[Public version]

Benefits and costs to the public of proposed Air NZ and Qantas Code share: Trans-Tasman services to Wellington

Prepared for Wellington International Airport Limited

Kieran Murray, Sally Barnes, Daniel Garrett

July 2006

LECG Limited

www.lecg.com

About LECG

LECG is a global expert services firm with highly credentialed experts and professional staff conducting economic and financial analysis to inform legislative, judicial, regulatory and business decision–makers. We provide independent expert testimony, original authoritative studies and strategic advice to clients in both the public and the private sector. LECG experts are renowned academics, former senior government officials, experienced industry leaders and seasoned consultants.

LECG is listed on the NASDAQ Stock Exchange and has approximately 900 experts and professional staff worldwide.

WELLINGTON

Level 9, Axon House, 1 Willeston Street
PO Box 587
Wellington 6001
Ph: (64 4) 472 0590
Fax: (64 4) 472 0596

AUCKLAND

Level 3, 12 Viaduct Harbour Avenue, Viaduct Basin
PO Box 2475, Shortland Street
Auckland 1001
Ph: (64 9) 913 6240
Fax: (64 9) 913 6241

For information on this report please contact:

Kieran Murray
Telephone: 04 472 0592
Email: kmurray@lecg.com

Table of Contents

1 Executive summary

Air New Zealand Limited and Qantas Airways Limited have asked the Minister of Transport to authorise a Tasman Networks Agreement (TNA). This report assesses the economic costs and benefits of the TNA to the public as it relates to Trans Tasman passenger services to and from Wellington.

The TNA would change how Air New Zealand and Qantas operate passenger services across the Tasman. These changes would not be constrained by services offered by competing carriers landing at Auckland or Christchurch. More precisely, Air New Zealand and Qantas could raise low cost fares to Sydney by at least 46% on average and remain competitive with the prices currently charged by other carriers operating through Auckland. Similarly, the lowest prices charged on trans Tasman services between Wellington and Sydney could be raised by at least 40% on average before it would be economic for travellers to consider flying via Brisbane with Pacific Blue.

A particular implication of the TNA is that contributions to revenue, for instance growing the market through increased marketing or through higher quality service, are shared. However, cost savings are retained by each airline. To maximize profits each firm will face incentives to reduce quality and marketing (within the constraints of the agreement) relative to the level it would set in the absence of the TNA.

Economic theory suggests that the current 'spare capacity' on the trans Tasman is likely to be efficient, and the reduction planned under the TNA would be welfare reducing. A reduction in capacity is also likely to lead to higher prices, especially with regard to current low priced airfares.

The TNA would allow the two airlines that dominate the trans Tasman markets to act as a cartel, to raise prices and jointly impede entry by competitors. The Commerce Commission concluded that if Air New Zealand and Qantas were allowed to form a cartel, average trans Tasman prices would rise by 16%. This average would likely understate price changes on services to and from Wellington because competition is lower on the Wellington routes (the cartel would create an effective monopoly on two of the three routes for which competition currently exists) and the threat of entry is also lower. For routes in and out Wellington in which Air New Zealand and Qantas (jointly) achieve a monopoly under the TNA, prices could be expected to increase 19% (assuming linear demand and Cournot competition, which was an assumption used in the Commission's analysis).

Based on the price elasticities of demand adopted by the Commission, and assuming a 16% price increase under the TNA, leisure travellers to and from Wellington would fall by 24%, and business travellers to fall by 11%, relative to levels the in the absence of the arrangement.

An arrangement that induces falls in passenger movements of these magnitudes, allows substantial price rises, and creates incentives to lower service levels (at higher prices) and

reduce marketing of New Zealand as a destination, cannot be considered to be in the public interest.

2 Introduction

Air New Zealand Limited and Qantas Airways Limited have asked the Minister of Transport to authorise a Tasman Networks Agreement (TNA) pursuant to Part 9 of the Civil Aviation Act 1990.[1] The TNA would allow Air New Zealand and Qantas to co-operate in respect of any flight operated on the "Tasman Network" by either the Air New Zealand or Qantas groups. The parties would meet weekly to "manage all commercial … aspects of the Tasman Networks, including … pricing, capacity, scheduling, sales, strategies … matters relating to competitor and tactical responses… customer service standards." Revenue from the joint operations would be shared according to a pre-determined method.

The Minister must consider whether the TNA would benefit the public and be in the public interest.[2] Should aspects of the arrangements fall within the jurisdiction of the Commerce Commission, the Commission would authorise the TNA only if it resulted in a net benefit to the public.

This report assesses the economic costs and benefits of the TNA to the public as it relates to Trans Tasman passenger services to and from Wellington.

In preparing this review and forming our views, we have relied upon information and data provided to us by Wellington International Airport and material contained in the Commerce Commission Determination No 511, of 23 October 2003 declining the application by Air New Zealand and Qantas for authorisation of a strategic alliance. We have referenced fully the information we have relied upon, and have evaluated that information through analysis, inquiry and review but have not sought to verify the accuracy or completeness of the information. Should additional information come to light, we may revise or amend our conclusions.

[1] Air New Zealand Ltd, Qantas Ltd. *Application to the Minister of Transport pursuant to Part 9 of the Civil Aviation Act 1990.*

[2] Professor Michael Taggart, Barrister and expert on Public Law, May 23 2006.

3 Trans-Tasman passenger services in and out of Wellington

3.1 Market definition important to assessing public benefits

The TNA would change how Air New Zealand and Qantas operate passenger services across the Tasman. Understanding whether these changes would benefit or cost the public requires an understanding of the market in which the services are provided, so as to identify the area of competition and the constraints that operate on the participants. It is the characteristics of the market that will determine whether a cooperative arrangement between the airlines might allow reduced costs and expand services to consumers, or would result in reduced competition and enhanced market power and harm consumers.

The TNA defines the term 'Tasman Network' to include scheduled passenger networks of the Qantas Group and the Air New Zealand Group on any sector that departs from Australia and arrives in New Zealand, and vice versa. The agreement specifically excludes sectors solely within New Zealand or Australia, or between Australia and any country other than New Zealand, or between New Zealand and any country other than Australia. While this definition may describe the scope of the arrangement it does not define the markets affected by the arrangement for the purposes of assessing the public benefits and costs. Qantas and Air New Zealand might face quite different levels of competition or threats of entry on different trans Tasman routes. As the Court of Appeal has stated:

> The identification of the appropriate market or markets must accord with the commercial realities, and take account of the activities of the parties involved. It must expose the constraints on the individual firm.[3]

The Commerce Commission in analysing the Alliance initially proposed by Air New Zealand and Qantas chose to cluster city-pairs together into geographic regions. The Commission stated that:

> … there is authority to support the approach of individual city pair routes as being the correct geographic markets in airline cases. The reasoning behind this is that travellers, in most instances, have little flexibility in terms of their origination and destination. The Commission considers that, in principle, such an approach is correct, but for the purposes of competition analysis in this case, it is more appropriate to aggregate city pairs into geographic groups, consisting of groups of city pairs that will be impacted similarly by the proposed Alliance.[4]

[3] Court of Appeal, Power NZ Ltd v Mercury Energy Ltd (1997) 2 NZLR 669 (CA).

[4] Commerce Commission Determination No 511, of 23 October 2003.

The Commission's approach was pragmatic given the scope of the proposed Alliance. However, a more disaggregated analysis is required to understand the benefits and costs to the public of the proposed code sharing arrangements.

3.2 Services to Wellington is a separate market

To identify the competitive constraints on participants in a market, competition analysis often resorts to a rule of thumb known as the "ssnip" test. In such cases, a "market" is defined to be:

> " the smallest space within which a hypothetical, profit-maximising, sole-supplier of a good or service, not constrained by the threat of entry, would be able to [profitably] impose at least a small yet significant and non-transitory increase in price, assuming all other terms of sale remain constant (the ssnip test)." [5]

The Commerce Commission routinely applies the ssnip test in competition cases, and "will generally consider a ssnip to involve a five percent increase in price for a period of one year."[6]

A common difficulty in applying the ssnip test is determining the baseline price against which to consider a ssnip. The ssnip test should be carried out using an efficient price for the relevant service, otherwise the analysis may be distorted by services that become substitutes only because prices in the market are excessive – this is the so-called "cellophane fallacy".[7] Prices in markets dominated by a small number of firms may be above efficient or workably competitive levels, and hence efficient prices may not be readily observable.

As a proxy for efficient prices between Wellington and Sydney, we have considered data collected by Wellington Airport on lowest available fares available four weeks from date of departure.[8] On the basis of this data, a ssnip test appears likely to establish trans Tasman services between Wellington and Melbourne, Sydney, Brisbane or Coolangatta as

---

[5] Commerce Commission Final Determination, Air NZ & Qantas, 23 October 2003, paragraph 199.

[6] Commerce Commission Final Determination, Air NZ & Qantas, 23 October 2003, paragraph 199.

[7] The "cellophane fallacy" takes its name from the case *US v El Du Pont de Nemours & Co* (1956), 351 US 377, where the judge held cellophane not to be in a market of its own, but in the wider wrappings market, including aluminium foil, wax paper and polyethylene. This decision has been argued erroneous on the economic grounds that the other products were only substitutes by virtue of the high "monopoly prices" of cellophane.

[8] This reflects the availability of data – Wellington International Airport had collected data only for "lowest available fares" and not for the entire price range. However, we believe the lowest-available fares are of greatest interest as we expect passengers seeking the lowest available fare are more likely to take an indirect route (say through Auckland or Christchurch) to achieve a discount against available direct fares.

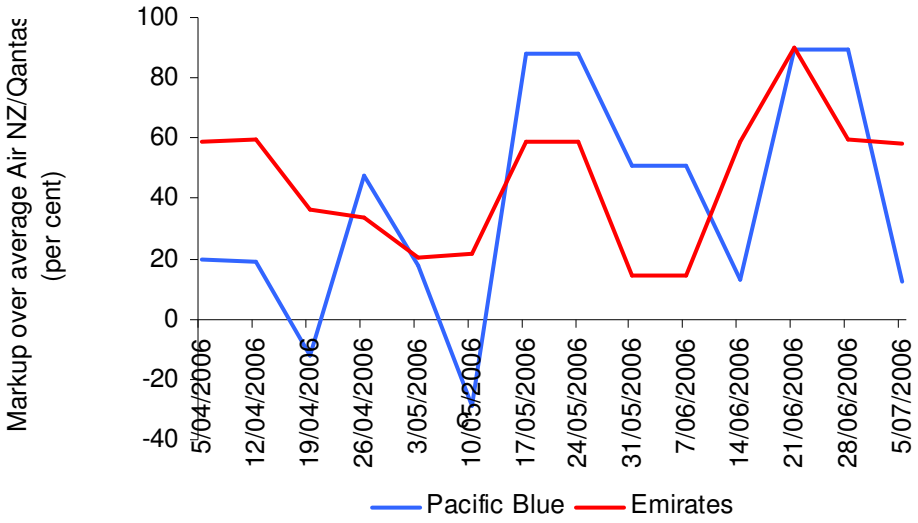
separate markets from services to the same cities from Auckland or Christchurch (and provided by a different carrier).

The data also suggests that services between each city pair, such as Wellington to Sydney (say with Air New Zealand), would form a separate market to services such as Wellington-Brisbane-Sydney (say with Pacific Blue).

Figure 1 shows the average percentage margin of the lowest Pacific Blue (Wellington-Brisbane-Sydney) and Emirates (Auckland to Sydney) airfares over the average of the lowest Air New Zealand and Qantas airfares offered for Wellington-Sydney. In each case, the airfares quoted are four weeks from departure for flights at any time on a Wednesday over the period April 2006 to the end of June 2006.

Fares for Emirates (Auckland to Sydney) are inclusive of an assumed $102 fare from Wellington to Auckland, which was the average of the least cost fares offered by Qantas and Air New Zealand over the same period.[9]

Figure 1 – Mark-up over average Air NZ/Qantas fare, excluding opportunity cost of travellers' time (5 April to 5 July, 2006)[10]



Percentage margins for Pacific Blue and Emirates in Figure 1 are shown *exclusive* of the opportunity cost of the additional time involved in flying via Auckland or Brisbane to reach Sydney from Wellington. We understand two hours would be a conservative estimate of the additional time taken by a traveller taking an indirect route to reach Sydney with either Emirates or Pacific Blue. Air New Zealand and Qantas submitted to

[9] Considering all fares offered by Qantas, Air New Zealand and Origin Pacific four weeks from flying, for flights at any time on a Wednesday

[10] Source: Wellington International Airport Ltd.

the Commerce Commission that the opportunity cost of travellers' time should be measured at $100 per hour for business travellers and $20 per hour for leisure travellers.[11] The average margin above Air New Zealand/Qantas for Pacific Blue was 39% excluding the cost of the traveller's time. For Emirates, the margin was 46% excluding the cost of the traveller's time.

Data on lowest available fares between Auckland and Brisbane and Auckland and Melbourne was unavailable. We have no reason to believe that the results for Brisbane and Melbourne should be qualitatively different.

These results suggest that an arrangement between Air New Zealand and Qantas on trans Tasman services to and from Wellington would not be constrained by services offered by competing carriers landing at Auckland or Christchurch. More precisely, Air New Zealand and Qantas could raise low cost fares to Sydney by at least 46% on average (without allowing for the greater inconvenience to passengers) and remain competitive with the prices currently charged by other carriers operating through Auckland. Similarly, the lowest prices charged on trans Tasman services between Wellington and Sydney could be raised by at least 40% on average before it would be economic for travellers to consider flying via Brisbane with Pacific Blue.

Because Air New Zealand and Qantas could raise prices to and from Wellington significantly without facing substitution from carriers using other routes, trans Tasman services to and from Wellington should be considered as a separate market. The remainder of this report focuses on the benefits to the public of the proposed TNA on passenger services across the Tasman in and out of Wellington. The city pairs are WLG-SYD, WLG-BNE, WLG-MEL and WLG-OOL.

Although our analysis is limited to focussing on trans Tasman flights in and out of Wellington, we note that the TNA will likely have follow on effects for domestic services and non Tasman international routes. Firstly, any changes in flight patterns to and from Wellington across the Tasman will likely impact on the demand for domestic services. Secondly, the TNA may make it easier for Air New Zealand and Qantas to collude on routes not covered by the TNA.[12] Indeed, the extent of multi-market contact is explicitly considered by the Commerce Commission in evaluating the likelihood of collusion under proposed mergers:

[11] These estimates were not accepted by the Commission, which maintained that the time was not lost completely and that travellers found other things to do with their time and measured the cost at $20 per hour for business travellers and $4 per hour for leisure travellers (paragraph 1330).

[12] The TNA provides that members of the joint Qantas and Air New Zealand Committee that will meet each week to coordinate prices and schedules for trans Tasman routes should not discuss services on other routes. However, it is unrealistic to believe that two firms cooperating extremely closely in one sector would not be mindful of each other's interests in other sectors.

"businesses that confront each other in a variety of markets may find ways of co-existing and of avoiding vigorous competition."[13]

However, this paper does not provide an analysis of these effects.

4 The TNA

The TNA would involve co-ordinating the trans Tasman activities of the Qantas Group and the Air New Zealand Group, to the extent reasonably possible, in the following areas:

1. Scheduling and planning of flights.
2. Pricing of passenger services.
3. Frequent flyer programs – members will earn frequent flyer benefits on all services carrying the code of the operator of the relevant program.
4. Processing of passengers and baggage.
5. Co-ordinating the minimum in-flight service offering.
6. Code-sharing.[14]
7. Cargo services, from time-to-time.

The TNA allocates revenue between the Applicants on the basis of:

(a) Revenue performance of each airline, measured as revenue per available seat kilometre (ASK); and

(b) A 'brand-value' return based on each airline's proportionate share of capacity actually deployed on the Tasman Network.

The Applicants also plan a reduction in the capacity flown to and from Wellington across the Tasman.

The potential public benefits and costs of such an arrangement can be grouped into the following three categories:

(a) The incentives created for Air New Zealand and Qantas in relation to service levels and marketing.

---

[13] Commerce Commission, *Merger and Acquisition Guidelines*, effective 1 January 2004.

[14] Code sharing is a practice where a flight operated by an airline is jointly marketed as a flight for one or more airlines. Code sharing is not unusual: most major international airlines have code-sharing partnerships with other airlines, and code-sharing is a feature of the major airline alliances.

(b) The public benefits and costs of capacity reductions.

(c) Likely price changes and associated public benefits and costs as result of cooperation between Air New Zealand and Qantas.

There are clearly interactions between each of these categories – for instance, prices may change in response to changes in capacity. However, grouping the benefits and costs in this manner may assist in:

(a) Making the analysis tractable.

(b) Evaluating the core claims by Air New Zealand and Qantas.

(c) Highlighting the similarities and differences between the code share proposal and the former Alliance proposal.

5 Incentives to maintain service levels and market NZ as a destination

Under the TNA, Air NZ and Qantas will share revenue on trans Tasman routes. However, the parties do not share costs, nor is there an equity investment involved.[15] An arrangement in which parties share revenue but not costs create quite different incentives on the parties to the arrangement compared with, say, a merger. Economic theory, and in particular insights about strategic behaviour and incentives from what is sometimes termed "the new theoretical industrial organization",[16] suggest that the parties will respond to these incentives.

A particular implication of the arrangement is that contributions to revenue, for instance growing the market through increased marketing or through higher quality service, are shared. However, any cost savings are retained by each airline. Hence, to maximize profits each firm will face powerful incentives to reduce quality and marketing (within the constraints of the agreement) relative to the level it would set if facing the revenue implications of its quality and marketing decisions in the absence of the TNA.[17]

[15] Air New Zealand would pay Qantas for convertible notes held by Qantas and the TNA refers to a $198 million loan between Air New Zealand and Qantas.

[16] Tirole, J., "The Theory of Industrial Organization", MIT Press, 1988, p 3.

[17] The TNA establishes a minimum service level of one meal and a beverage service and a movie, a seat pitch of 30 inches, facilitated connection, and baggage transfers. This minimum level will be reviewed regularly in light of market conditions and to reduce costs.

5.1 Race to minimum quality

To see that quality of service will likely fall under the arrangement consider the following simplified example.

Suppose Air New Zealand is not constrained by capacity, and must choose whether to offer a (potential) passenger either 'standard service' or 'excellent service'. Air New Zealand is assumed to charge a fare of $100 regardless of the level of service. Standard service costs $20, but excellent service costs $50. If 'standard service' is offered, the passenger flies with Air New Zealand with probability one half (and does not fly at all with probability one half). However, if excellent service is offered, the passenger flies with Air New Zealand with certainty.

Under existing competitive arrangements, Air New Zealand in this simplified example, should offer 'excellent service' – it would earn $100 revenue from the passenger with certainty, and incur a cost of $50. The (expected) net revenue would be $50. However, if 'standard service' were offered, the (expected) net revenue would be only $40. ($100 minus $20 = $80 multiplied by the probability of one half.)

Now consider Air New Zealand's decision under a TNA arrangement. Suppose for simplicity that revenue would be shared 50/50 (for instance, if this were the outcome of applying ASK and brand-value ratios). If it offers 'excellent service', the passenger flies with Air New Zealand, and Air New Zealand and Qantas receive $50 revenue each. However, the cost to Air New Zealand would be $50, so its (expected) net revenue would be $0. By offering standard service, however, it would receive net revenue of $50 minus $20, or $30, with probability one half. Expected net revenue would therefore be $15.

Thus it would pay Air New Zealand to offer the passenger only 'standard service' under the TNA (provided this meets the agreed minimum service standards), but 'excellent service' under competition with Qantas. The arrangements appear to create a 'race to minimum quality' and incentives for the parties to lower quality further.

5.2 Minimise marketing NZ as a location

On the basis of the information released by the parties, the arrangement appears to create incentives to minimise marketing New Zealand as a destination. The reason is similar to the example considered above. Revenue from attracting an additional customer would be shared under the TNA thereby reducing the returns to marketing of each of the Applicants. It might reasonably be objected that some of an airline's marketing efforts for a particular route – for instance marketing New Zealand as a destination to Australians – have spillover effects on demand for other airlines in the market. Under the TNA, any spillover benefits of marketing by one Applicant to the other Applicant would be of mutual benefit. Nevertheless, provided there are some airline-specific returns to destination marketing, we would expect such marketing to fall under the TNA. The following is a simple example.

Suppose it costs $20 to provide service to a passenger, and that the fare is $100. Suppose Air New Zealand is trying to determine whether to implement a new marketing scheme. It calculates that by spending $15, it can attract an additional passenger to fly the Tasman with probability three eighths. Suppose further that the passenger attracted by the marketing will fly Air New Zealand with probability one quarter, and Qantas with probability one eighth.[18]

In the competitive market, Air New Zealand would choose to invest in marketing: It spends $15, but receives net revenue of $80 with probability one quarter. Therefore, its expected net revenue gain from marketing is (($80 x 0.25 minus $15 =) $5.

Under the TNA, however, Air New Zealand would gain additional revenue of (½ x $100 =) $50 with probability 3/8: An expected revenue increase of $18.75. It would carry the passenger with probability one quarter (with the passenger being carried by Qantas with probability one eighth), and so would bear an additional expected cost of (¼ x $20 =) $5. The expected gain from marketing is thus ($18.75 minus $5 =) $13.75 less the cost of marketing itself. Thus marketing leads to a net loss of $1.25, and would not be undertaken.

5.3 Incentives to minimise service levels and marketing not in the public interest

The examples outlined above are necessarily simplified because Air New Zealand and Qantas have not released details of their proposed revenue sharing arrangements, and hence the incentives cannot be modelled precisely.[19] However, the information released so far suggests that the arrangements would create powerful incentives for both entities to lower the quality of services provided and to reduce efforts to market New Zealand as a destination.

We note that under the agreement, some aspects of quality and marketing may be agreed. However contract theory suggests that a range of activity determining marketing provision and service quality provision will remain at the discretion of the individual Applicants. The incentives relating to this discretion under the TNA will be inefficient, and thus contrary to the public interest.

[18] The scenario could straightforwardly be extended to a situation in which airlines both undertake marketing activity and "compete" for customers.

[19] Introducing greater complexity into the example through allowing capacity reductions does not change the result. An incentive remains to reduce marketing effort and reduce service levels.

6 Analysis of excess capacity claims

6.1 Capacity reduction claimed as major benefit of arrangement

Air New Zealand and Qantas claim that there is "excess capacity" on the Tasman routes and that the TNA would result in a beneficial reduction of that "excess capacity". According to their submission, there are approximately 6,300 empty seats per day on flights across the Tasman (para 4.1). Air New Zealand and Qantas claim that the market is oversupplied and that competition has led to 'waste'. They claim that the portion of capacity that will be removed under the code-share arrangement is 'surplus' and that the removal of this surplus capacity will lead to efficiency gains, namely:

(a) Cost savings associated with better matching supply and demand;

(b) More efficient use of remaining capacity, in terms of increased load factors and better schedule spread.[20]

There are also claimed environmental benefits as a result of reduced carbon emissions (para 4.22).

Terming empty seats "excess capacity" may be misleading, as spare capacity is a natural feature of aviation markets, and need not indicate waste (as discussed in section 6.3). Hence we use the neutral term "spare capacity". This section:

- Presents data on existing spare capacity.
- Sets out the reduction in seat numbers planned under the TNA.
- Considers whether the planned reduction in capacity under the TNA would be efficiency enhancing or an abuse of market power.

6.2 Existing spare capacity

The extent of spare capacity on flights operated by Air New Zealand and Qantas (at least for the 2005 year, the most recent for which we have data) is not as great as for rival carriers. In fact, whilst Air New Zealand and Qantas flew 72% of passengers on the Tasman route in 2005, these airlines make up just 52% of the spare capacity.[21] The contributions of each airline are shown in Figure 2, with capacity utilisation rates shown as percentages for each airline.

---

[20] Air New Zealand Ltd, Qantas Ltd. *Application to the Minister of Transport pursuant to Part 9 of the Civil Aviation Act 1990*, para 4.12.

[21] Source: BTRE, "Annual International Airline Activity 2005", http://www.btre.gov.au/statistics/aviation/international_annual_downloads.aspx.

Figure 2 – Capacity Utilisation of Airlines from and to New Zealand to Australia, 2005[22]

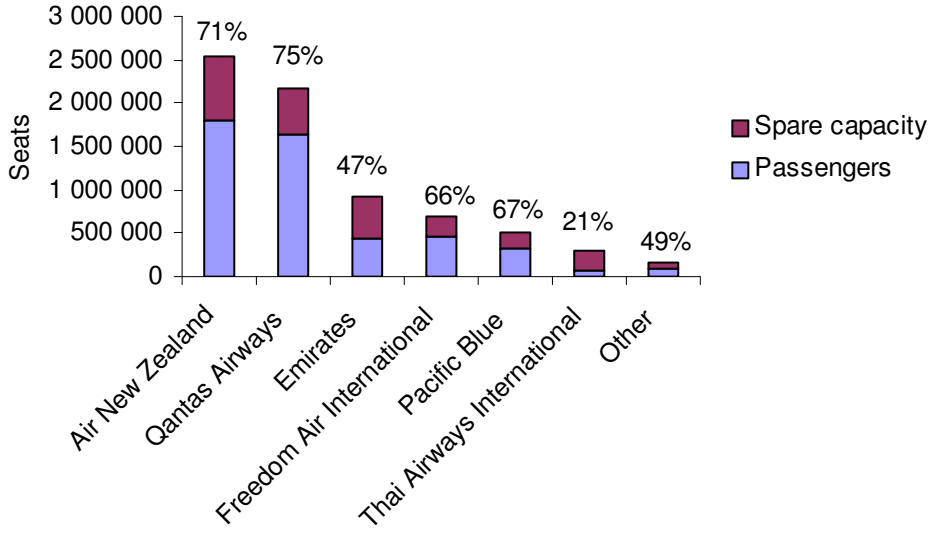
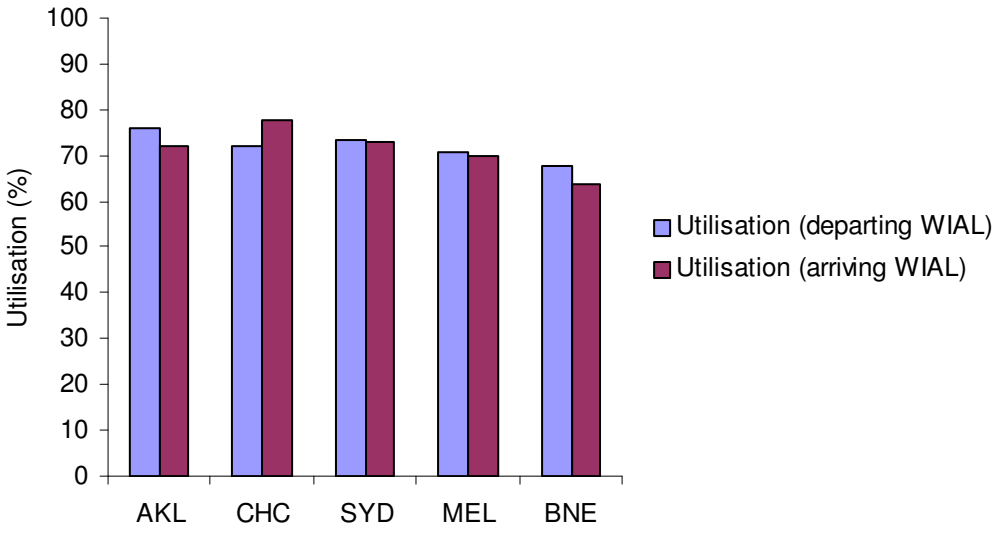


Figure 3 compares utilisation rates for Qantas and Air New Zealand flights on the Tasman and domestic trunk routes for the first half of 2006. This may be a useful comparison given that the domestic trunk routes are the other main routes on which Air New Zealand and Qantas compete in and out of Wellington Airport. Utilisation rates between Sydney and Wellington are roughly comparable to utilisation on the domestic trunk routes. Utilisation rates between Wellington and Melbourne are slightly lower than for the domestic trunk routes. Utilisation rates between Wellington and Brisbane (the only trans Tasman route out of Wellington on which Air New Zealand and Qantas face competition from another carrier) are lower than the domestic trunk routes.

[22] Source: BTRE, "Annual International Airline Activity 2005".

Figure 3 – Utilisation rates for Air New Zealand and Qantas flights to and from Wellington Airport on Tasman and Trunk routes (2006 to end of June)[23]



6.3 Planned reductions in capacity

Table 1 shows the number of outbound, direct non-stop flights in the WLG-SYD, WLG-BNE, WLG-MEL and WLG-OOL city pairs per week and shows the reductions in capacity planned under the arrangement.

The number of flights out of Wellington would reduce under the TNA from 52 a week to 45, with nine flown by Air New Zealand, one by the Air New Zealand subsidiary Freedom Air, and the rest by Qantas.[24] Note that at the time of Application, Qantas was operating 733 aircraft on Tasman routes in and out of Wellington. However, we understand that Qantas has begun a transition to larger 734 aircraft, and we assume that this transition would occur with or without the TNA.

[23] Source: Wellington International Airport Ltd.

[24] As reported in the Dominion Post, Wednesday 14 June 2006, 'Capital Unlikely to Escape Codeshare.'

Table 1 - Outbound Wellington-Tasman Flights Per Week[25]

		WLG – SYD	**WLG - BNE**	**WLG - MEL**	**WLG – OOL**
Without code share	Air NZ	13 (320)	6 (320)	7 (320)	2 (320)
	Qantas	14 (734[1])	3 (734[1])	7 (734[1])	0
	Pacific Blue	0	3 (738)	0	0
With code share	Air NZ	9 (320)	0	0	1 (320)
	Qantas	7 (738) 7 (734)	8 (734)	13 (734)	
	Pacific Blue	0	3(738)	0	0

[1] As noted above, we assume that all flights in the absence of a TNAwould be 734s, rather than 733s.

The total weekly seat capacities offered by each airline (given these capacities) for each route are given in Table 2.

Table 2 - Outbound Wellington-Tasman seats per week

		WLG - SYD	WLG – BNE	WLG - MEL	WLG – OOL
Without code share (counterfactual)	Air NZ	1,898	876	1,022	292
	Qantas	1,624	426	994	0
	Pacific Blue	0	540	0	0
	Total	3,886	1,842	2,016	292
With code share (factual)	Air NZ	1314	0	0	146
	Qantas	2170	1136	1,846	
	Pacific Blue	0	540	0	0
	Total	3484	1,676	1,846	146
Percentage change in capacity		-10%	-9%	-8%	-50%

Table 2 indicates that Air New Zealand and Qantas plan significant reductions in scheduled flights. In sum, seats on flights from Wellington to Australia will fall from 8,036 to 7,152 per week, a decrease of 11% (with the number of seats on the Applicants' flights decreasing from 7,496 to 6,612, or a 12% decrease). Under the TNA, Air New Zealand and Qantas would be free to change the number of flights offered at any time.

[25] Source: Infratil Limited, from Air New Zealand Ltd, Qantas Ltd. *Application to the Minister of Transport pursuant to Part 9 of the Civil Aviation Act 1990.* Data includes provision for Qantas' intended transition from the 733 to the 734 for Wellington routes.

6.4 Economic analysis of spare capacity

Two key questions arise from reductions in capacity planned under the TNA:

- Why does spare capacity exist in the current competitive market?
- What are the implications for pricing and services from changes to capacity?

6.4.1 Why does spare capacity exist?

Spare capacity occurs routinely in markets where suppliers must commit to a fixed investment in capacity, and where the level of demand is uncertain. Airlines typically operate with spare capacity because:

- **Capacity must be acquired in fixed blocks** – for instance, even when demand is known, an airline may dedicate a 120-seat aircraft to a route, though it may maximize its profits by selling less than 120 seats.[26] Airlines purchase aircraft with a measure of spare capacity for reasons such as variability in demand across time and routes, and reflecting the optimal scale and standard specifications of aircraft.

- **Demand is uncertain:**
  - Airlines can maximise profits by selling seats at a higher price when demand is high, although these seats may often be unoccupied.

  - Fully booking flights can annoy customers who place a high value on flying, but are unable to travel. Frustrating customers in this way can destroy brand value, and make the passenger less likely to fly with the airline in future.[27]

Hence 'spare capacity' is a feature of efficient and well working airline markets (and other markets in which demand is uncertain and capacity is fixed in advance of demand). Air New Zealand and Qantas have not released any analysis to show that the spare capacity on the trans Tasman routes is anything other than the result of an efficient, workably competitive market.

6.4.2 Implications of capacity changes for prices and services

Air New Zealand and Qantas claim that a reduction in capacity will lower costs. However, their statements regarding whether and how any reduction in costs would be translated into price changes have been withheld. The TNA provides no criteria with

[26] For suppliers with market power, selling all the seats on an aircraft may require lowering prices to all customers, not just those to whom the remaining fares are sold. As a result, selling all seats on a plane may reduce profits relative to operating with spare capacity.

[27] This is the rationale for guaranteed seat availability that is a feature of some 'gold card' frequent flyer programmes.

regard to how airfares would be set under the arrangement. The airlines would be free to set prices in a manner that advances their self-interest, and presumably would set prices at what the market will bear. In the absence of specific agreements regarding pricing, economic literature provides insights into the pricing policies under agreements like the TNA.

6.4.3 Yield management

How airlines set prices for a given capacity, and the implications of those decisions for capacity utilisation, are subjects of significant research interest. The process by which prices are set for blocks of seats is known as "yield management" or "revenue management".

As Dana (1999b) explains:[28]

> "Formally, revenue management describes a process of setting fares for each route (origin and destination pair) and each set of restrictions (non-stop, time-of-day, day-of-week, refundable, advance purchase, first class or coach, and Saturday-night stayover) and limiting the number of seats available at each fare."

Dana goes on to explain three key considerations for yield management:

- **Peak-load pricing** involves choosing different prices for different flight times. Prices are set to reflect the level of demand - if capacity is limited, prices are set higher to avoid excess demand (which is inefficient and leads to lost profit opportunities).

- **Third-degree price** discrimination involves charging different prices to different types of customers, based on their individual price-sensitivity. The purpose is to charge higher prices to groups that are less price sensitive, and is used to maximise profits irrespective of demand uncertainty. Airlines often charge different prices to different customers on the same flight ("price dispersion").[29]

- **Managing demand uncertainty** involves choosing prices in the best possible way, given that the actual level of demand is not known until the time of departure. As explained by Dana (1999a,b),[30] airlines may choose to price some seats at a low price, ensuring these seats are filled even when demand is low. Remaining seats

[28] (1999b) Dana, J.D.. `Equilibrium price dispersion under demand uncertainty: the roles of costly capacity and market structure', *RAND Journal of Economics*, Vol. 30, No. 4, Winter 1999, p 635.

[29] For example, Borenstein S., and Nancy L. Rose, `Competition and Price Dispersion in the U.S. Airline Industry', *The Journal of Political Economy,* August 1994, pp 632-660.

[30] (1999a) Dana, J.D., `Using yield management to shift demand when the peak time is unknown', *RAND Journal of Economic* Vol. 30, No. 3, Autumn 1999, pp 456-474. (1999b) Dana, J.D . `Equilibrium price dispersion under demand uncertainty: the roles of costly capacity and market structure', RAND Journal of Economics, Vol. 30, No. 4, Winter 1999, p 635.

are priced higher, and will only be sold when demand is high. If demand is uncertain, it usually pays an airline to have some seats available at a high price in case demand is high, in which case it may be able to sell the high priced fares.

Price discrimination and demand uncertainty have been given considerable attention in the economics literature. It appears that both aspects play an important role in determining airline pricing. As demand uncertainty is sometimes overlooked as a determinant of airline pricing behaviour, the following analysis outlines why we believe it is important.

Firstly, there is significant variance in the Applicants' aircraft utilisation rates. Data on the Applicants' capacity utilisation suggests that relatively few flights are fully or close-to-fully booked. This is consistent with the optimising behaviour predicted by the theory. As an example, Air New Zealand capacity seat utilisation for the Wellington to Sydney route is given in Figure 4. The standard capacity for aircraft on this route is 146 passengers.

Figure 4 – Air New Zealand WLG – SYD Capacity Utilisation (all flights, beginning of 2006 to end June)[31]

[CI

]

Finally, it is interesting that whilst airlines offer a range of prices, these prices do not change often. Figure 5 shows Air New Zealand's prices on the Wellington Sydney route for Wednesday morning flights, four weeks before departure and capacity utilization. The figure suggests that prices do not change with realized demand. This might suggest that airlines are not well able to predict the level of demand for individual flights, at least at four weeks from departure. However, the extent to which an airline varies the capacity allocated to each price level is not known, and it may be that airlines change pricing through varying this allocation rather than changing prices themselves. (Changing the number of seats allocated to each price level is likely to have a lower administrative cost than changing published prices, particularly as the airline may have advertised prices in advance).

[31] Source: Wellington International Airport Ltd.

Figure 5 - Air New Zealand Pricing and Capacity for WLG-SYD (Wednesday morning flights, beginning of 2006 to end June)[32]

[CI

]

6.4.4 Role of spare capacity in pricing

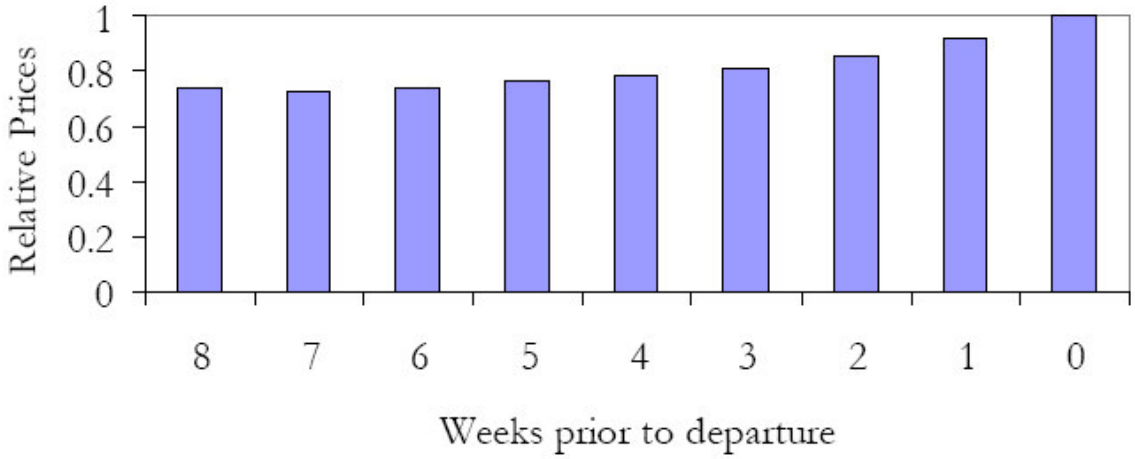
Whilst we believe price discrimination is an important determinant of airline pricing, the model of Dana (1999b) is particularly helpful in the present context for properly understanding the role of spare capacity in airline pricing.

In the model, an airline faces two types of cost: one from serving a passenger, and some constant cost of additional capacity (a seat). The airline must decide how much capacity (i.e. how many seats) to make available before demand is realized, and the level of demand is uncertain. Customers are all the same, except that they have different willingness to pay for a flight. Customers "arrive" to book the flight in random order, and take the cheapest seats first, for a given class of service.[33] This idea is consistent with the observation that available airfares increase up to the point of departure (with the cheapest fares selling out), as shown in Figure 6.

[32] Source: Wellington International Airport Ltd.

[33] We note that in practice, the cheapest seats are not necessarily released first. However, (as is common in theoretical economic modelling) the model is intended to be a stylized abstraction of the key characteristics of airline behaviour.

Figure 6 – Geometric means of relative prices of all Trans-Tasman flights[34]



The airline not only chooses the number of seats, but the price it will charge for each seat, which is called a "price distribution". Blocks of seats at higher prices are less likely to be sold, because a higher level of demand will need to be realised. Dana's (1999b) paper derives the optimal price distribution for a monopolist, as well as the equilibrium price distribution in perfect competition (where firms are free to enter and exit the market costlessly, and no individual firm can influence the market price).

Dana finds that in perfect competition,

> "any price that is offered must be equal to the [cost of serving the passenger] plus the [cost of an additional seat] divided by the probability that a [seat] offered at that price will be sold. The latter term can be interpreted as an "effective" cost of capacity, since it is equal to the revenue (net of [the cost of serving the passenger]) that the firm must earn if the [seat] is sold in order to cover the unit capacity cost it incurs whether or not the [seat] is sold."

This variant of the "marginal-cost pricing rule" is efficient.[35]

Hence we can expect to see spare capacity even in a market that is perfectly efficient. An efficient operator would be worried about the possibility a customer who is willing to pay

---

[34] Tim Hazledine, `Decoding the Code-Share: A Briefing on the Proposed Air New Zealand/Qantas Tasman Networks Agreement', *MOTU public policy seminar*, June 1, 2006, http://www.motu.org.nz/pdf/2006_pps_presentations/THazledine_june_06.pdf, p 36. The data are the geometric means of lowest prices offered over the eight weeks up to the flight date, scaled against the lowest price at the time just before departure.

[35] If a price higher than the "effective" cost of a seat were offered, there may be customers willing to pay above the effective cost, but less than the price offered, who would choose not to fly. Conversely, if the price is set less than the "effective" cost of a seat, a customer may purchase the seat, though his benefit from doing so may be less than its "effective" cost.

a lot to fly misses out. He would therefore put some seats aside at high prices, although this means that they do not often sell.

Dana notes that the same result applies when the airline is endowed with a fixed amount of capacity (rather than being able to decide how much to supply). In this case, the cost of capacity is a "shadow-cost", or the opportunity cost of capacity being used up.[36] Since this cost increases when the amount of capacity is reduced, an efficient operator must raise prices if it is endowed with less capacity. Thus even if operation on the Tasman routes in and out of Wellington is efficient and were to remain so under the TNA, the fact that available capacity is being reduced must mean that will Air New Zealand and Qantas will raise prices.

If the TNA were to create a monopoly on some routes, the condition for prices is somewhat more complicated, but still has an intuitive explanation.[37] At each possible level of price:

> … the monopolist sets the expected net revenue from an additional unit at price *p* equal to the cost of adding another unit of capacity plus the expected loss in revenue that results if a higher-priced unit goes unsold as a consequence of adding the additional unit at price *p*.

Thus, in comparison with the efficient (perfect competition) case, considered above, the monopolist sets higher prices (or, equivalently, allocates more seats to higher price levels) essentially because it is concerned that customers purchasing cheaper fares might have been willing to pay more. In effect, a monopolist is worried about cannibalising the demand for more expensive fares which it holds captive. This is less of a concern in oligopoly (and of no concern in perfect competition) because customers with high willingness to pay can always choose to fly with the competition if a cheaper fare is available. It can thus be shown that prices are higher in monopoly relative to oligopoly, given the same cost of capital (see Dana (1999b), Proposition 4).

Finally, the model predicts that price dispersion increases as the market becomes more competitive. This is consistent with empirical findings, for instance Stavins (2001) and Borenstein and Rose (1994), and is also a prediction of models of price discrimination.[38]

---

[36] Formally, it is the Lagrange multiplier associated with the capacity constraint in the firm's optimisation problem.

[37] (1999b) Dana, J.D . `Equilibrium price dispersion under demand uncertainty: the roles of costly capacity and market structure', *RAND Journal of Economics*, Vol. 30, No. 4, Winter 1999, p 647.

[38] Stavins, J., `Price Discrimination in the Airline Market: The Effect of Market Concentration' *Review of Economics and Statistics*, Vol. 83., No. 1, February 2001. Borenstein S., and Nancy L. Rose, `Competition and Price Dispersion in the U.S. Airline Industry', *The Journal of Political Economy*, August 1994, pp 632-660.

In summary, the economics literature predicts that a reduction in capacity under the TNA would result in:

- An 'inefficient' reduction in capacity, increasing costs to society overall.
- Higher prices overall than would occur in the absence of the arrangement.
- A reduction in price dispersion, with low priced fares (for example, weekend get away and family savers) increasing by more than overall fares.

Recent work by Tim Hazledine and Callum MacLennan provides some empirical support for these conclusions. They find, by analyzing price data on 8 domestic and 21 trans-Tasman routes, that:[39]

- "Routes served by just one carrier have prices around 20% higher than duopoly routes do."
- "pricing on a route is systematically related to the size of the overhang of empty seats. A difference of five percentage points in the ratio of seats sold to seats available (for example, going from 70% to 75% utilisation) is associated with an almost equal difference in prices."

7 Likely price changes and associated public benefits and costs of cooperation

7.1 Analysing effects of cooperation

The analysis presented above concluded that the arrangements would create incentives to reduce service quality and to reduce efforts to grow the trans Tasman market, for example by marketing New Zealand as a destination. These incentive effects would not be in the public interest. Economic literature suggests that the current 'surplus capacity' on the trans Tasman is likely to be efficient, and the reduction planned under the TNA would be welfare reducing. A reduction in capacity is also likely to lead to higher prices, especially with regard to the current low priced airfares such as weekend get away and family savers. This section considers whether the 'cooperative' aspects of the arrangement might give rise to public benefits that would offset these determinants.

7.2 Competition analysis of a cartel

The TNA would allow the two airlines that dominate the trans Tasman markets to and from Wellington to jointly set schedules, supply, prices and several other matters, as well

[39] Tim Hazledine and Callum MacLennan, `High-Flying Competition', *ISCR Competition and Regulation Times*, July 2006, Issue 20, p 1.

as share the revenues from their joint enterprise in a pre-determined fashion. Standard economic analysis of market structure typically treats an arrangement such as the TNA as if the parties were 'one head' in the market, to use the Commerce Act terminology. Indeed, the Applicants recognise that they will, in fact, be able to engage in "joint decision making" as a result of the TNA – this is the chief purpose of the arrangement.[40] In the language of economics, an arrangement in which two or more players in the market jointly decide price and quantity is termed a "cartel". In assessing the competitive implications of a cartel, the entities are modelled as if they are a single entity. If the entities face no other competition, they are considered to act as if a monopoly.

A corollary is that the Commerce Commission's modelling of the effects of changes in market structure under the proposed Air New Zealand/Qantas alliance (using a variant of the Cournot model of quantity competition), is directly applicable to the TNA. In particular, the Commission's approach to modelling suggests it would apply a similar model to analyse the effect of the TNA on Tasman routes as it used to analyse the effect of the proposed Alliance on these routes. (Given the reduced scope of the proposed code share, we would expect the Commission to give greater consideration to the impact on city pairs relative to the trans Tasman as a whole).

7.3 Appropriate basis to measure impacts

Economists typically measure the effects of policy interventions by considering the impact on the welfare of particular groups in society. One considers the benefits to suppliers (producer's surplus), the benefits to travellers (consumers surplus), the benefits to other members of society not directly involved in the market (externalities), or the sum of the welfare of all three groups (total welfare). Total welfare is the 'efficiency standard'. It is through this efficiency lens that the Commerce Commission modelled the effects of changes in market structure under the proposed Air New Zealand/Qantas Alliance.

The Applicants appear to argue that special weight should be given to producer surplus, ahead of consumer surplus, because it is in the "national interest" for Air New Zealand to be financially strong, having particular regard to its importance for tourism.

Whilst we have been unable to evaluate the basis for this claim in detail, we note that:

- Air New Zealand does not appear to be a failing company. For instance, Ralph Norris indicated last year that Air New Zealand's good financial health was his greatest achievement.[41]

- There are other possible ways the national carrier might be strengthened financially, rather than a policy intervention that imposes higher costs on consumers. For instance, direct subsidies could be implemented. Because a

[40] Air New Zealand Ltd, Qantas Ltd. *Application to the Minister of Transport pursuant to Part 9 of the Civil Aviation Act 1990,* paragraph 4.13.

[41] *Australian Financial Review Magazine*, May 2006.

measure such as subsidies would draw from government revenue, it would effectively tax a much broader segment of the population than would be affected by the proposed arrangements. It would therefore likely be more efficient. It may also be more transparent in its objectives relative to authorisation of a cartel between the two major competitors on trans-Tasman routes.

7.4 Commerce Commission's findings

The New Zealand Commerce Commission considered the effect of Air New Zealand and Qantas operating as one head in the market, in its decision to refuse Air New Zealand and Qantas authorisation to form an Alliance.[42] It found that there would be a substantial lessening in competition on the Tasman routes. It found that there would be little constraint from Fifth Freedom Carriers (FFCs) on price and that the Alliance would lead to less extensive entry by Virgin Blue, and that entry would not significantly constrain the proposed Alliance. The Commission's quantitative economic modelling of the Tasman market generated a likely average fare increase under the proposed Alliance, relative to the counterfactual, of 16%.

The Commission modelling took into account:

- The nature of competition on the Tasman routes (eg the type of model).
- The level of non-cooperative interactions between the Applicants.
- The number of firms operating on the Tasman routes and their observed competitive behaviour.
- The relative cost levels of the firms.
- The barriers to entry to the Tasman market and the threat of increased entry on the Tasman routes by Virgin Blue.

The Commission's modelling did not consider the Wellington-Tasman routes explicitly. In the following section we review each of the key determinants listed above, with the exception of relative cost levels, to determine whether circumstances have changed such as to invalidate the Commission's findings. We do not have access to sufficient cost information about each of the firms to be able to draw meaningful conclusions about relative costs, and so have not discussed cost.

To understand what the Commerce Commission's model might predict for pricing on trans Tasman routes in and out of Wellington, we have attempted to replicate its analysis for the WLG-SYD and WLG-MEL routes, where the TNA would imply a move from two competitors to a single firm supplying the market. We term this a 'merger to monopoly'.

The Commission's model is described in paragraphs 1042 to 1055 of its decision on the Air New Zealand/Qantas Alliance. We note that in preparing this report we have had access neither to the data collected by the Commission, nor the precise specification of the

[42] Commerce Commission Determination No 511, of 23 October 2003 .

Commission's model, and so our estimates are based on deduction. Because we are uncertain as to how the Commission treated the presence of LCCs in its model, we do not present analysis for the WLG-BNE route (Pacific Blue is the LCC operating on that route). However, we would expect that in moving from three to two firms competing in the market, the implied price increase would be less than in moving from two to one.

We make the following assumptions about the Commission's analysis:

- **We assume the form of competition is Cournot** – that is, airlines compete by simultaneously choosing the quantity to supply to the market, and the market price is set by market demand at the total quantity supplied. The Commission used a "conjectural variations" (CV) approach to modelling the degree of competitiveness of particular markets. In such a model, the extent of competitive interaction between competitors is given by a "CV parameter". This captures the extent to which a firm will change quantity given a known change in the quantity supplied by its competition. It is usually taken as the purpose of theoretical economic models (such as textbook Cournot or Bertrand) to predict the extent of interaction between competitors. This is discussed further in section 7.4.1.

  However, the Commission notes (paragraph 1050) that it used as a sensitivity test of four different values for the CV parameter, not specified by any precise economic theory, in addition to that implied by the Cournot model of competition. Although it is not clear which value of the parameter was used by the Commission, we apply that implied by the Cournot model.[43] We believe this assumption is conservative.[44]

- **We assume that the services offered by Air New Zealand and Qantas are perfect substitutes.** This appears to have been the Commission's approach, as they note their model accounts for "the degree of product differentiation between market participants, in particular incumbent [full service carriers] and entrant [low cost carriers]".[45] This seems to suggest they make no attempt to account for product differentiation between the Applicants, which are full service carriers (and which we expect are good substitutes).

[43] In other words, we simply apply the Cournot model.

[44] This seems to be implied by paragraph 1040, which refers to the Commission using a "more competitive base case". Further, work by Tim Hazledine, Hayden Green and David Haugh, `The Smoking Gun? Competition and Predation in the Trans-Tasman Air Travel Market', *University of Auckland Economics Working Papers*, 2003, http://researchspace.auckland.ac.nz/cgi/viewcontent.cgi?article=1012&context=ecwp, suggests that the market post-exit of Kiwi International Airlines has been more competitive than the Cournot model would predict. The Commission referenced this work, but did not draw a conclusion on its applicability. If the CV parameter used were more competitive than implied by the Cournot model, the increase in price when decreasing the number of firms in the market would be greater.

[45] Commerce Commission decision on the Air New Zealand/Qantas Alliance, paragraph 1047.

- **We assume that Air New Zealand and Qantas have equal market shares on these routes.** This is appropriate as the Air New Zealand and Qantas share both routes approximately 50/50 (on the WLG-SYD route, Air New Zealand has 47% market share by passengers and 51% market share by capacity, and on the WLG-MEL route, Air New Zealand has 50% market share by passengers and 54% market share by capacity).[46]

- **We use sensitivity tests on assumptions about the nature of consumer demand.** The Commission did not set out its assumptions about the nature of demand. We believe it likely assumed demand to be linear, consistent with the NECG model assessing the likely impacts of the Air New Zealand/Qantas Alliance.[47] However, another possibility is that it assumed demand to have constant elasticity at all levels of quantity. The Commission (paragraph 1045) appears to place some weight on a study by Gillen (2003).[48] This found that the median of 19 estimates of elasticities for short-haul travellers was 1.5 for leisure and 0.7 for business.[49] The weighted average for trans Tasman travellers to and from Wellington is 1.3.[50]

- **We assume constant marginal cost and calculate the marginal costs of the two firms implicitly in the model.** We understand that this approach was taken by the Commission. The marginal costs implied by the model are not of interest in themselves, but are necessary to apply the model to the new (monopoly) market structure. As both firms share the market equally (by assumption), the marginal cost for each firm is identical.

Our calculations are given in Appendix 1.

If demand is linear, the implied price increase is 19%, with a decrease in quantity of 25%.[51]

Our calculations have not accounted for the possibility of entry, for instance by a low-cost airline such as Pacific Blue. We consider the threat of further entry is limited (as discussed in section 7.4.4).

---

[46] For the six months to June 2006, using data collected by Wellington International Airport.

[47] See paragraph 914 of the Commerce Commission's *Final Report* on the proposed Alliance.

[48] Gillen, David, William Morrison and Christopher Stewart, `Air Travel Demand Elasticities: Concepts, Issues and Measurement', Department of Finance, Canada, February 2003.

[49] We present elasticity figures as absolute values, a commonly adopted convention.

[50] 24% of trans Tasman travellers in and out of Wellington are assumed to be business travellers. This estimate is based on New Zealand Arrivals departure card data from Statistics New Zealand.

[51] If price elasticity of demand were assumed to be constant, the implied price increase is 167%, leading to a decrease in quantity of 72%.

7.4.1 The nature of competition

Aviation markets typically comprise only a few firms. In such oligopolistic markets, the nature of the competition that emerges is likely to depend on a number of factors.

An important determinant of outcomes is the manner in which firms interact and compete for the market. The two cornerstone economic models for understanding this interaction are "Cournot" or quantity competition, and "Bertrand" or price competition. Under price competition, each firm sets price given its beliefs about how the other firms will price. Under Cournot competition, firms may behave as though they set quantities – perhaps the number of seats available at a given time - based on their knowledge of demand and the quantities they expect other firms to set.

In aviation markets, economists have found that the interaction between airlines appears often to be at least roughly consistent with Cournot behaviour. Airlines typically set capacity and then try to fill the seats by adjusting price through their yield management systems. The nature of pricing once capacities are established could well reflect a range of considerations (discussed below). However there is theoretical support for the idea that capacity setting followed by price competition will lead to Cournot-type outcomes (see Kreps and Scheinkman, 1983).[52]

Recognition of the fact that airlines compete primarily on the basis of capacity is an important consideration for considering the impact of the TNA on Wellington-Tasman routes. The Applicants will form a cartel. Provided they can agree on quantity, the Applicants will find it optimal to set quantities as though they are a single firm in the market (and on most routes to and from Wellington, the Applicants combined operations will be the only supplier in the market). Economic theory suggests that the behaviour of a monopolist is generally to restrict output (or capacity) because this allows the monopolist to charge higher prices.

The Applicants intend to initially reduce capacity by 12%.[53] A simple application of the Cournot model would suggest that the ability of the Applicants to form a cartel (i.e., collude on the basis of capacity) would lead to an increase in the prices that the airlines are able to charge, and an increase in producer surplus for the firms. They would then split the additional returns available from this strategy between themselves.

Although we note that participants in cartels may prefer to "cheat" on the arrangement, and sell more than the agreed level of output, we suggest that the explicit authorised nature of the cartel, should it proceed, could improve the ability of the airlines' to enforce the agreement. Hence, there is nothing in the TNA that would overturn the key

[52] Kreps, D. and J. Scheinkman 'Quantity precommitment and Bertrand competition yield Cournot outcomes', *Bell Journal of Economics*, 1983, 326-337.

[53] As noted, the reduction in capacity implied by the Air New Zealand/Qantas Application is much less than this. However, since the time of Application, Qantas has revealed intentions to shift to larger 734s in place of 733s, regardless of whether the TNA proceeds.

conclusion by the Commission that cooperation between Air New Zealand and Qantas would result in higher prices.

7.4.2 Non-cooperative interactions between the Applicants

Although Air New Zealand and Qantas will remain competitors on the so-called "Trunk" domestic routes, the close nature of the arrangement would be likely to facilitate greater co-operation between them on the Trunk routes as well. That is, the explicit cartel on the Tasman routes may help support collusion on the Trunk routes (though these are not subject to the TNA). Certainly, a weekly meeting between Air New Zealand and Qantas to determine how they will collude on the trans Tasman routes is unlikely to be promote vigorous rivalry on the domestic Trunk routes.

7.4.3 The number of firms and their observed competitive behaviour

As noted above, the Wellington-Tasman passenger market comprises only three firms: Qantas, Air New Zealand and Pacific Blue, and Pacific Blue flies only one of the 4 routes. Pacific Blue has a very limited share in the market, only operating three flights per week out of Wellington to Brisbane.

The trans Tasman market is highly concentrated. One way to measure industry concentration is the Herfindahl-Hirschmann Index (HHI). This is the total of the squares of the market shares of every firm in a given market. The HHI is a key measure in the US merger guidelines applied by the US Federal Trade Commission. It has also been considered by the New Zealand Commerce Commission (see, for instance, Decision No. 448, Progressive Enterprises Ltd and Woolworths (NZ) Ltd).

Under the US merger guideline a market with a post-merger HHI above 1800 is considered "highly concentrated" and mergers that increase the HHI in such a market by over 50 points "potentially raise significant competitive concerns". Mergers that increase the HHI over 100 points are presumed likely to create or enhance market power or facilitate its exercise. Translating these measures for the New Zealand market is difficult. New Zealand is so small that many industries could be considered highly concentrated. Few however would gain almost complete dominance of a market as sought by Air New Zealand and Qantas for the trans-Tasman markets to and from Welllington. The HHI scores for flights between Wellington and respective Tasman city pairs (Sydney, Melbourne and Brisbane respectively), as well as these three markets combined, are shown in Figure 7. The figure assumes that post the code-share arrangement; Air New Zealand and Qantas behave as a single entity in the relevant markets.

Figure 7 - HHI in relevant trans Tasman markets, before and after code share arrangement[54]

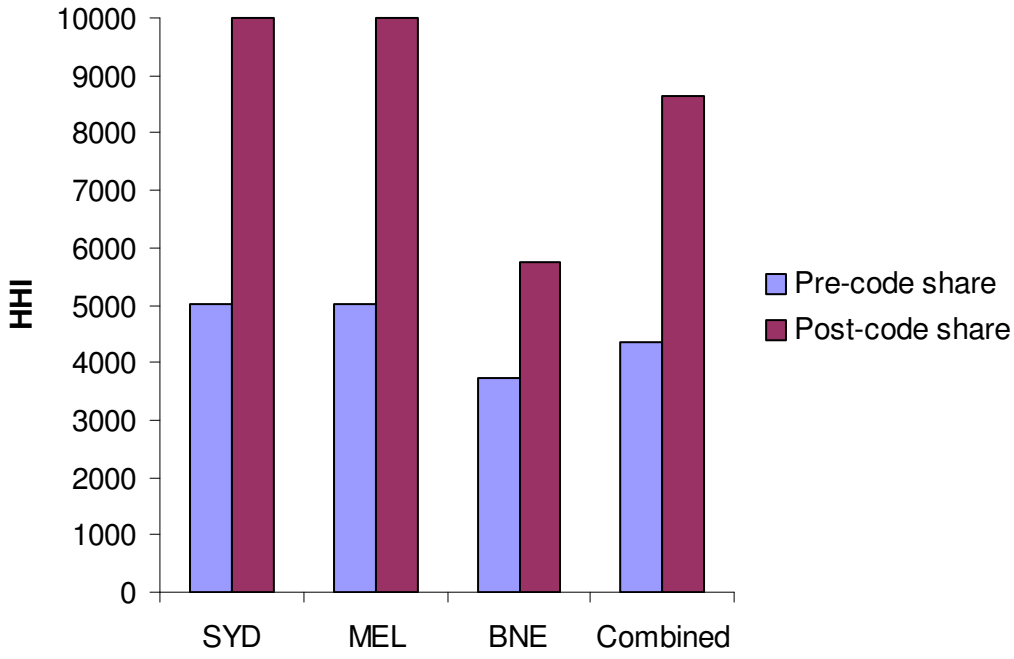


Figure 7 shows that market concentration on Tasman routes to and from Wellington is already high. The increase in effective HHI that would result from the TNA on Wellington routes would be substantial. Air New Zealand and Qantas would gain monopoly supply of the Wellington to Sydney and Wellington to Melbourne markets. Figure 7 does not consider the possibility of entry Whether entry by a competitor is likely is considered in the following section.

7.4.4 The threat of new entry

Higher prices under the TNA may raise the prospect of new entry. However, the Commerce Commission found that the ability for Air New Zealand and Qantas to collude to restrict entry would create a significant barrier to entry. The High Court concurred with this view:

> The predictable competitive response of the incumbents would be to increase capacity and reduce price on those routes [ie the routes subject to new entry]. This conveys to the entrant the likely conditions of expansion while permitting the incumbent to maintain prices on other routes. The Commission argues, in our view with logical force, that the proposed alliance has stronger incentives to

[54] Source: Air New Zealand Ltd, Qantas Ltd. *Application to the Minister of Transport pursuant to Part 9 of the Civil Aviation Act 1990.*

> respond to entry in this way because it reaps the benefits if it succeeds in delaying or deterring entry on other routes on which it has a higher and, as yet, uncontested market share.[55]

Developments since this case was heard would suggest that the competitive threat of entry is now lower than when the Commission considered the application for an Alliance, especially in relation to the trans Tasman routes to and from Wellington:

- There appears little likelihood of entry of Fifth Freedom Carriers (FFC) to Wellington. Fifth freedom operators do not consider Wellington to be an option for them due to the limited ability to fly large aircraft into Wellington.[56] FFC's scheduling and route services tend to be driven through consideration of their networks and long haul services. As noted in section 3.2, FFC flights to and from Auckland and Christchurch place little constrain on pricing decisions on trans Tasman services to and from Wellington.

- The predictions in 2004 of Pacific Blue becoming a significant competitor on trans Tasman services and domestically in New Zealand have proved unfounded. In the markets relevant for this analysis, Pacific Blue operates limited services between Wellington and Brisbane.

8 Wider impacts of the TNA

8.1 Likely impacts for visitor numbers and tourism

The discussion above suggests that the Commerce Commission's conclusion that prices would rise by 16% if Air New Zealand and Qantas were allowed to form a cartel is likely to understate the extent of price rises on the Wellington-Tasman routes. This is because the extent of competition is lower on the Wellington routes (the cartel would be a merger to monopoly). In fact, our analysis in section 7.4 suggests the Commission's model would indicate a 19% price increase for the WLG/MEL and WLG/SYD routes (as we do not know the predicted price increase over all Tasman services in and out of Wellington, we use the 16% figure in the analysis that follows).

Using the weighted average elasticity estimate of 1.3 calculated in section 7.4, a 16% price increase would imply a 21% reduction in passengers in and out of Wellington compared to the likely outcome in the absence of the arrangement. The likely implications of a fall-off of visitor numbers of this magnitude for the Wellington region would be significant.

[55] Air NZ v Commerce Commission (No 6), para 115.

[56] This is acknowledged by the Applicants at paragraph 58 of `Applicants' Response to Third Party Submissions – Tasman Networks Agreement', 4 July 2006.

Australians are New Zealand's largest source of international visitors, with almost 800,000 visitors each year.[57] Expenditure of Australian visitors in New Zealand was NZ$1.5 billion in 2005.[58] 11% of nights spent by Australian visitors in New Zealand were spent in Wellington in 2005.

We expect that a substantial proportion of Australian visitors to Wellington fly trans Tasman into or out of Wellington airport. There were 89,831 arrivals to Wellington International Airport from Australia in 2005.[59] This is 11% of the number of Australian visitors to New Zealand (although we note that not all arrivals from Australia need be Australian).

To assess the order-of-magnitude of the *direct* effect of the reduction in Australian visitors, we assume that there is a 21% decline in the nights spent by Australian visitors in Wellington. We assume that expenditure of visitors is independent of the New Zealand region they are visiting, so that expenditure in Wellington by Australians is assumed to be $165 million per annum in the absence of the TNA. The reduction implied by a 21% decline in nights spent in Wellington would be $34 million. This suggests the reduction in expenditure by Australians in Wellington each year could be as much as $34 million.

8.2 Reductions in emissions

The Applicants have argued that a reduction in capacity flown across the Tasman would lead to a reduction in emissions.[60] We agree that this is a necessary implication of a reduction in flights.

However, economic theory indicates that a policy intervention in a particular market is likely to be an inefficient way to reduce emissions. This is because reducing emissions through reducing trans Tasman flights is unlikely to be the least cost means of reducing emissions over the economy as a whole. It is now widely accepted that taxes which charge polluters based on emissions levels themselves, or a scheme allowing trade of emission permits, are the most efficient (i.e. least cost) mechanisms for emissions reduction.[61]

---

[57] Tourism Research Council, `International Visitor Survey – Australia', 2005. http://www.trcnz.govt.nz/Surveys/International+Visitor+Survey/Data+and+Analysis/Australia, p 2.

[58] Ibid, p 1.

[59] Source: Statistics New Zealand.

[60] Air New Zealand and Qantas, `Application to the Minister of Transport pursuant to Part 9 of the Civil Aviation Act 1990', paragraph 1.11.

[61] A Resources for the Future report, `Using Emissions Trading to Regulate US Greenhouse Gas Emissions', 1998, explains (p 5): "Generally, to be most efficient environmental policy needs to be directly focused on the unwanted "bad", the emissions. Policies that seek to indirectly regulate emissions through the control of inputs to production or consumption – for example, by taxing coal based on its sulphur content – are less cost-effective. The reason is that they single out some paths for control at the expense of others, whereas all options for control need to be on a level playing

9 Conclusion

The analysis presented above concluded that the arrangements would create incentives to reduce service quality and to reduce efforts to market New Zealand as a destination. These incentives effects would not be in the public interest. Economic literature suggests that the current 'surplus capacity' on the trans Tasman is likely to be efficient, and the reduction planned under the TNA would be welfare reducing. A reduction in capacity is also likely to lead to higher prices, especially with regard to the current low priced airfares such as weekend get away and family savers. The TNA would allow the two airlines that dominate the trans Tasman markets to and from Wellington to act as a cartel, to raise prices and jointly impede entry by competitors.

The Commerce Commission's conclusion that prices would rise by 16% if Air New Zealand and Qantas were allowed to form a cartel, is likely to understate the extent of price rises on the Wellington-Tasman routes. This is because the extent of competition is lower on the Wellington routes (the cartel would be a merger to monopoly on two of the three contested routes) and the threat of entry is also lower.

For those routes in and out of Wellington in which Air New Zealand and Qantas (jointly) achieve a monopoly under the TNA, prices could be expected to increase 19% (assuming Cournot competition as modelled by the Commission and linear demand).

Based on the price elasticities of demand adopted by the Commission, price increases under the TNA would lead leisure travellers to and from Wellington to fall by 24%, and business travellers to fall by 11%, relative to levels that would occur in the absence of the arrangement.

An arrangement that induces falls in passenger movements of these magnitudes, allows substantial price rises, and creates incentives to lower service levels (at higher prices) and reduce marketing of New Zealand as a destination, cannot be considered to be in the public interest.

---

field to achieve the lowest costs." In the example, the tax on sulphur-content of coal would provide an incentive to switch to low-sulphur fuels, but this at the expense of incentives of other means of reducing sulphur emissions such as so-called "end-of-pipe controls".

Appendix 1 – Calculation of price increases under TNA for WLG – SYD and WLG – MEL routes

In the Cournot model, firms maximise profits (equation (1)) by simultaneously choosing the quantity to supply to the market. That is, they maximise:

$$\pi_i^d = q_i p(Q^d) - cq_i \quad (1)$$

where π_i^d is firm i's profit, q_i is the quantity supplied by firm i, Q^d is the total quantity supplied to the market by all firms, $p(Q^d)$ is the market price when Q^d units are supplied to the market and c is the firm's marginal cost (which we know as an implication of the model must be the same for both Qantas and Air New Zealand, as they share the market equally).

If firm i is to maximise its profit by setting quantity, it must do so according to the rule:

$$\frac{p(Q^d) - c}{p(Q^d)} = \frac{q_i}{\eta Q^d} \quad (2)$$

where η is the market price elasticity of demand.

As Air New Zealand and Qantas share the market 50/50 (by assumption), equation (2) reduces to:

$$\frac{p(Q^d) - c}{p(Q^d)} = \frac{1}{2\eta} \quad (3)$$

Given knowledge of the market price in duopoly - p^d - and market elasticity of demand η, the marginal cost c is determined by the model as:

$$c = p^d - \frac{p^d}{2\eta} \quad (4)$$

We compare the market price under the duopoly structure, where Air New Zealand and Qantas compete, with price they would set acting as a single profit-maximising firm (monopoly). In the first instance, we assume that price elasticity of demand is constantly η at every level of quantity. The monopolist's profit maximising rule is:

$$\frac{p(Q^m) - c}{p(Q^m)} = \frac{1}{\eta} \quad (5)$$

where Q^m is the quantity supplied by the monopolist and $p(Q^m)$ is the market price at this quantity. $\frac{1}{\eta}$ is often referred to as the Lerner's index.

Rearranging (5), and substituting (4) gives:

$$\frac{p^m(Q^m)}{p^d(Q^d)} = \frac{2\eta - 1}{2\eta - 2} \tag{6}$$

This holds provided the elasticity of demand is greater than one.

Now, suppose that demand is linear. If η is the elasticity at the observed quantity supplied (Q^d) and price (p^d) when Air New Zealand and Qantas are competing (), the market demand curve is given by:

$$p(Q) = p^d\left(\frac{\eta + 1}{\eta}\right) - \frac{p^d}{Q^d \eta} Q \tag{7}$$

where Q is the quantity supplied to the market. The monopolist chooses quantity Q^m to maximise

$$\pi^m(Q^m) = Q^m(p(Q^m) - c) \tag{8}$$

and so sets

$$Q^m = Q^d \frac{p^d(\eta + 1) - \eta c}{2p^d}$$

Substituting (4) yields

$$Q^m = \frac{3}{4} Q^d \tag{9}$$

From (7),

$$\frac{p(Q^m)}{p^d} = 1 + \frac{1}{4\eta} \tag{10}$$