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Access Economics

Economic contribution of the Qantas Group to Australia in FY17

The Qantas Group

November 2017

Contents

Executive summary

Deloitte Access Economics has estimated the economic contribution of the Qantas Group (which includes Qantas[1], Jetstar and Qantas Freight) to the Australian economy in the 2016–17 financial year (FY17) and has found the following:

- In addition to directly providing **26,150** Full Time Equivalent (FTE) Australian jobs, the Qantas Group indirectly contributes an estimated **30,263 FTE** Australian jobs by procuring **$9.1 billion** in goods and services in Australia and overseas required to meet its supply chain (see Table 1.1).
- Combining the direct and indirect economic contribution results, the total economic contribution of Qantas Group to the Australian economy was **56,414 FTE jobs** and **$11.6 billion** in value added for 2016–17 (see Table 1.1).
- The total economic contribution of the Qantas Group represents **0.7%** of Gross Domestic Product (GDP) in Australia. Considering solely the direct contribution, the operations of the Qantas Group represents **0.4%** of GDP.

Economic contribution of the Qantas Group

	Direct	Indirect	Total
Value added ($b)	7.0	4.6	11.6
Employment (FTEs)	26,150	30,263	56,414
Gross Operating Surplus (GOS) ($b)	3.0	2.0	5.0
Labour income ($b)	4.0	2.6	6.6

In addition to the economic contribution associated with its operations, the Qantas Group also plays a vital role in facilitating tourism activity through the transport of tourists to and around Australia. Combining the expenditure of both domestic and international tourists who travel on Qantas and Jetstar, the additional total value added to the Australian economy associated with the role of the Qantas Group in facilitating tourism in FY17 is estimated to be **$10.7 billion.**

Comparing these results with the 2015–16 State Tourism Satellite Accounts produced by Tourism Research Australia (TRA) indicates that **one in nine jobs** supported by the tourism sector (either directly or indirectly) are attributable to expenditure by those travelling on Qantas Group airlines.

The Qantas Group also plays an important role in marketing Australian tourism both internationally and domestically, particularly through its contribution to state and territory tourism organisations.

[1] Qantas includes Qantas Domestic, Qantas International and QantasLink.

1 Economic contribution of the Qantas Group

This chapter examines the economic contribution of the Qantas Group. The key findings of the analysis are set out below.

Deloitte Access Economics has estimated that the Qantas Group contributed $11.6 billion in total value added and 56,414 FTE jobs directly and indirectly to the Australian economy in 2016–17.

- The majority of the Qantas Group's direct value added flowed to employees, with the Group's labour income totalling $4 billion and GOS totalling $3 billion.
- Qantas makes the largest economic contribution comprising 76% of the Group's total value added, Jetstar comprising 20% and Qantas freight composing 4%.
- New South Wales (NSW) receives the largest share of the Qantas Group's economic contribution, as the majority of Qantas staff work from Sydney.

The remainder of this section provides more details on the findings of the analysis.

1.1 The economic contribution of the Qantas Group

Economic contribution studies examine both the direct and indirect value added contributed by an economic entity. Direct value added includes the returns to capital (i.e., GOS) and the returns to labour (i.e., employee wages) generated by the Qantas Group itself. Indirect value added captures the wages and GOS contributed by the Qantas Group to upstream sectors that produce inputs to the airline's operation. For more background information on the methodology used to calculate economic contribution, see Appendix A and Appendix B.

1.1.1 Economic contribution by business group

Qantas makes the largest contribution to the Qantas Group's value added and employment impacts, making up 76% of the Group's total value added and 77% of the Group's total employment contribution (see Table 1.1).

The majority of the Qantas Group's direct value added is attributable to labour income as opposed to capital income or GOS. While the airline industry may appear capital intensive, this split of value added indicates a large share of the income generated by the airline's activities flows to employees.

Table 1.1 Economic contribution of Qantas, Jetstar and Qantas Freight

	Direct	Indirect	Total
Value added ($m)			
Qantas	5,353	3,444	8,797
Jetstar	1,402	904	2,306
Qantas Freight	220	300	521
Qantas Group	6,976	4,648	11,624
Employment (FTEs)			
Qantas	20,771	22,414	43,185
Jetstar	4,193	6,053	10,246
Qantas Freight	1,186	1,795	2,982
Qantas Group	26,150	30,263	56,414
GOS ($m)			
Qantas	2,270	1,443	3,713
Jetstar	650	430	1,080
Qantas Freight	59	144	203
Qantas Group	2,979	2,017	4,996
Labour income ($m)			
Qantas	3,083	2,001	5,084
Jetstar	753	473	1,226
Qantas Freight	161	156	318
Qantas Group	3,997	2,631	6,628

Source: Deloitte Access Economics. Note: All figures have been rounded to the nearest unit so totals may be subject to rounding errors.

1.1.2 Economic contribution by state and territory

NSW and the Australian Capital Territory (ACT) receive the largest share of the Qantas Group's economic contribution, where total activity contributes $4.4 billion and almost 23,000 jobs to the NSW and ACT economy (see Table 1.2).[2] Qantas headquarters and operations are based in Sydney and, thus, NSW attracts a large share of labour income and employment. Sydney also attracts a high volume of tourists and transit flights, with NSW accounting for almost one-third of all Qantas' passengers nation-wide.

Victoria and Queensland also receive a large share of the Qantas Group's economic contribution. Victoria attracts a large share of the company's intermediate expenditure, as the Group demands a

[2] The results provided in Table 1.2 assume the breakdown of intermediate input flows to each state and territory is the same as in the FY16 report. Since the previous report, Deloitte Access Economics has updated our regional Input-Output model using the latest state accounts, resulting in slightly different estimates of industry size at a state and territory level. Table A.1 in the appendix provides results assuming the flow of intermediate inputs at a state and territory level, which are revised to reflect the latest estimates of industry size in the Deloitte Access Economic Regional Input-Output model. On the whole, the results are broadly similar to those in Table 1.2 with value added and employment being estimated to be slightly higher in some states and lower in others.

range of goods and services from the state due to its sizeable transport services industry. Queensland attracts a large share of aircraft departures, as its diverse offering of natural assets, such as the Great Barrier Reef and man-made attractions, such as its theme parks and casinos, make it a popular tourist destination.

Table 1.2 Economic contribution by state and territory

	Qantas			Jetstar			Qantas Group		
Total Value added ($m)	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
NSW/ACT	2,469	1,297	3,766	354	283	637	2,823	1,580	4,403
VIC	1,008	964	1,973	539	261	800	1,547	1,225	2,772
QLD	1,131	825	1,956	359	218	576	1,490	1,042	2,532
SA	229	200	429	72	44	115	300	244	545
WA	575	365	940	18	81	99	593	446	1,039
TAS	72	52	124	47	9	56	119	60	180
NT	90	42	131	14	9	23	104	50	154
Total Employment (FTEs)	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
NSW/ACT	12,006	8,198	20,204	976	1,814	2,790	12,983	10,011	22,994
VIC	3,699	6,550	10,249	2,082	1,847	3,929	5,781	8,397	14,178
QLD	3,586	5,477	9,063	891	1,539	2,430	4,477	7,016	11,493
SA	550	1,440	1,989	215	315	529	764	1,754	2,519
WA	1,775	1,931	3,706	23	427	450	1,798	2,358	4,156
TAS	231	377	608	6	58	64	237	435	671
NT	110	237	347	0	54	54	110	291	402

Source: Deloitte Access Economics. Note: All figures have been rounded to the nearest unit so totals may be subject to rounding errors. Results for Qantas include the Qantas Freight division, which is not reported separately here.

2 Facilitated tourism contribution of the Qantas Group

In addition to the contribution generated by its operations, the Qantas Group plays an instrumental role in supporting tourism in Australia, both through facilitating air travel by domestic and international passengers and through marketing Australian tourism destinations to domestic and international consumers. In particular, the extensive network operated by the Qantas Group plays a pivotal role in facilitating tourism in many regional destinations throughout Australia.

The estimated contribution of the Qantas Group in facilitating domestic and international tourism expenditure is based on the estimated spending that occurs by travellers at the destination and does not include expenditure on airfares, which is captured as part of the direct economic contribution. For more information on the methodology, see Appendix C.

2.1 Facilitated tourism by business group

The total economic contribution associated with expenditure by tourists travelling on Qantas or Jetstar in FY16 was $10.7 billion and 104,807 FTEs. Of the total value added, 67% was contributed by passengers carried by Qantas and 33% from passengers carried by Jetstar.

Qantas carries a substantially greater volume of domestic tourists than international tourists, while domestic tourists spend more per night on average, international tourists tend to stay longer and spend more overall. At the national level, data from TRA[3] indicates that a domestic overnight visitor spends $676 per trip, whereas an international tourist spends $3,551 per trip in Australia. Overall, domestic tourists contribute to a larger proportion of value added and employment than international tourists.

The expenditure of domestic tourists carried by the Qantas Group was estimated to contribute $6.5 billion in value added and support, the employment of 65,588 FTEs (see Table 2.1), whereas international tourists were estimated to contribute $4.2 billion in value added and support the employment of 39,219 FTEs (see Table 2.1).[4]

[3] This national-level data is not adjusted for the visitor mix on Qantas Airlines and includes expenditure on airfares which is excluded from estimates of the facilitated tourism contribution.
[4] Appendix C also includes results of the facilitated tourism contribution using the Tourism Satellite Account (TSA) approach. The TSA represents an alternative method of estimating the contribution of facilitated tourism activity, although is built on the same methodological foundations as input-output modelling. It has been used in a number of recent studies of facilitated tourism activity by Deloitte Access Economics. The results in Chapter 2 are based on an input-output approach to estimating the contribution of facilitated tourism which is consistent with the approach in Chapter 1 and previous estimates. Both approaches yield similar estimates of total value added and employment.

Table 2.1 Facilitated tourism contribution

	Domestic tourism			International tourism		
	Direct	**Indirect**	**Total**	**Direct**	**Indirect**	**Total**
Value added ($m)						
Qantas	2,353	1,782	4,135	1,899	1,145	3,045
Jetstar	1,346	1,020	2,366	739	442	1,182
Qantas group	3,699	2,802	6,501	2,639	1,587	4,226
Employment (FTEs)						
Qantas	29,772	11,942	41,714	20,597	7,686	28,282
Jetstar	17,040	6,833	23,873	7,970	2,967	10,937
Qantas group	46,812	18,775	65,588	28,566	10,653	39,219

Source: Deloitte Access Economics. Note: All figures have been rounded to nearest unit so totals may be subject to rounding errors.

2.2 Facilitated tourism by state and territory

Table 2.2 below estimates the overall contribution of Jetstar and Qantas by state, combining both domestic and international tourism expenditure. The relatively strong total contribution of Queensland reflects the popularity of the Queensland coast as a holiday destination for domestic travellers. Indeed, Queensland accounts for almost a third of the value added associated with tourism expenditure facilitated by Jetstar. In the case of Qantas, facilitated tourism is largest in NSW and Queensland reflecting the popularity of these states as a tourism destination.

Table 2.2 Facilitated tourism contribution by state and territory

	Qantas	**Jetstar**	**Total**
Total Value added ($m)			
NSW/ACT	2,113	946	3,059
VIC	1,384	783	2,167
QLD	1,671	1,082	2,753
SA	368	138	506
WA	1,211	164	1,375
TAS	128	289	417
NT	306	146	452
Total Employment (FTEs)			
NSW/ACT	20,177	8,985	29,162
VIC	14,055	7,858	21,913
QLD	16,923	10,645	27,568
SA	4,027	1,464	5,491
WA	10,602	1,355	11,957
TAS	1,453	3,239	4,692
NT	2,760	1,262	4,023

Source: Deloitte Access Economics. Note: All figures have been rounded to the nearest unit so totals may be subject to rounding errors.

2.3 Economic contribution by passenger for major source countries

Deloitte Access Economics has also estimated the economic contribution per passenger for major source countries. This analysis was completed by taking information on expenditure per tourist in Australia by source country from TRA and estimating the economic contribution of this expenditure using the same approach for the tourism contribution.[5]

This approach was undertaken for the following source countries which were selected by the Qantas Group:

- United States of America,
- China,
- Japan,
- Hong Kong,
- Singapore, and
- United Kingdom.[6]

The results of this analysis are set out in the following section.

2.4 Economic contribution per passenger

As illustrated in Table 2.3, passengers travelling from China have the highest total economic contribution at $5,549 per passenger. In terms of employment, a thousand passengers from China contributes to about 50 FTEs. Hong Kong ranks second on this list at $3,574 per passenger or 33 FTEs per thousand passengers.

The remaining countries' economic contribution lies between $2,000 to $2,500 or 19 to 25 FTEs per thousand passengers.

[5] Airfares were not excluded for these passengers as in the overall tourism contribution. This was done in the overall tourism contribution to avoid double-counting activity already included in the economic contribution of the Qantas Group.
[6] The economic contribution for United Kingdom was estimated using a weighted-average spending profile for England, Northern Ireland, Scotland and Wales.

Table 2.3 Economic contribution per passenger

	Direct	Indirect	Total
Value added ($)			
United States	1,286	875	2,161
China	3,674	1,875	5,549
Japan	1,256	757	2,013
Hong Kong	2,262	1,312	3,574
Singapore	1,567	895	2,463
United Kingdoms	1,451	1,060	2,510
Employment (FTEs per '000' passengers)			
United States	15	6	21
China	38	13	50
Japan	14	5	19
Hong Kong	24	9	33
Singapore	17	6	23
United Kingdoms	18	7	25

Source: Deloitte Access Economics. Note: All figures have been rounded to the nearest unit so totals may be subject to rounding errors.

Appendix A: Estimating the economic contribution of the Qantas Group

Background

Deloitte Access Economics was commissioned by the Qantas Group to examine the Qantas Group's contribution to the Australian economy for the FY16 and previously for FY15. This report like previous reports estimates the economic contribution of the Qantas Group at both the national and state level in terms of value added and employment (FTEs). Results are also disaggregated across the Qantas Group's business units of Qantas, Jetstar and Qantas Freight.

Economic contribution studies provide a snapshot of the contribution of a firm or industry at a particular point in time. The analysis uses common financial measures, such as revenue and cost of goods sold, to estimate a firm's direct value added to the Australian economy. Direct value added is calculated using the income approach to GDP, which builds up the value of a firm or sector's output by adding the returns to capital (measured in terms of GOS) and the returns to labour (measured as wages paid). That is, it estimates the total income generated, net of costs, through the activities of the entity being modelled.

While revenue is more commonly reported in financial accounts, direct value added provides a more accurate assessment of a firm's contribution to the overall economy because it nets out the value that is created by upstream industries. The direct contribution, therefore, isolates the value *created* by the Qantas Group. This approach is consistent with the framework used by the Australian Bureau of Statistics (ABS) in compiling the *Australian National Accounts*.

In addition to this direct component, economic contribution studies consider the interlinkages with other sectors of the economy through expenditure on intermediate inputs. This expenditure drives the indirect contribution to value added and is determined through Deloitte Access Economics' Regional Input-Output Model (DAE-RIO-M).

Measuring the indirect contribution involves measuring the indirect or flow-on contribution of the Qantas Group's activities. This is the value added generated in upstream sectors of the economy that produce inputs to the airline's operation. The flow-on contribution is based on the Qantas Group's expenditure in these industries and the profit and wages that are generated as a result. A more detailed description of the methodology of economic contribution studies is provided in Appendix B.

Data provided by the Qantas Group

Qantas has provided Deloitte Access Economics with detailed profit and loss data from the FY17. This data was disaggregated by the following business units:

- Qantas (incorporating domestic and international operations),;
- Jetstar;
- Qantas Loyalty;
- Freight;
- Corporate; and
- Unallocated/eliminated.

The revenue and expenditure numbers for Qantas Loyalty were aggregated with values from Qantas and are not analysed separately. While Qantas Loyalty generates substantial revenue through its own operations, the profitability of this business unit is determined primarily by demand for Qantas Points. This demand is closely tied to the overall performance of Qantas and it is, therefore, appropriate to aggregate these two business units.

The Corporate division's revenue and expenditure has been distributed across Qantas, Jetstar and Qantas Freight. The corporate division contributes to the organisation by providing strategic advice, managing finances and providing human resourcing support. While these functions are integral to any firm, the benefits and revenue associated with such services are accrued through other business units. As the revenue is accrued by these business units, the costs should also be distributed so as to accurately reflect the intermediate inputs required to generate revenue. As such, the costs of the corporate business unit have been distributed as per advice from Qantas, with 72% of costs being allocated to Qantas, Jetstar being allocated 22% and Freight 6%.

In determining the Qantas Group's indirect contribution to the Australian economy, expenditure on intermediate inputs has been allocated between expenditure occurring within Australia and that occurring internationally. The majority of the Qantas Group's expenditure on intermediate expenditure occurs in Australia, with more than half of its intermediate inputs sourced locally. The majority of the expenditure on inputs from outside Australia is attributable to jet fuel, commissions and selling costs and aircraft operating lease rentals. These inputs are usually unable to be sourced locally.

Methodology for calculating economic contribution by state

The economic contribution of the Qantas Group by state has been determined by distributing the GOS generated by the company in Australia by passenger departure data. This departure data was disaggregated by Qantas and Jetstar and a weighted average of the two was used to distribute value added for Qantas Freight. The direct labour income was allocated to states based on their respective share of employment by business unit. Since direct value added includes both labour income and GOS, the relative share of states in direct value added will reflect a combination of their employment share and passenger share.

Similarly, the Qantas Group's expenditure on intermediate inputs is distributed by each state's estimated relevant industry share. For example, as NSW accounts for 32% of total activity in the transport and support services industry in Australia, this same share of the Qantas Group's expenditure on transport and support services is distributed to NSW. While this does not directly capture the geographical dispersion of the Qantas Group's activities (which would require more detailed purchase data), it is a relatively accurate approximation of this dispersion in lieu of this data.

The expenditure on intermediate inputs drives the indirect contribution for each state. In determining the contribution to value added and employment driven by the company's expenditure on intermediate inputs, Deloitte Access Economics has disaggregated the national Input-Output (IO) table for each individual state. This ensures that the industry structure of each state is accurately described and the relevant economic activity is captured.

Updated approach to estimating the economic contribution by state

Since the publication of the last report, some changes have been made to DAE-RIO-M to better reflect the size of specific industries in each state by benchmarking to state accounts. This has resulted in some changes in splitting of indirect economic contribution at a state level.

The results in Table 1.2 in the report used the same split of intermediate input flows to states as in the FY16 report to allow for comparability in the results across time. Table A.1 below reports the economic contribution by state based on updated estimates of the size of intermediate input industries at a state and territory level. The results are broadly similar, but suggest a slightly higher level of total value added in some states and territories, such as NSW/ACT and the Northern Territory

and a slightly lower level of value added in some states and territories, such as Victoria and Western Australia.

Table A.1 Economic contribution by state

	Qantas Group
Total Value added ($m)	
NSW/ACT	4,467
VIC	2,672
QLD	2,501
SA	623
WA	1,013
TAS	176
NT	172
Total Employment (FTEs)	
NSW/ACT	23,526
VIC	13,493
QLD	11,246
SA	2,988
WA	4,012
TAS	632
NT	516

Source: Deloitte Access Economics. Note: All figures have been rounded to the nearest unit so totals may be subject to rounding errors.

Appendix B: Economic contribution approach

Economic contribution studies are intended to quantify measures, such as value added, exports, imports and employment associated with a given industry or firm, in a historical reference year. The economic contribution is a measure of the value of production by a firm or industry.

All direct, indirect and total contributions are reported as GOS, labour income, value added and employment (with these terms defined in Table B.1).

Table B.1: Definitions of economic contribution estimates

Estimate	Definition
GOS	GOS represents the value of income generated by the entity's direct capital inputs, generally measured as the earnings before interest, tax, depreciation, and amortisation (EBITDA).
Labour income	Labour income is a subcomponent of value add. It represents the value of output generated by the entity's direct labour inputs, as measured by the income to labour.
Value added	Value added measures the value of output (i.e., goods and services) generated by the entity's factors of production (i.e., labour and capital) as measured in the income to those factors of production. The sum of value added across all entities in the economy equals GDP. Given the relationship to GDP, the value added measure can be thought of as the increased contribution to welfare.
Employment (FTE)	Employment is a fundamentally different measure of activity to those above. It measures the number of workers (measured in FTE terms) that are employed by the entity, rather than the value of the workers' output.
Direct economic contribution	The direct economic contribution is a representation of the flow from labour and capital committed in the economic activity.
Indirect economic contribution	The indirect contribution is a measure of the demand for goods and services produced in other sectors as a result of demand generated by economic activity.
Total economic contribution	The total economic contribution to the economy is the sum of the direct and indirect economic contributions.

Source: Deloitte Access Economics.

Definitional notes

When calculating the GOS for a typical for-profit firm or industry, income streams from government (such as transfers or production subsidies) are excluded as they are a transfer of public funds, not reflective of income generated by the activities of the firm or industry.

Similarly, value added is typically calculated as GOS, plus labour income net of subsidies under the ABS Australian System of National Accounts (ABS 2013):

> *A subsidy on a product is a subsidy payable per unit of a good or service. An enterprise may regard a subsidy as little different from sales proceeds. However, in the national accounts, subsidies are regarded as transfer payments from general government, enabling enterprises to sell their output for less than would otherwise be the case.*

Value added

The measures of economic activity provided by this contribution study are consistent with those provided by the ABS. For example, value added is the contribution the sector makes to total factor income and GDP.

There are a number of ways to measure GDP, including:

- **Expenditure approach**—Measures expenditure: of households, on investment, government and net exports and
- **Income approach**—Measures the income in an economy by measuring the payments of wages and profits to workers and owners.

Below is a discussion on measuring the value added by an industry using the income approach.

Measuring the economic contribution—income approach

There are several commonly used measures of economic activity, each of which describes a different aspect of an industry's economic contribution:

- **Value added** measures the value of output (i.e., goods and services) generated by the entity's factors of production (i.e., labour and capital) as measured in the income to those factors of production. The sum of value added across all entities in the economy equals GDP. Given the relationship to GDP, the value added measure can be thought of as the increased contribution to welfare.

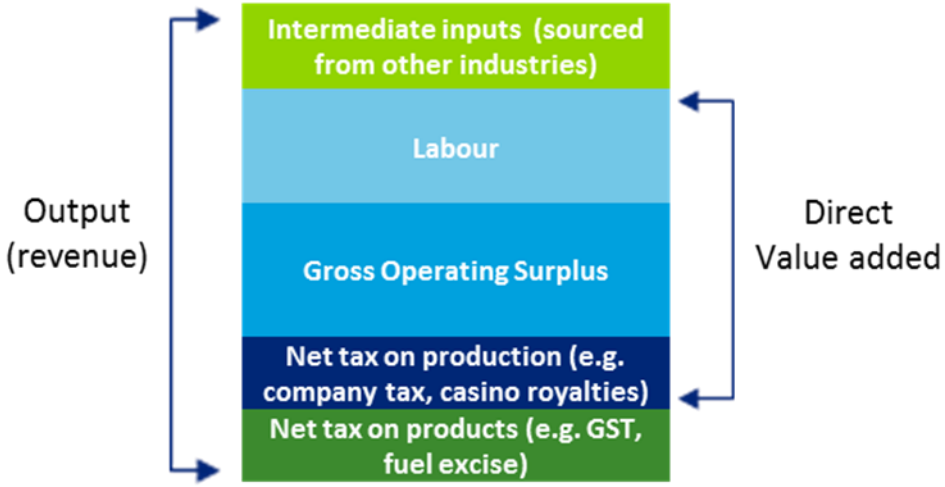
  Value added is the sum of:

  - GOS represents the value of income generated by the entity's capital inputs, generally measured as the earnings before interest, tax, depreciation and amortisation (EBITDA).
  - Tax on production, less subsidy provided for production. Note: Given the manner in which returns to capital before tax are calculated, company tax is not included or this would double-count that tax. In addition, it excludes goods and services tax, which is a tax on consumption (i.e., levied on households).
  - Labour income is a subcomponent of value added. It represents the value of output generated by the entity's direct labour inputs, as measured by the income to labour.

Figure B.1 shows the accounting framework used to evaluate economic activity, along with the components that make up *output*. Output is the sum of value added and the value of intermediate inputs used by the firm or industry.

The value of intermediate inputs can also be calculated directly by summing up expenses related to non-primary factor inputs.

Figure B.1: Economic activity accounting framework



Source: Deloitte Access Economics.

Contribution studies generally outline employment generated by a sector. Employment is a fundamentally different measure of activity to those above. It measures the number of workers that are employed by the entity, rather than the value of the workers' output.

Direct and indirect contributions

The **direct** economic contribution is a representation of the flow of labour and capital in the airport.

The **indirect** contribution is a measure of the demand for goods and services produced in other sectors as a result of demand generated by the direct economic activity of the airport. Estimation of the indirect economic contribution is undertaken in an IO framework using ABS IO tables which report the inputs and outputs of specific sectors of the economy (ABS 2013).

The total economic contribution to the economy is the sum of the direct and indirect economic contributions.

Other measures, such as total revenue or total exports, are useful measures of economic activity, but these measures alone cannot account for the contribution made to GDP. Such measures overstate the contribution to value added because they include activity by external firms supplying inputs. In addition, they do not discount the inputs supplied from outside Australia.

Limitations of economic contribution studies

While describing the geographic origin of production inputs may be a guide to a firm or industry's linkages with the local economy, it should be recognised that these are the type of normal industry linkages that characterise all economic activities.

Unless there is unused capacity in the economy (such as unemployed labour), there may not be a strong relationship between a firm's economic contribution as measured by value added (or other static aggregates) and the welfare or living standard of the community. The use of labour and capital by demand created from the industry comes at an opportunity cost as it may reduce the amount of resources available to spend on other economic activities. This is not to say that the economic contribution, including employment, is not important. As stated by the Productivity Commission in the context of Australia's gambling industries: (Productivity Commission 1999):

> *Value added trade and job creation arguments need to be considered in the context of the economy as a whole … income from trade uses real resources, which could have been employed to generate benefits elsewhere. These arguments do not mean that jobs, trade and activity are unimportant in an economy. To the contrary they are critical to people's well-being. However, any particular industry's contribution to these benefits is much smaller than might at first be thought, because substitute industries could produce similar, though not equal gains.*

In a fundamental sense, economic contribution studies are simply historical accounting exercises. No 'what-if,' or counterfactual inferences—such as 'what would happen to living standards if the firm or industry disappeared?'—should be drawn from them.

The analysis—as discussed in the report—relies on a national IO table modelling framework and there are some limitations to this modelling framework. The analysis assumes that goods and services provided to the sector are produced by factors of production that are located completely within the state or region defined and that income flows do not leak to other states.

The IO framework and the derivation of the multipliers also assume that the relevant economic activity takes place within an unconstrained environment. That is, an increase in economic activity in one area of the economy does not increase prices and subsequently crowd out economic activity in another area of the economy. As a result, the modelled total and indirect contribution can be regarded as an upper-bound estimate of the contribution made by the supply of intermediate inputs.

Similarly, the IO framework does not account for further flow-on benefits as captured in a more dynamic modelling environment like a Computable General Equilibrium (CGE) model.

IO analysis

IO tables are required to account for the intermediate flows between sectors. These tables measure the direct economic activity of every sector in the economy at the national level. Importantly, these tables allow intermediate inputs to be further broken down by source. These detailed intermediate flows can be used to derive the total change in economic activity associated with a given direct change in activity for a given sector.

A widely used measure of the spill-over of activity from one sector to another is captured by the ratio of the total to direct change in economic activity. The resulting estimate is typically referred to as 'the multiplier.' A multiplier greater than 1 implies some indirect activity, with higher multipliers indicating relatively larger indirect and total activity flowing from a given level of direct activity.

The IO matrix used for Australia is derived from the ABS 2014–15 IO tables, the latest available IO data at the time of the analysis. The industry classification used for IO tables is based on the Australian and New Zealand Standard Industrial Classification, with 114 sectors in the modelling framework.

Appendix C: Facilitated tourism contribution

Noting the vital role the Qantas Group plays in facilitating Australia's tourism industry, this analysis has also evaluated the economic contribution made through the airline's role in facilitating both domestic and international tourism.

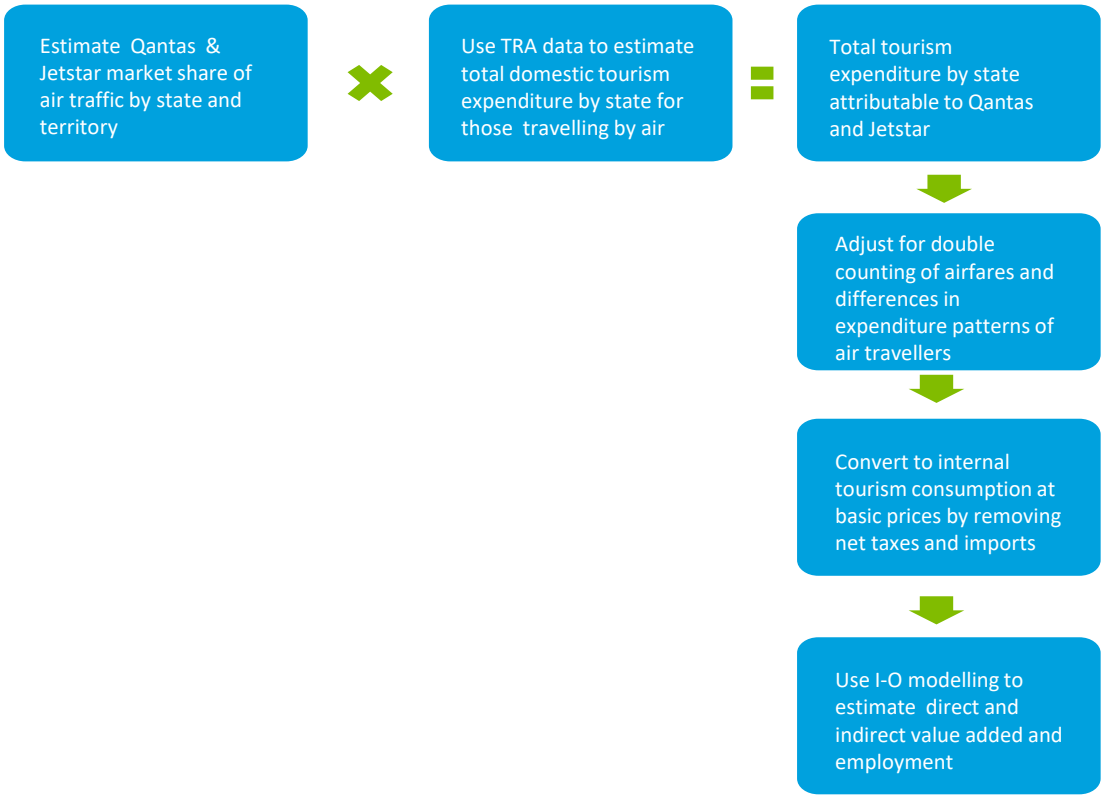
Methodology for calculating the facilitated contribution of domestic tourism

Figure C.1 provides an overview of the process used to estimate the economic contribution of domestic tourism expenditure facilitated by the Qantas Group. In the first stage, market share information by route provided by the Qantas Group was matched to data on passenger numbers on each route from the Bureau of Infrastructure, Transport and Regional Economics (BITRE). This was used to calculate estimates of passenger numbers carried by Qantas and Jetstar on each route.

Routes were aggregated to a state level by attributing half the traffic on a route pair to each state. For example, 50% of traffic on the Sydney to Melbourne route was attributed to NSW and 50% to Victoria. Market shares by state were developed separately for interstate and intrastate travel.

In the second stage, these market shares were multiplied by estimates of regional expenditure by domestic overnight and domestic day visitors in each state. To calculate regional expenditure, information on average expenditure per night from the TRA National Visitor Survey (2017) was combined with other data from TRA on visitor numbers travelling interstate and intrastate by air.

Figure C.1 Overview of methodology for estimating the domestic tourism contribution



Source: Deloitte Access Economics

In the third stage, estimates of market shares by state are multiplied by total tourism expenditure for air travellers (calculated in the second stage) to develop estimates of total tourism expenditure attributable to Qantas and Jetstar for both interstate and intrastate travel.

This data is then subject to some further adjustments in the fourth stage to ensure it is consistent with the expenditure profile of airline travellers noting that expenditure estimates are based on all domestic tourists not just airline travellers.

- First, all expenditure on domestic airfares is excluded to avoid double-counting expenditure already included in the economic contribution of the Qantas Group.
- Second, expenditure on vehicle maintenance and repairs is excluded on the basis that this is more likely to be incurred by those on driving holidays.
- Finally, expenditure on fuel is reduced to the average amount per day incurred by international tourists as those travelling by air are expected to spend less on fuel than those travelling to a destination by car. These assumptions are likely to be conservative because it is likely that air travellers have a higher average expenditure per night than those travelling by car or bus.

The next stage involves adjusting tourism expenditure, which is recorded in purchaser prices to internal tourism consumption at basic prices by removing the impact of imports and net taxes on production and adjusting for imputed consumption. Finally, IO modelling is used to convert internal tourism consumption by item to estimates of direct and indirect value added and indirect and direct employment.

Methodology for calculating the facilitated contribution of international tourism

A similar procedure was used to estimate the economic contribution of international tourism facilitated by the Qantas Group. The various stages in this process are outlined in Figure C.2 below.

Estimating the market share of Qantas and Jetstar is more complicated in the case of international tourism. While BITRE has information on airline travel by route, this does not map neatly to country of origin for some countries and does not account for differences in the ratio of foreign to local residents carried by different airlines.

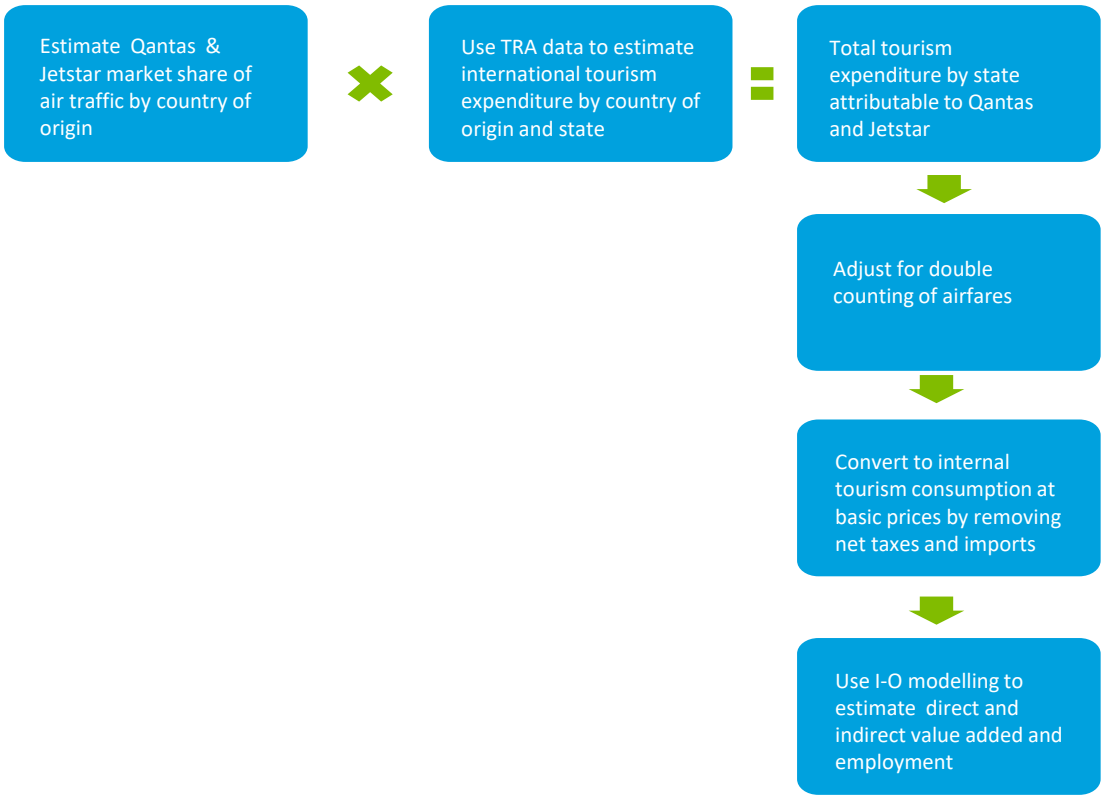
Tourism Australia does provide airline share data for some of Australia's largest source countries, which can be used for these countries based on data from the Department of Immigration and Border Protection. Deloitte Access Economics also received detailed data from Qantas and Jetstar on incoming passengers by point of sale. While point of sale is not a perfect measure of country of origin, it is likely to be a reasonable approximation. This can then be used to estimate market share of arrivals (after adjusting for the fact that some travellers are not short-term visitors, but longer-term visitors or permanent settlers).

The market share of Qantas and Jetstar by country of origin was estimated by combining the airline share data reported by Tourism Australia (2016) (where available) with estimated market shares from point of sale data for source markets not reported on by Tourism Australia.

In the second stage, this data was multiplied by estimates of expenditure (excluding prepaid airfares and package tours) by country of origin for inbound tourist arrivals for each state from TRA. The resulting estimates reflect the total international tourism expenditure for each state attributable to tourists travelling on Qantas or Jetstar.

The next stage involves adjusting this expenditure to exclude expenditure on international and domestic airfares in Australia to avoid double counting any expenditure as part of the direct economic contribution. As for the domestic tourism expenditure, this was then converted to tourism consumption at basic prices and then converted to estimates of direct and indirect value added and employment using IO modelling.

Figure C.2 Overview of methodology for estimating the international tourism contribution



Source: Deloitte Access Economics

The use of 'economic contribution per passenger' estimates

Deloitte Access Economics understands that the Qantas Group is looking to use 'economic contribution per passenger' numbers to estimate the contribution of specific flights into Australia. In using these numbers to construct such estimates, there are a number of parameters that will need to be considered. The first concerns the makeup of a typical airline flight, including passenger load factors, the mix of Australian to international passenger and the mix of short-term visitors to longer-time arrivals, e.g., migrants. The numbers in this report are based on the expenditure patterns of tourists who are defined as short-term visitor arrivals.

The second issue to be considered in using these estimates is that they reflect the contribution of current visitors to the economy from that source country. They do not reflect the net impact on the economy of an increase in tourist arrivals or a change in visitor mix. An analysis of this net impact would need to consider the potential reallocation of resources from other industries and the extent to which tourism infrastructure, e.g., airports and hotels respond to additional tourists. This would need to be examined through an economic impact study drawing on economy-wide modelling techniques, such as CGE modelling.

Calculating the facilitated contribution of tourism using the TSA approach

The methodology for estimating the economic contribution of tourism expenditure facilitated by the Qantas Group in the body of this report is based on IO modelling in line with the approach used in the FY15 and FY16 studies. This is also the approach used to estimate the economic contribution of the activities of the Qantas Group itself.

An alternative way of measuring the economic contribution of facilitated tourism, which also draws on the use of IO tables, is the TSA approach. Both approaches are conceptually similar and draw on the ABS IO tables to generate results. The TSA is based on an international approach to defining the

tourism sector and different tourism products and related industries depending on the extent to which they interact with tourists either directly or indirectly.

The TSA is published by the ABS and the State TSAs are published by TRA. The TSA approach is an internationally recognised approach to estimating the economic contribution of tourism activity. Both approaches rely at their core on IO tables.

While IO modelling can be applied to any sector of the economy (including tourism by using an appropriate sector-specific definition of the tourism sector), Deloitte Access Economics has shifted to using the TSA approach to estimate the economic contribution of tourism activity in recent projects. The TSA approach is our preferred approach to measuring the economic contribution of the tourism sector as it ensures that the analysis is consistent with international guidelines for measuring the economic activity of the tourism sector.

The definition of direct and indirect are slightly different in the TSA approach as direct is defined as activity involving a direct interaction with tourists. Accordingly, the ratio of direct and indirect activity differs from results using a standard IO approach. However, estimates of total value added and employment should be similar across the two approaches.

Table C.1 below shows the estimated economic contribution of the Qantas Group using the TSA approach for Australia as a whole. Total value added and employment are similar to the results reported in Chapter 1 in the report. Table C.2 shows the per passenger contribution from each source country using the TSA approach.

Table C.1 Economic contribution of the Qantas Group to tourism using the TSA approach

	Domestic tourism			International tourism		
	Direct	**Indirect**	**Total**	**Direct**	**Indirect**	**Total**
Value added ($m)						
Qantas	1,971	2,030	4,000	1,648	1,320	2,969
Jetstar	1,129	1,182	2,311	645	522	1,167
Qantas Group	3,100	3,211	6,311	2,293	1,842	4,136
Employment (FTEs)						
Qantas	28,820	15,191	44,012	20,025	9,087	29,112
Jetstar	16,551	9,847	26,398	7,784	3,616	11,400
Qantas Group	45,372	25,039	70,410	27,808	12,704	40,512

Source: Deloitte Access Economics. Note: All figures have been rounded to the nearest unit so totals may be subject to rounding errors.

Table C.2 Economic contribution per passenger from each source country using the TSA approach

	Direct	Indirect	Total
Value added ($)			
United States (USA)	1,081	1,015	2,096
China	3,273	2,200	5,473
Japan	1,089	890	1,978
Hong Kong	1,982	1,541	3,523
Singapore	1,397	1,062	2,459
United Kingdoms (UK)	1,166	1,190	2,356
Employment (FTEs per '000' passengers)			
United States (USA)	13	7	20
China	38	21	60
Japan	13	6	19
Hong Kong	23	11	34
Singapore	16	7	24
United Kingdoms (UK)	14	9	23

Source: Deloitte Access Economics. Note: All figures have been rounded to the nearest unit so totals may be subject to rounding errors.

Limitation of our work

General-use restriction

This report is prepared solely for the use of the Qantas Group. This report is not intended to, and should not be, used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose of estimating the economic contribution of the Qantas Group for FY17. You should not refer to or use our name or the advice for any other purpose.

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