3 Connecting the economy, connecting the community

Australia's distance from world markets and the geographic dispersion of its cities and towns underlies the importance of efficient and reliable air transport links. As a central component of air transportation, airports effectively enable a range of business, trade and tourism activities that contribute significantly to economic activity. Beyond this, airports also facilitate the physical connections between family, friends and communities, thereby advancing national social cohesion and participation.

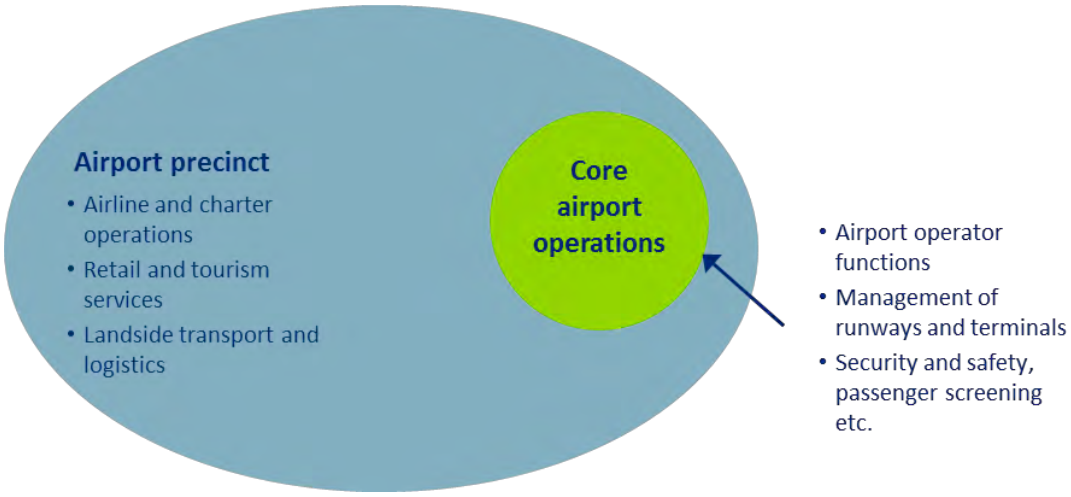
These important dimensions of the economic and social contributions of Australia's airport network are discussed in this chapter.

3.1 The economic contribution of Australia's airport network

Airports are typically large and strategic economic precincts. Firstly, and most fundamentally, they contain an operational 'core'. This comprises the central operation of an airport facility including its runway infrastructure, terminals and critical aviation safety and security. In a sense, these are functions that remain largely fixed if airlines or charter services which operate at the airport change.

In addition to this function are many other activities which occur at airport sites. These include retail and tourism services, headquartered airline operations, general aviation and aircraft maintenance, transport and broader (non-aeronautical) commercial activities. These functions, which are outlined in more detail in Chapter 2, are shown in Figure 3.1.

Figure 3.1: An economic profile of airports



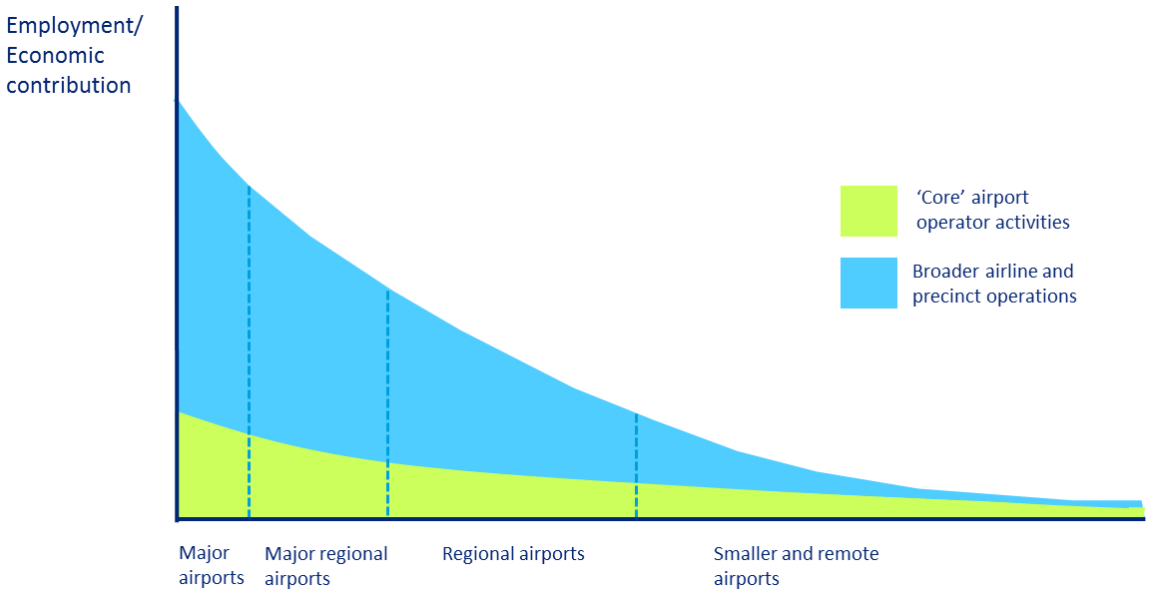
A key feature of airports — and one strongly reflected in the industry survey — is that these activities can represent a far greater proportion of economic activity than the operational core. Indeed, a general pattern is that larger airports typically encompass a comparatively higher proportion of ancillary and non-core precinct activities than smaller airports. This relationship is shown in a stylised sense in Figure 3.2.

There are a few intrinsic reasons for this:

- Larger airports generally involve greater outsourcing of activities such as security and cleaning. Moreover, some functions which may occur in-house by smaller airports are undertaken by airlines and other service providers at larger airports.
- Further, larger airports can effectively harness greater gains from economic agglomeration. That is, they can become strategic hubs themselves with a critical mass of diversified retail, freight and logistics, and aviation activities, many of which leverage the airport's business base and passenger traffic.

This is not to downplay any of the strategic benefits of regional or smaller airports. Certainly, these facilities are core infrastructure installations which are critical to the social and economic integration of regional communities. Rather, it simply reflects that smaller airports — much like regional communities themselves — operate in a different economic environment with a narrower commercial base.

Figure 3.2: Economic relationship between core airport activities and the airport precinct



Estimating the industry's operational 'core'

Economic contribution studies typically measure the direct and flow-on contribution of a sector — where contributions are constructed from the sum of payments to factors of production, namely, profits paid to capital owners and wages paid to employees.

The current economic contribution of Australia's 'core' airport sector was estimated using input-output multipliers and data collected as part of the industry survey (see Box 1 below). In particular, airport operators set out various financial and employment details regarding

their operations, including use of contractors, which covered both core aeronautical and non-aeronautical activities. This information has enabled a full and robust economic profile of the airport operational sector to be developed.

Economic contribution of airport operators

In 2011, the total contribution of airport operators is estimated at $3.2 billion, with $2.6 billion in gross operating surplus (GOS) and $620 million in wage payments (Table 3.1).

It is clear that the distribution of economic gains is heavily concentrated towards larger airports, with major airports accounting for around 90% of total value-added. It is important to note that while regional and remote airports have a less prominent economic profile within the sector as a whole, their contributions are important within respective regions. Certainly, in the context of improving connections to the local communities they serve, these facilities help drive material improvements in living standards in rural and isolated parts of the country.

Table 3.1: Economic contribution of the core airport sector, 2011

Economic contribution	Value-added ($m)	Wages ($m)	GOS ($m)
Major airports	2,853	508	2,346
Major regional airports	255	71	185
Regional airports	52	26	25
Remote airports	22	16	6
Total	**3,183**	**621**	**2,562**

Source: Deloitte Access Economics

The total employment across the core airport sector in Australia was estimated to be about 6,900 full-time equivalent (FTE) workers. While the seemingly modest employment levels may be surprising considering the visibly high levels of activity at airports, it is important to note that this estimate captures only the employment of staff hired by airport operators and corporations and their contractors.

Box 1: Survey of Australia's airports

The economic contribution analysis was based on a survey conducted by Deloitte Access Economics in conjunction with the AAA. The survey was distributed to AAA members, a group consisting of over 185 airports. These include the major (mostly capital city airports), major regional (usually the second largest airport in a state) and the remaining regional and remote airports across the country. A total of about 85 airports responded to the survey, representing a broad cross-section of Australia's airport industry — both across different size facilities and across jurisdictions.

The economic contribution analysis was based on the responses of approximately 60 airports. Where airport information was incomplete or triggered specific outlier and filtering thresholds, survey data was excluded from the economic contribution analysis. In some cases, publicly available information was used to supplant survey answers.

The information provided from the survey was used in conjunction with AAA membership categorisations to scale the survey data to represent the population. The AAA membership includes 23 categories that segregate the type and scale of airports in Australia.

Notably, there was a high response rate for the largest airports. Together, airports in this category — which include Sydney and Melbourne airports — were found to contribute over 90% of the industry's economic contribution.

For the remaining airports that did not respond to the survey, a number of assumptions were made about their economic contribution to obtain an estimate for the sector's core economic contribution. Specifically, average levels of turnover, value added and employment were imposed from the appropriate categories to estimate their economic contribution.

Application of survey results to the analysis

Category	Population	Survey
Major airports	12	11
Major regional airports	45	21
Regional airports	107	22
Remote airports	89	8

Source: Deloitte Access Economics

Estimating the industry's broader economic footprint

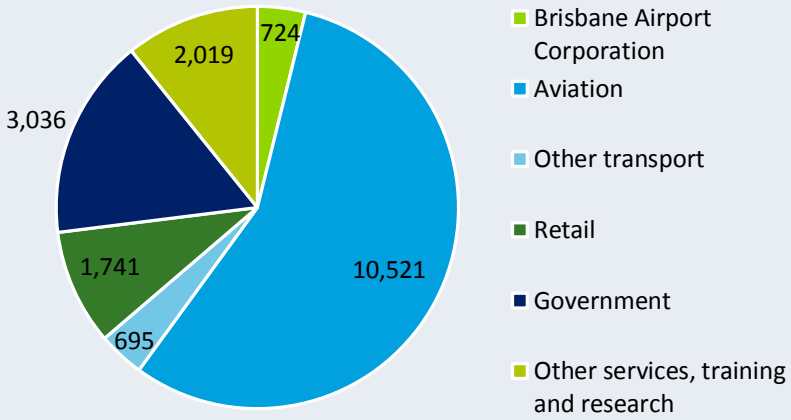
As noted above, the operational core of an airport is only one component of its overall economic profile. A broad range of associated and ancillary activities also occur on airport precincts. For major airports in particular, this activity can be significant (even in a macroeconomic perspective) — often being several orders of magnitude larger than that of the core airport functions.

An example of the large range of employment impacts that can stem from airport precinct activities is presented in Case study 7.

Case study 7: Brisbane Airport, Qld — Supporting industry and employment

Brisbane Airport serves as one of two major maintenance bases for Virgin Australia in Australia, and also has a state-of-the-art Qantas heavy maintenance hangar. The flexibility afforded from 24/7 operations has allowed the airlines to undertake overnight maintenance as required. A range of non-aeronautical activity is also undertaken in the airport precinct, including retail activity both at the terminal and in the broader complex, mixed light industrial activity, and commercial offices in the airport precinct.

A survey of all the companies operating at the airport precinct found that over **18,700 workers** (full-time, part-time and casual) are currently employed in mid-2011 across a range of businesses. The figures in the chart below represent total employment, that is, workers who are employed directly or indirectly due to airport operations.



Note: Includes full-time on-site contractors and workers
Source: Brisbane Airport Corporation

A 'core and satellite' approach

Estimating the size of these broader activities at airport precincts is particularly challenging, especially across such a large and diverse sector.

The focus of the industry survey conducted for this study was to 'unpack' the size and dimensions of central facility operations across the airport sector (as well as gauging industry perspectives on a range of operational issues and prospects). As such, a different assessment technique was applied to estimate the overall economic contribution of airport precincts in their entirety.

- Firstly, the relationship between core airport operations and the scope of precinct activities was examined for representative airports within four tiers of airports (major airports, major regional airports, regional airports and remote airports). This stratification reflects the inherent differences across the sector where scale effects for non-core activities are more prominent in larger facilities (see Figure 3.2).
- These representative airports provided a measure of the relativities in employment and economic activity between their core airport operations and associated precincts (or satellites). For major airports, which significantly drive the aggregate estimates, Brisbane Airport was used given it was examined in detail by Deloitte Access Economics as part of a separate recent study.

- Secondly, each airport was differentiated according to the size of its core operations, as determined using industry data obtained as part of this study. This determined a comprehensive measure of overall employment of the precinct for each airport. Further, to obtain industry-wide value added estimates, a ratio of value added to full-time employment was applied.

Using this methodology, the total economic contribution of Australia's airports and their precincts was estimated for 2011. Total industry value added was estimated to be in the order of $17.3 billion (this equates to around 1.2% of GDP). Overall employment at airport sites was estimated to be around 115,200 FTEs (see Table 3.2 below).

Table 3.2: Total economic contribution of Australia's airports, 2011

Contribution	Employment (FTE)	Value added ($m)
Core airport operations	6,865	3,183
Airport precinct	108,291	14,083
Total	**115,156**	**17,266**

Source: Deloitte Access Economics

Some important caveats

It should be noted that the airport precinct contribution estimates are exploratory in nature, representing a potential order of magnitude for the economic footprint of airports across the country. The estimates have been based on more limited information and have not utilised a comprehensive cross-section of primary industry data as was applied to estimate the economic contribution of the industry's operational core.

More analysis is required to provide a more conclusive picture of the industry — one which accurately captures the differences in respective tenancy bases (especially across major airport facilities). Specific analysis of the indirect or spillover economic effects of airport precincts, and the nature of the economic linkages to the broader economy, would be a useful area for further research.

The wider economic gains generated by airports

The contribution estimates presented above provide a 'snapshot' picture of the current economic gains created by the airport industry at a single point in time. The considerable size and complex range of activities undertaken at airports mean that the impacts created today may take time to materialise and permeate through the economy.

In fact, over time, as the employment and income gains of those employed at airports, or those who rely on airport services spread across the economy, the ongoing contribution of the airport industry can be even higher. The following discussion around the induced and catalytic impacts represent economic benefits that have a temporal dimension, that is, they have a time-based pattern of development and as a consequence mat not be apparent in a snapshot analysis.

Induced effects

Like other economic activities, the activity generated at airports produces further flow-on benefits throughout the economy. These induced effects are generated by successive rounds of spending enabled by the income and employment supported by the airport industry.

In essence, airport industry employees use their salaries to purchase goods and services from other businesses in the community. These businesses then make additional purchases or hire employees which induce further spending across local and national economies. The successive ripples of spending within the economy mean that induced impacts tend to manifest incrementally over time, rather than be observed as an immediate stimulus effect.

Catalytic impacts

It is widely recognised that beyond their immediate contributions, the link between airports and access to air services has helped transform the functioning of the Australian economy — in effect, strengthening and accelerating trade and social connections across the country and abroad. The extent to which the existence of airports and the air services they enable boosts the performance of other industries and indeed the overall economy, are typically termed 'catalytic impacts'.

More specifically, catalytic impacts involve a range of positive spillover effects, including:

- **Global accessibility and trade** — One of the most significant advantages of airports is to facilitate, through delivery of air services, better access to larger markets. The wider availability and falling price of air transport over the past few decades has assisted in making trade with distant markets possible for all types of organisations. This can be seen in rising levels of trade intensity, which now accounts for around 46% of economic activity in Australia.

  International trade is commonly recognised as a key driver of economic growth and rising living standards. Essentially, trade allows countries to specialise in producing the goods and services in which they have a comparative advantage in exchange for products that domestic consumers demand, but are produced more efficiently elsewhere. The net result is an increase in the overall value of goods and services available in an economy.
- **Productivity** — By facilitating increased mobility, the airport sector plays a vital role in supporting other parts of the economy to operate more productively. Mobility is a predicator of economic activity, as it satisfies the basic need of moving from one location to another, a need that is shared by passengers, freight and information. Airports enable organisations to exploit geographical comparative advantages and promote the development of economies and scale and scope through the access to air services.

The use of air services has become exceedingly important in light of the greater economic integration between national and global markets. Airports provide easier access to suppliers, staff and customers, particularly over longer distances, increasing business efficiency and thereby contributing to stronger productivity performance and economic growth.

The application of FIFO charters highlights the way in which the airport sector, in conjunction with airline operators have effectively supported new productive resource developments across the country.

- **Inward investment** — Airports have become a part of multi-modal transport hubs. As road and rail links to airports improve, airports with large areas of available adjacent land are able to capitalise and develop as national or regional centres of logistics.

  This has been supported by the growth in airfreight, where manufacturers of high-value, low-density products trade-off the savings in inventory costs for costs of using air travel more frequently. Products such as fashion garments and perishable goods are increasingly using air travel as the preferred transport mode (see Section 3.2). This trend has translated into a greater number of freight-forwarding firms basing operations at airports or in proximity to them.

- **Tourism** — Airport services facilitate passenger entry and exit to the area, generating income and employment in the Australian tourism industry and related sectors of the economy. Segments of the tourism industry in which airports and air travel are of particular significance include: mass tourism, short domestic breaks, conventions and exhibitions and long haul tourism.

  Expenditure by tourists can form a major part of the economic impact attributable, at least in part, to the existence of an airport (see Section 3.2 for further discussion).

- **Commercial activity** — Better connections to domestic and international markets have the potential to attract businesses to locate at or within close proximity to airports. Those industries that need air services to conduct their operations gain efficiency when located near airport networks. In addition, sectors with a trade element also benefit from proximity to airports. These advantages can be seen in the broader 'off-airport' precinct around major airport facilities.

  Australia's high-value services composition necessitates the frequent use of air travel to coordinate with suppliers, and liaise with customers and staff. Air travel enables organisations to be managed more effectively, by making it easier for executives to visit subsidiaries or parent companies in another location. In this way, management expertise can also be transferred across offices. The propensity for collaboration, innovation and networking is also increased.

Case study 8 on Sydney International Airport demonstrates how airports facilitate domestic and global accessibility.

Case study 8: Sydney International Airport, NSW — Connecting with the world economy

Sydney Airport serves as a key gateway in to Australia, with 47 airlines — 37 international, 4 domestic and 6 regional — **flying to 99 destinations in Australia and worldwide**. It is a significant hub for international, domestic and regional travel, with approximately 30% of all travel on regional routes consisting of passengers transferring from other flights.

Sydney Airport is also a hub for other, related activities, and a major employer and contributor to the State economy, having the highest concentration of economic activity in NSW after the Sydney CBD. It hosts 25 general aviation operators, and at least 130 organisations involved in freight activities, including transport companies, handlers and forwarders. The grounds of the airport has **over 200 airport service providers**, including fuelling and maintenance of planes, flight catering and security organisations. There are more than **157 on-airport retailers**, of which some operate more than one outlet, as well as seven hotels in close proximity to Sydney Airport. Approximately 14 car rental and parking operators service the airport, while at least 50 ground transport providers operate through Sydney Airport.

There are of course rare circumstances when airport operations are interrupted or are forced to cease temporarily (ie during major incidents, adverse weather conditions, natural disasters etc). In these cases where aviation or airport services are not available at full capacity, the economy-wide dependence on airports becomes more apparent.

While the estimation of catalytic impacts would assist in demonstrating how the airport industry has become increasingly intertwined with national economic development, these impacts are difficult to quantify with a reasonable degree of confidence and have not been included in the contribution analysis.

It is for these reasons that traditional input-output economic contribution studies mostly exclude the quantification of catalytic impacts. Therefore, for the purposes of this study, the broader contribution of airports are discussed in the proceeding sections in qualitative terms, supported by on-the-ground case studies from individual airports across Australia.

3.2 Linkages with other sectors of the economy

While many industries have relied on transport networks to effectively operate, the wider availability and declining costs of aviation as a mode of transportation has served to greatly increase aeronautical and related services demand in the economy. As the only point of access to these services, there has been a growing economy-wide reliance on the airport industry. Indeed it is possible to infer which sectors are 'airport intensive' by analysing the dependence of business operations upon air service accessibility. There are a number of factors that determine which sectors are more likely to be reliant on airport industry goods and services. In general terms, some of these factors include:

- Industries with a trade element, either through exporting or importing their inputs of production or goods for sale.
- Sectors in which business models necessitate the time-sensitive movement of freight or people.
- Businesses which specialise in high-value market offerings, often needing a greater degree of physical collaboration between staff, suppliers and consumers.

Varying levels of reliance on aviation and related services has been observed across almost all parts of the economy. For instance, sectors such as manufacturing and agriculture

utilise airport networks to import large amounts of goods from international markets. In a similar way, sectors such as retail and wholesale trade use air services to obtain products for sale to consumers or other businesses.

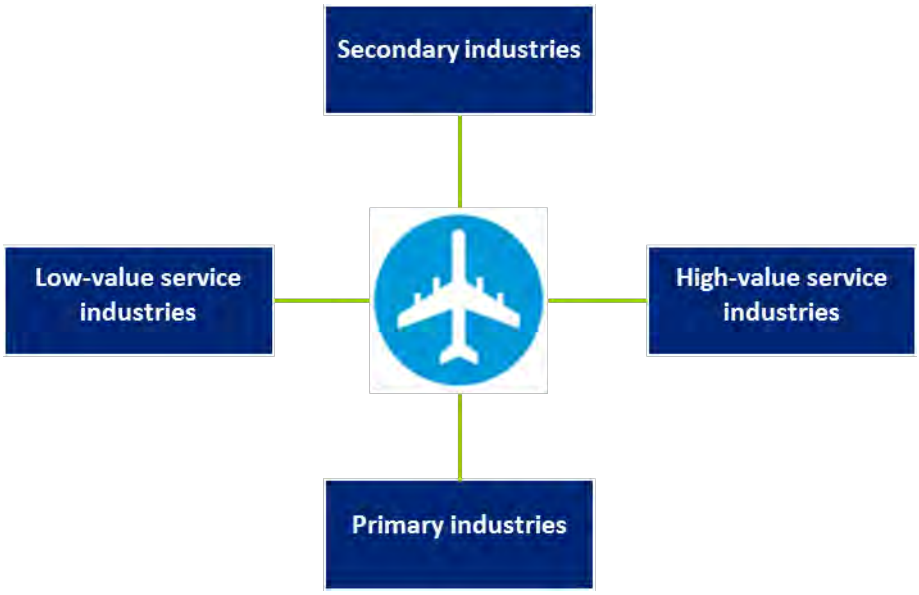
However, the key enduring trend has been an escalation in air services use over time. Specifically, the use of air transportation as an intermediate input to production has increased by close to 25% from 1999 to 2008 (ABS input-output data). This aligns with the greater economic integration between Australian and global markets over the same period. In particular, sectors such as information technology, finance and professional services are utilising air transport more than ever to effectively manage their now larger and globally linked businesses.

To approximate the extent of linkages with the airport industry, other sectors in the economy were classed in terms of four broad groups:

- **Primary industries** — Sectors that are involved in the development and production of raw materials. These include agriculture and mining.
- **Secondary industries** — Sectors which focus on the development, processing and construction finished goods. Such industries cover manufacturing, construction and energy utilities.
- **Low-value service industries** — Sectors that provide services to the general population and to businesses. Activities associated with this sector include wholesale and retail trade, transport and distribution, entertainment and tourism.
- **High-value service industries** — Sectors that are based on knowledge-intensive service offerings, often requiring greater levels of skill, innovation and collaboration to produce. Examples include creative industries, financial and professional services, education services and information media and telecommunications.

Figure 3.3 illustrates the different industry groups that depend on access to aviation services, and subsequently, airports.

Figure 3.3: The various parts of the economy supported by airports



Source: Deloitte Access Economics

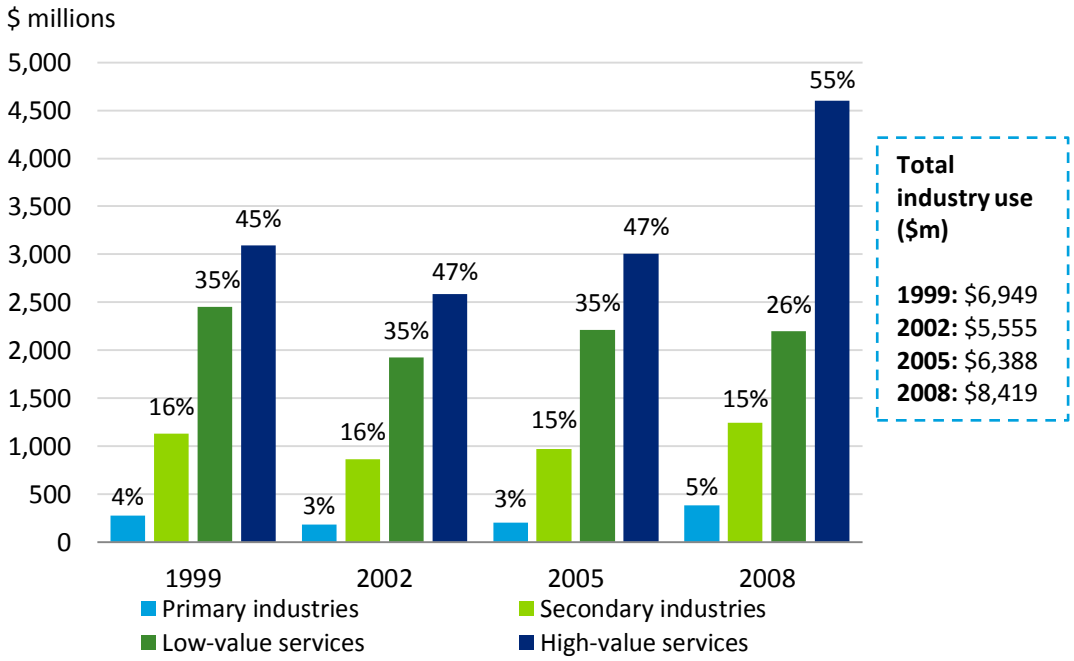
Sectors that are heavily linked to the airport industry

The shift towards high-value services

As countries advance their economic structure also changes — typically moving towards a more services and knowledge-based orientation. Over the past several decades, the Australian economy has undergone a high degree of structural change that has seen the reallocation of resources from low-value added activities to high-value added market offerings.

In the context of the airport industry, structural changes have dictated which industries are in greater need of air transport access and where better connections are required to tap into growth markets. This notion is supported by analysis that indicates high-value services have been by far the most dominant user of airports, accounting for around 55% of total industry expenditure on air transport in 2008 (see Chart 3.1). Conversely there has been a sizable decline in the airport usage of low-value service sectors, with their share of air transport expenditure falling from 35% in 1999, to 25% in 2008.

Chart 3.1: Air transport use across industries, 1999-2008



Note: Estimates of air transport use are based on historical ABS input-output data from 1999 and 2008. Input-output tables essentially represent the broad linkages between subsectors of the economy through a series of proportionalities and ratios. Therefore, more emphasis should be placed on shares of total industry use, rather than monetary figures.
Source: ABS Cat. 5209.0

These figures reflect the relatively high level of business travel by those working in the financial, professional and ICT industries. Typically these sectors target the high-value services portion of the market and therefore engage in greater amounts of collaboration with their supplier, production and consumer bases.

Moreover, air transportation is of particular importance to high-value sectors because of their focus on information sharing and the promotion of research and development. For instance, professionals, academics and medical practitioners often keep in touch with the latest research by attending research seminars to exchange ideas. As a result, the average spending per employee on air transport by the combined, ICT, finance and professional and education services sectors is estimated to be five times higher than the average for Australian service industries as a whole. Case study 9 highlights a unique example of the way in which airports can facilitate scientific research and progress.

Though it is widely acknowledged that new technologies such as video conferencing will become more heavily utilised for networking purposes, it is anticipated that air services demand will not be impacted to any significant degree. It is likely that face-to-face interactions will still be the preferred means of establishing and maintaining ongoing relationships.

Chart 3.1 also indicates that while primary and secondary industries have steadily increased their level of expenditure on aviation services; they have maintained a largely stable share of total industry use. Importantly, where these industries have increased their dependence on airports, they have been in emergent knowledge-intensive segments, including in construction, minerals extraction and logistics.

The parallel shift towards higher value products in relatively mature areas in the Australian economy is best illustrated by developments in the manufacturing industry. The globalisation of manufacturing, coupled with higher productivity has meant that supply chain logistics have increased in significance. Companies are no longer willing to hold large quantities of unproductive stock, and are instead opting to utilise 'just-in-time' inventory management techniques. The use of air freight as a means of transport is therefore increasing — especially for high-value, low-weight goods.

Moreover, the relatively high growth in internet shopping by households has also expanded the demand for light package delivery. In keeping with consumer demand and preference, these packages are more likely to be distributed via the relatively quick air transportation sector over other forms of domestic and international transportation.

It is also likely that the level of overall air transport use has further amplified over recent years, though at different rates between industry groups. For example, higher fuel prices, combined with weaker economic conditions are likely to have subdued airport demand, particularly from tourism and recreation industries. Likewise, the recent mining boom has increased the reliance of primary sectors on air transport as a means of importing FIFO staff to remote mining sites (discussed further below).

The intrinsic link between tourism and airports

The demand for airport services in low-value service industries has been primarily driven by the tourism and recreation sector. As an island continent, Australia depends almost exclusively on air transport to bring international visitors to the country, with about 99% of inbound tourists arriving in Australia by air. In fact, over the past year, it is estimated that around 5.9 million inbound international visitors arrived through airports. As a result, airports play a vital role in the stimulation of the tourism industry and the tourism patterns in their surrounding areas.

By improving access to desired destinations, airports support activity in a wide range of tourism segments including hotels, restaurants, shops, conference and exhibition centres and visitor attractions. Compounding this is the tendency for international tourists to stay longer, and spend more than domestic visitors.

The overall impact is that tourists, both international and domestic, contribute significantly to the national economy and the local communities they visit. In 2012, the tourism industry is estimated to account for 3.8% of GDP and employ around 400,000 FTE workers, with some proportion of these economic impacts attributed to airport connections. In addition, as airports represent the first and last point of contact with a destination, the experience can have implications on the overall travel experience. Greater connectivity and accessibility to airports no doubt add to positive traveller experiences in Australia.

Other sectors that are utilising airport networks

The impact of the mining boom on airports

The airport industry has played an instrumental role in opening up Australia's mineral resources and connecting mining communities to other parts of the country. This has assisted in extending the reach of benefits from the mining boom to wider areas of the economy. Most notably, in the resource rich areas of Western Australia and Queensland, airports servicing regional mining communities have seen solid increases in passenger movements over the past five years.

During this time, major domestic carriers have raised their capacity for regional destinations. For example, Qantas added thousands of new seats to regional Western Australia, including flights to Geraldton in late 2011. In turn, more regular flights and investments at these airports have underpinned growth in a range of business, trade and tourism activities that benefit local communities.

In more remote sites, mining companies have been leveraging airport networks to offer FIFO employment contracts (see Case study 9). In these areas, often the costs of establishing permanent communities — that are of a sufficient quality to attract workers and their families — exceed the costs of airfares and erecting temporary housing on the work site. In these cases, employers offer FIFO contracts that allow staff to work for a number of consecutive days, followed by a period of rest.

Case study 9: FIFO growth driving activity at major regional and regional airports

Karratha Airport, WA: Karratha is the second busiest airport in the state, and is growing rapidly. Growth in RPT passenger numbers has averaged approximately 17% per annum over the past five years, well above the Australian average of 5.9% per annum. (BITRE 2011)

The Chamber of Minerals and Energy of Western Australia, has estimated that in 2011, the resources industry employed approximately 90,000 people, with **52% of those listed on FIFO** rosters. Many of these workers leave Perth or other major cities weekly, and fly to remote airports such as Karratha before transferring to mining sites. The use of FIFO contracts are increasing, with airlines taking more passengers between Perth and Karratha than between Perth and Adelaide. Airport data shows that passenger movements to and from Karratha airport has increased 73% since the start of the mining boom.

Emerald Airport, Qld: The airport provides both RPT and charters to support the mining boom in the regional area. Presently, Virgin Australia and QantasLink operate about 60 RPT flights each week through the airport. In the coming years, this number is expected to increase to 100.

It is estimated that around 60% of movements are from RPT, while the remaining **40% are from FIFO workers**. In order to accommodate the anticipated growth in both mining and RPT traffic, the Central Highlands Regional Council is considering the development of a **stand-alone FIFO terminal** at Emerald Airport. This will allow miners to pass through a separate building and free up existing terminal space.

In 2010-11, it is estimated that there were around 2.2 million passengers travelling through Perth Airport due to the resources sector (many of which were FIFO workers). Similar stories have emerged from regional airports in Queensland serving the mining industry. For example, around 60% of passengers arriving at Mackay Airport are estimated to be employed by the mining or related construction sector, or are visiting people who work in these industries.

Looking forward, passenger movement numbers are expected to continue growing, with major mining and petroleum companies investing billions of dollars in new and existing projects in the northwest of Western Australia. Projections from the Western Australian Chamber of Minerals and Energy indicate that around 40,000 more workers are needed in the state by early 2013, over 50% of which will be FIFO workers. In addition to this, by 2015, it is expected that close to 90% of the mining workforce in the area will be either FIFO or require extensive long-distance commuting services.

The duration and strength of the mining boom, has meant that the increased demand for air transport has put pressure on capacity and existing airport infrastructure around mineral rich regions. The nature of FIFO travel creates a peak demand period between 5am and 7.30am each weekday morning. As a result, travellers using RPT services to regional destinations are faced with congested terminal conditions during this period, which are exacerbated by high levels of demand for domestic interstate services operating from the same facilities at the same time.

The Australian Government has recognised the growing importance of airports servicing the resources sector. For instance, the Commonwealth and Western Australian Governments have jointly committed around $1 billion for the Gateway Western Australia Project, aimed at improving the roads around Perth Airport. Any upgrades in regional aviation and airport infrastructure due to the resources boom will extend the aviation network available for tourists and businesses.

Case study 10 highlights how Rockhampton Airport is harnessing the benefits of the mining boom to boost freight operations.

Case study 10: Rockhampton Airport, Qld — Mining and freight operations

Rockhampton Airport, situated in Central Queensland between Cairns and Brisbane, is ideally located for freight operations in **support of mining communities**, particularly in the Bowen Basin area of Western Queensland. Furthermore, its proximity to major rail junctions and highways allows for rapid transport to other regional areas.

With the **3rd longest runway in Queensland**, Rockhampton Airport is the only airport in Central Queensland that has both the ability and experience in international passenger and airfreight operations, including regular Boeing 747 passenger charter and "heavy-lift" freight operations.

This capability provides a vital logistical support function for both mining and military operations within the Central and Western Queensland regions.

Emergency and military services facilitated by airports

The airport industry also plays a key role in supporting essential services, particularly those of an emergency or medical nature. A chief example is the Royal Flying Doctor Service (RFDS), a non-for-profit organisation which offers health care to those people who are unable to access a hospital or basic general practices due to their extreme geographic isolation. Currently, the RFDS has over 60 aircraft, operating out of 23 bases in all states and the Northern Territory.

The RFDS predicates its operations on the availability of airport or airstrip networks in outback locations throughout Australia. In 2011, the RFDS undertook nearly 76,000 flights, taking over 80,000 hours and spanning a distance of close to 27 million kilometres. These services have become of even higher importance in light of the growing number of mining workers residing in rural parts of Queensland and Western Australia (see Case study 11).

Case study 11: Jandakot Airport, WA — Providing essential services

Jandakot Airport is a base for a range of essential service organisations including, **Royal Flying Doctor Service**, Department of Environment and Conservation Forest and Bushfire Patrol, Fire and Emergency Services Authority of Western Australia emergency helicopter and the **Western Australia Police Air Support**.

In addition, as a training facility, the airport contributes to the development of many Australian and international pilots. Almost 70% of total aircraft movements are flying training. Jandakot Airport is the training base for pilots for a number of international airlines and training schools. They include the Royal Aero Club (Inc), China Southern West Australian Flying College and Singapore Flying College.

The airport industry also contributes to the ongoing protection of national safety. Across Australia's network of airports, there are varying degrees of military presence — ranging from no or minimal military capacity, joint-user civilian and military airports to full military air bases.

The primary purpose of Defence air bases is to support the generation, sustainment and deployment of military capability to meet strategic tasking set by the Australian

Government. There are, however, some cases where individual airports and Defence combine resources to increase the support available for civilian passengers. Such services include Defence air traffic control, aviation rescue and fire fighting services. These are best illustrated at joint-user airports such as in Darwin and Townsville. At these sites, Defence provides supporting airport infrastructure, such as radar facilities to both military and civilian users. As part of the recommendations outlined in the Aviation White Paper (2009), where possible, the Government is moving towards the harmonisation between military and civil airport management. This is hoped to encourage significant improvements in efficiency, capacity and safety for all users.

Case study 12 further highlights the contribution of airports as a strategic national resource.

Case study 12: Darwin International Airport, NT — Joint civilian and military operations

Darwin International Airport is a key commercial, military and recreational facility for Northern Australia. Its location in the north of Australia makes it the closest Australian capital to developing areas of South-east Asia, including Singapore, Malaysia, Indonesia and the Philippines.

From a defence perspective, Darwin International Airport is considered to be a strategic asset, with Darwin International Airport sharing runways with The **Royal Australian Air Force** (RAAF). During WWII, the airport served as a base and refuge for both RAAF and United States Army Air Force units. More recently, the importance of the airport has been highlighted since the independence of Timor-Leste.

Its position also makes Darwin International Airport a key staging point for emergency activities. In times of crisis, victims from South-east Asia may be flown to the airport in order to receive treatment at The Royal Darwin Hospital. Some examples include treatment of victims of the Bali Bombings in 2005 and the Indian Ocean Boxing Day Tsunami in 2003. The **Northern Territory Aerial Medical Service** (NTAMS) also operates from Darwin International Airport, providing medical advice and assistance to people in remote areas of the Top End as well as off-shore. In 2008 alone, the NTAMS (operated by CareFlight) **conducted over 1,300 medical flights**.

3.3 Social contribution of Australia's airport network

The social benefits of airports are typically considered to be substantial and widespread, complementing their associated economic contributions. The social contribution of the airport industry is, however, more difficult to quantify as it often represents non-market activities that provide intangible welfare gains to users. At a fundamental level, airports fulfil the basic social function of connecting individuals, families and communities with the rest of country and indeed the world. They also play an important role in offsetting the geographical disadvantages of living in remote parts of Australia.

Key social benefits facilitated by the airport industry

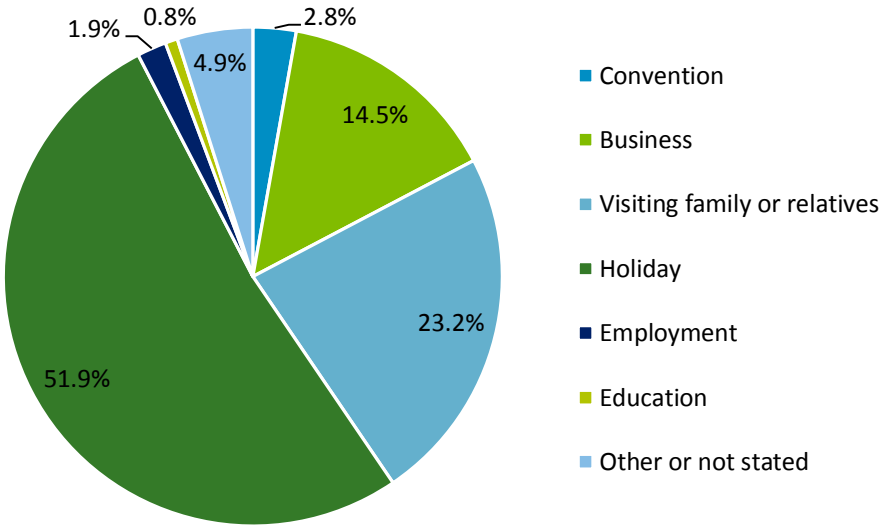
The key social contribution of airports is the promotion of national social cohesion. One of the cornerstones of modern day culture has been the proliferation of the tourism and recreation industry. Accordingly, the ability to undertake holiday travel has become a relevant quality of life indicator. A number of factors such as rising disposable incomes,

falling costs and the widespread availability of air transport have meant that the number of Australians taking holidays (both domestically and overseas) has increased. Notably, the number of residents travelling internationally has increased from 2.1 million in 1990, to around 6.8 million in 2011. In per capita terms, this was the equivalent of 12 overseas trips per 100 residents and 31 overseas trips per 100 residents over the same period.

The considerable multicultural aspects of Australian society, coupled with growing global social mobility, has increased the significance of the linking function that airports and air services more broadly facilitate. It is estimated that around 5.7 million residents, or close to a quarter of Australia's population was born overseas. These residents often have extended families living abroad and, to keep in touch, value the services the airport industry provides more highly.

This is further supported by ABS outbound travel data that indicates around 23% of short-term overseas travel was undertaken to visit family and relatives (Chart 3.2).

Chart 3.2: Main reasons for outbound travel, 2011



Source: ABS Cat. No. 3401.0

Case study 13 illustrates the linking function of airports between Tasmania and mainland Australia.

Case study 13: Launceston Airport, Tas — Connecting regions

Launceston Airport is the **second busiest airport in Tasmania** for passengers and provides the main aviation hub for Northern Tasmania. Located close to the Launceston CBD the airport is a key component of Tasmania's infrastructure providing access to national and international markets for both tourism and business.

Launceston Airport is a key driver in securing and sustaining employment, development and other services. It assists in **maintaining the community's liveability** and is important for the productivity, profitability and investment in the region.

Launceston Airport provides significant direct and indirect employment opportunities to a range of aeronautical and related businesses and the capital employment provided by the airport represents a significant stimulation to the Tasmanian economy.

Launceston Airport's engagement with the community benefits a range of local charitable causes and cultural activities including sponsorship of the **Glover Prize**, one of Australia's premier landscape art awards.

Similarly, overseas workers comprise an important source of labour in the Australian economy, particularly in light of population ageing pressures and shortages of skilled labour in key areas. The ongoing attraction and retention of these workers will be influenced by the ease and cost of travelling to Australia and the availability of routes and airport networks that better link workers to their native countries.

Regional development and social inclusion

One of the long term features of Australia's economic modernisation has been high urbanisation — one of the highest rates among advanced economies. Given this population distribution and the size of the Australian continent, the connectivity function of airports is crucial to retain physical links with regional communities. In these cases, airports promote social and economic inclusion, by enabling communities to participate and gain from the growing Australian and world economies.

Importantly, these benefits apply both to regional communities themselves and residents of major cities — for instance, allowing city-based residents to visit family or friends in the country. Indeed, more recently, this linkage has become a crucial element of securing the economic gains from the resources boom, allowing workers to travel to remote project sites on a rostered basis.

In remote areas, airports can have little broader industry profile yet provide vital services to their communities. These include facilitating mail and time-sensitive freight deliveries, Royal Flying Doctor, CareFlight and other emergency services and specialised charter operations — often to bring in workers for local industries (see Case study 14).

Further, they provide wider connectivity benefits to tourists and the travelling public, for instance allowing critical medical evacuations by air. The points are reinforced by research into the AAA's regional, rural and remote airport members that found the access to emergency services that airports facilitate create the most valued contributions to surrounding communities (Chart 3.3).

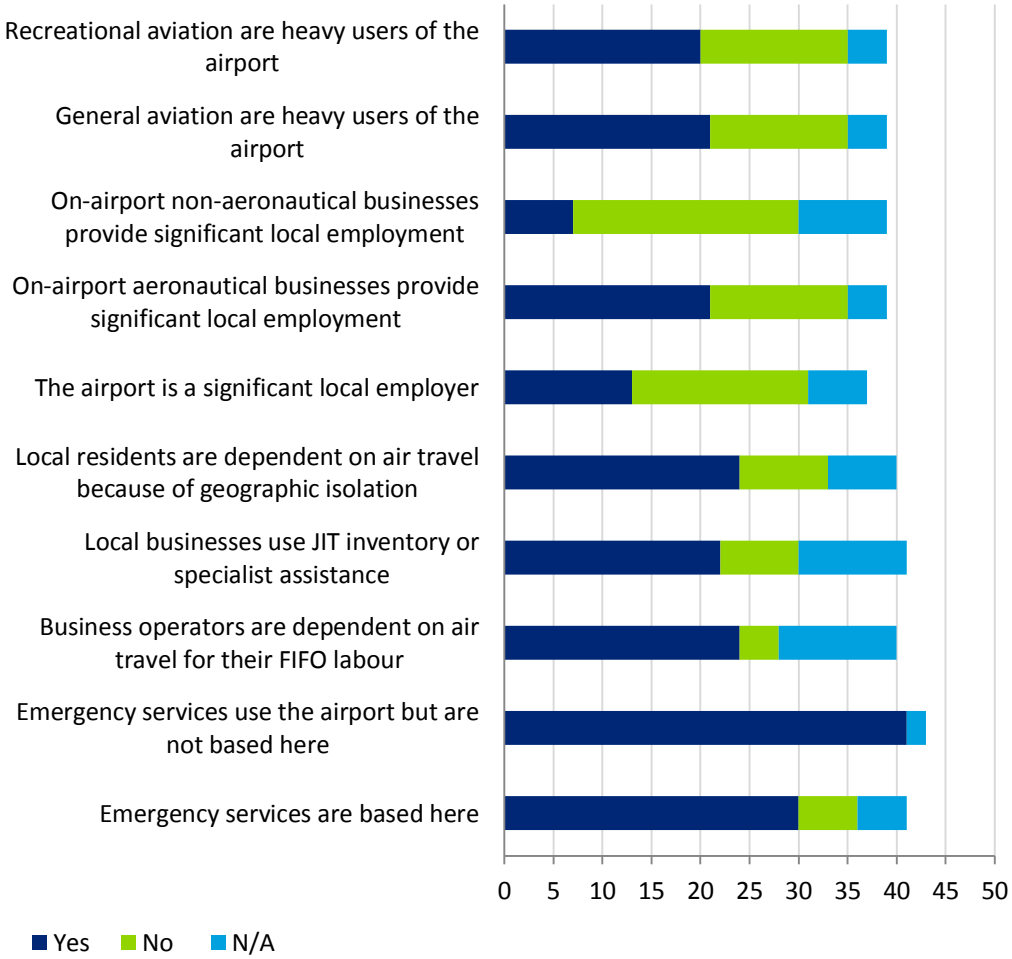
Case study 14: Gove Aerodrome, NT — Reducing social isolation

Gove Aerodrome is located 15km from the township of Nhulunbuy, on the western tip of the Gulf of Carpentaria and 700km east of Darwin. It is considered the hub of east Arnhemland, having a hospital, education, health care services, building and maintenance services and retail.

During the wet season between December and May each year, Nhulunbuy, along with about 80 other communities within Arnhemland, are inaccessible by road. For residents of these communities, aircraft become a vital lifeline, providing access to hospital needs, food, supplies, as well as allowing travel between communities. A **CareFlight base** at the Gove Aerodrome operates aeromedical services for the Northern Territory Department of Health, ensuring that medical care can be provided for those who would otherwise be unable to access it.

Six aircraft charter companies operate out of Gove Aerodrome, providing services to communities around Arnhemland on a daily basis. These services are used as a **'bush taxi service'**, enabling people to get from one community to another, and are highly utilised; there are over **20,000 aircraft movements** of this type from the airport each year, equating to approximately one movement every ten minutes in twelve hours of daylight. The lack of a RPT service between Gove and other remote communities as these come at considerable cost because these flights must be chartered.

Chart 3.3: Key social contributions to the local economy



Source: AAA Regional, Rural and Remote Airports Survey, March 2011

As regional economies grow, their airports and supporting infrastructure facilities develop. Resultantly, the local communities who rely on transport links and businesses which use the infrastructure built for airport connectivity also benefit. The vast amounts of available land in expanding rural and country areas of Australia have paved the way for a number of new airstrips and airports.

In addition, there are cases where existing farming and industrial land is being rezoned to allow for a wider range of aviation services (see Case study 15). Special use zoning permissions enable smaller aerodromes to expand operations, both in terms of airport infrastructure and aviation activity, and also associated uses such as retail, education services and accommodation.

Case study 15: Lethbridge Airport, Vic — An emerging regional role

The rezoning of Lethbridge Airport in 2011 has established the facility as an aeronautical hub. Its ideal location between Colac and Ballarat, and low surrounding population density, means the airport has been important in supporting air services across regional Victoria. The airport currently has two runways, which services around **11,500 aircraft movements** each year. Lethbridge Airport also includes **two flying schools** and accommodates 60 aircraft stored in hangars on site.

The zoning amendment has allowed for the development of a vibrant commercial site. Management is considering expanding the airport to incorporate provisions for further pilot training, hospitality and accommodation services. These facilities are hoped to provide a range of employment opportunities, support community functions on airport grounds and build fire fighting capacity for the **Country Fire Authority**. Indeed Lethbridge Airport is within several kilometres of the **Brisbane Ranges and Otway Ranges** where there have been recent bushfires.

Going forward, it is hoped that Lethbridge Airport will stimulate greater tourism activity in the region. Already, connections between Avalon and Lethbridge Airport have increased the number of people visiting the local community on route to the nearby 12 Apostles and the **Moorabool Valley Wine Region**.

Skilling the aviation industry

The aviation industry requires a highly skilled and diverse workforce. Consisting of nearly 56,500 air transport jobs, the aviation industry supports activity at airports and air service dependent sectors. By nature the industry is heavily reliant on technical occupations such as pilots, air traffic controllers, aircraft engineers and IT professionals. The development of a sufficient number of skilled workers is critical to ensuring the industry's continued strategic role in the Australian economy.

The training arrangements are sometimes complex as aviation skills development is pursued at a number of levels by industry, through higher education, and through vocational education and training. In the past, the aviation industry has seen poor recruitment numbers, barriers associated with education funding and limited access to practical training facilities.

In addition, the civilian and military components of the aviation industry have operated largely independently, with the transfer of skills and personnel between these groups hindered by the absence of an integrated training system. The aviation training package approved in 2008 sought to align the competency requirements of Defence and Air Services Australia.

The role of airports in aviation training

Australia has several innate advantages in the global aviation and training market. The country's regional airports in particular have been well placed to benefit from these advantages. The vast landscape of the Australian continent has allowed the expansion of training facilities across many major regional and regional airports.

Regional airports such as Wagga Wagga and Tamworth have been able to provide flexible training facilities that do not conflict with the flight paths of capital city airports, while minimising the noise impacts in densely populated areas (see Case study 16). In addition, the relatively safe flying weather throughout the year offers attractive conditions for new pilots.

For more advanced aviation training and career development, Australia's capital cities and key regional centres provide opportunities to access modern international airports, sophisticated engineering and air traffic management facilities.

Case study 16: Regional airports — Aviation education and training hubs

Wagga Wagga Airport, NSW: In 2009, the **Australian Airline Pilot Academy** (AAPA) relocated to Wagga Wagga Airport. AAPA provides a 32 week full-time course for ab-initio trainee pilots, to meet the current and future demand for Rex pilots, as well as development courses for current Regional Express pilots. In 2011 AAPA commenced training international students, offering Multi Crew Pilot Licence (MCPL) training for UAE trainee pilots.

AAPA's training programme is residential, with world class equipment and facilities, and boasting a fleet of 20 new Piper aircraft and 3 flight simulators. The total capital outlay on these facilities over 2009-2014 is expected to exceed $25 million, representing a significant investment in the regional economy and in particular aviation training.

Other vocational and tertiary intuitions in Wagga Wagga provide **aviation related training programs.** These include the National Aerospace Training Centre of Excellence, providing technical trades training to recruits at RAAF Base Wagga Wagga, and TAFE NSW Riverina Institute providing training in Wagga Wagga for Airservices Australia trainees through their Diploma of Engineering, Electronics and Communications. Wagga Airport has also been active in developing aviation training through their collaboration with TAFE Riverina NSW Institute, the Transport & Logistics Industry Skills Council, Queensland Airports Ltd and the Australian Flexible Learning Framework

Tamworth Regional Airport, NSW: The airport is host to **BAE Systems Flight Training Australia**, which conducts flight screening and the first stage of flight training for all Australian Defence Force pilots.

- It also has flight screening contracts with the Republic of Singapore Airforce and the Royal Brunei Airports, under which it provides facilities and aircraft. The training facility caters for **over 200 students** at any given point in time.
- Tamworth Regional Airport also hosts training courses in aircraft mechanics and engineering through the Australasian Pacific Aeronautical College (APAC), as well as QantasLink's heavy maintenance base for Dash-8 aircraft.

Airports have also been involved in partnerships with both private and public sector parties to promote the attractiveness of aviation as a career path. For example, Newcastle Airport has attempted to target grass root interest by opening up airport grounds to local high

school students as part of their 'Aviation Careers Day'. More information on Newcastle Airport's Community Engagement Program is outlined in Case Study 17.

In addition, to meet training challenges in the airport industry, the AAA and the Transport Logistics Industry Skills Council are coordinating the roll out a national training plan aimed at training Work Safety Officers and Aerodrome Reporting Officers. This program has received encouraging support across the industry with more than 100 candidates set to undergo the training.

Case study 17: Newcastle Airport, NSW — More than a military hub

Newcastle Airport, located on a 28 hectare portion of, and sharing runways with, **RAAF Base** Williamtown, is a prime example of an airport itself serving as an attraction.

In 2010, RAAF Base Williamtown hosted the Defence Force Air Show, attracting **more than 55,000 visitors**. By collaborating with the RAAF, Newcastle Airport was able to maintain normal services while significantly boosting traffic, with over ten thousand passengers passing through Newcastle Airport over the air show weekend alone. This provided a significant boost to the region's economy.

Further, Newcastle Airport hosts the Newcastle Airport Schools Program, aiming to educate local children on the operations of an airport through in-class presentations and behind-the-scenes tours. The program is highly successful, being fully booked with **over 3,300 students** taking part, and positive feedback from students and teachers.

Newcastle Airport is also a significant sponsor of local community events. Proceeds from the Airport's charity golf day, as well as its allocated philanthropic funds, are distributed to the **Hunter Breast Cancer Foundation** to assist in the provision of grassroots support to the 650 men and women who undergo breast cancer surgery in the Hunter region every year. Newcastle Airport is also the major sponsor of the **Inspiration Children's Season**, which brings live theatre to local children in the Hunter region.

Airports as corporate citizens

The role of airports in generating economic activity in the regions they serve has been well documented thus far. However, it is also accepted that airport operations can lead to some adverse environmental and social impacts. In light of this, airports are increasingly focusing on concepts of corporate social responsibility.

Given the long term nature of their large transport and commercial infrastructure base, airports have been better prepared to incorporate sustainability considerations in their forward planning decisions (see Case study 18).

Case study 18: Adelaide Airport, SA — Environmental sustainability

As operators of the Adelaide Airport, Adelaide Airport Limited (AAL) outline their commitment to managing and developing the airport in a sustainable manner in regular Sustainability Policies.

As part of the commitment to sustainable development the AAL undertakes a range of activities.

- The AAL promotes a **culture of sustainability** amongst its customers, partners, tenants, contractors and suppliers. For example AAL encourages companies who operate within the airport to reduce their environmental impact and monitors the results through regular audits and education.
- The AAL is focused on promoting a greener airport. AAL monitors the amount of electricity consumed, and is reducing electricity usage by fitting areas with energy efficient lighting, improving building management and purchasing electricity from renewable sources.
- Adelaide Airport is located within the Patawalonga catchment area, which was once a wetland area known as The Reedbeds. AAL has invested significant resources to restore and rehabilitate the area.
- Adelaide Airport recycles paper and cardboard, printer cartridges, waste oil, batteries, drink containers, construction waste and green waste. AAL is endeavouring to increase the re-use of recycling waste generated by passengers visiting the terminal.
- The roof of the terminal has been installed with **one of Australia's largest solar systems**. The power that is generated by this system is used to power the building.

Through its environmental sustainable activities and regular consultations with the local community the airport is fulfilling its role as a positive member of the wider community.

Some of the most frequently cited costs of airports allude to the impact of the aviation industry on local noise, the implications for pollution and the road-side congestion around airports. In addition, the airports which are most attractive to airlines tend to be those which are closest to major centres of population and business — these same airports are more susceptible to environmental and social costs.

Where possible, airports have sought participation from communities and relevant stakeholders to form strategies that enhance the benefits of airports, while minimising any adverse impositions (see Case study 19). Across Australia, capital city and larger regional airports in particular have made investments and operational changes in the following areas:

- Airport companies have supported aeronautical research and development, especially in creating environmental management systems.
- Most Australian airports have outlined and implemented environmental control and mitigation programs.
- Some airports have made substantial investments to adjust aircraft arrival and departure routes to avoid flying over neighbouring communities.
- Airports have assisted the development of public transport links in the surrounding region, benefiting those who use ground transport to move around the community.

As part of their wider community engagement programs, airports often facilitate or directly fund a number of regional cultural, sporting and charity events. For example in 2011, Brisbane Airport Corporation contributed more than $800,000 through their community

charity and social initiatives. Brisbane Airport Corporation also donated $250,000 to the Premier's Disaster Relief Appeal for flood victims in Queensland. Similarly the incomes generated at many regional airports, run by local councils are used to sustain and support ongoing community prosperity in the areas of tourism, business investment and aviation education.

Case study 19: Mount Gambier Airport, SA —Community engagement

Through **forward planning and a mutual understanding** of the strategic importance of airports to the community, Mount Gambier Airport management, together with the District Council of Grant, have focused on the outcomes of residents and businesses.

In the last twelve months, Airport management have been committed to increasing awareness of the important role that airports have in the community by implementing a series of strategic actions including:

- Actively assisting smaller airports with regulatory compliance, services delivered to smaller airports include **Independent Transport Security Program** (TSP) audits as required by federal legislation and Safety Management Systems reviews;
- Utilising the ideas and systems in place in capital city airports and altering these to suit a regional airport environment, including the introduction of Flight Information Display Screens and the addition of queue lane markers;
- Playing a more active **role in the community** by attending or hosting community and corporate events; and
- Fostering better communication between airport tenants creating a family like atmosphere.

The outcomes of the strategies and policies of the airport management are beginning be realised. There is an expectation of a period of strong growth over the next 12 to 24 months, in the airport in several areas.

Indeed, the environmental and social implications have the potential to increase pressures to restrict air traffic growth. However, in light of the key economic and social benefits created by airports, this could involve substantial costs to the broader community.

4 Future growth in airport traffic

The ongoing development of Australia's airport network is clearly an integral aspect of national economic performance. The expected medium to long term growth in airport traffic provides a sense of the overall prospects for the sector and the demands which are likely to be placed on air and land side facilities.

This chapter provides forecasts of the expected growth in airport traffic in major capital city and regional airports throughout Australia. These forecasts provide a high level overview of expected growth in passenger, aircraft and freight movements over the period to 2025 and highlight that significant growth is expected for the sector over the coming decade.

The forecasts developed here should be seen as 'business as usual' projections in that they assume that passenger growth will be based on current forecasts of GDP and population growth and exchange rates and historical trends in the determinants of air travel. Naturally, unexpected events such as mining booms, major sporting events, disease outbreaks, airline collapses or broader changes in technology can lead to significant fluctuations in passenger demand.

This chapter sets out the key drivers of airport traffic growth and provides an overview of the modelling approach and forecast trends in passenger movements, aircraft movements and freight tonnage over time. Forecasts are provided for two groups of airports:

- International and capital city airports.
- Regional airports (based on 16 selected regional airports).

The list of airports used to develop the forecasts for these two groups is provided in Table 4.1 below. These airports represent a comprehensive cross-section of Australia's airport sector. Importantly they cover all major and capital city airports and key regional facilities which service a diversity of industries including tourism, mining and agriculture.

Table 4.1: Airports for which forecasts were developed

International and capital city airports	Regional airports	
Adelaide	Albury (NSW)	Karratha (WA)
Brisbane	Alice Springs (NT)	Launceston (Tas)
Canberra	Ayers Rock (NT)	Sunshine Coast (Qld)
Cairns	Broome (WA)	Newcastle (NSW)
Darwin	Coffs Harbour (NSW)	Port Macquarie (NSW)
Hobart	Dubbo (NSW)	Ballina (NSW)
Melbourne	Devonport (Tas)	
Gold Coast	Hamilton Island (Qld)	
Perth	Hervey Bay (Qld)	
Sydney	Kalgoorlie (WA)	

Source: Deloitte Access Economics

4.1 Overarching drivers and trends

There are a number of drivers and trends that are likely to impact the growth of passenger, aircraft and freight movements on particular routes going forward. The factors affecting domestic passenger growth are likely to be slightly different to those factors influencing the factors affecting international passenger growth, so the two are (as discussed separately below).

Factors influencing domestic passenger growth

At the domestic level, the main factors which influence passenger growth along a particular route are:

- Gross state product (GSP) growth for cities along the route.
- The income elasticity of demand for travellers along the route (this is dependent on the proportion of different types of travellers on a route, for example a higher proportion of business travellers along a route reduces the income elasticity of demand which means that a change in GSP growth has a smaller impact on passenger volumes).
- Population growth rates in both states along the route.

However, a number of other factors can also influence growth in passenger numbers including changes to airfares, oil price movements, airline collapses and factors such as a mining boom and the growth of low cost carriers.

In addition to demand side factors, capacity constraints can also influence potential passenger growth either directly or indirectly through changing the price and convenience of flying. In particular, capacity constraints can limit growth in aircraft movements as airlines utilise bigger aircraft or increase load factors.

Factors influencing international passenger growth

At the international level, there are a number of factors that influence growth in passenger movements including:

- GDP and population growth rates in source countries.
- Income elasticity on particular routes (which will be influenced by the proportion of visitors who travel for business, leisure or visiting friends and relatives).
- Australian and state economic output (GDP and GSP) and respective population growth rates which among other things will influence the number of Australian residents departing overseas.
- Exchange rate elasticity (which will vary for different types of traveller) and the expected path of exchange rates.

Other factors which can influence international passenger levels include changes in tourism preferences, changes in airfares and oil prices and changes in the source countries of tourists arriving in Australia.

Another factor which is likely to influence future international passenger growth is the ability of airports to attract low cost international carriers. For example, Air Asia X currently services Sydney, Melbourne, Perth and the Gold Coast while another carrier, Scoot, has

recently commenced services to Sydney and the Gold Coast. Those airports which can attract new carriers are likely to experience higher growth in both international and domestic passenger movements as international tourists seek to travel around Australia. The growth of low cost carriers has not been specifically factored into the forecasts but is likely to be an important factor influencing international passenger movements over the next decade.

Finally, over the forecast period growth in international aircraft movements is not expected to be as large as growth in passenger movements due to the trend towards increasing aircraft sizes. Strong competition among international airlines including low cost carriers is also likely to keep load factors relatively high.

4.2 Overview of the modelling approach

The following section sets out the modelling approach used in developing the forecasts. Further technical details on how the forecasts were derived are provided in Appendix B.

Data used

The starting point for the forecasts was historical aviation data from BITRE on passenger and aircraft movements on major domestic and all international routes over time. In addition, data from the ACCC Monitoring Reports on major airports was used to estimate total aircraft and passenger movements at particular airports over time. Historical data and forecasts of future economic growth in source countries were obtained from the IMF World Economic Outlook statistics and Consensus Economics, while estimates of population growth were obtained from the IMF.

Data from Consensus Economics and Deloitte Access Economics was also used to estimate exchange rates and forecasts of future domestic GDP, GSP and population growth rates. Further information on the specific data sources used to develop the forecasts is provided in Appendix B.

Forecasting approach

The airport traffic forecasts are largely underpinned by central forecasts of passenger movements. The factors outlined in the previous section were used to derive the growth forecasts for domestic and international passenger movements.

A special adjustment was also made to the model to cater for the expected impact of the mining boom, by applying an additional growth factor for routes between Perth and major mining centres in Western Australia over the next five years. While some of the impact of the mining boom will be captured through the higher forecast GSP growth rates for resource intensive states, this adjustment helps capture the likely increase in FIFO employment on particular routes.

Forecasts of passenger movements are then used to estimate the number of seats and aircraft movements on particular routes by factoring in expected load factors and seats per movement in the future. Seats per movement were assumed to increase by 2% per annum for domestic routes and 1% per annum for international routes based on historical trends in

the growth in aircraft sizes (the rationale behind this assumption is discussed further in Appendix B).

The growth in aircraft movements is then used to estimate the growth in freight tonnage over the forecast period assuming that the amount of tonnage per aircraft movement remains constant over the forecast period for most routes.

It is emphasised that these forecasts are based on 'business as usual' conditions and thus assume that capacity at individual airports will continue to meet demand. In reality, some airports may experience capacity constraints over the period to 2025 which may limit growth. On the other hand, substantial expansion of capacity may lead to growth significantly exceeding forecasts for particular airports.

4.3 Airport traffic projections

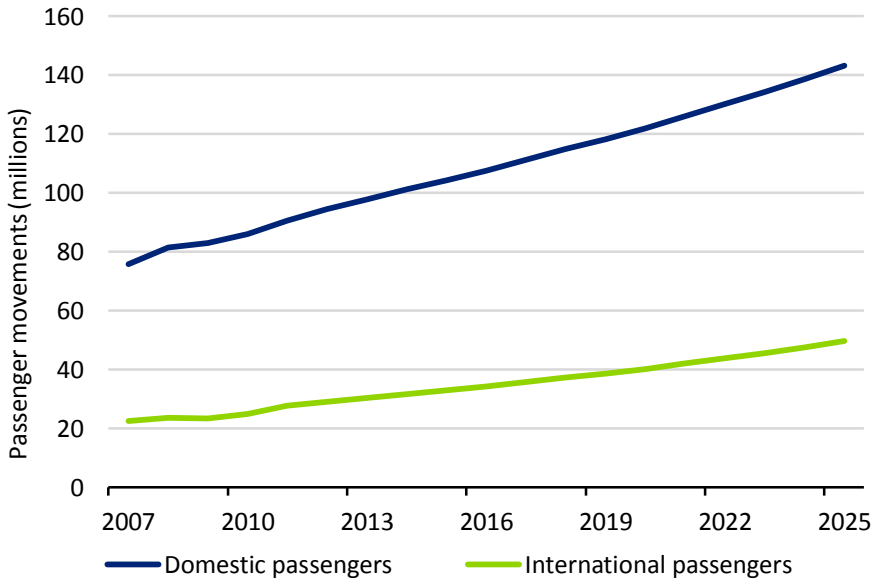
The forecasts of growth in passenger, aircraft and freight movements for international and capital city airports and the 16 selected regional airports shown in Table 4.1 are provided below. The forecasts indicate that both international and capital city airports and regional airports are expected to experience solid growth in passenger and aircraft movements over the period to 2025.

Passenger movements at international and capital city airports

Chart 4.1 shows the forecast growth in domestic and international passenger movements at major international and capital city airports over the period to 2025. International passenger movements at major international and capital city airports are projected to grow on average by 4.3% per annum over the period to 2025 while domestic passenger movements are projected to grow on average by 3.3% per annum.

These figures indicate that solid growth in passenger movements is projected for the major airports over the period to 2025 which slightly stronger growth projected in international passenger movements compared to domestic passenger movements.

Chart 4.1: Passenger movements at international and capital city airports



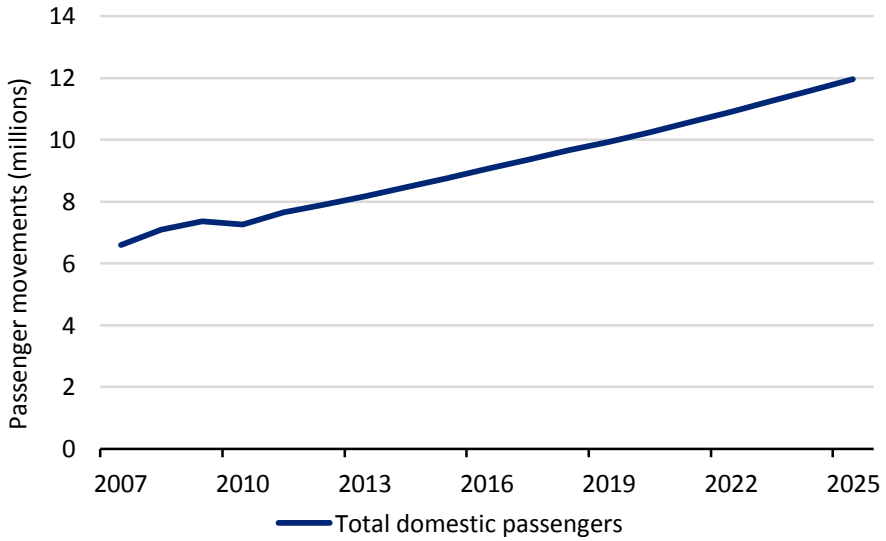
Source: Deloitte Access Economics

Passenger movements at regional airports

Chart 4.2 shows the overall projected growth in passenger movements at the 16 selected regional airports over the period to 2025. From 2011 to 2025, regional passenger movements at the selected airports are projected to grow on average by 3.3% per annum.

While the chart below indicates that future growth appears to be fairly uniform, this is some variation in growth rates between years which is not readily apparent in Chart 4.2, with the minimum and maximum annual growth rates being 2.9% and 3.7% respectively over the period. Growth rates at individual airports are projected to vary considerably more.

Chart 4.2: Passenger movements at selected regional airports



Source: Deloitte Access Economics

Aircraft movements

The trend in aircraft movements over the forecast period is predicted to closely align with the distribution of forecast passenger movement growth across major capital city and regional airports, although aircraft movements are assumed to grow at a slower rate due to increasing aircraft sizes.

As a result, total aircraft movements are projected to grow by 1.9% per annum on average over the period to 2025 at major airports and 1.7% per annum at regional airports. The growth in international aircraft movements is projected to be stronger than domestic aircraft movements, reflecting higher projected growth in international passenger levels.

Freight tonnage at international and capital city airports

The international and capital city airports are responsible for transporting the vast majority of international and domestic airfreight in Australia. These airports were responsible for transporting almost all international freight into and out of Australia in 2011 (with the exception of a small amount of freight movements at Norfolk Island) and the vast majority of domestic freight.

While there is limited data available on domestic freight movements for individual domestic airports, some data on domestic freight movements is available for the five major capital city airports from the BITRE Domestic Airline Activity Annual 2011. Together, these five airports accounted for around 86% of total domestic freight movements in Australia (BITRE Domestic Airline Activity Annual 2011).

Chart 4.3 shows the expected path of domestic and international freight movements for international and capital city airports over the period to 2025. From 2011 to 2025, total freight movements are projected to grow at an annual average growth rate of 2.9% per annum at international and capital city airports.

Chart 4.3: Freight movements at international and capital city airports

Source: Deloitte Access Economics

5 Strategic implications

Australia's extensive network of airports comprises an important part of the economy, forming a crucial input into a wide range of business and social activities. As such, the sector's ongoing operational performance, investment plans and responsiveness will have implications across many areas of the economy, especially those most heavily reliant on air transportation.

There are many challenges facing the industry over the next decade or so, especially in the context of a strong currency, areas of weakness in the domestic tourism market and strong demand for air services from the rapidly growing resources sector.

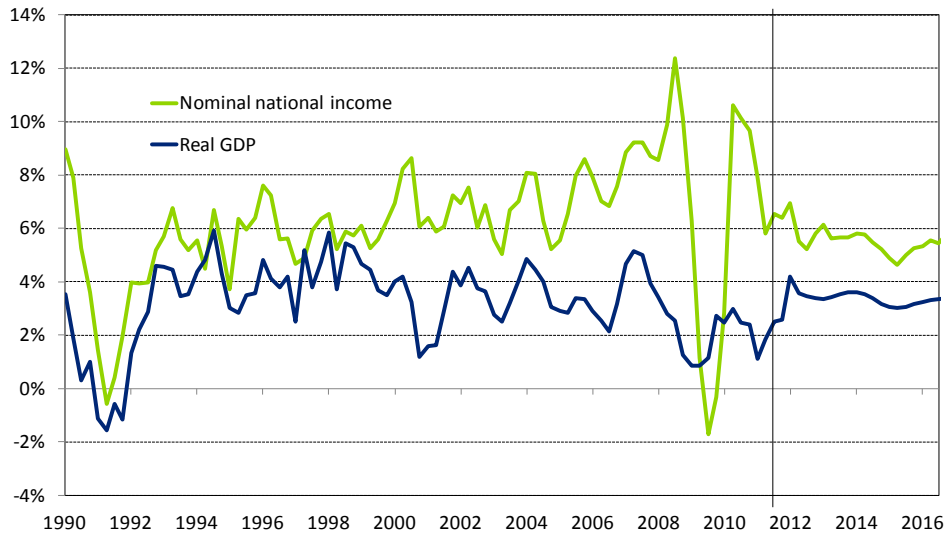
5.1 Macroeconomic outlook

The Australian economy has performed well in aggregate over recent years compared to other advanced economies. Chart 5.1 below shows projected real and nominal output growth in Australia through to 2015-16. It shows the Australian economy growing at or close to trend over coming years, despite global headwinds in the near term.

However, there is considerable variation across both industries and geographic regions. Growth is very strong in the resources sector and this is expected to continue for some time. Accordingly, as has been the trend for some time, states which have large mining and gas sectors such as Western Australia and Queensland are continuing to perform strongly.

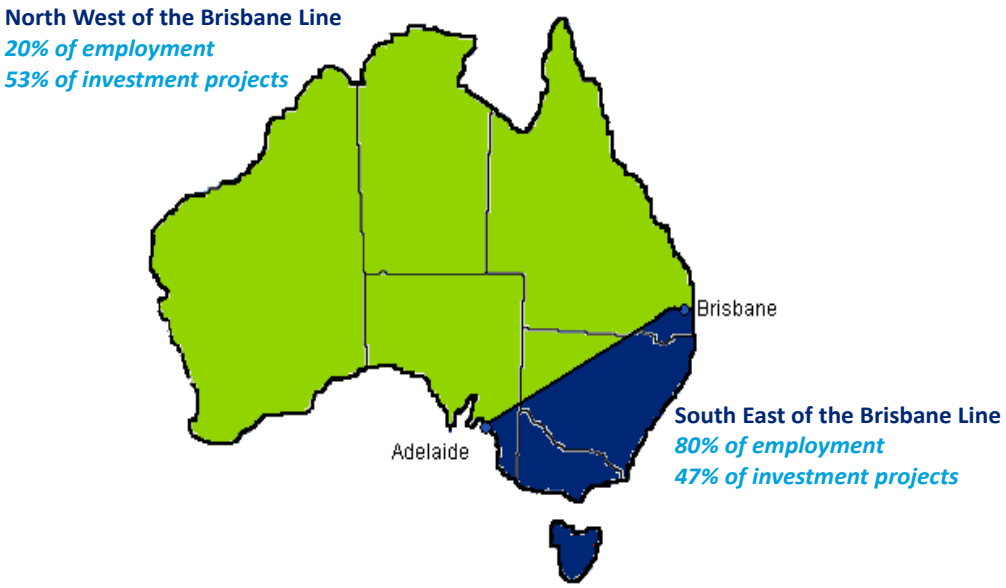
On the other hand, other non-mining trade exposed sectors such as manufacturing and — more critically to airports — tourism continue to have weaker performance. This is being reflected in the comparative performance of those states more heavily weighted to these parts of the economy such as Victoria. Crucially, this 'patchwork' economic environment is expected to be challenging for some time. Figure 5.1 shows the dichotomy between investment activity and employment on both sides of the resources sector (or the 'Brisbane line').

Chart 5.1: Australian real and nominal output growth



Source: ABS, Deloitte Access Economics

Figure 5.1: The skewing of Australian investment



Source: Deloitte Access Economics

Currency effects

While the high dollar is making Australia a comparatively more expensive destination for international visitors, it also makes overseas destinations more attractive for domestic holiday makers. Capital city airports which act as international gateways thus have a natural hedge against these currency effects through their exposure to both the inbound and outbound tourism markets. The benefits of this can be seen through outbound passenger growth, which is also being facilitated by additional capacity provided by Low Cost Carriers on overseas leisure routes.

Australia's regional airports are not similarly exposed to currency effects, at least not in a direct sense. Certainly the impact of the dollar on fuel prices and its role in influencing many Australians to holiday abroad rather than domestically will feed into demand for regional airport services.

China and Asian growth

Looking forward, the sector is well-placed to take advantage of the considerable opportunities presented by the rapid industrialisation of systemically large Asian economies, predominantly China. This has two significant components.

Firstly, the unprecedented pipeline of resource investment which is being underpinned by strong demand for energy and mineral resources will benefit the sector. Many regional airports and some major airports (predominantly, Perth, Brisbane and the Gold Coast airports) are likely to have significant growth potential on the back of widespread use of FIFO worker arrangements by resources companies.

Simply by virtue of their pre-existing proximity to mining centres, some airports will be 'accidental winners' from the resources-led increase in service activity. However, this is not to downplay the role of the sector in effectively capturing the gains. Many (especially smaller) airports are actively expanding capacity and infrastructure to cater for the expected long term increase in mining related activity. Some of these expansions are being funded by resources companies either wholly through their direct ownership of airports or partially through contribution arrangements with local governments.

Secondly, and more broadly, the rise of the Chinese middle class will essentially underwrite growth in Asian consumer demand. This will importantly include demand for high-value services where Australia is internationally competitive, notably tourism and education services. Growth in both of these sectors will involve higher levels of air traffic which will likely benefit the airport sector going forward. Already China is Australia's fastest growing overseas tourism market and the long term nature of the remarkable transformation in China's economy is set to provide additional opportunities for some time ahead. That said, Chinese tourists and business travellers may be more focused on city destinations than other overseas tourist markets.

5.2 Exposure to airline related risks

The demand for airport services depends on the level of aircraft movements, which is subsequently driven by passenger demand for air transport. In this way, airport demand is effectively 'derived' from these other markets and will thus be heavily influenced by their respective developments. A fundamental implication of this relationship is that while airports often command some market power, they are far from riskless investments.

Airlines are particularly volatile businesses being exposed to a range of largely uncontrollable risks such as terrorism, pandemics and natural disasters. Each of these risks have materialised at some time over the last decade having a disruptive impact on the international tourism market.

In addition, a key component of an airline's cost base is fuel which can fluctuate dramatically. While major airlines tend to have robust hedging strategies to manage short

to medium term fuel costs, price increases in the longer term are typically to be passed on to customers through explicit surcharges which increase the costs of air travel and reduce demand.

Importantly, significant variability in airline cost structures and attendant changes in demand can strain airport operating flexibility, especially when they are running close to capacity. Given their capital intensity and large sunk costs, airports typically find it difficult to accommodate high levels of demand variability.

Further, unlike many other infrastructure sectors, final demand from airlines is not underpinned by long term contractual commitments and, accordingly, airports must bear substantial demand risk. This can impede forward investment decisions on infrastructure and terminal facilities.

The upshot of these factors is that, as strong complements, what is good for airlines tends to be good for airports. Even in the sensitive area of airport user chargers, it should be recognised that both sectors share a common long term interest in the continued viability of Australia's air transport system.

5.3 Technology issues

As with other industries, advances in technology will affect airports' cost structures and business models over time.

At terminal facilities, check-in kiosks and online/mobile boarding passes have changed the way that passenger processing is undertaken and reduced labour costs. Further, increases in security and screening technologies at airports also impact on overall costs. While many of these types of changes are funded or co-funded by airlines or government, airports themselves have much at stake due to the effects on the overall passenger experience. For instance, streamlined and hassle-free processing can have a positive flow-on effect to higher levels of non-aeronautical revenues.

The development of aircraft technology will also affect airports. The trend towards larger and more fuel-efficient planes will impact on the ability of airports to cater for a larger number of arrivals at a single time; and, as was the case of with the introduction of the A380, may require some infrastructure and runway changes.

For regional airports, the development of modern turboprop aircraft which are larger (most are over 50 seats), pressurised and more fuel efficient is also having an effect on the delivery of air services. As noted above, there has been a shift towards greater hubbing of regional air routes. Certainly some regional centres (eg Wagga Wagga Airport) have experienced strong growth in utilisation over recent years as they have developed into key regional hubs — particularly on the back of growth in mining and agricultural services.

Modern turboprops are being increasingly deployed on regional routes (many are replacing older fleet aircraft). Importantly, to ensure these aircraft are maximally utilised, a regional hub-and-spoke model in regional Australia is likely to become further entrenched. Given their size and weight, these aircraft will also have longer term impacts on the infrastructure and maintenance requirements for affected regional airports.

While advances in technology can present challenges for airports, they are good for the sector. Ultimately they are directed at improving the overall quality of a passenger's journey and delivering operational efficiencies (including across the airport network) which exert downward pressure on the costs of travel.

5.4 Development costs

There is substantial development activity occurring across Australia's airports (as illustrated in Case study 20). This is also highlighted by findings from the Productivity Commission's Inquiry into the Economic Regulation of Airport Services (2011). The Productivity Commission asserts that since 2002, infrastructure investments in the airport sector have increased by around $9 billion. This is not particularly surprising given the size of the airport network, the value of installed capital and the need to meet additional capacity and increased customer expectations.

The costs of establishing major works in the airport sector and more broadly across the economy have been increasing. This is being primarily driven by rising construction costs and shortages of skilled labour.

Cost over-runs and slippage of development schedules represent substantial risks to airport projects, especially given the considerable scale of investment. A further factor is that airport infrastructure, whether terminal facilities or runway works, are among the most expensive forms of commercial and civil construction. For example, industry evidence suggests that terminal facilities can have unit costs up to three to five times that of other commercial construction — principally due to increased technology requirements and the need to integrate a greater range of associated services.

Case study 20: Melbourne Airport — Infrastructure investments

Melbourne Airport has been making **significant investments to support its ongoing growth** and upgrade its infrastructure and will spend more than one billion dollars over the next five years on its capital program.

Melbourne Airport recently completed the expansion of its **international terminal departures area**, valued at $330 million. This included the opening of a new retail area featuring speciality stores and food and beverage outlets that reflect Melbourne's reputation as a destination for shopping and unique dining experiences. The expansion project also included 24 new check-in counters, a new state of the art 'smart' outbound baggage sortation system, two new gates and upgrades to aerobridges to extend the range of aircraft able to use the gates to include A380s.

The upgrading of the international arrivals area included two new baggage carousels and an expansion of the secondary examination area space for border agencies to streamline the arrivals process.

Melbourne Airport's **$55 million runway overlay maintenance project** included the resurfacing of both runways to continue to provide optimum safety conditions for airline customers and passengers.

A new **$26 million freeway overpass is being constructed** to improve traffic flow and reduce congestion on the airport precinct. The new two-lane overpass will provide a new exit from the airport to the Tullamarine Freeway for city-bound traffic.

5.5 Industry challenges

A range of perspectives on the forward challenges and prospects confronting Australia's airports were presented as part of the industry survey. These are summarised below for both major and regional airports.

Challenges facing major airports

Some urban airports raised issues concerning the potential introduction of curfews and increasing community and political pressure regarding airport noise. These were seen as presenting a major regulatory risk which would have fundamental implications for their business, infrastructure plans and operational flexibility.

In a related sense, urban encroachment in the vicinity of major airports and under flight paths was also stated as a problem. This were considered a factor in increasing the overall 'complexity' of stakeholder management, especially in the context of future strategic investments in new airport capacity.

Larger capital city airports highlighted broader capacity constraints as a key issue going forward. While a range of expansions are in train and under consideration, several facilities are facing difficulties with effectively managing current activities. This can have implications for regional airports and airlines as well. For instance, capacity constraints at some major facilities were identified as limiting the ability to establish new regional air connections. Crucially, this could impede some regional centres fully capitalising on new economic development opportunities.

The program of investments across larger airports was also seen as adding to pressures from internal stakeholders. In particular, some airports commented that seeking agreement from airlines for capital expansion projects was made more challenging given other airports are also conducting major upgrades.

Many respondents noted that wider economic conditions were a key industry performance factor. In particular, airports in smaller states and those less heavily exposed to the resources sector (ie on the 'wrong' side of the two speed economy) raised issues of having to compete with higher yielding mining routes for capacity. They also commented on the additional risks related to operating in a more volatile economic environment — for example, where demand for business travel can change markedly.

Recent Federal Government plans to increase the passenger movement charge and pass greater Australian Federal Police costs onto airports are examples of regulatory cost pressures facing the industry and its users.

Respondents highlighted workforce issues as a broad-ranging and longer term challenge for the industry. Particular emphasis was placed on the difficulties in attracting and retaining skilled people to work in the airport sector, and in wider areas such as general aviation. It was noted that the training required, in large part due to the high technical and regulatory aspects of many roles, added to the challenges and made it more imperative to keep experienced people in the industry.

Challenges facing regional and smaller airports

Many respondents pointed to the acute operational cost pressures facing airlines and the flow-on impacts to regional airports — an aspect clearly revealed within the financial parts of the survey. The rising cost of aviation fuel and its availability (especially avgas in some regional areas) were specifically identified. It was also noted that cost management and operational efficiency improvements were key drivers in airlines electing to withdraw from some routes, and that this may continue. Moreover, as airline competition has reduced on smaller routes, prices for services have increased which is placing added pressure on passenger numbers.

The financial challenges involved in operating regional airports and airfields were highlighted. In this context, there was a growing need to undertake infrastructure investments including terminal and apron upgrades (especially to meet demands from the resources sector), but with limited available capital to finance these works. Several remote airports also raised difficulties in securing the workers to perform certain infrastructure repairs.

The cost of regulation on smaller airports was a common concern. A particular issue centred on the minimum standards for RPT services which were perceived to have little consideration of airport capacity and the relative financial imposts of compliance. A core regulatory issue related to security screening, which can rise following the utilisation of larger aircraft. It was asserted that any further lowering of the screening threshold could have a major viability impact on smaller airports.

Many regional airports are owned and operated by Local Government. Governance issues related to this ownership structure and associated difficulties in effectively balancing community needs and commercial outcomes for airport assets were identified. This was seen to be a particular issue in terms of meeting ongoing funding requirements for airports.

Similar to major airports, regional and smaller airport facilities also rely on revenue streams less directly related to their primary activities. In relation to this, the loss of major tenants such as on-site manufacturers and flight training providers at airport sites presented a key risk for some regional airports (noting such mobility also provides opportunities for other airport operators).

Other forms of transport, especially rail, were asserted as a key operational risk for some regional airports. Crucially, this extended to potential major rail developments such as the east coast Very Fast Train which is under consideration.

New opportunities

A wide range of potential opportunities was identified by participants. Not surprisingly, the strong growth of the resources sector and its requirement for increasing numbers of FIFO workers was highlighted as the largest growth area for many regional and major airports. Notably, this included airports with larger population catchments and broader RPT services which are situated well outside of resource prospective areas (eg Tasmania).

Also related to strong economic development in Australia's regions, high growth Asian tourism markets such as China, Singapore and Malaysia, were identified as areas for future demand growth.

On the aeronautical side, constraints at east coast capital city airports were considered to offer benefits for some airports in the vicinity, providing the opportunity to tap into spillover demand. Some smaller airports were also positive on the potential to develop their facilities into commercial and light aircraft precincts, with related maintenance operations.

Various other non-aeronautical opportunities were mentioned by airports, including:

- The potential to locate mine on-site work camps and provide convenient air connections.
- The development of more extensive on-site industrial precincts and related activities such as petrol stations.
- Scope for further non-aviation commercial property development, drawing on population growth in some centres.

Overall development issues

The above discussion highlighted a number of operational challenges and risks facing the sector, and some areas of future growth. These are summarised in Table 5.1.

There are various strategic implications for the sector which emerge from the survey:

- Airports are a dynamic sector which is constantly evolving to meet changes in the market for air services. This presents emerging opportunities for airports to differentiate themselves with better and more innovative services, and reinforce a market position.
- Regional airports, especially those not directly benefitted by the mining boom, need to find ways to further diversify their revenue base. This may include options for attracting and developing more general aviation activity at airports.
- Shortages of skilled labour are constraining the operation of many airports, particularly in key regions where resources projects are attracting large numbers of workers. More innovative options of dealing with this issue need to be identified.
- Passengers are becoming increasingly conscious of differences in service standards at airports which are being driven through increased air travel and greater exposure to high-functioning airports, both in regional centres and in capital cities. These expectations are likely to place additional cost pressure on airports, but may well present new opportunities to offer innovative service offerings — especially to a passenger base willing to pay for a higher quality experience.
- Major airports have effectively re-positioned themselves as an integral part of the travel value chain and, like airlines, have an enormous stake in the overall passenger experience. In large part, this shift has encouraged greater investment in terminal amenities and access infrastructure, and broader retail offerings.

Table 5.1: Airport risks and opportunities

Revenue pressures	Cost pressures		Opportunities
Lower passenger demand	Higher development costs and risks	➡	Potential to increase the asset base of airport facilities and establish higher quality (and differentiated infrastructure) services.
Volatility surrounding demand for regional airports	Worker shortages in certain skill areas	➡	Potential for greater investment in automation technologies
Airline changes to networks and capacity, particularly Low Cost Carriers	Higher customer expectations	➡	Provision of higher-end services (with higher margins), for example: • services targeted at high growth tourism markets (eg Chinese visitors) • niche areas of the general aviation market (eg RA-Aus)

Appendix A: Economic contribution studies

Economic contribution studies are intended to quantify measures such as value added, exports, imports and employment associated with a given industry or firm, in a historical reference year. The economic contribution is a measure of the value of production by a firm or industry. The analysis above includes an account of the direct and flow-on value added generated by the Australian airport sector.

Value added

Value added is the most appropriate measure of an industry's/company's economic contribution to gross domestic product (GDP) at the national level, or gross state product (GSP) at the state level.

The value added of each industry in the value chain can be added without the risk of double counting across industries caused by including the value added by other industries earlier in the production chain.

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

Measuring the economic contribution

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

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

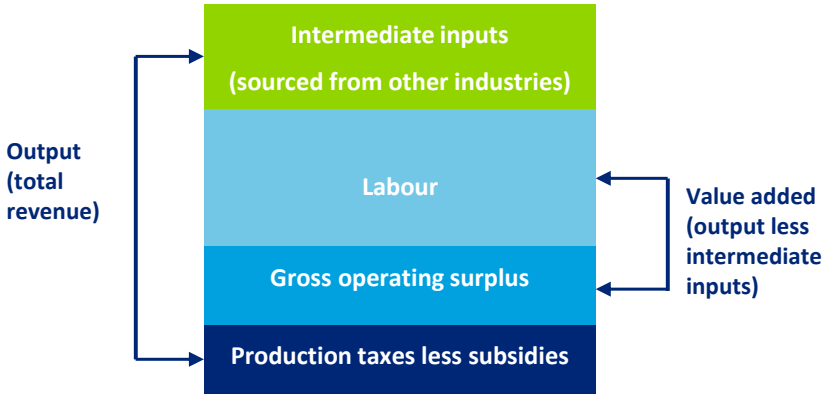
  Value added is the sum of:

  - Gross operating surplus (GOS). GOS represents the value of income generated by the entity's direct capital inputs, generally measured as the earnings before interest, tax, depreciation and amortisation (EBITDA).
  - Labour income is a subcomponent of value added. It represents the value of output generated by the entity's direct labour inputs, as measured by the income to labour.
  - Tax on production less subsidy provided for production. This generally includes company taxes and taxes on employment. Note: given the returns to capital before tax (EBITDA) are calculated, company tax is not included or this would double count that tax.

- **Gross output** measures the total value of the goods and services supplied by the entity. This is a broader measure than value added because it is an addition to the value added generated by the entity. It also includes the value of intermediate inputs used by the entity that flow from value added generated by other entities.
- **Employment** is a fundamentally different measure of activity to those above. It measures the number of workers that are employed by the entity, rather than the value of the workers' output.

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

Figure A.1: Economic activity accounting framework



Source: Deloitte Access Economics

Direct and indirect contributions

The **direct** economic contribution is a representation of the flow from labour and capital in the sectors of the economy where tourists spend their money.

The **indirect** contribution is a measure of the demand for goods and services produced in other sectors as a result of demand generated by airports. Estimation of the indirect economic contribution is undertaken in an input-output (IO) framework using Australian Bureau of Statistics input-output tables which report the inputs and outputs of specific sectors of the economy (ABS 2008).

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

Limitations of economic contribution studies

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

Unless there is significant unused capacity in the economy (such as unemployed labour) there is only a weak relationship between a firm's economic contribution as measured by value added (or other static aggregates) and the welfare or living standard of the community. Indeed, the use of labour and capital by demand created from the industry comes at an opportunity cost as it may reduce the amount of resources available to spend on other economic activities.

This is not to say that the economic contribution, including employment, is not important. As stated by the Productivity Commission in the context of Australia's gambling industries:

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

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

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

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

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

Input-output analysis

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

Appendix B: Airport traffic forecasting

This appendix provides some additional detail on the modelling approach and data sources used to generate the airport traffic forecasts. It should be noted that the methodology used to develop these forecasts is designed to produce a 'mid-range' forecast, namely one where there is approximately a 50% probability of actual outcomes exceeding these forecasts and a 50% probability of actual outcomes coming in below these forecasts. In this sense, the forecasts can be thought of as being based on 'business as usual' conditions.

The modelling approach

As noted in Chapter 4, the forecasts are built around expected changes in passenger movements. Domestic passenger movements are forecast based on forecast GSP per capita growth ('income' growth) multiplied by an income elasticity, plus forecast population growth (that is, the elasticity on population growth is implicitly one). The level of income elasticity for particular routes is based on econometric research by Access Economics and the Transport Elasticities Database from the BITRE, and is weighted by the assumed proportion of business and leisure travellers on each route. The impact of GSP per capita growth and population growth is based on a weighted average of each destination's forecast GSP per capita and population growth.

International passenger movements are forecast based on a similar methodology. Initially, forecasts are generated for overseas arrivals and departures and resident arrivals and departures for the three different categories of traveller (business, leisure and visiting friends and relatives) for each source country (ie forecasts are generated for business travellers coming to Australia from Singapore or Australian residents going on holiday to Canada). These forecasts are calculated in a similar way to domestic passenger movements. For each traveller type and source country forecasts are developed based on expected GDP per capita growth multiplied by income elasticity plus forecast population growth and also exchange rate elasticity multiplied by forecast exchange rates.

These forecasts by traveller type and source country are then used to determine total international passenger movements at each airport, based on the proportion of each traveller type by source country entering the airport in the 2010-11 financial year.

In developing these forecasts, different income and exchange rate elasticities are used for those travelling for business, leisure and to visit friends and relatives. Business travellers tend to have relatively low income and exchange rate elasticities as do those visiting friends and relatives (although they are assumed to have slightly higher exchange rate elasticities than business), while those travelling for a holiday have higher income and exchange rate elasticities as they have multiple destinations from which they could choose to travel to.

Once forecasts of international and domestic passenger movements are generated for each airport, forecasts of seat numbers are generated based on load factors for particular routes.

The number of seats is then used to forecast aircraft movements based on assumed seats per movement for particular routes.

Seats per movement were assumed to grow by 2% per annum for domestic routes and 1% per annum for international routes based on historical data.[1] The growth in aircraft movements is then used to estimate the growth in freight tonnage based on the amount of tonnage per aircraft movement in the 2010-11 financial year.

Data sources used

Table B.1 below outlines the main data sources used to generate forecasts of passenger, aircraft and freight movements for all of the airports.

Table B.1: Main data sources for airport traffic modelling

Source	Data series
Consensus Economics	Real GDP for some overseas destinations (current and forecast).
IMF World Economic Outlook	Real GDP and Population Growth for overseas destinations (current and forecast).
ABS	Overseas arrivals and departures data for short-term visitor arrivals and short-term resident departures. Additional data showing overseas arrivals and resident departures by type for each airport in Australia was obtained through a custom data order from the ABS.
Access Economics	Forecasts from the most recent *Business Outlook* publication for major economic drivers such as population growth, GDP growth and exchange rates trends for Australia, and each State and Territory, over the next decade.
ACCC	Aircraft Monitoring Report 2010-11 used for total passenger movements for Sydney, Melbourne, Brisbane, Perth and Adelaide airports and estimates of international transfers and domestic on carriage movements.
BITRE	Domestic Airline Activity Annual 2010-11 used for estimates of domestic freight movements. International scheduled passenger flights and seats by airline, route and city pairs- used to determine international aircraft movements and seats for each international route. International airline activity- city pairs used to determine passenger and freight movements for each international route. Domestic Totals and Top Routes- used to determine passenger and aircraft movements and seats on particular routes. Airport Traffic Statistics- used to determine annual passenger, aircraft and international freight movements for each airport.

[1] Based on the analysis of the Joint Study on Aviation Capacity for the Sydney Region in (2012, p.73), average seating capacity on domestic routes across Australia rose by 2.5% per annum between 2001 to 2010, and 1.6% per annum for international routes. Our forecasts conservatively assume growth of 2% and 1% in domestic and international seating capacity respectively.

References

Australian Bureau of Statistics (ABS) 2011, Overseas Arrivals and Departures Australia, Cat. No 3401.0 (including an additional customised data report from the ABS).

Australian Competition and Consumer Commission 2012, Airport Monitoring Report 2010-11: Price Financial performance and quality of service monitoring.

Australian Government 2009, National Aviation Policy White Paper.

Bureau of Infrastructure, Transport and Regional Economics, 2012, 'Aviation Statistics Database'.

Bureau of Infrastructure, Transport and Regional Economics 2012, Air transport service trends in regional Australia (2011 update).

Colonial First State Global Asset Management 2010, Flying high: A review of airport regulation
in Australia, http://www.cfsgam.com.au/uploadedFiles/CFSGAM/PdfResearch/100430%20Aust%20Airport%20Regulation.pdf.

Consensus Economics 2011, Asia Pacific Consensus Forecasts, available from www.consensuseconomics.com.au.

Deloitte Access Economics 2012, 'Business Outlook', available from: http://www.deloitteaccesseconomics.com.au/publications+and+reports/subscription+publications.

Horwath HTL 2011, The Future of Luxury Travel, JSTOR journal publications.

IMF 2012, 'World Economic Outlook Database', available from: http://www.imf.org/external/pubs/ft/weo/2011/02/weodata/index.aspx (02 May 2012).

International Air Transport Association (IATA) 2009, The IATA Technology Roadmap Report, http://www.iata.org/SiteCollectionDocuments/Documents/Technology_Roadmap_May2009.pdf.

Productivity Commission 2011, Economic Regulation of Airport Services: Productivity Commission Inquiry Report No. 57, 14 December 2011.

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