commission considers that the PC’s judgement does not stand up to scrutiny.

### *High prices*

The PC argues that the airport operators pricing behaviour will be moderated by “commercial incentives”. The argument is that high aeronautical charges will have an impact on passenger volumes and in turn non-aeronautical revenues and profits (such as car parking, retail and car rental concessions). In other words in making a decision on aeronautical charges the airport operator will take into account the impact on non-aeronautical activities. This implies a ‘single-till’ approach to pricing.<sup>13</sup>

The PC’s argument about the moderating effect of non-aeronautical activities only holds if demand for aeronautical services is reasonably *elastic*, otherwise restraining

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<sup>11</sup> This point was made by the PC, see page 258 of the PC draft report.

<sup>12</sup> Productivity Commission, *Price Regulation of Airports*, Draft Report, Melbourne, August 2001, page 311.

<sup>13</sup> This ‘single till’ approach is inconsistent with the PC’s discussion about investment. On the one hand it argues that the airport operator will take the whole of airport profit performance into account in setting aeronautical charges. The logic of this argument is that the airport operator would also take the impact on non-aeronautical revenues and profits into account in making decisions on aeronautical investments. Instead the report repeatedly emphasises the need for sufficient returns on aeronautical investments when considered in isolation (a dual-till model).

aeronautical charges will not maximise profit. However, in its report the PC argues that demand for aeronautical services is very *inelastic*<sup>14</sup>.

The Commission modelled profit maximising prices for Sydney Airport based on available published elasticities of demand for air travel. The modelling takes into account the impact of changes in aeronautical charges on non-aeronautical profits. The modelling indicates that *in a genuinely unconstrained environment* Sydney Airport would maximise profits by setting the following charges:

- \$120 per departing domestic passenger; and
- \$510 per departing international passenger.<sup>15</sup>

This compares with current charges of around \$8 per passenger for domestic passengers, and around \$35 for international passengers.<sup>16</sup>

The Commission would not expect prices of this magnitude because of the threat of government intervention. However, the modelling suggests that the PC's arguments about "commercial incentives" do not stand up to empirical scrutiny. Similarly, and as pointed out by NECG in its comments on incentives for monopoly pricing (see attachment C), the PC's arguments are not consistent with economic theory.

The New Zealand experience suggests that the PC's recommendations would result in substantial price increases if implemented. Even though prices monitoring is accompanied by consultation requirements and an explicit threat of price controls, charges at Auckland airport have increased rapidly over the past few years and are considerably higher than at Sydney Airport or the other major Australian airports.

The impact on consumers of a New Zealand outcome would be substantial. If Australia's major airport operators achieved Auckland Airport's rate of return on assets prices at some airports would more than double and the transfer from consumers to airport operators would be around \$1.4 billion over a five-year period.<sup>17</sup>

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<sup>14</sup> See for example the discussion about price discrimination in chapter 7 of the PC's draft report.

<sup>15</sup> The estimates have been derived as follows. A demand function (for aeronautical services) was estimated for both the domestic and international segments of the aeronautical business using elasticities from the New Zealand Commerce Commission report and Productivity Commission draft report. The profit maximising prices and outputs were estimated using the demand function and assuming a constant average cost function over the relevant output range. The modelling took into account the impact on non-aeronautical profitability. The Commission estimated non-aeronautical earnings per passenger based on information from the Commission's 1999-2000 regulatory reports. The Commission then optimised profit across the whole airport business.

<sup>16</sup> Based on a return trip not including the noise levy or government departure taxes.

<sup>17</sup> These estimates are derived by applying the average rate of return achieved by Auckland Airport on 'airfield' assets to the aeronautical asset base as reported by Melbourne, Brisbane and Perth airports in their 1990-2000 regulatory reports and as determined by the Commission in its May 2001 decision on aeronautical pricing at Sydney Airport.

In its draft report on whether price regulation should be imposed on its three major airports, the New Zealand Commerce Commission estimated the annual returns on assets achieved by Auckland airport

### *Efficiency impact*

The PC argues that allocative efficiency losses arising from monopoly pricing would be mitigated by price discrimination.

In practice there are limitations to the extent to which airports can price discriminate. Airports are restricted from price discrimination under ICAO policy<sup>18</sup> which makes it difficult for them to discriminate between airlines except at the margin. For example, the policy makes it difficult for airports to discriminate between a low cost carrier (eg Virgin Blue) and a full service carrier such as Qantas or to distinguish between routes. The PC also assumes that airport operators will always structure prices efficiently. Based on the experience in Australia and elsewhere this is far from clear.

Furthermore, and as explained by the PC: “An airport also will have an incentive to give price discounts only to marginal flights/passengers. However, there may be limits to such targeting. For example, an airline might substitute ‘new’ flights for existing ones, and while airports can distinguish between international and domestic flights and between airlines, their capacity to target passengers more finely may be limited”<sup>19</sup>.

The PC’s argument that price rises will have a limited impact on efficiency seems to rest heavily on price discrimination arising from levying charges on a tonnage basis. The report argues: “MTOW [tonnage] based charges roughly assume the properties of so-called Ramsey pricing. That is airport charges will be levied in inverse proportion to the price elasticity of demand”. The argument is that the tonne/passenger ratio is higher the larger the aircraft; that larger aircraft tend to fly the longer routes; and that since these longer routes are more expensive the passengers will be less sensitive to higher aeronautical charges.

To argue that tonnage based charges reflect Ramsey pricing seems questionable for a number of reasons:

- often large aircraft fly on short haul services (eg Melbourne-Sydney), while smaller aircraft service many longer haul international routes (eg some New Zealand routes, and other smaller international destinations);

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since 1989. The average return was 13.47%, which is effectively a post-tax nominal WACC. Commission staff modelled the price increases for the 4 major Australian airports that would arise were they to achieve this rate of return. The modelling shows that aeronautical charges at Sydney Airport would rise by a further 60%-70%, and that aeronautical charges would increase by around 200% at Brisbane Airport, 90% at Melbourne Airport and 50% at Perth Airport. These increases would generate \$1.46 billion in additional revenues over five years.

<sup>18</sup> International Civil Aviation Organisation (ICAO), ICAO’s policies on Charges for Airports and Air Navigation Services, Sixth edition, 2001, see paragraph 15.

<sup>19</sup> Productivity Commission, *Price Regulation of Airports*, Draft Report, Melbourne, August 2001, page 161.

- tonnage charges are paid irrespective of load factors. Typically load factors are lowest for new entrants (which means that the new entrant airline may well pay *more* per passenger than the incumbents);
- tonnage charges do not distinguish between budget and full service carriers;
- tonnage charges do not differentiate between tourists and business services;
- tonnage charges do not distinguish between passengers;
- the tonnage/passenger ratio does not vary a great deal between passenger jets; and
- at some airports (including Sydney and Canberra airports) charges are levied on a per passenger basis;

To some extent airlines can price discriminate between passengers. However, airlines are not perfect price discriminators. Furthermore effective price discrimination would require the airport operator to distinguish between airlines (eg low cost versus full service) and routes.

While some of the impact of higher prices would be purely distributional, significant increases in airport charges *will* have efficiency implications. These cannot be ignored.

## **Aviation industry stability and user protection**

The difficulties experienced by Ansett Airlines and the anticipated downturn in international tourism makes the current aviation environment difficult and uncertain. The Commission considers this the wrong environment to be experimenting with major regulatory changes.

The current aviation environment makes stability in airport regulation and pricing more important than ever. Assurance of reasonable access prices for all airport users is needed to encourage new domestic entrants and safeguard competition. The price increases that are likely to flow from implementation of the PC's recommendations will work against new entry and will work against a recovery in air traffic. This will compound the major downturn already being experienced by downstream sectors. The risks are particularly high for the tourism industry. With four million international tourists per annum and \$16 billion in spending the stakes are high.

## **Market power**

The ACCC generally agrees with the PC's conclusions in relation to market power, both in terms of the depth and breadth of market power at airports, and across a range of their services. This submission comments on two aspects of the PC's analysis:

- market power at Adelaide, Canberra and Darwin Airports; and
- taxi and other forms of passenger access to terminals.

In its original submission the Commission concluded that the market power of Darwin was materially less substantial than the other airports it recommended for regulation.

The PC came to the same conclusion in its draft report. Given Darwin Airport's limited market power the Commission agrees with the PC's recommendation to remove the price cap and to replace it with monitoring.

The PC also argues that the market power of Adelaide and Canberra airports is limited by demand side substitution possibilities. The PC argues that road travel is a viable alternative for travellers to these destinations. This seems questionable given that road travel is an unattractive option for business purposes, and that business represents a major share of traffic at both airports. Nevertheless Canberra and Adelaide airports are relatively small. While they are important to the South Australian and ACT regional economies, they are not so material to the national economy. For this reason the Commission does not disagree with the PC's recommendation to replace price caps with prices monitoring at these airports.

In relation to taxi charges the PC states:

On balance, the market power of airports in providing these [taxi parking] facilities appears moderate. The ability of airports to impose charges above efficient levels appears to be limited if access for competing modes is provided on reasonable terms and conditions.<sup>20</sup>

The position that there are competing modes of access was made in the Commission's submission. The point made in the submission was that the airport operator would have significant market power in relation to access to passenger terminals unless one or more of the access options was price restrained. The PC also makes this point but does not address it in its recommendations.

The competing modes of access discussed by the PC consist of:

- taxis;
- buses;
- limousines;
- trains (at some airports); and
- private vehicles.

The PC argues that regulation of "vehicle access facilities" (ie kerbside access to terminals) would be sufficient to keep taxi charges reasonable. This approach works for passengers *arriving* at the airport - private vehicles, taxis etc can drop off passengers and immediately leave the airport. However, for passengers *departing* from the airport, use of kerbside by itself is of little use. In practice the picking up vehicle can only use the kerbside in conjunction with parking or waiting areas. This is because congestion problems would arise if vehicles waited for passengers. Airport operators typically address this congestion problem by requiring taxis to use holding ranks in order to pick up passengers and by strictly limiting private vehicle, limousine and bus use of the kerbside area for purposes of picking up passengers. In other words, airport operators control taxi and all non-taxi modes of access.

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<sup>20</sup> Productivity Commission, *Price Regulation of Airports*, Draft Report, Melbourne, August 2001, pages 142-143.

The best way of addressing market power the airport operator has in relation to passenger access to terminals is to provide some form of price control or scrutiny over at least one access mode. The Commission suggests taxis since they are widely used and available as a transport mode for all passengers. This is discussed in some detail in chapter 8 of the Commission's first submission to the PC.

## New Investment

In general an unregulated monopolist will tend to under-invest in the long run relative to the socially optimal level of investment. This is because monopolists have incentives to set prices higher than competitive, or efficient, prices. Unless they perfectly price discriminate (which as discussed above is an unlikely outcome in an aviation context) output will also be lower than competitive levels. In turn this results in lower capacity requirements and sub-optimal investment levels. Similarly investment by downstream users (airlines, and companies reliant on airline travel, such as hotel operators etc) would be sub-optimal.

These 'dynamic efficiency' losses are one of the reasons for regulating. A well-designed regulatory framework can address the risk of under-investment. As noted by the PC price caps can achieve this: "Price caps can be devised that could, in principle, and at least over time, deliver efficient prices and investment"<sup>21</sup>.

The Commission agrees with the PC that one of the key elements of a well designed framework is clarity and transparency: "where price caps are implemented, the approach adopted for investment should be spelled out clearly and transparently to all relevant parties in order to reduce the risk of inefficient outcomes and excessive gaming"<sup>22</sup>. More specifically the Commission suggests that:

- the investment amounts included in the price cap parameters should be made transparent;
- the airport operators spending against the investment allowance should be transparent; and
- the circumstances in which operators can pass through the costs of new investment should be clearly spelt out.

The Commission considers that the 'hybrid' model proposed in its submission meets these requirements.

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<sup>21</sup> Productivity Commission, *Price Regulation of Airports*, Draft Report, Melbourne, August 2001, page 258.

<sup>22</sup> Productivity Commission, *Price Regulation of Airports*, Draft Report, Melbourne, August 2001, page 259.

The hybrid model adjusts the ‘X’ value or starting point prices to compensate the airport operator for ongoing smaller investments<sup>23</sup>. This approach would minimise regulatory involvement in investment decisions. At the same time the hybrid model allows the airport operator to increase prices to recover the costs of major new investments such as a new runway or major terminal expansions<sup>24</sup>. The Commission suggests that the distinction between projects that would and would not be eligible for such a pass through could be made on the basis of ‘major development projects’ as defined in the *Airports Act 1996*. The pass through provision should not distinguish between ‘replacement’ and ‘new’ investments. In other words the pass through provision should be available for investments irrespective of whether they replace existing assets or add to capacity or quality.

One of the criteria set by the PC in its report is that aeronautical prices should be efficient in that they “encourage appropriate investment”<sup>25</sup>. The hybrid model can be designed to achieve this. The requirement is that the *additional* revenues and profits from the hybrid model compensate the airport operator for the costs (including a rate of return) of investments undertaken over the regulatory period<sup>26</sup>.

## **Airport congestion and land values**

In its option A (“modified status quo”) the PC recommends that Sydney Airport should be treated differently from the other airports. It argues that the regulatory arrangements should be set such that they “allow aeronautical prices that reflect opportunity costs incurred by airlines and their passengers of using the facility rather than costs of production incurred by the airport”<sup>27</sup>. The PC argues that this approach would result in higher prices which in turn would provide signals for more efficient use of airport capacity.

NECG has provided a detailed and systematic assessment of the PC’s analysis (the report is at attachment A). It concludes the following:

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<sup>23</sup> On page 257 the PC misrepresents the Commission’s position on starting point prices. The Commission considers that an allowance for the smaller new investments could be factored in either through adjustment to the ‘X’ value or starting point prices.

<sup>24</sup> The pass through provision should not distinguish between ‘replacement’ and ‘new’ investments. In other words the pass through provision should be available for investments irrespective of whether they replace existing assets or add to capacity or quality.

<sup>25</sup> Productivity Commission, *Price Regulation of Airports*, Draft Report, Melbourne, August 2001, page 258.

<sup>26</sup> It should be noted that prices for existing assets are not relevant to investment incentives provided that prices for services flowing from existing assets are high enough to cover the ongoing incremental costs of providing those services. The PC’s report repeatedly confuses this issue by linking the forward-looking increment to prices needed to provide incentives for new investment with prices on existing assets.

<sup>27</sup> Productivity Commission, *Price Regulation of Airports*, Draft Report, Melbourne, August 2001, page 308.

“In summary, our view is that the PC’s Draft Report and its conclusions about the issues analysed here are flawed in a number of important respects.

...important options are not analysed fully or even at all and, at times it is by no means clear quite what assumptions the Draft Report is making. Little empirical evidence is presented on the matters being considered, even through some of the Draft Report’s conclusions rest on what are ultimately empirical issues. Given the relatively high stakes involved, it would seem desirable to proceed to a more systematic and comprehensive analysis in the PC’s final report.”<sup>28</sup>

Dr Colin Gannon (former Director of the Bureau of Transport Economics and Lead Economist in Transport with the World Bank) also addresses the question of land valuation (see attachment B). Dr Gannon comments:

“The opportunity cost principles for land valuation is widely accepted, for example, by the Commission, the NZCC, SACL, and BARA, although views differ substantially on its interpretation.

But there are also formidable methodological difficulties in *practical empirical application* of the principle to estimation of the value of the total land at a major capital city airport site. Unfortunately, these practical difficulties are not discussed in the PC-ADC [the PC’s draft report]. It simply recommends the use of “*current (land) value*”, without suggesting how this should be estimated for the KSA site. Notwithstanding the attention given to land values in the PC report, perhaps the question of implementation was judged outside the PC’s TOR. Whatever the reason, valuation of aeronautical land is a core component in the pricing of airport services and in the shaping of their location. It should not be side-stepped. Without a satisfactory empirical methodology for estimating opportunity cost, alternative bases of valuation (such as indexed historical cost) are obliged to be adopted by default. ...A constructive empirical design strategy is need to progress this matter.”<sup>29</sup>

The Commission sought advice from Dr Rohan Pitchford to assist in its consideration of SACL’s land valuation proposals. Dr Pitchford concluded that:

“This note presents a sceptical view of the valuation methodology used in the Pricing Proposal. Valuation at surrounding land prices is appropriate for a decision about whether or not to move the airport, but not for regulatory value”<sup>30</sup>.

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<sup>28</sup> Network Economics Consulting Group, *Productive Commission draft report on price regulation of airport services: Comments on land valuation and congestion issues*, September 2001, pages 31-32.

<sup>29</sup> Dr Colin Gannon, *Selected Comments on “Price Regulation of Airport Services” (Draft Report by the Productivity Commission, August 2001)*, October 2001, pages 1-2.

<sup>30</sup> Dr Rohan Pitchford, *Sydney Airport Land Valuation – An Assessment*, March 2000, page 8.

NECG, Dr Gannon and Dr Pitchford are three of Australia's leading independent experts in this area. In each case their analysis suggests that the PC's analysis does not adequately address the complex issues of airport congestion and land valuation.

Drawing on the independent advice this submission makes some general comments about congestion and land valuation issues relevant to the PC's report.

*Land valuation and congestion should be considered separately*

The PC's report links the issue of land valuation and congestion. This approach would make sense if congestion arose from land constraints at the airport. This is far from clear. The cap of 80 aircraft movements per hour, the curfew and the protection of regional services are the primary causes of congestion. If these constraints were removed it is unlikely that congestion would be a problem for the foreseeable future. Indeed given the aircraft movement cap it is unclear that additional land would in any way alleviate congestion.

If (as is likely) land constraints are not the primary reason for congestion at Sydney Airport the two issues should be considered independently.

*New investment and congestion*

Given the existence of binding noise and regional aircraft constraints on capacity the best way of addressing congestion at Sydney Airport may well be through new investment. Capacity could be augmented by relatively small investments at alternative airports or airport sites.

The relevant decision-maker in considering whether to undertake such investments is the Commonwealth Government. In considering whether to make such investments it faces a range of issues including noise, other environmental issues, additional infrastructure requirements (eg transport links) etc. Airport pricing matters may or may not be material in the Government's considerations. Nevertheless the Commission considers that it is important that prices send signals which encourage efficient investment in new infrastructure. This was an explicit objective in the Commission's Sydney Airport pricing decision.

The PC recommends allowing the airport operator to capture congestion rents. This approach would send the wrong signals for investment. It would provide incentives for the owner of Sydney Airport to create or maintain congestion rather than relieve it.

*Managing congestion*

There are a number of possible mechanisms for managing congestion. These include:

- quantity controls such as the current slot allocation arrangements;
- market clearing approaches such as auctioning slots or slot trading; and
- pricing approaches such as peak period pricing.

Many factors are relevant to the choice of demand management instruments. The PC has recommended a pricing approach, but without considering the alternatives or the merits of those alternatives.

One of the disadvantages of the approach to congestion pricing recommended by the PC is the substantial information required to set efficient prices. This is not a trivial issue. To the contrary it is central to establishing workable regulatory arrangements. Furthermore the potential efficiency losses of getting prices wrong could be substantial.

Market clearing based solutions can effectively address the information and potential efficiency problems associated with the approach proposed by the PC. In fact existing arrangements may already provide a reasonably effective mechanism for managing congestion given the possibility of secondary trading in slots. The Commission encourages the PC to provide an assessment of market clearing mechanisms and the other options for managing congestion.

One thing that is clear is that prices increases without price restructuring is a very blunt instrument for addressing congestion, is relatively ineffective, and can result in significant welfare losses. Congestion management should aim to allocate scarce peak period slots to users who value them most. While across the board higher prices may deter some users from using peak period slots they may also deter off-peak users resulting in welfare losses.

Congestion management should also encourage airlines to use larger aircraft – thereby maximising passenger throughput. Across the board price increases may be counter-productive in achieving this objective. At the moment landing charges for domestic aircraft are tonnage based. Since the tonne/passenger ratio is typically higher the larger the aircraft, an increase in charges would increase the cost disadvantage faced by larger aircraft. In turn this could encourage use of smaller aircraft.

The price caps proposed by the Commission in its submission to the PC allow airport operators to restructure charges. In its decision on aeronautical charges at Sydney Airport the Commission encouraged Sydney Airport to restructure charges to promote more efficient use of scarce capacity.

The decision also considered the interaction between price levels and price structure. The Commission sought advice from NECG on whether price restructuring would provide strong enough signals for effective demand management without further price increases. Based on this advice it commented:

“NECG argues that the congestion problem faced by Sydney Airport is primarily a peak-load pricing problem. In this regard, to show that the allowable revenue under alternative land valuation approaches is too low to manage congestion, SACL would need to demonstrate that even when off-peak prices were zero, peak prices could not be high enough to manage demand without breaching the allowable revenue. Even if this were established, an

efficient peak-load pricing scheme could be implemented under which some formula for the distribution of the congestion rents was established”.<sup>31</sup>

The PC has not considered this issue and has not shown that further price increases are required to effectively manage demand.

### *Land valuation*

The PC’s report argues that land at Sydney Airport should be valued at opportunity cost. The Commission agrees with this principle. It formed the starting point for the Commission’s consideration of the proposals and the starting point for the public consultation process.

In his report to the Commission Dr Gannon stresses the importance for economic efficiency of the opportunity cost to society of the highly accessible land at the existing KSA airport site being reflected in charges for its use as an airport. Dr Gannon also stresses that since alternative sites for a major airport in the Sydney region do exist, the underlying opportunity cost of KSA land prevails, whether or not the outcome of a social cost benefit analysis and political determination would demonstrate that KSA-Mascot is at present the superior airport location.

The challenge in using an opportunity cost methodology is to apply it in practice. In this regard, Dr Gannon urges that a more robust empirical estimation method be developed.

One thing is clear: Sydney Airport did not use an opportunity cost valuation. Instead Sydney Airport adopted a DORC (depreciated optimised replacement cost) methodology. The approach factored in over \$200 million in holding costs – the hypothetical costs of holding the land while a hypothetical airport was constructed at the site. This may be appropriate for a DORC valuation but has nothing to do with opportunity cost. Similarly the proposals did not factor in the cost of converting the site to the housing and industrial uses the valuation was based on.

In its report the PC repeatedly asserts that the opportunity cost of land is greater than the land valuation adopted by the Commission. This assertion is not tested. Applying Dr Gannon’s approach to measuring opportunity cost suggests the reverse may well be the case – ie that the Commission’s land valuation is higher than the opportunity cost measure<sup>32</sup>.

The consultancy advice provided to the Commission, Sydney Airport and the airlines all point to the difficulty of tying down an opportunity cost valuation. Given the limited time available to it in making its decision, the Commission considered the

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<sup>31</sup> Australian Competition and Consumer Commission, *Sydney Airports Corporation Limited Aeronautical Pricing Proposal*, Decision, May 2001, page 149.

<sup>32</sup> This estimate uses SACL’s valuation but subtracts the ‘holding costs’ and the costs of converting the site to its alternative use.

alternative of a historic cost based measure. One advantage of this approach is data availability.

The PC argues that the approach adopted by the Commission “provides an ‘arbitrated’ solution to land values”<sup>33</sup>. This implies that the approach was not based on economic principles. This conclusion is incorrect.

The Commission and NECG conducted a detailed assessment of the signals that the historic cost valuation would send for efficiency. The analysis found that the methodology has a number of desirable properties. It would provide incentives for Sydney Airport to purchase new land if needed, and at the same time would fund the operating costs associated with aeronautical uses of land already purchased. The analysis also found that the historic cost approach would yield economic efficiency outcomes which were no worse than SACL’s proposals.

In its paper on the PC’s approach to congestion and land valuation NECG concludes that the PC’s approach to land valuation is “both implausible and very likely inefficient”<sup>34</sup>.

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<sup>33</sup> Productivity Commission, *Price Regulation of Airports*, Draft Report, Melbourne, August 2001, page 214.

<sup>34</sup> Network Economics Consulting Group, *Comments on Productive Commission draft report on price regulation of airport services: Comments on land valuation and congestion issues*, September 2001, page 24.



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

Comments on land valuation and congestion issues

**September 2001**



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# 1 Overview

The purpose of this report is to comment on certain aspects of the draft report issued by the Productivity Commission (the “PC”) entitled *Price Regulation of Airport Services* and dated August 2001 (the “Draft Report”).

The key issues addressed in this report are:

- land valuation; and
- the welfare consequences of inappropriate airport charging more generally.

This report begins with a discussion on the effectiveness of price-oriented approaches to the management of congestion externalities and reviews some of the issues raised by such approaches.

In essence, the PC assumes that there is a congestion problem at Kingsford Smith Airport (“Sydney Airport”) and on that basis argues that a scheme of congestion pricing ought to be adopted. It then argues that the valuation of the land used by Sydney Airport at its opportunity cost is required for this pricing arrangement, and will contribute to overall efficiency. Moreover, it asserts that the congestion rents collected under this arrangement should flow to Sydney Airport’s owner. The PC recognises that airports might use any monopoly power they have to increase charges, but it suggests that the welfare costs of the excess pricing would be low.

This report examines each of these arguments and concludes that the PC’s analysis of the issues of present concern, as reflected in the Draft Report, is flawed in a number of important respects:

- for example, congestion is, by definition, an externality. However, this well-studied concept is relatively little used in the relevant sections of the Draft Report. Instead, the PC evaluates the issues in very general terms, proposing regulatory arrangements as if they were obvious, when this is far from being the case; and
- as a result, important options are not analysed fully or even at all and, at times, it is by no means clear quite what assumptions the Draft Report is making. Little empirical evidence is presented on the matters being considered, even though some of the Draft Report’s conclusions rest on what are ultimately empirical issues. Given

the relatively high stakes involved, it would seem desirable to proceed to a more systematic and comprehensive analysis in the PC's final report.

The major conclusions of this report are reached on the following bases:

- accepting that there is congestion at Sydney Airport, it may be the case that some form of regulation is needed to deal with the inefficiencies that stem from the external, and not privately accounted for, effects of individual usage decisions. However, the PC's reliance on a market-like pricing system is at least questionable. The imposition of congestion-related landing and take-off fees may be a solution (if better analysed), but alternative regulation is possible and it is not clearly self-evident that there is a need to rely solely on a price coordination approach;
- even if a congestion charging system provided the optimal coordination approach, it is far from established that land is the binding constraint on the service potential of Sydney Airport. Other constraints like those imposed to deal with noise disamenities seem more binding. As a consequence, land valuation may have little, if any, role in determining efficient congestion charges;
- furthermore, even if the acquisition of additional land was a possible solution to the congestion problem, it is not clear whether it would be the most efficient. Alternative remedies, notably in terms of demand side considerations, need to be explored before it can be concluded that the equilibrium congestion charge is determined by the long run marginal cost of altering Sydney Airport's land surface;
- even if the long run marginal cost of altering Sydney Airport's land surface were the relevant factor in efficient congestion charges, the land valuation methodology used by the PC is, at best, unexplained and, at worst, incorrect. The correct approach to land valuation would necessitate considering alternative solutions, such as a transfer of traffic to another airport or the development of a second (major) airport in Sydney. The PC's approach could well yield the least efficient solution;
- the approach taken by the PC does not seem to pay any regard to the industrial structure of the downstream markets that use airport services, and most specifically commercial aviation. Specifically, the PC's arguments seem based on assumptions that do not accurately reflect competitive conditions in the markets at issue. That this is dangerous becomes clear once it is recognised that, in the presence of imperfect competition in a downstream market, simple congestion charging upstream can lower welfare; and

- finally, not only does the proposed policy represent a considerable transfer of wealth from consumers to the owners of Sydney Airport without a proper analysis – or simply an incorrect one – but the policy of vesting congestion rents in Sydney Airport’s owner is criticisable on the grounds that it is likely to increase the incentives to create congestion.

Prior to addressing the PC’s analysis in detail, it is relevant to note that, while the PC has presented its arguments as a critique of the decision made by the Australian Competition and Consumer Commission (the “Commission”) in its May 2001 decision on the aeronautical pricing proposal put forward by the Sydney Airports Corporation Limited (“SACL”):<sup>1</sup>

- the PC’s argument for using a different approach to land valuation from that adopted by the Commission is entirely based on a consideration of congestion; and
- SACL expressly noted that it was “not advocating an explicit congestion pricing approach” at the time of issuing its pricing proposal.<sup>2</sup>

As a result, while it may be that consideration of congestion would lead to a view that differed from that adopted by the Commission, this is not relevant to SACL’s pricing proposal as that proposal was not intended to set out SACL’s position in respect of, or proposals with respect to, explicit congestion charging issues.

Having said that, it emerges that a consideration of congestion does not lead to a different position from that adopted by the Commission, at least on the basis of the facts as they stand at the time of writing.

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<sup>1</sup> Australian Competition and Consumer Commission, *Sydney Airports Corporation Limited: Aeronautical Pricing Proposal – Decision*, May 2001 (available at: <http://www.accc.gov.au/airport/fs-air.htm>).

<sup>2</sup> Sydney Airports Corporation Limited, *Sydney Airport Revised Draft Aeronautical Pricing Proposal*, September 2000 (available at: [http://www.accc.gov.au/airport/sydney/SACL\\_Rev\\_Draft\\_Prop\\_sep.pdf](http://www.accc.gov.au/airport/sydney/SACL_Rev_Draft_Prop_sep.pdf)), page 132.

## 2 The PC's argument—an economic assessment

### 2.1 Background

The PC recommends that land used at Sydney Airport be valued on the basis of its value in alternative use. It argues that such a valuation is likely to yield welfare gains mainly for three reasons, namely that it:

- is likely to result in higher charges than would otherwise prevail, and hence help signal and limit congestion;
- will provide better incentives for allocation of the land as between competing uses; and
- through the privatisation process, will result in the transfer of congestion rents to the Commonwealth.

The argument put by the PC relies upon a number of assumptions, namely:

- there is a congestion problem which should be dealt with by congestion charging;
- the main feature of such a congestion charging solution is that efficient prices at the congested times would be substantially higher than they are now; and
- finally, valuing airport land on the basis of “value in alternative use” is the best way of moving prices towards these levels.

Accepting the relatively uncontroversial proposition that there is congestion at Sydney Airport, the question arises whether the PC's approach to dealing with that problem is indeed efficient. This requires a somewhat more general characterisation of the congestion problem and of the ways in which any inefficiencies caused by congestion may be addressed. This is discussed here as a preliminary matter prior to considering in more detail the assumptions on which the PC's approach rests.

By definition, congestion is the impedance users impose on each other due to the speed-flow relationship in the provision of a service, in conditions where the use of the system by means of which the service is provided approaches its capacity limits. The resulting congestion (which arises because the short-term arrival rate of demand exceeds the airport's service rate) – reflects a negative externality, namely that the attempted consumption of an

additional unit will lower the utility derived from total realised consumption.<sup>3</sup> A similar result occurs, for example, with traffic jams where the total benefits from using a car are lower when additional drivers turn out on a crowded road. As the congestion externality is virtually always marginal<sup>4</sup> (indeed, in most systems subject to congestion, the marginal cost of additional arrivals rises sharply as congestion sets in), decentralised decision-making in situations where the risk of congestion arises can lead to inefficiency.

As with other externalities, the inefficiency can typically be overcome by one of two means.

The first involves internalisation of the externality. This occurs when property rights are structured such that each party captures both the costs and the benefits of the relevant behaviour and hence has incentives to act efficiently. This can be referred to as the Coasian solution.

The second is by relying on a central planner to engage in some process of resource management. This planner may rely on a price- or quantity-based auction mechanism to allocate the scarce resource.<sup>5</sup> Equivalently, the planner may impose taxes (and perhaps subsidies) that guide users to the efficient production and consumption decisions. The ultimate equivalence of this approach to an “externality offsetting” tax/subsidy scheme makes it natural to refer to the approach as Pigouvian.

Seen in these terms, the PC’s approach is Pigouvian. It seeks to price the externality, and to do so on the basis of the cost of acquiring and putting to use additional land.

However, it is hasty to assume that this must be the correct approach. As Buchanan and Tullock explain:

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<sup>3</sup> Note the difference with respect to diminishing marginal utility - what is at issue here is a reduction in the total realised value of consumption.

<sup>4</sup> Externalities can and often do arise that are purely infra-marginal, and hence do not lead to failure in decentralised decision-making.

<sup>5</sup> The close parallel here is the Lange-Taylor central planner. See Lange O, (1936) “On the Economic Theory of Socialism: Part One” *Review of Economic Studies*, 53-71; and Taylor F M, (1929) “The Guidance of Production in a Socialist State”, *American Economic Review*, 1-8.

“The choice between voluntary action, individual or co-operative, and political action, which must be collective, rests on the relative costs of organizing decisions, on the relative costs of social interdependence. The costs of organizing voluntary contractual arrangements sufficient to remove an externality or to reduce the externality to reasonable proportions may be higher than the costs of organizing collective action sufficient to accomplish the same purpose. Or, both of these costs may be higher than the costs of bearing the externality, the spillover costs that purely individual behaviour is expected to impose.”<sup>6</sup>

It follows that an appropriate and detailed economic analysis needs to be conducted before the PC’s approach can be adopted. In particular, it is important to critically assess the key premises that underlie the PC’s approach. These key premises, arranged in a cascade in which each premise relies on those prior to it (if any), are that:

1. the proper approach to managing congestion is to rely on the “tax/subsidy” method, rather than on direct allocation by quantities;
2. in implementing the “tax/subsidy” method, the crucial parameter is the value of acquiring and putting to use additional land, because it is this which constrains capacity at Sydney Airport;
3. given that it is land that constrains capacity at Sydney Airport, the price users face for aeronautical services should, in an efficient equilibrium, be no less than the price that factors in the value of that land in alternative uses;
4. in calculating the value of that land in alternative uses, the relevant cost should be determined on the basis of the price the land could secure in residential or light industrial use, with that price then being used as a part of a Depreciated Optimised Replacement Cost valuation of the aggregate revenue requirement for the airport as a whole;
5. even if this leads to prices that in some periods are too high, the resulting social costs (that is, the loss in social welfare caused by the excess pricing) will be low; and

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<sup>6</sup> Buchanan J and Tullock G, *The Calculus of Consent: Logical Foundations of Constitutional Democracy*, Ann Arbor, MI: University of Michigan Press, 1962.

6. it is not problematic to allocate any congestion rents that are collected through these prices to the airport owner.

Each of these premises is questionable and made without appropriate analytical support. We consider each premise in turn.

## 2.2 Externalities and how they should be managed

*Premise 1:* The economic problems caused by congestion are best managed by relying on congestion prices, rather than on direct allocation of the scarce resource(s).

From an economic point of view, congestion is a type of externality. Externalities are pervasive in virtually every area of economic activity. For example, a chemical factory emits wastage as a by-product into nearby rivers and into the atmosphere. This creates negative externalities, which impose higher social costs on other firms and consumers in the form of clean up costs and health costs. Another example of higher social costs comes from the problems caused by traffic congestion in towns, cities and on major roads and motorways.<sup>7</sup> However, it is important to stress that the use of cars can also generate external benefits to society, as straightforward as individual mobility, and hence a cost-benefit analysis can be useful in valuing both the social costs and the social benefits of production. The need to take account both of social costs and of social benefits is of crucial relevance when considering airport congestion.<sup>8</sup>

When negative production externalities exist, marginal social cost is higher than private marginal cost. If we assume that producers are interested in maximising profits, then they will only take into account the private costs and private benefits arising from their supply of the product. However, the socially efficient level of production would consider the external

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<sup>7</sup> See, for example, Vickrey W, (1969), "Congestion theory and transport investment" *American Economic Review*, 59:251-261.

<sup>8</sup> Urban economics may be the area where this trade-off between positive and negative externality is most commonly found. See, for example, Combes P P and Duranton G, (2000): "Labor Pooling, Labor Poaching, and Spatial Clustering", Paris: CERAS, mimeo.

costs as well. Failure to consider these leads to the private optimum output being greater than the social optimum level of production. Equivalently, consumers can also create externalities when they purchase and consume goods and services, like pollution from cars and motorbikes, litter on streets and in public places, noise pollution or congestion when using public transport. In these situations, the marginal social benefit of consumption will be less than the marginal private benefit of consumption. This leads to the good or service being over-consumed relative to the social optimum. Without external intervention, the good or service will be socially under-priced and the negative externalities will not be taken into account.<sup>9</sup> This is the classical issue of market failure, which has been well set out in the following terms:

“What is it we mean by “market failure”? Typically, at least in allocation theory, we mean the failure of a more or less idealized system of price-market institutions to sustain “desirable” activities or to estop “undesirable” activities. The desirability of an activity, in turn, is evaluated relative to the solution values of some explicit or implied maximum-welfare problem.”<sup>10</sup>

One device often suggested to resolve market failures associated with negative externalities is the levying of a tax on the performance of the externality-generating activity - a tax that is equated to the external costs per unit that the activity imposes.<sup>11</sup> Equality between marginal

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<sup>9</sup> Examples of positive externalities range from research into new technologies, which can then be disseminated for use by other producers, to flood protection systems and spending on improved fire protection in schools and public arenas. Where substantial positive externalities exist, the good or service may be under-consumed or under-provided since the market working by itself may fail to take into account these effects. This is because the marginal social benefits of consuming the good are higher than private marginal benefits. In the case of external benefits from production, the marginal social cost would be lower than private marginal costs. Regarding externalities associated with airports specifically, see Blum U, (1998), “Positive Externalities and the Public Provision of Transportation Infrastructure: An Evolutionary Perspective” *Journal of Transportation and Statistics* 1:81-88.

<sup>10</sup> Bator F, (1958), “The Anatomy of Market Failure” *Quarterly Journal of Economics*, 72:351-79.

<sup>11</sup> Pigou A C, *The economics of welfare*, London 1920.

private cost and marginal social cost is the allocative criterion of Pigouvian welfare economics, and the principle remains acceptable to most modern welfare economists. In this view, corrective taxes and subsidies are deemed to be required in order to satisfy the necessary conditions for optimality when external effects are present.

The PC adopts this perspective, and indeed, seems to take it for granted that congestion charging is the only or best way of dealing with congestion externalities. In other words, faced with a problem of coordination of resource use, the PC focuses on price, as against quantity, coordination only.

In a variety of situations, however, governments do regulate undesirable activities by controlling quantities rather than by directly changing prices. Examples include anti-smoking and antitrust laws (which restrict rather than tax particular conduct) and pollution controls to limit greenhouse gas emissions, and fishing and hunting rules that limit activity during certain periods rather than taxing the catch.

As a general matter, it is difficult to show that such schemes of quantity allocation are necessarily inferior to reliance on a price system. There are, in effect, many reasons why a price system may be supplanted by quantity goals as a coordinating mechanism.

A first reason for this is that the “efficient” prices can be very difficult to determine, and decentralised schemes for discovering them may not prove to be very effective. In many situations that involve congestion, the lumpy nature of both supply and demand introduces non-convexities<sup>12</sup> into the allocation process. In the presence of non-convexities, allocation processes based on quantities can converge more efficiently than those based on prices.<sup>13</sup> As a result, a quantity-oriented allocation scheme may allow better use to be made of the scarce resource.

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<sup>12</sup> This property refers to nothing more than the fact that producing one unit of output costs more than the average of separately producing zero unit and two units. The relationship between non-convexity and externalities is discussed at some length by Starret D, (1972) “Fundamental Nonconvexities in the Theory of Externalities” *Journal of Economic Theory* 4:180-199.

<sup>13</sup> See Heal G, *The Theory of Economic Planning* (1973) at 147 and following.

The intuition behind this result is discussed further in Appendix A. However, perhaps the simplest way to understand the issue is to note that, with a non-convex production function, a firm has a discontinuous demand (or supply) curve for its input. Therefore, there are certain demand (or supply) levels that it will never choose, no matter what prices it faces: the curve will jump over these because of the non-convexity. The use of quantitative targets solves this problem because each possible quantity corresponds to a single price.

A second reason why price-like responses to congestion may not be optimal is that, even if it is possible to find the “efficient” tax, the process involves a cost. This “cost of using the price mechanism”<sup>14</sup> is the consequence of searching, negotiating and enforcing price-based contracts. These transactions costs must be significant: for if this were not the case, it is obvious from the Coase theorem that private bargaining would have solved the congestion problem at issue. This is obviously not intended to imply that quantity allocation is costless; rather, the point is that a price-like scheme cannot be recommended independently of a consideration of the transactions costs it entails as compared to possible alternative approaches to congestion management.

The premise underpinning the PC’s approach – which is that some price-like signal of congestion is needed – should not therefore be accepted uncritically. In reality, making proper use of price-like signals is complex in the presence of non-convexities and, in any practical circumstance, entails the specification of an enormous amount of detail. Whether the benefits that can be obtained from relying on price signals exceeds the costs, is an empirical issue that the PC does not appear to address.

## **2.3 Is land the binding constraint on the airport’s service potential?**

*Premise 2:* The availability of land at Sydney Airport is the binding constraint that results in slot scarcity. As a result, land scarcity determines the relevant capacity cost, and the long run marginal cost of acquiring and putting to use additional land is relevant for congestion pricing.

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<sup>14</sup> Coase R, (1937), “The Nature of the Firm”, *Economica* 4:386-405.

Even assuming that it was indeed appropriate to use a price-like system of congestion charges to allocate the scarce resource, would land values play a role in setting these charges? The PC assumes that they would, and it bases this on the premise that land is ultimately the cause of constraints on service potential at Sydney Airport.

As a starting point for assessing this premise, it is useful to note that two states can characterise an airport that has to set landing and takeoff fees for the use of slots: in a first state, the welfare maximising decision is constrained by existing capacity; in a second, it is not. In other words, in certain conditions, the price choice (and its derived demand) is *not* constrained by the limited possibilities to take-off and land – this is the case at off-peak hours – while in other conditions, the derived demand from a first-best choice *is* constrained by the capacity restriction.<sup>15</sup>

The relevant costs differ as between these alternative states. If and when the capacity constraint is *not* binding, only operating costs are relevant for socially efficient pricing. As a result, the PC is incorrect in assuming that land valuation ought to have any impact on charging in conditions where the capacity constraint is not binding. Yet its approach to determining the allowed revenue ceiling for at least Sydney Airport would allow land values to so influence charges.<sup>16</sup>

However, the greater interest here is in the situation in which the capacity constraint is indeed binding, with the question then being that of the economic valuation of this constraint.

In economics, the “cost” of a constraint is generally determined by reference to the concept of a shadow price. Shadow prices are used in valuing any item that is rationed in some way;

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<sup>15</sup> The unconstrained maximisation problem and the optimisation with inequality constraints (and the related sufficiency of the Kuhn-Tucker conditions) are analysed, for example, in Lancaster K, (1987) *Mathematical Economics*, Dover Publications New York, at page 23.

<sup>16</sup> The PC does not discuss efficient charging when the capacity constraint does not bind. However, its approach seems to be one in which the land value is being used to determine an aggregate revenue requirement, with the airport then being free to recoup that requirement as it sees fit. There would, in the scheme, seem to be no restraint on the airport increasing off-peak charges in line with the higher valuation the PC’s approach would set.

these prices can be derived using programming techniques. By definition, the shadow price is the amount by which the value of the objective function (in this case, social welfare) would change if the constraint at issue were relaxed by one unit. If a constraint is binding, the shadow price is strictly positive. If a constraint is not binding, its shadow price is zero (since the value of the objective function does not change when an inactive constraint is relaxed).

The concept of a shadow price is the proper basis for understanding the role of land valuation in congestion pricing.<sup>17</sup> The starting point is that, if it were the case that the total land holding was the limiting factor for landing and taking-off, then the long run marginal cost of acquiring land and putting it into use would be the relevant value for estimating the shadow price. However, this is not quite so.

In effect, the marginal cost of land acquisition is only relevant if acquiring land is the most cost-effective means of relaxing the constraint. There are two reasons why this may not be the case.

The first reason is related to one of the negative externalities caused by an airport, namely, noise. In the Sydney Airport context, so as to manage this externality, an hourly cap has been

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<sup>17</sup> See Ricardo D, (1815), *An Essay on the Influence of a Low Price of Corn on the Profits of Stock*, London, John Murray; which contains the first formulation of the marginal theory of rent. Ricardo's law of rent is expressed as: the rent of land is determined by the excess of its produce over that which the same application can secure from the least productive land in use. This law, which of course applies to land used for purposes other than agriculture, has been exhaustively explained and illustrated by all the leading economists since Ricardo. But its mere statement has all the force of a self-evident proposition, for it is clear that the effect of competition (or regulation) is to make the lowest reward for which labour and capital will engage in production, the highest that they can claim. This then enables the owner of more productive land to appropriate in rent all the return above that required to recompense labour and capital at the ordinary rate – that is to say, what can be obtained upon the least productive land in use, or at the least productive point, where, of course, no rent is paid. In terms of land valuation for an airport, the **same** land is analysed as being **different** depending upon the time period and the congestion level. Therefore, the least productive land can be thought of as the land during off-peak period, where no rent is paid. The land value is then based on the congestion rent during the peak period.

imposed of 80 landings or take-offs.<sup>18</sup> As a result, even if capacity at Sydney Airport were increased (as a result, for example, of further investment in land), this would not change the airport's *effective* capacity, that is its service potential. In effect, the constraint on service potential is not one of physical capacity; rather, it results from a political choice about how to deal with an externality issue. To the extent to which this is the case, land valuation is simply not relevant. To use the technical vocabulary introduced above, the shadow price of the land constraint is zero (since it is not binding), and the positive shadow price is attached to the political constraint, which cannot be (easily) relaxed.<sup>19</sup>

The second reason relates to the use of Sydney Airport by regional airlines. Basic management of congestion, well before pricing solutions are usually envisaged, generally includes effective management of the scarce resource.<sup>20</sup> It is sound practice in this respect to give a degree of priority (in terms of access to slots) to larger aircraft, as this will usually, though not always, allocate the scarce resource to more productive processes. In the case of Sydney Airport, however, the regulator does exactly the opposite (apparently so as to take account of regional development concerns: a percentage of slots is reserved to regional links, with those links typically using smaller aircraft). This, in turn, constrains the potential the airport has to service larger planes.

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<sup>18</sup> Section 6 of the Sydney Airport Demand Management Act 1997 (Cth). Note that this is obviously an example of a quantity, rather than price, control. There is, however, an additional tax payable for travel to and from Sydney Airport, which is used to fund compensation payments to residents in the areas affected by noise pollution.

<sup>19</sup> For a recent analysis of the consequences of political group interests on regulatory constraints, see Finkelshtain I and Kislev Y, (1997) "Prices versus Quantities: The Political Perspective" *Journal of Political Economy* 105-1:83-100.

<sup>20</sup> Drucker P, (1966), *The Effective Executive*, New York: Harper & Row, offers a helpful and simple distinction. He emphasises the difference between "do things right" or "do the right things". "Doing things right" means efficiency – getting the most from resources. "Doing the right things" means effectiveness – setting the right goals and objectives and then making sure they are accomplished.

Now, it may be the case that this constraint could be relaxed by increasing the land surface at Sydney Airport; however, from an economic point of view, what matters is whether this is the most efficient means of relaxing the constraint. In effect, it may be cheaper, from society's point of view, to relax the constraint either by reducing the number of regional flights in total or by shifting some regional flights to another airport in the Sydney region. If this were indeed the case, then the shadow price would be the net cost of transferring usage away from Sydney Airport. Whether this condition is or is not met depends on a cost-benefit analysis that the PC has not carried out. As a result, the PC is not in a position to say that the cost of land acquisition is an appropriate basis for charging.

In short, the assumption by the PC that land is the binding constraint is unlikely to be valid.

## 2.4 Should the capacity constraint be relaxed?

*Premise 3:* Assuming that land is indeed the binding constraint on the airport's service potential, the value of the constraint will in equilibrium equal the long run marginal cost of land.

Establishing that land acquisition is the most cost-effective means of relaxing the constraint on Sydney Airport's service potential is a *necessary* but not *sufficient* condition for land values to be a determining factor in congestion prices. In effect, land values are only relevant if the willingness to pay for the marginal, constrained flight is no less than the long run marginal cost of the additional land – otherwise the constraint should not be relaxed, and its shadow price is simply the social value of the lost load.

To see this, it is important to understand how congestion pricing is intended to work. Consider two travel periods, differentiated by the level of congestion.<sup>21</sup> Congestion in this context can be interpreted as meaning a low speed of traffic, implying that the time cost incurred by each user is high. Assume there are travellers whose benefits differ. For example, business users will place a high value on peak hour travel relative to the value of travel at the off-peak times (for instance, because they would need to forego business opportunities to

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<sup>21</sup> The classic reference is Boiteux M, (1949) “*La tarification des demandes en pointe: Application de la théorie de la vente au coût marginal*” *Revue générale de l'électricité*, 321-40; translated in (1960) as “Peak-load pricing” *Journal of Business*, 157-79.

travel in the off-peak period). On the other hand, holiday-goers may receive relatively little benefit from peak travel. It is useful to imagine each of these types of travellers as being part of a continuum of agents along a line that characterises the value for peak travel.

Individuals will base their decision on the net benefit of travel, which equals gross travel benefit minus time costs. By definition, the time cost will be higher during congested periods. Since the peak yields low gross benefits for tourists along with high time costs, net benefits for this group will be higher in the off-peak period. Conversely, for a businessperson, net benefits will be higher in the peak even with high time costs. In between these extreme cases and along the continuum of agents, as long as net travel benefit is higher in the peak, the would-be traveller will choose the peak period. But as additional travellers make this choice, time costs rise, depressing the net benefit of peak travel. The equilibrium traffic allocation is reached when it satisfies travellers in that no traveller wishes to alter the timing of his or her trip. A standard result is to consider a particular traveller, called the marginal traveller, who is indifferent between peak and off-peak travel. Logically, the marginal traveller will define the allocation between periods – those valuing more the peak travel will actually choose the peak travel, and *vice versa*.

If the process is left to its own devices, the equilibrium choice derived above will not be socially desirable. The reason is that, since external costs are ignored, too many travellers choose the peak period relative to the social optimum. This conclusion can be understood in terms of the difference between the private and social costs of travel. The social benefit of travel is the net private benefit for an individual minus the external costs generated by his or her use of airport facilities. By definition, the net social benefit is lower than the net private benefit during rush hours, while the two coincide in the off-peak period (where external cost is zero).

From society's point of view, an additional individual should travel during peak period as long as the net social benefit of travel is larger in the peak. However, more travel during peak hours causes higher congestion. Eventually, net social benefits become equal between the two periods for the social marginal traveller, who is defined by society being indifferent as to when this individual travels. When this social optimality condition is satisfied, the aggregate net benefits of travel are as high as possible.

The inefficiency of the equilibrium is caused by the failure of users to consider the external costs of the congestion they create. In a simple model, this failure can be corrected if *somebody* levies a “tax” that explicitly captures the external costs. This tax, referred to as a “congestion toll”, is set equal to the value of external costs imposed by each traveller.<sup>22</sup> Because external costs are sensitive to the traffic level, they should vary as conditions change. The system thus generates a zero toll in the off-peak period and a positive toll during the peak period, the magnitude of which depends on the volume of peak traffic.

With a toll capturing external costs, the marginal traveller in the no-tax situation, who was previously indifferent between peak and off-peak travel, now finds that peak travel is too expensive. This individual switches to off-peak travel and, in the new equilibrium, a new marginal traveller emerges. For this individual, net private benefits, modified by subtraction of the toll, are equated between periods. Since the toll exactly captures external costs, net social benefits are equated between periods for the new marginal individual. As a result, the new equilibrium coincides with the socially optimal traffic allocation.

The important point to draw from this discussion is that, when dealing with congestion, an alternative to relaxing the constraint is to manage demand, *given* the capacity constraint. The cost of this, in equilibrium, is the net social value of the peak travel foregone – that is, the value taking account of the ability to shift from the peak to the off-peak period.<sup>23</sup> Now, as a general principle of economic policy, when there are alternative ways of dealing with a problem, it is the least costly of these that should be used. Relaxing the capacity constraint involves (if the PC’s underlying assumption is accepted) incurring the likely substantial cost of acquiring additional land. Plainly, this should only be done if it is less costly than managing demand, *given* the capacity constraint. As a result, the land value is relevant to congestion pricing *only* if it is known that relaxing the space constraint is the least cost approach to the congestion problem.

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<sup>22</sup> For an application of this economic tool, see Varian H, (1994) “A Solution to the Problem of Externalities when Agents are Well-Informed” *American Economic Review* 1278-93.

<sup>23</sup> Mishan, E J, (1981), *Economic Efficiency and Social Welfare* argues, at pages 209-218, that this social cost should be very low, and possibly close to zero.

There is no *a priori* reason to assume that in fact the marginal cost of land is less than the equilibrium value of lost load, and the PC provides no empirical evidence to support its contention. As a result, the PC appears to be speculating when it says that land values are relevant to efficient charging for Sydney Airport's services.

## 2.5 The opportunity cost valuation

*Premise 4:* In determining the long run marginal cost of land acquisition at Sydney Airport for the purposes of congestion pricing, the appropriate benchmark is the value of Sydney Airport's land were it sold for residential or/and industrial usage.

Assuming that the PC's premises were indeed correct (notwithstanding the above considerations), how should the cost of land be determined for the purposes of congestion pricing? The PC essentially adopts a Depreciated Optimum Replacement Cost ("DORC") approach to this issue, in which the value of land is computed by reference to its value in the best alternative use. This value is then used to calculate an aggregate revenue requirement, which is presumably then unitised by volumes of output to derive unit prices.<sup>24</sup>

Given the geographical location of Sydney Airport, it is quite obvious that this approach results in a high aggregate revenue requirement, as the land at issue would have a substantial value if sold for residential and/or industrial and commercial purposes. As a matter of fact, estimates of the annual holding cost for the 652.85 hectares of total land holding for aeronautical purposes range up to A\$705 million.

There are at least two problems with this approach.

The first problem is that it seems to confuse *marginal* with *average* valuations. Even assuming the PC's premises were correct, these premises would determine price at the margin; but unless it is assumed that marginal and average prices must be identical (which seems inconsistent with the PC's own emphasis on the ability of airports to price discriminate), it is unclear why the marginal price should determine the price earned on

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<sup>24</sup> The Draft Report itself is silent on the issue of how the aggregate revenue requirement would be translated into unit charges. The discussion in the Draft Report, however, suggests a fairly straightforward unitisation.

average across all units of output. Rather, the same price at the margin of consumption is consistent with a broad range of average prices, without any loss of efficiency.

Put slightly differently, a given congestion charge can be associated with almost any aggregate revenue requirement, so long as that aggregate revenue requirement is sufficient to fund the airport's continuing operations at the efficient scale. If the charge, when consistently applied, generates revenues in excess of the aggregate revenue requirement, then the excess (or at least that component of it which is purely a congestion rent) can be removed from the airport without any adverse effect on efficiency. Conversely, if the price at peak is less than is needed to fund the airport's continuing operations, and these operations are indeed worth continuing, then the deficiency can be made up through a tax on infra-marginal units.

The assumption the PC makes that the marginal price ought to be simply grossed up into an aggregate revenue requirement for the Sydney Airport's overall aeronautical income is consequently at best unexplained and at worst incorrect.

The second problem is that, even if one wanted to carry out such a DORC-like grossing-up, the PC's approach to it seems difficult to defend. In effect, the PC's approach (which is that previously adopted by SACL), simply asks what the land would sell for were it sold for residential or light industrial use. This makes absolutely no sense.

This is because the approach seems to be based on the assumption that Sydney Airport is shut down. This raises two obvious problems. The first is simply a question of realism; it is difficult to imagine a city like Sydney without an airport able to handle the traffic that Sydney Airport does. Notwithstanding this, even if it were assumed that Sydney could do without such an airport, it cannot be assumed that the value of land in Sydney would be unchanged in the event that the Sydney Airport were in fact indefinitely shut. Rather, it is obvious that the effect of eliminating airport facilities in Sydney would be to lower the price of land in the Sydney region, including that at Sydney Airport. The A\$705 million would melt down a great deal. Furthermore, the resulting capital loss suffered by every Sydneysider (and the wider social cost to Australia of the premature stranding of productive

potential at Sydney) would have to be taken into account in determining the valuation set.<sup>25</sup>

Given this, the approach adopted by the PC (and originally proposed to the Commission by SACL) is in error. Even in terms of a DORC valuation, its vice lies in not being clear as to the alternative being considered. A proper application of the principles underlying the DORC approach would necessitate the estimation of the value under clearly set out alternative assumptions.

For instance, one might consider a scenario in which land use at Sydney Airport was reduced by transferring regional traffic to say, Bankstown Airport. In this case, the costs (and hence the basis for the Sydney Airport valuation) would include:

- the necessary investment in Bankstown Airport to handle more traffic;
- the investment in infrastructure to match the level of services travellers could reasonably expect (for example, roads and public transport from Bankstown to Sydney and to Sydney Airport); and
- finally, the disutility travellers on connecting flights would suffer from a transit between Sydney Airport and Bankstown Airport.

Another possibility would be to develop and maintain a second (major) airport in Sydney. This would indeed ease the congestion constraint at Sydney Airport and allow some sale of land, but it would obviously require substantial investment and impose a broad range of social and private costs. These would be the true cost of relaxing the capacity constraint, and hence would have to form the appropriate basis for the valuation.

Which alternative is the most efficient remains unclear. However, two comments may be made. First, a more rigorous analysis is needed since the “right” result is not straightforward. Secondly, it is not unlikely that simply selling the current land for

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<sup>25</sup> For a recent comment and analysis based on the link between land value and infrastructure, see Brittan S, “How land taxes could pay for urban renewal: A levy on windfall gains in land and property values would be a good way to tackle transport congestion”, *Financial Times*, 30 August 2001.

residential/industrial use will prove to be the least economical of the alternatives that can be considered. Regardless, the result will differ from that which the PC assumes, which is both implausible and very likely inefficient.

## 2.6 The welfare costs of excessive charging

*Premise 5:* Even if the aggregate revenue requirement calculated on the basis of the value of land in alternative use results in prices that are too high, the social costs associated with these prices are not likely to be high.

The PC seems to recognise that calculating the aggregate revenue requirement on the basis of the value of land in alternative use can result in prices that are too high. However, the PC seems to suggest, as a more general theme in its Draft Report, that the social costs of the excess pricing will be low.

The PC's argument is largely based on the assumption that both airports and airlines are efficient price discriminators. However, what is unclear is quite how Sydney Airport would, as a practical matter, structure the new, higher prices so that they fall effectively on infra-marginal demand. Indeed, the aeronautical charges most recently approved for SACL are not infra-marginal in any sense; rather, they seem to fall on passengers and capacity, and hence can affect usage in all periods.

Some, possibly significant, effect on usage is all the more likely if the downstream market (in particular, that for air transport) is non-competitive. In that case, prices in the downstream market are already likely to be set at the point at which demand is elastic, so that charges that are not purely lump-sum will alter output significantly. Indeed, when the downstream market is non-competitive, it can be shown that the imposition of a congestion charge may not increase, and may well reduce, social welfare.

For example, assume that the congested service is a monopsony – that is, that there is only one purchaser (or more properly, direct consumer) of the service that is subject to congestion. In that case, the congestion effect is internalised: when the monopsony is considering the use of the service, it will take complete account of the displacement that any one use causes for others. At the times when the service is approaching its capacity limits, the monopsonist, in taking its consumption decisions, will take account of the fact that each additional use displaces some other use; acting rationally, it will give priority to the most highly valued uses. If the value of the most highly valued displaced use exceeds the marginal cost of expanding capacity, the monopsonist will contract with the facility owner for additional

investment to occur. Conversely, if the marginal cost of capacity expansion is no less than the value of the most highly valued displaced use, then an efficient level of use of the congested capacity will have been secured.<sup>26</sup>

Assume that, in these circumstances, the facility owner imposes a Pigouvian congestion tax. Can social welfare rise? It is difficult to see how it could. At best, the tax, if purely lump sum in character, could redistribute rents from the monopsonist to the monopolist; at worst, however, a tax that was not lump sum in incidence would distort the downstream monopsonist's output decisions. Indeed, the monopsony by definition is a monopoly in the provision of airline services and hence tends naturally to reduce its output – even if it is not *directly* linked to a goal of managing congestion. The introduction of a congestion charge that is not purely lump sum will simply result in its reducing its output further.

This can be put succinctly by saying noting that Coase plus Pigou is “too much of a good thing”.<sup>27</sup> This result is further explained in Appendix B to this report.

To understand this result,<sup>28</sup> consider a situation where the airport is entirely dominated by a monopoly airline. Thanks to market power, the airline is a price-setter, as opposed to a price-taker in the competitive environment. Its profit maximisation will lead to the determination of two fares: one for peak travel and another for off-peak travel. Travellers will choose their travel time by considering net travel benefits, which now take fares into account. The net travel benefits for an individual are now equal to gross benefits minus time cost minus the fare paid. As before, individuals choose the travel period yielding the larger value.

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<sup>26</sup> This is not to say that the costs of monopoly have been overcome, but there are no additional inefficiencies due to the presence of a congestible resource.

<sup>27</sup> Friedman D G, (2000) *Law's Order: What Economics Has to Do with Law and Why It Matters*, Princeton University Press at 57. Buchanan refers to this as an “elementary point”: Buchanan J, (1969), *Cost and Choice: An Inquiry in Economic Theory*, Chicago: Markham Publishing Co, at page 68.

<sup>28</sup> Daniel J I, (1995), “Congestion Pricing and Capacity of Large Hub Airports: A Bottleneck Model with Stochastic Queues”, *Econometrica*, 63:327-70 sets out a formalisation of the concept that is now widely accepted.

When setting fares, the monopoly airline automatically internalises the externality: reducing the peak fare encourages travel in the peak period, while raising the fare discourages it. The off-peak fare is set at a level that makes the individual with the lowest off-peak benefits indifferent between travelling and not travelling. As a result, this fare is not really relevant to the problem at hand since it is not used to adjust the allocation of traffic between periods. The monopoly airline's calculations on whether to shift some traffic to the peak period are based on the following. If it decides to move a flight from off-peak to the peak period, it earns more revenue because the higher peak fare is charged. But the latter must be cut slightly below its previous value in order to compensate the previously marginal passengers for the higher time costs. In addition to this fare reduction, the airline experiences another negative effect: higher operating costs for all existing peak flights as a consequence of the higher congestion caused by the additional flight.

The usual marginal calculus applies: the airline's profit will be as high as possible when the gains and losses from shifting a flight to the peak exactly cancel out, leaving profit unchanged. For this balance to occur, the revenue gain from charging the higher peak fare to previous off-peak passengers must equal the loss from higher passenger time costs (captured by the required peak fare reduction) plus the loss from higher operating costs for existing peak flights.

When this equilibrium condition is satisfied, the allocation of traffic between periods is also socially optimal: the difference between the peak and off-peak fares, which generates the revenue effect discussed above, exactly mirrors the difference in travel benefits, less time costs, between the two periods. As result, satisfaction of the equilibrium condition means that individual travel benefits minus time costs, net of the external cost of congestion, are equated between the peak and off-peak periods. As seen in the standard analysis of congestion, satisfaction of this condition guarantees that the allocation of traffic between the periods is socially optimal.

To summarise, the monopoly airline internalises the congestion. This conclusion is obvious with respect to the higher operating costs caused by congestion. However, the internalisation of passenger time costs, which occurs because these costs affect the peak fare, is subtler. Because the monopolist controls the peak fare and must reduce it as higher congestion

pushes up time costs of the traveller, these costs are ultimately taken into account in the pursuit of profit.<sup>29</sup>

The internalisation of externality by a monopoly airline yields an important conclusion regarding congestion pricing. In particular, it implies that congestion tolls are not needed. Moreover, imposing congestion tolls in this situation would be counterproductive, leading to under-use of the peak period.

Relaxing the assumption that the user of the congestible service is a monopsonist obviously changes matters. But important complexities remain so long as the market structure of the using activity is significantly less than competitive. More specifically, if the using activity is imperfectly competitive, then any Pigouvian taxes must take the nature of price setting in the downstream market into account.

Now, consider the oligopoly case, where several large airlines serve the airport. In contrast to the competitive case, each carrier is large enough to exert market power, but each faces competition from the other carriers. The behaviour of airlines in this setting is similar to that in the monopoly case. In particular, if one of the oligopoly carriers wishes to shift a flight from the off-peak to the peak period, it must accept a lower peak fare, which encourages some passengers to switch to the peak. Once again, the fare reduction must offset the increase in time cost per passenger caused by the extra peak flight. While the lower fare applies to peak passengers on all carriers, the revenue loss for the carrier at issue arises only because its own passengers are paying less. As a result, the carrier internalises only the increase in time costs experienced by its own passengers. The increase in time costs for passengers using other carriers is ignored. Similarly, the carrier takes account of the increase in operating costs for its own existing peak flights when it adds a new flight to the peak. But it ignores the increase in peak operating costs for other carriers.

The conclusion is that an oligopolistic carrier internalises only a portion of the congestion created when it operates an extra peak flight. Because congestion is only partially internalised, the solution is again to levy a congestion tax in the peak period. But the toll has a different magnitude than in the competitive case discussed above, where no congestion

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<sup>29</sup> In the tradition of the pure theory of externality, all of this is completely consistent with the allocation of a property right over the scarcity to solve the problem.

was internalised. Now, the toll should capture only the portion of external cost that is not internalised, being equal to the external congestion cost generated by an extra peak flight times one minus each carrier's airport flight share. Additionally, the efficient toll must take account of double marginalisation in the downstream market. Under a wide range of conditions, the optimal toll will then be below that charged in a market characterised by perfect competition.

The PC's analysis ignores these complications – which nonetheless seem highly relevant to the current situation at Sydney Airport (where Qantas now accounts for an extremely high share of passenger movements).

## 2.7 Allocation of congestion rents

*Premise 6:* It is appropriate to allocate any congestion rents collected through the congestion price to the owner of the airport.

As a result of the analysis of the efficient pricing and investment policy related to the management of congestion, it is clear that two alternative devices can be used: either the airport should add a mark-up to its price to signal scarcity and thereby “flatten the peak and raise the troughs”; or the airport ought to invest capital to expand its capacity and relax the scarcity constraint. Clearly, the choice between these ought to be driven by relative social cost. If it is socially costlier to expand capacity than to displace some traffic load, the latter option is preferable, and *vice versa*. Technically, for each unit of traffic in the peak period, the choice is based on the *minimum* of, first, the value of the displaced load, and secondly, the increase in capacity cost.

At least two important conclusions can be drawn from this analysis. First, efficient pricing and investment are inextricably linked.<sup>30</sup> Each is viewed as an alternative solution to the same issue with its own costs. However, under very general conditions, an efficient situation is only reached when the marginal costs of using these instruments are equal. Achieving this equalisation is a necessary condition for social optimality.

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<sup>30</sup> See Dreze J, (1964) “Some Postwar Contributions of French Economists to Theory and Public Policy” *American Economic Review*, 54:1-64.

Secondly, under very general conditions, this equality will be reached at a point where congestion still occurs. Since there is a trade-off between the alternative instruments, it makes sense to assume that the optimal capacity investment will not be at such a level that the constraint is never binding. This is no different from a standard result in the extensively-analysed issue of environmental externalities - generally, the optimal level of pollution is not zero; rather, there is a point where the social benefits from reducing pollution any further is equal to its social costs and the efficient trade-off has been achieved.

As a result, one would not expect a social-welfare maximising airport to set charges in such a way that no congestion rents were being collected. However, it is not easy for an outside observer to determine that the level of congestion actually being observed is socially efficient. There is consequently a principal-agent problem involved in delegating the setting of congestion charges to the airport when it is the airport itself that will own the resulting rents. This is because there will be an incentive for the airport to save on capacity costs in order to earn the resulting congestion rents. In other words, the airport owner will not test investments against the social shadow price of congestion; rather, it will test them against its private shadow price, which will differ from the social rate unless the airport is a perfect price discriminator (which, in the case of Sydney Airport, SACL clearly is not).

Does the fact of impending privatisation in any way alter this analysis? The PC claims that it does, largely because the obvious wealth transfer from air travellers to Sydney Airport will be capitalised into bids made for the airport and will result in a correspondingly higher valuation.

To the extent to which a scarcity rent will be earned in any event, and its magnitude is essentially unaffected by the allocation decision, taxing it to the Commonwealth *may* improve the distribution of income. However, for reasons set out above, these premises do not hold in the case at hand: rather, it seems reasonable to assume that the approach the PC recommends will result in at least some welfare losses and not merely in income transfers. The PC's argument must then involve a comparison of two parameters. The first is the welfare cost of the rents being allowed to the airport owner (and which it is presumed will be capitalised into the sale price of the asset); the second is the social gain from relaxing the Commonwealth's fiscal constraint by the amount of the additional funds, taking account of the fact that a similar amount could have been raised by other means (that is, by increasing other taxes or by reducing outlays). Since the PC estimates neither of these, it is by no means clear how it can reach the conclusion it sets out.

Moreover, it needs to be pointed out that the PC's argument could be read as a general argument in favour of creating and privatising monopolies. Even if this is not the PC's

intention, the fact that welfare gains to consumers are being traded off against a (purely illusory<sup>31</sup>) income gain to the Commonwealth, highlights the risk of misinterpretation.

Finally, it seems difficult to believe that the privatisation argument could be used to limit to SACL, and SACL alone, the right to receive congestion rents; rather, the likelihood is that, eventually, other airports too will seek to receive congestion payments. At that point, competitive neutrality will dictate that they be treated equivalently to SACL. As a result, the wealth transfers will be generalised, with gains to the owners of the already privatised airports. It is difficult to believe that these gains amount to an improvement in the income distribution.

### 3 Conclusion

In summary, our view is that the PC's Draft Report and its conclusions about the issues analysed here are flawed in a number of important respects.

For example, congestion is, by definition, an externality. However, this well-studied concept is relatively little used in the relevant sections of the Draft Report. Instead, the PC evaluates the issues in very general terms, proposing regulatory arrangements as if they were obvious. This is far from being the case.

As a result, important options are not analysed fully or even at all and, at times, it is by no means clear quite what assumptions the Draft Report is making. Little empirical evidence is presented on the matters being considered, even though some of the Draft Report's conclusions rest on what are ultimately empirical issues. Given the relatively high stakes involved, it would seem desirable to proceed to a more systematic and comprehensive analysis in the PC's final report.

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<sup>31</sup> Unless there are differences between the rate of welfare loss from the taxation and the social cost of government funds, with the second being less than the first, then the alleged gain disappears. If the first is less than the second, then there is a net social loss; if the two are equal, then any redistribution is merely an instance of fiscal illusion.

## Appendix A: Non-convexities

This Appendix A considers the results of the planning literature that relate to the non-existence of equilibria in the presence of non-convexities, and to the possible solutions in terms of quantitative targets.

The intuition is based on the fact that, when an agent receives a quantity (instead of a price) signal, the scale of production is given. In other words, the quantity level is exogenously fixed and does not result from the firm's own choice. Therefore, it is not subject to the problem of the jumps in the demand or supply functions and hence, non-convexities are not a problem. Indeed, from a more general point of view, it is the quantity-coordination mechanism (and not that functioning through prices) that is *de facto* the dual to the market mechanism in terms of information flows.<sup>32</sup> When the central planner (that is, the entity allocating rights of access to the scarce resource) uses a market-like price system, it sends one signal only. The information flow is based on the planner sending a price message, and receiving a response in the form of quantitative targets. The market mechanism is such that all agents will respond, no matter how heterogenous they are. Each of them will send a quantity as a response, that will be such as "since you tell me \$X, I tell you Y units of output". In contrast, in a system oriented around the allocation of quantities, the central planner sends a tailored signal to each unit, which responds with its own characteristic. In the purest systems of this kind, the central planner sends out quantitative targets and receives marginal productivities (that is, prices) as a response. The central planner's signal would be "produce Y units", with the response being of the form "I will do it for \$X". In the context of airports, the price system is based on landing/take-off fees, which airlines receive as a signal of slot scarcity. The quantity system is the complete, coordinated allocation of slots to individual airlines.

Although the two approaches seem identical, they are in fact profoundly different. The informational load is undoubtedly greater in quantity coordination but, first, this burden is

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<sup>32</sup> Heal's paper (1969), "Planning without prices" *Review of Economic Studies* 36:346--362, reverses the types of signal used in the Arrow-Hurwicz model, which is the solution to the problem related to equilibrium and non-convex production sets, first noted by Guesnerie R, (1975) "Pareto Optimality in Non-Convex Economies" *Econometrica* 43-1:1-29.

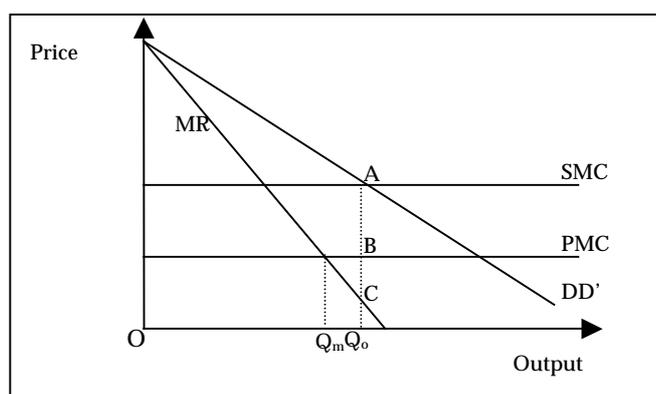
necessary if individual plans are to be compatible in the context of non-convexities and, secondly, even if more numerous, the relevant decisions are easier to make. Indeed, each decision will involve a single business unit and not the entire economy and, hence, will involve less uncertainty.

In short, where there are non-convexities, as is typically the case in transport systems subject to congestion, it cannot properly be assumed that coordination of resource use through price-like signals will be efficient. Rather, processes of quantity allocation seem more likely to yield efficient solutions, at least from the perspective of economic theory.

## Appendix B: Implications of “Coase plus Pigou”

The purpose of this Appendix B is to explain the problems that arise when Pigouvian taxes are imposed in a context in which some Coasian internalisation of an externality may already have occurred. These problems are often referred to by noting that “Coase plus Pigou is too much of a good thing”.

Consider the situation of a monopolist that imposes an external effect that it does not take into account in its economic decisions. Assume the firm at issue has a monopoly over airline services.



In the figure above, let  $DD'$  represent the airline demand curve and  $MR$  the corresponding marginal revenue curve. Assume a constant (private) marginal cost  $PMC$ . The (congestion) externality is accounted for by a social marginal cost  $SMC$  greater than  $PMC$ .

The profit maximising behaviour of the monopoly leads to an output  $OQ_m$ .

Following the simple Pigouvian precept, imagine the central planner (or the regulator or the airport) subjects the monopoly airline to a congestion fee. Social welfare is maximised when the social marginal cost and private marginal cost (including the tax) are equal. As said in the

main text, the tax  $t$  is such that  $PMC+t=SMC$ . In the figure,  $t=AB$ .<sup>33</sup> From the figure, we see that the optimal output is  $OQ_0$ .

Barnett explains this outcome in the following terms:

“Two sources of misallocation can occur with imperfectly competitive polluters. One is the distortion due to the externality, and the other is the underproduction of final products generally associated with the exercise of monopoly power. A tax on pollutants will reduce the generation of external damages, but it may also cause firms to reduce further their production of final products. Thus there may be tradeoffs between the two distortions, one due to monopolistic underproduction and the other due to external diseconomies. A tax based only on marginal external damages ignores the social cost of further output contraction by a producer whose output already is below an optimal level.

An ideal solution to this problem would incorporate the two policy actions: a device to increase production of final products together with a tax to control the external diseconomy. It is assumed, however, that the product market distortion cannot be directly corrected, and so the pollution tax must achieve an optimal second best tradeoff of distortions.”<sup>34</sup>

In our framework, the optimum would require two policy actions: a Pigouvian tax  $AB$  and a subsidy on production equal to  $BC$  (the difference between marginal cost and marginal revenue).

In the realistic case where subsidies are not possible, the solution is to set the tax equal to the standard Pigouvian tax *minus* the hypothetical subsidy. Three results with respect to this analysis are interesting. First, the optimal tax under a monopoly is *always* lower than the standard Pigouvian tax. Since a monopolist already restricts output below the optimal level, a (full) additional restriction induced by a Pigouvian tax is welfare reducing. Secondly, the tax varies directly with the monopolist’s price elasticity of demand: the more price elastic is

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<sup>33</sup> This level would be consistent for a competitive firm pricing at (private) marginal cost  $PMC$ .

<sup>34</sup> Barnett A H, (1980), “The Pigouvian Tax Rule Under Monopoly” *American Economic Review* 70:1037-1041.

demand, the smaller is the departure from the optimal marginal pricing<sup>35</sup> and hence the smaller is the welfare loss associated with any reduction in output. Therefore, if the price elasticity is low, as is the case for the demand for aeronautical services, the tax ought to be small. Thirdly, and this is the corollary of the second result, if the price elasticity of demand tends to infinity, the optimal tax under monopoly does **not** differ from the standard Pigouvian tax. As a matter of fact, this is entirely consistent with intuition, since an infinite price elasticity of demand makes the monopolist act as if it were in a competitive environment.

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<sup>35</sup> See Baumol W and Bradford D, (1970), "Optimal Departure's from Marginal Cost Pricing" *American Economic Review* 265-283.

**Selected Comments on “ Price Regulation of Airport Services”**

(Draft Report by the Productivity Commission, August 2001)

**Land Valuation and Congestion Pricing**

This brief note has been prepared at the request of the Australian Competition and Consumer Commission (ACCC) to provide some comments on two particular issues addressed by the Productivity Commission (PC) in its Draft Report, *Price Regulation of Airport Services* (PC-ADR): (i) valuation of aeronautical land at Sydney’s KSA, and (ii) pricing and the treatment of congestion.

The PC-ADR is a comprehensive document that covers a wide range of important and complex issues. Based on its findings the PC has recommended a number of major new policy prescriptions. Airport congestion (at Sydney’s KSA) is a central focus of the PC report and it is one driving factor behind the policy recommendations. This particular note touches on only a few selected aspects. Other related areas are not discussed here. However, a few remarks are also included on a couple general aspects of the draft report.

The purpose of the note is to offer some feedback, which the PC may wish to consider in the preparation of its final report on price regulation of airport services.

A point-by-point “informal” format has been judged Pareto optimal.

**I. Valuation of Aeronautical Land**

1. Opportunity Cost Approach. The PC-ADR records that opportunity cost is the appropriate approach to value land for economic efficiency purposes (p. 214 and F.2). Its role in providing demand and supply side signals for airport related decisions (including the how, how much, when and where) are outlined. The opportunity cost principle for land valuation is widely accepted, for example, by the ACCC, the NZCC, SACL, and BARA, although views differ substantially on its interpretation.
2. But, there are also formidable methodological difficulties in *practical empirical application* of the principle to estimation of the value of the total land at a major capital city airport site. Unfortunately, these practical difficulties are not discussed in the PC-ADR. It simply recommends the use of “*current market (land) value*”, without suggesting how this should be estimated for the KSA site. Notwithstanding the attention given to land values in the PC report, perhaps the question of implementation was judged outside the PC’s TOR. Whatever the reason, valuation of aeronautical land is a core component in the pricing of airport services and in the shaping of their location. It should not be sidestepped. Without a satisfactory empirical methodology for estimating opportunity cost, alternative bases of valuation (such as indexed historical cost) are obliged to be adopted by default. These are poor surrogates as they are unlikely to bear a reliable relationship to the underlying opportunity cost. For example, an indexed historical cost basis (as resorted to by the ACCC

in its *SACL Aeronautical Pricing Decision*, May 2001) may have some properties that allow it to serve as a reasonable substitute. But it could result in a valuation that is higher or lower than the real opportunity cost.

A constructive empirical design strategy is needed to progress this matter. Some preliminary lines of approach are opened-up here.

3. Actual Empirical Estimation. Three main issues need attention. First, the KSA site is not subject to actual land market transactions, nor are there “similar” site transactions that can be observed and directly utilized. One starting point/datum is to adopt current prices of marginal land transactions for properties *adjacent* to KSA-Mascot, and “factor them up”, to estimate “the market” value of the entire KSA existing site. This appears to be the estimation method suggested (implicitly) in PC-ADR.<sup>1</sup> But its basis is likely to be insufficient. While the most appropriate methodology to employ is open to debate (on cost-benefit grounds taking into account the ultimate consequences of valuation inaccuracy), the case appears strong for tackling the value estimation more carefully. This means *indirectly*, by inference from a structural “model” of the determinants of land parcel prices in the Sydney urban area.<sup>2</sup>
4. Probably the simplest “model” would be to systematically test for hypothetical bids for the property rights to the existing site in “approved” alternative uses (residential/commercial). There are sophisticated techniques (a la “stated preference”) to probe such hypothetical “expressions of interest” but the bottom line in the KSA case is that the results are likely to lack credibility. Another “model” would involve the estimation of residual profits based on a *synthetic in situ construction*, drawing upon expert judgment regarding the next best use; say a mix of *commercial* development. This is, in essence, the method attempted by SACL, albeit with technical flaws. Yet another “model” would involve econometric estimation of unimproved property/land values in the Sydney urban area, based upon comparable site characteristics (local environment, accessibility, etc.) and alternative candidate land use(s) developments, in effect using a hedonic price index approach.
5. All methods would, of course, be approximations and their accuracy in “simulating” the land market would be hard to estimate and “verify”. Once a valuation had been estimated, a relatively easy task would be making the adjustment necessary for the “removal/restoration” costs of sunk infrastructure (runways etc.) at the existing site.
6. Second, the methodology would need to address the “counterfactual” issue: namely, the hypothetical substitute location of KSA, as this could influence the empirical estimation of land value (social opportunity cost) at KSA-Mascot. One (or more) specific potentially feasible alternative location(s) (such as Badgery’s Creek) would need to be adopted as a working basis for estimation, and the sensitivity of the valuation of land at KSA/Mascot to alternative airport site could be examined; it may be a “second order” matter.
7. Third, estimations of land values are normally associated with small parcels, *marginal* changes in land use, and uses for which inter-dependencies with other uses are registered through an effectively competitive land market, i.e., loosely “partial equilibrium” conditions prevail. A major capital city airport, such as KSA, has a significant structural impact on the

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<sup>1</sup> This is also apparently the approach to the estimation of the Auckland airport land value taken by the NZCC.

<sup>2</sup> International evidence of market values of land used for a major airport could be useful, especially if it was associated with the re-location or re-structuring of a city airport.

spatial pattern of urban land use. The methodological question is whether it is a reasonable approximation to accept that the hypothetical re-location of KSA to an alternative site location in the Sydney urban area would not involve major real shifts in the Sydney economy, i.e., the counterfactual is more like a “marginal change in the location of airport land use” within Sydney as a whole. If so, the opportunity cost/land valuation relevant to the existing KSA site may be estimated under that proposition drawing on existing real property data. In this case, no major (avoidable) indirect social costs would need to be considered, although there would be re-allocations and transfers with substantial windfall gains and losses associated with sunk private and public capital.

8. Support for the principle that land valuation should be based on opportunity cost should be expanded to support for its practical implementation. The methodological issues raised above may be able to be addressed/dismissed by bounding the estimation using more than one approach/accepted as imposing tolerable “estimation errors.”<sup>3</sup> The empirical determination warrants development – and its role is likely to be increasingly important over time. (This also raises the question of appropriate treatment of exogenous changes in the opportunity cost/real value of airport land in the asset base. They should be passed through to users but be “neutralized”/netted-out so as to not yield windfall gains to the airport operator/private concessionaire. The rules of the privatization (bidding) process should spell this out very clearly. Otherwise, (some) capitalization of these expected windfall gains into the bids might be anticipated. According to the PC-ADR (p. F.2), the impact of land values at KSA on aero charges is significant; using the PC’s figures, the implied elasticity is around 0.25.
9. Land Valuation and Regulation The main discussion of the valuation of aeronautical land in the PC-ADR is presented in Appendix F (and carried in the text at pp. 213-215). The economic analysis is largely centered on Figure F.1. *The policy recommendations being suggested by this analysis are (to this reader) at best unclear.* The analysis attempts to examine land valuation, the “building block” cost approach to economic regulation, and congestion pricing, using a highly simplified model of the market for airport-aircraft movement services.
10. Aeronautical land valuation, in the context of cost-based economic regulation, should be established as a *separate matter* by empirical estimation of the social opportunity cost of the airport site. Whatever that opportunity cost is, it contributes (via a unitized rental value) to aero user charges. The question of efficient treatment of airport congestion is essentially a separate issue (although of course its resolution will involve, inter alia, short and long run incremental costs and their land cost components). Thus, the statement that it is

“.....likely that the aeronautical prices that would efficiently allocate available capacity at Sydney airport at certain times of the day already exceed production cost charges based on *any feasible land valuation method*”(emphasis added). (p.215)

detracts, perhaps unintentionally, from this important separation.

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<sup>3</sup> The methodological issues could be difficult to resolve completely, nevertheless, as long as an alternative location for KSA is technically feasible, then the opportunity cost principle should not be cast aside; the site opportunity cost should be estimated by the “best” approach available.

If price rationing is the superior approach to deal with congestion then it can and should supplement the (“congestion-free”) “production” cost base that forms the primary building block for aeronautical price “determination”. Land valuation should not be a “driver” of achieving higher prices to address congestion.

11. The present discussion in Appendix F of the draft report suggests that cost-based price regulation precludes specific attention to congestion:

“the highest that prices can get to under this approach is  $P_1$ ”.....and  
.....” not the appropriate “congestion” price  $P_c$ ”. (p. F.5)

No justification for this determination is stated and its presumption imposes an unnecessary bias on what might be a potentially useful comparative institutional analysis. Congestion, can, and, of course, is addressed within airport regulatory regimes, including by using pricing. Just how the efficient price ( $P_c$ ) is otherwise set in Figure F.5 is not spelled out – Is the market structure unregulated monopoly? If so, then a monopolist airport operator would raise the price above  $P_c$  and reduce service output below OA to where marginal operating cost equates to marginal revenue. Full information and “perfect” implementation (of  $P_c$ ) appears to be compared with “impotent” (re congestion pricing) economic regulation?

12. *The relative welfare effectiveness of alternative institutional arrangements (such as cost based or incentive economic regulation, on the one hand, or light-handed oversight of monopoly on the other, in responding to congestion is important. This is a core issue of the PC-ADR, but it is not pursued.* Therefore, it would be instructive for the PC to put together an analysis that could probe a balanced comparison of the order of magnitude of the expected full social costs (information / errors – static and dynamic)/welfare outcomes, in terms of the different responses to airport congestion under “imperfect regulatory regimes” and “imperfect monopoly oversight”.
13. The analysis surrounding Figure F.1 is based on a highly implausible combination of the *regulation* of maximum aircraft movements, an assumption of *no* “environmental considerations” (such as noise and rising congestion costs), separate determination of the market clearing price, and sale of the airport based on (short run) *capacity (or congestion) rents* (which it would be efficient to reduce or possibly eliminate by capacity expansion) – as well as other simplifications. In addition, where a change in land input is socially cost effective in alleviating congestion, an *inadequate* explicit distinction is made between the *total/average cost* of using the entire aeronautical land at the existing site and the *marginal cost* of changing aeronautical land input.
14. The suggestion that the “value” of the airport to the operator (or a private bidder), as described by the simple single price signal (!) denoted  $P_c$ ,

“.....provides an appropriate signal as to whether to sell and move elsewhere and to the government in evaluating the effects of regulation” (p. F.5)

is, as stated, *incorrect and misleading, from both a private and social standpoint.* Even accepting the unrealistic and sweeping assumption of no “environmental” externalities that are a key feature of airports, the alternative locations for a major airport involve wider important (differences in) social and private benefits and costs – for example, passenger access travel time and other resource costs, air service costs, and the avoidable costs of

complementary infrastructure (that are not adequately registered in markets or typically in corresponding alternative user charges). Moreover, the statement in referring to “the effects of regulation”, repeats the “unbalanced” comparison noted in para.11 above.

15. Distribution Issues. The valuation of aero land and (excessive) congestion have different distributional consequences and it is desirable to conduct analysis of them separately. The discussion in PC-ADR (p.215 and Sect. F.3) might be expanded usefully in that respect, to include the influence of privatization, alternative regulatory regimes, and the market structure of air services on the capture of congestion rents by airlines, the non-price rationing of congestion, and the proceeds of the airport sale. (Demand side and supply side A-J and risk effects aside, under cost-based regulation, would not a change in the aero land value component of the allowed asset base, and the resulting increment in revenue stream, be capitalized into the bid price and transferred to the government?)

16. On what appears to be a related point, the concern expressed with “under-valuation” of KSA:

“.....A valuation of the airport that uses “building block” prices, even those that used the full opportunity of the land for purposes other than an airport, are likely to undervalue the airport, in terms of the value that users place on it” (p. F.7)

is obscure. Setting aside the prospects for non-aeronautical profitability, the social and private “values” of the airport are *not* represented by the “asset base”, or some capitalization of (excessive) existing congestion rents that might be internalized/transferred under the bid conditions to the Government.

## II. Pricing of Congestion – Some Selected Aspects

17. Airport congestion as manifested directly in terms of periodic delays in aircraft operational movements arising from airport capacity constraints is a complex topic. Only a few selected comments on the wide-ranging discussion in the PC-ADR are noted here. The comments relate to aspects of the *analysis as presented in the PC report* which center on “improved pricing as the solution”. The much broader and central question of what is the best (most economically efficient) policy instrument(s) to apply to tackle airport congestion is not addressed here. However, as suggested below, the net efficiency of appealing to monopoly market power to raise prices -- as the primary way to deal with congestion relative to other direct approaches (e.g., facilitation of a slot market, removal of protection to regional carriers, movement controls) – is at best unclear and quite possibly grossly inferior. The PC-ADR notes the importance of information and its cost for the efficient management of (excess) demand. But there is virtually no systematic assessment of the social cost effectiveness of alternative approaches to congestion – including implementation and monitoring costs, and the measurement of efficiency changes under incomplete price rationing.

18. The PC-ADR (particularly Chapter 4) provides an outline of a basic economic framework for analyzing the pricing of airport services in the presence of congestion and airport market power. Unfortunately, the analysis as presented is selective and the conditions under which several of the conclusions actually hold are not declared. It would be highly desirable for the PC to advise about such conditions and to develop a more complete analysis. Then, the likelihood and consequences of a range of possible net welfare outcomes, as far as possible with some empirical guidance, could be assessed and hopefully clarified.

19. In the PC –ADR it is asserted that:

“capacity constraints effectively mean that Sydney has little incentive, or need, to exercise market power as such” (p. xxxii).

First, it is likely to be efficient to reduce the “incidence” of the existing capacity constraints, on the demand side (e.g., removal of protections) and at some future time possibly on the supply side (partly depending on aircraft technology and noise abatement). Second, the aircraft movement market demand elasticity (ies) are low and the profit-maximizing level of airport use may well be *below* the capacity constraint. If so, the airport operator *does* have an incentive to exercise her market power. What “pressures”, if any, are envisaged that would “persuade” the operator to fully utilize the allowable movements in peak periods? Third, depending on the long-run marginal/incremental cost of expanding capacity relative to marginal revenue, the airport operator may have no incentive to expand capacity efficiently, or to facilitate relaxation of a movement constraint. The operator may have no “further” incentive to exercise market power because the capacity constraint has provided (the) excess profits in the form of congestion rents. (Taxing them away by transfers to government is hardly a “solution” to the potential inefficiencies here.) Whether existing movement limits are binding for the exercise of such market power is an empirical question. So are the basic welfare trade-offs between dead-weight losses from monopoly (“tolerated imperfect market”) and the costs and errors of economic regulation (“imperfect regulation”).<sup>4</sup> The credibility of threat of (re) regulation, demand conditions (low price elasticity), and the capacity for “deep” price discrimination all shape the trade-off and the efficiency outcome. At one extreme, the exercise of monopoly power may involve small inefficiencies but large transfers to the operator/and possibly to the government (via initial bids). In this case the sole focus on efficiency is likely to be grossly insufficient for real policy judgments. A wider perspective, especially if it can be illustrated with empirical evidence, would assist government consider the breadth of the issues, earlier rather than later.

### III. Some Aspects of the Overall Approach

20. The PC Draft Report on Price Regulation of Airport Services provides a useful and timely contribution to deliberations on the most suitable institutional framework for airport infrastructure in Australia. The report is comprehensive and analytically based and this facilitates engagement on its draft findings and recommendations.

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<sup>4</sup> The impression tends to be given in the PC-ADR that the working hypothesis is that economic regulation of airports gives a worse efficiency outcome than unregulated monopoly. But no firm “test results” of this central hypothesis is set out.

21. There are important areas where the draft report could be strengthened so that its contribution to informed debate on policy development is expanded. In terms of general style, it tends to be coloured by underlying assumptions/conditions that are neither recognized nor explicitly stated. These call for more adequate specification, justification, and/or empirical evidence. Where evidence is weak, sensitivity testing of conclusions to key parameters and possibly assembly of new data may be instructive.
22. The core theme of the report is the policy balance between perceived regulatory failure and market failure should, in effect, favour the latter. At Sydney, the market failure is manifested as congestion and the exercise of monopoly power. The PC “favours” an institutional arrangement of oversight only as the superior policy approach to these circumstances. The PC is forthright in stating explicitly that this conclusion is based on *its judgment*. The PC appears silent on a parallel key policy question of how this balance, even on the assumptions made by the PC, would be affected if the congestion element in this equation were to be targeted by separate policy tools. Is it the recommendation of the PC that if Sydney KSA was not subject to (excessive) congestion then oversight is (still) the optimal regulatory arrangement?
23. The central recommendations regarding “light-handed” regulation may be seen as proposing an “innovative policy experiment”. There can be high merit in such experiments and the PC is to be commended for entertaining a real test of airport regulatory policy. But, the economic, financial, and political stakes are high – especially in the current economic climate and international environment. Therefore, to justify the responsible introduction of such a major national “experiment”, it is highly desirable that the “experimental design” is derived from a systematic assessment of alternatives and an ex ante stab at the expected costs and expected benefits --- including the impact on the privatization of KSA.
24. Under the PC’s proposed light-handed approach, what ensures that the veracity of “audited information, including operating and capital expenses.....” will be greater under oversight than under cost-based or incentive regulation? Are the incentives for gaming and inefficient rent-seeking demonstrably lower? In a similar vein, what are the specific criteria by which the performance outcomes of the proposed approach will be judged at the end of the five-year probationary period? Plainly these criteria should be specified in detail and declared publicly, well before privatization.
25. The PC ADR solicits views on “guidelines for good behaviour by airports” to help the design of oversight/monitoring. In the absence of explicit specific criteria it is not clear what this request entails. Should not a solid definition and assessment of what constitutes “good” airport operator “behaviour” – and alternative institutional contexts to shape it -- lead rather than follow recommendations on the “socially best” institutional context?
26. There is an on-going similar experiment being conducted on Australia’s doorstep in New Zealand. Moreover, the NZCC has made a serious effort to carry out a detailed quantitative cost benefit analysis of this experiment (including the costs of litigation, etc). While the PC Report describes the NZ situation, it does not appear to have examined in depth this valuable and innovative comparative institutional assessment and considered its lessons for airport regulation in Australia.
27. The thrust of the PC-ADR tends to be dominated by one issue, namely aircraft movement *congestion* at Sydney’s KSA airport. Plainly congestion is an important issue, but the

emphasis appears excessive. The pivotal role given to this issue, especially in its short-run context, is compounded by the proposition that the “best solution” to the congestion problem is to raise user charges: this is really a “hypothesis”. But its acceptance and adoption throughout the report provides the basis for moving to the policy prescription that the “best”(most efficient) mechanism to achieve such price increases (including a high degree of price discrimination) is to *facilitate* the exercise of market power by the airport operator, i.e., deregulate airport aeronautical charges. This “conclusion” could well be valid but its substantiation in the PC-ADR is not convincing on the chain of logic and evidence as presented. An important and unfortunate gap in the assessment, from a policy standpoint, is the limited comparative analysis of the benefits and costs (including implementation and reliability costs) of the policy options as noted.

28. There are several areas where the economic analysis is incomplete in probing the real complexities of the structure and environment of the air service industry. For example, on the welfare outcomes of monopoly pricing, vertical relationships (especially airport-airlines market and gaming structures). Other examples are indicated in the comments on land valuation and congestion pricing above.



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

Comments on New Zealand experience and  
incentives for monopoly pricing

**October 2001**



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## 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.<sup>1</sup>

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:

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<sup>1</sup> 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.”<sup>2</sup>

## 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

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<sup>2</sup> Draft Report, page G.9.

Government, in part over interpretation of key elements of the legislative framework.<sup>3</sup>

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,<sup>4</sup> that price controls be introduced at Auckland Airport.<sup>5</sup>

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.

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<sup>3</sup> Draft Report, page G.12.

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

<sup>5</sup> 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."<sup>6</sup>

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."<sup>7</sup>

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

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<sup>6</sup> CC Draft Report, paragraph 141.

<sup>7</sup> 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 ...”.<sup>8</sup>

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.

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<sup>8</sup> 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:<sup>9</sup>

- 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.

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<sup>9</sup> Draft Report, page 98.

Table 5.5 of the Draft Report summarises the PC's own conclusions on conditions 1, 2 and 4.<sup>10</sup> 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.<sup>11</sup> 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.<sup>12</sup> 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.<sup>13</sup>

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.”<sup>14</sup>

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.<sup>15</sup> Given this lack of price elasticity, substantial increases in aeronautical prices above the competitive level

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<sup>10</sup> Draft Report, page 120.

<sup>11</sup> Draft Report, page 106.

<sup>12</sup> Draft Report, page 116.

<sup>13</sup> Draft Report, page 115.

<sup>14</sup> Draft Report, page 116 (footnote omitted).

<sup>15</sup> 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;<sup>16</sup> 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.

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<sup>16</sup> 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.<sup>17</sup>

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

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

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

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

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

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<sup>17</sup> 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  $\varepsilon_{ii} = -\frac{\partial D_i(p_j, p_i)}{\partial p_i} \cdot \frac{p_i}{D_i(p_j, p_i)}$ . This is a positive number – as lower price raises the associated demand.

Define the cross-price elasticity of demand as  $\varepsilon_{ij} = -\frac{\partial D_j(p_j, p_i)}{\partial p_i} \cdot \frac{p_i}{D_j(p_j, p_i)}$  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:

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

This result is similar to those obtained by Baumol and Bradford,<sup>18</sup> 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:

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

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

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<sup>18</sup> 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  $\frac{\left(p_j - \frac{\partial C_j}{\partial q_j}\right) \cdot D_j \cdot \epsilon_{ij}}{p_i \cdot D_i}$  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  $\epsilon_{ij}$ .

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.

## Attachment D: Detailed comments on the Productivity Commission’s draft report

Page	Extract	Comment
25	Table 2.2: Major user charges at core-regulated airports 2000	<i>Not accurate.</i> Sydney Airport international terminal charge incorrectly listed as \$8.17. It should be \$16.34 (since the charge was levied per arriving and departing passenger). Note that on 23 August 2001 the ACCC approved an international passenger charge of \$35.10 (GST exclusive) per return trip.
33	“Since privatisation, returns to airports have been low”	<i>Incomplete analysis.</i> This statement does not reflect the findings of the KPMG report which found that returns on net tangible assets averaged approx. 13.5% for the Phase 1 airports over the period 1997-98 to 1999-2000. KPMG did not include the lease premia in their calculations because “Lease premia and goodwill represents a capitalisation of expected future earnings. To include them in the capital base of any return calculation would provide commentary on investor expectations rather than the underlying performance of the business” (page 5 of KPMG’s report to the ACCC).
33	“Since privatisation returns ...have tended to be below the stated expectations of airport operators.”	<i>No empirical analysis.</i> The PC’s conclusion is not supported by empirical analysis. Australia Pacific Airports (which holds the leases of Melbourne and Launceston Airports), for example, stated “We projected both of our airports would perform well, but they have exceeded our expectations. [...] Melbourne Airport continues to perform ahead of the shareholders’ bid business plan” (Media release 6 September 2001).
69	“the extent of market power of a particular airport will depend on a range of factors including ... the share of airport costs in the airfare”	<i>Incomplete analysis.</i> The PC’s report repeatedly points to the low share of airport costs as a proportion of airfares, and suggests that this would limit the efficiency impact of higher prices. This is misleading, since in a genuinely deregulated environment airport operators would maximise profits by setting aeronautical charges that could represent a significant proportion of ticket prices (see page 9 of the ACCC’s submission).
75	“it appears difficult to make a case for price regulation of airports with market power purely on distributional grounds ... because many airport users are not Australian residents.”	<i>No empirical analysis.</i> The issue here is whether higher charges result in a net transfer of income from Australian to foreign residents. This is an empirical question which the PC has not addressed. Prima facie there is a case to suggest that higher charges would result in such a transfer. The major airports are up to 49% foreign owned. By contrast only around 10% of passengers using Australia’s airports are foreign residents.
76	“the airlines rather than passengers will capture at least some of the scarcity rents”	<i>Incomplete analysis.</i> Airlines offer a network of services. In a competitive environment any congestion rents from services into Sydney Airport would be likely to affect pricing on other routes. Furthermore there is a repeated theme in the report that it does not matter if congestion rents go to airport operators, but that it does if

		they go to the airlines.
78	“if the monopolist can price discriminate (and they have an incentive to do so to increase profits), it is feasible that the marginal consumers will not be priced out of the market”	<i>No empirical analysis.</i> There is no evidence in Australia or overseas that airport operators have or could price discriminate in this way. In fact ICAO policies prevent such discrimination (see discussion in Commission submission).
80	“airport users ...are not paying prices for current infrastructure that reflect the full cost of maintaining airport facilities”	<i>Contradicts available evidence.</i> There is no evidence to support this assertion. The evidence from the FAC’s operation of airports suggests that the assertion is incorrect. The FAC undertook high level maintenance and substantial new investment program – and delivered Government specified rate of return targets.
80	“airport users, because they are not paying prices for current infrastructure that reflect the full cost of maintaining airport facilities may have some incentive to oppose new investment that will lead to higher average prices”	<i>Incomplete analysis.</i> There is no evidence to support this assertion.
80	“Airports traditionally have charged according to the maximum take-off weight (MTOW) of aircraft and frequently this is characterised as roughly efficient Ramsey pricing.	<i>No empirical analysis.</i> The PC’s argument that MTOW charges can be characterised as Ramsey pricing is questionable and has not been tested. For details see discussion in the ACCC’s submission.
81, 82	Peak charges and congestion pricing	<i>Incomplete analysis.</i> The PC discusses congestion at Sydney Airport without assessing the underlying causes of the congestion and without discussing options for addressing congestion such as auctioning slots, slot trading, or capacity augmentation at alternative sites. For details see the ACCC’s submission.
82	“there does not appear to be a strong case that efficient pricing necessarily requires the transfer of all airport locational rents to reduce aeronautical charges. To do so may well lower aeronautical charges below the marginal (long-run, or even short-run) costs of providing these services and discourage investment in them”	<i>Inconsistent.</i> On the one hand the PC argues that the airport operator will take the whole of airport profit performance into account in setting aeronautical charges (see chapter 7). This is a ‘single till’ argument. The logic of this argument is that the airport operator would also take the impact on non-aeronautical revenues and profits into account in making decisions on aeronautical investments. Instead the report repeatedly emphasises the need for sufficient returns on aeronautical investments when considered in isolation (a dual-till model).
83	“the Commission has assessed and compared possible efficiency and distributional outcomes with and without regulation”.	<i>No empirical analysis.</i> To a large extent the assessment about distributional and efficiency outcomes is an empirical issue. The PC has not carried out any empirical analysis of the impact of the different regulatory models proposed or the impact of deregulation. By contrast the New Zealand Commerce Commission carried out extensive empirical analysis in its inquiry into the need for price controls at airports.
137	“nonetheless, other providers [of short term car parking] may	<i>Incomplete analysis.</i> These comments seem relevant only to parking visits at the longer end of the short-term

	emerge ..... Further, rates for short-term parking will be constrained to some degree by those set in the more directly competitive long-term parking market.”	parking range. For example no evidence is given as to the availability and cost of shorter stays (say, several hours) at off-airport car parks. Likewise, on-airport long term car parking cannot be a constraint in relation to shorter stays in the short term car park. Further, the effectiveness of off-site competition depends on the competitor obtaining access on reasonable terms from the airport operator (see comment above).
137-138	“In addition ...many of the users of short term parking are not airline passengers, but rather those meeting passengers or driving them to the airports. They have some options about whether to use airport car parks – .... arranging to pick them up outside terminals, for instance.”	<i>Not accurate.</i> Picking up passengers from the kerbside creates congestion problems and for this reason has been prohibited or severely restrained by airport operators. This means that in practice it is not possible for greeters, taxis, buses etc. to pick up passengers without using parking or taxi holding facilities. Furthermore arranging for a greeter is not a realistic option for many (if not most) travellers.
138	“Thus it would appear that airport market power in car parking is likely to be relatively more significant in staff car parking. However, airport staff – including management – will be users of the staff car park. This would reduce incentives to exploit potential market power, unless the airport operator can discriminate between airport and airline users of staff car parking (for example, by providing separate parking areas).”	<i>Not accurate.</i> In fact discrimination between airport and airline staff users is possible. Moreover the premise that airport managers would refrain from exercising market power over staff parking because they would themselves have to pay higher parking rates seems implausible.
138	“In addition [to locational rents], the opportunity costs of having to maintain space that may only be used for short periods may be relatively high. This might explain, to an extent, the relatively high hourly rates in short-term parking, not only at the airport but at most CBD car parks.”	<i>Incomplete analysis.</i> Although a particular visitor may stay for a short period the facility is used as a car park all day. It is not obvious that there are significant periods during which the facility must be under-utilised (or at least, no more under-utilised than any alternative use of the land).
139	“Further, to the extent that significant expansion of car parking space occurs, this would not appear to be consistent with monopoly pricing behaviour unless demand is also expanding rapidly.”	<i>Incomplete analysis.</i> The key issue is what is the profit maximising levels of price and quantity. Whether or not there has been some expansion does not address this question.
139	“SACL argued that even the new [staff car parking] prices do not allow full cost recovery (SACL, pers.comm., 25 July 2001).”	<i>No empirical assessment.</i> SACL’s statement has not been tested by the PC.
142	“Nonetheless, there appear to be some good arguments that [taxi]charges are not entirely fees for access to ‘landside roads’	<i>Not accurate.</i> This is a legal matter. The Federal Court has now confirmed the ACCC’s interpretation of the regulatory instruments. The ACCC’s position was also upheld by the Full Federal Court on appeal.

	(appendix E). The charges tend not to be levied on taxis setting down passengers, hence they are not levied for all taxi access to the airport.”	
142-143	“The ability of airports to impose [taxi] charges above efficient levels appears to be limited if access for competing modes is provided on reasonable terms and conditions.”	<i>Incomplete recommendations.</i> The PC’s recommendations mean that incoming aircraft passengers would not have access to a regulated mode of departure from the airport precinct. <i>None</i> of the access modes for incoming aircraft passengers would be regulated (see ACCC submission for details).
144	[Airports other than Perth] “may have a less significant degree of market power in the provision of refuelling facilities. For Melbourne Airport, the proportion of its traffic generated from shorter routes, particularly Sydney-Melbourne, is far more significant than from longer routes such as Melbourne-Perth.”	<i>Incomplete analysis.</i> The comment ignores international traffic. Furthermore if all alternatives to a given airport have market power, that will enable the subject airport to behave as if it has market power.
146	“If the imposition of [fuel throughput] levies had been justified on cost grounds, claims of abuse of market power would have been more difficult to substantiate. Nonetheless, a lack of cost justification, of itself, does not indicate an abuse of market power either. It may be that the previous charges were at inefficiently low levels, in which case, there did not need to be an increase in costs to justify an increase in charges. The critical issue, then, relates to whether the charges ... were above efficient levels.”	<i>Incomplete analysis.</i> The PC does not explore how efficiency might be defined or evaluated in this context. Allocative efficiency normally requires a relationship between costs and revenues. The ACCC evaluated the costs and revenues associated with the provision of services for refuelling activities and found no such relationship. The PC has conducted no such analysis.
149	“The market power of airports [in relation to flight catering facilities] appears to be negligible, as long as access to the airport is provided. Although airports could limit access, it does not appear that access has been an issue to date.”	<i>Not accurate.</i> In 1999 the Hyatt Hotel complained to the ACCC about Canberra Airport’s imposition of an increase in their licence fee of some 800% to transport food prepared in an off-site facility to Qantas aircraft. The charges are now substantial.
150	“Overall, it appears that issues in relation to freight handling and ground service equipment storage sites are predominantly access related. It does not appear that airport operators currently have an incentive to exercise market power in these facilities.”	<i>Incomplete analysis.</i> The PC’s conclusion does not take into account the Sydney Airport experience: “In the present matter SACL does want to deny access, or at least regulate access, because it appears to want to control and decide itself who shall operate ramp handling services at the airport” (Australian Competition Tribunal, <i>Sydney International Airport</i> pp 8-9). This suggests that airports may act to inhibit access to these facilities.

153	“In the case of duty free outlets, there are not only off-airport options for purchase, but travellers can decide to make purchases at airports overseas or on flights.”	<i>Not accurate.</i> Overstates importance of competition from off-airport outlets. Off-airport duty-free retailers are required by legislation to remove the dockets from their customers’ duty free bags at international airports after their customers pass the outwards customs line. Access to the area between the outwards customs check and the security X-ray machines is required for docket collection. The ACCC understands the access fee at one major airport recently increased more than ten-fold and may be reviewed again shortly. This provides some indication of an airport’s willingness to charge excessively for access, even when it does not compete in the downstream market.
211-213	Dual till – discussion about ACCC draft decision on Sydney Airport prices.	<i>Incomplete analysis.</i> In making its decision the ACCC is bound by the legislative criteria in section 17(3) of the PS Act. The PC’s comments are made without regard to the obligations this puts on the ACCC. It should be noted that ACCC decisions can be appealed if the ACCC fails to administer the provisions appropriately.  Since this was a draft decision for discussion by interested parties and since the proposed approach was not part of the ACCC’s final decision it is not relevant to the PC’s terms of reference.
213-215	Land valuation – Sydney Airport	<i>Incomplete and flawed analysis.</i> See the ACCC’s submission, NECG’s paper (attachment A) and the paper by Colin Gannon (attachment B) for detailed comments on the PC’s analysis.
219	“Price monitoring creates potential for regulatory creep, that is the gradual transfer of aeronautical-related services from outside the price cap to within it. [...] Uncertainty has been created for airport operators ...raising issues of regulatory risk.”	<i>No evidence.</i> No evidence to support alleged ‘uncertainty’. ‘Gradual transfer’ has in fact not occurred.
222	“To date, ACCC reports on quality appear to place emphasis on survey results rather than on the objective indicators. Passengers’ perceptions are subjective .... Surveys of airlines’ views also constitute a subjective form of assessment.”	<i>Inconsistent.</i> See PC’s remark on page 223: “Quality performance assessment of the objective indicators by the ACCC may be misleading depending on how the ACCC interprets a change in these indicators. [...] The highest quality is not necessarily the most desirable or the most efficient. The surveys of passengers and airport users are likely to account better for differences in quality preferences.”  <i>Incomplete analysis.</i> The PC offers no analysis of or suggestions for alternative measures of quality of service. The ACCC’s approach to quality of service monitoring is to look, as far as possible, at indicators of asset utilisation in relation to final quality of service over time. This involves examining a range of indicators, static and qualitative, and their relative movement over time. Individual static indicators are not particularly meaningful on their own but give an indication of quality issues and relative responsibilities for them when looked at in combination with other indicators.

224	“Several participants commented that investment at airports had been impeded by the regulatory regime in relation to necessary new investment and hence had restricted potential improvements in service quality. In other words, future quality levels may be affected by application of current regulatory arrangements.”	<i>No empirical analysis.</i> This comment implicitly embraces criticism without independent appraisal of investment levels. No evidence of under-investment under current regime.
231	“Thus, it is arguable that broadening the definition of the service in the Delta determination resulted in the service meeting the section 192 declaration criteria when it otherwise may not have done so.”	<i>Irrelevant observation.</i> This is a legal matter. The approach to service definition used in <i>Delta</i> is correct in law and principle. It is supported by the Tribunal’s <i>Sydney International Airport</i> decision.
231	“APAC (2001) suggested [...] that, if declaration had been sought under Part IIIA, it is unlikely that the application would have met either the competition test or the national significance test.”	<i>Incomplete analysis.</i> Uncritically repeats APAC’s comments. In fact there are good arguments that the service in Delta would indeed have met the Part IIIA tests (especially following the Tribunal’s <i>Sydney International Airport</i> decision).
231-232	“While ACTO sought access to various freight handling and related services, the NCC and Australian Competition Tribunal found that the relevant facilities providing those services were the whole of MIA and SIA. [...] Had the relevant facilities been defined more narrowly, they may not have passed [the natural monopoly and national significance] tests.”	<i>Irrelevant observation.</i> This is a legal matter. It would be artificial to assess the economic characteristics of these facilities without having regard to the complementarities between the bundle of services offered at airports. The Tribunal correctly had regard to these complementarities.
240	“an estimate of opportunity cost of the land ...will undervalue airport land where access to the airport is restricted by capacity”	<i>Incomplete analysis.</i> Unless land is the main driver of congestion, the issue of land valuation should be addressed separately from congestion. This is the case at Sydney Airport where noise and Sydney Airport’s obligations to regional operators are the primary drivers of congestion. See ACCC submission for details.
240	“the opportunity cost valuation [of land] proposed by Sydney Airport”	<i>Not accurate.</i> Sydney Airport’s characterisation of the proposal as an opportunity cost valuation is not accurate. See ACCC submission for details.
240	“The historical approach used by the ACCC in the valuation of land for Sydney Airport, resulted in a land valuation significantly below the opportunity cost ...”	<i>No empirical analysis.</i> ACCC estimates using Dr Gannon’s proposed approach to measuring opportunity cost suggests that the reverse may be the case.
241	“as the price-cap review is approached, there is an incentive for the	<i>No empirical analysis.</i> There is no evidence from the U.K. or Australia to support this argument. Whether or

	airport to inflate costs, in order to obtain a lower X over the next period.”	not such incentives exist depends on how the X values are set.
241	“Price caps are unlikely to lead to efficient pricing of congested facilities”	<i>Incomplete analysis.</i> The PC ignores the scope for airport operators to restructure charges under a price cap. For example the price cap allows the operators to introduce peak period charges. The PC also ignores the possibility that price caps may effectively address congestion in conjunction with other measures such as the slot allocation scheme, or trading in slots. The PC’s report has not addressed the alternatives or their relative merits.
267-277	Prices monitoring	<i>No analysis of New Zealand experience.</i> The PC’s proposals are similar in a number of important respects to those currently in place in New Zealand. However, the PC does not discuss the outcomes or the New Zealand Commerce Commission report on price controls in any detail.
274	“Price monitoring has potential to ... promote commercial negotiation”	<i>Incomplete analysis.</i> No economic or other analysis is advanced in support of this conclusion. The ACCC considers that theory would not support the PC’s claims, but would instead result in “take-it or leave it outcomes”. See discussion in ACCC submission.
274	“To provide an effective constraint 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.”	<i>Incomplete recommendations.</i> The PC does not present a proposal to provide a credible threat. As discussed in the ACCC’s submission the ACCC is concerned that a “well-defined” threat will amount to rate of return regulation.  <i>Incomplete consultation process.</i> Since the PC has not developed its proposed ‘good behaviour’ guidelines interested parties will not have the opportunity to comment on the final outcome. See the ACCC’s submission for more detailed comments.
280	“the stated rationale for section 192 was the Government’s desire to encourage access to airports by new airline entrants. However, ...section 192 does not appear to have been instrumental in achieving this outcome. Importantly, two airports built new terminal facilities for these entrants, making gate allocation at existing domestic terminals unnecessary.”	<i>Incomplete analysis.</i> The PC fails to acknowledge the importance of the price cap arrangements in achieving this outcome. See discussion in the ACCC’s original submission to the PC about the dispute between Melbourne Airport and Virgin Blue over the multi-user domestic terminal.
285	“Though compliance costs [of access regulation] can be high, once precedents are set, the need for arbitration may decrease”	<i>Not accurate.</i> Arbitration outcomes under Part IIIA are confidential so there is limited scope for precedent effect.

291	“commercial agreements between airport operators and users has the potential to promote ...efficient outcomes”	<i>Not supported by analysis.</i> Negotiations where one party has significant market power will not give efficient outcomes unless the market power is constrained. See discussion in ACCC submission and the page 274 comments.
297	“Off-site and on-site alternatives to airport-provided taxi parking facilities are limited. Nonetheless passengers ...have some discretion in their use of these facilities – passengers can use other modes”	<i>Incomplete recommendation.</i> The ACCC agree with the PC’s conclusion that other modes are available to passengers. However, for passengers departing the airport none of those modes are captured by regulation. See discussion in the ACCC’s submission.
313	“The second [option B] strives for a more commercially-oriented approach”	<i>Incomplete analysis.</i> The PC repeatedly refers to “commercial outcomes” but fails to define what this means when major airports have significant market power. The ACCC considers that the likely outcome will be costly, lengthy and ad hoc arbitration processes. This is supported by the experience in Telecommunications and the New Zealand experience in regulating airports. This outcome would fail all of the “good regulation” objectives identified by the PC in its report. See ACCC submission and page 274 and 291 comments for further details.
C1	“Profitability of non-aeronautical services exceeds that of aeronautical activities. The report prepared for the ACCC by KPMG provides evidence that this result is not attributable to arbitrary allocation of costs across the two categories.”	<i>Not accurate.</i> KPMG were not asked to assess cost allocation between aeronautical and non-aeronautical activities. The ACCC is not aware of any independent assessment of the cost allocations contained in the airport regulatory reports.