Deloitte Access Economics

The economic and social contribution of the NSW taxi industry

NSW Taxi Council

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Glossary

ABS	Australian Bureau of Statistics
ATIS	Authorised Taxi Inspection Station
ATO	Australian Taxation Office
CCN	Combined Communication Network
DAE	Deloitte Access Economics
EBITDA	Earnings Before Interest, Tax, Depreciation and Amortisation
EFTPOS	Electronic Funds Transfer at Point Of Sale
FTE	Full Time Equivalent
GDP	Gross Domestic Product
GOS	Gross Operating Surplus
NSW	New South Wales
PC	Productivity Commission
TTSS	Taxi Transport Subsidy Scheme
WAT	Wheelchair Accessible Taxi

Executive Summary

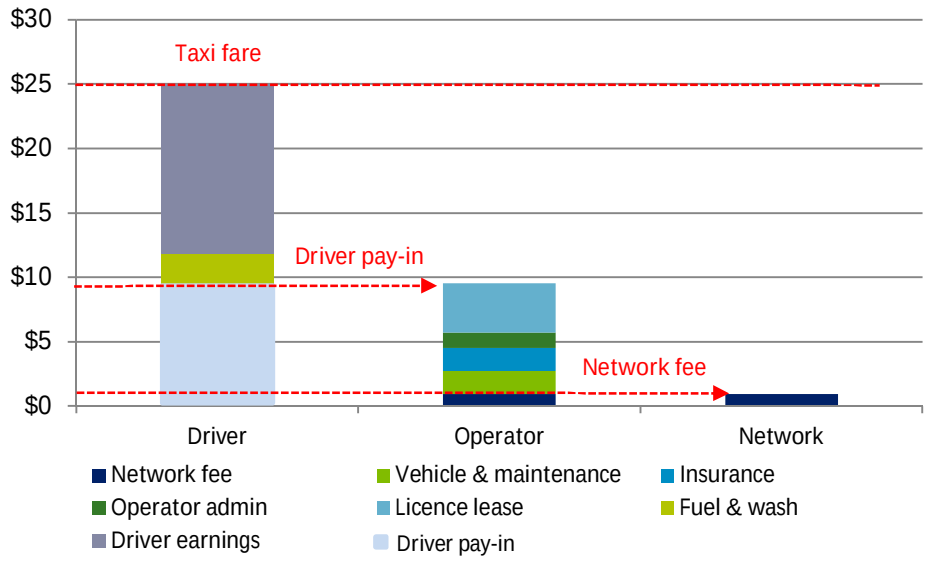
The NSW taxi network forms an integral part of the State's public transport network. The ubiquitous door-to-door service provided by taxis complements other forms of public transport throughout Sydney and regional NSW. Taxi services are particularly valuable for those with special transport needs, but they are also used by a large cross section of the community and have substantial flow on effects for the efficient functioning of the NSW economy. This study examines the economic contribution of the NSW taxi industry and its role in connecting people, promoting social inclusion and supporting economic activity.

There is a range of activity that takes place 'behind the scenes' to ensure that taxi services are efficiently provided and meet users' needs. Authorised taxi networks maintain call centres to collect and dispatch bookings, monitor the safety of drivers and passengers, and assist the NSW Government in ensuring compliance with regulatory standards. Taxi owners, operators and drivers all play a vital role in providing a range of services to the travelling public. Various businesses fit out and maintain the taxi vehicles and Authorised Taxi Inspection Stations perform regular safety checks.

The NSW Taxi Industry is funded by the private sector from the fares paid by passengers. The NSW Government does not provide any funding to the industry. Funding is provided to some taxi passengers through the Taxi Transport Subsidy Scheme (TTSS) although this is relatively small in dollar terms compared with other public transport expenditures.

The industry generates economic activity for upstream industries such as: vehicle manufacturers, mechanics and automotive parts suppliers, dispatch and radio equipment manufacturers, the insurance industry, advertisers and fuel distributors. For an illustrative NSW taxi fare of $25, around half is paid to the driver, with the remainder distributed throughout the sector and the economy more broadly, as depicted in the following chart.

Chart i: Where does a typical $25 taxi fare go?*

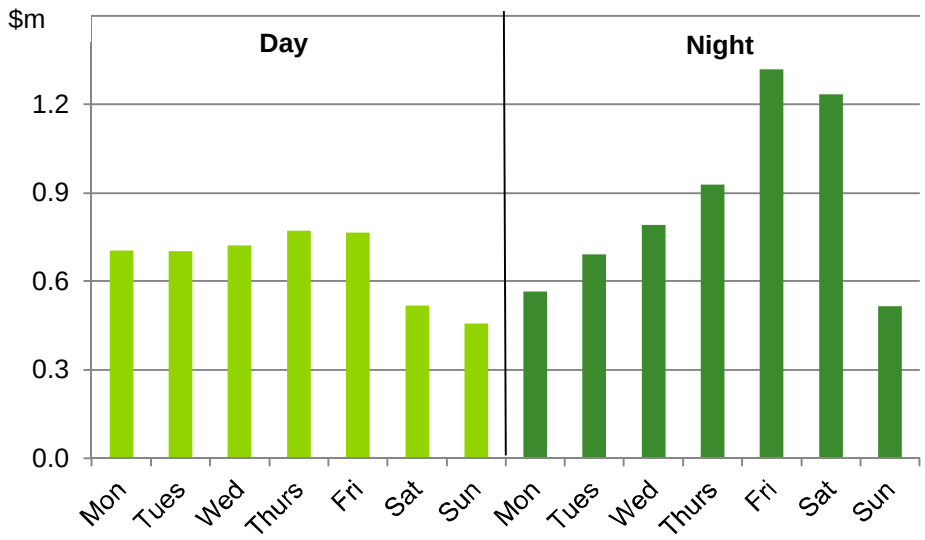


Source: Deloitte Access Economics estimates. *Excludes GST, card fees and tolls, and cash tips to driver

Based on a reconciliation of a range of data sources including ATO, ABS, Transport for NSW, and data from networks, it is estimated that the sector contributes $936 million in direct value added to the NSW economy and $1.15 billion in total value added to the NSW economy. The industry also directly employs almost 17,500 people, measured on a full-time equivalent (FTE) basis, and supports a further estimated 1,060 FTE in other parts of the economy. Due to some part time and casual workers, the headcount number of people working in the industry would be somewhat higher than the number of FTEs.

It is also estimated that the taxi industry generates significant value beyond its contribution to GDP. In many instances, taxis provide a service where there is no close substitute available. Over the year, the industry is estimated to generate $556 million in additional consumer surplus to NSW, over and above the monetary fare paid. This represents a lower bound for the value of taxi services as it is not likely to fully capture the value placed on taxis and does not account for the broader social value enabled by taxi services through, for example, enabling people with restricted mobility to work. Nonetheless, it does demonstrate that taxis make an important contribution to the economy and the community.

Chart ii: Consumer surplus generated by the taxi industry throughout the week



Source: Transport for NSW; Deloitte Access Economics estimates

Government Revenue

In addition, since the introduction of the reforms to the NSW Passenger Transport Act (1990), the NSW Government has become the single biggest lessor of taxi licences in the State with an estimated 600 taxis under lease. Based on current published prices of the lease value of these licences, the NSW Taxi industry generates approximately $10 to $15 million per annum. Combined with taxes, authorisation and other regulatory fees, the NSW Taxi Industry provides up to $20 million per annum in revenue to the NSW Government.

With total revenues of nearly $1.3 billion per annum (excluding GST), the industry also collects approximately $130 million in gross GST revenue per annum. However, the net amount of GST remitted would depend on input tax credits from operating expenses.

Passengers or parcels using taxis for business purposes would generally also be able to claim the GST relating to those fares as a business input tax credit.

Tourism impact

Previous estimates by Deloitte Access Economics for Sydney Airport (DAE, 2013) found that:

- The average interstate domestic passenger generates a total of $639 in value added for the Australian economy, and
- The average international passenger generates a total of $2,328 in value added.

Tourism Research Australia data indicates that, compared with all visitors arriving on flights to Sydney, the subset of those that use taxis are (on average) higher-spending visitors:

- The average taxi-using interstate domestic airline passenger generates a total of $733 in value-added for the Australian economy (15% more than the average interstate domestic airline passenger)
- The average taxi-using international airline passenger generates a total of $2,879 in value added (24% more than the average international airline passenger).

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1 Introduction

Taxis are a vital component of NSW's public transport system. Their flexibility, both in terms of round-the-clock availability and door-to-door service, is an important complement to regular scheduled services provided by other forms of public transport. They are particularly valuable for less mobile groups in the community, such as elderly and disabled people. However, a diverse range of users rely on taxi services, including regular users such businesses, tourists, people without cars, as well as users that rely on taxis as a backup or when unexpected disruptions occur, for example when it rains or when there are public transport disruptions. Taxis are also heavily relied upon to take people directly to their homes when they work extended hours or are out late at night.

A large range of stakeholders are involved in ensuring that safe and reliable taxis are available to customers at any time throughout the day or night. This includes industry participants like authorised networks, licence owners, operators and drivers, as well as businesses that supply goods and services to the industry such as vehicle and equipment manufacturers, insurance providers, fuel suppliers and mechanics.

The NSW taxi industry is also one of the most highly regulated industries in Australia, with the number of taxis, fares and quality of service all subject to regulation by Transport for NSW. This reflects the complexity of the taxi industry, with a large number of different players, each with different incentives. Regulation enables taxi services to be supplied to the travelling public that is safe, reliable and affordable. It also provides a level of predictability in respect of the cost of fares. However, like any regulation, there is a balance to be struck between compliance costs, red tape, enabling sufficient competition and community safety.

A combination of increasing residential density – bringing with it lower car ownership and less parking – and an ageing population mean that taxis will become an increasingly important link in the NSW transport system in coming years.

1.1 Study approach

The purpose of this report is to estimate the economic contribution of the NSW taxi industry to the NSW economy, and the broader welfare benefits created by the industry.

The framework for the core economic contribution analysis involves the following steps:

1. Estimate the direct economic activity generated by the taxi industry, including employment, value added (contribution to GDP) and taxes & fees paid;
2. Discuss with some key industry stakeholders about the linkages and contributions of the industry (such as licence holders and network operators);
3. Assess the flow-on demand generated in the economy (purchases made by the taxi industry, including maintenance, purchases of vehicles, LPG, radio transmission spectrum, and so forth); and

4. Apportion the contribution to a geographical area, in this case Sydney and the Rest of NSW.

To estimate the welfare benefits – or consumer surplus – created by the industry we draw on existing data and literature to estimate demand for taxis at various times of day, and at various price points. This analysis can be used to estimate the additional benefits that flow to consumers under the current pricing structure.

1.2 Report structure

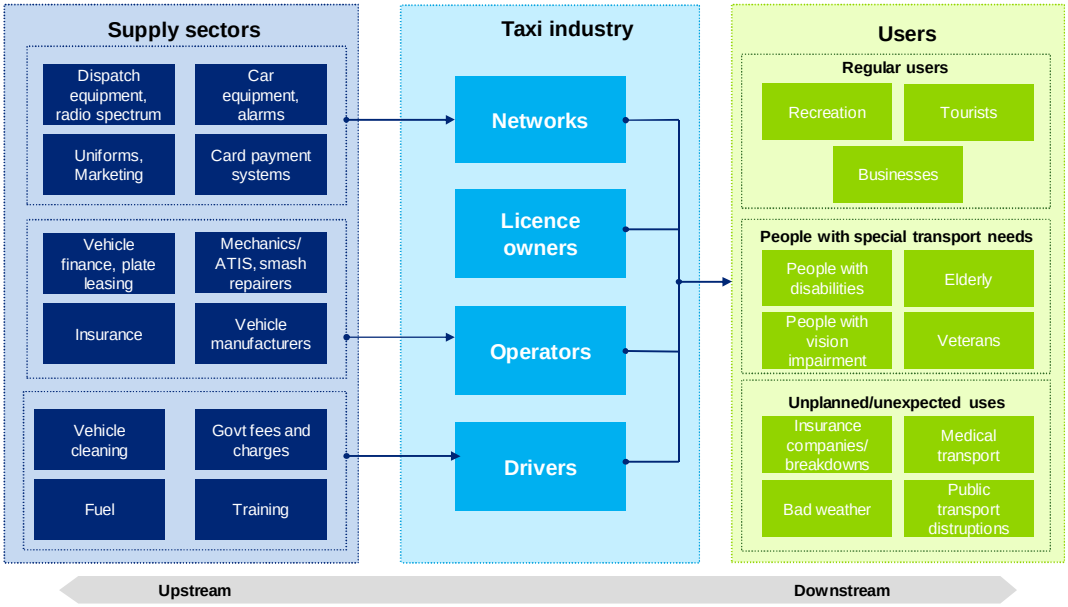
The remainder of the report is set out as follows:

- Chapter 2 provides an overview of the key stakeholders within the industry, as well as the various sectors that provide services to the industry and the range of user groups that rely on taxi services.
- Chapter 3 presents the economic contribution of the taxi industry. It outlines the direct and indirect economic contribution of the taxi industry in NSW based on DAE modelling inputs. The chapter also provides an account of the contribution by metro and non-metro region.
- Chapter 4 provides an estimate of the value of the industry above and beyond its contribution to GDP, or the consumer surplus generated by the industry. The chapter recognises that the value of taxis to users is often significantly higher than the price paid for the fare.
- Appendix A outlines the economic contribution of the NSW taxi industry using the unadjusted analysis from the original CIE study and the revised inputs based on DAE's assessment.
- Appendix B provides more detail on the IO modelling framework used in this report.

2 Overview of the NSW taxi industry

A diverse range of users rely on taxis for business, social and recreational purposes, and a wide range of activity that takes place 'behind the scenes' to ensure that safe and reliable taxis are available to customers when needed (Figure 2.1). This chapter describes the various participants within the taxi industry, and the linkages between the taxi industry and related industries, such as insurance, mechanics, and vehicle manufacturers. It also discusses the various users of taxi services, including regular users like businesses, tourists, and people with limited mobility or vision impairment, as well as their important role as a back-up transport option to minimise disruptions in unforeseen or occasional circumstances.

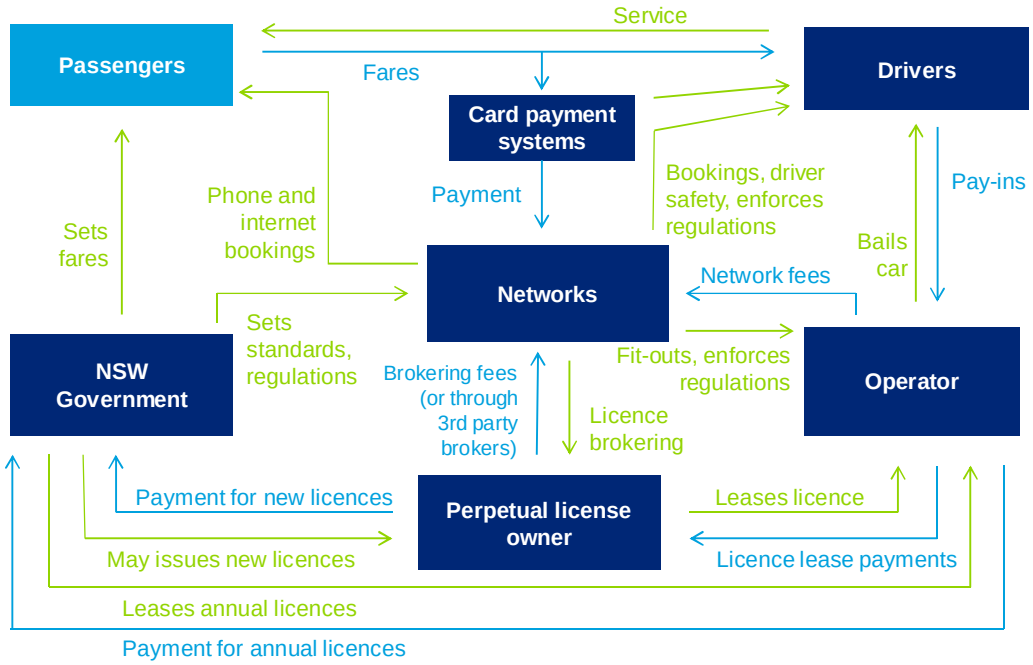
Figure 2.1: Taxi industry economic linkages



2.1 Structure of the taxi industry

There were 5,647 taxis on the road at 1 January 2013 in the Sydney taxi market and 1,041 in country areas (Transport for NSW). While taxi users generally just interact with taxi drivers and call centres, the taxi industry involves a number of participants with different functions and responsibilities (Figure 2.2).

Figure 2.2: Taxi industry roles and payments



Each taxi is managed by an operator, who leases or purchases a taxi licence, contracts drivers under bailment and manages the day-to-day maintenance of the vehicle. Taxis also need to be affiliated with a network, which help fit out the vehicle and provides booking services, safety monitoring, training and education, financial and leasing support, and a wide range of compliance related activities.

Often, participants operate across a number of functions within the industry. For example, a number of licence-owners also operate and drive a taxi, while some networks may own licences and operate taxis.

The NSW taxi industry is also among the most highly regulated industries, with quality, safety, the quantity of taxis and fares all subject to regulation. The NSW Government generates revenue by leasing annual taxi licences and charging regulation and compliance fees. The NSW Government also provides taxi travel subsidises for school students with special needs and disabled passengers, and the Commonwealth subsidises taxi services for veterans.

The NSW taxi industry operates under a co-regulatory model, where the NSW Government sets the standards, stipulates maximum fares, and issues licences and accreditations. The networks monitor and assist the Government in enforcing industry standards for operators, drivers and vehicles. The NSW Government also has a team of inspectors in the field monitoring compliance.

The following sections give an overview of the role of taxi networks, operators, drivers and the NSW government in the taxi industry.

Authorised taxi networks

All taxis in NSW must be affiliated with an authorised network in operation across NSW (Transport for NSW, 2013). The number of taxis per network ranges from over 4,000 for Combined Communications Network (CCN) which operates a number of distinct networks within this number, through to one or two taxi in a network in small regional areas.

Authorised taxi networks play several important roles within the taxi industry. When a vehicle is first converted to a taxi, authorised taxi networks assist operators to fit out the vehicle with branding, taxi meters, security alarms and cameras, radio communications equipment, and other equipment in order for the taxi to operate according to the regulations and to meet customer requirements. In some cases, networks also assist operators to convert vehicles to make them accessible by wheelchair, or this work is carried out by third party service providers.

Once the taxi is on the road, networks provide booking services and security monitoring for taxi drivers and passengers 24 hours a day 7 days per week. Each of the networks in Sydney is associated with one of four call centres which take bookings from the public and dispatch them to taxis. Each network also provides taxi services to regular accounts. The number of taxi bookings is significant. For example, the call centre operated by CCN processes 12 million incoming calls per year (CCN, 2013). Bookings are also increasingly handled automatically though computerised call services, internet bookings and authorised booking Apps.

Call centre staff also monitor driver safety. Each taxi is fitted with a camera and a duress alarm which allows drivers to alert authorised taxi networks to any safety problems and to generate an emergency response if required.

Technology in the taxi industry

The taxi industry has a long history of being an early adopter of new technologies. Cabcharge, which was first established as a financial services provider for the taxi industry in 1976, has its credit facilities located in around 97% of Australian taxis. A number of other card payments systems have now entered the market for this service. In-car terminals are an efficient way to process taxi fares electronically, and provide users with a receipt that can be used for accounting purposes and tracking lost property. The technology has also been adopted in Singapore and the UK.

All taxi networks in Sydney use a taxi dispatch system designed by a Melbourne based company, MTDATA. The system manages the taking and dispatch of taxi bookings as well as allowing call centres to precisely track a taxi's location and speed using GPS systems installed in each car. The dispatch systems facilitate networks to send bookings to other networks to ensure that passengers are serviced quickly and efficiently. The company, which was founded in 2003, now has operations in six countries including New Zealand and the Middle East.

There has been significant investment in taxi dispatch technology as regulatory oversight and reporting requirements have increased over recent years. Authorised taxi networks are required to track the location of taxis in order to manage performance and provide safety systems for drivers and passengers.

Smartphone technology is also increasingly being adopted, allowing customers to book a taxi though an app. Authorised taxi networks have designed applications that allow passengers to book a taxi and track the taxi as it approaches. Independent developers have also designed applications that allow passengers to contact drivers directly, although there is an ongoing debate as to whether these Apps outside of authorised networks meet the required regulatory standards in relation to safety and service reliability.

Another central role of networks is to monitor and enforce industry standards for operators, drivers and vehicles. The taxi industry operates under a co-regulatory model, whereby the NSW Government sets the number of taxi licences, fares and standards for safety and quality, and accredited drivers, operators and networks, while authorised taxi networks assists the Government in ensuring that these standard are monitored and enforced. The NSW Government also monitors compliance through audits and field inspections. Under this model, the NSW Taxi industry takes on a significant share of the cost of regulation.

Authorised taxi networks are also required to report to the NSW Government on monthly basis on key performance metrics including bookings, pickups and waiting times. The NSW Government reports on these statistics quarterly by placing them on the Transport for NSW website.

In addition to their core roles, authorised taxi networks also perform a number of other important functions including ensuring compliance with regulatory standards, managing lost property for passengers, supplying uniforms for drivers and advice to drivers and operators regarding infringement and disputes. Several authorised taxi networks also

provide additional services, such as training, leasing and brokering for taxi licences, financing, insurance broking, and repairs and maintenance. Other key services include:

- marketing and advertising of taxi services, including for major and community based events;
- credit provision to account customers;
- tendering for taxi business;
- taxi docket cashing facilities, including dockets for the NSW Government's TTSS; and,
- taxi docket fraud investigation.

Accredited taxi operators

Accredited taxi operators own or lease vehicles and are responsible for the day-to-day management and maintenance of their taxi. Operators must be accredited by the NSW Roads and Maritime Services (RMS), and as at January 1 2013, there were 2,609 active accredited operators in Sydney (Transport for NSW, 2013).

Operators must also hold a taxi licence for each vehicle they operate. These can be owned outright, leased from a licence owner or indirectly through a network or tendered for directly with the Government. The business model for operators ranges from individuals who lease or buy a taxi licence and drive their own car through to corporations with a fleet of cars under management. It is estimated that around 60% of operators lease their license, and the other 40% either own them or hold the new annual licences (IPART, 2013).

Each operator is required to be affiliated with a network, and fit out their car with the network's livery (branding) and communication and safety equipment. They pay a monthly or four-weekly fee to networks in exchange for the networks booking and safety monitoring services.

Operators are also required to hold compulsory third party insurance, workers compensation, and third party property insurance, while some choose to hold comprehensive insurance. Operators are also required to have their taxi regularly inspected at an Authorised Taxi Inspection Station (ATIS). Taxis in Sydney are required to be inspected every four months, while those operating in regional and rural areas require an inspection every six to 12 months.

While some operators drive their own taxi, most 'bail out' their car to drivers to drive their taxis. The payment between drivers and operators is referred to as a 'pay-in'. In Sydney, drivers can legally choose between two pay-in methods:

- Method 1 —first year drivers are entitled to 45% of fares, after which drivers are entitled to 50% of fares.

- Method 2 — the driver pays the operator a fixed amount at the end of each shift. The maximum pay-in for each shift is specified by law, ranging from $171.92 for day shifts to $261.84 for Friday and Saturday night shifts. Drivers are also responsible for paying for fuel and car washing under this method.

Consultations with the industry indicated that the vast majority (if not all) taxi drivers in the Sydney metro area operate under Method 2, with a fixed payment made to operators. This is in contrast to regional NSW and other cities in Australia, where drivers tend to operate on a commission basis. Anecdotal evidence also suggests that pay-ins tend to be well below the maximum amount in the contract determination, ranging from around $140-$210 depending on the day and time of the shift.

Authorised drivers

There were an estimated 24,000 authorised taxi drivers in NSW in December 2012 (ATIA, 2013), although not all were likely to be active or full time.

To become a taxi driver, an applicant must be authorised by RMS. This requires drivers to have held a full drivers licence (ie not be on P-plates, which means they must have turned at least 20 and meet NSW residency requirements), meet an English language proficiency level and undertake training through a Registered Training Provider before they can be tested and authorised by Transport for NSW. Once they have completed their training and authorisation they receive a provisional one-year taxi driver authority and then are required to complete further training, provided by the NSW Taxi Council, within a year.

Drivers must wear the approved uniform of the network to which their vehicle is affiliated, and be logged in to that network while available for hire. To be able to log in to the network, the driver must have successfully completed an inhouse training session provided by the network and be issued with a personal identification number to access the radio equipment.

The drivers' income determined by the fare revenue collected together with an additional proportion of EFTPOS card surcharges paid by card providers, and any cash tips. These funds are used to cover the pay-in[1] to the operator, and fuel, tolls, cleaning costs and GST, with the balance being the income for the driver. Drivers also pay a number of upfront costs, including training, drivers' authorisation and driver permit. There is a government subsidy for WAT driver training.

Licence owners

Taxi licences are the primary instrument used to regulate the supply of taxis. Taxi operators need to hold a licence for each taxi that they operate, but they can either own the licence or lease it from a licence owner. As a result, licence holders range from operators/owners and networks through to investors that are not operating in the industry, such as retired taxi drivers and superannuation funds. Investors receive a licence fee from operators who lease their licences, much like any other financial asset. Some authorised

[1] Noting that outside of Sydney most drivers work on a commission basis

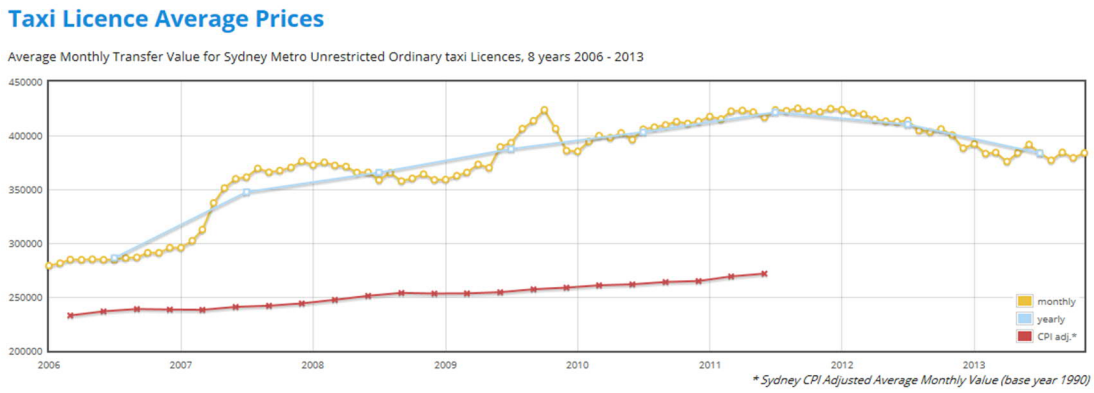
taxi networks provide a service as a licence broker to individuals who own licences, organising to lease them to operators, in return for a management fee.

There are also different types of taxi licences that operate in NSW. These include licences that are unrestricted ie, they are available to operate 24/7, while others can be restricted by time. Over an extensive period of time, the NSW Government has also issued different types of licences in terms of tenure. The majority licences are in perpetuity, however, since 1990 licences have been released with time limited tenures, usually no more than 50 years. More recently, the NSW Government has started leasing licences directly to operators.

There were 5,647 licences in the Sydney metro area on 1 January 2013 (the midpoint for the purposes of calculating the 2012-13 fiscal year economic contribution), most owned by individuals and with more than half owned by individuals who only hold a single licence.

As shown in Figure 2.3 below, based on Transport for NSW data, the average taxi licence transfer price has been falling in nominal terms in recent years.

Figure 2.3: Average taxi licence prices



Source: https://appln.transport.nsw.gov.au/mint/vap/vap_summary.php

Regulator

The taxi industry is one of only a few industries where the price (fare), the quantity and the quality of the service are all regulated. The industry operates under a co-regulatory model, whereby the government sets the standards and regulations and undertakes a range of compliance activities, with networks also providing monitoring and enforcement of standards.

The number of taxis on the road in NSW is restricted to the number of licences issued by Transport for NSW. Under law, the NSW Government is required to determine the number of new licences required by Sydney each year. This annual review of licences is conducted by IPART, which makes recommendations to Government on how many licences should be released.

IPART also recommends maximum taxi fares to the NSW Government. Fares are reviewed annually, with consideration given to the impact on passengers as well as drivers, operators, networks and licence holders.

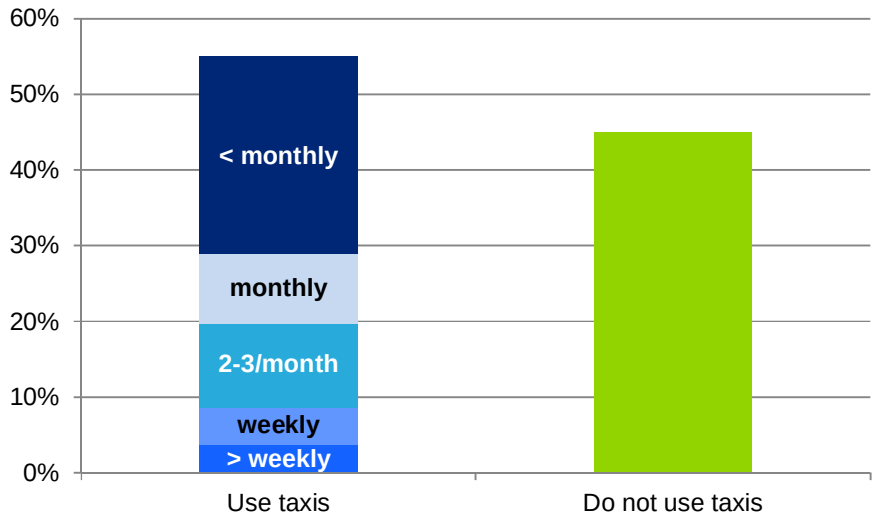
The safety of consumers and drivers and quality of taxi services are regulated through several avenues. Taxis travel large distances annually and are therefore required to pass inspections at an Authorised Taxi Inspection Station (ATIS). There are also limits placed on the age of vehicles, with standard taxis required to be less than 6.5 years old (8 years in regional NSW) while wheelchair accessible taxis (WATs) required to be less than 10 years old.

Driver training, an in-cab security camera and a duress alarm in all taxis are also compulsory. Safety and service quality are also enhanced though English language and geographical knowledge tests, vehicle and driver presentation requirements and driver training. Finally, drivers, operators and networks are all required to be authorised by the government. This differs from community transport, courtesy buses and to some extent hire cars, where authorisation is not required to the same level, with quality and safety not regulated beyond minimum standards that apply to private citizens or the standards resulting from market forces. Hire Cars, unlike taxis, also do not have any vehicle inspection or training regimes in place and solely relies on the market to ensure quality and standards are maintained.

2.2 Users of taxis

There is an average of around 480,000 passengers that ride in a taxi in NSW every day in NSW (NSW Taxi Council). There are limited empirical data available on the reasons for, and characteristics of those, using taxi services. Business commuters and tourists are thought to be those most likely to account for a large proportion of rides during the day, while taxi usage spikes on Friday and Saturday nights where other transport options are limited. In addition to these main user groups, however, taxi services are utilised by a large cross section of the community. One survey commissioned from Taverner Research by IPART indicates that more than half of Sydneysiders having used a taxi in the last six months (Chart 2.2), but overall there is currently a limited evidence base available on the uses of taxi services.

Chart 2.2: Frequency of taxi use in the past six months*



Source: Taverner Research 2012

In particular, taxis provide a vital service for communities and specific groups where alternative public transport options are limited or non-existent. For example, taxis service a wide range of special transport needs that are not always met by mass transit options (e.g. bus or train) including:

- people with restricted mobility or wheelchair accessible requirements;
- hospital/patient transfers;
- school children with disabilities through the Assisted Schools Travel Program;
- vision impairment, including those travelling with guide dogs;
- Veterans and family members covered by the Department of Veteran's Affairs; and
- The aged and frail.

For the remainder of the report we refer to these various transport needs collectively as 'special transport needs'.

This section outlines the range of users that depend on taxi services and discusses the role of taxis in ensuring that the economy functions efficiently and people can participate in society.

Business users

Taxis provide an important service to businesses in NSW. According to a survey of taxi users by Taverner Research on behalf of IPART (2012), taxi services to and from the CBD account for almost 50% of all taxi journeys and services to and from the airport account for around 25% of all journeys. A large share of these trips are likely to be undertaken by business commuters.

For many businesses, efficient means to commute within the CBD and across the city are an important driver of productivity. By minimising travel time for workers, businesses can increases the amount of time that can be spent on more productive tasks. Without ubiquitous taxi services throughout the CBD, businesses would be forced to use alternative public transport options or hire car services. These less efficient options would reduce productivity with significant knock-on effects for the NSW economy.

Taxi use by hospitals

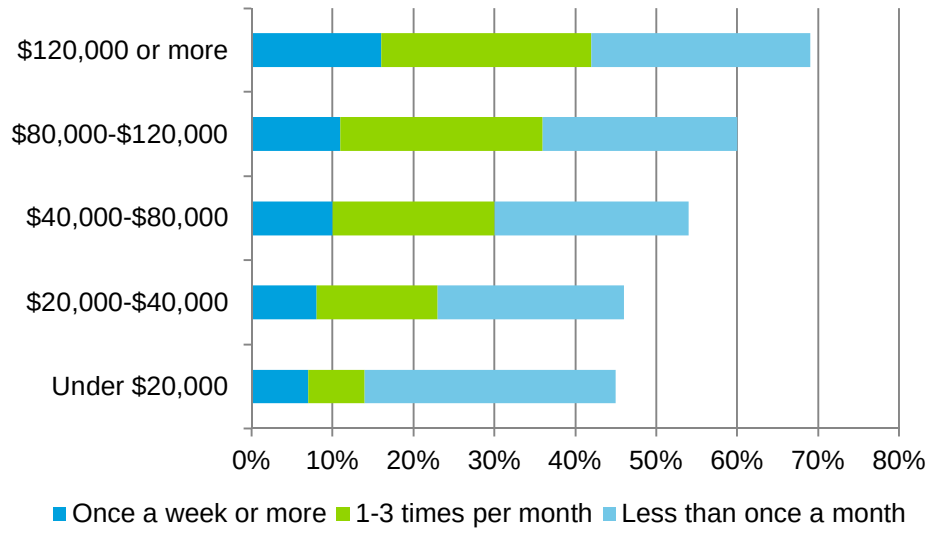
Taxis provide an efficient means for hospitals to transport patients in non-medical emergencies. Ambulances are very expensive, and taxi services provide a complement to ambulance services in non-emergency situations. This enables ambulances to be available to respond quickly to more serious medical emergencies.

Hospitals also utilise taxis to deliver blood and other specimens, particularly in life threatening situations or out of hours when courier services do not operate. Taxis are often the most efficient option for urgent and unexpected blood and specimen deliveries, which provides patients with immediate care throughout the night. Taxi services valued at a minimum of $600,000 were delivered to NSW hospitals in 2011.

Recreational users

Aside from business use, taxis are also an important form of transport for a large section of the community. While people with higher incomes are more likely to use taxis, a survey conducted on behalf of IPART suggests that just under half of people on lower incomes in Sydney had used a taxi in the past six months (Chart 2.3).

Chart 2.3: Taxi use in the past six months by income



Source: Taverner Research 2012

For tourists who are often unfamiliar with a region's layout and public transport system, taxis provide an easy way to commute and are a useful source of information. People who do not own a car are also frequent users of taxis. This includes people who cannot afford a car and live in areas where public transport is less convenient and people who live in the inner city where parking is limited.

Taxis play an important role in supporting Sydney's late night economy. The late night economy, which includes a range of activities such as cultural activities, dining, socialising, and shopping, adds to the liveability and vibrancy of Sydney and employs a significant share

of workers within the city. Taxi services are among the most important mode of transport supporting the late night economy, and play a critical role in reducing the incidence of drink-driving and dispersing late night crowds, which can reduce noise, anti-social behaviour and in certain circumstances reduce the risk of violence.

Finally, but just as importantly, taxis provide a backup form of transport in unexpected conditions which enables the community and economy to continue to function. These range from individual circumstances, such as car breakdowns or accidents, through to bad weather and disruptions to public transport services. While these situations account for a much smaller proportion to taxi usage, they have the potential to cause significant disruption to individuals and to the community more broadly, and taxis play an important role in minimising these impacts.

Taxis and the night economy

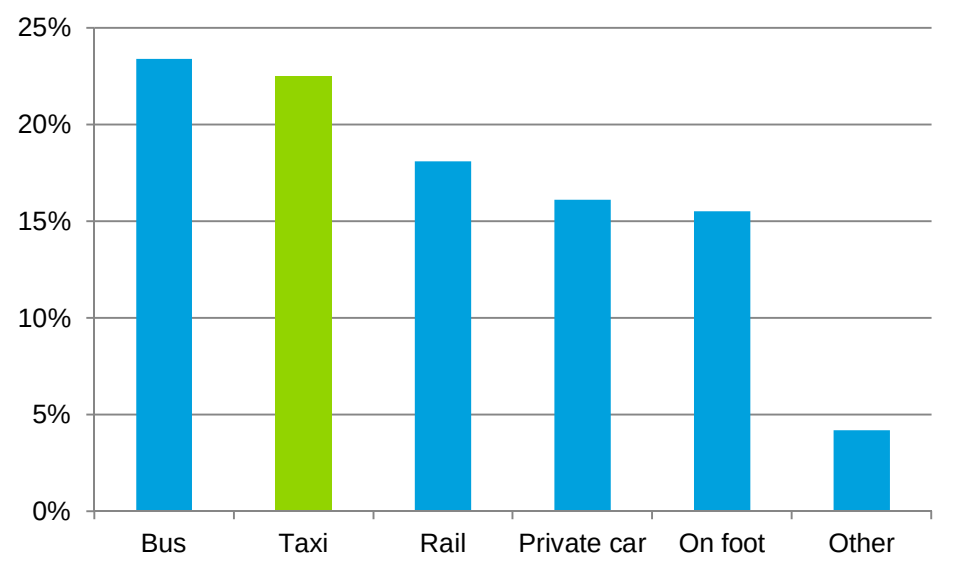
A vibrant night economy, including cultural activities, dining, socialising, and shopping experiences, is a feature of most world class cities. It benefits residents by improving access to events and services, as well as attracting visitors from around Australia and overseas.

The night economy provides a significant contribution to Sydney and the wider NSW economy. The turnover associated with core businesses like food, drink and entertainment venues was $2.7 billion in 2009, while non-core businesses, including transport, accommodation and shopping generated a further $12.4 billion of turnover. Together, these account for 28.4% of all jobs in the City of Sydney (City of Sydney 2011).

Transport availability is crucial to support the night economy, and taxis are one of the most frequently used modes of transport home (Chart 2.4). They are particularly important after around 1am, when trains shut down and bus services are reduced.

Taxi services perform an important safety function through the provision of safe and reliable services to people staying out late at night. This leads to lower drink driving, reduced anti-social behaviour and also safe transport for late night workers.

Chart 2.4: Transport mode home from entertainment precincts after hours



Source: City of Sydney, 2011

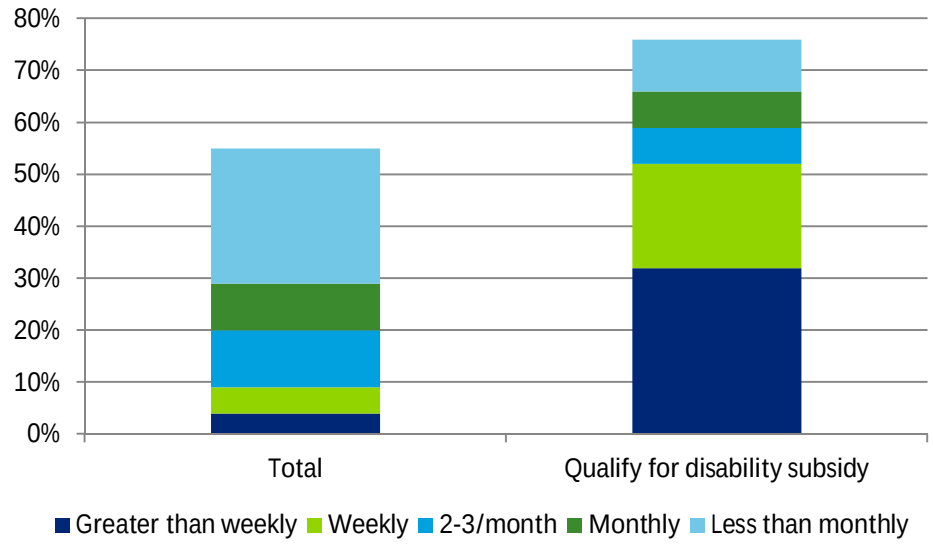
In addition to increasing the access to the night economy, adequate transport is also important for dispersing late night crowds which reduces incidence of violence and the frequency of disturbances for residents.

People with special transport needs

Taxis are an invaluable form of transport for people with special transport needs, including people with disabilities and the elderly. For many people with special transport needs, taxis allow them to participate and contribute to society, including attending work and education, medical appointments and social outings.

The NSW government provides assistance for people who cannot access other forms of public transport through the Taxi Transport Subsidy Scheme (TTSS). The scheme, which began in 1981, allows approved participants to travel by taxi at half fare up to a maximum subsidy of $30 per trip. Many people rely on this scheme to participate in the community (Chart 2.5).

Chart 2.5: Taxi use by people with a disability



Source: Taverner Research 2012

However, the NSW scheme is less generous than other states: the Victorian government provides a 50% subsidy for a maximum fare of $120, while the ACT, SA and WA governments provide a subsidy of 75% of the total fare and Tasmania provides a 60% subsidy.

Taxis are also used to transport war veterans and children with disabilities to school:

- The Commonwealth Government provides taxi services to medical services for war veterans, widows and eligible family members through the Department of Veterans Affairs as part of the Repatriation Transport Scheme (RTS), worth around $151 million per year. The Scheme enables war veterans and widows to travel free of charge.
- The NSW government also uses taxis to transport children with disabilities to schools through the Assisted School Travel Program (ASTP). This service, worth around $70 million in 2010, provides children with disabilities with a safe, familiar and regular routine throughout the school week. The program provides around 2,300 individual transport services daily through our contracted service providers, free of charge to over 10,500 students across NSW.

2.3 Upstream sectors

A wide range of other upstream industries provide inputs to the NSW taxi industry and help to keep taxis on the road. The following subheadings provide some examples.

2.3.1 Fuel, wash, repairs and maintenance

Downtime is costly for taxi drivers and operators. The need to have cars repaired quickly and back on the road has resulted in specialist repairers that can ensure a minimal number of shifts are lost while major repairs are being carried out, and minor repairs are conducted within hours. One stakeholder likened these service providers to a Formula 1 pit crew –

where tyre changes or brake pads are removed and replaced rapidly, allowing the taxi to get back on the road.

The fitting out of a new taxi to meet regulatory standards, including the installation of taxi meters, duress alarms, radio equipment, and other equipment (including security cameras, EFTPOS machines, roof signs and livery) is typically undertaken within a day, so that only one day shift of income is lost for that taxi license during a change of vehicle.

Of the 14 shifts per week, the typical taxi needs to be on the road for at least 12 of those to break even, highlighting the need for this supporting industry that minimises downtime.

2.3.2 Authorised Taxi Inspection Stations (ATIS)

An Authorised Taxi Inspection Station (ATIS) carries out the 4-monthly taxi inspection for metro area taxis, 6-monthly in rural areas, and annually in more remote areas of NSW.

The inspection covers mechanical roadworthiness of the vehicle, a taxi meter test course, as well as interior passenger comfort and safety. As a result, a separate authorisation from RMS is required for a mechanic to be an ATIS, as it covers a wider range of tasks than a private vehicle inspection.

Some Authorised Taxi Networks also operate an ATIS as an additional service offering. However, most ATIS are third party service providers (such as a mechanic business that holds an authorisation as an ATIS).

There are currently 22 ATIS in the Sydney metro area, 3 in Newcastle/Central Coast and 77 in rural areas of NSW.

2.3.3 Training providers

There are currently four registered training providers (RTOs) that provide training services to drivers and operators at six locations in NSW. The training courses include:

- a provisional one-year (bronze) driver authorisation;
- within the first year of driving, the three-year (silver) driver authorisation;
- Wheelchair Accessible Taxi (WAT) training; and
- taxi operator accreditation.

Authorised taxi networks also conduct internal training on the use of their radio equipment, customer service for specific accounts and safety procedures before issuing drivers with a code to log into their network.

The above examples represent a number of the wide range of down-stream organisations that benefit from the NSW Taxi industry. There numerous other industries that benefit from the industry including the insurance industry, petrol and LPG providers, automotive parts suppliers, advertising agencies, specialist vehicle modifiers (WATs) and many more.

3 The economic contribution of the NSW taxi industry

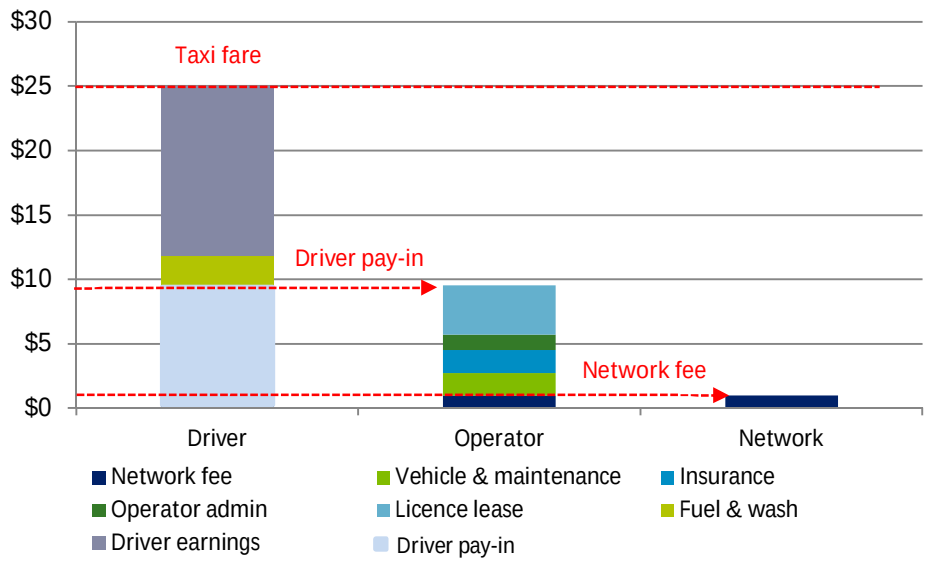
The previous chapter has described the various stakeholders that are involved in the industry to ensure that safe and convenient taxi services are available to businesses and the broader community that rely on these services.

This chapter discusses the economic contribution of the taxi industry to the NSW economy, and maps the distribution of revenues to the various participants within the industry and to the flows through to associated sectors that supply goods and services to the industry.

3.1 The distribution of payments

Figure 3.1 summarises the main payment flows in the taxi industry and the distribution among participants (excluding GST, tolls and non-reported cash tips and cash fares).

Figure 3.1: Where does a typical $25 taxi fare go? *



Source: Deloitte Access Economics *Excludes GST, card fees and tolls, and cash tips to driver

The chapter sets out the revenue flows and costs incurred by industry participants, before setting out the taxi industry's direct and indirect economic contribution to NSW. In a national accounting framework, the economic contribution is made up of the wages or earnings accruing to labour and the gross operating surplus (GOS). GOS is defined as earnings before interest tax, depreciation and amortisation, or EBITDA.

Section 3.4 outlines the economic contribution when we factor in non-observed cash payments. Similar adjustments are made by the ABS when estimating the National Accounts.

Taxi revenue

There is a great deal of uncertainty around the revenue the average taxi earns, and considerable variation around that average. For example, an experienced driver with a loyal clientele could earn significantly above the average, while an inexperienced driver may take time to develop the techniques that ensure high utilisation and minimal dead running.

The NSW Taxi Council is currently conducting a research project to obtain more reliable data on taxi earning. Until those data are available, we examined various data sources to estimate the revenue that flows to the taxi sector through taxi fares.

In the 2013 draft report on the Review of Taxi fares in NSW, IPART relied on data collected by CIE through surveys, which estimated that annual revenue for a standard urban taxi is $152,000. Of this, drivers' earnings accounted for $64,000 and the remainder covered fuel, cleaning and driver pay-in. Each taxi was usually driven around 55-60 hours a week by two drivers, which suggests that each driver receives annual earnings of $32,000 or $11 per hour.

The 2011 ABS Census alternatively suggests that taxi drivers earn $19 per hour. Applying this rate and adding in expenses (eg fuel, pay-ins and wash) results in revenue per standard urban taxi of $188,000 (excluding non-reported cash fares and cash tips). This is based on average taxi utilisation (time on the road) for standard taxis estimated to be 62% of the year in metro areas and 58% in country areas, and for WATs, 55% and 49% for metro and country areas, respectively.

Finally, the ATO provides guidance around the expected income for a taxi driver, the ATO scenario outlines that an average taxi in Australia generates up to $185,000 (excluding non-reported cash fares and cash tips).

The estimated revenue using IPART data is considerably below that calculated using the Census, ATO and consultations with authorised taxi networks. In addition, as discussed in the previous chapter, there are two methods that drivers in the Sydney metropolitan area can select to pay operators: Method 1, where drivers and operators split the total takings evenly between them or Method 2, where a fixed pay-in is negotiated. The large majority of drivers in Sydney opt for Method 2, suggesting their income is higher than under Method 1. However if the IPART data is correct, drivers could potentially earn more under Method 1, which seems inconsistent with the anecdotal evidence. Given these inconsistencies, revenue based on the Census data, adjusted for an estimate of cash payments, was viewed to be more reliable, and is used for the remainder of the analysis.

Total revenue accruing to the NSW Taxi industry is divided into metro and non-metro groups. As at 1 January 2013, there were 5,647 taxis working the Sydney region. To construct consistent industry estimates we used licence data from Transport for NSW from around the time the ABS census data was collected (so the per-taxi revenue relates to the

number of taxis operating at the time), which was 5,568 in Sydney, and nearly 7,000 for NSW in total.

Table 3.1 outlines the revenue generated by the NSW taxi industry, by region and by type of taxi. The total revenue generated by the NSW taxi industry is nearly $1.3 billion, with the metro area taxis (including Newcastle and Wollongong) generating just over $1 billion. This does not include any revenue generated 'off-the-books'. Further discussion around the potential size of non-reported cash earnings is provided in Section 3.4.

Table 3.1: Total Reported Revenue NSW Taxi ($2012)

	Metro	Non-metro	Total
Standard taxi (No.)	5,347	801	6,148
Revenue per taxi ($)	188,110	178,154	
Standard taxi revenue ($M)	1,006	143	1,149
WAT taxi (No.)	523	240	763
Revenue per taxi ($)	163,593	158,627	
WAT revenue ($M)	86	38	124
Total NSW taxi industry revenue ($M)	1,091	181	1,272

Source: Deloitte Access Economics estimates, based on Transport for NSW taxi licence data and 2011 Census. Metro includes Newcastle and Wollongong.

Drivers

Of the $1.3 billion in revenue drivers retain just over $650 million in earnings based on the Census data, with the majority ($558 million), earned by metro drivers, as outlined in Table 3.2. Card payment fees are estimated based on a 10% service fee, with an approximate distribution of, depending on the terms and conditions card payment provider, 2.5% retained by the driver, 2.5% going to the networks and 5% going to the card payment provider.[2]

Table 3.2: Total NSW Driver Earnings ($M 2012)

Driver	Metro	Non-metro	Total
Fare revenue, excl GST, tolls and non-reported cash earnings	1,091.4	180.8	1,272.2
Incl. card payment surcharge	20.1	3.3	23.3
Driver Costs			
Fuel	87.0	14.8	101.7
Cleaning	19.0	3.5	22.5
Pay-ins to Operator	412.8	64.8	477.6
Card payment fees (to Network)	5.0	0.8	5.8
Card payment fees to service provider	10.0	1.6	11.7
Net return to driver	557.5	95.3	652.8

Source: Deloitte Access Economics estimates based on ATO, ABS, TfNSW and other data sources

[2] Estimates of card payment system revenues are based on information provided by networks.

Of course, not all drivers will earn the same, depending on their experience and customer base, hence there would be a distribution around the average driver earnings implied in the in the table above, with some doing better or worse.

In addition to driver earnings, revenue from taxi fares also covers fuel and cleaning costs, and pay-ins to operators[3]. Estimates of the cost of fuel and cleaning are drawn from the IPART data, which suggests fuel costs of $102 million and cleaning costs of $22.5 million per year. For a standard urban taxi this amounts to $14,615 per year or about $30 per shift in fuel and $3,233 per year or $6.50 per shift for cleaning.

The remaining $478 million is paid to operators in exchange for use of the taxi. There is no reliable data on the value of pay-ins, but anecdotal evidence suggests that it varies from around $120 for weekdays up to $220 for Friday and Saturday night.

Operators

Operators receive their revenue from bailing their cars to drivers, or in country areas as a share of revenue between the bailee driver and the operator, which is used to cover leasing a taxi license and leasing or purchasing the vehicle, insuring and maintaining the car, and paying network fees (Table 3.3). Consultations with networks suggest annual fees are around $7,500 per urban taxi.

Table 3.3: Operator GOS ($M 2012)

Operator	Metro	Non-metro	Total
Revenue	412.8	64.8	477.6
Costs			
Network fees	43.5	17.2	60.7
Maintenance costs	44.5	9.0	53.4
Licence lease costs	154.5	13.9	168.3
Incl. licence brokerage where relevant	5.8	0.5	6.3
Insurance	78.3	8.8	87.2
Incl. insurance commission where relevant	5.2	0.6	5.8
Vehicle lease payments	37.4	7.3	44.7
Gross Operating Surplus	54.7	8.6	63.3

Source: Deloitte Access Economics estimates

Networks

It is estimated that networks receive $79 million per year in revenue, mainly from network fees received from operators, and broking services for insurance and licences. These fees are used to support a call centre, staff to monitor and enforce industry regulations including safety and reliability, technicians to fit-out vehicles, lost property, driver uniform provisions as well as the brokering services if they are offered.

[3] As previously outlined above, taxi drivers outside of Sydney operate largely on a commission basis where different arrangements for the distribution of fare revenue and allocation of costs apply

As noted in Section 2, authorised taxi networks also perform a number of other important functions including ensuring compliance with regulatory standards, managing lost property for passengers, supplying uniforms for drivers and advice to drivers/operators regarding infringement and disputes. Several authorised taxi networks also provide additional services, such as training, leasing and brokering for taxi licences, financing, insurance broking, repairs and maintenance. Other key services include:

- marketing and advertising of taxi services, including for major and community based events;
- credit provision to account customers;
- tendering for taxi business;
- taxi docket cashing facilities, including dockets for the NSW Government's TTSS; and,
- taxi docket fraud investigation.

Networks operations are relatively labour intensive, with each network affiliated with a call centre as well as mechanical, technical and administrative staff. Annual labour costs are estimated to account for $44 million. Gross operating surplus in the sector is a relatively low $8 million a year, as outlined in Table 3.4.

Table 3.4: Network Gross Operating Surplus ($M 2012) [4]

Network	Metro	Non-metro	Total
Revenue	59.5	19.1	78.6
Network fees	43.5	17.2	60.7
Licence brokerage	5.8	0.5	6.3
Insurance commissions	5.2	0.6	5.8
Card payment fees	5.0	0.8	5.8
Costs	53.5	17.2	70.7
Labour	37.2	6.6	43.8
Other costs	16.3	10.6	27.0
Gross operating surplus	5.9	1.9	7.9

Source: Deloitte Access Economics estimates, based on a reconciliation of a range of sources, including ATO, ABS and consultations with networks.

Licence Owners

Licence owners have high retention of revenues, as they have relatively low costs. Of the $168 million received in revenue, $162.0 million (96%) is GOS. Costs include those fees paid to networks to manage the use of their taxi licence, see Table 3.5.

[4] The revenue and costs of taxi networks is based on the monthly and four-weekly network fee arrangements from a number networks. Insurance commission currently estimated based on data for the metro region, assuming the proportion of taxis that procure insurance through the network is 70%, and an assumed margin of 10% on insurance brokering.

Table 3.5: Licence Owner Returns ($M 2012)

Licence owner	Metro	Non-metro	Total
Revenue	154.5	13.9	168.3
Costs	5.8	0.5	6.3
Gross operating surplus	148.7	13.3	162.0

Source: Deloitte Access Economics estimates

In-car card payment systems

Card payment systems charge a service fee on the metered (GST and toll inclusive) fare. Gross revenues for card payment systems are estimated at $23 million. That revenue is distributed between drivers, networks and the card payment system operator, depending on agreements struck with the individual card payment systems. [5] This includes the margin for financial intermediaries that advance payments to the driver before receiving payment of the credit card bill by the passenger.

3.2 The economic contribution of the taxi industry

The discussion above provides an account of the revenue generated by the NSW taxi industry and the linkages between each of the constituent components. The discussion below outlines the economic contribution of the sector, this is provided as the employment and the value added generated by the sector. As outlined above the economic contribution or value added is made up of the income accruing to employees, and GOS.

The value added can be represented both directly and indirectly. The direct contribution of the value added is the income earned by those who work in the sector, such as drivers and operators. The indirect economic contribution is the income earned by those who supply inputs into the sector, this includes in the petroleum retail sector and the finance and insurance industries.

This chapter outlines both the direct and indirect economic contribution.

Direct value added

The NSW taxi industry generates over $935 million of direct value added. Metro taxis generate just over $800 million in value added, with non-metro accounting for about $125 million in direct value added.

Driver earnings account for around 70% of the value added generated within the industry. Licence owners also account for a relatively large share of the value added, at around 17%.

[5] To measure the operations of in-car card payment systems we used value added multipliers for the Transport Support Services and Storage industry in the ABS's Input Output table

Table 3.6: Direct Value Added ($M 2012)

Direct Value added	Metro	Non-metro	Total
Revenue	1,091.4	180.8	1,272.2
Driver earnings	557.5	95.3	652.8
Operator GOS	54.7	8.6	63.3
Network			
Wages	37.2	6.6	43.8
GOS	5.9	1.9	7.9
Licence owner	148.7	13.3	162.0
Card payment systems			
Wages	2.0	0.3	2.4
GOS	3.1	0.5	3.6
Total direct value added	809.1	126.6	935.7

Source: Deloitte Access Economics estimates

The direct valued added can be separated into the earnings accruing to labour that the industry creates, and the associated GOS, as outlined in Table 3.7. A high proportion of value added, or 75%, goes to driver/labour as earnings or wages, with the majority of that going to drivers[6].

Table 3.7: Breakdown of Direct Value added ($M 2012)

Direct Value added	Metro	Non-metro	Total
Total Revenue	1,091.4	180.8	1,272.2
Direct value added	809.1	126.6	935.7
GOS	212.3	24.4	236.7
Earnings/wages	596.8	102.2	699.0
GOS (share)	26%	19%	25%
Earnings/wages (share)	74%	81%	75%

Source: Deloitte Access Economics estimates

Intermediate inputs

As outlined above taxis generate an indirect contribution through the consumption of indirect goods and services from outside the industry. In total the industry generates an estimated $337 million in revenue in the supply sectors, as outlined in Table 3.8.

Two of the biggest intermediate goods are fuel and insurance together generating over $180 million in NSW.

[6] In NSW, taxi drivers operate under the NSW Taxi Industry Contract Determination Agreement, 1984 which establishes taxi drivers as bailees and taxi operators as Bailors. The NSW Taxi Council advised that this agreement sets out the relationship between the two parties and that this does not constitute an employment relationship. Each taxi driver is a business in his or her own right and must therefore establish an ABN. However there are also employees (such as in call centres) that receive wages.

Table 3.8: Intermediate inputs ($M 2012)

Intermediate inputs	Metro	Non-metro	Total
Driver			
Fuel	87.0	14.8	101.7
Cleaning	19.0	3.5	22.5
Operator			
Maintenance costs	44.5	9.0	53.4
Insurance	73.1	8.3	81.4
Lease payment	37.4	7.3	44.7
Network	16.3	10.6	27.0
Card payment systems	4.9	0.8	5.7
Total	282.3	54.2	336.5

Source: Deloitte Access Economics estimates

Indirect value added

Of the $337 million in intermediate inputs, indirect value added is estimated at $212.9 million to the NSW economy. In these supply sectors about $94 million in wages are paid and $120 paid to capital owners.

Table 3.9: Indirect Value Added ($M 2012)

Indirect Value added	Metro	Non-metro	Total
Intermediate inputs	282.3	54.2	336.5
Value added (NSW)	178.7	34.3	212.9
GOS	100.1	19.2	119.3
Wages	78.6	15.1	93.7
GOS (share)	56%	56%	56%
Wages (share)	44%	44%	44%

Source: Deloitte Access Economics estimates

Generally speaking the indirect share of the value added for the taxi industry is relatively small in comparison to other sectors of the economy. This is because the industry is labour intensive (relative to other sectors) with a high share of the revenue generated by the sector being retained by the driver as earnings (as outlined in Table 3.6), and a smaller proportion of revenue being spent on purchases from upstream supplying industries.

Total value added

Table 3.10 outlines the sector contributes about $1.15 billion in total value added. Of this total value added, $793 million (69%) is attributed to wages/earnings accruing to labour and $356 million as returns to capital.

With total revenues of nearly $1.3 billion per annum (excluding GST), the industry also collects approximately $130 million in gross GST revenue per annum. However, the net amount of GST remitted would depend on input tax credits from operating expenses. Passengers or parcels using taxis for business purposes would generally also be able to claim the GST relating to those fares as an input tax credit.

Table 3.10: Total Value Added ($M 2012)

Total Value Added	Metro	Non-metro	Total
Total Revenue	1,091.4	180.8	1,272.2
Value added, NSW (Total)	987.7	160.9	1,148.6
GOS	312.4	43.6	356.0
Wages	675.3	117.3	792.6
GOS (share)	32%	27%	31%
Wages (share)	68%	73%	69%

Source: Deloitte Access Economics estimates

3.3 Employment

The NSW taxi industry directly and indirectly generates over 18,500 full-time equivalent jobs (of which 17,500 FTE are direct jobs within the sector). While there are many different players in the taxi industry, taxi drivers, who are self-employed, account just over 16,900 FTEs or about 90% of direct employment. The majority of the remainder relates to direct and indirect employment provided by authorised networks.

Table 3.11: Full-Time Equivalent jobs from the Taxi Industry

FTE	Metro	Non-metro	Total
Direct	15,293	2,175	17,468
Drivers	14,829	2,093	16,922
Drivers (share of total)	92%	89%	91%
Other	464	82	546
Indirect	892	171	1,064
Total	16,186	2,347	18,532

Source: Deloitte Access Economics estimates

3.4 Non-reported cash payment scenario

The OECD[7] defines the non-observed economy (ie the economic activity related to non-reported cash payments) as:

> As those activities that are productive and legal but are deliberately concealed from the public authorities to avoid payments of taxes or complying with regulations.

There is anecdotal evidence that there are potentially significant non-reported cash earnings in the taxi industry. However, by its very nature, measuring non-reported cash payments is problematic as it escapes the usual reporting mechanisms, like business activity statements and drivers' income tax returns. In addition, given the nature of the cash transactions, it is unlikely the activity will be reported by respondents when answering surveys, such as those conducted by the CIE for IPART.

[7] The OECD deals with all aspects of the non-observed economy including illegal production and the informal sector that is not relevant to the taxi sector.

The ABS does outline the incidence of the non-observed economy in Australia. The November 2012 publication Australian System of National Accounts (cat. no. 5204.0) outlines the size of the ABS definition of the non-observed economy is about $20.7 billion in value added and about $700 million in the Transport, Postal and Warehousing industry.

The publication also outlines where the incidence of non-observed production is likely to occur in sectors with small business with high levels of cash transactions. Conversely the non-observed production is less significant in regulated industries and transactions between large businesses.

Given these conditions it is likely non-observed taxi activity is high relative to other parts of the transportation sector. Without specific information on the taxi sector we have modelled a 5% addition to the activity in the sector as a reasonable scenario of the effects of non-observed production.

Output and value added

When non-observed production is factored in, a standard metro taxi has modelled revenue of just over $197,500 up from $188,000. Total industry revenue is modelled to increase from $1.27 billion to $1.34 billion when non-observed production is included, see Table 3.12.

Table 3.12: Total Revenue NSW Taxi ($2012)

	Metro	Non-metro	Total
Standard Taxi (No.)	5,347	801	
Revenue per taxi ($)	188,110	178,154	
Standard Taxi revenue ($M)	1,006	143	1,149
WAT Taxi (No.)	523	240	
Revenue per taxi ($)	163,593	158,627	
WAT revenue ($M)	86	38	124
Revenue ($M)	1,091	181	1,272
Including non-observed production			
Revenue per taxi ($)	197,515.8	187,061.3	
Standard Taxi revenue ($M)	1,056.1	149.8	1,206.0
5% Scenario	171,772.3	166,558.0	
Standard Taxi revenue ($M)	89.8	40.0	129.8
Revenue ($M)	1,146.0	189.8	1,335.8

Source: Deloitte Access Economics estimates

Value added is also modelled to increase from $1.15 billion to just over $1.2 billion when cash payments are factored in, see Table 3.13. As expected, the gains from non-reported cash payments are retained by the driver, with driver earnings increasing from $653 million to $716 million. The direct economic contribution is modelled to increase from $936 million to just under $1.0 billion, while the indirect contribution by others remains unchanged.

Table 3.13: Direct Value Added ($M 2012)

	Central case	Incl. non-observed production
Revenue	1,272.2	1,335.8
Driver earnings	652.8	716.4
Operator GOS	63.3	63.3
Network	-	-
Wages	43.8	43.8
GOS	7.9	7.9
Licence owner	162.0	162.0
Card payment systems	-	-
Wages	2.4	2.4
GOS	3.6	3.6
Direct value added	935.7	999.3
Indirect value added	212.9	212.9
Total value added	1,148.6	1,212.2

Source: Deloitte Access Economics estimates

When non-observed production is included, driver earnings are modelled to increase by about 9% to 10% depending on the region and type of taxi. Standard metro taxi driver earnings are modelled to increase from $95,900 to $105,300, see Table 3.14.

Table 3.14: Driver earnings, Central case, non-observed production ($2012)

	Metro	Non-metro
Central case		
Standard	95,902	94,907
WAT	85,558	80,277
Incl. non-observed production		
Standard	105,307	103,815
WAT	93,738	88,208

Source: Deloitte Access Economics estimates

4 The social contribution of the NSW taxi industry

As discussed in the preceding chapters, taxis provide an important service to a diverse cross section of community. These include users that account for a large proportion of taxi fares – such as businesses, tourists, people with limited mobility, vision impairment and people who are out late at night – as well as those that rely on taxis less frequently as a backup form of transport – including people when it rains, with vehicles being serviced, where there are public transport disruptions, or hospitals for urgent transfers.

4.1 Definition of consumer surplus

The amount paid for a taxi service (ie the fare paid including GST, tolls and tips), by definition, represents a lower bound for the price that users of the service are prepared to pay, otherwise they wouldn't have used the service. Often, however, the benefits to the users, as well as the community and the economy more broadly, extend well beyond the value of the monetary transaction.

For example, less mobile groups in the community, such as elderly and disabled people, are often unable to work or participate in the community without access to taxi services and the value of taxis for these individuals is likely to be substantially greater than the cost of a taxi fare. Likewise, taxis provide important transport services for the night economy when access to other forms of public transport is restricted or unavailable and this benefits individuals as well as businesses and residents who live near entertainment precincts.

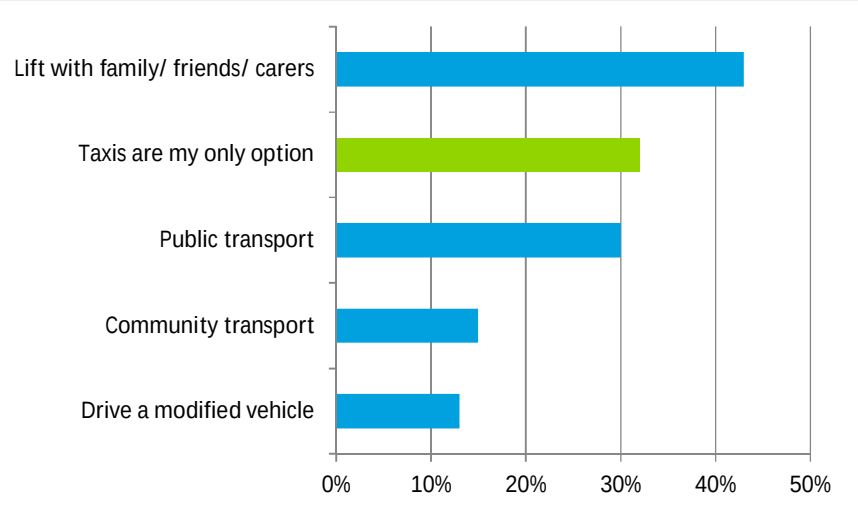
The monetary transactions associated with the taxi industry formed the basis for estimating the contribution of the taxi industry to measured economic activity in Chapter 3. In this chapter, we explore the potential magnitude of the broader benefits over and above what users pay to catch a taxi. This, on its own, is not to say that taxi fares should necessarily change – there are a number of other factors involved in determining optimal taxi fares (based on the operating costs and a reasonable rate of return for the participants in the industry), and any increase would reduce the number of users and reduce the overall benefit provided by the industry – but rather that much of the benefit provided by the taxi industry to the community is not captured in traditional GDP measures.

Although measures of consumer surplus are inherently much more difficult to quantify, they are likely to represent a substantial additional benefit to those that use taxi services and the community more broadly.

Taxi use by people with special needs

Taxis provide a critical service for people with special needs who have difficulty accessing other forms of public and private transport. By providing an easily accessible alternative to public transport with door-to-door service, they often provide people with special needs the ability to commute to work, run errands, and participate in other recreational and social activities that would otherwise be very difficult. Indeed, in a recent survey of 117 TTSS recipients, around a third of respondents stated that taxis were their only transport option (Chart 4.1).

Chart 4.1: Transport options for people with disabilities*



* Respondents were able to select more than one response so the total responses exceed 100%.
Source: Northern Rivers Social Development Council

People with vision impairment, for example, are unable to drive and often unable to commute on foot. Other forms of public transport may not be feasible: it can be difficult to transit between platforms or multiple forms of transport for journeys that involve several segments and it may not be possible to identify the number or destination of an approaching bus or train.

Taxis provide an easily accessible alternative for people with vision impairment. Like all forms of transport, guide dogs are allowed in taxis. In addition, the outside of the passenger door of every taxi in NSW has the registration details in raised letters and numbers to allow visually impaired people to identify the taxi, and Cabcharge is currently developing a 'talking' taxi meter that reads out fare information.

Likewise, WAT taxis are often the only form of transport for people who are restricted to a wheelchair. WAT taxis provide these people with their independence, allowing them to access education and employment, as well as attend to medical needs and participate in recreational and social pursuits. There are a relatively small number of WAT taxi drivers, and users often maintain a routine with a regular driver which allows them to build trust and rapport over time.

4.2 Measuring consumer surplus

Consumer surplus is measured as the difference between what individuals would be willing to pay for a taxi (or any other good or service), and what they actually paid. If consumers would be willing to pay more than the taxi fare, then they are getting more benefit from the service than they spent to buy it.

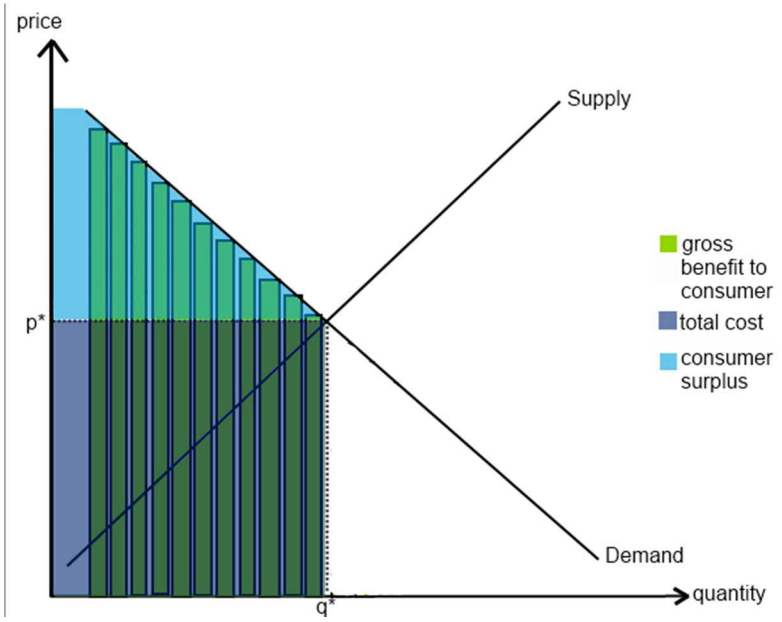
Different segments of the community will have different willingness to pay, depending on the next best available option. Taxi services are likely to have a relatively high consumer surplus, because in many instances, there are no close substitutes. Many people with mobility restrictions or vision impairment, for example, find it is much more difficult to access other transport alternatives. Likewise, someone hailing a taxi in the rain, or with luggage, may have a higher willingness to pay for a taxi than they would during the day when other transport options are available. For business people, the benefits of the ubiquitous door-to-door taxi services are likely to far outweigh the cost.

Figure 4.1 depicts an estimate of the consumer surplus for taxi users on a typical weekday. The demand curve is a stylised representation of the demand for taxi services at various price points. If the taxi fare was higher, a smaller number of people would gain benefits from taxi services over and above the price, and demand for taxis would be lower. However there would still be a small number of people – perhaps those with vehicle being serviced or with restricted mobility – that would still gain benefits over and above the cost. Conversely, if the taxi fare was lower, a larger number of people would gain benefits from taxi services over and above the price and demand would be higher.

Some people will be on the borderline where they are indifferent between catching a taxi at the going rate and using alternative transport (or not going out at all). These people are located at or near the point where the demand intersects the price of using a taxi and they gain only a small or zero amount of surplus from their taxi ride. These are also the cohort of people whose decisions to use a taxi are likely to be affected by incremental changes in the pricing of taxis.

The consumer surplus is the light blue area (triangular if the supply and demand curves are linear) above the set taxi fare and below the demand curve, which represents the maximum willingness to pay for taxi services.

Figure 4.1: Market for taxi services*



* In the taxi industry, supply and demand do not necessarily intersect at the monetary price set by IPART. Waiting times adjust to clear the market.

4.3 Consumer surplus generated by the taxi industry

This section provides an estimate of the value of the consumer surplus provided by the taxi industry in NSW.

The calculations presented represent a lower bound for the value of taxi services. This is because they do not fully capture the value placed on taxis by niche groups, or at times when the next best alternative is much less desirable. Likewise, it does not account for the broader social value enabled by taxi services through, for example, enabling people with restricted mobility to work and pay taxes or reducing the incidence of antisocial behaviour in late night entertainment precincts. Nonetheless, it does demonstrate that taxis make an important contribution to society, over and above the monetary fare paid.

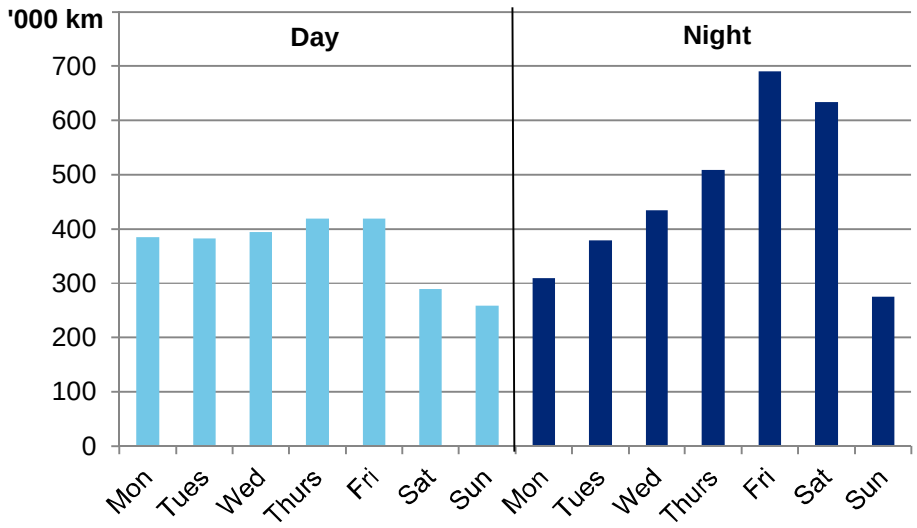
There are several steps involved in the calculation:

- First, the demand for taxi services under the current fare structure for different days of the week and times of the day is determined.
- Second, changes in demand for a given change in price is estimated to trace out demand curves for different days of the week and times of the day.
- Finally, the consumer surplus is calculated as the area under the demand curve, over and above the price paid by consumers.

Estimated current demand for taxis at various times of the day and days of the week is available through IPART. Chart 4.2 shows how the total kilometres travelled by taxis across

NSW differ depending on the time of day and day of the week. Demand for taxis on weekdays is fairly steady, before dropping off during the day on weekends. In contrast, demand for taxis at night increases steadily through the week and peaks on Friday and Saturday night when people tend to participate in the night economy and alternative public transport options are limited.

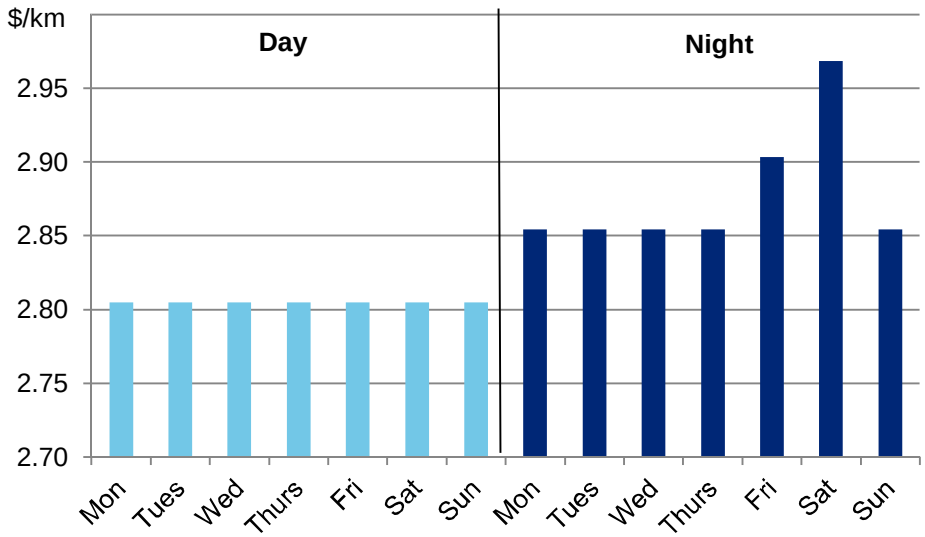
Chart 4.2: Demand for taxis throughout the week



Source: CIE; Deloitte Access Economics estimates

Taxi fares also vary depending on the day of the week (Chart 4.3), with fares increasing in the evening. This reflects both that demand is stronger at night, and drivers generally require higher earnings to compensate them for working in the evenings.

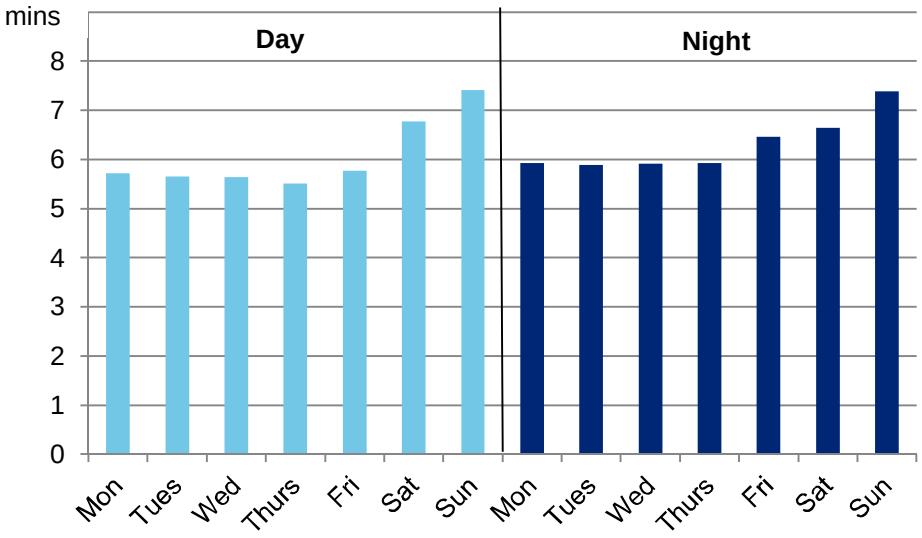
Chart 4.3: Taxi fares throughout the week



Source: CIE; Deloitte Access Economics estimates

Finally, in an economic sense, the average waiting time for taxis is part of the cost of taxis. This is because time is valuable to consumers, and all other things equal, if waiting times for taxis are higher, demand for taxis will be lower. Chart 4.4 shows how waiting times vary throughout the week.

Chart 4.4: Taxi waiting times throughout the week



Source: Transport for NSW; CIE; Deloitte Access Economics estimates

To estimate the cost of waiting times per kilometre, we apply the methodology used by the CIE in their report for IPART. This methodology values a user's waiting time at $30 per hour, which represents what a user would be willing to pay to eliminate any waiting time. The value of waiting time is likely to vary across users, with business users likely to have a significantly higher value of time reflecting their productivity rate, while tourists and recreational users likely to have a lower value of time. Applying the average distance of a taxi ride of 7km, the extra cost associated with waiting times varies between around 55 cents on weekdays up to 70 cents on Sundays.

Next, to estimate the degree to which demand responds to a change price – either through a variation in fares or waiting times – we again draw on the CIE methodology as a starting point. The CIE estimate that a 1% increase (or decrease) in prices is associated with a 0.8% fall (or rise) in demand. In other words, we apply an elasticity of demand of -0.8.

This value is based on a literature review of other studies of the taxi market, which finds that international studies reported a demand elasticity of -0.2 to -1.0 while the Victorian Taxi Industry Inquiry's draft and final reports apply a price elasticity of demand for taxi services of around -1 for Melbourne.

These data can be used to estimate a demand curve for each day of the week and time of day, which can be used to estimate the consumer surplus generated by taxis throughout the week.

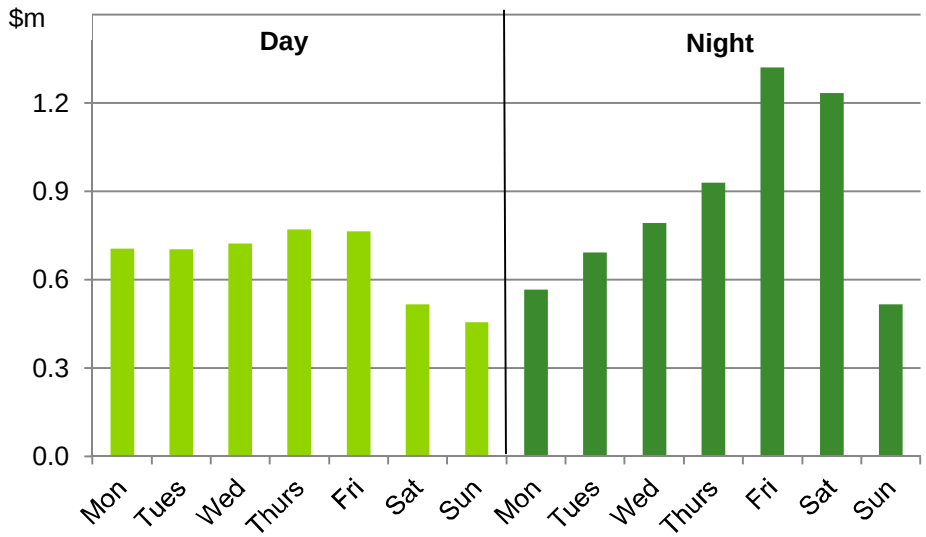
Table 4.1: Consumer surplus generated by the taxi industry

	$/km	$m/year
Weekday		
Monday	1.76	36.7
Tuesday	1.77	36.5
Wednesday	1.77	37.6
Thursday	1.77	40.1
Friday	1.75	39.8
Saturday	1.71	26.9
Sunday	1.67	23.8
Weeknight		
Monday	1.75	29.4
Tuesday	1.75	36.0
Wednesday	1.75	41.2
Thursday	1.75	48.3
Friday	1.83	68.6
Saturday	1.87	64.2
Sunday	1.79	26.8
Total		555.7

Source: CIE; Deloitte Access Economics estimates

Table 4.1 and Chart 4.5 show that consumer surplus, above and beyond the cost of a taxi fare, generated by the taxi industry is estimated to be around $0.7 million per day on weekdays, rising to $1.3 million on Friday nights. Over the year, the industry is estimated to generate $556 million in additional consumer surplus benefits in NSW.

Chart 4.5: Consumer surplus generated by the taxi industry throughout the week



Source: Transport for NSW; CIE; Deloitte Access Economics estimates

Appendix A

The appendix outlines how the economic contribution may change when using the modelling assumptions as outlined in the Centre for International Economics study Reweighting of the Taxi Cost Index report.

Data provided in this report suggests a standard Sydney taxi generates $152,000 in revenue each year. The supporting analysis indicated that taxi driver earned $11 per hour. In light of more recent data from the 2011 Census the DAE estimates above are based on average earnings for metro drivers of about $18 per hour and just over $19 for non-metro, see Table A.1.

Table A.1: NSW Driver's Hourly Earnings, 2011 Census ($2012)

ABS – Wage Data	Metro	Non-Metro
Earnings per hour	$18.20	$19.05

Source: ABS Census, Deloitte Access Economics estimates

The NSW Taxi Council guidelines were used to divide the NSW Local Government Areas into metro and non-metro regions. Census data from 2011 was accessed to measure the total weekly hours and the total weekly earnings for those working in the 'Taxi and Other Road Transport' industry for both regions. This allowed average hourly earnings to be calculated for both regions. It is important to note that the ABS Census data only takes into account a person's primary job, so this data doesn't consider those who drive a taxi as a secondary income.

The increase in earnings has increased the modelled revenue per taxi to $188,110 for a metro taxi, see Table A.2. As outlined elsewhere in the report this is in-line with revenue per taxi from the ATO and information provided by a major network in Sydney.

Table A.2: Revenue, per taxi NSW, 2012 ($)

Region	Unadjusted Inputs	DAE	Difference (%)
Metro Standard	152,556	188,110	23.3
Metro WAT	136,102	163,593	20.2
Country Standard	143,056	178,154	24.5
Country WAT	121,926	158,627	30.1

Source: CIE, Deloitte Access Economics estimates

More detail on the Standard Urban taxi

Table A.3 outlines the impact to revenue and net return to drivers based on the two modelling scenarios. The CIE modelling provides fares revenue of $152,500 with the DAE modelling inputs accounts for $188,000 per standard metro taxi, a 24% increase.

Net returns to drivers are almost 60% higher under the DAE modelling inputs, with earnings increasing from $60,350 to $95,900.

Table A.3: Revenue and driver earnings, standard urban taxi NSW, 2012

Driver	Unadjusted Inputs ($)	DAE ($)
Fares Revenue (excluding GST and tolls)	152,556.0	188,110.2
Incl. card payment systems	3,450.0	3,450.0
Driver Costs		
Fuel	14,615.0	14,615.0
Cleaning	3,233.0	3,233.0
Net revenue (Pay ins to Operator)	71,772.0	71,773.0
Card payment commissions (to Network)	862.5	862.5
Card payment commissions	1,725.0	1,725.0
Net return to driver	60,348.5	95,901.7

Source: CIE, Deloitte Access Economics estimates

Total economic contribution

As outlined in Chapter 3 using DAE modelling inputs the total NSW Taxi industry revenue is almost $1.3 billion, 24% higher when compared to the unadjusted scenario.

The modelled increase in driver earnings has two consequences on the economic contribution story. Firstly the total contribution to the NSW economy of the sector increased from about $900 million to almost $1.15 million. Direct value added increases from just below $700 million to $935 million.

In addition, driver earnings as a share of the sector's direct value added increases from about 60% to 70%.

Table A.4: NSW Taxi Industry, In-direct economic contribution, 2012

Value added	Unadjusted Inputs (M$)	DAE (M$)
Revenue	1,030.7	1,272.2
Direct value added	694.3	935.7
GOS	236.7	236.7
Wages/earnings	457.6	699.0
Driver earnings	411.4	652.8
Indirect value added	212.9	212.9
GOS	119.3	119.3
Wages	93.7	93.7
Total	907.2	1,148.6
GOS	356.0	356.0
Wages	551.2	792.6

Source: Deloitte Access Economics estimates

Employment under both scenarios is the same and as outlined in the body of the report. This is the case because the increased envelope of activity is driven though higher driver earnings.

Appendix B: Economic contribution studies

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

Value added

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

The value added of each industry in the production chain can be totalled without the risk of double counting across industries.

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

Measuring the economic contribution

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

- Value added measures the value of output (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.

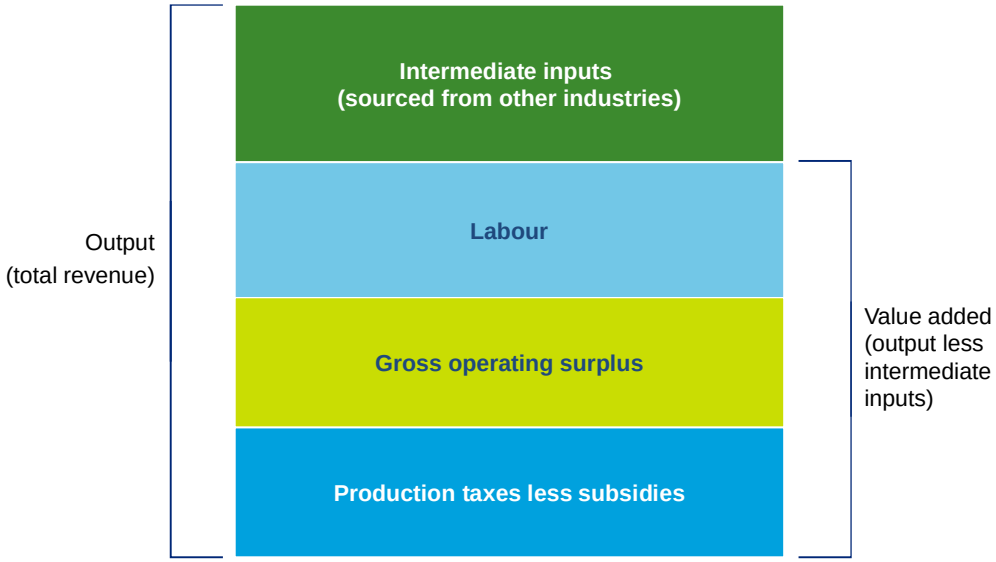
  Value added is the sum of:

  - Gross operating surplus (GOS). GOS represents the value of income generated by the entity's direct capital inputs, generally measured as the earnings before interest, tax, depreciation and amortisation (EBITDA).
  - Tax on production less subsidy provided for production. This generally includes company taxes and taxes on employment. Note: given the returns to capital before tax (EBITDA) are calculated, company tax is not included or this would double count that tax.
  - Labour income is a subcomponent of value added. It represents the value of output generated by the entity's direct labour inputs, as measured by the income to labour.
- Gross output measures the total value of the goods and services supplied by the entity. This is a broader measure than value added because it is an addition to the value added generated by the entity. It also includes the value of intermediate inputs used by the entity that flow from value added generated by other entities.

- Employment is a fundamentally different measure of activity to those above. It measures the number of workers that are employed or self-employed by the industry or entity, rather than the value of the workers' output. Employment generated is measured in full-time equivalent jobs.

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

Figure B.1: Economic activity accounting framework



Direct and indirect contributions

The direct economic contribution is a representation of the value added within the taxi sector. The indirect contribution is a measure of the value added from goods and services produced in other sectors as a result of taxi activities. Estimation of the indirect economic contribution is undertaken in an input-output (IO) framework using Australian Bureau of Statistics input-output tables which report the inputs and outputs of specific sectors of the economy (ABS 2012).

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

Limitations of economic contribution studies

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

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

This is not to say that the economic contribution, including employment, is not important. As stated by the Productivity Commission (1999) in the context of Australia's gambling industries:

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

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

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

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

Similarly, the IO framework does not account for further flow-on benefits as captured in a more dynamic modelling environment like a computable general equilibrium model.

Input-output analysis

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

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

The input-output matrix used for Australia is derived from the Australian Bureau of Statistics Input-Output Tables 2008-09. The industry classification used for input-output tables is based on ANZSIC, with 109 sectors in the modelling framework.

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Contact us

Deloitte Access Economics
ACN: 149 633 116

Level 1
9 Sydney Avenue
Barton ACT 2600
PO Box 6334
Kingston ACT 2604 Australia

Tel: +61 2 6175 2000
Fax: +61 2 6175 2001

www.deloitteaccesseconomics.com.au

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