Submission

Productivity Commission Inquiry

Economic Regulation of Airports

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Introduction and Outline[1]

This Productivity Commission Inquiry can be seen as having several tasks. These can be summed up as:

- Assessing the system of light handed regulation of airports which has been in place since 2002;
- Assessing the economic performance of the (monitored) airports under this system, and
- Evaluating the available options for improving the system.

Perhaps the primary justification, in 2002, for changing the regulatory system away from price cap regulation, was that it would improve efficiency – in achieving an efficient level and pattern of investment, in spurring productive efficiency and in getting the level of quality right (Productivity Commission, 2002). Negotiation by airlines and airlines would be facilitated, and play a major role in achieving efficiency. The Commission considered that the system had achieved this, in its 2006 and 2011 Reports (Productivity Commission, 2006; 2011). However, the 2011 Report can be criticised as having come to strong conclusions based on very little quantitative analysis, and not making use of the available material. Since the performance of the airports since 2011 is much more mixed, it is even more necessary that conclusions be based on rigorous quantitative analysis, and the options for improvement be considered.

The idea of light handed regulation was that it would be better than more intrusive regulation (e.g. price caps) at achieving efficiency, in that it would involve stronger incentives for productive efficiency, and more flexibility for airports to achieve needed investment. The downside has always been that these airports might have too much market power, and use it to increase prices and profits, and invest inefficiently. In the original format of light handed regulation there were safeguards against this happening, but these have been weakened or removed over time. Thus there is a real concern that some of the airports may be using their market power.

It is argued here that, of the two key objectives of the move to light handed regulation, the first that of enabling the airports to invest adequately, has been achieved. Indeed, there may have been too much investment in some cases.

The progress towards the second objective has been much more problematic. In the early years after 2002, airport productivity grew significantly (Assaf, 2009). However, there is evidence that over the past ten years it has been *falling* significantly, to such an extent that the early gains have been almost wiped out (Niemeier, Forsyth and See, 2018). There has been much public discussion of the rising airport charges over this period- however, these price increases have been mainly, though not entirely, reflecting rising costs. On the face of it, it would seem that the new regulatory environment of 2002 has failed in one of its two main objectives.

There is a possible explanation for this apparent poor performance, which will be outlined here. It is linked up with the strong investment performance. The airports have been investing strongly, but this has been necessary to cater for the strong growth in demand. Where airports are land constrained, and most of the major airports are, increasing output can only be achieved at increasing unit cost, and falling productivity.

This explanation is a hypothesis, no more, and it needs to be investigated. Whatever the explanation, there are real puzzles about the performance of the Australian monitored airports. There needs to be a rigorous analysis of the key aspects of performance:

Firstly, of the investment performance, and whether investment has all been worthwhile, and

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Secondly, what is the explanation for the falling productivity, rising costs and rising airport charges over the past ten years. What is actually happening with the monitored airports, and how can we interpret the changes?

These aspects will be discussed in this submission. In addition a number of other issues are raised. These are:

- How much market power do the Australian airports have- have earlier assessments been accurate? What are the efficiency costs of the use of market power of airports in the light of new ideas about the wider economic benefits of air transport, and tourism benefits? Who ultimately pays the airport charges?
- What is the current Australian system of airport regulation – is it light handed regulation, or is it more accurately described as deregulation?
- What is the scope for negotiation when the airports have considerable market power? What are the options for the negotiate / arbitrate approach?
- Sydney Airport: The response to excess demand, land constraints and the regional airlines ring fence.
- How can the system be best improved?

Evaluating Airport Performance in Investment Costs and Productivity

Approaches to Performance Evaluation in Airports

Perhaps the two key justifications which the Productivity Commission put forward for the switch to light handed regulation of airports were that it would facilitate efficient investment in the airports, and that would lead to more efficient production of airport services. The possible concern about light handed regulation was that it might result in the airports increasing their use of market power. As a result, one might have expected that benchmarking and performance analysis would be a central aspect of the Commission's evaluation of the airports and the light handed regulation applied to them. As it happened, the 2011 Report had minimal discussion of these aspects.

The report devoted 21 out of 402 pages to evaluating performance. It makes the (correct) point that benchmarking airports is very difficult, but it then goes on to make some simple and incomplete measures of performance, and concludes that the system is working very well. It provides a few figures from secondary sources, but does not subject them to critical analysis or note the problems with using them. It does not provide any time series data, and relies only on cross section indicators. It makes the point that airport charges per passenger lie in the lower or middle range of an international sample, but does not say anything about whether charges have been increasing or decreasing relative to other airports in the sample over time (the data to do this are readily available). Significantly, there is no attempt to measure whether the justification for the regulatory switch, that of increasing productivity, has been achieved, other than quoting a single academic paper. It does not provide any overall quantitative overall assessment of the performance of the airports in the years since 2002 when the regulatory system changed.

Since the 2011 Report, there is an enhanced need for an evaluation of the performance of the monitored Australian airports. Certainly, the impression is that performance has been no better than very mixed. There is evidence of poor performance in some aspects – charges have been rising significantly, and preliminary estimates of total factor productivity indicate that it has been falling. There may be good reasons for what has happened, and performance may be better than it appears. The positive side is that there has been significant investment, and this can be set against other negative aspects. Again, what is needed is an overall assessment, putting the various pieces of the puzzle together in a coherent whole.

This Submission does not handle all aspects of the matters discussed above. In particular, it does not say all that we would like to know about investment. It does account for some aspects- as there is more investment, the capital input used in the productivity study will be changed, and it is possible to determine what difference this makes to the productivity measure. However it does not say whether the investment is worthwhile or excessive. Additional information is needed to assess this aspect of performance.

Performance Results

The information in terms of the results of performance analysis of the Australian airports is patchy and limited. Here, prices and costs, profits, productivity, quality and investment are considered.

Prices and Costs

The ACCC in its monitoring role collects data on prices and costs for the four largest airports (ACCC, 2018). This information is useful for analysing trends- since 2002 aeronautical charges per passenger have been going up significantly for most airports and most periods. It would be feasible to measure price variables across Australia for other than the four monitored airports and other countries using the Air Transport Research Society's Airport Benchmarking Report and industry data bases.

The ACCC currently produces information about costs for the four airports. Interestingly, aeronautical costs per passenger have risen in real terms between 2007-08 and 2016-17 for all four airports. This is consistent with there being a fall in total factor productivity for all the airports. These costs not include all capital costs- these cost are likely to have been rising.

Profits and Profitability

The ACCC publishes some information about profits and profitability for aeronautical services. There are also international studies, such as that of Airlines for Australia and New Zealand (A4ANZ) (2018).

Different measures tell us different things, and it is hazardous to use simply one indicator. For the four major Australian monitored airports, there does not seem to be a strong trend in terms of rate of return on aeronautical assets over the past decade (ACCC, 2018). The rates of return are high relative to the norm of around 6-8% for airports worldwide (IATA, 2013) - the rate of return on aeronautical assets at Sydney Airport in 2016-17 was 11% (ACCC, 2018). This suggests significant economic or above normal profit.

Measures of EDBITA are useful, though they need to be interpreted carefully. There may be a rising trend for the monitored airports in Australia- if so, this would be consistent with the fact that most of these airports have been investing heavily. There is evidence of a rising trend in EBDITA per passenger- again this reflects the strong investment and the desire to maintain the return on the higher capital input per passenger.

As a result, one could either claim stable profitability over the past decade (based on a stable though moderately high rate of return) or a rising profitability (based on rising EDBITA per passenger). It would be useful if the Commission were to set out the different profitability measures as a contribution to the public discussion. It would also help to provide some estimates of the economic or above normal profit.

Total Factor Productivity

Total factor productivity is the core indicator of the productive efficiency of enterprises. There have been several studies of the productivity of airports. However few have been mentioned in the Commission's Reports: something which is surprising given the emphasis put on productivity in the

Productivity Commission's Reports. Productivity can be measured across airports at a point of time, and for a given airport over time. However it is difficult to compare airports and results over time are more reliable (Kincaid and Tretheway, 2009). Assaf produced studies which indicate clearly increasing productivity for the period after 2002 and before 2007 (Assaf, 2009) – these studies used a physical measure of the capital input. A more recent (preliminary) study (Niemeier, Forsyth and See, 2018) confirms the results of Assaf for the period before 2007, though using a financial measure of capital. However it also indicates that total factor productivity *fell* significantly for all of the four airports in the period 2007-08 till 2016-2017 (see below). There are different ways of measuring productivity of airports, and studies using a physical measure of capital input tend to record higher growth rates (see below). Too much emphasis should not be put on one productivity study, and more research on this question is needed. The falling productivity result, however, is consistent with the rising real unit cost.

Falling productivity appears to be a concerning result, since the initial expectation would be of increased or, at the worst, stable productivity, especially since there has been much investment in the airports. We should not necessarily expect high productivity growth based on overseas experience (see See and Li, 2015) though. It could be that increased investment may be at the heart of the problem. It is not widely appreciated that additional investment can lead to falling measured productivity, even if it is worthwhile. Additional investment can have several effects:

- Creating additional capacity, (say, new aprons) facilitating increased output;
- Enabling technology which reduces costs;
- Improving quality for passengers (say, travelators) and users generally, and
- Improving quality for the airlines (better baggage handling).

Only the first two of these will lead to increased measured productivity of the airport, but only under specific circumstances. In addition, additional investment may not lead to increased output commensurate with its cost. Additional facilities (a new runway) may be more expensive than the earlier facilities, and value of the older facilities may have been understated (valued at less than replacement cost). All of these considerations can mean that increased investment is associated with declining measured productivity, even if additional investment is well worthwhile. In addition, there is the possibility that some of the investment has not been worthwhile.

Some recent (preliminary) estimates of productivity are shown in Table 1.

Table 1

Average Productivity Growth of Australian Major Airports, 2000-01-2016-17

Period	Average TFP Growth			
	Brisbane	Melbourne	Perth	Sydney
2000-01-2002-03	-7.97%	0.92%	-1.79%	6.02%
2002-03 to 2007-08	3.39%	5.54%	9.97%	8.48%
2007-08 to 2016-17	-3.55%	-2.45%	-4.17%	-2.27%
Overall	-2.01%	0.40%	0.35%	1.89%

Source: Niemeier, Forsyth and See, 2018. These time series results are based on financial approach to measuring airport capital input. They are preliminary results.

The results for productivity (TFP) over the past ten years are surprising, and perhaps disappointing. Far from productivity growth yielding a dividend to be shared by the airport airlines and passengers, there has been a significant fall in productivity. This is so for all of the four major airports. Falling productivity tends to be accompanied by rising unit costs. This fall has been matched by a rise in per passenger unit aeronautical costs, as measured by the ACCC (ACCC, 2018). This is something which calls for some explanation – this is sketched here.

There are three main factors explaining airport productivity. These are:

- Technical progress- this would be a factor leading to increased productivity;
- Efficiency catch up- if the Australian airports are already relatively efficient, which is possible, there would be little effect on measured productivity, and
- The output factor- as the airport grows, there will be an effect on productivity.

In the Australian case, the third factor will be important. Several of the Australian airports are land constrained- Sydney, particularly so. It becomes increasingly more difficult to get more and more output from a constrained site (unless there are pronounced scale economies). If increased output is desired, the airport needs to invest more and more. This is very obvious at Sydney Airport, which has roughly trebled its capital base since privatisation, though it is true of all the major airports. It should be noted that investment is lumpy (e.g. Brisbane's new runway) and productivity may fall after an investment boom.

The results of productivity studies depend on what way capital is measured. The two most common ways of measuring capital are the financial approach, and the physical approach. As it turns out, there are systematic differences between these with airports- the financial measure will tend to be lower than the physical measure. The financial measure of productivity uses the amount of capital invested in the airport, which depends on past investment. The physical measure uses proxies for capital such as the number of runways or declared capacity of the runways and terminals. There are several advantages and disadvantages of each of these- the important issue is to recognise their implications. One of the advantages of the financial approach is that it is consistent with the measurement of the cost of the airport. For example, the productivity estimates reported above are consistent with the ACCCs estimates of the rising unit costs of the airports.

Investment

The investment record of the airports over the past ten years, especially at Sydney, has been very strong. One of the two main reasons for the reform of regulation in 2002 was to give incentives for investment. In the constrained environment under which most major airports in Australia are in, strong investment has been needed to enable output growth. It would be possible to make some estimates of how important increased investment is in the productivity story. For example, it would be possible to check the difference between the actual level of investment and the level of investment which used to be the case and see what difference this makes to measured productivity.

Quality

The ACCC monitors service quality for the four large airports. By and large, the quality results have been good, though not extremely good, for most of its airports and most periods. There are a number of international airport quality surveys. In a sense, service quality can be regarded as being set by the market. Airlines can negotiate about quality aspects since both the airline and the airport can gain if a more preferred quality outcome is achieved (perhaps involving additional payment by the airline) (see below on the scope for negotiation). It is also the case that some of the investment done by the airports is investment in higher quality, and this is something which the parties can negotiate about.

An International Perspective on Airport Regulation

The issues concerning airport pricing and regulation are quite similar around the world, and Australia is not an exception. There has been considerable privatisation in various parts of the world, and strong and light handed regulation are present in different cases (Adler et al, 2015). Privatisation has been motivated partly by government budgetary constraints and hope for productivity gains. There has been considerable dissatisfaction on the part of the airlines about the results of privatisation. (CAPA, 2018). Airlines believe that higher airport charges come about as a result of privatisation, and there is a belief

that regulation has been too weak (and not providing much incentive for efficiency). There is some evidence of increased airport rates of return, and a suggestion that airports have been using market power to increase returns. Many, though not all, airports have been investing, and it does appear that the privatised airports are investing more heavily than public airports. There have been several productivity studies, though there is little integration of these studies into an overall picture.

What is emerging is that additional airport capacity is very expensive. When pressed to justify their increasing charges, airports point to increased investment, and the cost of providing it (this is so in Australia as well). A recent study suggested that the cost of proving additional capacity to handle one passenger per year, over a ten year period, for a moderate sample of airports, was around $AUD400. Interestingly, back-of-the-envelope calculations suggest that this is the same as for the four major Australian airports over the same time period. With a 7% rate of return, this represents a capital cost excluding operational costs) of $28- which is high relative to current charges. Airport capacity (not just at London's Heathrow Airport) is becoming increasingly expensive to provide, especially because it has to be provided at land constrained sites. Investment costs are a large part of the explanation for the airport pricing "crisis".

The Objectives of Airports and Investment Behaviour

It is often convenient to assume that private firms continuously maximise profits. However, what is often convenient is often wrong. There are a number of situations under which private firms pursue non-profit maximising objectives- this was issue that writers such as Baumol and Williamson analysed in the 1960s. After privatisation, it may take some time before the firms behave as profit maximising firms. There are several examples in Australia where firms take some time to behave like profit maximisers- examples would be Telstra, the Commonwealth Bank and Qantas (Boyd, 2018). Often, the same managers of the enterprise run it before and after privatisation. While the airports were mostly privatised two decades ago, they have not necessarily been profit maximisers. Brisbane Airport was majority owned by public sector entities till 2010, and it is still partly publicly owned. It has been argued that the privately owned BAA (though price capped) invested too early in London Stansted airport (Starkie, 2004).

If firms have some market power, they have the scope to behave not like profit maximisers, and allow productive inefficiency to develop. They can allow costs to rise above minimum efficient levels. In the airport case, this could be a significant source of inefficiency- greater than the dead weight loss from monopoly, or rent seeking losses. This type of efficiency loss is not easy to evaluate, though case studies can help.

Investment is a good example of where costs can rise above efficient levels. There have been several cases of over investment, not only with airports, around Australia and the rest of the world. There are pressures for over-investment, such as those from Federal and regional governments, who seek more business for the region. The Productivity Commission in its Report on Infrastructure (Productivity Commission, 2014) has recognised the problem. The classic problem is where the firm or airport builds too early. With roads, it is understood that new road capacity is not needed as soon as there is a very little amount of congestion – normally it is efficient to provide more capacity once congestion has had a chance to build up. The same is true for airports. With Sydney Airport, there will be a decade or so of mounting delays before Western Sydney Airport is opened (though Sydney Airport itself is arguing that even this investment is too early). The other airports' plans and actions have not been submitted to the same scrutiny as Sydney. However, investment which is too early adds to costs, and the extent of these costs is testable.

However, there is a proviso to this augment, which comes about from the possible existence of wider economic benefits (WEBs) of air transport (see below). If these are significant, then there is a case for

building early. Perhaps even Western Sydney Airport should be fast-tracked as much as possible. There will be a trade-off between the costs of building early and the loss of WEBs. Overall, the investment behaviour of the airports is an important efficiency issue which needs to be investigated.

What is Going on with Australian Airports? - an Interpretation

There do seem to be many apparent contradictions in terms of what is going on in the Australian airports. Not surprisingly, interested parties, such as airlines and airports, highlight specific problems or instances of good or poor performance and imply that these are the end of the matter. They are not. The apparent contradictions can be resolved, though only with careful analysis. The assessment of the airports' performance needs to be done taking all of the relevant factors into account. This is not often done.

Some of the main puzzles are:

- The increases in charges per passenger, suggesting the abuse of market power;
- The increases in profit as measured by EBITDA, and EDITDA per passenger suggesting the same;
- The fact that productivity, in the years post privatisation and move to light handed regulation in 2002, seems to have grown, but then fallen;
- The fact that profitability (rate of return) seems to have remained fairly constant over the past ten years, albeit at a moderately high level;
- That investment has been very strong, and assets have been growing as a result;
- The quality of services appears to be good in most airports, though not necessarily increasing, and
- Capacity, with runways, terminals and car parking, has been adequate, or perhaps better than adequate.

As a result, there are good, bad and indifferent aspects of performance, and interested parties can choose their indicators to make their case. However there needs to be an overall picture of performance; this is something which is currently missing.

A broad explanation of performance in the last twenty years, post privatisation, price cap regulation, the move to light handed regulation, and now deregulation, might go as follows.

- Privatisation, and then the freeing up of regulation, has resulted in a significant increase in total factor productivity until about 2008;
- The freeing up of regulation has been accompanied by a major surge in investment;
- Which has entailed higher capital costs;
- Manifested by higher EBITDA to maintain the rate of return;
- And to cover these costs, the airports have increased charges in real terms;
- And this investment has been needed to maintain quality and the adequacy of capacity;
- Though the additional capital input has resulted in falling total factor productivity over the past decade, and
- Aeronautical costs per passenger have been increasing in real terms.

Beyond this broad explanation, there are several stories or scenarios which can be of further help in understanding what has been going on. Two which may be of considerable relevance can be outlined here.

The first scenario is a good one, in that it is consistent with the airports responding efficiently to the circumstances. This scenario is one of the airports encountering increasing costs to enable higher output. Additional facilities are more expensive than the older ones they are supplementing. Thus, for example, the second runway might be a lot more costly than the first, especially if costly land reclamation is

needed. Airports cannot easily be fitted in to the constant or decreasing returns to scale framework. However, most of the Australian major airports are very land constrained, and additional output is only possible at increased cost.

Another (though not alternative) explanation is that the airports may have been privatised with a cost structure which embodied asset values which were less than replacement costs. This would be true of all of the airports, though for Sydney Airport, which was sold at a higher price than the others, less so. The sale prices of the airports were, to a degree, arbitrary. As a result, the doubling the size of the airports (or more) has led more than doubling the cost of running them. Airport charges increases may have reflected higher costs than the excessive use of market power, and these charges may have been set at an efficient level.

The second scenario is more worrying. It is possible that some of the airports have been over-investing. This is not a new phenomenon with privately owned airports- see Starkie on BAA's investment in London Stansted (Starkie, 2004). Australian governments have been keen to encourage investment in infrastructure, even when it is too early to do so. In all of the largest four cities in Australia there are runway projects underway or planned.

Brisbane Airport has been enthusiastic to build its new runway, due for completion in 2020 (this airport was fully privatised, in the sense of majority ownership by private firms, in 2010). While there some peak pricing, there does not appear to be very much congestion. As is well known, the most efficient approach to handling demand growth is to allow demand to exceed capacity for a time and ration the capacity efficiently, for example by introducing peak pricing, slots and slot trading. The impression is that Brisbane has been trying to avoid having any congestion by building early (one possible justification for doing this would be a belief in wider economic benefits of air transport – see below). The result of early provision of capacity will be higher prices to airlines and ultimately, their passengers. It is possible that airlines have been pressing the airports for more capacity; if so, they cannot complain if charges are raised to meet their requests.

Market power can be used to set prices above costs, but it can also be used to cover costs when they are higher than efficient levels, for example, when there is excessive investment. This problem could be a real one, though it is more difficult to diagnose than when market power is used to increase profits. It is likely to be a more serious problem than the commonly mentioned dead weight loss from using market power.

The upshot of this discussion is that simple indicators of airport problems are likely to be very misleading. High and growing charges per passenger may look like a serious problem of misuse of market power (this is often claimed). But it is more complex than this. One really needs to know what is happening to investment, rates of return and productivity to make an accurate diagnosis. An airport may point to investment as a reason for increasing its charges- but here too there is more to it than this. One would need to know that output was being produced efficiently, and that investment was not excessive before one concludes that the higher charges were warranted.

In summary, in terms of the overall performance of the airports, there are three key issues:

The first productive efficiency – why has this been falling in recent years?

The second concerns investment- have the airports been making the efficient level of investment?

The third concerns the rate of return- is this too high? The return is moderately high- but too high? The Productivity Commission concluded in 2011 that behaviours "…do not point to the inappropriate exercise of market power". Would this be the judgment now?

The Presence of Market Power at Australian Airports, its Efficiency Cost, and Who Pays?

Do the Australian Airports have Market Power?

In previous Airport Regulation Reports, the Productivity Commission has put much weight on countervailing power. It has argued that the airlines have significant countervailing power, and that this cancels out any problems with the airport having market power in most airports. However, this does not happen, unless one adopts an "airline only" perspective. The airline will be able to force the airport to lower prices, and it will be able to gain higher profits as a result. But there is still market power being used- what happens is that it will be shared by the airline as well as the airport. The passengers will still be paying a high price reflecting the use of market power. Countervailing power does not help from an overall welfare perspective- if there was a problem of excessive market power before, it still remains.

One can be sceptical of the view that most of the airports in Australia have no more than moderate market power, because of the existence of countervailing power of the airlines. At a point of time, some airports have only one or two airlines serving them, or face airlines which have a high proportion of the total traffic. This does not mean that the airport is facing strong countervailing power (as the Qantas "Somali pirates" incident demonstrates). For countervailing power to be strong, the airlines must have an effective monopoly of flying to the airport. This is rarely the case. With larger cities, if Qantas were to stop serving the city, Virgin would be ready to pay the charges and serve. With smaller cities on the East Coast, even if there is currently only one airline operating, Qantas, Virgin and Rex can serve the market. If there is a crisis, such as the Ansett collapse, it does not take much time before airline services are restored to most cities.

The existence of different airline markets, notably the business market, the holiday market and the VFR market, affects the presence of market power of an airport. Of these, only the inbound holiday market is subject to substitution by other cities/airports – business and VFR traffic cannot choose which city or airport to use. Furthermore, outbound holiday traffic must use the home airport. If low cost carriers choose not to fly to a particular airport, the airport will still pick up some of the outbound holiday business with the remaining carriers.

Evidence that a particular airport goes to considerable to attract and retain a particular (often international) carrier does not mean that the airlines have strong countervailing power. For most busy airports, there will be marginal airlines and routes. These days airports offer special deals to attract or retain them – this is a form of price discrimination, (and price discrimination is a symptom of market power). The presence of marginal routes which the airport wishes to keep is no evidence of countervailing power of the airlines.

The Adelaide Airport experience is an instructive one. It is not correct to assert that the Airport's "…relatively lower market power is such that the countervailing power of airlines constitutes an effective constraint…" (Productivity Commission, 2011, XLVI). Much of the discussion of Adelaide Airport in the Report focussed in on other matters. In particular it noted that the airport was easy to negotiate with, did not appear to be using its market power, and had locked moderate prices by means of contracts. It noted that the airport was very keen to attract new business, especially international airlines. This may be good, not so much for the airport itself, but good for the Adelaide tourism industry, and convenient for the citizens of Adelaide. All this suggests an airport which is choosing not to exercise all of its market power, rather than one constrained by the countervailing power of the airlines. If the airport really felt that it was countervailing power which was limiting them, why do they seem so happy about it?

This perspective on Adelaide Airport may well be relevant for many airports in Australia. Several airports do not appear to behave as profit maximisers. Rather they see themselves as gateways to their local communities, and as part of the tourism industry (many are owned by local councils). Some, especially those in tourism cities, wish to increase the competitiveness of their cities as destinations. Of

course, there are others which are being used as cash cows. It is important to recognise that there are different objectives of different airports, and they can be expected to behave differently.

The Costs of Market Power at Airports

The costs of firms using market power have been emphasised in recent policy discussion in Australia- see for example, the chair of the ACCC, Rod Sims, quoted in Hatch (2016; see also Forsyth, 2017a). It has been argued in the past that these costs may be small in the case of airports, because of the very low elasticity of demand for their services (e.g., Forsyth, 2001). Further work has shown that this depends on competitive conditions in the downstream airline industry and elasticities maybe higher (Basso and Zhang, 2008), and efficiency costs higher. It is worthwhile reviewing this in the light of experience.

When airports use market power, there may be several sources of inefficiency or cost. Four of these can be listed:

- The standard dead weight loss (DWL);
- Possible losses arising from rent seeking;
- Possible losses from the loss of wider economic benefits (WEBs) from air transport; and
- Inefficiencies which come about when airports use their market power to enable them to produce inefficiently yet still cover costs.

These first three of these are examined in turn, and the fourth has been mentioned above.

1 Dead weight losses

If firms use their market power to set high prices, there is a dead weight loss (DWL) created- this is the traditional case against monopoly. However, if the firm faces low elasticity of demand, the cost of this will not be great, unless it sets prices many times higher than cost. This can be argued to be the case with Australian airports- lack of competition means that elasticities are low, and given that they are not setting prices which are very much higher than cost, and the dead weight losses will be small (the ACCC has argued that profit maximising prices would be many times costs (see ACCC, 2001). The prices which they set may be costly for the users, the airlines and ultimately the passengers, but the efficiency cost will not be large (though note Basso and Zhang, 2008). It should be noted that elasticities of demand would be higher for routes served by low cost carriers. There are other aspects to the DWL issue which are worth noting. Starkie (2001) has argued that if an airport has non aeronautical profits, it will moderate its pricing to gain more passengers and thus profits (see also Zhang and Zhang, 2003). This effect is also present in models of airports as two sided markets (Gillen, 2011).

Paradoxically, the lack of competition leads to low efficiency costs from high prices. In some countries, notably, the UK, competition between airports is real, and affects prices. However, if an airport faces moderate elasticity of demand but sets prices above costs, there will be DWL which is larger than that present when the airport faces no competition. The main Australian airports have been assessed by the Productivity Commission as facing little competition. There is some competition- Brisbane faces competition from Gold Coast and Melbourne from Avalon. If these airports were setting prices which have a significant effect in pushing traffic to these smaller airports, there would be more of a dead weight loss.

The DWL argument may be more relevant in the case of non-aeronautical services, especially car parking. If the airports are setting prices well above cost, and restricting supply, passengers will be encouraged to use off airport parking, which is further away and costly in terms of travel time and cost, and there will be a dead weight loss (moderated these days by the rise of Uber).

2 Rent Seeking

Rent seeking arises when users of an airport expend real resources to obtain rents or profits which come about from market power. This is probably not very likely in most services of airports. However, there is one area of airports which create rent seeking- which is with access to landing slots. In the UK, slots at busy airports such as London Heathrow, are restricted but traded, and the opportunity for rent seeking is minimised. In Australia, slots have not been particularly scarce, (though they have been restricted in Brisbane which will gain a new runway in 2020). However slots in Sydney will become quite valuable in the years before the opening of Western Sydney Airport, and probably even afterwards (see below) – indeed the airlines may already be pricing in a premium for routes which use Sydney. Since administrative methods are currently used to allocate slots, the conditions are present for this form of inefficiency to develop.

3 Wider Economic Benefits of Air Transport

In recent years, there has been a recognition that there can be benefits from transport which have not been counted before. There has been research on the wider economic benefits (WEBs) of surface transport (Vickerman, 2009), and more recently, air transport - (The WEB discussion is related to the notion of "catalytic" effects from air transport investments, such as airports.) The significance of this is that if these benefits are significant, then the costs of an airport using its market power to increase prices will be higher than previously measured, since there will be an additional cost of the loss of these wider economic benefits of air transport. If elasticities of demand for airports is low, these extra costs will be low unless these WEBs are large. There is much debate about how large these benefits are- some suggest that they are very large. One study which suggests that they are significant though not implausibly large is that done by InterVISTAS (2006) for IATA (Smyth and Pearce, 2007). The WEB issue was also discussed by the London Airports Commission (Airports Commission, 2014). This is a developing area which has significance for airport pricing and policy. It is also very relevant in evaluating the benefits of investment in additional capacity.

An example of how there can be externalities in airport operating due to the presence of WEBs comes from airports seeking to increase their connectivity by increasing the number of destinations served. Additional destinations served are a benefit for the traveller. For example, Brisbane residents will be better off with more direct flights to Asian destinations, since they will not have to fly via Sydney, at a cost in terms of time and money. Brisbane will also be easier for tourists to access. Airports may be able to encourage more marginal flights by deft use of price discrimination, though there is still an externality present. If WEBs exist, they need to be taken into account in measuring and achieving airport efficiency.

4 Using Market Power to enable Inefficient Production

This aspect of inefficiency, related to the objectives of the airports, is discussed elsewhere in this Submission

Who Pays the Airport Charges?

When an airport sets a price, it is initially the airline which pays it. However, the airline will normally seek to pass the charges on to the passengers. In many situations of where economists are analysing the impacts of charges (or other imposts such as taxes), it is assumed that the passenger ultimately pays. This would be the case if the airlines were (perfectly) competitive. However, this is often not the case. There are several situations where the charge will fall, to an extent, on the airline.

We can identify four distinct cases- two of these are easy to analyse and draw conclusions from, and two are difficult to analyse. These are:

1. Airline competition;
2. Slot constrained airports;

3. Airline oligopoly, and
4. Price wars and tacit cooperative behaviour.

All of these exist within Australian air transport.

1 Airline competition.

As noted above, if airlines are in strong competition with one another, they will pass on the charge, rather than be forced to exit the market. Examples of competitive markets might be the Australia to Europe or Asia markets, with many airlines.

2 Slot constrained airports.

If an airport is slot constrained, and the constraint is biting, there is excess demand and the slots will be valuable, and command a price in actual or grey markets. The price of the passenger trip is set by the fixed constraint, and airlines will gain a "slot rent". If the airport increases its charges, the total price for using the airport will be unchanged – the airline will lose some of its slot rents (for a discussion of the implications of this for airport pre funding, see Forsyth, 2017b). In this situation, the airline, not the passenger, pays the increased charge. An example of this would be Sydney Airport soon, when excess demand is mounting.

3 Airline oligopoly

If there are only a few airlines operating on a route, they may behave in an oligopolistic manner. However, there are several possibilities – for example, they may behave like Cournot oligopolists. In this case, the airlines and their passengers share the increase in charges (though there is a qualification to this- see 4 below). The Australia-North America route may be in this category.

4 Price Wars and Tacit Cooperative Behaviour

In recent years, in the domestic market, there have been price wars, but at the moment the airlines appear to be tacitly cooperating. In a price war, the airlines may be behaving as Bertrand oligopolists, allowing prices to fall to competitive levels. When they are implicitly cooperating, fares rise significantly.

It is not clear that they are going all the way to profit maximising prices- given the elasticity of demand for air transport, one might have expected much higher prices. The same is true in the oligopoly case above. If airlines are using all of their market power, how is it that their profitability has been so low (until recently in Australia)? In short, it is possible that they are not using all of their market power. If this is the case, it is also possible that when they face higher airport charges, they respond by passing all of the increase on to passengers, to safeguard their profits – but not more. If airlines are behaving in this way (and not maximising their profits) it is difficult to be certain how they will respond when faced by an increase in charges.

Does Australia have a System of Light Handed Regulation of Airports?

It can be argued that the answer to this question is that it used to, but since 2007, it has had a system of something which more like deregulated airports.

The Australian system of airport regulation is commonly described as a light handed system. By this is meant that it differs from detailed regulation, such as price cap regulation and rate of return regulation, and involves less burden on the regulated airports. While there is something of a move towards light handed regulation, there are few airports which are subject to it.

Two systems of LHR which have been tried in various jurisdictions are:

The performance evaluation and sanction system. The regulated firm is free to set prices, but its performance is evaluated, and if need be, if performance is judged inadequate by a review body, a sanction, such as re-regulation, may be applied (for a description, see Forsyth, 2003; Forsyth, 2004).

The negotiate/arbitrate system. The firm negotiates prices with its customers, who have recourse to arbitration if they are not satisfied with the outcome. This is a system which has been used extensively in North America, and a version of it has been suggested by Littlechild (2011) and by the ACCC (2011). For more on the Australian system, see Littlechild, (2012); Arblaster, (2014).

In 2002, the Australian Government determined to move away from price cap regulation and move to light handed regulation of the review / sanction approach. There would be a periodic review of performance, probably done by the Productivity Commission, which would evaluate whether the airport's performance was acceptable given certain criteria. In doing this, it would be able to use the ACCC Monitoring Reports, which report on airport revenues, costs quality and profits. No specific sanction was specified however. The Productivity Commission would be guided by a set of Government Aeronautical Pricing Principles, as well as a Terms of Reference, for its inquiries.

The review / sanction approach applied for the first of the reviews. The Terms of Reference for the commission were to evaluate performance in terms of, amongst other things, "…the economically efficient operation of airports…" (Productivity Commission, 2002), and it was required to have regard to the Governments Review Principles, which included a requirement that the airports should charge prices, where "…efficient prices broadly should generate expected revenue that is not significantly above the long-run costs of efficiently providing aeronautical services…" (Productivity Commission, 2006). There was a provision also that where airports were experiencing capacity constraints, efficient peak/off-peak prices may generate revenues which exceed production costs incurred by the airport (Productivity Commission, 2006). The Commission reported in 2006 that benefits in achieving additional investment, that productivity had been high by international standards, and that service quality has been satisfactory to good. However it also reported that it was too early to judge whether the light handed regime had been effective in constraining airport charges, though it noted that price outcomes to date did not appear to have been excessive (Productivity Commission, 2006).

The overall impression of these statements is that there is considerable weight on achieving prices which are close to efficient costs, and that the light handed approach looks promising in achieving this, though it was too early to judge. This is the type of assessment that one might have hoped for in a review sanction system.

However, though it is not commonly appreciated, the rules of the game were altered in 2007. After it had considered the Commission's 2006 Report, the Government changed the Aeronautical Pricing Principles significantly (Productivity Commission, 2011; see also Costello, 2007). Rather than putting a maximum on prices, it imposed a *minimum* constraint- prices were now such as to "…generate expected revenues for a service or services that is at least sufficient to meet the efficient costs of providing the service or services…" In other words, this is a minimum price constraint (it is not clear why a profit oriented airport would want to charge lower prices). There are other changes- in particular, at airports with significant capacity constraints "…peak period pricing is allowed where necessary to efficiently manage demand…" If it is necessary, it is allowed- the overall requirement for prices would suggest that it is. In its 2011 Review, the Commission stated that the "…aeronautical charges do not point to the inappropriate exercise of market power…" (Productivity Commission, 2011). It is unclear what this statement (in terms of a double negative) means – what is an appropriate exercise of market power?

It is clear that there has been a change in the way the regulatory system is to be operated. The system is not so much constraining as permissive. In its 2011 Report, the Commission does not provide any rigorous tests of performance – it relies on ad hoc, partial indicators of performance (see above). There

does not seem to be any indication of what constitutes poor performance such as might warrant sanction. In its Response to the Report (Australian Government, 2012) the government rejected the Commission's Recommendation of a "show cause" mechanism which would have strengthened the pressure on the airports.

This poses the question as to whether airports have been, effectively, deregulated. Is the system as it is operating now imposing any constraint on pricing other than those which may be already in effect? On the one hand, the prices of the regulated airports are almost certainly below profit maximising levels (ACCC, 2001), given the low elasticities of demand. It is possible that while the system of regulation is very permissive, it still has the effect limiting prices- prices might be still higher if it were not in place. On the other hand, it may be other factors which are limiting prices. Governments find it difficult to credibly commit to allowing very high prices for monopoly industries – they would do something about them, and conceivably, airports are charging prices which they are judging "just safe" from direct government intervention. The importance of a Commission review of airports, much more than is usually the case, is that not so much that it is an evaluation of performance, so much as a platform for various parties, especially the airlines, to muster their arguments at a point of time and put pressure on the Government.

Thus the Australian system of airport regulation is one which is becoming closer to one of deregulation rather than light handed regulation. Mechanisms of regulation are still in place - monitoring, reviews and reports. However, the constraints on behaviour are very weak or non-existent, and there seems to be no explicit sanction for poor performance.

The Scope for Negotiation

The Government, and the Productivity Commission, have put increasingly greater emphasis on negotiation as a means of resolving issues in the airport context. This is evident in the new Principles and in the Commission's 2011 Report, along with the Terms of Reference for the current Inquiry. Negotiation rather than regulation seems to be an attractive way of resolving issues. Hence it is important to explore which issues can be resolved by negotiation and which cannot.

Some issues cannot be resolved through negotiation, at least with an airport which is profit oriented. In particular, issues of the use of market power cannot be resolved through negotiation. There is a fundamental conflict of interest between the two parties, the airline and the airport – if the airport gains, the airline loses. If the airport has market power, and all Australian major airports do, and finds it in its interest to increase charges, there is nothing that the airline can do. If they wish to, they can increase charges, and they will gain more profit as a result. There is nothing the airline can offer to dissuade them from doing this (other than perhaps appealing to public opinion). When the airlines claim that negotiations over charges with the airports is futile, since the airports only offer a 'take it or leave it" deal, this claim is very plausible.

Of course, in reality, negotiations are rarely as blunt as this. There may be a pretence of negotiation, even though the fundamental situation is as above. The airport may increase prices, say by 10%, and declare that it is open to negotiation. After weeks of "tense" negotiations, the airport may offer to lower the increase to 9.93% (which is what it wanted anyway). It is also possible that the charges negotiations will be bundled in with negotiations about some other matter. An airport may decide to raise its charges to an airline by $100m. The airline might wish to change the structure of charges, say, to a per passenger charge. The airport might be prepared to change its structure- but only if it still gains an increase of $100m in the charges. In all of these cases, the airport will receive the price it wants, and will not be prepared to negotiate away its market power. Negotiating with an airport over charges is like negotiating with one's executioner over being beheaded or defenestrated.

In Europe there are a number of airports for which charges are set by negotiation between the airlines and the airport. However, the important thing to note is that there is normally a default option should agreement not be achieved – a regulator will set charges in a specific way. The upshot of the negotiations will be that the airlines and airport will conclude an agreement, which is close to what the regulator would do – otherwise one or the other of the parties will trigger the regulatory option.

So what types of issues can negotiations resolve? There are many, and the important point is that both parties need to have some negotiating clout. Negotiations might be about quality of service, or about investments by the airport to improve facilities, or about access to terminal space. For example, suppose that an airline is dissatisfied with the quality of services in the terminal. It can negotiate about this, offering the airport more money in return for better services. Both parties gain and negotiations can succeed, One of the main reasons why light handed regulation or deregulation can succeed is that these types of deals can be concluded, while they often cannot be in a more tightly regulated environment. (It is reported (Ironside, 2018) that the Board of Airline Representatives Australia are unhappy with the quality of airport services- it would like to see higher quality at the same price, but this is essentially a dispute about prices).

Negotiating about investment by the airport can often be successful. However, there are some cases where they will not be, because they will involve the airport yielding some of its market power. An example of this is where the airport faces significant capacity constraints and there is a proposal for an investment which will alleviate the shortage. In this situation, the airlines may wish the investment go ahead, but only if they are not receiving the lion's share of the slot rents (for example, where the airport is setting peak prices). However, the airport may not wish the capacity to be expanded, since this can lower prices. The situation, which Sydney Airport may well be in over the next few years, is complex, depending as it does on the presence of slots and peak pricing, and also on whether the airport in exercising its market power to the full extent. It suffices to say that negotiations may not work in the case of capacity enhancing investments.

Commercial negotiations work best, or at least, more predictably, when the parties are profit maximisers, or at least profit oriented. If an airport has different objectives other than profit, it may not act as we would expect from a profit maximising airport. Thus it may be more willing to share its market power with its customers, and may be willing to make investments which do not maximise its profits. To the extent that this is happening with Australian airports, this may explain the greater willingness of an airport to enter negotiations which satisfy the airlines.

As noted at the beginning, both the Government and the Productivity Commission have high hopes for commercial negotiations between airlines and the airports in resolving issues. It has been argued here that there is some scope for meaningful negotiations between airlines and the airports, particularly when there is no issue of the airlines using their market power. However, when market power is at the crux of the issue, notably when airlines and airports are negotiating about prices, meaningful negotiations are not possible, because it is always in the interest of the monopoly airports to use their market power to achieve their objective. In this respect, the Governments Pricing Principles appear to be quite naïve. They state that prices "…established through commercial negotiations…", and "…reflect a reasonable sharing of risks and returns…" A sharing of risks and returns is not going to happen when the airports can choose their price and enforce it without negotiation.

The Productivity Commission's position in its 2011 Report is rather more nuanced. It recognises that there is a dispute between airlines and airports over the distribution of the rents. However, it attributes the dispute between airlines and airports to the normal argy-bargy between parties in commercial negotiations, and dismisses the airlines' claims in words which recall those of Mandy Rice Davies- "they would say that, wouldn't they". But the issue is much more than that. The airlines' complaint is that meaningful commercial negotiations are not feasible because the airports know that they have the market power.

Long Term Contracts

Another thing which a light handed regime can enable is long term contracts between the airport and airline. These contracts are common in some parts of Europe, as well as Australia. Both the seller and buyer can gain from having the option of having a long term contract. In a contract, the seller sets the price and agrees to keep prices at the negotiated level for the duration of the contract. This can be valuable for the buyer. It does not eliminate the market power problem, since the seller will only offer terms which safeguard its profit (unless the seller is not a profit maximiser). However, it does mean that the seller is locked in to charging a price which reflects a specified level of use of the market power which it has. This was a consideration in the recommendation that Adelaide Airport be no longer monitored- it argued that the extent to which it was going to use market power had already been fixed in its contracts.

Options for Reform: The Negotiate / Arbitrate Option

Given that the original review / sanction form of light handed regulation has more or less dissolved into deregulation, an alternative form of light handed regulation which has been suggested is the negotiate / arbitrate approach. The airport and airlines would negotiate about airport charges, and if there is no agreement, the issue can be resolved by arbitration. This is a common system in the US, Canada and elsewhere, and it is embodied in the Part IIIA mechanism (and other systems of solving access disputes in telecommunications and in the past airports). One suggestion has been that airports could be deemed for access, triggering the Part IIIA mechanism. However several writers, such as Littlechild (2011) have suggested simpler negotiate/arbitrate mechanisms. These have the promise of resolving disputes more quickly and with less bureaucratic involvement. The 2011 Report suggested a show cause approach which could be avoided if the parties committed to an independent dispute resolution mechanism- however this was rejected by the Government.

There are several different types of negotiate / arbitrate mechanisms, and they have quite different properties. Some of the important aspects are:

- The role of the mechanism and whether there are efficiency implications from the decisions- is the dispute only about the sharing of rents (as is the case is some North American rail disputes) or are there efficiency implications through keeping prices low and close to cost?
- What are the criteria the arbitrator will use? Will it be seeking to keep prices down (as with typical ACCC decisions), or will it be specially *avoiding* a cost based approach and seeking to share the gains amongst the parties?
- Is the arbitration final, or is there a default (or perhaps and alternative) position if the parties are not able to agree? Thus there might be an option of arbitration between the parties or an alternative arbitrator if the parties cannot agree on a process, and;
- Is arbitration voluntary or compulsory?

There will be quite different results depending upon which of these mechanisms is used. We can assume that there is a real difference between the two parties- the airlines would like to have charges which as significantly lower than those which the airport would like. There are different outcomes in terms of charges, and to a degree, efficiency. Some possibilities are shown in Table 2.

Table 2

Negotiate / Arbitrate Options

	Default Position	Negotiation	Arbitration	Price Outcome
Voluntary Arbitration				
1	Deemed Declaration	Yes	No	Low

2	Business as Usual	No	No	High
Compulsory Arbitration				
3 Cost Based Arbitration		Yes	No	Low
4 Benefit Sharing Arbitration		Yes	Yes	Moderate

The different options can be considered as follows. Case 1 is based on the Littlechild suggestion. The airport will offer to accept the negotiation/arbitration option. However, before the commencement of formal negotiations, the airlines will offer a price which is slightly above that which they expect to come about from the deemed declaration. If the airport does not accept, the airlines will trigger declaration. Given what the ACCC has said repeatedly about how high airport charges are, we can make a judgement about the likely outcome. The parties do negotiate but they do not need to resort to arbitration. However declaration is a tortuous process, and both parties will prefer to avoid it. Thus the airlines will offer the airport a slightly higher price than they could have achieved through the declaration process. This is what has happened in Part III A access cases in Australia.

With case 2, the default option is business as usual. There is no particular reason why the airport would be willing to go through the negotiate / arbitration process, since it would not gain from it. It may, for public relations reasons, agree to negotiations, but it will still demand its preferred price.

Suppose there is a compulsory negotiation / arbitration by a body similar to the ACCC. The parties will most probably negotiate, but there is no particular reason to wait for arbitration, since the outcome, a low price, is already expected.

Another possibility is that there could be a different emphasis in arbitration. The arbitrator is required to seek a balance of benefits between the parties (as in some North American rail cases). In this case, the parties will negotiate, but they will often still seek arbitration, since they will not know exactly what the arbitrator will determine. However, the arbitrator will set a middling price- usually.

There has been considerable experience with systems of negotiate / arbitrate with European airports. The results depend considerably on what the default option is. In some cases (such as Swiss airports), if negotiations fail, the regulator imposes cost plus regulation, but in others, such as Denmark, the default is price cap regulation. It is important, if there is a default position, e.g., regulation by the ACCC, that the way in which the default is to be applied is specified.

Efficiency Issues at Sydney Airport

Excess demand is beginning to emerge at Sydney Airport (KSA), and the Federal Government has commenced to develop Western Sydney Airport (WSA). There will be an issue of how to handle this excess demand, particularly in the period before the new airport is ready, and probably after it opens as well (see Forsyth, 2014; 2018). The two most likely options to resolve this issue are peak pricing and slots. Both of these can be efficient options.

Pricing solutions are often preferred by economists, however, in a world of uncertainty, quantitative solutions such as slots can be more efficient under specific situations (Czerny, 2008). Currently, there is some peak pricing at Brisbane airport, and KSA used to have some peak pricing before the third runway was opened. Peak pricing of KSA would appear to be consistent with the current system of light handed regulation /deregulation and the Government's Aeronautical Pricing Principles. Peak pricing would not pose a problem of the airport misusing market power or prices becoming "too high" since it can be implemented in a revenue neutral way. Off peak prices can be reduced, and this would lead to a

(slight) efficiency improvement (Forsyth, and Niemeier, 2008). Peak pricing would still need to be used in conjunction with slots, to handle periods of high demand, such as at Christmas.

There is a slot system already in place, and it can continue as the main or sole mechanism for rationing scarce capacity. The efficiency of the slot system depends on whether the slots are traded or not. If slots are allocated by an administrative system, or "grandfathering" as at present, they will not be efficiently allocated (this may be a particular problem with slots reserved for regional airlines). The inefficiencies of administratively allocated slots have been documented (NERA, 2004). Over time, inefficiencies will grow. Thus it is important to address the system of slot allocation now, and facilitate slot trading before it is too late, and vested interests are able to block moves to more efficient slot trading. Slot trading does exist with some airports, notably those of London.

Of the options, peak pricing is probably the most efficient. Tradable slots will allocate capacity efficiently as long as the market for slots develops (this cannot be guaranteed – this may be a particular concern with regional flights covered by the ring fence, given that the market will be a thin one). However with slots the actual prices charged to the airlines by the airport would be the same for all time periods. With revenue neutral peak pricing, off peak prices are lower, and there will be some stimulation of demand. There is a question which needs to be answered- will the airport have the incentive to implement peak pricing in a revenue neutral manner?

There are other aspects which are relevant. Having peak prices which are set, or slots which are traded openly will be valuable to determine if and when investment in capacity is needed – if slots are allocated administratively, there will be little information available to the airport the airlines and government as to what prices are- there will be little information about the need for investment. Peak prices and traded slots have complementary advantages, especially when there is uncertainty- it may well be the case that the best practical approach is one which relies on both traded slots and posted peak prices.

Peak pricing and slot systems do have distributional implications. Ultimately, it will be passengers who pay the peak prices in the main, as airlines will be able to pass on the higher prices since the peak flights will be in high demand (Forsyth, 2017b). If peak pricing is implemented in a revenue neutral way, passengers and airlines will gain from the lower off peak airport charges. If a slot system is relied upon to allocate scarce KSA capacity, passengers will pay and airlines will gain "slot rents". The airlines can actually lose when extra capacity becomes available (for example, when Western Sydney Airport is opened) – a very good discussion of this can be found in the original Productivity Commission Report on Airport Regulation (2002). If both peak pricing and slots are used, both the airlines and airport can lose if additional capacity is provided.

It is important to recognise that whatever the system of capacity allocation, there will still be delays in the system. Pricing and slots do not eliminate delays, but rather, they limit them to efficient levels- rather like road congestion pricing limits but does not eliminate congestion. When WSA opens, there will be less pressure of excess demand on KSA. How much less pressure there is will depend on how good WSA is as a substitute for KSA. If it is a perfect substitute then there would not be any excess demand or delay problems. However, it is more likely that there will still be an excess demand and delay problem at KSA, though it will be smaller.

Land at Sydney

It is sometimes argued that governments have increased the price which they have been able to sell their corporations by signalling a regulatory environment which enables them to use their market power. Normally this would be inefficient. In the case of Sydney airport, it can be argued that the government sold it at too *low* a price. This is because the price of the land is so high. It is difficult to gain an exact measure of the land value with and without the airport. However, it does seem that the airport is sited on valuable land.

This has implications an important one is the cost of car parking. Sydney Airport has relatively few on-airport car parking spaces. While the price of off airport parking is lower at all of the major airports, the percentage difference between the airport price and off airport price is least for Sydney, and the price for seven day's parking is virtually the same for off airport and airport on line parking. This is consistent with the price reflecting a locational rent, not a monopoly rent (on the distinction in the context of airport parking, see Forsyth 2004). This may not be the case for other airports with much more land.

Regional Services at Sydney and the Ring Fence

As the Issues Paper states, the situation concerning regions into Sydney Airport is quite complex. It is taken here that the regional ring fence and the price cap are likely to remain. As the Productivity Commission says in the 2006 Report, it is a matter of how best to manage it subject to the constraints it imposes. For example, slots for turboprop aircraft could be created in excess of the 80 flights per hour limit, and rigid adherence to the 15 minute slot rule could be removed (which would benefit non regional flights as well). It is clear that the arrangements do impose significant costs, both on the airport and the other users of it. However, it is possible that they constitute a reasonably efficient means of achieving services to regional destinations. For example, alternatives such as subsidy schemes may be more expensive.

It is worthwhile making slots as tradable as possible. It must be recognised that there will be a thin market for slots, and that existing airlines will not sell off their slots readily (they will still "own" their slots). To a degree, there will be slot markets which are internal to the airlines. Problems arise when an airline currently serving a route drops it, and when there is another airline which wishes to serve the route but it is unable to gain a slot. The more tradable the slots are, the better. There may be periods when an airline wishes to lessen its regional involvement – this will be an opportunity for other airlines to come in. Tradable slots create the possibility that non airline parties, such as communities which fear the loss of their air service, and investors, to gain slots which can be leased to airlines.

Another way of improving the system is to make it less complex. There are several rules which were introduced fir what were considered to be good reasons at the time. However these have had unexpected consequences, such as the one way movement of peak slots. A simpler system, which does not try to try to do too much, will probably be the most efficient.

As demand for Sydney airport mounts, and the peak spreads, the values of regional slots will increase. This will have implications for regional services. Increased demand will push up the value of slots. Regional airport charges will be limited by the price cap. The profitability of regional services will increase – passengers will pay more, but airlines will gain. The effective subsidy which the regional airlines gain will increase. In this situation, there can be differential effects on different routes, and some destinations may lose service.

Actual Problems and Possible Answers

There have been several problems with the performance of the Australian airports which have been outlined above. Some of the more important ones are:

The poor record of total factor productivity over the past decade;

While there has been substantial investment in the monitored airports over the past decade, there is a question of whether it has been excessive or too early in some airports;

There has been an ongoing question of whether there has been too much use of the airport's market power in some airports, and

There are emerging issues concerning the allocation of capacity at Sydney Airport, in general but in particular for regional airlines.

There are other issues which this Submission has touched upon, such as car parking, but which have not been discussed in detail. In addition, airports other than the four monitored ones have not been discussed, though some of the problem issues are probably present with these as well.

There are possible explanations of what has been happening.

Poor productivity performance

Given that one of the key reasons for moving to a light handed system of regulation was to give greater incentives for productivity, the poor productivity performance and rising unit costs are something of a surprise. The suggestion here is that falling productivity is the price of gaining more output in land constrained airports. To gain more output, it has been necessary for the airports to invest heavily. To an extent, this results in lower productivity. More investment may have been necessary to increase quality of service. It is possible that some airports may have been less productive than feasible.

Assessing productivity and unit cost performance, and explaining the trends in them would appear to be a priority.

Assessing investment performance

Another key reason for the move to light handed regulation was to enable the airports to invest. Light handed regulation does seem to have achieved this objective. It is possible that there has been over investment or too early investment- over investment can be expensive in welfare terms. On the other hand, high levels of investment might be justified if air transport has significant wider economic benefits.

These possibilities can be investigated.

The use of market power

The (excessive) use of market power was recognised as a risk from moving to light handed regulation. There is much public discussion that this risk is real – rising unit costs per passenger is quoted as evidence that airports are mis-using their market power. However, the falling productivity, rising unit cost, and unchanged rates of return suggest that there is more to it than this. Admittedly rates of return are moderately high. It may be the case that productive efficiency is not as high as feasible, or that there has been excessive investment – in this case, there may be a high cost from using market power, not to increase prices well above unit cost, but from allowing costs to be too high while maintaining profitability. One should not simply look at prices and unit costs to determine if market power has been used. There may be more use of market power than is apparent.

In past Reports, the Productivity Commission has been very ready to believe that countervailing power of the airlines eliminates the market power of the airports. This can be reviewed.

Sydney Airport capacity

As demand for Sydney airport capacity exceeds supply, there will be a need to allocate it efficiency. Peak pricing or tradable slots would be the preferred solution. The current system of administratively allocated slots is the least efficient system, and can lead to further problems in the longer term.

Reform of the System

There are problems with the current system, though there are no obvious ways in which it can be improved. Part of the problem is that we are not exactly sure how well it is performing, particularly in terms of giving the airports incentive to achieve productive efficiency. More assessment of this aspect

is needed. The current system tends towards deregulation – the light handed system of review and sanction, as set out in the original move to light hand regulation in 2002 has been abandoned, and there is no dispute resolution mechanism.

Of the options, the present system involves the least regulation- it is close to full deregulation. This is a system which would have been expected to have the strongest incentives for productive or operational efficiency, but recent productivity falls have raised questions. There are also questions about whether some of the airports are under pressure to keep costs down, or whether they have some slack. In several cases, airport aeronautical and non-aeronautical charges are high. This has negative effects on airlines and their passengers, and there are some negative effects in efficiency. The trade-off between objectives which has been in place since 2002 can be questioned.

An alternative approach to light handed regulation is the negotiate / arbitrate approach. This has the potential to lower charges, which will have some positive effects on efficiency, and will develop support for the system. It is not likely to result in less incentive for the airports to seek productive efficiency, and keep costs down, than the current system. One which has been discussed in the airport context is that put forward by Littlechild (2011; 2012).

There are many forms of the negotiate / arbitrate option, and the default position- what happens if negotiations break down- needs to be set out. Under the Littlechild approach the default position is arbitration by the ACCC. In the 2011 Productivity Commission Report there was a concern raised about a negotiate / arbitrate option that it would revert to detailed regulation by the ACCC. Certainly the approach which the ACCC would take will have a significant effect on the outcome of negotiations. However it need not be the case that detailed regulation by the ACCC will be the typical outcome.

Firstly, arrangements can be structured so that it is not easy for the airlines to trigger arbitration – arbitration will come about in occasional circumstances. Alternatively arbitration can be made easy for the airlines to access it. Secondly, the role of the ACCC can be set such that it specifically arbitrates disputes, though not sets up detailed regulation, for example, instituting a price cap. Alternatively, detailed regulation, such as a price cap, can be made the default option.

Thus, a negotiate / arbitrate system can be made to be as light handed or heavy handed as desired. If need be, negotiations can be the main way in which charges are set, with arbitration used only occasionally. The important thing is to design the system so that the desired outcomes are achieved.

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