

Deloitte Access Economics

The economic contribution of the cruise sector to Australia

Carnival Australia

22 February 2012

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Glossary

CDU	Cruise Down Under
CLIA	Cruise Lines International Association
DAE	Deloitte Access Economics
EBITDA	Earnings before interest, tax, depreciation and amortisation
ECC	European Cruise Council
FTE	Full time equivalent
GDP	Gross Domestic Product
GOS	Gross Operating Surplus
GSP	Gross State Product
ICCA	International Cruise Council Australasia
IO	Input-output
NSW	New South Wales
NT	Northern Territory
OPT	Overseas Passenger Terminal
Qld	Queensland
SA	South Australia
Tas	Tasmania
Vic	Victoria
WA	Western Australian

Executive Summary

The Australian cruise sector has undergone strong growth in the last five years. This growth has taken place against a backdrop of stagnation in the wider tourism sector (as measured in total visitor nights). International tourism to Australia, while having grown in visitor nights, has been affected in recent times by the exchange rate through lower yields. Likewise, the domestic tourism sector has struggled as the exchange rate has made overseas travel relatively more affordable for Australian travellers.

This report provides an account of the economic contribution of the cruise sector to the Australian and state economies. It follows on from the cruise sector report prepared by the then Access Economics for Carnival Australia in November 2009.

Economic contribution

In 2010-11, the cruise sector contributed almost \$830 million in value added to the Australian economy. A breakdown of this economic contribution is shown in Table i.

Table i: Economic contribution of the Australian cruise sector 2010-11 (AUD 2011)

	Passenger	Crew	Operator	Corporate	Total
Expenditure (\$M)	305.5	43.5	440.6	154.1	943.7
Total economic contribution					
Value Added (\$M)	265.4	37.9	388.4	136.4	828.1
<i>Labour Income (\$M)</i>	<i>151.4</i>	<i>22.3</i>	<i>211.5</i>	<i>85.2</i>	<i>470.4</i>
Employment (FTE)	2,746	466	2,915	1,092	7220

Source: CDU, Deloitte Access Economics calculations

As a result of increased activity in the sector, the 2010-11 contribution has increased from the 2007-08 economic contribution of \$577 million (AUD 2011). This constitutes an increase of about 44% in three years to 2011, or an annualised growth rate of about 13% (see Table ii).

Table ii: Comparison of total economic contribution, (AUD 2011)

	2007-08 ¹	2010-11	Average annual growth
Value Added (\$M)	576.6	828.1	12.8%
<i>Labour Income (\$M)</i>	<i>330.4</i>	<i>470.4</i>	<i>12.4%</i>
Employment (FTE)	5,331	7,220	10.6%

Source: CDU, Deloitte Access Economics calculations

This recent growth has exceeded the estimates of the previous report. In the 2009 report, total cruise sector activity was forecast to increase strongly at about 7% per annum over the following decade. In fact, 27% growth was experienced in 2010. This demonstrates the

¹ Data from the November Access Economics 2009 report, inflated to AUD 2011.

remarkable growth seen in the sector and reflects the increased capacity and quality of cruise ships and the relative affordability of cruise tourism.

Industry growth and forecasts

Current forecasts for cruise tourism continue to be solid. Forward bookings for the sector to 2014 suggest that rapid growth in the domestic cruise sector will continue in the medium term. Between 2010-11 and 2012-13 average annual passenger growth in the sector is expected to be 32%. The projected strong growth is based on confirmed Australian port bookings data.

In the longer term, 2013-14 to 2019-20 (beyond the period where port bookings can be observed) annual passenger growth is projected at a still solid figure of about 7%. This is based on ongoing domestic influences of robust household incomes, tourism preferences and scope for further cruise market penetration (based on international comparisons).

Total value added to the Australian economy by the cruise industry in 2020 is estimated to be \$2.28 billion. Over the modelling period to 2020, the cruise tourism contribution as a proportion of Australian GDP is expected to double to 0.12%, from 0.06% in 2010-11.

These projections are based on consultations with Carnival Australia and assume that any potential impediments to growth in the industry can be appropriately addressed. As discussed in the previous report, and again outlined here, port infrastructure continues to be an ongoing issue for the Australian cruise sector. This is particularly the case in Sydney and Brisbane where capacity pressures are greatest and increasing vessel sizes need to be accommodated.

With strong passenger demand for cruising, infrastructure and cost challenges could become potential impediments to growth in the future. For instance, congestion in Sydney Harbour in 2011-12 will require six ships to anchor rather than berth, and forward bookings suggest that the Overseas Passenger Terminal in Sydney is expected to reach capacity in 2012-13.

The growth in the cruise sector over the past 5 years has been driven by a number of key factors. Cruise operators have invested significantly in the repositioning of cruising as a safe, fun and affordable holiday choice for Australians following the Brimble Inquest. Marketing and product innovations including the introduction of short cruises as both a weekend break alternative and an introduction to the category have been highly effective.

The past two to three years have seen significant growth in the deployment of ships based out of Australia. Princess Cruises are now operating 3 ships in Australia year round offering destinations such as the Far East, Africa and Europe. Carnival Cruise Lines has recently announced its first year round deployment of a ship outside the US with the deployment of Carnival Spirit out of Sydney. Royal Caribbean have recently doubled its seasonal deployment from Australia with Radiance of the Seas and Celebrity Cruises have their first seasonal deployment in 2012.

Growth in Australian cruise passengers travelling on Australian based ships has been faster than in comparable international markets. Estimates by the International Cruise Council Australasia shows that there has been 27% growth in domestic passengers on ships based

in Australia. Compared to 6% growth in of Australians cruising in both North America and the UK based ships, and 19% on ships based in Germany.

Challenges and opportunities

The scope for further growth in the cruise sector is demonstrated by Australia's relatively low market penetration rate. Australia's rate has more than doubled over the past 3 years from just over 1% in 2007 to around 2.1% in 2010. There is a clear potential for penetration rates to continue to rise based on comparisons with overseas markets and the continued refinements of cruise marketing in Australia to meet different market segments.

As the number and size of cruise ships continues to grow, major Australian ports are faced with the challenge of providing the appropriate capacity to allow docking of ships. Docking spaces through the peak season in some Australian ports are at an upper limit to the potential number of vessels that can be accommodated.

Well-crafted policy providing effective ways to address these challenges to the industry will assist in ensuring continued growth in the Australian cruise sector.

Deloitte Access Economics

1 Introduction

Carnival Australia has commissioned Deloitte Access Economics to undertake an economic contribution analysis of the Australian cruise industry to the Australian economy. This report includes a discussion of the main challenges and issues the cruise industry is likely to face in the future. The report is an update of similar work undertaken in 2008, and again in 2009.

As Australia's largest cruise ship company, Carnival Australia faces a number of challenges experienced by the broader tourism industry. As such, Carnival Australia is in a position to provide informed discussion on a range of issues including infrastructure development and regulations. Decisions on these policy issues will have implications for the cruise industry as well as the broader Australian tourism industry.

The economic contribution makes use of the recently published *Economic Impact Assessment of the Cruise Shipping Industry in Australia 2010-11* released by Cruise Down Under (CDU). In addition actual cruise booking data out to 2013-14, and forecast projections of growth to 2020 provided by Carnival Australia assist with estimating the future contribution.

This report covers portside costs, including passenger, crew and operator expenditure at a regional and national level. Corporate expenditure by the cruise industry is outlined at a national level. Corporate head office's activity includes expenditure such as, marketing, promotion of cruises and commissions to travel agents.

This report is set out as follows:

- Section 2 discusses trends in tourism in Australia, including trends in cruise shipping in Australia;
- Section 3 provides estimates of the economic contribution of the cruise shipping industry on the Australian economy;
- Section 4 provides estimates of the economic contribution at a state level; and
- Section 5 discusses recent infrastructure policy issues affecting the cruise shipping industry, and implications of these decisions for the long term growth of the industry.

This version reflects revisions to Charts 2.3 – 2.6 and Table 4.23 that were incorporated into the report in early 2013. These changes correct a few data points in the charts and tables but don't alter the key messages or themes in the report.

2 Tourism

2.1 Australian tourism sector

There are three major markets to be considered in the Australian tourism sector:

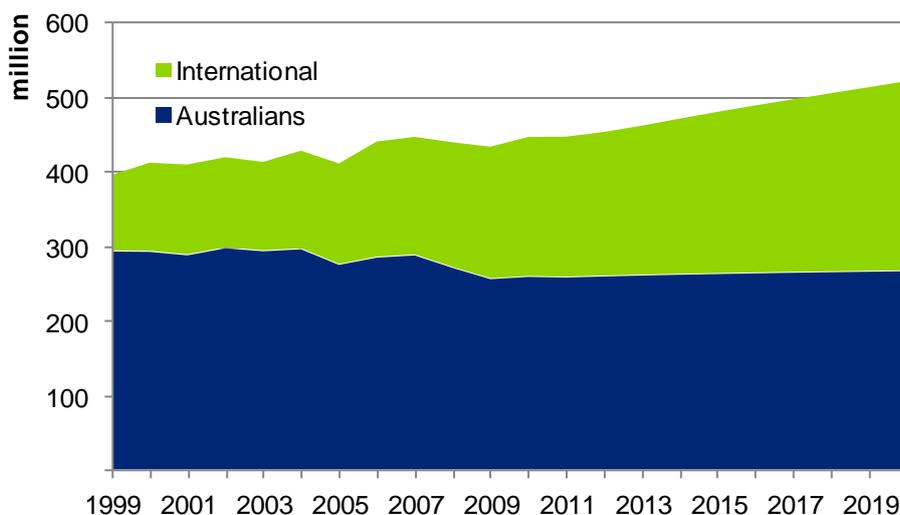
- domestic overnight tourism by Australians;
- domestic tourism by international visitors; and
- international tourism by Australians.

In the last decade, there have been relatively low levels of growth in domestic overnight tourism, with the industry fluctuating seasonally between growth and decline. With the tourism industry recently highlighting the benefits of taking a short break and the domestic travel opportunities with their “No Leave, No Life” campaign, year-on-year growth of domestic overnight trips increased 3% in 2010, and up to 8% in the June quarter of 2011.

Travel by Australians domestically has been hampered by the high Australian dollar relative to other major currencies, which has made local tourism relatively more expensive. Total domestic visitor nights for Australian is down to about 260 million in 2010 from about 294 million in 1999. To 2020 Tourism Research Australia (TRA) is projecting modest visitor night growth to about 267 million or about 0.3% growth per annum, shown in Chart 2.1.

Conversely international visitor nights in Australia has grown in the last decade from just over 100 million in 1999 to about 187 million in 2010, see Chart 2.1. Over the forecast period to 2020 TRA has modelled an increase to 254 million visitor nights, an average of 3.1% growth per annum.

Chart 2.1: Tourism market, Australia, visitor nights



Source: Tourism Research Australia

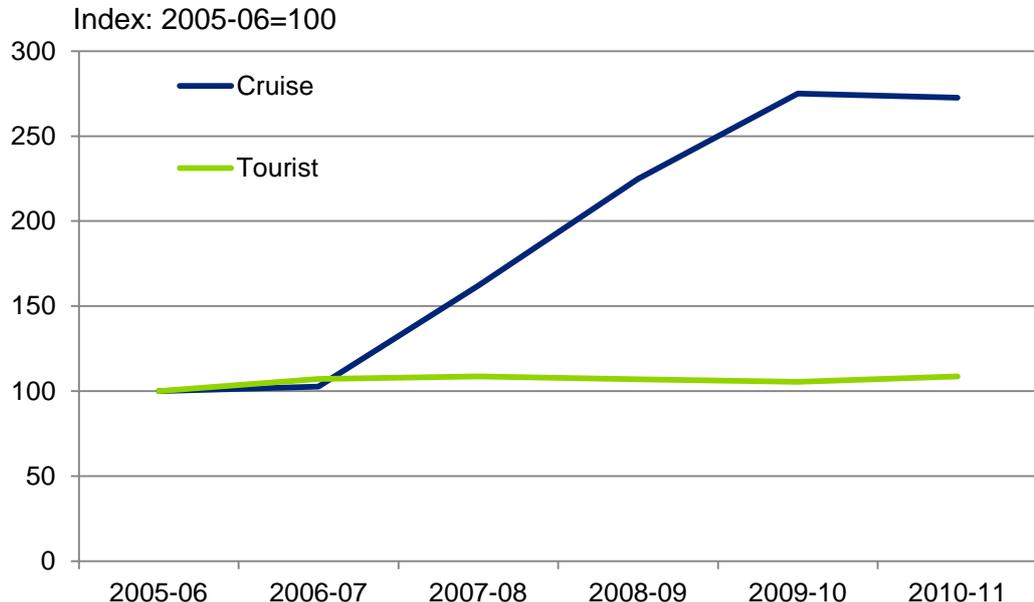
There has also been a significant shift in the origin of international visitors. The composition of international visitors has moved away from traditional sources (such as Japan) towards newer markets such as China as household incomes strengthen. Since the September quarter of 2006, there has been a 67% increase in the number of tourists from China, with an increase of 227% since 2001.

On the other hand, the strong Australian dollar has led to an increasing number of Australians travelling overseas for holidays rather than staying in Australia. To some degree, this international tourism has been a substitute for domestic tourism, with Australians less likely to take additional holidays domestically.

2.2 Australian cruise sector

The Australian cruise industry has undergone a period of growth over the last five years, albeit from a low base, with 24% average growth in yearly passenger days at port since 2005. Over that period passenger days at Australian ports have increased from about 400,000 per year to just below 1.1 million per year. As demonstrated in Chart 2.2, while there has been only moderate growth in tourism in Australia growth in cruise tourism has increased considerably.

Chart 2.2: Index of cruise passenger days at port and tourism², Australia



Source: CDU

Growth in Australian cruise passengers travelling on Australian based ships has been faster than in comparable international markets. Estimates by the International Cruise Council Australasia shows that there has been 27% growth in domestic passengers on ships based in Australia. Compared to 6% growth of Australians cruising in both North America and the UK based ships, and 19% on ships based Germany.

² Tourism is estimated as total, domestic and international, overnight visitors staying in Australia.

Passenger and crew days at port

Over the most recent period, 2010-11, growth in passenger days at port has remained strong in NSW with 34% growth. However a reduction in activity in most other states has resulted in an overall reduction of 0.9% in passenger days at port Australia-wide. This reflects a growing number of passengers leaving from Sydney and Brisbane and cruising internationally, to the South Pacific and Asia, rather than to other Australian destinations.

This is indicative of what has taken place in the industry over the three years since the last report was undertaken. While NSW and Queensland have experienced considerable passenger days at port growth 27.85% and 24.75% respectively, other major port destinations, such as Western Australia and Victoria experienced limited growth.

Growth in passenger days in the two key ports has led to an increase in the number of ships based out of these markets. Sydney now has two P&O Australia ships, one Princess and two seasonal Royal Caribbean ships while Carnival Cruise Line's Carnival Spirit will be the first year round deployment of a ship that is unable to navigate the Sydney Harbour Bridge. Brisbane now has one P&O Australia ship and one Princess ship based there with the current cruise terminal infrastructure and location now becoming a barrier to further deployments, especially the larger capacity ship's now being deployed in Australia.

On the other hand Melbourne has some challenges in driving growth in the coming years. It is second only to Sydney as a preferred destination for international passengers visiting Australia and therefore the growth in transit calls is projected to continue. The challenge is the growth of home based ships as a result of its disadvantaged geographic location in relation to the major cruise destinations of New Zealand and the South Pacific.

The forecast strong growth in the two key markets means that ensuring policy decisions affecting infrastructure are well designed and implemented in a way that will allow the forecast growth be realised.

Table 2.1 : Passenger and crew days at port 2010-11

Region	Cruise ship visit days	Passenger days at port	Annual growth (%)	Crew days at port	Annual growth (%)
NSW	164	515,529	27.9	110,474	2.5
Queensland	193	328,863	24.8	63,944	-6.8
Victoria	39	68,961	0.3	16,264	-22.9
WA	68	67,586	3.2	18,785	-15.7
Tasmania	40	45,681	-13.1	11,910	-27.9
NT	46	40,056	29.2	11,504	-52.6
SA	16	13,205	13.4	4,011	-9.4
Total	568	1,081,665	18.9	237,386	-7.1

Source: CDU

2.3 Passenger and crew forecasts

This section presents data for the domestic cruise market, including both Australians and international visitors travelling within Australia. This section explores the forecasts for four major cities anticipated to experience growth over the following decade.

Carnival Australia has forecast the number of cruise passengers for a range of destinations to 2020, forecasts are based on actual booking data and a reasonable estimate of future growth. Information provided by Carnival of booking data which is available to 2014 is the basis for the short term projected growth. Lead times for cruises tend to be significant, with port bookings well in advance of cruise dates. For the years for which booking data is not available forecasts are based on a constant proportion, this is an assumption over the forecast period.

Distinction between base and transit passengers is important as infrastructure requirements differ; ships based at a port require a higher level of infrastructure than transit ships. Base port ships require port and portside services to embark and disembark passengers and stores and fuel supply. Similar activity is associated with transit ships however the demand on portside services and physical capital is lower.

Sydney

In Sydney, the dominant source of growth in passengers is expected to be from cruise ships based in Sydney (Chart 2.3)³. This will particularly be the case if cruise numbers are limited by insufficient berthing opportunities east of Sydney Harbour to accommodate ships with air draft restrictions⁴.

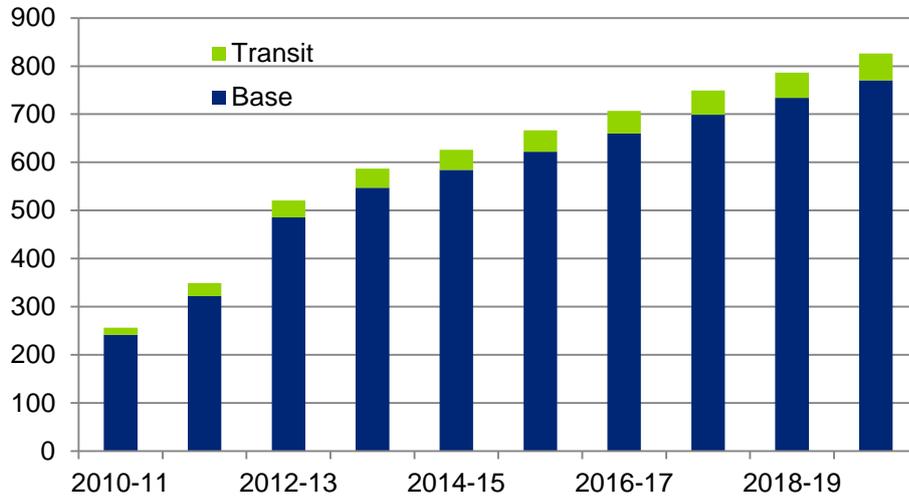
Air draft restrictions are an issue in Sydney as the larger vessels are unable to fit under Sydney Harbour Bridge to access the berths on its western side. By 2015 and 2020 respectively, the NSW Passenger Cruise Terminal Steering Committee has estimated that 33% and 56% of cruise ships visiting Sydney will be unable to pass under the Sydney Harbour Bridge due to their height, necessitating berthing infrastructure on the eastern side of the Bridge.

Going forward, the composition of cruise passengers in Sydney will be highly base intensive. Also considering the larger absolute number of passengers, as well as the high proportion of base passengers, ensuring that infrastructure requirements are adequate to realise the forecast growth is a significant issue in Sydney. Sydney has the highest proportion of base passengers of all Australian ports. As shown in Chart 2.3 almost all passengers (93%) will be base passengers by 2019-20. Total passengers are forecast to reach more than 825,000 by 2019-20 this is a significant increase from 256,000 in 2010-11.

³ Transit calls are also expected to grow as Sydney remains the gateway to Australia for visiting international cruise ships, although at a slower rate.

⁴ Air draft is the distance from the surface of the water to the highest point of a vessel.

Chart 2.3: Sydney: Forecast passengers, Carnival, 000s



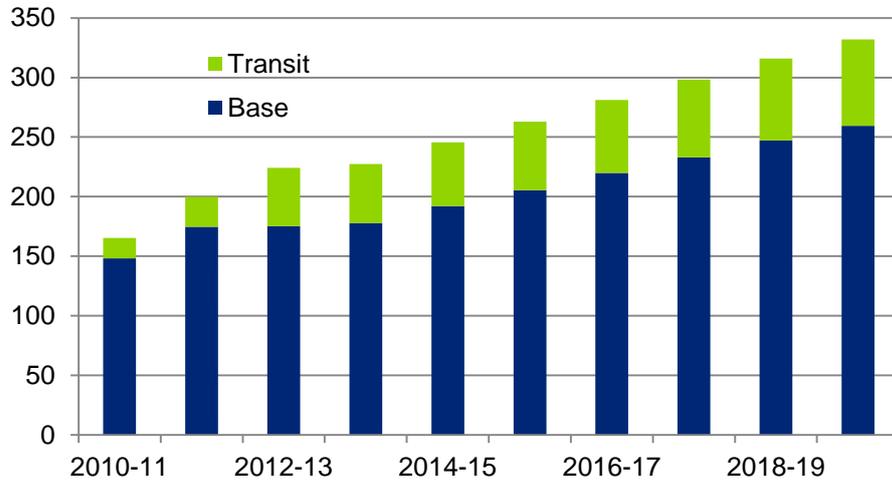
Source: Carnival Australia

Brisbane

As shown in Chart 2.4, approximately 20% of the forecast passengers in Brisbane are expected to be from transit cruises by 2019-20. This includes not only Australians travelling to Brisbane, but also international cruise tourists. The total number of passengers in Brisbane in 2010-11 was around 165,000, and this is expected to increase to 332,000 by 2019-20.

Given recent and forecast strong growth in Brisbane existing infrastructure presents a potential barrier for the cruise industry in Brisbane. The current location of the Portside facility in Brisbane along the Brisbane River, means that the port is not accessible for larger ships. It is therefore important that future policy decisions and implementation are undertaken in a way that ensures future growth in Brisbane can be achieved.

Chart 2.4: Brisbane: Forecast passengers, Carnival, 000s

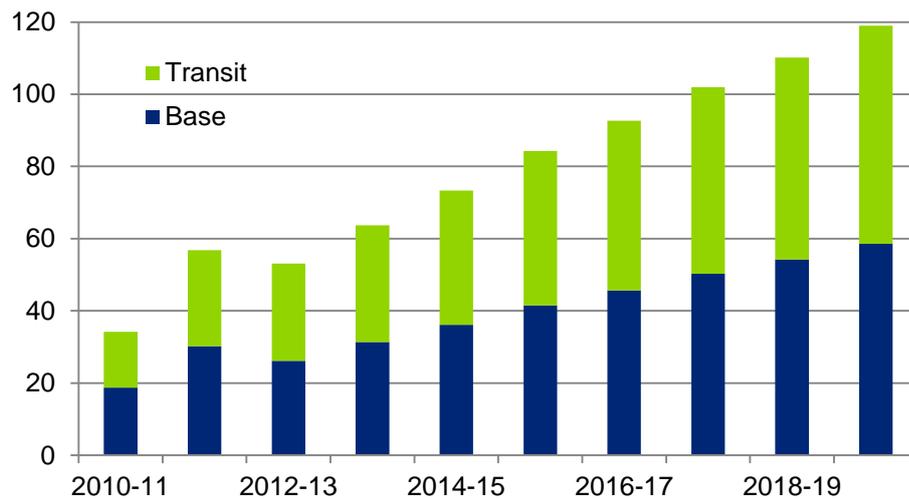


Source: Carnival Australia

Fremantle

In contrast to the previous two examples, the proportion of forecast passengers to Fremantle is anticipated to be roughly equal from transit and base ships. A relatively small market, in 2010-11 it saw 34,000 passengers, and is expected to receive 119,000 by 2019-20.

Chart 2.5: Fremantle: Forecast passengers, Carnival, 000s



Source: Carnival Australia

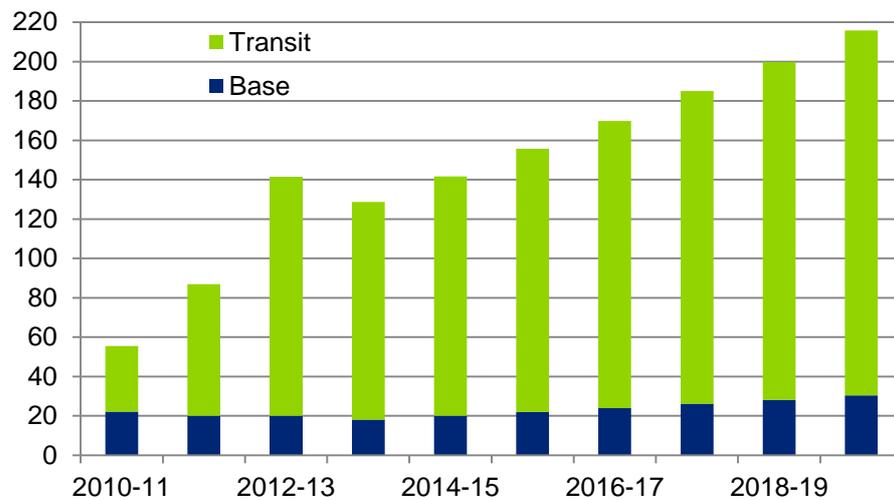
Melbourne

The major growth in passenger visits to Melbourne is likely to come from the visiting (transit) international ships rather than from ships based in Melbourne. The number of

forecast passengers from transit ships is expected to grow from roughly 33,200 passengers in 2010-11 to 185,300 by 2019-20, almost a 6-fold increase.

Melbourne has one of the most efficient cruise passenger facilities, but may need further investment to keep up with the projected demand. While there are challenges to establishing a base ship market, the continued growth in the short cruise segment and deployment of further capacity in the Australian market certainly provides Melbourne with growth opportunities.

Chart 2.6: Melbourne: Forecast passengers, Carnival, 000s



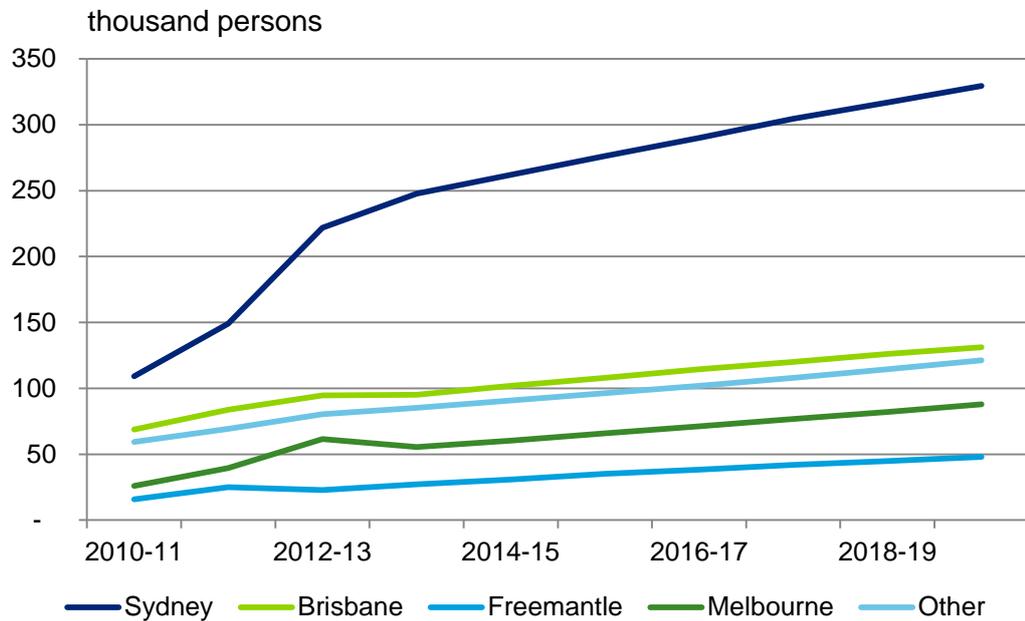
Source: Carnival Australia

Crew

The forecast crew arrivals in the major ports are also important for the regional economies as they contribute to the flow-on benefits to other land-based tourism industries during their time in port, such as food, accommodation and other services. Sydney is anticipated to be the major destination for crew, with total crew arrival numbers expected to be around 329,000 by 2019-20.

Brisbane is expected to be the second most visited port by crew with more than 131,000 crew visitors by 2020. The number of crew in Melbourne is expected to grow from almost 26,000 in 2011 to almost 88,000 by 2020. Growth is also expected in Fremantle, about 48,000 crew are expected to arrive in Fremantle by 2020.

Chart 2.7: Crew arrivals, selected major ports, 000s



Source: Carnival Australia

2.4 Cruise activity by Australians

The data in this section reflects travel by Australians only, both domestically and globally. Table 2.2 presents a time-series of total passenger numbers from Australia. Double-digit growth in cruise ship visit days has been achieved since 2005, with up to 27% growth achieved in 2010, demonstrating sustained increases in the sector despite a weakened world tourism market.

Table 2.2: Total passenger numbers, Australia

Year	Cruise ship visit days	Growth (%)
2003	153,781	32
2004	158,415	3
2005	186,666	18
2006	221,033	18
2007	263,435	19
2008	330,290	25
2009	366,721	11
2010	466,692	27

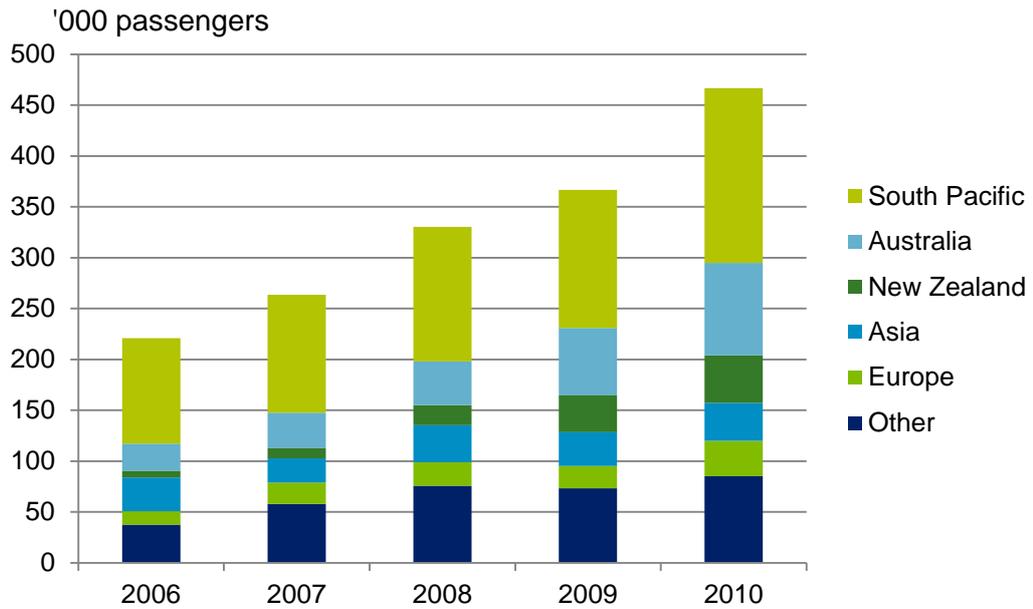
Source: ICCA

Destinations

As shown in Chart 2.8, the most common passenger destination for Australian cruise passengers continues to be the South Pacific. In 2010, 37% of the 467,000 passengers travelled on a cruise to the South Pacific, 19% to Australian destinations, and 10% to New Zealand.

Over the past 5 years the number of passengers travelling to Australian destinations has almost doubled, increasing from 12% in 2006 to 19% in 2010. This increase has paralleled a decline in Australian cruise tourism to Asia, which fell from accounting for 15% of passengers in 2006 to 8% in 2010.

Chart 2.8: Cruise destinations of Australian passengers, 2006 to 2010

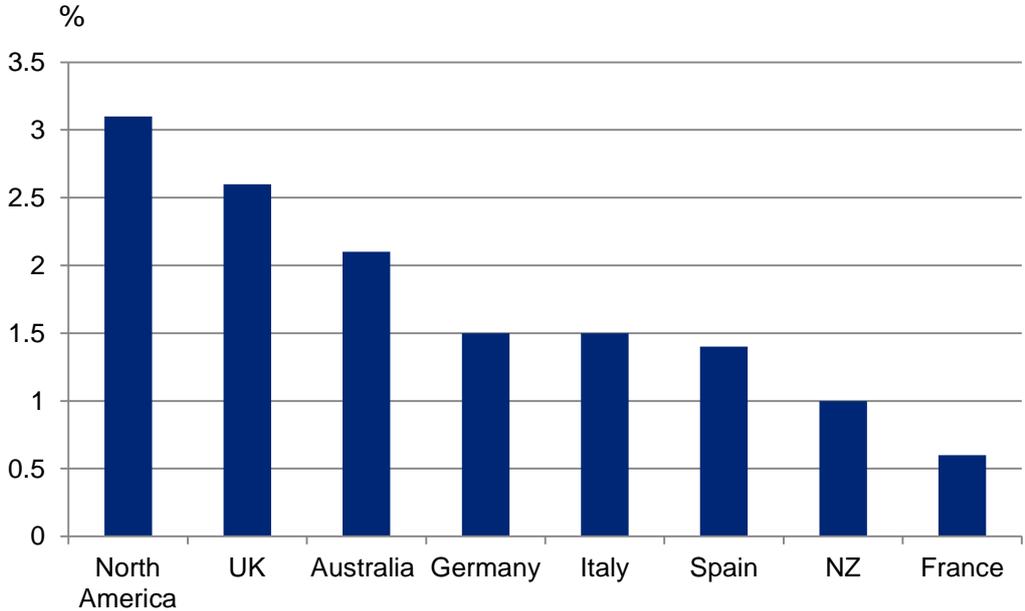


Source: ICCA

Australian market penetration

Market penetration is the proportion of the total Australian population partaking in cruising. Importantly, for Australia, despite recent strong growth rates, the penetration of the cruise market by 2010 is relatively low at 2.1% of the Australian population, below both North America at 3.1% and the UK at 2.6%. This is highlighted in Chart 2.9 below.

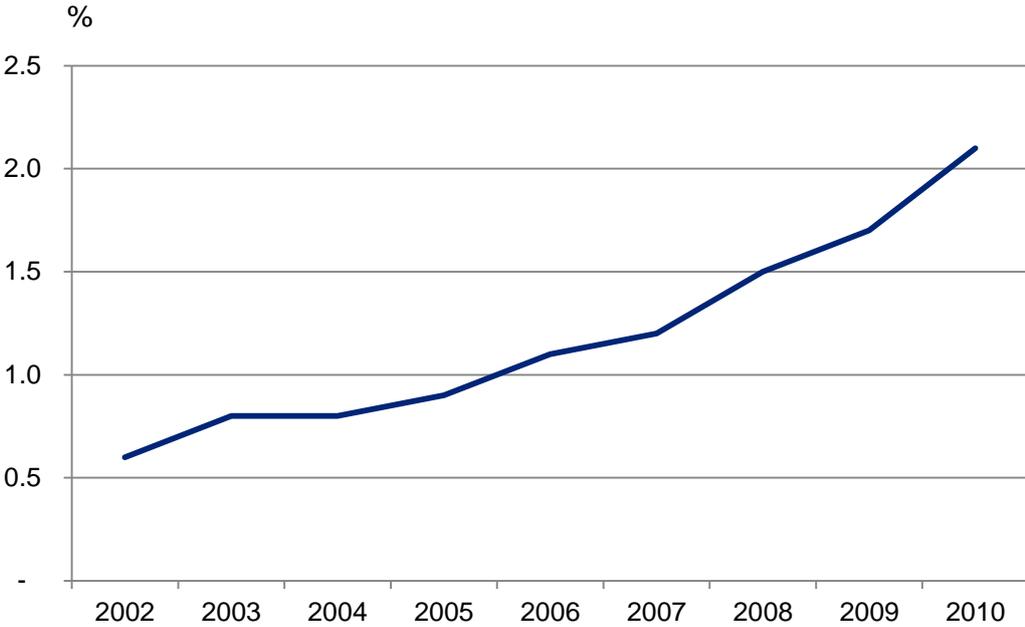
Chart 2.9: International comparison, market penetration of cruise sector, 2010



Source: ICCA

The market penetration rate of the cruise sector in Australia has grown steadily since the early 2000s, and is likely to continue on this trajectory, as other developed countries have achieved higher penetration rates. Carnival Australia projects more than 1 million Australian cruise passengers by 2020.

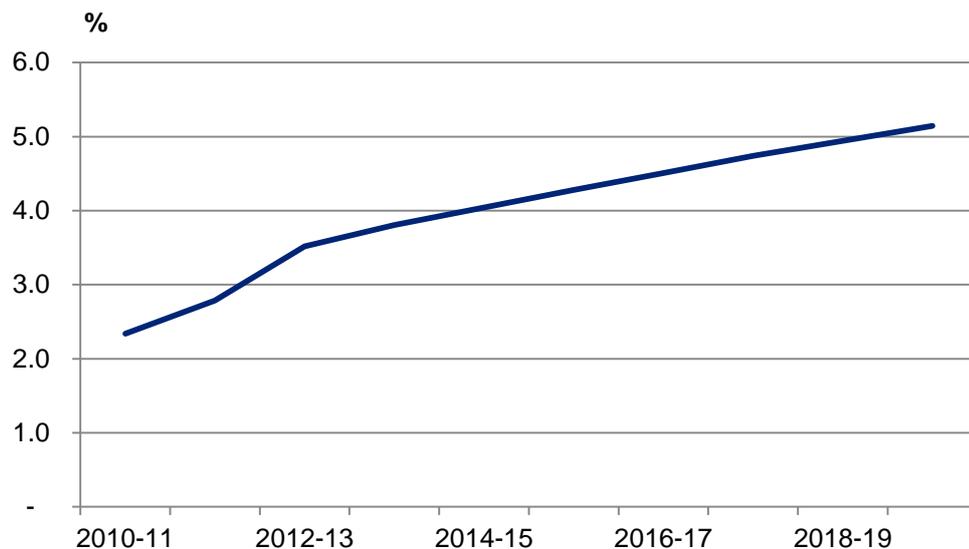
Chart 2.10: Market penetration of the cruise sector, Australia



Source: ICCA

The market penetration rate is expected to increase initially, and continue to grow over the forecast period albeit at a slower rate. This is because of a number of factors including tourism related activity is increasing, demographic changes of the Australian population and growing popularity of cruising by Australians.

Chart 2.11: Forecast penetration of the cruise sector, Australia



Source: Carnival Australia. Note fiscal years

2.5 The global cruise industry

The global cruise industry has undergone a period of expansion over the last two decades.

- Estimates by the European Cruise Council (ECC) indicate annual growth of passenger numbers of between 2.1% and 9.7% since 2005. Similarly, estimates by Cruise Lines International Association (CLIA) show annual passenger growth in the North American market of between 4% and 10% over a similar period.
- Increasing consumer demand for cruise holidays has led to growth in cruise capacity and significant capital investment. A notable trend is the increasing demand for luxury cruise experiences.
- Recent passenger trends show strong growth in Europe and emerging South Pacific and Asian markets, while positive growth in more developed markets such as North America is at a relatively lower rate.

3 Economic Contribution

The following chapter outlines the economic contribution of the cruise sector to the Australian economy. The economic contribution is based on both:

1. the activity of passenger, crew and cruise operators at ports; and
2. selected corporate activity like corporate head office's activity such as, marketing, promotion of cruises and commissions to travel agents.

The activity of passenger, crew and cruise operators at port is based upon expenditure estimates from the 2011 CDU report. Operator activity is estimated based on vessel-related expenditure including port charges, towage charges, and passenger-related expenditure such as security and baggage handling. Passenger activity is based on expenditure by passengers before and after the cruise, when at port, as well as expenditure over the duration of the cruise on items such as meals, tours, entertainment and transport. Crew activity includes crew expenditure at the transit and base ports.

The economic contribution is based on input-output tables supplied by the Australian Bureau of Statistics. Contribution studies are based on a framework that is outlined in Appendix A. As with the previous report, the economic contribution draws from the previous work undertaken by AECgroup for Cruise Down Under.

3.1 Portside cruise activity

As a result of increased activity in the sector, the 2010-11 contribution has increased from the 2007-08 economic contribution of \$434 million (AUD 2011) previously estimated by Access Economics (see Table 3.1). This constitutes an increase of about 60% in three years to 2011, or an annualised growth rate of about 17%. Estimates in the previous report were based on a significant amount of potential growth in the sector. The estimates of expenditure in 2010-11 are a realisation of this potential.

Table 3.1: Comparison of portside economic contribution, (AUD 2011)

	2007-08 ⁵	2010-11	Annual growth (%)
Value Added (\$M)	434.4	691.7	16.8
Labour Income (\$M)	241.6	385.2	16.8
Employment (FTE)	4,092	6,128	14.4

Source: CDU, Deloitte Access Economics calculations

During the 2010-11 reference year there was almost \$790 million in direct expenditure in the cruise sector (Table 3.2). This is made up of the portside economic activity of passengers, crew and operators.

⁵ Data from the November Access Economics 2009 report, inflated to AUD 2011.

This expenditure contributes almost \$692 million in value added to the Australian economy. With GDP of about \$1,392 billion in the financial year 2010-11 this represents about 0.05% of GDP.

Of this value added, \$385 million is paid to employees as wages and the activity contributes about 6,128 in full-time equivalent (FTE) workers. It should be noted that these figures do not include the crew on ships servicing the Australian market.

Table 3.2: Portside economic contribution, 2010-11 (AUD 2011)

	Passenger	Crew	Operator	Total
Expenditure (\$M)	305.5	43.5	440.6	789.6
Total economic contribution				
Value Added (\$M)	265.4	37.9	388.4	691.7
<i>Labour Income (\$M)</i>	<i>151.4</i>	<i>22.3</i>	<i>211.5</i>	<i>385.2</i>
Employment (FTE)	2,746	466	2,915	6,128
Direct contribution				
Value Added (\$M)	139.3	19.7	193.9	352.9
<i>Labour Income (\$M)</i>	<i>85.2</i>	<i>12.8</i>	<i>109.2</i>	<i>207.1</i>
Employment (FTE)	1,693.7	308.8	1,435.3	3,437.8
Indirect contribution				
Value Added (\$M)	126.1	18.2	194.5	338.8
<i>Labour Income (\$M)</i>	<i>66.3</i>	<i>9.5</i>	<i>102.3</i>	<i>178.1</i>
Employment (FTE)	1,052	158	1,480	2,690

Source: CDU, Deloitte Access Economics calculations

The economic contribution is made up of \$353 million direct value added and almost \$340 million is indirect value added. The direct contribution is the value added (profits paid to capital owners and wages paid to employees) within the cruise sector in Australia. Conversely, the indirect contribution is value added contributed by the cruise sector in other sectors by the demand it generates through the intermediate inputs supplied to the cruise sector in Australia.

Demand from the cruise sector contributes \$178 million in wages paid to employees in other sectors and almost 2,700 FTEs employed in those sectors. Passenger expenditure is based upon estimates from the 2011 CDU report. This includes expenditure at base and transit ports and on items over the duration the cruise, including meals, food and wine, tours and transport. Pre and post cruise expenditure on items including meals, tours, entertainment and transport is also included. Corporate and marketing activity

Corporate expenditure is expenditure by cruise operators other than the port activity captured in the previous section. Expenditure includes advertising expenses, commissions to agents and other costs such as administration.

In 2010-11 the corporate non-port-related activity generated \$136 million in value added (see Table 3.3). The corporate activity contributes a total of \$85 million in wages and about 1,100 FTEs.

Included in the total contribution is the indirect value added and employment generated in other sectors of the economy through the cruise sector's intermediate inputs. The value added generated in supply sectors is just below \$65 million and about 520 FTE workers.

Table 3.3: Economic contribution, corporate activity, 2010-11 (AUD 2011)

	\$M
Expenditure	154.1
Total economic contribution	
Value Added	136.4
<i>Labour income</i>	85.2
Employment (FTE)	1,092
Direct	
Value Added	71.5
<i>Labour income</i>	48.6
Employment (FTE)	570
Indirect	
Value Added	64.9
<i>Labour income</i>	36.7
Employment (FTE)	521

Source: Deloitte Access Economics

3.2 Total economic contribution

The increased activity in portside activity, and the associated growth in value added and employment more than offset the fall in corporate expenditure. As a result since the previous report was undertaken in 2007-08 the sector has seen almost 13% annualised growth. Total value added in the cruise industry, including portside and corporate activity, is significantly higher than the \$577 million (2011 AUD) estimated in the past report. This is a growth of 44% over the three years.

Table 3.4: Comparison of total economic contribution, (AUD 2011)

	2007-08 ⁶	2010-11	Annual growth (%)
Total economic contribution			
Value Added (\$M)	576.6	828.1	12.8
<i>Labour Income (\$M)</i>	330.4	470.4	12.5
Employment (FTE)	5,331	7,220	10.6

Source: CDU, Deloitte Access Economics calculations

Total cruise expenditure in the reference year 2010-11 was almost \$944 million (see Table 3.5). This is made up of both the portside economic activity of passengers, crew and operators and the corporate expenditure of the cruise sector. This expenditure contributes almost \$830 million in value added to the Australian economy. With GDP of about \$1,392 billion in the financial year 2010-11, this represents about 0.06% of GDP.

⁶ Data from the November Access Economics 2009 report, inflated to AUD 2011.

Of this value added, \$470 million is paid to employees as wages and the activity contributes about 7,220 in full-time equivalent (FTE) workers. The majority of these workers, approximately 6,130, are employed as a result of the portside activity with a further 1,092 employed through the corporate-related activity.

Table 3.5: Total economic contribution, corporate activity, 2010-11 (AUD 2011)

	Portside	Corporate	Total
Expenditure	789.6	154.1	943.7
Total economic contribution			
Value Added	691.7	136.4	828.1
<i>Labour income</i>	385.2	85.2	470.4
Employment (FTE)	6,128	1,092	7,220
Direct			
Value Added	352.9	71.5	424.4
<i>Labour income</i>	207.1	48.6	255.7
Employment (FTE)	3,437	570	4,008
Indirect			
Value Added	338.8	64.9	403.7
<i>Labour income</i>	178.1	36.7	214.8
Employment (FTE)	2,690	521	3,211

Source: Deloitte Access Economics

3.3 Growth in the Australian cruise industry

Growth in the domestic cruise sector is projected to remain strong over the medium term. Between 2010-11 and 2012-13 average annual passenger growth in the sector is expected to be 32%. The projected strong growth is based on observed Australian port bookings data supplied to Deloitte Access Economics by Carnival Australia. In the longer term, 2013-14 to 2019-20 (beyond the period where port bookings can be observed) annual passenger growth is projected at a much more conservative figure of about 7%. However, the industry has the potential for further growth if the various challenges facing the industry are addressed in an appropriate and timely manner (see Section 5).

The initial forecast of strong growth is based upon significant increase in capacity in the cruise industry leading to strong demand by passengers. This is followed by a period of lower, albeit still high, growth in the cruise industry. Portside activity is projected to increase at the same rate as projected passenger numbers. That is, we assume the same expenditure bundle as today's cruise traveller. Corporate activity is projected to increase at half the rate of passenger numbers.

Over the period expenditure is projected to increase from just below \$1.0 billion in 2010-11 to around \$2.6 billion in 2019-20 (see Table 3.6). Operator share of total expenditure will remain at about 50% of the expenditure in the sector contributing \$1.3 billion in expenditure by 2019-20.

Table 3.6: Total expenditure: 2010-11 to 2019-20 (AUD 2011)

	2010-11	2015-16	2019-20
Passenger (\$M)	305.4	682.2	861.5
Crew (\$M)	43.5	94.3	114.7
Operator (\$M)	440.7	1,011.6	1,296.1
Corporate	154.1	273.6	323.1
Total	943.7	2,061.6	2,595.5

Source: CDU, Deloitte Access Economics calculations

By 2019-20 the cruise sector is projected to contribute around \$2.3 billion in value added to the Australian economy (as shown in Table 3.7). Over the modelling period, the sectors employment contribution is expected to increase from about 7,200 FTEs to slightly less than 20,000 FTEs.

Total value added to the Australian economy by the cruise industry in 2020 is estimated to be \$2.28 billion. Total Australian GDP is estimated to be \$1,869 billion. It is estimated that the cruise industry will contribute 0.12% to the total Australian economy by 2020.

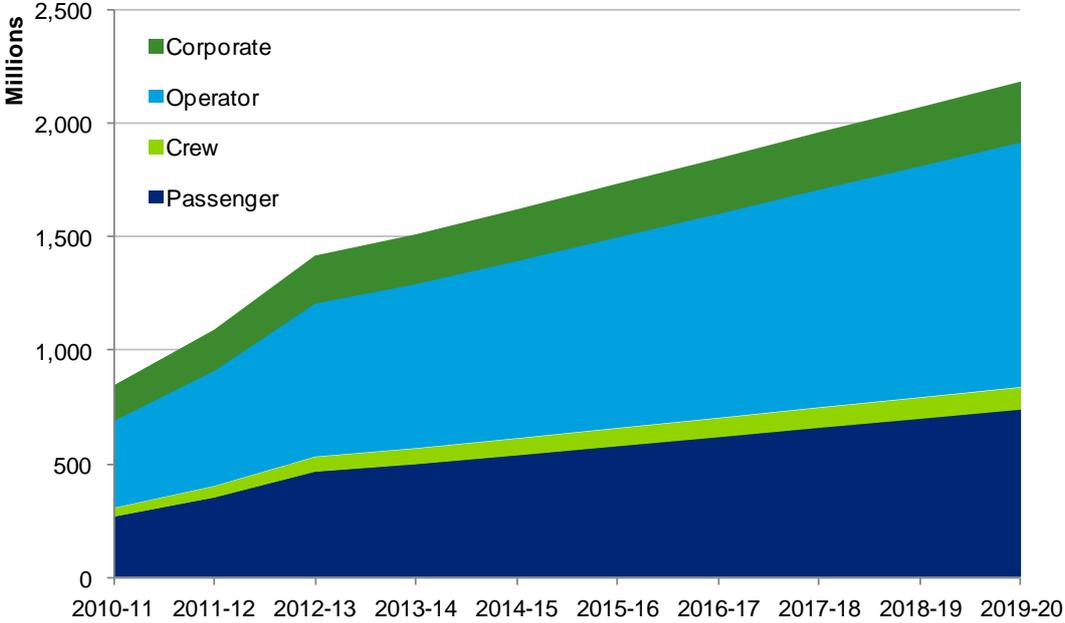
Table 3.7: Value added: 2010-11 to 2019-20 (AUD 2011)

	2010-11	2015-16	2019-20
Value added			
Portside	691.7	1,566.5	1,990.9
<i>Passenger (\$M)</i>	265.3	592.7	748.4
<i>Crew (\$M)</i>	37.9	82.1	99.9
<i>Operator (\$M)</i>	388.5	891.7	1,142.6
Corporate	136.4	242.2	286.0
Total (\$M)	828.1	1,808.7	2,277.0
FTE			
Portside	6,128	13,836	17,550
Corporate	1,092	1,940	2,291
Total	7,220	15,776	19,841

Source: CDU, Deloitte Access Economics calculations

Figure 3.1 outlines the value added over the modelling period 2010-11 to 2019-20. As outlined above, the modelling is based on strong growth to 2012-13 (based on port bookings) and from 2013-14 the growth in value added is based on an annual growth rate of 6.5%.

Figure 3.1: Value added, 2010-11 to 2019-20



Source: Deloitte Access Economics calculations

4 State and Territory Contribution

The following chapter outlines the economic contribution of the cruise sector to each of the Australian states. The economic contribution of ports with the highest levels of activity, Sydney and Brisbane is also provided separate from the state contributions.

State activity is based on estimates of passenger, crew and operator expenditure from the CDU report *Economic Impact Assessment of the Cruise Shipping Industry in Australia 2010-11*, with all calculations undertaken by Deloitte Access Economics. Expenditure is estimated at the port and the total state level.

The contribution outlined in this section only considers tourism-related port activity, corporate activity is outlined in Section 0 above.

Forecast growth in Sydney and Brisbane passenger and operator expenditure are modelled according to industry passenger port booking numbers until 2014-15. After 2015 forecast expenditure is based upon an average provided by Carnival Australia. Forecast growth for passenger and operator expenditure for the remaining regions is modelled according to growth rates assumptions provided by Carnival Australia.

Crew expenditure for each of these ports is modelled according to forecast growth in crew numbers provided by Carnival Australia.

4.1 New South Wales and Sydney

Sydney has experienced significant growth in value added and employment since the previous report was undertaken in 2007-08. Value added has increased from \$232 million (2011 AUD) to \$371 million in 2010-11. This is equivalent to growth of 60% over the three years.

Table 4.1: Comparison of total economic contribution, NSW, (AUD 2011)

	2007-08 ⁷	2010-11	Average annual growth (%)
Value Added (\$M)	232.0	370.9	16.94
Labour Income (\$M)	128.8	207.2	17.15
Employment (FTE)	2,169	3,351	15.60

Source: CDU, Deloitte Access Economics calculations

The total economic contribution of the tourism-related port activity is just over \$370 million (AUD 2011). This is made up of \$190 million in direct contribution and \$181 million in indirect contribution. Cruise tourism operators have the highest level of economic activity, generating about \$187 million of value added (see Table 4.2). Included in the value added is wages paid to employees of \$207 million.

⁷ Data from the November Access Economics 2009 report, inflated to AUD 2011.

The cruise-related activity generates about 3,350 FTE workers in the NSW economy. This is made up of 1,900 FTEs directly employed in sectors where passenger, crew and operator expenditure takes place and about 1,450 FTEs in the supply sectors.

Table 4.2: Economic contribution, NSW (2011)

	Passenger	Crew	Operator	Total
Expenditure (\$M)	185.6	25.9	212.3	423.8
Total economic contribution				
Value Added (\$M)	161.2	22.6	187.1	370.9
<i>Labour Income (\$M)</i>	<i>92.0</i>	<i>13.3</i>	<i>101.9</i>	<i>207.2</i>
Employment (FTE)	1,668	278	1,405	3,351
Direct contribution				
Value Added (\$M)	84.6	11.7	93.4	189.8
<i>Labour Income (\$M)</i>	<i>51.8</i>	<i>7.6</i>	<i>52.6</i>	<i>112.0</i>
Employment (FTE)	1,029.0	183.9	691.6	1,904
Indirect contribution				
Value Added (\$M)	76.6	10.8	93.7	181.2
<i>Labour Income (\$M)</i>	<i>40.2</i>	<i>5.7</i>	<i>49.3</i>	<i>95.2</i>
Employment (FTE)	639	94	713	1,446

Source: CDU, Deloitte Access Economics calculations

Over the forecast period 2010-11 to 2019-20 the economic contribution of the cruise sector is modelled to increase significantly in NSW. In 2011 dollars, the total economic contribution is modelled to increase from \$370 million in 2010-11 to \$1.1 billion in 2019-20 (see Table 4.3). Forecast growth in the cruise industry in Sydney is driven by growth in passenger and operator value added.

Table 4.3: Value added: 2010-11 to 2019-20, NSW (2011 AUD)

	2010-11	2015-16	2019-20
Value added			
Passenger (\$M)	161.2	388.1	480.5
Crew (\$M)	22.6	53.7	64.0
Operator (\$M)	187.1	471.3	583.7
Total (\$M)	370.9	913.2	1,128.2
FTE			
Total	3,350	8,215	10,140

Source: CDU, Deloitte Access Economics calculations

Sydney

The total economic contribution of the tourism-related port activity is just over \$350 million (AUD 2011). This is made up of \$179 million in direct contribution and \$171 million in indirect contribution. As Sydney represents the most significant market within NSW, growth in NSW reflects growth in Sydney.

The cruise-related activity generates about 3,150 FTE workers in the NSW economy. This is made up of 1,786 FTEs directly employed in sectors where passenger, crew and operator expenditure takes place and about 1,364 FTEs in the supply sectors.

Table 4.4: Economic contribution, Sydney (2011 AUD)

	Passenger	Crew	Operator	Total
Expenditure (\$M)	170.7	24.2	205.0	399.9
Total economic contribution				
Value Added (\$M)	148.3	21.1	180.7	350.1
Labour Income (\$M)	84.6	12.4	98.4	195.4
Employment (FTE)	1,534	259	1,356	3,150
Direct contribution				
Value Added (\$M)	77.8	11.0	90.2	179.0
Labour Income (\$M)	47.6	7.1	50.8	105.5
Employment (FTE)	946.4	171.8	667.8	1,786.0
Indirect contribution				
Value Added (\$M)	70.4	10.1	90.5	171.1
Labour Income (\$M)	37.0	5.3	47.6	89.9
Employment (FTE)	588	88	689	1,364

Source: CDU, Deloitte Access Economics calculations

Over the forecast period 2010-11 to 2019-20 the economic contribution of the cruise sector is modelled to increase significantly in Sydney. The total economic contribution is forecast to increase from \$350 million in 2010-11 to \$1.1 billion in 2019-20 (see Table 4.5). This growth, particularly in the short term is significant planning for future infrastructure should take this into consideration. Policy issues relating to security are an important aspect of the cruising industry. In consideration of this, appropriate screening and security regulation which is balanced to allow the cruise industry to grow as forecast are necessary.

Table 4.5: Value added: 2010-11 to 2019-20, Sydney (2011)

	2010-11	2015-16	2019-20
Value added			
Passenger (\$M)	148.3	385.8	478.0
Crew (\$M)	21.1	53.3	63.6
Operator (\$M)	180.7	470.2	582.5
Total (\$M)	350.1	909.4	1,124.0
FTE			
Total	3,150	8,178	10,100

Source: CDU, Deloitte Access Economics calculations

4.2 Queensland and Brisbane

There has been a significant amount of activity in the cruise tourism industry in Queensland since the previous report was undertaken. Total value added has increased from

\$105 million in 2007-08 (2011 AUD) to more than \$166 million in 2010-11. Over the three years this is equivalent to growth of around 60%.

Table 4.6: Comparison total economic contribution, Queensland, (AUD 2011)

	2007-08 ⁸	2010-11	Average annual growth (%)
Value Added (\$M)	104.6	166.4	16.75
Labour Income (\$M)	58.3	92.7	16.74
Employment (FTE)	993	1,479.6	14.20

Source: CDU, Deloitte Access Economics calculations

The total economic contribution of the tourism-related port activity is just over \$166 million (AUD 2011), refer to Table 4.7. This is made up of \$85 million in direct contribution and \$81 million in indirect contribution. Included in the value added is wages paid to employees of \$93 million, with the cruise-related activity generating around 1,480 FTE workers in the Queensland economy.

Table 4.7: Economic contribution Queensland (2011)

	Passenger	Crew	Operator	Total
Expenditure (\$M)	76.1	10.2	103.7	190.0
Total economic contribution				
Value Added (\$M)	66.1	8.9	91.4	166.4
Labour Income (\$M)	37.7	5.2	49.8	92.7
Employment (FTE)	684	109	686	1,480
Direct contribution				
Value Added (\$M)	34.7	4.6	45.6	85.0
Labour Income (\$M)	21.2	3.0	25.7	49.9
Employment (FTE)	421.9	72.4	337.8	832.1
Indirect contribution				
Value Added (\$M)	31.4	4.3	45.8	81.5
Labour Income (\$M)	16.5	2.2	24.1	42.8
Employment (FTE)	262	37	348	647

Source: CDU, Deloitte Access Economics calculations

Over the modelling period 2010-11 to 2019-20 the economic contribution of the cruise sector is modelled to increase significantly in Queensland. In 2011 dollars, the total economic contribution is modelled to increase from \$166 million in 2010-11 to about \$341 million in 2019-20 (see Table 4.8). The growth forecast to take place in Brisbane has the potential to be a challenge for existing infrastructure.

⁸ Data from the November Access Economics 2009 report, inflated to AUD 2011.

Table 4.8: Value added: 2010-11 to 2019-20 Queensland(2011)

	2010-11	2015-16	2019-20
Value added			
Passenger (\$M)	66.1	108.9	138.2
Crew (\$M)	8.9	14.5	17.7
Operator (\$M)	91.4	146.3	184.9
Total (\$M)	166.4	269.7	340.8
FTE			
Total	1,480	2,403	3,035

Source: CDU, Deloitte Access Economics calculations

Brisbane

The total economic contribution of the tourism-related port activity generated in Brisbane is just over \$150 million (\$A 2011). This is made up of \$77 million in direct contribution and \$75 million in indirect contribution. Generally, cruise tourism operators have the highest level of economic activity, generating about \$88 million of value added (see Table 4.9). Included in the value added is wages paid to employees of \$85 million.

The cruise-related activity generates about 1,338 FTE workers in the Brisbane economy. This is made up of 747 FTEs directly employed in sectors where passenger, crew and operator expenditure takes place and about 590 FTEs in the supply sectors.

Table 4.9: Economic contribution, Brisbane (2011)

	Passenger	Crew	Operator	Total
Expenditure (\$M)	64.8	8.7	100.1	173.6
Total economic contribution				
Value Added (\$M)	56.3	7.6	88.2	152.1
<i>Labour Income (\$M)</i>	<i>32.1</i>	<i>4.5</i>	<i>48.0</i>	<i>84.6</i>
Employment (FTE)	582	93	662	1,338
Direct contribution				
Value Added (\$M)	29.6	3.9	44.0	77.5
<i>Labour Income (\$M)</i>	<i>18.1</i>	<i>2.6</i>	<i>24.8</i>	<i>45.4</i>
Employment (FTE)	359	61	326	747
Indirect contribution				
Value Added (\$M)	26.7	3.6	44.2	74.6
<i>Labour Income (\$M)</i>	<i>14.1</i>	<i>1.9</i>	<i>23.2</i>	<i>39.2</i>
Employment (FTE)	223	32	336	591

Source: CDU, Deloitte Access Economics calculations

In 2011 dollars, the total economic contribution in Brisbane over the modelling period is expected to increase from \$152 million in 2010-11 to about \$305 million in 2019-20 (see Table 4.10).

Table 4.10: Value added: 2010-11 to 2019-20 Brisbane (2011)

	2010-11	2015-16	2019-20
Value added			
Passenger (\$M)	56.3	89.4	112.9
Crew (\$M)	7.6	11.9	14.5
Operator (\$M)	88.2	140.2	177.0
Total (\$M)	152.1	241.5	304.4
FTE			
Total	1,338	2,124	2,675

Source: CDU, Deloitte Access Economics calculations

Given the significant growth forecast to take place in Brisbane and Queensland policy issues, particularly those relating to infrastructure, should take this into consideration. Port and fuel costs are an important consideration for the Queensland cruise industry. There is potential for Brisbane to leverage off its proximity to the South Pacific, as a gateway harbour. This is contingent on policy and cost issues being addressed in such a way that allows this growth to take place.

4.3 Victoria

Growth in value added in Victoria has averaged around 13% in the three years since the previous report was undertaken, this is equivalent to total growth of 45%, resulting in expenditure increasing from just less than \$42 million in 2006-07 to \$60 million in 2010-11. Therefore while growth has not been as strong as Queensland and NSW, growth in Victoria has been notable.

Table 4.11: Comparison total economic contribution, Victoria, (AUD 2011)

	2007-08 ⁹	2010-11	Annual growth (%)
Value Added (\$M)	41.6	60.3	13.19
Labour Income (\$M)	23.0	33.4	13.19
Employment (FTE)	374	509.7	10.88

Source: CDU, Deloitte Access Economics calculations

The total economic contribution of the tourism-related port activity in Victoria is just over \$60 million (AUD 2011) (see Table 4.12). This is made up of \$30.6 million in direct contribution and \$29.7 million in indirect contribution. Included in the value added is wages paid to employees of \$33.4 million, the cruise-related activity generates 510 FTE workers in the Victorian economy.

⁹ Data from the November Access Economics 2009 report, inflated to AUD 2011.

Table 4.12: Economic contribution Victoria (2011)

	Passenger	Crew	Operator	Total
Expenditure (\$M)	18.9	2.5	47.3	68.7
Total economic contribution				
Value Added (\$M)	16.4	2.2	41.7	60.3
<i>Labour Income (\$M)</i>	9.4	1.3	22.7	33.4
Employment (FTE)	170	27	313	510
Direct contribution				
Value Added (\$M)	8.6	1.1	20.8	30.6
<i>Labour Income (\$M)</i>	5.3	0.7	11.7	17.7
Employment (FTE)	104	17	154	276
Indirect contribution				
Value Added (\$M)	7.8	1.0	20.9	29.7
<i>Labour Income (\$M)</i>	4.1	0.5	11.0	15.6
Employment (FTE)	65	9	159	233

Source: CDU, Deloitte Access Economics calculations

Over the modelling period 2010-11 to 2019-20 the economic contribution of the cruise sector is forecast to increase in Victoria. In 2011 dollars, the total economic contribution is modelled to increase from \$60 million in 2010-11 to over \$233 million in 2019-20 (see Table 4.13). Growth in the industry is particularly driven by operator expenditure.

Table 4.13: Value added: 2010-11 to 2019-20 Victoria (2011)

	2010-11	2015-16	2019-20
Value added			
Passenger (\$M)	16.4	46.1	63.8
Crew (\$M)	2.2	5.5	7.3
Operator (\$M)	41.7	117.1	162.2
Total (\$M)	60.3	168.6	233.3
FTE			
Total	510	1,423	1,968

Source: CDU, Deloitte Access Economics calculations

4.4 South Australia

The total economic contribution of the tourism-related port activity in South Australia is just over \$3.1 million (AUD 2011) (see Table 4.15). Included in the value added is wages paid to employees of \$1.7 million, the cruise-related activity generates about 30 FTE workers in the South Australian economy.

Table 4.14: Comparison total economic contribution, South Australia, (AUD 2011)

	2007-08 ¹⁰	2010-11	Annual growth (%)
Value Added (\$M)	3.0	3.1	0.06
<i>Labour Income (\$M)</i>	1.7	1.7	1.05
Employment (FTE)	32	30.8	-1.36

Source: CDU, Deloitte Access Economics calculations

Growth in the South Australian tourism industry since the last time the report was undertaken has been limited. Over the three years since 2007-08 total growth in value added was just 0.19%.

Table 4.15: Economic contribution South Australia (2011)

	Passenger	Crew	Operator	Total
Expenditure (\$M)	2.2	0.6	0.7	3.5
Total economic contribution				
Value Added (\$M)	1.9	0.5	0.6	3.1
<i>Labour Income (\$M)</i>	1.1	0.3	0.3	1.7
Employment (FTE)	20	6	5	31
Direct contribution				
Value Added (\$M)	1.0	0.3	0.3	1.6
<i>Labour Income (\$M)</i>	0.6	0.2	0.2	1.0
Employment (FTE)	12	4	2	18
Indirect contribution				
Value Added (\$M)	0.9	0.3	0.3	1.5
<i>Labour Income (\$M)</i>	0.5	0.1	0.2	0.8
Employment (FTE)	8	2	2	12

Source: CDU, Deloitte Access Economics calculations

Over the modelling period 2010-11 to 2019-20 the relatively modest economic contribution of the cruise sector in 2010-11 is modelled to increase significantly in South Australia. In 2011 dollars, the total economic contribution is modelled to increase from \$3.1 million in 2010-11 to \$11.3 million in 2019-20 (see Table 4.16).

¹⁰ Data from the November Access Economics 2009 report, inflated to AUD 2011.

Table 4.16: Value added: 2010-11 to 2019-20 South Australia (2011)

	2010-11	2015-16	2019-20
Value added			
Passenger (\$M)	1.9	5.7	7.4
Crew (\$M)	0.5	1.1	1.4
Operator (\$M)	0.6	1.9	2.4
Total (\$M)	3.1	8.7	11.3
FTE			
Total	31	87	113

Source: CDU, Deloitte Access Economics calculations

Unlike the other regions of Australia future growth in the cruise industry in South Australia will be largely driven by an increase in passenger expenditure, with lower growth in crew and operator expenditure.

4.5 Western Australia

Western Australia has experienced significant growth since the previous time this report was undertaken in 2006-07, total value added has increased from \$22 million (2011 AUD) to almost \$38 million in 2010-11, total growth over the period is 68%, or almost 19% annually.

Table 4.17: Comparison total economic contribution, Western Australia, (AUD 2011)

	2007-08 ¹¹	2010-11	Annual growth (%)
Value Added (\$M)	22	37.7	18.97
Labour Income (\$M)	12	20.8	18.56
Employment (FTE)	219	317.5	13.26

Source: CDU, Deloitte Access Economics calculations

The total economic contribution of the tourism-related port activity in Western Australia is about \$38 million (AUD 2011) (see Table 4.18). Included in the value added is wages paid to employees of \$20 million, with cruise-related activity generating approximately 320 FTE workers in the Western Australian economy.

¹¹ Data from the November Access Economics 2009 report, inflated to AUD 2011.

Table 4.18: Economic contribution Western Australia (2011)

	Passenger	Crew	Operator	Total
Expenditure (\$M)	10.2	2.3	30.4	42.9
Total economic contribution				
Value Added (\$M)	8.9	2.0	26.8	37.7
<i>Labour Income (\$M)</i>	<i>5.1</i>	<i>1.2</i>	<i>14.6</i>	<i>20.8</i>
Employment (FTE)	92	25	201	317
Direct contribution				
Value Added (\$M)	4.7	1.0	13.4	19.1
<i>Labour Income (\$M)</i>	<i>2.8</i>	<i>0.7</i>	<i>7.5</i>	<i>11.1</i>
Employment (FTE)	57	16	99	171
Indirect contribution				
Value Added (\$M)	4.2	1.0	13.4	18.6
<i>Labour Income (\$M)</i>	<i>2.2</i>	<i>0.5</i>	<i>7.1</i>	<i>9.8</i>
Employment (FTE)	35	8	102	146

Source: CDU, Deloitte Access Economics calculations

Over the modelling period 2010-11 to 2019-20 the economic contribution of the cruise sector is modelled to increase significantly in WA. In 2011 dollars, the total economic contribution is modelled to increase from \$37.7 million in 2010-11 to \$125.6 million in 2019-20 (shown in Table 4.19).

Table 4.19: Value added: 2010-11 to 2019-20 Western Australia (2011)

	2010-11	2015-16	2019-20
Value added			
Passenger (\$M)	8.9	20.9	28.7
Crew (\$M)	2.0	4.2	5.5
Operator (\$M)	26.8	65.2	91.4
Total (\$M)	37.7	90.3	125.6
FTE			
Total	317	757	1,051

Source: CDU, Deloitte Access Economics calculations

4.6 Tasmania

Unlike many of the other regions in Australia Tasmania has experienced a period of significant slowdown in value added since the previous report was undertaken. Total value added over the period has fallen from \$16.1 million in 2007-08 to just under \$7 million. This is negative growth of almost 25% over the three years.

Table 4.20: Comparison total economic contribution, Tasmania, (AUD 2011)

	2007-08 ¹²	2010-11	Annual growth (%)
Value Added (\$M)	16	6.8	-24.90
Labour Income (\$M)	9	3.9	-24.69
Employment (FTE)	164	67.9	-25.44

Source: CDU, Deloitte Access Economics calculations

The total economic contribution of the tourism-related port activity in Tasmania is \$6.8 million (AUD 2011) (see Table 4.21). Included in the value added is wages paid to employees of about \$4 million, with cruise-related activity generating almost 70 FTE workers in the Tasmanian economy.

Table 4.21: Economic contribution Tasmania (2011)

	Passenger	Crew	Operator	Total
Expenditure (\$M)	4.6	1.3	1.9	7.8
Total economic contribution				
Value Added (\$M)	4.0	1.1	1.7	6.8
Labour Income (\$M)	2.3	0.7	0.9	3.9
Employment (FTE)	41	14	13	68
Direct contribution				
Value Added (\$M)	2.1	0.6	0.8	3.5
Labour Income (\$M)	1.3	0.4	0.5	2.1
Employment (FTE)	26	9	6	41
Indirect contribution				
Value Added (\$M)	1.9	0.5	0.8	3.3
Labour Income (\$M)	1.0	0.3	0.4	1.7
Employment (FTE)	16	5	6	27

Source: CDU, Deloitte Access Economics calculations

From 2010-11 to 2019-20 the economic contribution of the cruise sector is modelled to increase in Tasmania. In 2011 dollars, the total economic contribution is modelled to increase from \$6.8 million in 2010-11 to \$16.5 million in 2019-20 (see Table 4.22).

Table 4.22: Value added: 2010-11 to 2019-20 Tasmania (2011)

	2010-11	2015-16	2019-20
Value added			
Passenger (\$M)	4.0	7.7	9.9
Crew (\$M)	1.1	1.9	2.4
Operator (\$M)	1.7	3.2	4.2
Total (\$M)	6.8	12.9	16.5
FTE			
Total	68	128	163

Source: CDU, Deloitte Access Economics calculations

¹² Data from the November Access Economics 2009 report, inflated to AUD 2011.

After experiencing negative growth over the last three years, Tasmania is forecast to experience positive growth in total value added driven by strong passenger growth.

4.7 Northern Territory

The Northern Territory has experienced considerable growth over the period since 2007-08 total value added has increased by 213%, at an annualised rate of 46%. Total value added has increased from \$14.8 million in 2007-08 (2011 AUD) to more than \$46 million in 2010-11.

Table 4.23: Comparison total economic contribution, Northern Territory, (AUD 2011)

	2007-08 ¹³	2010-11	Annual growth (%)
Value Added (\$M)	14.8	46.4	46.4
Labour Income (\$M)	8.3	25.5	45.4
Employment (FTE)	135	371	40.1

Source: CDU, Deloitte Access Economics calculations

The total economic contribution of the tourism-related port activity in the Northern Territory is \$46 million (\$A 2011) (see Table 4.24). Included in the value added is wages paid to employees of just over \$25 million while the cruise-related activity generates close to 370 FTE workers in the Tasmanian economy.

Table 4.24: Economic contribution Northern Territory (2011)

	Passenger	Crew	Operator	Total
Expenditure (\$M)	7.7	0.7	44.4	52.8
Total economic contribution				
Value Added (\$M)	6.7	0.6	39.1	46.4
Labour Income (\$M)	3.8	0.4	21.3	25.5
Employment (FTE)	69	8	294	371
Direct contribution				
Value Added (\$M)	3.5	0.3	19.5	23.4
Labour Income (\$M)	2.1	0.2	11.0	13.4
Employment (FTE)	42	5	144	192
Indirect contribution				
Value Added (\$M)	3.2	0.3	19.6	23.1
Labour Income (\$M)	1.7	0.2	10.3	12.1
Employment (FTE)	27	3	149	178

Source: CDU, Deloitte Access Economics calculations

Over the modelling period 2010-11 to 2019-20 the economic contribution of the cruise sector is modelled to increase in the Northern Territory. In 2011 dollars, the total economic contribution is modelled to increase from \$46 million in 2010-11 to about \$135 million in 2019-20 (see Table 4.25).

¹³ Data from the November Access Economics 2009 report, inflated to AUD 2011.

Table 4.25: Value added: 2010-11 to 2019-20 Northern Territory (2011)

	2010-11	2015-16	2019-20
Value added			
Passenger (\$M)	6.7	14.8	19.4
Crew (\$M)	0.6	1.2	1.6
Operator (\$M)	39.1	86.8	113.8
Total (\$M)	46.4	102.9	134.8
FTE			
Total	371	820	1,075

Source: CDU, Deloitte Access Economics calculations

Growth is forecast to continue over the next decade to 2020. Growth is almost entirely driven by operator expenditure, with crew expenditure growing moderately.

5 Challenges and issues

The cruise sector in Australia has grown strongly in recent years, with average growth in passenger numbers of over 20% in the past six years. Growth is forecast to continue over the decade to 2020. Increasing passenger numbers, vessel numbers and sea days will continue to support a developing sector amid a generally weaker tourism market.

At 2.1%, the market penetration of the cruise industry in Australia is relatively low by international standards. This emphasises the developmental stage of growth in Australia, and highlights the potential for future growth in the industry. Market participants have demonstrated by their investment actions that strong growth in the market is anticipated.

However, achieving the projected levels of growth is not a given. While passenger demand for cruising is strong, infrastructure and cost challenges are emerging and could become potential inhibitor to growth in the future.

Four key areas, namely infrastructure, shipping reform, port and fuel costs are discussed below.

5.1 Infrastructure

As the number and size of cruise ships continues to grow, the major ports in Australia, Sydney and Brisbane, are faced with the challenge of providing the appropriate capacity to allow docking of ships in upcoming seasons. Docking spaces through the peak season are an upper limit to the potential number of vessels that can be accommodated.

Sydney

Sydney is the focal point of international cruise ships visiting Australia, with the Sydney Harbour experience a key attraction for many overseas visitors.

In Sydney, the overseas passenger terminal (OPT) is expected to reach capacity in 2012-13 based on forward bookings. While a new port is planned for White Bay, air draft restrictions must be taken into account for the larger boats which are unable to sail under the Sydney Harbour Bridge to access it. With the Navy no longer considering requests for berthing at Garden Island after 2013, the cruise industry in Sydney faces substantial constraints to development.

It is noted that the needs of the other users need to be taken into account when considering the infrastructure requirements of the cruise industry. For example in Sydney the Navy's operations are important to the Defence Force and their considerations must be taken into account in any proposed solution in relation to Garden Island. These needs are not necessarily in conflict with those of the cruise sector and an appropriate balance must be sought as the larger cruise vessels are unable to utilise port infrastructure west of the Bridge.

In response, the Hawke Review of Enhanced Cruise Ship Access to Garden Island (yet to be released) was commissioned and the NSW Government Passenger Cruise Terminal Steering

Committee released their report in 2009. It is necessary that the outcomes from these reports are able to effectively take into consideration the role of cruise shipping and its wider economic benefits to the Australian economy.

Brisbane

Brisbane is considered the gateway to the South Pacific. However, its current infrastructure at Portside is considered insufficient for future needs. The cruise terminal cannot be accessed by the larger cruise vessels and the gateway bridge is a barrier to the larger cruise ships navigating the Brisbane River. In the absence of other viable options, a new terminal may be required in Brisbane to support the future of the cruising industry. The result of a scoping study considered Luggage Point to be the most appropriate location for construction of additional facilities.

Potential effects of constraints

Without investment in the appropriate infrastructure, the growth of the cruise sector in Australia will be limited, with wider implications for the tourism industry and the Australian economy. Timely provision of this infrastructure is required to ensure that the pace of growth does not face port or infrastructure setbacks.

5.2 Port costs

Australian ports are among the most expensive in the world to berth at, due to a number of factors including the cost of labour. While in the main these factors cannot be changed, high and increasing costs may become a potential barrier to the medium-term growth of the cruise industry in Australia.

Overseas experience suggests that high port costs are associated with a low number of ships and the need for the port operator to recover capital and labour costs. However, while cruise ship numbers have been increasing in Australia, this has not been associated with a commensurate reduction of costs per ship, on the contrary they have been increasing, for example in Brisbane.

Moreover, given that higher costs are passed onto passengers as higher prices, to maintain demand at lower prices, operators are likely to allocate ships to a global location where costs are lower, for example the South Pacific or Asia.

Security

Safety and security on cruise ships is clearly an important issue, and ships must meet the requirements of jurisdictions and policies in terms of maintained equipment and trained staff. However, there are costs involved in ensuring these are met, and the focus should be on ways of achieving the requirements without unnecessary use of resources.

For example, there are potential issues related to on-shore screening for transit calls, whereby it is unclear that having these processes on-shore mitigates risks any better than current screening processes. This is supported by the fact that on-board screening for transit calls is preferred in locations such as the United States, Hong Kong and Singapore.

Where security measures become too cumbersome, cruises may instead prefer to remain at sea rather than entering Australian ports. Options for on-board processing and reducing processing times on shore could be explored for the benefit of the cruise sector and the wider tourism industry.

5.3 Shipping reform

The effects of the Department of Infrastructure and Transport's reform, 'Stronger Shipping for a Stronger Economy' remain uncertain as the drafting of the new law is still in development stages and has yet to be finalised.

To improve the conditions for the competitiveness of the Australian cruise shipping industry within the global cruise sector, the reform should address the economic realities faced by the sector in Australia, including:

- the flexibility and global mobility of assets; and
- the development of key maritime skills in the Australian workforce as the sector faces competition for resources from other sectors of the Australian economy.

5.4 Fuel costs

Fuel is a substantial cost to the cruise shipping industry, representing between 15% and 20% of total costs. This compares to around 25% of total costs experienced in the airline industry. As the cruise industry in Australia is affected by the world price of oil it is susceptible to international cost pressures on fuel and potential supply constraints as the world approaches peak oil. As a result, the increasing cost of fuel has the potential to be a long-term issue for the industry.

Carbon tax

The introduction of the carbon tax in Australia in 2012 is also expected to have an impact on the cruise sector, through taxation on fuel consumed during domestic voyages. It is currently unclear as to the effect of this on the domestic cruising industry, but it may limit growth in domestic voyages which generally focus on shorter cruises and more alternative destinations.

With the potential of an international tax on carbon discussed at the Durban Climate Change Conference in 2011, the implications of a carbon tax on the industry should be taken into consideration before further regulation in this space affects growth.

5.5 Summary

The provision of adequate port infrastructure is the major challenge for the cruise industry in Australia. Well-designed policy will assist the industry in cost-effectively dealing with the port and fuel costs, security screening and the effects of shipping reform.

References

- AECgroup 2011, *Economic impact assessment of the cruise shipping industry in Australia, 2010-11*, Final Report to Cruise Down Under.
- Australian Bureau of Statistics (ABS) 2010, *Australian National Accounts: Input-Output Tables 2005-06, 5409.0.55.001*, 2010.
- Australian Financial Review 2011, *Shipping Tax Makes Waves*, 8 December 2011, www.afr.com
- Carnival Australia 2011a, *Carnival Australia Submission to the Independent Review of Enhanced Cruise Ship Access to Garden Island (the Review)*.
- 2011b, *Port of Brisbane Development*, presentation.
- 2011c, *Letter to Minister Albanese RE: Office of Transport Security (OTS) maritime security policies*.
- Cruise Lines International Association (CLIA), June 2011, *The Contribution of the North American Cruise Industry to the US Economy in 2010*
- International Cruise Council Australia 2010, *Cruise Industry Report Australia 2010*, <http://www.cruising.org.au/filelibrary/files/AUSTRALIAN%20CRUISE%20INDUSTRY%20REPORT%202010%20FINAL.pdf>.
- Sherry, A 2011, *speech to Partnership Summit "Making cruising a state of mind"*, on board Dawn Princess.
- Tourism Research Australia, Tourism Forecasting Committee, *Forecasts 2011 Issue 2*

Appendix A Economic contribution studies

Contribution – the cruise industry approach

The economic contribution study outlined above has quantified measures such as value added, gross output and employment associated with the cruise industry beginning with the reference year of 2010-11. The economic contribution is a measure of the value of production by the cruise industry to the Australian economy.

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.

Measuring the economic contribution

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 (ie goods and services) generated by the entity's factors of production (ie 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 gross domestic product. Given the relationship to GDP, the value added measure can be thought of as the increased contribution to welfare.

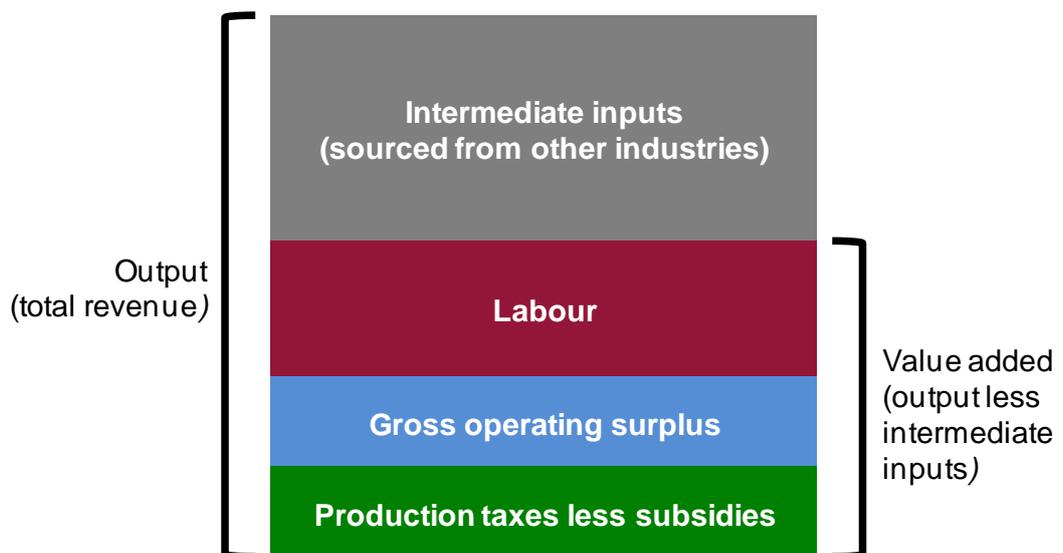
Value added is the sum of:

- Gross operating surplus (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).
- Tax on production less subsidy provided for production. This generally includes company taxes and taxes on employment. Note: given the returns to capital before tax (EBITDA) are calculated, company tax is not included or this would double count that tax.

- 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.
- **Gross output** measures the total value of the goods and services supplied by the entity. This is a broader measure than value added because it is an addition to the value added generated by the entity. It also includes the value of intermediate inputs used by the entity that flow from value added generated by other entities.
- **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.

Figure A.1 shows the accounting framework used to evaluate economic activity, along with the components that make up gross output. Gross output is the sum of value added and the value of intermediate inputs. Value added can be calculated directly by summing the payments to the primary factors of production, labour (ie salaries) and capital (ie gross operating surplus (GOS), or profit), as well as production taxes less subsidies. The value of intermediate inputs can also be calculated directly by summing up expenses related to non-primary factor inputs.

Figure A.1: Economic activity accounting framework



Source: Access Economics.

Direct and indirect contributions

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

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 cruise sector. 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.

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:¹⁴

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 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 is 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 the CGE model.

¹⁴ Productivity Commission (1999), *Australia's Gambling Industries*, Report No. 10, AusInfo, Canberra, (page 4.19).

Input-output analysis

Input-output 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 one implies some indirect activity, with higher multipliers indicating relatively larger indirect and total activity flowing from a given level of direct activity.

The input-output matrix used for Australia is derived from the Australian Bureau of Statistics 2005-06 Input-Output Tables (2010). The industry classification used for input-output tables is based on ANZSIC, with 109 sectors in the modelling framework.

Gross output

Previous reports provided for Carnival have expressed the gross output or revenue of the cruise sector. The economic contribution of the cruise shipping sector is more directly captured by the value added – that is gross output less the inputs into the sector. While gross output can provide a sense of the scale of expenditure in the cruise-related sector, value added is the chosen metric to measure the contribution the sector makes to GDP. These previous reports including The Australian Cruise Sector December 2009 outlined a \$549.1 industry total value added was associated with a \$1.2 billion gross output figure) suggest a ratio of about 2.2 for value added to gross output. This would suggest a gross output figure for 2010-11 of about \$1.9 billion.

The cruise industry

The standard framework, outlined above, provides the basis for all economic contribution studies. Adjustments to the standard framework are modelled which take into consideration particulars of the cruise industry. For example, the value added of cruise operator expenditure is equivalent to total output generated by operator expenditure less intermediate inputs such as food and beverage supplies purchased for consumption by passengers and crew during the cruise. Employment impacts take into consideration the direct and indirect impact of crew expenditure at base and transit ports, and passenger expenditure at base and transit ports as well as before and after the cruise. Employment also considers Australians employed on the cruise ships.

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