



# Economic effects of Airbnb in Australia

# Airbnb Australia

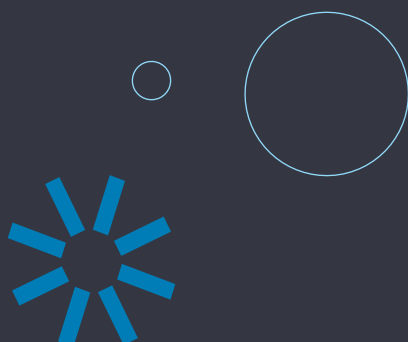
2017





# 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. Hosts across Australia accommodated around 2.1 million guests for 3.7 million nights in 2015-16
- Airbnb guests are now a significant driver of the tourism economy, with a total contribution to Australia's GDP of \$1.6 billion in 2015-16, supporting over 14,000 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 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 Australia is 4.7 out of 5
- Airbnb hosts in Australia earned a median income of \$4,920 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 Australia, **2.1 million** Airbnb guests spent **\$2 billion**



supporting **14,000 jobs** and **\$1.6 billion** in GDP



Airbnb guests in Sydney saved **\$26 million**



On average, guests across Australia 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 economy, 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 Australia

Airbnb plays an important role in supporting tourism in Australia, by facilitating accommodation bookings and advertising Australian destinations to consumers around the world. In 2015-16, over **800,000 stays** were booked with Airbnb in Australia. Hosts across the nation accommodated around **2.1 million guests for 3.7 million nights** in places as diverse as Collingwood to Coober Pedy. 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 \$2 billion around Australia 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 1.6 times the direct contribution**.

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, in addition to the activities of hosts**. A state-by-state breakdown is shown in the table below.

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.

**Table i: 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
<b>Australia</b>	<b>1,005.3</b>	<b>601.6</b>	<b>1,606.9</b>	<b>14,409</b>

**Source:** Deloitte Access Economics based on Airbnb, TRA and ABS data. These contributions do not include induced impacts, which is the spending of those who receive additional income.

**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

**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

Total contribution  
\$1,606.9mTotal employment  
14,409

### 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 visitor expenditure, room supply, regional dispersal and tourist experience.

### 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 Australia 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.

**Figure i : Features of Airbnb**



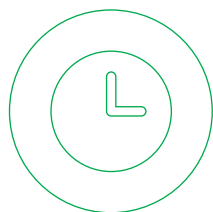
Location

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 facilitates 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

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.<sup>1</sup> 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 Australia earned a median income of \$4,920 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.



Sydney  
guests saved  
**\$25.8 m**  
in 2015-16

Australian Bureau of Statistics data 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**

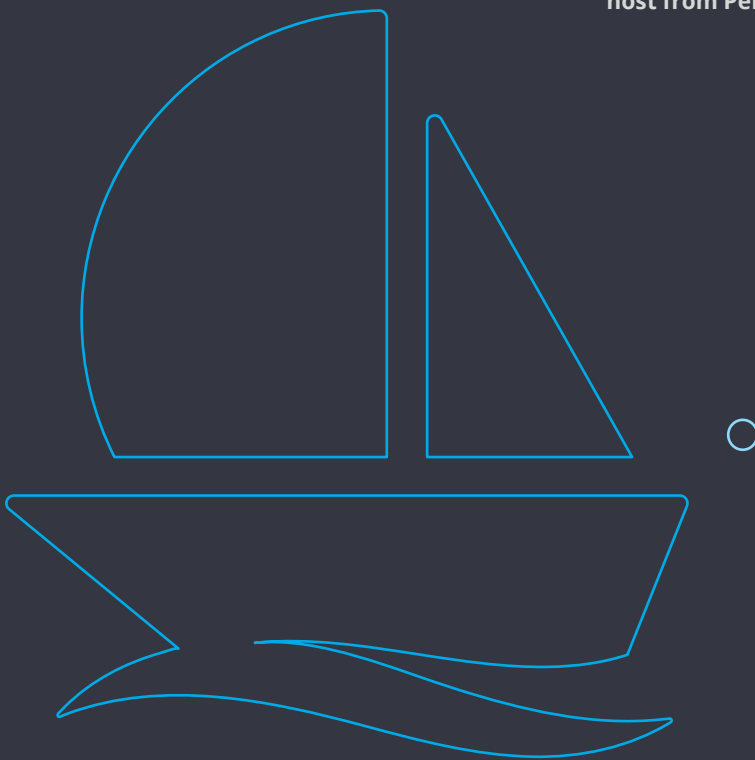
per night outside central Sydney



# 1. Introduction

"Our guests are always out and about. Without kitchen facilities in the room, they tend to go out for meals, though we've had a few pizza deliveries!"

**Sharon,**  
host from Perth



### 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.

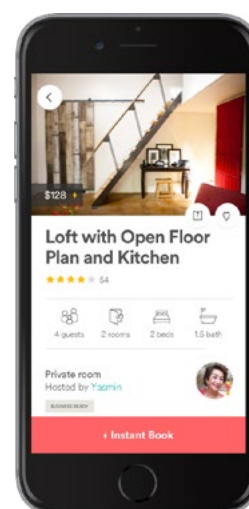
Hosts are protected through Airbnb's host guarantee, which will reimburse eligible hosts for damages up to \$1 million.

#### 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.<sup>2</sup> 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.



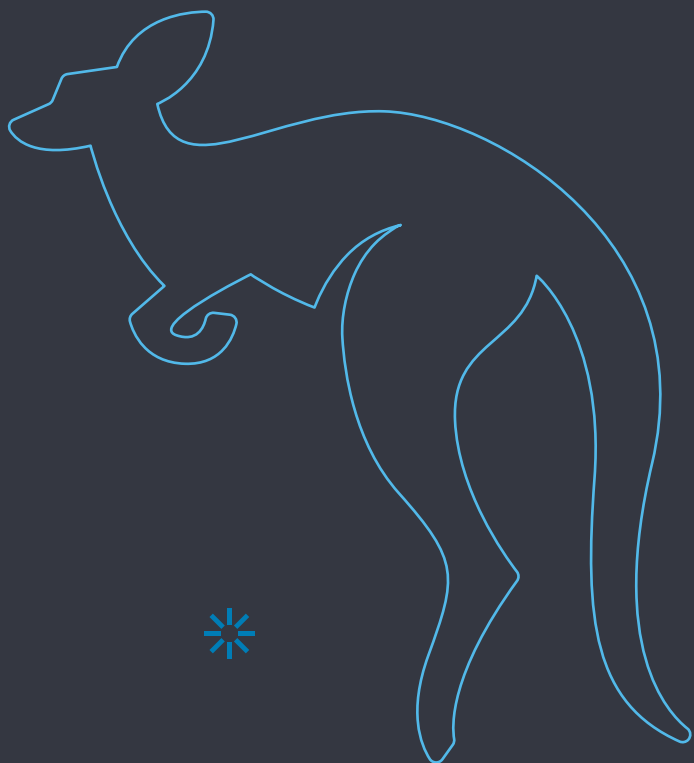
## 2. Supporting government tourism objectives

"Airbnb has given me the confidence to accept people for who they are and in its own way, it is teaching people to be more accepting by welcoming different cultures into one's home."

**Spencer,**  
host from Redfern

"I already had friends of friends staying in my spare room – so why not go one step further?"

**Jodie,**  
host and Airbnb entrepreneur  
from Melbourne



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.<sup>3</sup> 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<sup>4</sup> – 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.<sup>5</sup> 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%

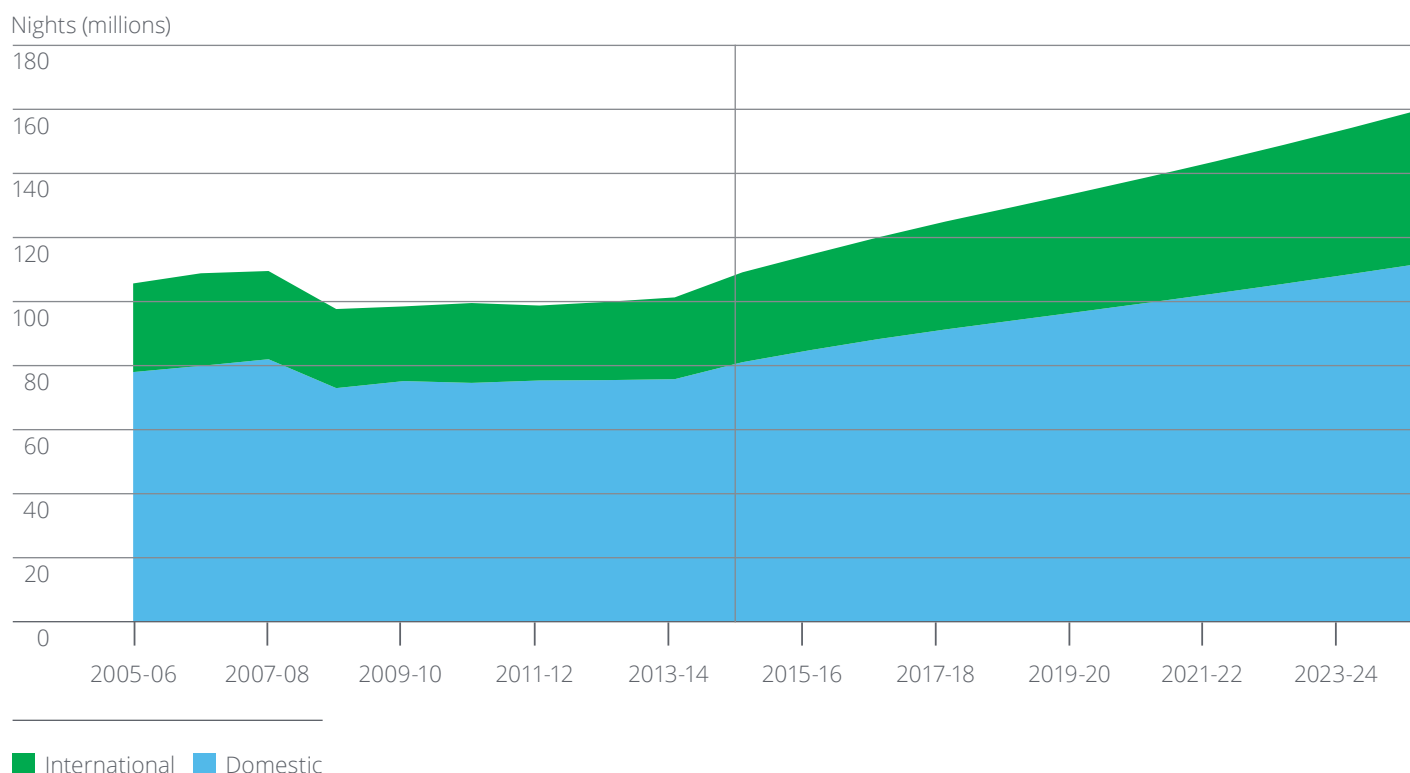
Source: Tourism Research Australia<sup>6</sup>

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.<sup>7</sup>

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.<sup>8</sup>

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.<sup>9</sup> 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.<sup>10</sup> 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**

Source: Tourism Research Australia <sup>11</sup>

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.<sup>12</sup> 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.<sup>13</sup>

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.<sup>14</sup>

### 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.<sup>15</sup> 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.<sup>16</sup> The most recent data shows that occupancies in commercial accommodation across Australia reached 75.7 per cent in 2016, according to STR Global.<sup>17</sup> 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.<sup>18</sup> 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.<sup>19</sup> 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<sup>20</sup> in accommodation supply in recent years.

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.<sup>21</sup> 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.<sup>22</sup> Higher yielding visitors may assist the government in meeting this upper bound target.

### 2.3 Helping state governments 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.

While the specific nature of objectives obviously varies between jurisdictions, some key themes emerge. The first is in line with *Tourism 2020* – to increase room supply. As noted earlier, Airbnb can assist in increasing accommodation supply, particularly during peak periods and major events (where supply may be limited) and in regional areas (which have experienced a decline in supply in recent years<sup>23</sup>). Additional supply in regional areas may also support regional dispersal objectives, such as those in Victoria, Tasmania and South Australia.

Increasing tourism expenditure to meet *Tourism 2020* goals is also a common theme across jurisdictions. Tourism expenditure can increase through greater visitor volume or through higher-yielding tourists. Airbnb survey data from guests across Australia indicates that Airbnb guests spend, on average, 62 per cent more than the average tourist. This additional expenditure may assist governments in meeting *Tourism 2020* objectives.

More broadly, a number of governments focus on enhancing the visitor experience. Airbnb's peer to peer service can change how visitors interact with a destination, by creating a network of hosts who are advocates for their local community and state. The hosts consulted with as part of this study each frequently recommended local businesses and tailored experiences to their guests, creating a sense of community and facilitating an enjoyable and authentic stay.

Each state government's strategies are evaluated separately in Appendix A.

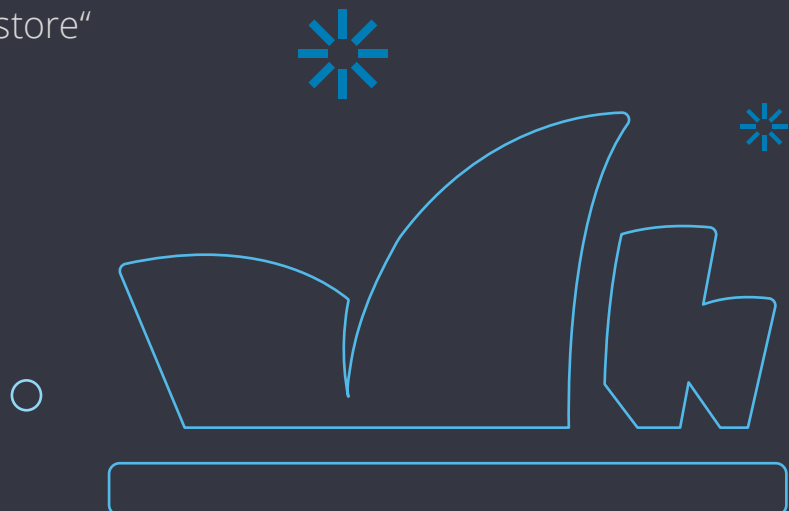
### 3. The contribution of Airbnb to tourism in Australia

"I enjoy giving good levels of service, and spend time with my guests to help them find what they are looking for in Byron Bay. Having an extensive knowledge of local cafes, restaurants and entertainment, I am able to refer guests to specific activities that are more closely aligned to their tastes"

**Donald,**  
host from Byron Bay

"I underestimated how many customers would not be local residents, and how many Airbnb properties were located in such close proximity to the store"

**Katinka,**  
Tasmanian small business owner



## Tourism facilitated by Airbnb contributes \$1.6 billion in value added, with 14,409 full time equivalent jobs supported around Australia

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 Australian economy and the employment in Australia 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
<b>Total</b>	<b>805,500</b>	<b>2,127,100</b>	<b>3,733,300</b>

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.

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

Guest origin	Guest arrivals	Proportion of total
Australia	1,077,910	51%
United Kingdom	77,673	4%
United States	76,020	4%
Singapore	71,305	3%
China	46,952	2%
Germany	35,355	2%
Malaysia	27,582	1%
France	26,949	1%
New Zealand	23,969	1%
Canada	18,891	1%
Other countries	644,494	30%
<b>Total</b>	<b>2,127,100</b>	<b>100%</b>

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 B 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%
<b>Total</b>	<b>\$2,041.3</b>	<b>100%</b>

**Source:** Deloitte Access Economics estimates for categories based on Airbnb and TRA<sup>24</sup> 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.<sup>25</sup> 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).

"Airbnb is good for the local community. We've been able to direct our guests towards local events in our area, which they wouldn't have known about otherwise. One family from Ecuador enjoyed our local community fete!"

**Jess and Ashe,  
hosts from Canberra**

**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<sup>26</sup> and ABS<sup>27</sup> 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<sup>28</sup> and ABS<sup>29</sup> 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.

A state-by-state breakdown of the economic contribution, including capital city and regional figures, is contained in Appendix C.

## 4. Consumer effects

"Airbnb is good for the local community. We've been able to direct our guests towards local events in our area, which they wouldn't have known about otherwise. One family from Ecuador enjoyed our local community fete!"

**Jess and Ashe,**  
hosts from Canberra

"Airbnb is a great way to meet people and make friends. I keep in touch with some guests through Facebook, especially those who stay in the main house. I form real connections with people – it's only sad you often don't see them again!"

**Melissa,**  
host from Darwin



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.

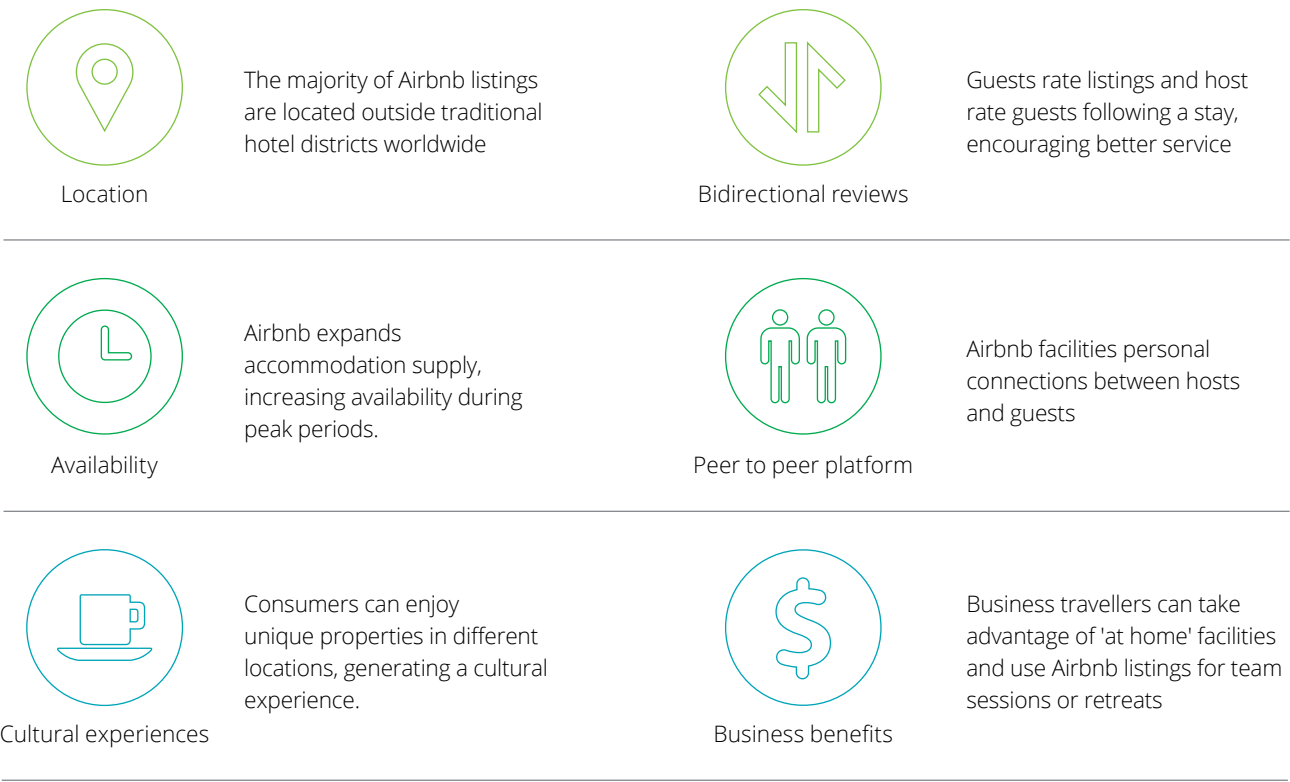
It also describes the economic model used to quantify these consumer effects and cost savings, using Sydney as a case study.

**4.1 Beyond lower prices: benefits of Airbnb's features**

While cost may be a factor in motivating travellers to use Airbnb,<sup>30</sup> 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.<sup>31</sup>

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



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.<sup>32</sup> 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.

#### Sharon – using the vacant part of the house

When Sharon and her family moved into their Perth home two years ago, they soon realised that the lower level of their house wasn't being used, and decided to list the private room on Airbnb after renovating the space.

Sharon's home is located between Perth's city centre and Fremantle, making it convenient for travellers who want easy access to Perth's sights via car. Sharon estimates that around one third of her guests are tourists from Asia, a third are interstate business travellers, and the remainder are from rural and regional parts of Western Australia – often receiving medical treatment at the nearby Fiona Stanley Hospital. Her home is also close to Garden City Shopping Centre, the Swan River and public transport.

"Our guests are always out and about. Without kitchen facilities in the room, they tend to go out for meals, though we've had a few pizza deliveries!"

The income earned from Airbnb is supplementary to Sharon's primary income, though it is particularly welcome while Sharon is on maternity leave. The earnings generally go towards luxuries, including employing a cleaner for the home. As Sharon has a professional background in luxury accommodation, she particularly enjoys that aspect of hosting on Airbnb.

Sharon's guests tend to be independent travellers, but she always greets them in person on arrival. A handy guide in the room provides local recommendations to eat and sightsee, though guests are always welcome to contact Sharon for her local expertise.

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.<sup>33</sup> Guests may place value on this differentiated and authentic experience.<sup>34</sup>

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.

### 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.

### 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.

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.<sup>35</sup>

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.

**Donald – personalising the Byron Bay experience**

After having an excellent experience as an Airbnb guest, Donald decided to give hosting a go, and listed his Byron Bay studio on Airbnb. With tourism being the largest industry in Byron Bay, Donald has had no shortage of guest requests, and the Airbnb platform allows him to manage his hosting.

“By varying the price and my style of advertising, I can control the level and type of occupancy to suit my needs. This allows me to attract the guests I want at the time I want.”

Having the flexibility to attract certain types of guests allows Donald to provide his guests with highly personalised service.

“I enjoy giving good levels of service, and spend time with my guests to help them find what they are looking for in Byron Bay. Having an extensive knowledge of local cafes, restaurants and entertainment, I am able to refer guests to specific activities that are more closely aligned to their tastes.”

This has resulted in over 100 positive reviews from guests enjoying Donald’s recommendations. This, in turn, has led to more guest requests from both locally and abroad.

Donald’s recommendations have positively impacted local businesses. For example, by taking the time to understand what sort of food his guests are looking for, Donald can provide them with local knowledge of where to find quality meals.

“Tourists will spend more if they are recommended places that they like. I can refer my guests to specific restaurants where they are more likely to get exactly what they want, and this leads them to spend more locally, generating incremental business for the region.”

**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.<sup>36</sup>

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.<sup>37</sup> 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 Australia between July 2015 and August 2016, listings were rated 4.7 stars on average.

**Table 4.1: Average ratings for Airbnb listings**

<b>Jurisdiction</b>	<b>Rating</b>
Western Australia	4.65
Victoria	4.68
Australian Capital Territory	4.65
South Australia	4.69
New South Wales	4.66
Northern Territory	4.63
Queensland	4.7
Tasmania	4.69
<b>Australia</b>	<b>4.67</b>

Source: Airbnb

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.<sup>38</sup> 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.<sup>39</sup> Airbnb also facilitates hosts to write guides for guests, which are available on the Airbnb platform (as shown in Figure 4.2).

#### Lyn – hosting festivalgoers in Adelaide

Lyn and her husband live in a two-storey townhouse in the south-west corner of the Adelaide CBD. Given they only occupy the first floor in their home, Lyn decided to list the ground floor on Airbnb during Adelaide's festival season. Two years later, the bookings continue to flow through and supplement Lyn's part-time work as a teacher. Airbnb has given Lyn the opportunity to do something she always wanted – to work in the tourism industry – and share her passion for Adelaide and South Australia.

Lyn's home is conveniently located next to some of Adelaide's best small bars and restaurants, as well as near tourist attractions like the Central Market. Lyn recommends local restaurants, bars and attractions based on what guests are interested in, both within Adelaide and across South Australia's wine regions.

"My guests are able to experience real life, not tourist life, by using Airbnb."

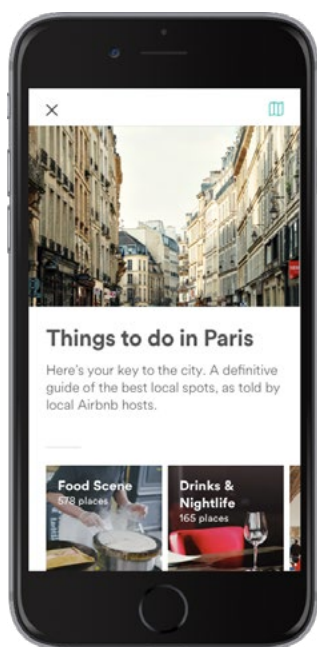
Some guests are quite independent, while others seek Lyn's assistance in building an itinerary and exploring Adelaide. Many use Adelaide as a base to visit South Australia's wine regions, or as a stopover before or after a trip on the Great Ocean Road, the Ghan or to Kangaroo Island.

"Recently, we had a retiree travelling around the world stay with us for just over a week. She chose Airbnb because she didn't want to be by herself each night – she wanted to share her day and her experiences with someone else."

The income Lyn and her husband earn from Airbnb funds their own overseas travel. Recently they have visited the United States and Japan, with a trip planned for Italy in the near future. Going forward, the income will also support Lyn and her husband in their retirement.



**Figure 4.2: Host guidebook on Airbnb mobile application**



Source: Airbnb

#### Jess and Ashe - community connections in suburban Canberra

Ashe and Jess signed up to Airbnb after hearing about a friend's experience listing his home while on holiday. Jess and Ashe's home is located in Weston Creek, around 20 minutes' drive to central Canberra. Their Airbnb listing is a self-contained studio at the rear of the property, with side access and separate kitchen facilities. A number of people have stayed at the property while looking for more permanent accommodation in the area, including people from overseas and interstate. The self-contained nature of the studio particularly appeals to people looking for an extended stay.

"We initially thought people may only want to stay in the inner city – but were surprised at how many travellers also came here for the surrounding Canberra attractions, which are within easy reach from Weston Creek"

Ashe and Jess have enjoyed meeting their guests and hearing their stories. Although the separate studio gives guests privacy, Ashe and Jess are always happy to have a drink with guests or share local recommendations on request. They have also been able to facilitate conversations with friends and colleagues for business travellers. Importantly, Ashe and Jess see Airbnb as contributing to their local economy – by linking tourists to local businesses and events.

"Airbnb is good for the local community. We've been able to direct our guests towards local events in our area, which they wouldn't have known about otherwise. One family from Ecuador enjoyed our local community fete!"

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.<sup>40</sup> Guests and hosts can also share recommendations and personal experiences, allowing tourists to connect with the local community.<sup>41</sup>

#### 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.<sup>42</sup> 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.<sup>43</sup>

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,<sup>44</sup> 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 D 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.

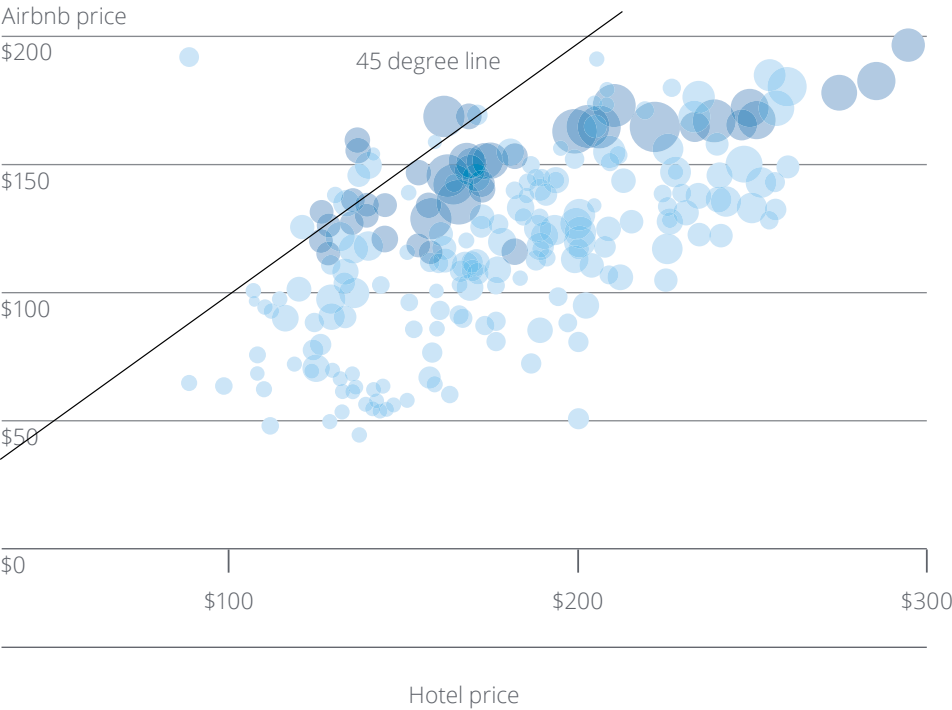
#### 4.3.1 Savings to consumers

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

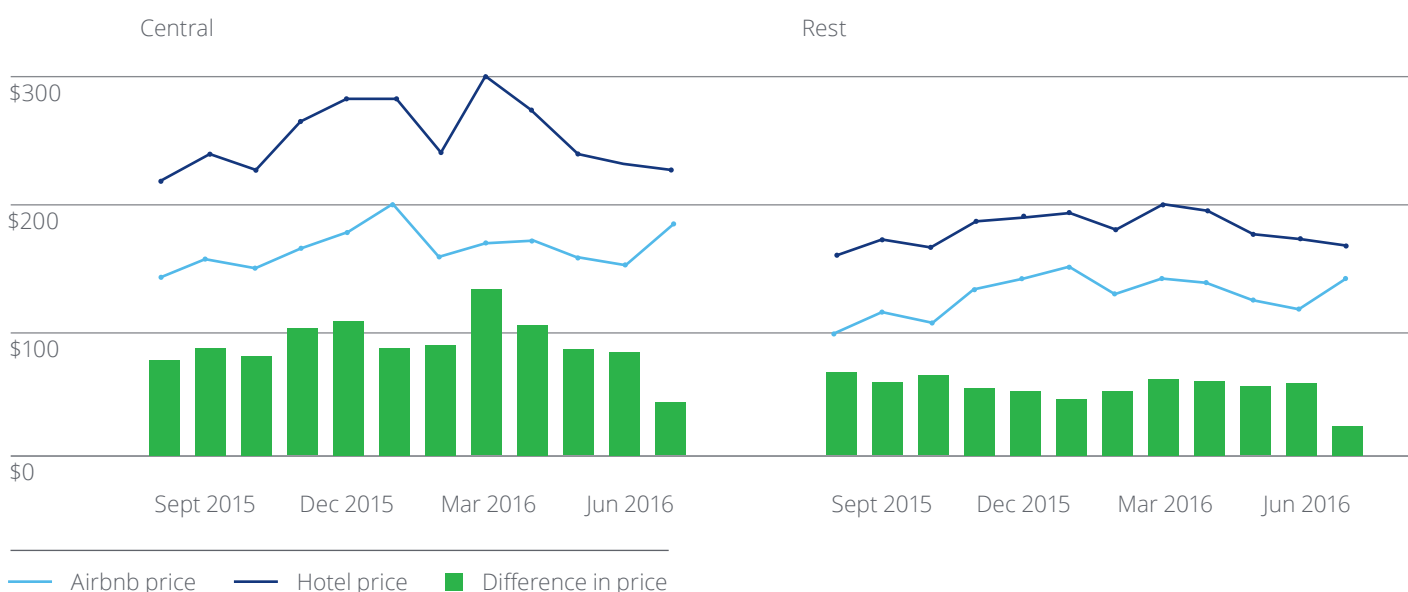
Rest Central | the bubble size is scaled based on total nights in each suburb

Source: Deloitte Access Economics, using Airbnb and ABS<sup>45</sup> 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<sup>46</sup> 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 4.2 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 4.2: 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<sup>47</sup> 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 D.

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 4.3: 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
<b>Total</b>	<b>558,308</b>	<b>\$119.9 million</b>	<b>\$25.8 million</b>

**Source:** Deloitte Access Economics, using Airbnb and ABS<sup>48</sup> 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 D. 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.<sup>49</sup> 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 4.4, 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 4.4: 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<sup>50</sup> 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.<sup>51</sup> Robyn Johnson, CEO of Meetings & Events Australia, recently stated:<sup>52</sup>

'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.

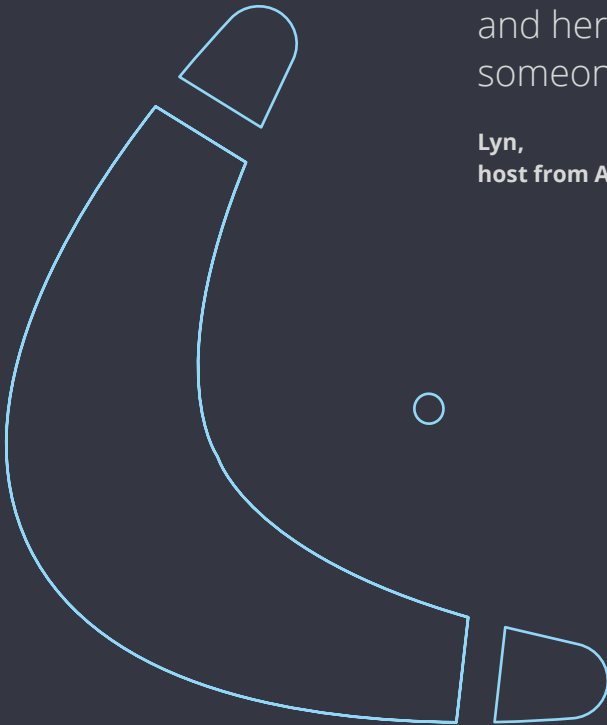
Hotels are still important in the context of Aesop's corporate travel, especially for shorter stays or long trips with multiple stopovers and complex itineraries. Staff who are travelling to unfamiliar locations may also choose to stay at a hotel where easy airport transfers are available. Airbnb and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

"Recently, we had a retiree travelling around the world stay with us for just over a week. She chose Airbnb because she didn't want to be by herself each night – she wanted to share her day and her experiences with someone else."

**Lyn,**  
host from Adelaide





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 Australia earned a median income of \$4,920 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.

#### Spencer – a small business owner hosting with confidence

“Airbnb provided me with the confidence and ability to try something different.”

Spencer began listing his spare bedroom in Redfern 5 years ago. At the time, he felt stuck in a job he no longer enjoyed, but after hosting on Airbnb, felt confident enough to start his own small business. Airbnb provided Spencer with a source of income to cover the home loan whilst he built up his business.

Within his first year of hosting, Spencer received guest requests from all over the world – which Spencer says has broadened his horizons. Being able to communicate with guests via Airbnb's internal messaging platform means that Spencer can feel comfortable accepting guests from around the world. His “best guests ever” were a couple from Kenya.

“I would never have had this experience, let alone in my own home, if it hadn't been for Airbnb.”

The majority (80 per cent) of Spencer's guests are from overseas and within this, 40 per cent are from Asia. Airbnb provides international guests with an alternative to CBD accommodation and after seeing the sights, Spencer noticed that all his guests would spend their last few days in local spots. He has stated that Airbnb appears to drive money into the local community.

To date, Spencer has hosted around 270 people of varying ages, ethnicities and nationalities. The majority of Spencer's guests stay for 3-4 days, which provides him with a good balance of having quality company but not a housemate.

Spencer believes Airbnb was the major factor as to why he started his business, as it provided him with the confidence and means to do so, while exposing him to a range of people.

“Airbnb has given me the confidence to accept people for who they are and in its own way, it is teaching people to be more accepting by welcoming different cultures into one's home.”

### 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.<sup>53</sup>

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.<sup>54</sup> 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.

#### Melissa – sharing Darwin with the world

Melissa lives on a 10 acre property in rural Darwin, around 20 minutes from the CBD. She has two Airbnb listings on her property – a bedroom with an ensuite in the main house, and a luxury caravan parked close to natural bushland. The caravan was initially purchased to travel around Australia, but as it made sense to make use of it year-round, Melissa listed it on Airbnb too. Guests enjoy the proximity of the property to the city centre, as well as the privacy and serenity of the rural location and neighbouring farm.

Melissa's Airbnb guests have come from around the world, with around two thirds from overseas and the rest from Australia. The vast majority of guests visit Darwin as tourists, and so Melissa can advise people what to do based on their interests – whether that be the best place to see crocs or how long to stay at Kakadu. Some guests also stay longer-term while looking for permanent accommodation or trialling a move to Darwin.

"Airbnb is a great way to meet people and make friends. I keep in touch with some guests through Facebook, especially those who stay in the main house. I form real connections with people – it's only sad you often don't see them again!"

### 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.<sup>55</sup>

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.<sup>56</sup>

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.<sup>57</sup>

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<sup>58</sup> – 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.<sup>59</sup> These exchanges may otherwise not occur, and can introduce locals to people from all over the world.

#### Jodie – from Airbnb host to Airbnb entrepreneur

Jodie began hosting on Airbnb in early-2014. After deciding to move in with her partner Rob, the inevitable discussion came up – his house or hers? Airbnb appeared to be the perfect middle ground, allowing Jodie to keep her home in Melbourne with the flexibility to evaluate the situation down the track.

“I already had friends of friends staying in my spare room – so why not go one step further?”

Not long after Jodie listed her apartment on the platform, a friend asked her for some tips on how to prepare an apartment for Airbnb. A conversation over coffee turned into a client proposal, and Jodie and Rob went on to start their own business, Guest Ready. Guest Ready provides support and advice on how hosts get started on the platform and prepare their room, apartment or house for Airbnb guests. Their business has expanded to business planning and coaching for Airbnb marketplace businesses who provide services to hosts.

Jodie still lists her own apartment on Airbnb, and she values the personal interactions with her guests. Understanding why guests want to stay in her apartment – whether for a training course, a holiday or to relocate to Australia – is an important part of tailoring her service to each guest.

One guest Jodie remembers fondly was a retiree who booked in to stay at her apartment for a month, for something different to do. Jodie invited her guest to accompany her partner and friends to a Melbourne Fringe Show, an experience the guest might not have had in Melbourne otherwise.

“I would never imagine this would happen in more traditional accommodation. We had a great time, and now the guest is considering hosting on Airbnb in her own home – a perfect project for her retirement!”

### **Katinka – how the Airbnb community benefits a Tasmanian small business**

Katinka is the sole owner and operator of Lily & Dot, a retail store and online shop based in Hobart, Tasmania. Lily & Dot showcases Tasmanian-made gifts and homewares, with a focus on children's products. Katinka also hosts crochet classes and other 'nanna craft' workshops at the store on a regular basis.

While Lily & Dot has only been open for just over a year, Katinka quickly realised the importance of tourists to the Hobart mid-town precinct and Tasmania more broadly.

"I underestimated how many customers would not be local residents, and how many Airbnb properties were located in such close proximity to the store."

She noticed from speaking to customers that many were staying in hosted accommodation in the nearby historical Hobart area.

Katinka began to form relationships with local Airbnb hosts, which have now developed into mutually beneficial partnerships. Both Katinka and Airbnb hosts benefit from the referrals and the special offers they can give to their customers. This provides a unique experience for the guest who can discover stores like Lily & Dot, and support other small Tasmanian makers and craftspeople who supply Katinka's products.

Importantly, these partnerships can benefit small businesses and give them an "effective and inexpensive channel" to advertise in what Katinka described as a "noisy marketplace". The way in which Airbnb can help facilitate a new network is important, and as Katinka stated, is gaining traction across other small Tasmanian businesses. Importantly, the connections made in store can continue and translate to benefits down the track, with Katinka noting that many customers will return via her online store – even if they did not purchase something on their first visit.

Katinka drew parallels between the shop small movement and Airbnb. In both cases, consumers desire an authentic experience, and one which is focused on building relationships. In Katinka's store, she forges relationships with her customers and can explain the stories behind products in a way that large chain stores cannot. Similarly, Katinka noted the importance of living the local experience for Airbnb guests.

"I know who made the products, where they came from, and the stories behind them".

Katinka's store has also benefited from Airbnb in that she is now more aware of the importance of reviews and referrals. Seeing how vital positive ratings are for Airbnb hosts encouraged her to review her own online presence on other platforms, such as Google and TripAdvisor. Her involvement with Airbnb has impacted how she interacts with other technologies, especially given that Lily & Dot is a small one-person business.

# Appendix A: Helping state governments deliver tourism objectives

## New South Wales

The key tourism strategy in New South Wales is the state government's *Visitor Economy Industry Action Plan*. Released at the end of 2012, the action plan sets out a series of strategic imperatives and actions in response to the *Visitor Economy Taskforce Report*.

The strategic imperatives relevant to Airbnb and its offering include:

- Strategic imperative 2: Grow physical capacity
- Strategic imperative 3: Renew and revitalise destinations
- Strategic imperative 4: Improve the visitor experience
- Strategic imperative 5: Increase visitor spend.

The second strategic imperative, grow physical capacity, refers to physical capacity in the context of visitor accommodation, labour supply, aviation and other transport modes (such as cruise and point-to-point transport). The Visitor Economy Taskforce recommended a series of actions to facilitate an increase in visitor accommodation, including via incentives, land use planning and regulatory regimes. Although short-term letting was not considered in the original taskforce report or the government's response, it is clear that platforms like Airbnb can increase accommodation supply. This is particularly important in Sydney, where occupancy rates hit 88.1 per cent in 2016.<sup>60</sup> Airbnb also facilitates increased room supply in regional areas, which may assist the government in achieving its third objective, renew and revitalise destinations.

Based on Airbnb data, around 8,600 unique listings booked in 2015-16 in New South Wales were outside the Greater Sydney area, out of a total 30,900.

Beyond the supply of additional rooms to the visitor market, Airbnb can also facilitate an enhanced visitor experience. While the action plan considers visitor experience in the context of how visitors interact with tourism-related products (such as key attractions and public transport), Airbnb's peer-to-peer service can also change how visitors interact with a destination. Hosts can introduce guests to the area, recommend their favourite attractions, and provide an overall more authentic experience compared to tourists staying in traditional accommodation. This may assist in improving the visitor experience, as targeted in strategic imperative 4.

The action plan also aims to increase visitor spend across New South Wales. A number of actions were identified to assist in achieving this goal, including greater flexibility in trading hours and payment methods, and promotion of unique New South Wales experiences (including education).

Airbnb survey data shows that, on average, Airbnb guests spend 54 per cent more than an average tourist in Sydney, with Airbnb guests spending \$227 per night and average tourists spending \$148 per night.<sup>61</sup> While not directly linked to any of the initiatives listed above, Airbnb may nevertheless assist in increasing visitor spend across the state.

It is acknowledged that the New South Wales Parliament is currently undertaking an inquiry into the adequacy of the regulation of short-term holiday letting in the state. However, the regulatory framework relating to Airbnb and similar platforms is not a focus of this report.

## Tasmania

The Tasmanian Government and the Tourism Industry Council Tasmania jointly agreed in 2015 to implement *T21*, the state's visitor economy strategy. *T21* aims to grow annual visitor numbers to Tasmania to 1.5 million by 2020, and annual visitor expenditure to \$2.47 billion. Other key metrics include tourism employment, regional dispersal and visitor satisfaction. *T21* is underpinned by four strategic priorities.

The fourth priority under *T21* is to build capability, capacity and community. Rather than focusing on increasing accommodation supply, the strategic intent behind the fourth priority is to facilitate high quality tourism experiences. A number of actions were identified to achieve this goal, including workforce development, quality assurance programs and developing approaches to increasing international education in Tasmania and regulating the sharing economy.

Services like Airbnb can assist the government and industry to achieve the broad goal of improving capability, capacity and community. Aside from the increase in visitor accommodation supply facilitated by Airbnb, it also creates a vast network of hosts who are advocates for their local community and more broadly, Tasmania. The hosts consulted with as part of this study each frequently recommended local businesses and tailored experiences to their guests, creating a sense of community and facilitating an enjoyable stay.

Airbnb may also assist in achieving the first priority under T21: generating more demand for travel to Tasmania. The actions identified to achieve this priority relate to marketing, word-of-mouth and third party endorsement, and developing a series of strategies to promote Tasmania's offering. However, survey results show in New South Wales that 31 per cent of Airbnb guests said they would not have come or stayed as long in Sydney without Airbnb. Assuming similar results are found in other jurisdictions, including Tasmania, Airbnb may be able to facilitate increased demand for travel to Tasmania. This is particularly so for regional areas outside Hobart such as the Tasmanian east coast, which is well-served by both private rental accommodation (listed on websites such as Airbnb and Stayz) and traditional accommodation. The Premier, Will Hodgman, stated that 'without the sharing economy and companies like Airbnb and Stayz, Tasmania would have a serious accommodation shortage'.<sup>62</sup>

The Tasmanian Government recently announced its sharing economy policy, which includes new provisions and exemptions relating to accommodation sharing. Under the policy, hosts sharing up to four bookable rooms on a platform are not required to obtain a permit, while listings with more than four bookable rooms or properties over a certain size have different requirements.<sup>63</sup> It is noted, however, that Deloitte Access Economics did not consider appropriate regulation in this report.

### Victoria

The *Victorian Visitor Economy Strategy*, recently released by the Victorian Government, aims to increase visitor spending to \$36.5 billion by 2025 and increase employment in the sector to 320,700 jobs. The strategy identifies nine priorities to achieve this goal, with a focus on positioning Victoria competitively against the other states.

The key aspiration under the strategy is to develop better experiences for visitors travelling for leisure, business, education and health services, and visiting friends and relatives. Airbnb can assist in achieving this broad aspiration through the unique service offered through its platform. As described in Chapter 4, consumers enjoy a range of benefits associated with the Airbnb platform, many of which contribute to the overall visitor experience. For example, guests can enjoy restaurants, cafes and attractions recommended by their Airbnb host, generating a living experience more similar to a local resident than a conventional tourist. The range of accommodation, price of accommodation and duration of stay available on Airbnb may also suit a wider variety of visitor types compared to traditional tourist accommodation.

The second priority identified in the strategy relates to building on the potential of regional and rural Victoria. The various actions identified include redeveloping regional visitor infrastructure and collaborating with Regional Tourism Boards to better promote the regions and facilitate visitation. While visitor accommodation is not noted as a specific action within this priority, the provision of Airbnb accommodation in regional and rural Victoria may nevertheless assist in attracting more visitors to Victoria's regions. Not only does Airbnb increase accommodation supply in situations where supply may otherwise be limited, such as during key events and peak periods, but it also serves as an important marketing tool in and of itself. Visitors browsing the platform may discover regional locations to add to their itineraries.

Maximising the benefits of events is the fourth priority in the strategy. A number of targeted actions are identified to achieve this goal, including allocating funding and attracting new and existing events to Victoria. As above, visitor accommodation is not a focus under this priority; however, platforms such as Airbnb can assist in ensuring sufficient accommodation is available during peak periods. Interstate, Airbnb has previously partnered with the Sydney Gay and Lesbian Mardi Gras, the Adelaide Fringe and the Australian Masters Games.

The broad goal of the visitor economy strategy is to increase visitor expenditure across the state. Airbnb survey data shows that, on average, Melbourne Airbnb guests spend 41 per cent more than an average tourist in Melbourne, with Airbnb guests spending \$248 per night and average tourists spending \$176 per night.<sup>64</sup> While not directly linked to any of the actions listed above, Airbnb may nevertheless assist in increasing visitor expenditure across the state.

### South Australia

The South Australian Tourism Commission launched the *South Australian Tourism Plan 2020* in mid-2014. It identifies a number of priority action areas to increase visitor expenditure to \$8.0 billion by 2020.

The third priority identified under the plan is to support and reap the benefits of existing infrastructure in the state, recognising the substantial recent investments in accommodation and other developments around Adelaide and in regional areas. The priority is articulated as using existing infrastructure to foster quality experiences, thereby enticing visitors and driving repeat visitation.

While Airbnb was not referred to in the strategy, the way in which Airbnb facilitates quality experiences can assist in achieving this goal. Guest satisfaction survey data from Airbnb shows that 63 per cent of Airbnb guests staying in Sydney said that Airbnb made them more likely to return to Sydney. This is likely due to the range of benefits provided by Airbnb, as described in Chapter 4. In particular, hosts contribute to the visitor experience through providing tips and recommendations and facilitating a local experience for guests.

The fifth priority identified relates to using events to grow visitation to South Australia. The actions under this priority include attracting or developing new events, and taking advantage of established events to showcase South Australia and encourage regional dispersal. Although visitor accommodation was not identified as an issue under this priority, adequate availability of a range of accommodation types is important, particularly during large events. Airbnb has previously partnered with the Adelaide Fringe and the Australian Masters Games in Adelaide. Airbnb can facilitate expanded accommodation supply during periods of peak demand, and can also provide different types of accommodation that may not be otherwise available (such as a whole house or large apartment to rent).

Relevantly, the broad target under the tourism plan is to increase visitor expenditure to \$8.0 billion by 2020. Airbnb survey data from guests across Australia indicates that Airbnb guests spend, on average, 62 per cent more than the average tourist. In Adelaide, Airbnb and TRA survey data shows that Airbnb guests spend an additional 40 per cent each night.<sup>65</sup> These visitor tendencies can assist the government to achieve the first identified priority – driving demand – both across existing and target markets.

The South Australian Government clarified in mid-2016 that people renting their residential property for short term stays does not constitute a ‘change in use’ under the *Development Act 1993 (SA)*. As such, development approval is not required to list a property on Airbnb.<sup>66</sup> It is noted, however, that Deloitte Access Economics did not consider appropriate regulation in this report.

### Queensland

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.<sup>67</sup> 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.<sup>68</sup> 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.

### Western Australia

The *State Government Strategy for Tourism in Western Australia 2020* outlines seven focus areas to double the value of tourism in Western Australia to \$12 billion. The strategy outlines a partnership model between government and industry to achieve this goal.

The first focus area relates to the Western Australian brand and how Western Australia can be marketed through a variety of channels. It also recognises that Western Australia's tourist offering must align with this brand promise, with high quality experiences, events and infrastructure forming the centre of the identified government and industry strategies. Given the unique consumer benefits provided by Airbnb, the platform could potentially assist the government in delivering high quality experiences to visitors. Airbnb plays a role both in the provision of tourism infrastructure (accommodation) and the overall visitor experience (host-guest interactions). Further detail about the consumer benefits of Airbnb and how visitors can enjoy quality local experiences is contained in Chapter 4.

Infrastructure is the second focus area of the Western Australian tourism strategy. At the time the strategy was written, Perth faced a significant shortfall in hotel rooms. Since then, however, a number of new hotels and developments have either opened or are planned to open in the next couple of years, with the corresponding increase in room supply potentially meeting demand.

Nevertheless, the provision of Airbnb short-term rentals may help to meet demand for Perth hotels rooms in peak periods where availability might be limited. Airbnb may also help to meet shortfalls in regional areas, particularly those which are less serviced by traditional hotel accommodation. This would also assist the government in meeting its sixth objective, to increase visitors to regional Western Australia. The government recognised in its strategy that extraordinary experiences are key to growing visitors to regional Western Australia, as well as the provision of necessary tourism infrastructure. Given Western Australia's vast size, the caravan, camping and self-drive market segments are also noted as a way to increase regional visitation. Airbnb could also play a role for these market segments.

In a similar way, Airbnb may assist the government in achieving its objective to position Western Australia as a recognised events destination: the fifth priority under the tourism strategy. Airbnb can support events calendars across Western Australia, 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.



Given the strategy aims to increase visitor expenditure to \$12 billion by 2020, the fact that Airbnb guests spend more per night compared to average tourists is an important point to make. Airbnb guest data and TRA survey data show that Perth Airbnb guests spend 46 per cent more per night. These visitor tendencies may assist the government to meet its broad goal.

### Australian Capital Territory

The ACT's 2020 *Tourism Strategy* was launched by the ACT Government in late 2013, with a goal to double the value of overnight visitor expenditure to \$2.5 billion by 2020. Seven pillars form the basis of the strategy, under which targeted programs and initiatives can be developed.

The third pillar relates to the digital capability of the tourism industry. This initiative recognises that most consumers interact with tourism destinations and experiences through digital means, and therefore industry must not only be prepared, but actively participating in the online world. Airbnb, as a platform that exists only online, both can help the government to achieve this goal and can be used as another means to market the ACT. For example, Airbnb guidebooks feature the recommendations of local hosts. This feature is a way to communicate with potential visitors online, while still delivering a local experience.

Similar to other jurisdictions, the ACT Government recognises events as a key contributor to tourism in the fourth pillar of its strategy. The priorities identified are focused on supporting major events and exhibitions and ensuring the opportunities arising from these events are effectively leveraged. Airbnb can support events across Canberra, 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. Partnerships may present a new opportunity to attract guests to major events, while the supply of Airbnb accommodation can ensure that a range of property types are available to suit different needs.

Airbnb can also assist the government to achieve its visitor expenditure target under the strategy. Airbnb survey data from guests across Australia indicates that Airbnb guests spend, on average, 62 per cent more than the average tourist. While not directly linked to any of the pillars listed in the strategy, the spending tendencies of Airbnb guests may assist the government to achieve its goal.

### Northern Territory

The Northern Territory's *Tourism Vision* 2020 provides a blueprint for the Northern Territory's tourism sector to grow overnight visitor expenditure to \$2.2 billion by 2020. This was in light of decreasing visitation to the Northern Territory since 2000 (at the time of writing, in 2013).

The strategy is built upon a partnership between government, industry and other partners (including land councils and traditional owners). Four strategic requirements were identified to achieve the stretch growth target.

Under the first strategic requirement, grow value, digital capacity and capability are identified as an important channel to market. The broad intention is to increase the Northern Territory's digital presence in order to advertise the destination and convert desire to actual bookings. Although not directly related to the actions identified under this priority, Airbnb could serve as a potential model or means by which the Northern Territory could access different markets, and leverage the opportunity presented by a global platform. In addition, Airbnb guests tend to spend more than average tourists, with Airbnb and TRA survey data showing that Airbnb guests in Darwin spend 53 per cent more on average. These spending tendencies may assist the government to grow the value of the tourism sector.

The second strategic requirement recognises that the Northern Territory may face a shortage of accommodation if the targeted growth in visitor numbers are achieved. In 2013, Tourism NT forecast that the Northern Territory will need an additional 205-215 hotels rooms per year to 2020 to meet growth targets. The Airbnb platform can assist the government to alleviate supply constraints, by facilitating the addition of rooms, apartments and homes available for short stays across the Northern Territory. This additional supply is particularly important in the context of events, which is a key action for growth identified under the first strategic requirement. Given the Northern Territory Government intends to further develop an events calendar which maximises the economic benefits across the territory, adequate availability of accommodation during peak periods is a necessary consideration. Airbnb can support events across the Northern Territory, by expanding accommodation supply in times of peak demand.

Under the third strategic requirement, Tourism NT outlines a strategy to improve the visitor experience. A number of potential actions are identified to build the tourism experiences unique to the Northern Territory and to ensure that visitors have access to the services they need and want. While not directly linked to the actions listed, Airbnb may nevertheless assist the government in creating and improving quality visitor experiences. Airbnb provides a number of consumer benefits unique to the accommodation platform, as described in Section 4. In particular, the peer-to-peer platform allows guests to connect with local hosts, who can then introduce guests to the area and provide recommendations for local experiences. This feature can change how visitors interact with their destination, providing an authentic local experience.

# Appendix B: 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 B.1.

**Table B.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:

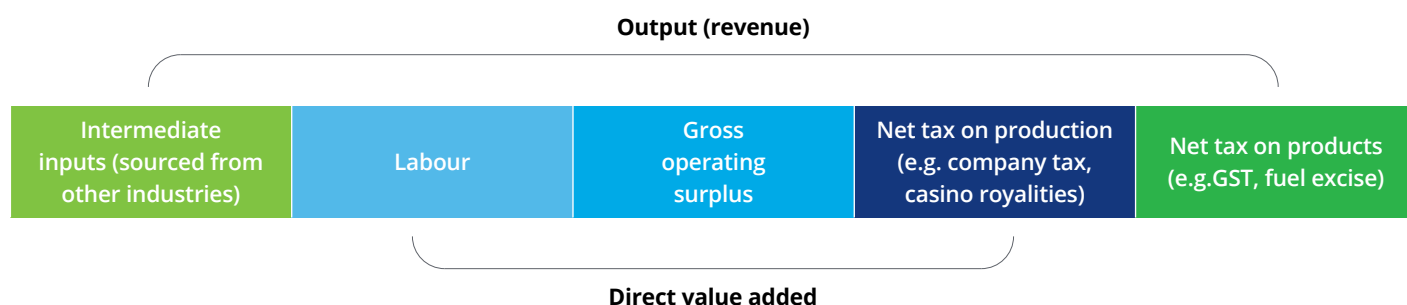
- Gross operating surplus (GOS) represents the value of income generated by the entity's capital inputs, generally measured as the earnings before interest, tax, depreciation and amortisation (EBITDA)
- Tax on production less subsidy provided for production. Note: given the manner in which returns to 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 B.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 B.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:<sup>69</sup>

'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 C: State-by-state breakdown of economic contribution

## Contribution to the New South Wales economy

Airbnb guests are estimated to have spent \$753.3 million in New South Wales in 2015-16, generating \$512.5 million in value added to the New South Wales economy and supporting 4,452 full time equivalent (FTE) jobs.

The tourism expenditure of Airbnb guests is estimated using survey and booking data provided by Airbnb. The guest spend in New South Wales across a variety of categories is shown in Table C.1. Airbnb guests spend around 54 per cent more than the average Sydney tourist according to Airbnb survey data and Tourism Research Australia (TRA) statistics.

**Table C.1: Tourism expenditure of Airbnb guests in New South Wales, 2015-16**

Category	Average spend per guest per day	Total expenditure in NSW (\$m)	Share of expenditure
Accommodation	\$58	\$184.0	24%
Food service (e.g. restaurants)	\$62	\$196.5	26%
Groceries	\$21	\$65.8	9%
Shopping	\$40	\$125.4	17%
Other leisure (e.g. entertainment)	\$28	\$87.1	12%
Transportation	\$24	\$76.8	10%
Other services	\$5	\$15.5	2%
<b>Total</b>	<b>\$238</b>	<b>\$753.3</b>	<b>100%</b>

**Source:** Deloitte Access Economics estimates for categories based on Airbnb and TRA<sup>70</sup> survey and other data

Focusing on the greater Sydney region, Airbnb guest expenditure is estimated to contribute \$377.0 million in value add to the regional Sydney economy and support 3,266 FTE jobs. Airbnb guest expenditure in Sydney totalled \$540.0 million. A further breakdown of the economic contribution is shown in Table C.2.

**Table C.2: Economic contribution of Airbnb guests in Sydney, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$540.0		
Value added (\$m)	\$270.7	\$106.3	\$377.0
• Labour income (\$m)	\$111.7	\$52.8	\$164.5
• Gross operating surplus (\$m)	\$158.9	\$53.6	\$212.5
Employment (FTE)	2,517	748	3,266

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>71</sup> and ABS<sup>72</sup> 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.

More broadly, Airbnb guests also stay outside the greater Sydney region. The economic contribution to these regional economies is estimated to be \$135.5 million in value added, based on the difference between the value added to the New South Wales and greater Sydney economies. Airbnb guests in New South Wales spent a total of \$213.2 million when staying outside the greater Sydney region. The top four destinations in New South Wales outside the Sydney region are Byron Bay, Nowra, Newcastle and Wollongong.

**Table C.3: Economic contribution of Airbnb guests in New South Wales outside Sydney, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$213.2	–	–
Value added (\$m)	\$106.2	\$29.3	\$135.5
• Labour income (\$m)	\$47.5	\$14.8	\$62.3
• Gross operating surplus (\$m)	\$58.7	\$14.6	\$73.2
Employment (FTE)	971	216	1,186

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>73</sup> and ABS<sup>74</sup> 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 \$512.5 million in value add to the New South Wales economy, and supports 4,452 FTE jobs across the state.

**Table C.4: Economic contribution of Airbnb guests in New South Wales, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$753.3	–	–
Value added (\$m)	\$376.8	\$135.7	\$512.5
• Labour income (\$m)	\$159.3	\$67.5	\$226.8
• Gross operating surplus (\$m)	\$217.6	\$68.2	\$285.8
Employment (FTE)	3,488	964	4,452

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>75</sup> and ABS<sup>76</sup> 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.

#### Contribution to the Victorian economy

Airbnb guests are estimated to have spent \$625.3 million while visiting Victoria in 2015-16, generating \$412.6 million in value added to the Victorian economy and supporting 4,084 full time equivalent (FTE) jobs. The vast majority of this activity occurs in the greater Melbourne region.

The tourism expenditure of Airbnb guests is estimated using survey and booking data provided by Airbnb. The guest spend in Victoria across a variety of categories is shown in Table C.5. Airbnb guests in Melbourne spend around 41 per cent more than the average Melbourne tourist according to Airbnb survey data and TRA statistics.

**Table C.5: Tourism expenditure of Airbnb guests in Victoria, 2015-16**

Category	Average spend per guest per day	Total expenditure in Victoria (\$m)	Share of expenditure
Accommodation	\$48	\$125.6	20%
Food service (e.g. restaurants)	\$67	\$173.4	28%
Groceries	\$22	\$58.1	9%
Shopping	\$43	\$110.7	18%
Other leisure (e.g. entertainment)	\$30	\$76.9	12%
Transportation	\$26	\$67.8	11%
Other services	\$5	\$13.7	2%
<b>Total</b>	<b>\$241</b>	<b>\$625.3</b>	<b>100%</b>

**Source:** Deloitte Access Economics estimates for categories based on Airbnb and TRA<sup>77</sup> survey and other data

Focusing on the greater Melbourne region, Airbnb guest expenditure of \$530.3 million is estimated to contribute \$343.4 million in value add to the regional Melbourne economy and support 3,467 FTE jobs. A further breakdown is shown in Table C.6.

**Table C.6: Economic contribution of Airbnb guests in Melbourne, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$530.3	–	–
Value added (\$m)	\$253.1	\$90.3	\$343.4
• Labour income (\$m)	\$117.7	\$46.2	\$163.9
• Gross operating surplus (\$m)	\$135.4	\$44.1	\$179.5
Employment (FTE)	2,764	703	3,467

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>78</sup> and ABS<sup>79</sup> 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.

While the majority of Airbnb guests stay in Melbourne, some activity also occurs in Victoria's regional areas. The top 4 destinations outside Melbourne in 2015-16 were Geelong, Apollo Bay, Ballarat and St Kilda. The economic contribution to these regional economies is estimated to be \$69.1 million in value added, based on the difference between the value added to the Victorian and greater Melbourne economies. Airbnb guests in Victoria spent a total of \$95.0 million outside the greater Melbourne region.

**Table C.7: Economic contribution of Airbnb guests staying in the rest of Victoria, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$95.0	–	–
Value added (\$m)	\$52.2	\$17.0	\$69.1
• Labour income (\$m)	\$22.9	\$8.6	\$31.5
• Gross operating surplus (\$m)	\$29.3	\$8.4	\$37.7
Employment (FTE)	487	131	617

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>80</sup> and ABS<sup>81</sup> 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 \$412.6 million in value add to the Victorian economy, and supports 4,084 FTE jobs across the state directly and indirectly.

**Table C.8: Economic contribution of Airbnb guests in Victoria, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$625.3	–	–
Value added (\$m)	\$305.2	\$107.3	\$412.6
• Labour income (\$m)	\$140.6	\$54.8	\$195.4
• Gross operating surplus (\$m)	\$164.6	\$52.5	\$217.2
Employment (FTE)	3,250	834	4,084

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>82</sup> and ABS<sup>83</sup> 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.

#### 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 C.9.

**Table C.9: 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%
<b>Total</b>	<b>\$233</b>	<b>\$330.8</b>	<b>100%</b>

**Source:** Deloitte Access Economics estimates for categories based on Airbnb and TRA<sup>84</sup> 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 C.10.

**Table C.10: 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<sup>85</sup> and ABS<sup>86</sup> 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 C.11: 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<sup>87</sup> and ABS<sup>88</sup> 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.

**Table C.12: 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<sup>89</sup> and ABS<sup>90</sup> 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.

#### Contribution to the Western Australian economy

It is estimated that Airbnb guests spent \$155.1 million while visiting Western Australia in 2015-16, generating \$99.7 million in direct and indirect value added and supporting 780 full time equivalent (FTE) jobs. Of this amount, \$76.3 million in value add and 599 FTE jobs are connected to the greater Perth region.

The tourism expenditure of Airbnb guests staying in Western Australia is estimated using survey and booking data provided by Airbnb, and tourism expenditure data provided by TRA. The guest spend in Western Australia is broken down into categories in Table C.13.

**Table C.13: Tourism expenditure of Airbnb guests in Western Australia, 2015-16**

Category	Average spend per guest per day	Total expenditure in WA (\$m)	Share of expenditure
Accommodation	\$47	\$33.9	22%
Food service (e.g. restaurants)	\$58	\$42.0	27%
Groceries	\$19	\$14.1	9%
Shopping	\$37	\$26.8	17%
Other leisure (e.g. entertainment)	\$26	\$18.6	12%
Transportation	\$23	\$16.4	11%
Other services	\$5	\$3.3	2%
<b>Total</b>	<b>\$213</b>	<b>\$155.1</b>	<b>100%</b>

**Source:** Deloitte Access Economics estimates for categories based on Airbnb and TRA<sup>91</sup> survey and other data

Airbnb guest expenditure is estimated to have contributed \$76.3 million in value add to the regional Perth economy and supported 599 FTE jobs in 2015-16. A further breakdown is shown in Table C.14.

**Table C.14: Economic contribution of Airbnb guests in Perth, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$114.6	–	–
Value added (\$m)	\$56.4	\$20.0	\$76.3
• Labour income (\$m)	\$25.3	\$10.1	\$35.4
• Gross operating surplus (\$m)	\$31.0	\$9.9	\$40.9
Employment (FTE)	476	123	599

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>92</sup> and ABS<sup>93</sup> 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 Perth region, although to a lesser extent than some other jurisdictions. The economic contribution to these regional economies is estimated to be \$23.4 million in value added, based on the difference between the value added to the Western Australia and greater Perth economies. Airbnb guests in Western Australia spent a total of \$40.5 million outside Perth. The top 4 destinations outside Perth for Airbnb guests were Margaret River, Busselton, Dunsborough and Albany.

**Table C.15: Economic contribution of Airbnb guests outside Perth, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$40.5	–	–
Value added (\$m)	\$20.1	\$3.3	\$23.4
• Labour income (\$m)	\$8.7	\$1.5	\$10.2
• Gross operating surplus (\$m)	\$11.4	\$1.8	\$13.2
Employment (FTE)	162	19	180

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>94</sup> and ABS<sup>95</sup> 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 \$99.7 million in value add to the Western Australia economy, and supports 780 FTE jobs across the state.

**Table C.16: Economic contribution of Airbnb guests in Western Australia, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$155.1	–	–
Value added (\$m)	\$76.5	\$23.2	\$99.7
• Labour income (\$m)	\$34.0	\$11.6	\$45.6
• Gross operating surplus (\$m)	\$42.5	\$11.7	\$54.1
Employment (FTE)	638	142	780

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>96</sup> and ABS<sup>97</sup> 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.

#### Contribution to the South Australian economy

Airbnb guests are estimated to have spent \$59.9 million while visiting South Australia in 2015-16, generating \$38.2 million in value added to the South Australian economy and supporting 407 full time equivalent (FTE) jobs. Of this amount, \$32.8 million in value add and 357 FTE jobs are connected to the greater Adelaide region, with only a small level of activity in South Australia's regions.

The tourism expenditure of Airbnb guests is estimated using survey and booking data provided by Airbnb, and tourism expenditure data provided by TRA. The guest spend in South Australia across a variety of categories is shown in Table C.17.

**Table C.17: Tourism expenditure of Airbnb guests in South Australia, 2015-16**

Category	Average spend per guest per day	Total expenditure in SA (\$m)	Share of expenditure
Accommodation	\$45	\$11.7	20%
Food service (e.g. restaurants)	\$64	\$16.7	28%
Groceries	\$22	\$5.6	9%
Shopping	\$41	\$10.7	18%
Other leisure (e.g. entertainment)	\$29	\$7.4	12%
Transportation	\$25	\$6.5	11%
Other services	\$5	\$1.3	2%
<b>Total</b>	<b>\$230</b>	<b>\$59.9</b>	<b>100%</b>

**Source:** Deloitte Access Economics estimates for categories based on Airbnb and TRA<sup>98</sup> survey and other data

Airbnb guest expenditure is estimated to contribute \$32.8 million in value add to the regional Adelaide economy and support 357 FTE jobs, as shown in Table C.18.

**Table C.18: Economic contribution of Airbnb guests in Adelaide, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$51.7	–	–
Value added (\$m)	\$24.9	\$7.9	\$32.8
• Labour income (\$m)	\$11.9	\$4.0	\$15.9
• Gross operating surplus (\$m)	\$13.0	\$3.9	\$16.9
Employment (FTE)	293	64	357

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>99</sup> and ABS<sup>100</sup> 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.

More broadly, Airbnb guests also stay outside the greater Adelaide region, although the proportion is relatively small. The top 4 destinations outside Adelaide for guests in 2015-16 were Robe, Victor Harbor, Mt Gambier and Kingscote. The economic contribution to South Australia's regional economies is estimated to be \$5.5 million in value added, based on the difference between the value added to the South Australian and greater Adelaide economies. Airbnb guests in South Australia spent a total of \$8.1 million outside the greater Adelaide region.

**Table C.19: Economic contribution of Airbnb guests in rest of South Australia, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$8.1	–	–
Value added (\$m)	\$4.2	\$1.2	\$5.5
• Labour income (\$m)	\$1.7	\$0.6	\$2.3
• Gross operating surplus (\$m)	\$2.6	\$0.6	\$3.2
Employment (FTE)	40	10	50

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>101</sup> and ABS<sup>102</sup> 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 \$38.2 million in value add to the South Australian economy, and supports 407 FTE jobs across the state.

**Table C.20: Economic contribution of Airbnb guests in South Australia, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$59.9	–	–
Value added (\$m)	\$29.1	\$9.1	\$38.2
• Labour income (\$m)	\$13.6	\$4.6	\$18.1
• Gross operating surplus (\$m)	\$15.6	\$4.5	\$20.1
Employment (FTE)	333	74	407

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>103</sup> and ABS<sup>104</sup> 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.

#### Contribution to the Tasmanian economy

Airbnb guests are estimated to have spent \$86.0 million while visiting Tasmania in 2015-16, generating \$54.5 million in value added to the Tasmanian economy and supporting 599 full time equivalent (FTE) jobs. Of this amount, \$37.7 million in value add and 417 FTE jobs are connected to the greater Hobart region. Tourism is particularly important in the Tasmanian economy; overall, tourism directly and indirectly contributes around 9.9 per cent to Gross State Product (GSP), the highest of any Australian jurisdiction.<sup>105</sup>

The tourism expenditure of Airbnb guests is estimated using survey and booking data provided by Airbnb, and tourism regional expenditure data from TRA. The guest spend in Tasmania across a variety of categories is shown in Table C.21.

**Table C.21: Tourism expenditure of Airbnb guests in Tasmania, 2015-16**

Category	Average spend per guest per day	Total expenditure in Tasmania (\$m)	Share of expenditure
Accommodation	\$55	\$17.6	20%
Food service (e.g. restaurants)	\$74	\$23.7	28%
Groceries	\$25	\$7.9	9%
Shopping	\$47	\$15.1	18%
Other leisure (e.g. entertainment)	\$33	\$10.5	12%
Transportation	\$29	\$9.3	11%
Other services	\$6	\$1.9	2%
<b>Total</b>	<b>\$267</b>	<b>\$86.0</b>	<b>100%</b>

**Source:** Deloitte Access Economics estimates for categories based on Airbnb and TRA<sup>106</sup> survey and other data

Guests using Airbnb are estimated to have spent \$58.7 million in Hobart in 2015-16. This expenditure is associated with \$37.7 million in value added to the Hobart economy, and supported 417 FTE jobs directly and indirectly. A further breakdown is shown in Table C.22.

**Table C.22: Economic contribution of Airbnb guests in Hobart, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$58.7	–	–
Value added (\$m)	\$28.5	\$9.2	\$37.7
• Labour income (\$m)	\$13.2	\$4.6	\$17.8
• Gross operating surplus (\$m)	\$15.3	\$4.6	\$19.9
Employment (FTE)	341	76	417

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>107</sup> and ABS<sup>108</sup> 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 Hobart region, including in Launceston and other towns. The economic contribution to these regional economies is estimated to be \$16.8 million in value added, based on the difference between the value added to the Tasmanian and regional Hobart economies. Airbnb guests in Tasmania spent a total of \$27.3 million outside the greater Hobart region.

**Table C.23: Economic contribution of Airbnb guests in Tasmania outside Hobart, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$27.3	–	–
Value added (\$m)	\$13.5	\$3.3	\$16.8
• Labour income (\$m)	\$6.0	\$1.7	\$7.7
• Gross operating surplus (\$m)	\$7.5	\$1.6	\$9.2
Employment (FTE)	153	29	182

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>109</sup> and ABS<sup>110</sup> 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 \$54.5 million in value add to the Tasmanian economy, and supports 599 FTE jobs across the state.

**Table C.24: Economic contribution of Airbnb guests in Tasmania, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$86.0	–	–
Value added (\$m)	\$42.1	\$12.5	\$54.5
• Labour income (\$m)	\$19.2	\$6.3	\$25.5
• Gross operating surplus (\$m)	\$22.8	\$6.2	\$29.1
Employment (FTE)	494	105	599

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>111</sup> and ABS<sup>112</sup> 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.

#### Contribution to the Australian Capital Territory economy

Airbnb guests are estimated to have spent \$20.4 million while visiting the Australian Capital Territory in 2015-16, generating \$12.6 million in value added to the ACT economy and supporting 99 full time equivalent (FTE) jobs.

Airbnb guest expenditure is estimated using survey and booking data provided by Airbnb, and publicly available tourism expenditure data from TRA. The guest spend in the ACT across a variety of categories is shown in Table C.25.

**Table C.25: Tourism expenditure of Airbnb guests in the Australian Capital Territory, 2015-16**

Category	Average spend per guest per day	Total expenditure in ACT (\$m)	Share of expenditure
Accommodation	\$45	\$3.8	19%
Food service (e.g. restaurants)	\$68	\$5.8	28%
Groceries	\$23	\$1.9	9%
Shopping	\$44	\$3.7	18%
Other leisure (e.g. entertainment)	\$30	\$2.6	13%
Transportation	\$27	\$2.3	11%
Other services	\$5	\$0.5	2%
<b>Total</b>	<b>\$241</b>	<b>\$20.4</b>	<b>100%</b>

**Source:** Deloitte Access Economics estimates for categories based on Airbnb and TRA<sup>113</sup> survey and other data

It is estimated that Airbnb guest expenditure is associated with \$12.6 million in value add to the ACT economy, and supported 99 FTE jobs across Canberra in 2014-15. Due to the size of the territory and its visitation, the economic contribution has not been further disaggregated. The top 5 destination suburbs for guests within the ACT were Canberra, Belconnen, Macquarie, Kaleen and Macarthur. Although induced effects were not assessed quantitatively in this report, they may be locally significant in some regions – especially where tourism plays a significant role in the economy.

**Table C.26: Economic contribution of Airbnb guests in the Australian Capital Territory, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$20.4	–	–
Value added (\$m)	\$9.9	\$2.7	\$12.6
• Labour income (\$m)	\$4.7	\$1.4	\$6.1
• Gross operating surplus (\$m)	\$5.2	\$1.3	\$6.5
Employment (FTE)	83	16	99

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>114</sup> and ABS<sup>115</sup> 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.

#### Contribution to the Northern Territory economy

Airbnb guests are estimated to have spent \$10.6 million while visiting the Northern Territory in 2015-16, generating \$6.5 million in value added to the NT economy and supporting 55 full time equivalent (FTE) jobs.

Airbnb guest expenditure is estimated using survey and booking data provided by Airbnb, and publicly available tourism expenditure data from TRA. The guest spend in the NT across a variety of categories is shown in Table C.27.

**Table C.27: Tourism expenditure of Airbnb guests in the Northern Territory, 2015-16**

Category	Average spend per guest per day	Total expenditure in NT (\$m)	Share of expenditure
Accommodation	\$53	\$2.0	19%
Food service (e.g. restaurants)	\$79	\$3.0	28%
Groceries	\$27	\$1.0	9%
Shopping	\$51	\$1.9	18%
Other leisure (e.g. entertainment)	\$35	\$1.3	12%
Transportation	\$31	\$1.2	11%
Other services	\$6	\$0.2	2%
<b>Total</b>	<b>\$282</b>	<b>\$10.6</b>	<b>100%</b>

**Source:** Deloitte Access Economics estimates for categories based on Airbnb and TRA<sup>116</sup> survey and other data

It is estimated that Airbnb guest expenditure is associated with \$6.5 million in value add to the NT economy, and supported 55 FTE jobs in 2014-15. Due to the size of the territory and its visitation, the economic contribution has not been further disaggregated. Although induced effects were not assessed quantitatively in this report, they may be locally significant in some regions – especially where tourism plays a significant role in the economy. The top 3 destinations for Airbnb guests visiting the NT were Darwin, Alice Springs and Katherine.

**Table C.28: Economic contribution of Airbnb guests in the Northern Territory, 2015-16**

	Direct contribution	Indirect contribution	Total contribution
Expenditure (\$m)	\$10.6	–	–
Value added (\$m)	\$5.1	\$1.3	\$6.5
• Labour income (\$m)	\$2.4	\$0.7	\$3.1
• Gross operating surplus (\$m)	\$2.7	\$0.7	\$3.4
Employment (FTE)	47	8	55

**Source:** Deloitte Access Economics based on Airbnb, TRA<sup>117</sup> and ABS<sup>118</sup> 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.

# Appendix D: 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:

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

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  $k$ ,<sup>119</sup> 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,  $\ln ABN$ , 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.<sup>120</sup> 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 D.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  $\ln ABN$ ,  $\gamma_8$ , 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

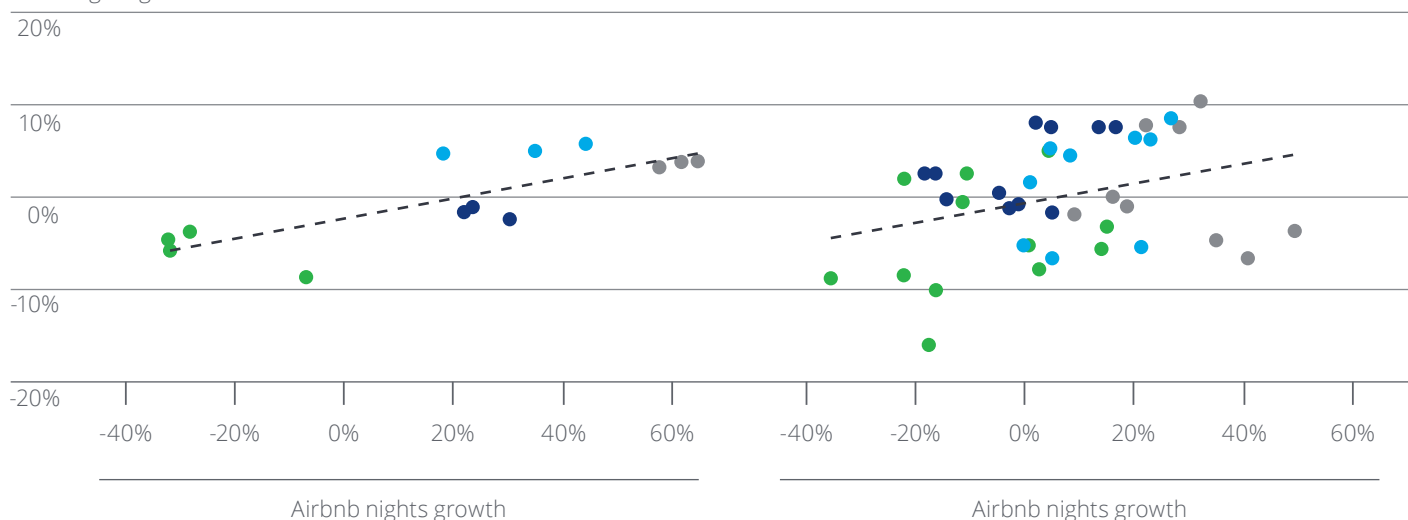
Chart D.1 illustrates the relationship between the monthly and quarterly growth rate of Airbnb nights booked and hotel nights occupied during the sampling period. It can be seen that higher growth in Airbnb nights is usually associated with higher growth in hotel nights.

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

Hotel vs Airbnb nights quarterly growth, Jan 2012-Jun 2015

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

Hotel nights growth



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<sup>121</sup> and Bajari and Benkard.<sup>122</sup> The analysis is performed separately on data for 30 sub-markets, with each sub-market representing a certain type of accommodation<sup>123</sup> in a certain area of Sydney,<sup>124</sup> 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:

$$\begin{aligned} \log(\text{Total payment}_i) &= \beta_0 + \beta_1 \log(\text{Nights}) + \beta_2 \log^2(\text{Nights}_i) + \beta_3 \log(\text{Guests}_i) \\ &+ \beta_4 \log(\text{booking\_in\_advance}) + \beta_5 \log(\text{listing\_n\_booked}) \\ &+ \text{AirbnbRating} + \text{GuestOrigin}_i + \text{ExchangeRate}_i \\ &+ \text{QuarterlyDummies} + \text{WeekendDummies} \end{aligned}$$

From each of the 30 regressions, we obtain the coefficients  $\beta_1$  and  $\beta_2$ , 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:

$$\frac{\partial \text{Utility}_i}{\partial \text{Nights}_i} = \frac{\partial \text{Total payment}_i}{\partial \text{Nights}_i} = [\beta_1 + 2\beta_2 \log(\text{Nights}_i)] * \frac{\text{Fitted payment}_i}{\text{Nights}_i} = \text{WTP}_i \quad (*)$$

Where the first equals sign follows from consumers maximising their utilities.<sup>125</sup>

Compared with the approach described by Rosen,<sup>126</sup> 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:

$$\begin{aligned} \log(\text{marginal WTP}_i) &= \gamma_0 + \gamma_1 \log(\text{Nights}) + \beta_2 \log(\text{booking\_in\_advance}) \\ &+ \gamma_3 \log(\text{listing\_n\_booked}) + \text{GuestOrign}_i + \text{ExchangeRate}_i \\ &+ \text{QuarterlyDummies} + \text{WeekendDummies} \end{aligned}$$

The elasticity of demand can be calculated as the inverse of the coefficient  $\gamma_1$  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:<sup>127</sup>

$$\text{Surplus}_j = -\frac{P_j * Q_j}{2 * \epsilon_j}, \quad \text{in each sub\_market}_j$$

where  $\epsilon_j$  is the elasticity of demand (negative) in the sub-market.

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.<sup>128</sup> 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:

$$\text{Utility}_i = \frac{\text{Fitted payment}_i}{\text{Nights}_i} + \alpha * \log(\text{Nights}_i)$$

where  $\alpha = [\beta_1 + 2\beta_2 \log(\text{Nights}_i)] * \text{Fitted payment}_i$

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 D.2 shows the list of variables, along with their transformations, that are used for the analysis.

**Table D.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 <sup>129</sup>
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 <sup>130</sup> .
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 D.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 D.2 : Number of observations for the 30 sub-markets**

**Source:** Deloitte Access Economics

### Result

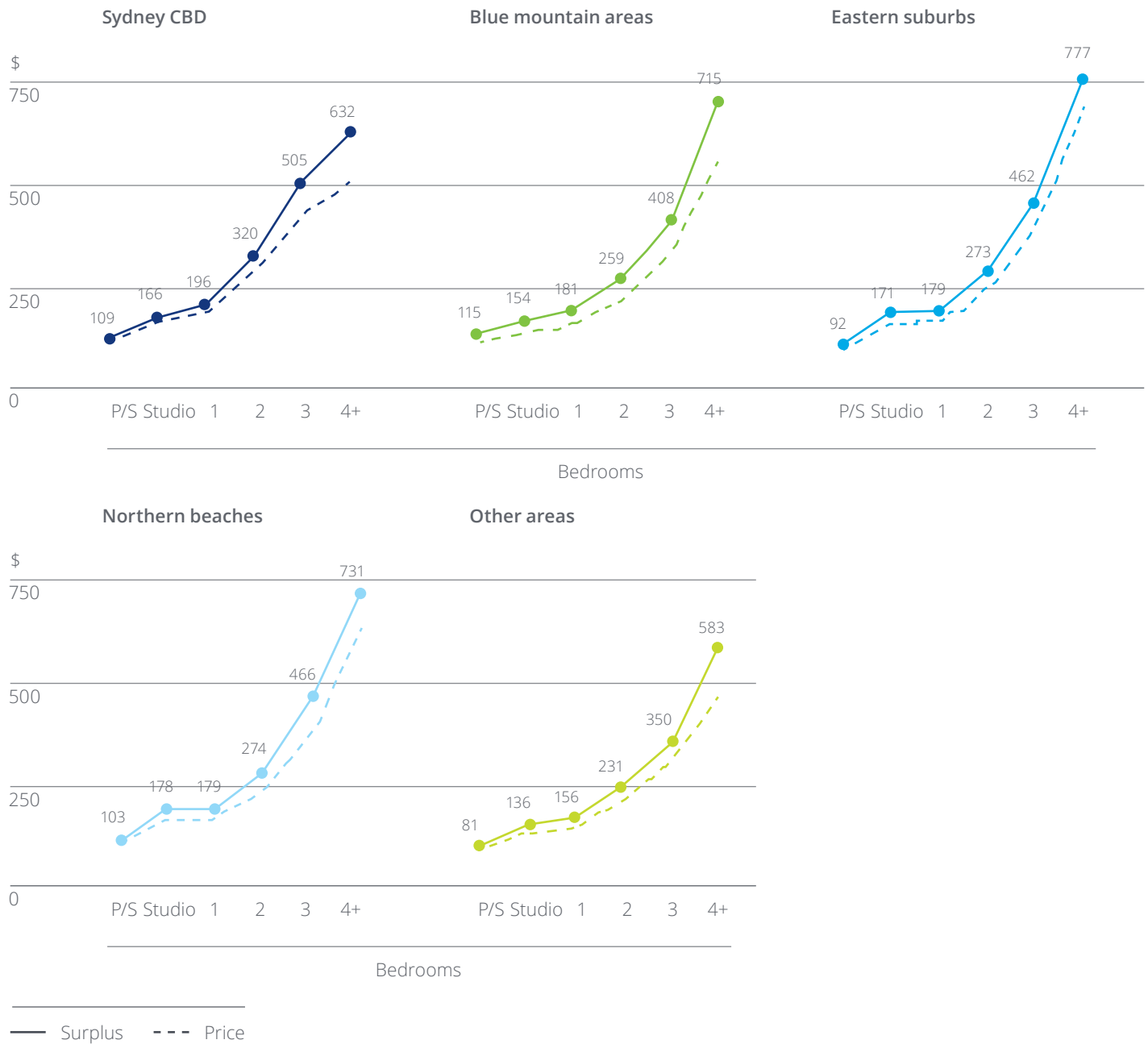
The first stage regression provides a decent fit to the price equations. Chart D.3 below shows the adjusted R-square from the 30 regressions performed. The overall average is 73.5 per cent.

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



Source: Deloitte Access Economics

Based on results from the second stage regression, Chart D.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 D.4 : Weighted average surplus vs price**

**Source:** Deloitte Access Economics

Table D.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 D.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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119. The system is estimated with  $k$  held constant at 0.05. Note that  $k$  can be estimated econometrically, but due to the non-linearity of the system of equations and limited degrees of freedom it can be quite difficult to estimate a consistent or reliable estimate
120. The 'sem' package in R is used for this analysis
121. Sherwin Rosen, 'Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition' (1974) 82(1) Journal of Political Economy 34
122. C Lanier Benkard and Patrick Bajari, 'Demand Estimation with Heterogeneous Consumers and Unobserved Product Characteristics: A Hedonic Approach' (2005) 113(6) Journal of Political Economy 1239
123. Studio, private/shared room, one bedroom, two bedrooms, three bedrooms, over four bedrooms, based on the number of bedrooms and accommodation types (entire house/apartment vs. private/shared room)
124. Sydney CBD, Blue Mountain areas, Eastern Suburbs, Northern Beaches and other areas, based on postcodes of Airbnb listings
125. Consumers consume up to the point where the extra surplus from the last consumed unit of goods is equal to the marginal/shadow price of the goods at that consumption level
126. Sherwin Rosen, 'Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition' (1974) 82(1) Journal of Political Economy 34, 50
127. Assuming linear demand curves
128. James N Brown and Harvey S Rosen, 'On the Estimation of Structural Hedonic Price Models' (1982) 50(3) Econometrica 765; Timothy J Bartik, 'The Estimation of Demand Parameters in Hedonic Price Models' (1987) 95(1) Journal of Political Economy 81; Dennis Epple, 'Hedonic Prices and Implicit Markets: Estimating Demand and Supply Functions for Differentiated Products' (1987) 95(1) Journal of Political Economy 59
129. Sydney CBD, Blue Mountain areas, Eastern Suburbs, Northern Beaches and Other areas
130. Studio, private/shared room, one-bedrooms, two-bedrooms, three-bedrooms, over-four-bedrooms.

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