in implementation of the project will therefore result in a delay in achieving the associated benefits. Furthermore, the delay is expected to result in an additional total cost of [Confidential Information Deleted] million ([Confidential Information Deleted] million to Qantas and [Confidential Information Deleted] million to British Airways), as detailed in Table 51. The exact impact of these potential loss of benefits is difficult to quantify. As a result, only the direct costs associated with a delay in these projects have been evaluated, making the estimates in Table 51 conservative.

Table 51: Total costs of implementing the Triton New Gen program, over a 5- year period, in the absence of the JSA

	Costs ($million)		
	Qantas	British Airways	Combined
Costs of implementing the program independently without JSA	[cid]	[cid]	[cid]
Joint development under JSA	[cid]	[cid]	[cid]
Cost savings associated with the JSA	[cid]	[cid]	33

Source: Qantas.

As can be seen from Table 51, the combined cost of separate development to both parties, estimated over a five-year implementation period, is [Confidential Information Deleted] million, as compared to the estimated cost of [Confidential Information Deleted] million under the JSA. In the absence of the JSA, Qantas would incur an additional cost of $[Confidential Information Deleted] million and British Airways would incur an additional cost of $[Confidential Information Deleted] million. If the JSA were not reauthorised, the aggregate additional cost to both parties, with respect to the Triton Program (or the implied saving associated with the JSA) is therefore likely to be upwards of $33 million.

Shared facilities and related IT infrastructure

The JSA has enabled Qantas and British Airways to share offices and IT infrastructure in Asia, Australia and Europe. Without the JSA, it is unlikely that such close cooperation would continue, since the airlines would be direct competitors in these markets. As a result, the airlines would alter their combined operations; thereby incurring extra costs in terms of

the provision of extra computer hardware, office equipment and staff, as well as potentially bearing increased leasing costs for new premises. These costs are discussed in the next section. In addition to direct cost consequences, both parties would also require additional capital expenditure on general IT infrastructure to support the change in office facilities. Relevant costs would include the provision of additional data network nodes and capacities, and augmentation to other central infrastructure, such as 24 hour, 7 day a week support centre staffing and regional management. These costs are estimated at $[Confidential Information Deleted] million a year for Qantas and $[Confidential Information Deleted] million a year for British Airways.

Total savings as a result of the reauthorised JSA

The total savings associated with those aspects of the JSA discussed immediately above are summarised in Table 52.

Table 52: IT cost savings associated with the JSA (Total over 5 years)

	JSA Cost Savings ($million)		
	Qantas	British Airways	Combined
Yield management	[cid]	[cid]	27
Triton	[cid]	[cid]	33
Shared facilities	[cid]	[cid]	26
Total	[cid]	[cid]	86

Source: Qantas.

11.1.2 Joint facilities

The JSA has facilitated the establishment of a range of joint facilities between Qantas and British Airways around the world. British Airways and Qantas use joint facilities in a number of functional areas including sales, airport services, cargo, yield management and pricing.

The level of cooperation varies across jurisdictions. For example, in Malaysia there is a joint sales team operation, while in Japan the sales teams are separate but collocated. Table 53 illustrates the functional areas and geographies in which British Airways and Qantas cooperate and share joint facilities.

Table 53: British Airways and Qantas joint facilities

Country	Collocated Sales Team	Retail Shops	Collocated Telephone Sales	Airport Customer Service	Lounges	Cargo
Australia	✓	✓	✓	✓	✓	✓
France	✓		✓(3)		✓	
Germany	✓	✓	✓(3)			
Hong Kong	✓	✓	✓		✓	
Italy	✓		✓(3)		✓	
Japan	✓	✓				
Los Angeles	✓				✓	
Malaysia	✓(2)	✓	✓(3)	✓	✓	
New York	✓			✓	✓	
New Zealand	✓	✓	✓(3)		✓	✓
Singapore	✓(2)	✓	✓(3)	✓	✓	✓
South Africa	✓					
Sweden	✓				✓	
Switzerland	✓	✓				
Thailand	✓(2)	✓	✓(3)	✓	✓	
UK	✓(1)	✓		✓	✓	

Source: Qantas and British Airways.

(1) Effective April 2003

(2) Joint sales teams also exist (not just collocation)

(3)Joint telephones sales teams also exist (not just collocation)

In the counterfactual, we assume that for most locations where teams are joint or are collocated, this collocation can continue with some minor office alterations such as increased partitions. Given the minor nature of these costs, we have not included them in our estimates.

However, key locations where the combined operations are on the largest scale, more significant changes will be required.

Given the nature of the current accommodation and the sensitivity of operations in Bangkok and Singapore, it is assumed that collocation could no longer continue either at the local HQ or airport offices. As a result, duplication of rental costs would be incurred. Qantas would need to retain a staffing level equivalent to 75% of the existing joint staff in both locations. British Airways and Qantas currently share salary costs in Singapore and Bangkok. Termination of the JSA would therefore result in additional labour input for both Qantas and British Airways (as functions previously carried out by shared employees would need to be duplicated) and in higher labour costs. [Confidential Information Deleted] Table 54 summarises the costs of these actions.

Table 54: Additional joint facilities costs 2003–2007

	Qantas	British Airways	Total $m
[cid] one off costs ($m pa)	[cid]	[cid]	[cid]
Rent ($m pa)	[cid]	[cid]	[cid]
Staff ($m pa)	[cid]	[cid]	[cid]
Outsourcing costs ($m pa)	[cid]	[cid]	[cid]
Total	[cid]	[cid]	6.65
5 year discounted cost (@ 6% per annum)	[cid]	[cid]	22.68

Notes: (1) British Airways costs are converted to Aus dollars using 2.8 Aus $=1GBP.

11.1.3 Conclusion

Even focusing on just a few areas, termination of the JSA would materially increase costs. These additional costs would reduce the parties' competitiveness and hence their ability to act as an effective counterweight to the airlines that benefit from having a home hub en route.

11.2 Availability of schedule options for passengers

The Qantas and British Airways counterfactual schedules, as set out in section 7.2, would reduce frequency and capacity between Australia and Europe. In the long term counterfactual, British Airways expects to reduce its capacity on JSA services to Australia by up to 67% and Qantas predicts capacity reductions of at least 23%. These reductions will diminish Qantas' network reach, and have adverse consequences on Qantas' ability to remain a major international competitor (discussed further in section 11.7). The reduction by the JSA parties represents a significant decrease in market output and thus will also impact on consumers, reducing both the ease of travel and choice. As we have discussed above in sections 7 and 8, it is likely that there will be some capacity response from competitors, although the size of this response is unclear. However, not all the capacity removed by the JSA parties is likely to be replaced. In any event the capacity replacement will often be achieved through increasing load factors on existing flights and/or increasing the size of aircraft. Replacing capacity in this way does not replace the consumer choice lost. In particular, the timing of the JSA parties' flights and the particular service offering will not be fully replaced.

Estimating the value of the reduced schedule flexibility for passengers is extremely difficult. As a result we have not included an estimate in our total public benefits and as such our total benefit estimate is conservative.

11.3 Inbound tourism for Australia

In this section, we examine the nature of the impact of the JSA on tourism to Australia. As described in section 7, the JSA parties have provided estimates of the capacities they would supply in the factual and counterfactual. An estimate of the budget for promotion of Australia as a destination in Europe has also been provided by Qantas for the factual and counterfactual.

The JSA has an impact on tourist arrivals in Australia:

- directly, through improved choice for consumers arising from the provision of increased capacity and connectivity; and
- indirectly, through the impact of the JSA on promotion levels.

We discuss these effects in the following sections.

11.3.1 Connectivity and capacity effects

As discussed in section 11.2, the schedule options provided by the JSA parties under the JSA are substantially higher than in the counterfactual. The JSA allows greater connectivity, with more flights provided by the JSA parties between Australia and Europe.

Thus if the JSA were not reauthorised, and capacity previously provided by the JSA parties were not replaced then the schedule options available to passengers would diminish. Diminished schedule options would likely lead to a decrease in tourist arrivals. However, quantification of this impact has not been possible as reliable estimates were unavailable of the elasticity of tourist arrivals with respect to the quality of service provided (frequency of service and connectivity).

The impacts of capacity changes on tourism are more easily calculated. Following the approach adopted in section 8, we have modelled two scenarios. The first assumes that other carriers do not replace any capacity removed by the JSA parties. The second assumes that the reduction in capacity withdrawn by the parties is fully replaced by capacity supplied by other airlines. As described in section 8, these two scenarios represent extremes and we would expect the real impact to be somewhere within this range.

Scenario 1: no replacement of capacity

Under the first scenario we have assumed that passengers lost as a result of reduced capacity supplied by the JSA parties would not be offset by additional travel on third party carriers, either through increased load factors or increases in third party capacity.

The methodology used to estimate passenger numbers is summarised in Table 55 using data for year 3. Factual passenger numbers are calculated as factual capacity multiplied by average load factors. The change in passenger numbers between the factual and the counterfactual is calculated as the percentage change in capacity between these two

scenarios (measured in terms of total seats to and from Australia) multiplied by the factual passenger numbers. As noted in section 7, in the medium term counterfactual Qantas' capacity would fall by at least 17% and in the long term by at least 23%. British Airways' capacity to Australia would fall by 33% in the medium term and 67% in the long term. To be conservative, we utilise Qantas' minimum likely capacity reduction for our analysis of tourism impacts.

Table 55 shows that if the JSA were not reauthorised the number of passengers arriving in Australia would fall by about 96,000. Table 55 also contains a breakdown of the reduction in arrivals by the country of origin of the passengers. These estimates were arrived at by multiplying the change in each carrier's passengers by the historical share of total passengers by country of origin, carried by each airline.[109] These estimates indicate that Australians would account for 42,000 of the 96,000 reduction in passengers travelling in year three if the JSA were not reauthorised, while British nationals and other nationals would account for 23,000 and 31,000, respectively.

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109 Sourced from ABS passenger figures, 12 months to August 2002.

Table 55: Impact on passenger numbers if the JSA were not reauthorised with no replacement of capacity (Scenario 1), year 3

Airline	Country of origin of passengers	Passenger share by country of origin	Factual passenger numbers by country of origin	Change in number of seats operated to Australia in counterfactual	Change in passengers in counterfactual
		%	'000	%	'000
		(1)	(2)	(3)	(4)=(2)*(3)/100
Qantas	Total passengers	100%	309	-17%	-52
	Australian	46%	142		-24
	British	17%	52		-9
	Other	37%	114		-19
British Airways	Total passengers	100%	133	-33%	-44
	Australian	41%	55		-18
	British	33%	44		-15
	Other	26%	35		-11
Other airlines	Total passengers	100%	543	0%	0
	Australian	45%	242		0
	British	14%	73		0
	Other	42%	228		0
All Airlines	Total		985		-96
	Australian		438		-42
	British		170		-23
	Other		377		-31

Approximately 48% of arrivals in Australia are leisure travellers.[110] Using this proportion as an estimate of the share of travellers who are tourists, we estimate that absent the JSA, the number of foreign tourists arriving would fall by about 26,000 (11,000 British tourists and 15,000 of other nationalities). The number of Australians travelling overseas would fall by

[110] Source: Tourism Futures International. Leisure travellers consist of holiday travellers and those visiting friends and relatives. The estimates provided by Tourism Futures International are based on ABS statistics.

about 20,000 given the conservative assumption that the travellers did not view other overseas destinations as a substitute for a European holiday. Table 56 summarises this analysis.

Table 56: Capacity impacts of the JSA on tourism in Australia, year 3

Nationality	Change in passengers numbers in counterfactual	Proportion of passengers who are tourists [a]	Change in tourist numbers	Expenditure on travel, excluding airfares [b]	Value of expenditure by tourists
	'000s	Proportion	'000s	$/trip	$'000s
Australian	-42	48%	-20	$3,261	- 65,948
British	-23	48%	-11	$3,530	-39,660
Other	-31	48%	-15	$3,437	-50,854
Net impact			-6		- 24,565

Source: (a) Tourism Futures International. (b) Tourism Futures International.

The reduction in incoming tourists absent the JSA would obviously lead to a decline in tourist expenditure in Australia. On the other hand, the Australian economy would benefit if those Australians who no longer travelled overseas undertook their holiday expenditure in Australia. For the purpose of modelling this scenario, we assume that 100 per cent of these travellers would remain in Australia and increase consumption in Australia by an amount equal to the expenditure they would have made on their overseas travel.

This assumption is consistent with that made in a study of the determinants of tourist arrivals in Australia undertaken by Crouch et al.[111] In their models of demand for arrivals from a country, they include as an explanatory variable the price of tourism in Australia relative to that in the origin country. The models thus only allow tourism in the origin and

[111] Geoffrey I. Crouch, Lance Schultz and Peter Valerio, Marketing international tourism to Australia, a regression analysis, *Tourism Management*, June 1992, pp 196-208.

destination countries to be substitutes for one another and do not take account of the price of tourism to other destinations. That is, when looking at demand by Germans for travel to Australia, for instance, they assumed that Germans either travelled to Australia or travelled within Germany.

Data provided by Tourism Futures International (TFI) was used to estimate the revenue forgone as a result of reduced tourist arrivals. TFI estimated expenditure per tourist, excluding airfares at $3,261 per trip for an Australian, $3,530 per trip for British tourists and $3,437 for tourists from destinations other than Britain (Table 56).[112] Netting off the gain for Australia of Australians not travelling abroad from the loss of foreign tourists implies a forgone expenditure of $25 million dollars in year three. This consists of $91 million of forgone expenditure by foreigners less about $66 million expenditure by Australians diverted back into the domestic economy (Table 56).

We have carried out this analysis for each of the five years for which factual and counterfactual capacities were estimated. Our analysis suggests that the forgone tourism expenditure associated with the absence of the JSA grows over time with the largest effect obtained in years 4 and 5 (Table 57) when the largest capacity reductions occur.

Table 57: Estimated tourism expenditure impacts resulting from reduced capacity; year 1 to year 5 ($'000)

	$'000
Year 1	0
Year 2	-24,565
Year 3	-24,565
Year 4	-47,611
Year 5	-47,611

112 Capacity changes are driving the loss of tourists. Thus the tourists who no longer travel to Australia would include those most sensitive to scheduling changes and those who are indifferent between Australia and other holiday destinations. There is no reason to expect that the tourists lost under the counterfactual would have lower than average travel expenditure.

Scenario 2: Full replacement of capacity

The second scenario assumes all capacity removed by British Airways and Qantas in the counterfactual is replaced by another airline and that all the passengers no longer carried by Qantas and British Airways in the counterfactual are carried by another airline. Thus, there will be no capacity driven reduction in tourist arrivals in Australia, absent the JSA. However, as mentioned above there still may be impacts brought about by loss of access to travellers' preferred carriers and through less schedule flexibility. In addition, absent the JSA, there could be impacts on promotion levels in both scenarios and hence tourist arrivals in Australia. The impact of the JSA on promotion levels is considered in the following section.

11.3.2 Impact of the JSA on promotion levels

Scenario 1: no replacement of capacity

In the counterfactual Qantas and British Airways reduce capacity [Confidential Information Deleted] to Europe. [Confidential Information Deleted].

Qantas provided data on their promotion spending in markets covered by the JSA. Data was also obtained on the promotion spend by the Australian Tourism Council ("ATC")[113] and an analysis was also undertaken of state tourism bodies' expenditure. On the basis of this latter analysis, it was assumed that approximately 25% of state tourism bodies' expenditure would be focused on international tourism and that, of this expenditure, approximately half would be focused on European countries. In 2002 these bodies spent about $120 million on marketing expenditure. On the basis of the above shares, approximately $15 million of this expenditure would have been devoted to marketing Australia in European countries.

Incorporating this expenditure with that undertaken by the ATC and Qantas indicates that, in FY 2002/03 just over [Confidential Information Deleted] million would be spent with the bulk of the spending taking place in the UK and Ireland (Table 58).

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[113] ATC expenditure provided by Tourism Futures International.

Table 58: Promotion levels in the factual and counterfactual case ('$000/year)

	Factual				Counterfactual			
	Qantas [a]	ATC [b]	Other[c]	Total	Qantas	ATC	Other	Total
Germany, Italy, France	[cid]	4,387	6,200	[cid]	[cid]	4,387	6,200	[cid]
UK/Ireland	[cid]	5,484	8,800	[cid]	[cid]	5,484	8,800	[cid]
Total	7,250	9,871	15,000	32,121	5,133	9,871	15,000	30,004

Notes: (a) Budgeted expenditure for Australian FY 2002/03. (b) ATC expenditure was for the Australian FY 2001/02 and indexes forward to the Australian FY 2002/03 by multiplying by one plus an inflation factor of 2.5%. The inflation factor of 2.5% was derived from, *Consensus Forecasts Global Outlook: 2002-2012*, Consensus Economics, London, October 2002, p. 14. (c) Indicative expenditure by State Tourism bodies. NSW and Queensland Tourist Commissions spent over $80 million on international tourism promotion in the Australian FY 2001/02 Tourism New South Wales, Annual Report 2001-02, p.68, and Tourism Queensland, Annual Report 2001-02, p.52. Other state tourism bodies spend approximately $40 million.

[Confidential Information Deleted] Assuming Qantas' reduced expenditure were not made up by the ATC or others, counterfactual promotional expenditure levels in Europe, including expenditure by the ATC, would be about 7% lower in the counterfactual world (Table 58).[114] Similarly, promotion of Australia in European markets by Qantas would be about 29% lower in the counterfactual (Table 58).[115]

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114 This assumes that other carriers or indeed an Australian Tourist body do not make up the promotion reduction by Qantas. This is a reasonable assumption given that tourist bodies in Australia are budget constrained and that other airlines are more likely to promote their home country rather than Australia.

115 Aggregate promotion of Australia will be underestimated, as it excludes, for example, promotion by airlines other than Qantas and British Airways. However, the exclusion of this promotion is unlikely to lead to a significant overestimation of the promotion effects of

Previous work has established that tourism promotion expands tourism in Australia. Crouch et al,[116] for example, examined the impact of international marketing activities of the ATC on the number of tourist arrivals in Australia. Five markets were analysed and the elasticity of arrivals with respect to promotion ranged from a low of 11% in the United States up to 25% in New Zealand. Importantly, the marketing elasticities for countries impacted by the JSA, namely the United Kingdom and Germany, were 14% and 23% respectively. For our analysis, we use the simple average of the elasticities for these two countries.

To estimate the impact of the reduced promotional expenditure on tourist arrivals, we calculate the product of the elasticity of arrivals with respect to promotion (18.5%), the percentage change in promotion (-6.6%), and the number of tourists in the factual (392,000). We find that the reduction in promotional expenditure, absent the JSA, would reduce arrivals in Australia by 4,781. Each of these tourists is estimated to spend around $3,466 per trip,[117] excluding airfares, which implies an annual loss of expenditure of about $16.6 million (Table 59).

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a failure to reauthorise the JSA as Qantas, the Australian Tourist Commission and State Tourism bodies undertake the bulk of promotion which focuses heavily on expanding tourism to Australia.

116 Crouch et al (1992) op.cit.

117 There is no reason to expect the tourists attracted to Australia by additional promotional outlays to have lower than average expenditures on their travel.

Table 59: Impact of promotion levels on tourist arrivals in Australia, year 3

Variable	Units	Formula	Result
Passengers from Europe in the factual[118]	'000	(1)	817
Proportion of arrivals who are tourists	%	(2)	48.00%
Tourists implied by factual	'000	(3)=(1)*(2)	392
Existing promotion expenditure by parties	$'000	(4)	$7,250
Existing promotion by other organisations	$'000	(5)	$24,871
Total promotion	$'000	(6)=(4)+(5)	$32,121
Assumed reduction in promotion if JSA removed	$'000	(7)	$2,117
Change in promotion	%	(8)=(7)/(6)*100	-6.6%
Impact of arrivals wrt a 1% change in promotion	%	(9)	18.50%
Impact on tourist arrivals	Number	(10)=(9)*(8)*(3)	-4,781
Average spend	$/trip	(11)	$3,466
Value of expenditure by tourists	$A'000	(12)=(10)*(11)	-16,570

Scenario 2: Full replacement of capacity

Under Scenario 2, other airlines are assumed to replace capacity withdrawn by Qantas and British Airways. However, it is unlikely that the airlines that replace the capacity would take up the promotion withdrawn by Qantas for two reasons. First, the airlines are more likely to seek to promote their own home country, as this will provide feed to their own domestic network. In addition, other airlines will promote other destinations accessible via their hub, so promotion of Australia would compete with promotion of these other destinations. These airlines may continue to actively promote fares to Australia through travel agents and in the media with minimal cost. However, such promotion does little to build the image of a country, or to increase long-term consumer demand. We therefore believe it is reasonable to assume that, under Scenario 2, the reduction in promotion following the withdrawal of capacity by Qantas and British Airways is not offset at all by increased promotion by the

[118] This figure excludes passengers from non-European countries who joined flights at the Asian mid points. These passengers are unlikely to have been exposed to promotion of Australia in European markets, and thus would not be directly affected by any increase in promotion effectiveness in those markets.

airlines that take up the withdrawn capacity. Consequently, in Scenario 2, tourism arrivals fall by the same number as under scenario 1 (Table 59).

We believe the calculated tourism impact is conservative as it implies relatively high promotion costs per tourist attracted to Australia. For example, the Crouch et al[119] study calculated that in 1988-89 dollars it cost about $100 in promotion to attract an additional tourist to Australia. Adjusting for inflation implies a promotion cost of about $150 per tourist in 2002 prices[120]. Our estimates imply a promotion cost of $440 per additional tourist.

11.3.3 Total tourist impact

We estimate the total impact on tourism if the JSA were not reauthorised by aggregating the tourism effects due to capacity and promotion effects. Under Scenario 1, a reduction of about 10,589 tourists would occur in year 3 (Table 60). In contrast, under Scenario 2, the reduction in tourism would be confined to the promotion effect. Thus, a reduction of 4,781 tourists is estimated in year 3 (Table 60).

Overall, averaged over the five years modelled, tourist arrivals in Australia were calculated to fall by just under 10,694 per year under scenario 1. Under Scenario 2, the average yearly reduction in tourist arrivals was 3,824.

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119 Crouch et al, op cit, p.206.

120 The consumer price index in Australia rose by just over 50 per cent between 1988-89 and June quarter 2002. (ABS (2002), Cat. No. 6401.0 Consumer price index, Australia, June qtr 2002.).

Table 60: Estimated net tourist impact, year 3

	Capacity effects (persons)	Promotion effect (persons)	Total effect (persons)	Existing tourist numbers [a]	Reduction in tourism if JSA not reauthorised
	(1)	(2)	(3)=(1)+(2)	(4)	(5)=(3)/(4)*100
Scenario 1	-5,808	-4,781	-10,589	2,727,788	-0.39%
Scenario 2	0	-4,781	-4,781	2,727,788	-0.18%

(a) Information sourced from Tourism Futures International – data relates to arrivals in calendar year 2001.

The expenditure effect of these lost tourists would be particularly strong because tourists from European countries generally spend a greater number of days in Australia than tourists from other countries, and they spend relatively high amounts per visit. Data provided by Tourism Futures International, for example, indicates an average tourist spend, including air fares, of $5,808 per 'European' visit (about $3,400 excluding airfares) compared to an average spend, including air fares, for all tourists of just over $5,000 per visit (about $3,200 excluding airfares).

Given typical expenditure by tourists, the reduction in tourist arrivals would lead to a reduction in expenditure by tourists in year 3 of $17 million under the scenario of full capacity replacement. This should be viewed as the *minimum* forgone tourism revenue resulting from a failure to reauthorise the JSA. In all likelihood, forgone tourism revenue would be significantly higher. Thus, under the opposite extreme scenario of no capacity replacement, this reduction is estimated at $41 million.

The loss to the Australian economy that results from the reduction in tourism expenditure is examined in the following section.

11.3.4 The cost of reduced tourism

Should the JSA not be reauthorised, the loss of tourists would impose a cost on Australia through a reduction in expenditure undertaken by tourists. As indicated in the previous section, these outlay figures imply an annual tourist expenditure forgone if the JSA were not reauthorised of between $17 million and $41 million in year three.

This estimate of the effect from reduced tourism does not allow for the effects of the forgone tourism expenditure on activity and employment in industries that supply goods and services to the tourism sector and also industries that supply these industries with goods and services. Thus, a change in tourism can have both direct effects on the economy as well as indirect effects via impacts on supplying industries and possibly on wage rates. To capture these direct and indirect effects, we have therefore examined the impact of the reduction in tourists on the Australian economy using a general equilibrium model.

There are several general equilibrium models that allow estimates of the impact of a change in direct expenditure on total levels of GDP or total output for the economy over a period, as well as the implications for employment. The best known of these models in the Australian context is the model developed and operated by the Centre of Policy Studies at Monash University, which we refer to as the Monash Model (see Appendix D).

To evaluate the impact of the reduction in tourism on real consumption, we first undertook simulations using the Monash Model to evaluate what a given change in tourism exports implies for real consumption. The results from these simulations provide multipliers to scale the change in tourism expenditure. For the purpose of these simulations, we separately consider the following:

- $100 million decrease in exports of tourism;
- $100 million decrease in exports of tourism but with aircraft capacity remaining constant such that capacity utilisation in air transport decreased; and
- $100 million preference shift away from domestic tourism towards imported tourism.

The results from these simulations are reported in

Figure 27 to Figure 29 in terms of increased real consumption per dollar change in tourism.[121] Depending on the assumptions made, the change in real consumption associated

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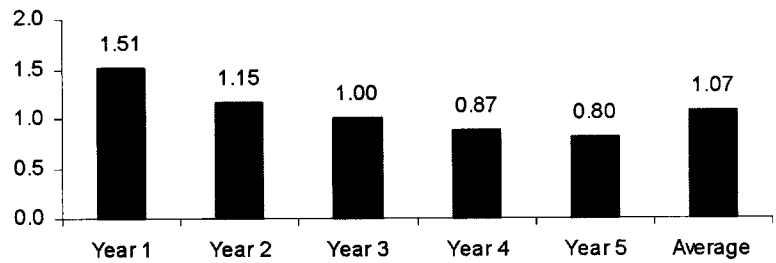
121 In the simulations, the economy-wide stock of capital achieved in the base case is required to be maintained in the long run. The investment required to achieve this is factored into the model results. Consequently, the change in real consumption observed in the simulation results can be viewed as an increase in welfare, as it represents the amount

with a change in tourism to Australia could range from about 50% to 150% of the change in tourism expenditure.

In the first simulation summarised in

Figure 27, the decrease in tourism leads initially to a strong decrease in employment that drives down real GDP. The decreased employment also leads to decreased income that causes consumption to fall. However, as time goes by, the decrease in employment drives down real wages, which expands other sectors of the economy. This increases employment as well. Thus, over the longer term, only a small decrease in employment is observed but wages are higher and thus the impact of the lost exports is much higher in the initial years.

Figure 27: Simulation 1 — Impact on real consumption of a change in tourism exports ($/$ change)



Source: Monash Model simulation results.

The first simulation assumed that capital displaced by the reduction in tourism could find alternate uses in the economy. In reality, the reduction in tourism would be expected to lead to a reduction in capacity utilisation in the sectors directly affected by the reduction in tourism. This effect is partially captured in the second simulation summarised in Figure

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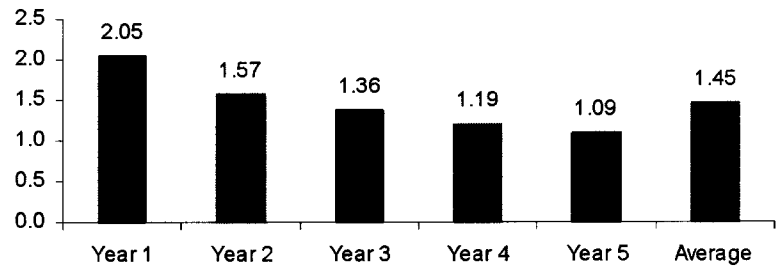
consumers would need to be paid to make them indifferent between a world without increased tourism and an economy with increased tourism.

28.[122] If the contraction in tourism takes place without a shedding of aircraft capacity, there would be a productivity decline in the Australian air services industry. The productivity decline would reduce income to Australia and a greater reduction in real consumption would be observed in the simulation. This can be seen in Figure 28 where the second set of multipliers are about 30% higher than the same simulation without the productivity change.

Figure 28: Simulation 2 — Impact on real consumption of changes in exports of tourism but with no change in airline capacity ($/$ change)



Source: Monash Model simulation results

Finally, simulation three explores the impact of Australians switching from imported tourism to domestic tourism. The simulation results (Figure 29) suggest that an additional dollar of tourism expenditure generated through an expansion in exports of tourism will generate a greater increase in real consumption than will a dollar increase in tourism generated by Australians switching from imports to domestic tourism.

This occurs because under the parameters that apply in the Monash Model, the export-supply curve for tourism is reasonably steep in the short run relative to the export-demand

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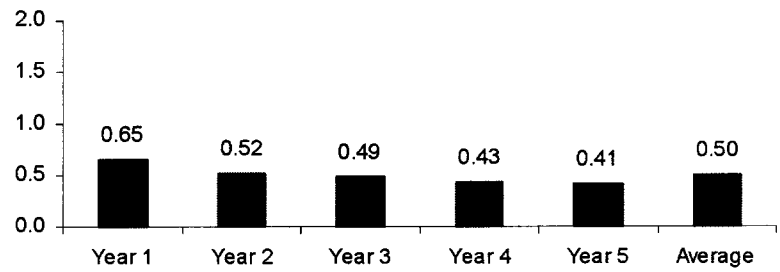
122 Only capacity utilisation in the air services industry is assumed to fall. In reality, over the short term, other sectors of the economy would face reduced capacity utilisation. For example, hotel occupancy rates would be expected to fall. Thus this simulation would underestimate the impact on the economy of the reduction in tourism.

curve for tourism. As a consequence, a leftward shift in the export-supply curve for tourism caused by import replacement would cause a weaker price rise than would a shift in the export-demand curve for Australian tourism. Thus, in the import replacement simulation, a much smaller terms-of-trade improvement is observed, and a much smaller increase in real consumption occurs.

Figure 29: Simulation 3 — Substitution away from imported tourism to domestic tourism ($/$ change)



Source: Monash Model simulation results.

We believe the simulations involving reduced capacity utilisation (simulation 2) provide the more accurate representation of the impact of reduced tourism on the Australian economy. Nevertheless, we have taken a conservative approach to the calculation of the cost to the Australian economy from lost exports of tourism expenditure. We have set this cost equal to the expenditure lost times 1.07, the average of impacts under simulation 1. We also value a shift from imports of tourism to domestic tourism as the increased domestic expenditure times 0.5, the average impact shown in Figure 29.

Applying these multipliers to the change in tourism expenditures gives an estimated welfare cost from lost tourism for Scenario 1 of $82 million in year 3 (Table 61).

We have carried out the above analysis over five years. For scenario 1, these calculations indicate that the economic cost to Australia from reduced tourism associated with the absence of the JSA would grow from about $82 million in year 2 to about $138 million in years 4 and 5 (Table 61).

Table 61: Economic cost from reduced tourism, Scenario 1: no replacement of reduced capacity

	Tourist impact	Economic cost
	Persons	$'000
Year 1	0	0
Year 2	-10,589	-81,606
Year 3	-10,589	-81,606
Year 4	-16,148	-137,510
Year 5	-16,148	-137,510
Five year discounted total		-$352,823

Under Scenario 2, there is still a substantial economic cost to Australia from not reauthorising the JSA, since tourist numbers are calculated to fall significantly (Table 60). However, the capacity removed by the parties is replaced, and thus a smaller reduction in tourism occurs under this scenario than in Scenario 1 (Table 62).

The economic cost of the loss in tourism ranges in present value terms, from $58 million (Table 62) under Scenario 2 – which should be viewed as a minimum in terms of the economic cost of not reauthorising the JSA – up to about $353 million under Scenario 1 (Table 61).

Table 62: Economic cost from reduced tourism, Scenario 2: full replacement of withdrawn capacity

	Tourist impact	Economic cost
	Persons	$'000
Year 1	0	0
Year 2	-4,781	-17,730
Year 3	-4,781	-17,730
Year 4	-4,781	-17,730
Year 5	-4,781	-17,730
Five year discounted total		-57,959

The estimates of economic cost are sensitive to the value of the multipliers used to convert the tourism expenditure losses into welfare costs to Australia. For example, in scenario 1, if we set the multipliers equal to 1.5 (from simulation 2) instead of 1.07 for exports of tourism and 0.5 for import replacement of tourism, the economic costs would rise to just over $128 million in year 3, an increase of over 50%.

11.4 Net exports

As well as lost tourist expenditure under the counterfactual, there will be a loss of net exports as Australian airline sales decline as either customers who travelled in the factual no longer fly in the counterfactual (scenario 1) or there is a switch from Australian carriers to foreign carriers (scenario 2). The calculated impact of the JSA on net exports is based on the change in passenger numbers across different airlines that are used in the tourism calculations (Table 55).

To value the impact of lost exports on the economy, simulations were undertaken with the Monash Model to derive multipliers that would convert the lost activity into a net cost to the Australian economy. To do this a hypothetical amount of sales was simulated. Two simulations were undertaken:

- a hypothetical substitution by Australian consumers of foreign carriers for Qantas equal to $100 million; and

- a hypothetical reduction in purchases of Qantas sales by foreigners equal to $100 million.

These simulations indicated that for every dollar of substitution of foreign carriers for Qantas by Australian consumers, real consumption fell by $0.31. By contrast, a dollar reduction in air services exports reduced real consumption by $0.85.

Scenario 1: No replacement of capacity

Under Scenario 1, there would be a reduction in capacity, connectivity, and overall activity by Qantas and British Airways without the JSA. This would have three principal effects on Australia:

- fewer foreigners would travel on Qantas;
- fewer Australians would travel on Qantas; and
- fewer Australians would travel on British Airways.

Because there is assumed to be no replacement of capacity these reductions in travel are not made up by travel on other airlines.

We evaluated these effects using the passenger data given in Table 55. In year 3, 18,000 and 24,000 fewer Australians would fly on British Airways and Qantas respectively. 28,000 fewer foreigners would travel on Qantas in year 3 (Table 63).

We valued these lost sales at the average return achieved by Qantas on JSA routes in FY 2002. In year 3, Qantas sales would decline by about $120 million or around $500 million in present value terms over the five years.[123] This consists of $270 million in lost exports and $230 million in lost sales to Australians. The reduction in travel by Australians on British Airways was valued at about $41 million in year 3 (Table 63).

The cost to Australia of these lost sales was found by multiplying the value of the lost sales by the multipliers obtained from the Monash model simulations. In the case of the loss of

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123 A discount rate of 6 per cent was used.

sales to foreigners, the value of the lost sales was taken to be a reduction in exports of air services and a multiplier of 0.85 was applied to these sales.

A reduction in travel on Qantas by Australians, without a shift towards foreign carriers, was assumed to be a taste change from one Australian produced good to other commodities consumed in Australia. The taste shift was thus assumed to provide no net benefits to Australia.

There is also a decline in Australians travelling on British Airways. In contrast to the reduction in travel on Qantas by Australians, a reduction in travel by Australians on British Airways was treated as a taste shift away from an imported commodity to a domestically produced commodity. This shift in taste was given a weight of 0.31.

Using these multipliers, we calculated that, if the JSA were not reauthorised, there would be an economic cost of around $42 million in the second year, rising to just over $60 million in years 4 and 5, as shown in Table 63.

Table 63: [Confidential Information Deleted]

Scenario 2: Full replacement of capacity

In Scenario 2, the capacity withdrawn by Qantas and British Airways is replaced by other airlines. In this scenario, all Australians travelling to and from Europe in the factual scenario are assumed to still be able to travel in the counterfactual. Effectively, this scenario assumes that a significant number of Australians substitute foreign carriers for Qantas in the counterfactual. This is reflected in Table 64 by a 24,000 reduction in Australians travelling on Qantas in year 3. These travellers switch to other airlines. There is also a significant reduction in foreigners travelling on Qantas (Table 64).

Table 64: [Confidential Information Deleted]

These lost sales were valued at the average return achieved by Qantas on JSA routes in FY 2002. It is estimated that the failure to reauthorise the JSA would result in a reduction in sales by Qantas on JSA routes of about $120 million in year three (Table 64).

As with scenario 1, the lost export sales for Qantas are around $500 million in net present value terms over the five years modelled. Consistent with the analysis of Scenario 1, a

reduction in exports of air services was given a multiplier of 0.85 and the substitution of foreign carriers for Qantas was assumed to result in an economic cost of 0.31 of lost sales. Using these multipliers to value the calculated lost sales, it can be seen that costs rise from $72 million in year 2 up to about $115 million in years 4 and 5 (Table 64). Overall, the shift to imported air services plus the lost export sales involves an economic cost of $301 million in net present value terms.

In total, the reduction in activity within Qantas absent the JSA is estimated to involve an economic cost over five years, in present value terms, ranging from about $165 million under Scenario 1 up to just over $301 million under Scenario 2. As has been previously noted, the $165 million economic cost under Scenario 1 should be regarded as a minimum economic cost if the JSA is not reauthorised.

11.5 Employment impacts

If the JSA were not reauthorised and Qantas had to withdraw capacity on its European services, the estimated reduction in flying would release at least three B747-400s from services on these routes.

[Confidential Information Deleted.]

Taking these factors into account, Qantas estimates that the JSA directly supports over 950 Australian jobs (Table 65). In addition to these direct effects there would also be indirect employment effects. The total employment effect is included in the net exports impacts calculated in the previous section.

Table 65: [Confidential Information Deleted]

11.6 Yield Management

Benefit sharing within the JSA provides strong incentives for British Airways and Qantas to jointly mange their yields. By combining their inventory management and data and forecasts, the JSA parties are able to more efficiently utilise their capacity and thus provide the mix of seats and fare types preferred by passengers.

Joint yield management gives the JSA parties the ability to identify where complementary holes in their bookings are opening up, and put these together to create through itineraries

that might not otherwise be sold. For example, prior to Christmas 2002, all flights hubbing via Singapore and Bangkok were close to full. British Airways and Qantas were able to identify availability on British Airways between Heathrow and Narita that could be matched with availability on Qantas between Australia and Narita that allowed release of a through fare to London Heathrow over Narita, thus carrying more passengers than would have been possible otherwise.

Another significant benefit of joint yield management is a reduction in the number of seats required to be held over for late booking passengers. All airlines will hold a number of seats for high yielding late passengers. Depending on the number of late passengers that actually wish to fly, seats may remain unfilled when they could have been sold with discount fares. Managing yields jointly allows the number of seats held back for late passengers to be reduced, thereby allowing additional discount fares and reducing the number of empty seats. Thus we would expect that joint yield management would lead to an improvement in seat factors. This is consistent with the JSA parties' experience since 1996 as shown in Figure 30.

Figure 30: [Confidential Information Deleted]

Given the length of time that the JSA has been in operation and the numerous variables affecting seat factors, it is difficult to conclude what proportion of this improvement in seat factors is due purely to joint yield management. However, some very basic statistical theory can demonstrate the importance of joint yield management in improving seat factors.

The basic proposition is that scale matters for yield management. In what follows, we illustrate this scale effect in two ways. First, assuming a normal distribution of late passengers between flights, the theory of statistical variance shows the importance of scale. Second, we relax the normality assumption and demonstrate the benefit from combining the scale of the two airlines using queuing theory.

First, assume that two air carriers operate one 400-seat plane each. Assume that, on average, each of the carriers receives 100 late passengers. Finally, suppose that this late demand is normally distributed with standard deviation equal to 50.

Using standard statistical inference theory, we estimate that, for each carrier to be certain, in 95% of the cases, of having enough seats to accommodate all the demand from late passengers, they have to allocate 183 seats[124] – that is, 45.6% of their seats. Since on average the demand for these seats is 100, and assuming that all seats not allocated to late passengers are filled, the average seat factor is 79%.

Now assume that the two carriers jointly manage their fleet and their customer base. The standard deviation of the sum of joint demands from late-passengers is 70.7.[125] This is significantly lower than the sum of the standard deviations (50+50=100).

Thus, to comply with the same condition as above, that is, to be certain that in 95% of the cases enough seats are available to accommodate all the demand from late passengers, the airlines have to allocate 317 seats – that is, 39% of their joint seats (instead of 45.6%). The average seat factor therefore increases to 85% from 79% while still meeting all late passenger demand 95% of the time.

While this first example illustrates the benefit of taking advantage of the law of large numbers, we relax the normality assumption and simply assume that arrivals of late-passengers are random. In queuing theory arrivals are defined as random when: [126]

- The number of arrivals in a particular time interval is independent of how many arrivals there were in some other interval; and
- If the intervals are made small enough, the probability of one arrival is proportional to the length of the interval, and the probability of more than one arrival in negligible.

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124 $\Pr\left(X > \frac{A-100}{50}\right) = 90\%$, with A the number of allocated seats and X a standardised normal variable.

125 Assuming independence, $\sigma_{A+B} = \sqrt{\sigma_A^2 + \sigma_B^2}$

126 Tanner M, 1994, *Practical Queuing Analysis*, McGraw-Hill, at pages 64ff.

For random arrivals, the appropriate distribution is called a Poisson distribution. If the time periods are of length t, and the average arrival rate is λ per unit of time, the probability of a specific number of arrivals k during t is

$$\text{Prob(k arrivals)} = \frac{e^{-\lambda t}(\lambda t)^k}{k!}$$

and the average number of arrivals per period is λt.

Assuming late customers arrive at random, and hence have a Poisson distribution arrival pattern, we can say that for 95% of the flights, no more than a particular number of customers will appear. This number is the 95th percentile, and is given in Table 66 for a range of values of average late passengers (means).

Table 66: Poisson distribution

Late Passenger Mean	95th percentile
1	3
2	5
3	6
5	9
10	15
30	39
50	62
100	117

To be clear, in 95% of the cases, to have enough seats to accommodate all the demand from late-passengers, each carrier (with an average of 50 late passengers) must allocate 62 seats – that is, 15.5% of the total capacity.

Now assume that the two carriers jointly manage their fleet and their customer base, hence the average number of late arrivals is 100. Using Table 66, the carriers must allocate 117 seats to be certain, in 95% of the cases, of having enough seats to accommodate all the

demand from late-passengers. Therefore, for the same proportion of late-travellers served, only 14.6% of the total capacity has to be allocated, which is lower than the 15.5% required when yields are managed independently.[127]

While it should be clear from the above that joint yield management is an important public benefit associated with the JSA, it is more difficult to value this benefit. Given this, its value it has been excluded from our calculation of public benefits and as a result the public benefit estimate is conservative.

11.7 International competitiveness

In its Restated JSA authorisation, the ACCC accepted that there was a public benefit from having a strong viable international airline.[128] Whilst recognising that the JSA had an important role to play in Qantas' international competitiveness, the Commission felt that a significant benefit could be obtained from oneworld membership.

The factual and counterfactual scenarios, explored in section 7, demonstrate the importance of the JSA to Qantas. In the counterfactual, without the JSA but with continued oneworld membership, Qantas' network would be smaller with a less expansive schedule. Comparing the factual and counterfactual illustrates that the JSA, in addition to providing the significant benefits discussed in the previous sections, will improve the ability of Qantas to earn an economic rate of return on its international operations and improve returns for shareholders, the majority of which are Australian. A key factor enhancing the prospect of capital costs being covered are the scale economies created by the JSA which improve Qantas' cost competitiveness (described in detail in section 11.1). As such, the JSA enhances the vigour and ongoing viability of Qantas as an international carrier, allowing it to participate in an increasingly competitive airline industry. Importantly, enhanced cost competitiveness will underpin continued investment in fleet expansion and modernisation, ensuring that Australia continues to have an extensive and efficient set of links to its major trading parties.

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127 Given the nature of the Poisson distribution, the benefit from pooling high yielding late passengers described in the example will remain at larger output levels.

128 Authorisation A30202, p 80.

In addition to the direct impact upon Qantas, the larger schedule the JSA enables translates into a larger city presence for Qantas in Europe and enhanced brand recognition for Qantas worldwide. Among other things, this improved presence raises Australia's profile in Europe, given the close association of Qantas with Australia.

Quantifying this benefit of improved international competitiveness is extremely difficult. However, as recognised previously by the Commission, it is an important public benefit resulting from the JSA.