



Response to Submissions in relation to NEEG's Report

The Competitive Effects and Public Benefits Arising from the Proposed
Alliance between Qantas and Air NZ

March 2003

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1 Introduction

This paper provides NECG's response to the submissions made to the New Zealand Commerce Commission ("NZCC") and the Australian Competition and Consumer Commission ("ACCC") in relation to NECG's *Report on the Competitive Effects and Public Benefits Arising from the Proposed Alliance between Qantas and Air NZ*.

The issues raised in the submissions that comment on the NECG Report can be categorised as follows:

- Market definition
- Entry and expansion barriers
- Factual and counterfactual assumptions
- The appropriate authorisation test
- Modelling of competitive detriments
- Public benefit estimates and, in particular, cost efficiencies and tourism

While many of the submissions raise concerns regarding the competitive effects of the proposed Alliance, there are only a limited number of submissions that comment specifically on the NECG analysis. The two most extensive reviews of the NECG analysis are contained in submissions by Frontier Economics ("Frontier"), which was engaged by Virgin Blue to review the NECG modelling, and Professor Hazledine ("Hazledine") of the University of Auckland. Hence, our responses focus on the issues raised in these two submissions.

Before we do so, however, it is worth commenting briefly here on a few misapprehensions which seem widespread in the submissions, with a more detailed discussion of many of these points then being given in the main body of our response below.

Counterfactual

A first misapprehension is that the counterfactual that we have modelled involves unrealistically intense competition between the parties, with the inference being drawn, in

many of the submissions, that the behaviour at issue is in some sense predatory and drives Air NZ into a situation where it is no longer viable.

In fact, the rate of capacity expansion we model, especially on the Tasman, is only slightly higher than that which has been observed in the recent past. Far from being predatory, the parties' behaviour corresponds to standard competitive price setting, and in no way involves setting prices that generate negative incremental network revenues for each airline. (The incremental network revenues generated by the prices are, in other words, above the incremental network costs securing those revenues entails). Additionally, in the counterfactual we have modelled, Air NZ continues to operate those routes throughout the scenario period.

This may seem inconsistent with our characterisation of the situation as a "war of attrition." In fact, however, the process we describe is precisely one of "attrition", rather than of all-out, large scale confrontation. While the counterfactual used in our analysis involves the addition of reasonably moderate increases in capacity over time, such increases in capacity can have large impacts on other operators. For example, in domestic Australia the addition of reasonably moderate capacity by Virgin Blue and Impulse (in terms of total capacity) had a substantially larger impact on Qantas' yield, both on the routes operated by Virgin Blue and Impulse and other routes where no entry occurred.

This is in contrast to the only attempt made in the submissions to explicitly model the counterfactual. Specifically, Hazledine (in modelling that we comment on more extensively below) analyses the counterfactual *as if* the competition between the parties came close to perfect competition. The result of doing so is that of course prices are extremely low (which is the point Hazledine emphasises); however, the other consequence is that there is no prospect of cost coverage being secured. Compared to this, our own modelling of the counterfactual obviously involves a far less intense pattern of rivalry, and outcomes that are less likely to be immediately ruinous.¹

¹ For reasons discussed in greater detail below, our Counterfactual is also far less intensely competitive than that proposed by Frontier. Frontier's preferred counterfactual involves Bertrand competition with assumed declining marginal costs. Under any plausible assumptions about the extent of horizontal product differentiation, Frontier's claim amounts to assuming that whenever there is competition, price is set very close to marginal cost. Of

That said, we recognise that there are many serious uncertainties associated with competition between airlines. The reality is that Air NZ faces a far-reaching competitive challenge, both from Qantas and from a VBA entrant, which comes against a backdrop of a prolonged period where earnings have fallen short of the cost of capital. At the same time, volatility is notoriously high for airline profitability, with financial performance being capable of fluctuating greatly even in the short term, in line with exogenous shocks (such as those associated with changes in fuel prices and in exchange rates and with events such as those of September 11). As a result, it is, in our view, simply unrealistic to rule out a more pessimistic scenario for Air NZ. We consequently set out such a scenario in a Confidential Attachment to our report. However, we also note that if this scenario were viewed as the most likely counterfactual, the competitive detriment associated with the Alliance would be slight at best. Our modelling of detriments is consequently explicitly **not** predicated on that scenario eventuating.

FSA and VBA competition

A second misapprehension relates to the ultimate viability of competition between Full Service Airlines (FSAs) relative to competition between one or more FSAs and a Value Based Airline (VBA). More specifically, a number of submissions query how it could be that competition between FSAs would not be viable, but competition between FSAs and a VBA would be.

Our conclusions do **not** depend on competition between FSAs not being viable. Rather, what our modelling shows is that as compared to a future in which the parties compete, a future in which the Alliance competes with a VBA yields substantial savings to the community. It is this that is the central finding in our report.

course, this is not an equilibrium and Frontier's approach collapses to a natural monopoly. As a result, were Frontier's comments taken to their logical conclusion, the Alliance would involve **no** competitive detriment. The only reason Frontier do not get to this conclusion is because they do not write out (much less try to solve), even in purely formal terms (i.e. without attempting to estimate the parameters), the model they propose.

That said, we do believe that domestic New Zealand is clearly not large enough to viably support two FSAs each seeking to compete by offering a high level of frequencies. That has, in our view, been plainly shown by the experience to date. We also believe that each of the parties would so compete, for reasons that are set out more fully in the parties' paper on the rationale underpinning the factual and the counterfactual. In contrast, there is likely to be scope for a viable market structure in which an FSA competes with a VBA that provides somewhat lower frequency levels, more limited inter-lining and a generally low cost/limited service business model. We note that this is clearly Virgin Blue's belief too, as evidenced by its determination to enter the markets at issue.

Seen in general terms, markets in which there are a range of suppliers each differentiated in terms of service range and level are not unusual, much less inconceivable. Additionally and importantly, a pattern with these characteristics (i.e. in which competition is between an FSA and a VBA) seems to be emerging in many aviation markets world-wide. However, the reality is that airline markets are in transition, and we obviously are in no position to assure a particular long term outcome. But the most plausible alternative to our view (that a market which involves both a VBA and an FSA is viable) is to say that supply is a natural monopoly, in which case there is no competitive detriment from the Alliance.

Cost efficiencies

A third misapprehension is that the efficiencies we have pointed to are in any sense unusual in the context of authorisation applications. More specifically, several commentators suggest that the efficiencies at issue are in some way suspect, because they allegedly do not involve more conventional savings such as those that arise from securing economies of scale.

In explaining the efficiencies involved in the Alliance, we have been careful to exclude savings that could be gained without the Alliance – say, by unilateral output expansion. As a result, we certainly do not adopt the approach, which doubtless has characterised some applications made by others, of seeking to claim every conceivable saving as flowing from the proposed transaction.

In terms of the cost efficiencies we do claim, the point is that airlines do not operate factories as such; rather, their production process involves aircraft and systems that manage or are otherwise related to the travel of passengers and freight by air. When two widget firms merge, the efficiencies they secure can take the form of consolidating production facilities and using those to process a higher scale of output; by exactly the same token, when two airlines form an Alliance, the efficiencies they secure can take the form of making better use

of aircraft. These are of course the savings we model and they are no different in substance from those that could attach to the more conventional case of the widget suppliers.

Finally, many submitters seem to misunderstand the manner in which cost changes related to output expansion are analysed in an airline context. More particularly, in airlines (as in other network industries), a distinction is drawn between economies of **scale** (which are associated with increasing the reach of the network) and economies of **density** (which are associated with increasing the volume of traffic over a given network). The economies of density are potentially large; whether there are economies of scale (as distinguished from economies of density) is less clear cut, and as a practical matter likely depends on the specific characteristics of an airline's network (for example, its average stage length and the dispersion of stage lengths).

Because submitters do not seem to appreciate this distinction, they assume that in saying that the scale economies are uncertain, we mean that costs do not fall with output, or more generally that the Alliance gives rise to no benefits in terms of density effects. This is plainly not the case. Rather, our costing of the factual, as compared to the counterfactual costs, captures the impacts that the synergies the Alliance permits have on the economies of density.

Taking that as given, it is worth emphasising the point made in our report that other efficiencies (for example, in terms of marketing costs) are highly likely to result from the Alliance. However, we have not been in a position to quantify these efficiencies sufficiently precisely to include them in our formal assessment. That obviously does not mean that they can or should be ignored in the more qualitative assessments of public benefits that the ACCC and the NZCC will also presumably carry out.

Cournot approach

A fourth misapprehension relates to our modelling. Although many of the specific issues involved are discussed below, some clarification of the broad approach is helpful. Our choice of a Cournot approach is fully consistent with the literature on the economics of airlines; additionally, in assuming that the parties are homogenous (i.e. their services are very close substitutes), we over-state the price fall that would occur in the counterfactual (and hence over-state the competitive detriment). Other aspects of our modelling (for example, our focus on average yields) also tend to over-state the adverse impacts of the Alliance.

In applying a Cournot approach, we do not endogenously determine (that is, generate as part of the model outputs) the capacity levels selected by the parties. Rather, we use schedules determined with the parties, in a process in which (for the counterfactual) each party selects capacity on the basis of its assumptions about the behaviour of the other party. It is by this means that we identify points on the parties' reaction functions.

We use this approach because in practice, airline scheduling decisions are extremely complex, and involve a wide range of interdependencies and constraints. To the best of our knowledge, there are no models that can determine these decisions globally in any optimising manner; rather, the airlines themselves, though they of course use models to examine the impacts of individual scheduling and capacity decisions, actually take these decisions in a more informal and iterative way. As a result, schedules of the complexity needed to realistically capture the main features of the factual and counterfactual cannot be determined by optimisation within a tractable Cournot modelling framework. Rather, they (and the points on the reaction function that they describe) need to be generated through the same process the airlines themselves use to take capacity and scheduling decisions. This is what we have done.

What then needs to be emphasised is that without disclosing each of the parties' views of the counterfactual, it is fair to say that those views are not dissimilar. This is important, because it means that the parties' expectations of each other's conduct are broadly consistent. As a result, the alternatives identified, and most notably the counterfactual, are broadly an equilibrium, that is a point where the parties' reaction functions cross.

We recognise, as we did in our report, that alternative modelling approaches are conceivable. However, applying them would raise many practical issues, without increasing the accuracy of the estimates. Indeed, with the exception of Hazledine, none of the submissions fleshes out an alternative approach – and Hazledine's approach adopts many of our assumptions but then goes on to make what we regard as serious errors (see below).

Scheduling

A fifth misapprehension relates to the benefits from improved scheduling and from the introduction of new direct flights. We agree that there are a number of ways in which these benefits can be measured, and that some assumptions need to be made for quantification of these benefits to be possible. However, we do not agree that it is at all unlikely that benefits of this kind would indeed be achieved. Rather, a very wide range of standard models in

industrial organisation generate outcomes in which the choice of frequency and routes by competitors is sub-optimal relative to the choices that would be made on a coordinated basis.

Tourism

A sixth misapprehension relates to the tourism benefits – which some submitters have claimed are implausibly large, while others emphasise that they are small relative to the current scale of the tourism industry.

We have not tried to exhaustively capture the benefits the Alliance will bring in terms of enhanced tourism. We believe, including because of the experience of the BA-Qantas Joint Services Agreement (“the JSA”), that Alliances such as the one here at issue can have a very substantial impact on tourism. Extending the range of services that can be put into the market, increasing the incentives each party has to sell services on the other, and consolidating promotional outlays can all help grow tourism volumes.

This is all the more the case when account is taken of the position of the parties and of the changing environment in which they are marketing to tourists. Qantas and Air NZ are by far the largest private parties marketing Australia and New Zealand overseas. Their efforts in this respect face growing challenge, from the increasing spending levels of other countries, the greater difficulties involved in securing repeat visits and increased economies of scale in certain aspects of promotion (due, for example, to the rising fixed cost of television marketing in the US and in many other countries). Although tourism to New Zealand has been doing well, the challenges ahead for New Zealand are substantial, especially given the smaller size of the New Zealand promotional budget and the very limited international reach of Air NZ Destinations. In our view, allowing Air NZ to benefit from the scale and reach of Qantas Holidays will, together with the other factors cited above, allow major gains in promotional efficiency.

However, the precise extent of all of these impacts is not readily determined in advance. As a result, we have concentrated our attention on those impacts that could be quantified and subjected to testing. The details of our approach have been explained at length, and some elements are discussed further below. The important point is that we believe our estimates are highly conservative, as their small extent, relative to the current scale of the market, underlines.

With respect to the manner in which we have quantified the benefits of additional tourism inflows, some submitters have queried why we rely on different methods here from those we

use, for example, to quantify the costs of the competitive detriments. More specifically, in respect of tourism, we also use a general equilibrium approach, while detriments are evaluated using a partial equilibrium approach.

This criticism is difficult to understand. Since the estimated tourism benefits are substantial, we wanted to be confident that they were not being overstated. In particular, it was important to ensure that any general equilibrium consequences that might flow from diverting resources from other parts of the economy into tourism were taken into account. To this end, the benefits as calculated from a partial equilibrium approach were tested by looking at the general equilibrium impacts. The results confirm that expansion in tourism yields significant gains to the community in net incomes.

Engineering and maintenance

A seventh misapprehension involves the engineering and maintenance benefits. A number of submitters seem to believe that these benefits rely on Qantas acting in a non-profit maximising manner. This is quite incorrect.

Competition in the supply of engineering and maintenance services is becoming more intense, especially as a result of the entry of Singapore Technologies. In the future with the Alliance, Qantas will have a direct financial stake in Air NZ; additionally, in procuring services from Air NZ, it will not be strengthening a direct competitor. So long as Air NZ remains broadly competitive in the supply of these services, it will be a highly attractive source for Qantas of the services in purely commercial terms. In contrast, in the future without the Alliance, Qantas will not have an investment in Air NZ to take into account in considering the sourcing of engineering and maintenance services; rather, in procuring these services from Air NZ, it would be supporting a direct competitor, which it would likely only do if Air NZ offered especially attractive terms. Simple profit maximisation is therefore far more likely to result in Qantas procuring these services from Air NZ in the future with the Alliance than without.

Conclusions

Overall, we believe the findings set out in our report remain fully valid, and that most of the comments made by Submitters are based on misapprehensions. We now turn to a more detailed discussion of the economic issues Submitters have raised.

2 Market definition

The only submission which raises the issue of market definition is that prepared by Frontier Economics (the Virgin Blue submission cross-references the Frontier submission). Frontier argues:

Before we address these two issues, it may be useful to set out some of the principles that guide our consideration of appropriate market definitions. In particular, the issues of geographical boundaries and the separation of passenger and freight services involve issues of what are generally known as cluster markets. That is, passenger services offered on different routes are not included in the same market because they are regarded as close substitutes for each other. Rather, they may be included in the same market because complementarities in demand or production mean that firms will only be able to compete by producing both types of services. Similarly, it may be appropriate to define a market that embraces both passenger and freight services, not because these are close substitutes in demand, but, rather, because they are complements in production such that a firm will best be able to compete by offering both types of services rather than by specialising in one to the exclusion of the other. (Frontier Economics, p. 18 and 19)

To support this view, Frontier cites a passage by Henry Ergas (Frontier Economics, p. 19 and 20), which provides examples of cluster markets and the relevant test for a cluster market.² These principles are used to argue a single product market for air passenger and air freight services, and also inform their views as to the relevant geographic markets. We consider the specifics of Frontier's arguments in the paragraphs that follow. However, as a general matter, we believe it is important to clarify the cluster market concept, which we believe Frontier does not correctly apply.

² Frontier Economics cite the following in quoting Henry Ergas: Henry Ergas, *Cluster Markets: What they are and How to test for them*, Working Paper, The Centre for Research in Network Economics and Communications, School of Business and Economics, The University of Auckland, p. 3. We note that, while the paper highlights well the concept of and the relevant test for a cluster market, this paper represents early thinking on this concept.

First, as we understand the cluster market test, it is not the broad economies of scope of supplying a subset of products that is determinative of whether a cluster market exists. Rather, what is relevant is the economics of scope associated with the purchase and supply of the relevant subset of products at the *individual* customer level. Practically speaking, this turns on a consideration of the level of costs associated with unbundling the purchase and supply of products. If combined demand and supply side costs are pervasively high, then it is appropriate to define a cluster market. In a sense, therefore, the cluster market test is a highly prescriptive test, which means that defining a cluster market will only be appropriate in limited instances. This point is particularly important when testing for a supply side cluster market.

To explain why using an example in telecommunications, consider a situation where a telephone switch can be used to switch both local and long distance calls. This is likely to result in broad economies of scope in the supply of both local and long distance calls in that the switch can be used to supply (say) customer A with local calls and customer B with long distance calls. However, in defining cluster markets, what is relevant to consider is the extent to which there are pervasive economies of scope that arise with respect to supplying both local calls and long distance calls to customer A. In this respect, it is the costs associated with billing and managing the customer that are likely to be of much greater relevance in testing for a supply side cluster.

Second, Frontier seems to justify the defining of a cluster market based on product complementarity. Indeed, it may be that Frontier sees the two terms as almost being interchangeable. However, there may be situations where there is product complementarity though no cluster market. Again, using an illustrative example, this time from the music industry, from the perspective of a music retailer, CDs of different labels may be complementary in that they enable a music retailer to supply a full assortment of CDs to consumers. However, even if this is the case, it does not necessarily follow that there is a supply side cluster market. As noted above, this turns on issues relating to costs of unbundling supply.

Geographic market definition

As noted in section 2.3.3 of the NECG report, we believe that the relevant geographic market is either the Australia-New Zealand market or that there are separate markets for New Zealand, Australia and the trans-Tasman. We believe history indicates that airlines operating in the Australia-New Zealand region have, as a long-term strategy, aimed to serve all three sets of routes, which suggests that the broader market may be more appropriate.

Frontier argues that it is more appropriate to define separate markets for New Zealand, Australia and the trans-Tasman. Frontier argues that, while interlining may provide advantages for an airline operating on all three sets of routes:

... advantages are not so overwhelming as to require the definition of an Australasian market. Airlines, including Qantas, ANZ and Virgin Blue have survived for long periods of time by specialising in parts of the region. It is not clear why they could not continue to survive by being geographical specialists in the future. (Frontier Economics, p. 20 and 21)

We continue to view the broader geographic market delineation as being appropriate. We believe that Frontier's focus on interlining benefits is overly narrow, and ignores the broader strategic incentives that airlines operating in the Australia-New Zealand region have for securing a long term presence on each of these three sets of routes. In this respect, we note that Virgin Blue has stated in its submission:

The Proposed Alliance removes the head to head competition of Qantas and Air NZ in the trans Tasman and New Zealand markets. It also removes head to head competition in Pacific markets (which is largely ignored by the Applicants). They will fully co-ordinate all their operations, jointly set prices and share profits. To address the anti-competitive effect of the Proposed Alliance, Qantas and Air NZ have relied on the prospective entry of Virgin Blue on key routes if the Proposed Alliance proceeds.

Virgin Blue has been actively considering establishing operations on these routes. With or without the Proposed Alliance, Virgin Blue will commence on these routes. (Virgin Blue Submission, paragraphs 1.3 and 1.4, emphasis added)

We would suggest that Virgin Blue's stated intention of expanding onto Tasman and New Zealand domestic routes provides strong supporting evidence that, as a matter of commercial reality, the relevant arena of competition is the broader Australia-New Zealand region. This is in addition to our observation in section 2.3.3 of the NECG report regarding Air NZ's failed entry into Australia through Ansett, and Qantas' attempts to secure a presence on New Zealand domestic routes.

Even putting aside considerations of commercial reality, we believe Frontier significantly underestimates the scope for substitution between routes. For instance, Frontier argues:

In particular, the issues of geographical boundaries and the separation of passenger and freight services involve issues of what are generally known as

cluster markets. *That is, passenger services offered on different routes are not included in the same market because they are regarded as close substitutes for each other.* Rather, they may be included in the same market because complementarities in demand or production mean that firms will only be able to compete by producing both types of services. (Frontier Economics, p. 19, emphasis added)

Frontier later remarks:

No one would argue that a passenger journey from A to B is a close substitute for a passenger journey from B to A. Nevertheless, these services would normally be defined as being in the same market, because the cost to an airline of offering both services is half that of offering the two services by two separate airlines with planes flying empty on the return leg. (Frontier Economics, p. 20, emphasis added)

In our view, these comments suggest that Frontier does not consider there to be any scope for supply side substitution. In contrast, as we argue in our report, we believe that once an airline has established itself in the Australia-New Zealand region, there is significant scope for supply side substitution and expansion within the region. At the very least, this is evidenced by Virgin Blue's rapid expansion within Australia, and pending expansion on to the Tasman and the New Zealand domestic routes.

Frontier also suggests that the NECG modelling approach is supportive of more disaggregated markets:

It is noteworthy that the NECG Report, although preferring a market that embraces all three regions, undertakes its competition analysis on a disaggregated basis. This choice seems to be dictated by the problem at hand; and this provides another compelling reason to opt for three separate regions when analysing the effects of the proposed alliance on competition. It seems almost obvious that the effects of the merger will be felt within domestic New Zealand travel and within Trans-Tasman travel. As the NECG Report states: 'Our analysis focuses mainly on competitive effects as they relate to the domestic New Zealand and Tasman air passenger routes, since the Alliance will alter the structure of competition along these routes more than any others.' (Frontier Economics, p. 21)

By this reasoning, it is not clear why Frontier does not argue that the relevant markets are city pairs, since our modelling is performed at this level. Regardless, as we state on numerous occasions throughout our market definition analysis, our modelling is undertaken at the city pair level for the sake of being conservative, rather than being indicative of how

we view the relevant markets. More importantly, if one views market definition as a heuristic exercise, then it again ignores the commercial reality of airline competition in the Australia-New Zealand region noted above.

Product market definition

Frontier believes that NECG's views regarding the relevant product markets:

... overemphasises demand substitution over production complementarities, and it misrepresents commercial reality in ignoring the strategy and operations of airlines and the way in which they compete. In our opinion a more appropriate delineation of the sphere of competition relevant to the alliance would not treat the provision of air passenger and air freight services as separate and distinct markets, but as integral parts of a broader airline services market. (Frontier Economics, p. 21)

To support its argument, Frontier points to the roughly 10% market share of dedicated freighters, and argues:

The low share of air freight by dedicated players may actually be evidence that synergies between freight and passengers are important, especially in the relevant region. (Frontier Economics, p. 22)

We accept and recognise that there is a relationship between competition in air freight services and air passenger services. As we have noted, around 90% of air freight is carried in the bellyholds of air passenger aircraft. However, from the perspective of determining whether there is a supply side cluster market, there do not appear to be pervasive costs that make it only commercially attractive for air service providers to jointly supply air passenger and air freight services to *individual* consumers.

Even if we adopt a much looser criterion for defining a cluster market, that is, the broader test of economies of scope, which is what Frontier appear to rely upon, defining a single freight market does not seem appropriate, as the following market evidence suggests:

- *The existence of dedicated freighters.* Despite Frontier being dismissive of this market observation, we firmly believe that the very presence of dedicated freighters would suggest that there is no cluster market. As a general point, an underlying principle of the cluster market test is not simply whether there are economies of scope in joint supply, but whether these are so pervasive that firms cannot compete in the supply

of one product without the other.³ Hence, we see the continued presence of dedicated freighters to be strong evidence of separate product markets.

- *The existence of dedicated air passenger service providers.* Virgin Blue competes effectively in Australia in passenger services despite only providing limited air freight services. In part, this is likely to be due to the limitations associated with operating B737s, which cannot carry freight pallets. However, it is likely to also be related to costs. An objective of VBAs is to have aircraft in the air as much as possible. The costs of loading and unloading freight (including opportunity costs associated with increased turnaround times), particularly individual freight parcels (as compared with freight pallets), is likely to deter VBAs from providing extensive air freight services. These factors point towards there being separate air passenger and air freight service markets.
- *Different market conditions.* As outlined in section 2.4 of our report, there are clear differences in the market conditions faced by providers of air passenger and air freight services, including differences in regulatory barriers and flexibility associated with scheduling and departures. Moreover, on the demand side, services are sold to different groups of consumers. These differences are reflected in pricing decisions and strategies. As outlined in section 2.2.1, an integral part of the supply of air passenger services is the managing of yields. Airline yield management systems only manage the allocation of air passenger tickets to different inventory classes, rather than also taking into account the pricing of air freight services. Overall, these differences in market conditions support our view that separate product markets exist for air passenger and air freight services.

It may be useful here to draw an analogy with sports merchandise retailing. Most sports retailers supply both sports shoes and sports clothes. Moreover, high market shares of sports shoes sales for any given retailer may well be mirrored in market shares of sports clothes

³ More specifically, the relevant test is whether the unbundled supply could defeat a SSNIP by a cartel of the bundled suppliers. The key question then is the critical loss threshold for the hypothetical cartel. Were one to accept Frontier's claim that airlines are characterised by high fixed costs and low marginal costs, the critical loss would be low and there seems little doubt that supply by dedicated freighters would be sufficient to defeat a SSNIP.

sales. However, to suggest that this market observation in itself renders sports shoes and sports clothes in a single cluster market is clearly inappropriate. Rather, most likely, there are significantly different competitive pressures that impact on the pricing (and other) decisions with respect to these two types of products, such that they would be seen as being provided in different markets.

3 Entry and expansion barriers

The issue of entry barriers is discussed in the Virgin Blue submission in paragraphs 3.17 to 3.37 (and summarises in paragraphs 1.4 to 1.9). This section considers the arguments and evidence presented in these paragraphs. However, before proceeding, we first note Virgin Blue's view that:

As a preliminary point, Virgin Blue notes the Applicants have not addressed the issue of barriers to the market they have advanced. They chose to avoid the discussion as "...there is scope for lengthy but inconclusive discussion on the extent and nature of barriers to entry". Instead they focus on barriers to expansion, that is, the ability of an existing market participant to expand its services and offer an effective competitive restraint to a firm trying to use its market power. (Virgin Blue, paragraph 3.17)

As noted in the NECG report, we view the relevant market as being the Australia-New Zealand market. Given that we believe that entry is most likely to come from an airline already operating in this Australia-New Zealand market, it is therefore most relevant to consider expansion barriers rather than barriers to *ex-novo* entry. If there were separate markets for Australia, New Zealand and the Tasman, then our analysis could be considered as an analysis of barriers to adjacent market entry.

Ultimately, though, we do not believe too much should be made of the semantics. The fact of the matter is that it is highly likely that future competition will involve an established firm extending its operations into the sectors directly affected by the proposed Alliance. Because it is extending its operations, it will not need to incur the fixed costs involved in the initial establishment of an airline – for example, the costs of developing IT and administrative systems that can support its operations, establishing maintenance procedures, securing and certifying a fleet, and so on. As a result, we believe that the relevant costs are substantially different and lower from those associated with *ex novo* entry. It is this, rather than the term used to describe these costs, that matters.

The significance of access to facilities and strategic conduct

Virgin Blue has stated that it will be entering Tasman and New Zealand domestic routes regardless of whether the Alliance proceeds:

Virgin Blue has been actively considering establishing operations on these routes. With or without the Proposed Alliance, Virgin Blue will commence on these routes. Critically the timing and scale of Virgin Blue's entry will depend on the barriers to entry. (Virgin Blue, paragraph 1.4)

The fact that Virgin Blue has indicated that it will enter Tasman and New Zealand routes regardless of whether the Alliance proceeds suggests that a consideration of entry and expansion barriers in the abstract is, in a sense, less relevant. That aside, we note that Virgin Blue submits:

There are two principal barriers to sustainable entry on the trans Tasman and New Zealand domestic routes:

- (a) access to facilities and commercial arrangements on reasonable and competitive terms; and
- (b) the sunk costs of entry particularly losses incurred due to the strategic response of incumbent airlines. (Virgin Blue, paragraph 3.20)

Moreover, in summarising its views, Virgin Blue submits that the Alliance raises these barriers (see Virgin Blue, paragraph 1.5).

With respect to the overall height of expansion barriers arising from facilities access, we note that the Alliance parties are willing to submit undertakings should the ACCC/NZCC deem that material expansion barriers arise from these sources. That said, we disagree with Virgin Blue's view that barriers arising from access to facilities will increase as a result of the Alliance. In this respect, we note the view expressed in the SACL submission that the Alliance would *reduce* rather than raise capacity constraints at Sydney Airport (see submission by SACL to ACCC dated 7 February 2003). Sydney Airport is, as we understand it, the Australian airport where capacity constraints are most significant and, even then, these only arise at certain peak times. With respect to ground handling facilities, the Alliance will not increase concentration in the provision of these services, and hence, we see it as unlikely that the Alliance will affect the ability for an entrant to obtain access to these services.

With respect to sunk costs associated with strategic behaviour, Virgin Blue argues that strategic behaviour will be engaged in by the Alliance through their low cost subsidiaries, in order to deter and delay expansion (see Virgin Blue, paragraph 1.6). More specifically, Virgin Blue submits that, based on its own experience, “the strategic response of incumbent airlines is a substantial barrier to successful and substantial entry for any new entrant airline”, specifically as “facilitating effective strategic conduct”: strategic capacity deployment, yield management, flexible price adjustments, and information on competitor activities. See Virgin Blue, paragraph 3.25. Virgin Blue also provides examples that it claims to represent attempts at strategic pricing and capacity conduct by Air NZ (see Virgin Blue, paragraph 1.8).

There are two factors that would tend to suggest that strategic conduct would be unlikely to deter expansion in the manner suggested by Virgin Blue:

- First, Virgin Blue has a significant market share on Australian domestic routes. Most recently, reports suggest that it has a 30% share on these routes, perhaps more.
- Second, Virgin Blue has, on a number of occasions, stated a long-term objective of serving the broader Australia-New Zealand region (see NECG report, section 2.3.5), consistent with our views as to the relevant geographic markets (see NECG report, section 2.2.3) and Virgin Blue’s own submission (Virgin Blue, paragraphs 1.3 and 2.21).

The fact that Virgin Blue’s expansion is from a base position of some strength on Australian domestic routes, and that other players would likely view any commitment of capacity by Virgin Blue to Tasman and New Zealand domestic routes as a credible long-term commitment, in our view, would tend to undermine the likelihood of strategic conduct on the part of the Alliance.

Also, Virgin Blue claims that substantial sunk costs (in the form of operating losses) can be incurred upon an airline entering the market. This may or may not be true for *ex novo* entry, but it is unlikely to be correct with respect to expansion or adjacent market entry. Virgin does not provide any evidence on this point, and our own cost modelling does not indicate high sunk costs. Additionally, what matters are not costs *per se*, but costs that are borne by the entrant but not by the incumbent; what Virgin would need to show is that the magnitude of these costs, and of possible losses against these costs as a result of strategic conduct by the incumbent, is substantial. Again, Virgin provides no evidence on these points, and the cost modelling set out in our report does not indicate high asymmetric costs.

Turning to the specific mechanisms that are alleged to facilitate strategic conduct, Virgin Blue argues that airline yield management systems can “ameliorate the impact of increased discount fares in the market” in ways that are allegedly effectively exclusionary. To support this contention, Virgin Blue provides evidence that, in Australia, there has been a substantial decrease in discount fares, a modest increase in economy fares and a substantial increase in business fares.

It is questionable whether Virgin Blue’s characterisation of what has happened to the fare structure is correct. As noted in section 2.1.3 of the NECG report, the data we have obtained from Qantas indicates that its business yields declined following VBA entry, rather than rising as Virgin Blue suggests. That fact notwithstanding, the logic behind the claim that yield management systems facilitate exclusionary conduct, and that a change in the fare spread evidences this point, is very unclear.

To begin with, there is nothing predatory or anti-competitive in price discrimination *per se* – in fact, usually, price discrimination both increases welfare and enhances competition. The mere fact that yield management systems allow this process to operate more effectively, making it possible to sustain a greater spread in fare levels than would otherwise be the case, is a development to be welcomed rather than condemned. Virgin’s contention that the fare spread has risen, even were it correct, would hardly be evidence of inefficient cross-subsidisation or anti-competitive behaviour.

If the claim is that yield management systems allow highly targeted discounting, making it possible for incumbents to ‘laser beam’ predatory prices at fledgling competitors at low cost to themselves, then it is a gross exaggeration. The fact of the matter is that the price discrimination effected by even the most sophisticated yield management systems is far from perfect. Indeed, as we noted in our report, there is extensive evidence of consumers shifting between fare types and levels in response to relative prices. As a result, even targeted cutting of fares so as to match a VBA imposes a wider opportunity cost on an FSA (as there is cannibalisation among fare types) with the extent of that cost rising with the extent of its fare spread.

This means that any attempt at predation would be very expensive for an FSA. Moreover, the extent of the costs predatory conduct would impose on an FSA are made all the greater by the fact that FSAs (including the ones here at issue) operate a substantial resource cost penalty relative to value based carriers. As a result, predatory output expansion or price falls would likely impose a greater financial penalty on the incumbent than they could on the entrant, especially one that had access to ample financial resources.

That the risks of exclusionary conduct are by no means as great as Virgin Blue states is strongly suggested by the fact that to date, there is little or no evidence of incumbent carriers successfully excluding VBA entrants. While many start-up airlines have failed (and many established ones too), successive investigations, in many parts of the world, have consistently found the failure to be due to the toughness of competition in aviation, rather than to exclusionary conduct. If it was indeed the case that the specific features of FSA's (such as use of yield management systems) made exclusionary conduct easy, as Virgin Blue claims, it is surely implausible that VBA's would have done as well as they have in so many markets world-wide.

Finally, Virgin Blue suggests that VBA's are especially vulnerable to incumbent response in markets where there is a single incumbent FSA, the inference being that the Alliance will accentuate the risks Virgin Blue faces. Even if one thought this claim had some grounds in theory (and that is highly arguable), the fact of the matter is that very extensive VBA entry worldwide has occurred in markets where there is a single incumbent FSA. Indeed, entry into markets such as these (where the VBA can market itself as **the** alternative to a monopoly) has been a standard feature of VBA's such as SouthWest. Virgin Blue's claim therefore lacks empirical support.

In short, we do not agree with Virgin's Blue claim that it is especially vulnerable to predatory conduct:

- Virgin Blue is well established in Australia, has ample funding, and its displacement from the market is extremely unlikely;
- It has a relatively low level of cost, and hence can withstand lower price levels than could the incumbents;
- The mere fact of incumbents' having access to yield management systems does not mean that incumbents can 'laser beam' price reductions – rather, as the Australian experience shows, because consumers can and do substitute between fare types, the pressure to meet lower fares at the discount end of the market puts substantial downward pressure on the less restricted fare types; and
- Claims that VBA's are highly vulnerable to exclusionary behaviour by incumbents is inconsistent with the success of VBA's internationally, including in entering markets where there is a single incumbent.

Instead of access to facilities and the likelihood of strategic conduct being key factors, we believe that the most relevant factor that gives rise to expansion barriers, at least for New Zealand, is the overall scale of New Zealand domestic routes.

This factor means that New Zealand domestic routes may only be able to sustain a limited number of market participants. Certainly, history suggests that these routes may not be able to support two FSAs. We therefore question whether these routes can support two FSAs as well as Virgin Blue in a future without the Alliance. Instead, we consider the scale of these routes to be far more conducive to the development of new competition – that is, that expansion barriers for Virgin Blue would be materially lower – if the Alliance were to proceed.

The impact of the Alliance on the timing and scale of entry⁴

As noted above, Virgin Blue has stated that it will enter Tasman and New Zealand domestic routes regardless of whether the Alliance proceeds. However, it argues that the Alliance could affect the timing and scale of entry, specifically, that entry would not be as timely and may not be as substantial as it otherwise would be, at least as modelled in the NECG report.

With respect to scale, we believe that if Virgin Blue were to enter, by definition its level of entry would necessarily be substantial. Specifically, we take it as given that if Virgin Blue were to enter, it would seek to maximise profitability. Given the overall size of domestic New Zealand routes, Virgin would have to enter on at least the major trunk routes and at reasonably high frequencies to obtain the traffic required to best ensure profitable operations. Given that three routes – AKL-WLG, AKL-CHC, and WLG-CHC – account for the bulk of all domestic New Zealand air passenger traffic (see NECG report, section 2.3.2) Virgin Blue's entry, were it to occur, would inevitably be substantial, at least insofar as that it meets the standard outlined by the NZCC's 'LET' test.

It is also important to note that Virgin Blue's claims regarding the scale of entry assumed in the NECG analysis appears to be based on a misinterpretation of the VBA schedules set out

⁴ Although we use the term entry, this is simply to reflect the views put by Virgin Blue, rather than in any way departing from the arguments we set out above.

in the NECG report, which were presented in terms of one-way departures, not round-trips (see section 4.2 below)

4 Counterfactual assumptions

Quantification of the net benefits requires assumptions about what would happen in the future without the proposed Alliance – the counterfactual. The price and output impacts associated with the Alliance are estimated with respect to the capacity that would be operated by each airline in the future with and without the Alliance and the cost efficiencies, in particular, rely on a comparison of the costs associated with the operation of the schedules with and without the Alliance. Therefore, when considering the reasonableness of NECG analysis, a key factor to take into account is the plausibility of the counterfactual schedule.

In NECG's view, the airlines themselves are well placed to determine what schedules they would operate with and without the Alliance. Many factors influence these decisions including patterns of demand, competition, network effects, aircraft availability and operational costs. The airlines make decisions regarding scheduling on a day-to-day basis and hence, in terms of experience, can make judgements about the most realistic schedules that would be operated in the future with and without the Alliance. Hence, this is the approach that NECG took in determining the factual and counterfactual schedules. That is, we worked with the airlines to elicit the schedules that they believed were the most accurate representation of the flights they would operate with and without the Alliance.

Having said that, it is understandable that interested parties seek to test the plausibility of the factual and counterfactual schedules. Many of the submissions made to the NZCC and ACCC are particularly sceptical about the likelihood of the counterfactual used in the NECG analysis eventuating. For example, Wellington International Airport suggests that an aggressive move by Qantas in domestic New Zealand is contrary to the past behaviour of Qantas and suggests that NECG's assumption about a new VBA starting operations in head to head competition with a single well-capitalised incumbent contrasts markedly to overseas experience.⁵ Infratril states that acceptance of the dire predictions set to result in the

⁵ Wellington International Airport provides no evidence to this effect. As we note above, there are many instances where VBA's have entered markets with a single incumbent.

counterfactual from the “war of attrition” requires acceptance that airlines will behave in a manner that is commercially illogical. The Consumers’ Institute argues that the counterfactual is based on a collection of worst-case scenarios chosen for their support of the applicants’ case rather than for any particular likelihood that they will eventuate. Virgin Blue claims that the particularly stark counterfactual scenario advanced by Qantas and Air NZ is implausible and unlikely. Frontier Economics also claims that the counterfactual scenario used for the purposes of assessing public benefits and competitive detriments is not credible. Frontier argues that the counterfactual is only rational for Qantas if it is predatory and it is not rational for Air NZ to compete for a period of five years if its demise is foreseeable. Frontier’s claims regarding the predatory nature of the counterfactual are discussed in more detail below. Similarly, Hazledine suggests that the NECG results rely heavily on a deeply unattractive counterfactual that has Air NZ and Qantas engaging in ruinously vicious competition if they are not permitted to form their “cartel”.⁶

First, NECG accepts that the future of the aviation industry is highly uncertain, as claimed in many of the submissions, and as a result a degree of uncertainty must attach to the evaluative process. However, the authorisation process in New Zealand requires a *quantitative* assessment of the competitive detriments and public benefits associated with the proposed Alliance. Moreover, even if it were not the case that the New Zealand authorisation process required quantification, there would be clear merit in seeking to carefully identify and quantify the costs and benefits of the conduct for which authorisation is being sought. In order to quantify, to the fullest extent possible, the impacts of the proposed Alliance, it is necessary to make a judgement regarding the likely future state of the world with and without the proposed Alliance. It would be impossible to quantify price and output impacts and cost efficiencies without informed estimates of the schedules that would operate in the future. It is for this reason that working with the parties, we have developed a relatively fleshed out view of the possible futures. Hence, while we accept that the detail of the schedules proposed may or may not accurately capture how the future will play out, we believe that they provide the best approximation. To put matters slightly differently, while we recognise that outcomes will undoubtedly differ from expectations, be

⁶ As we note above and discuss in greater detail below, Frontier then proceed to assume Bertrand competition in a context of declining unit costs (which is far more aggressive than the competition we model), while Hazledine essentially assumes that the counterfactual is perfectly competitive.

it of the factual or of the counterfactual, we do not believe these expectations are biased, in the sense of involving systematic error relative to likely outcomes.

Second, it is important to understand that we examined two counterfactuals in our report. Neither counterfactual involves predatory increases in capacity. The first counterfactual – the main counterfactual – used for the purposes of quantifying the competitive effects and public benefits of the proposed Alliance, involves Qantas and Air NZ continuing to compete aggressively on the Tasman and Qantas increasing its capacity in domestic New Zealand to more closely match that operated by Air NZ. The main counterfactual does not involve Air NZ exiting any routes or otherwise substantially retrenching its operations. Rather, it reflects ongoing, and slightly intensified, competition between Qantas and Air NZ on Tasman routes, consistent with historic behaviour, entry by a VBA and the implementation of Qantas’ plans for domestic New Zealand.

The second counterfactual is more dire for Air NZ, and it is the plausibility of this scenario that appears to be the main concern of the submissions. NECG was concerned that if the main counterfactual resulted in losses for Air NZ then the continued operation of its full network may not be possible over the longer term. However, even then the confidential counterfactual does not involve the exit of Air NZ but, as explained in the NECG Report, the selective scaling-back of its operations. Since submitting the NECG Report, the concerns over Air NZ’s future have been confirmed by Air NZ management. While Air NZ did achieve a half-year profit result of NZ\$94 million, there is no certainty that such results will continue into the future. First, the results were largely a result of exogenous factors, predominantly a higher New Zealand dollar and lower fuel costs. Second, some analysts are discounting the turnaround in profitability on the basis that competition between Qantas and Air NZ is less intense than it would have otherwise been while the relevant regulators are assessing the applications for authorisation. For example, Macquarie Research Equities (MRE) propose that:

The second half environment should remain positive for Air NZ because:

Domestically, as it applied for JAO approval with Qantas, MRE doubts any aggressive competition. Thus the lower pricing created from the Air NZ “Express

pass” is driving higher load factors on lower cost airlines, without any excess competitive response impacting volumes.⁷

Third, the airline industry is highly uncertain and an improvement in profitability for a period of 6 months provides little indication of longer term viability. For example, in the 1999 financial year Ansett recorded a 143% increase in profit before tax to A\$200.4 million⁸; two years later it was placed into administration.

Finally, when considered in the context of historical experience, the counterfactual used to quantify the competitive detriments and benefits of the proposed Alliance is not at all implausible (see Annex A which compares the historical experience of Qantas and Air NZ on Tasman and domestic New Zealand routes with the schedules used in the factual and counterfactual scenarios that form the basis of our analysis).

4.1 Frontier Economics⁹

Frontier argues that NECG’s characterisation of the counterfactual is a capacity war between Air NZ and Qantas, which would be won by the latter. It also argues that the counterfactual is described as a slow, painful death for Air NZ. Frontier questions the credibility of this counterfactual on two grounds. First, it argues that the behaviour described for Qantas in the “without” scenario could be regarded as inconsistent with a rational, profit maximising response unless it is designed to cause competitors to exit the market or to deter entry. Second, Frontier questions the supposed strategy of Air NZ in the “without” scenario on the basis that it would be irrational for Air NZ to commit to a strategy that results in it incurring substantial losses for a number of years despite the probability that it will be forced to reduce or cease operations.

⁷ Macquarie Research Equities, 28 February 2003.

⁸ Air New Zealand Limited Annual Report 1999, p. A22.

⁹ Frontier’s claims with respect to our modelling are discussed at 6.1 below. This section only reviews the arguments they put with respect to the plausibility of the counterfactual.

Each of these points is incorrect. Frontier appears to completely misinterpret NECG's counterfactual. The counterfactual that forms the basis of the quantitative analysis involves Qantas and Air NZ continuing to compete aggressively on Tasman routes and in domestic New Zealand. There is certainly no exit of Air NZ over the five year period modelled and there is nothing in either the capacity assumptions or solution price results to suggest that Qantas' behaviour in the counterfactual is of a predatory nature, designed to cause competitors to exit the market or deter entry.

As shown above, the counterfactual schedules operated by Qantas and Air NZ on the Tasman are consistent with historic behaviour, which involves competition between the airlines with each at least matching the other's capacity. In domestic New Zealand, Qantas' broad strategy in the absence of the Alliance is to expand frequencies in an attempt to more closely match those offered by Air NZ. As discussed below, frequencies are critical to obtaining market share, particularly of the high yield business passengers.

Quite contrary to Frontier's claim, there is nothing in this pattern of behaviour that is irrational. Obviously, competition is less profitable than collusive behaviour; but this does not imply that firms are irrational when they compete. Indeed, it is the essence of the economic modelling of competition that it shows how and why firms take decisions which are individually rational while not being collectively optimal for producers.

Nor does our counterfactual scenario (or any of the other options we have considered) involve behaviour that is in any way predatory - rather, the incremental network revenues generated by these decisions are above the incremental network costs they entail. In fact, it is difficult to see how Frontier could claim that the behaviour is predatory when it involves prices and outputs that differ from the Alliance prices and outputs by only 4% to 5%. Of course, Frontier make no attempt to subject these price differences to any comparison with cost - which presumably they could readily have done given access to Virgin Blue's cost data.

In a confidential annexure to our report, we do consider a more drastic counterfactual scenario for Air NZ, in which it scale-backs generally and from a number of routes. This scenario is in no way reflected in the modelling results presented in the body of our Report, which are based on the central counterfactual we discuss.

However, even if there were a probability of Air NZ exiting the market after a war of attrition, this is certainly not sufficient for it to choose to exit immediately, as Frontier claims.

Even a cursory review of attrition models would have corrected Frontier's view. These models study markets with excess numbers of firms and examine the process that selects survivors. A major point of these models is precisely that firms, even ones that are relatively weak, do **not** exit simply because a war of attrition is underway. (For example, the formulation of Fudenberg and Tirole¹⁰ illustrates why a firm may stay in the market while actually making losses). Indeed, we are not familiar with any attrition model that predicts immediate exit.

Turning from the economic modelling to commercial common-sense, it is clear that Air NZ has substantial accumulated brand value that would be lost if Air NZ were to cease operating. In such circumstances, as long as the revenues are higher than the operational (avoidable) costs it may be rational to stay in the market even if, once the costs incurred so as to accumulate this brand capital are included, total costs are higher than total revenues. An exit decision would also need to take account of the option value of staying in the market when exit decisions are costly to reverse, for example, because of the resulting brand damage. Moreover, once an airline has operated for some time on a substantial scale, exiting a market can be costly in terms of severance and other wind-down costs, as the recent history in Australia shows. This too will act to defer the efficient date of exit. Finally, the reality is that wars of attrition inevitably occur in a context of substantial uncertainty; the possibility of Air NZ's shareholder 'toughing it out' can hardly be arbitrarily excluded.

4.2 VBA entry

A number of submissions suggest that VBA entry would be more likely under the counterfactual than the factual. As discussed in our Report, we do not believe this would be the case given the higher prices predicted under the factual and the greater level of capacity operated by Qantas and Air NZ under the counterfactual. Virgin Blue in particular has stated that it does not expect to achieve the scale of operations that the Applicants have assumed in the NECG Report¹¹. Virgin Blue claims that the NECG Report has assumed that under the factual Virgin Blue would operated 6 aircraft in year 1, 15 aircraft in year 2 and 17

¹⁰ Fudenberg D and Tirole J, 1986, "A Theory of Exit in Duopoly," *Econometrica*, 54:943-960.

¹¹ See paragraph 4.15 of Virgin Blue submission.

aircraft in year 3. This is incorrect. It appears that Virgin Blue may have misinterpreted NECG's VBA schedules as roundtrips rather than departures. In fact, NECG's analysis assumes that the VBA would operate 3.3 aircraft in year 1, 8 aircraft in year 2 and 9.1 aircraft in year 3.

5 The appropriate authorisation test

Virgin Blue claims that in Australia there has been no acceptance that a quantitative total welfare test is required or even desirable and in Australia it is clear that greater weight is to be accorded benefits which flow through to the public generally. Virgin Blue argues that if the gains accrue privately (even to shareholders in public companies) and the detriments impact upon the public generally the Commission should be slow to grant authorisation. Frontier endorses Virgin Blue's comments when it says, in what is plainly intended to be a criticism of our Report, that we do not elaborate on the transfers between consumers and producers.¹²

In a similar vein, Hazledine claims that the mainstream approach in cost-benefit terms is approximately equivalent to adopting a consumer surplus or price standard, which rejects a change that would result in significant increases in price.

The Australian Consumers Association also suggests that cost efficiencies that accrue to the parties should not be considered a "public benefit".

These arguments suggest that consumers of air passenger services should be given more weight than other members of the community in assessing the proposed Alliance. In fact, Hazledine is even stronger, suggesting that the Alliance should be rejected if it results in **any** significant price increase, presumably even if these detriments are outweighed by benefits associated with the Alliance that accrue to other members of the community. Such approaches, whether they involve the weighting of results or the exclusion of benefits that do not reduce air fares are inconsistent with the role of the authorisation process.

¹² Frontier's endorsement of Virgin's approach is surprising in the light of Officer and Williams "The Public Benefit in an Authorisation Decision" in Richardson and Williams (eds) (1996) *The Law and the Market*, see especially pages 160-162.

As set out in our Report, our approach has been to consider the impact of the Alliance from the point of view of society **as a whole**, an approach we believe to be consistent with the authorisation test. Fundamental to this assessment is a realisation that competition is not an end but a means – the end being that of ensuring that society can obtain the best use of, and hence greatest value from, the limited resources at its disposal. The question is then whether the Alliance contributes to that end.

Our approach to assessing the impact of the Alliance is fully consistent with the methodology the NZCC has used in considering authorisation applications. More specifically, 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 of those impacts within the community.

In taking this approach, we recognise that it has at times been suggested that greater weight should be placed on distributional considerations. However, we believe that the arguments for doing so are unclear and incorrect in economic policy terms, as well as inconsistent with the legal test.

The arguments made in support of taking account of distributional considerations are of two broad types.

According to a first line of argument, who benefits flow to should affect the weight placed upon them. Benefits that flow directly to consumers, for example, might be weighted more heavily than those that go to producers in the first instance;¹³ or benefits that go mainly to low income households might be given a greater weight than those that go to households with high incomes.

An obvious difficulty with this line of argument is that it is not clear that competition authorities are well qualified to take decisions about income distribution. Additionally, the fact of the matter is that the distributional consequences of proposals such as the one here at issue are complex, and hence difficult to evaluate without relying on essentially arbitrary assumptions. More generally, competition policy is both ineffective and inefficient as a

¹³ From an economic point of view, benefits cannot ultimately accrue to “producers”; rather, they accrue to those who have claims on the income of firms – such as shareholders, providers of debt finance and suppliers of inputs such as labour.

means of achieving goals of income distribution – all the more so as its impacts on these goals are so indirect and difficult to predict.

Even if these concerns were put aside, it is by no means clear on what rational and defensible basis it would be decided that a gain of \$X accruing to one member of the public could reasonably be given greater weight than a similar gain accruing to another member of the public. This is an issue economists, political philosophers and others have long debated, and on which there is no consensus from a methodological point of view, much less as to substance. Value judgements are inevitably involved, with those judgements best being made in the political process, rather than by those whose task it is to administer policy.

As a result, it is our view that giving greater weights to some benefits than to others seems far more likely to introduce arbitrariness and error than to meaningfully advance any objective associated with the public interest.

In the second line of argument, the crucial issue is the durability and credibility of the benefits. The claim, more specifically, is that gains that are not passed on to consumers are likely to be dissipated in the form of excess costs and hence should be given less weight. This claim is, in our view, unconvincing in general but especially so in this case.

At a general level, the crucial difficulty lies in understanding why this process of dissipation would occur. After all, the general assumption is that firms that have market power will want to benefit from that power; it seems inconsistent to assume that they will do so when measuring the competitive detriments, but to then assume, in calculating the benefits, that profit maximisation will not be pursued and excess costs allowed to develop. It is true that concerns about excess costs have at times been expressed in the economic literature (most notably in the concept of “x-efficiency”); but – reflecting the difficulty noted above – the analytical underpinnings for these concerns have been severely criticised, and the view that excess earnings are dissipated in the form of cost inefficiencies has not obtained significant theoretical or empirical support.¹⁴ Moreover, to the extent to which empirical studies of

¹⁴ There are, in this context, the views expressed by Michael Porter in his work on global competitiveness. Although Porter’s work is frequently cited in the popular press, it has received little or no support in wider economic analysis. This is unsurprising, as the work is essentially qualitative, being a collection of case studies, with little obvious basis for the selection made. In any event, that work says nothing about the determinants of comparative

differentials in efficiency do find any evidence of impacts from market structure, the effects are small and variable.¹⁵ Discounting the cost savings at issue here for even the greatest plausible scale of ‘dissipation’ effects that have been found in empirical studies¹⁶ would therefore not alter any of the conclusions of our analysis, but would merely introduce likely error into the assessment.

cost levels, as it is concerned with the wider issue of firms’ overall competitive positioning. That said, there clearly are other, more rigorous, theories linking efficiency levels to market structures. However, the point is that consideration of those theories would not disclose any reason to materially discount the cost savings here at issue. For example, the key mechanism at work in these theories is that firms in more concentrated markets have fewer comparators on which principals can draw in bargaining with agents. As a result, incentive contracts are less efficient, and there is an impact on innovation and on productivity levels. However, for these impacts to occur, the transaction (1) must eliminate a significant prior comparator and/or alternative source of innovation; and (2) after the transaction, the firm at issue must not be able to accurately benchmark its performance against other firms in the industry and/or rely on a remaining range of firms as alternative sources of innovation. It is obvious that neither of these conditions is met in the case at hand.

¹⁵ Additionally, the studies that do find an efficiency differential typically relate to the comparison between regulated and unregulated activities. The likelihood is that the differential relates to the impact of regulation rather than being due to market structure *per se*.

¹⁶ It is important to distinguish studies on whether firms that have market power incur excess costs from those that seek to assess the impact of mergers. Generally, studies of mergers look at whether mergers achieve **private** gains to the merging parties, rather than whether they realise savings to society as a whole. A result of some of these studies (but contradicted by many others) is that mergers fail to achieve wealth increases for investors; how robust this result is, quite why it might happen, and whether it matters, are all issues that are highly uncertain and controversial. Given the state of the merger literature, where there is simply no consensus as to whether mergers give rise to excess costs, we do not believe it would even be possible to derive any broad results from it, much less a ‘discount’ factor that could be applied in any defensible way to the conduct here at issue.

Even putting these general issues aside, the claim that benefits that are not passed on to consumers will be wasted away in cost rises is especially implausible in the current case.

To begin with, the efficiencies that we have modelled are not especially complex – rather, they are cost savings (such as those from improved aircraft selection) that are obvious to all of the players and do not require substantial ongoing effort for implementation. Additionally, the reality is that the parties will continue to face intense competitive pressures in all parts of their networks, and hence will have very little scope or incentive to accept excess costs – preserving long haul competitiveness, for example, will require ever greater attention to the scope for cost reduction, rather than indulgence in the “quiet life” of sheltered monopolists. Finally, the Alliance itself provides mechanisms that will assist benchmarking between the parties and strengthen rather than weaken each party’s incentive to reduce costs. Claims that cost savings will not be realised, and excess costs introduced, are therefore inconsistent with the specifics of the transaction being considered.

Given this, our approach has conformed to the principle that the goal embodied in the authorisation test is that of overall welfare (including efficiency), and has not sought to weight or discount gains on the basis of the group in society to whom they accrue.

6 Modelling of competitive detriments

Many of the submissions made to the NZCC and ACCC raise concerns about the competitive detriments that may flow from the proposed Alliance. However, only a limited number comment on the approach taken by NECG to quantify these detriments. The most substantive comments on the NECG analysis are made in three submissions – Frontier, Hazledine and Infratil. This section responds to each of these.

6.1 Frontier Economics

Frontier criticises NECG’s modelling of competitive detriments on a number of grounds:

- the use of Cournot competition is inappropriate;
- the approach assumes that marginal cost does not fall as a result of additional capacity;
- application of the capacity elasticity is inappropriate; and

- the analysis ignores the impact of the proposed Alliance on freight.

Frontier also raises queries regarding the results presented in Table 10 and 12 of the NECG report and the calculation of the deadweight loss.

This section addresses each of these issues.

Cournot competition

Frontier argues that NECG's application of Cournot is inappropriate¹⁷. First, it stresses that markets for air services are characterised by product differentiation across routes and types of carrier. The inference is that NECG's use of Cournot competition, which as implemented in our modelling, involves competition among firms producing a homogeneous commodity, is inappropriate. Second, Frontier argues that, once each airline has decided how to position its products and which routes it will fly, airlines then engage in Bertrand-type competition, presumably suggesting that we should have adopted Bertrand competition rather than Cournot competition as the benchmark for our modelling.

With respect to the first of these criticisms, it is obviously true that there is some product differentiation in aviation markets. However, the extent of that differentiation is less obvious – indeed, Hazledine, who has previously estimated models of the competitive process between the parties, considers that their services are very close substitutes. Regardless, had we assumed that the services were substantially differentiated, this would (in a differentiated Cournot model) have **increased** prices in the counterfactual, and hence **reduced** the competitive detriment. For this reason, we imposed the assumption of homogeneity, in line with the conservative approach we have sought to adopt generally.

Frontier's second criticism is even less well based. The essence of this criticism is that we ought to have adopted a Bertrand approach; however, as argued by Frontier at least, this criticism is based on arguments that are incorrect and indeed inconsistent as a matter of economics.

¹⁷ See Section 4.1 of Frontier submission, p 24.

More specifically, Frontier accepts that outcomes in aviation markets are determined through a staged process, in which capacities are initially determined and then prices are set, with those prices being influenced by the capacities chosen in the first stage of the game. However, if Frontier accepts this two-stage game involving the setting of capacity and then price, it follows that Frontier accepts Cournot competition. It is well-known in economics that where capacity decisions are first made, and pricing decisions can only credibly be made subsequently,¹⁸ then market outcomes are Cournot.¹⁹

Frontier's error lies in thinking that only the second stage in a two-stage game needs to be modelled. This is obviously not the case – rather, the full two-stage process must be modelled. The results, where binding quantity commitments are made in the first stage, will then be closer to Cournot than to Bertrand competition.

While criticising our use of Cournot competition, Frontier provides no practical alternative. Frontier claims that standard tools of economics enable Bertrand competition to be modelled and suggests “a useful example of modelling” along these lines is provided in a working paper by Tzavara, Levine and Rickman.²⁰ We have reviewed this paper and are surprised that Frontier would suggest it as a useful example for examining the issue at hand, particularly given that Frontier also explains in its submission that “any assessment of modelling must form a judgement as to the applicability of a model”. The paper identified by Frontier:

¹⁸ Formally, this result requires that firms set prices in a Bertrand fashion. Thus, even though the firms compete on price in a Bertrand fashion, the actual outcome of the game is identical to a Cournot game.

¹⁹ This is the Kreps-Scheinkman theorem. Similar results can be derived with fewer assumptions than are relied on by the Kreps-Scheinkman theorem – see for example, Vives, X. (1986) ‘Commitment, flexibility and market outcome’ 2 *International J. of Industrial Organisation*: 217-230.

²⁰ Dionisia Tzavara, Paul Levine and Neil Rickman, ‘Market entry and roll-out with product differentiation’, 2002 working paper, <http://repec.org/res2002/Tzavara.pdf>

- involves the analysis of a post 3G auction situation in mobile telecommunications markets, which obviously has starkly different characteristics to the airline industry;²¹
- examines the decision faced by a potential entrant related to its level of market coverage. In other words, the capacity choice is made only by one firm and hence bears no relation to the analysis of the proposed Alliance;
- only finds a solution under the stringent condition of unit demands – that is, when consumers purchase zero or one unit of output and no more. This is assumption obviously does not apply to flights where the purchase of multiple flights is common; and
- when it does find as solution under the required unrealistic assumption of unit demand, it is either a local monopoly price, a Bertrand price or a mixed strategy where firms choose a local monopoly price with some (different) probabilities and a Bertrand price with the complementary probability. There are two fundamental problems with this: (1) from a policy perspective it is difficult to come to valuable conclusions based on models with multiple equilibria, as the outcomes will depend on (and usually be highly sensitive to) the mixing probabilities; and (2) the idea that firms in mobile communications or airlines in essence roll a dice to determine their commercial strategies *may be* interesting from a theoretical perspective, but its practical application is highly suspect.²²

As a result, it is not at all clear that developing such a model would improve on the accuracy of the Cournot estimates, let alone change the basic tenor of our findings.

²¹ The paper is unusual in that tractable studies of competition in mobile telephony generally rely on a Cournot approach. However, as is clear from the comments below, the model set out in the paper is not in fact particularly useful, even in the mobile telephony context.

²² For a cogent critique by a leading game theorist of the errors involved in ‘common sense’ interpretations of mixed strategy equilibria, see Ariel Rubinstein (2000) *Economics and Language: The Churchill Lectures in Economic Theory*: Cambridge: the University Press, at 77 and follows.

In short, Frontier seems to misunderstand the analytical bases of the Cournot model, in that the applicability of that model in no way requires an absence of price competition in a second stage; and then suggest as an alternative an approach which requires extreme assumptions to be made, and even then, can only generate mixed strategy equilibria which lack any clear economic interpretation.

Marginal costs

Frontier contends that, because the NECG modelling approach assumes that marginal cost (and hence prices) do not fall as a result of the excess capacity in the counterfactual, the modelling understates the price fall in the counterfactual and understates the deadweight loss associated with the proposed Alliance.

As a matter of economic theory, there is a clear tension between Frontier's advocacy of Bertrand competition as the right benchmark, and its claim that marginal costs are decreasing in capacity. In effect, if marginal costs are in fact decreasing, it is either likely that no Bertrand equilibrium exists²³ or that if it exists, it involves a natural monopoly – in which case, there is simply no competitive detriment.

It seems to us that Frontier's comments regarding marginal cost may be a result of its misunderstanding of the nature of competition between airlines. As explained above, Frontier focuses on price competition *once* capacity decisions have been made – and hence ignores the latter. Based on this incorrect premise, Frontier then claims that increases in capacity reduce marginal costs because the opportunity costs of transporting an additional passenger are low when there is excess capacity. From this Frontier infers that price ought to be lower in equilibrium. However, if average yields were determined on a basis that reflects marginal costs, and took no account of the need to cover capacity costs, then the competing carriers would plainly not be viable. As a result, Frontier must either be assuming, without adducing any empirical evidence, that the carriers' services are very highly differentiated (in which case, prices will certainly not be significantly lower in the counterfactual than in the

²³ See Dixon, H. (1987) 'Approximate Bertrand equilibria in a replicated industry' 54 *Review of Economic Studies*: 47-62.

factual), or actually believe that the industry is a natural monopoly – in which case the Alliance does not adversely affect long run outcomes.

Capacity elasticity

Frontier suggests that the uniform application of the capacity elasticity in NECG’s analysis is “very crude” on the basis that an increase in capacity will only produce an increase in demand if that increase in capacity offers potential passengers something of value. Frontier suggests that if an extra flight is added at exactly the same time as an existing flight, it is hard to see how any extra value is created.

The inclusion of a capacity elasticity was intended to reflect a difference in the quality of service resulting from more frequencies in the counterfactual compared with the factual. The inclusion of the capacity elasticity has the effect of increasing output in the counterfactual compared with the factual and hence **increases** the competitive detriment associated with the proposed Alliance. It was recognised that the majority of the capacity difference between the factual and counterfactual was due to the removal of duplicate flights and hence the inclusion of a capacity elasticity was conservative (ie it overstates the estimated detriments associated with the Alliance). This is noted in the NECG Report in the second paragraph under section 4.2.2. Given that the impact of the capacity elasticity is minimal and of a conservative nature, we do not consider this an important issue.

Frontier suggests that as a result of the inclusion of a capacity elasticity in the NECG model, an important caveat should be borne in mind when interpreting the NECG price and quantity predictions. Frontier claims that the “without” prices are almost certainly higher than is currently the (base) case. The reason they provide for this assertion is that an increase in capacity in our analysis increases demand and price. Hence, because capacity in the counterfactual is higher than base capacity so are prices. This is incorrect. The capacity elasticity is used in the model solely for the purpose of adjusting output to a change in capacity, and it in no way affects the price results from the model. In fact, the prices predicted from the NECG model in the “without” scenario are either equal to or below current (base case) prices. In other words, again so as to be conservative, the capacity elasticity acts solely to increase the loss associated with price changes, rather than the effect of the capacity induced shift in demand being to some degree muted by a contemporaneous price rise.

Freight

In section 4.7 of its submission, Frontier criticises NECG's approach to examining the issue of freight. Frontier states:

The NECG Report suffers from its attempt to analyse competition in passenger services independently of competition in air-freight services. As we noted in section 3.2. above, Appendix A of the NECG Report argues that freight and passenger services should be separately analysed. However, it proceeds to argue that this will not create any problems, because their analysis of passenger markets can be extrapolated to freight markets:

Confining the market to only include air freight services, competitive effects are likely to be largely revealed in our analysis of air passenger service markets, impacts arising in this market are likely to be largely revealed in our analysis of air passenger markets. (p 181)

Aside from the obvious typographical error, the inference drawn from this paragraph is incorrect, and clearly at odds with the discussion contained throughout the rest of the NECG report.

What Frontier is doing is citing the paragraph completely out of context, and hence misrepresenting the argument put. This is apparent when one reads this paragraph in conjunction with the important qualifying paragraph that follows, which Frontier conveniently disregards:

Having said that, this approach will likely overestimate detriments. Aside from the point noted above that other modes of transport, such as road freight, may constrain air freight services in some instances, specialist air freight operators are active in a wide range of markets. In addition, entry and expansion barriers into air freight markets are low. As a result, there is a high likelihood that expansion by these service providers could defeat an attempted price increase on freight by passenger airlines. (NECG report, p. 182)

This is also apparent from the discussion contained in section 2.4, concerning likely competitive effects in air freight markets, which Frontier chooses to ignore in its entirety, including the first paragraph, which notes:

However one views competitive effects in air passenger service markets, competitive effects in air freight markets must be viewed as being comparatively

lower. It is true that air freight services are, in many respects, a by-product of air passenger services given that most air freight is carried in bellyholds of air passenger aircraft. However, it is important to note that for specialist freight operators, entry and expansion barriers into these markets are low. In particular, many of the factors that might be argued to give rise to entry and expansion barriers for air passenger services are simply not relevant with respect to freight. (NECG report, section 2.4)

As noted in section 2.4 of the NECG report, we believe there are significant differences as they relate to entry and expansion barriers, including the relevance of regulatory barriers, sunk costs and access to airport facilities. Consistent with this, section 2.4 of the NECG report concludes:

In summary, therefore, the structural features of air freight markets suggest that it would be highly unlikely for airlines providing freight services to be able to exercise market power. (NECG report, section 2.4)

It is because of these structural features of air freight markets, which makes the exercise of market power in these markets most unlikely, that NECG has not sought to formally model detriments arising in air freight markets.

Other queries

Frontier identifies five categories of price and output impacts estimated by NECG, which it believes are “peculiar”. Before explaining the intuition for each of these results it is useful to review the factors that influence the price and output results.

The solution price under the factual and counterfactual is a function of:

- *base case price*: as the solution price is calculated as a change from the base case price, the higher the base case price the higher the solution price. The base case price does not impact the solution in terms of percentage change in price, but does impact the size of the DWL and net transfers;
- *price elasticity of demand*: the more price elastic is demand the smaller the price increase resulting from a lessening of competition;
- *market shares*: the market share of each individual market participant determines endogenously its marginal cost; and

- *number of market participants*: the higher the number of airlines operating on a city-pair, the lower the change in the price.

The solution output (ie passengers) is a function of:

- *base case output*: like the solution price the solution output is calculated as a change from the base case output;
- *base case price, solution price and price elasticity of demand*: to determine the solution output the base case output is adjusted to reflect the change in output due to the change in price. Therefore, the change in price (ie the percentage change in price between the base case price and the solution price) is multiplied by the price elasticity of demand and by the base case output to determine the change in output resulting from the change in price.
- *base case capacity, factual/counterfactual capacity and capacity elasticity of demand*: in addition to the adjustment for price, base case output is also adjusted for changes in output due to capacity to determine the solution output. The change in capacity between the base case and the factual/counterfactual is multiplied by the capacity elasticity of demand and by the base case output to determine the change in output resulting from the change in capacity.

Given these determinants of the solution price and output values, the results identified by Frontier can be readily explained.

The first set of results identified by Frontier as peculiar is the 13 city-pairs with zero impact on price and output. On these city-pairs Qantas does not operate any services either in the factual or the counterfactual. In addition, the level of capacity operated on these routes remains the same in both scenarios of the future. Hence, there is no change in the level of competition on these city-pairs and hence no change in price. As a result, and because there is no difference in capacity, there is also no impact on output.

The second set of results identified by Frontier is the city-pairs with zero price impact, but negative output impact. This means that the solution price simulated by the model is the same under the factual and counterfactual, but there is lower output in the factual compared to the counterfactual. This result occurs where there is no change in the level of competition on the route, and hence no change in the solution price between the factual and counterfactual, but where there is a change in the level of capacity operated between the factual and counterfactual, and hence the change in output. The negative output result implies that more capacity is operated under the counterfactual than the factual and hence,

via the capacity elasticity, the level of output will be higher under the counterfactual compared with the factual. As explained above, the capacity elasticity does not impact the solution price.

The third set of results identified by Frontier is the city-pairs with zero price impact, but positive output impact. This result occurs when the Alliance results in no change in the level of competition on the route (because only one of Qantas or Air NZ operates the route in both the factual and counterfactual), but there is more capacity in the factual than the counterfactual. When there is no change in the level of competition, the model simulates no impact on price. There is therefore no impact on output as a result of price effects, but there is an impact on output as a result of capacity effects. This is driven by the capacity elasticity and because there is more capacity in the factual than the counterfactual, the capacity elasticity results in higher output in the factual than the counterfactual.

The fourth set of results identified by Frontier is the city-pairs with a negative price impact but positive output impact. This means that the solution price in the factual is lower than the solution price in the counterfactual and that output in the factual is higher than in the counterfactual. As noted by Frontier this result occurs on two city-pairs, WLG-MEL and CHC-WLG. The result occurs as a result of the assumed VBA entry. For example, on WLG-MEL under the factual it is assumed that VBA entry would occur and hence there would be 2 airlines operating the city-pair (the VBA and the Alliance). Under the counterfactual it is assumed that no VBA entry would occur on these city-pairs and hence there would also be 2 airlines operating on this city-pair (Qantas and Air NZ). It is also assumed that a VBA has lower costs than an FSA and hence the lower marginal cost assumption for the VBA operating on these city-pairs results in a reduction in price in the factual compared with the counterfactual. This reduction in marginal cost is sufficient to outweigh the lessening of competition effect on the solution price. This result does not occur on all routes where a VBA enters because VBA entry occurs under both the factual and counterfactual on many city-pairs, and hence while the solution price in the factual may be lower than the base case price, it is not lower than the counterfactual solution price, which is also reduced as a result of the lower marginal cost of the VBA. On other city-pairs the lower marginal cost of the VBA operating in the factual is not sufficient to outweigh the lessening of competition effect on the solution price.

The fifth result that Frontier finds peculiar is that for SYD-ZQN. On this city-pair the solution price in the factual is higher than the solution price in the counterfactual, but the output in the factual is also higher than the output in the counterfactual. NECG agrees that at first glance this result may appear counterintuitive, as one would expect an increase in price to result in a decrease in output. However, this result is due to the large difference in

capacity that would be operated by the airlines in the factual and counterfactual combined with the impact of the capacity elasticity. Under the Alliance, the airlines would have the aircraft available to substantially increase flights on the SYD-ZQN city-pair (and the increase is from a low base) as a result of the removal of duplicate flights on other city-pairs. While it is not possible to provide the details of the counterfactual, the increase in output due to the increase in capacity is high enough to offset the reduction in output due to the increase in price. Hence, the result of positive price and output impacts.

In short, none of the results cited by Frontier is in fact ‘peculiar’ from an economic perspective; rather, as is often the case in economics, outcomes reflect the complex interaction of a range of factors – which is precisely why formal modelling is useful.

Frontier suggests that it is not clear how the dead-weight loss calculations are performed. The calculation of the size of the DWL is the area depicted in Figure 1 of the NECG report, where the factual and counterfactual prices are the solution prices calculated as a function of the parameters identified above, factual and counterfactual output is the output estimated as a result of both price and capacity effects, as discussed above and the marginal cost for the factual and counterfactual are those determined endogenously in the model. Frontier’s claim regarding the underestimate of the DWL as a result of NECG’s marginal cost assumption is incorrect for the reasons discussed earlier.

Interestingly, Frontier does not mention the likely effect of adopting their proposed market definition on the competitive detriments associated with the Alliance. Frontier claims that the relevant markets are domestic New Zealand, domestic Australia and trans-Tasman, a view supported by Virgin Blue. Hence, if Frontier’s wider market definition were adopted in the modelling, rather than the city-pair approach that we adopted, the price and output impacts associated with the proposed Alliance would be lower and the DWL correspondingly smaller.

6.2 Hazledine

The submission made by Professor Hazledine is extremely critical of the NECG analysis, writing off, almost entirely, the estimated public benefits associated with the Alliance and re-estimating the competitive detriment to be between \$200 million and \$400 million per year. However, on a careful review of Hazledine’s approach there are a number of important aspects of NECG’s approach with which he agrees and which he adopts. His widely different estimates are the result of changing some key assumptions of the modelling approach, in ways that, we explain below, are seriously flawed.

Before turning to the assumptions Hazledine changes, it is useful to document the points where he agrees with the NECG approach, as a cursory review of his submission may lead the reader to incorrectly surmise that he believes the whole analysis to be flawed.

Both NECG and Hazledine use a game theoretical approach to describe the interactions between a few firms with and without the proposed Alliance. Competition analysis and the prediction of the pattern of the capacity expansion are the central focus of both our and Hazledine's approach. The capacity choices in a growing oligopoly market are then translated into prices and quantities under a factual and a counterfactual. The fundamental requirement we employ in searching for equilibrium is that the predicted industry capacity and the predicted behaviour of rivals must be consistent.²⁴

In his model selection, Hazledine adopts a methodology and a number of assumptions, which are similar to those chosen by NECG, "because [he] think[s] they are at least reasonably plausible". Aspects of our methodology that he adopts include:

- the amount of new capacity (number of flights) that Virgin would bring into the market;
- the incumbents' capacities;
- the aggregation of business and leisure passengers;
- the base case demand elasticities;
- the value of the 'capacity elasticity';
- 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 NZ's new stripped-down Express;
- various pieces of information used to scale the size of the base-case markets;

²⁴ Porter M E and Spence M A, 1978, "The Capacity Expansion Process in a Growing Oligopoly: The Case of Corn Wet Milling" reprinted in McCall J J, *The Economics of Information and Uncertainty*, at page 259 and ff.

- estimation of the ‘missing piece of the puzzle’ – the airlines’ cost – based on market data in 2002/2003; and
- translation of these cost estimates into market prices and output under the factual and counterfactual.

In this sense, Hazledine’s submission could be seen as corroborating some of the most important assumptions used in our analysis. More importantly, such an agreement on numerous points makes possible the identification of points of disagreement. The two fundamental points of disagreement between the approach taken by Hazledine and NECG are differentiated demand for air services and the nature of competition.

As it turns out, the first of these – the extent of product differentiation – makes little difference in practice; but in respect of the second, Hazledine introduces crucial new assumptions without making them explicit. These new assumptions, that essentially determine his results, are, however, manifestly implausible. We will consider each of these points in turn.

Product differentiation

Hazledine points out that NECG assumes a homogeneous product market, such that consumers do not differentiate between a ticket for air travel on Air NZ, Qantas and any VBA such as Virgin Blue that should enter the market.

He argues that homogeneity is a reasonable simplification with respect to Air NZ 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. Hazledine rejects this assumption for a VBA.

As a factual matter, we query whether experience in any competitive airline market in the world bears out Hazledine’s view of the world – that there is more competitive substitution, and hence effective competitive discipline, between FSA’s than there is between an FSA and a VBA. Indeed, as we discuss at some length in our report, studies to date suggest quite the opposite – that is, they find that VBA’s impose more competitive constraint on FSA’s than does competition between FSA’s alone.

Additionally, Hazledine’s stress on product differentiation (which implies placing weight on the precise structure of demand, as well as on vertical structure in supply) is then difficult to reconcile with his assumption as to product differentiation. More specifically, Hazledine’s

evaluation of the proposed Alliance is based on an assumption that the fare on every city-pair is identical:

The figure for base-case [annual total market] 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.

Not only does this raises serious doubt about the meaning of his estimated deadweight loss, but also we wonder what the point is of differentiating between a VBA and FSA, yet assuming that there is no difference in the price on different city-pairs.

That said, it is interesting to note that when Hazledine runs his analysis with product differentiation and with all of NECG's other assumptions unchanged, the Alliance passes the welfare test. Hence, it is not the heterogeneity assumption that leads to the major divergence between our analysis and Hazledine's; rather, the significant changes arise from his approach to modelling the competitive process.

Nature of competition

As Hazledine argues in his submission, the specification of the counterfactual can make a big difference to the results. However, what leads to the difference between Hazledine's results and our own is not a difference of views as to the capacity choices the parties would likely make absent the Alliance but the manner in which, in Hazledine's modelling, these choices lead to outcomes.

More specifically, what Hazledine assumes is that the nature of competition in the future with the Alliance is starkly different from the nature of competition in its absence. In order to arrive at a result of \$200 million to \$400 million Hazledine assumes that the future with the Alliance is characterised by Qantas/Air NZ dominant firm price leadership, while the future without the Alliance is perfectly competitive (or very nearly so in the case of domestic New Zealand). Hazledine, in other words, simply changes the rules of the game as between the factual and counterfactual. Therefore, not only do competitive detriments arise as a result of market concentration (as modelled by NECG), but also because the factual is characterised by collusive behaviour (more collusive than Cournot) and the counterfactual is characterised by highly competitive behaviour (more competitive than Cournot).

To model the future with the Alliance, Hazledine takes the NECG forecasts of the amount of new capacity (number of flights) that Virgin Blue would bring into the market, and then assumes 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 (collusively) by the Qantas and Air NZ. He explains that this simplifies the model by playing out the incumbent oligopolists' competitive game while taking entrant output as exogenous. Technically, this amounts to subtracting a fraction of entrant capacity from the Qantas and Air NZ's 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.

Using such a methodology, Hazledine models – without mentioning it – a Stackelberg Leader/Follower model. Indeed, he assumes that Qantas and Air NZ under the Alliance are acting as a monopolist with a competitive fringe. In other words, any firms present in the market, other than the Alliance parties, are assumed to act as price takers. Whatever their relative importance may be, they do not constrain the parties to the proposed Alliance any further than by lowering their residual demand.

There are obvious issues about the plausibility of Stackelberg in this context. It is elementary that Stackelberg involves higher (lower) profits than the Nash profits for the leader under Cournot (Bertrand) for the leader, and vice versa for the follower.²⁵ However, absent multi-period strategic behaviour, the identity of the leader(s) is arbitrarily assumed.²⁶ If the leader is not determined essentially exogenously, the results are not Nash equilibria. Now, there is a great deal of experience with VBA/FSA competition internationally, and nowhere does it

²⁵ Additionally, for the Cournot case, the leader's profits rise less than the follower's profits fall, so industry profits, and aggregate social surplus, fall.

²⁶ As Gabszewicz says about the Gaskins model, which is arguably the most sophisticated version of the Stackelberg story with entry (and hence the one that might be at all relevant here) "Even if the incumbent behaves rationally when faced with this entry process, it is .. unclear why the incumbent keeps the power to set price after entry of the competitors. Most probably, one should expect them to .. participate in the price setting process." Jean Gabszewicz (1999) *Strategic Interaction and Markets*: Oxford, University Press, 40.

involve price setting that even remotely resembles Stackleberg behaviour. As a result, it is not clear why these outcomes would be of relevance.

Hazledine's modelling of the factual becomes even more questionable when its outcomes are examined. To take but one example, Hazledine generates load factors for the parties in domestic New Zealand that are lower than 40 percent. In other words, the parties – having made capacity choices, given commitments with respect to capacity to the competition authorities and also invested many hundreds of millions of dollars in yield management systems that are designed to secure high loads – then fly their planes two-thirds empty. Just how utterly implausible this is can be gauged from the fact that the **average** load factor Hazledine derives is significantly lower than the **single lowest** load factor achieved by the parties on any sector. However, without these implausible load factors, and the assumption of Stackelberg behaviour, Hazledine would not have been able to derive very high prices (and consequent welfare losses) in his factual.

Hazledine then compounds the essentially arbitrary nature of his modelling by the manner in which he tackles the counterfactual. Here, the choice of a Stackelberg model in the factual – that is, the assumption of what is effectively tacit collusion between the parties and the VBA – is not only abandoned, but it is replaced by a behavioural assumption that is even more competitive than the Cournot solution. Indeed, Hazledine adjusts the conjectural variation parameters to -0.75 for domestic New Zealand and -1 for the Tasman. In other words, in the counterfactual the Tasman is assumed to be perfectly competitive. The price-cost margin for Qantas and Air NZ is nil. For domestic New Zealand, the market is not perfectly competitive but is still extremely competitive.

There are any number of problems with this.

To begin with, Hazledine does not test whether the prices set in his counterfactual are sustainable – i.e. whether they cover total costs. Given density economies, it is difficult to see how they could.

Additionally, the assumption that behaviour is so close to being perfectly competitive is very much at odds with every published study of aviation markets – including Haugh and Hazledine (1999)²⁷. Rather, as we have noted, and as Price Waterhouse Coopers confirmed in

²⁷ Hazledine, T., Haugh, D. 1999, "Oligopoly Behaviour in the Trans-Tasman Air Travel Market: The Case of Kiwi International" New Zealand Economic Papers 33 (1), 1-25.

their independent survey of the literature, the standard approach to modelling aviation markets relies on a Cournot approach, which is far from perfect (or close to perfect) competition.

Last but not least, while Hazledine obviously believes that load factors should play **no** role in determining the Alliance's pricing in the factual, he makes achieving a 75% load factor **the** crucial element in the counterfactual. More specifically, he arbitrarily changes the conjectural variation parameter such that the load factors of Air NZ and Qantas are 75%. However, it is unclear why this factor, if it is irrelevant to the parties in one state of the world, would become the key to deriving a solution in another.

Overall, Hazledine adopts a modelling strategy which is at best highly unusual. It relies on an unexplained change in the mode of competition between states of the world to generate results that are not plausible and certainly do not appear to have been subjected to any form of reality testing. But absent those flawed assumptions, his welfare results would not be significantly different from ours. We therefore find little in his critique that would lead us to re-evaluate the conclusions our report reached.

6.3 Infratil

Infratil makes a number of criticisms of the NECG approach to estimating the competitive detriments associated with the proposed Alliance. First, Infratil questions whether the use of average fares will understate the impact of the Alliance on prices. The average fare approach ignores the yield management system used by the airlines to achieve minimum load factors. In practice, airlines will aim to fill seats by offering a range of fares on any flight. Our approach does not determine prices to achieve minimum load factors and hence understates the load factors that the airlines would operate in practice and the fares required to achieve

Hazledine mentions that NECG may not be aware of another paper (quoted as Hazledine et al, 2001) where he claims his earlier work has been updated to argue that it is not realistic to characterise the behaviour of Air NZ and Qantas as Cournot. NECG is not aware of this paper and has been unable to obtain a copy, which seems odd given that if Hazledine were correct, then his finding would represent a significant shift in the theoretical and empirical approach to examining competition in the airline industry.

minimum load factors. The average fare approach used by NECG also ignores the lower fares normally charged by VBAs. To the extent that the VBA would price below the average FSA fare,²⁸ the price impacts we have estimated are overstated.

Second, Infratil suggests that both the price and capacity elasticities seem to be at the lower end of the plausible estimates. However, Infratil provides no empirical evidence to support this claim and does not explain what the impact of adopting more elastic assumptions would be. In fact, adopting a higher price elasticity of demand assumption (ie more price elastic) would result in lower price changes associated with the Alliance, as the demand response from a price increase would be higher. This would, to some extent, be offset by the larger decrease in output for any given price increase, however, it is not clear that adopting a higher price elasticity estimate would materially alter our results and, unless an implausible assumption was made regarding the price elasticity of demand, would not alter our conclusions. We disagree that the capacity elasticity should be higher given that many of the flights that would be operated under the counterfactual but not the factual are wing-tip services. Hence, the use of a capacity elasticity at all in the model should be considered conservative.

Third, Infratil claims that the NECG assumption of a linear demand curve is important in limiting the estimate of the DWL and any other commonly assumed demand curves would probably have led to much greater DWL estimate. Infratil is correct in saying that the shape of the demand curve affects the DWL; however, because changing the shape of the demand curve will also involve altering the point value of the price elasticity, it will also affect the solution price, and the interaction between these effects will be complex (rather than being simple and predictable as Infratil suggests).

Additionally, it is not at all clear **why** Infratil recommends altering the assumption with respect to linearity – other than its belief that this will increase the DWL. The fact of the matter is that a constant elasticity formulation over the whole area of the demand curve, as Infratil seems to recommend, would have little empirical justification, if any. Moreover, it would be theoretically implausible, as it would violate the adding up condition with respect to the consumption shares for individual consumers. Finally, even if one thought (and it is

²⁸ And assuming that the difference in fares is not simply a reflection of a difference in service quality.

unclear why one would do so) that the appropriate functional form for demand was more complex than the one we have used, given the relatively small price and output changes that are involved as between the factual and the counterfactual, a linear approximation would remain valid as a working assumption. As a result, Infratil's suggestion lacks any compelling basis.

Fourth, Infratil suggest that it is unclear whether NECG has included all components of producer and consumer surplus and how the transfers of consumer surplus to producers are calculated among NZ, Australian and other countries. It suggests that we may have missed the producer profit loss component arising from any output restrictions. NECG's calculation includes all relevant components of consumer and producer surplus, including that component of the DWL which represents a loss in profit to producers as a result of decreased output. As explained in our report, we allocate the transfer component of consumer surplus changes based on passenger shares by major route (see table 13 of NECG report for values used) and the transfer component of producer surplus on the basis of capacity (for allocation between the Alliance and foreigners), the Alliance component of which is then split between Air NZ and Qantas on the basis of accounting formula agreed between the parties. In our December 8 report we allocated all the DWL (both the consumer and producer components) based on passenger shares. However, we have since altered this approach to allocate the consumer and producer surplus components of the DWL in line with the transfer components (see schedule x of responses to ACCC questions dated x). Infratil's claim is therefore simply incorrect as a matter of fact.

Fifth, Infratil claims that NECG has failed to include losses in productive efficiency and innovation. For the reasons set out in section 4.5 of NECG's Report, we do not believe that there would be any loss in productive efficiency or innovation incentives as a result of the proposed Alliance.²⁹ Indeed, the Alliance will provide a framework in which the parties can

²⁹ Additionally, we find it difficult to believe that the operator of a monopoly airport (that despite its monopoly has consistently claimed to be operating efficiently), would argue that airlines that will face competition, actual and potential, throughout their route structure, would have the ability and incentives to act inefficiently.

achieve efficiencies, including by means of innovation, to a greater extent than would otherwise be the case.³⁰

Finally, Infratil seeks to apportion the gains from the Alliance as between the equity investment and the operating agreement. We believe this exercise is entirely metaphysical and ill-conceived. The reality is that the two elements are inter-dependent: the equity investment underpins the operating agreement and enhances the efficiency of its governance; the operating agreement gives practical form to the means by which the parties will jointly conduct their affairs. The Alliance is, in this respect, simply no different from any other joint venture, in which there will be **both** an ownership arrangement, which goes to the funding of ongoing activities, and an agreement or contract as to how these activities will be conducted. It is the two elements together that allow the benefits to be realised, and the attempt to trace individual benefits to each aspect considered separately must fail.³¹

7 Public benefit estimates

7.1 Cost efficiencies

A number of submissions, including those by Frontier and Hazledine, comment on the omission of operating efficiencies that typically form the basis of arguments for the existence

³⁰ For example, the information sharing that occurs under the Alliance will allow the parties to better benchmark performance, as has also occurred under the BA-Qantas JSA.

³¹ Infratil clearly realise that their attempt flies in the face of the modern theory of the firm, which explains that contractual incompleteness is inevitable, so that residual ownership rights (associated with the provision of at risk finance) must be allocated in such a way as to allow gaps to be filled in a wealth-maximising way. So as to sidestep this obvious difficulty, Infratil blandly states that the incomplete nature of the relevant contracts has not been proven. However, as economists have recognised for a good many years, complete contracts are not of this world, all the more so in matters such as these; and if Infratil believes otherwise, it should state so explicitly, rather than making an implicit assumption to the contrary.

of public benefits in mergers. We have commented above on the error this assessment involves – an error which is simply an instance of the fallacy of misplaced concreteness. Rather, properly viewed, the efficiencies we point to are no different in substance from those that are generally examined in a merger context.

That said, we agree that there are other types of synergies that are likely to provide important public benefits associated with the proposed Alliance, for example, from savings in marketing expense. However, these synergies are difficult to accurately quantify and hence were excluded from our analysis. Nonetheless, the exclusion of these benefits from our quantitative estimates does not make them irrelevant to the consideration of the authorisation. Rather, it suggests that our quantitative estimates of public benefits associated with the proposed Alliance are conservative.

A number of submissions made the comment that it was particularly unusual for NECG to not have claimed benefits associated with economies of scale. This criticism appears to misunderstand the distinction between economies of scale and economies of density and NECG's focus on the latter. In airlines, as in other network industries, a distinction is drawn between economies of scale, which are associated with increasing the reach of the network, and economies of density, which are associated with increasing the volume of traffic over a given network. The proposed Alliance permits substantial economies of density (it may also deliver economies of scale, but these are less certain) and it is these benefits that are captured in the NECG analysis.

Hazledine dismisses NECG's cost efficiency estimates on the basis that the counterfactual war of attrition would never eventuate. The plausibility of the counterfactual is discussed in section 4 above. Frontier, on the other hand, argues that NECG's cost efficiency estimates should be heavily discounted or disregarded on the basis that the cost savings are in effect the costs associated with avoiding predatory increases in capacity.

However, nowhere does Frontier even attempt to demonstrate what would lead them to the view that prices and outputs that differ from the Alliance prices and outputs by around 4% to 5% would constitute predation. The capacity that each airline would operate absent the Alliance reflects ongoing intense competition, which as far as NECG is aware is not inconsistent with the antitrust statutes in either Australia or New Zealand, as claimed by Frontier. The capacity that the airlines propose to operate in the counterfactual results in reasonably high load factors of 73% across Tasman routes and 66% across domestic New Zealand routes. This makes it difficult to understand how the level of capacity proposed in the counterfactual could be considered predatory.

Similarly, the solution prices estimated by the NECG modelling could hardly be considered predatory. As discussed above, the solution prices under the counterfactual are estimated by NECG to be equal to base case fares or lower than base case fares by up to 5%. Where the counterfactual fares are estimated to be lower than base case fares, this is a result of VBA entry. NECG would be surprised if Frontier considered average fares equal or slightly below the current fares charged by Air NZ and Qantas to constitute predation, particularly since their clients, Virgin Blue, claim that they will be commencing operations on these routes, a decision presumably informed by the current and future levels of fares.

In addition, as noted in our report, we have estimated the profitability of entry by a VBA both in the factual and counterfactual. While these results suggest that entry is more profitable under the factual than the counterfactual, entry is still estimated to be profitable for a VBA in the absence of the Alliance. This result is surely inconsistent with predation.

As a result, it is our view that

- our estimate of efficiencies is highly conservative; and
- realising these efficiencies in no way requires assuming behaviour that is predatory or irrational.

7.2 Tourism

A general criticism levelled at the calculation of the Tourism benefits is that the expansion in tourism could take place without the Alliance.

This criticism fails to understand the change in market opportunities that the Alliance generates. It provides four principal enhancements to the market. These include:

- Greater connectivity between major tourist source countries and destinations;
- Greater connectivity to tourist destinations within New Zealand and Australia;
- Greater flight frequency on major tourist routes, such as Japan; and
- The improved scheduling of flights per day on core markets.

The Qantas Holiday's initiatives exploit these new market opportunities by targeting dual destination travellers and by marketing new products and destinations. The Alliance greatly

increases the yield from these marketing activities. This is the fundamental reason the Qantas Holidays initiatives will be put in place.

The Alliance will also allow a significant increase in promotion effectiveness, with the parties additionally providing undertakings to significantly increase promotion of the Australasian market. Both these factors will also stimulate tourism, as tourism is responsive to promotion levels.

We have undertaken an analysis of the factors influencing relative levels of travel on Qantas and Air NZ flights on the Tasman. The model examines the impact of fares and real promotion levels undertaken by the parties. The model results indicate that if Qantas were to increase its real Tasman promotional spending by 100% on trans-Tasman routes, this would cause a 0.32% increase in Qantas Tasman travel relative to Air NZ Tasman travel. If Air NZ increases its real promotional spending along the Tasman by 100%, this increases Air NZ travel relative to Qantas travel by 0.39%. Thus the same percentage increase in promotional spending by the parties would yield no increase in the relative passenger numbers on the Tasman.

This result is consistent with current promotional campaigns being essentially rivalrous rather than market expanding.³² The Alliance would eliminate the rationale for such campaigns between Air NZ and Qantas. As a result, more of the promotion budget could be focused on expanding the market, rather than on defending market positions.

There has also been concern expressed that the Alliance will allow Qantas to focus on promoting the Australian market to the neglect of the New Zealand market. In a similar vein it has also been suggested that New Zealand could lose its national identity in the tourism market.

These concerns again represent a misunderstanding of the basic driving force behind the Qantas Holidays initiatives. These initiatives are designed around exploiting the differences between the two countries. This will encourage dual destination travellers to both countries. It will also allow Qantas Holidays to capture repeat tourists. For example, once a tourist has bought a QH package to see Sydney-Uluru-Cairns, he or she can then be sold a Sydney-

³² The result that much promotion is essentially offsetting is of course a familiar one in the economics of advertising of close substitutes.

Queenstown–Rotorua package for the next trip. Qantas Holidays therefore is not limited to selling a person only one package – they will be able to attract repeat customers, selling the same person several different packages.³³

It is the difference between the New Zealand and Australia markets that enables the QH initiatives to thus be profitable over the longer term. Given this, the rational strategy for the Alliance will be to exploit, rather than paper over, the differences between Australia and New Zealand. By doing so in a coordinated way (as they will have the financial incentives to do) the parties can secure private and social gains well in excess of those achieved under the current rivalrous promotion context.

Finally, Hazledine criticizes setting the benefit from extra tourism equal to the additional expenditure undertaken by tourists. He claims this approach over-estimates the benefits because (he says) it fails to deduct certain costs associated with providing services to tourists.

To investigate the relationship between additional tourism expenditure and increases in welfare simulations were undertaken with the Monash model of the Australian economy. In the simulation a \$A100 million increase in tourism exports was simulated. The model results indicate that welfare increases, on average over five years, by between \$1.07 and \$1.50 per dollar increase in tourism exports depending on the precise assumptions made.

The higher figure for example, is obtained under the plausible assumptions that, in the short term, the expansion in tourism will expand employment and increase aircraft load factors, rather than increasing wages and expanding aircraft capacity.

In addition to these employment and capacity utilisation effects, the modelling results indicate that the expansion in tourism contracts other sectors of the economy, particularly the export sector. This leads to an improvement in the terms of trade.

³³ It is well known that repeat sales are relatively profitable, so that product range expansions that facilitate them can have a major effects on the incentives to sell the extended product range. For example, Frederick Reichheld estimates that increasing the customer retention rate by just 5% can increase customer net present value by between 25% and 100% depending on the industry, and thereby significantly increase company profits. See Reichheld, F. (1996) *The Loyalty Effect*. Boston: Harvard Business School Press, 33.

These results suggest that our analysis **underestimated** the benefits from associated with additional tourism exports, rather than over-stating them as Hazledine asserts. Additionally, as we have noted above, we focussed on only that component of the tourism gains that we could quantify; had we taken account of the broader effects apparent in say, the Qantas-BA JSA, the impacts would, in all likelihood, have been materially greater.

7.3 Scheduling efficiencies

Several submissions have commented on the validity of the scheduling benefits calculated in the model. These criticisms include:

- the calculation of waiting times are based on a comparison of schedules in the factual compared to existing schedules, rather than to schedules in the counterfactual; and
- the opportunity cost of time used to value time saved is too high.

In the NECG report it was stated that the calculation of the flight frequency savings were based on a comparison of the proposed flight times to existing flight times. It was noted that this was the one exception to where the factual was compared to the counterfactual. This was necessary as data was unavailable on the flight times in the counterfactual. It is important to note that while the pattern of flight times in the counterfactual were assumed to mirror those operated in current schedules, the number of flights were taken from the counterfactual schedules. Also important is that the scheduling efficiencies were only calculated for the Tasman routes and in that sense are conservative, as scheduling benefits would also be achieved in domestic New Zealand.

Some concern has been expressed at the value placed on the opportunity cost of time used to value the reduction in wait times. Currently, the assumed value is \$NZ 115 per hour for business travel and \$NZ 23 per hour for leisure travellers. The valuation of time savings have been the focus of significant analysis in cost-benefit studies of road investments in Australia. For example, when considering the valuation of business travel savings, AUSTRROADS recommended valuing business travel time at the wage cost plus on costs (see BTE, Facts and Furphies in Benefit Cost Analysis: Transport). The reason for this suggestion is that the output generated by an additional unit of labour is equal to the cost of employing the labour including oncost. When on costs are considered, \$115 per hour seems very conservative. It is also important to note that the scheduling benefits account for a very small proportion of the total benefits quantified in the NECG analysis and while a reduction in the value of time would have a substantial impact on the level of the scheduling benefit

estimates, it would have little impact on the quantum of total benefits and would hence not alter our conclusions.

7.4 New direct flights

Several submissions questioned the validity of including direct flight benefits in the calculations. It was suggested that if direct flights were profitable under the Alliance, they would already be taking place.

These claims seem decidedly odd in the light of the long literature on product choice under imperfect competition. There is nothing in this literature which suggests that two firms acting independently will approximate the locational choices that maximise welfare – indeed, it is readily shown that where there are fixed costs, product-range extending choices that would be profitable for a single supplier will not be for competing rivals.³⁴

The Auckland-Adelaide city pair provides insights as to how these familiar effects work in aviation market. On this route there are approximately 60 passengers per day. If either airline commenced operations of a direct flight between Auckland and Adelaide it would not capture the entirety of the existing passenger base. Air NZ and Qantas are each pre-eminent in one of these cities, with the result that factors such as corporate accounts and reward programs would combine to prevent the airline operating a direct service from capturing all the end-to-end traffic.

That this is so can be evidenced by existing operations on other city pairs. For example, Air NZ has direct flights from Auckland to Cairns and Perth. Although Air NZ operates the only direct flights on these sectors, it does not capture 100% of the traffic between these cities (estimates are that its market share is between 50% and 70%).

In addition, some passengers travelling between Auckland and Adelaide may wish to stopover in either direction. This will further diminish the base passenger volume between Auckland and Adelaide. As a result, the volume of passengers who will choose to fly with the carrier operating a direct service between Adelaide and Auckland will not warrant the

³⁴ This is simply because neither firm can bind the other to act in such a way as to assure it of fixed cost coverage once it extends its product range.

operation of 767 aircraft. Consequently, the next best option would be to operate 737's. These are currently configured to carry around 115 passengers, and 60 passengers implies a load factor of just over 50 per cent, well below the threshold required for profitability. The overall outcome is that unless the provision of an Auckland/ Adelaide service were to provide strong additional network benefits, such a direct flight would simply not be profitable for either carrier without the alliance.

In contrast, under the Alliance the provision of direct flights would stimulate demand through a service quality effect. In addition, the greater connectivity within the network as a whole will further stimulate demand and add passengers to the Auckland Adelaide route. Finally, because of the sharing of frequent flyer points and the integration of marketing and yield management, the parties will be able to ensure the end-to-end load makes best use of the direct service – as against the fragmentation of customer choices that will inevitably characterise the counterfactual world.

These mechanisms are by no means unusual in markets where there is product variety and are increasingly well-understood and accepted by economists. We consequently find it surprising that they would be queried in a context where they seem so clearly relevant.

8 Conclusions

In summary, we believe that the issues raised in the submissions commenting on NECG's analysis are predominantly based on misapprehensions and the alternative approaches proposed involve serious errors. We therefore believe that the findings set out in our report remain fully valid. While none of the submitters commented on the conservative nature of NECG's analysis it is useful to re-emphasise the assumptions we adopted that contribute to a conservative quantification of the net benefits associated with the proposed Alliance. In particular:

- The counterfactual that we use in our quantitative analysis involves ongoing competition between Qantas and Air NZ over the full five years modelled. An alternative counterfactual, which involves the scaling back of Air NZ's operations, would attribute only slight detriments to the Alliance.
- We did not attempt to claim and quantify every conceivable benefit that could be attributed to the Alliance, in particular, we were not in a position to quantify the benefits associated with the deadweight cost of taxation, preservation of a national airline and improvements in the global competitiveness of both Qantas and Air NZ.

- We assume that the airlines provide a homogeneous service. If we assumed that the services were substantially differentiated, this would (in a differentiated Cournot model) have **increased** prices in the counterfactual, and hence **reduced** the competitive detriment. For this reason, we imposed the assumption of homogeneity, in line with the conservative approach we have sought to adopt generally.
- Our modelling is carried out using average fares, which as explained above tends to overstate the adverse impacts of the Alliance
- We model competitive detriments at the level of individual city-pairs rather than for the wider markets that we define. This has the effect of overstating the estimated competitive detriments associated with the proposed Alliance.

Annex A: Historical experience

In general, for Tasman and New Zealand domestic routes, capacity growth under the counterfactual for Air NZ and Qantas is no higher than capacity growth that has occurred historically. The exception is Qantas capacity growth on New Zealand domestic routes. However, as elaborated on in a separate paper, there are strong commercial and economic justifications that explain Qantas capacity growth on New Zealand domestic routes.

Historical, factual and counterfactual capacities on Tasman routes for Air NZ and Qantas, respectively, are illustrated in Figure 1 and Figure 2.

Figure 1: Air NZ factual and counterfactual Tasman capacity (ASK millions)

Source: Air NZ.

Figure 2: Qantas factual and counterfactual Tasman capacity (ASK millions)

Source: Qantas.

These figures illustrate our point that capacity growth on Tasman routes under the assumed counterfactual for Air NZ and Qantas is no higher than capacity growth that has occurred historically. However when considering these Air NZ and Qantas trends in Tasman capacity under the factual and counterfactual (including observed differences in capacity between the factual and counterfactual), one must bear in mind other factors that impact on growth in overall capacity on Tasman routes. These factors include the impact of VBA entry and the natural growth in capacity assumed for other airlines. In this respect, we note that overall growth in seat capacity for Tasman routes between 2002/03 (the base case) and 2005/06 (year 3) is [] under the factual and [] under the counterfactual. Hence, while there exists a gap between the capacity operated by Air NZ and Qantas under the factual and counterfactual, the majority of this is assumed to be provided by other airlines, including the VBA.

Historical, factual and counterfactual capacities on New Zealand domestic routes for Air NZ and Qantas, respectively, are shown in Figure 3 and Figure 4. In constructing these graphs, we have sought to capture capacity trends for those routes that we have modelled – AKLWLG, AKLCHC, AKLDUD, CHCWLG, CHCZQN, AKLZQN and WLGDUD. For Air NZ, we have not been able to construct a consistent time series going back to the 1994/95 year.

As Figure 3 shows, Air NZ capacity growth under the counterfactual (which is the same as that under the factual) is flat, and lower than historical capacity growth. Turning to Qantas, given Qantas' recent entry on New Zealand domestic routes, it is difficult to meaningfully compare historical capacity growth with Qantas capacity growth under the counterfactual. However, it is clear from Figure 4 that Qantas capacity growth under the counterfactual is substantial, as compared with the factual where growth is flat. As elaborated in a separate paper, the increase in Qantas capacity on New Zealand domestic routes under the counterfactual is consistent with Qantas' move to close the frequency gap that currently exists between their capacity and that operated by Air NZ, a move necessary to attractive high yield business passengers.

Figure 3: Air NZ factual and counterfactual domestic capacity (ASK millions)

Source: Air NZ.

Figure 4: Qantas factual and counterfactual domestic capacity (ASK millions)

Source: Qantas.

Conclusions on capacity

The capacity levels modelled for the Tasman in our counterfactual correspond closely to observed historical trends. Capacity growth for the parties falls in the factual relative to the counterfactual, with some part of the gap being taken up by the VBA and by 5th and 6th Freedom carriers, such that overall capacity growth on Tasman routes is similar under the factual and the counterfactual. With respect to domestic New Zealand, capacity increases more rapidly, essentially as Qantas moves to the minimum frequency levels necessary to compete for high yield business passengers, as discussed in a separate paper.