Friday, 2 July 2021

The Hon. Stirling Hinchliffe
Tourism Industry Development Minister
1 William Street
Brisbane QLD 4000

Dear Minister,

Thank you for the opportunity to contribute to the Tourism Recovery Review for Queensland through the Tourism Industry Reference Panel. As the key airports for Queensland, we support tens of thousands of jobs in tourism, hospitality, business and logistics – facilitating millions of holidays, family reunions and social experiences every year.

Our recently commissioned joint paper, provided attached, *Economic Analysis of Queensland's Aviation Sector* produced by Deloitte Access Economics, demonstrates the critical importance of domestic and international aviation to the state as a proportion of the overall economy. In 2019, over 9.5 million visitors, representing $7.3 billion in economic value or 2.0% per cent of Queensland's Gross State Product (GSP), were attributable to the Queensland International Airports of Cairns, Sunshine Coast, Brisbane, and Gold Coast. Collectively the Queensland International Airports were responsible for 88 per cent all aviation passenger traffic throughout Queensland in 2019, supporting 54,200 Full Time Equivalent (FTE) jobs. Between 2015 and 2019, the value added contribution of facilitated tourism of the Queensland International Airports grew at an average annual rate of 7.8%.. The significance of these measures demonstrates why there must be a proactive and long-term framework in place for aviation in the state.

Understandably, the focus during this crisis has been protecting the health and safety of Queenslanders. As domestic restrictions start to ease, we have been reflecting on what is required to support economic growth in our State, while not compromising the safety of Australians. On 20 April 2020, the Queensland International Airports and the respective Regional Tourism Organisations presented a united position to the Queensland Government about what was required to restart key inbound markets to Queensland, when it was safe to open borders. This position paper called for a new aviation attraction framework in Queensland, entitled the Aviation Capacity Expansion (ACE) program, a fund of $100 million over four years for aviation, as well as 13 other recommendations to guide its implementation and administration.

The economic impact analysis undertaken by Deloitte demonstrates a $100 million investment over four years has the potential to deliver the following key benefits above and beyond a normal recovery profile:

- generate an incremental 960,000 visitors to Queensland between 2022 and 2025
- a $1.9 billion increase in visitor expenditure, in net present value (NPV) terms
- $1.3 billion additional Gross State Product, in NPV terms
- Creation of an additional 1,100 FTE jobs annually on average in Queensland

Importantly, this investment would also unlock further investment from airports and Regional Tourism Organisations to support capacity recovery and growth. The equivalent incentive fund

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pre-COVID generated in the order of two dollars invested by primarily airport operators to incentivise new capacity, for every dollar of government investment.

As the health situation improves and borders reopen, it is essential that aviation access is supported to deliver as much airline capacity as possible into Queensland. Given the significant distances our destinations are from their key source markets in Australia and overseas, the entire tourism industry is dependent on this critical funnel.

With the focus justifiably on the health and safety of Queenslanders through this pandemic, it is inevitable that Queensland and Australia will be entering the race for lucrative international inbound visitors against competing destinations that would have already re-opened.

The fight to secure Queensland's position in a competitive aviation environment is one that will require proactive, long term support from Government, in addition to the existing programs and measures that have already been announced.

There is no more important time for government and industry to work collaboratively, and this includes a clear funding framework set in advance of the opening borders and over multiple years, to maximise the preparedness of the state in engaging with key airline partners.

Yours sincerely

Gert-Jan de Graaff
CEO
Brisbane Airport Corporation

Chris Mills
CEO
Queensland Airports Limited

Andrew Brodie
CEO
Sunshine Coast Airport

Richard Barker
CEO
North Queensland Airports

cc: Mr John Lee, Director General Department of Tourism, Sport and Innovation
Ms Liz Savage, Chairperson Tourism Industry Recovery Panel Queensland 2021

Deloitte.

Economic analysis of Queensland's aviation sector

Demonstrating the significance of the aviation sector to Queensland's economy and estimating the potential impact of government funding.

Queensland International Airports (Brisbane Airport, Cairns Airport, Gold Coast Airport and Sunshine Coast Airport)
June 2021

Deloitte
Access Economics

Executive summary

Tourism profile

- In 2019, Queensland welcomed 28.7 million overnight visitors, representing 23% of total overnight visitation in Australia. 10% (or 2.8 million) of overnight trips were from international visitors, 28% (8.1 million) from interstate with remaining 62% (17.8 million) from intrastate.
- Total overnight visitor expenditure in Queensland reached $25.5 billion in 2019, growing 4.7% on average per year between 2009 and 2019. Total overnight visitor expenditure in Queensland represented 20% of overnight visitor expenditure in Australia in 2019.

Importance of the aviation sector to Queensland

- In total, 41.8 million passengers (33.7 million domestic and 8.0 million international) travelled through airports across the state in 2019, increasing on average 2% each year since 2015. The aviation sector underpins businesses and communities in Queensland, transporting workers and tourists into and within the state.
- Nationally, in 2019, aviation facilitated 23% of domestic overnight trips and 24% of trips by international visitors travelling around Australia.
- In Queensland, the share of aviation facilitated domestic traffic was higher, with 29% of domestic overnight trips and 37% of international trips using air as the mode of transport to travel into or within Queensland.
- Seven out of every 10 interstate overnight visitors travelled into Queensland by air, and six out of every 10 international visitors arrived directly into Queensland.
- In 2019, passengers to the Queensland International Airports accounted for 22.2% of aviation passengers in Australia (23.4% of domestic passengers and 18.9% of international passengers).

Facilitated tourism contribution of the Queensland International Airports to the Queensland economy

- Total passenger movements facilitated in and out of the Queensland International Airports reached 34.7 million in 2019, increasing on average 2.4% each year between 2015 and 2019 and representing 88% of all aviation passenger traffic in the state.
- Considering the mix of returning residents and visitors reflected in passenger movements, the Queensland International Airports facilitated **9.5 million visitors** and **80.3 million visitor nights** in 2019.
- In 2019, the tourism activity facilitated by the Queensland International Airports contributed **$7.3 billion in value added.** Relative to the economy more broadly, this represents **around 2.0% of the Queensland economy**. This is an increase from $5.4 billion in value added in 2015, equivalent to average annual **growth of 7.9% between 2015 and 2019.**
- During the same period, the tourism activity facilitated by the Queensland International Airports supported **54,200 full time equivalent (FTE) jobs,** reflecting an average annual growth of 5.5% between 2015 and 2019.

Executive summary

Facilitated tourism contribution of Queensland International Airports to the Queensland economy, 2021-2026

- Across the Queensland International Airports, under current conditions, total passenger movements are forecast to increase from **11.5 million in 2021 to 41.7 million in 2026.** This translates to a return to 2019 levels in 2024 for international passengers, and a recovery in 2023 for domestic aviation passengers.
- In 2026, the Queensland International Airports could potentially contribute **$9.0 billion in value added** to the Queensland economy, supporting **58,200 FTE jobs**. This equates to average annual growth of 3.1% in gross value added and 1.0% in FTE jobs over the seven years from 2019.
- It is important to acknowledge that the outlook remains subject to above average levels of uncertainty.

Accelerated recovery of the Queensland aviation sector

- The Queensland International Airports are requesting the Queensland government allocate **$100 million in support over four years** through the Aviation Capacity Expansion (ACE) program to accelerate the state's aviation recovery.
- The degree to which this acceleration occurs is a function of a variety of factors including, critically, the precise use of the funds.
- That noted, economic modelling (based on a central scenario) indicates that the proposed fund has the potential to add an incremental 4.3 million international passenger movements, increasing visitation to Queensland by **a total of 960,000 visitors** between 2022 and 2025, generating **$1.9 billion in additional visitor expenditure** in net present value (NPV) terms.
- This boost to aviation recovery and visitation could potentially generate **$1.3 billion in gross state product** (in NPV terms) and **an average of 1,100 full time equivalent jobs annually** in Queensland over the period of the program.
- This represents only that portion of the impact that would be attributable to the state government's share of funding. However, we note that any funding support provided by the government would unlock further funding from airports and airlines (of the order of 2 industry dollars to every 1 government dollar).
- The impact of the proposed funding program has the potential to shift the Queensland International Airports' share of international passenger movements into Australia from 20.8% to 23.2%.

Introduction

Background

Deloitte Access Economics was engaged by the Queensland International Airports to undertake analysis to assess the airports' facilitated tourism contribution to the state economy, and the potential incremental economic benefits that could result from the introduction of an aviation funding program.

Queensland International Airports

The Queensland International Airports include Brisbane Airport, Cairns Airport, Gold Coast Airport and Sunshine Coast Airport.

Scope of this analysis

The purpose of this analysis is to provide robust economic analysis which can be used to support the Queensland International Airports' submission to the Tourism Industry Reference Panel (the Panel).

The Panel is responsible for reviewing Queensland's visitor economy, identifying opportunities to accelerate the tourism industry's recovery, and seeking feedback to support development of a state-wide Action Plan for Tourism Recovery.

This report demonstrates the potential benefits to the Queensland economy that could arise with the introduction of the proposed Aviation Capacity Expansion (ACE) program.

There are two economic analyses undertaken in this study, namely

1) Modelling the facilitated tourism contribution of the Queensland International Airports to the state's economy (value added) and to employment (full time equivalent jobs)
2) Modelling the impact of the ACE program to the Queensland economy (gross state product) and to employment (full time equivalent jobs)

The analysis is underpinned by Deloitte Access Economics' in-house economic models, the Deloitte Access Economics Regional Input-Output model and the Deloitte Access Economics Regional General Equilibrium Model (DAE-RGEM).

The models were informed and parameterised by a detailed desktop review of relevant publicly available data, spanning a wide range of sources including Tourism Research Australia's visitor surveys, Australian Bureau of Statistics, Australian Taxation Office and a broader review of relevant bespoke studies.

Structure of the report

The report includes the following:

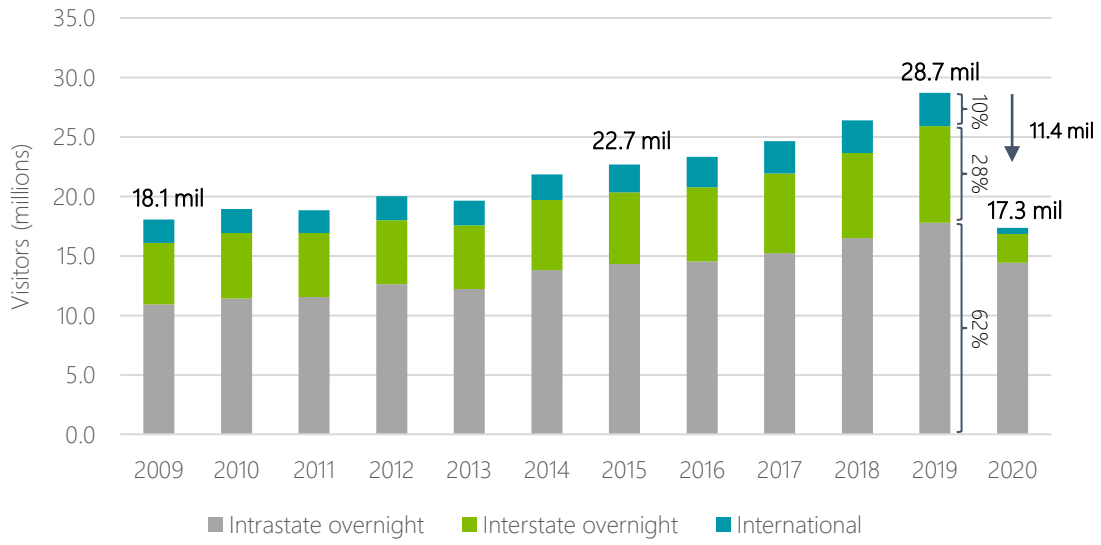
- Profiling of the role and growth of Queensland's tourism and aviation sectors
- Facilitated tourism contribution by the Queensland International Airports
- Economic impact of the ACE program
- Appendices detailing the analytical framework, model infrastructure, and scenario assumptions.

Queensland's tourism sector

Overnight visitation in Queensland represents over a fifth of total overnight trips and expenditure in Australia

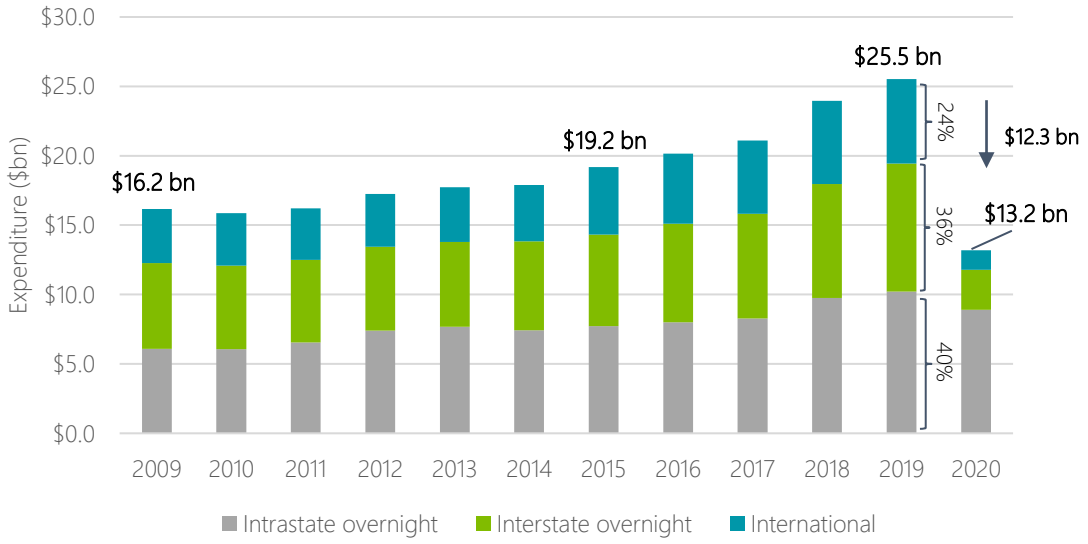
- In 2019, Queensland welcomed **28.7 million overnight visitors**, representing 22.7% of total overnight visitation in Australia.
- 9.7% (or 2.8 million) of overnight trips were from international visitors, 28.3% (8.1 million) from interstate with remaining 62.0% (17.8 million) from intrastate.
- Total overnight visitor expenditure in Queensland has increased **4.7% on average per year between 2009 and 2019,** and **totalled $25.5 billion** in 2019 – representing 20.2% of overnight visitor expenditure in Australia.
- As the COVID-19 pandemic unfolded in 2020, overnight visitation declined a significant 40% (or 11.4 million trips) in Queensland, representing a loss of 48% (or $12.3 billion) in overnight visitor expenditure.

Overnight visitors, Queensland



Source: Tourism Research Australia

Overnight visitor expenditure, Queensland



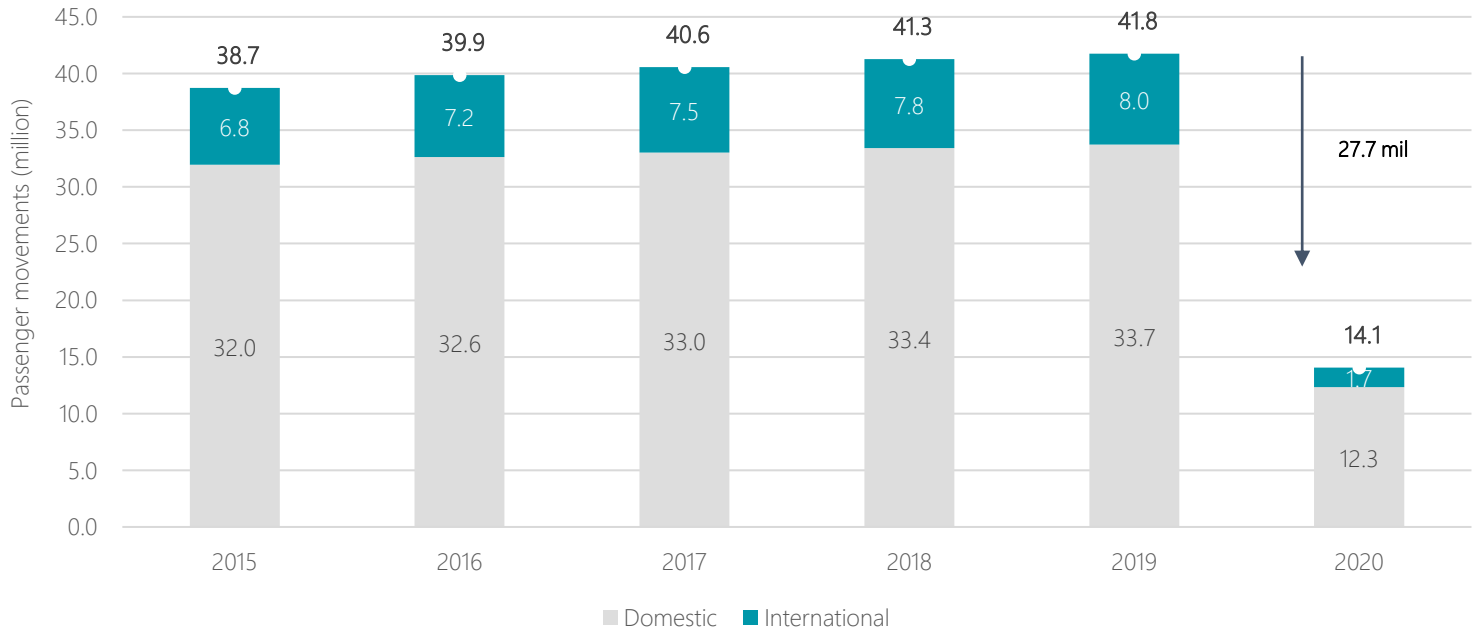
Source: Tourism Research Australia

Queensland's aviation sector

The aviation sector is central to Queensland, connecting Queenslanders to the rest of Australia and globally

- The aviation sector underpins businesses and communities in Queensland, transporting workers and tourists into and within the State.
- In total, there were 41.8 million passenger movements (33.7 million domestic and 8.0 million international passenger movements) through Queensland airports in 2019, increasing on average 2% each year since 2015.
- Total passenger movements facilitated in and out of the Queensland International Airports totalled 34.7 million in 2019, increasing on average 2.4% each year between 2015 and 2019 and representing 88% of all aviation passenger traffic in the state.
- The COVID-19 pandemic halted a considerable share of air travel for the most part of 2020, with a decline of **almost 27.7 million passenger movements** across Queensland airports, representing a 66% decrease against 2019.

Passenger movements across Queensland Airports



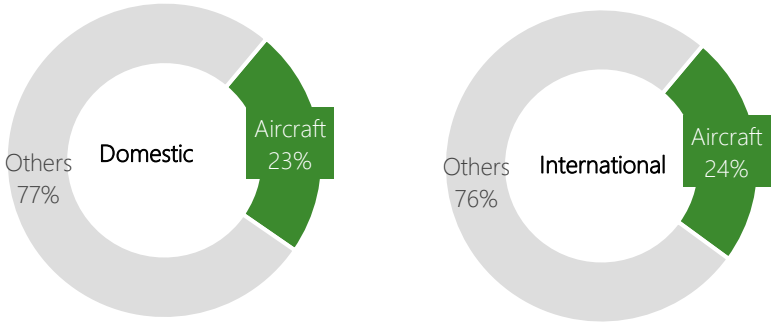
Source: BITRE

Queensland's aviation sector

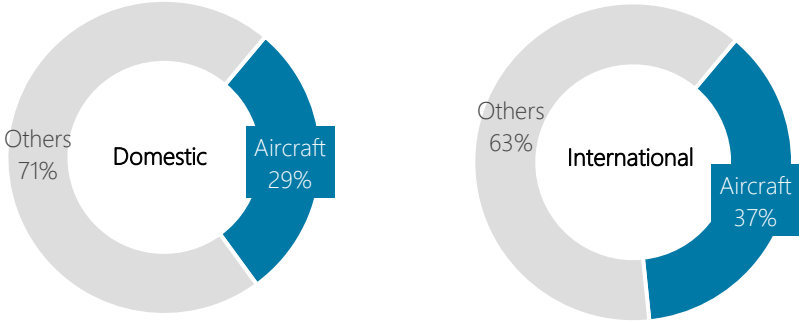
Aviation has an important role in facilitating visitation into Queensland

- Nationally, in 2019, aviation facilitated 23% of all domestic overnight trips and 24% of trips by international visitors travelling around Australia.
- In Queensland, the share of aviation facilitated domestic traffic was higher, with 29% of domestic overnight trips and 37% of international trips using air as the mode of transport to travel into or within Queensland.
- Seven out of every 10 interstate overnight visitors travelled into Queensland by air, and six out of every 10 international visitors to Queensland flew directly into the state.
- The Queensland International Airports facilitated 9.5 million visitors to Queensland in 2019, generating $10.1 billion visitor spend.

Stopover mode of transport used by overnight visitors, Australia

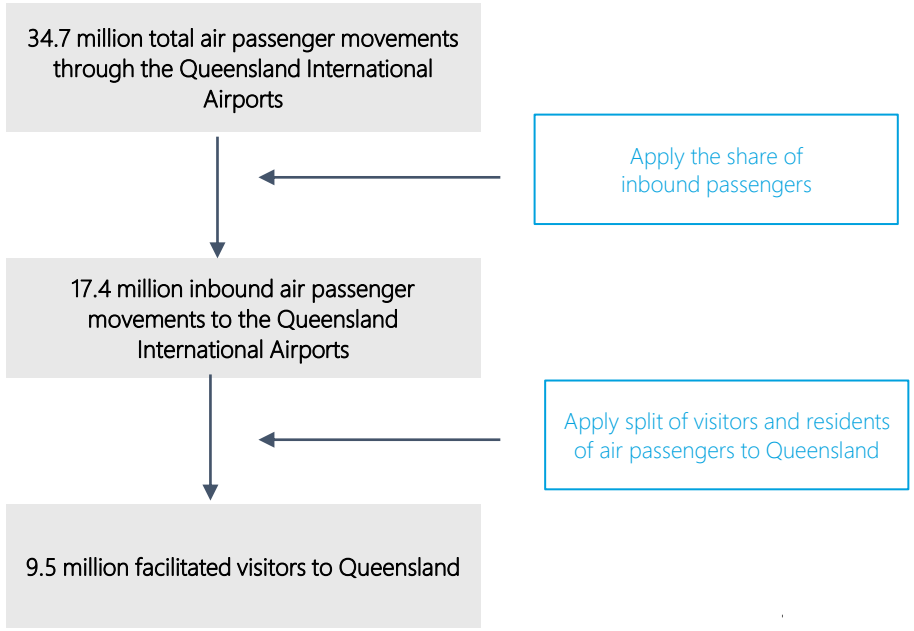


Stopover mode of transport used by overnight visitors, Queensland



Source: Tourism Research Australia

Queensland International Airports facilitated visitors, 2019



Source: Deloitte Access Economics, Tourism Research Australia, BITRE

Facilitated tourism contribution by the Queensland International Airports in 2019

The Queensland International Airports play an important role in facilitating visitors to the state. These visitors generate tourism revenue (in visitor expenditure), and associated economic benefits to the state's economy.

- The Queensland International Airports facilitated **9.5 million visitors and 80.3 million visitor nights** in 2019, increasing on average 6.0% and 2.9% each year respectively between 2015 and 2019.
- These visitors generated around **$10.1 billion in visitor spend** of which around 48% was from international visitors, 46% from domestic interstate and 6% from intrastate visitors. Facilitated visitor spending increased 7.8% on average each year between 2015-2019.
- In 2019, the tourism activity facilitated by the Queensland International Airports contributed **$7.3 billion in value added.** Relative to the economy more broadly, this represents **around 2.0% of** the Queensland economy. This is an increase from $5.4 billion in value added in 2015, equivalent to an average annual nominal **growth of 7.9% between 2015 and 2019.**
- In 2019, the tourism activity facilitated by the Queensland International Airports supported **54,200 full time equivalent (FTE) jobs,** reflecting an average annual growth of 5.5% between 2015 and 2019.

Facilitated tourism contribution[1] to the Queensland economy, 2019

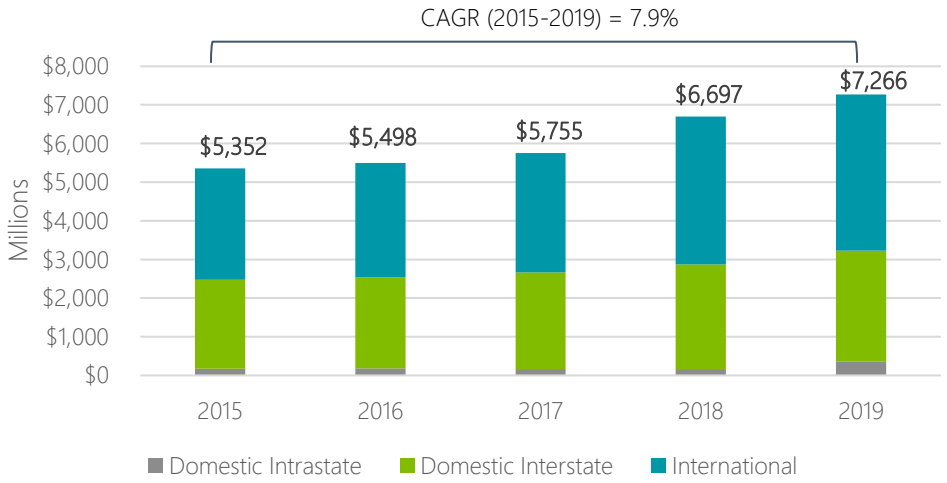
	Value added ($ million)	FTE Jobs
Domestic intrastate [2]	$355	2,800
Domestic interstate [2]	$2,870	22,600
Total domestic	**$3,225**	**25,400**
International	$4,041	28,800
Total	**$7,266**	**54,200**

Source: Deloitte Access Economics

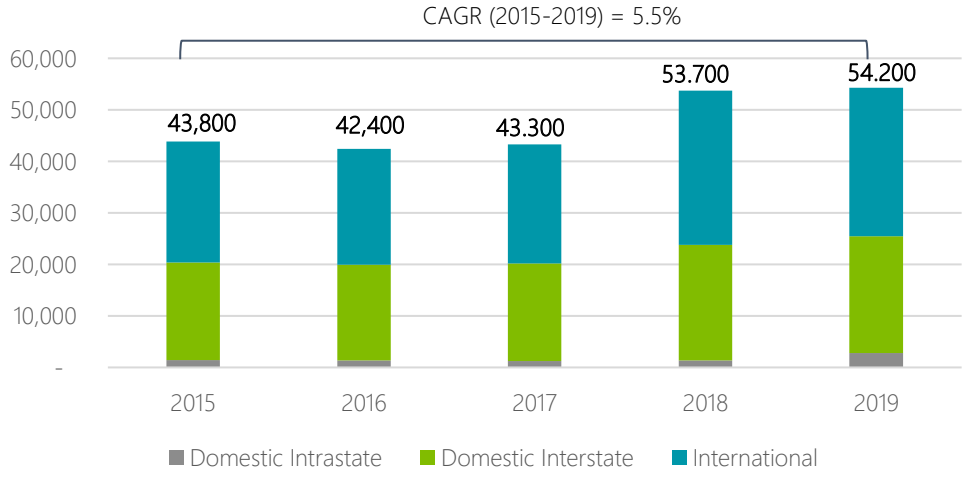
1 For detailed methodology of the facilitated economic contribution, please see Appendix A.

2 Domestic visitors includes both overnight and day visitors.

Facilitated tourism contribution to the Queensland economy, value added



Facilitated tourism contribution to the Queensland economy, FTE jobs



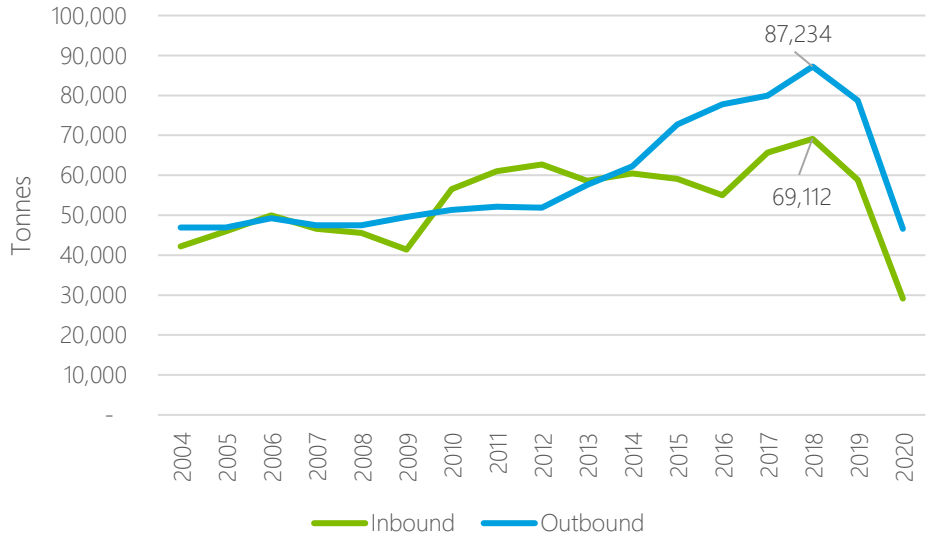
Source: Deloitte Access Economics

Supporting Queensland's freight

Aviation is critical in maintaining supply lines for transporting Queensland's exports to the world

- Airfreight is critical to transport goods of perishable and time sensitive nature and to fuel growing demand of online shopping. It is of even more importance to Queensland with over 50% of Australia's meat and vegetables coming from Queensland. (Source: Brisbane Economic Development Agency)
- The volume of international airfreight through Queensland's airports has grown over the decade to 2019, increasing 4.2% each year on average over the period. Total international airfreight facilitated through the airports reached a high of 150 million tonnes in 2018, of which over half was outbound freight representing approximately 15% of Australia's international outbound airfreight tonnage.
- In 2019, $3.8 billion worth of international airfreight was facilitated through Queensland's airports. The table below presents the top 10 freight commodity and their respective values in 2019.

International airfreight through Queensland airports



Source: BITRE

Top commodity classes exported from Queensland airports

Commodity (Top 10)	2019 value (million) – nominal terms	Share of total Queensland air exports
Commodities and transactions not included in merchandise trade	$607	15.8%
Meat and meat preparations	$425	11.1%
Transport equipment (excl. road vehicles)	$408	10.6%
Professional, scientific and controlling instruments and apparatus	$279	7.3%
Miscellaneous manufactured articles	$276	7.2%
Medicinal and pharmaceutical products	$231	6.0%
Electrical items and machinery	$197	5.1%
Power generating machinery and equipment	$158	4.1%
Special transactions and commodities (not classified)	$145	3.8%
General industrial machinery and equipment	$134	3.5%
All other commodities exported by Queensland airports	$974	25.4%
Total commodity exports from Queensland airports	**$3,833**	**100%**

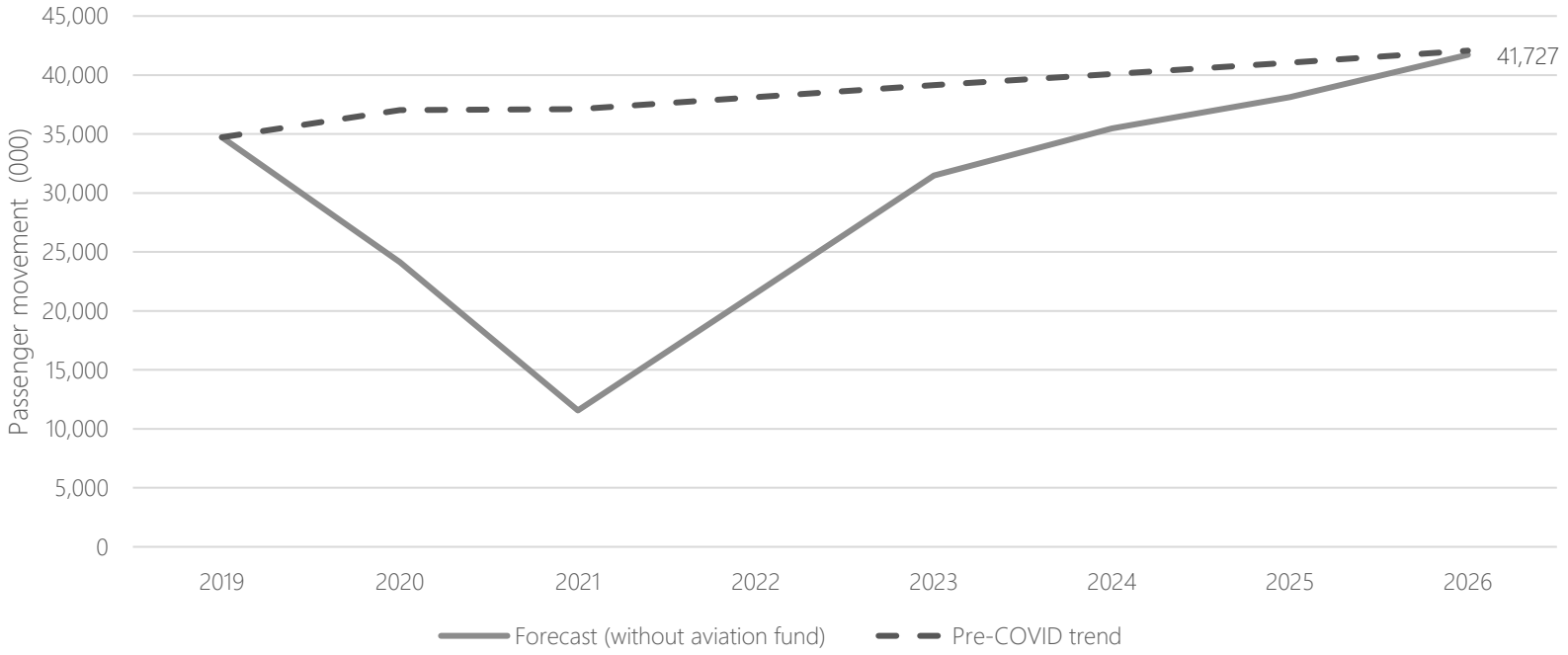
Source: BITRE

Forecast of passenger movements across the Queensland International Airports

Passenger movements at the Queensland International Airports are forecast to increase from 34.7 million in 2019 to 41.7 million in 2026

- This slide presents the baseline organic growth forecast of passenger movements across the Queensland International Airports without the intervention of an aviation fund.
- Across the Queensland International Airports, not considering the impact of the aviation fund, total passenger movements are forecast to increase from a low of **11.5 million in 2021 to 41.7 million in 2026**. This translates to an average annual growth rate of 29.3% between 2021 and 2026, or 2.7% between 2019 to 2026.

Total passenger movements to the Queensland International Airports, 2021 to 2026



Source: Deloitte Access Economics and the Queensland International Airports

Note: Pre-COVID trend line considers underlying growth trend between 2012 and 2019

Facilitated tourism contribution by the Queensland International Airports, 2021 to 2026

As the aviation sector recovers from the COVID-19 pandemic, tourism facilitated by the Queensland international Airports is forecast to increase

- In 2026, tourism activity facilitated by the Queensland International Airports is forecast to contribute **$9.0 billion in value added** to Queensland economy, supporting 58,200 full time equivalent (FTE) jobs.[3]
- This equates to average annual growth of 3.1% in gross value added and 1.0% in FTE jobs over the seven years from 2019.
- Employment is forecast to grow slower than value added because of continued labour productivity improvements in the Queensland transport sector.
- This is the contribution of the Queensland International Airports as a result of the organic growth in visitation in the absence of the proposed aviation fund.

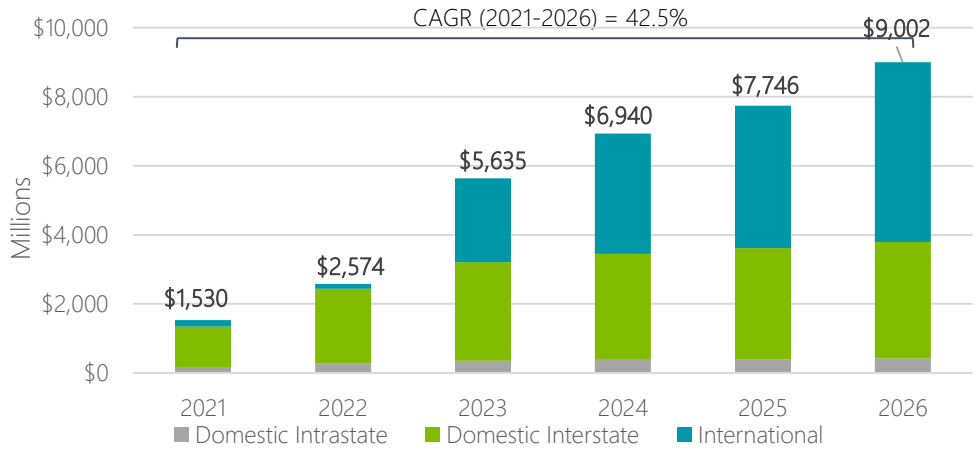
Facilitated tourism contribution to Queensland economy, 2026

	Value added ($ million)	FTE Jobs
Domestic Intrastate	$417	2,900
Domestic Interstate	$3,375	23,000
Total domestic	**$3,792**	**25,900**
International	$5,210	32,300
Total	**$9,002**	**58,200**

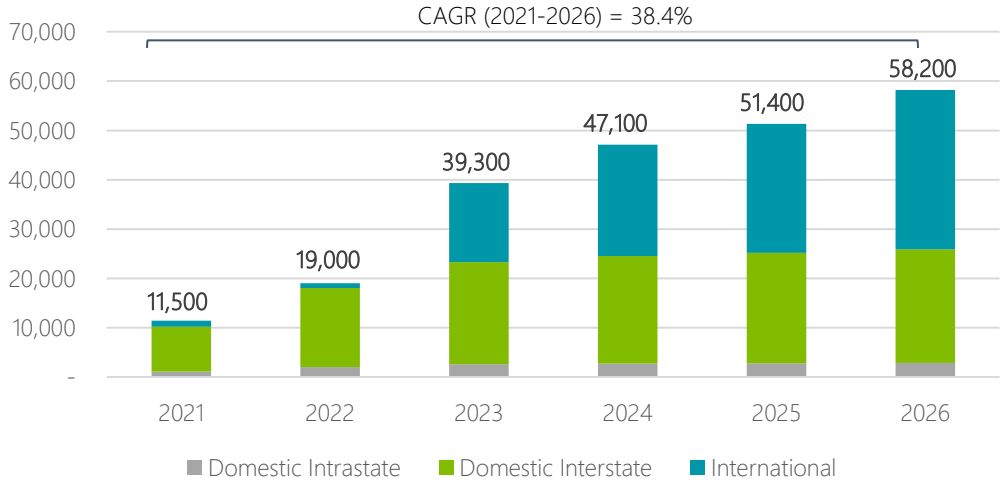
Source: Deloitte Access Economics

3 This is not to say that the Queensland economy will be $1.7 billion larger than it is today, but rather that the contribution of the Queensland International Airports will be $1.7 billion greater than in 2019.

Facilitated tourism contribution to the Queensland economy, value added



Facilitated tourism contribution to the Queensland economy, FTE jobs



Source: Deloitte Access Economics

Aviation Capacity Expansion program

The Queensland International Airports are requesting the Queensland government allocate **$100 million in support over four years** through the **Aviation Capacity Expansion** (ACE) program to accelerate the state's aviation recovery. It is proposed by the Airports that the Queensland government consolidate previous aviation (marketing) program funds (Aviation Attraction Investment Fund and Connecting With Asia) to the single proposed ACE program for the purpose of both international and domestic airline route retention, development and expansion.

Fund allocation

In recognition of the current global aviation situation, the Queensland International Airports proposed for the $100 million funds over four years to be front loaded with an additional $20 million in year one ($40 million in year one), followed by three subsequent years of $20 million in each of the following financial years.

Recommended funding criteria considerations for the Aviation Capacity Expansion program

Key principles of the proposed program in contrast to previous programs administered by the Queensland Government:

- In recognition of the role non-leisure tourism segments place in aviation route restart and development, incentive funds to be administered for a wider range of support activity, not limited to international marketing
- As with the recent Queensland Government Aviation Restart Recovery Programs, airports to receive funds for subsidy/ capacity incentives to negotiate directly with airlines; international marketing continued to be implemented by the state
- A strong focus on the permanency and ongoing sustainability of services
- Returning airline carriers to Queensland, as well as those with proven operating capacity eligible for support

The following criteria are recommended for funding eligibility of the ACE program:

- The **strategic combined value of the airline and market** with a reduced emphasis on respective value of per market overnight visitor expenditure (OVE), and greater weighted recognition of export/cargo, education, business and cross migration potential for increasing the state's export revenues
- Recognition of **network feed and connecting traffic volumes** from the airlines both through Queensland and to overseas networks, not just point to point traffic flows
- The forecast **increase in jobs** directly related to growing export revenue

Administration of funds annually

- Airports continue to be the proponent of aviation applications to the state, in partnership with airlines, providing vetted insight and data analysis against the weighed opportunity
- Allocate **25% of ACE program funds to cargo/freight/state exports/education tourism and/or direct subsidy** for airline operational costs – these funds to be administered by airports
- Allocate **75% of ACE program funds to marketing activity** for airlines in key markets - – these funds to be administered by the state
- Open for **new and existing/previous carriers** that have served the Queensland International Airports

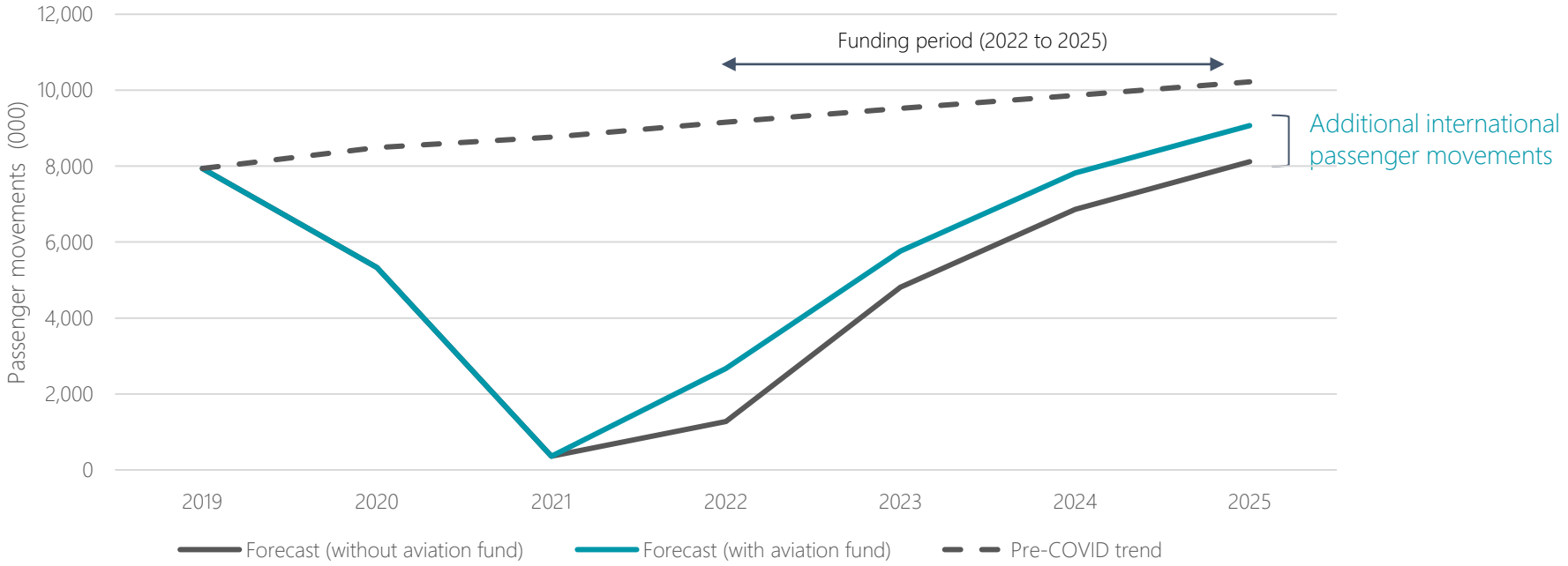
Source: Supporting Queensland's aviation capacity growth – International airport recommendations to Queensland Government on aviation attraction policy in Queensland, April 2020

Impact of the Aviation Capacity Expansion program

International passenger forecast with aviation funding support

- The Aviation Capacity Expansion (ACE) program would be used to attract airlines to add capacity to the Queensland International Airports. With international borders still closed, it is important for the right programs to be in place to support airlines to reintroduce capacity and support the return of international visitors to the state once travel is permitted.
- A key objective of the proposed program is to support and accelerate the recovery of international passengers at the Queensland International Airports. Analysis has been undertaken to assess the potential additional international passenger movements through the airports that could be achieved with the support of the ACE program.
- It is estimated that the impact of the program could see an **additional 4.3 million international passenger movements** through the Queensland International Airports over the four years of the funding program between 2022 and 2025.
- The chart below shows the potential international passenger movements through the Queensland International Airports with the support of the ACE program (under a central scenario) relative to the baseline organic growth forecast. Sensitivity analysis has been undertaken with results presented on the following page.

International passenger movements through the Queensland International Airports, 2021 to 2025



Source: Deloitte Access Economics

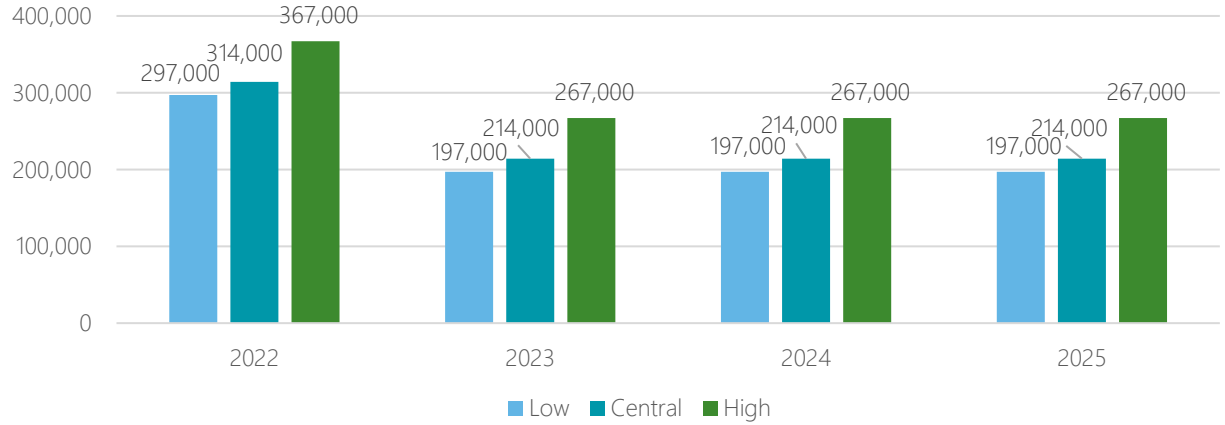
Note: Pre-COVID trend line considers underlying growth trend between 2012 and 2019.

Impact of the Aviation Capacity Expansion program

The Aviation Capacity Expansion program could support the accelerated return of international visitors

- The Aviation Capacity Expansion (ACE) program could help the Queensland visitor economy to fast track the return of international visitors, as well as unlocking new potential markets as the global economy recovers from COVID-19.
- It is estimated the impact of the ACE program could potentially bring an **additional 890,000 to 1.2 million international visitors** to Queensland, between 2022 and 2025, generating a potential additional **$1.7 billion to $2.4 billion in visitor spend** during the period (in net present value terms).[4]

Estimated additional international visitors to Queensland as a result of the proposed Aviation Capacity Expansion program, 2022 to 2025



Estimated additional passenger movements, visitors and visitor expenditure as a result of the proposed Aviation Capacity Expansion program

	Additional international passenger movements supported by aviation funding (millions)	Additional international visitors	Additional visitor spend (billion) [4]	Annual average increase (billions)[4]
Low scenario	1.97	887,800	$1.66	$0.42
Central scenario	2.12	957,700	$1.87	$0.47
High scenario	2.60	1,167,600	$2.38	$0.60

Source: Deloitte Access Economics

4 NPV in 2021 dollars, using a discount rate of 7%.

Economic impact of the Aviation Capacity Expansion program

Under the central scenario, the proposed Aviation Capacity Expansion program could add $1.3 billion in real gross state product (in net present value terms) to the Queensland economy

An aviation funding program like the proposed Aviation Capacity Expansion (ACE) program is estimated to have a significant and positive economic impact on the Queensland economy.

In the four years between 2022 and 2025, the program is estimated to deliver between $1.1 billion (low scenario) and $1.5 billion (high scenario) in additional gross state product (GSP) for Queensland in net present value (NPV) terms.[5]

This range of estimates reflects the various scenarios under which the ACE program could lead to changes in Queensland's visitor economy. The economic impact of the central scenario is estimated at $1.3 billion in NPV terms.

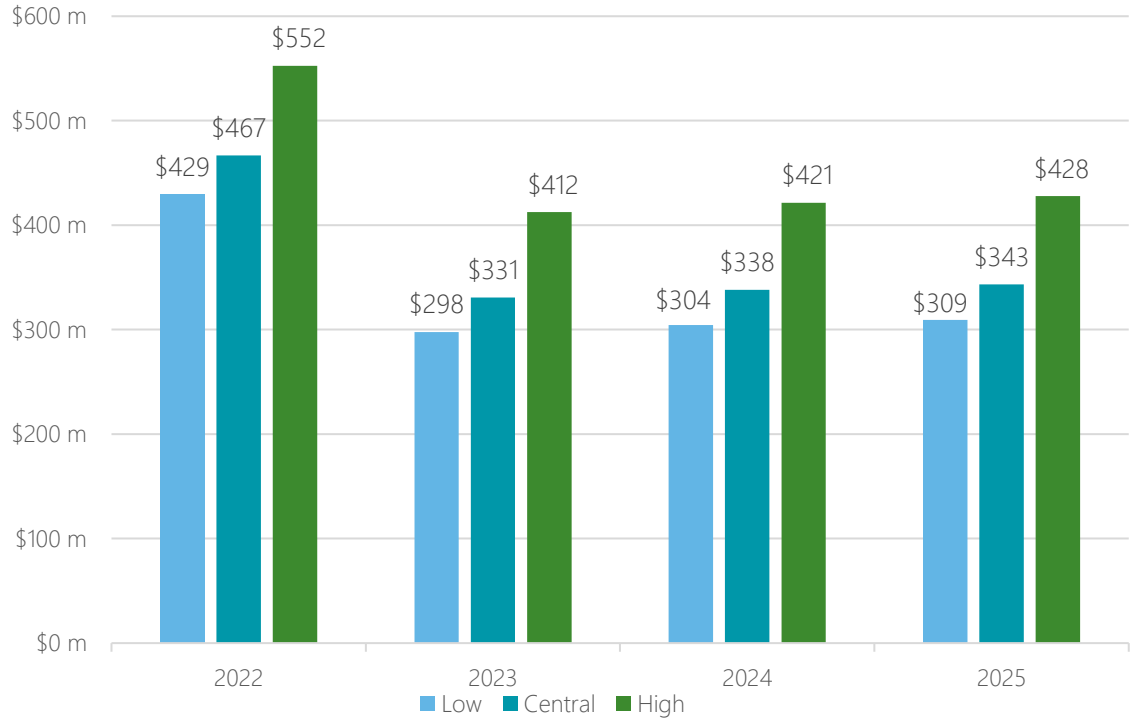
For the range of scenarios, the impact to GSP is highest in the first year of the program due to the proposed front loading of funds. In the central scenario, for example, $467 million is added to Queensland GSP in 2022.

The positive impact of the ACE program continues out to 2025, but is lower (at around $343 million per annum in the central case) reflecting the assumed smaller scope of the ACE program in the latter years.

The ACE program has been modelled as supporting the tourism sector output through both supply and demand side effects. This approach aims to capture the potential of avoided productive capacity losses for the Queensland tourism sector – which have been more significant than in other parts of the state's economy.

Across the three scenarios, most of the impact to GSP is attributable to the assumed supply side effect highlighting the importance of the ACE program in potentially supporting the sector's COVID-19 recovery.

Impact on Queensland real gross state product



Source: DAE-RGEM

Note: The modelling has not included the cost associated with providing the aviation funding program. A full cost-benefit analysis is recommended to estimated all costs associated with the program, and the benefits, for which economic impact modelling is not a substitute.

5 NPV calculated using a real discount rate of 7%, consistent with the Department of Treasury and Finance's Technical Guidelines on Economic Evaluation.

Impact of the aviation funding program to Queensland employment

Under the central scenario, the proposed Aviation Capacity Expansion program could add around 1,100 full time equivalent jobs on average to Queensland between 2022 and 2025, with the jobs increase largest in the first year of the program

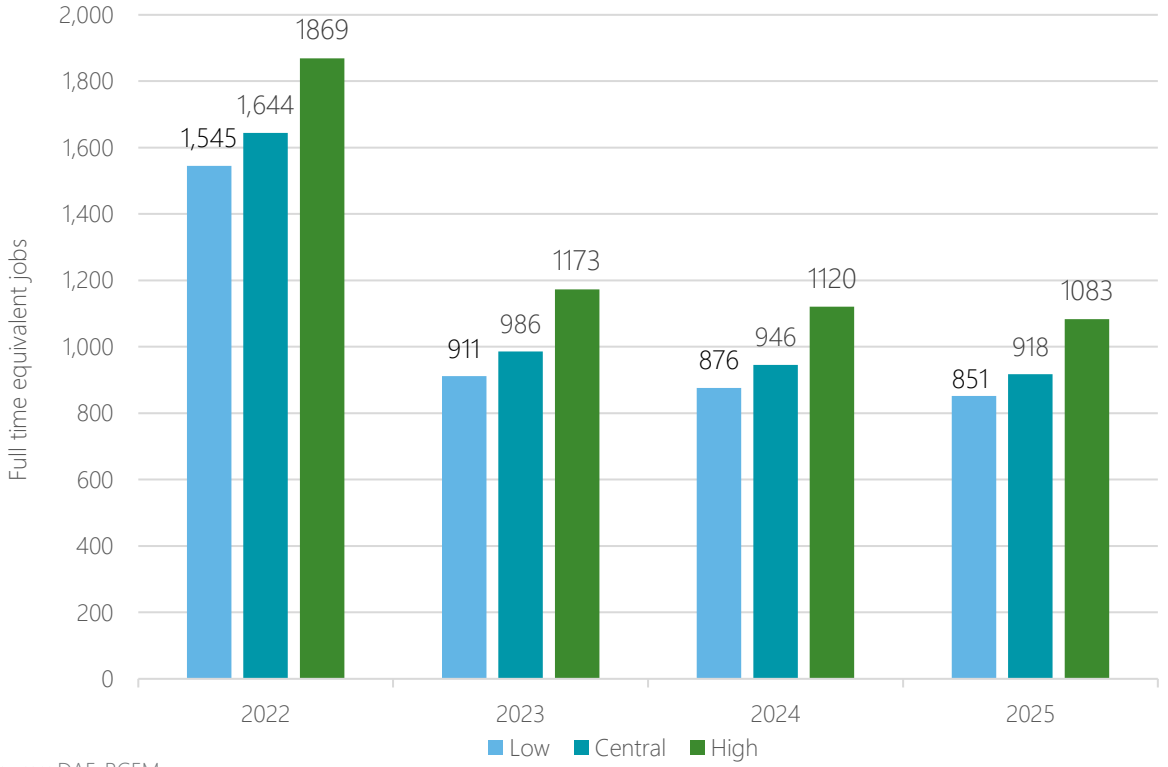
Alongside the estimated increase in GSP, the ACE program is anticipated to result in higher employment in Queensland than otherwise would have been the case.

In the four years between 2022 and 2025, the ACE program is estimated to deliver on average between 1,000 full time equivalent (FTE) jobs (low case) and 1,300 FTE jobs (high case) to Queensland. [6]

This range of estimates reflects the various scenarios under which the ACE program could lead to changes to the Queensland economy . The impact of the central scenario to Queensland employment is estimated to be 1,123 FTE jobs on average each year.

The estimated impacts to employment from the ACE program peak in the first year of the program. In the central scenario with 1,644 FTE jobs estimated to be delivered, nearly two-and-a-half times that averaged for the remainder of the funding period (657 FTE jobs). The smaller impact of the program during the latter period reflects the assumed smaller allocation of the program's funds to later years of the program.

Impact on Queensland employment



Source: DAE-RGEM

6 Average between 2022 and 2025

Impact of the aviation funding program to Queensland's industries

Queensland's services and construction sectors benefit from broad spillovers as a result of the Aviation Capacity Expansion program

While the ACE program is assumed to support both demand and supply in relation to the Queensland tourism sector, the impact of the program is spread throughout Queensland's economy.

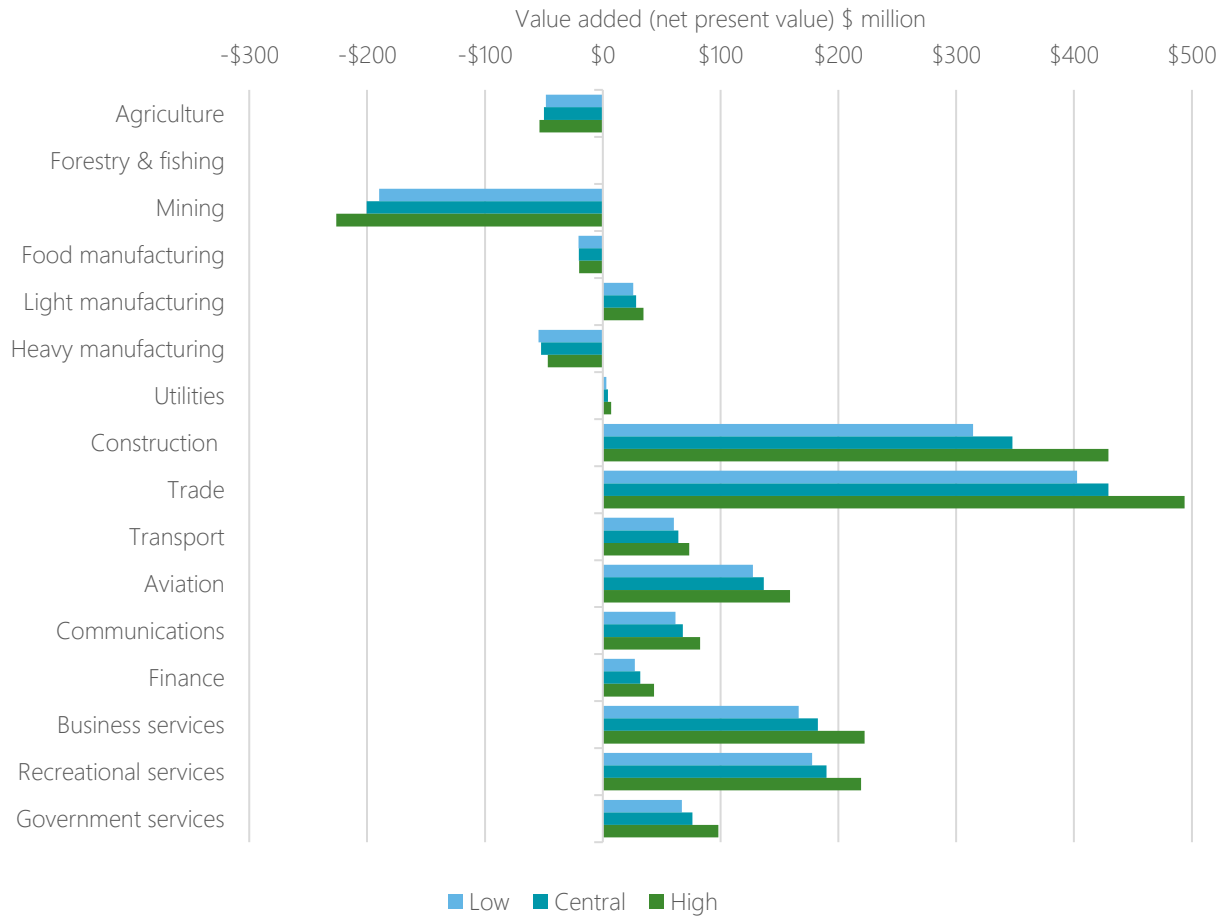
By providing support to the tourism sector, other industries are positively impacted as tourism requires intermediate inputs to supply services to visitors. These 'spillovers' are also compounded by the program's positive impact to Queensland incomes which supports aggregate demand in the state. This effect in particular supports greater output across a range of sectors in the economy, particularly the services and construction industries.

In the central scenario, services (in net present value $439 million, discounted at 7%) and construction ($340 million) are both significantly higher than the baseline as a result of the ACE program.

These positive impacts are somewhat offset by slower growth in other industries, also known as 'crowding out effects'. Crowding out from the aviation program is mainly contained to primary industries, particularly mining ($196 million lower in the central scenario) and agriculture ($49 million lower).

These industries that face crowding out, do no contract as a result of the ACE program. Rather the grow slower compared to a baseline without the program. These industries will face stronger competition for inputs to production, including capital and labour. As export orientated industries, these industries that face 'crowding out' also see a deterioration of the exchange rate as the Queensland economy is stronger relative to the rest of the world.

Sectoral impact to Queensland's value added



Source: Deloitte Access Economics

Appendices

Appendix A: Economic contribution methodology

Value added

Value added is the most appropriate measure of an industry's/company's economic contribution to gross domestic product (GDP) at the national level, or gross state product (GSP) at the state level. The value added of each industry in the value chain can be added without the risk of double counting across industries caused by including the value added by other industries earlier in the production chain.

Other measures, such as total revenue or total exports, may be easier to estimate than value added but they 'double count'. That is, they overstate the contribution of a company to economic activity because they include, for example, the value added by external firms supplying inputs or the value added by other industries.

The economic activity accounting framework is presented in Figure A.1, showing how total revenue can be disaggregated into component parts as well as the definition of value added being the difference between total revenue and intermediate inputs.

Direct and indirect contributions

The direct economic contribution is a representation of the flow from labour and capital within the sector of the economy in question.

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 sector in question. Estimation of the indirect economic contribution is undertaken in an input-output (IO) framework using Australian Bureau of Statistics input-output tables which report the inputs and outputs of specific sectors of the economy (ABS 2010).

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

Limitations of economic contribution studies

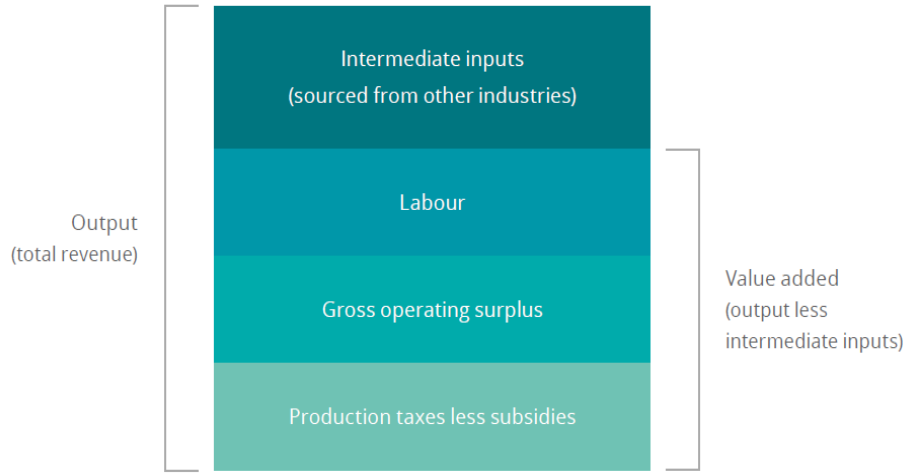
While describing the geographic origin of production inputs may be a guide to a firm's linkages with the local economy, it should be recognised that these are the type of normal industry linkages that characterise all economic activities.

Unless there is significant unused capacity in the economy (such as unemployed labour) there is only a weak 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. Indeed, 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.

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 disappeared?' — should be drawn from them.

The analysis — as discussed in the report — relies on a national input-output 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.

Economic activity accounting framework



Source: Deloitte Access Economics

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 model.

Appendix A: Facilitated tourism economic contribution approach

In order to attribute a tourism activity facilitated by Queensland International Airports. The following data sources were used :

- Tourism Research Australia's (TRA) International visitor Survey (IVS) and National visitor Survey (NVS) for total visitors, visitor nights and regional expenditure in Queensland, with the data decomposed by source market, use of transportation and purpose of visit
- The Bureau of infrastructure Transport, and Regional Economics (BITRE) data on passenger movements in Queensland.
- Data on passenger movements through the Queensland International Airports was supplied by the four airports.
- TRA State Tourism Satellite Account (TSA) from 2014-15 to 2018-19 to estimate the tourism contribution multipliers.

Contribution from tourism expenditure

The tourism contribution was calculated using the Tourism Satellite Account (TSA) approach which 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 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. It adapts the concepts and methods of the Australian Bureau of Statistics' national accounting framework in a way that is useful to measuring tourism and is comparable to traditional industries. The TSA framework is conceptually similar to and draws on the ABS Input-Output (IO) tables to generate results. It 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.

International visitor expenditure

Using TRA data on visitor stopover transportation and city of arrival and departure, it is possible to estimate domestic and international visitors and visitor nights that are facilitated by Queensland International Airports. With the estimates of visitor nights attributable to Queensland International Airports disaggregated by source markets and purpose of visit, it is possible to apply estimates for expenditure per night in Queensland for each visitor segment. This creates an average expenditure profile for e data is used to estimate total visitors and visitor nights in Queensland. Using TRA data on ach type of international visitor through Queensland International Airports. However, not all expenditure by visitors in Australia that pass through Queensland International Airports can be attributed to the Queensland International Airports.

International visitors are divided into three different types with different shares of expenditure attributable to Queensland International Airports:

Type	Description of expenditure attribution
Type 1	International visitors who fly in and out of Queensland International Airports. All of their expenditure in Queensland is attributed to Queensland International Airports.
Type 2A	International visitors that fly out from Queensland International Airports to an international destination and that fly in from overseas to another Australian city. Around 95% of their expenditure in QLD is attributable to Queensland International Airports, reflecting the share of Queensland interstate passengers that fly through Queensland International Airports.
Type 2B	International visitors that fly into Queensland International Airports and that fly out of Australia from another airport. 50% of their expenditure in QLD is attributable to Queensland International Airports. This avoids double counting of expenditure that would be attributable to another airport.
Type 3	International visitors that fly through Queensland International Airports on a domestic flight and who fly into and out of Australia from a non-Queensland International Airport. 100% of their expenditure in QLD is attributed to Queensland International Airports.

Domestic visitor expenditure

A similar process is used to estimate interstate visitor expenditure that is attributed to Queensland International Airports . TRA data is used to estimate domestic and intrastate visitors to Queensland that fly during their trip.

Estimates for intrastate and interstate visitors are applied to arrive at the tourism expenditure for domestic visitors that fly during their trip in Queensland. BITRE data is used to determine the proportion of interstate domestic passengers that fly into Queensland and use Queensland International Airports. For intrastate visitors the share of intrastate passengers that fly through Queensland International Airports is also used. BITRE data is also used to estimate the share to intrastate passengers to fly through one of the 4 Queensland Airports (whereby 50% of their expenditure is attributable) and those that fly through 2 of the 4 Queensland International Airports (whereby 100% of their expenditure is attributable).

Forecast contribution

The forecast economic contribution from is determined by indexing the 2019 economic contribution using the forecast growth in passenger numbers.

Appendix B: Economic impact modelling

Computable General Equilibrium modelling

Economic impact analysis

There is a wide suite of models available for answering different economic questions. Cost Benefit Analysis (CBA) and Computable General Equilibrium (CGE) modelling are the two most common frameworks for assessing the merits of a particular policy or program.

CGE models, are typically used to estimate the broader economic impact (e.g. on gross state product or employment) of a policy or investment. CGE modelling is the preferred approach by most Australian government agencies in modelling the economic impacts of programs, policies or events.

In contrast to a CBA, CGE modelling does not directly estimate the costs or benefits of a proposal. As such the outputs of CBA and CGE modelling cannot be readily compared or substituted. Rather the two approaches are complementary, with CBA describing direct net benefits of a policy/program, and CGE informing how the program or policy might affect the size of the economy for the broader region/country.

Modelling economic impacts using CGE models

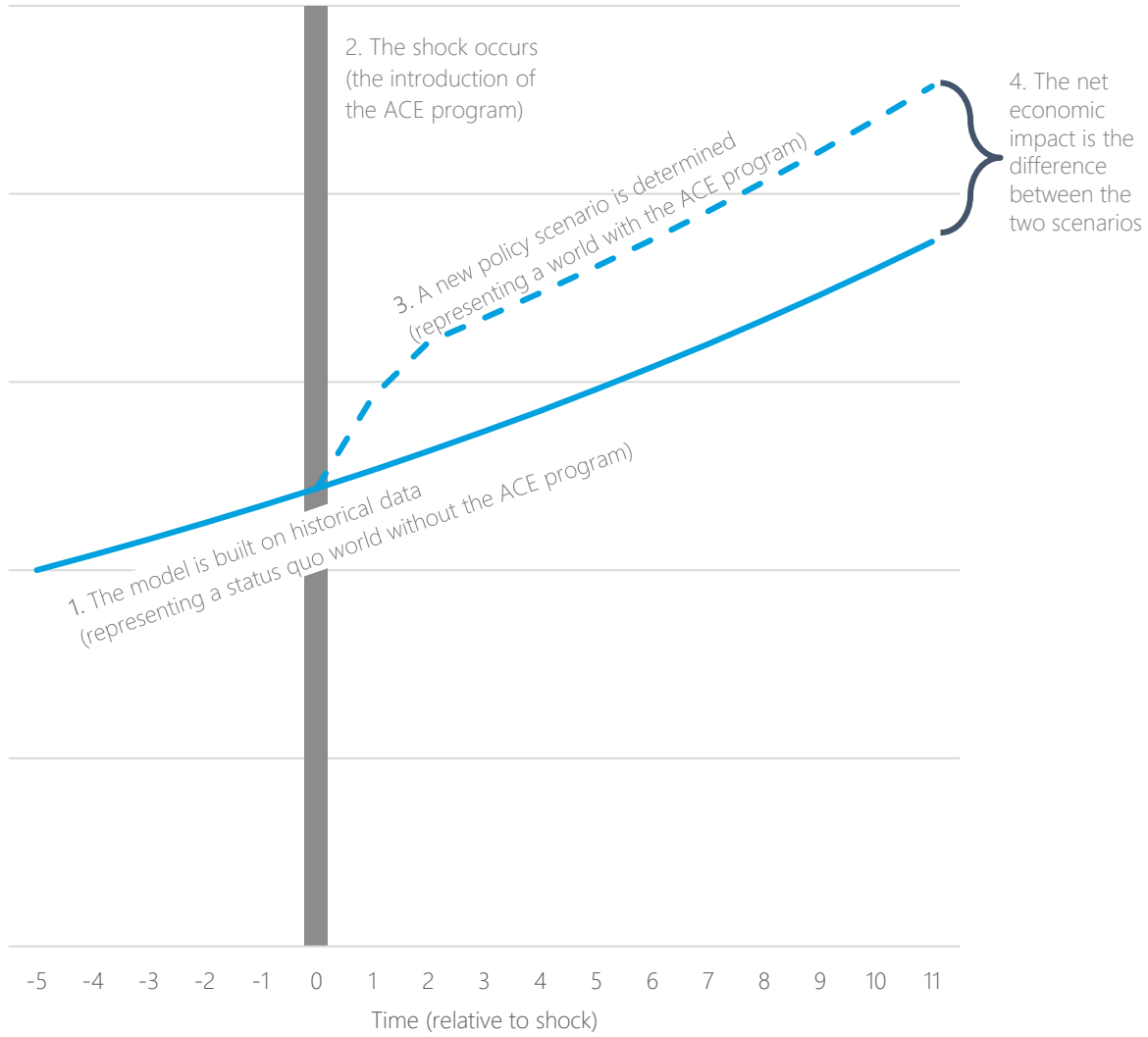
CGE models estimate economic impacts by comparing a policy scenario against a baseline. The baseline scenario is built off historical data with the economy growing as per 'business as usual' (1). Here the baseline scenario represents a world without the ACE program.

A shock is introduced into the model (2) that represents the issue, project or policy in focus. Here the shock to the economy represents the investment of the ACE program in supporting supply and demand for Queensland's tourism sector.

CGE models then solve for the market-clearing (equilibrium) levels of demand and supply across all specified goods and factor (labour and capital) markets in the economy. This effectively creates a new path for the economy over time, known as the policy scenario (3). Here the policy scenarios represents a range of world where the ACE program is delivered across three distinct horizons, supporting Queensland tourism demand and supply as it rebounds from the impacts of COVID.

Comparing these 'policy' paths to the baseline (where the ACE program is not delivered), shows the economic impact of the ACE program to the Queensland economy and employment (4).

Stylised representation of CGE scenario modelling



Appendix B: Economic impact modelling

Deloitte Access Economics' Regional General Equilibrium Model

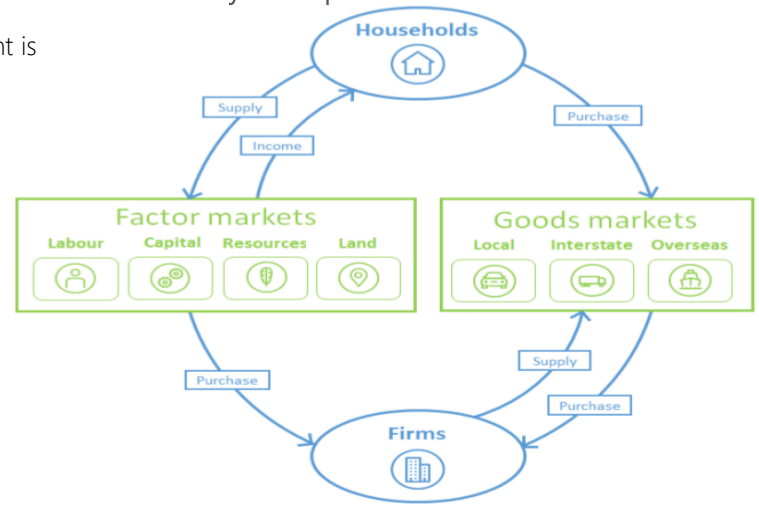
Deloitte's CGE model: DAE-RGEM

Our in-house CGE model is known as Deloitte Access Economics regional general equilibrium model (DAE-RGEM). DAE-RGEM represents the interaction of households and firms with factor markets and goods markets over time. DAE-RGEM encompasses all economic activity – including production, consumption, employment, taxes and trade – and can run scenarios through time involving multiple regions, industries and commodities.

This stylised diagram shows the circular flow of income and spending that occurs in DAE-RGEM. To meet demand for products, firms purchase inputs from other producers and hire factors of production (labour and capital). Producers pay wages and rent (factor income) which accrue to households. Households spend their income on goods and services, pay taxes and put some away for savings. DAE-RGEM rests on the following key assumptions:

- all markets are competitive and all agents are price takers
- all markets clear, regardless of the size of the shock, within the year.
- it takes one year to build the capital stock from investment
- investors take future prices to be the same as present ones as they cannot see the future perfectly
- All factors move sluggishly across sectors with Labour and Capital moving imperfectly across sectors in response to the differences in returns.
- Inter-sectoral factor movement is controlled by overall return maximizing behaviour subject to a CET function.

Stylised representation of DAE-RGEM



Key microeconomic features of the model include:

- A 'regional household' that receives all income from factor ownerships, tax revenues and net income from foreign asset holdings.
- The regional household allocates its income across consumption and savings so as to maximise a Cobb-Douglas utility function.
- Given the budget levels, household demand for a source-generic composite goods are determined by minimising a CDE expenditure function. Consumption goods can be sourced from domestic (including interstate) and foreign sources. In all cases, the choice of sources of each commodity is determined by minimising the cost using a CRES utility function defined over the sources of the commodity (using the Armington assumption).
- Government demand for source-generic composite goods, and goods from different sources (domestic, imported and interstate), is determined by maximising utility via Cobb-Douglas functions in two stages.
- All savings generated in each region are used to purchase bonds from the global market whose price movements reflect movements in the price of creating capital across all regions.
- Financial investments across the world follow higher rates of return with some allowance for country specific risk differences, captured by the differences in rates of return in the base year data. A conceptual global financial market (or a global bank) facilitates the sale of the bond and finance investments in all countries/regions. The global saving-investment market is cleared by a flexible interest rate.
- Once aggregate investment level is determined in each region, the demand for the capital good is met by a dedicated regional capital goods sector that constructs capital goods by combining intermediate inputs in fixed proportions, and minimises costs by choosing between domestic, imported and interstate sources for these intermediate inputs subject to a CRESH aggregation function.
- Producers supply goods by combining aggregate intermediate inputs and primary factors in fixed proportions (the Leontief assumption). Source-generic composite intermediate inputs are also combined in fixed proportions (or with a very small elasticity of substitution under a CES function), whereas individual primary factors are chosen to minimise the total primary factor input costs subject to a CES (production) aggregating function.

Appendix C: Visitation forecast methodology

To derive the future visitation to be facilitated by the Queensland International Airports between 2022 and 2025, the following data sources were used to inform the forecast:

- Future passenger movement forecasts from the Queensland International Airports
- Tourism Research Australia (TRA) State Tourism Satellite Account (TSA) from 2014-15 to 2018-19 to estimate the tourism contribution multipliers.

In order to assess the impact of future funding on international visitation to the airports, Deloitte Access Economics analysed the elasticities of marketing and potential impact of previous aviation fund programs (e.g. Aviation Attraction Investment Fund). .

1. Establishing the organic growth and ACE program scenario passenger (and visitor) forecasts

The methodology assumes the passenger movement forecast provided by the Queensland International Airports includes the potential passenger movement uplift supported by the proposed Aviation Capacity Expansion aviation funding from the government ($100 million between 2022-20250). The funding is assumed to be expended on two main activities:

1. Marketing activities related to pre-COVID existing international markets, where more passengers can be induced to travel on international flights into Queensland.
2. New route development efforts to stimulate new demand, including but not limited to incentive packages to airlines, marketing and other business relationship activities.

It is assumed that of the $100 million, 55% of the funding will be spent on (1), while 45% will be allocated to (2). The actual allocation and timing of this split will likely vary in practice.

The impact of the funding on new visitors to Queensland are then applied to the passengers forecast provided by Queensland International Airports, together with necessary adjustments to obtain the forecast organic growth without aviation funding for the Queensland visitor economy.

Data sources: for assumption 1: The analysis estimates the range of the potential visitor demand impact from the ACE program. Literature informing this analysis includes:

- Deloitte Access Economics (2014): Study on elasticities of marketing for international visitor market.
- Dwyer et al (2014): Destination Marketing of Australia: Return on Investment
- Kulendran and Divisekera (2007): Measuring the economic impact of Australian tourism marketing expenditure.

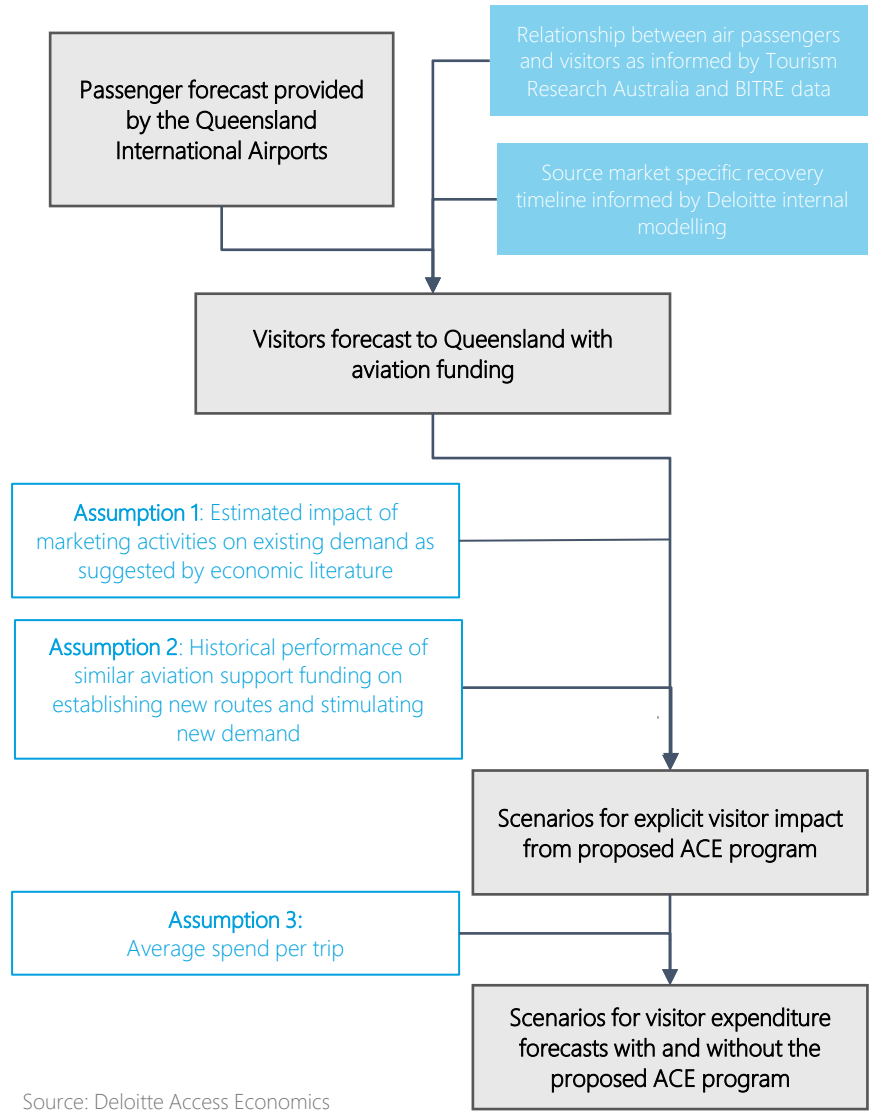
Data sources for assumption 2: Sensitivities and elasticities of returns of new routes use historical performance from:

- Attracting Aviation Investment Fund (AAIF) as outlined in the Tourism and Events Queensland Annual Report 2019-20.
- Connecting with Asia Fund (CWA), as outlined in the Tourism and Events Queensland Report 2019-20
- Similar international cooperative marketing as outlined in the Tourism Western Australia Annual report 2019-20.

2. Measuring the additional visitor expenditure induced by the ACE program

Finally, average spend per trip using data from Tourism Research Australia is applied to the forecast induced visitor numbers to estimate the additional visitor expenditure in the region. The average spend per trip assumption is based on the key source markets which will be targeted with the ACE program funding.

Visitation forecasting framework



Source: Deloitte Access Economics

Appendix D: Air passenger movements and visitors forecast

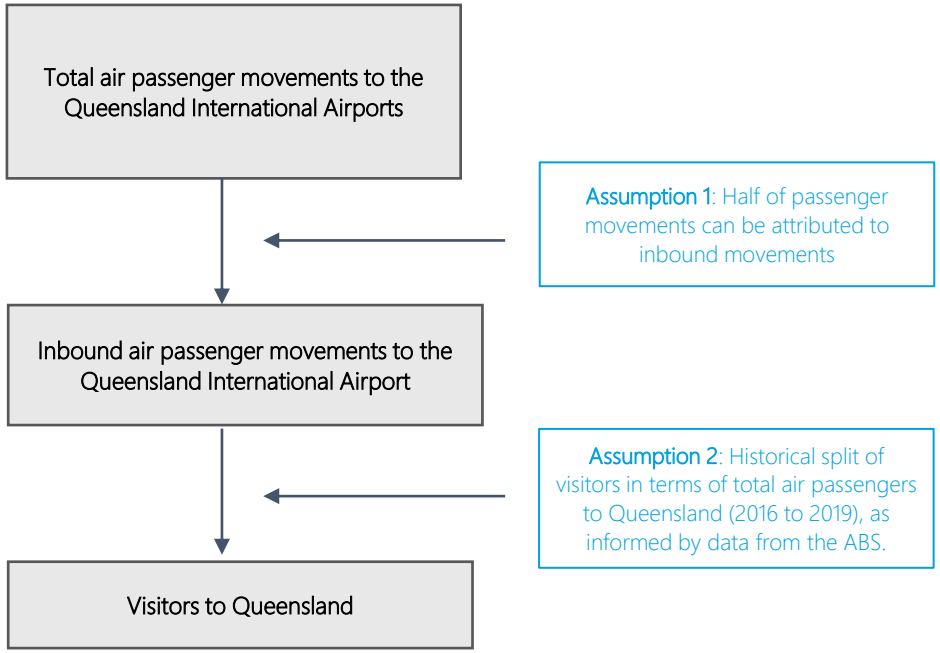
It is observed that there is a strong correlation between air passenger movements to the Queensland International Airports and tourism visitors to the region, especially international visitors. The model assumed this correlation forms the base for a causal relationship between the two, and this relationship remains stable during the forecasting period.

The figure outlines the steps of translating air passenger movements to visitors in Queensland. The main assumptions underpinned the steps are:

Assumption 1: About half of all air passengers are assumed to be inbound passengers, i.e. each international passenger would fly in and out through Queensland airports. All outbound visitors who depart from an international airport in another state would be offset by an inbound visitor who arrived in another state airport and fly out from one of the Queensland International Airports.

Assumption 2: The split of visitors and residents in total inbound passenger numbers follows the historical relationship as outlined in Overseas Arrivals and Departures, Australia, catalogue 3401.0 of the Australia Bureau of Statistics. The model applies the average historical split of visitors and residents between 2016 to 2019 for its forecasting purposes.

Translating air passenger movements to visitor forecast



Source: Deloitte Access Economics

Limitation of our work

General use restriction

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