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Access Economics

2017

Economic effects of Airbnb in Australia
Queensland

2017

Glossary

ABS	Australian Bureau of Statistics
DAE-RIO-M	Deloitte Access Economics' Regional Input-Output Model
DAE-TFM	Deloitte Access Economics' Tourism Forecasting Model
EBITDA	Earnings before interest, tax, depreciation and amortisation
FTE	Full time equivalent
GDP	Gross domestic product
GOS	Gross operating surplus
GSP	Gross state product
IO	Input output
IVS	International Visitor Survey
NVS	National Visitor Survey
TARDIS model	Tourism Accommodation Regional Demand, Investment and Supply model
TRA	Tourism Research Australia

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Executive summary

Key points

- Airbnb has grown in popularity in recent years as part of a broader trend towards the 'sharing economy', where peer to peer platforms directly connect customers and providers. Queensland Airbnb hosts accommodated 343,800 guests for 586,700 nights in Brisbane, the Gold Coast and other regional towns across the state

- Airbnb guests are now a significant driver of the tourism economy, with a total contribution to Queensland's GSP of $217 million in 2015-16, supporting 2,115 jobs in addition to the activities of hosts. An analysis of tourism policies across Australian states and territories finds Airbnb can help contribute to a number of their objectives

- Platforms like Airbnb increase the supply of guest accommodation in volume and variety terms, so they can both drive growth of the tourism industry and increase competition. There may be costs and impacts for existing operators, but consumers stand to gain

- One of the drivers of Airbnb growth has been creating lower cost accommodation options – we estimate a cost saving of around $26 million in 2015-16 for guests staying in Sydney who might otherwise have stayed in traditional accommodation

- One of the key non-price differences of Airbnb is location – three-quarters of Airbnb properties in major markets around the world are located outside traditional tourist areas. Other features include bringing people together from other states or countries, home-like facilities in accommodation, and the features of the Airbnb app itself such as the rating system. The non-price benefits are estimated to be worth the equivalent of almost $50 million in 2015-16 for guests staying in Sydney alone

- The average star rating for Airbnb listings across Queensland is 4.7 out of 5

- Airbnb hosts in Queensland earned a median income of $4,700 in 2015-16 – a fairly modest supplement to a household's main sources of income, but which may nevertheless be handy for living expenses, to pay down debt or to increase savings.

In one year in Queensland, 343,800 Airbnb guests spent $331 million

supporting 2,115 jobs and $217 million in GSP

Airbnb hosts earned a median income of $4,700

On average, guests staying across Queensland rated their Airbnb listing 4.7 stars out of 5

Airbnb is a peer to peer platform on which people can list and book accommodation around the world – whether that be a spare bed, a private room or a whole house. Short-stay rentals facilitated by platforms like Airbnb are part of a broader trend: the growth of the 'sharing economy', through which consumers are choosing to share assets and services via digital platforms. Airbnb is distinct from traditional tourist accommodation, in that Airbnb does not own any of the property listed on its website – it acts as a platform to connect hosts and guests to book accommodation, publish information about host properties, facilitate payments and collect ratings from hosts and guests.

This report examines the economic impacts of Airbnb, estimating the contribution of guest spending to the Australian and Queensland economies, the economic benefits enjoyed by guests, and the income earned by hosts. By adding to both the volume and variety of guest accommodation, we find that there are a number of benefits for guests, hosts, and the tourism industry.

The contribution of Airbnb to tourism in Queensland

Airbnb plays an important role in supporting tourism in Australia, by facilitating accommodation bookings and advertising Australian destinations to consumers around the world. Around 133,300 stays were booked with **Airbnb in 2015-16 in Queensland, with Airbnb hosts accommodating 343,800 guests for 586,700 nights in Brisbane, the Gold Coast and other regional towns across the state.** Airbnb has grown rapidly in Australia since its launch in 2012, with its innovative market offering allowing ordinary people to host tourists from around the world. According to Airbnb, over 80 per cent of Airbnb hosts across Australia share the homes in which they live.

Our analysis is based on the tourism expenditure of Airbnb's guests in Australia. **Airbnb guests spent over $330 million in Queensland in 2015-16,** based on Airbnb bookings and survey data from Airbnb and Tourism Research Australia. This includes the amount paid to Airbnb hosts for accommodation, as well as expenditure on items like food, drinks and entertainment, but excluding fees charged by Airbnb. The economic contribution study is based on Input-Output (IO) modelling techniques.

Our analysis found that the **total economic contribution is on average 1.4 times the direct contribution** in Queensland.

It is estimated that Airbnb guest expenditure is associated **with $217 million in value add to the Queensland economy**, and supports 2,115 full time equivalent (FTE) jobs across the state. This includes $57.1 million in value add and 553 FTE jobs in the regional Brisbane economy, and $160.2 million in value add and 1,562 jobs in the rest of the state.

While induced effects were not assessed quantitatively in this report, these effects may be locally significant in some regions – especially where tourism plays a significant role in the economy.

Supporting government tourism objectives

Airbnb is aligned to both federal and state government objectives. The key federal objective – *Tourism 2020* – sets stretch targets for Australia's tourism industry. Short-term private rental services like Airbnb can assist the government in meeting its accommodation supply and tourism expenditure targets.

At the state level, Airbnb generally supports a number of policy goals, including those related to the Queensland Government's *Destination Success* and *Advancing Tourism 2016-20.* Themes and priorities supported include building partnerships between industry, government and communities, using events to attract domestic and international visitors, and increasing visitor expenditure.

Consumer effects

Guests who book accommodation through Airbnb benefit from its features and the lower average cost of accommodation on the platform. Airbnb's innovative platform allows guests to find accommodation outside major hotel districts and enjoy a personal connection with their host and the surrounding community. Airbnb's bidirectional ratings system also encourages quality service, with listings across Queensland rated 4.7 stars on average. The features (other than price) of Airbnb are further described in Figure i.

Traditional accommodation providers have also been part of digital innovation trends in recent years, including greater use of comparison websites that increase competition, increased use of guest ratings and easier ways to find accommodation in certain locations. Nevertheless, the features in Figure i, along with competitive prices, have seen Airbnb have a number of effects in the market.

Western Australia
Total contribution ($m)

99.7

Total employment (FTE)

780

Northern Territory
Total contribution ($m)

6.5

Total employment (FTE)

55

Queensland
Total contribution ($m)

217.4

Total employment (FTE)

2,115

New South Wales
Total contribution ($m)

512.5

Total employment (FTE)

4,452

Total contribution
$1,606.9m

Total employment
14,409

South Australia
Total contribution ($m)

38.2

Total employment (FTE)

407

ACT
Total contribution ($m)

12.6

Total employment (FTE)

99

Victoria
Total contribution ($m)

412.6

Total employment (FTE)

4,084

Tasmania
Total contribution ($m)

54.5

Total employment (FTE)

599

Figure i : Features of Airbnb

The majority of Airbnb listings are located outside traditional hotel districts worldwide

Location

Guests rate listings and host rate guests following a stay, encouraging better service

Bidirectional reviews

Airbnb expands accommodation supply, increasing availability during peak periods

Availability

Airbnb facilities personal connections between hosts and guests

Peer to peer platform

Consumers can enjoy unique properties in different locations, generating a cultural experience

Cultural experiences

Business travellers can take advantage of 'at home' facilities and use Airbnb listings for team sessions or retreats

Business benefits

Firstly, Airbnb facilitates people offering their homes for short term accommodation, which can occur at lower prices than traditional tourist accommodation. These cost savings, as well as the features of Airbnb, encourage some consumers to book Airbnb listings. The lower average prices may also induce price-sensitive consumers who could not otherwise have afforded to travel – thus growing the size of the overall short term accommodation market.

Secondly, Airbnb is adding to the overall variety in the market– listings are available in a variety of locations outside major hotel districts, in differing configurations (from apartments to treehouses) and are provided through a peer to peer platform.

These differences may create extra traveller non-price benefits known as 'consumer surplus' – the difference between what consumers are willing to pay for Airbnb accommodation, and what they actually paid. Guests may be willing to pay more for Airbnb accommodation due to the features described.

Airbnb also has a platform for business travellers – Airbnb for Business. Over 200,000 clients have registered and used the Airbnb for Business platform worldwide. In addition to the broader consumer benefits and cost savings for employers, the ability to rent an entire space – such as a whole apartment or house – is particularly useful for businesses wishing to facilitate a retreat or offsite team session.

It is also beneficial for business travellers on an extended stay or preparing for relocation, as the property is more similar to a home than a hotel.

Sydney – a case study
To illustrate these two effects, Deloitte Access Economics examined the Sydney accommodation market as a case study. As we have described throughout the report, many of the features of Airbnb listings and traditional hotels are considerably different. Airbnb listings and hotel rooms are not perfectly substitutable, however they compete in the market for accommodation.

Airbnb listings also typically do not have many of the services which are provided by hotels and expected (and valued) by guests, such as a permanent reception desk, baggage storage or daily housekeeping.

Airbnb bookings data and traditional accommodation bookings data from the Australian Bureau of Statistics showed that **rooms in Airbnb listings are, on average, $88 cheaper per night compared to traditional accommodation in central Sydney, while this difference is $50 per night outside central Sydney.** This cost differential excludes Airbnb shared rooms and private rooms within dwellings to provide better comparability to hotels. Using this price differential and an analysis of how Airbnb interacts with the traditional accommodation market, we estimate that **Sydney guests saved $25.8 million in 2015-16.**

Overall, we estimate that **total consumer surplus for Airbnb trips to Sydney was $48.4 million in 2015-16.** This is based on the difference between aggregate willingness to pay (derived using elasticities) and the total amount spent on Airbnb accommodation in Sydney in 2015-16.[1] This value indicates how much extra consumers are willing to pay for Airbnb accommodation.

Producer effects

Platforms like Airbnb are adding to accommodation supply and in doing so, are generating competition in the market. There may be costs and impacts for existing operators in the accommodation market due to this competition, particularly given Airbnb's rapid growth. However, Airbnb is also growing the overall size of the market – with consumers induced by Airbnb's lower average prices or its innovative features. Despite the potential impacts on existing operators, consumers stand to gain from competition in the long term through improved quality and reduced prices.

Airbnb hosts benefit from additional income. **Airbnb hosts in Queensland earned a median income of $4,700 in 2015-16** – a fairly modest supplement to a household's main sources of income. However it can be used for living expenses, to pay down debt or increase savings. This extra income can also support hosts to explore new business ventures – in 2013, 27 per cent of Sydney Airbnb hosts surveyed were freelancers, entrepreneurs or self-employed.

Airbnb hosts can also enjoy the cultural exchange facilitated by Airbnb. Both the host and guest can experience another culture through Airbnb, whether that be through a conversation, a meal or a guided tour. This can be a learning opportunity for hosts, and can help develop a greater understanding of diversity, culture and community.

Airbnb can activate local communities by distributing visitors across cities. **74 per cent of Airbnb properties in major markets across the world are located outside the traditional tourist districts** – meaning that both visitors and their spending is dispersed rather than concentrated, helping local businesses outside areas which traditionally benefit from tourism. Public discussion surrounding the potential neighbourhood and amenity impacts of Airbnb continues, and it is acknowledged appropriate regulation could help address these concerns. Airbnb has previously supported legislation to address potential neighbourhood and amenity impacts, such as the amendments to the Owners Corporations Act 2006 (Vic). However, we did not consider regulation in detail as part of this analysis.

1. Introduction
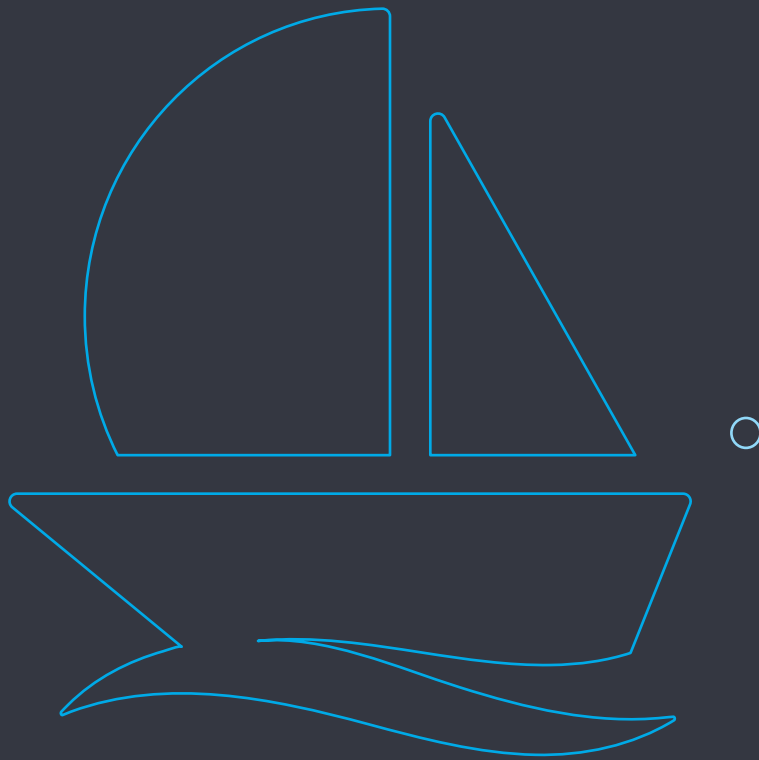
1.1 Purpose and scope of report

Since its Australian launch in August 2012, Airbnb has facilitated over 1.3 million short stays in Australian cities. In excess of 150 million guests, including over 2.5 million Australian guests, are currently on the platform.

Airbnb engaged Deloitte Access Economics to assess the economic effects of Airbnb in Australia. This report aims to quantify the economic contribution of Airbnb guest spending to the Australian economy, and evaluate the economic benefits enjoyed by guests, hosts and the wider community. These effects are considered in the remaining chapters of this report:

- The tourism industry in Australia and support for government tourism objectives, described in Chapter 2

- The economic contribution of tourism facilitated by Airbnb, described in Chapter 3

- Benefits for guests, including business travellers, described in Chapter 4

- Producer effects, described in Chapter 5.

Each of these chapters will also consider the impacts in a qualitative fashion.

1.2 What is Airbnb?

Airbnb is a peer to peer platform on which people can list and book accommodation around the world. Established in San Francisco in 2008, Airbnb today has properties listed in over 65,000 cities and towns, including around 800 Australian cities, towns and suburbs. Airbnb has grown rapidly following its Australian launch in 2012, with around 800,000 stays booked in 2015-16 – out of 1.3 million stays since 2012.

Unlike most tourist accommodation, properties on Airbnb are listed by the person in possession of the property. This is in comparison to hotels and serviced apartments – many of which are owned and managed by large private companies. Airbnb enables ordinary people to list their spare rooms, homes and holiday houses as available for short term stays. According to Airbnb, over 80 per cent of Airbnb hosts across Australia share the homes in which they live.

Short-stay rentals facilitated by platforms like Airbnb are part of the sharing economy, through which consumers are choosing to share assets and services via digital platforms. While at its core, Airbnb fills the same role as traditional short-stay accommodation – providing a place to sleep at night – the way in which it delivers this service is different to existing operators. This differentiated service leads to a number of benefits for guests and hosts, as well as positive effects for local communities.

Other platforms exist which provide a similar service to Airbnb. For example, Stayz – on which people can list whole homes and apartments for short-term stays – has been in operation since 2001. Some real estate agents can also list and arrange short-term leases of holiday homes and apartments.

1.2.1 Listing a property on Airbnb

A person who has a space that they would like to list on Airbnb is required to register as a host on Airbnb's website to use the platform. The registration process involves signing up to the platform and completing information about their property, including a description of the space available and uploading photos. The host also provides personal details, and can add a government identification to verify their account.

The person who lists the property is able to set the cost of renting the accommodation, with Airbnb receiving a small percentage fee per booking. The host also decides the availability of the property and booking settings. Hosts on Airbnb have a range of options, for example, whether instant bookings are available, or whether stay requests need to be confirmed by the host. Hosts can also set minimum requirements for guests, including verified identification, profile picture or rating.

Hosts are protected through Airbnb's host guarantee, which will reimburse eligible hosts for damages up to $1 million.

1.2.2 Booking a stay on Airbnb

Guests register through the Airbnb platform in a similar manner to hosts. Guests can also verify their account using government identification, and link other online profiles to their Airbnb account.

Guests can book a stay via Airbnb's website or on its mobile application. Guests can search for listings using different criteria, such as by date, city, neighbourhood, price or type of property. A sample listing is shown in Figure 1.1 below.

Figure 1.1: Airbnb listing
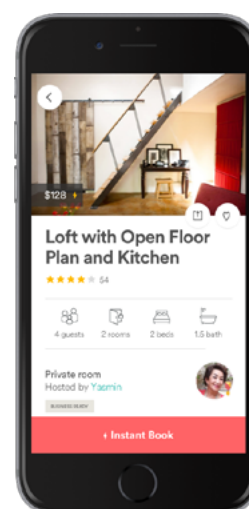
Source: Airbnb

Depending on the host's booking settings, a listing may be available for instant booking or the stay may need to be approved by the host. The host will be able to see the guest's profile and any reviews written by other hosts when accepting the reservation request. Similarly, the guest will be able to see other guests' reviews of the listing.

When an instant booking is made or a booking request is accepted, the guest's reservation is automatically confirmed. Hosts and guests agree a check-in time and how the keys to the property will be exchanged. Hosts can also add a security deposit to their listing before the reservation is booked.

Guests are charged for the reservation by Airbnb at the time the booking is confirmed. Airbnb then remits payment to the host 24 hours after check-in. Guests are also charged a guest service fee by Airbnb.

While staying at a property, Airbnb guests are asked to follow house rules set by the host. These may include requests not to smoke, prohibitions against holding parties or dealing with the misuse of common areas. After the stay is completed, both the guest and the host are invited to submit a review on their experience within 14 days of checkout and provide a star rating out of five about their experience.

1.2.3 Other Airbnb services

Airbnb recently expanded its offering to include city tours and activities through Airbnb Experiences. The platform features local experts and guides who have joined Airbnb to share their city and their passion with travellers from around the world. Guests can book these experiences through Airbnb, with the sessions ranging from one-day tours to week-long immersive classes with accommodation included. Experiences are broadly categorised into sports, nature, social impacts, entertainment, food and the arts, with examples including surfing classes in Los Angeles, truffle hunting in Florence and samurai swordplay workshops in Tokyo.

The Airbnb website and mobile application also features a separate section dedicated to places and neighbourhoods. Local hosts share their knowledge to develop guides for travellers exploring different neighbourhoods in each city – such as Fitzroy in Melbourne, or Redfern in Sydney. The guides can not only be used to explore a city, but also to help choose which neighbourhood best suits a guest's needs and interests.

1.3 Other issues not in the scope of this report

It is acknowledged that there are some community issues relating to Airbnb, such as noise levels and strata issues. As this report focuses on the economic benefits of Airbnb, it does not consider these topics in detail. Airbnb listings are, in many cases, located in suburban neighbourhoods – meaning that there is potential for conflicting views. For example, Tourism Accommodation Australia has noted in a submission to the Federal Opposition that there are possible amenity issues associated with short term letting, such as anti-social behaviour, increases in building wear and tear and degrading of amenities and capital values.[2] Appropriate regulation can help address these concerns to ensure that individual players do not negatively affect neighbours and amenity.

This report does not analyse in detail the drivers of the cost differential between hotel accommodation and Airbnb listings. The regulatory requirements for hotel accommodation and Airbnb listings are different. Airbnb has previously supported legislation to address potential neighbourhood and amenity impacts, such as amendments to the Owners Corporations Act 2006 (Vic). However, this report does not analyse or compare the regulatory arrangements for home sharing or traditional accommodation.

2. Supporting government tourism objectives

Tourism is an important part of the Australian economy, with both levels of government setting objectives to achieve industry potential. Airbnb can help governments achieve these objectives through the expansion of room supply and greater average tourism expenditure.

2.1 The Australian industry context
This section outlines how tourism in Australia is growing, and how the traditional part of the market is also growing in both occupancy and supply terms. Short-term private rentals are growing and represent a modest component of the overall sector.

2.1.1 Tourism in Australia
Tourism was estimated to contribute $53 billion to Australian Gross Domestic Product (GDP) in 2015-16, representing 3.2 per cent of national income.[3] Deloitte Access Economics identified tourism as one of the 'Fantastic Five' sectors driving the next wave of Australian prosperity in its thought leadership report, *Building the Lucky Country – Positioning for Prosperity? Catching the next wave.*

7.4 million international visitors aged 15 years and over visited Australia in the year ending September 2016, increasing by 11 per cent over the period[4] – the fastest rate of growth since the mid-1990s. At the same time, domestic overnight trips increased by 5 per cent to 89.4 million trips, with overnight spend reaching $59.8 billion.[5] Clearly, Australian tourism is bucking domestic and international trends, with total tourism expenditure growing more than three times faster than the overall economy in the past year.

Table 2.1: Tourism in Australia, year ending September 2016

| Metric	International		Domestic	
Overnight visitors (international) /trips (domestic)	7.4 million	↑ 11%	89.4 million	↑ 5%
Number of nights	251 million	↑ 4%	330 million	↑ 4%
Overnight visitor expenditure	$38.8 billion	↑ 11%	$59.8 billion	↑ 5%

Source: Tourism Research Australia[6]

Deloitte Access Economics forecasts international visitor trips to grow by 6.3 per cent per year and visitor nights by 6.2 per cent per year on average over the next three years. This places the aggregate number of international visitors to Australia in 2019 at 9 million, and the total number of nights at 310 million. In terms of domestic travel, Deloitte Access Economics forecasts trips to grow by 3.3 per cent and visitor nights to grow by 3.2 per cent each year on average over the next three years.[7]

2.1.2 Traditional visitor accommodation: growing strongly
Estimates of visitor nights and hotel supply suggest that the most significant part of the market, the traditional hotel market is growing strongly. Traditional visitor accommodation is defined here to include hotels, motels, guesthouses and serviced apartments, consistent with the Australian Bureau of Statistics (ABS) definition of tourist accommodation.[8]

The latest available data shows that domestic tourists stayed 84.1 million nights in traditional visitor accommodation in 2015-16, with international visitors staying 28.7 million nights.[9] Domestic visitor nights in traditional accommodation are predicted to reach 112.0 million by 2024-25, with international visitor nights forecast to reach 48.1 million.[10] This represents a 10-year average annual growth rate of 3.3 per cent for domestic visitor nights and 5.5 per cent for international visitor nights.

Chart 2.1: International and domestic visitor nights in traditional visitor accommodation, 2005-06 to 2024-25

Nights (millions)

International   Domestic
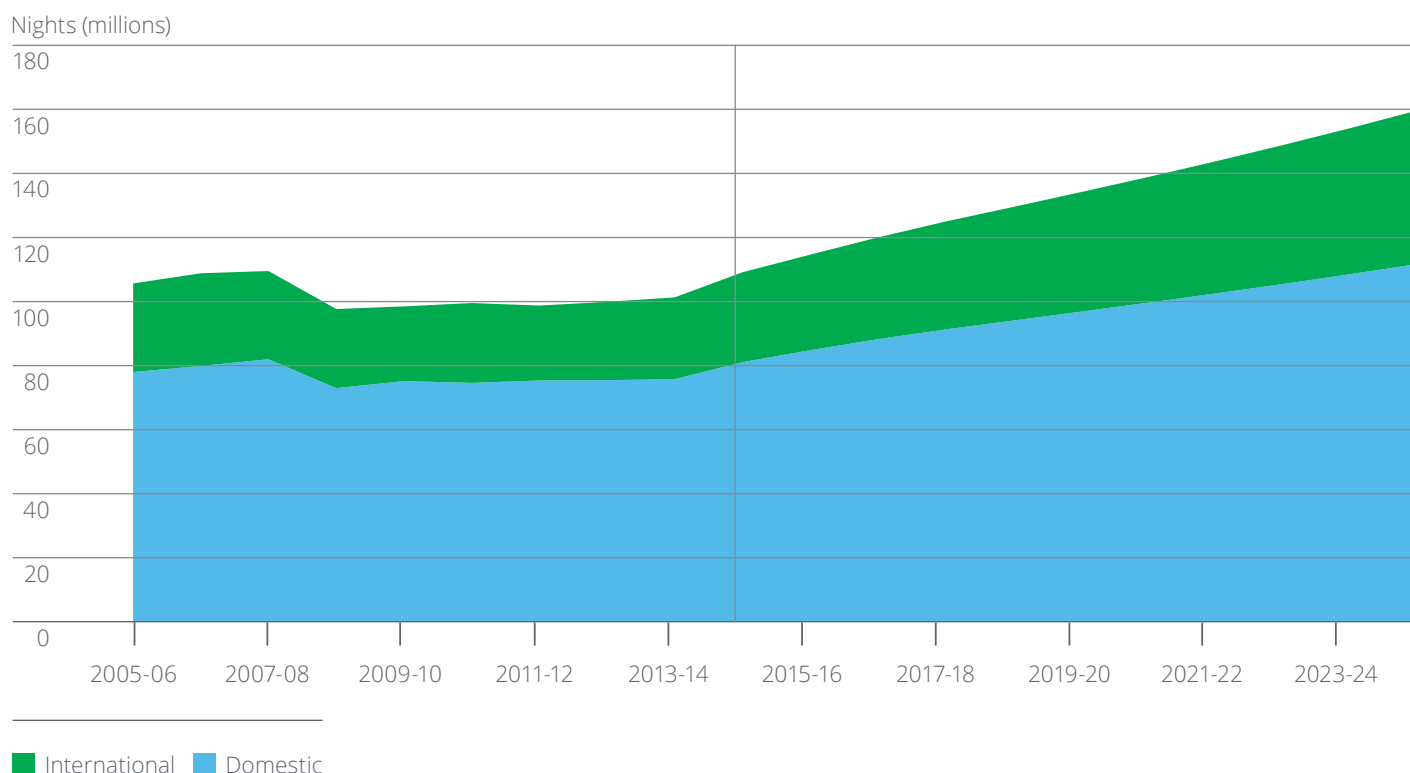
Source: Tourism Research Australia[11]

Room occupancy rates in tourist accommodation establishments with 15 or more rooms rose by 1.3 percentage points to 66.6 per cent in trend terms in June 2016.[12] According to STR Global, room occupancies in Australia were 75.7 per cent in 2016 – a figure which includes all hotels, regardless of establishment size. This compares to 72.8 per cent in 2010.[13]

Deloitte Access Economics expects hotel supply in Australia will increase by 15,800 rooms over the period to December 2019. Room nights sold are forecast to grow at 2.7 per cent per year, and room nights available at 2.1 per cent per annum over the next three years – representing a narrowing gap between supply and demand compared to previous forecasts.[14]

2.1.3 Short-term private rentals
Aside from Airbnb, other platforms which facilitate short-term private rentals include Stayz, TripAdvisor, FlipKey and Couch Surfing. Some larger platforms do not operate in Australia, including the Expedia-owned HomeAway. However, Stayz was acquired by HomeAway in 2013. Some real estate companies also manage holiday home rentals.

It is difficult to estimate the size of this market, given many of the companies which facilitate private rentals are privately owned. Airbnb has an estimated market share of less than 2.0 per cent.[15] Airbnb shares some similarities with these online booking sites, but features such as bidirectional ratings, fully integrated payments and the predominance of non-traditional accommodation options combine to create a different experience.

2.2 Helping the Federal Government deliver tourism objectives
Tourism 2020 is the key Federal Government objective relevant to Airbnb. *Tourism 2020,* initially launched in 2010, set stretch targets for Australia's tourism industry. Relevantly, it was identified in 2013 that between 6,000 and 20,000 new capital city rooms (including the Gold Coast and Tropical North Queensland) will be required to meet visitor demand by 2020, assuming occupancy rates of 80 per cent.[16] The most recent data shows that occupancies in commercial accommodation across Australia reached 75.7 per cent in 2016, according to STR Global.[17] As at February 2017, the accommodation sector had progressed 88 per cent towards the upper bound *Tourism 2020* target of 20,000 capital city rooms, with 17,694 rooms added to accommodation supply since the end of 2009.[18] Short-term private rental services like Airbnb can assist the government in meeting these targets.

Importantly, Airbnb properties are distributed across capital cities and regional areas, and between the CBD and metropolitan areas. This may assist in achieving another key area of strategic focus in *Tourism 2020:* improving regional dispersal.[19] Of the 74,400 listings booked in 2015-16 in Australia, 25,900 were outside the greater capital city areas of Australian states. This is particularly important, given regional areas have experienced a decline in accommodation supply in recent years.[20]

Airbnb can also assist the government in meeting another key objective of *Tourism 2020* – increasing overnight spend to $140 billion by 2020. As at February 2017, tourism expenditure had tracked 38 per cent towards the upper bound *Tourism 2020* goal.[21] Airbnb survey data shows that Airbnb guests spend more than the average tourist, with Airbnb guests spending $237 per night on average, and general overnight visitors spending $146 per night.[22] Higher yielding visitors may assist the government in meeting this upper bound target.

2.3 Helping the Queensland Government deliver tourism objectives

Each state government around Australia has tourism-related objectives and strategies, many of which are aligned with the national *Tourism 2020* goal. The service provided by Airbnb supports a number of these strategies, and may assist governments in achieving their objectives.

The Queensland Government released *Destination Success,* a 20-year plan for Queensland's tourism industry, in 2013. The long term strategy is supported by a series of short-term action plans, the most recent of which is *Advancing Tourism 2016-20 – Growing Queensland Jobs.*

Destination Success sets a target of $30 billion visitor expenditure by 2020, which is supported by a broad vision focusing on Queensland's tourism experiences and diverse regions. Six key themes are outlined under the strategy to guide industry and government efforts.

The first theme identified is to build strong partnerships between industry, government and communities. Within this theme, community engagement in tourism is listed as one of four strategic directions to progress the broad goal. Platforms such as Airbnb involve ordinary members of the community in providing tourism services. Hosts have the opportunity to interact with visitors to their community, creating a welcoming environment and allowing guests to have a real, local experience. By activating local communities that may otherwise be less affected by tourism, Airbnb can help facilitate partnerships between hosts, guests and local businesses, thereby creating a unique experience for visitors to Queensland. Further detail about how Airbnb activates local communities is contained in Section 5.3.

Using events to attract both domestic and international visitors is a strategic direction identified in the fourth theme, to target a balanced portfolio of markets, and the fifth theme, to offer iconic experiences. The strategy recognises that events can both attract visitors and encourage repeat visitation through the experiences offered. It also recognises that events can be used to grow and develop regional tourism destinations. Airbnb can support events calendars across Queensland, by expanding accommodation supply in times of peak demand. Interstate, Airbnb has previously partnered with the Sydney Gay and Lesbian Mardi Gras, the Adelaide Fringe and the Australian Masters Games.

The more recent short-term strategy, *Advancing Tourism 2016-20,* sets out a number of strategic priorities to leverage Queensland's competitive advantages. Its goal is to attract more visitors to the state and increase visitor expenditure, with a special focus on Queensland's diverse regions. Similar to *Destination Success,* the strategy identifies a number of ways in which Queensland can achieve its priorities, which broadly include quality products, investment, workforce development and seizing the opportunity in Asia. As described earlier, Airbnb can assist the government to achieve its goals in these areas by facilitating a quality, local experience for guests, and expanding accommodation supply in periods of peak demand. While Airbnb and other short-stay providers are not directly referenced or identified in these strategies, they can nevertheless support the government in conjunction with other tourism providers to achieve these goals.

Airbnb can also assist the government to achieve the broad goal under *Destination Success* – to increase visitor expenditure. Airbnb survey data from guests across Australia indicates that Airbnb guests spend, on average, 62 per cent more than the average tourist. In Brisbane, Airbnb and TRA survey data shows that Airbnb guests spend an additional 42 per cent per night.[23] While not directly linked to any of the actions listed in the strategy, Airbnb may nevertheless assist in increasing visitor expenditure across the state.

The Queensland Government also recently released the *Queensland Asia Tourism Strategy 2016-2025.* The strategy aims to position Queensland as the leading Australian destination for Asian travellers in terms of market share, reputation and experience. Key target countries include China, Japan and South Korea, while key market segments include millennials and free and independent travellers.[24] With China being Airbnb's fastest growing outbound travel market – with travel growing 500 per cent in 2015-16 – Airbnb may assist in driving visitation to meet the government's goals.

3. The contribution of Airbnb to tourism in Queensland

Tourism facilitated by Airbnb contributes $217.4 million in value added to the Queensland economy and supports 2,115 full time equivalent (FTE) jobs

Airbnb plays an important role in supporting tourism in Australia, by facilitating accommodation bookings and advertising Australian destinations to consumers. This chapter details the value added to the Queensland economy and the employment in Queensland facilitated by Airbnb through its platform to book accommodation.

3.1 Airbnb in Australia
In 2015-16, over 800,000 stays were booked with Airbnb around Australia. Hosts across the nation accommodated around 2.1 million guests for 3.7 million nights in capital cities and regional towns. On average, each host had 15 bookings over the financial year.

A breakdown of bookings in each jurisdiction is shown in Table 3.1.

Table 3.1: Airbnb bookings, broken down by state or territory, 2015-16

State or Territory	Total bookings	Total guests	Total nights booked
New South Wales	289,600	742,800	1,418,900
Victoria	235,900	651,600	1,134,300
Queensland	133,300	343,800	586,700
Western Australia	62,100	171,500	292,900
Tasmania	46,800	124,500	126,300
South Australia	24,400	64,100	109,000
Australian Capital Territory	9,200	20,000	47,300
Northern Territory	4,200	8,800	18,000
Total	**805,500**	**2,127,100**	**3,733,300**

Source: Airbnb

According to 2015 survey data collected by Airbnb, around 71 per cent of Sydney trips, 66 per cent of Melbourne trips and 63 per cent of Perth trips were for the primary purpose of vacation or leisure. A high proportion of trips were also booked to visit friends or relatives, with 15 per cent of Sydney trips and 22 per cent of Melbourne and Perth trips primarily booked for this purpose. The survey data is detailed in Table 3.2.

Table 3.2: Primary purpose of visit survey results, 2015

Purpose of visit	Sydney	Melbourne	Perth	Rest of Australia
Vacation/leisure	71%	66%	63%	77%
Visiting friends or relatives	15%	22%	22%	12%
Business	11%	6%	8%	7%
Conference/convention	0%	4%	2%	2%
Job search/interview	1%	0%	1%	0%
Study	1%	1%	1%	1%
Short-term housing while relocating	1%	1%	3%	1%

Source: Airbnb

Around 51 per cent of Airbnb bookings in Australia between July 2015 and June 2016 were made by Australian guests. The remaining listings were booked by international guests, with 4 per cent of guests each from the United States and United Kingdom, 3 per cent from Singapore and 2 per cent from China and Germany. In Brisbane, a smaller proportion of guests were from Australia, while a greater proportion were from Germany, France and New Zealand compared to the national average.

Table 3.3: Guest origin for Airbnb trips in Brisbane and Australia, 2015-16

Guest origin	Brisbane guest arrivals	Australian guest arrivals
Australia	41,954 (46%)	1,077,910 (51%)
United States	3,720 (4%)	77,673 (4%)
United Kingdom	3,520 (4%)	76,020 (4%)
Singapore	2,637 (3%)	35,355 (2%)
China	1,920 (2%)	71,305 (3%)
Germany	1,837 (2%)	46,952 (2%)
France	1,781 (2%)	26,949 (1%)
New Zealand	1,419 (2%)	23,969 (1%)
Canada	1,101 (1%)	18,891 (1%)
Malaysia	627 (1%)	14,231 (1%)
Other countries	30,884 (34%)	657,845 (31%)
Total	**91,400**	**2,127,100**

Source: Airbnb

3.2 Methodology

The economic contribution of trips facilitated by Airbnb is a measure of the direct activities of Airbnb guests, as well as their indirect contributions through the supply chain. Airbnb stays are a key part of the tourism sector, with local, interstate and international guests hosted around Australia.

This analysis is based on stays facilitated by Airbnb in Australia. The analysis does not take into account the fact that, in the absence of Airbnb, guests may have still travelled and stayed in alternative accommodation. In addition, this analysis does not consider the economic contribution associated with the Airbnb platform itself. Airbnb profits, revenue and expenditure activities are specifically excluded from the analysis.

The economic contribution analysis is based on data provided by Airbnb on the number of guests and their expenditure in 2015-16. The analysis also draws on publicly available expenditure data from Tourism Research Australia (TRA) and the tourism satellite accounts from the Australian Bureau of Statistics (ABS).

The estimate of economic contribution is driven by the expenditure of Airbnb's guests. In 2015-16, the average Airbnb guest spent 1.6 times more per day than the average tourist in Australia. Expenditure data was provided by Airbnb for guests staying in Sydney, Melbourne and the Australian total, with expenditure estimates for visitors to the other capital cities and the states and territories estimated from TRA data. This is then weighted by the total number of nights attributable to Airbnb customers in each region, to estimate the total level of expenditure in the region.

The pattern of guest expenditure highlights the sectors of the economy that benefit (in revenue and employment terms) from Airbnb's guests, including food service (restaurants, cafes, bars, etc.), shopping, transportation, leisure and groceries being the key categories of expenditure.

Value added is the most appropriate measure of the economic contribution to gross state product (GSP). It is the sum of the returns to the primary factors of production – labour and capital (i.e. wages to workers and profit to shareholders) – and can be calculated by adding the gross operating surplus and wages paid to workers in the tourism sector.

The estimates of the direct and indirect economic contribution are based on Input-Output (IO) modelling techniques. The Australian Bureau of Statistics (ABS) produces IO tables which provide the value added for each sector of the Australian economy, as well as the linkages between sectors. This allows the expenditure by Airbnb guests to be traced through the economy, to estimate the value added at each stage. Deloitte Access Economics' Regional Input-Output Model (DAE-RIO-M) is used to estimate the direct value add and employment for each region. The indirect value add and employment, generated by expenditure on the intermediate inputs is determined based on the cost structure of each industry.

While we have not assessed the value of induced effects quantitatively, in addition to the direct and indirect economic contribution, in some regions tourism expenditure associated with Airbnb would likely result in additional consumption beyond expenditure on intermediate inputs. In areas where tourism is especially important to local industry, these effects could be locally significant.

Appendix A provides further background on the economic contribution modelling framework.

3.3 Contribution to the Australian economy

The total economic contribution associated with the tourism expenditure of Airbnb guests in 2015-16 was $1.6 billion in value added, with 14,409 full time equivalent (FTE) jobs supported around Australia.

The total tourism expenditure of Airbnb guests in Australia in 2015-16 is estimated to be $2.041 billion. This figure includes spending on items such as food, shopping and entertainment, as well as the amount paid to Airbnb hosts for accommodation. Table 3.4 shows a breakdown of Airbnb guest expenditure. As the amount spent varies by jurisdiction, these figures are based on state-by-state expenditure estimates.

Table 3.4: Tourism expenditure of Airbnb guests in Australia, 2015-16

Category	Total expenditure ($m)	Share of expenditure
Accommodation	$441.6	22%
Food service (e.g. restaurants)	$554.1	27%
Groceries	$185.6	9%
Shopping	$353.8	17%
Other leisure (e.g. entertainment)	$245.8	12%
Transportation	$216.7	11%
Other services	$43.7	2%
Total	**$2,041.3**	**100%**

Source: Deloitte Access Economics estimates for categories based on Airbnb and TRA[25] survey and other data

It is necessary to consider how the expenditure flows through the economy to estimate the economic contribution associated with Airbnb guest spending.

The amount spent directly by Airbnb guests at local businesses represents revenue for those businesses. Each business employs workers and capital to provide goods or services to the Airbnb guest. The returns to labour (employee wages) and returns on capital (business owner's profits) associated with the Airbnb guests' spending comprise the *direct* economic contribution.

However, some of the revenue earned by those businesses is spent sourcing intermediate inputs and paying other expenses to run the business. For example, a restaurant might source ingredients from a market, and pay for gas, electricity and water. This expenditure generates flow-on economic activity, as supplying businesses will also employ workers and capital to produce goods and services. This additional economic activity comprises the *indirect* economic contribution.

Guests also pay hosts to stay in their Airbnb accommodation. This revenue represents income for hosts, with the profits (or gross operating surplus) from this exchange comprising the direct economic contribution.[26] The indirect contribution reflects the purchase of intermediate inputs by hosts to be able to provide Airbnb accommodation. This principally includes intermediate inputs provided by the construction and finance sector required to build and pay for the property. It also includes other intermediate inputs used to provide Airbnb accommodation (such as cleaning services).

The total economic contribution is the sum of the direct and indirect economic contribution. The direct and indirect contribution are calculated by considering the value added to the Australian economy arising from Airbnb guests' visitor expenditure.

Our analysis has found that the total economic contribution is on average 1.6 times the direct contribution.

Visitor expenditure of Airbnb guests is estimated to directly contribute $1 billion in value added to the Australian economy, with a further indirect contribution of $602 million in value added. Tourism expenditure of Airbnb guests also supported 14,409 FTE jobs around Australia (see Table 3.5).

Table 3.5: Economic contribution of tourism expenditure associated with Airbnb in Australia, 2015-16

	Direct contribution	Indirect contribution	Total contribution
Expenditure ($m)	$2,041.3		
Value added ($m)	$1,005.3	$601.6	$1,606.9
· Labour income ($m)	$449.2	$307.3	$756.5
· Gross operating surplus ($m)	$556.1	$294.3	$850.4
Employment (FTE)	**10,025**	**4,384**	**14,409**

Source: Deloitte Access Economics based on Airbnb, TRA[27] and ABS[28] data

Note: Expenditure is calculated in the input-output model using basic prices, which reflect the revenue received by producers of goods and services. The spending on accommodation is based on the amount of revenue received by hosts (i.e. it excludes Airbnb charges). These contributions do not include induced impacts, which is the spending of those who receive additional income.

Table 3.6 provides a breakdown of the economic contribution by state or territory. This highlights that the two largest contributions to value add are in New South Wales and Victoria, which together account for 58 per cent of total value add and 59 per cent of employment. This reflects the higher number of listings in these cities, their higher tourism visitation, and may also reflect the relative cost of accommodation in these states compared to the other states and territories.

The table also reflects that in calculating the economic contribution of tourism expenditure state by state, some indirect activity is excluded as it leaks out of that jurisdiction's economy as imports. However, this interstate activity is accounted for in the national totals.

Table 3.6: Economic contribution of tourism expenditure associated with Airbnb in Australian states and territories, 2015-16

	Direct contribution ($m)	Indirect contribution ($m)	Total contribution ($m)	Total employment (FTE)
New South Wales	376.8	135.7	512.5	4,452
Victoria	305.2	107.3	412.6	4,084
Western Australia	76.5	23.2	99.7	780
Queensland	160.5	56.8	217.4	2,115
Tasmania	42.1	12.5	54.5	599
South Australia	29.1	9.1	38.2	407
Northern Territory	5.1	1.3	6.5	55
Australian Capital Territory	9.9	2.7	12.6	99
Interstate indirect activity		252.8	252.8	1,818
Australia	**1,005.3**	**601.6**	**1,606.9**	**14,409**

Source: Deloitte Access Economics based on Airbnb, TRA[29] and ABS[30] data

Note: Expenditure is calculated in the input-output model using basic prices, which reflect the revenue received by producers of goods and services. The spending on accommodation is based on the amount of revenue received by hosts (i.e. it excludes Airbnb charges). These contributions do not include induced impacts, which is the spending of those who receive additional income.

3.4 Contribution to the Queensland economy

Airbnb guests are estimated to have spent $330.8 million while visiting Queensland in 2015-16, generating $217.4 million in value added to the Queensland economy and supporting 2,115 full time equivalent (FTE) jobs. Of this amount, $160.2 million in value add and 1,562 FTE jobs – more than half – are outside the greater Brisbane region, demonstrating the broad appeal of Queensland's major tourism destinations. The top 5 destinations for guests visiting Queensland in 2015-16 were Brisbane, the Gold Coast, Cairns, Surfers Paradise and Noosa.

The tourism expenditure of Airbnb guests is estimated using survey and booking data provided by Airbnb, and tourism expenditure data from TRA. The guest spend in Queensland across a variety of categories is shown in Table 3.7.

Table 3.7: Tourism expenditure of Airbnb guests in Queensland, 2015-16

Category	Average spend per guest per day	Total expenditure in Queensland ($m)	Share of expenditure
Accommodation	$44	$63.0	19%
Food service (e.g. restaurants)	$65	$93.1	28%
Groceries	$22	$31.2	9%
Shopping	$42	$59.4	18%
Other leisure (e.g. entertainment)	$29	$41.3	12%
Transportation	$26	$36.4	11%
Other services	$5	$7.3	2%
Total	**$233**	**$330.8**	**100%**

Source: Deloitte Access Economics estimates for categories based on Airbnb and TRA[31] survey and other data

In Brisbane, Airbnb guest expenditure is estimated to contribute $57.1 million in value add to the regional economy and support 553 FTE jobs. A further breakdown is shown in Table 3.8.

Table 3.8: Economic contribution of Airbnb guests in Brisbane, 2015-16

	Direct contribution	Indirect contribution	Total contribution
Expenditure ($m)	$86.5		
Value added ($m)	$41.9	$15.2	$57.1
• Labour income ($m)	$19.6	$7.6	$27.2
• Gross operating surplus ($m)	$22.3	$7.6	$29.9
Employment (FTE)	442	112	553

Source: Deloitte Access Economics based on Airbnb, TRA[32] and ABS[33] data

Note: Expenditure is calculated in the input-output model using basic prices, which reflect the revenue received by producers of goods and services. The spending on accommodation is based on the amount of revenue received by hosts (i.e. it excludes Airbnb charges). These contributions do not include induced impacts, which is the spending of those who receive additional income.

Airbnb guests also stay outside the greater Brisbane region. In contrast to all the other states where the majority of visitation is to the capital city, visitation outside Brisbane is more than double that to the capital city, reflecting the variety of tourism hotspots in the state (including the Gold Coast, Cairns etc.). The economic contribution to these regional economies is estimated to be $160.2 million in value added, based on the difference between the value added to the Queensland and greater Brisbane economies. Airbnb guests visiting Queensland spent a total of $244.3 million outside the greater Brisbane region.

Table 3.9: Economic contribution of Airbnb guests outside Brisbane, 2015-16

	Direct contribution	Indirect contribution	Total contribution
Expenditure ($m)	$244.3		
Value added ($m)	$118.6	$41.6	$160.2
• Labour income ($m)	$55.8	$21.1	$76.9
• Gross operating surplus ($m)	$62.8	$20.6	$83.4
Employment (FTE)	1,251	311	1,562

Source: Deloitte Access Economics based on Airbnb, TRA[34] and ABS[35] data

Note: Expenditure is calculated in the input-output model using basic prices, which reflect the revenue received by producers of goods and services. The spending on accommodation is based on the amount of revenue received by hosts (i.e. it excludes Airbnb charges). These contributions do not include induced impacts, which is the spending of those who receive additional income.

Overall, it is estimated that Airbnb guest expenditure is associated with $217.4 million in value add to the Queensland economy, and supports 2,115 FTE jobs across the state. Our analysis found that the total economic contribution is on average 1.4 times the direct contribution in Queensland.

Table 3.10: Economic contribution of Airbnb guests in Queensland, 2015-16

	Direct contribution	Indirect contribution	Total contribution
Expenditure ($m)	$330.8		
Value added ($m)	$160.5	$56.8	$217.4
• Labour income ($m)	$75.5	$28.7	$104.1
• Gross operating surplus ($m)	$85.1	$28.2	$113.3
Employment (FTE)	1,692	423	2,115

Source: Deloitte Access Economics based on Airbnb, TRA[36] and ABS[37] data

Note: Expenditure is calculated in the input-output model using basic prices, which reflect the revenue received by producers of goods and services. The spending on accommodation is based on the amount of revenue received by hosts (i.e. it excludes Airbnb charges). These contributions do not include induced impacts, which is the spending of those who receive additional income.

Although induced effects were not assessed quantitatively as part of this analysis, these effects may be locally significant in some regions – especially where tourism plays a significant role in the economy.

4. Consumer effects

Guests choose to use Airbnb for a range of reasons – sometimes price, but often for a different type of service. The value of these non-price benefits, measured by consumer surplus, is twice the value of cost savings enjoyed by Airbnb guests in Sydney.

Airbnb provides a number of benefits to guests who book stays on the platform. These benefits arise due to the differentiated service provided by Airbnb and the lower average cost of accommodation on the platform.

This chapter outlines the differentiation benefits associated with the Airbnb platform and accommodation booked through Airbnb, as well as additional benefits for business travellers using the Airbnb for Business platform.
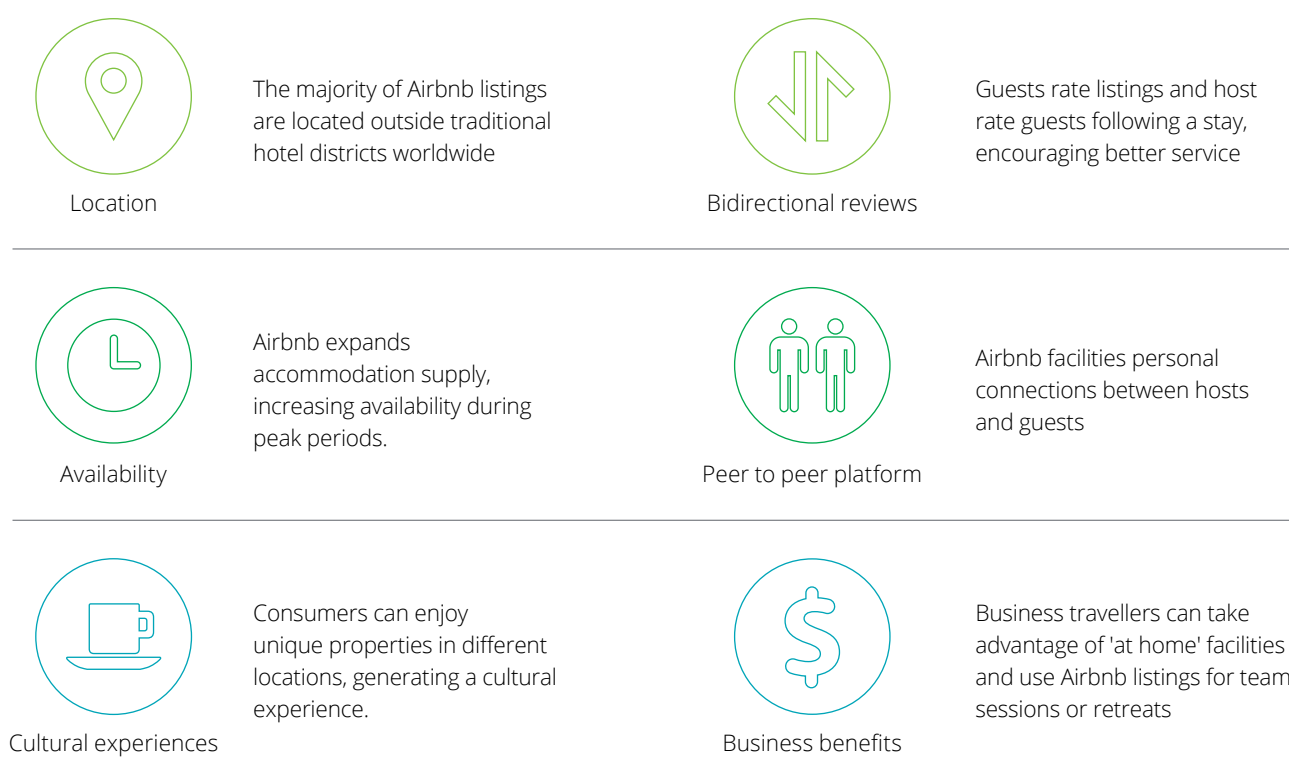
It also describes the economic model used to quantify these consumer effects and cost savings, using Sydney as a case study.

4.1 Beyond lower prices: benefits of Airbnb's features

While cost may be a factor in motivating travellers to use Airbnb,[38] it's not the only reason. A number of studies have suggested that collaborative consumption is driven by the perceived value and benefits of these transactions.[39]

These benefits are related to the specific product offered by Airbnb to consumers in the market, and the extent to which it differs from the current traditional offering. These features of Airbnb are summarised in the diagram below.

Figure 4.1: Features of Airbnb

Location — The majority of Airbnb listings are located outside traditional hotel districts worldwide

Bidirectional reviews — Guests rate listings and host rate guests following a stay, encouraging better service

Availability — Airbnb expands accommodation supply, increasing availability during peak periods.

Peer to peer platform — Airbnb facilities personal connections between hosts and guests

Cultural experiences — Consumers can enjoy unique properties in different locations, generating a cultural experience.

Business benefits — Business travellers can take advantage of 'at home' facilities and use Airbnb listings for team sessions or retreats

Source: Deloitte Access Economics

These features create additional consumer surplus for travellers using Airbnb. In this context, consumer surplus is defined as the difference between what consumers are willing to pay for Airbnb accommodation, and what they actually paid – in other words, the value individuals receive from their Airbnb over and above what they paid for it. The differentiation benefits described in the diagram may influence the amount consumers are willing to pay for accommodation, and therefore the amount of consumer surplus they receive.

The following sections describe the benefits of Airbnb's features qualitatively, while a case study in Section 4.3 quantifies consumer surplus for people using Airbnb in Sydney.

4.1.2 Location and availability of Airbnb properties

The vast majority of properties listed on Airbnb are located outside the traditional hotel areas of major cities around the world.[40] This is in contrast to the location of traditional tourist accommodation, which is generally centred on the CBD and the inner suburbs.

The varied location of Airbnb properties leads to two key benefits.

Firstly, it allows consumers to book accommodation close to their desired location. In providing greater choice, Airbnb is more likely to facilitate a booking which meets the needs of guests. For example, guests may choose to stay outside the CBD if visiting a suburban business, hospital or university.

Secondly, visitors are able to explore areas 'off the beaten track' by staying in an area outside the location of traditional tourist accommodation. Guests can stay in the suburban areas of a city, generating a living experience more similar to a local resident.[41] Guests may place value on this differentiated and authentic experience.[42]

Meeting the demand for rooms during Mardi Gras

The Sydney Gay and Lesbian Mardi Gras is an annual event which has its origins in a night of political protest in 1978. Today, it is a two-week festival which celebrates diversity and queer pride. In 2016, over 12,500 members of the queer community and their supporters joined the key event, the Mardi Gras parade, on 178 floats. Around 300,000 people attended the parade as spectators.

Airbnb supported the Mardi Gras as a major partner in 2015 and 2016, and entered a corporate float in the Mardi Gras parade in both years. In 2016, Airbnb's house-float was offered as a prize in a competition. Pink Media Group arranges Mardi Gras' sponsorships and partnerships on their behalf.

Mardi Gras is not only the biggest queer celebration in Australia, but is also Sydney's second most-attended event, following only New Year's Eve. In this context, Pink Media reports that accommodation can be expensive and difficult to come by, with hotels and other lodgings frequently selling out. The availability of Airbnb properties may mean that more interstate and international visitors can attend the event, with around 100,000 attendees coming from the rest of Australia and around 50,000 from overseas. Visitors tend to stay around a week for the event, and according to Pink Media, many continue to travel around Australia.

Airbnb offers an alternative place to stay for Mardi Gras participants, and at a range of price points to suit different budgets. Importantly, many Airbnb listings are located in Surry Hills, Darlinghurst and Newtown – neighbourhoods which are not only nearby to Mardi Gras events, but according to Pink Media Group, also have a high proportion of queer residents in their communities. Given there is limited hotel availability in these suburbs, Airbnb facilitates an enhanced experience for Mardi Gras attendees. Hosts are also able to benefit from the interaction, particularly those who are attending the event.

The other key benefit of Airbnb is its facilitation of expanded accommodation supply. While this point will be discussed further in the following sections, the greater availability of Airbnb properties in a wider area means that it may be easier, on the whole, for a guest to book a short-term stay in a city. This can be particularly so during periods of peak demand, such as special events or long weekends.

4.1.3 Cultural experiences

Consumer preferences for accommodation vary significantly. Preferences may be influenced by personal tastes, purpose of travel, travel party size or a range of other factors. Travellers may look for a number of key attributes when booking accommodation – such as location, the number of beds or rooms, free Wi-Fi or kitchen facilities.[43]

Airbnb's platform allows for the listing of a wide variety of property types in varying locations. This means that travellers are more likely to find a listing which meets all of their wants and needs, especially when outside the realm of traditional tourism accommodation. The location of a listing is important to guests who are seeking a particular cultural experience when travelling – such as terrace house in Surry Hills, or a cottage in Fitzroy.

Airbnb also provides certain unique listings that are unavailable in the traditional tourist accommodation market. Airbnb's listings include treehouses, castles and caves; this may suit tourists seeking a more unique experience. Airbnb hosts may be able to facilitate a wider range of requests which are often disallowed in traditional tourist accommodation, such as travelling with pets.

Airbnb properties can also provide additional 'at-home' facilities, such as a laundry and kitchen, or a separate study. These facilities provide additional benefits to travellers, especially in the context of long-term stays.

4.1.4 Bidirectional reviews

Airbnb employs a bidirectional review system, whereby guests and hosts are invited to rate their counterpart following the conclusion of a reservation. Importantly, each party is unaware of their own rating before submitting their response, reducing the prospect of potential retaliation bias.[44]

Ratings can encourage the provision of better service, as ratings are publicly available on the platform. Reputation can also affect listing prices according to one US study.[45] Guests are able to view reviews when searching for accommodation, and may take this into account when choosing a property. Hosts are also able to see a guest's rating when a guest requests a reservation at their property, and may similarly choose whether to approve the stay based on ratings. Hosts can also set a minimum ratings requirement for guests where instant booking of their property is available. TripAdvisor performs a similar role in the traditional accommodation market, although accommodation providers cannot rate guests. Out of all Airbnb reservations in Queensland between July 2015 and August 2016, listings were rated 4.7 stars on average.

Ratings also support the development of the online Airbnb community. In allowing guests to review the space in which they stayed, rapport is generated between the host and the guest and between others on the platform. While this community is an integral feature of Airbnb, one study has noted that social interactions between hosts and guests can introduce positive bias in reviews. Omitting negative feedback from reviews is said to occur due to the empathy generated in social interactions between hosts and guests.

One study estimated this effect by assuming that social interactions are more likely to occur where a guest is staying in a private room of a private residence, and less likely to occur where a host has more than three listings. Fradkin et al found that trips to private rooms have a 0.005 star higher rating and trips to hosts with multiple listings have a 0.112 lower rating, holding guest characteristics fixed.[46] Notably, however, this bias is minimal.
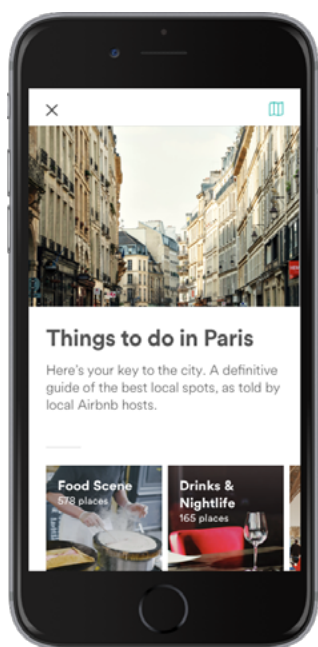
4.1.5 Peer to peer platform

The peer to peer nature of Airbnb may provide additional benefits to guests. In many cases, hosts will greet guests on arrival, and assist their guests in settling in to the accommodation and the local area. This additional service may be valued by guests, as they are able to connect with a local resident in the area.[47]

Airbnb also facilitates hosts to write guides for guests, which are available on the Airbnb platform (as shown in Figure 4.2).

Some guests may also derive value from the peer-to-peer connection facilitated by the platform, with this experience offering value beyond the provision of the good or service purchased. Peer to peer networks like Airbnb allow participants to form friendships and develop and maintain social connections.[48] Guests and hosts can also share recommendations and personal experiences, allowing tourists to connect with the local community.[49]

Annie - experiencing the joys of travel without leaving home

Annie has travelled the world working as a cook on archaeological digs - in places as diverse as Cyprus and Greece to England and outback Australia. Now retired, Annie lives in a four bedroom home in Robina on the Gold Coast. Annie decided to share her home on Airbnb, as she had plenty of spare room living on her own.

For Annie, Airbnb is a great way to meet people from overseas as if she was travelling - but without leaving home. While the income from Airbnb guests supplements her pension and savings, it's more about the people for Annie.

"Airbnb brings people to me, from all over the world and from Australia. It's a great idea to have company when you live on your own, and I was very much used to travelling and meeting people!"

Annie shares local expertise with travellers, like advice on the time to leave for a roadtrip to Brisbane, or the best Thai takeaway in the area. She also helps guests according to their specific needs: from buying special milk or bread for people with allergies, or doing a late-night run to the chemist for children's paracetamol.

"One group arrived to my house quite late, and the elderly parents were too tired after travelling to go out for dinner. So I cooked up a stir fry, which was no trouble at all. They were so grateful, and when I came home the next evening, the table was full of fresh seafood!"

The majority of Annie's guests are from Australia, staying to look for a home to buy on the Gold Coast, running in the Gold Coast Marathon, or visiting relatives at the nearby retirement village. She's also hosted reunions with parents from Asia and their children who live elsewhere in Australia.

Figure 4.2: Host guidebook on Airbnb mobile application

Things to do in Paris

Here's your key to the city. A definitive guide of the best local spots, as told by local Airbnb hosts.

Food Scene
678 places

Drinks & Nightlife
165 places

Source: Airbnb

4.2 Cost savings for consumers

The additional room supply facilitated by Airbnb increases competition in the market, while also providing different types of accommodation for consumers. Increased competition and additional supply in the market can have a number of effects, including lower prices for consumers and greater availability during peak periods.

This report does not analyse in detail the drivers of the cost differential between hotel accommodation and Airbnb listings. It is likely there are a number of factors. There is a relatively low marginal cost in letting an empty room in a property or an apartment that would have been empty while the owner was on an extended holiday.

Airbnb listings also typically do not have many of the services which are provided by hotels and expected (and valued) by guests, such as a permanent reception desk, baggage storage or daily housekeeping. Finally, the regulatory requirements for hotel accommodation and Airbnb listings are different. This report does not analyse or compare the regulatory arrangements for home sharing or traditional accommodation.

Lower accommodation prices can have a number of effects. Clearly, for those who are incentivised to switch from using traditional accommodation to Airbnb, there are resulting cost savings. The magnitude of these savings depends on the differential between Airbnb prices and hotel prices.

Importantly, the lower average price of Airbnb listings may encourage people to travel who could otherwise not have afforded hotel prices, or encourage more frequent travel. These new entrants to the accommodation market increase the overall size of the market, and can help boost tourism more broadly. In one study, 67 per cent of respondents agreed that peer to peer accommodation expands their selection of places to travel, with the lower accommodation cost making more destinations affordable. 41 per cent of respondents also agreed that peer to peer accommodation increases the frequency of their travel, mainly due to the social aspects of using peer to peer accommodation.[50] In a survey undertaken across the United States, United Kingdom, Germany and France, respondents indicated that price was the most important factor in choosing Airbnb. The survey, conducted by Morgan Stanley and AlphaWise in 2016, also showed that 2 per cent of trips would not have been taken if not for Airbnb.[51]

There are also benefits for those who continue to use traditional accommodation. In the longer term, hotels may reduce their prices in order to compete with Airbnb listings – leading to cost savings for this segment of the market. Whether this occurs depends on the extent to which hotels compete with Airbnb listings. However, the location of Airbnb listings in Australia – primarily outside the major hotel districts – may bring into question the extent to which Airbnb and the hotel industry directly compete.

It is important to note that Airbnb listings are not always less expensive than hotels. As shown by CBRE analysis in the United States,[52] the average daily rate for Airbnb may exceed that of hotels, depending on the type of listing. But the overall effect of Airbnb is to drive competition – with lower prices and differentiation attracting new consumers to the market.

4.3 Sydney – a case study

Deloitte Access Economics quantified the two core consumer effects of Airbnb:

- The cost savings for consumers switching from hotels to Airbnb

- The consumer surplus arising from the quantity and differentiation benefits of Airbnb.

This case study focuses on Sydney to illustrate these two effects. Given the unique market conditions across Australian cities, these results are only applicable to the Sydney area. However, similar results are likely to occur in other cities.

We found that consumers who switched from traditional accommodation to Airbnb homes and apartments saved $25.8 million in 2015-16. Net consumer surplus enjoyed by all Airbnb guests totalled $48.4 million.

Appendix B contains further detail about our modelling framework and technical assumptions. For this case study, 'Central Sydney' is defined to include the Sydney CBD, Redfern, Pyrmont, Chippendale, Ultimo, Surry Hills and Potts Point. References to 'hotels' incorporate all traditional accommodation included in the ABS definition, including hotels, motels and serviced apartments with 15 or more rooms. Notably, this analysis excludes other types of accommodation, such as bed and breakfasts, hostels and caravan parks.

4.3.1 Savings to consumers

Consumers who switch from booking traditional accommodation to staying in Airbnb listings enjoy cost savings on average because, in most cases, Airbnb listings are relatively cheaper.

4.3.1.1 Difference in price between Airbnb and traditional accommodation

Airbnb listings are often – but not always – cheaper than booking traditional accommodation. Chart 4.1 shows a comparison between average nightly prices in Airbnb apartments and homes and hotels in central and greater Sydney. Entries below the line represent that hotels are more expensive on average, while entries above the line show that Airbnb listings are more expensive on average.

**Chart 4.1: Comparison of average price per night in hotels and Airbnb listings**
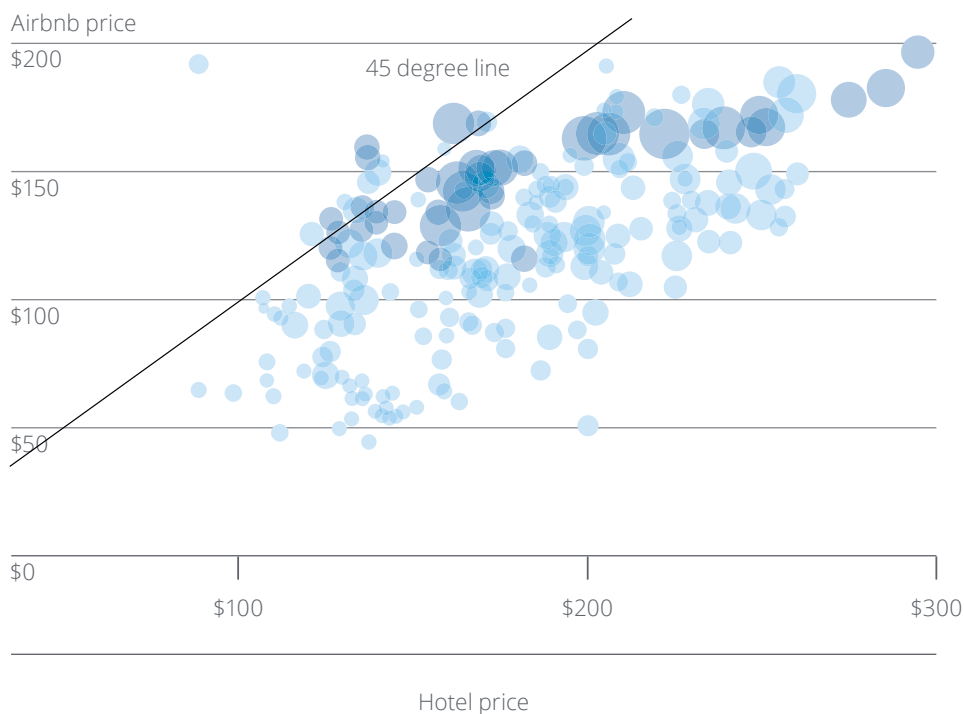
Area

● Rest   ● Central | the bubble size is scaled based on total nights in each suburb

Source: Deloitte Access Economics, using Airbnb and ABS[53] data.

Note: The comparison between areas is subject to data availability, as postcodes in Airbnb data and Statistical Area 2 areas in ABS data may not perfectly align. Shared rooms and private rooms within dwellings were excluded from Airbnb data to provide better comparability to hotels. Hotel prices are determined by considering total takings from accommodation and room nights occupied. Airbnb prices are determined by considering total takings from accommodation and the number of room nights in occupied listings – i.e. prices are provided per room, not per listing.

Chart 4.2 shows monthly movements in price in central Sydney and the rest of Sydney. It is clear that Airbnb listings are cheaper per room, per night on average. Interestingly, the monthly movements in price are remarkably similar for both Airbnb listings and hotels, suggesting that seasonal factors have an important impact on price. The variation in price is also greater in central Sydney compared to the rest of Sydney, potentially reflecting capacity constraints during peak seasons.

Chart 4.2: Comparison of average nightly room price in Airbnb listings and hotels, 2015-2016
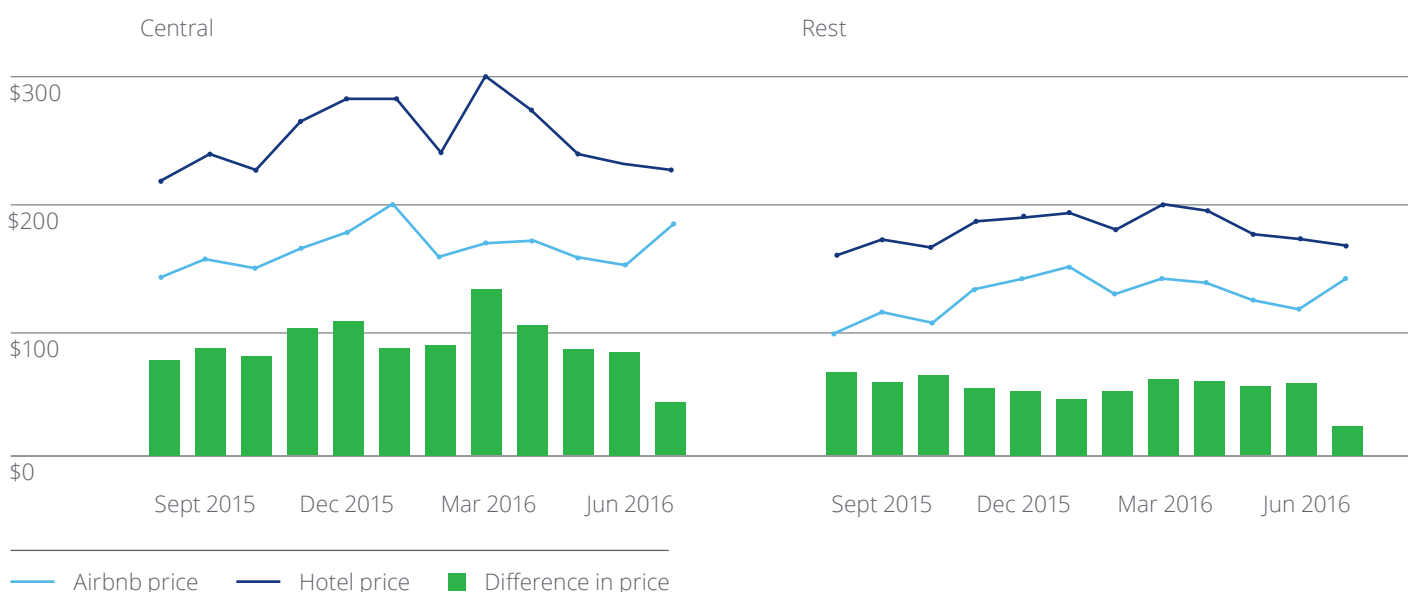
Source: Deloitte Access Economics, using Airbnb and ABS[54] data.

Note: Shared rooms and private rooms within dwellings were excluded from Airbnb data to provide better comparability to hotels. Hotel prices are determined by considering total takings from accommodation and room nights occupied. Airbnb prices are determined by considering total takings from accommodation and the number of room nights in occupied listings – i.e. prices are provided per room, not per listing.

Table 4.1 shows a comparison of average nightly room prices in Airbnb listings and hotels across 2015-16. In central Sydney, Airbnb properties are on average $88 cheaper per night, while this difference is $50 per night outside central Sydney. Note this report does not analyse in detail the drivers of the cost differential between hotel accommodation and Airbnb listings.

Table 4.1: Comparison of average nightly room price in Airbnb listings and hotels in Sydney, 2015-2016

Area of interest	Hotel	Airbnb	Difference	Price ratio
Central Sydney	$250	$163	$88	1.5
Rest of Sydney	$182	$132	$50	1.4

Source: Deloitte Access Economics, using Airbnb and ABS[55] data.

Note: Shared rooms and private rooms within dwellings were excluded from Airbnb data to provide better comparability to hotels. Hotel prices are determined by considering total takings from accommodation and room nights occupied. Airbnb prices are determined by considering total takings from accommodation and the number of room nights in occupied listings – i.e. prices are provided per room, not per listing. Difference may not sum due to rounding.

4.3.1.2 Savings arising from cheaper average prices

Deloitte Access Economics used an in-house model to estimate the effect of growth in Airbnb room nights on the number of hotel room nights booked. Although both Airbnb and the traditional accommodation market are growing, the relatively faster growth of Airbnb bookings suggests there may be an associated effect on hotels. Further detail on this analysis is contained in Appendix B.

Using this price differential and an analysis of how Airbnb interacts with the traditional accommodation market, the total savings enjoyed by consumers switching from traditional accommodation to Airbnb was calculated to be $25.8 million in 2015-16. This is comprised of $9.1 million in savings to consumers staying in central Sydney and $16.7 million to consumers staying in the rest of Sydney. Shared rooms and private rooms located in dwellings were excluded from Airbnb bookings data, as these offerings are less similar to traditional accommodation.

Table 4.2: Total consumers savings for consumers switching from hotels to Airbnb accommodation in Sydney, 2015-16

Area of interest	Total nights	Total Airbnb spending	Consumer saving
Central Sydney	162,536	$33.8 million	$9.1 million
Rest of Sydney	395,772	$86.2 million	$16.7 million
Total	**558,308**	**$119.9 million**	**$25.8 million**

Source: Deloitte Access Economics, using Airbnb and ABS[56] data.

Note: Shared rooms and private rooms within dwellings were excluded from Airbnb data to provide better comparability to hotels.

4.3.2 Benefits other than price

Travellers who book Airbnb accommodation in Sydney enjoy the differentiation benefits provided by Airbnb. These benefits may affect the value consumers place on Airbnb accommodation. If this value is greater than the price paid for accommodation, consumer surplus is created.

Estimating consumer surplus requires an understanding of the demand curve for Airbnb accommodation. The slope of the demand curve is determined by the responsiveness of consumers to changes in price – also known as price elasticity.

Given the wide variety of accommodation offered on the Airbnb platform – across different areas of Sydney and in various forms – Deloitte Access Economics divided Airbnb booking data into five key regions (Sydney CBD, Blue Mountains, eastern suburbs, northern beaches, and other areas) and six accommodation sizes. Each sample was then analysed separately to determine the price elasticity of demand, and therefore the value of consumer surplus.

Deloitte Access Economics used hedonic regression to estimate price elasticities. Hedonic models break down a consumer's value of a good into its constituent parts, such that it is possible to estimate how much each characteristic contributes to willingness to pay. In this context, the price paid for Airbnb accommodation was broken down into elements such as the number of nights booked, the number of guests staying, and the number of days in advance the booking was made. Each of these components contributes to the price a consumer is willing to pay for Airbnb accommodation.

Two different forms of hedonic modelling were used to elicit elasticities, and therefore consumer surplus. The first is a traditional two-stage hedonic model, while the second uses a direct utility estimation approach. These approaches, and further technical assumptions regarding the models, are described in Appendix B. The results of the two approaches were averaged to provide a robust estimate.

Overall, Deloitte Access Economics estimates that total consumer surplus for Airbnb trips to Sydney was $48.4 million in 2015-16. This is based on the difference between aggregate willingness to pay (derived using elasticities) and the total amount spent on Airbnb accommodation in Sydney in 2015-16.

4.4 Benefits for business travellers

Airbnb provides a specialised service for companies, Airbnb for Business. As its name suggests, this service tailors Airbnb's regular offering for corporate travel. Listings are curated for business features, including 24 hour check in, provision of an entire space (e.g. a whole apartment or house) and extra amenities, such as Wi-Fi and toiletries. Travel managers are able to make bookings on behalf of team members, and Airbnb for Business also integrates with spend management platforms such as International SOS and Concur, with booking data readily available from the Airbnb website.

Over 200,000 clients have registered and used the Airbnb for Business platform worldwide. Notable companies which use Airbnb for Business include Google, Facebook and Morgan Stanley. Around 10 per cent of Australian bookings were business-related in 2016, with the majority of bookings made in Sydney and Melbourne. In the United States, Fast Company estimates that 10 per cent of Airbnb rentals are business travellers.[57] On average, business travellers rated their stay 4.7 stars, reflecting the amenities and standards required for business-ready listings. 24 per cent of business trips within Australia are made by international travellers, with the remaining 76 per cent being domestic travellers.

The key benefits of Airbnb for Business relate to the different service offering it provides, and are in some cases similar to the broader consumer benefits of Airbnb.

Firstly, Airbnb's business clients have reported to Airbnb that listings are up to 35 per cent less expensive than traditional hotel accommodation. As highlighted in Table 4.3, standard Airbnb listings were around 54 per cent cheaper compared to traditional accommodation in central Sydney. Although it is important to note that these prices may reflect different standards of accommodation, the overall sentiment remains the same – that business travel is, on average, less expensive through Airbnb.

Table 4.3: Comparison of average nightly room price in Airbnb listings and hotels in Sydney, 2015-2016

Area of interest	Hotel	Airbnb	Difference	Price ratio
Central Sydney	$250	$163	$88	1.5
Rest of Sydney	$182	$132	$50	1.4

Source: Deloitte Access Economics, using Airbnb and ABS[58] data.

Note: Shared rooms and private rooms within dwellings were excluded from Airbnb data to provide better comparability to hotels. Hotel prices are determined by considering total takings from accommodation and room nights occupied. Airbnb prices are determined by considering total takings from accommodation and the number of room nights in occupied listings – i.e. prices are provided per room, not per listing. Difference may not sum due to rounding.

As noted earlier, Airbnb expands accommodation supply, particularly in areas outside of traditional tourist hotspots. This may provide benefits for businesses which require accommodation for employees outside the CBD of capital cities; for example, where a client is based in the inner metro area. Business travellers may also enjoy the opportunity to explore a new area of the city, particularly for an extended stay.

For those requiring accommodation within the CBD, Airbnb can expand supply during peak periods where the availability of traditional tourist accommodation may be limited. This can particularly occur during special events, such as the Mardi Gras Festival in Sydney. Recent statistics show that in 2016, hotel occupancies in the cities of Melbourne and Sydney reached 87 per cent and 88 per cent respectively.[59] Robyn Johnson, CEO of Meetings & Events Australia, recently stated:[60]

"The conference cycle in Australia often coincides with peak corporate activity and festivals that puts high demand on hotel accommodation. Airbnb could be an option that may be attractive to conference attendees who are looking for a different experience."

The nature of Airbnb properties may also benefit both businesses and travellers. The ability to rent an entire space – such as a whole apartment or house – is particularly useful for businesses wishing to facilitate a retreat or offsite team session. It is also beneficial for business travellers on an extended stay or preparing for relocation, as the property is more similar to a home than a hotel. 67 per cent of Airbnb's business travel bookings are for an entire home or apartment.

As with Airbnb's regular offering, stays booked through Airbnb for Business are protected by a $1 million host guarantee (covering damages and protecting the guest and host) and $1 million host protection (providing coverage if a guest is injured). Airbnb also partners with International SOS and iJET such that itinerary data can be integrated into these travel assistance platforms, and provides 24/7 phone support for corporate travellers. Companies can choose a list of pre-approved listings that meet their individual travel policies and requirements.

Aesop – using Airbnb for Business

Aesop is an Australian skincare company headquartered in Melbourne. Aesop has 180 stores worldwide, with global offices in New York, London, Paris, Tokyo and Hong Kong. While the senior leadership team is based in Melbourne, frequent international and interstate travel is required to open and manage stores around the world.

Driven by employee demand, Aesop began using Airbnb for Business for corporate travel. Airbnb complements traditional tourist accommodation and is generally used for different travel purposes. As Aesop stores are frequently established in local neighbourhoods rather than corporate areas, Airbnb is often more convenient for travelling staff. Employees can stay in the neighbourhood near the proposed or established Aesop store, and experience the local culture shaping each location.

Airbnb is ideal for longer-term stays where Aesop employees will be living out of home for an extended period of time. Aesop reported that people who use Airbnb tend to engage more with the local community, as opposed to experiencing their destination at a purely business level. Kitchen and laundry facilities are also useful for extended stays, as they render the living and working environment more similar to home than to a hotel. Pricing can also be more affordable through Airbnb for long term stays.

Hotels are still important in the context of Aesop's corporate travel, especially for shorter stays or long trips with multiple stopovers and complex itineraries. Staff who are travelling to unfamiliar locations may also choose to stay at a hotel where easy airport transfers are available. Airbnb and hotels are alternative options which each have different advantages depending on travel requirements.

The Airbnb for Business platform provides for ease of booking in a corporate environment. Authorised travel organisers can book accommodation on someone else's behalf, which is important for Aesop given the frequency of travel required for some employees and directors. Global applications are increasingly changing how Aesop undertakes corporate travel around the world.

5. Producer effects
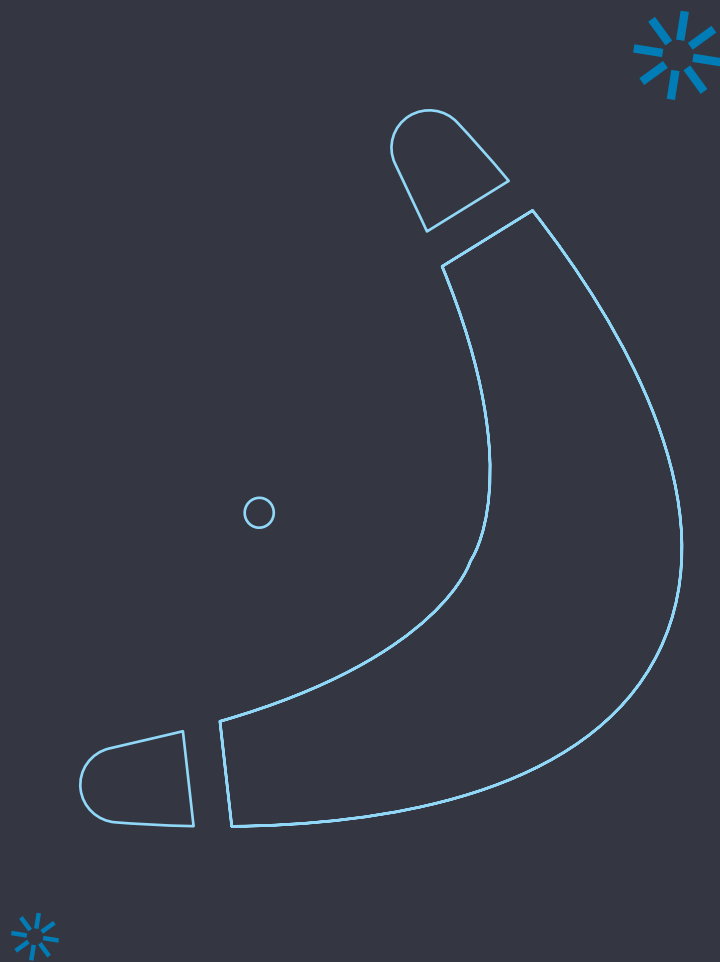
Airbnb hosts are rewarded beyond the income they earn – they also enjoy the benefits of cultural exchange. While traditional accommodation may be impacted by Airbnb, competition can drive better quality and the size of the market.

5.1 Benefits for Airbnb hosts

Airbnb hosts enjoy a number of benefits arising from their activities on the platform. These benefits are not limited to the income earned from Airbnb stays – hosts also benefit from the interactions with their guests and the broader community, and can experience new cultures without leaving their hometown.

5.1.1 Income

Airbnb allows ordinary households to have an extra source of income by sharing their existing property, whether that be a spare room or a holiday house. For over 80 per cent of Airbnb hosts across Australia, this property is the home in which they live. Airbnb hosts in Queensland earned a median income of $4,700 in 2015-16.

A survey of Sydney Airbnb hosts in 2013 found that 31 per cent rely on their Airbnb income to make ends meet, spending on average 47 per cent of this income on essential living expenses. The remaining income is used as extra spending money, to pay for holidays or contributes to long-term savings.

Beyond comprising an additional source of income, Airbnb can also support hosts to explore new business ventures. In 2013, 27 per cent of Sydney Airbnb hosts surveyed were freelancers, entrepreneurs or self-employed. Airbnb income can help bridge the gap between earnings and expenses during the start-up period, or fund new projects which may otherwise not occur.

5.1.2 Cultural exchange and community benefits

Airbnb hosts can benefit from the cultural exchange facilitated by Airbnb. With over 80 per cent of Australian hosts listing their primary residence on Airbnb, there are ample opportunities to connect with people from different countries and cultures through peer to peer transactions.

Broadly, platforms like Airbnb connect people – with one participant providing accommodation, and the other (or others) requiring accommodation. This personal connection can range from the mere exchange of services, to a conversation or lasting friendship. The ability of Airbnb to facilitate social interactions as well as accommodation is a key benefit of the platform.[61]

These interactions are even more beneficial when it's considered that a substantial proportion of people using Airbnb when travelling are from overseas. Both the host and guest can experience another culture through Airbnb, whether that be through a conversation, a meal or a guided tour. This can be a learning opportunity for hosts who have never travelled, and can help develop a greater understanding of diversity and culture.

Through the interactions between hosts and guests, travellers can connect with local communities and vice versa.[62] With the majority of Airbnb accommodation situated outside major hotel districts and instead nearby local neighbourhoods, travellers are likely to visit restaurants, bars, attractions and shops in the area – as recommended by their host. In this way, the broader community can also benefit from the cultural exchange facilitated by Airbnb, instead of this effect being more limited to major hotel districts or tourist areas.

5.2 Driving competition and growing the market

Platforms like Airbnb are adding to accommodation supply and in doing so, are growing the overall size of the market. This growth arises as Airbnb's lower prices and features may encourage people to enter the market, or stay longer or more often in tourist accommodation than what they would otherwise.

Airbnb is also increasing competition in the tourism accommodation market, with more rooms and more players in the space overall. There may, however, be costs and impacts for existing operators in the accommodation market. Research undertaken by Zervas, Proserpio and Byers in the US found that Airbnb limited the ability of the hotel industry to raise prices during peak periods, with flexible Airbnb supply positioned to absorb additional demand.[63]

CBRE also analysed the impact of Airbnb on the traditional accommodation market in 59 key markets in the US. It concluded that while Airbnb may impact a hotel's ability to raise rates and may lead to hotels lowering rates to stay competitive, it is having a minimal impact outside the top markets. Airbnb generated 2 per cent or more of hotel revenue in only 15 of the 59 markets assessed – and in those 15 markets, the vast percentage of that revenue was generated in downtown.[64]

Despite the impact on existing operators, consumers stand to gain from competition in the long term. Competition is a good thing – more competitive markets can help deliver greater variety, choice and quality of goods. Competition and choice are also important in the context of the broader economy, supporting productivity and income growth.[65]

Airbnb has also spurred the development of new jobs, such as Airbnb host coaching. Jodie and Rob, for example, established Guest Ready to provide support and advice on getting started as an Airbnb host. Airbnb also indirectly supports jobs in other industries – for example, some hosts may employ a cleaner, or use a short term rental manager while on holiday. Deloitte Access Economics found that 4,384 FTE jobs are indirectly supported by Airbnb guest expenditure, including the amount paid to hosts and other holiday expenses.

5.3 Supporting local economies

Airbnb can activate local communities by distributing visitors across cities. 74 per cent of Airbnb properties are located outside traditional hotel districts in major markets across the world[66] – meaning that both visitors and their spending is dispersed rather than concentrated.

The dispersal of visitors across cities provides benefits to local communities, as Airbnb guests spend money in the area where they stay, rather than in areas which traditionally benefit from tourism. Airbnb survey data shows that 46 per cent of guest daytime spending is in the suburbs in which they stay, and that 98 per cent of hosts suggest local restaurants, cafes, bars and shops in their neighbourhoods. This expenditure can assist local businesses which generally rely on foot traffic and residents who live in the area.

Local communities may also benefit from the presence of tourists (particularly those from overseas) in the context of cultural exchange. As discussed in Section 5.1.2, residents may be able to benefit from interactions with travellers of different backgrounds.[67] These exchanges may otherwise not occur, and can introduce locals to people from all over the world.

Appendix A: Economic contribution modelling framework

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

All direct, indirect and total contributions are reported as gross operating surplus (GOS), labour income, value add and employment, with these terms defined in Table A.1.

Table A.1: Definitions of economic contribution estimates

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

Source: Deloitte Access Economics (2016)

Value added

The measures of economic activity provided by a contribution study are consistent with those provided by the Australian Bureau of Statistics. For example, value added is the contribution the sector makes to total factor income and gross domestic product (GDP) and gross state product (GSP).

There are a number of ways to measure GDP:

• **Expenditure approach –** measures the expenditure of households, on investment, government and net exports

• **Income approach –** measures the income in an economy by measuring the payments of wages and profits to workers and owners.

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

Measuring the economic contribution – income approach

There are several commonly used measures of economic activity, each of which describes a different aspect of an industry's economic contribution. One measure is value added.

Value added measures the value of output (i.e. goods and services) generated by the entity's factors of production (i.e. labour and capital) as measured in the income to those factors of production. The sum of value added across all entities in the economy equals 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) represents the value of income generated by the entity's capital inputs, generally measured as the earnings before interest, tax, depreciation and amortisation (EBITDA)

• Tax on production less subsidy provided for production. Note: given the manner in which returns to capital before tax are calculated, company tax is not included or this would double-count that tax. In addition it excludes goods and services tax, which is a tax on consumption (i.e. levied on households)

• Labour income is a subcomponent of value added. It represents the value of output generated by the entity's direct labour inputs, as measured by the income to labour.

Figure A.1: shows the accounting framework used to evaluate economic activity, along with the components that make up output. Output is the sum of value added and the value of intermediate inputs used by the firm. Net taxes on products are not included in value added but are included in GDP.

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
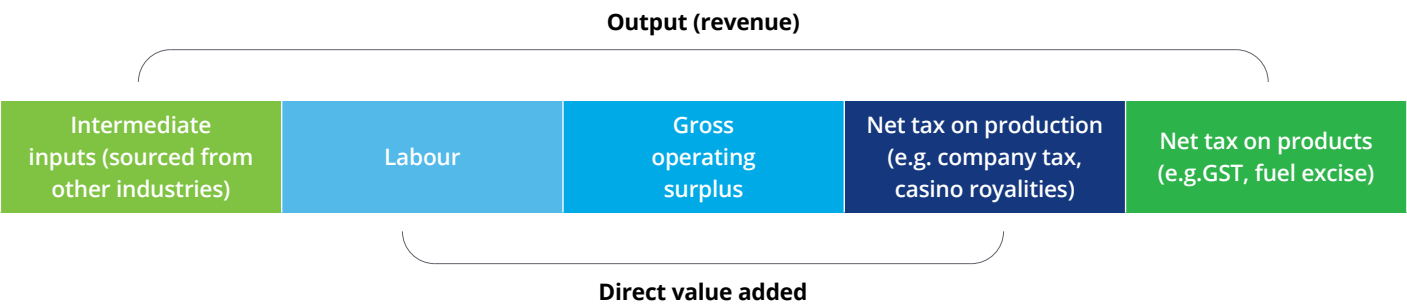
Source: Deloitte Access Economics

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

Direct and indirect contributions

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

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

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

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

Limitations of economic contribution studies

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

Unless there is unused capacity in the economy (such as unemployed labour) there may not be a strong relationship between a firm's economic contribution as measured by value added (or other static aggregates) and the welfare or living standard of the community.

The use of labour and capital by demand created from the industry comes at an opportunity cost as it may reduce the amount of resources available to spend on other economic activities. This is not to say that the economic contribution, including employment, is not important. As stated by the Productivity Commission in the context of Australia's gambling industries:[68]

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

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

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

For guest expenditure on accommodation (i.e., payments to Airbnb hosts), the analysis is based on the ownership of dwelling industry group within the ABS Input-Output tables and it should be noted that the profile of expenditure on intermediate inputs for those providing Airbnb accommodation may differ somewhat from owners of dwelling more generally. Ownership of dwellings is not assumed to create any direct employment in the ABS national accounts but the purchase of intermediate inputs by owners does contribute to indirect employment in the economy.

Input-output analysis

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

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

The IO matrix used for Australia is derived from the ABS 2012-13 IO tables. The industry classification used for IO tables is based on the Australian and New Zealand Standard Industrial Classification (ANZSIC), with 114 sectors in the modelling framework.

Appendix B: Consumer effects modelling framework

Savings to consumers

Approach

The purpose of this analysis is to investigate the impact of Airbnb on the demand of hotel room nights in central Sydney since 2012. To accomplish this goal, we have developed a dynamic econometric functional model based on Deloitte Access Economics' Tourist Accommodation Regional Demand, Investment and Supply model (TARDIS).

The TARDIS model consists of a system of equations that combines underlying visitor demand forecasts with a hotel accommodation supply pipeline growth profile to develop estimates of key hotel market outcomes. It is a bespoke model of the hotel accommodation market in Australia which has been implemented and updated over 15 years. Coupled with the Deloitte Access Economics Tourism Forecasting Model (DAE-TFM), it forms the core modelling engine behind the Deloitte Tourism and Hotel Market Outlook.

For this analysis, we augmented the TARDIS model with a new equation for Airbnb, for which the dependent variable also enters the demand equation for hotel room nights. The demand and supply system can be collapsed into a system of three simultaneous equations:

$$
\begin{aligned}
\ln RNO = {}& \gamma_0 + \gamma_1 \beta_1 \ln\left(TFA\left(1 + k \times \frac{ROR}{1 - ROR}\right)\right) \\
& + \gamma_2(1 - \beta_1) \ln\left(TFA \times TWI\left(1 + k \times \frac{ROR}{1 - ROR}\right)\right) + \gamma_3 \ln DEM_{DOM} \\
& + \gamma_4 \ln DEM_{INT} + \gamma_5 S2 + \gamma_6 S3 + \gamma_7 S4 + \gamma_8 \ln ABN \\
\ln ABN = {}& \alpha_0 + \alpha_1 \ln ABL + \alpha_2 ROR + \alpha_3 S2 + \alpha_4 S3 + \alpha_5 S4 \\
\ln TFA = {}& \delta_0 + \delta_1 ROR + \delta_2 \beta_2 \ln WGE + \delta_3 S2 + \delta_4 S3 + \delta_5 S4
\end{aligned}
$$

The first equation captures the relationship between the monthly hotel Room Nights Occupied (RNO) and Takings from Accommodation (TFA). TFA, along with Room Occupancy Rate (ROR) and a congestion parameter k,[69] are used to derive the own and competitor price variables (to capture effective takings). The competition between Australian and foreign destinations are captured through the trade weighted exchange rate (TWI) in the competitor price variable. Income effects are captured by DEM_{DOM} and DEM_{INT}. Airbnb enters the competition for hotel room nights via the last variable, lnABN, which is the log of monthly Airbnb nights booked in the same period. This variable becomes the dependent variable in the second equation which relates Airbnb nights with the total number of unique Airbnb listings (ABL) and Hotel Room Occupancy Rate (ROR). Finally, the third equation captures the supply-side relationship between hotel takings (TFA), index of real wages (WGE) and hotel room occupancy rate (ROR). S2, S3 and S4 are quarterly dummies to adjust for seasonality.

The system of equations has to be solved numerically. Improvements in econometric software make it possible to estimate this highly non-linear system of equations using 'off the shelf' programs such as R.[70] The system is estimated using a technique known as 'Full Information Maximum Likelihood' (FIML) which maximises the fit of the equations to the data simultaneously.

It should be noted that all of the variables in the model are differenced for the purpose of estimation – as the Augmented Dickey-Fuller Test suggests that the time-series are not stationary in level but stationary in first difference, at 1 per cent statistical significance.

Table B.1 : Augmented Dickey-Fuller Test results

Alternative hypothesis	Variable	Statistic	P value	Variable	Statistic	P value
Stationary	lnRNO	-2.858	0.236	d.lnRNO	-8.872	<0.01
Stationary	lnTFA	-2.919	0.211	d.lnTFA	-7.945	<0.01
Stationary	lnABL	-2.083	0.541	d.lnABL	-14.888	<0.01
Stationary	lnABN	-1.463	0.785	d.lnABN	-9.035	<0.01

Source: Deloitte Access Economics

One simplification of our model is that the two exogenous demand indices derived from the DAE-TFM model do not take into account the potential impact from Airbnb on the total number of visitors to Sydney. As a consequence, although the coefficient on lnABN, γ_8, can reflect the competition between hotels and Airbnb, the residuals from the model would necessarily capture a combination of new visitors who would not otherwise visit Sydney, and people who would otherwise stay with friends or relatives, etc.

Data

We have compiled our estimation data from three separate sources. Firstly, Airbnb Australia has provided Deloitte Access Economics with the monthly number of Airbnb nights booked (ABN) and total unique Airbnb listings (ABL) in Sydney from January 2012 to June 2015, on a confidential basis. Secondly, we have collected the monthly hotel RNO, TFA and ROR from the tourist accommodation series released annually by the Australia Bureau of Statistics (ABS) for the same period. Finally, the two demand indices and the real wage index are obtained directly DAE-TFM.

Result

Chart B.1 illustrates the relationship between the monthly and quarterly growth rate of Airbnb nights booked and hotel nights occupied during the sampling period. It can be seen that higher growth in Airbnb nights is usually associated with higher growth in hotel nights.

Chart B.1 : Scatter plot of the growth rate of hotel and Airbnb nights

Hotel vs Airbnb nights quaterly growth, Jan 2012-Jun 2015   Hotel vs Airbnb nights monthly growth, Jan 2012-Jun 2015
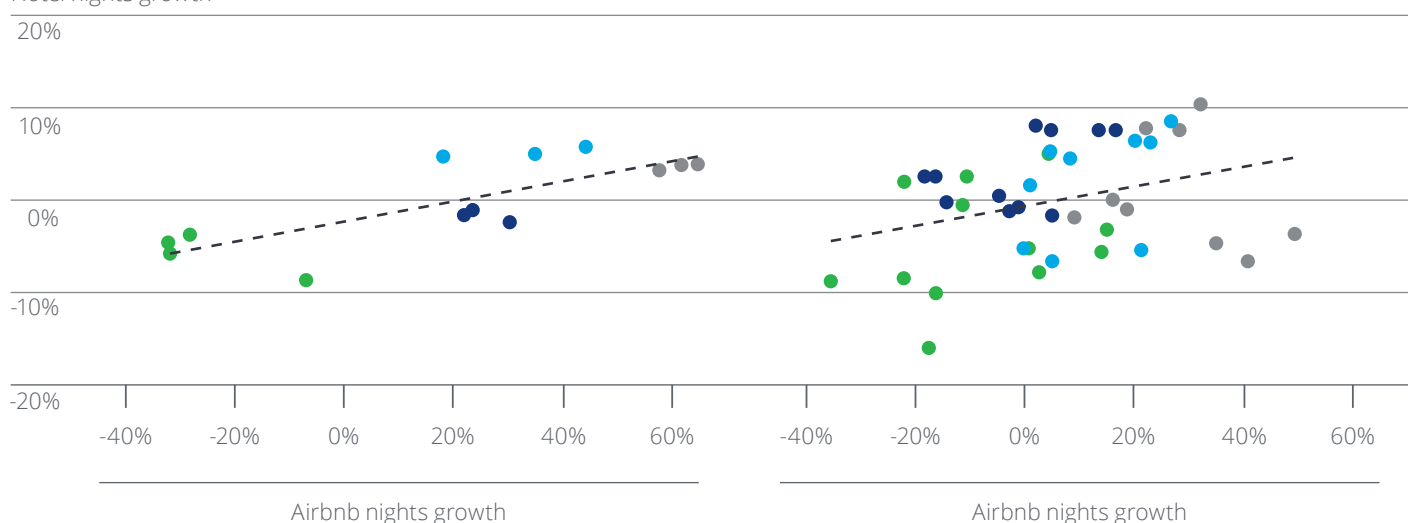
Quarter

● Mar ● Jun ● Sep ● Dec

Source: Deloitte Access Economics

Incorporating Airbnb listings and bookings into Deloitte Access Economics' Tourism Accommodation Regional Demand, Investment and Supply (TARDIS) model shows the effect of Airbnb on the number of hotel room nights booked. Applying this relationship to historical Airbnb bookings data reveals the number of booked Airbnb nights which can be attributed to those switching from traditional accommodation, and those which are booked by new entrants to the market. Estimates for the proportion of new entrants each year range between 40 to 62 per cent. We have adopted a midpoint of 51 per cent to calculate the number of Airbnb guests who enjoyed cost savings due to the price differential between Airbnb listings and hotels.

Consumer benefits

Approach

From a microeconomic perspective, the advent of Airbnb has effectively brought down the transaction cost of providing and screening peer to peer short-stay accommodation services. Consequently, consumers are better off with the expanded budget set to reach goods and services that were previously unattainable. Similar to any economic transaction, consumption of Airbnb rooms would happen if and only if the consumer's willingness to pay (WTP) is above the actual price required to secure the accommodation. The difference between total WTP and actual price is called net 'consumer surplus', which is an integral component of consumer benefit.

The purpose of this analysis is to quantify the amount of consumer surplus obtained by Airbnb customers that visited Sydney during 2015-16. To accomplish this goal, we have developed two hedonic price models in the spirit of Rosen[71] and Bajari and Benkard.[72] The analysis is performed separately on data for 30 sub-markets, with each sub-market representing a certain type of accommodation[73] in a certain area of Sydney,[74] to account for product heterogeneity and heteroscedasticity.

The first approach is a two-stage regression similar to that described by Rosen. In the first stage, the total prices of Airbnb bookings are regressed on various booking characteristics:

$$
\begin{aligned}
\log(Total\ payment_i) \\
= \beta_0 + \beta_1 \log(Nights) + \beta_2 \log^2(Nights_i) + \beta_3 \log(Guests_i) \\
+ \beta_4 \log(booking\_in\_advance) + \beta_5 \log(listing\_n\_booked) \\
+ AirbnbRating + GuestOrign_i + ExchangeRate_i \\
+ QuarterlyDummies + WeekendDummies
\end{aligned}
$$

From each of the 30 regressions, we obtain the coefficients β_1 and β_2, the fitted total payment values and the number of nights from each booking. These estimates can then be used to calculate the marginal willingness to pay for the last consumed night for each observation:

$$
\frac{\partial Utility_i}{\partial Nights_i} = \frac{\partial Total\ payment_i}{\partial Nights_i} = [\beta_1 + 2\beta_2 \log(Nights_i)] * \frac{Fitted\ payment_i}{Nights_i} = WTP_i \qquad (*)
$$

Where the first equals sign follows from consumers maximising their utilities.[75]

Compared with the approach described by Rosen,[76] it is clear that our model has an insufficient number of product characteristics such as room size, neighbourhood environment, distance to public transport, etc. In this respect, equation (*) can only be regarded as an assumed functional form of marginal WTP. Intuitively, it assumes that the marginal enjoyment from an extra night of stay with Airbnb is higher for more expensive listings while become increasingly lower as the period of stay extends.

In the second stage, the log of marginal WTPs are regressed on the log of nights booked, along with other booking characteristics:

$$
\begin{aligned}
\log(marginal\ WTP_i) \\
= \gamma_0 + \gamma_1 \log(Nights) + \beta_2 \log(booking\_in\_advance) \\
+ \gamma_3 \log(listing\_n\_booked) + GuestOrigin_i + ExchangeRate_i \\
+ QuarterlyDummies + WeekendDummies
\end{aligned}
$$

The elasticity of demand can be calculated as the inverse of the coefficient γ_1 in each of the corresponding regressions for the 30 sub-markets. Consumer surplus can then be calculated based on the estimated elasticity, the total nights booked and weighted average price per night in each sub-market:[77]

$$
Surplus_j = -\frac{P_j * Q_j}{2 * \epsilon_j}, \qquad in\ each\ sub\_market_j
$$

where ϵ_j is the elasticity of demand (negative) in the sub-market$_j$.

One limitation of the two-stage hedonic approach is that the second-stage regression has a simultaneity problem because consumers with a higher preference for a longer period of stay would naturally book from hosts that provide long-term contracts. This simultaneity problem causes inconsistent estimates in the second stage.[78] To address this issue, Bajari and Benkard introduce a different two-stage approach that specifies a functional form of utility and uses Gibbs sampling to simulate the population distribution of consumers' taste coefficients. However, the lack of product characteristics has limited the value in adopting such complicated methodologies. Therefore, we have only estimated consumer surplus based on a simplified log-linear utility function, as a complement to the first approach:

$$
Utility_i = \frac{Fitted\ payment_i}{Nights_i} + \alpha * \log(Nights_i)
$$

where $\alpha = [\beta_1 + 2\beta_2 \log(Nights_i)] * Fitted\ payment_i$

Similar to the two-stage model, this specification assumes utility to increase with total expenditure but at a declining rate as the period of stay extends.

Data

We obtained transaction data for all of the Airbnb bookings to Sydney during July 2015 to June 2016, on a confidential basis. Table B.2 shows the list of variables, along with their transformations, that are used for the analysis.

Table B.2: List of variables supplied from Airbnb

Variable	Description	Transformation
Nights booked	Total nights booked	–
Total guests	Total number of guests	–
Total guest price	Total amount of payment	–
Guest country	The country where the guests are from originally.	Coded as 'AU' or 'Foreigner'.
Listing postcode	The postcode	Used to classify each observation into the five regions in Sydney[79]
Check-in date	Date of check-in	Used to derive quarterly and weekend dummies
Booking date	Date of booking	Used to derive variable 'booking_in_advance'=number of days between booking and check-in, as a measure of flexibility
Listing type	Whether the listing is a private/shared room or entire house/apartment	Used to split the sample by different accommodation types[80] .
Total bedrooms	Total number of bedrooms	
Overall rating	Airbnb rating (integer 1-5)	Coded as 'low' (0-3), 'medium' (4) and 'high' (5)
AUD	Australian dollar exchange rate	Matched with the date of reservation for each observation

Chart B.2 below shows the respective number of observations from the 30 sub-markets. It is not surprising that private/shared rooms comprise a significant share (40 per cent) of the observations. However, they only represents one fifth of the total expenditure due to their relative lower prices.

Chart B.2 : Number of observations for the 30 sub-markets
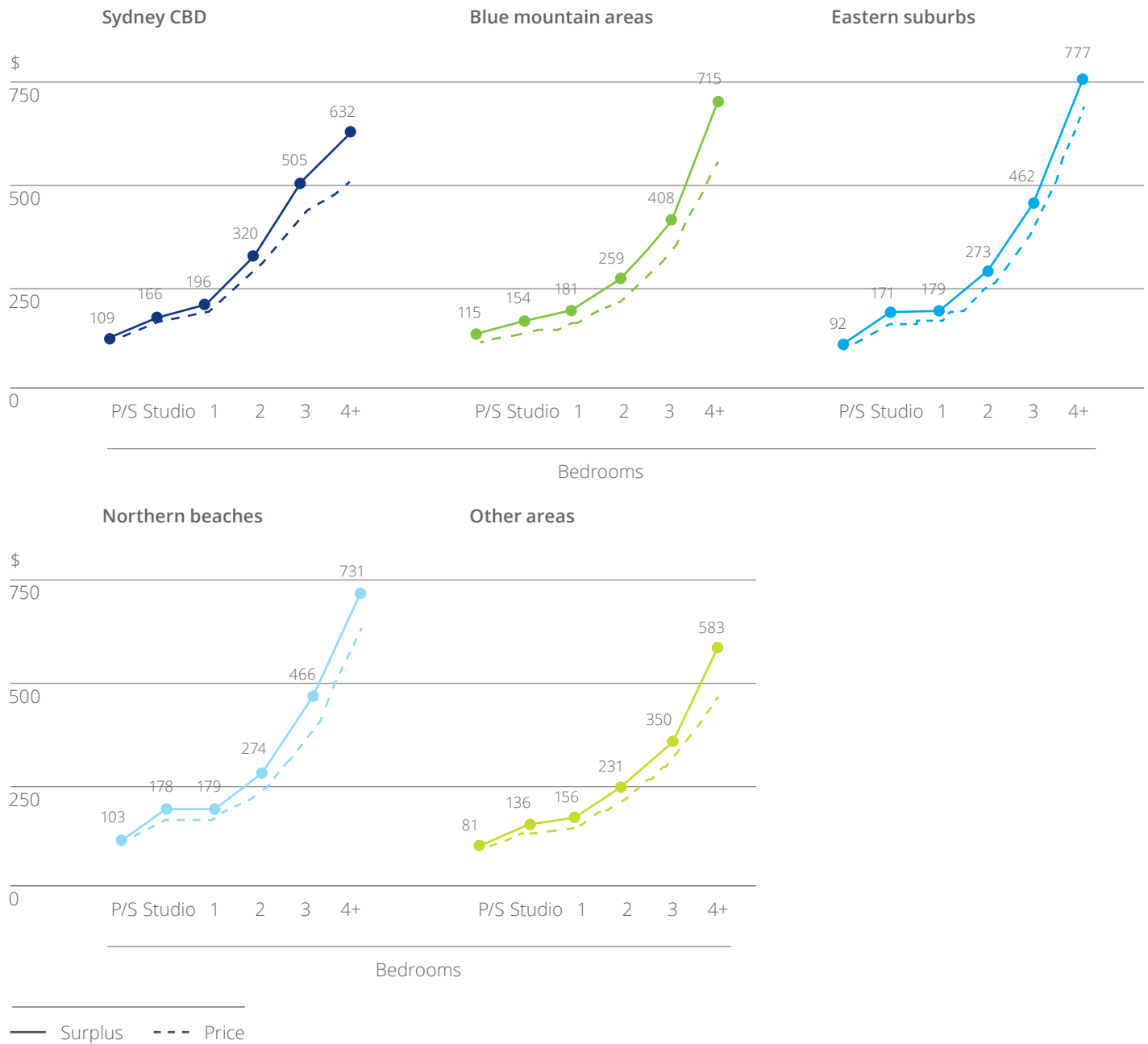

Source: Deloitte Access Economics

Result

The first stage regression provides a decent fit to the price equations. Chart B.3 below shows the adjusted R-square from the 30 regressions performed. The overall average is 73.5 per cent.

Chart B.3: Adjusted R-square from the first-stage regression

Sydney CBD

adj.r.squared

P/S	0.78
Studio	0.82
1	0.82
2	0.8
3	0.74
4+	0.69

Blue mountain areas

P/S	0.67
Studio	0.71
1	0.69
2	0.69
3	0.58
4+	0.52

Eastern suburbs

P/S	0.79
Studio	0.79
1	0.8
2	0.75
3	0.71
4+	0.65

Bedrooms

Northern beaches

adj.r.squared

P/S	0.82
Studio	0.86
1	0.83
2	0.78
3	0.72
4+	0.56

Other areas

P/S	0.79
Studio	0.83
1	0.80
2	0.72
3	0.66
4+	0.66

Bedrooms

Source: Deloitte Access Economics

Based on results from the second stage regression, Chart B.4 shows the weighted average consumer surplus and price per night in each of the 30 sub-markets. It can be seen that accommodation with higher number of bedrooms are yielding, on average, a higher proportionate surplus. This is because the demand for multi-bedroom accommodation is found to be relatively more inelastic. It is conceivable that consumers that booked for multi-bedroom listings would be less sensitive to prices due to the scarcity of supply and/ or the potentially higher demand for quality.

Chart B.4 : Weighted average surplus vs price

Source: Deloitte Access Economics

Table B.3 shows the calculated surplus from the two hedonic approaches. The two approaches are distinct in the specification of consumer preferences. In particular, the first approach assumes linear demand which implies a quadratic utility function while the second approach assumes a log-linear utility function. We believe the average of the two estimates provides a sensible measure of the total consumer surplus.

Table B.3: Consumer surplus created by Airbnb

Method	Aggregate willingness to pay	Total amount paid	Consumer surplus
Two-stage hedonic	$173.6 million	$149.2 million	$24.4 million
Direct utility estimation	$221.6 million	$149.2 million	$72.4 million
Average	**$197.6 million**	**$149.2 million**	**$48.4 million**

Source: Deloitte Access Economics, using Airbnb data.

Footnotes

1. Estimating consumer surplus required an understanding of the demand curve for Airbnb accommodation. The slope of the demand curve is determined by the responsiveness of consumers to changes in price – also known as price elasticity. Deloitte Access Economics used hedonic regression to estimate price elasticities. Hedonic models break down a consumer's value of a good into its constituent parts, such that it is possible to estimate how much each characteristic contributes to willingness to pay

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79. Sydney CBD, Blue Mountain areas, Eastern Suburbs, Northern Beaches and Other areas

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