



Australian Government

Department of Infrastructure, Transport, Cities and Regional Development

Bureau of Infrastructure, Transport and Regional Economics



National profile of Transport, postal and warehousing workers in 2016

At a glance

- The Transport, postal and warehousing (TPW) industry is a significant contributor to the national economy, accounting for 4.9 per cent (or \$85.0 billion) of value added in 2017–18 and employing 651 600 persons as of May 2019. This study provides a national profile of persons employed in TPW, using data from the Australian Bureau of Statistics' (ABS) *Census of Population and Housing*.
- Total transport activity contributed 7.4 per cent of Australian GDP in 2015-16, with 4.6 per cent due to TPW and a further 2.7 per cent due to transport activity in other industries. Total transport value added was \$125.3 billion in 2015-16, and there were 1.0 million persons in transport-related employment across the economy, representing 8.6 per cent of all employed persons.
- Forty two per cent of TPW employment was in Road transport (principally in Road freight transport), according to the 2016 census. Other key sub-industries are Postal and courier pick-up and delivery services (16 per cent), Transport support services (13 per cent) and Air and space transport (10 per cent).
- Between 2011 and 2018, the TPW industry added 65 700 employed persons, according to the ABS *Labour Force Survey*. Most of this growth (52 200 employed persons) was in Road transport.
- The TPW workforce is largely male, with 77 per cent of jobs held by males in 2016, compared to 52 per cent of all jobs. The male employment share has barely changed over the last decade.
- As of 2016, 25.4 per cent of TPW workers were aged 55 and over, which is considerably higher than the all-industry figure of 19.2 per cent. The TPW workforce has been ageing more rapidly than the overall workforce—from 2011 to 2016, the proportion aged 55 and over rose by 2.5 percentage points in TPW, compared to a 1.6 percentage point rise for total employment.
- Most people who work in the TPW industry are employed on a full-time basis (75 per cent). While a relatively high proportion reported working 49 or more hours per week, this proportion declined by 4.3 percentage points between 2011 and 2016 (from 26.8 to 22.5 per cent).
- Machinery operators and drivers contribute 44 per cent of TPW employment, compared to 6 per cent of total employment. The single most important occupation is Truck drivers, with 78 500 working in TPW in 2016, representing a decline of 6 400 from 2011.
- People employed in TPW are generally less educated than the average Australian worker—53 per cent hold a recognised post-school qualification (compared to 66 per cent of all employed persons), while 16 per cent hold bachelor degree or higher qualifications (compared to 31 per cent of all employed persons). However, educational attainment did improve from 2011 to 2016, with 43 700 additional TPW workers holding recognised post-school qualifications.
- Since 2011, average weekly earnings growth for TPW has outpaced the all-industry total (averaging 2.9 versus 2.5 per cent growth per annum). There is evidence of particularly high income growth in the Rail transport sub-industry and for Air transport professionals (e.g. pilots) between 2011 and 2016.

Introduction

The Transport, postal and warehousing (TPW) industry is a significant contributor to the national economy, accounting for 4.9 per cent (or \$85.0 billion) of value added in 2017–18 (ABS 2018a) and employing 651 600 persons as of May 2019 (ABS 2019a).

This Information Sheet provides a national profile of persons employed in the TPW industry, based on data from the Australian Bureau of Statistics' (ABS) *Census of Population and Housing* for 2016. It updates BITRE Information Sheet 54 *National profile of Transport, postal and warehousing workers*, which was based primarily on ABS 2011 census data (BITRE 2014). This update provides details of the sub-industries in which TPW workers are employed, their employment status, hours worked, gender, age, occupation, educational qualifications, income, work location and commuting behaviour. In addition to providing this national snapshot of the characteristics of TPW workers in 2016, the Information Sheet also describes some of the key changes that have occurred since 2011, such as the ageing and upskilling of the TPW workforce.

Data sources

The principal data source for this study is the ABS *Census of Population and Housing* for 2016 and 2011 (and in some instances, 2006). Census employment data provides a count of the total number of employed persons aged 15 and over, irrespective of whether they are working on a full-time or part-time basis.

The industry disaggregation of employment is based on the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006 (ABS 2006), and the analysis focuses on industry division I—Transport, postal and warehousing. The focus on employment in the TPW industry means that people whose job involves transport-related duties are excluded if they work for a business that is classified to a different industry. The potential implications of this issue are explored in the following section.

Place of usual residence data is used to ensure maximum coverage of people employed in the TPW industry, many of whom do not have a fixed place of work. While the Information Sheet focuses on place of usual residence data, the analysis of work location does draw on place of work data to a limited extent.

Counts of employed persons from the ABS census are consistently lower than counts from the ABS *Labour Force Survey*, which provides Australia's official measure of employment.¹ According to the 2016 census, there were 10.7 million employed persons in Australia, which is 10 per cent below the *Labour Force Survey* estimate of 11.9 million for August 2016 (ABS 2019a).² Moreover, the 2016 census identified about 499 000 TPW employed persons, which is 17 per cent below the *Labour Force Survey* estimate of 601 000 TPW employed persons for August 2016. Consequently, census data provides a conservative estimate of total TPW employment. It is nevertheless preferred to *Labour Force Survey* data as the key data source for this study as it is better able to support a wide range of detailed disaggregations of TPW employment.

While this national profile of TPW workers in 2016 is primarily based on census data, it will also use the latest ABS' *Australian National Accounts* and *Labour Force Survey* data to summarise the economic significance of the TPW industry, as well as drawing out some of the relevant insights from the ABS' *Experimental Transport Satellite Account 2010-11 to 2015-16* regarding the role of transport activity in non-transport industries. ABS *Average Weekly Earnings* data is also used to summarise recent changes in wages for TPW workers.

¹ ABS (2012a) outlines the methodology and scope differences between the two collections.

² As of May 2019, there were 12.9 million employed persons in Australia and 651 600 employed in the TPW industry (ABS 2019a).

Economic significance

Transport, postal and warehousing industry

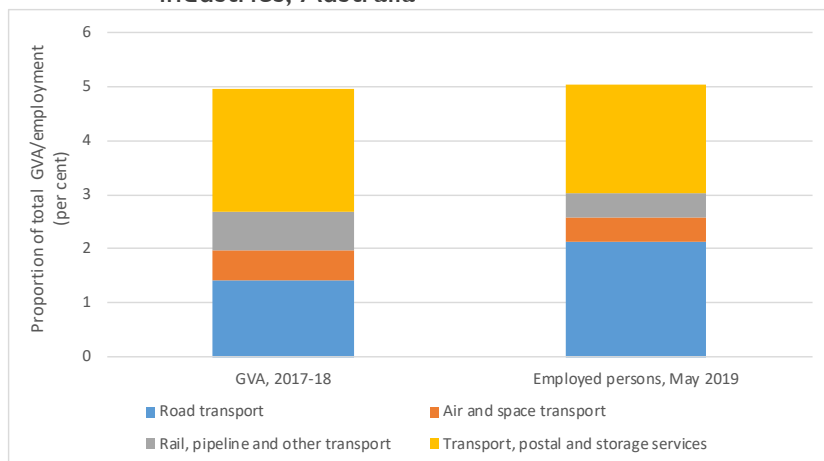
This Information Sheet provides a national profile of the employment of businesses that are coded by the ABS to the ANZSIC Transport, postal and warehousing (TPW) industry. Businesses are coded to the TPW industry when their primary activity is in transport and/or storage (ABS 2011).

The Gross Value Added (GVA) by industry data from the ABS' *Australian National Accounts* provides the best measure of the economic significance of the TPW industry, while the ABS *Labour Force Survey* (LFS) provides the best aggregate measure of employment in the TPW industry.³

- In 2017-18, the Gross Value Added of the TPW industry was \$85.0 billion, representing 4.9 per cent of total GVA (at current prices).
- The latest employment data relates to May 2019, when the TPW industry had 651 600 employed persons, representing 5.0 per cent of all Australian employment.

Figure 1 shows the contributions of the different TPW sub-industries to both GVA and employment. Clearly, the Road transport sub-industry makes a much larger contribution to employment than to GVA⁴, while the opposite is true for the remaining three sub-industries.

Figure 1 Economic and employment contribution of Transport, postal and warehousing sub-industries, Australia



Notes:

1. The four industry groupings used here are those used in ABS Cat. 5204.0.

2. GVA based on chain volume measures, valued at basic prices.

Sources: ABS Cat. 5204.0 *Australian System of National Accounts*, 2017-18 and ABS Cat. 6291.0.55.003 *Labour Force, Australia*, Detailed, Quarterly, May 2019.

Figure 2 shows how the economic contribution of the TPW industry varies across jurisdictions. In the three most populous states of NSW, Victoria and Queensland, the TPW industry contributes over 5 per cent of GVA. However, the share lies below 5 per cent in all of the remaining jurisdictions, and is particularly low for the ACT, where it represents only 2.2 per cent of the ACT's total industry GVA.

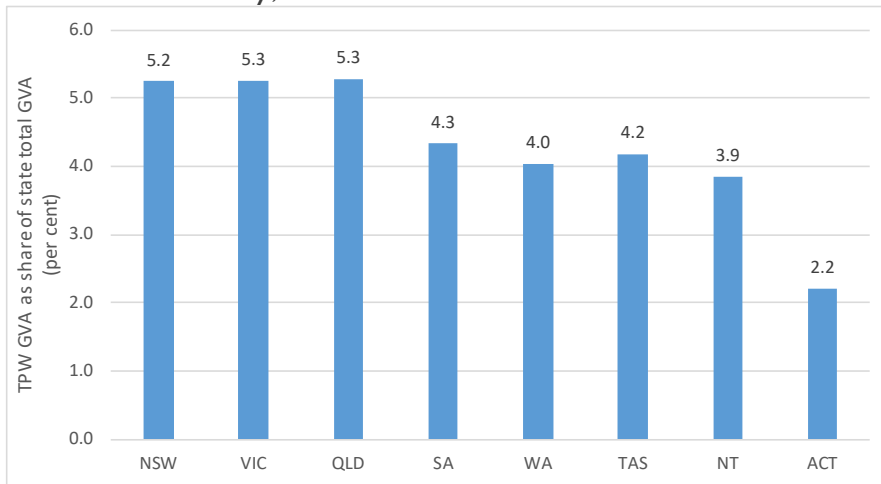
Figure 3 illustrates trends over the last few decades in the relative contribution of the TPW industry to total employment and to total industry GVA. Since 1990, TPW's share of total industry GVA has largely hovered between 5.0 and 5.5 per cent, but has shown a slight downward trend. TPW's share of employment is more volatile, but also appears to be trending downward. Thus, the economic contribution of the TPW industry has declined slightly over the last few decades.

³ However, the LFS is a sample survey that is not suitable for detailed disaggregation by worker characteristics and region.

Therefore the employment analysis in this Information Sheet is largely based on the ABS *Census of Population and Housing*.

⁴ Road transport accounts for 29 per cent of TPW GVA, compared to 42 per cent of TPW employment.

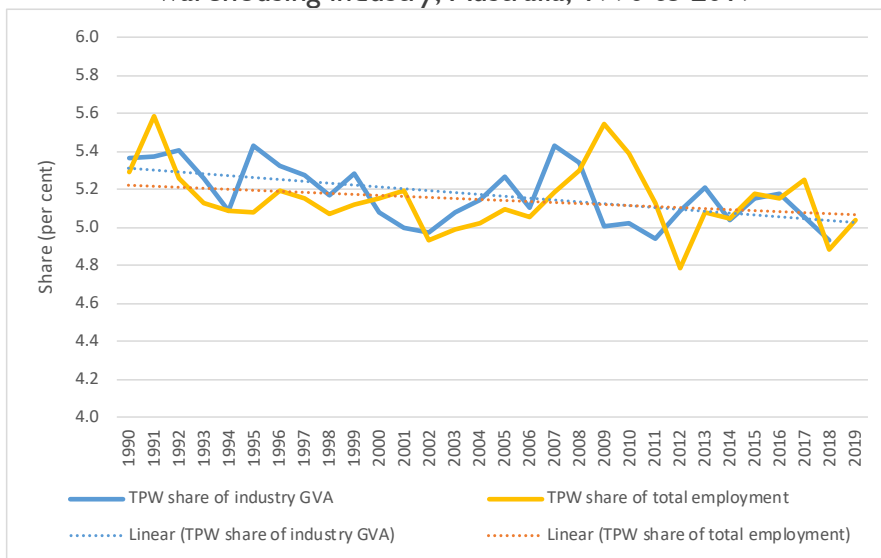
Figure 2 Economic contribution of Transport, postal and warehousing industry by state and territory, 2017-18



Note: GVA valued at current prices.

Sources: ABS Cat. 5220.0 *Australian National Accounts: State Accounts*, 2017-18.

Figure 3 Relative economic and employment contribution of Transport, postal and warehousing industry, Australia, 1990 to 2019



Note: GVA valued at current prices. GVA data relates to financial year ended June, while employment data relates to quarter ended May of relevant year.

Sources: ABS Cat. 5204.0 *Australian System of National Accounts*, 2017-18 and ABS Cat. 6291.0.55.003 *Labour Force, Australia*, Detailed, Quarterly, May 2019.

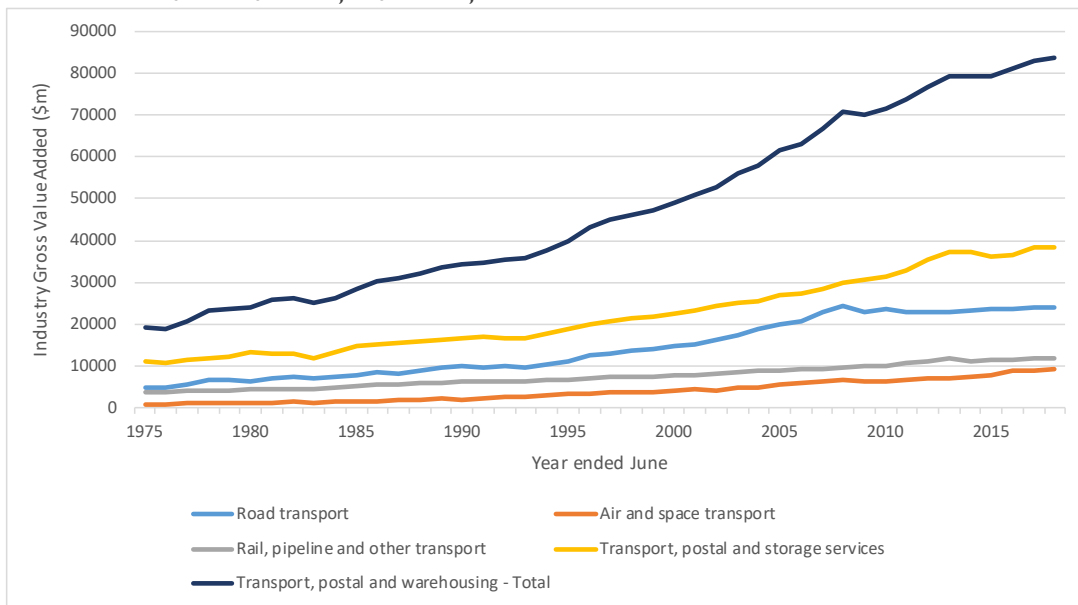
Figure 4 shows the long term national trends in the GVA of the TPW industry and its sub-industries.

- Between 1974-75 and 2017-18, the TPW industry recorded average annual GVA growth of 3.5 per cent per annum.
- The Air and space transport sub-industry grew very strongly, averaging 5.4 per cent per annum.

Over the last decade (2007-08 to 2017-18), the GVA of the TPW industry has risen by an average of 1.7 per cent per annum. The Air and space transport sub-industry has continued to grow relatively strongly, averaging 3.6 per cent growth in GVA per annum. Transport, postal and storage services have also grown reasonably strongly, averaging 2.5 per cent growth per annum. However, Figure 4 shows that the GVA of the Road transport sub-industry has been quite flat over the last decade.⁵

⁵ It recorded an average annual decline of 0.2 per cent per annum over the 10 year period.

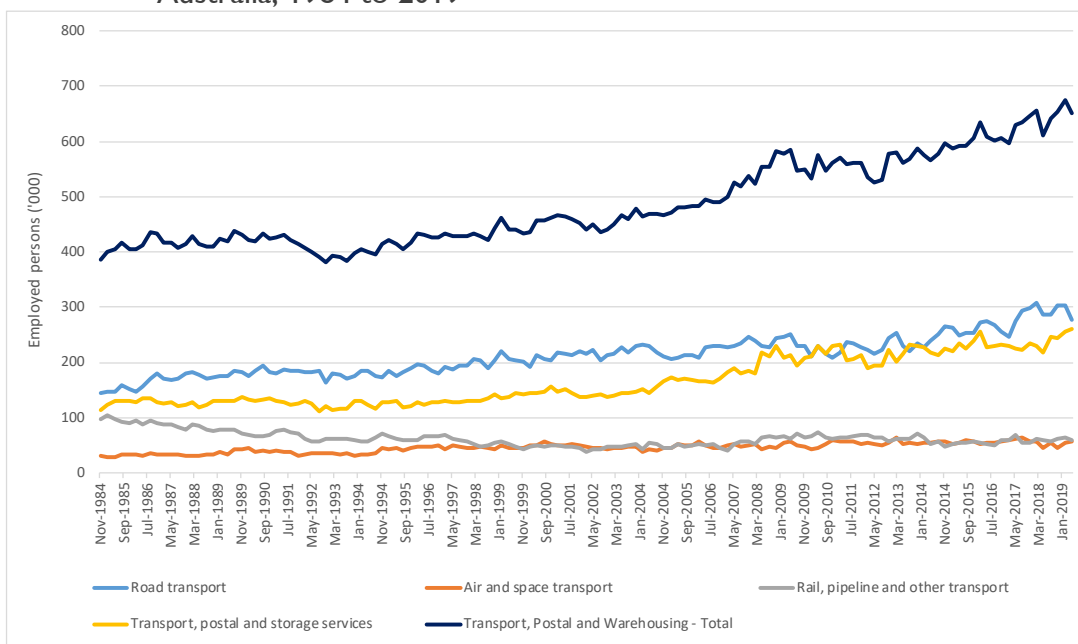
Figure 4 Industry Gross Value Added of Transport, postal and warehousing industry and its sub-industries, Australia, 1974-75 to 2017-18



Notes: The four industry groupings used here are those used in ABS Cat. 5204.0.
 Source: ABS Cat. 5204.0 *Australian System of National Accounts, 2017-18*.

Figure 5 shows the long term trends in employment for the TPW industry and its sub-industries. The chart shows much more volatility than Figure 4 as the underlying data is quarterly, and reflects seasonal variation as well as other sources of variation. Between May 1985 and May 2019, the TPW industry recorded average annual employment growth of 1.4 per cent per annum, compared to the all-industry average of 2.0 per cent. Employment growth was strongest for the Transport, postal and storage services sub-industry (averaging 2.1 per cent per annum), with the Warehousing and storage services component growing particularly strongly. Road transport had slightly slower growth but remained the largest sub-industry, accounting for 42 per cent of TPW employment as of May 2019. However, the Rail, pipeline and other transport sub-industry saw a significant loss of jobs, concentrated in the first half of the period, associated with the deregulation, corporatisation and privatisation of state-owned rail operations.

Figure 5 Employment in Transport, postal and warehousing industry and its sub-industries, Australia, 1984 to 2019



Notes: The four industry groupings used here are those used in ABS Cat. 5204.0. TPW not further defined was omitted.
 Source: ABS Cat. 6291.0.55.003 *Labour Force, Australia, Detailed, Quarterly, May 2019*.

Total transport activity

Significant transport activity occurs in other (non-TPW) industries, such as Mining, Manufacturing, Construction, Retail trade and Wholesale trade. For example, a retail business may use the retailer's own truck to deliver goods from the warehouse to the retail outlet, rather than hiring the transport service from a TPW business.

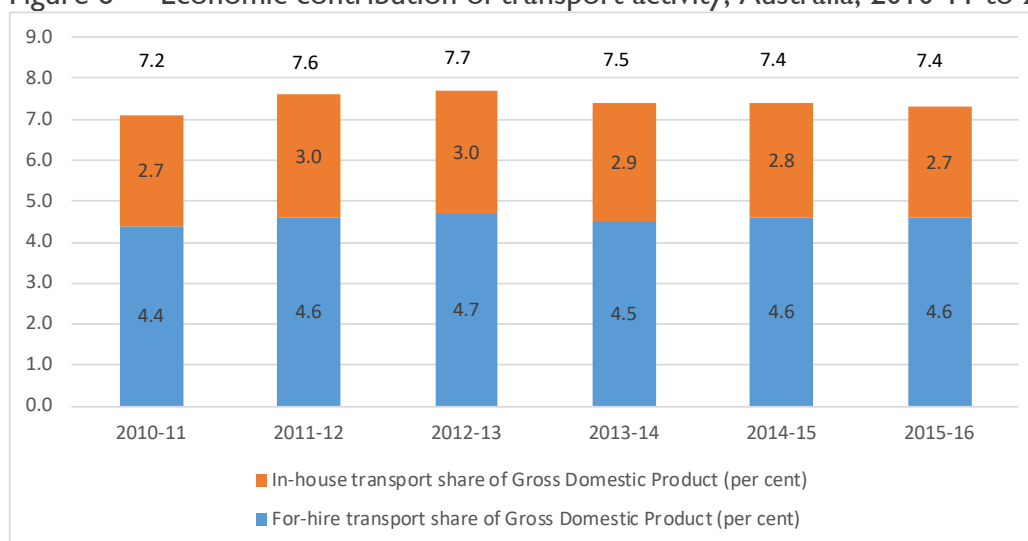
The ABS has prepared *An Experimental Transport Satellite Account* for 2010-11 to 2015-16 (ABS 2018b), which provides a more comprehensive picture of transport by bringing together the transport activity conducted on a for-hire basis by businesses classified to the TPW industry, with in-house transport activity of businesses in other industries. The satellite account identifies the full extent of transport activities, beyond that undertaken by the traditionally defined transport (or TPW) industry.

Figure 6 shows that total transport activity contributed 7.4 per cent of Australian GDP in 2015-16, with 4.6 per cent due to the TPW industry (which represents for-hire activity)⁶ and a further 2.7 per cent due to in-house transport activity in other industries. The contribution of transport activity to GDP has fluctuated over the period, standing at 7.2 per cent in 2010-11, before rising to 7.7 per cent, and then showing a slight decline between 2012-13 and 2015-16.

Generally, the TPW industry has accounted for about 60 per cent of transport activity in Australia. In 2015-16, total transport GVA was \$125.3 billion. The TPW industry contributed \$80.1 billion, with other significant contributions being made by Construction (\$8.4 billion), Public administration and safety (\$5.6 billion), Mining (\$4.7 billion), Agriculture, forestry and fishing (\$4.5 billion) and Manufacturing (\$3.9 billion).

The majority (61 per cent) of Road transport's contribution to Transport GVA arises from in-house services in non-TPW industries, such as Construction. About half of Water transport's contribution to Transport GVA arises from in-house services in non-TPW industries, such as Defence. However, the majority of the Transport GVA contribution of Rail transport (80 per cent) and Air transport (92 per cent) is due to the TPW industry.

Figure 6 Economic contribution of transport activity, Australia, 2010-11 to 2015-16



Notes:

1. The data label at the top of each column represents the sum of the in-house and for-hire transport shares of GDP.
2. The for-hire transport share in this chart differs from the TPW share presented in Figure 3, as net taxes are deducted off the TPW GVA figure, and it is then expressed as a share of GDP (rather than total industry GVA).

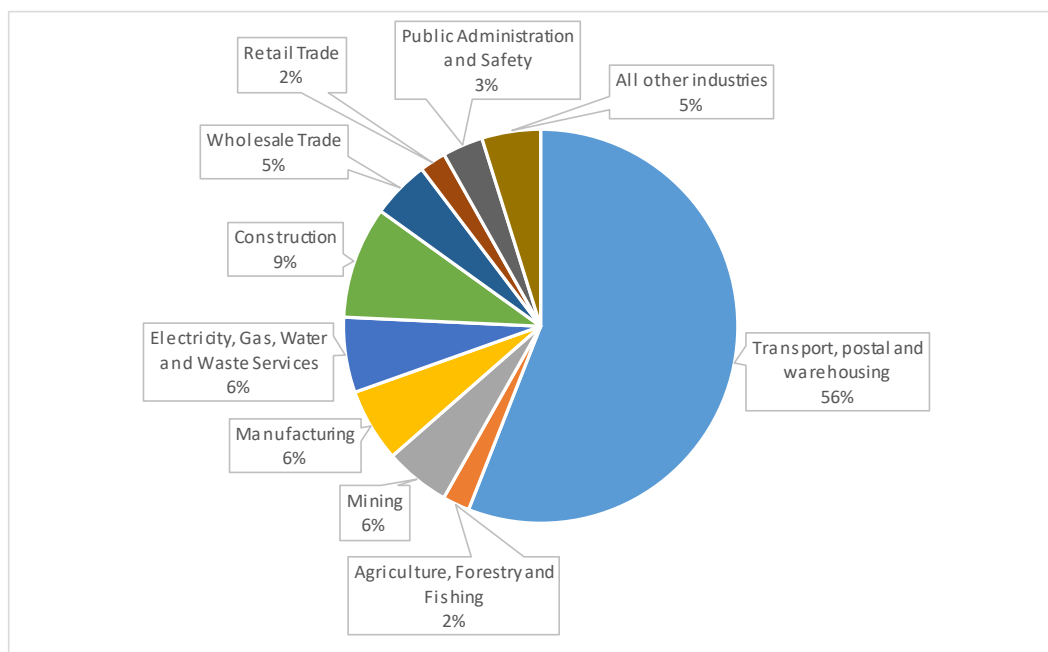
Sources: ABS Cat. 5720.0 *Australian Transport Economic Account: An Experimental Transport Satellite Account*.

⁶ This 4.6 per cent contribution to GDP is lower than the 4.9 per cent of GVA, reported as TPW's economic contribution for 2017-18 at the beginning of the previous section. The two numbers are calculated on a different basis (with the Transport Satellite Account figure deducting net taxes from GVA, and then dividing by GDP). The Transport Satellite Account calculation method could not be replicated for 2017-18 as the ABS does not separate out net taxes by industry in its annual *National Accounts* publication.

In 2015-16, there were an estimated 1.0 million persons in transport-related employment across the economy, accounting for 8.6 per cent of all employed persons. People can have multiple jobs, and in 2015-16, there were an estimated 1.1 million transport-related jobs across all industries, accounting for 8.4 per cent of all Australian jobs.

Census data on occupation provides additional insight into the extent to which transport activity is undertaken by industries other than TPW. Truck drivers are the occupation most commonly associated with transport activity. In 2016, there were 148 600 truck drivers in Australia, and Figure 7 reveals that only 56 per cent of them worked in the TPW industry. Other significant employing industries include Construction, Manufacturing, Electricity, gas, water and waste services, Mining and Wholesale trade. A detailed profile of truck drivers in Australia in 2016 is presented in Box 1 (see pp. 25-27).

Figure 7 Employing industry of Truck drivers, Australia, 2016



Notes: Based on 4-digit 'Truck driver' occupation. Excludes industry not stated or inadequately described.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

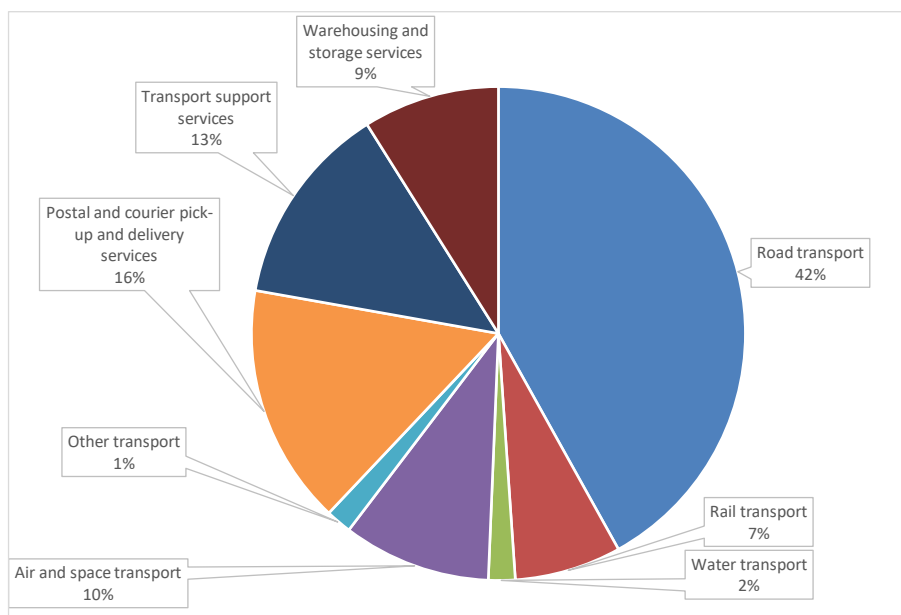
The remainder of this Information Sheet will focus on providing a detailed profile of employment in the TPW industry, based largely on ABS *Census of Population and Housing* data. When interpreting this data, it should be kept in mind that the TPW industry only captures about 60 per cent of all transport activity in the Australian economy.

National profile for 2016

Sub-industries

Of the 499 485 persons that the census identifies as being employed in Australia's TPW industry in 2016, Figure 8 shows that 42 per cent were employed in Road transport. About two thirds (65 per cent) of Road transport employment is in Road freight transport, rather than the different types of road passenger transport (see Table 1). Other important sub-industries at the 2-digit ANZSIC scale include Postal and courier pick-up and delivery services (which accounts for 16 per cent of TPW employment), Transport support services (13 per cent), Air and space transport (10 per cent) and Rail transport (7 per cent).

Figure 8 Transport, postal and warehousing employment by 2-digit sub-industry, Australia, 2016



Notes:

1. Based on ANZSIC 2006 (Revision 2) 2-digit industries (ABS 2013a).

2. Industry shares of total employment are calculated after excluding TPW not further defined.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

At the more detailed 4-digit industry scale, Table I shows that the top employing industries are Road freight transport (which contributes 27.2 per cent of TPW employment), Air and space transport (9.7 per cent), Postal services (8.7 per cent), Other warehousing and storage services (8.3 per cent), Courier pick-up and delivery services (6.9 per cent), Taxi and other road transport (6.3 per cent) and Urban bus transport (6.1 per cent).

Table 1 Transport, postal and warehousing employment by 4-digit sub-industry, Australia, 2016

2-digit category	4-digit category	Employed persons	Share of TPW employment (per cent)
Road transport	Road freight transport	129 525	27.2
	Interurban and rural bus transport	4 624	1.0
	Urban bus transport (including tramway)	28 866	6.1
	Taxi and other road transport	30 140	6.3
	Road passenger transport, nfd	5 440	1.1
	Road transport, nfd	951	0.2
	<i>Subtotal</i>	<i>199 557</i>	<i>41.9</i>
Rail transport	Rail freight transport	9 676	2.0
	Rail passenger transport	16 968	3.6
	Rail transport, nfd	6 610	1.4
	<i>Subtotal</i>	<i>33 259</i>	<i>7.0</i>
Water transport	Water freight transport	2 658	0.6
	Water passenger transport	1 888	0.4
	Water transport, nfd	3 779	0.8
	<i>Subtotal</i>	<i>8 318</i>	<i>1.7</i>
Air and space transport	Air and space transport	46 174	9.7
Other transport	Scenic and sightseeing transport	5 855	1.2
	Pipeline transport	1 625	0.3
	Other transport nec	565	0.1
	Pipeline and other transport, nfd	7	0.0
	<i>Subtotal</i>	<i>8 050</i>	<i>1.7</i>
Postal and courier pick-up and delivery services	Postal services	41 357	8.7
	Courier pick-up and delivery services	32 784	6.9
	Postal and courier pick-up and delivery services, nfd	813	0.2
	<i>Subtotal</i>	<i>74 960</i>	<i>15.7</i>
Transport support services	Stevedoring services	3 430	0.7
	Port and water transport terminal operations	7 294	1.5
	Other water transport support services	3 225	0.7
	Water transport support services, nfd	242	0.1
	Airport operations and other air transport support services	11 717	2.5
	Other transport support services, nfd	404	0.1
	Customs agency services	1 531	0.3
	Freight forwarding services	17 163	3.6
	Other transport support services nec	17 939	3.8
	Transport support services, nfd	267	0.1
	<i>Subtotal</i>	<i>63 203</i>	<i>13.3</i>
Warehousing and storage services	Grain storage services	2 678	0.6
	Other warehousing and storage services	39 408	8.3
	Warehousing and storage services, nfd	414	0.1
	<i>Subtotal</i>	<i>42 503</i>	<i>8.9</i>
Transport, postal and warehousing, nfd		23 469	na
Total - Transport, postal and warehousing		499 485	100.0

Notes:

1. Based on ANZSIC 2006 (Revision 2) 2 and 4-digit industries (ABS 2013a).
2. Industry shares of total employment are calculated after excluding TPW not further defined.
3. 4-digit industries with zero employment were excluded from the table.
4. nfd=not further defined. nec=not elsewhere classified. na=not applicable.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

Type of employment

Most people who work in the TPW industry are employed on a full-time basis. Of those who were employed in the TPW industry and at work at census time, 75.5 per cent worked full-time, whereas across all industries only 65.5 per cent of people were employed on a full-time basis, according to the 2016 census (Table 2). While 79.8 per cent of male TPW workers are employed on a full-time basis, only 61.3 per cent of female TPW workers are employed full-time.

Table 2 also shows the proportion of full-time employed persons in the 2-digit TPW sub-industries. Rail transport had the highest proportions of both male and female full-time employment compared to other sub-industries, whilst the Postal and courier pick-up and delivery services sub-industry had the lowest proportions of males and females employed full-time.

Table 2 Proportion of full-time employed persons in the TPW industry by sub-industries and gender, Australia, 2016

TPW 2-digit sub-industries	Male	Female	All persons
	Proportion (per cent)		
Road transport	78.4	57.1	75.1
Rail transport	93.0	83.2	91.1
Water transport	86.4	69.5	81.2
Air and space transport	79.1	59.8	71.7
Other transport	76.2	62.3	71.7
Postal and courier pick-up and delivery services	75.7	54.1	68.9
Transport support services	81.6	70.2	78.6
Warehousing and storage services	80.7	64.8	76.7
Total TPW employed persons	79.8	61.3	75.5
Total employed persons (all industries)	78.2	51.2	65.5

Notes:

1. Based on ANZSIC 2006 (Revision 2) 2 -digit industries (ABS 2013a).

2. TPW not further defined is included in TPW total, but is not shown separately.

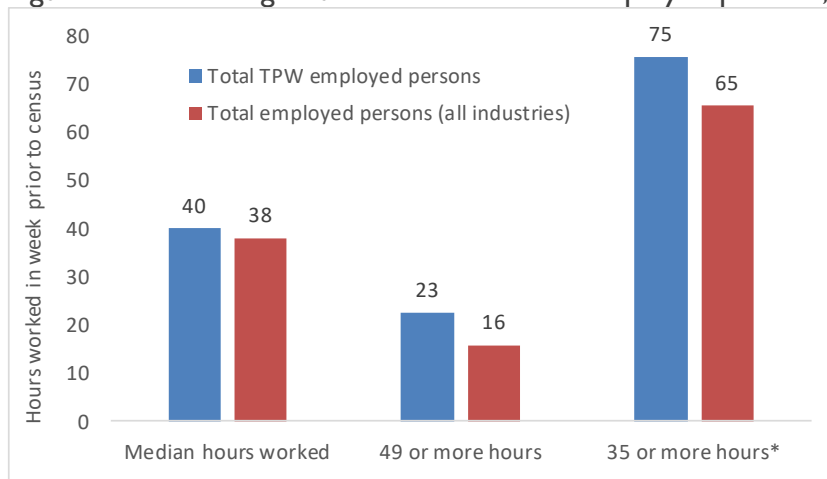
Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

Figure 9 shows how the TPW industry compares to the all-industry total across three different measures of working hours, whilst Table 3 presents the proportion working 49 or more hours per week by TPW sub-industries and gender.

A relatively large proportion of TPW employed persons report working 49 or more hours per week (23 per cent, compared to 16 per cent of employed persons nationally). The median hours worked in the TPW industry was 40 hours, which is slightly higher than the median of 38 hours for all employed persons.

Long working hours are particularly prevalent in Road transport (where 30 per cent work 49 or more hours per week) and in Water transport (29 per cent) (Table 3). In contrast, a relatively small proportion (12-13 per cent) of those employed in Air and space transport and Warehousing and storage services work 49 or more hours per week. Across all the TPW sub-industries, long working hours are much more prevalent for males than for females.

Figure 9 Working hours for TPW and all employed persons, Australia, 2016



Notes:

1. * ABS definition of full-time.

2. All measures exclude employed persons who worked zero hours in week prior to census night.

3. nfd=not further defined.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

Table 3 Proportion of employed persons who work 49 or more hours per week by TPW sub-industries and gender, Australia, 2016

TPW 2-digit sub-industries	Male	Female	All persons
	Proportion (per cent)		
Road transport	34	11	30
Rail transport	18	12	17
Water transport	36	12	29
Air and space transport	16	9	13
Other transport	28	12	23
Postal and courier pick-up and delivery services	21	9	17
Transport support services	23	9	19
Warehousing and storage services	14	6	12
Total TPW employed persons	27	9	23

Notes:

1. Based on ANZSIC 2006 (Revision 2) 2-digit industries (ABS 2013a).

2. nfd=not further defined.

3. TPW not further defined is included in TPW total, but is not shown separately.

4. Calculation of proportion excludes employed persons who worked zero hours in week prior to census night.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

Nationally in 2016, more than 88 per cent of TPW workers are employed in the private sector, slightly higher than all employed persons (85 per cent) (Table 4). Among government sectors, the proportion of TPW workers employed by the national government was higher (6.6 per cent) than by the state/territory governments (4.9 per cent), whilst the pattern was opposite for all employed persons.

Table 4 TPW employed persons by sectors, Australia, 2016

	Private	Government			All sectors
		National	State/Territory	Local	
	Proportion (per cent)				
Total TPW employed persons	88.3	6.6	4.9	0.2	100.0
Total employed persons (all industries)	84.6	4.0	9.9	1.5	100.0

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

Further analysis (based on 2-digit TPW industry) reveals that (data not shown):

- About 40 per cent of Rail transport workers are employed by state/territory governments
- More than one third (37 per cent) of Postal and courier pick-up and delivery services workers are employed by the national government.
- Around 16 per cent of Transport support services workers are employed by government (both national and state/territory) agencies.

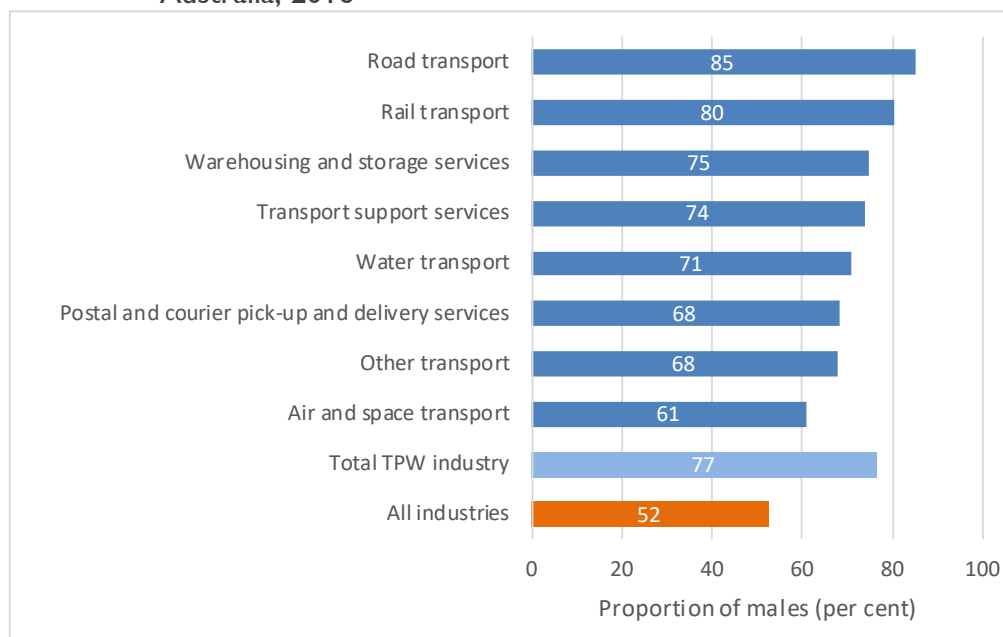
In terms of employment status, 83 per cent of people working in the TPW industry are employees and another 7 per cent are an 'Owner manager of unincorporated enterprise without employees'. The respective proportions for all-industry workers are 84 per cent and 6 per cent. The Rail transport and Air and space transport sub-industries had the highest proportions of employees (98 per cent and 97 per cent, respectively), while Road transport and Postal and courier pick-up and delivery services had the lowest proportion of employees (75 per cent each).

Demographics

The TPW industry has a predominantly male workforce, with 77 per cent of jobs being held by males, compared to 52 per cent of jobs in the overall economy (Figure 10). Two industries have a higher male employment share than TPW, namely Mining (84 per cent) and Construction (87 per cent).

The Road transport sub-industry had the highest proportion of male workers (85 per cent), followed by Rail transport (80 per cent). While all TPW sub-industries had a predominantly male workforce, the Air and space transport industry had the highest female representation, at 39 per cent.

Figure 10 Gender split of Transport, postal and warehousing employment by sub-industries, Australia, 2016

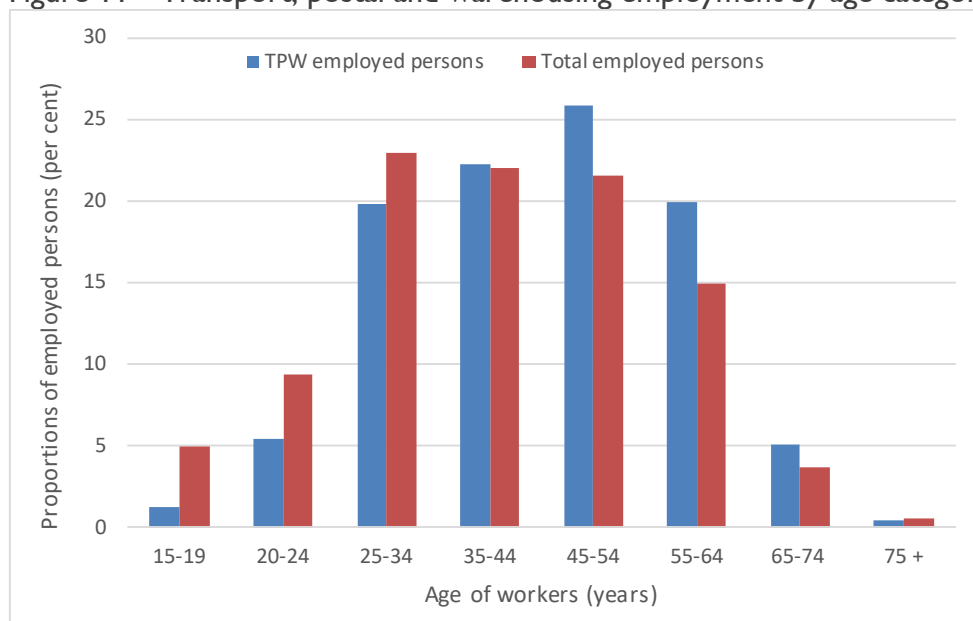


Note: TPW not further defined is included in TPW total, but is not shown separately.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

The age composition of the TPW industry is significantly different to that of the overall workforce. As Figure 11 shows, the younger age groups (up to age 34) are under-represented in TPW, whereas 45–64 year olds are over-represented. As of 2016, 25.4 per cent of TPW workers nationally were aged 55 and over, which is considerably higher than the all-industry figure of 19.2 per cent. Many of these workers are planning to retire in the next decade, and replenishment with younger workers is proving challenging (Transport and Logistics Industry Skills Council 2015).

Figure 11 Transport, postal and warehousing employment by age category, Australia, 2016



Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

The median age of TPW employed persons in 2016 was 45 years, compared to the all-industry median age of 40 years (Table 5). The TPW industry has the second oldest workforce after the Agriculture, forestry and fishing industry, which has a median age of 48 years, with 37.0 per cent of workers aged 55 and over. This older age structure is evident for most of the TPW sub-industries, but is most pronounced for Road transport (which has a median age of 47, with 30.1 per cent of workers aged 55 and over) and Postal and courier pick-up and delivery services (which also has a median age of 47 and 28.2 per cent of workers aged 55 and over) (Table 5). Median ages are generally higher for male workers than female workers in the TPW sub-industries, with the exception of the Postal and courier pick-up and delivery services and Warehousing and storage services sub-industries.

Male TPW workers have a higher median age than female TPW workers (45 years versus 43 years). Both exceed the all-industry median age, which is 41 years for males and 40 years for females (Table 5). Similarly, male TPW workers are more likely to be aged 55 and over than female TPW workers (26.9 versus 20.3 per cent), and both exceed the all-industry proportions of 20.0 per cent for males and 18.3 per cent for females. Thus, the older age structure of TPW workers is evident for both genders, but is considerably more pronounced for males.

Within the TPW industry, the 2-digit occupation of Road and rail drivers—which accounts for 34 per cent of TPW jobs—is particularly affected, with a median age of 48 years and 32.8 per cent of workers aged 55 and over. The second most important 2-digit occupational category within TPW is Clerical and office support workers—which accounts for 8 per cent of TPW jobs—it also has a median age of 48 years, with 31.7 per cent of workers aged 55 and over (data not presented).

The median age of TPW employed persons was 44 years in the capital cities and 48 years for the rest of Australia (Table 6). This compares to the all-industry medians of 39 years for capital cities and 43 years for the rest of Australia. Thus, the older age structure of TPW workers is more pronounced in regional Australia.⁷

For the TPW industry, Hobart has a higher median age than the other capital cities, while Regional South Australia has the highest overall median age. The rest of the Northern Territory (i.e. outside of Darwin) has a relatively low median age of TPW workers.

⁷ The proportion of TPW workers aged 55 and over is much lower for the capital cities (23 per cent) than the rest of Australia (32 per cent).

Table 5 Age indicators for TPW employed persons by sub-industry and gender, Australia, 2016

TPW 2-digit sub-industries	Male	Female	Total
Median age (years)			
Road transport	47	46	47
Rail transport	47	40	46
Water transport	45	39	43
Air and space transport	43	39	42
Other transport	45	38	43
Postal and courier pick-up and delivery services	46	47	47
Transport support services	44	40	43
Warehousing and storage services	39	41	39
Total TPW	45	43	45
Total employed persons (all industries)	41	40	40
Share of 55 years and more (per cent)			
Road transport	30.7	26.2	30.1
Rail transport	26.8	14.0	24.4
Water transport	24.0	15.3	21.3
Air and space transport	18.7	11.1	15.8
Other transport	27.2	14.8	23.2
Postal and courier pick-up and delivery services	28.6	27.4	28.2
Transport support services	24.3	15.2	21.9
Warehousing and storage services	16.3	17.0	16.5
Total TPW	26.9	20.3	25.4
Total employed persons (all industries)	20.0	18.3	19.2

Notes:

TPW not further defined is included in TPW total, but is not shown separately.

Based on ANZSIC 2006 (Revision 2) 2 -digit industries (ABS 2013a).

nfd=not further defined.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

Table 6 Median age of TPW workers by capital cities and rest of states, Australia, 2016

GCCSA and Rest of states	TPW industry	All industries
Median age (years)		
Greater Sydney	44	39
Greater Melbourne	43	39
Greater Brisbane	44	39
Greater Adelaide	45	41
Greater Perth	44	40
Greater Hobart	47	42
Greater Darwin	43	38
Canberra	44	38
Rest of New South Wales	49	43
Rest of Victoria	49	43
Rest of Queensland	47	42
Rest of South Australia	50	45
Rest of Western Australia	48	43
Rest of Tasmania	49	44
Rest of Northern Territory	41	40
All capital cities	44	39
Total Rest of states	48	43
Australia	45	40

Notes:

1. Excluded No fixed work address and Migratory-Offshore-Shipping.

2. Australian Capital Territory is the same as Canberra and was included in the Capital cities total.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of work data), extracted using TablebuilderPro.

The TPW industry's representation of culturally diverse groups—such as Indigenous people, the overseas born, and those who do not speak English well—differs slightly from the all-industry average (Table 7). In 2016:

- About 1.5 per cent of TPW workers identified as Indigenous, which is slightly below the all industry average of 1.7 per cent.
- The proportion of TPW workers who were born overseas (34.2 per cent) is higher than for all employed persons (30.6 per cent).
- About 1.3 per cent of TPW workers speak another language and report speaking English not well or not at all. This is slightly below the all industry average of 1.6 per cent, suggesting that language problems are somewhat less prominent in TPW than other industries.

Table 7 Other demographic characteristics of TPW employed persons, Australia, 2016

Cultural characteristics	TPW industry	All industries
	Share (per cent)	
Indigenous people	1.5	1.7
Overseas born	34.2	30.6
People who do not speak English well	1.3	1.6

Note: 'Not stated' responses are excluded from the denominator, when calculating proportions.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

Skills

Occupation

The ABS' Australian and New Zealand Standard Classification of Occupations (ANZSCO) categorises workers into eight top-level (or 1-digit) occupational categories⁸. The principal TPW occupational category is Machinery operators and drivers, who contribute 44 per cent of employed persons, compared to 6 per cent of employment across all industries (see Figure 12). Clerical and administrative workers are also over-represented in TPW (21 per cent versus 14 per cent across all industries). All other 1-digit occupational categories are under-represented, particularly Professionals (7 per cent versus 23 per cent).

ANZSCO defines the skill level of an occupation based on the range and complexity of the set of tasks performed in the particular occupation (ABS 2013b). It assigns occupations to one of five skill levels, with one being the highest skill level and five the lowest. The Professionals occupational category is predominantly classified to skill level one, whilst the Machinery operators and drivers category is predominantly classified to skill level four, and the Labourers category is predominantly classified to skill levels four and five. ANZSCO does not measure the skill level of an individual—it refers to the level of skill that is typically required to competently perform the tasks of the specific occupation (ibid).

Table 8 identifies the most common 3-digit occupations within the TPW industry, together with their predominant skill levels, as assessed by ANZSCO (ABS 2013b). The three most important occupations are Truck drivers (15.9 per cent of TPW employment), Automobile, bus and rail drivers (14.8 per cent) and Clerical and office support workers (8.2 per cent). The first two of these occupations have a predominant skill level of four, which is commensurate with a Certificate level II or III qualification, while at least one year of relevant training may substitute for the formal qualification (ABS 2013b). Clerical and office support workers⁹ are classed as having a predominant skill level of five, which is commensurate with a Certificate Level I qualification or compulsory secondary education, although in some instances no formal qualification or on-the-job training may be required (ibid).

⁸ The eight major groups are formed by grouping together more detailed occupations using information on skill level and skill specialisation (ABS 2013b).

⁹ This occupational category includes couriers, postal delivery officers, filing or registry clerks, mail clerks, switchboard operators and parking inspectors.

Figure 12 Occupations of Transport, postal and warehousing workers, Australia, 2016



Notes:

1. Occupational mix based on ANZSCO 1-digit occupations (ABS 2013b).

2. Proportions calculated after deducting 'not stated' and 'inadequately described' responses from total.

Source: BITRE analysis of ABS *Census of Population and Housing* place of usual residence data for 2016 (extracted using Tablebuilder Pro).

Table 8 Major occupations in the Transport, postal and warehousing industry and their predominant skill levels, Australia, 2016

Main 3-digit occupations (from most to least prevalent)	Proportion of TPW jobs (per cent)	Predominant skill levels	Examples
Truck drivers	15.9	4	Truck driver
Automobile, bus and rail drivers	14.8	4	Taxi driver, Bus driver
Clerical and office support workers	8.2	5	Mail clerk, Courier
Logistics clerks	4.1	4	Purchasing officer, Stock clerk
Storepersons	4.0	4	Storeperson
Mobile plant operators	3.9	4	Forklift driver, Line marker
Miscellaneous hospitality, retail and service managers	3.1	2	Transport company manager, Fleet manager, Customer service manager
Construction, distribution and production managers	2.6	1	Importer or exporter, Supply and distribution manager
Air and marine transport professionals	2.6	1	Aeroplane pilot, Air traffic controller
Personal service and travel workers	2.4	3, 4	Driving instructor, Flight attendant
Sales assistants and salespersons	1.9	5	Sales assistant, Rental salesperson
Accounting clerks and bookkeepers	1.8	4	Payroll clerk, Bookkeeper
General clerks	1.7	4	General clerk
Miscellaneous sales support workers	1.7	5	Ticket seller, Transport conductor
Miscellaneous labourers	1.6	4, 5	Deck hand, Road traffic controller
Mechanical engineering trades workers	1.6	3	Fitter, Aircraft maintenance engineer
Freight handlers and shelf fillers	1.5	5	Waterside worker, Shelf filler

Notes:

1. Proportions calculated after deducting 'not stated' and 'inadequately described' responses from total.

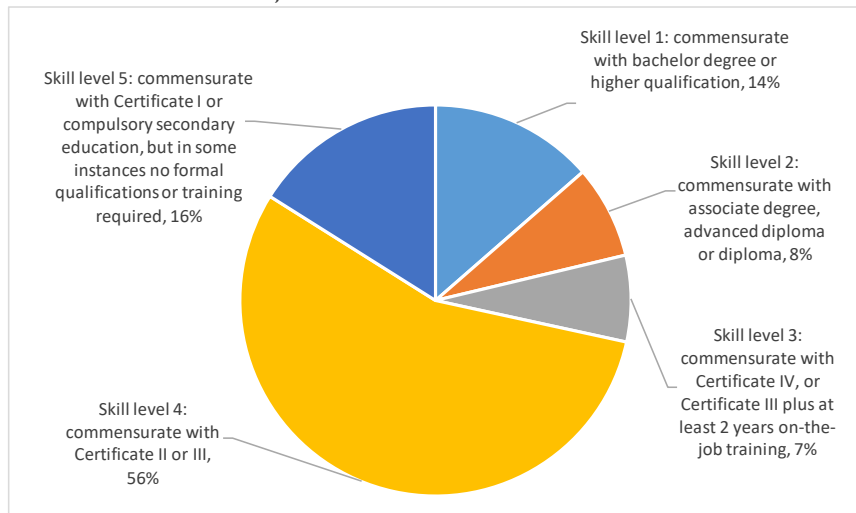
2. Occupations and predominant skill levels based on ANZSCO 3-digit occupations (ABS 2013b). ANZSCO assigns occupations to one of five skill levels, with one being the highest skill level and five the lowest. Occupations at skill level one have a level of skill commensurate with a bachelor degree or higher qualification, while at least five years of relevant experience may substitute for the formal qualification. Skill level five occupations have a level of skill commensurate with a Certificate Level I qualification or compulsory secondary education, although in some instances no formal qualification or on-the-job training may be required.

Source: BITRE analysis of ABS *Census of Population and Housing* place of usual residence data for 2016 (extracted using Tablebuilder Pro).

Skill level four occupations are most prevalent in Table 8. This is in line with the prominence of the Machinery operators and drivers occupational group amongst TPW workers, as this occupational group has a predominant skill level of four.

Figure 13 assigns all TPW occupations with more than 100 employed persons to a predominant skill level using ANZSCO (ABS 2013b). It shows that 56 per cent of all TPW employed persons are working in occupations that have a predominant skill level of four. A sizeable proportion of TPW workers are also employed in skill level five occupations (16 per cent). Thus, 72 per cent of TPW employment is in skill level four or five occupations at the lower end of the skill spectrum, a level of skill corresponding to a Certificate I, II or III qualification or compulsory secondary education (with relevant on-the-job experience potentially substituting for formal qualifications).

Figure 13 Skill level of the occupations of Transport, postal and warehousing workers, Australia, 2016



Notes:

1. Proportions calculated after deducting 'not stated' and 'inadequately described' occupations from total.
2. Predominant skill levels based on ANZSCO 3-digit occupations (ABS 2013b). ANZSCO assigns occupations to one of five skill levels, with one being the highest skill level and five the lowest. All 3 digit occupations with 100 or more TPW employed persons were classified to one or more predominant skill levels based on ABS (2013b), capturing 99.7 per cent of all TPW employed persons with a stated and adequately described occupation. Where an occupation had multiple skill levels, workers were evenly apportioned across the relevant skill levels.

Source: BITRE analysis of ABS *Census of Population and Housing* place of usual residence data for 2016 (extracted using Tablebuilder Pro).

Figure 13 also reveals that 14 per cent of TPW workers are employed in skill level one occupations. Air and marine transport professionals¹⁰ account for 2.6 per cent of TPW workers and have a predominant skill level of one (commensurate with a bachelor degree or higher qualification). Construction, distribution and production managers¹¹ also account for 2.6 per cent of TPW workers and have a predominant skill level of one.

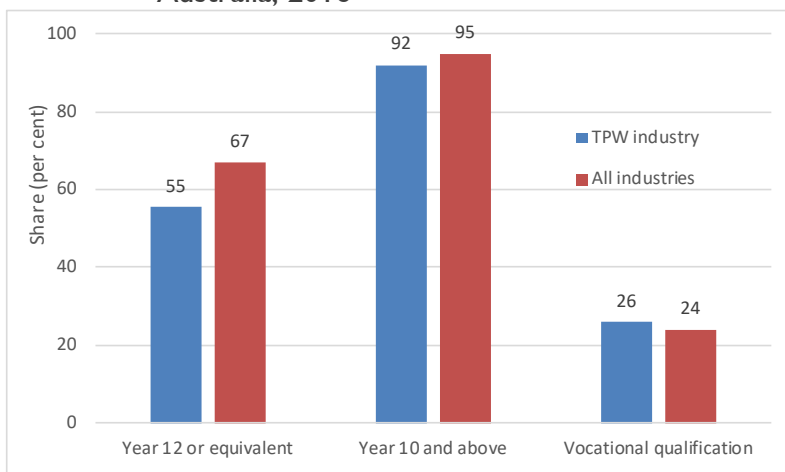
Education

People employed in TPW are generally less educated than the average Australian worker, in terms of both schooling and post-school education. About 55 per cent of those who work in the TPW industry have Year 12 or equivalent qualifications, compared to 67 per cent of all employed persons (Figure 14). TPW also has a smaller proportion with Year 10 or higher qualifications (92 per cent versus 95 per cent). The lower levels of school-based qualifications in TPW may reflect the older age structure of its workforce (when Year 12 completion was not as common), but also possibly the slightly greater prevalence of vocational qualifications.

¹⁰ This occupational category includes aeroplane pilots, air traffic controllers, flying instructors, helicopter pilots, ship's master, Ship's engineer, ship's officer and marine surveyors.

¹¹ This occupational category includes engineering managers, importers, exporters, wholesalers, production managers, supply and distribution managers, procurement managers and construction project managers.

Figure 14 Schooling and vocational education of Transport, postal and warehousing workers, Australia, 2016



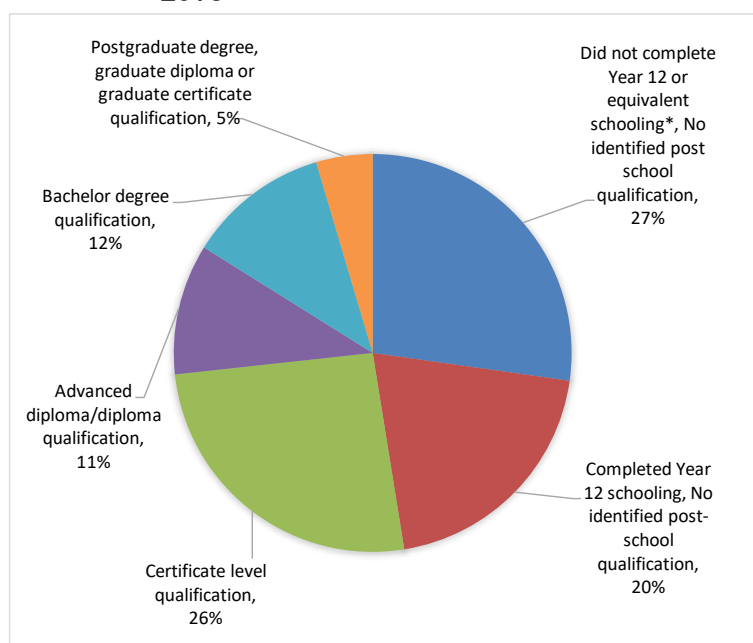
Notes:

1. Vocational qualification includes Certificate I & II Level, Certificate III & IV Level and Certificate Level (not further defined).
2. Percentage shares calculated after excluding not stated responses from total.

Source: BITRE analysis of ABS *Census of Population and Housing* place of usual residence data for 2016 (extracted using Tablebuilder Pro).

Figure 15 shows that the main form of post-school qualification in the TPW industry is a certificate (26 per cent of workers), which is held by a slightly higher proportion than in the general workforce (24 per cent). More than 90 per cent of these are certificate III or IV qualifications, rather than the less advanced certificate I or II qualifications. However, 47 per cent of TPW workers report no post-school qualification (or a qualification outside the scope of ASCED), compared to 34 per cent in the general workforce. In particular the TPW industry has fewer workers with bachelor degrees (12 per cent versus 21 per cent in the national workforce), and fewer with bachelor degree or higher qualifications (16 per cent versus 31 per cent). Female TPW workers are considerably more likely to have a bachelor degree or higher qualification (20 per cent) compared to their male counterparts (15 per cent) (data not shown).

Figure 15 Educational qualifications of Transport, postal and warehousing workers, Australia, 2016



Notes:

1. * Includes not stated level of schooling.
 2. Percentage shares calculated after excluding not stated and inadequately described post-school qualifications from total.
- Source: BITRE analysis of ABS *Census of Population and Housing* place of usual residence data for 2016 (extracted using Tablebuilder Pro).

The fact that a relatively high proportion of the TPW workforce do not have any post-school qualification (47 per cent) is consistent with the findings of the occupational analysis that most TPW employment is in occupations at the lower end of the skill spectrum. For many of these workers, skills gained from on-the-job experience will substitute for a formal qualification.

According to the ABS 2016 census, the main fields of study for post-school qualifications are engineering and related technologies (18 per cent of TPW workers) and management and commerce (16 per cent).

Table 9 presents information on post-school educational qualifications for the TPW sub-industries. The proportion of employed persons with no post-school qualifications is particularly high for the Postal and courier pick-up and delivery services (55 per cent), Road transport (54 per cent) and Warehousing and storage services (53 per cent) sub-industries. Road transport workers are least likely to have a bachelor degree or higher qualification (11 per cent), while Other transport (25 per cent), Air and space transport (24 per cent) and Transport support services workers (24 per cent) are most likely to have a bachelor degree or higher qualification. Workers in the Rail transport sub-industry are more likely to hold Certificate level qualifications (34 per cent) than workers in the other TPW sub-industries.

Table 9 Post-school qualifications of Transport, postal and warehousing workers by sub-industry, Australia, 2016

2-digit TPW sub-industry	Bachelor degree or higher	Advanced diploma and diploma level	Certificate level	No post-school qualification
Share (per cent)				
Road transport	10.5	8.2	27.6	53.7
Rail transport	22.6	10.0	34.0	33.4
Water transport	22.6	17.0	29.1	31.4
Air and space transport	24.4	18.8	25.0	31.8
Other transport	25.3	13.9	31.8	29.1
Postal and courier Pick-up and delivery services	15.8	9.1	20.4	54.7
Transport support services	24.2	14.6	23.2	38.1
Warehousing and storage services	13.9	8.9	24.5	52.7
Total TPW industry	16.1	10.6	25.8	47.5

Notes:

1. Based on ANZSIC 2006 (Revision 2) 2 -digit industries (ABS 2013a).
2. Percentage shares calculated after excluding not stated and inadequately described post-school qualifications.
3. TPW not further defined is included in the total, but not shown separately.

Source: BITRE analysis of ABS *Census of Population and Housing* place of usual residence data for 2016 (extracted using Tablebuilder Pro).

TPW has a very low rate of workers who currently attend an educational institution (5 per cent), compared to 12 per cent across all employed persons. Only the Agriculture, forestry and fishing industry has a lower rate of participation in formal education (4 per cent). Amongst the TPW sub-industries, the Other transport sub-industry has the highest proportion of its workers currently attending an educational institution (7 per cent), while Rail transport and Road transport have the lowest rates (at 4 per cent each).

Income

Based on responses to the 2016 census, 13.2 per cent of TPW workers had total personal incomes¹² of more than \$104 000 per annum, compared to 13.8 per cent of all employed persons. Only 18.2 per cent of TPW workers had incomes of less than \$33 800 per annum, compared to 26.3 per cent of all employed persons. This reflects the relatively high proportion of TPW workers employed on a full-time basis,

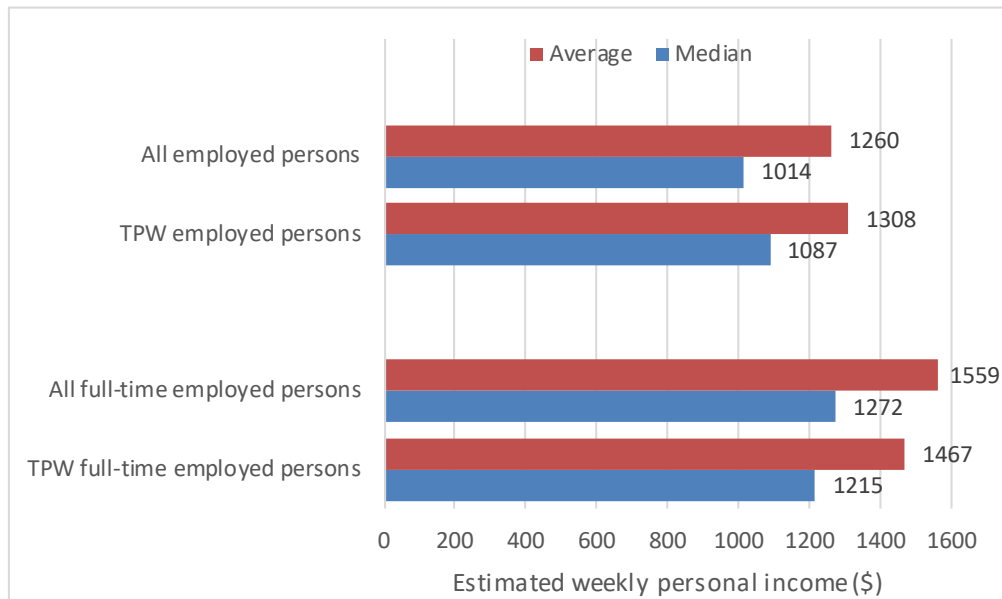
Figure 16 displays BITRE's estimates of the average (and median) weekly personal income of TPW employed persons and how that compares to the all-industry average (and median). The median income figures are considerably lower than the average income figures. Based on this 2016 census data, BITRE estimates that

¹² Total personal income includes income from sources other than employment (e.g. family benefits, investment income).

the average weekly income for the TPW industry is about 4 per cent higher than the all-industry average, while the median weekly income is about 7 per cent higher for the TPW industry.

A likely reason why the average (and median) incomes are relatively high in the TPW industry is that the higher incomes reflect the greater number of hours being worked (see p.10), rather than reflecting above-average hourly rates of remuneration. This is confirmed by the lower half of Figure 16, which focuses on full-time employed persons, to enable a more like-for-like comparison of workers to be undertaken. Average weekly incomes of full-time workers are about 6 per cent lower in the TPW industry (compared to the all-industry average), while median incomes are about 4 per cent lower.

Figure 16 Average and median weekly personal income of Transport, postal and warehousing workers, Australia, 2016



Notes:

1. Total personal income includes income from sources other than employment (e.g. family benefits, investment income). BITRE has estimated median and average weekly income based on the categorical income responses in the census. For median income, a specific point estimate within the median income category is derived using a simple pro-rata approach. The approach to estimating average income involved excluding negative income responses and assigning an average value to each income category. The average value was set as the midpoint of the income range for all categories, apart from the top income category, where the average was set at \$4500, based on results from the ABS' *Survey of Income and Housing 2009-10* and *2015-16* (which shows that a multiple of 1.5 times the lower limit of the top income category is a conservative midpoint for the top income category).

2. Full-time employed persons are defined as those who work 35 or more hours per week.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

ABS *Average Weekly Earnings* data (ABS 2019b) should provide a better guide to the earnings of TPW workers than the census. *Average Weekly Earnings* data for November 2018 shows that the average ordinary time earnings of full-time TPW workers were very similar to the average earnings of all full-time employed persons (\$1606 versus \$1610), as shown in Figure 17. However, average weekly total earnings for all TPW workers was considerably higher than the average across all industries, reflecting the fact that TPW workers work longer hours (see p. 10).

Figure 17 Average weekly earnings in Transport, postal and warehousing industry and all industries, Australia, 2018



Notes:

1. November 2018 reference period.
2. For full-time employed persons, the figure reported is ordinary time earnings (excluding over-time). For all employed persons, the figure reported is total earnings.

Source: ABS Cat. No. 6302.0, *Average Weekly Earnings, Australia*, November 2018.

Commuting behaviour

Table 10 shows that TPW workers were more likely to travel to work by private vehicle on census day 2016 (84.3 per cent), compared to employed persons as a whole (75.9 per cent). In particular, they were more likely to travel by car as a driver (75.6 versus 69.2 per cent) and by other private vehicles which include trucks and motorcycles (5.7 versus 1.6 per cent). They were less likely to travel by car as a passenger (2.9 versus 5.2 per cent). Public transport use is less common amongst TPW workers, compared to all employed persons (8.6 versus 13.1 per cent). Active travel use and working from home are also less common for TPW workers.

Table 10 Transport modes for journey to work by Transport, postal and warehousing workers, Australia, 2016

Transport modes	TPW industry	All industries
	Share (per cent)	
Private vehicles	84.3	75.9
Car as driver	75.6	69.2
Car as passenger	2.9	5.2
Other private vehicles	5.7	1.6
Public transport	8.6	13.1
Train	5.2	8.0
Bus	1.7	3.9
Other public transport	1.7	1.1
Active travel	3.0	5.0
Worked at home	2.6	5.3
Other	1.5	0.8
All transport modes	100.0	100.0

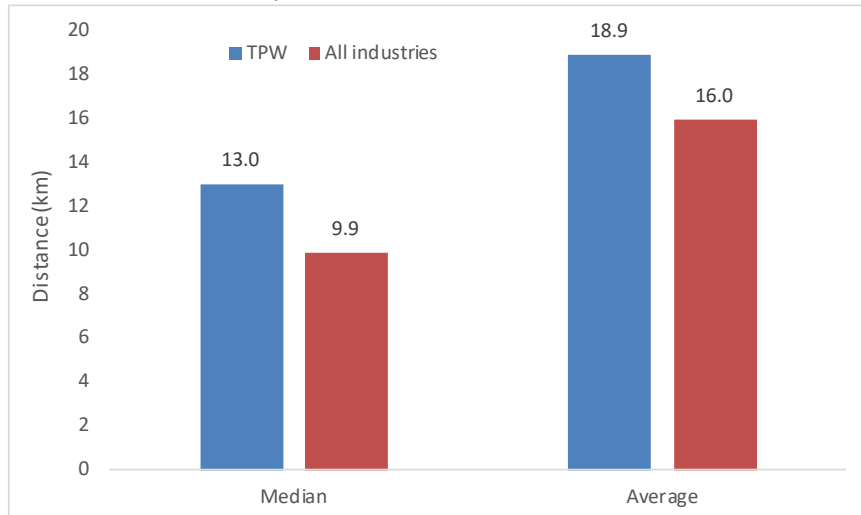
Notes:

1. Total may not add total of each main mode due to rounding.
2. Other private vehicle includes truck and motorcycles.
3. Other public transport includes train, ferry and taxi.
4. Active travel includes bicycle and walk.
5. Mode share calculated after excluding not stated and did not go to work responses.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of work data), extracted using TablebuilderPro.

On average, TPW employed persons commute longer distances than all employed persons. On census day 2016, the median journey-to-work distance of TPW workers was 13 kilometres (km), just over 3 km more than all employed Australians (Figure 18). Similarly, the average journey-to-work distance of TPW workers and all employed Australians were 18.9 km and 16.0 km, respectively.

Figure 18 Commuting distances for Transport, postal and warehousing and all employed persons, Australia, 2016



Source: BITRE analysis of ABS *Census of Housing and Population* place of usual residence data for 2016 using data cubes.

Work location

Compared to many other industries, TPW employment is inherently difficult to tie down to a small area location, reflecting the mobile nature of many transport jobs (e.g. truck drivers, taxi drivers). Nevertheless, the great majority of census respondents do report a usable place of work address. In 2016, people employed in the TPW industry were more likely to report in the census that they have no fixed work address¹³ (5.7 per cent, compared to 4.4 per cent across all industries).

The following three tables (Tables 11, 12 and 13) provide information on the place of work of TPW employed persons, with respect to states, capital cities, rest of states, Significant Urban Areas (SUAs)¹⁴ and Statistical Area Level 2s (SA2s).¹⁵

Tables 11, 12 and 13 show that TPW jobs are concentrated within certain parts of Australia:

- TPW makes a significant contribution to Queensland employment (5.2 per cent) and a relatively minor contribution in the Australian Capital Territory (2.3 per cent) (Table 11).
- TPW jobs are concentrated in Australia's main population centres and ports, with 74 per cent of people employed in TPW working in Australia's capital cities. The proportion employed in TPW is higher for the capital cities than it is for the rest of Australia (5.1 versus 4.2 per cent) (Table 11).
- Greater Sydney had the highest number of TPW jobs, but Greater Brisbane has the highest proportion of employed persons working in the TPW industry (6.0 per cent) (Table 11).

¹³ Includes Migratory-Offshore-Shipping responses.

¹⁴ Significant Urban Areas (SUAs) represent significant towns and cities of 10 000 people or more. A single SUA can represent either a single urban centre or a cluster of related urban centres. They are defined by combining one or more Statistical Area Level 2s (SA2s) (ABS 2017).

¹⁵ SA2s are a small area geographic unit and key building block within the ABS' Australian Statistical Geography Standard (ASGS). There are 2310 SA2s in Australia in 2016 and SA2s typically have a population of between 3 000 and 25 000 (ABS 2017).

- The SUAs that have the most TPW jobs in 2016 were Sydney (106 600 jobs), Melbourne (101 100), Brisbane (58 700), Perth (38 500), Adelaide (23 300), Gold Coast-Tweed Heads (8 700) and Newcastle-Maitland (8 300) (Table 12).
- The SUAs with the highest proportion of TPW jobs were Port Hedland (WA), Esperance (WA) and Gladstone - Tannum Sands (QLD). TPW represented between 10.4 per cent and 12.8 per cent of total jobs in each city (Table 12).
- The 46 largest SA2 concentrations of TPW jobs within Australia are all located in one of the five major capital cities. These major transport employment hubs include airports, industrial areas and Central Business Districts (CBDs). The four hubs with the most TPW jobs are Melbourne Airport (VIC) (9 700), Brisbane Airport (QLD) (9 600) and Mascot-Eastlakes (NSW) (9 300) (Table 13).
- The SA2s with the highest proportion of TPW jobs include airports, ports, rail hubs, and transport-oriented industrial areas within the capital cities (Table 13).

Table 11 Transport, postal and warehousing employment by place of work, Australia, 2016

Geography	TPW employed persons	TPW share of all employed persons in location (per cent)
Greater Sydney	110 300	5.3
Greater Melbourne	102 500	5.3
Greater Brisbane	59 600	6.0
Greater Adelaide	23 400	4.3
Greater Perth	38 800	4.8
Greater Hobart	3 500	3.6
Greater Darwin	3 400	4.9
Canberra	5 000	2.3
Rest of New South Wales	38 200	4.0
Rest of Victoria	20 300	3.7
Rest of Queensland	42 500	4.5
Rest of South Australia	5 700	4.0
Rest of Western Australia	11 500	4.6
Rest of Tasmania	5 100	4.9
Rest of Northern Territory	1 100	3.6
New South Wales	148 500	4.8
Victoria	122 700	4.9
Queensland	102 100	5.2
South Australia	29 000	4.2
Western Australia	50 300	4.7
Tasmania	8 500	4.3
Northern Territory	4 600	4.5
All capital cities	346 400	5.1
Rest of states	124 400	4.2
Australia	470 800	4.8

Notes:

1. TPW employed persons rounded to nearest 100.
2. No fixed address, Migratory-Offshore-Shipping and Other Territories are excluded from the total.
3. TPW share calculated after excluding industry not stated and inadequately described from total.
4. Australian Capital Territory is the same as Canberra and was included in the Capital cities total.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of work data), extracted using TablebuilderPro.

Table 12 Top 10 Significant Urban Area's of work for Transport, postal and warehousing employed persons, Australia, 2016

Significant Urban Area (SUA)	TPW employed persons	Significant Urban Area (SUA)	TPW share of SUA employment (per cent)
Sydney (NSW)	106 600	Port Hedland (WA)	12.8
Melbourne (VIC)	101 100	Esperance (WA)	10.8
Brisbane (QLD)	58 700	Gladstone - Tannum Sands (QLD)	10.4
Perth (WA)	38 500	Broome (WA)	8.8
Adelaide (SA)	23 300	Karratha (WA)	8.6
Gold Coast - Tweed Heads (QLD)	8 700	Portland (VIC)	8.2
Newcastle - Maitland (NSW)	8 300	Devonport (TAS)	7.9
Canberra - Queanbeyan (ACT)	5 600	Parkes (NSW)	7.6
Wollongong (NSW)	4 100	Warwick (QLD)	7.6
Cairns (QLD)	4 100	Geraldton (WA)	7.2

Notes:

1. TPW employed persons rounded to nearest 100.
2. Excluded Not in SUA, No fixed work address and Migratory-Offshore-Shipping from the total, when calculating proportions.
3. TPW share calculated after excluding industry not stated and inadequately described from total.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

Table 13 Top 10 Statistical Area 2's of work for Transport, postal and warehousing workers, Australia, 2016

Statistical Area 2 (SA2)	TPW employed persons	Statistical Area 2 (SA2)	TPW share of SA2 employment (per cent)
Melbourne Airport (VIC)	9 700	West Melbourne (VIC)	68.6
Brisbane Airport (QLD)	9 600	Port Botany Industrial (NSW)	65.7
Mascot - Eastlakes (NSW)	9 300	Dry Creek - North (SA)	64.6
Sydney Airport (NSW)	8 600	Melbourne Airport (VIC)	63.0
Melbourne (VIC)	6 900	Sydney Airport (NSW)	57.5
Sydney - Haymarket - The Rocks (NSW)	6 800	Pallara - Willawong (QLD)	48.4
Perth Airport (WSA)	6 000	Darwin Airport (NT)	48.3
Dandenong (VIC)	5 600	Perth Airport (WA)	48.1
Brisbane City (QLD)	4 800	Brisbane Airport (QLD)	46.4
Laverton (VIC)	4 300	Adelaide Airport (SA)	45.0

Notes:

1. TPW employed persons rounded to nearest 100.
2. Excluded No fixed work address and Migratory-Offshore-Shipping from the total, when calculating proportions.
3. TPW share calculated after excluding industry not stated and inadequately described from total.

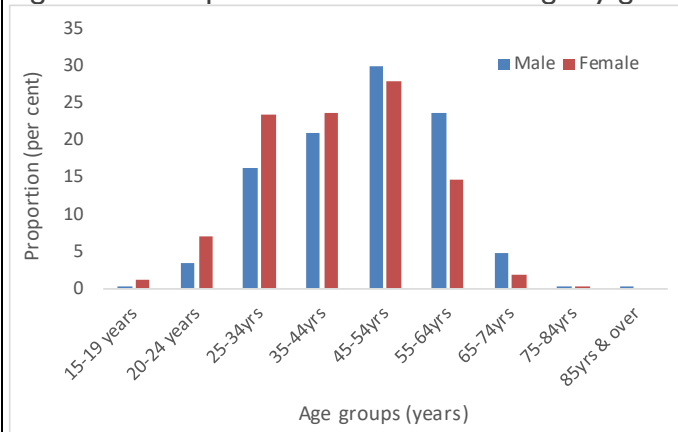
Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of work data), extracted using TablebuilderPro.

Box A: Profile of truck drivers in Australia

There were 148 600 truck drivers in Australia in 2016, and 56 per cent of them worked in the TPW industry (see Figure 7). This box provides a brief snapshot of the demographic, skills and other characteristics of all truck drivers in 2016 (including those who worked in non-TPW industries).

Nearly 97 per cent of Australian truck drivers were male, as of 2016. The median age of all truck drivers was 47 years, being higher for male drivers (48 years) compared to their female counterparts (43 years). A relatively high proportion of the female truck drivers are aged between 15 and 44 (55 per cent, compared to 41 per cent of males). Most of the male truck drivers are aged 45 years and over (59 per cent), with 29 per cent aged 55 and over (Figure B1). The proportion of all truck drivers aged 55 and over increased from 24.4 per cent in 2011 to 28.3 per cent in 2016.

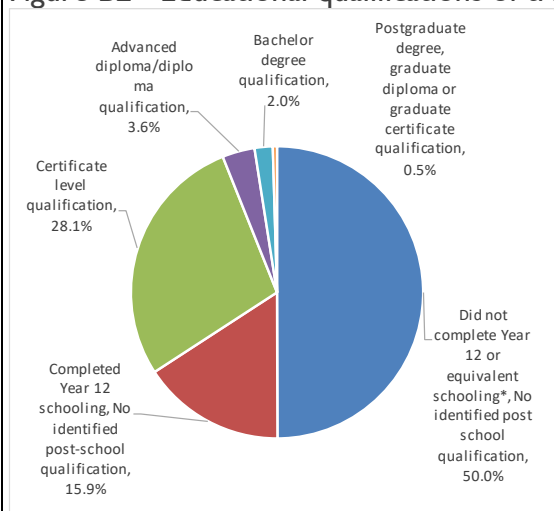
Figure B1 Comparison of truck driver's age by gender, Australia, 2016



Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

Figure B2 shows that the most common form of post-school qualification for truck drivers is a certificate level qualification, which was held by 28 per cent of truck drivers (compared to 24 per cent of all employed persons). However, just over half of the truck drivers did not complete year 12 or equivalent schooling and had no identified post-school qualification.

Figure B2 Educational qualifications of truck drivers, Australia, 2016



Notes:

- * Total includes not stated level of schooling completion.
- Percentage shares calculated after excluding not stated and inadequately described post-school qualification responses from total.

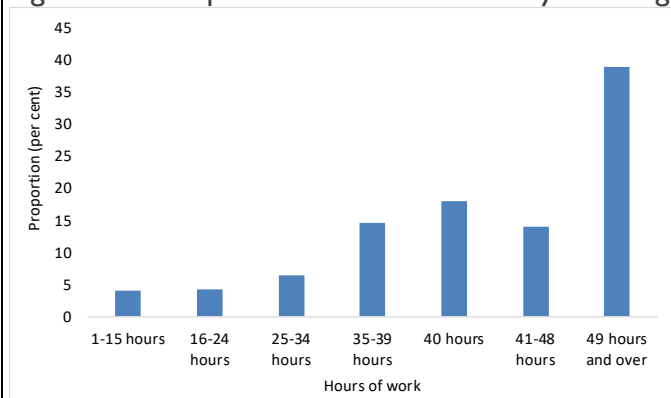
Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

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Figure B3 shows that a relatively large proportion of truck drivers report working 49 or more hours per week (39 per cent, compared to 16 per cent of employed persons nationally). Eighty five per cent of truck drivers are full-time employed, compared to 65 per cent of all employed persons. The proportion working 49 hours or more has fallen by 5 percentage points since 2011, while the proportion working full-time has fallen by 3 percentage points. Eighty six per cent of truck drivers are employees.

Figure B3 Proportion of truck drivers by working hours, Australia, 2016

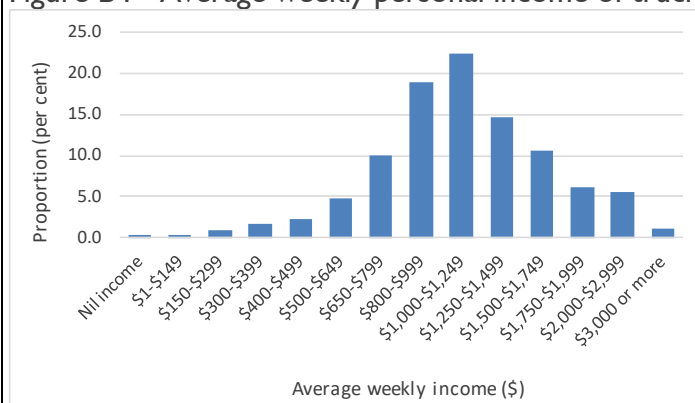


Note: Proportions calculated after excluding hours not stated and zero hours worked in week prior to census night.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

As shown in Figure B4, only a small fraction (6.8 per cent) of truck drivers had total personal weekly income of more than \$2000, while 10.5 per cent of truck drivers had income of less than \$650 per week. The estimated median weekly personal income¹⁶ of truck drivers was \$1118, which is higher than the median income of all employed persons (\$1014). These median income figures reflect the high proportion of truck drivers who are employed on a full-time basis, and the long hours worked by many truck drivers. A more useful comparison is between full-time employed truck drivers and all full-time employed persons. The estimated median weekly personal income of full-time employed truck drivers (\$1173) was lower than the estimated median income of all full-time employed persons (\$1272). This median is well above the current minimum award rates of pay for full-time long distance truck drivers which range between \$814 and \$924 per week, excluding allowances, penalties and overtime (Fair Work Ombudsman 2019).

Figure B4 Average weekly personal income of truck drivers, Australia, 2016



Note: Total personal income includes income from sources other than employment (e.g. family benefits, investment income). Negative incomes are excluded from chart.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of usual residence data), extracted using TablebuilderPro.

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¹⁶ Total personal income includes income from sources other than employment (e.g. family benefits, investment income). BITRE has estimated median weekly income based on the categorical income responses in the census. Details of the methodology are provided in the notes to Figure 16.

Continued

Table BI shows that truck driver's jobs are concentrated within certain parts of Australia:

- Truck drivers make a significant contribution to employment in the Rest of Western Australia (2.7 per cent) and a relatively minor contribution in the Australian Capital Territory (0.5 per cent) (Table BI).
- The combined capital cities have more truck driving jobs than the rest of Australia. However, truck drivers accounted for only 1.1 per cent of all employed persons in the capital cities, compared to 1.9 per cent in the rest of Australia.
- The SUAs with the most truck drivers were Sydney (21 701 jobs), Melbourne (21 444), Brisbane (13 420), Perth (10 526), Adelaide (6 756), Gold Coast-Tweed Heads (3 166) and Newcastle-Maitland (3 110).
- The SUAs where truck drivers made up the highest proportion of jobs were Port Hedland (WA), Singleton (NSW), Muswellbrook (NSW), Warwick (QLD) and Kalgoorlie - Boulder (WA)—truck drivers represented between 3.5 per cent and 5.8 per cent of total jobs in each city.
- Small areas (SA2s) that contain a particularly large number of truck driving jobs include Dandenong and Laverton in Melbourne (2147 and 1337 jobs, respectively), Rocklea-Acacia Ridge in Brisbane (1187 jobs), The Parks in Adelaide (1162 jobs) and Ormeau-Yatala on the Gold-Coast (1068 jobs).

Table BI Truck drivers by place of work – Greater Capital Cities and Rest of states, Australia, 2016

GCCSA/Rest of states	Number	Share of all employed persons (per cent)
Greater Sydney	23484	1.1
Greater Melbourne	22099	1.1
Greater Brisbane	13975	1.3
Greater Adelaide	6829	1.2
Greater Perth	10763	1.3
Greater Hobart	1074	1.1
Greater Darwin	934	1.3
Canberra	1019	0.5
Rest of New South Wales	18636	1.9
Rest of Victoria	9649	1.7
Rest of Queensland	17588	1.8
Rest of South Australia	2926	2.0
Rest of Western Australia	6938	2.7
Rest of Tasmania	2045	1.9
Rest of Northern Territory	422	1.2
New South Wales	42120	1.3
Victoria	31748	1.2
Queensland	31563	1.6
South Australia	9755	1.4
Western Australia	17701	1.6
Tasmania	3119	1.5
Northern Territory	1356	1.3
All capital cities	80177	1.1
Total Rest of states	58204	1.9
Australia	138381	1.4

Notes:

1. Excluded No fixed work address, Migratory-Offshore-Shipping and Other territories from the total.

2. Australian Capital Territory is same as Canberra and was included in the Capital cities total.

Source: BITRE analysis of ABS *Census of Population and Housing 2016* (place of work data), extracted using TablebuilderPro.

There was a sizeable decline of 6 400 truck drivers working in the TPW industry from 84 900 in 2011 to 78 500 in 2016 (which represented an average decline of 1.6 per cent per annum). The total number of truck drivers working across all industries increased by 2 400 persons from 146 200 to 148 600 persons between 2011 and 2016 (representing average annual growth of 0.3 per cent).

Recent changes

The preceding section presented a point-in-time snapshot of the characteristics of TPW workers in 2016. However, the TPW workforce is dynamic—as the industry grows, the mix of workers is gradually evolving. This section compares ABS *Census of Population and Housing* data over the most recent inter-censal period (2011 to 2016) in order to identify some of the key changes that have occurred in recent years. In some cases, this short-term comparison is supplemented by a longer-term comparison (for the 2006 to 2016 period), to identify whether there are significant longer-term shifts in the underlying characteristics of TPW workers. For some issues, post-2016 data from other sources is also incorporated to provide a more up-to-date picture.

Comparison of the two most recent censuses reveals that an additional 20 300 persons were employed in the TPW industry in 2016, compared to 2011 (Table 14). This represents average annual employment growth of 0.8 per cent for the TPW industry, slightly below the all-industry growth rate of 1.2 per cent. However, this recent growth in TPW employment is much smaller in magnitude than the preceding 2006 to 2011 period, when the number of TPW employed persons grew by 51 400 (or average annual growth of 2.3 per cent) (Table 14, see also BITRE (2014)).

The ABS *Labour Force Survey* (LFS) provides an alternate, and more reliable,¹⁷ measure of national employment change in the TPW industry. The LFS data reveals that an additional 32 100 persons were employed in the TPW industry in 2016, compared to 2011.¹⁸ The average annual growth rate is a little higher at 1.1 per cent, compared to 0.8 per cent from the census. Like the census, the LFS data shows that the recent growth in TPW employment is much smaller in magnitude than the preceding 2006 to 2011 period (Table 14). Post-2016 data is also available from the LFS, which shows an upturn in TPW employment growth between 2016 and 2018 (averaging 2.7 per cent per annum).

Table 14 Change in Transport, postal and warehousing employment, Australia, 2006 to 2018

Census period	TPW industry		Average annual growth rate of all employed persons (per cent)
	Number of additional TPW employed persons	Average annual growth rate (per cent)	
<i>ABS Census of Population and Housing</i>			
2006-2011	51 400	2.3	2.0
2011-2016	20 300	0.8	1.2
2006-2016	71 700	1.6	1.6
<i>ABS Labour Force Survey</i>			
2006-2011	75 300	2.8	1.9
2011-2016	32 100	1.1	1.4
2006-2016	107 400	2.0	1.7
2016-2018	33 600	2.7	2.7

Note: Comparisons are based on year ending August.

Source: BITRE analysis of ABS *Census of Population and Housing* 2006, 2011 and 2016 (place of usual residence data), extracted using TablebuilderPro, and ABS Cat. 6291.0.55.003 *Labour Force, Australia, Detailed, Quarterly, May 2019*.

Given its greater suitability for time-series analysis, LFS data will be used in preference to census data for making national comparisons of recent employment growth in TPW sub-industries¹⁹ and monitoring the

¹⁷ The ABS *Labour Force Survey* provides Australia's official measure of employment, and is specifically designed to support comparisons of employment data over time. Comparison of census data over time can be impacted by changes in methods.

¹⁸ The number of TPW employed persons captured in the census was 17 per cent lower than the number captured in the LFS for August 2016. Thus, it is expected that the census estimates of employment change will generally be of smaller magnitude than the LFS estimates.

¹⁹ BITRE undertook some preliminary analysis of changes in the census employment data by 2 digit sub-industry, which raised questions about the reliability of the census-based change measures. The analysis found that the number of persons categorised to TPW not further defined increased from 7 200 in 2006 and 2011, to 23 500 in 2016. This change in coding practices creates a downward bias in the sub-industry employment change estimates for the 2006 to 2016 and 2011 to 2016 sub-periods. Furthermore, the census data shows a significant employment decline for the Road transport sub-industry (and specifically the Road freight transport component) between 2011 and 2016, which is inconsistent with other sources, such as the LFS (see Table 15). If the sub-industry to which key firms are coded changes from one census to the next, this can potentially impact on sub-industry measures of employment change from the census.

gender split of TPW employment. For the remaining worker characteristic variables, where suitably disaggregated LFS data is not available, census data will be used to assess changes over time.

TPW sub-industries

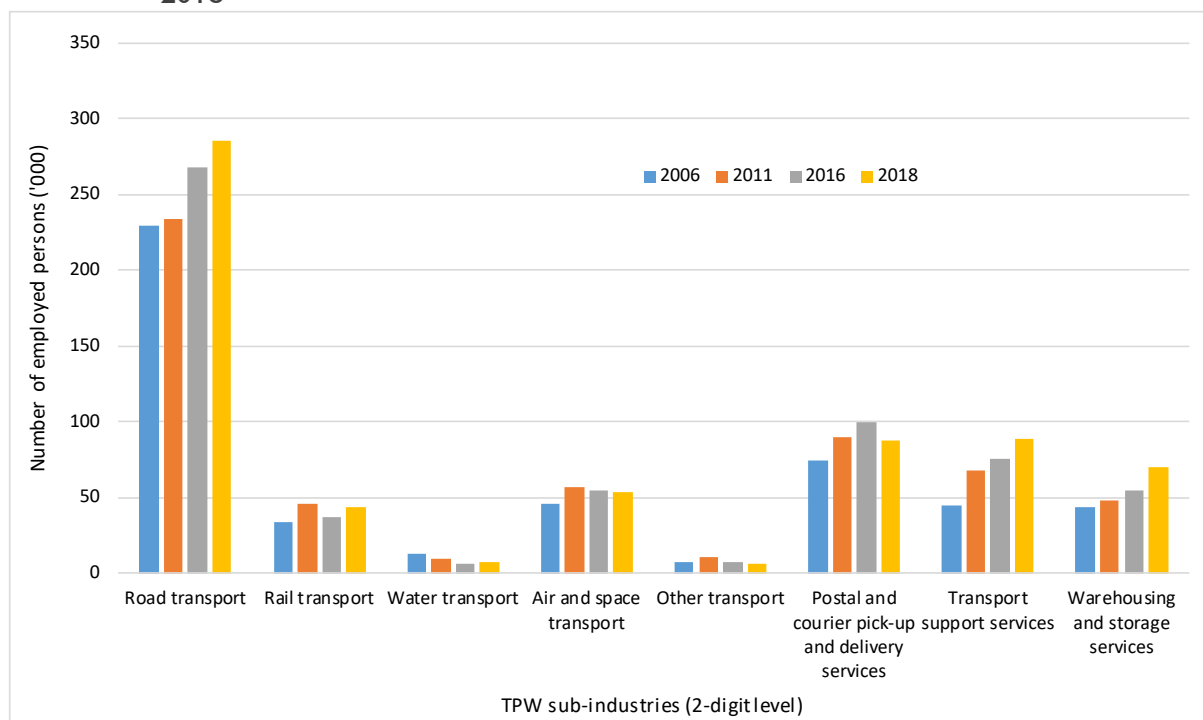
Figure 19 illustrates the number of persons employed in each TPW sub-industry between 2006 and 2018. Table 15 shows how the number of persons employed in each sub-industry changed during this period.

Between 2011 and 2018, the main source of TPW employment growth was the Road transport sub-industry, which added 52 200 employed persons, according to the LFS.²⁰ The Transport support services and Warehousing and storage services sub-industries each added a little over 20 000 employed persons. However, there were small employment declines in all other sub-industries.

The pattern of change was somewhat different in the earlier sub-period. Between 2006 and 2011, the main sources of TPW employment growth were Transport support services (which added 22 800 employed persons), Postal and courier pick-up and delivery services (14 600), Rail transport (12 800) and Air and space transport (10 900), with only the Water transport sub-industry experiencing a decline (of 3 200 employed persons).

When the entire twelve year period ended August 2018 is considered, a total of 141 000 employed persons were added to the TPW industry, with the key contributors being Road transport (which added 56 900 employed persons), Transport support services (+ 43 200) and Warehousing and storage services (+ 27 100). Employment grew most rapidly in Transport support services (average annual growth rate of 5.8 per cent), with Warehousing and storage services also recording above-average growth. Employment declined most rapidly in the Water transport sub-industry, with Other transport also declining (Table 15).

Figure 19 Transport, postal and warehousing employment by sub-industry, Australia, 2006 to 2018



Notes: Year ending August. TPW not further defined is included in TPW total, but is not shown separately.
Source: ABS Cat. 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly, May 2019.

²⁰ Note that census data does not align with the LFS for the Road transport sub-industry. While LFS data shows a 34 200 employment increase between 2011 and 2016, the census data instead shows a decline of 33 000 employed persons between 2011 and 2016. Methodological changes in the processing of census data between 2011 and 2016 will have impacted on the census change measure to some extent.

Table 15 Change in Transport, postal and warehousing employment by sub-industry, Australia, 2006 to 2018

TPW sub-industry (2-digit level)	2006-2011	2011-2018	2006-2018
Change in employed persons ('000)			
Road transport	4.7	52.2	56.9
Rail transport	12.8	-2.5	10.3
Water transport	-3.2	-2.2	-5.4
Air and space transport	10.9	-2.9	8.0
Other transport	3.3	-4.7	-1.4
Postal and courier pick-up and delivery services	14.6	-2.1	12.5
Transport support services	22.8	20.4	43.2
Warehousing and storage services	4.7	22.3	27.1
Total TPW industry	75.3	65.7	141.0
Average annual rate of growth (per cent)			
Road transport	0.4	2.9	1.9
Rail transport	6.8	-0.8	2.3
Water transport	-5.7	-3.8	-4.6
Air and space transport	4.3	-0.8	1.3
Other transport	7.5	-7.8	-1.7
Postal and courier pick-up and delivery services	3.6	-0.3	1.3
Transport support services	8.5	3.8	5.8
Warehousing and storage services	2.1	5.6	4.1
Total TPW industry	2.8	1.6	2.1

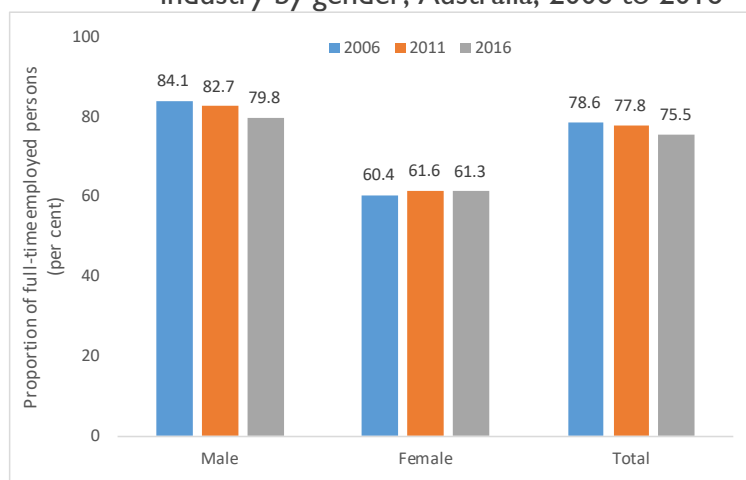
Notes: Year ending August. TPW not further defined is included in TPW total, but is not shown separately.

Source: ABS Cat. 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly, May 2019.

Employment type

Figure 20 shows that between 2006 and 2016 there was a decline of 3.1 percentage points (from 78.6 to 75.5 per cent) in the proportion of TPW workers employed on a full-time basis.²¹ The decline in full-time TPW employment was the net effect of a 4.3 percentage point decline in the proportion of male workers employed full-time, and a 0.9 percentage point rise in the proportion of female workers employed full time.

Figure 20 Proportion of full-time employed persons in the Transport, postal and warehousing industry by gender, Australia, 2006 to 2016



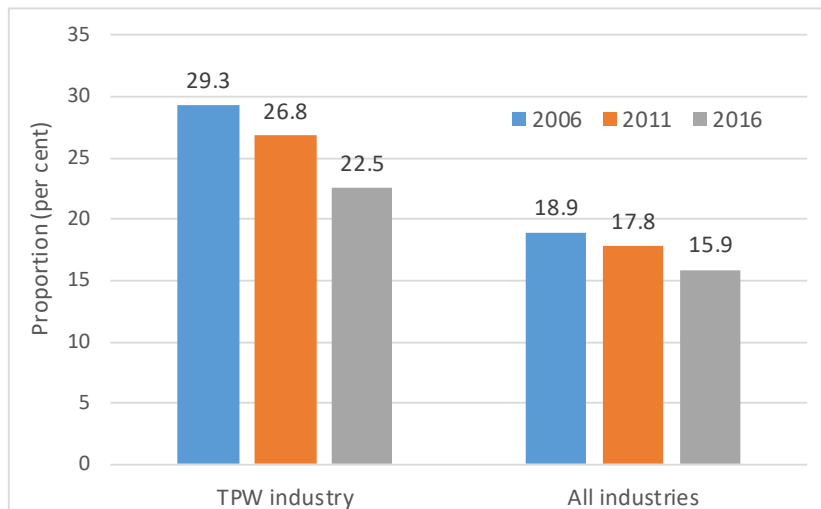
Note: Proportion calculated after excluding employed persons who were away from work.

Source: BITRE analysis of ABS *Census of Population and Housing* 2006, 2011 and 2016 (place of usual residence data), extracted using TablebuilderPro.

²¹ This is an economy-wide trend with the overall rate of full-time employment across all industries declining by 3.0 percentage points between the 2006 and 2016 censuses (from 68.5 to 65.5 per cent).

Figure 21 shows the proportion of employed persons in the TPW industry and all industries who worked 49 or more hours in a week. Over this ten year period, there was a 6.8 percentage point decline (from 29.3 to 22.5 per cent) in the proportion of TPW employed persons who worked 49 or more hours a week. Across all industries, there was a gradual decline from 18.9 per cent to 15.9 per cent (or 3.0 percentage points) in the proportion who worked 49 or more hours per week. Thus, while there has been an economy-wide shift away from extra-long working weeks, the shift has been much more pronounced in the TPW industry.

Figure 21 Proportion of employed persons who worked 49 or more hours, Australia, 2006 to 2016

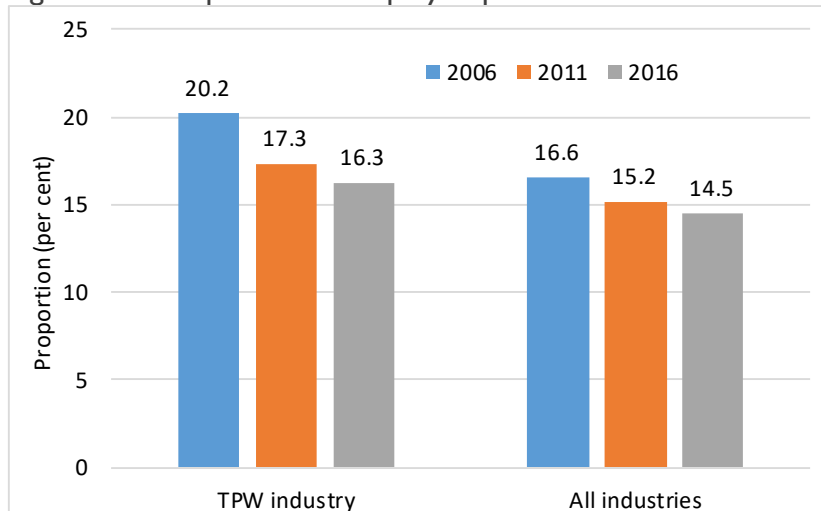


Note: Proportion calculated after excluding not stated responses and those who reported working zero hours in the week prior to census night.

Source: BITRE analysis of ABS *Census of Population and Housing* 2006, 2011 and 2016 (place of usual residence data), extracted using TablebuilderPro.

Figure 22 shows the proportion of employed persons in the TPW industry and all industries who were business owners in Australia between 2006 and 2016. Over this ten year period, there was a 3.9 percentage point decline (from 20.2 to 16.3 per cent) in the proportion of TPW employed persons who were business owners. Across all industries, there was a gradual decline from 16.6 per cent to 14.5 per cent (or 2.1 percentage points) in the proportion who were business owners during the same period.

Figure 22 Proportion of employed persons who are business owners, Australia, 2006 to 2016



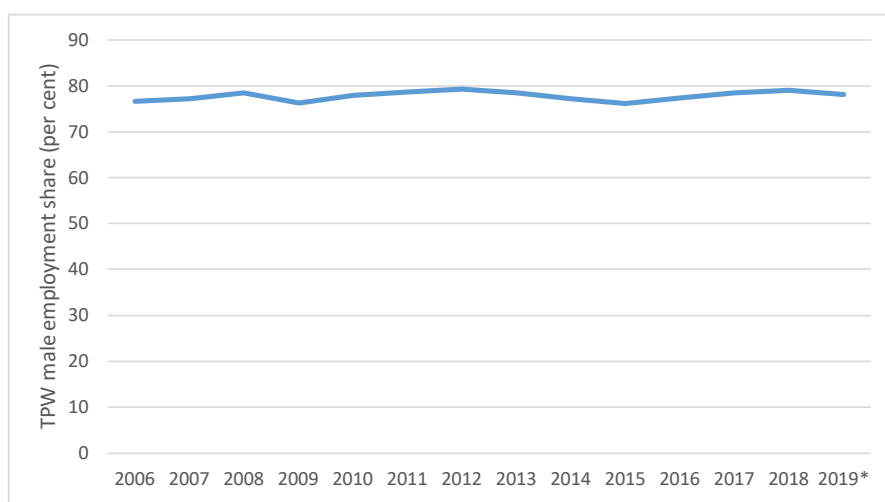
Note: Business owners are owner managers of incorporated or unincorporated enterprises, with or without employees. Proportion calculated after excluding not stated responses.

Source: BITRE analysis of ABS *Census of Population and Housing* 2006, 2011 and 2016 (place of usual residence data), extracted using TablebuilderPro.

Demographics

Using the ABS *Labour Force Survey*, the gender mix of the TPW workforce has changed little over the ten years ended 2016, with males accounting for around 77 per cent of employed persons in both 2006 and 2016 (Figure 23).²² There was a small rise in the male employment share between 2006 and 2011, followed by a small decline between 2011 and 2016, with a net increase of 0.9 percentage points between 2006 and 2016. The latest LFS data for the May quarter of 2019 shows that males contribute 78 per cent of TPW employment.

Figure 23 Proportion of male employed persons in the Transport, postal and warehousing industry, Australia, 2006 to 2019



Notes: * Data for 2019 is for May quarter, (since August quarter data was not yet available). For all other years, data relates to August quarter (to align with census timing).

Source: ABS Cat. 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly, May 2019.

ABS census data shows that the TPW workforce has been ageing more rapidly than the overall workforce—the proportion of TPW employed persons aged 55 and over stood at 19.4 per cent in 2006, and rose to 22.9 per cent in 2011, and then to 25.4 per cent in 2016. This represents a 6.0 percentage point increase between 2006 and 2016 (see Figure 24), which compares to a 4.2 percentage point rise for total employment.²³

Figure 24 also shows that the proportion of employed persons aged 55 and over rose sharply for Postal and courier pick-up and delivery services (by 9.5 percentage points), Rail transport (9.3 percentage points) and Road transport (7.4 percentage points).

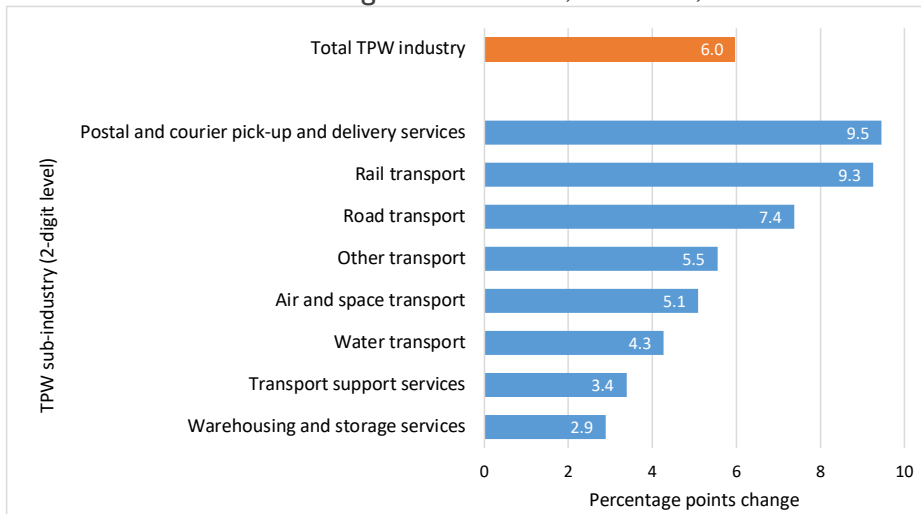
Figure 25 illustrates the shift towards an older age structure in the TPW workforce between 2006 and 2016. While the increased proportion of workers aged 55 and over is a key feature, so too is the significantly reduced proportion of workers aged between 35 and 44.²⁴ The ageing of the workforce is regarded as one of the major challenges facing the transport and logistics industry, and this has led to a number of initiatives relating to succession planning, mature worker retention, recruitment and vocational training (Transport and Logistics Industry Skills Council 2012, 2014, 2015). More detailed data on the age structure of TPW employed persons is provided in Appendix A (Table A.1).

²² Census data similarly shows the male share of TPW employment has remained unchanged, at 77 per cent in 2006, 2011 and 2016.

²³ The more rapid ageing of the TPW workforce is also evident from median age and average age data. For example, the median age of TPW employed persons increased from 43 in 2006 to 45 in 2016, but the all-industry median age remained stable at 40 years in both 2006 and 2016.

²⁴ The proportion of TPW workers aged between 35 and 44 declined by 4.7 percentage points between 2006 and 2016. This age group's share of overall employment has declined by 2.1 percentage points over the same period.

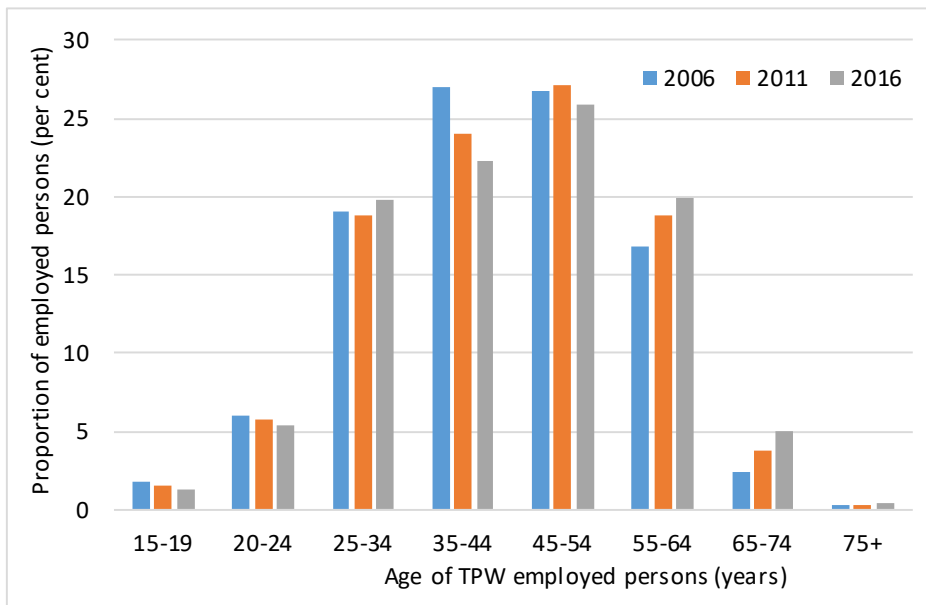
Figure 24 Percentage point change in the proportion aged 55 and over for Transport, postal and warehousing sub-industries, Australia, 2006 to 2016



Note: TPW not further defined is included in TPW total, but is not shown separately.

Source: BITRE analysis of ABS *Census of Population and Housing* 2006, 2011 and 2016 (place of usual residence data), extracted using TablebuilderPro.

Figure 25 Transport, postal and warehousing employment by age category, Australia, 2006 to 2016



Source: BITRE analysis of ABS *Census of Population and Housing* place of usual residence data for 2006, 2011 and 2016 (data extracted using Tablebuilder Pro).

Skills

Occupation

Table 16 show the changes in TPW employed persons by occupation between 2011 and 2016. During this period, the 1-digit ANZSCO occupation category that experienced the most employment growth within the TPW industry was Machinery operators and drivers, which added 17 400 employed persons. In addition, there were substantial increases in the number of TPW employed persons who were Managers (6 000) or Professionals (2 400). However, there were decreases in the number of TPW employed persons in three occupations: Clerical and administrative workers (-3 100 employed persons), Technicians and trades workers (-1 400) and Labourers (-1 000).

Table 16 also shows the employment of Managers grew relatively faster than other occupations, averaging 2.5 per cent growth per annum, while Machinery operators and drivers averaged 1.7 per cent growth per annum and Professionals grew by 1.4 per cent per annum between 2011 and 2016. Managers and Professionals are the two most highly skilled 1-digit occupational categories (ABS 2013b), and the above-average employment growth in these occupations points to a general upskilling of the TPW workforce.

Table 16 Changes in Transport, postal and warehousing employed persons by occupation, 2011 to 2016, Australia

Occupation type	Change in the number of employed persons, 2011-2016	Average annual growth rate (per cent)
Managers	6 000	2.5
Professionals	2 400	1.4
Technicians and trades workers	-1 400	-1.1
Community and personal service workers	300	0.4
Clerical and administrative workers	-3 100	-0.6
Sales workers	1 100	1
Machinery operators and drivers	17 400	1.7
Labourers	-1 000	-0.8
All occupations	20 300	0.8

Note: Inadequately described/not stated occupations are not shown separately in the table, but are included in the total.

Source: BITRE analysis of ABS *Census of Population and Housing* place of usual residence data for 2011 and 2016 (data extracted using Tablebuilder Pro).

The 3-digit occupational scale provides a more detailed perspective on growth occupations. Between 2011 and 2016, the 3-digit ANZSCO occupations that experienced the most employment growth within the TPW industry were Storepersons (which added 8 500 employed persons), Automobile and rail drivers (8 500), Delivery drivers (3 300) and Mobile plant operators (3 300) (Table 17). All four occupations are skill level four occupations (on a scale of one to five, see p.15), although further down the list of growth occupations are some higher skilled occupations (i.e. Miscellaneous hospitality, retail and service managers, Construction, distribution and production managers). Table 17 also shows that average annual growth was much faster for Storepersons (11.9 per cent) and Delivery drivers (6.0 per cent), compared to the other listed occupations.

Table 17 Main growth and decline occupations for Transport, postal and warehousing employed persons, 2011 to 2016, Australia

3-digit Occupation	Change in TPW employed persons, 2011-2016	Average annual growth of TPW employed persons, 2011-2016 (per cent)
<i>Growth occupations</i>		
Automobile, bus and rail drivers	8 500	2.5
Delivery drivers	3 300	6
Mobile plant operators	3 300	3.9
Logistics clerks	1 600	1.6
Miscellaneous hospitality, retail and service managers	1 500	2.1
Construction, distribution and production managers	1 200	2
Sales assistants and salespersons	1 100	2.6
<i>Declining occupations</i>		
Truck drivers	-6 400	-1.6
General clerks	-1 600	-3.5
Clerical and office support workers	-1 400	-0.7
Personal assistants and secretaries	-1 100	-7.3
Miscellaneous labourers	-1 000	-2.3

Note: TPW employed persons rounded to nearest 100.

Source: BITRE analysis of ABS *Census of Population and Housing* place of usual residence data for 2011 and 2016 (data extracted using Tablebuilder Pro).

During this period, there was a sizeable decrease in the number of truck drivers working in the TPW industry (by 6 400 persons or 1.6 per cent per annum). Truck drivers are also a skill level four occupation. Note that the total number of truck drivers working across all industries increased by 2 400 persons between 2011 and 2016. This suggests there has been some industry restructuring occurring, with truck driving roles that were previously performed in the TPW industry, now occurring in non-TPW industries.

Education

There was a clear shift towards higher levels of educational attainment within the TPW industry between 2011 and 2016. Table 18 shows that the number of TPW employed persons with bachelor degree or higher qualifications increased by 20 500 employed persons, which is very similar to the total TPW employment increase of 20 300 employed persons over the period. There were also substantial increases in the numbers holding advanced diploma and diploma qualifications (10 900), certificate qualifications (12 200) and Year 12 qualifications (but no post-school qualifications) (9 100). The total number with post-school qualifications increased by 43 700 employed persons. Given the low rate of current participation in education by TPW workers (see p. 19 and BITRE 2014), it is likely that much of the upskilling is occurring through recruitment of new higher-qualified workers. Between 2011 and 2016, there were significant declines in the number of TPW employed persons whose highest level of educational attainment was Year 11 schooling, or less.

The average annual growth rates between 2011 and 2016 show a clear pattern of being at their highest for those with post-graduate qualifications (7.9 per cent), and also very high for those with bachelor degree qualifications (5.7 per cent), but then systematically declining as educational attainment declines, with rapid job decline occurring for the least educated category between 2011 and 2016.

BITRE (2014) identified a similar shift towards higher levels of educational attainment in the TPW industry in the 2006 to 2011 period. During that period, the number of TPW employed persons holding post-graduate qualifications grew by 11.0 per cent per annum, while the number holding bachelor degrees grew by 6.8 per cent per annum.

Table 18 Level of educational attainment of Transport, postal and warehousing employed persons, Australia, 2011 and 2016

Level of educational attainment	Number of TPW employed persons		Change (per cent) (2011-2016)	Average annual growth (per cent) (2011-2016)
	2011	2016		
Postgraduate degree, graduate diploma or graduate certificate qualification	15 200	22 200	7 000	7.9
Bachelor degree qualification	42 200	55 700	13 500	5.7
Advanced diploma/diploma qualification	40 500	51 400	10 900	4.9
Certificate level qualification	112 700	124 900	12 200	2.1
Completed Yr12 schooling, No identified post-school qualification	88 700	97 900	9 100	2.0
Completed Yr10 or Yr11 schooling, No identified post school qualification	114 600	100 700	-13 900	-2.8
Did not complete Yr10 or equivalent,* No identified post school qualification	41 300	31 100	-10 200	-5.5
Total TPW employed persons	479 200	499 500	20 300	0.8

Notes:

1. * Includes not stated level of schooling completion.

2. Not stated post-school qualification category included in the total, but not shown in Table.

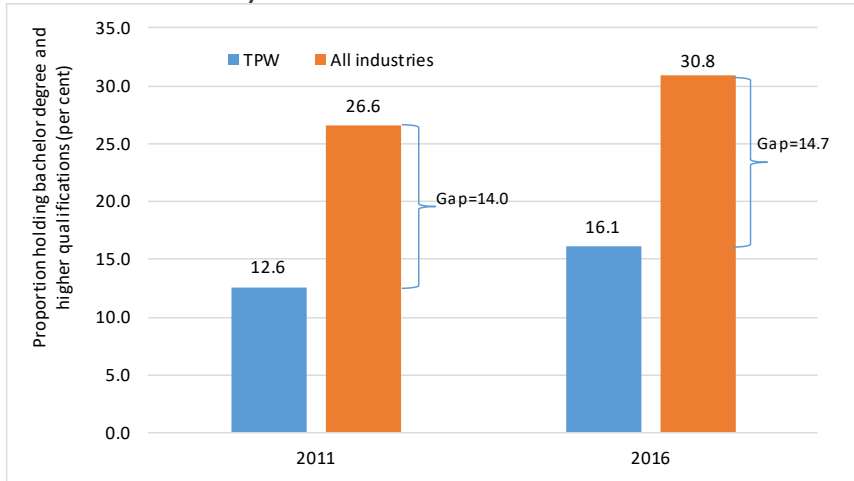
3. Number of employed persons are rounded to nearest 100.

Source: BITRE analysis of ABS *Census of Population and Housing* place of usual residence data for 2011 and 2016 (data extracted using Tablebuilder Pro).

This reflects a general trend towards higher levels of educational attainment across the Australian workforce. Figure 26 shows that while the proportion of TPW employed persons with a bachelor degree or higher qualification rose by 3.5 percentage points between 2011 and 2016 (from 12.6 to 16.1 per cent), over the same period the proportion of all employed persons with a bachelor degree or higher qualification rose by 4.3 percentage points. Thus, despite sizeable growth in the number of TPW workers with higher educational qualifications, the average TPW worker continues to be significantly less educated than the average

Australian worker. Moreover, the gap has widened in recent years. Figure 26 shows the gap in the proportion holding bachelor degree or higher qualifications has expanded from 14.0 percentage points in 2011 to 14.7 percentage points in 2016. The gap also widened by 1.6 percentage points between 2006 and 2011 (BITRE 2014).

Figure 26 Proportion of employed persons with bachelor degree or higher qualifications by industry, Australia, 2011 and 2016

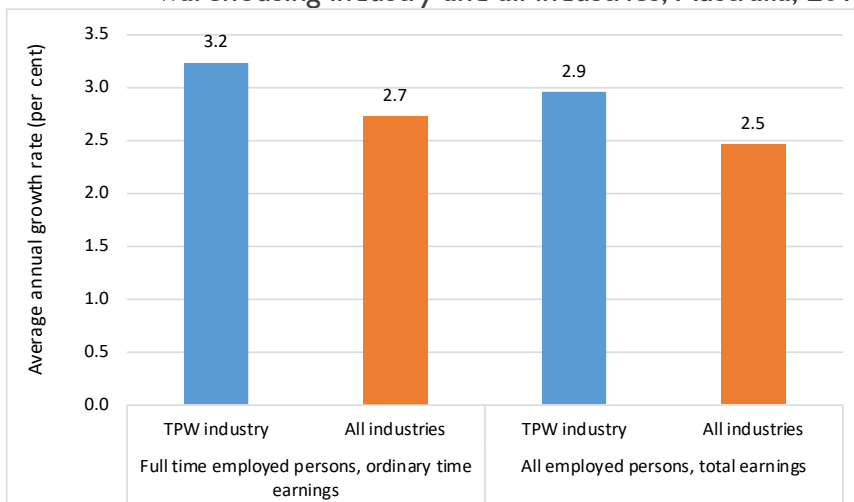


Source: BITRE analysis of ABS *Census of Population and Housing* (place of usual residence) data for 2011 and 2016 (data extracted using Tablebuilder Pro).

Income

The ABS *Average Weekly Earnings* data for the November 2011 to November 2018 period shows that average weekly ordinary time earnings for full-time employed persons have shown faster growth in TPW compared to the all-industry average, while average total earnings for all TPW employed persons have also shown faster growth than the all-industry average (Figure 27).

Figure 27 Average annual growth rate of average weekly earnings, Transport, postal and warehousing industry and all industries, Australia, 2011 to 2018



Notes: Year ending November.

Source: ABS Cat. No. 6302.0, *Average Weekly Earnings, Australia*, November 2018.

While the *Average Weekly Earnings* data isn't available for TPW sub-industries or occupations, the census data can be used to investigate whether there are specific sub-industries or occupations in which wage pressures seem to have been more pronounced in recent years.

Table 19 shows the average annual growth rate of the average and median income of employed persons in each of the TPW sub-industries between 2011 and 2016. The Warehousing and storage services sub-industry experienced minimal income growth between 2011 and 2016. However, there is some evidence of wage pressures in the Rail transport sub-industry in recent years, as it had the fastest growth of all the TPW industries (at 4.2 per cent for average income and 4.4 per cent for median income). More detailed investigation found that, while all of the top ten 4-digit occupations in the Rail transport sub-industry experienced income growth of at least 3 per cent per annum between 2011 and 2016, there were three occupations that stood out with income growth of more than 5 per cent per annum: Contract, program and project administrators, Electricians and Railway track operators. This may reflect the emergence of skill shortages in the rail industry 'as investment grows in new rail infrastructure and rolling stock and operations expand, with the number of train drivers, controllers, track workers, signalling engineers and technicians, maintenance workers, electrical technicians and tunnellers not keeping up with growing demand' (Australasian Railway Association 2018).

Table 19 Average annual growth rate of average and median income of employed persons in the Transport, postal and warehousing industry by sub-industry, Australia, 2011 to 2016

2-digit TPW industries	Average annual growth rate (per cent), 2011 to 2016	
	Average	Median
Road transport	3.1	2.8
Rail transport	4.2	4.4
Water transport	1.8	1.2
Air and space transport	3.2	2.9
Other transport	3.3	2.5
Postal and courier pick-up and delivery services	2.7	1.8
Transport support services	2.0	0.8
Warehousing and storage services	1.0	-0.1
Total TPW industry	2.7	1.9

Notes:

1. Total personal income includes income from sources other than employment (e.g. family benefits, investment income).
2. BITRE has estimated median weekly income based on the categorical income responses in the census. Details of the methodology are provided in the notes to Figure 16.

Source: BITRE analysis of ABS *Census of Population and Housing* place of usual residence data for 2011 and 2016 (data extracted using Tablebuilder Pro).

Table 21 shows the changes in average and median incomes between 2011 and 2016 for the top 10 TPW occupations. There is evidence of above-average wage pressures in Air and marine transport professionals, where average incomes grew by 5.3 per cent per annum and median incomes by 3.2 per cent. Further analysis of 4-digit occupations revealed that the predominant source of this income growth was Air transport professionals (e.g. aeroplane pilots, air traffic controllers, flight instructors), for whom average incomes grew by 5.5 per cent and median incomes by 3.5 per cent. Wages may be affected by skill shortages in the aviation sector. A recent *Aviation Workforce Skills Study* found that the existing shortage of flight instructors and flight examiners was expected to continue in the short to medium term, and that ongoing strong demand for Australian-trained pilots may lead to localised shortages (Australian Industry Standards 2017). Aeroplane pilots are currently identified by the Australian Government as an occupation eligible for a Temporary skill shortage visa, but eligibility is restricted to positions located in regional Australia (Department of Home Affairs 2019).

Table 21 Change in occupational income by TPW employed persons, Australia, 2011 to 2016

Occupation (3-digit level)	2011		2016		Average annual growth (per cent)	
	Average income (\$)	Median income (\$)	Average income (\$)	Median income (\$)	Average income	Median income
Truck drivers	1077	992	1232	1137	2.7	2.8
Automobile, bus and rail Drivers	880	746	971	813	2.0	1.7
Clerical and office support workers	854	813	977	928	2.7	2.7
Logistics clerks	1211	956	1344	1210	2.1	4.8
Storepersons	861	827	918	876	1.3	1.2
Mobile plant operators	967	904	1061	975	1.9	1.5
Miscellaneous hospitality, retail and service managers	1378	1172	1589	1309	2.9	2.2
Delivery drivers	852	776	874	807	0.5	0.8
Construction, distribution and production managers	1802	1569	2089	1732	3.0	2.0
Air and marine transport professionals	2162	2133 ^a	2804	2497	5.3	3.2

Notes:

1. Top 10 sub-occupations based on 2016 number of employed persons.

2. ^a Conservative estimate.

Source: BITRE analysis of ABS *Census of Population and Housing 2011* and 2016 (place of work data), extracted using TablebuilderPro.

Location

As mentioned earlier (p. 22), TPW employment is inherently difficult to tie down to a small area location due to the mobile nature of many transport jobs (e.g. truck drivers, taxi drivers). The ABS significantly changed its methodology for allocating people to a place of work between the 2011 and 2016 censuses, meaning that the place of work data is not directly comparable across these two censuses. Instead we have used the place of usual residence data for 2011 to 2016 to investigate changes in the location of TPW employed persons.

Table 22 provides information on changes in TPW employed residents between 2011 and 2016, with respect to states, capital cities and rest of states. At this highly aggregated geography, the great majority of people will live and work in the same city/region.

There was an increase of more than 20 300 TPW employed persons between 2011 and 2016, representing 0.8 per cent average annual growth. Growth was positive for capital cities (1.5 per cent per annum) and negative for Rest of states (-0.6 per cent per annum).

Among capital cities, the growth of TPW employed persons was highest for Greater Melbourne (12 300 persons and averaging 2.5 per cent growth per annum). Sydney and Perth also added a significant number of TPW employed persons, at 5 200 and 2 800, respectively.

All of the state balances recorded a decline in TPW employed persons, with the decline most pronounced in the Rest of NSW and the Rest of Queensland, which both had declines of 1 500 employed persons. These declines were largely being driven by the Road transport sub-industry.²⁵ While the census also identifies declines in Road transport employment in the capital cities, these are offset by strong growth in employment in Warehousing and storage services and Postal and courier pick-up and delivery services in the largest capital cities. These latter two sub-industries recorded much more modest growth in regional areas and the smaller capital cities.

²⁵ While the census data identifies a substantial national decline in Road transport employment, the LFS identifies substantial growth in Road transport employment between 2011 and 2016. Methodological changes in the processing of census data between 2011 and 2016 will have impacted on the census change measure to some extent. Footnote 19 provides more information.

Table 22 Change in Transport, postal and warehousing employed persons by place of residence, Australia, 2011 to 2016

Geography	Change in TPW employed persons (2011-2016)	Share of total change in location (per cent)	Average annual growth rates (per cent)
Greater Sydney	5 200	26	0.9
Greater Melbourne	12 300	61	2.5
Greater Brisbane	2 600	13	0.9
Greater Adelaide	700	3	0.6
Greater Perth	3 800	19	1.9
Greater Hobart	100	0	0.5
Greater Darwin	0*	0	-0.2
Canberra	300	2	1.4
Rest of New South Wales	-1 500	-7	-0.7
Rest of Victoria	-400	-2	-0.3
Rest of Queensland	-1 500	-8	-0.6
Rest of South Australia	-400	-2	-1.3
Rest of Western Australia	-400	-2	-0.7
Rest of Tasmania	-200	-1	-0.7
Rest of Northern Territory	-100	0	-1.2
New South Wales	3 800	18	0.5
Victoria	11 900	59	1.9
Queensland	1 100	6	0.2
South Australia	300	1	0.2
Western Australia	3 400	17	1.3
Tasmania	-100	-1	-0.3
Northern Territory	-100	-1	-0.5
All capital cities	25 100	123	1.5
Rest of states	-4 500	-22	-0.6
Australia	20 300	100	0.8

Notes:

- * Change of less than 50 employed persons.
- No usual address, Migratory-Offshore-Shipping and Other Territories are included in the total, but not presented separately in the table.
- Australian Capital Territory is same as Canberra and was included in the Capital cities total.

Source: BITRE analysis of ABS *Census of Population and Housing 2011* and 2016 (place of usual residence), extracted using TablebuilderPro.

Concluding remarks

The Transport, postal and warehousing (TPW) industry is a significant contributor to the national economy, accounting for 4.9 per cent (or \$85.0 billion) of value added in 2017–18 (ABS 2018) and employing 651 600 persons as of May 2019 (ABS 2019a).

This study provides a national profile of people employed in the TPW industry as of 2016, providing details of the sub-industries in which TPW workers are employed, their employment status, hours worked, gender, age, occupation, educational qualifications, income, work location and commuting behaviour. Just over 40 per cent of all TPW employment was found to relate to the Road transport sub-industry. TPW workers are predominantly male (77 per cent) and employed on a full-time basis (75 per cent), and they tend to be older than workers in other industries (with a median age of 45 years, compared to 40 years for all employed persons). TPW workers are generally less educated than the average Australian worker, in terms of both schooling and post-school education.

In addition to providing this national snapshot of the characteristics of TPW workers in 2016, the Information Sheet also describes some of the key changes that have occurred in recent years, such as:

- The shift towards fewer hours of work in the TPW industry—with the proportion working 49 or more hours a week declining by 4.3 percentage points between 2011 and 2016, and the proportion working full-time declining by 2.3 percentage points.
- The more rapid rate of ageing in the TPW workforce compared to the overall workforce—from 2011 to 2016, the proportion aged 55 and over rose by 2.5 percentage points in TPW, compared to a 1.6 percentage point rise for total employment.
- The shift towards higher levels of educational attainment within the TPW industry—in 2016, there were 20 500 additional TPW employed persons who held bachelor degree or higher qualifications (compared to 2011), and 24 100 fewer persons holding neither Year 12 nor post-school qualifications. However, despite this strong growth in educational attainment, the number of TPW employed persons with bachelor degree or higher qualifications (16.1 per cent) continues to remain well below the national proportion of 30.8 per cent for all employed persons.

This Information Sheet provides a useful basis for understanding the nature of employment in the TPW industry, and the transitions that are currently underway. A similar employment profile will also be prepared for another sector (Heavy and civil engineering construction) that is fundamental to transport and infrastructure policy, namely the infrastructure construction sector (BITRE 2019).

Appendix A

Table A.1 Time series analysis of age structure of Transport, postal and warehousing employed persons by sub-industries, Australia, 2001, 2011 and 2016

Year	Age of TPW employed persons (years)								All ages
	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75+	
Road transport									
2006	1.7	5.4	17.3	26.4	26.5	19.2	3.1	0.3	100.0
2011	1.4	5.0	16.9	22.9	27.1	21.2	5.2	0.3	100.0
2016	0.9	4.2	17.6	20.8	26.4	22.6	6.9	0.6	100.0
Rail transport									
2006	1.0	5.2	17.3	28.0	33.5	14.1	0.9	0.1	100.0
2011	0.7	5.1	19.1	24.1	31.3	17.9	1.7	0.1	100.0
2016	0.3	2.8	19.5	24.3	28.8	21.4	2.7	0.1	100.0
Water transport									
2006	2.2	8.0	22.9	26.3	23.3	15.0	2.0	0.4	100.0
2011	1.4	6.9	23.2	24.4	25.0	16.0	2.9	0.2	100.0
2016	1.6	5.6	21.9	24.4	25.1	17.0	4.2	0.3	100.2
Air and space transport									
2006	0.9	6.8	27.4	31.5	22.7	9.8	0.8	0.1	100.0
2011	1.0	7.0	24.2	29.3	25.4	11.7	1.4	0.1	100.0
2016	1.0	6.6	23.7	26.4	26.6	13.7	2.0	0.1	100.0
Other transport									
2006	3.5	10.8	23.5	23.8	20.7	15.2	2.2	0.3	100.0
2011	2.5	8.1	21.8	22.9	23.4	17.1	3.9	0.4	100.0
2016	2.5	8.5	21.1	21.9	22.8	17.6	5.2	0.4	100.0
Postal and courier pick-up and delivery services									
2006	2.5	4.8	16.4	27.0	30.5	16.7	1.9	0.2	100.0
2011	2.2	4.9	14.8	22.9	30.5	20.9	3.5	0.2	100.0
2016	2.1	5.8	17.1	20.1	26.7	22.7	5.1	0.4	100.0
Transport support services									
2006	1.7	7.0	21.0	26.0	25.7	16.0	2.4	0.2	100.0
2011	1.3	6.7	22.2	25.2	25.3	16.3	2.9	0.2	100.0
2016	0.9	5.5	23.1	24.4	24.2	17.3	4.2	0.4	100.0
Warehousing and storage services									
2006	3.3	10.1	25.1	26.1	21.9	11.7	1.6	0.3	100.0
2011	2.4	9.5	25.2	24.9	22.6	12.7	2.4	0.3	100.0
2016	2.4	10.4	26.0	23.2	21.5	13.3	2.8	0.4	100.0
Total TPW industry									
2006	1.8	6.0	19.0	26.9	26.8	16.8	2.4	0.2	100.0
2011	1.5	5.7	18.7	24.0	27.2	18.8	3.8	0.3	100.0
2016	1.3	5.4	19.9	22.2	25.8	19.9	5.1	0.4	100.0

Note: TPW not further defined is included in TPW total, but is not shown separately.

Source: BITRE analysis of ABS *Census of Population and Housing* 2006, 2011 and 2016 (place of usual residence data), extracted using TablebuilderPro.

Abbreviations and Acronyms

ABS	Australian Bureau of Statistics
ANZSCO	Australian and New Zealand Standard Classification of Occupations
ANZSIC	Australian and New Zealand Standard Industrial Classification
ASCED	Australian Standard Classification of Education
ASGS	Australian Statistical Geography Standard
BITRE	Bureau of Transport, Infrastructure and Regional Economics
Cat.	Catalogue
CBD	Central Business District
GDP	Gross Domestic Product
GVA	Gross Value Added
LFS	Labour Force Survey
na	Not applicable
nec	Not elsewhere classified
nfd	Not further defined
NSW	New South Wales
NT	Northern Territory
QLD	Queensland
SA	South Australia
SA2	Statistical Area Level 2
SUA	Significant Urban Area
TAS	Tasmania
TPW	Transport, postal and warehousing
VIC	Victoria
WA	Western Australia

References

- Australian Bureau of Statistics 2019a, *Labour Force Australia*, Detailed, Quarterly, May 2019, Cat. 6291.0.55.003, ABS Canberra.
- Australian Bureau of Statistics 2019b, *Average Weekly Earnings*, Australia, November 2018, Cat. 6302.0, ABS, Canberra.
- Australian Bureau of Statistics 2018a, *Australian System of National Accounts, 2017-18*, Cat. 5204.0, ABS, Canberra.
- Australian Bureau of Statistics 2018b, *Australian Transport Economic Account: An Experimental Transport Satellite Account*, Cat. No. 5720.0, ABS, Canberra.
- Australian Bureau of Statistics 2017, *Australian Statistical Geography Standard (ASGS), July 2016*, Cat. 1270.0.55.001 and 1270.0.55.004, ABS, Canberra.
- Australian Bureau of Statistics 2013a, *Australian and New Zealand Standard Industrial Classification (ANZSIC), 2013 (Revision 2)*, Cat. 1292.0, ABS, Canberra.
- Australian Bureau of Statistics 2013b, *ANZSCO—Australian and New Zealand Standard Classification of Occupations, 2013, Version 1.2*, Cat. 1220.0, ABS, Canberra.
- Australian Bureau of Statistics 2012, *Differences between the LFS and the Census*, Data Quality Factsheet, accessed 22 September from <www.abs.gov.au/websitedbs/censushome.nsf/home/factsheetslfsc?opendocument&navpos=450>.
- Australian Bureau of Statistics 2011, *Information paper: A future Australian Transport Satellite Account—ABS views, 2011*, Cat. No. 5269.0.55.001, ABS, Canberra.
- Australian Bureau of Statistics 2009, *ANZSCO—Australian and New Zealand Standard Classification of Occupations, First Edition, Revision 1*, Cat. No. 1220.0, ABS, Canberra.
- Australian Bureau of Statistics 2006, *Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006*, Cat. No. 1292.0, ABS, Canberra.
- Australian Industry Standards 2017, *Aviation Workforce Skills Study*, accessed 8 August 2019 from www.australianindustrystandards.org.au/aviation-workforce-skills-study/
- Australasian Railway Association 2018, *Australasian Railway Association Skills Capability Study: Skills Crisis – a call to action*, Report prepared by BIS Oxford Economics, November 2018, <ara.net.au/sites/default/files/u647/18-11-26%20BOE%20Report%20Final.pdf>
- Bureau of Infrastructure, Transport and Regional Economics 2019, *National profile of Heavy and civil engineering construction workers in 2016*, Information Sheet 105, BITRE, Canberra.
- Bureau of Infrastructure, Transport and Regional Economics 2014, *National profile of Transport, postal and warehousing workers*, Information Sheet 54, BITRE, Canberra.
- Department of Home Affairs 2019, *Skilled occupation list*, accessed 8 August 2019 from <immi.homeaffairs.gov.au/visas/working-in-australia/skill-occupation-list>
- Fair Work Ombudsman 2019, *Pay Guide – Road Transport (Long distance operations) Award 2010 [MA000039]*, accessed 6 August 2019 from <www.fairwork.gov.au/pay/minimum-wages/pay-guides#R>.
- Transport and Logistics Industry Skill Council 2012, *Environmental Scan 2012*, accessed 19 September 2014 from <tlisc.org.au/wp-content/themes/tlisc/downloads/TLISC_eScan2012.pdf>.
- Transport and Logistics Industry Skill Council 2014, *E-Scan 2014*, accessed 19 September 2014 from <tlisc.org.au/industry-intelligence/environmental-scan/>.
- Transport and Logistics Industry Skill Council 2015, *Environmental Scan 2015*, accessed 01 August 2019 from <tlisc.org.au/industry-intelligence/environmental-scan/>.

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