

Submission to

New Zealand Commerce Commission

Australian Competition and Consumer Commission

on

Proposed Alliance between Qantas and Air New Zealand

by

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February 14, 2003

Summary

- Qantas and Air New Zealand propose an ‘Alliance’ (cartel) covering their operations within and out of NZ, plus Qantas to take a 22.5% equity stake in Air New Zealand for \$550million
- Qantas and Air New Zealand commissioned NECG to carry out a ‘Public Benefit’ Analysis of the Proposal
- This submission evaluates the proposal and the NECG Report

Results:

- Cartel unlikely to generate more than \$20million/year of public benefits
- Cartel would generate ‘deadweight’ inefficiency costs in range \$200-300million/year
- NZ consumers and government lose around \$300million/year
- Australian consumers lose \$100-200million/year
- Qantas gains \$200million/year
- Additional substantial transfers from Air New Zealand to Qantas of profits earned in other activities and markets

1. Introduction and Summary

This paper evaluates the proposed arrangement between Air New Zealand and Qantas which would result in effective cartelization (control over schedules and pricing) of their commercial flying operations within New Zealand and across the Tasman sea. The proposal also provides for Qantas taking a 22.5% equity stake in Air New Zealand for the payment of \$550 million.

The focus of this analysis is a report prepared by the Australian-based Network Economics Consulting Group (NECG) for the two airlines, and submitted by them in support of their application to the competition authorities in New Zealand and Australia.

NECG claim massive efficiency benefits from the proposed cartel, running at around \$NZ 700 million each year of its operation. This paper examines those claimed benefits and finds that they are all either spurious, unsubstantiated or exaggerated. It would be difficult to justify as reasonably plausible a number of much more than \$20 million/year for the efficiency benefits of the proposed cartel.

NECG admit 'deadweight' efficiency losses of around \$50 million/year resulting from the higher prices that admittedly would be charged by the cartel. This paper re-works the NECG analysis using more realistic assumptions about market behaviour and testing out a range of possible with- and without-cartel scenarios. The resulting deadweight efficiency losses are in the \$200-300 million/year range.

There are huge redistributions of income generated by the proposed cartel. NZ consumers and government lose consistently at a rate of around \$300 million/year. Australian and foreign consumers also lose large sums. The profit flow of the Australian airline Qantas is enhanced by at least \$200 million/year from the changes in New Zealand and trans-Tasman markets, and perhaps by another \$100 million or so from its share of Air New Zealand profits earned in other activities.

Authorisation for the proposed cartel would normally be declined on the grounds of its admittedly substantial effect on the state of competition in the affected markets. A finding that the proposal decisively fails the public interest cost-benefit test is therefore not necessary for rejection of the proposal, but it surely is sufficient.

* * *

The paper is set out as follows. The next section discusses some of the issues that arise in competition cases in general and in the present case in particular. Section 3 works through the benefits to the cartel claimed by NECG. Section 4 reworks the economic analysis and carries out the public interest cost-benefit tests. Section 5 concludes.

2. Some Preliminary Issues

This case, and the NECG Report, need to be placed in context. Before proceeding to detailed analysis, we need to deal with three matters:

- The role of public benefit tests in competition cases
- The specification of the counterfactual
- The ‘rhetoric’ of the NECG Report

2.1 The role of the public benefit test in competition policy

NECG nonchalantly pass off the use of cost-benefit analysis of the public interest in this competition case as a non-issue, as though it were just like deciding whether or not to, say, build another sewage treatment pond. They write:

‘In assessing the impact of the Alliance [the cartel], we view the key issue as being that of whether the benefits to society as a whole outweigh the costs, without consideration of the distribution within society of those costs and benefits. To put matter colloquially, we are concerned with the size of the pie, rather than with the allocation of its slices among alternative potential claimants’ (NECG, p18)

Experienced competition policy analysts and practitioners know that benefit-cost analysis is not the mainstream methodology for determining whether or not a practice or arrangement between two competitors that would lessen competition in the market should be permitted. Instead, the courts and agencies have for more than a century focused on the effects on competition of the proposal: in particular, its likely effects on the ability of other businesses to compete in or for a market, and its impact on consumers.

In benefit-cost terms, the mainstream approach is approximately equivalent to adopting a ‘consumer surplus’ or ‘price’ standard, which rejects a change that would result in significant increases in price (even if it might also result in increases in profits larger than the consumer losses). NECG explicitly reject the use of the consumer surplus standard (p117) and incorrectly give the impression that in so doing they are being consistent with the goals of competition law and policy.

The competition courts and authorities are not acting irrationally. They have a generally justified faith in their ability to identify lessenings of competition, and much less faith in the robustness of *ex ante* claimed cost efficiencies, scale economies, synergies and so on, which the parties may or not present in good faith but which historically have been found biased towards disappointment *ex post*. And, at a deeper level, competition law and policy is built on the old and powerful idea that diverse, pluralistic, competitive markets are quite fundamental to the success of market economies, such that monopolisation leads not just to injustice but also to inefficiency, in the long run.

Thus, although ‘public benefit exceptions’ (provision to permit an anti-competitive practice if the net efficiency gain is assessed as positive) have been on the books in the Anglo-Saxon jurisdictions, including Australia and New Zealand, since the 1980s, they have rarely been claimed successfully before the tribunals and courts, much to the annoyance of many economists and enthusiasts for laissez-faire (Hazledine, 1998). The largest successful ‘efficiencies defense’ of a substantial lessening of competition that I am aware of is the Canadian ‘Propane Case’, and even that has been through several bitterly fought rounds of appeals, despite the scale efficiency gains from a monopolising merger being (for once) large and generally admitted.

The Air New Zealand/Qantas cartel involves sums of money an order of magnitude larger than those tied up in the Propane case, and if authorised it would be (I believe) by far the most substantial example to date in the world of a legally sanctioned anti-competitive arrangement. That may not be reason for not sanctioning the cartel, but it should be a consideration.

2.2 Cherchez le counterfactual

Predictions of the impact of some change in market can only be meaningful if they are benchmarked against a ‘counterfactual’ -- that is, a prediction of what would happen if the change did not occur. This leads to two considerations relevant to the NECG report and the proposed cartel.

First, the specification of the benchmark can make a big difference to the results. An innocuous ‘factual’ (as NECG term their prediction of the outcome of the cartel going ahead) can be made to look very good if it is compared to an unattractive counterfactual. The NECG results rely heavily on a deeply unattractive counterfactual that has Air New Zealand and Qantas engaging in ruinously vicious competition (through large and probably predatory expansions of capacity by Qantas) if they are not permitted to form their cartel.

Secondly, whenever efficiencies or other improvements are claimed in a proposal, we should always ask if they could be achieved, in full or at least in part, by some other means that would not have an undesirable effect on competition in the market. In the airline business, such less unattractive alternatives can include the use of code-sharing on supply of capacity on lightly travelled routes -- one carrier operates the aircraft, but both are assigned blocks of seats on it which they market and sell independently.

More generally, the appropriately sceptical stance to take in response to any promise of some marvellous improvement in cost efficiencies or product quality is to ask: ‘Exactly what is the market failure that is currently preventing normal competition from deliver these improvements?’ There may be a satisfactory answer to this question, and there may be not.

2.3 The rhetoric of advocacy reports

The NECG report is very long -- 224 pages even without the missing ‘confidential’ appendices. It is choc-a-bloc with tables, equations, figures. It looks quite impressive. There is a risk that these characteristics of the report *in themselves* can materially influence the case. Here are the dangers:

Authority taken for granted. At the basic level, this can take the form of a busy, non-expert reader thinking something like: ‘This obviously a very substantial piece of research. The authors are evidently experienced analysts. I haven’t got time to read it and probably wouldn’t understand it if I did, so I will just take it all on faith.’ Alternatively, the whole report might be summarily dismissed out of hand on the grounds that it is a piece of paid advocacy, and therefore not to be trusted. Neither response is acceptable – we have to treat it on its merits.

Complexity complexes. There is a risk that non-specialists will be deterred from entering the debate by the apparent detail and complexity of the NECG report. But in fact the economics of this issue are quite simple and the kernel of the analysis can be got down with one diagram on one piece of paper to anyone with at least a smattering of basic microeconomic theory.

Free-riding A specialist in oligopoly analysis might focus on the formal modelling of NECG's chapter 4, assess this as quite careful and competent, and assume that other sections of the report -- in particular chapter 5 on the benefits of the cartel -- are equally well done. Unfortunately, this report is like the curate's egg -- good only in parts, and the level of competence and conscientiousness varies wildly throughout. In fact the report appears to have been assembled from quite disparate pieces of analysis using quite different methodologies. The bottom line here is that the weaker parts cannot free-ride on the authority of the good bits.

Indeed, there is actually a definite inverse correlation in this report between the importance of the issue and the time and effort devoted to its analysis and explication. Huge, startling numbers are pressed upon us with in some cases literally *no* explanation at all (eg the claimed cost efficiencies on Asian and Pacific routes), whereas at the other extreme the minutiae of market definition and pricing are dealt with quite exhaustively at the level of individual city-pair routings, even though the authors admit they would rather carry out the analysis at a more aggregated level (as I will do below).

Big-Number numbness. If you can come up with very large numbers on one side of the ledger, then what are in fact quite important qualifications or criticisms can be summarily dismissed on the grounds that they couldn't possibly overturn the final verdict. Here is an example from the report.

'We have also modelled the highly unlikely [sic] scenario involving no VBA [Value Based Airline, such as Virgin Blue] entry...The results of this analysis are presented in Table 29 below and demonstrate that there remains a substantial net benefit both to Australia and New Zealand even in the unlikely event that no VBA entry were to occur on the affected routes. Hence, authorisation [of the cartel] should not be dependent on the likelihood of VBA entry.' (NECG, p167)

But in fact, the figures shown on Tables 28 and 29 imply that we would be worse off, in current dollar terms, by about \$70 million/year if a VBA didn't enter to moderate the anti-competitive impact of the cartel. \$70 million/year is actually *quite a lot of money* -- it just doesn't seem so when placed alongside the \$700 million/year that NECG assert as the benefits from the cartel.

It's so big there must be something in it. An independent commentator on this issue might feel that they were surely being responsibly sceptical if they reduced the estimates of benefits to, say, 25% of the numbers claimed -- which would still be impressive. But the appropriate maxim here is: *25% of nonsense is still nonsense*. There is no responsible substitute for analysing all these figures on their merits, and this we will do below.

3. Assessing the ‘Public Benefits’ of the Cartel

Here we work through the NECG’s claimed public benefits for the Air New Zealand/Qantas cartel. On an annual current price (approximately = “year 3”) basis, these total more than \$700 million, made up of:¹

- ❑ \$363 million in cost efficiencies
- ❑ \$12 million from scheduling improvements
- ❑ \$26 million from new direct routes
- ❑ \$300 million from additional tourism
- ❑ \$39 million from additional engineering and maintenance work

There are also claimed \$5-6 million/year benefits from more freight carried, which we will not examine here.

3.1 \$363 million/year cost efficiencies

This huge number is presented (NECG Table 17, p138) with virtually no supporting evidence or analysis. \$108 million of it is projected to come from cost efficiencies on the Auckland-Singapore route, which is flown now and in the future only by Air New Zealand (of the cartel partners), yielding gross revenues probably no more than about \$200million/year.² A further \$191 million/year of efficiencies are forecast to be generated on the somewhat larger Auckland-Los Angeles run, flown by both Air New Zealand and Qantas.

These numbers are, literally, incredible. They may have been generated by some computational error, possibly linked to the forecast end in year 3 of code-sharing alliances between Air New Zealand and Singapore Airlines, and Air New Zealand and United Airlines.

Equally odd are the forecast *increases* in costs on the Pacific Island, Hong Kong and Japan flights out of Auckland, which total about \$65 million/year. Since the cartel parties could always continue with the status quo in their flying arrangements, it is not credible that they would ‘shoot themselves in the foot’ and choose to incur substantial inefficiencies.

The remaining claimed cost efficiencies are \$74 million/year on the Tasman market³, and \$54 million/year within the domestic NZ market. It is possible to figure out from the NECG report where these numbers come from: they result from comparing the cartel ‘factual’ with the assumed ‘counterfactual’ involving the commitment of massive excess capacity to these routes.

To vary slightly the metaphor, this could be termed the Get-That-Elephant-Off-My-Foot methodology. It is as though you ask an elephant to stand on your foot. Then, after a while, you ask the elephant to stop standing on your foot. The relief will be enormous, and it is this relief, in essence, that NECG are computing here. But of course the question must be: *why did you ask the elephant to stand on your foot in the first place?* Here, the elephant is the great weight of excess and unused capacity that Air New Zealand and (especially)

Qantas are supposed to fling onto these routes in their counterfactual ‘war of attrition’, if they are not permitted to merge their operations. But why would they do such a foolish thing?

Thus, the \$363 million/year in cost efficiencies claimed by NECG on behalf of their clients cannot, on the evidence offered or not offered, be taken seriously and should not be used in the assessment of the benefits and costs of the proposed cartel.

3.2 \$12 million/year scheduling improvements

It is very interesting that NECG claims no net scale economy operating cost benefits from the cartel. This is interesting because such economies (often called ‘synergies’ or ‘rationalisation benefits’) are usually the mainstay of applications for the approval of anti-competitive arrangements on net public benefit grounds. NECG do note (p135) some likely sources of economies, including lounge and IT system maintenance, and possibly baggage handling and check-in services, but also note likely costs of integrating the systems of the two airlines, and choose to not include numbers for either benefits or costs of these activities.

However, they do attempt to quantify the benefits, on the demand side, of two particular scale-related improvements: scheduling and new direct trans-Tasman flights.

The first refers to the tendency for competing airlines to bunch their departures at certain popular times of day; in particular, at the beginning and the end of the business day. It does seem quite reasonable that the merged airline might be able to effect some scheduling improvements that are difficult, given the lumpiness of capacity, to achieve through market means. However, the projected benefits for this appear to be substantial over-estimates, assuming as they do that there is no substitute for waiting – that is, that a traveler whose preferred time of departure is, say, noon, will go to the airport at that time and wait idly for the – say – 5pm flight, at an imputed cost of \$23/hour for a leisure passenger, and \$115/hour for a business traveler.

It might be argued that someone who goes to the airport five hours before their flight departs and does nothing useful with that time is hardly worth \$115/hour, or even \$23.⁴ Nevertheless, we could expect some scheduling improvements from the cartel, which would be worth a few millions each year.

3.3 \$26 million/year from new direct flights

NECG forecast (p145) that the cartel would result in four Tasman routes being served directly: Auckland-Adelaide, Auckland-Canberra, Auckland-Hobart and Wellington-Canberra. The first route would be served daily by Air New Zealand; the others by just one weekly return flight operated by Qantas. NECG use the same value-of-time numbers as for the scheduling improvements to compute the total benefits of the shorter travel time compared with existing indirect routes.

There is little doubt that direct flights are more attractive than indirect flights for those who are in a position to use them, but \$26 million/year (which about equals one half of the forecast ticket sale revenue on these routes) is a large overestimate of the benefits, for

three reasons. First, there is the assumption that people can't use the extra flight time (if not the additional terminal time in transit) doing something pleasant or useful, such as eating, drinking, watching movies or reading NECG reports. Second, the time savings are assigned in full to everyone who (it is forecast) would travel on the new direct services. The full savings should only be imputed to those passengers who *currently* travel between these city pairs⁵ and whose preferred day and time of travel just matches the scheduled direct flight.⁶ And, thirdly, NECG assume that the time saved equals the difference between the average time of all possible current indirect flights and the direct flight time, whereas passengers who care about time will naturally tend to choose the most time-efficient connections. So, the calculations here assume a current travel time from Adelaide to Auckland of 8 hours and 5 minutes, to be reduced by more than four hours to 3 hours and 50 minutes by the direct flight. However, the current Qantas schedule shows a 5h45min journey leaving at 3.30pm and a 6h10min journey leaving at 6.00am, and six other routings scheduled to take less than 8h5min.

Finally, there is the possibility of other means of achieving more direct services between these cities short of the full cartel. Such could include third party entry or restricted code-sharing on the routes (such as Qantas and Air New Zealand operated until 1997 on routes from smaller NZ cities).

3.4 More than \$300 million/year from increased tourism

The second massive figure proposed by NECG in support of the cartel is to be generated by the spending of nearly 81,000 additional tourists each year (53,000 to NZ; 28,000 to Australia).⁷ Although the numbers here receive rather more analytical attention in the Report than was paid to the cost savings forecasts, there are some very substantial problems with the methodologies in this section, such that the proposed benefit cannot be taken at all seriously.

Basically, two things need to be established to make a case. First, we need to know what is the source of the market failure that currently prevents 81,000 people from realising their latent desire to be tourists in New Zealand or Australia. And, second, we need to know why monopolisation of much of the local air-travel market is the solution to this market failure (in that no other arrangement could solve it nearly as well or better).

NECG fail to make the case. Most of the additional tourists are blandly produced on the 'instructions' (p148) of a Qantas subsidiary, Qantas Holidays. There follows a certain amount of talk of new marketing plans and increased promotions, but the even moderately sceptical reader will feel that a case at least as plausible could easily be mounted in favour of the benefits of more competition in the tourism market.⁸

That is, the projections of increased tourist numbers cannot, on the basis of the evidence offered in the NECG report, be taken seriously, and that should be the end of it. However, we have also to note a major flaw in the methodology used by NECG to compute the welfare gains from additional tourists. The more-than \$300 million/year claimed as benefits from tourism in Table 1 is an estimate of the *spending* in Australia and New Zealand of the tourists. That is, it is the *cost* of supplying goods and services to these people that is here counted as a benefit. This is inconsistent with the cost-benefit (net surplus) methodology used in most other parts of the NECG report.

What they have done is almost literally equivalent to the following example. A flight attendant loses their job as a result of efficiencies resulting from the cartel. NECG (correctly) would count the salary saved as a benefit. Then suppose the ex-flight attendant walks down the airport concourse and gets a job at one of the expanded car rental outlets needed to service the additional tourists. NECG now count their new salary as another benefit. That is, they double-count the effect of the resource reallocation.

The appropriate cost-benefit method is to count the cost savings once, net of any adjustment costs (new uniform, retraining, time spent unemployed looking for the new job, etc). Resources needed to service tourists should be fully costed, with only any surplus (true profit or rent) that is generated counted as a benefit to the host country.⁹

3.5 \$39 million/year from additional exports of engineering & maintenance services

NECG claim that the export by Air New Zealand to Qantas of NZ-based heavy maintenance services would provide ‘an annual benefit of approximately \$39 million’ (p161), this being the difference between \$45 million worth of such work if the cartel is permitted (up a bit from the actual 2002/03 figure of \$40 million), and just \$6 million assumed in the no-cartel scenario.

It would be nice to have more engineering work done in New Zealand. But \$39 million is a major over-estimate of the likely welfare gain from this, since it equates costs with benefits, just as does the tourism benefits number criticised above. That is, the assumption is that the skilled engineers and their tools that would be needed to supply the maintenance services would be uselessly unemployed otherwise.

We should also ask why the counterfactual is \$6 million worth of work, instead of the actual current \$40 million. NECG report that ‘without the Alliance Qantas would seek out the most cost-effective heavy maintenance agreements available in the region. On available information it is unlikely that this process would see large parcels of heavy maintenance work being awarded by Qantas to Air New Zealand.’ (p161). On the face of it, this statement implies that Qantas is currently having the work done here even though it would be more profitable to do it somewhere else. If we don’t believe that, then we can only interpret this counterfactual as another Qantas threat, akin to the threat to pour redundant excess capacity onto the Tasman and New Zealand routes should the cartel be not approved.

3.6 Summary

On the basis only of the evidence and analysis supplied in the NECG Report -- that is, even in the absence of a vigorous and competent advocacy of the benefits of competition – nearly all the massive benefits claimed for the Air New Zealand-Qantas cartel are simply unable to be taken seriously. It would be hard to find more than about \$20 million/year of benefits in total amongst those claimed that can withstand the scrutiny of independent critical analysis.

4. Analysis of Cartel Impact on New Zealand and Tasman Markets

In this section we examine the impact of the cartel of Air New Zealand and Qantas – whom we will call ‘the incumbents’ -- on the air travel markets within New Zealand and across the Tasman Sea. This is the core component of the airlines’ proposal, and their analysis of it is by far the most competent and substantial part of the NECG’s Report. Indeed, after stripping away all the spurious or unsubstantiated ‘benefits’ dealt with in the previous section, the analysis of the NZ and Tasman air travel markets is really all that is left to take seriously.

Analysis has two components, which economists call the ‘positive’ and the ‘normative’ aspects of the problem. The positive part involves understanding how the market functions and how the firms in it compete with each other, and then predicting how competition and outcomes would change as a result of a structural change such as this cartel. The normative analysis then assigns costs and benefits to the change, and adds these up to arrive at a net bottom-line assessment of its desirability.

This section will have three parts. First I will discuss some of the modelling issues. Then I will present the results of three before-and-after analyses of the proposed cartel. The first of these approximately matches the NECG’s counterfactual/factual scenarios. The second ‘corrects’ NECG, in particular by making arguably more realistic assumptions about the nature of competition between the airlines. The third analysis examines what might be called the Virgin Blue scenario, under which third party entry is more likely without the cartel than with it.

The third part of this section is the normative assessment of the costs and benefits of the scenarios. We should note right away that the sign of the bottom line is (almost) a foregone conclusion. Because the parties claim no reductions in operating costs from the cartel, and because the cartel leads to higher prices, even with entry from a ‘Value Based Airline’ (VBA), such as Virgin Blue, there will be, on balance, a negative ‘deadweight loss’ to the proposal. We will see that these deadweight losses are compounded for New Zealanders by net transfers to Qantas and the VBA.

4.1 Modelling Issues

To predict how competition between firms in a market will pan out, the analyst basically needs to know about three factors: the costs of the firms, the nature of demand for their products, and the way they interact or compete with each other. If you have data on the actual outcomes (ie, you are observing, not predicting), then you can get by with information on just two of the factors, and let the data tell you about the third. (It is like doing a puzzle with N pieces. If you have the frame of the puzzle, and N-1 of the pieces, then you can infer the shape of the Nth piece by the space left over.)

NECG’s procedure is as follows: They assume or infer from other studies the characteristics of market demand. They assume they know how the firms compete with each other. They assemble data on market outcomes in 2002/03. All this allows them to deduce the shape of the missing piece of the puzzle -- the airlines’ costs. Then they take these estimates of costs along with the demand and competition assumptions into the future, and

predict what would happen to market prices and outputs if the cartel does and if it does not go ahead.

I will here basically follow this procedure, but with two substantive modifications that, on the basis of my own research into airline markets, I believe are needed for realism. These modifications concern:

- The nature of demand for air travel services
- The current state of competition between Air New Zealand and Qantas.

On the first of these: NECG assume a homogeneous product market, such that consumers do not differentiate (except on the basis of price) between a ticket for air travel on Air New Zealand, Qantas and any VBA such as Virgin Blue that should enter the market. In Haugh and Hazledine (1999) and Hazledine *et al* (2001) we argue that homogeneity is a reasonable simplification with respect to Air New Zealand and Qantas, on the grounds that there is a large margin of price-sensitive customers who would quickly switch from one incumbent airline to the other in response to any price differential. However, this is not so of a VBA, which, because of its lack of frequent flier program, airport lounges, inflight service and network connections, is selling an ‘inferior’ product, meaning that, if its tickets were the same price as those of the incumbent airlines, then most people would choose to fly with the incumbents.

Modelling the market as differentiated is technically a bit more difficult, but it does make things more realistic, and avoids an embarrassing awkwardness in the NECG procedure. Because the VBA has a lower cost than the incumbents, under homogeneous product assumptions its market share would be predicted as larger than Air New Zealand and Qantas together (after the cartel), which is something NECG do not want to happen. So they are forced to impose a ‘fudge’, using costs to predict the post-cartel price (their equation (9), p109), but then suppressing their earlier equation (5) [p107], which would assign market shares on the basis of the relative costs; instead imposing market shares as matching exogenously given airline capacities.

As for the important question of the nature of competition between the airlines, NECG assume that, now and in the future, this is appropriately characterised by what economists call Cournot behaviour and Nash Equilibrium outcomes. In commercial terms, Cournot-Nash means that each firm in a market is behaving as profitably as it can on the basis of expectations that its competitors would do whatever it takes to defend their own customer bases in response to any action on the part of the firm such as changing price or increasing capacity.

There is by now a substantial -- though not conclusive -- body of empirical evidence to the effect that Cournot-Nash is a quite realistic summary of the behaviour of small numbers of mature firms (oligopolists) under fairly normal competitive conditions. NECG cite some of the studies in this literature in their Appendix G in support of their adoption throughout of the Cournot-Nash model. But in so doing they may misjudge the current realities of airline competition in New Zealand and across the Tasman. One of the studies they cite in support is Haugh and Hazledine (1999), which was an analysis of the 1996 Kiwi International affair, and which found that the two incumbents had indeed been behaving as Cournot competitors up the entry of the upstart trans-Tasman operator Kiwi International, but then switched to markedly more ‘competitive’ (aggressive) behaviour in the period

which resulted in the demise of Kiwi. What perhaps NECG did not know is that we had updated the analysis to cover the years after 1996, (Hazledine *et al*, 2001) and found that, as they abandoned their code sharing arrangements, joined different worldwide airline alliances, and expanded capacity across the Tasman, the behaviour of Air New Zealand and Qantas has become increasingly aggressive, such that it does not seem realistic at all to characterise it as currently Cournot-Nash.¹⁰ The point here is that, the more competitive or aggressive the behaviour now, the lower the market price, and thus the larger the increase in price that would follow if the airlines were allowed to merge their operations and behave as a (non-competing) cartel.

We also need to specify the competitive stance likely to be adopted by an entrant such as Virgin Blue, which of course is hard to do since we have no actual observations of their behaviour in practice in these markets. As noted above, NECG assume for the purposes of predicting price that the entrant would play along in the Cournot-Nash game, and then suppress this when it comes to assigning market shares. The approach taken here will be as follows. I will take the NECG forecasts of the amount of new capacity (number of flights) that Virgin would bring into the market, and then assume that it would do whatever it takes in terms of pricing to achieve a satisfactory load factor (75%) on those flights, given the prices set by the incumbents. This will allow us the simplification of playing out the incumbent oligopolists' competitive game while taking as exogenous entrant output.¹¹

There are a number of other assumptions or pieces of data that will be adopted directly from NECG, to aid comparisons, and because I think they are at least reasonably plausible. These include the aggregation of business and leisure markets, the base-case demand elasticities used¹²; the use of a market expanding 'capacity elasticity' of 0.125, the assumption that VBA unit costs would be 20% lower than the incumbents offering full-service air travel, but only 7.5% lower than Air New Zealand's new stripped-down Express Class service, and various pieces of information used to scale the size of the base-case markets, incumbents' capacities¹³, and load factors.

4.2 Modeling Market Outcomes

We examine NZ and Tasman markets in turn. With the modifications noted above, the oligopoly model used here matches that of Haugh and Hazledine (1999) and Hazledine *et al* (2001).

(a) NZ domestic market

Table 1 shows the results of our analysis of the NZ domestic passenger air travel market, limited here to travel between the four main cities, and to Queenstown. Columns A and B are alternative interpretations of the market as it currently is, supplied by just two major carriers, Air New Zealand and Qantas.¹⁴ Annual total market revenue (row 29) is \$844 million¹⁵, and the model is calibrated to give a current price =1 and output = 1000 (rows 1, 2). The interpretations differ in the underlying competitive behaviour assumed. Column A follows NECG in assuming Cournot behaviour, with a conjectural variations (CV) parameter of zero (row 7), whereas in column B the CV parameter is set at -0.5, which is, for a duopoly, half way between Cournot and perfectly competitive behaviour, in line with the quite aggressive capacity and price competition observed currently in this market.

Table 1: NZ Domestic Market Mode		A	B	C	D	E	F	G	H
11/02/2003		2002/3 Basecase		NECG		NECG corrected		Entry deterrence	
		Cournot	more competitive	no cartel/ no entry	cartel/ VBA entry	no cartel/ no entry	cartel/ VBA entry	no cartel/ VBA entry	cartel/ no VBA entry
1	market price	1	1	1	1.07	0.90	1.17	1.02	1.34
2	market output	1000	1000	1017.3	973.6	1130.3	848.6	1032.1	625.0
3	incumbent price	1	1	1	1.16	0.90	1.27	1.11	1.34
4	output per incumbent	500	500	508.6	337.7	565.1	275.2	367.0	312.5
5	entrant price				0.85		0.97	0.80	
6	entrant output	0	0	0	298.1	0.0	298.1	298.1	0.0
7	incumbent CV parameter	0	-0.5	0	1	-0.75	1	0	1
8	market demand elasticity	-1.1	-1.1						
9	entrant cost factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
10	incumbent demand slope	0.000909091	0.000909091	0.0008937	0.0009091	0.0008937	0.0009091	0.0009091	0.0009091
11	incumbent demand intercept	1.909090909	1.909090909	1.9090909	1.9090909	1.9090909	1.9090909	1.9090909	1.9090909
12	incumbent cross-quantity	0.000454545	0.000454545	0.0004545	0.0004545	0.0004545	0.0004545	0.0004545	0.0004545
13	entrant demand intercept	1.554545455	1.554545455	1.5623868	1.5665584	1.512753	1.6233765	1.5399711	1.725
14	entrant demand slope	0.001363636	0.001363636	0.0013636	0.0013636	0.0013636	0.0013636	0.0013636	0.0013636
15	entrant cross-quantity	0.000454545	0.000454545	0.0004545	0.0004545	0.0004545	0.0004545	0.0004545	0.0004545
16	incumbent unit cost	0.55	0.77	0.55	0.55	0.77	0.77	0.77	0.77
17	entrant unit cost	0.49	0.70	0.49	0.49	0.70	0.70	0.70	0.70
18	incumbent cross factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
19	entrant slope factor	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
20	number of FSA firms	2	2	2	2	2	2	2	2
21	entrant zero-demand price	1.1	1.1	1.1	1.26	1.00	1.37	1.21	1.44
22	capacity elasticity	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
23	Air NZ annual capacity (seats)	4243200	4243200	4451200	4243200	4451200	4243200	4243200	4243200
24	Qantas annual capacity	1785472	1785472	2409472	1785472	2409472	1785472	1785472	1785472
25	Total incumbent capacity	6028672	6028672	6860672	6028672	6860672	6028672	6028672	6028672
26	Incumbent load factor	0.7	0.7	0.63	0.47	0.70	0.39	0.51	0.44
27	Incumbent seats sold	4220070	4220070	4292870	2850557	4769856	2323048	3097397	2637544
28	Incumbent average revenue/seat, \$	200	200						
29	Incumbent total revenue, \$million	844.0	844.0	858.6	661.1	857.6	591.5	685.4	707.3
30	Entrant annual capacity			0	1677312	0	1677312	1677312	0
31	Entrant load factor			0.75	0.75	0.75	0.75	0.75	0.75
32	Entrant seats sold			0	1257984	0	1257984	1257984	0
33	Entrant total revenue, \$million				254.3		288.2	238.4	
34	incumbents' operating profit, \$m	383.6	191.8	390.3	350.1	120.5	232.5	206.7	299.7
35	entrant's operating profit, \$m	0	0		91.1		68.2	26.3	
36	incumbents excess capacity cost, \$m			46.3					

The only difference resulting is in the estimate of airlines' unit operating costs (row 16), which must be higher with the more competitive CV parameter, to generate smaller profit margins. These estimates are taken across to the simulations of cartel and no-cartel scenarios.

First, we show in columns C and D an approximate replication of the core NECG scenarios. These are characterised by (1) Cournot behaviour throughout, (2) a 'war of attrition' involving the addition of large amounts of additional capacity *which is not used* by the incumbents in the no-cartel counterfactual (column C), and (3) entry on a rather large scale by Virgin Blue or some other Australian-based low-cost or Value-based airline in the 'factual' (column D) under which the incumbents price as a monopoly cartel.

Under the cartel, the incumbent's price is increased by 16% (row 3), but the overall weighted market price goes up (row 1) by just 7%, thanks to the entry of the low-price VBA (row 5). In the column C 'counterfactual', the load factor (seats sold to total seats available) drops from 70% to 63%, because of the 'elephant-on-my-foot' additional capacity. In the cartel 'factual' (column D), total output drops a little (row 2), while the entrant takes a hefty 30% of the market, which implies, given incumbent capacity, a huge drop in Air New Zealand and Qantas' load factors, to just 47%. Thus, to adjust to the lower output, these airlines would need to sharply reduce their capacity and number of flights, which implies that the 'factual' flight schedules supplied by the airlines to NECG are in fact unsustainable.

Now we correct NECG's simulations. We assume that current (2002/03) competition between the incumbents is quite competitive, which increases our estimate of their operating costs (row 16). And, we make the surely reasonable assumption that, were Air New Zealand and Qantas be unreasonable enough to pour extra capacity into the market in their war of attrition (or fit of pique) if they are not permitted to merge, they would at least attempt to fill the new planes with paying passengers – indeed, such would be the point of the exercise, to drive down price and make life unpleasantly unprofitable, in particular for Air New Zealand (note that most – nearly 90% -- of the additional capacity is added by Qantas). This would require even more sharply competitive behaviour. How sharp? I adjusted the CV parameter until output was enough to maintain base-case load factors (70%). This requires reducing the parameter in row 7 from its base-case value of -0.5 (column B) to -0.75 (column E). Of course this means lower prices (about 10% lower) and higher output in the NZ market than in the base-case (rows 1,2).

Predictably, then, the change with the cartel is quite drastic. Market price in column F is up by about 30%, even with the moderating influence of the VBA entrant, and the total output of Air New Zealand and Qantas is not much more than one half of its current levels.¹⁶

Other scenarios are possible. Suppose that, with no cartel, a VBA would enter the NZ market, and would be to some extent accommodated by the incumbents reverting to Cournot behaviour. But, should the cartel be in place, the incumbents would be powerful enough to deter any entrant, possibly by threatening a ruinous price war should a VBA set up. This scenario is similar to that painted by the executives of Virgin Blue, who claim publicly¹⁷ that they would be much less likely to find it attractive to enter the market were the incumbents allowed to cartelise their activities, even though prices would be higher. Under this scenario (columns G, H), the outcome would be a large increase in the market price (about 32%) and cut in output, were the cartel to go ahead.

Finally, we can compare columns H and B to get an idea of the effect of just the cartel, with no VBA entry. Price is 34% higher than current levels.

(b) Tasman market

Now we do it all again for the rather larger trans-Tasman market. The results are on Table 2. The major difference is that NECG assume VBA entry in both ‘counterfactual’ and ‘factual’ scenarios, though on a larger scale in the factual. In our replication of NECG’s scenarios we predict a 3% fall in market price (row 1) from the base-case to the counterfactual, thanks to the VBA’s output. Then, with the cartel, price increases by about nine percent, despite the near-doubling (row 30) of VBA capacity.¹⁸

We could note that the 9% increase is about twice that predicted by NECG, and it is not clear to me why NECG’s number is so small, since the cost-based pricing formula they use (equation 9, p109) should predict a price change of around 9% when the market moves from three to two independent competitors.¹⁹ NECG believe (I think wrongly) that the Cournot model will underestimate the likely price impact of VBAs, and talk about ‘adjusting’ the Cournot results ‘to reflect the [actual] impact that VBA entry has had on prices in the domestic Australian market ‘ (p105). Do their numbers reflect some such ad hoc adjustment?

Now we examine the NECG scenarios corrected for what I believe to be the more competitive (than Cournot) current state of play in the Tasman air travel market, and also making the ‘war of attrition’ a real war by having the airlines make actual use of the additional capacity they (especially Qantas) are threatening to pile onto the market if they are not permitted to merge.

The results, shown on columns E and F, are quite spectacular. To maintain their base-case load factors with increased capacity and in the presence of some VBA entry taking away some of the market, the incumbents actually have to cut their operating profit margins to zero – that is, they have to behave in a fully ‘competitive’ fashion (CV parameter = -1 [column C, row 7]). Market price drops by 20% from actual current (2002/03) levels.

Now let them merge (column F) and price shoots up by more than 40% (more than 14% higher than the base-case -- row 1). Total Air New Zealand and Qantas seats sold nearly halve (row 27), implying, given the ‘factual’ route schedule, a catastrophic cut in load factors (row 26), but of course, as in the domestic market case, the incumbents would in fact have to make major cutbacks in their route service offerings to maintain profitability.

Now consider the columns G and H scenarios. In G we have Air New Zealand and Qantas reverting from their current (I believe) quite aggressive competitive stances to ‘normal’ Cournot behaviour, which makes some room for VBA entry. The net effects are small increases in both market price and market total output (rows 1, 2). But if the cartel were permitted, and if this turned the incumbents into ‘a 1000lb gorilla’, as the Virgin Blue spokesman suggested, such that entry would be deterred, we get prices 28% higher than current levels, and a big cutback in the number of flights needed to restore load factors.

Table 2: Tasman Market Model		A	B	C	D	E	F	G	H
11/02/2003		2002/3 Basecase		NECG		NECG corrected		Entry deterrence	
		Cournot	more competitive	no cartel/ no entry	cartel/ VBA entry	no cartel/ no entry	cartel/ VBA entry	no cartel/ VBA entry	cartel/ no VBA entry
1	market price	1	1	0.97	1.06	0.80	1.14	1.02	1.28
2	market output	1000	1000	1124.5	967.4	1352.9	842.4	1026.6	625
3	incumbent price	1	1	0.98	1.13	0.81	1.23	1.09	1.28
4	output per incumbent	500	500	483.5	338.8	597.7	276.3	368.3	312.5
5	entrant price			0.90	0.90	0.73	0.99	0.85	
6	entrant output	0	0	157.6	289.9	157.6	289.9	289.9	0.0
7	incumbent CV parameter	0	-0.5	0	1	-1	1	0	1
8	market demand elasticity	-1.33	-1.33						
9	entrant cost factor	0.8	0.8						
10	incumbent demand slope	0.000750002	0.000750002	0.000734872	0.000750002	0.000734872	0.000750002	0.000750002	0.000750002
11	incumbent demand intercept	1.750001875	1.750001875	1.750001875	1.750001875	1.750001875	1.750001875	1.750001875	1.750001875
12	incumbent cross-quantity	0.000375001	0.000375001	0.000375001	0.000375001	0.000375001	0.000375001	0.000375001	0.000375001
13	entrant demand intercept	1.475000938	1.475000938	1.442925196	1.487212102	1.36075008	1.53408722	1.465021921	1.615626289
14	entrant demand slope	0.001125003	0.001125003	0.00114716	0.001165772	0.00114716	0.001165772	0.001165772	0.001125003
15	entrant cross-quantity	0.000375001	0.000375001	0.000375001	0.000375001	0.000375001	0.000375001	0.000375001	0.000375001
16	incumbent unit cost	0.62	0.81	0.62	0.62	0.81	0.81	0.81	0.81
17	entrant unit cost	0.50	0.65	0.50	0.50	0.65	0.65	0.65	0.65
18	incumbent cross factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
19	entrant slope factor	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
20	number of FSA firms	2	2	2	2	2	2	2	2
21	entrant zero-demand price	1.1	1.1	1.08	1.23	0.91	1.33	1.19	1.38
22	capacity elasticity	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
23	Air NZ annual capacity (seats)	2080000	2080000	2184000	2080000	2184000	2080000	2080000	2080000
24	Qantas annual capacity	2340000	2340000	2964000	2340000	2964000	2340000	2340000	2340000
25	Total incumbent capacity	4420000	4420000	5148000	4420000	5148000	4420000	4420000	4420000
26	Incumbent load factor	0.7	0.7	0.58	0.47	0.72	0.39	0.52	0.44
27	Incumbent seats sold	3094000	3094000	2991854	2096250	3698357	1709500	2279333	1933750
28	Incumbent average revenue/seat, \$	400	400						
29	Incumbent total revenue, \$million	1237.6	1237.6	1173.2	950.1	1202.0	838.9	992.7	991.0
30	Entrant annual capacity			650000	1196000	650000	1196000	1196000	0
31	Entrant load factor			0.75	0.75	0.75	0.75	0.75	0.75
32	Entrant seats sold			487500	897000	487500	897000	897000	0
33	Entrant total revenue, \$million			141.7	259.5	115.3	286.7	246.7	
34	incumbents' operating profit, \$m	464.1	232.1	425.2	426.1	0.0	283.4	251.9	362.6
35	entrant's operating profit, \$m	0	0	77.9	141.8	15.9	121.6	72.0	
36	incumbents excess capacity cost, \$m			91.8					

4.3 Cost-Benefit Analysis of the Cartel

Now we add up the pluses and minuses of the proposed cartel, using standard cost-benefit (net surplus) methodology. Since under all scenarios in both markets market price always increases as a result of the cartel, we know there will be transfers from consumers to producers, which will normally not quite cancel out, as the reduced output implies ‘dead-weight’ losses of foregone output that would have been worth more had it been put on the market than it would have cost to produce. But there are a number of interesting qualifications to this, including the elephant-on-my-foot excess capacity threatened by Qantas, and the allocation of profit changes between Air New Zealand, Qantas, and any VBA entrant, which we will join NECG in assuming would be an Australian-operated airline, such as Virgin Blue.

Table 3 shows the numbers, for both NZ domestic and Tasman markets. These numbers can be assessed by comparison with the overall value of the market, which we have estimated to be currently between \$800-900 million for the main trunk NZ routes, and \$1200-1300 million across the Tasman. Look first at the domestic situation, which is derived from the oligopoly modelling reported on Table 1. Column A shows the ‘official’ NECG scenario, and rows 1 and 2 reveal that total Qantas and Air New Zealand operating profits²⁰ *drop* by about \$40 million/year as a result of the cartel, despite price increases (because of loss of market share to the VBA entrant). It might at once be asked why these airlines would want the cartel if – on the basis of their own version of events -- it reduces their profits, and that would be a good question.

But it turns out that one airline does very well out of the deal, and one loses. With no cartel (the NECG ‘counterfactual’) Air New Zealand’s annual operating profits, based on the NECG Cournot assumption and net of their share (one quarter) of the elephant-on-my-foot excess capacity cost (row 3) are about \$240 million, and Qantas just over \$100 million (column A; rows 4, 5). In the cartel, with the elephant off the foot, and higher prices, Air New Zealand generates a slightly higher cash flow from its NZ operations -- up to \$247 million (row 7), but nearly \$80 million of this it has to hand over to Qantas. This is for two reasons: Qantas now has a 22.5% equity stake and so is entitled to that share of the profits, and the profit-sharing arrangement that is part of the cartel deal transfers profits from the airline with the larger capacity (Air New Zealand) to Qantas.

The (Australian owned²¹) entrant earns about \$90 million (row 11), and the total change in profits accruing to Australian firms is \$170 million, whereas the New Zealand residents’ profit stream shrinks by \$73 million (rows 17, 16). Because prices increase, consumer surplus decreases, and 90% of the consumers are New Zealanders (rows 18, 19).

The bottom line or lines are rows 29-32. Under NECG assumptions, we predict that New Zealand welfare falls by \$147 million/year, and Australian welfare increases by \$166 million. The net effect on Australasian well-being is thus a positive number, \$18.5 million, but only because of the elimination of the \$46 million of excess capacity costs, which should never have been incurred in the first place.²² Absent these, and allowing for the losses born by foreign travellers (row 21) then the effect of the cartel on the NZ market is an overall \$14 million deadweight loss, along with quite large transfers from New Zealand citizens to Australians.

Table 3: Welfare Analysis		(all monetary values in \$ millions)						
11/02/2003		A	B	C		D	E	F
		NECG	NECG corrected	Entry deterring cartel		NECG	NECG corrected	Entry deterring cartel
NZ Domestic Market				Tasman Market				
1	Incumbent operating profits w ith no cartel	390.3	120.5	206.7	Incumbent operating profits w ith no cartel	425.2	0.0	251.9
2	Incumbent operating profits w ith cartel	350.1	232.5	299.7	Incumbent operating profits w ith cartel	426.1	283.4	362.6
3	Excess capacity cost	46.3	0.0	0.0	Excess capacity cost	91.8	0.0	0.0
4	Air NZ profits w ith no cartel	241.6	78.1	145.5	Air NZ profits w ith no cartel	167.3	0.0	118.5
5	Qantas profits w ith no cartel	102.3	42.3	61.2	Qantas profits w ith no cartel	166.2	0.0	133.3
6	Entrant profit w ith no cartel			26.3	Entrant profit w ith no cartel	77.9	15.9	72.0
7	Air NZ-generated profits w ith cartel	246.4	163.6	211.0	Air NZ-generated profits w ith cartel	200.5	133.3	170.6
8	Qantas-generated profits w ith cartel	103.7	68.9	88.8	Qantas-generated profits w ith cartel	225.6	150.0	192.0
9	Air NZ-ow ned profits w ith cartel	168.8	112.1	144.6	Air NZ-ow ned profits w ith cartel	159.3	105.9	135.5
10	Qantas-ow ned profits w ith cartel	181.2	120.4	155.2	Qantas-ow ned profits w ith cartel	266.8	177.4	227.0
11	Entrant profit w ith cartel	91.1	68.2		Entrant profit w ith cartel	141.8	121.6	
12	NZ profits w ith no cartel	241.6	78.1	145.5	NZ profits w ith no cartel	167.3	0.0	118.5
13	NZ profits w ith cartel	168.8	112.1	144.6	NZ profits w ith cartel	159.3	105.9	135.5
14	Australian profits w ith no cartel	102.3	42.3	87.5	Australian profits w ith no cartel	244.1	15.9	205.4
15	Australian profits w ith cartel	272.4	188.6	155.2	Australian profits w ith cartel	408.6	299.0	227.0
16	Change in NZ profits	-72.8	34.0	-0.9	Change in NZ profits	-8.0	105.9	17.0
17	Change in Australian profits	170.0	146.3	67.7	Change in Australian profits	164.5	283.1	21.7
18	Change in consumer surplus	-82.9	-261.3	-215.2	Change in consumer surplus	-154.3	-519.4	-257.4
19	Change NZ consumer surplus	-74.6	-235.2	-193.6	Change NZ consumer surplus	-61.7	-207.8	-102.9
20	Change Australian consumer surplus	-4.1	-13.1	-10.8	Change Australian consumer surplus	-54.0	-181.8	-90.1
21	Change foreign consumer surplus	-4.1	-13.1	-10.8	Change foreign consumer surplus	-38.6	-129.9	-64.3
22	Air NZ output share w ith no cartel	0.65	0.65	0.70	Air NZ output share w ith no cartel	0.42	0.42	0.47
23	Air NZ output share w ith cartel	0.70	0.70	0.70	Air NZ output share w ith cartel	0.47	0.47	0.47
24	Qantas output share w ith no cartel	0.35	0.35	0.30	Qantas output share w ith no cartel	0.58	0.58	0.53
25	Qantas output share w ith cartel	0.30	0.30	0.30	Qantas output share w ith cartel	0.53	0.53	0.53
26	Market share NZ consumers	0.9	0.9	0.9	Market share NZ consumers	0.4	0.4	0.4
27	Market share Australian consumers	0.05	0.05	0.05	Market share Australian consumers	0.35	0.35	0.35
28	Market share foreign consumers	0.05	0.05	0.05	Market share foreign consumers	0.25	0.25	0.25
29	Net change New Zealand welfare	-147.4	-201.2	-194.6	Net change New Zealand welfare	-69.7	-101.8	-85.9
30	Net change Australian welfare	165.9	133.2	56.9	Net change Australian welfare	110.5	101.3	-68.4
31	Net change Australasian welfare	18.5	-68.0	-137.6	Net change Australasian welfare	40.8	-0.5	-154.4
32	Deadweight Loss	14.4	-81.0	-148.4	Deadweight Loss	2.2	-130.4	-218.7

Column B repeats the exercise for the NECG scenarios corrected to allow for the current air travel market being more competitive than they assumed, and becoming more competitive still in the threatened ‘war of attrition’ with substantially increased capacity. What we get now is much lower profit margins in the no-cartel case, which are boosted considerably after the cartel, such that both Air New Zealand and Qantas would make more money. But this comes at high cost to (mainly Kiwi) consumers, such that overall New Zealand welfare is reduced by more than \$200 million/year, and more than \$80 million is wasted as deadweight losses (column B; row 32). The Australians do well, again.

In column C we see the impact on welfare of what could be called the ‘Virgin Blue’ scenario, with a VBA entering only if the incumbents are not allowed to merge. The bottom line on this (row 31) is a substantial deadweight loss of \$148 million generated by the large increase in price and reduction in output, and overall New Zealand welfare losses of nearly \$195 million, with gains in Australian welfare that are smaller than in the other scenarios because the VBA is exiting not entering. We could take the scenarios generating columns B and C as representing most- and least-favourable scenarios from the point of view of evaluation of the net costs and benefits of the cartel..

* * *

Now look at the Tasman market, which is estimated to be currently worth upwards of \$1.2 billion in annual revenues to Air New Zealand and Qantas. The war of attrition is forecast to be most severe on this route, with \$92 million/year in excess capacity costs in the NECG’s official counterfactual scenario (column D; row 3).²³ The welfare story for the official scenario in column D is quite similar to that of column A, with New Zealand losing, Australia gaining, and a net increase in welfare which however depends entirely on the assumption of deliberate excess capacity in the counterfactual.

The corrected-NECG scenario shows overall losses to NZ of about \$100 million/year, almost exactly balanced by gains to Australia, so that there is no net change in Australasian welfare, even though prices increase and output falls. So what happens to the deadweight loss? The answer is that it is paid for by foreign consumers, whose share of the trans-Tasman market is apparently much larger (25%) than of the domestic New Zealand market (row 28). Their loss adds up to \$130 Million

The entry-detering scenario (column F) is another welfare disaster, with nearly \$220 million/year of surplus wiped out, shared between New Zealand, Australia and foreign consumers..

Overall, New Zealand does poorly out of all the outcomes, and it is hard to imagine a scenario in which this would not be so. Australia as a whole gains under most but not all circumstances. It is particularly interesting to focus on what Qantas gets out of it. Even with no call on spurious cost efficiencies, it seems that the Australian airline’s cash flow would be increased by between \$200 million and \$300 million each year as a result of the proposed cartel covering NZ and Tasman operations. In addition, Qantas would get its 22.5% share of Air New Zealand’s profits on all other routes and activities (such as engineering work and freight haulage), plus, courtesy of the capacity-based profit sharing formula, it would clip tens of millions of dollars each year off Air New Zealand’s cash flow on its Auckland-

Asia routes, with no input at all. It adds up to an excellent return on their one-off \$550 million proposed cash investment in Air New Zealand.

5. Conclusion

The bottom-line is that the proposed cartel between Air New Zealand and Qantas would generate pure wastes (deadweight inefficiencies) in the \$200-400 million range each year, depending on the nature of competition in the market with and without the cartel. Although more extreme scenarios are conceivable, it is probably reasonable to say that the lower end of this range (from columns B+E on Table 3)) is the scenario most favourable to the cartel from a public benefit point of view, and the higher number, (columns C and F) is the least attractive outcome.

The distribution of benefits and losses is important. Losses to NZ consumers and government (as the major Air New Zealand shareholder) are around \$300 million/year in both scenarios, but the impact on Australians varies from negative to gains of more than \$200 million. Qantas, however, does well under either scenario, to the tune of at least \$200 million/year of additional profit flow.

Against the deadweight loss are to be set some plausible benefits from improved scheduling and some other odds and ends. On the basis of the analysis in section 3 above, it would be rash to expect much more than about \$20 million/year from these. It may be, of course, that NECG did not mount the best possible case in favour of the cartel, but their report is what we have to go on at present.

Thus, the proposed cartel fails the public cost-benefit test by a wide margin. I argued in section 2 that such a finding should not be necessary to reject the cartel -- the integrity of the competitive market process should be paramount. But, given that this cartel would obviously and admittedly substantially lessen competition, a negative outcome from the public benefit test is obviously sufficient grounds for rejection.

Endnotes

¹ Source: NECG Table 1, inflated by about 10% to remove the effect of present value discounting. (So the cost efficiencies numbers are as shown on Table 17)

² Air New Zealand's Annual Report gave as \$601million its 2002 revenues on its Asian routes, which include Hong Kong, Taipei and Japan as well as Singapore.

³ The Tasman number is made up of two numbers on Table 17, one for 'Tasman' and one for 'Queensland'. It is not clear why the latter destination is broken out of the total data here – this does not appear to happen anyway else in the NECG report.

⁴ The appropriate use of cost-of-time estimates in this context is situations where people are helplessly trapped -- as when plane departures are without warning delayed – and cannot find anything useful or pleasant to do with the unplanned waiting time.

⁵ Elsewhere in the report (p155), NECG tell us that about 60 people/day currently travel each way between Adelaide and Auckland. This is about half the forecast number of passengers taking the direct flight.

⁶ People who don't currently make the trip because of the inconvenient flights thereby reveal themselves to value that trip at less than its current full cost, including the cost of the additional travel time.

⁷ NECG, Table 24, p156.

⁸ A special concern for the tourism prospects with the cartel would be the loss of membership of Air New Zealand in the most popular of the global airline alliances, the Star Alliance.

⁹ NECG report (pp157-9) some experiments using an off-the-shelf computable general equilibrium (CGE) model, which generates projections of real GNP increases roughly equivalent to the gross tourist spending in a 'real wage fixed' (ie zero opportunity cost of labour) scenario, but much smaller under the 'fixed employment' assumption that matches the cost-benefit methodology used elsewhere in the Report. We could note that CGE models generate large terms-of-trade gains which imply that even very small countries such as New Zealand have substantial market power in their export markets.

¹⁰ Indeed, Air New Zealand has complained (though not recently, for some reason) that Qantas's activities in New Zealand are predatory (pricing below cost).

¹¹ Technically, this amounts to subtracting a fraction of entrant capacity from the incumbents' market demand curve. Implicitly already subtracted from this curve is the output of any 'fringe' suppliers of the market, such as, for example, Thai Airways, which carries passengers between Auckland and Sydney and Brisbane.

¹² For 2002/03, we assume that the point elasticities of demand are -1.1 and -1.3 in the domestic NZ and Tasman markets, respectively. The difference reflects the larger share of relatively low-elasticity business travellers within New Zealand.

¹³ A concern here is that NECG's 'factual' schedules (Appendix C) imply that Qantas offers a lot more seats than Air New Zealand across the Tasman. Even after correcting the NECG figures to allow for the larger seating capacity of Air New Zealand's forthcoming Airbus 320s, the imbalance remains. This does not correspond to my understanding of the current division of the market, and is apparently not consistent with the NECG's statement that Qantas's expansion of capacity in its 'counterfactual' involves 'at least matching Air New Zealand's capacity on the Tasman' (NECG, p13).

¹⁴ Thus the small regional carrier Origin Pacific, and any other fringe commercial carriers, are included implicitly in the parameters of the demand curve.

¹⁵ The figure for base-case revenue is an estimate on my part, taken by multiplying the number of passengers carried by \$200, which is just about the number given in NECG's Table 32 for the average revenue per passenger on domestic NZ routes. The Tasman market revenue is similarly calculated, with revenue/passenger set at \$400. No doubt these numbers are not exactly correct, though they do match up with the revenues reported by Air New Zealand in its 2002 Report. If, say, the figure is 5% too small, then so too will be all the numbers generated by the model for revenues under the various scenarios (that is, just the scale of the results is affected, not their qualitative nature).

¹⁶ This is seen by comparing row 4 in column F with row 2 (or twice row 4) in column B.

¹⁷ For example, see the remarks of a Virgin manager quoted in the *National Business Review* ('Cartel plays "National Interest" Card', November 29, 2002, p6).

¹⁸ Note that the VBA entrant's price is estimated to stay the same (row 5). This is what just happens to result from the trade-off of two opposing forces -- the higher incumbent price with the cartel which allows the entrant to increase its own price, versus the need to reduce entrant price to move the larger output.

¹⁹ NECG's method of constructing the cartel cost of supply as a share-weighted average of the base-case costs inferred from the Cournot-Nash model could bias downwards the estimate of cartel costs and thus price.

²⁰ Operating profits are the difference between ticket revenues and the costs of production as estimated by the model of the base-case. Such profits do not necessarily include a return on capital -- it depends on what the airlines include in their marginal variable costs when they are figuring out their pricing strategies. The cost numbers used here will be quite close to those generated by NECG's model, at least for the Cournot scenarios, but are much higher than some extremely short-run costs (just ticketing and meal expenses) used in the text of NECG. It all depends on the appropriate time horizon over which costs can be varied. This is a matter considered at length in Haugh and Hazledine (1999). A good case can be made that the appropriate definition of costs includes all flying costs, including the actual or imputed leasing costs of aircraft, since experienced airline operators can alter their fleet size quite quickly. Airplanes are literally and economically amongst the most mobile of large capital stock items! At time of writing, for example, Air New Zealand is supplementing its domestic fleet with a B737 borrowed from Air Malta (and flying in its Air Malta livery).

Issues of just where to draw the line on defining marginal costs are less important for calculations of *changes* in profits, which are what we use in the welfare analysis of Table 3.

²¹ In the case of Virgin Blue the assumption that all entrant profit-receivers are domiciled in Australia will not be true.

²² And note that in the cartel scenario, it is assumed that the incumbents rationalise their capacity to maintain economic load factors.

²³ The figures of \$46.3million and \$91.8 million for excess capacity costs correspond to NECG's 'estimated cost efficiencies' of \$54.3 million for domestic NZ and \$74.1 million for the Tasman market (NECG Table 17, p138).