Australian Government
Department of Infrastructure and Transport
Bureau of Infrastructure, Transport and Regional Economics

RESEARCH REPORT 133

bitre

Aviation

Air passenger movements through capital and non-capital city airports to 2030–31

Bureau of Infrastructure, Transport and Regional Economics

Air passenger movements through capital and non-capital city airports to 2030–31

Report 133

Department of Infrastructure and Transport
Canberra, Australia

ISSN: 1440-9569
ISBN: 978-1-921769-92-4
November 2012/INFRA1547

An appropriate citation for this report is:

Bureau of Infrastructure, Transport and Regional Economics (BITRE), 2012, *Air passenger movements through capital and non-capital city airports to 2030–31*, Report 133, Canberra ACT.

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Foreword

This report presents forecasts of air passenger movements through Australia's five major non-capital city airports (Newcastle, Cairns, Gold Coast, Townsville and Launceston). The forecasts have been developed using econometric models of air passenger demand and the most recent economic outlook for Australia and its major trading partners.

The report complements and also updates previous BITRE long-term forecasts of air passenger movements through capital city airports. This is the first time BITRE has published air passenger forecasts for the major non-capital city airports.

The study was undertaken by Dr Krishna Hamal with data support from Mano Manoranjan. David Mitchell and Dr Gary Dolman provided comments on the draft report and Dr David Gargett contributed through the development of scenarios on oil prices.

BITRE is particularly grateful to the relevant airports for their cooperation in developing the passenger movement forecasts presented in this study. Major Australian airports periodically produce their own long-term forecasts of passenger numbers for the purposes of updating their 20-year airport Master Plans. The forecasts presented in this report will help inform preparation of those forecasts.

Gary Dolman
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November 2012

At a glance

This report presents forecasts of air passenger movements through Australia's eight capital city airports, five largest non-capital city airports and, in aggregation, all other airports to 2030–31. Capital city airports include Sydney (Kingsford-Smith), Melbourne (Tullamarine), Brisbane, Adelaide, Perth, Hobart, Darwin and Canberra airports, and the five largest non-capital city airports include Newcastle, Cairns, Gold Coast, Townsville and Launceston airports. The forecasts have been developed using econometric models of air passenger demand and the most recent economic and population outlook for Australia and all OECD countries, which is used as a proxy for Australia's major tourism source countries. OECD countries account for 70 per cent of Australia's total overseas visitor arrivals. Forecasts for the eight capital city airports update previous BITRE forecasts published in BITRE Working Paper 72 and BITRE Report 117 (BITRE 2008 and 2010).

Real economic growth, population, exchange rates, airfares and prices of travel and accommodation are the main factors influencing air passenger movements through Australian airports. According to Treasury (2010), Deloitte Access Economics (2011) and OECD (2011), the real gross domestic product of Australia and all OECD countries are forecast to increase by 2.9 and 2.3 per cent a year, respectively, over the next 20 years. The Australian dollar, which is presently at about parity with the US dollar, is projected to gradually decline to US$0.78 per Australian dollar in 2017–18 and remain at that level over the rest of the forecast period. Population is projected to grow more or less at its historical annual rate of growth over the next 20 years. Real domestic discounted airfares, which have declined since 2000–01 due to the influence of low-cost carriers on Australia's domestic routes, are expected to increase over the forecast period. Prices of domestic and overseas travel and accommodation are assumed to increase in line with inflation.

Based on these macroeconomic and population assumptions, the number of passenger movements through all Australian airports is forecast to increase by 3.7 per cent a year over the next 20 years, from 135.1 million in 2010–11 to 279.2 million in 2030–31. International and domestic passenger movements are projected to increase by 4.9 and 3.3 per cent a year over the same period to 72.1 and 207.1 million, respectively, in 2030–31.

Sensitivity analysis suggests that the variations in real GDP growth and, to a lesser extent, oil prices could have a significant impact on the number of air passenger movements through Australian airports — for every 0.5 percentage point variation in future Australian and/or OECD GDP growth, total passenger numbers would vary by approximately 0.8 percentage points, and a doubling of future real oil prices reduces air passenger movements by approximately 0.7 percentage points. In contrast, variations in the exchange rate would have a relatively small impact on air passenger movements.

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Executive summary

Introduction

This report presents forecasts of air passenger movements through Australia's eight capital city airports, five largest non-capital city airports and, in aggregation, all other airports to 2030. Capital city airports include Sydney (Kingsford-Smith), Melbourne (Tullamarine), Brisbane, Adelaide, Perth, Hobart, Darwin and Canberra airports, and the five largest non-capital city airports include Newcastle, Cairns, Gold Coast, Townsville and Launceston airports. The forecasts have been developed using econometric models of air passenger demand and the most recent economic and population outlook for Australia and all OECD countries, which are used as proxies for Australia's major tourism source countries (see Chapter 3 for details). OECD countries account for 70 per cent of Australia's total overseas visitor arrivals. Forecasts for the eight capital city airports presented in this study update previous BITRE forecasts published in BITRE Working Paper 72 and BITRE Report 117 (BITRE 2008 and 2010).

Growth in passenger movements through Australian airports has been relatively strong over the last 33 years, largely due to increases in the real income level of air passengers and lower average real airfares. Airfares have become increasingly competitive with the introduction of low-cost carriers on Australia's domestic and international routes since 2000. The total number of passenger movements through Australian airports increased by an average 5.0 per cent a year during the same period, from 27.0 million in 1977–78 to 135.1 million in 2010–11. Growth in international passenger movements has been stronger than growth in domestic passenger movements during the period.

Forecasts of likely future passenger movements are vital to the aviation industry, providing information for airport planners, investors and airlines.

Forecasting method

The forecasts of air passenger movements presented in this report were developed using econometric models, which were specified in terms of population, real income—proxied by real gross domestic product (GDP)—exchange rates, real domestic airfares and the prices of domestic and overseas travel and accommodation. Separate forecasting models were developed for domestic passenger movements and international movements of Australian residents and overseas visitors, reflecting the different factors influencing domestic and international passenger travel.

The econometric models were estimated using historical data from 1991–92 to 2010–11 except for the international passenger movements at Gold Coast Airport where international operations data limited estimation to historical data from 1994–95 to 2010–11.

Data and assumptions

Passenger income levels, population, exchange rates, airfares and prices of travel and accommodation are all statistically significant drivers of passenger movements through Australian airports. The historical data and future assumptions on these variables were obtained from ABS (2011), BTRE (2011), Deloitte Access Economics (2011), OECD (2011) and Treasury (2010) in order to use them to forecast passenger movements over the next 20 years to 2030–31. As several of the forecast assumptions are available only until 2020–21, the forecast assumptions for the period 2020–21 to 2030–31 were assumed to remain the same as those in the year 2020–21.

The real GDP of Australia and all OECD countries are forecast to increase by 2.9 and 2.3 per cent a year, respectively, over the next 20 years (Deloitte Access Economics 2011 and Treasury 2010). The Australian dollar, which is presently above parity with the US dollar, is assumed to weaken over the forecast period as the boom in the resource sector subsides with the slowing of economic growth in Australia's major resource export destinations. The exchange rate is forecast to gradually decline to US$0.78 per Australian dollar in 2017–18 and thereafter (Deloitte Access Economics 2011).

Population is projected to grow by 1.3 and 0.7 per cent a year in Australia and all OECD countries, respectively, over the next 20 years (ABS 2011). Real domestic discounted airfares, which have declined since 2000–01, due principally to increased competition from the introduction of low-cost carriers on Australia's domestic routes, are expected to increase by 0.3 per cent a year over the forecast period, mainly due to the maturation of low-cost carriers on domestic passenger growth, expected higher fuel prices and the expansion of business class and premium economy class services by early entrant low-cost carriers. Fuel prices are expected to rise over the forecast period (see Chapter 5). Prices of domestic and overseas travel and accommodation are assumed to increase in line with the inflation rate, between 2.3 and 2.7 per cent a year, over the forecast period.

Forecasts of air passenger movements

Based on the above macroeconomic and population assumptions, the estimated demand elasticities of income, exchange rates, airfares, and the prices of domestic and overseas travel, the number of passenger movements through all Australian airports is forecast to increase by 3.7 per cent a year over the next 20 years, from 135.1 million in 2010–11 to 279.2 million in 2030–31 (Table ES1). International and domestic passenger movements are projected to increase by 4.9 and 3.3 per cent a year over the same period to 72.1 and 207.1 million, respectively, in 2030–31. Around 35.6 million Australian residents travelling overseas and 36.6 million overseas visitors travelling to Australia are expected to move through Australian airports in the same year.

Passenger movements through all capital city airports are projected to grow by 3.8 per cent a year over the forecast period, from 108.9 million in 2010–11 to 230.5 million in 2030–31; whereas passenger movements through all non-capital city airports are projected to grow by 3.2 per cent a year over the same period, from 26.2 million in 2010–11 to 48.8 million in 2030–31. Passenger movements through the five largest non-capital city airports are expected

to increase by 3.9 per cent a year over the forecast period, from 13.4 million in 2010–11 to 28.7 million in 2030–31.

Table ES1 Air passenger movements by airport

	Number of movements			*Annual average growth rate*	
	Actual 1991–92	Actual 2010–11	Forecast 2030–31	Actual 1991–92 to 2010–11	Forecast 2010–11 to 2030–31
Airport	*(millions)*			*(per cent)*	
Capital city airports					
Sydney	15.2	35.8	72.0	4.6	3.6
Melbourne	10.4	28.0	60.4	5.4	3.9
Brisbane	6.7	19.9	45.1	5.9	4.2
Adelaide	3.0	7.3	13.5	4.7	3.1
Perth	3.1	10.9	25.7	6.9	4.4
Hobart	0.7	1.9	3.5	5.6	3.0
Darwin	0.6	1.8	4.2	6.3	4.2
Canberra	1.4	3.2	6.1	4.7	3.3
All capital city airports	41.0	108.9	230.5	5.3	3.8
Non-capital city airports					
Newcastle	0.1	1.2	2.2	17.9	3.1
Cairns	1.8	3.9	8.0	4.1	3.7
Gold Coast	1.5	5.5	13.1	7.1	4.4
Townsville	0.5	1.6	3.4	6.6	3.7
Launceston	0.5	1.2	2.0	5.0	2.7
Five airports total	4.3	13.4	28.7	6.1	3.9
Other airports	5.3	12.8	20.1	4.8	2.3
All non-capital city airports	9.6	26.2	48.8	5.4	3.2
All airports	50.6	135.1	279.2	5.3	3.7

Sources: BITRE (2011) and BITRE estimates.

The forecast growth rates of passenger movements are lower than their historical growth rates (Table ES1), mainly due to slower expected economic growth in Australia, the maturation of the influence of low-cost carriers on domestic passenger growth and the assumed increase in real domestic airfares and relative price of domestic and overseas travel and accommodation.

Forecasts for each individual airport are briefly discussed below.

Capital city airports

Sydney (Kingsford-Smith)

Sydney Airport (Kingsford-Smith), which is located eight kilometres south of the Sydney central business district (CBD), is Australia's largest airport in terms of passenger and freight movements. The airport has a jet curfew, which prohibits jet aircraft movements between 11.00 pm and 6.00 am, and a cap on aircraft movements of 80 aircraft per hour. It provides for scheduled passenger services to major cities around the globe. Among domestic routes, Sydney–Melbourne, Sydney–Brisbane, Sydney–Canberra, Sydney–Adelaide and Sydney–Perth are the five largest passenger routes to/from Sydney Airport.

In 2010–11, around 35.8 million passengers passed through Sydney Airport, including 11.5 million international passengers and 24.3 million domestic passengers. The total number is forecast to increase by 3.6 per cent a year in the next 20 years to 72.0 million in 2030–31. International and domestic passenger movements are projected to increase by 4.5 and 3.0 per cent a year over the same period to 27.7 and 44.3 million, respectively, in 2030–31.

The forecasts for Sydney Airport presented in this report are broadly comparable, although slightly more 'bullish', to those presented in the *Joint study on aviation capacity in the Sydney Region* by the Australian and New South Wales Governments (2012). The joint study forecast the total number of air passenger movements through Sydney Airport to increase by 3.2 per cent a year over the next 20 years to 67.7 million in 2030–31, compared with a BITRE forecast of 3.6 per cent a year over the same period to 72.0 million in 2030–31. The marginal difference in forecasts is largely due to the incorporation of an adjustment factor for the maturation of the domestic travel market over the 50-year time horizon used in the joint study, and is within the acceptable margin of modeling error.

Melbourne (Tullamarine)

Melbourne (Tullamarine) Airport, which is located 22 kilometres north-west of Melbourne CBD, is Australia's second largest airport in terms of passenger movements after Sydney Airport. Around 28.0 million passengers passed through the airport in 2010–11, including 6.3 million international passengers and 21.7 million domestic passengers. Melbourne–Sydney, Melbourne–Brisbane, Melbourne–Adelaide and Melbourne–Perth are Melbourne's top four routes in terms of passenger movements.

Jetstar also operates domestic scheduled passenger services from Avalon Airport, which commenced operations in May 2004. Presently, Avalon Airport accounts for less than 5 per cent of total passenger movements through Melbourne and Avalon airports. There has been no noticeable effect on total passenger numbers at Melbourne Airport of Avalon Airport operations. Separate forecasts for Avalon Airport could not be developed due to the unavailability of publicly available passenger movement data and for commercial confidentiality reasons.

The total number of passenger movements through Melbourne Airport is forecast to increase by 3.9 per cent a year over the next 20 years to 60.4 million in 2030–31. International and domestic passenger movements are projected to increase by 5.5 and 3.4 per cent a year over the same period to 18.3 and 42.1 million, respectively, in 2030–31.

Brisbane

Brisbane airport is located 13 kilometres from Brisbane CBD and is Australia's third largest airport in terms of passenger movements, after Sydney and Melbourne airports. Around 19.9 million passengers passed through Brisbane Airport in 2010–11, including 15.6 million domestic passengers and 4.3 million international passengers. Brisbane–Sydney and Brisbane–Melbourne are Brisbane's first and second largest capital city routes in terms of domestic passenger movements.

The total number of passenger movements through Brisbane Airport is forecast to increase by 4.2 per cent a year over the next 20 years to 45.1 million in 2030–31. International and domestic passenger movements are projected to increase annually by 4.9 and 4.0 per cent over the same period to 11.1 and 34.0 million in 2030–31, respectively.

Adelaide

Adelaide Airport, which is located approximately six kilometres west of the Adelaide CBD, is Australia's fifth largest airport in terms of passenger movements. Around 7.3 million air passengers passed through Adelaide Airport in 2010–11, including 6.7 million domestic passengers and 0.6 million international passengers. Adelaide–Melbourne, Adelaide–Sydney, Adelaide–Brisbane and Adelaide–Perth are Adelaide's first, second, third and fourth largest capital city routes in terms of passenger movements.

The number of passenger movements through Adelaide Airport is forecast to increase by 3.1 per cent a year over the next 20 years to 13.5 million in 2030–31. International and domestic passenger movements are expected to increase annually by 4.3 and 3.0 per cent over the same period to 1.3 and 12.2 million, respectively, in 2030–31. Around 0.7 million Australian residents and 0.6 million overseas visitors will pass through the airport in 2030–31.

Perth

Perth Airport, which is located 12 kilometres east of the Perth CBD, is the fourth largest Australian airport in terms of passenger movements. In 2010–11, around 10.9 million passengers travelled through Perth Airport, comprising 3.3 million international passengers and 7.6 million domestic passengers. Perth–Melbourne and Perth–Sydney are Perth's two main routes in terms of passenger movements.

The total number of passenger movements through Perth Airport is forecast to increase by 4.4 per cent a year over the next 20 years to 25.7 million in 2030–31. International and domestic passenger movements are projected to increase annually by 5.2 and 4.0 per cent to 9.1 and 16.6 million, respectively, in 2030–31.

Hobart

Hobart Airport, which is located 17 kilometres from Hobart CBD, is the major passenger airport in Tasmania. Hobart Airport has regular passenger services to and from major domestic destinations, but not to and from international destinations. Hobart–Melbourne and Hobart–Sydney are Hobart's first and second largest air routes in terms of passenger movements.

The number of passenger movements through Hobart Airport is forecast to increase by 3.0 per cent a year over the next 20 years, from 1.9 million in 2010–11 to 3.5 million in 2030–31.

Darwin

Darwin International Airport, which is located 13 kilometres from the Darwin CBD, provides facilities for airlines to move international, domestic and regional passengers and freight. In 2010–11, around 1.8 million passengers passed through Darwin Airport, including 0.4 million

international passengers and 1.4 million domestic passengers. Darwin–Brisbane, Darwin–Adelaide and Darwin–Melbourne are Darwin's first, second and third largest capital city routes in terms of domestic passenger movements.

The total number of passenger movements through Darwin Airport is forecast to increase by 4.2 per cent a year over the next 20 years to 4.2 million in 2030–31. International and domestic passenger numbers are projected to grow by 4.4 and 4.1 per cent per annum over the forecast period to 1.0 and 3.2 million, respectively, in 2030–31.

Canberra

Canberra International Airport, which is located six kilometres from Canberra CBD, provides regular air passenger services to and from most major domestic destinations. Although the airport is used for international chartered and VIP flights, it does not have scheduled international passenger services at present. Canberra–Sydney, Canberra–Melbourne and Canberra–Brisbane are the first, second and third largest capital city routes in terms of domestic passenger movements to and from Canberra Airport.

The number of passenger movements through Canberra Airport is projected to increase by 3.3 per cent a year over the forecast period, from 3.2 million in 2010–11 to 6.1 million in 2030–31.

These forecasts are broadly similar to the Canberra airport passenger movement forecasts produced for the *Joint study on aviation capacity in the Sydney Region* (Australian and NSW Governments 2012), which forecast total passenger movements of around 6.5 million by 2035.

Non-capital city airports

Newcastle

Newcastle Airport, which is located in Williamtown, is 25 kilometres north of Newcastle CBD and 175 kilometres north of Sydney. The airport was originally constructed as Williamtown Royal Australian Air Force Military Base in 1941. All major domestic airlines provide passenger services to and from Newcastle Airport to all the major domestic destinations along the east coast of Australia. The airport does not presently have international passenger services.

In 2010–11, around 1.2 million passengers passed through Newcastle Airport. The number is forecast to increase by 3.1 per cent a year over the next 20 years to 2.2 million in 2030–31.

These forecasts are below the joint study airport passenger movement forecasts, which predict total air passenger movements at Newcastle Airport to grow to 2.0 million passengers in 2020 and 3.2 million by 2035 (Australian and NSW Governments 2012). The difference is mainly attributable to differences in forecast growth between 2010 and 2020. In turn, BITRE's forecasts imply stronger growth than Newcastle Airport's Master Plan forecasts, which predicted 1.5 million air passenger movements in 2025, compared with BITRE's forecast of 1.9 million in the same year.

Cairns

Cairns Airport, which is situated seven kilometres from Cairns CBD, is Australia's second largest non-capital city airport in terms of passenger movements. It provides air services to several regional, domestic and international destinations, including Brisbane, Gold Coast, Sydney, Melbourne, Perth, Darwin, Townsville, Alice Springs, Ayers Rock (Uluru), Auckland, Tokyo, Hong Kong, Guam, Port Moresby and Singapore.

In 2010–11, around 3.9 million passengers passed through Cairns Airport, including 0.5 million international passengers and 3.3 million domestic passengers. The total number is forecast to increase by 3.7 per cent a year over the next 20 years to 8.0 million in 2030–31. International and domestic movements are projected to increase by 4.0 and 3.6 per cent a year over the same period to 1.2 and 6.8 million, respectively, in 2030–31.

Gold Coast

Gold Coast Airport, also known as Coolangatta Airport, is Australia's largest non-capital city airport in terms of passenger movements. It is located some 100 kilometres south of Brisbane and 25 km south of Surfers Paradise. The airport has been in operation since 1936 at Coolangatta. It provides air passenger services to both domestic and international destinations.

In 2010–11, around 5.5 million passengers passed through Gold Coast Airport, including 0.8 million international passengers and 4.7 million domestic passengers. The total number is forecast to increase by 4.4 per cent a year over the next 20 years to 13.1 million in 2030–31. International and domestic passenger movements are projected to increase by 6.0 and 4.1 per cent a year over the same period to around 2.4 and 10.6 million, respectively, in 2030–31.

Townsville

Townville Airport, which lies five kilometres west of Townsville CBD, is a regional air hub for North Queensland and has direct air services to/from Brisbane, Melbourne, Sydney and regional centers in North Queensland.

Around 1.6 million passengers passed through Townsville Airport in 2010–11. The majority, 99.5 per cent, were domestic passengers and only 0.5 per cent international passengers. Total passenger numbers are forecast to grow by 3.7 per cent a year over the next 20 years to 3.4 million in 2030–31. Domestic passenger movements are forecast to increase by 3.7 per cent a year over the forecast period to 3.4 million in 2030–31, whereas international passenger movements are expected to increase by 4.4 per cent a year during the same period to 19 000 in 2030–31.

Launceston

Launceston Airport, previously known as "Western Junction", is located 16 kilometres south of Launceston CBD. It provides passenger services on domestic routes only.

Around 1.2 million passengers passed through Launceston Airport in 2010–11. The number is forecast to increase by 2.7 per cent a year over the next 20 years to 2.0 million in 2030–31.

Other airports

In this study, 'other airports' refer to all Australian airports, excluding the eight capital city airports (Adelaide, Brisbane, Canberra, Darwin, Hobart, Melbourne, Perth and Sydney) and the five largest non-capital city airports (Cairns, Townsville, Gold Coast, Newcastle and Launceston). Domestic segments dominate passenger movements through other airports, accounting for 99.8 per cent of total passenger movements.

In 2010–11, around 12.8 million domestic passengers and 27 000 international passengers passed through 'other' airports. The total number is forecast to increase by 2.3 per cent a year over the next 20 years to 20.1 million in 2030–31. Almost all of the additional passengers are expected to be domestic passengers, with only 30 000 international passengers projected to transit other airports in 2030–31.

Sensitivity Analysis

Sensitivity analysis was carried out to assess the possible impact of variations in economic growth, oil prices and exchange rates on the forecast number of air passenger movements through Australian airports. Results of the analysis suggest that an increase of 0.5 percentage points in the base case GDP growth rate would increase the number of air passenger movements through all airports by approximately 0.8 percentage points per annum, to grow by 4.5 per cent a year over the next twenty years, whereas a decline of 0.5 percentage points in the base case GDP growth rate would result in an approximate 0.8 percentage point per annum decline in the forecast rate of growth in total air passenger movements through Australian airports, to 2.9 per cent per annum over the same period. The impact of higher/lower average annual GDP growth varies by airport with the largest range of variation at Melbourne, Brisbane, Perth, Darwin, Newcastle and Gold Coast airports.

Under the base case, the average price of oil is assumed to increase from around US$104.09 per barrel in 2011 to US$117.00 per barrel in 2030 and total air passenger movement numbers are forecast to increase by 3.7 per cent a year over the forecast period. A low oil price scenario—characterised by a decline in oil prices from US$ 104.09 per barrel in 2011 to US$ 50.00 per barrel in 2017 followed by a gradual increase to US$ 90.00 per barrel in 2030—would result in a 0.1 percentage point per annum increase in the rate of growth in air passenger movement numbers, to 3.8 per cent per annum over the next twenty years. Under the high oil price scenario—characterised by a decline in oil prices from US$104.09 per barrel in 2011 to US$100.00 per barrel in 2012 and thereafter gradually increasing to US$230.00 per barrel in 2030—would result in a 0.7 percentage point per annum decline in the rate of growth in air passenger movement numbers through Australian airports, to average 3.0 per cent per annum over the forecast period.

Lastly, under the base case the value of the Australian dollar is projected to gradually decline to US$0.78 in 2017–18 and remain around that level thereafter. Under the high dollar value scenario, the Australian dollar remains at par with the US dollar over the forecast period, and the number of air passenger movements through all airports increases by an additional 0.03 percentage points a year—over the base case growth rate. Under the low dollar value scenario, the Australian dollar gradually declines from its current level to US56 cents per Australian dollar in 2017–18 and remains at that level thereafter, total passenger movements would shrink by 0.03 percentage points per year relative to the base case scenario.

CHAPTER 1
Introduction

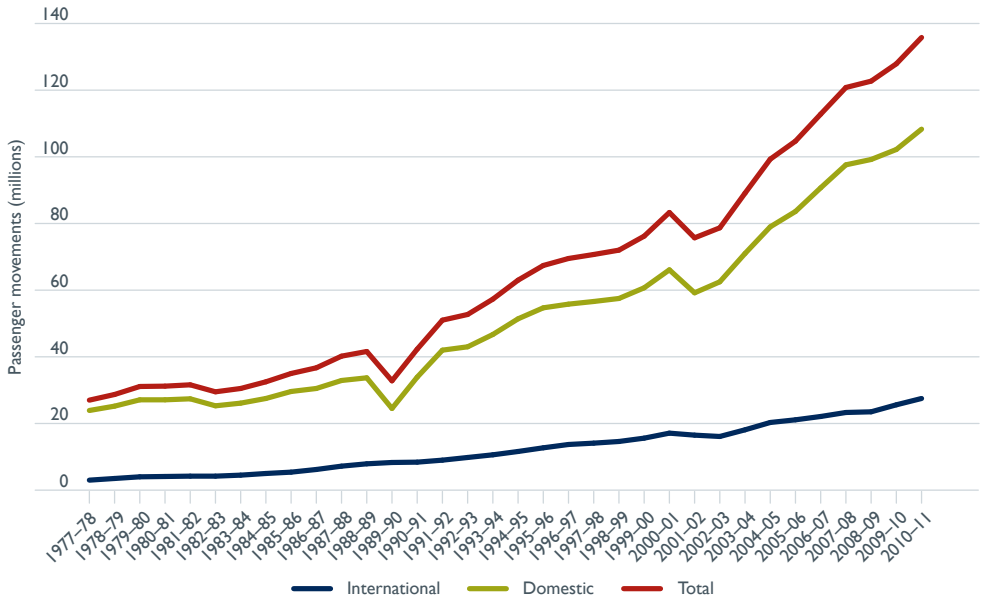
Introduction

This report presents forecasts of air passenger movements through Australia's eight capital city airports, five largest non-capital city airports and, in aggregation, all 'other airports' to 2030. Capital city airports include Sydney, Melbourne, Brisbane, Adelaide, Perth, Hobart, Darwin and Canberra airports, and the five largest non-capital city airports include Newcastle, Cairns, Gold Coast, Townsville and Launceston airports. The forecasts have been developed using airport specific econometric models of air passenger demand and the most recent economic and population outlook for Australia and all OECD countries, which are used as proxies for Australia's major tourism source countries. OECD countries account for 70 per cent of Australia's total overseas visitor arrivals. Forecasts for the eight capital city airports presented in this study update previous BITRE forecasts published in Working Paper 72 and Report 117 (BITRE 2008 and 2010). This is the first time BITRE has published air passenger forecasts for the five largest non-capital city airports.

Passenger movements through Australian airports have been growing strongly over the last 33 years, largely due to increasing real incomes and decreasing airfares making air travel more affordable. Airfares have become increasingly competitive since 2000, following the introduction of low-cost carriers on Australia's domestic and international routes. The only interruptions to long-term growth in Australian aviation have been several major events, namely the pilots' strike in Australia in 1989–90, the 9/11 terrorist attacks in New York and the collapse of Ansett Australia Airlines in 2001–02, the Severe Acute Respiratory Syndrome (SARS) epidemic and Bali bombings in 2002–03, and the Global Financial Crisis (GFC) in 2008–09. Outside of these events, the long term trend in air passenger movements remained generally positive during the period. Total air passenger movements have increased by an average 5.0 per cent a year since 1977–78, from 27.0 million in 1977–78 to 135.1 million in 2010–11 (Figure 1.1).

The number of international and domestic passenger movements has increased annually by 6.9 and 4.7 per cent since 1977–78, to 27.6 and 107.5 million, respectively, in 2010–11. Around 15.1 million Australian residents and 12.6 million overseas visitors passed through Australian airports in 2010–11.

Figure 1.1 Air passenger movements through all Australian airports



Sources: BITRE (2011) and BITRE estimates.

Objectives

The main objectives of this study are:

- to forecast the number of domestic and international air passenger movements through Australian airports to 2030–31
- to develop separate forecasts of air passenger movements for Australia's five largest non-capital city airports
- to update forecasts of air passenger movements for Australian's eight capital city airports.

Outline of the report

The econometric models that were used to forecast air passenger movements are presented in Chapter 2. Data sources and key assumptions on macroeconomic and population variables are discussed in Chapter 3. In Chapter 4, forecasts of passenger movements are discussed in detail. In Chapter 5, sensitivity analysis was carried out to assess the possible impact of variations in economic growth, oil prices and exchange rates on the forecast number of air passenger movements through Australian airports. Chapter 6 presents a comparison of forecasts presented in this report with previous BITRE forecasts and forecasts prepared by other organisations, and concludes with some final remarks.

CHAPTER 2

Airport passenger forecasting models

Introduction

In this study, forecasts of air passenger movements through the eight capital city airports and the five largest non-capital city airports were developed using econometric models. There are three distinct segments of air passenger movements:

1. International movements of Australian residents
2. International movements of overseas visitors
3. Domestic movements of all passengers

Separate forecasting models were developed for each market segment, and for each airport, to account for the influence of different factors in each market segment. For example, real income levels of Australians largely influences international and domestic movements of Australian residents, whereas the real income level of overseas visitors drives the international and domestic movements of overseas visitors to and from Australia and within Australia.

Australian aviation statistics separately enumerate domestic passenger movements by domestic airlines and regional airlines. Domestic airlines are defined as those airlines performing regular public transport (RPT) services primarily between capital cities and major tourist centres. They include Qantas jet operations, Jetstar, Virgin Blue and Tiger Airways. Regional airlines include those airlines performing RPT services primarily to regional centres. They include Rex, QantasLink, Skywest, Airnorth, etc. In this study, domestic and regional airline passenger traffic has been summed for modelling purposes. Separate forecasting models for regional airline passenger movements were initially estimated to develop separate forecasts of regional airline passenger movements through Australian airports. However, because regional airline passenger numbers fluctuated significantly at some airports, sometimes due to replacement of regional airline services by domestic airlines and vice versa, those models did not perform well – the estimated parameters had unexpected signs and magnitude. Hence, passenger movements of regional and domestic airlines were combined together to estimate total passenger demand.

Single equation econometric models in a double-logarithm functional form have been used to forecast passenger movements through Australian airports. The models are chosen in preference to time-trend or univariate time-series models because they can accommodate the influence of multiple explanatory variables on passenger movements. Specified in a double-logarithmic linear functional form, the models are easy to estimate, provide superior fit and the estimated parameters can be directly interpreted as elasticities. The models have been widely used in many tourism and transport demand-forecasting studies.

The econometric models include population, income, exchange rates, domestic airfares and the prices of domestic and overseas travel and accommodation. Most of the models were estimated using historical annual data covering the period 1991–92 to 2010–11. Models of international movements through Gold Coast Airport were estimated using data for the period 1999–2000 to 2010–11 — when regular international passenger services commenced at the airport.

A detailed discussion on the specification and estimation of the econometric models is presented in the next three sections.

International movements of Australian residents

The model of international movements of Australian residents is specified in terms of population, real income proxied by real gross domestic product (GDP), the relative price of overseas travel and accommodation and some dummy variables (see equation 2.1).

$$\ln PCIMAR_{it} = \beta_{0i} + \beta_{1i} \ln PCRGDPAU_t + \beta_{2i} \ln RPOTAAU_t + \beta_{3i} \ln EUSAU_t + \sum_j \beta_{4ij} DUMMY_{jt} + \varepsilon_{it} \quad (2.1)$$

where:

- $PCIMAR_i$ = Per capita international movement of Australian residents through the *i*th airport in thousands
- PCRGDPAU = Per capita real gross domestic product in Australia in billion dollars
- RPOTAAU = Relative price of overseas travel and accommodation for Australian residents (that is, the ratio of the price of travel and accommodation in overseas destinations and the price of travel and accommodation in Australia)
- EUSAU = Exchange rate in US dollars per Australian dollar
- $DUMMY_j$ = Dummy variables to capture large variation in international movements of Australian residents due to events such as the Sydney Olympic games, 9/11 terrorism incident in the USA, Bali bombings, the SARS epidemic and the Global financial crisis
- ε = error term
- β's = regression coefficients
- t = time subscript.

In the model, passenger movements and real GDP are included on a per capita basis, mainly to avoid the consequences of possible collinearity between population and real income. The estimated demand elasticities and the adjusted R-square values of the estimated models, which indicate the goodness of fit of the forecasting models, are presented in Table 2.1.

Table 2.1 Estimated demand elasticities and adjusted R-square values of international movement model of Australian residents by airport*

	Elasticity			
Airport	Real income	Relative price**	Exchange rate (US$/A$)	Adjusted R-square
Capital city airports				
Sydney	1.771	–0.491	0.363	0.99
Melbourne	2.011	NS	0.463	0.96
Brisbane	1.607	–0.676	0.252	0.97
Adelaide	0.645	–1.561	NS	0.89
Perth	2.131	–0.912	NS	0.96
Darwin	1.674	–0.268	NS	0.90
Non-capital city airports				
Cairns	0.280	–0.315	NS	0.71
Gold Coast	6.307	NS	NS	0.78
Townsville	NS	–8.471	NS	0.33
Other airports	NS	–0.727	NS	0.40

* Canberra, Hobart, Launceston and Newcastle airports do not have regular international passenger services and are not included.

** The variable is own price variable for Cairns and other airports.

NS = Not statistically significant.

Source: BITRE estimates.

The number of international passenger movements through Townsville Airport is not only small, but it has fluctuated significantly over the last 20 years. As a result, the forecasting models of international movements at Townsville Airport, when estimated using the 20-year data, did not perform well, and the estimated elasticities are relatively higher than those observed for other Australian airports. Therefore, forecasts of international movements through Townsville Airport have been developed by taking account of the fact that the absolute values of demand elasticities decline with the maturation of the international travel segment over the next twenty years, as well as on the basis of future assumptions on population, income, prices and exchange rates.

The adjusted R-square values presented in Table 2.1 suggest that the estimated models of international movements of Australian residents are a good fit for all individual airports, except for Townsville Airport and Other airports, with an adjusted R-square value ranging from 0.71 to 0.99. The adjusted R-square value for Townsville Airport model is observed to be 0.33 and that of Other airports 0.40.

According to the estimated coefficients, the number of international movements of Australian residents is positively influenced by the per capita real income of Australian residents and exchange rates and negatively influenced by the relative price of overseas travel and accommodation (own-price).

The estimated income, price and exchange rate elasticities appear to be reasonable for all airports except Gold Coast and Townsville airports. The income elasticity is relatively large for Gold Coast Airport and the price elasticity is relatively large for Townsville Airport, which is attributed to the fact that these airports have only recently commenced servicing international air routes, and the number of Australian resident movements has increased significantly within a short period of time and from a low base — from 4 000 in 1999–00 to 297 000 in 2010–11

in the case of Gold Coast Airport and from 600 in 1996–97 to 6 600 in 2010–11 in the case of Townsville Airport. The rapid growth in passenger numbers produces the higher income and price elasticity estimates. These high elasticity values are expected to decline over time as the market for international travel by Australian residents through these airports matures, and are assumed to decline gradually to the equivalent elasticities of Brisbane Airport by the end of year ten of the forecast period.

The estimated elasticities indicate that a 1 per cent increase (decrease) in per capita real income level of Australian residents will increase (decrease) the number of international movements by Australian residents by 0.6 per cent in Adelaide, 1.6 per cent in Brisbane, 1.7 per cent in Darwin, 2.0 per cent in Melbourne, 2.1 per cent in Perth, 1.8 per cent in Sydney, 0.3 per cent in Cairns and 6.3 per cent in Gold Coast. Similarly, a 1 per cent increase (decrease) in the relative price of travel and accommodation will cause the number of international movements of Australian residents to decrease (increase) by 1.6 per cent in Adelaide, 0.7 per cent in Brisbane, 0.3 per cent in Darwin, 0.9 per cent in Perth, 0.5 per cent in Sydney, 0.3 per cent in Cairns, 8.5 per cent in Townsville and 0.7 per cent in other airports.

Exchange rates were found to be significant only for the three largest Australian airports — Sydney, Melbourne and Brisbane, but not for other airports. A 1 per cent increase (decrease) in the number of US dollars per Australian dollar will increase (decrease) the number of international movements of Australian residents by 0.3 per cent through Brisbane, 0.5 per cent through Melbourne and 0.4 per cent through Sydney.

International movements of overseas visitors

The econometric model of international movements of overseas visitors is specified in terms of population, real foreign income (proxied by OECD GDP), the price of domestic travel and accommodation in Australia, exchange rates and some dummy variables (see equation 2.2).

$$\ln PCIMOV_{it} = \alpha_{1i} \ln PCRGDPOE_t + \alpha_{2i} \ln PDTAAU_t + \alpha_{3i} \ln EUSAU_t + \sum_j \alpha_{4ij} DUMMY_{jt} + u_{it} \quad (2.2)$$

where:

$PCIMOV_i$ = Per capita international movements of overseas visitors through the *i*th airport in thousands

PCRGDPOE = Per capita real gross domestic product (GDP) in OECD countries in billion US dollars

PDTAAU = Price of domestic travel and accommodation in Australia

u = error term

α's = regression coefficients.

EUSAU and DUMMY variables and i, j and t subscripts have the same meaning as defined in equation (2.1).

As in the earlier model, passenger movements and real GDP are included on a per capita basis to avoid the consequences of possible collinearity between population and real income.

Since OECD countries account for around 70 per cent of Australia's total overseas visitor arrivals, the population and real income of all OECD countries are used as proxies for the population and real income of overseas visitors to Australia. Since time-series data on the price of domestic travel and accommodation in OECD countries are not available, the aggregate consumer price index of the OECD countries is used as a proxy for the price of domestic travel and accommodation in the OECD countries.

Visitor arrivals from China and India have been growing at a significantly higher rate in recent years, implying that these countries will be a growing component of Australia's inbound tourism in near future. However, the influence of their economic growth on air passenger movements through Australian airports has not been directly included in passenger movement forecasts presented in this report as forecasts of visitor arrivals have been developed on aggregate level, not by visitor source market. The influence of Chinese and Indian economic growth on Australia's visitor arrivals is indirectly captured in OECD GDP in the sense that the Chinese and Indian economic growth depends largely on the economic growth of OECD countries, mainly US, Japan, UK, Germany and Italy. These OECD countries fall within the top ten export destinations of China and India and account for a significant proportion of total exports from China and India.

The estimated elasticities and the adjusted R-square values of the estimated overseas visitor movement models are presented in Table 2.2. The adjusted R-square values suggest that the estimated models for all airports, except for Townsville and other airports, fit the data well, with adjusted R-square values ranging from 0.61 to 0.99. In other words, the models have a high predictive power. Hence, they are expected to provide reliable forecasts of international movements of overseas visitors.

In the case of Townsville and other airports, the adjusted R-square values are observed to be relatively low, 0.31 for Townsville Airport and 0.48 for other airports, largely due to the fact that these airports do not have a large number of overseas visitors and, as mentioned earlier, the number has fluctuated significantly over the short historical period.

Table 2.2 Estimated demand elasticities and adjusted R-square values of international movement model of overseas visitors by airport*

	Elasticity			
Airport	Real income	Own price	Exchange rate	Adjusted R-square
Capital city airports				
Sydney	2.031	NS	–0.113	0.95
Melbourne	3.537	–0.388	–0.094	0.99
Brisbane	3.071	–0.503	–0.333	0.94
Adelaide	2.310	NS	–0.292	0.92
Perth	2.483	NS	–0.133	0.97
Darwin	1.921	–0.566	–0.293	0.81
Non-capital city airports				
Cairns	2.274	–0.646	NS	0.61
Gold Coast	2.355	NS	NS	0.61
Townsville	NS	–2.618	NS	0.31
Other airports	NS	–1.834	NS	0.49

* At the moment, Canberra, Hobart, Newcastle and Launceston do not have regular international passenger services.

NS = Not statistically significant.

Source: BITRE estimates.

According to the estimated elasticities, the number of international movements of overseas visitors is positively influenced by the per capita real income of visitors, and negatively influenced by the price of domestic travel and accommodation in the Australia and the exchange rate, expressed in US dollars per Australian dollar. The level of per capita real income is the main driver of the international movements of overseas visitors passing through the eight capital city airports, and Cairns and Gold Coast airports, whereas the price of travel and accommodation is observed to be the main factor influencing international movements of overseas visitors passing through Townsville and other airports. The estimated income elasticities suggest that a 1 per cent increase (decrease) in the per capita real income of overseas visitors will result in an increase (decrease) in the number of international movements of overseas visitors by 2.3 per cent in Adelaide, 3.1 per cent in Brisbane, 1.9 per cent in Darwin, 3.5 per cent in Melbourne, 2.5 per cent in Perth, 2.0 per cent in Sydney, 2.3 per cent in Cairns and 2.4 per cent in Gold Coast. Similarly, the estimated own-price elasticities indicate that a 1 per cent decrease (increase) in the domestic price of travel and accommodation in Australia will lead to an increase (decrease) in the number of international movements of overseas visitors by 0.5 per cent in Brisbane, 0.6 per cent Darwin, 0.4 per cent in Melbourne, 0.6 per cent in Cairns, 2.6 per cent in Townsville and 1.8 per cent in other airports.

The influence of exchange rates on the number of international movements of overseas visitors is relatively low and was significant only for capital city airports. A 1 per cent decrease (increase) in the value of the Australian dollar relative to the US dollar will increase (decrease) the number of international movements of overseas visitors by 0.3 per cent in Adelaide, Brisbane and Darwin, and by 0.1 per cent in Melbourne, Perth and Sydney.

The 9/11 terrorism incident, Bali bombings and the SARS outbreak dummy variables account for most of the adverse impact on the international movements of overseas visitors through Australian airports. A Sydney-specific Olympic Games dummy accounts for the significant positive impact on the international movements of overseas visitors through Sydney Airport in 2000.

Domestic passenger movements

The domestic airline passenger movement model is specified in terms of population, real income (proxied by real GDP), real discounted domestic airfares and some dummy variables (see equation 2.3).

$$\ln PCDAPM_{it} = \gamma_{1i} \ln PCRGDPAU_t + \gamma_{2i} \ln RDDAFAU_t + \sum_j \gamma_{3ij} DUMMY_{jt} + v_{it} \quad (2.3)$$

where:

$PCDAPM_i$ = Per capita domestic airline passenger movements through the *i*th airport in thousands

RDDAFAU = Real discounted domestic airfares in Australia

PCRGDPAU and DUMMY have the same meaning as those defined in the earlier equations

γ's = regression parameters

v = error term.

The domestic passenger movement model was estimated using historical data from 1991–92 to 2010–11. The estimated elasticities and the adjusted R-square values of the estimated models are presented in Table 2.3.

According to the adjusted R-square values, the estimated domestic passenger movement models for all capital city and non-capital city airports, except for Newcastle, fit the data well – the adjusted R-square values range from 0.71 to 0.98. The adjusted R-square value for Newcastle Airport is observed to be 0.61. The high value of the adjusted R-squares suggests that the estimated models have high predictive power.

The estimated demand elasticities imply that per capita real income of passengers and real discounted domestic airfares are the main drivers of domestic passenger movements though Australian airports. Domestic passenger travel demand is more sensitive to changes in per capita incomes than airfares. The model estimates imply a 1 per cent increase (decrease) in the level of per capita real income of domestic air passengers will result in the number of domestic passenger movements increasing (decreasing) by 1.2 per cent in Adelaide, 1.6 per cent in Brisbane, 1.0 per cent in Canberra, 2.0 per cent in Darwin, 1.3 per cent in Hobart and Melbourne, 1.9 per cent in Perth and 1.1 per cent in Sydney. Similarly, a 1 per cent decrease (increase) in real discounted domestic air fares will cause the number of domestic air passenger movements to increase (decrease) by 0.2 per cent in Adelaide, Melbourne, Cairns, Gold Coast and Launceston, 0.3 per cent in Brisbane, Canberra, Perth and other airports, 0.5 per cent in Hobart and Townsville. The influence of real discounted domestic airfares on domestic passenger movements through Newcastle Airport is relatively negligible.

Table 2.3 Estimated demand elasticities and adjusted R-square values of domestic airline passenger movement model by airport

	Elasticity		
Airport	Real income	Real airfare	Adjusted R-square
Capital city airports			
Sydney	1.072	–0.149	0.97
Melbourne	1.254	–0.249	0.98
Brisbane	1.588	–0.297	0.98
Adelaide	1.206	–0.196	0.98
Perth	1.875	–0.307	0.97
Hobart	1.324	–0.480	0.98
Darwin	2.004	–0.129	0.96
Canberra	1.017	–0.257	0.95
Non-capital city airports			
Newcastle	2.405	NS	0.61
Cairns	1.174	–0.207	0.97
Gold Coast	1.869	–0.249	0.98
Townsville	1.623	–0.451	0.97
Launceston	1.345	–0.169	0.71
Other airports	0.842	–0.327	0.95

NS = Not statistically significant.

Source: BITRE estimates.

CHAPTER 3

Data and forecast assumptions

Data

The historical data used to estimate the passenger movement models were obtained from several different sources. Data on international and domestic air passenger movements, population, GDP, exchange rates, discounted domestic airfare and the prices of domestic and overseas travel and accommodation were sourced from ABS (2011), BTRE (2011), Deloitte Access Economics (2011) and OECD (2011).

Assumptions

Long-run assumptions on population and macroeconomic variables were used in the estimated air passenger movement models, presented in Chapter 2, to develop the long-run forecasts of passenger movements through capital city and non-capital city airports. The most recent long-run assumptions on population and macroeconomic variables were obtained from Treasury (2010), Deloitte Access Economics (2011) and OECD (2011). Some of these forecast assumptions are available only to 2020–21, and where this is the case, it was assumed that growth in GDP, travel and accommodation prices and real domestic airfares between 2020–21 and 2030–31 would be the same as in 2020–21. A brief discussion of the assumptions is presented in the following sections.

Population

The population of Australia and all OECD countries grew by 1.4 and 0.7 per cent a year, respectively, over the last 19 years (Table 3.1), and it is expected to grow more or less at the same rate over the next 20 years to around 29.6 million persons in Australia by 2030–31 and 1.4 billion persons in all OECD countries by 2030–31. Continued population growth in Australia and OECD countries will continue to contribute to growth in Australian air passenger movements.

The population of Queensland, Western Australia and the Northern Territory are projected to increase at a relatively higher rate than the rate of population growth in other states and territories of Australia. Population is expected to increase by 1.9 per cent per annum in Queensland and 1.7 per cent per annum in Western Australia and the Northern Territory over the forecast period.

Table 3.1 Population growth rates

Year	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Australia	OECD
						(per cent)				
2000–01	1.3	1.3	1.8	0.4	1.4	0.2	1.1	1.1	1.4	1.1
2001–02	1.1	1.3	2.2	0.6	1.4	0.7	1.0	1.2	1.2	0.7
2002–03	0.7	1.2	2.5	0.6	1.3	1.2	0.4	1.0	1.2	0.7
2003–04	0.6	1.2	2.4	0.6	1.5	0.8	0.8	0.6	1.2	0.7
2004–05	0.6	1.3	2.4	0.7	1.6	0.8	1.8	0.7	1.3	0.7
2005–06	0.9	1.5	2.4	0.9	2.0	0.7	2.2	1.1	1.5	0.7
2006–07	1.1	1.7	2.5	1.1	2.4	0.8	1.9	1.6	1.8	0.7
2007–08	1.5	1.9	2.6	1.1	2.8	1.1	2.4	1.6	2.0	0.7
2008–09	1.6	2.2	2.8	1.2	3.3	0.9	2.6	1.8	2.1	0.7
2009–10	1.4	2.0	2.1	1.3	2.3	0.7	1.9	1.8	1.9	0.7
2010–11	1.2	1.5	1.7	0.9	2.2	0.7	0.6	1.8	1.6	0.7
2011–12	**1.2**	**1.5**	**1.7**	**0.9**	**2.1**	**0.6**	**1.1**	**1.5**	**1.5**	**0.7**
2012–13	**1.3**	**1.5**	**1.7**	**0.9**	**2.0**	**0.4**	**1.6**	**1.2**	**1.5**	**0.7**
2013–14	**1.3**	**1.4**	**1.8**	**0.9**	**1.9**	**0.3**	**1.6**	**1.1**	**1.5**	**0.7**
2014–15	**1.2**	**1.4**	**1.9**	**0.9**	**1.8**	**0.1**	**1.7**	**1.1**	**1.4**	**0.7**
2015–16	**1.2**	**1.4**	**2.0**	**0.9**	**1.8**	**0.0**	**1.8**	**1.0**	**1.4**	**0.7**
2016–17	**1.1**	**1.3**	**2.1**	**0.8**	**1.8**	**–0.1**	**1.9**	**0.9**	**1.4**	**0.7**
2017–18	**1.1**	**1.3**	**2.1**	**0.8**	**1.8**	**–0.1**	**2.0**	**0.9**	**1.4**	**0.7**
2018–19	**1.1**	**1.3**	**2.0**	**0.8**	**1.7**	**–0.1**	**2.0**	**0.9**	**1.4**	**0.7**
2019–20	**1.1**	**1.3**	**2.0**	**0.8**	**1.7**	**–0.1**	**1.8**	**0.9**	**1.3**	**0.7**
2020–21	**1.1**	**1.3**	**1.9**	**0.8**	**1.7**	**–0.1**	**1.7**	**0.9**	**1.3**	**0.7**
2021–22 to 2030–31	**1.1**	**1.3**	**1.9**	**0.8**	**1.7**	**–0.1**	**1.7**	**0.9**	**1.3**	**0.7**
Annual average										
1991–92 to 2010–11	1.1	1.2	2.2	0.7	1.8	0.4	1.7	1.1	1.4	0.7
2010–11 to 2030–31	**1.1**	**1.3**	**1.9**	**0.8**	**1.7**	**0.0**	**1.7**	**1.0**	**1.3**	**0.7**

* Numbers in bold are forecasts.

Sources: Treasury (2010), Deloitte Access Economics (2011) and OECD (2011).

Economic growth and exchange rates

Real Australian and total OECD GDP, which are the main drivers of air passenger movements through Australian airports, are projected to increase by 2.9 and 2.3 per cent a year, respectively, over the forecast period. Projected real Australian GDP is below historical growth — 3.5 per cent a year over the last 19 years (Table 3.1) — and this affects the projected number of passenger movements through Australian airports. Projected OECD GDP growth is more or less similar to historical growth. Real total OECD GDP grew by 2.2 per cent a year over the last 19 years.

The US-Australian dollar exchange rate, which is used as a proxy for the currencies of Australia's trading partners in this study, has increased by 1.2 per cent a year over the last 19 years (Table 3.2). The Australian dollar reached parity with the US dollar in December 2010 and it has remained close to or above parity with the US dollar since then. However, the strength of the Australian dollar is expected to weaken over the forecast period as the boom in the resource sector tapers off with slower economic growth in Australia's major resource export destinations, such as China and India. The exchange rate is forecast to decline by 1.1 per cent a year over the next 20 years to US$0.78 per Australian dollar in 2017–18 and remain around that level thereafter. The expected lower value of the Australian dollar will have a positive influence on the number of overseas visitors and a negative influence on international travel by Australian residents.

Prices of travel and accommodation

Domestic discounted airfares have been declining in real terms, by 3.6 per cent a year since 1991–92 and by 6.1 per cent a year since 2000–01, principally due to the introduction of low-cost carriers on Australia's domestic routes (Table 3.2). However, the downward trend in real domestic discounted airfares is not expected to continue over the forecast period, mainly due to the maturation of low-cost carriers and the expansion of business class and premium economy class services by some of these carriers and expected higher fuel prices. Accordingly, real domestic discounted airfares are assumed to increase 0.3 per cent a year over the next 20 years.

Prices of domestic and overseas travel and accommodation increased in nominal terms by 2.6 and 1.6 per cent a year, respectively, over the last 19 years. Since forecasts of these prices are not available, they are assumed to increase in line with the inflation rate, between 2.3 and 2.7 per cent a year, over the forecast period. These assumptions imply that, leaving aside exchange rate effects, overseas prices of travel and accommodation will become slightly cheaper than their domestic equivalent between 2010–11 and 2030–31. In this study, CPI forecasts were sourced from Deloitte Access Economics (2011).

Table 3.2 Real GDP, nominal prices of domestic and overseas travel and accommodation, real domestic airfares and exchange rates*

	Real GDP		*Nominal prices of travel and accommodation**		Real domestic Airfare	Exchange rate
	Australian	OECD	Domestic	Overseas		
Year			*Per cent*			(US$/A$)
2000–01	2.1	2.8	5.0	2.0	–16.5	0.55
2001–02	3.9	0.9	2.2	11.7	5.6	0.51
2002–03	3.3	1.9	4.4	10.0	–6.4	0.57
2003–04	4.2	2.9	1.5	–4.6	–5.4	0.71
2004–05	3.0	2.7	3.5	–0.8	–16.1	0.74
2005–06	3.1	3.1	4.8	1.0	5.0	0.74
2006–07	3.6	2.8	5.0	2.9	3.0	0.77
2007–08	3.8	2.4	1.5	6.7	–3.7	0.88
2008–09	1.4	–2.7	–0.1	4.6	–15.9	0.79
2009–10	2.3	0.5	0.6	–2.5	–15.6	0.88
2010–11	1.9	2.7	–0.3	–1.0	–0.3	0.97
2011–12	**4.0**	**1.8**	**2.8**	**2.4**	**0.3**	**1.01**
2012–13	**4.0**	**2.0**	**3.5**	**2.1**	**0.3**	**0.98**
2013–14	**4.0**	**2.3**	**2.8**	**2.2**	**0.3**	**0.91**
2014–15	**4.0**	**2.5**	**2.5**	**2.2**	**0.3**	**0.85**
2015–16	**2.9**	**2.6**	**2.5**	**2.3**	**0.3**	**0.81**
2016–17	**2.9**	**2.8**	**2.7**	**2.3**	**0.3**	**0.79**
2017–18	**2.9**	**2.8**	**2.7**	**2.3**	**0.3**	**0.78**
2018–19	**2.9**	**2.6**	**2.3**	**2.3**	**0.3**	**0.78**
2019–20	**2.9**	**2.4**	**2.4**	**2.3**	**0.3**	**0.78**
2020–21	**2.6**	**2.3**	**2.8**	**2.3**	**0.3**	**0.78**
2021–22 to 2030–31	**2.6**	**2.3**	**2.8**	**2.3**	**0.3**	**0.78**
Annual average						
1991–92 to 2010–11	3.5	2.2	2.6	1.6	–3.6	0.73
2010–11 to 2030–31	**2.9**	**2.3**	**2.7**	**2.3**	**0.3**	**0.81**

* Numbers in bold are forecasts.

Sources: BITRE (2011), Deloitte Access Economics (2011), OECD (2011), Treasury (2010) and BITRE assumptions.

CHAPTER 4

Forecasts of air passenger movements

Introduction

In this study, forecasts of passenger movements through the eight capital city airports and the five largest non–capital city airports are developed using the estimated air passenger travel demand models and the most recent information on economic growth, population, air fares, exchange rates, and prices of domestic and overseas travel and accommodation.

The passenger movement forecasts presented in this study are solely driven by demand-side parameters, which are estimated using econometric models specified in Chapter 2 and the population, income, price and exchange rate assumptions specified in Chapter 3. Supply-side effects, such as airport capacity and available air route capacity, have not been explicitly considered in the development of the forecasts. This is largely due to the difficulty in estimating supply side response in absence of long time-series data on supply-side variables that influence airport activities, including passenger movements. Hence, the forecasts provided in this study are 'unconstrained'; that is, air service supply is assumed to expand to meet demand.

The passenger movement forecasts for the eight capital city airports, the five largest non-capital city airports and other airports are discussed in the following sections.

Capital city airports

Sydney (Kingsford-Smith) Airport

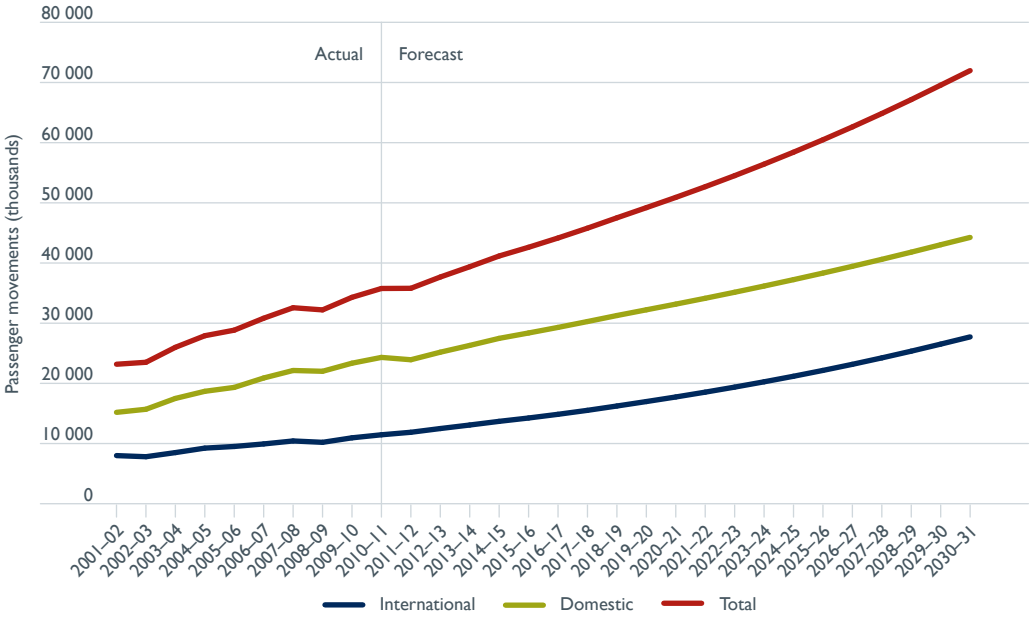
Sydney Airport (Kingsford-Smith), located eight kilometres south of the Sydney central business district, is Australia's largest airport in terms of passenger and freight movements. The airport has a jet curfew, which prohibits jet aircraft movements from 11.00 pm to 6.00 am, and a cap on aircraft movements of 80 aircraft per hour, which constrains aircraft movements at the airport during peak periods.

Sydney Airport caters for scheduled passenger services to major cities around the globe. Among domestic routes, Sydney–Melbourne, Sydney–Brisbane, Sydney–Canberra, Sydney–Adelaide and Sydney–Perth are the five largest passenger routes.

In 2010–11, around 35.8 million passengers passed through Sydney Airport. Approximately 11.5 million were international passengers and 24.3 million were domestic passengers (Figure 4.1 and Table 4.1).

Preliminary passenger movement data for 2011–12 suggest that the forced grounding of Tiger Airways aircraft in July 2011, and subsequent reduced operating schedule, adversely impacted total domestic air passenger movements at airports serviced by Tiger operations—mainly Sydney, Melbourne, Adelaide and Gold Coast airports.

Figure 4.1 Air passenger movements through Sydney Airport



Sources: BITRE (2011) and BITRE estimates.

The number of passenger movements through Sydney Airport has increased by 4.6 per cent a year since 1991–92. The strong growth in passenger movements are largely due to Sydney being a major tourist destination in Australia for both overseas and domestic visitors and the positive influence of the introduction of low-cost carriers in Australia's domestic routes.

Passenger numbers passing through Sydney Airport are forecast to increase by 3.6 per cent a year over the next 20 years to 72.0 million in 2030–31. This is below the rate of growth over the last 19 years, and is attributable to the slower projected long-term economic growth for Australia, rising real domestic airfares and also assumed maturation of low-cost carrier traffic.

The number of international passenger movements, which grew by 4.9 per cent a year over the last 19 years, is projected to increase by 4.5 per cent per annum over the next twenty years to 27.7 million in 2030–31. Similarly, domestic passenger movements which grew by 4.4 per cent a year over the last 19 years are projected to increase by 3.0 per cent a year over the forecast period to 44.3 million in 2030–31.

The forecasts presented in this report are broadly comparable, although slightly more 'bullish', than those presented in the *Joint study on aviation capacity in the Sydney Region* by the Australian and New South Wales Governments (2012). The joint study forecast the total number of air passenger movements through Sydney Airport to increase by 3.2 per cent a year over the next 20 years to 67.7 million in 2030–31, compared with a BITRE forecast of 3.6 per cent a year over the same period to 72.0 million in 2030–31 (Figure 4.2). The joint study forecasts air

passenger movements over the next 50 years, and allowed for ongoing maturation in passenger movement behavior by specifically lowering the absolute value of elasticities of travel demand over the forecast period. BITRE has not made any similar adjustment to the model–derived elasticities in forecasting air travel demand over the next 20 years. Despite the adjustments applied to modeled elasticities, the marginal difference in forecasts (0.4 percentage points in annual average growth rate and 4.3 million in absolute passenger movement numbers in 2030–31) is within the acceptable margin of modeling error and is largely due to the maturation adjustment factor.

Table 4.1 Air passenger movements through Sydney Airport

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	2 002	2 574	4 576	10 646	15 222	
2001–02	3 325	4 671	7 995	15 182	23 177	4.3
2002–03	3 309	4 500	7 809	15 694	23 502	1.4
2003–04	3 830	4 664	8 494	17 495	25 989	10.6
2004–05	4 289	4 948	9 238	18 679	27 917	7.4
2005–06	4 535	4 976	9 511	19 329	28 840	3.3
2006–07	4 756	5 177	9 933	20 892	30 825	6.9
2007–08	5 209	5 221	10 429	22 140	32 569	5.7
2008–09	5 071	5 131	10 202	22 007	32 209	–1.1
2009–10	5 670	5 278	10 948	23 351	34 299	6.5
2010–11	6 124	5 330	11 454	24 314	35 768	4.3
2011–12	**6 505**	**5 365**	**11 871**	**23 924**	**35 795**	**0.1**
2012–13	**6 876**	**5 616**	**12 492**	**25 180**	**37 672**	**5.2**
2013–14	**7 136**	**5 941**	**13 077**	**26 305**	**39 382**	**4.5**
2014–15	**7 405**	**6 283**	**13 688**	**27 479**	**41 168**	**4.5**
2015–16	**7 626**	**6 618**	**14 244**	**28 373**	**42 617**	**3.5**
2016–17	**7 901**	**6 957**	**14 858**	**29 300**	**44 158**	**3.6**
2017–18	**8 217**	**7 301**	**15 518**	**30 273**	**45 790**	**3.7**
2018–19	**8 584**	**7 652**	**16 236**	**31 273**	**47 509**	**3.8**
2019–20	**8 955**	**8 021**	**16 976**	**32 222**	**49 198**	**3.6**
2020–21	**9 329**	**8 408**	**17 737**	**33 167**	**50 904**	**3.5**
2021–22	**9 727**	**8 812**	**18 539**	**34 139**	**52 678**	**3.5**
2022–23	**10 140**	**9 236**	**19 376**	**35 141**	**54 517**	**3.5**
2023–24	**10 578**	**9 680**	**20 258**	**36 172**	**56 430**	**3.5**
2024–25	**11 033**	**10 147**	**21 180**	**37 234**	**58 414**	**3.5**
2025–26	**11 517**	**10 634**	**22 151**	**38 327**	**60 478**	**3.5**
2026–27	**12 018**	**11 147**	**23 165**	**39 453**	**62 618**	**3.5**
2027–28	**12 551**	**11 682**	**24 234**	**40 612**	**64 846**	**3.6**
2028–29	**13 105**	**12 246**	**25 351**	**41 806**	**67 157**	**3.6**
2029–30	**13 688**	**12 834**	**26 522**	**43 035**	**69 557**	**3.6**
2030–31	**14 270**	**13 452**	**27 723**	**44 255**	**71 977**	**3.5**
Annual average growth rate (per cent):						
1991–92 to 2010–11	6.1	3.9	4.9	4.4	4.6	
2010–11 to 2030–31	**4.3**	**4.7**	**4.5**	**3.0**	**3.6**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

Sources: BITRE (2011) and BITRE estimates.

Detailed analysis of current and future aviation capacity at Sydney Airport is presented in the joint study (Australian and NSW Governments 2012). The report shows that, under current constraints, including a cap on aircraft movements of 80 aircraft per hour and a curfew on jet aircraft movements from 11.00pm to 6.00 am, all slots on weekday mornings, between 6.00am and noon, and afternoons, between 4.00pm and 7.00pm, will be fully allocated by 2020. Further, the study suggests that all slots, and not just peak period slots, will be allocated by around 2027, and there will be practically no scope for further growth of RPT services at the airport by 2035 (Australian and NSW Governments 2012).

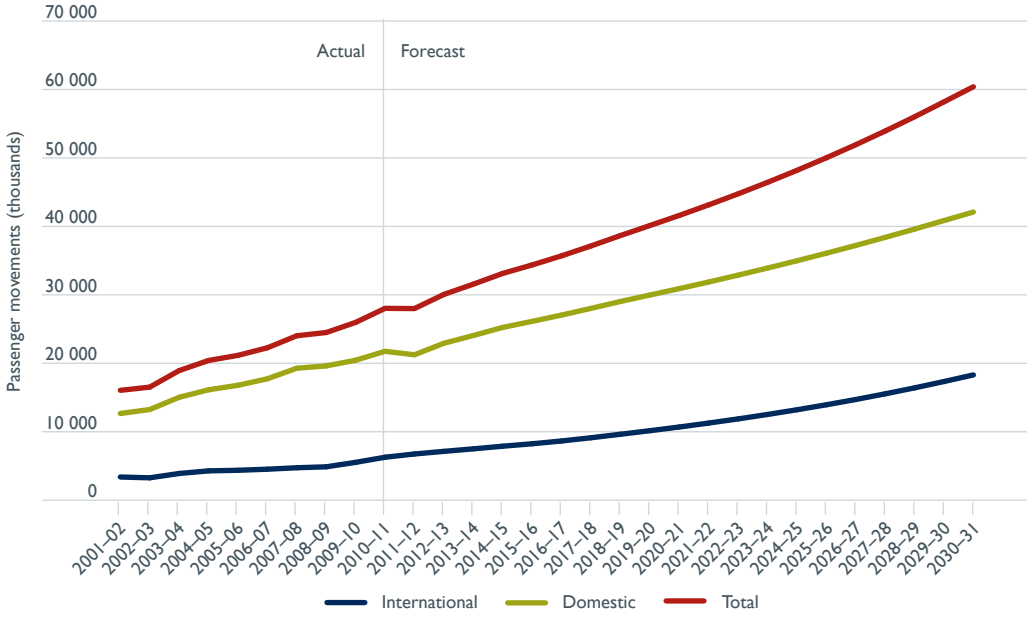
Melbourne (Tullamarine) Airport

Melbourne Airport (at Tullamarine) is located 22 kilometres north-west of Melbourne's central business district. It is Australia's second largest airport in terms of passenger movements. Melbourne–Sydney, Melbourne–Brisbane, Melbourne–Adelaide and Melbourne–Perth are Melbourne's top four routes in terms of passenger movements.

Passenger movements through Melbourne Airport have increased by 5.4 per cent a year over the last 19 years, from 10.4 million in 1991–92 to 28.0 million in 2010–11 (Figure 4.2 and Table 4.2). International passenger numbers grew by 6.4 per cent a year over this period, from 1.9 million in 1991–92 to 6.3 million in 2010–11; whereas domestic passenger numbers grew by 5.1 per cent a year over the same period, from 8.4 million in 1991–92 to 21.7 million in 2010–11. The introduction of low-cost carriers on domestic passenger services and the opening of new domestic routes to and from Melbourne, including Melbourne–Townsville, Melbourne–Ballina and Melbourne–Darwin, have contributed to the strong growth in domestic passenger numbers through Melbourne Airport. As previously mentioned, the forced grounding of Tiger Airways aircraft in July 2011, and subsequent reduced operating schedule, adversely affected total domestic air passenger movements through Melbourne Airport in 2011–12.

In Melbourne, Jetstar also operates domestic scheduled passenger services from Avalon Airport, which commenced in May 2004. Presently, Avalon Airport accounts for less than 5 per cent of combined air passenger movements through Melbourne and Avalon airports. There has been no noticeable effect on total passenger numbers at Melbourne Airport of Avalon Airport operations. Separate forecasts for Avalon Airport could not be developed due to the unavailability of passenger movement data for commercial confidentiality reasons.

Figure 4.2 Air passenger movements through Melbourne Airport



Sources: BITRE (2011) and BITRE estimates.

The total number of passenger movements through Melbourne Airport is forecast to increase by 3.9 per cent a year over the next 20 years to 60.4 million in 2030–31. The expected slower growth rate is largely due to slower projected economic growth for Australia, the maturation of the influence of low-cost carriers on passenger growth, rising real domestic airfares and the assumed weakening of the Australian dollar over the forecast period. International and domestic passenger movements are forecast to increase by 5.5 and 3.4 per cent a year over the forecast period to 18.3 and 42.1 million, respectively, in 2030–31.

Table 4.2 Air passenger movements through Melbourne Airport

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	1 109	810	1 919	8 442	10 361	
2001–02	1 696	1 692	3 387	12 664	16 051	4.5
2002–03	1 635	1 634	3 269	13 246	16 515	2.9
2003–04	1 885	2 019	3 903	15 030	18 933	14.6
2004–05	2 277	2 005	4 282	16 130	20 412	7.8
2005–06	2 339	2 032	4 371	16 788	21 159	3.7
2006–07	2 421	2 106	4 528	17 737	22 265	5.2
2007–08	2 606	2 134	4 740	19 281	24 022	7.9
2008–09	2 662	2 216	4 878	19 617	24 495	2.0
2009–10	3 114	2 414	5 528	20 446	25 974	6.0
2010–11	3 563	2 712	6 275	21 749	28 025	7.9
2011–12	**3 920**	**2 830**	**6 750**	**21 243**	**27 994**	**–0.1**
2012–13	**4 125**	**3 009**	**7 134**	**22 927**	**30 061**	**7.4**
2013–14	**4 250**	**3 251**	**7 501**	**24 057**	**31 558**	**5.0**
2014–15	**4 379**	**3 508**	**7 887**	**25 243**	**33 130**	**5.0**
2015–16	**4 474**	**3 768**	**8 242**	**26 125**	**34 367**	**3.7**
2016–17	**4 611**	**4 041**	**8 652**	**27 044**	**35 696**	**3.9**
2017–18	**4 785**	**4 335**	**9 120**	**28 021**	**37 140**	**4.0**
2018–19	**4 991**	**4 642**	**9 633**	**29 026**	**38 660**	**4.1**
2019–20	**5 187**	**4 965**	**10 151**	**29 969**	**40 121**	**3.8**
2020–21	**5 381**	**5 309**	**10 691**	**30 907**	**41 598**	**3.7**
2021–22	**5 589**	**5 677**	**11 266**	**31 876**	**43 142**	**3.7**
2022–23	**5 802**	**6 072**	**11 874**	**32 876**	**44 750**	**3.7**
2023–24	**6 029**	**6 493**	**12 522**	**33 909**	**46 431**	**3.8**
2024–25	**6 264**	**6 944**	**13 208**	**34 975**	**48 183**	**3.8**
2025–26	**6 513**	**7 425**	**13 938**	**36 077**	**50 016**	**3.8**
2026–27	**6 771**	**7 941**	**14 712**	**37 215**	**51 926**	**3.8**
2027–28	**7 045**	**8 491**	**15 536**	**38 390**	**53 926**	**3.9**
2028–29	**7 327**	**9 081**	**16 408**	**39 604**	**56 012**	**3.9**
2029–30	**7 625**	**9 711**	**17 336**	**40 855**	**58 191**	**3.9**
2030–31	**7 917**	**10 385**	**18 302**	**42 097**	**60 399**	**3.8**
Annual average growth rate (per cent):						
1991–92 to 2010–11	6.3	6.6	6.4	5.1	5.4	
2010–11 to 2030–31	**4.1**	**6.9**	**5.5**	**3.4**	**3.9**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

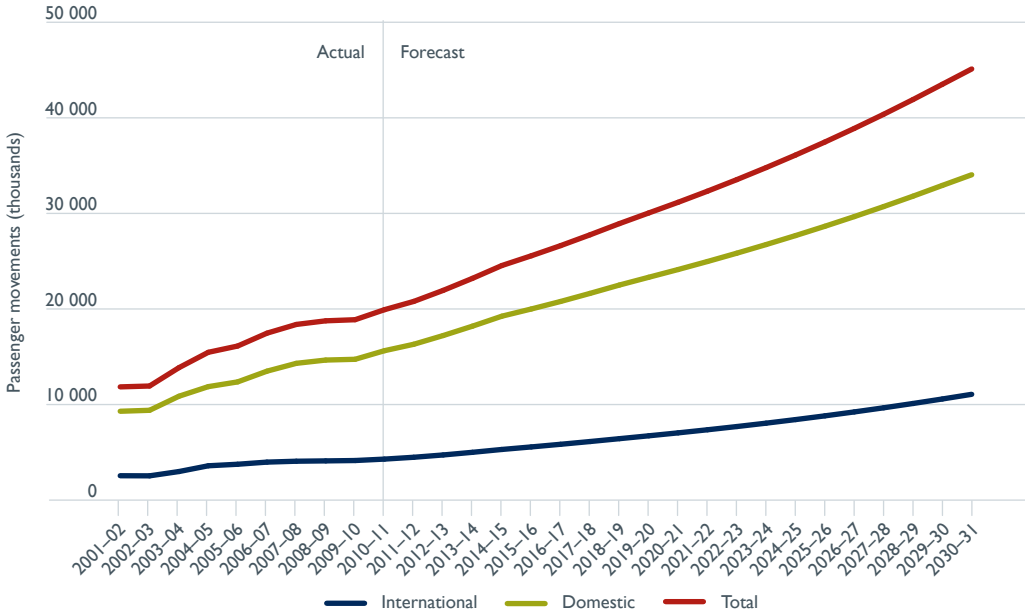
Sources: BITRE (2011) and BITRE estimates.

Brisbane Airport

Brisbane Airport, which is located 13 kilometres from Brisbane CBD, is Australia's third largest airport in terms of passenger movements. It is operated by Brisbane Airport Corporation (BAC) Pty Limited. Around 19.9 million passengers passed through Brisbane Airport in 2010–11 (Figure 4.3 and Table 4.3). Approximately, 15.6 million were domestic passengers and 4.3 million international passengers.

Brisbane–Sydney and Brisbane–Melbourne are Brisbane's first and second largest capital city routes in terms of domestic passenger movements.

Figure 4.3 Air passenger movements through Brisbane Airport



Sources: BITRE (2011) and BITRE estimates.

The total number of passenger movements through Brisbane Airport grew by 5.9 per cent a year over the last 19 years, including annual growth of 7.8 per cent in international movements of Australian residents, 4.9 per cent in overseas visitors visiting Australia and 5.8 per cent in domestic passenger movements. The number is forecast to increase by 4.2 per cent a year over the next 20 years to 45.1 million in 2030–31. The forecast growth rate is lower than the historical growth rate, largely due to slower expected economic growth in Australia, the maturation of the influence of low-cost carriers on passenger growth and rising real domestic airfares.

The number of international movements of Australian residents and overseas visitors is expected to increase annually by 4.6 and 5.1 per cent over the forecast period to 5.4 and 5.7 million, respectively, in 2030–31. Domestic passengers through Brisbane Airport are projected to grow by 4.0 per cent a year during the same period to 34.0 million in 2030–31.

Table 4.3 Air passenger movements through Brisbane Airport

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	532	838	1 371	5 370	6 740	
2001–02	846	1 705	2 551	9 297	11 848	5.8
2002–03	877	1 663	2 540	9 398	11 938	0.8
2003–04	1 107	1 882	2 989	10 868	13 857	16.1
2004–05	1 410	2 182	3 592	11 874	15 466	11.6
2005–06	1 522	2 231	3 753	12 369	16 122	4.2
2006–07	1 654	2 321	3 976	13 494	17 470	8.4
2007–08	1 799	2 270	4 069	14 313	18 382	5.2
2008–09	1 891	2 213	4 104	14 655	18 760	2.1
2009–10	2 053	2 088	4 142	14 734	18 876	0.6
2010–11	2 206	2 085	4 291	15 634	19 925	5.6
2011–12	**2 398**	**2 086**	**4 484**	**16 308**	**20 792**	**4.4**
2012–13	**2 532**	**2 193**	**4 725**	**17 220**	**21 945**	**5.5**
2013–14	**2 638**	**2 365**	**5 003**	**18 204**	**23 207**	**5.7**
2014–15	**2 751**	**2 549**	**5 300**	**19 246**	**24 547**	**5.8**
2015–16	**2 850**	**2 715**	**5 565**	**19 998**	**25 563**	**4.1**
2016–17	**2 967**	**2 875**	**5 842**	**20 786**	**26 628**	**4.2**
2017–18	**3 094**	**3 035**	**6 129**	**21 630**	**27 759**	**4.2**
2018–19	**3 237**	**3 191**	**6 428**	**22 503**	**28 931**	**4.2**
2019–20	**3 380**	**3 349**	**6 728**	**23 317**	**30 046**	**3.9**
2020–21	**3 522**	**3 514**	**7 036**	**24 126**	**31 162**	**3.7**
2021–22	**3 672**	**3 686**	**7 359**	**24 966**	**32 324**	**3.7**
2022–23	**3 829**	**3 868**	**7 697**	**25 837**	**33 534**	**3.7**
2023–24	**3 994**	**4 058**	**8 052**	**26 741**	**34 794**	**3.8**
2024–25	**4 167**	**4 259**	**8 425**	**27 679**	**36 105**	**3.8**
2025–26	**4 349**	**4 467**	**8 816**	**28 653**	**37 469**	**3.8**
2026–27	**4 539**	**4 688**	**9 227**	**29 664**	**38 891**	**3.8**
2027–28	**4 740**	**4 918**	**9 658**	**30 713**	**40 370**	**3.8**
2028–29	**4 949**	**5 161**	**10 110**	**31 801**	**41 911**	**3.8**
2029–30	**5 168**	**5 413**	**10 581**	**32 928**	**43 509**	**3.8**
2030–31	**5 389**	**5 681**	**11 070**	**34 044**	**45 114**	**3.7**
Annual average growth rate (per cent):						
1991–92 to 2010–11	7.8	4.9	6.2	5.8	5.9	
2010–11 to 2030–31	**4.6**	**5.1**	**4.9**	**4.0**	**4.2**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

Sources: BITRE (2011) and BITRE estimates.

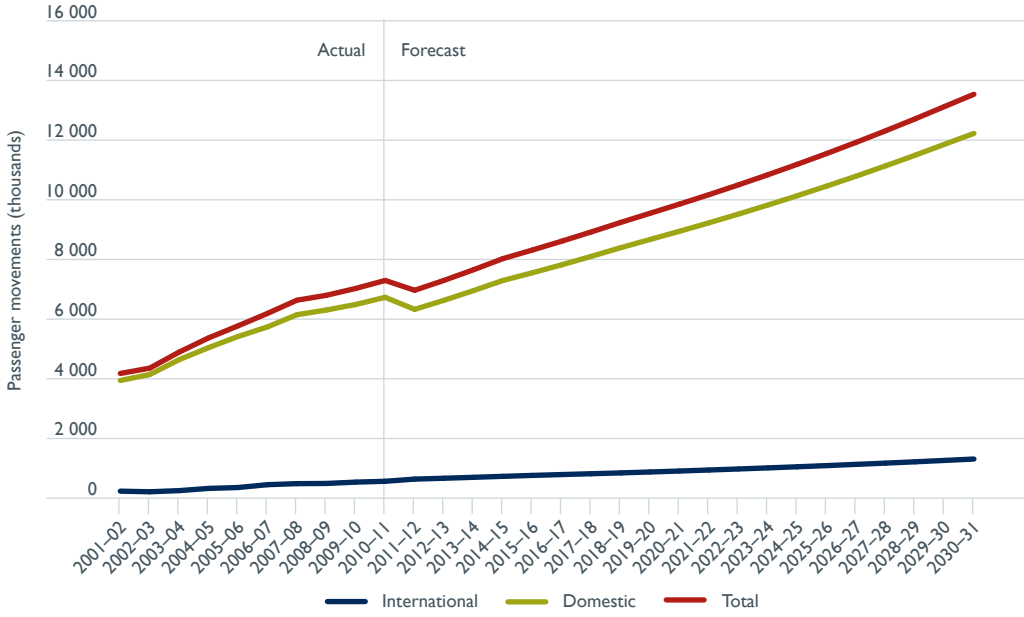
Adelaide Airport

Adelaide Airport is located approximately six kilometres west of the Adelaide central business district (CBD), and is operated by Adelaide Airport Limited (AAL). It is Australia's fifth largest airport in terms of passenger movements.

Around 7.3 million air passengers passed through Adelaide Airport in 2010–11, including 6.7 million domestic passengers and around 0.6 million international passengers. Adelaide–Melbourne, Adelaide–Sydney, Adelaide–Brisbane and Adelaide–Perth are Adelaide's first, second, third and fourth largest inter-capital city routes in terms of passenger movements. The forced grounding of Tiger Airways services in July 2011, and subsequent reduced operating schedule, adversely affected the number of domestic air passenger movements through Adelaide Airport in 2011–12.

Long–term growth in passenger numbers at Adelaide Airport has been strong, increasing by 4.7 per cent a year over the last 19 years, from 3.0 million in 1991–92 to 7.3 million in 2010–11 (Figure 4.4 and Table 4.4). The numbers are forecast to increase by 3.1 per cent a year over the forecast period to 13.5 million in 2030–31. The forecast rate of growth is below the historical rate of growth in passenger numbers, mainly due to slower expected growth in domestic passenger movements following slower projected economic growth in Australia, the maturation of the influence of low–cost carriers on domestic passenger growth and rising real domestic airfares.

Figure 4.4 Air passenger movements through Adelaide Airport



Sources: BITRE (2011) and BITRE estimates.

Domestic passenger movements, which dominate Adelaide Airport's total passenger movements, grew by 4.7 per cent a year over the last 19 years. They are forecast to increase annually by 3.0 per cent over the next 20 years, from 6.7 million in 2010–11 to 12.2 million in 2030–31. Similarly, the number of international passengers, which increased by 5.2 per cent a year over the last 19 years, are forecast to increase by 4.3 per cent a year over the forecast period to 1.3 million in 2030–31.

Favorable domestic economic conditions and a relatively strong Australian dollar in recent years have resulted in Australian resident outbound travel increasing relatively faster than inbound travel of overseas visitors. However, this trend is expected to reverse over the forecast period with expected slower economic growth in Australia and a lower value of the Australian dollar. Outbound and inbound passenger movements are forecast to increase by 3.6 and 5.3 per cent a year over the forecast period to around 0.7 and 0.6 million, respectively, in 2030–31.

Table 4.4 Air passenger movements through Adelaide Airport

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	131	85	216	2 812	3 028	
2001–02	131	104	235	3 945	4 180	3.3
2002–03	115	99	215	4 144	4 358	4.3
2003–04	138	115	253	4 643	4 897	12.4
2004–05	192	135	327	5 045	5 371	9.7
2005–06	201	156	357	5 419	5 776	7.5
2006–07	246	205	452	5 740	6 192	7.2
2007–08	276	211	487	6 148	6 635	7.2
2008–09	285	207	493	6 306	6 799	2.5
2009–10	325	213	538	6 492	7 030	3.4
2010–11	354	212	566	6 731	7 297	3.8
2011–12	**409**	**230**	**639**	**6 328**	**6 968**	**–4.5**
2012–13	**426**	**242**	**668**	**6 633**	**7 300**	**4.8**
2013–14	**440**	**259**	**699**	**6 957**	**7 656**	**4.9**
2014–15	**455**	**277**	**732**	**7 297**	**8 029**	**4.9**
2015–16	**469**	**294**	**763**	**7 554**	**8 317**	**3.6**
2016–17	**482**	**310**	**792**	**7 822**	**8 614**	**3.6**
2017–18	**494**	**325**	**819**	**8 104**	**8 923**	**3.6**
2018–19	**506**	**341**	**847**	**8 395**	**9 242**	**3.6**
2019–20	**521**	**357**	**878**	**8 671**	**9 549**	**3.3**
2020–21	**537**	**374**	**910**	**8 946**	**9 856**	**3.2**
2021–22	**552**	**391**	**944**	**9 229**	**10 173**	**3.2**
2022–23	**569**	**410**	**979**	**9 522**	**10 501**	**3.2**
2023–24	**586**	**429**	**1 015**	**9 825**	**10 839**	**3.2**
2024–25	**603**	**449**	**1 052**	**10 137**	**11 190**	**3.2**
2025–26	**621**	**470**	**1 092**	**10 460**	**11 552**	**3.2**
2026–27	**640**	**492**	**1 133**	**10 793**	**11 926**	**3.2**
2027–28	**660**	**515**	**1 175**	**11 138**	**12 313**	**3.2**
2028–29	**680**	**540**	**1 219**	**11 493**	**12 712**	**3.2**
2029–30	**700**	**565**	**1 265**	**11 860**	**13 125**	**3.2**
2030–31	**721**	**592**	**1 312**	**12 225**	**13 537**	**3.1**
Annual average growth rate (per cent):						
1991–92 to 2010–11	5.4	4.9	5.2	4.7	4.7	
2010–11 to 2030–31	**3.6**	**5.3**	**4.3**	**3.0**	**3.1**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

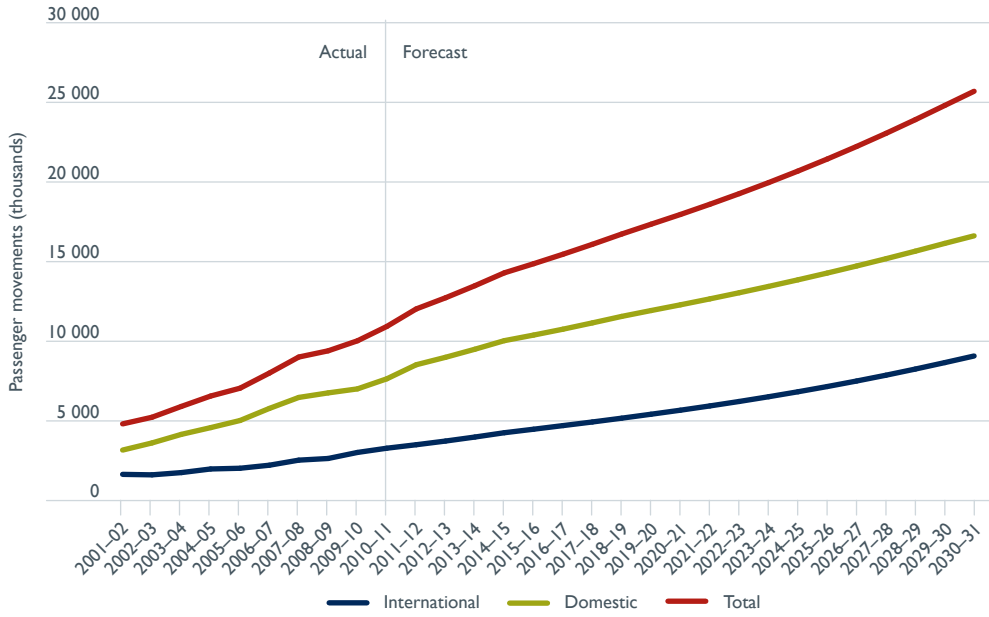
Sources: BITRE (2011) and BITRE estimates.

Perth Airport

Perth Airport, located 12 kilometres east of the Perth central business district, is the fourth largest airport in Australia in terms of passenger movements. It is the main airport in Western Australia and also the hub for flights to/from regional Western Australia, including to major mining regions. Perth–Melbourne and Perth–Sydney are the two main routes in terms of passenger movements.

In 2010–11, around 10.9 million passengers travelled through Perth Airport, comprising 3.3 million international passengers, 7.6 million domestic passengers (Figure 4.5 and Table 4.5).

Figure 4.5 Air passenger movements through Perth Airport



Sources: BITRE (2011) and BITRE estimates.

The number of fly-in and fly-out (FIFO) passenger movements through Perth Airport has increased significantly in recent years, largely due to the resources boom in Western Australia. Both scheduled RPT airline services and charter airline services are currently used to service FIFO passenger trips between Perth and mining regions. The forecasts presented in this report account only for regular scheduled RPT airline passengers through Perth airport, as long historical time series data on charter airline passenger movements through Perth Airport are not available to estimate a reliable demand model and develop long-term forecasts. The forecasts, therefore, take into account FIFO passengers moved on scheduled RPT airline services, but do not include FIFO charter airline service passengers. With the cooperation of airlines, BITRE has recently commenced collecting charter airline passenger movements, but this data is not yet publicly available and could not be incorporated in the modeling. A simple analysis of this new data suggests that charter passenger movements currently account for around an additional 14 per cent of total domestic passenger movements through Perth Airport.

Accordingly, to the extent that FIFO passenger traffic growth outstrips other air travel passenger growth, then the forecasts presented here will slightly understate total future passenger growth through Perth Airport.

Table 4.5 Air passenger movements through Perth Airport

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	474	420	894	2 186	3 080	
2001–02	755	889	1 644	3 169	4 813	4.6
2002–03	713	901	1 614	3 616	5 229	8.7
2003–04	831	924	1 755	4 155	5 909	13.0
2004–05	997	985	1 983	4 579	6 562	11.0
2005–06	1 040	988	2 028	5 026	7 054	7.5
2006–07	1 168	1 051	2 219	5 785	8 004	13.5
2007–08	1 415	1 122	2 537	6 474	9 011	12.6
2008–09	1 494	1 147	2 641	6 759	9 400	4.3
2009–10	1 825	1 196	3 021	7 011	10 031	6.7
2010–11	2 057	1 230	3 287	7 644	10 932	9.0
2011–12	**2 230**	**1 274**	**3 504**	**8 526**	**12 030**	**10.0**
2012–13	**2 390**	**1 347**	**3 736**	**8 995**	**12 731**	**5.8**
2013–14	**2 547**	**1 441**	**3 988**	**9 501**	**13 489**	**6.0**
2014–15	**2 716**	**1 542**	**4 258**	**10 038**	**14 296**	**6.0**
2015–16	**2 837**	**1 642**	**4 479**	**10 390**	**14 869**	**4.0**
2016–17	**2 962**	**1 744**	**4 706**	**10 759**	**15 465**	**4.0**
2017–18	**3 083**	**1 850**	**4 933**	**11 154**	**16 087**	**4.0**
2018–19	**3 213**	**1 958**	**5 172**	**11 562**	**16 734**	**4.0**
2019–20	**3 346**	**2 074**	**5 420**	**11 930**	**17 350**	**3.7**
2020–21	**3 478**	**2 196**	**5 673**	**12 289**	**17 962**	**3.5**
2021–22	**3 615**	**2 324**	**5 940**	**12 661**	**18 601**	**3.6**
2022–23	**3 760**	**2 461**	**6 221**	**13 046**	**19 267**	**3.6**
2023–24	**3 912**	**2 605**	**6 517**	**13 444**	**19 961**	**3.6**
2024–25	**4 071**	**2 759**	**6 829**	**13 857**	**20 686**	**3.6**
2025–26	**4 238**	**2 920**	**7 158**	**14 284**	**21 442**	**3.7**
2026–27	**4 413**	**3 092**	**7 505**	**14 726**	**22 231**	**3.7**
2027–28	**4 597**	**3 273**	**7 870**	**15 183**	**23 054**	**3.7**
2028–29	**4 790**	**3 466**	**8 256**	**15 657**	**23 913**	**3.7**
2029–30	**4 991**	**3 669**	**8 660**	**16 145**	**24 805**	**3.7**
2030–31	**5 191**	**3 885**	**9 076**	**16 620**	**25 696**	**3.6**
Annual average growth rate (per cent):						
1991–92 to 2010–11	8.0	5.8	7.1	6.8	6.9	
2010–11 to 2030–31	**4.7**	**5.9**	**5.2**	**4.0**	**4.4**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

Sources: BITRE (2011) and BITRE estimates.

The total number of passenger movements through Perth Airport has increased by 6.9 per cent a year over the last 19 years. It is forecast to increase by 4.4 per cent a year over the next 20 years to 25.7 million in 2030–31. Again, the slower forecast rate of growth in passenger movements is due to slower projected economic growth for Australia, the maturation of the influence of low-cost carriers on passenger growth and rising real domestic airfares.

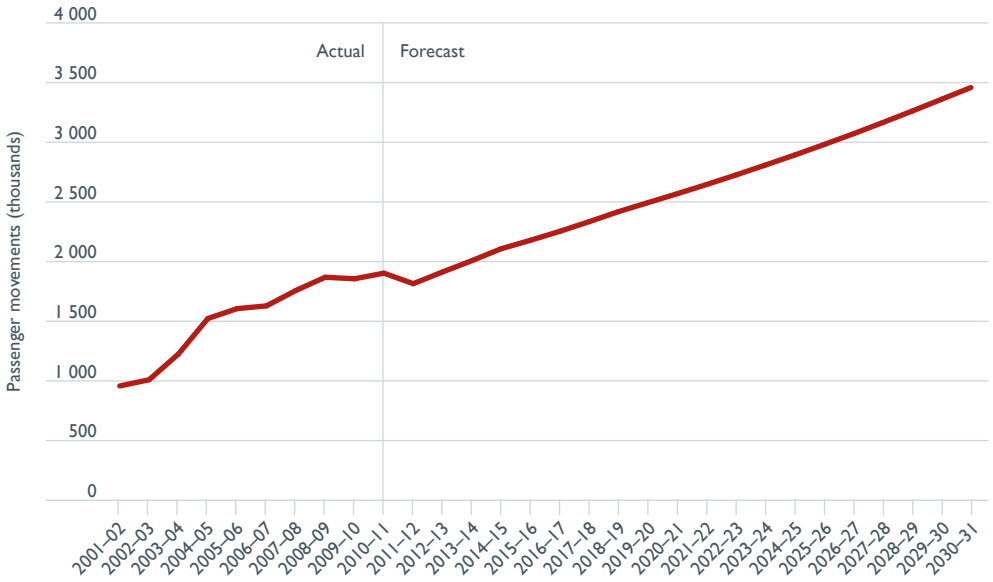
International and domestic movements, which grew by 7.1 and 6.8 per cent a year over the last 19 years, are projected to increase annually by 5.2 and 4.0 per cent to 9.1 and 16.6 million, respectively, in 2030–31.

Hobart Airport

Hobart Airport, located 17 kilometres from Hobart city, is the major passenger airport in Tasmania. Hobart Airport has regular passenger services to and from major domestic destinations, but not to and from international destinations. The Hobart–Melbourne and Hobart–Sydney routes are the first and second largest air routes to/from Hobart in terms of passenger movements.

The number of passenger movements through Hobart Airport increased by 5.6 per cent a year over the last 19 years, from 0.7 million in 1991–92 to 1.9 million in 2010–11, largely due to the introduction of low-cost carriers in 2002–03 (Figure 4.6 and Table 4.6). It is forecast to increase by 3.0 per cent a year over the forecast period to 3.5 million in 2030–31. Again, the slower rate of growth in domestic passenger numbers is due to slower expected economic growth in Australia, the maturation of the influence of low-cost carriers on passenger growth and rising real domestic airfares over the forecast period.

Figure 4.6 Air passenger movements through Hobart Airport



Sources: BITRE (2011) and BITRE estimates.

Table 4.6 Air passenger movements through Hobart Airport

Year	Domestic (thousands)	Total	Change in total (per cent)
1991–92	674	674	
2001–02	958	958	3.6
2002–03	1 010	1 010	5.4
2003–04	1 226	1 226	21.4
2004–05	1 523	1 523	24.2
2005–06	1 606	1 606	5.5
2006–07	1 629	1 629	1.5
2007–08	1 758	1 758	7.9
2008–09	1 869	1 869	6.3
2009–10	1 856	1 856	–0.7
2010–11	1 903	1 903	2.5
2011–12	**1 815**	**1 815**	**–4.7**
2012–13	**1 913**	**1 913**	**5.4**
2013–14	**2 008**	**2 008**	**5.0**
2014–15	**2 108**	**2 108**	**5.0**
2015–16	**2 179**	**2 179**	**3.4**
2016–17	**2 254**	**2 254**	**3.4**
2017–18	**2 335**	**2 335**	**3.6**
2018–19	**2 419**	**2 419**	**3.6**
2019–20	**2 494**	**2 494**	**3.1**
2020–21	**2 569**	**2 569**	**3.0**
2021–22	**2 646**	**2 646**	**3.0**
2022–23	**2 726**	**2 726**	**3.0**
2023–24	**2 809**	**2 809**	**3.0**
2024–25	**2 893**	**2 893**	**3.0**
2025–26	**2 981**	**2 981**	**3.0**
2026–27	**3 071**	**3 071**	**3.0**
2027–28	**3 165**	**3 165**	**3.0**
2028–29	**3 261**	**3 261**	**3.0**
2029–30	**3 360**	**3 360**	**3.0**
2030–31	**3 458**	**3 458**	**2.9**
Annual average growth rate (per cent):			
1991–92 to 2010–11	5.6	5.6	
2010–11 to 2030–31	**3.0**	**3.0**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

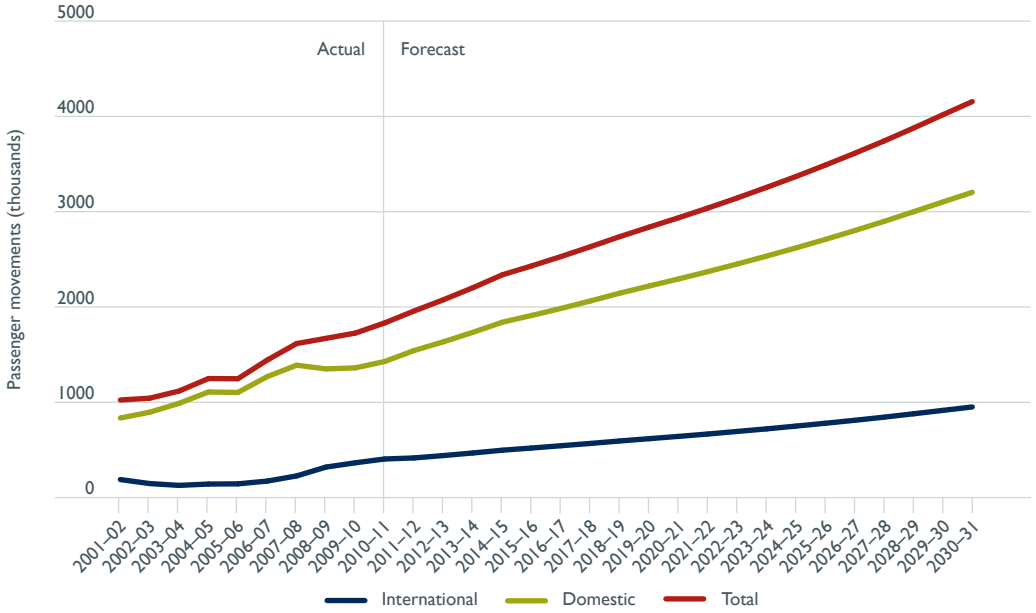
Sources: BITRE (2011) and BITRE estimates.

Darwin Airport

Darwin International Airport, which is located 13 kilometres from the Darwin CBD, provides facilities for airlines to move international, domestic and regional passengers and freight. Darwin–Brisbane, Darwin–Adelaide and Darwin–Melbourne are Darwin's first, second and third largest capital city routes in terms of domestic passenger movements.

In 2010–11, around 1.8 million passengers passed through Darwin Airport, including 1.4 million domestic passengers and 0.4 million international passengers (Figure 4.7 and Table 4.7).

Figure 4.7 Air passenger movements through Darwin Airport



Sources: BITRE (2011) and BITRE estimates.

Growth in passenger numbers through Darwin Airport has been very strong in the past, averaging around 6.3 per cent a year over the last 19 years. Over this period, the number of international and domestic passengers grew by 7.9 and 6.0 per cent a year, respectively. However, such strong growth rates are not expected over the forecast period, largely due to slower projected economic growth in Australia, the maturation of the influence of low-cost carriers on passenger growth and rising real domestic airfares. The total number of passenger movements through Darwin Airport is forecast to increase by 4.2 per cent a year over the next 20 years to 4.2 million in 2030–31. International and domestic passenger numbers are projected to grow by 4.4 and 4.1 per cent per annum over the same period to 1.0 and 3.2 million, respectively, in 2030–31.

Table 4.7 Air passenger movements through Darwin Airport

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	48	48	96	475	571	
2001–02	74	115	189	835	1 024	6.0
2002–03	64	83	147	896	1 043	1.8
2003–04	63	65	128	989	1 118	7.2
2004–05	71	71	142	1 108	1 249	11.8
2005–06	75	69	144	1 103	1 247	–0.2
2006–07	92	81	173	1 269	1 443	15.7
2007–08	131	96	227	1 389	1 616	12.0
2008–09	206	114	320	1 350	1 671	3.4
2009–10	242	123	365	1 361	1 726	3.3
2010–11	287	118	405	1 428	1 833	6.2
2011–12	**302**	**114**	**416**	**1 543**	**1 958**	**6.8**
2012–13	**320**	**121**	**441**	**1 635**	**2 076**	**6.0**
2013–14	**340**	**128**	**468**	**1 734**	**2 202**	**6.1**
2014–15	**361**	**136**	**497**	**1 840**	**2 337**	**6.1**
2015–16	**377**	**143**	**520**	**1 911**	**2 431**	**4.0**
2016–17	**394**	**150**	**544**	**1 985**	**2 529**	**4.0**
2017–18	**412**	**156**	**568**	**2 063**	**2 632**	**4.1**
2018–19	**431**	**162**	**594**	**2 145**	**2 738**	**4.1**
2019–20	**450**	**168**	**618**	**2 220**	**2 838**	**3.6**
2020–21	**468**	**175**	**642**	**2 294**	**2 936**	**3.5**
2021–22	**486**	**181**	**667**	**2 371**	**3 038**	**3.5**
2022–23	**506**	**188**	**694**	**2 451**	**3 144**	**3.5**
2023–24	**526**	**195**	**721**	**2 534**	**3 255**	**3.5**
2024–25	**548**	**202**	**750**	**2 620**	**3 369**	**3.5**
2025–26	**570**	**210**	**780**	**2 709**	**3 489**	**3.5**
2026–27	**594**	**217**	**811**	**2 802**	**3 613**	**3.6**
2027–28	**618**	**225**	**844**	**2 898**	**3 742**	**3.6**
2028–29	**645**	**234**	**879**	**2 999**	**3 877**	**3.6**
2029–30	**672**	**242**	**915**	**3 102**	**4 017**	**3.6**
2030–31	**700**	**252**	**951**	**3 203**	**4 155**	**3.4**
Annual average growth rate (per cent):						
1991–92 to 2010–11	9.9	4.8	7.9	6.0	6.3	
2010–11 to 2030–31	**4.6**	**3.8**	**4.4**	**4.1**	**4.2**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

Sources: BITRE (2011) and BITRE estimates.

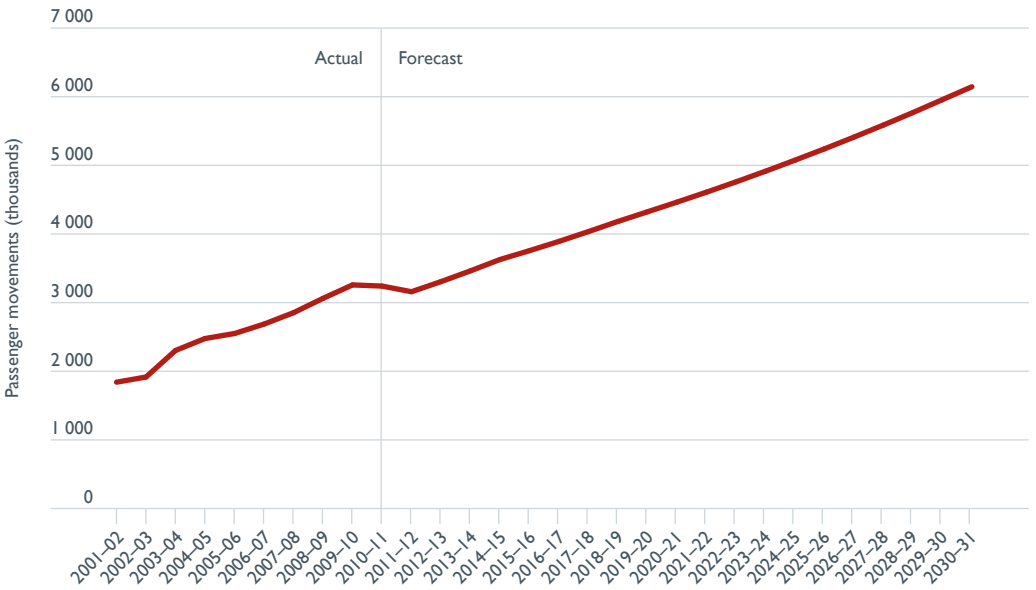
Canberra Airport

Canberra International Airport is located six kilometres from Canberra CBD. There are regular air passenger services through Canberra Airport to and from most major domestic destinations. Presently, there are no scheduled international air passenger services to and from Canberra Airport; however, the airport is used for international chartered and VIP flights. Consequently, there is no data on international passenger movements to and from Canberra and so it is not possible to develop a long-term demand model suitable for forecasting purposes and forecasts of international passenger movements are not been provided in this study. Canberra Airport management, however, anticipates significant potential growth in international passenger services, from 2013 onwards—with forecast total international air passenger numbers in 2029–30 of between 306 000 under a low forecast scenario, 382 000 under a medium forecast scenario and 497 000 under a high forecast scenario (Canberra Airport 2009).

Canberra–Sydney, Canberra–Melbourne and Canberra–Brisbane are first, second and third largest capital city routes in terms of domestic passenger movements to and from Canberra Airport.

The number of domestic passenger movements through Canberra Airport increased by 4.7 per cent a year over the last 19 years to 3.2 million in 2010–11 (Figure 4.8 and Table 4.8). It is projected to increase by 3.3 per cent a year over the next 20 years to 6.1 million in 2030–31.

Figure 4.8 Air passenger movements through Canberra Airport



Sources: BITRE (2011) and BITRE estimates.

These forecasts are broadly similar to the Canberra airport passenger movement forecasts produced for the *Joint study on aviation capacity in the Sydney Region,* which forecast total passenger movements of around 6.5 million by 2035 (Australian and NSW Governments 2012, p. 108). Moreover, these forecasts are unconstrained forecasts and do not account for any spillover effects arising from growing future traffic congestion at Sydney Airport.

Table 4.8 Air passenger movements through Canberra Airport

Year	Domestic *(thousands)*	Total	Change in total *(per cent)*
1991–92	1 361	1 361	
2001–02	1 841	1 841	3.1
2002–03	1 916	1 916	4.1
2003–04	2 303	2 303	20.2
2004–05	2 477	2 477	7.5
2005–06	2 550	2 550	3.0
2006–07	2 687	2 687	5.4
2007–08	2 853	2 853	6.2
2008–09	3 062	3 062	7.3
2009–10	3 258	3 258	6.4
2010–11	3 241	3 241	–0.5
2011–12	**3 159**	**3 159**	**–2.5**
2012–13	**3 306**	**3 306**	**4.7**
2013–14	**3 463**	**3 463**	**4.8**
2014–15	**3 628**	**3 628**	**4.7**
2015–16	**3 757**	**3 757**	**3.6**
2016–17	**3 892**	**3 892**	**3.6**
2017–18	**4 035**	**4 035**	**3.7**
2018–19	**4 183**	**4 183**	**3.7**
2019–20	**4 323**	**4 323**	**3.4**
2020–21	**4 464**	**4 464**	**3.3**
2021–22	**4 609**	**4 609**	**3.3**
2022–23	**4 759**	**4 759**	**3.3**
2023–24	**4 914**	**4 914**	**3.3**
2024–25	**5 075**	**5 075**	**3.3**
2025–26	**5 240**	**5 240**	**3.3**
2026–27	**5 411**	**5 411**	**3.3**
2027–28	**5 587**	**5 587**	**3.3**
2028–29	**5 769**	**5 769**	**3.3**
2029–30	**5 957**	**5 957**	**3.3**
2030–31	**6 145**	**6 145**	**3.2**
Annual average growth rate (per cent):			
1991–92 to 2010–11	4.7	4.7	
2010–11 to 2030–31	**3.3**	**3.3**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

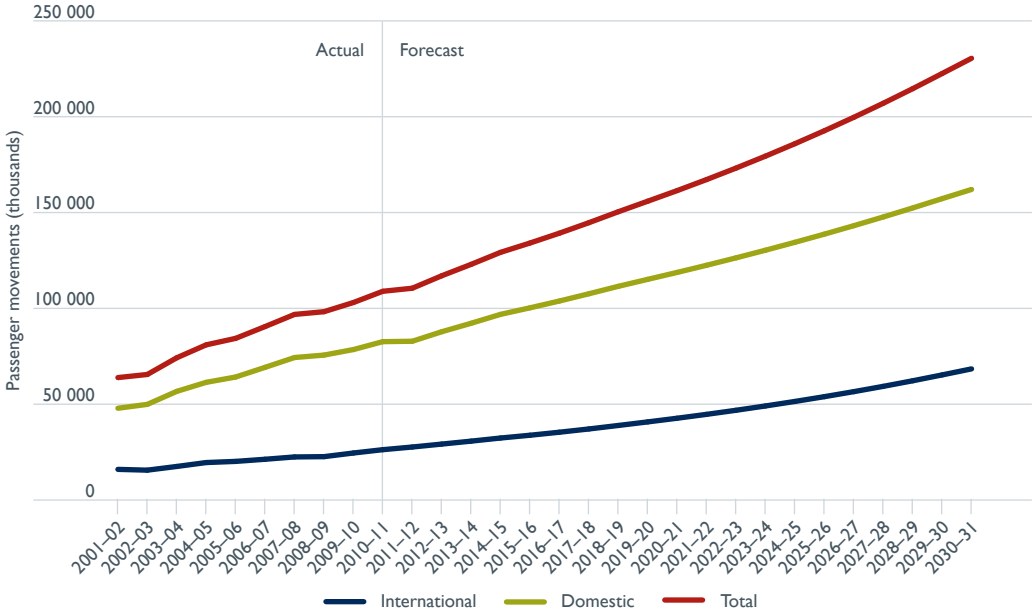
Sources: BITRE (2011) and BITRE estimates.

Eight capital city airports total

The total number of passenger movements through the eight capital city airports increased annually by 5.3 per cent over the last 19 years, from 41.0 million in 1991–92 to 108.9 million in 2010–11 (Figure 4.9 and Table 4.9). It is forecast to grow by 3.8 per cent a year over the next 20 years to 230.5 million in 2030–31. International and domestic passenger movements are projected to grow by 4.9 and 3.4 per cent a year over the next 20 years to 68.4 and 162.0 million, respectively, in 2030–31.

The number of international movements of Australian residents and overseas visitors through the eight capital city airports is expected to increase annually by 4.3 and 5.5 per cent over the forecast period to 34.2 and 34.2 million, respectively, in 2030–31.

Figure 4.9 Air passenger movements through eight capital city airports



Sources: BITRE (2011) and BITRE estimates.

Table 4.9 Air passenger movements through eight capital city airports

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	4 297	4 775	9 072	31 966	41 038	
2001–02	6 827	9 175	16 002	47 891	63 893	4.5
2002–03	6 713	8 880	15 593	49 919	65 512	2.5
2003–04	7 855	9 669	17 523	56 709	74 232	13.3
2004–05	9 237	10 326	19 563	61 415	80 978	9.1
2005–06	9 711	10 453	20 164	64 189	84 353	4.2
2006–07	10 338	10 942	21 280	69 235	90 515	7.3
2007–08	11 436	11 053	22 489	74 357	96 846	7.0
2008–09	11 609	11 030	22 639	75 626	98 265	1.5
2009–10	13 230	11 312	24 541	78 510	103 051	4.9
2010–11	14 591	11 687	26 278	82 644	108 922	5.7
2011–12	**15 765**	**11 899**	**27 664**	**82 845**	**110 509**	**1.5**
2012–13	**16 669**	**12 528**	**29 197**	**87 808**	**117 005**	**5.9**
2013–14	**17 351**	**13 385**	**30 736**	**92 230**	**122 966**	**5.1**
2014–15	**18 067**	**14 295**	**32 362**	**96 879**	**129 242**	**5.1**
2015–16	**18 632**	**15 180**	**33 812**	**100 288**	**134 100**	**3.8**
2016–17	**19 317**	**16 077**	**35 394**	**103 841**	**139 235**	**3.8**
2017–18	**20 085**	**17 001**	**37 086**	**107 616**	**144 702**	**3.9**
2018–19	**20 962**	**17 947**	**38 909**	**111 507**	**150 416**	**3.9**
2019–20	**21 839**	**18 933**	**40 772**	**115 148**	**155 921**	**3.7**
2020–21	**22 715**	**19 975**	**42 690**	**118 763**	**161 452**	**3.5**
2021–22	**23 642**	**21 072**	**44 714**	**122 498**	**167 211**	**3.6**
2022–23	**24 606**	**22 235**	**46 841**	**126 358**	**173 198**	**3.6**
2023–24	**25 626**	**23 460**	**49 086**	**130 347**	**179 433**	**3.6**
2024–25	**26 686**	**24 759**	**51 445**	**134 470**	**185 915**	**3.6**
2025–26	**27 808**	**26 126**	**53 935**	**138 731**	**192 665**	**3.6**
2026–27	**28 975**	**27 577**	**56 552**	**143 135**	**199 687**	**3.6**
2027–28	**30 211**	**29 105**	**59 316**	**147 686**	**207 002**	**3.7**
2028–29	**31 496**	**30 727**	**62 223**	**152 390**	**214 613**	**3.7**
2029–30	**32 845**	**32 434**	**65 279**	**157 242**	**222 521**	**3.7**
2030–31	**34 188**	**34 247**	**68 434**	**162 047**	**230 482**	**3.6**
Annual average growth rate (per cent):						
1991–92 to 2010–11	6.6	4.8	5.8	5.1	5.3	
2010–11 to 2030–31	**4.3**	**5.5**	**4.9**	**3.4**	**3.8**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

Sources: BITRE (2011) and BITRE estimates.

Non–capital city airports

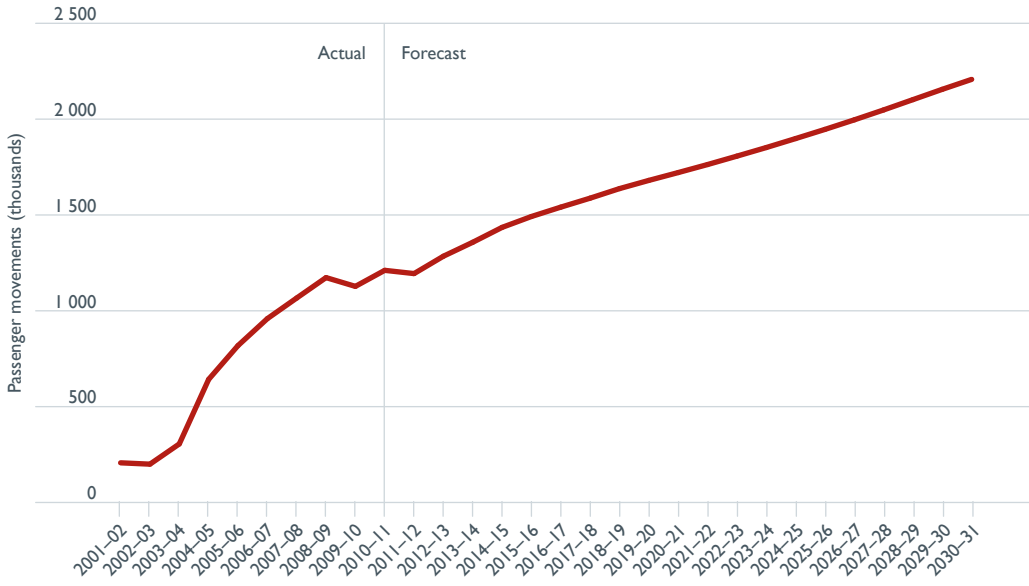
Newcastle Airport

Newcastle Airport is located at Williamtown, approximately 25 kilometres north of Newcastle and 175 kilometres north of Sydney. The airport was originally constructed as Williamtown Royal Australian Air Force Military Base in 1941. The airport currently caters for both civilian and military operations. The Commonwealth Government directly owned and managed the airport until 1990 when the airport was leased out for civilian operations to Newcastle Airport Limited (NAL), a joint business venture of Newcastle City Council and Port Stephens Council. Scheduled passenger services under NAL's management commenced in 1993, on domestic and regional routes, but not on international routes. All major domestic airlines provide passenger services to and from Newcastle Airport to all major destinations along the east-coast of Australia.

The airport has been progressively upgraded, in 1994, 2000 and 2005, to increase the terminal floor area, refurbish the interior and exterior of the building, provide office space for airlines, open a retail precinct, increase car parking space and improve road systems.

Passenger movements through Newcastle Airport grew significantly faster between 2003–04 and 2008–09, following the introduction of passenger services by low-cost carriers, especially Virgin Blue in 2003 and Jetstar in 2004, which significantly increased the number of flights to and from Newcastle Airport. The total number of passenger movements through the airport increased by 17.9 per cent a year in the last 19 years, from 53 000 in 1991–92 to 1.2 million in 2020–11 (Figure 4.10 and Table 4.10). However, growth in passenger numbers has slowed in recent years as the market has matured and capacity growth has slowed. The number of passengers declined by 3.9 per cent in 2009–10, also possibly due to the influence of the GFC, and increased by 7.4 per cent in 2010–11.

Figure 4.10 Air passenger movements through Newcastle Airport



Sources: BITRE (2011) and BITRE estimates.

Total passenger numbers through Newcastle Airport are projected to increase by 3.1 per cent a year over the next 20 years to 2.2 million in 2030–31. While the forecast rate of growth is well below the average rate of growth experienced over the last 19 years, they are consistent with projected growth in air passengers at other non-capital city and smaller capital city airports. The main factors influencing the forecast growth in passenger numbers are the maturation of the market, slightly slower average economic growth in Australia and the expected increases in real domestic air fares.

These forecasts are below the *Joint study on aviation capacity in the Sydney Region* airport passenger movement forecasts for Newcastle. The joint study forecast total air passenger movements at Newcastle to grow to 2.0 million passengers in 2020 and 3.2 million by 2035 (Australian and NSW Governments 2012, p. 108). The difference is mainly attributable to differences in predicted growth in air passenger movements between 2010 and 2020—the joint study forecasts imply growth of 5.2 per cent per annum over the first 10 years, whereas BITRE's forecasts imply growth of 3.5 per cent per annum over this period. In turn, BITRE's forecasts imply stronger air passenger movement growth than Newcastle Airport's Master Plan forecasts—Newcastle Airport forecast total passenger movements of 1.5 million in 2025, compared with BITRE's forecast of 1.9 million in the same year.

Table 4.10 Air passenger movements through Newcastle Airport

Year	Domestic *(thousands)*	Total	Change in total *(per cent)*
1991–92	53	53	
2001–02	203	203	14.4
2002–03	196	196	–3.2
2003–04	302	302	54.2
2004–05	640	640	111.6
2005–06	817	817	27.6
2006–07	958	958	17.3
2007–08	1 066	1 066	11.3
2008–09	1 173	1 173	10.0
2009–10	1 127	1 127	–3.9
2010–11	1 211	1 211	7.4
2011–12	**1 194**	**1 194**	**–1.4**
2012–13	**1 285**	**1 285**	**7.7**
2013–14	**1 358**	**1 358**	**5.7**
2014–15	**1 436**	**1 436**	**5.7**
2015–16	**1 493**	**1 493**	**4.0**
2016–17	**1 542**	**1 542**	**3.3**
2017–18	**1 589**	**1 589**	**3.1**
2018–19	**1 639**	**1 639**	**3.1**
2019–20	**1 682**	**1 682**	**2.6**
2020–21	**1 723**	**1 723**	**2.4**
2021–22	**1 765**	**1 765**	**2.5**
2022–23	**1 809**	**1 809**	**2.5**
2023–24	**1 854**	**1 854**	**2.5**
2024–25	**1 901**	**1 901**	**2.5**
2025–26	**1 949**	**1 949**	**2.5**
2026–27	**1 999**	**1 999**	**2.6**
2027–28	**2 051**	**2 051**	**2.6**
2028–29	**2 105**	**2 105**	**2.6**
2029–30	**2 159**	**2 159**	**2.6**
2030–31	**2 211**	**2 211**	**2.4**
Annual average growth rate (per cent):			
1991–92 to 2010–11	17.9	17.9	
2010–11 to 2030–31	**3.1**	**3.1**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

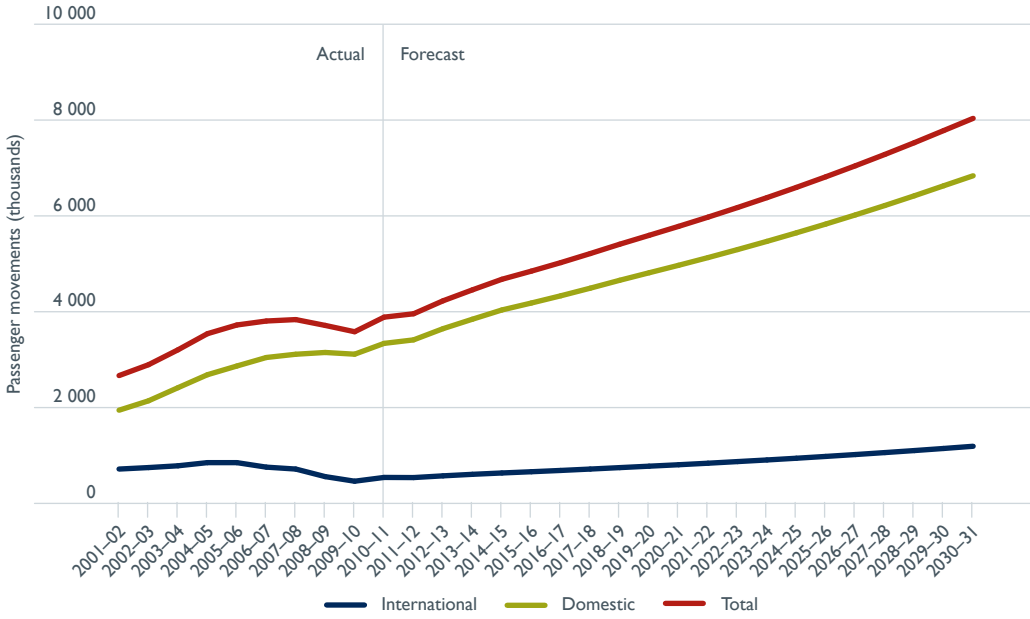
Sources: BITRE (2011) and BITRE estimates.

Cairns Airport

Cairns Airport is Australia's second largest non-capital city airport and is situated seven kilometres from Cairns CBD. It is owned and managed by Cairns Airport Pty Ltd (CAPL) and provides air services to several regional, domestic and international destinations. It has direct air links with Brisbane, Gold Coast, Sydney, Melbourne, Perth, Darwin, Townsville, Alice Springs, Ayers Rock (Uluru) and some regional centres. It is also the gateway to World Heritage Great Barrier Reef and Tropical Rainforests of North Queensland. There are international flights from Auckland, Tokyo, Hong Kong, Guam, Port Moresby and Singapore.

In 2010–11, around 3.9 million passengers passed through Cairns Airport, comprising 3.3 million domestic passenger movements and 550 thousand international passenger movements (Figure 4.11 and Table 4.11). Domestic passenger movements account for 85.9 per cent of total passenger movements through Cairns Airport.

Figure 4.11 Air passenger movements through Cairns Airport



Sources: BITRE (2011) and BITRE estimates.

The total number of passenger movements through Cairns Airport grew strongly between 2002–03 and 2005–06, mainly due to the introduction of low cost airlines, but slowed to 2.2 per cent in 2006–07 and 0.8 per cent in 2007–08, and has since declined, by 3.2 per cent in 2008–09 and 3.5 per cent in 2009–10, mainly due to the decline in overseas visitor numbers following the Global Financial Crisis (GFC). The number of overseas visitor movements declined by 11.7 per cent in 2006–07, 9.4 per cent in 2007–08, 26.3 per cent in 2008–09 and 22.2 per cent in 2009–10. However, the recovery of the travel market from the GFC in 2010–11 and the strong Australian dollar motivated many Australian residents to holiday overseas. As a result, the number of movements of Australian residents and overseas visitors through Cairns Airport grew by 28.7 and 12.5 per cent respectively in 2010–11 and the total number of passenger movements increased by 8.5 per cent. Long term average growth in passenger movements through Cairns Airport has been 4.1 per cent a year over the last 19 years.

Table 4.11 Air passenger movements through Cairns airport

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	77	401	478	1 340	1 818	
2001–02	71	652	723	1 952	2 675	3.9
2002–03	76	678	754	2 148	2 902	8.5
2003–04	87	704	791	2 422	3 213	10.7
2004–05	96	761	857	2 693	3 550	10.5
2005–06	107	751	857	2 875	3 732	5.1
2006–07	100	663	763	3 053	3 815	2.2
2007–08	123	600	723	3 121	3 845	0.8
2008–09	122	442	565	3 158	3 723	–3.2
2009–10	125	344	469	3 122	3 591	–3.5
2010–11	161	387	548	3 348	3 896	8.5
2011–12	**164**	**381**	**545**	**3 421**	**3 966**	**1.8**
2012–13	**173**	**408**	**581**	**3 655**	**4 237**	**6.8**
2013–14	**181**	**431**	**613**	**3 853**	**4 466**	**5.4**
2014–15	**188**	**453**	**641**	**4 046**	**4 687**	**5.0**
2015–16	**194**	**473**	**667**	**4 191**	**4 857**	**3.6**
2016–17	**200**	**493**	**694**	**4 342**	**5 035**	**3.7**
2017–18	**207**	**516**	**723**	**4 501**	**5 224**	**3.8**
2018–19	**213**	**540**	**753**	**4 666**	**5 419**	**3.7**
2019–20	**219**	**563**	**783**	**4 823**	**5 605**	**3.4**
2020–21	**226**	**588**	**813**	**4 979**	**5 792**	**3.3**
2021–22	**232**	**613**	**845**	**5 140**	**5 985**	**3.3**
2022–23	**239**	**640**	**879**	**5 307**	**6 185**	**3.3**
2023–24	**246**	**668**	**913**	**5 479**	**6 392**	**3.3**
2024–25	**253**	**697**	**949**	**5 657**	**6 606**	**3.3**
2025–26	**260**	**727**	**987**	**5 841**	**6 828**	**3.4**
2026–27	**268**	**758**	**1 026**	**6 031**	**7 057**	**3.4**
2027–28	**276**	**791**	**1 067**	**6 227**	**7 294**	**3.4**
2028–29	**284**	**825**	**1 109**	**6 430**	**7 539**	**3.4**
2029–30	**292**	**861**	**1 153**	**6 640**	**7 793**	**3.4**
2030–31	**300**	**898**	**1 199**	**6 849**	**8 048**	**3.3**
Annual average growth rate (per cent):						
1991–92 to 2010–11	3.9	–0.2	0.7	4.9	4.1	
2010–11 to 2030–31	**3.2**	**4.3**	**4.0**	**3.6**	**3.7**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

Sources: BITRE (2011) and BITRE estimates.

The number of total passenger movements through Cairns Airport is forecast to increase by 3.7 per cent a year over the forecast period to 8.0 million in 2030–31. The growth rate is expected to be slightly lower than the historical growth rate for the last 19 years, mainly due to the expected slowing of Australian economic growth, the maturation of the influence of low-cost carriers on passenger growth movement and rising real domestic airfares.

The number of international movements of Australian residents has increased by 3.9 per cent a year since 1991–92, and it is expected to increase by 3.2 per cent over the next 20 years, from 161 000 in 2010–11 to 300 000 in 2030–31. The number of overseas visitors, which in 2010–11 was similar to 1991–92 levels, largely due to the drop in visitor arrivals since 2007–08, is expected to increase by 4.3 per cent a year over the forecast period, from 387 000 in 2010–11 to 898 000 in 2030–31. Relatively higher long–term economic growth in Australia's inbound tourism source markets and favourable exchange rates for overseas visitors are the reasons for the strong projected growth, in overseas visitor movements.

The number of domestic passenger movements through Cairns Airport increased by 4.9 per cent a year over the 19 years to 2010–11 and is forecast to increase by 3.6 per cent a year over the next twenty years, from around 3.3 million in 2010–11 to 6.8 million in 2030–31. The relatively lower growth forecast is largely due to the maturation of domestic travel market as well as Australia's expected lower economic growth, which is the key driver of domestic passenger movements through Cairns Airport.

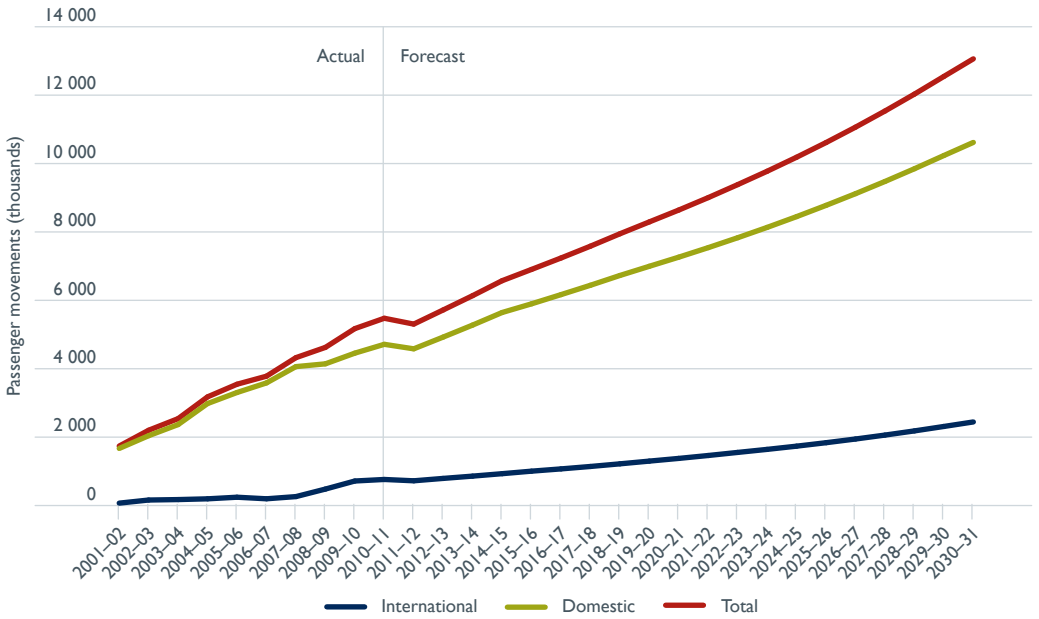
Gold Coast Airport

Gold Coast Airport, also known as Coolangatta Airport, is Australia's largest non-capital city airport. It is located some 100 kilometres south of Brisbane and 25 km south of Surfers Paradise. The airport has been in operation since 1936 at Coolangatta. Presently, it provides for air passenger services to both domestic and international destinations and is considered to be the gateway for domestic and international tourists to the Gold Coast. As a result, it plays a vital role in the local economy of the Gold Coast region through tourism development.

The airport is owned and operated by Queensland Airports Limited (QAL) under a 50-year lease from the Australian Government, with an option of extending the lease for another 49 years. Since acquiring the airport, QAL has invested around $185 million to develop infrastructure at the airport and has plans to invest more in the future under its master plan (GCAPL 2011).

In 2010–11, around 5.5 million passengers passed through Gold Coast Airport, including 4.7 million domestic passengers and 0.8 million international passengers (Figure 4.12 and Table 4.12). Among international passengers, around 0.5 million were overseas visitors and 0.3 million were Australian residents on international trips. These numbers imply that passenger movements through the airport is dominated by domestic passengers, accounting for 86.1 per cent of the total movements, followed by overseas visitors 8.5 per cent and Australian residents on international trips 5.4 per cent. Preliminary data on air passenger movements for 2011–12 suggest that the number of passenger movements through Gold Coast airport declined sharply in 2011–12, probably partly due to the forced grounding of Tiger Airways aircraft in July 2011, and subsequent reduced operations of Tiger Airways.

Figure 4.12 Air passenger movements through Gold Coast Airport



Sources: BITRE (2011) and BITRE estimates.

Although international charter services commenced at Gold Coast Airport as early as 1990, scheduled international passenger services began at the airport only in 1999, with the introduction of flights to and from Hamilton, New Zealand, by Freedom Air, a low-cost subsidiary of Air New Zealand. Since then, Gold Coast Airport has been providing scheduled passenger services to many international destinations — Tokyo and Osaka in Japan, Auckland, Queenstown and Christchurch in New Zealand, Kuala Lumpur in Malaysia. Passenger services between the Gold Coast and these destinations are currently provided by Jetstar, Virgin Australia, AirAsia X and Air New Zealand.

Total passenger movements through Gold Coast Airport increased by 7.1 per cent a year over the last 19 years, from 1.5 million in 1991–92 to 5.5 million in 2010–11. Domestic passenger movements through the airport grew by 6.2 per cent a year over the same period to 4.7 million in 2010–11, whereas international passenger movements have grown by 45.8 per cent a year since the commencement of scheduled international passenger services at Gold Coast Airport to 0.8 million in 2010–11. The high growth in international passenger movements is largely due to a significant increase in the number of international air routes linking the Gold Coast with overseas destinations, and low cost airlines operating on these routes.

Table 4.12 Air passenger movements through Gold Coast Airport

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	0	0	0	1 495	1 495	
1999–00	4	14	18	1 938	1 955	3.4
2001–02	22	48	70	1 669	1 739	–5.7
2002–03	33	127	161	2 042	2 202	26.6
2003–04	35	139	174	2 367	2 541	15.4
2004–05	40	156	196	2 982	3 178	25.1
2005–06	54	189	243	3 305	3 547	11.6
2006–07	56	140	197	3 585	3 782	6.6
2007–08	87	175	261	4 062	4 324	14.3
2008–09	173	308	481	4 143	4 624	7.0
2009–10	277	440	717	4 456	5 173	11.9
2010–11	297	465	762	4 714	5 476	5.9
2011–12	**270**	**453**	**723**	**4 582**	**5 305**	**–3.1**
2012–13	**307**	**486**	**793**	**4 926**	**5 719**	**7.8**
2013–14	**340**	**520**	**860**	**5 277**	**6 137**	**7.3**
2014–15	**375**	**555**	**931**	**5 644**	**6 574**	**7.1**
2015–16	**412**	**593**	**1 005**	**5 898**	**6 904**	**5.0**
2016–17	**441**	**630**	**1 071**	**6 167**	**7 238**	**4.8**
2017–18	**473**	**670**	**1 142**	**6 441**	**7 584**	**4.8**
2018–19	**507**	**712**	**1 219**	**6 727**	**7 946**	**4.8**
2019–20	**542**	**756**	**1 299**	**6 996**	**8 294**	**4.4**
2020–21	**576**	**802**	**1 378**	**7 263**	**8 641**	**4.2**
2021–22	**613**	**849**	**1 463**	**7 541**	**9 004**	**4.2**
2022–23	**653**	**899**	**1 553**	**7 831**	**9 384**	**4.2**
2023–24	**690**	**951**	**1 642**	**8 133**	**9 775**	**4.2**
2024–25	**730**	**1 006**	**1 736**	**8 448**	**10 185**	**4.2**
2025–26	**773**	**1 065**	**1 837**	**8 777**	**10 614**	**4.2**
2026–27	**819**	**1 126**	**1 945**	**9 119**	**11 064**	**4.2**
2027–28	**869**	**1 191**	**2 060**	**9 476**	**11 536**	**4.3**
2028–29	**922**	**1 260**	**2 182**	**9 848**	**12 030**	**4.3**
2029–30	**980**	**1 333**	**2 312**	**10 235**	**12 547**	**4.3**
2030–31	**1 034**	**1 410**	**2 444**	**10 618**	**13 062**	**4.1**
Annual average growth rate (per cent):						
1991–92 to 2010–11[1]	31.4	17.5	21.5	6.2	7.1	
2010–11 to 2030–31	**6.4**	**5.7**	**6.0**	**4.1**	**4.4**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

1. Period includes 2002–03 to 2010–11 for international passenger movements.

Sources: BITRE (2011) and BITRE estimates.

The total number of passenger movements through Gold Coast Airport is forecast to increase by 4.4 per cent a year over the next 20 years to 13.1 million in 2030–31. Domestic passenger movements are projected to increase by 4.1 per cent a year over the same period to 10.6 million in 2030–31. Similarly, international movements of Australian residents and overseas visitors are expected to increase by 6.4 and 5.7 per cent a year over the same period to 1.0 and 1.4 million, respectively, in 2030–31. The expected slowing of Australian economic growth and lower value of the Australian dollar, the maturation of the influence of low-cost carriers on passenger movement growth and the assumed increase in real domestic airfare

are expected to reduce the rate of growth in domestic and outbound Australian resident movements through Gold Coast Airport over the forecast period.

The Gold Coast Commonwealth Games bid documents anticipate up to 110 000 international and domestic visitors will attend the Games in 2018 (4–15 April 2018). These Games-related visitor numbers are not included in the trend forecasts presented in Table 4.12, as it is not clear what proportion of these anticipated visitors will be entirely additional trips, what proportion involve pull-forward or deferral of travel activity, and what proportion of visitors would access the Games via Brisbane Airport.

The existing capacity of Gold Coast Airport may be insufficient to meet the high growth in air passenger movements over the next 20 years. Realising this, Queensland Airports Limited (QAL) has already submitted a well-developed master plan for Gold Coast Airport to the Australian Government for approval. The plan includes many initiatives to expand capacity to meet expected future growth in passenger movements (GCAPL 2011).

Townsville Airport

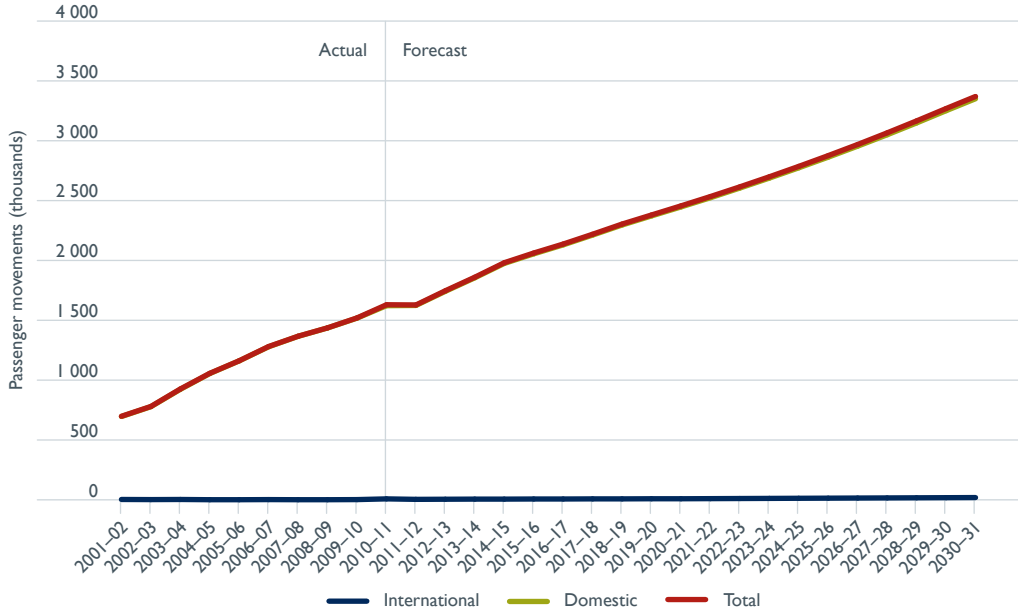
Townville Airport, which lies five kilometres west of Townsville CBD, is the second largest non-capital city airport in terms of passenger movements. It is considered to be the regional air hub of North Queensland. There are direct air services to Brisbane, Melbourne, Sydney and regional centers in North Queensland. The airport is owned by Queensland Airports Limited (QAL). The airport is also used by the Department of Defence for military use under a Joint User Agreement between Townsville Airport and the Department of Defence.

According to Townsville Airport Passenger Survey statistics, around 40 per cent of total passenger movements through Townsville Airport are local and the remaining 60 per cent are from outside of Townville. Most passengers are either business or leisure travelers. Magnetic Island, which is only 25 minutes from the city centre by regular and fast cat ferries, is one of the major attractions for tourists flying to and from the Townsville area.

Around 1.6 million passengers passed through Townsville Airport in 2010–11. Among them, 99.5 per cent were domestic passengers and 0.5 per cent international passengers (Figure 4.13 and Table 4.13).

The total number of passenger movements through Townsville Airport increased by an average of 6.6 per cent a year over the last 19 years, largely due to strong growth in domestic passenger numbers following the introduction of low-cost carriers, increases in airline capacity serving Townsville and the performance of Australian economy. Since July 2010 Jetstar has increased seat capacity on the Townsville–Melbourne route, from three times weekly to daily (Media release by QAL, 14 Dec 2009). Similarly, Virgin Blue commenced direct passenger services from Cairns, Canberra, Rockhampton and the Gold Coast to Townsville Airport from 6 April 2009 (Media release by QAL, 6 April 2009).

Figure 4.13 Air passenger movements through Townsville Airport



Sources: BITRE (2011) and BITRE estimates.

Passenger movements through Townsville Airport are forecast to grow by 3.7 per cent a year over the next 20 years to 3.4 million in 2030–31. The slower projected growth in passenger movements is mainly due to the expected slowing of Australian economic growth, the maturation of the influence of low-cost carriers on passenger volume growth and an expected increase in real domestic airfare.

The number of domestic and international passenger movements through Townsville Airport is forecast to increase by 3.7 and 4.4 per cent a year over the next 20 years. Around 3.4 million domestic passengers, 16 000 Australian residents and 3 000 overseas visitors are forecast to pass through Townsville Airport in 2030–31.

Table 4.13 Air passenger movements through Townsville Airport

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			(thousands)			(per cent)
1991–92	1	1	2	482	483	
2001–02	1	2	3	696	698	3.7
2002–03	1	1	2	778	780	11.8
2003–04	1	2	3	923	926	18.7
2004–05	1	1	1	1 055	1 057	14.1
2005–06	0	1	1	1 161	1 162	10.0
2006–07	2	0	2	1 279	1 281	10.2
2007–08	1	0	1	1 366	1 367	6.7
2008–09	1	1	1	1 436	1 437	5.2
2009–10	1	0	2	1 518	1 520	5.8
2010–11	7	2	8	1 622	1 630	7.3
2011–12	**3**	**1**	**4**	**1 624**	**1 628**	**–0.1**
2012–13	**4**	**1**	**5**	**1 742**	**1 747**	**7.3**
2013–14	**4**	**2**	**6**	**1 855**	**1 860**	**6.5**
2014–15	**5**	**2**	**6**	**1 975**	**1 981**	**6.5**
2015–16	**5**	**2**	**7**	**2 055**	**2 062**	**4.1**
2016–17	**5**	**2**	**7**	**2 130**	**2 137**	**3.7**
2017–18	**6**	**2**	**8**	**2 212**	**2 219**	**3.8**
2018–19	**6**	**2**	**8**	**2 296**	**2 304**	**3.8**
2019–20	**7**	**2**	**9**	**2 372**	**2 380**	**3.3**
2020–21	**7**	**2**	**9**	**2 447**	**2 456**	**3.2**
2021–22	**8**	**2**	**10**	**2 524**	**2 534**	**3.2**
2022–23	**9**	**2**	**11**	**2 605**	**2 615**	**3.2**
2023–24	**10**	**2**	**12**	**2 688**	**2 699**	**3.2**
2024–25	**10**	**2**	**13**	**2 774**	**2 786**	**3.2**
2025–26	**11**	**2**	**14**	**2 863**	**2 876**	**3.2**
2026–27	**12**	**2**	**15**	**2 955**	**2 969**	**3.2**
2027–28	**13**	**3**	**16**	**3 050**	**3 066**	**3.2**
2028–29	**14**	**3**	**17**	**3 149**	**3 166**	**3.3**
2029–30	**15**	**3**	**18**	**3 251**	**3 269**	**3.3**
2030–31	**16**	**3**	**19**	**3 351**	**3 370**	**3.1**
Annual average growth rate (per cent):						
1991–92 to 2010–11	11.0	3.9	8.7	6.6	6.6	
2010–11 to 2030–31	**4.7**	**3.0**	**4.4**	**3.7**	**3.7**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

Sources: BITRE (2011) and BITRE estimates.

Launceston Airport

Launceston Airport is located 16 kilometres south of Launceston CBD and occupies a total area of 180 hectares. The airport, previously known as "Western Junction", commenced operations as a grass covered field in 1935. As part of the then privatisation of major Australian airports, the Commonwealth Government leased Launceston Airport to Australia Pacific Airports Corporation (APAC) and the Launceston City Council in May 1998. APAC also operates Melbourne Airport. Launceston airport provides facilities for passenger jet services, smaller

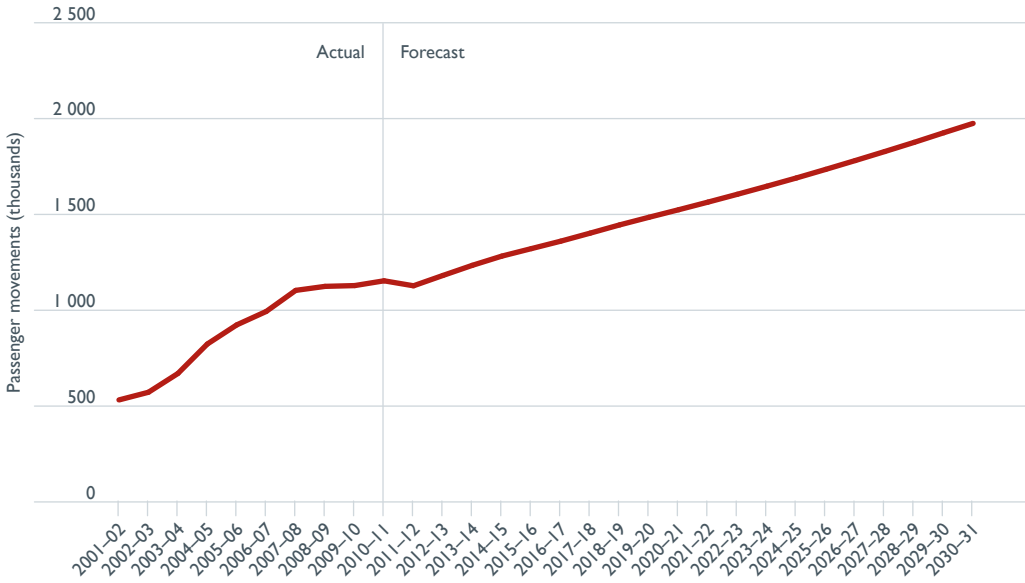
regular public transport (RPT) services, freight services and general aviation (GA) operations. The services are provided on domestic routes only, not on international routes.

Growth in passenger movements through Launceston Airport was relatively strong until mid-1996, but then fell markedly and remained low till 2000–01. The number of passenger movements through Launceston Airport declined by an average of 2.4 per cent a year between 1995–96 and 2000–01. One possible reason for this is a drop in tourism to Tasmania after the Port Arthur massacre of 28 April 1996. Hobart Airport also experienced a similar drop in passenger numbers during the period. In 2000–01, the situation was exacerbated when Ansett Australia experienced financial difficulties and started canceling services on many of its domestic routes in efforts to avoid financial collapse.

Domestic travel bounced back in 2001–02 and exhibited strong average growth of 12.9 per cent a year until 2007–08, mainly due to the influence of new low-cost carriers. Since 2007–08, the number of domestic passenger movements through Launceston Airport has increased by 1.5 per cent per annum, from 1.1 million in 2007–08 to 1.2 million in 2010–11. Averaged over the last 19 years, air passenger movements through Launceston Airport have grown at an annual average growth rate of 5.0 per cent (Figure 4.14 and Table 4.14).

The total number of passenger movements through Launceston Airport is projected to increase annually by 2.7 per cent during the forecast period to 2.0 million in 2030–31. The expected growth rate reflects slower forecast longer term economic growth in Australia, the maturation of the impact of low-cost carriers on passenger movement growth and an expected increase in real domestic airfares.

Figure 4.14 Air passenger movements through Launceston Airport



Sources: BITRE (2011) and BITRE estimates.

Table 4.14 Air passenger movements through Launceston Airport

Year	Domestic	Total	Change in total
	(thousands)		*(per cent)*
1991–92	458	458	
2001–02	534	534	1.6
2002–03	574	574	7.6
2003–04	672	672	17.0
2004–05	826	826	22.9
2005–06	926	926	12.1
2006–07	996	996	7.6
2007–08	1 106	1 106	11.1
2008–09	1 127	1 127	1.8
2009–10	1 131	1 131	0.4
2010–11	1 156	1 156	2.2
2011–12	**1 130**	**1 130**	**–2.3**
2012–13	**1 184**	**1 184**	**4.8**
2013–14	**1 237**	**1 237**	**4.5**
2014–15	**1 285**	**1 285**	**3.9**
2015–16	**1 324**	**1 324**	**3.0**
2016–17	**1 363**	**1 363**	**3.0**
2017–18	**1 405**	**1 405**	**3.1**
2018–19	**1 448**	**1 448**	**3.1**
2019–20	**1 488**	**1 488**	**2.7**
2020–21	**1 527**	**1 527**	**2.6**
2021–22	**1 567**	**1 567**	**2.6**
2022–23	**1 608**	**1 608**	**2.6**
2023–24	**1 650**	**1 650**	**2.6**
2024–25	**1 693**	**1 693**	**2.6**
2025–26	**1 738**	**1 738**	**2.6**
2026–27	**1 784**	**1 784**	**2.6**
2027–28	**1 831**	**1 831**	**2.6**
2028–29	**1 879**	**1 879**	**2.6**
2029–30	**1 929**	**1 929**	**2.6**
2030–31	**1 978**	**1 978**	**2.5**
Annual average growth rate (per cent):			
1991–92 to 2010–11	5.0	5.0	
2010–11 to 2030–31	**2.7**	**2.7**	

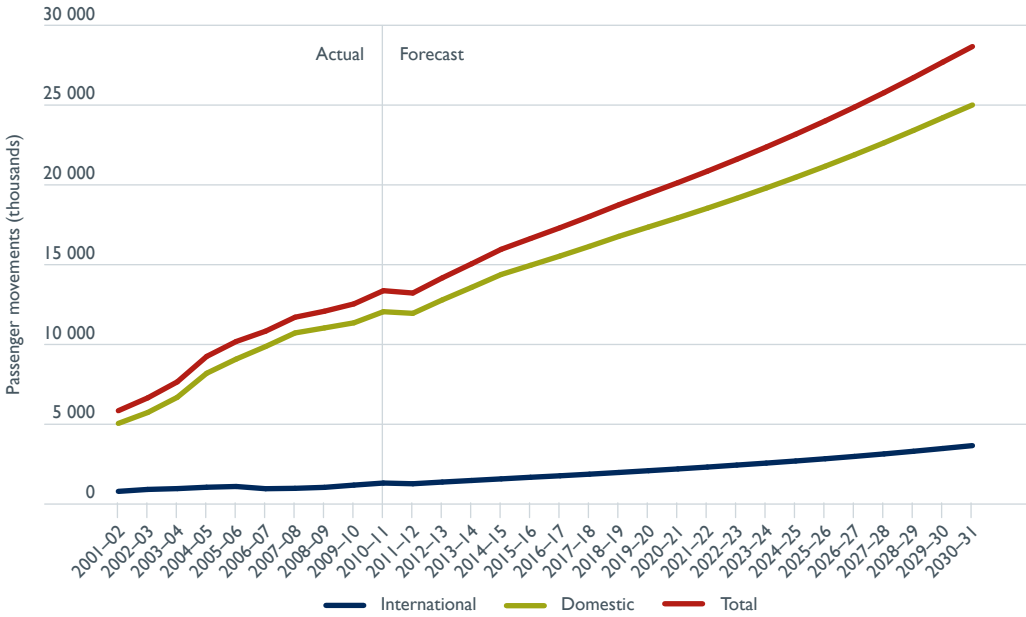
*Numbers in bold are forecasts except for preliminary data for 2011–12.

Sources: BITRE (2011) and BITRE estimates.

Five largest non-capital city airports total

Total passenger movements through the five largest non-capital city airports grew by 6.1 per cent a year over the last 19 years, from 4.3 million in 1991–92 to 13.4 million in 2010–11 (Figure 4.15 and Table 4.15). Domestic and international passenger movements grew by 6.2 and 5.5 per cent a year over the same period to 12.1 and 1.3 million, respectively, in 2010–11.

Figure 4.15 Air passenger movements through the five largest non-capital city airports



Sources: BITRE (2011) and BITRE estimates.

Total passenger movements through the five largest non-capital city airports are forecast to increase by 3.9 per cent a year over the next 20 years to 28.7 million in 2030–31. Domestic and international passenger movements are projected to grow by 3.7 and 5.2 per cent a year over the next 20 years to 25.0 and 3.7 million, respectively, in 2030–31.

The number of international movements of Australian residents and overseas visitors through the five largest non-capital city airports is expected to increase annually by 5.5 and 5.1 per cent over the forecast period to 1.4 and 2.3 million, respectively, in 2030–31.

Table 4.15 Air passenger movements through the five largest non-capital city airports

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	78	401	480	3 827	4 307	
2001–02	94	702	795	5 053	5 849	3.1
2002–03	111	806	917	5 738	6 655	13.8
2003–04	123	845	968	6 686	7 654	15.0
2004–05	136	918	1 054	8 196	9 250	20.9
2005–06	161	940	1 101	9 083	10 184	10.1
2006–07	158	804	962	9 870	10 832	6.4
2007–08	210	775	986	10 722	11 707	8.1
2008–09	296	751	1 047	11 037	12 084	3.2
2009–10	404	784	1 188	11 356	12 543	3.8
2010–11	464	853	1 317	12 053	13 370	6.6
2011–12	**436**	**835**	**1 272**	**11 951**	**13 223**	**–1.1**
2012–13	**484**	**896**	**1 379**	**12 792**	**14 172**	**7.2**
2013–14	**526**	**952**	**1 478**	**13 580**	**15 058**	**6.3**
2014–15	**568**	**1 010**	**1 578**	**14 385**	**15 963**	**6.0**
2015–16	**612**	**1 067**	**1 679**	**14 961**	**16 640**	**4.2**
2016–17	**647**	**1 125**	**1 772**	**15 544**	**17 316**	**4.1**
2017–18	**685**	**1 188**	**1 873**	**16 149**	**18 022**	**4.1**
2018–19	**726**	**1 254**	**1 980**	**16 777**	**18 756**	**4.1**
2019–20	**768**	**1 322**	**2 090**	**17 360**	**19 450**	**3.7**
2020–21	**809**	**1 391**	**2 201**	**17 938**	**20 139**	**3.5**
2021–22	**854**	**1 465**	**2 318**	**18 537**	**20 855**	**3.6**
2022–23	**901**	**1 541**	**2 443**	**19 159**	**21 601**	**3.6**
2023–24	**946**	**1 621**	**2 567**	**19 804**	**22 371**	**3.6**
2024–25	**993**	**1 705**	**2 699**	**20 473**	**23 172**	**3.6**
2025–26	**1 044**	**1 794**	**2 838**	**21 167**	**24 005**	**3.6**
2026–27	**1 099**	**1 887**	**2 986**	**21 888**	**24 874**	**3.6**
2027–28	**1 157**	**1 985**	**3 142**	**22 636**	**25 778**	**3.6**
2028–29	**1 220**	**2 088**	**3 308**	**23 412**	**26 719**	**3.7**
2029–30	**1 287**	**2 197**	**3 483**	**24 214**	**27 697**	**3.7**
2030–31	**1 351**	**2 311**	**3 662**	**25 007**	**28 669**	**3.5**
Annual average growth rate (per cent):						
1991–92 to 2010–11	9.8	4.0	5.5	6.2	6.1	
2010–11 to 2030–31	**5.5**	**5.1**	**5.2**	**3.7**	**3.9**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

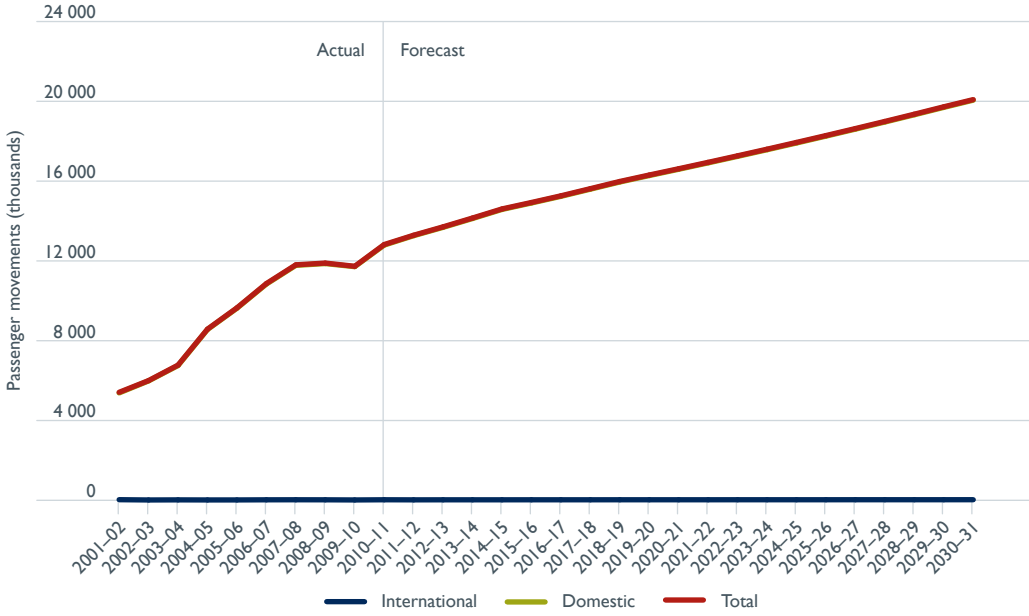
Sources: BITRE (2011) and BITRE estimates.

Other airports

In this study, 'Other airports' refer to all Australian airports, excluding the eight capital city airports (Sydney, Melbourne, Brisbane, Adelaide, Perth, Hobart, Darwin and Canberra) and the five largest non-capital city airports (Newcastle, Cairns, Gold Coast, Townsville and Launceston). The major airports included in 'other airports' are located in major tourist destinations such as Coffs Harbour, Dubbo, Hamilton Island, Rockhampton and Ayers Rock.

Other airports predominantly service domestic passengers. In 2010–11, around 12.8 million passengers passed through other airports. Of which only 27 000 were international passengers (Figure 4.16 and Table 4.16).

Figure 4.16 Air passenger movements through other airports



Sources: BITRE (2011) and BITRE estimates.

The total number of passengers through other airports increased by an average of 4.8 per cent a year over the last 19 years, and is forecast to increase by an average of 2.3 per cent a year over the next 20 years to 20.1 million in 2030–31. The low growth rate forecast is largely due to the expected slowing of Australian economic growth, the maturation of the influence of low-cost carriers on passenger movements and the expected rise in real domestic airfares. Almost all growth in total movements is attributed to domestic movements. International passenger movements through other airports are forecast to increase by only 0.4 per cent a year over the forecast period to 30 000 passengers in 2030–31, including 18 000 Australian resident movements and 12 000 overseas visitor movements.

Table 4.16 Air passenger movements through other airports

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	22	13	35	5 257	5 293	
2001–02	9	22	31	5 383	5 414	0.2
2002–03	3	14	17	5 986	6 002	10.9
2003–04	3	19	22	6 755	6 777	12.9
2004–05	7	12	18	8 562	8 580	26.6
2005–06	8	11	19	9 628	9 647	12.4
2006–07	14	10	25	10 840	10 865	12.6
2007–08	19	8	27	11 777	11 804	8.6
2008–09	18	7	25	11 867	11 892	0.7
2009–10	15	4	18	11 713	11 731	–1.4
2010–11	17	11	27	12 794	12 821	9.3
2011–12	**13**	**11**	**23**	**13 265**	**13 288**	**3.6**
2012–13	**14**	**11**	**25**	**13 683**	**13 708**	**3.2**
2013–14	**14**	**11**	**25**	**14 125**	**14 151**	**3.2**
2014–15	**14**	**11**	**25**	**14 580**	**14 606**	**3.2**
2015–16	**15**	**11**	**26**	**14 904**	**14 929**	**2.2**
2016–17	**15**	**11**	**26**	**15 237**	**15 263**	**2.2**
2017–18	**15**	**11**	**26**	**15 596**	**15 622**	**2.4**
2018–19	**15**	**11**	**27**	**15 956**	**15 983**	**2.3**
2019–20	**16**	**11**	**27**	**16 279**	**16 306**	**2.0**
2020–21	**16**	**11**	**27**	**16 594**	**16 621**	**1.9**
2021–22	**16**	**11**	**27**	**16 915**	**16 942**	**1.9**
2022–23	**16**	**11**	**28**	**17 241**	**17 269**	**1.9**
2023–24	**16**	**11**	**28**	**17 573**	**17 601**	**1.9**
2024–25	**17**	**11**	**28**	**17 911**	**17 940**	**1.9**
2025–26	**17**	**11**	**28**	**18 256**	**18 284**	**1.9**
2026–27	**17**	**12**	**29**	**18 606**	**18 635**	**1.9**
2027–28	**17**	**12**	**29**	**18 963**	**18 992**	**1.9**
2028–29	**17**	**12**	**29**	**19 326**	**19 355**	**1.9**
2029–30	**18**	**12**	**29**	**19 696**	**19 726**	**1.9**
2030–31	**18**	**12**	**30**	**20 058**	**20 087**	**1.8**
Annual average growth rate (per cent):						
1991–92 to 2010–11	–1.4	–1.1	–1.3	4.8	4.8	
2010–11 to 2030–31	**0.4**	**0.3**	**0.4**	**2.3**	**2.3**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

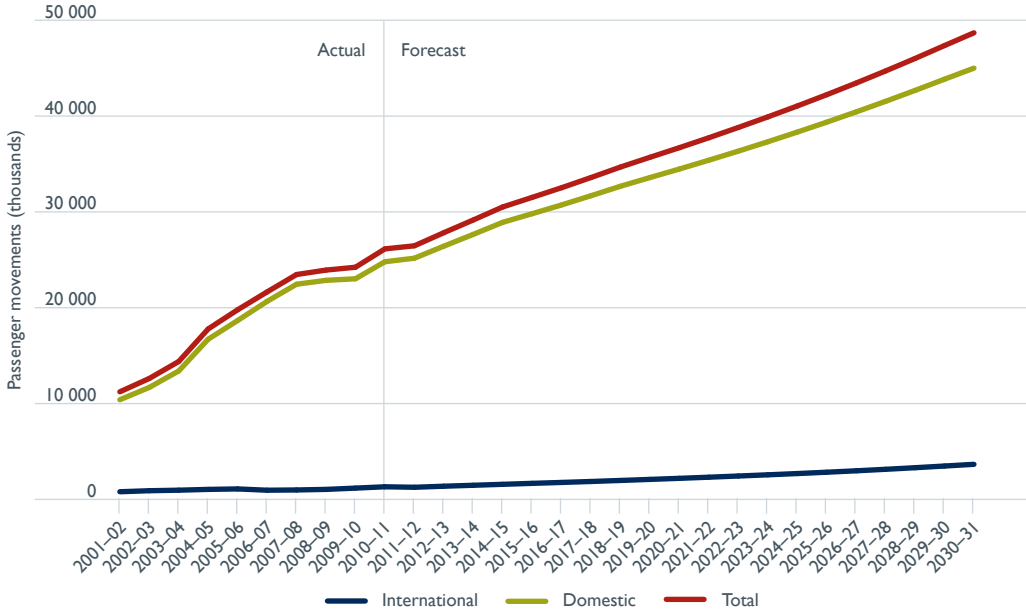
Sources: BITRE (2011) and BITRE estimates.

All non-capital city airports total

The total number of passenger movements through all non-capital city airports increased by 5.4 per cent a year over the last 19 years, from 9.6 million in 1991–92 to 26.2 million in 2010–11 (Figure 4.17 and Table 4.17). Domestic and international passenger movements increased by 5.4 and 5.2 per cent a year over the same period to 24.8 and 1.3 million, respectively, in 2010–11.

Total passenger movements through all non-capital city airports are projected to grow by 3.2 per cent a year over the next 20 years to 48.8 million in 2030–31. Domestic and international passenger movements are forecast to grow by 3.0 and 5.2 per cent a year over the same period to 45.1 and 3.7 million, respectively, in 2030–31.

Figure 4.17 Air passenger movements through all non-capital city airports



The number of international movements of Australian residents and overseas visitors through all non-capital city airports is expected to increase by 5.4 and 5.1 per cent a year over the forecast period to 1.4 and 2.3 million, respectively, in 2030–31.

Table 4.17 Air passenger movements through all non-capital city airports

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	100	415	515	9 085	9 599	
2001–02	103	724	827	10 436	11 263	1.6
2002–03	114	820	934	11 724	12 658	12.4
2003–04	126	864	990	13 441	14 431	14.0
2004–05	143	930	1 073	16 758	17 831	23.6
2005–06	168	952	1 120	18 711	19 831	11.2
2006–07	172	814	987	20 710	21 697	9.4
2007–08	229	783	1 013	22 499	23 512	8.4
2008–09	315	758	1 072	22 904	23 976	2.0
2009–10	418	788	1 206	23 068	24 274	1.2
2010–11	481	864	1 345	24 847	26 191	7.9
2011–12	**449**	**846**	**1 295**	**25 216**	**26 511**	**1.2**
2012–13	**498**	**907**	**1 404**	**26 475**	**27 879**	**5.2**
2013–14	**540**	**963**	**1 503**	**27 705**	**29 209**	**4.8**
2014–15	**583**	**1 021**	**1 603**	**28 965**	**30 568**	**4.7**
2015–16	**626**	**1 078**	**1 704**	**29 865**	**31 569**	**3.3**
2016–17	**662**	**1 136**	**1 798**	**30 781**	**32 579**	**3.2**
2017–18	**700**	**1 199**	**1 899**	**31 745**	**33 644**	**3.3**
2018–19	**741**	**1 265**	**2 006**	**32 733**	**34 739**	**3.3**
2019–20	**784**	**1 333**	**2 117**	**33 639**	**35 756**	**2.9**
2020–21	**825**	**1 403**	**2 228**	**34 532**	**36 760**	**2.8**
2021–22	**869**	**1 476**	**2 346**	**35 452**	**37 797**	**2.8**
2022–23	**917**	**1 553**	**2 470**	**36 400**	**38 870**	**2.8**
2023–24	**962**	**1 633**	**2 595**	**37 377**	**39 972**	**2.8**
2024–25	**1 010**	**1 717**	**2 727**	**38 385**	**41 111**	**2.9**
2025–26	**1 061**	**1 805**	**2 866**	**39 423**	**42 289**	**2.9**
2026–27	**1 116**	**1 898**	**3 014**	**40 494**	**43 508**	**2.9**
2027–28	**1 175**	**1 996**	**3 171**	**41 599**	**44 770**	**2.9**
2028–29	**1 237**	**2 099**	**3 337**	**42 738**	**46 075**	**2.9**
2029–30	**1 305**	**2 208**	**3 513**	**43 910**	**47 423**	**2.9**
2030–31	**1 369**	**2 323**	**3 691**	**45 065**	**48 756**	**2.8**
Annual average growth rate (per cent):						
1991–92 to 2010–11	8.6	3.9	5.2	5.4	5.4	
2010–11 to 2030–31	**5.4**	**5.1**	**5.2**	**3.0**	**3.2**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

Sources: BITRE (2011) and BITRE estimates.

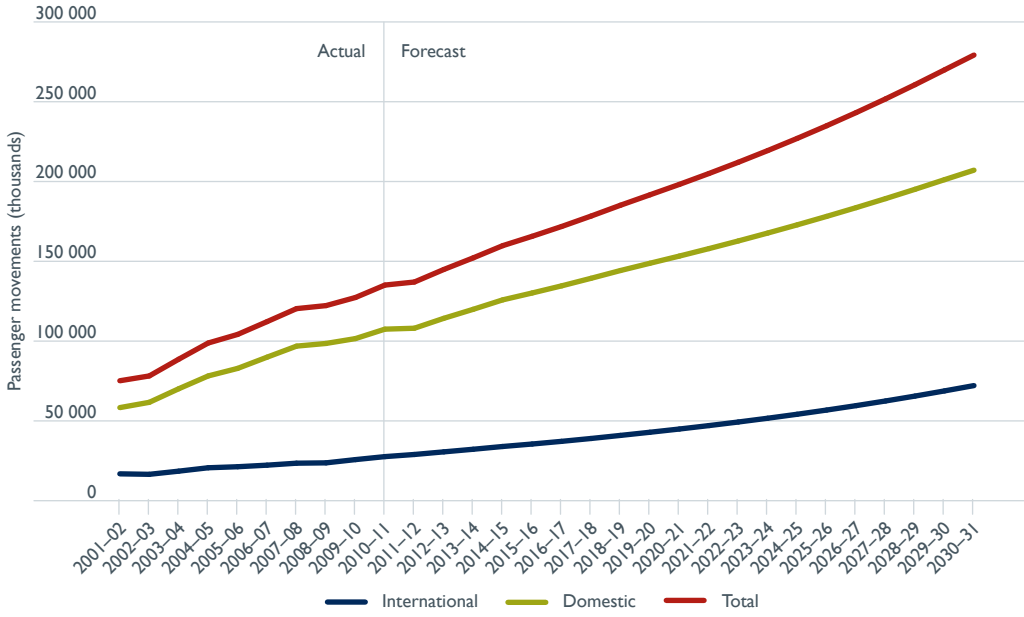
All airports

In 2010–11, 135.1 million passengers passed through all Australian airports. Approximately 107.5 million were domestic passengers and 27.6 million were international passengers (Figure 4.18 and Table 4.18).

The total number of passenger movements through all airports has increased by an average of 5.3 per cent a year over the last 19 years, and it is forecast to increase by 3.7 per cent a year over the next 20 years to 279.2 million in 2030–31. Again, this annual average growth rate is forecast to be less than historical rate of growth, mainly due to slower long-term economic growth in Australia, the maturation of low-cost carriers on domestic passenger movements and rising real domestic airfares.

The number of domestic and international passenger movements is projected to increase by 3.3 and 4.9 per cent a year over the forecast period to 207.1 and 72.1 million, respectively, in 2030–31. Australian resident movements and overseas visitor movements are projected to grow by 4.4 and 5.5 per cent a year during the same period to 35.6 and 36.6 million, respectively, in 2030–31.

Figure 4.18 Air passenger movements through all airports



Sources: BITRE (2011) and BITRE estimates.

Table 4.18 Air passenger movements through all airports

	International					
	Australian residents	Overseas visitors	Total	Domestic	Total	Change in total
Year			*(thousands)*			*(per cent)*
1991–92	4 397	5 190	9 587	41 050	50 637	
2001–02	6 930	9 899	16 829	58 327	75 156	4.0
2002–03	6 827	9 700	16 526	61 643	78 169	4.0
2003–04	7 981	10 532	18 513	70 150	88 663	13.4
2004–05	9 380	11 256	20 636	78 173	98 808	11.4
2005–06	9 880	11 404	21 284	82 901	104 185	5.4
2006–07	10 510	11 756	22 267	89 945	112 212	7.7
2007–08	11 665	11 837	23 502	96 856	120 358	7.3
2008–09	11 923	11 787	23 711	98 530	122 241	1.6
2009–10	13 648	12 099	25 747	101 578	127 325	4.2
2010–11	15 072	12 551	27 623	107 491	135 114	6.1
2011–12	**16 214**	**12 745**	**28 959**	**108 061**	**137 020**	**1.4**
2012–13	**17 167**	**13 434**	**30 601**	**114 283**	**144 884**	**5.7**
2013–14	**17 891**	**14 348**	**32 239**	**119 935**	**152 174**	**5.0**
2014–15	**18 650**	**15 316**	**33 966**	**125 844**	**159 810**	**5.0**
2015–16	**19 258**	**16 258**	**35 516**	**130 153**	**165 669**	**3.7**
2016–17	**19 979**	**17 214**	**37 192**	**134 622**	**171 814**	**3.7**
2017–18	**20 785**	**18 200**	**38 986**	**139 361**	**178 347**	**3.8**
2018–19	**21 703**	**19 212**	**40 915**	**144 240**	**185 155**	**3.8**
2019–20	**22 623**	**20 266**	**42 889**	**148 788**	**191 677**	**3.5**
2020–21	**23 540**	**21 378**	**44 918**	**153 294**	**198 212**	**3.4**
2021–22	**24 511**	**22 548**	**47 060**	**157 949**	**205 009**	**3.4**
2022–23	**25 523**	**23 788**	**49 311**	**162 757**	**212 068**	**3.4**
2023–24	**26 588**	**25 093**	**51 681**	**167 724**	**219 405**	**3.5**
2024–25	**27 696**	**26 476**	**54 171**	**172 854**	**227 026**	**3.5**
2025–26	**28 870**	**27 931**	**56 801**	**178 154**	**234 955**	**3.5**
2026–27	**30 091**	**29 475**	**59 567**	**183 629**	**243 196**	**3.5**
2027–28	**31 385**	**31 101**	**62 487**	**189 285**	**251 772**	**3.5**
2028–29	**32 733**	**32 826**	**65 559**	**195 128**	**260 687**	**3.5**
2029–30	**34 149**	**34 643**	**68 792**	**201 153**	**269 944**	**3.6**
2030–31	**35 557**	**36 569**	**72 126**	**207 112**	**279 238**	**3.4**
Annual average growth rate (per cent):						
1991–92 to 2010–11	6.7	4.8	5.7	5.2	5.3	
2010–11 to 2030–31	**4.4**	**5.5**	**4.9**	**3.3**	**3.7**	

*Numbers in bold are forecasts except for preliminary data for 2011–12.

Sources: BITRE (2011) and BITRE estimates.

CHAPTER 5

Sensitivity analysis

Introduction

The air passenger movement forecasts presented in Chapter 4 were derived on the basis of the most recent population and macroeconomic outlook for Australia and its major trading partners, predominantly OECD countries. Given the significant variability in economic growth, oil prices and exchange rates exhibited over the last two decades and also the present political instability in some Middle Eastern countries and ongoing economic uncertainty in Europe, it is possible that the economic growth, oil price and exchange rate assumptions used to derive forecasts in Chapter 4 may not hold. Hence, sensitivity analysis was carried out to assess the possible impact of variations in economic growth, oil prices and exchange rates on the forecast number of air passenger movements through Australian airports. The sensitivity analysis results are compared here with the base case forecasts presented in Chapter 4.

Sensitivity analysis on economic growth

Two alternative economic growth scenarios were considered — a high-growth scenario and low-growth scenario. The assumptions considered under these scenarios are as follows:

High-growth scenario: Average annual GDP growth in Australia and all OECD countries were assumed to be 0.5 percentage points higher than in the base case — i.e. average growth of 3.4 per cent per annum between 2010–11 and 2030–31 in Australia and 2.8 per cent per annum across all OECD countries.

Low-growth scenario: Average annual GDP growth in Australia and all OECD countries were assumed to be 0.5 percentage points lower than in the base case — i.e. average growth of 2.4 per cent per annum between 2010–11 and 2030–31 in Australia and 1.8 per cent per annum across all OECD countries.

Under the high economic growth scenario total air passenger movements through all Australian airports would increase annually by 4.5 per cent over the next twenty years and under the low economic growth scenario by 2.9 per cent per annum. These compare with growth of 3.7 per cent per annum under the base case scenario (Table 5.1). The impact of higher/lower average annual GDP growth varies by airport with the largest range of variation at Melbourne, Brisbane, Perth, Darwin, Newcastle and Gold Coast airports.

Table 5.1 Average annual growth rates in air passenger movements, 2010–11 to 2030–31, under alternative GDP growth scenarios

	Average annual growth rate (per cent)			*Difference (per cent)*	
Airport	Base case	High growth scenario	Low growth scenario	High growth scenario	Low growth scenario
Sydney	3.6	4.2	2.8	0.7	–0.7
Melbourne	3.9	4.8	3.0	0.9	–0.9
Brisbane	4.2	5.0	3.2	0.9	–0.9
Adelaide	3.1	3.7	2.5	0.6	–0.6
Perth	4.4	5.3	3.3	1.0	–1.1
Hobart	3.0	3.7	2.4	0.7	–0.7
Darwin	4.2	5.1	3.1	0.9	–1.0
Canberra	3.3	3.8	2.7	0.5	–0.5
Newcastle	3.1	4.2	1.8	1.1	–1.3
Cairns	3.7	4.3	3.0	0.6	–0.6
Gold Coast	4.4	5.4	3.4	0.9	–1.0
Townsville	3.7	4.5	2.9	0.8	–0.8
Launceston	2.7	3.4	2.0	0.7	–0.7
Other airports	2.3	2.7	1.9	0.4	–0.4
All airports	3.7	4.5	2.9	0.8	–0.8

Source: BITRE estimates.

Table 5.2 Forecast cumulative total air passenger movements, 2010–11 to 2030–31, under alternative GDP growth scenarios

	Passenger movements (millions)			*Change from base case (per cent)*	
Airport	Base case	High growth Scenario	Low growth Scenario	High growth Scenario	Low growth Scenario
Sydney	1053	1138	974	8.0	–7.5
Melbourne	863	949	783	10.0	–9.3
Brisbane	645	712	582	10.4	–9.8
Adelaide	202	217	189	7.1	–6.7
Perth	371	415	330	11.8	–11.1
Hobart	52	56	49	7.7	–7.2
Darwin	60	67	54	11.4	–10.7
Canberra	92	97	87	5.9	–5.5
Newcastle	35	40	30	13.8	–12.9
Cairns	119	128	111	7.3	–6.9
Gold Coast	180	200	160	11.4	–10.7
Townsville	50	55	46	9.4	–8.8
Launceston	31	33	29	7.7	–7.2
Other airports	335	351	320	4.7	–4.4
All airports	4088	4458	3742	9.0	–8.5

Source: BITRE estimates.

Total air passenger movements over the 20 year forecast period would increase by 9.0 per cent, relative to the base case, to 4.5 billion in 2030–31 under high–growth scenario and would decline by 8.5 per cent, relative to the base case, to 3.7 billion under low-growth scenario (Table 5.2).

Sensitivity analysis on oil prices

The impact of higher or lower oil prices on total air passenger movements has been analysed using two scenarios: a low-price scenario and a high-price scenario. These scenarios, and the base case future oil price assumptions, which are shown in Figure 5.1, are based on the three oil price scenarios described in BITRE (2012) — the Odell Scenario (low-price scenario), IEA scenario (medium-price scenario) and IEA-adjusted (high-price) scenario. Each of these three oil price scenarios is based on different long-run assumptions about future world oil supply. The oil price assumptions considered under these scenarios are as follows:

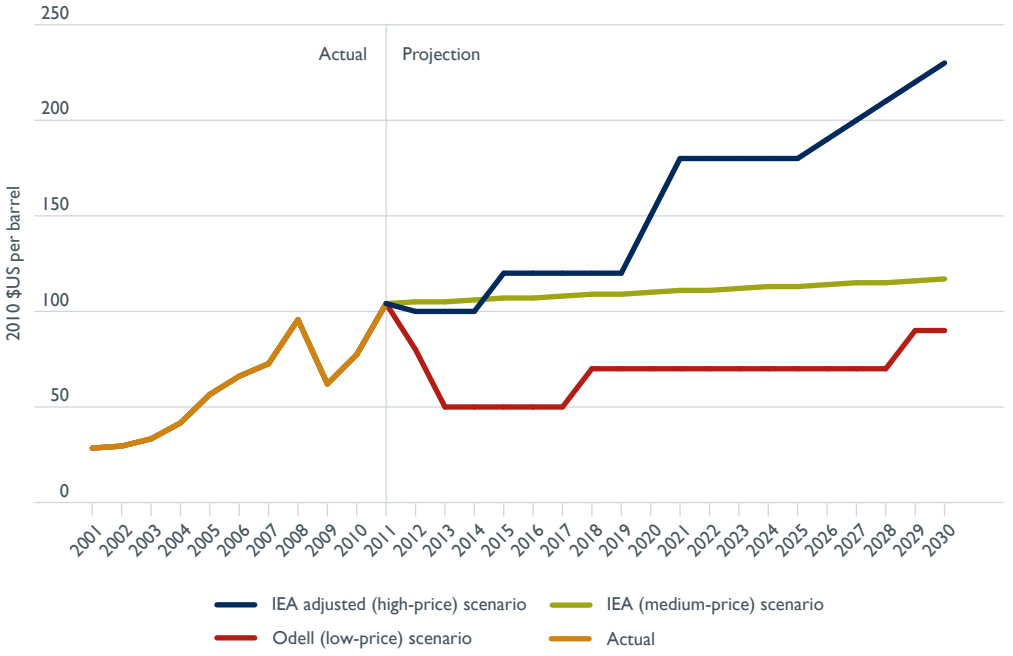
Low-price scenario: The average price of oil declines from US$104.09 per barrel in 2011 to US$50.00 per barrel in 2017 and gradually increases to US$90.00 per barrel in 2030 (Figure 5.1). The difference between the 2011 oil price and assumed 2030 oil price is equivalent to an average decline in oil prices of 0.8 per cent a year over the forecast period.

Medium-price (Base case) Scenario: The average price of oil gradually increases from US$104.09 per barrel in 2011 to US$117.00 per barrel in 2030 (Figure 5.1). That is equivalent to an average price increase of 0.6 per cent a year over the forecast period (Figure 5.1).

High-price scenario: The average price of oil declines from US$104.09 per barrel in 2011 to US$100.00 per barrel in 2012 and then gradually increases to US$230.00 per barrel in 2030 (Figure 5.1). That is equivalent to an average price increase of 4.3 per cent a year over the forecast period.

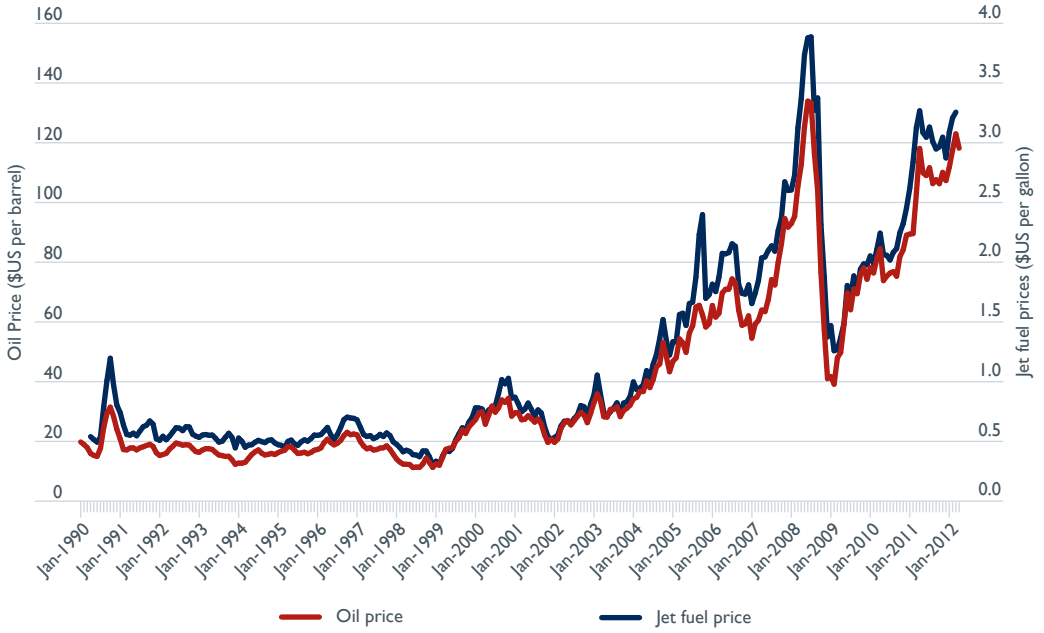
Data on US petroleum prices (U.S. Energy Information Administration 2012) suggests that Kerosene-Type Jet fuel spot prices increase or decrease proportionately with movements in oil prices in the USA (Figure 5.2). This relation was also assumed to hold in Australia, and the projected growth rates of world oil prices under the low, high and medium oil price scenarios were used to derive projections of jet fuel prices for each of these scenarios over the forecast period. The estimated jet fuel prices were then used to derive shares of jet fuel in airlines' total operating cost, under the assumption that all other operating costs and fuel consumption of airlines grow at their historical growth rates over the forecast period.

Figure 5.1 World oil price scenarios



Sources: BITRE (2012).

Figure 5.2 US oil and jet fuel prices



Source: U.S. Energy Information Administration (2012).

According to the cost data of Qantas airlines, fuel is the second largest component of airlines' total operating costs after labour. In 2010–11, labour and fuel accounted for 29.5 and 28.6 per cent of the total operating cost of Qantas airlines (Qantas 2011). With the assumptions made earlier on oil and jet fuel prices, operating cost and fuel consumption, the fuel cost share for airlines would gradually increase to 46.0 per cent in 2030–31 under high-price scenario, and it would decline slightly to 25.0 per cent in the same year under the low-price scenario.

In this study, prices of air travel are assumed to vary proportionately with airlines' total operating costs. Hence, the decline in fuel prices from its base case level under low-price scenario would cause prices of travel to decline as much as by 9.3 per cent relative to the base case level, whereas the increase in fuel prices under high-price scenario would cause prices of air travel to increase by as much as by 44.4 per cent relative to the base case level in by 2030–31. Further, the rate of change in prices of air travel due to changes in jet fuel prices is assumed to remain the same on all Australian international and domestic routes.

The estimated changes in airfares under each scenario were combined with the relative price elasticities of air passenger travel demand (Tables 2.1 to 2.3 in Chapter 2) to estimate the impact of the changes in oil prices on the number of air passenger movements through Australian airports. According to results of the sensitivity analysis, the number of air passenger movements through all Australian airports would increase annually by 3.8 per cent over the next twenty years under low-price scenario and 3.0 per cent under high-price scenario, compared with 3.7 per cent under the base case scenario (Table 5.3). In other words, the number of air passenger movements would increase by an additional 0.1 percentage points a year (in addition to the base case growth rate) under the low-price scenario, and it would shrink by 0.7 percentage points under the high-price scenario. Results also indicate that the magnitude of changes in the average annual growth rates vary by airport as the estimated price elasticities of passenger travel demand vary by airport. The magnitude would be relatively larger at airports with higher price elasticities, smaller at airports with low price elasticities and have little or no impact at airports with negligible or zero price elasticities (such as Newcastle Airport).

Table 5.3 Average annual growth rates in air passenger movements, 2010–11 to 2030–31, under alternative oil price scenarios

	Average annual growth rate (per cent)			*Difference (per cent)*	
Airport	Base case	High-price scenario	Low-price scenario	High-price scenario	Low-price scenario
Sydney	3.6	3.1	3.6	–0.5	0.1
Melbourne	3.9	3.3	4.0	–0.6	0.1
Brisbane	4.2	3.2	4.3	–0.9	0.1
Adelaide	3.1	2.5	3.2	–0.6	0.1
Perth	4.4	3.4	4.5	–1.0	0.1
Hobart	3.0	1.8	3.2	–1.2	0.1
Darwin	4.2	3.7	4.2	–0.4	0.1
Canberra	3.3	2.6	3.3	–0.6	0.1
Newcastle	3.1	3.1	3.1	0.0	0.0
Cairns	3.7	3.1	3.8	–0.6	0.1
Gold Coast	4.4	4.0	4.5	–0.5	0.1
Townsville	3.7	2.5	3.8	–1.2	0.1
Launceston	2.7	2.3	2.8	–0.4	0.0
Other airports	2.3	1.5	2.4	–0.8	0.1
All airports	3.7	3.0	3.8	–0.7	0.1

Source: BITRE estimates.

Total air passenger movements over the 20 year forecast period would increase by 2.1 per cent relative to the base case, to 4.2 billion under low-price scenario and decline by 5.6 per cent relative to the base case, to 3.9 billion under high-price scenario (Table 5.4).

Table 5.4 Forecast cumulative total air passenger movements, 2010–11 to 2030–31, under alternative oil price scenarios

	Passenger movements (millions)			*Change from base case (per cent)*	
Airport	Base case	High-price scenario	Low-price scenario	High-price scenario	Low-price scenario
Sydney	1 053	1 011	1 068	–3.9	1.5
Melbourne	863	820	879	–5.0	1.8
Brisbane	645	595	663	–7.8	2.8
Adelaide	202	191	206	–5.4	2.1
Perth	371	341	382	–8.1	3.0
Hobart	52	47	54	–9.9	3.8
Darwin	60	58	61	–3.7	1.4
Canberra	92	87	94	–5.3	2.0
Newcastle	35	35	35	0.0	0.0
Cairns	119	113	121	–5.4	2.0
Gold Coast	180	172	182	–4.4	1.6
Townsville	50	45	52	–9.5	3.6
Launceston	31	30	31	–3.4	1.3
Other airports	335	314	344	–6.4	2.6
All airports	4 088	3 858	4 174	–5.6	2.1

Source: BITRE estimates.

Sensitivity analysis on exchange rates

The value of the Australian dollar has fluctuated significantly over the past three decades. It was pegged above parity with the US dollar prior to July 1982 and then, following the floating of the currency in 1983, it gradually declined to US 51.07 cents per Australian dollar in 2001. It again reached parity with the US dollar in December 2010. Since then it has mostly remained above or at par with the US dollar, in large part due to the resources boom in Australia and financial uncertainty in Europe and the US. However, continuing economic uncertainty in Europe and the US and a drop in domestic economic conditions in China could slow demand for Australian resources reducing demand for Australian dollars and the value of the Australian dollar. Conversely, a protraction of the European debt crisis and continuing uncertainty in international currency markets, combined with relatively stronger economic conditions in Australia could see Australian investments increasingly viewed as a safe haven and increase demand for and the value of the Australia dollar. In view of these uncertainties, the following two alternative exchange rate scenarios were considered:

High exchange rate scenario: The Australian dollar remains at par with the US dollar over the forecast period.

Low exchange rate scenario: The Australian dollar gradually declines from its current level to US 56 cents per Australian dollar in 2017–18 and remains at that level thereafter.

Results of the sensitivity analysis suggest that changes in exchange rate assumptions have a minimal impact on total air passenger numbers passing through Australian airports. This

is largely due the fact that (i) domestic travel, which dominates air passenger movements through Australian airports, is relatively inelastic to exchange rates; and (ii) while significant for overseas travel — exchange rates are significant only for outbound Australian residents passing through Sydney, Melbourne and Brisbane airports and for inbound overseas visitors passing through Sydney, Melbourne, Brisbane, Adelaide, Perth and Darwin airports—variations in the exchange rate have offsetting impacts on Australians travelling overseas and foreigners travelling to Australia. That is, a higher value of the Australian dollar against the US dollar positively influences outbound travel of Australian residents and negatively influences inbound overseas visitors, and vice versa. The net effect of changes in exchange rates on international passenger movements through an individual airport will depend upon the relative magnitude of exchange rate elasticities for outbound and inbound travel.

Under the high exchange rate scenario, the number of air passenger movements through all airports would increase by an additional 0.03 per cent a year over the base case growth rate. Under the low exchange rate scenario, it would shrink by 0.03 percentage points relative to the base case scenario (Table 5.5). The total number of air passenger movements over the forecast period would increase by 0.5 per cent, relative to the base case, to just over 4.1 billion under the high-value scenario and decline by 0.5 per cent, relative to the base case, to just under 4.1 billion under the low-value scenario (Table 5.6).

Table 5.5 Average annual growth rates in air passenger movements, 2010–11 to 2030–31, under alternative exchange rate scenarios

	Average annual growth rate (per cent)			*Difference (per cent)*	
Airport	Base case	High exchange rate scenario	Low exchange rate scenario	High exchange rate scenario	Low exchange rate scenario
Sydney	3.6	3.6	3.5	0.07	–0.08
Melbourne	3.9	4.0	3.8	0.07	–0.07
Brisbane	4.2	4.2	4.2	–0.02	0.02
Adelaide	3.1	3.1	3.2	–0.02	0.02
Perth	4.4	4.3	4.4	–0.03	0.03
Hobart	3.0	3.0	3.0	0.00	0.00
Darwin	4.2	4.2	4.2	–0.03	0.03
Canberra	3.3	3.3	3.3	0.00	0.00
Newcastle	3.1	3.1	3.1	0.00	0.00
Cairns	3.7	3.7	3.7	0.00	0.00
Gold Coast	4.4	4.4	4.4	0.00	0.00
Townsville	3.7	3.7	3.7	0.00	0.00
Launceston	2.7	2.7	2.7	0.00	0.00
Other airports	2.3	2.3	2.3	0.00	0.00
All airports	3.7	3.7	3.7	0.03	–0.03

Source: BITRE estimates.

Table 5.6 Forecast cumulative total air passenger movements, 2010–11 to 2030–31, under alternative exchange rate scenarios

	Passenger movements (millions)			*Change from base case (per cent)*	
Airport	Base case	High exchange rate scenario	Low exchange rate scenario	High exchange rate scenario	Low exchange rate scenario
Sydney	1 053	1 066	1 040	1.2	–1.2
Melbourne	863	874	853	1.2	–1.2
Brisbane	645	643	646	–0.2	0.2
Adelaide	202	202	203	–0.3	0.3
Perth	371	369	372	–0.4	0.4
Hobart	52	52	52	0.0	0.0
Darwin	60	60	61	–0.4	0.4
Canberra	92	92	92	0.0	0.0
Newcastle	35	35	35	0.0	0.0
Cairns	119	119	119	0.0	0.0
Gold Coast	180	180	180	0.0	0.0
Townsville	50	50	50	0.0	0.0
Launceston	31	31	31	0.0	0.0
Other airports	335	335	335	0.0	0.0
All airports	4 088	4 107	4 069	0.5	–0.5

Source: BITRE estimates.

CHAPTER 6

Comparison of forecasts and concluding remarks

Comparison of forecasts

This chapter provides a comparison of the BITRE long-term forecasts of air passenger movements presented in this report with air passenger movement forecasts previously published by the BITRE and other organisations. The current BITRE forecasts are consistent with the BITRE forecasts published in 2008 and 2010. The small differences in forecast growth rates are due to changes in the estimated demand parameters resulting from the difference in the historical period used to estimate air travel demand models, the maturation of the influence of low cost airlines on passenger movements and revisions to actual and forecast growth in macroeconomic variables, population, exchange rates, air fares and prices of travel and accommodation in Australia and overseas.

Across all airports, air passenger numbers are forecast to grow by 3.7 per cent per annum between 2010–11 and 2030–31, down from the forecast 4.0 per cent per annum between 2005–06 and 2025–26 reported in BITRE (2008) (Table 6.1). Capital city airport passenger numbers are forecast to increase by 3.8 per cent per annum between 2010–11 and 2030–31, down from the forecast 4.1 per cent per annum between 2005–06 and 2025–26 reported in BITRE (2008) and from the forecast 4.2 per cent per annum between 2008–09 and 2029–30 reported in BITRE (2010). Similarly, the passenger growth rate forecast for all non-capital city airports of 3.2 per cent per annum between 2010–11 and 2030–31 is down from the forecast 3.3 per cent per annum between 2005–06 and 2025–26 reported in BITRE (2008).

The current BITRE air passenger movement forecasts are also comparable to those long-term forecasts presented by airport authorities in their master plans (Table 6.1). The BITRE growth rate forecasts of passenger movements are close to those prepared by airport authorities in the case of Sydney, Melbourne, Adelaide, Perth, Darwin, Newcastle, Gold Coast, Townsville and Launceston airports, but are slightly different to those prepared by airport authorities in the case of Brisbane, Hobart and Canberra airports. The difference in forecast growth rates is largely due to differences in the historical period used to estimate demand parameters, the assumed maturation of the influence of low cost airlines on passenger movements and revisions to actual and forecast growth in macroeconomic variables, population, exchange rates, air fares and prices of travel and accommodation in Australia and overseas. The current BITRE passenger forecasts were developed using historical data up to 2010–11, whereas passenger forecasts for Brisbane Airport were developed using historical data up to 2002 and forecasts for Perth, Hobart and Canberra airports were developed using historical data up to 2008.

Table 6.1 Growth rate forecasts of air passenger movements by airport and organisation

	BITRE forecasts			*Other organisation forecasts*	
Airport	BITRE (2008)	BITRE (2010)	Present	Forecast	Name
Sydney	4.0	4.0	3.6	4.2	Sydney Airport (2009)
				3.1 ~ 3.5	Australian and NSW Governments (2012)
Melbourne	4.0	4.2	3.9	3.5 ~ 4.8	Melbourne Airport (2008)
Brisbane	4.5	4.9	4.2	5.4	Brisbane Airport (2003)
Adelaide	3.6	3.5	3.1	3.1 ~ 3.7	Adelaide Airport (2009)
Perth	4.7	4.7	4.4	3.7	Perth Airport (2009)
Hobart	3.2	3.5	3.0	4.1	Hobart Airport (2009)
Darwin	4.3	4.4	4.2	2.3 ~ 10.0	Darwin Airport (2010)
Canberra	3.5	3.5	3.3	4.2	Canberra Airport (2009)
All capital city airports	4.1	4.2	3.8	na	na
Newcastle	na	na	3.1	>3.0	Newcastle Airport (2007)
Cairns	na	na	3.7	na	na
Gold Coast	na	na	4.4	4.8	Gold Coast Airport (2011)
Townsville	na	na	3.7	3.7	Townsville Airport (2011)
Launceston	na	na	2.7	3.4 ~ 4.2	Launceston Airport (2009)
Other airports	na	na	2.3	na	na
All non-capital city airports	3.3	na	3.2	na	na
All airports	4.0	na	3.7	na	na

na = Not available.

Source: BITRE estimates.

Concluding remarks

In this report, forecasts of passenger movements through the eight capital city airports and the five largest non-capital city airports have been derived using the re-estimated air passenger travel demand models and the most recent information on economic growth, population, air fares, exchange rates, and prices of domestic and overseas travel and accommodation.

The passenger movement forecasts presented in this report are "unconstrained" forecasts as they are solely driven by demand-side parameters related to population, income, exchange rates and price variables. They do not include the influence of supply-side parameters related to airport capacity and available air route capacity, largely due to the difficulty in estimating these effects in the absence of long time-series data on supply-side variables that influence airport activities, including passenger movements. Although BITRE has qualitatively taken into account the influence of some supply-side variables, such as expected infrastructure development under airport master plans, introduction of new-generation aircraft on Australia's international routes, fleet size of major airlines operating on Australia's international and domestic routes and seat utilization rates, the forecasts are not equilibrium forecasts, determined at the intersection of demand and supply curves. Airport-specific aircraft or passenger processing limits could constrain the number of passenger movements through an airport most particularly at Sydney.

Further, the forecast growth rates of air passenger movements presented in this report and those previously presented by BITRE and airport authorities suggest that Australia's travel segment is maturing and the boost to growth of air passenger travel provided by new low cost airlines will diminish over time. This implies that high growth rates like those observed immediately after the introduction of low cost airlines are less likely to continue into the future. Nonetheless, passenger movements through Australian airports will continue to grow at reasonably strong rates. Growth is also expected to remain stronger on international routes than on domestic routes over the next 20 years.

Continuing strong growth in passenger movements over the next 20 years may have significant investment implications for airports in terms of runways, taxiways, aprons, passenger terminals, freight and other general aviation facilities. The passenger forecasts presented in this report will help inform policy makers and airport planners of likely future airport capacity requirements.

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ISBN 978-1-921769-92-4