Research Report 2/2019

Insights into underemployment

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The contents of this paper are the responsibility of the author and the research has been conducted without the involvement of members of the Fair Work Commission.

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All research undertaken or commissioned by the Fair Work Commission for the Annual Wage Review 2018–19 has been agreed by the Minimum Wages Research Group (MWRG). The MWRG comprises a Chair from the Fair Work Commission, and representatives nominated by:

- Australian Chamber of Commerce and Industry (ACCI);
- Australian Industry Group (Ai Group);
- Australian Council of Social Service (ACOSS);
- Australian Council of Trade Unions (ACTU);
- Australian Government; and
- State and territory governments.

An appropriate reference for this report is:

> Yuen K & Smith O (2019), *Insights into underemployment*, Fair Work Commission Research Report 2/2019, February.

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The contents of this report, however, remain the responsibility of the authors and the research has been conducted without the involvement of members of the Fair Work Commission.

Table of Contents

List of charts

List of tables

List of abbreviations

ABS	Australian Bureau of Statistics
GFC	global financial crisis
HILDA	Household, Income and Labour Dynamics in Australia
RBA	Reserve Bank of Australia

1 Introduction

Underemployment is a measure of labour market spare capacity that identifies workers who would prefer to work more hours. It is an additional measure of labour market spare capacity to unemployment and together they represent the amount of underutilised labour. The underemployment rate is the proportion of underemployed workers in the labour force and has recently reached a record high.

The Expert Panel for annual wage reviews (Expert Panel) stated in the *Annual Wage Review 2016–17* (2016–17 Review) decision that while it is not clear what the relationship is, if any, between increases in the minimum wage and underemployment, the underemployment rate should continue to be monitored.[1] In the *Annual Wage Review 2017–18* (2017–18 Review) decision, the Expert Panel further noted that during the mid-2000s the unemployment rate and underemployment rate had generally moved together, but the two have recently diverged.[2]

This research follows on from the report published for the 2017–18 Review which explored the characteristics of the underemployed, and compared them with the unemployed and part-time workers using data from the Household, Income and Labour Dynamics in Australia (HILDA) survey. It found that underemployed workers had similar characteristics to the unemployed and some similarities with part-time workers.[3] It also analysed the duration of underemployment to determine whether it is a transitory or longer-lasting experience and found that underemployment is often a short-lived experience, with most being able to remain employed and obtain more working hours. However, underemployment remained a long-lasting experience for some groups.[4] The report also included a literature on recent studies of underemployment.

This report undertakes analysis of trends and characteristics in underemployment to determine reasons for the changes in the underemployment rate over the last 25 years, when the Australian labour market went through a period of structural change. It uses the recently available monthly data from the Australian Bureau of Statistics (ABS) Labour Force Survey to address the following research questions:

- What have been the trends in underemployment by demographic and job characteristics?
- How have these characteristics contributed to shifts in aggregate underemployment?

The report found that a major contribution to the increase in the underemployment rate over the period was a rise in part-time employment. Other important contributors to the increase in the underemployment rate/ratio over time included increases in the underemployment rates among 15–24 year olds; workers employed in Retail trade; and workers employed as Sales workers and Labourers. All of these characteristics were associated with a higher prevalence of part-time work and a higher than average increase in the proportion of employees in part-time employment.

[1] [2017] FWCFB 3500 at para. 74.

[2] [2018] FWCFB 3500 at para. 171.

[3] Rozenbes D & Farmakis-Gamboni S (2018), *The characteristics of the underemployed and unemployed*, Part I, Fair Work Commission Research Report 2/2018, February.

[4] Lass I & Wooden M (2018), *The characteristics of the underemployed and unemployed*, Part II, Fair Work Commission Research Report 2/2018, February.

The report is structured as follows. Chapter 2 analyses changes in the aggregate underemployment rate and the underemployment rates for these characteristics. Chapter 3 presents a shift-share analysis to determine reasons for the changes in the aggregate underemployment rate/ratio. A shift-share analysis is a method commonly used to capture the underlying changes in economic variables between different time periods. It separates changes into two components: changes in the composition of the labour force/employment; and changes in the underemployment rate/ratio of the selected characteristics. Chapter 4 provides concluding remarks.

2 Trends in the underemployment rate

This chapter first explores trends in the measures of labour market spare capacity at an aggregate level. It then focuses on patterns in underemployment across the selected demographic and job characteristics and changes in the composition of the labour force/employment. These are age, gender, industry, occupation and full-time/part-time status. These characteristics are commonly considered in analysis of the labour market; however, they do not represent an exhaustive list of characteristics that could affect the underemployment rate.

The ABS definition of unemployment is persons aged 15 years and over who were not employed during the reference week and actively looked and were available for work, or were waiting to start a new job.[5]

The ABS definition of underemployment includes both part-time (less than 35 hours a week) and full-time workers (35 hours or more a week). Part-time workers are classified as underemployed if they desire and are available to work additional hours. Full-time workers are only classified as underemployed if they work part-time hours in the reference week for economic reasons (such as being stood down or insufficient work being available). It is assumed that these full-time workers would have preferred to work full-time in the reference week and would have been available to do so.[6] Unlike unemployment, underemployed workers are not required to actively search for additional hours to be classified as underemployed based on the ABS definition.[7]

Part-time underemployed workers do not necessarily want to work full time. In February 2018, around half of part-time underemployed workers preferred to work full time, a fall from its recent peak of 57 per cent in February 2014.[8]

A further measure of spare capacity, underutilisation, is the sum of unemployment and underemployment.

This report examines changes in the underemployment rate—the proportion of underemployed persons in the labour force. For job characteristics, as a person must be employed, the analysis is limited to the underemployment ratio—the proportion of underemployed persons to employment.

[5] ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0, Glossary.

[6] ABS (2018), *Labour Statistics Concepts, Sources and Methods*, 2018, catalogue No. 6102.0.55.001, p. 83.

[7] In February 2018 only around half of part-time underemployed workers were actively searching for more hours; See ABS, *Participation, Job Search and Mobility*, February 2018, Catalogue No. 6226.0.

[8] ABS, *Participation, Job Search and Mobility*, February 2018, Catalogue No. 6226.0.

Empirically, the underemployment rate and the underemployment ratio are quite similar, as employment accounts for the vast majority of the labour force. However, as the labour force includes the unemployed, the underemployment rate will always be lower than the underemployment ratio.[9]

Data on underemployment are available from February 1978, however, they were made available on a monthly basis only from September 2018. It had previously been published only quarterly. The inclusion of monthly underemployment data allows for greater comparability with unemployment. Underemployment across industries and occupations are still only available on a quarterly basis.

While these data were released in 2018, they had been collected since July 2014 to allow for seasonal patterns to emerge. Monthly data between 2001 and 2014 were derived from the quarterly estimates, however, data prior to 2001 were collected monthly.[10] The analysis uses trend data unless otherwise indicated.

2.1 Aggregate underemployment

Unemployment and underemployment represent a measure of the amount of underutilised labour. The most commonly used indicator to measure underutilised labour is the unemployment rate. However, underemployment also represents a measure of spare capacity as it refers to workers who would prefer to work more hours.[11]

Over the past 25 years, the unemployment rate has decreased while the underemployment rate has increased and, in more recent times, reached record highs (Chart 2.1). Most of the decrease in the unemployment rate occurred in the first half of the period, while most of the increase in the underemployment rate occurred over the last 10 years.

The unemployment rate fell from a high of 10.9 per cent in November 1993 to a low of 4.2 per cent in June 2008. The underemployment rate increased from a low of 5.8 per cent in June 2008 to a peak of 8.8 per cent in March 2017.

Since December 2002, the underemployment rate has remained above the unemployment rate. While the two series followed each other quite closely between 2004 and 2014, the two series have diverged from late 2014. Between November 2014 and November 2018, the unemployment rate fell by 1.2 percentage points while the underemployment rate declined by only 0.2 percentage points.

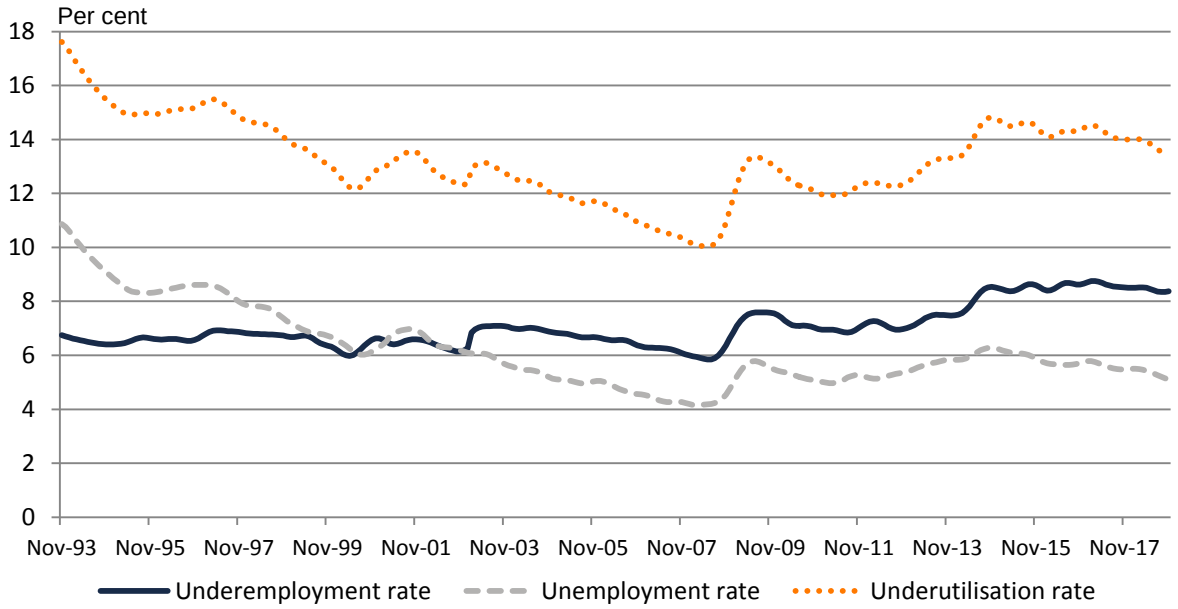
The underutilisation rate, also presented in the chart, fell between 1993 and 2008, mainly reflecting the decline in the unemployment rate. Between 2008 and 2014, the rising unemployment and underemployment rates both contributed to a higher underutilisation rate. Since 2014, the underutilisation rate has fallen with the unemployment rate as the underemployment rate remained relatively steady.

[9] Since 1993, the underemployment rate has been between 0.3 percentage points and 0.8 percentage points lower than the underemployment ratio. See ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0.

[10] ABS, 'Underemployment in Australia', *Labour Force, Australia, September 2018*, Catalogue No. 6202.0.

[11] ABS (2018), *Labour Statistics Concepts, Sources and Methods 2018*, Catalogue No. 6102.0.55.001, p. 79.

Chart 2.1: Underemployment, unemployment and underutilisation rates, November 1993 to November 2018



Note: Data are in trend terms.

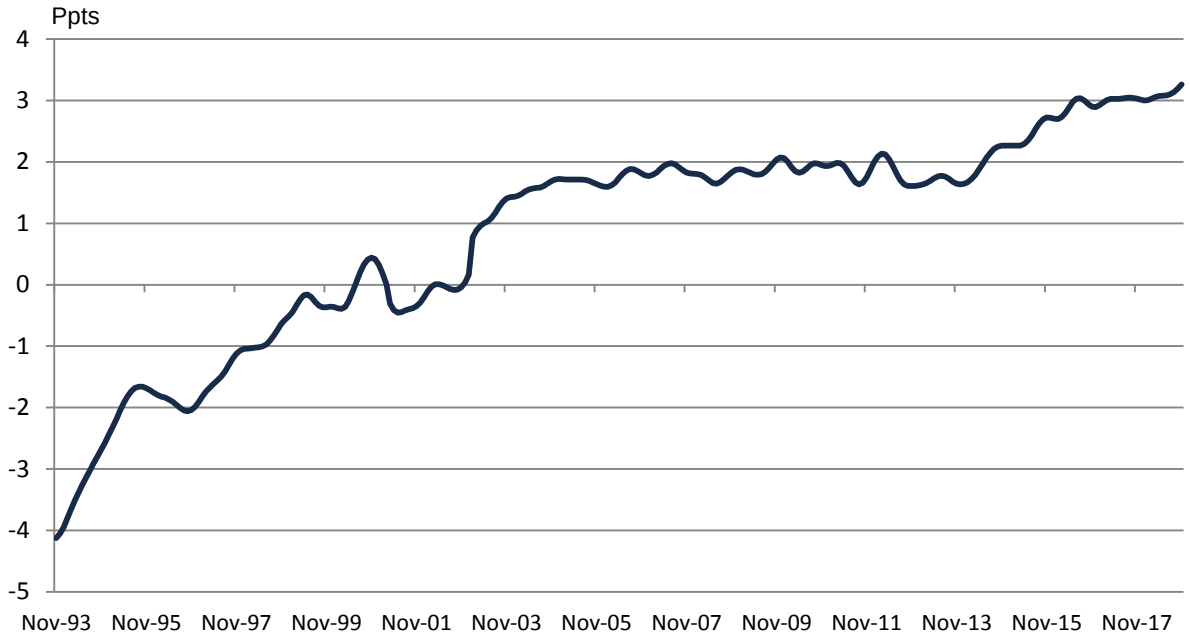
Source: ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0.

Chart 2.2 further illustrates that the underemployment and unemployment rates have followed different paths throughout most of the 25 years. The chart shows the percentage point difference between the underemployment and unemployment rates. When the percentage point difference is relatively constant, it indicates that the two rates are moving together.

Early in the period, the percentage point difference was negative, when the unemployment rate was higher than the underemployment rate. Between 2004 and 2014, the difference was relatively stable at just below 2 percentage points, reflecting a period in which the underemployment and unemployment rates followed each other closely. However, since 2014, the difference between the rates has increased, caused by a decline in the unemployment rate during a relatively stable period of underemployment.

That the underemployment and unemployment rates have mostly followed different paths suggests the impacts on each indicator are not identical, although having similar trends over a 10-year period also suggests there is some overlap. In this case it might be that changes in the unemployment and underemployment rates reflect different cyclical or structural factors. For example, structural factors may have stronger long-term influences, while cyclical factors may have been more dominant between 2004 and 2014.

Chart 2.2: Percentage point difference between underemployment and unemployment rates, November 1993 to November 2018



Note: Data are in trend terms.

Source: ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0.

Typical measures of labour market spare capacity consider the number of persons, or a headcount. In some cases, data on these indicators can also be presented for the volume or extra number of hours worked. The underutilisation rate can be constructed based on the extra number of hours sought by the underemployed and the number of hours sought by the unemployed as a proportion of the total number of hours worked and sought:

$$Volume\ underutilisation\ rate = \frac{\text{Hours sought by the unemployed} + \text{additional hours sought by underemployed}}{\text{Hours worked} + \text{hours sought by unemployed} + \text{additional hours sought by underemployed}}$$

This provides an additional measure that takes into account the different additional number of hours that people prefer. In particular, there is a difference between the additional number of hours preferred by the unemployed and the underemployed. The RBA finds that underemployed persons typically want fewer additional hours of work than unemployed people. Therefore, each underemployed person represents fewer potential hours of work than an unemployed person.[12]

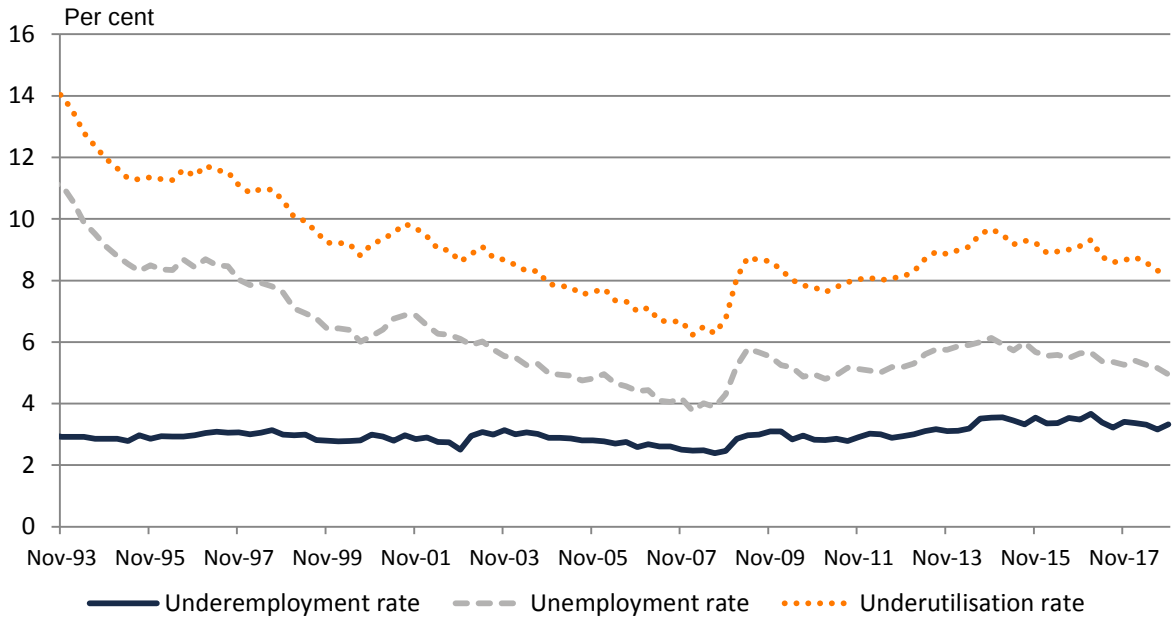
[12] Heath A (2018), *The Evolving Australian Labour Market,* Address to the Business Educators Australasia 2018 Biennial Conference, 5 October.

A volume measure of underutilisation is published by the ABS which is available by age and gender.[13] However, this series is only available from August 2014. The RBA also constructs a volume measure of underutilisation that is available for the entire 25-year period of analysis.[14]

Chart 2.3 presents the RBA volume measures of the unemployment, underemployment and underutilisation rates. The chart shows that, since 1993, the underemployment rate has remained within a band of less than 1½ percentage points, reaching a low of 2.4 per cent in August 2008 and a high of 3.7 per cent in February 2017. There was greater variance in the unemployment rate, which reached a low of 3.8 per cent in August 2008 and a high of 11.1 per cent in November 1993. The chart also shows that movements in the volume underutilisation rate also reflect movements in the unemployment rate rather than the underemployment rate. As at November 2018, the headcount measure of underemployment accounted for around three-fifths of the underutilisation rate, while the volume measure accounted for around two-fifths.

The main difference between the headcount measure (as shown in Chart 2.1) and the volume measure is that the underemployment rate has remained below the unemployment rate over the entire period. However, the volume measures of underemployment and unemployment rates have moved more closely together since around 2008 although, as with the headcount measure, the underemployment rate has not fallen by as much as the unemployment rate has since 2014.

Chart 2.3: Volume underemployment, unemployment and underutilisation rates, November 1993 to November 2018



Note: Data are quarterly and seasonally adjusted.

Source: RBA.

[13] ABS, *Labour Force, Australia, Detailed, Quarterly*, Nov 2018, Catalogue No. 6291.0.55.003.

[14] The RBA and ABS measures are not directly comparable due to definitional differences.

A comparison of the headcount and RBA volume measures of underutilisation is presented in Chart A1. For the remainder of the analysis, the report mainly focuses on the headcount measure of underemployment.

2.2 Selected characteristics of underemployment

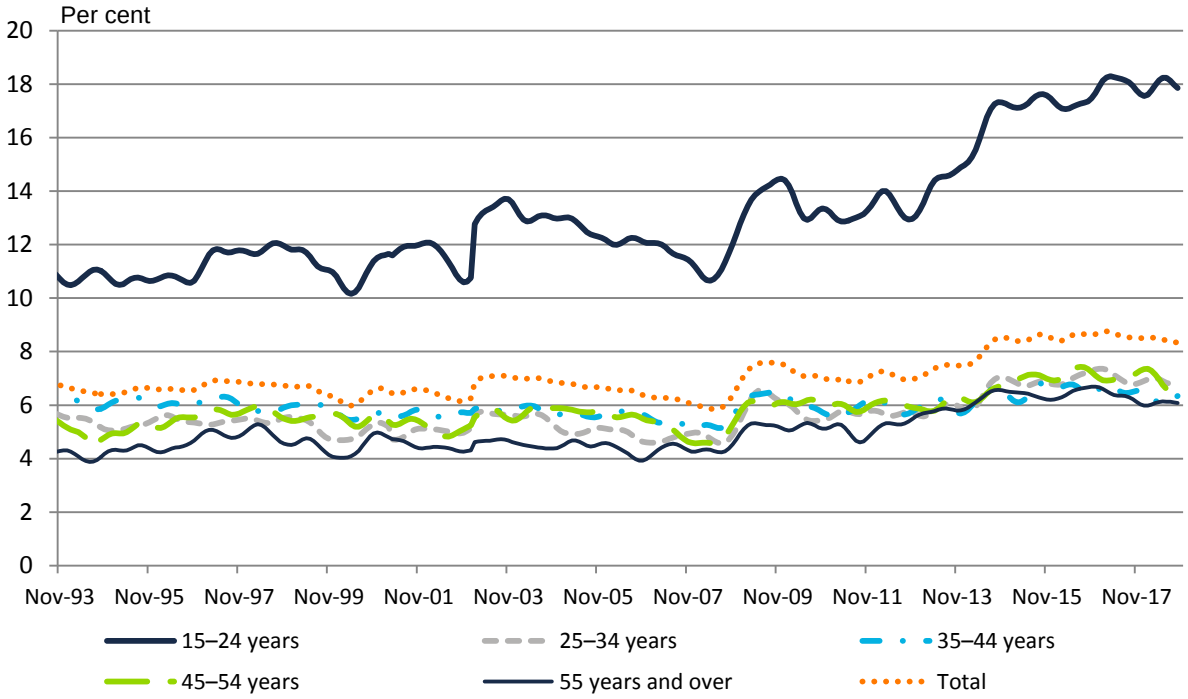
This section focuses on the underemployment rates by age and gender, and the underemployment ratios by industry, occupation, and full-time/part-time status.

2.2.1 Age

Differences in underemployment are evident across age groups over the 25-year period. Chart 2.4 compares the underemployment rates across 10-year age groups and shows that the age group with the highest underemployment rate is the youngest age group—those aged 15–24 years. In November 2018, the underemployment rate for this age group was 17.8 per cent, almost three times as high as each other age group.

Between 1993 and 2008, the underemployment rate for 15–24 year olds was higher than the underemployment rates for the older age groups and by a relatively consistent margin. However, over the 10 years to November 2018, the underemployment rate for 15–24 year olds increased by 5.7 percentage points compared with 1.6 percentage points, the total increase for all those aged 25 years and over.

Chart 2.4: Underemployment rate by age group, November 1993 to November 2018



Note: Data are in trend terms.

Source: ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0.

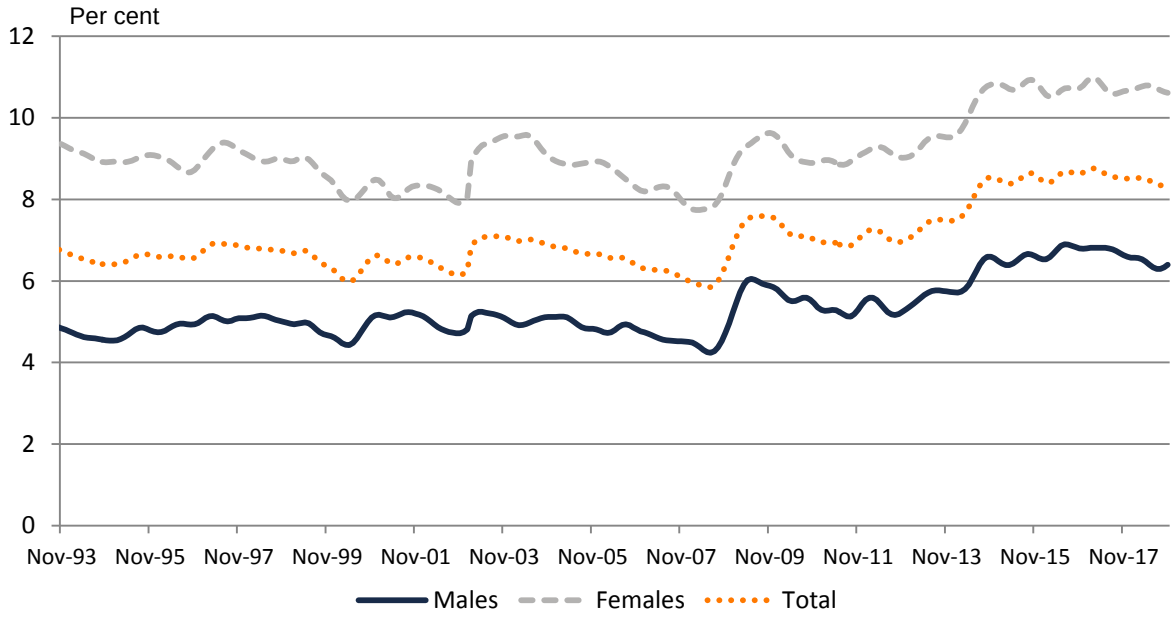
Based on the ABS volume measure of underemployment, the underemployment rate for those aged 15–24 years was over three times as high as each other age group in 2018 (Chart A2).

The composition of the labour force by each of these age groups has also shifted over this period. During this time, there was a decline in the proportion of 15–24 year olds (from over one in five to around one in six) and an increase in the proportion of those aged 55 years and over (from fewer than one in ten to almost one in five) (Chart B1).

2.2.2 Gender

Differences in underemployment rates are also evident between males and females. Chart 2.5 shows that the underemployment rate for females was higher than the underemployment rate for males over the past 25 years and that the trends over time were quite similar. Over the period the increase in the underemployment rate for males (1.6 percentage points) was larger than for females (1.3 percentage points).

Chart 2.5: Underemployment rate by gender, November 1993 to November 2018



Note: Data are in trend terms.

Source: ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0.

The ABS volume measure of underemployment also shows that the underemployment rate for females was higher than for males over the period (Chart A3).

The composition of the labour force by gender has also changed over this period. There has been a decrease in the proportion of males and an increase in the proportion of females (Chart B2).

2.2.3 Industry

Differences in underemployment can also be seen across industries. As industry is an employment characteristic, the underemployment ratio is analysed instead of the underemployment rate. Accommodation and food services, Arts and recreation, and Retail trade had the highest underemployment ratios, and also experienced the largest increases in the underemployment ratio over both periods (Table 2.1).

In 2018, the three industries with the highest underemployment ratios were Accommodation and food services (20.3 per cent), Arts and recreation services (17.1 per cent) and Retail trade (16.8 per cent). These were considerably higher than the three industries with the lowest underemployment ratios: Mining (1.2 per cent), Electricity, gas, water and waste services (2.3 per cent), and Financial and insurance services (2.6 per cent).

Although the aggregate underemployment ratio increased between 1993 and 2018, this was only the case for 10 of the 19 industries.

However, over the decade to 2018, all industries except for Agriculture, forestry and fishing recorded an increase in the underemployment ratio. The largest increases were in Arts and recreation services (6.1 percentage points), Retail trade (5.0 percentage points), and Accommodation and food services (5.0 percentage points).

Table 2.1: Underemployment ratio by industry, 1993, 2008 and 2018

	Underemployment ratio (%)			Change in ratio (Ppts)	
	1993	2008	2018	1993–2018	2008–2018
Agriculture, forestry and fishing	6.5	4.4	4.4	–2.1	0.0
Mining	1.2	0.8	1.2	0.0	0.4
Manufacturing	3.7	3.3	4.9	1.3	1.6
Electricity, gas, water and waste services	0.9	1.8	2.3	1.4	0.5
Construction	9.5	4.1	6.1	–3.4	1.9
Wholesale trade	4.7	3.0	3.9	–0.8	0.9
Retail trade	12.2	11.8	16.8	4.6	5.0
Accommodation and food services	17.3	15.3	20.3	3.0	5.0
Transport, postal and warehousing	5.3	5.1	6.2	0.9	1.2
Information media and telecommunications	6.1	4.5	7.0	0.9	2.5
Finance and insurance services	2.9	1.8	2.6	–0.3	0.9
Rental, hiring and real estate services	6.0	4.5	4.7	–1.2	0.2
Professional, scientific and technical services	7.4	3.3	4.9	–2.4	1.6
Administrative and support services	11.2	11.2	12.3	1.1	1.0
Public administration and safety	3.8	2.6	3.6	–0.2	1.0
Education and training	8.0	7.5	9.4	1.4	1.9
Health care and social assistance	8.4	6.9	9.9	1.5	3.0
Arts and recreation services	13.8	11.0	17.1	3.3	6.1
Other services	9.1	5.8	8.5	–0.7	2.7
All industries	**7.6**	**6.3**	**8.8**	**1.1**	**2.4**

Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly, Nov 2018*, Catalogue No. 6291.0.55.003.

The composition of employment over the past 25 years has changed, as there has been a shift from goods-producing industries to the services industries.[15] For example, over the past 25 years

[15] Heath A (2017), *Structural Change in Australian Industry: The Role of Business Services*, Address to the Economic Society of Australia, 6 September.

there has been an increase in the proportion of employment in service industries such as Health care and social assistance, Accommodation and food services, Education and training, Administrative and support services and Arts and recreation services. At the same time, there was a decline in goods-producing industries such as Manufacturing and Agriculture, forestry, fishing (Table B1).

2.2.4 Occupation

As was the case with the underemployment ratio across industries, there was variation between underemployment ratios across occupations. In 2018, the three occupations with the largest underemployment ratios were Sales workers (19.5 per cent), Labourers (17.5 per cent), and Community and personal service workers (16.7 per cent). The three occupations with the lowest underemployment ratios were Managers (2.3 per cent), Professionals (5.2 per cent), and Technicians and trades workers (5.5 per cent).

Changes in underemployment ratios across occupations over time were fairly consistent over the decade and over the 25 years to 2018. For both periods, Sales workers, Labourers and Community and personal service workers had the largest increases in the underemployment ratio (Table 2.2).

Table 2.2: Underemployment ratio by occupation, 1993, 2008 and 2018

	Underemployment ratio (%)			Change in ratio (Ppts)	
	1993	2008	2018	1993–2018	2008–2018
Managers	3.3	1.4	2.3	–1.0	0.9
Professionals	4.5	3.4	5.2	0.7	1.7
Technicians and trades workers	5.0	3.5	5.5	0.5	2.0
Community and personal service workers	15.2	13.0	16.7	1.5	3.7
Clerical and administrative workers	5.7	4.3	5.7	0.0	1.4
Sales workers	14.2	13.8	19.5	5.3	5.7
Machinery operators and drivers	6.3	5.0	6.9	0.6	1.8
Labourers	14.3	13.3	17.5	3.2	4.2
All occupations	**7.6**	**6.3**	**8.8**	**1.1**	**2.4**

Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Detailed, Quarterly, Nov 2018*, Catalogue No. 6291.0.55.003.

Shifts in the employment composition across occupations show an increase in Professionals and Community and personal service workers and a decline in Clerical and administrative workers, Labourers, and Technicians and trades workers (Chart B3).

2.2.5 Full-time/part-time status

The definition of underemployment refers to those who work part-time hours (less than 35 hours a week) and captures those who usually work full-time hours (35 hours or more a week) and who, due to economic reasons, worked part-time hours in the reference week. It is assumed that these people wanted to work full time in the reference week and would have been available to do so.[16]

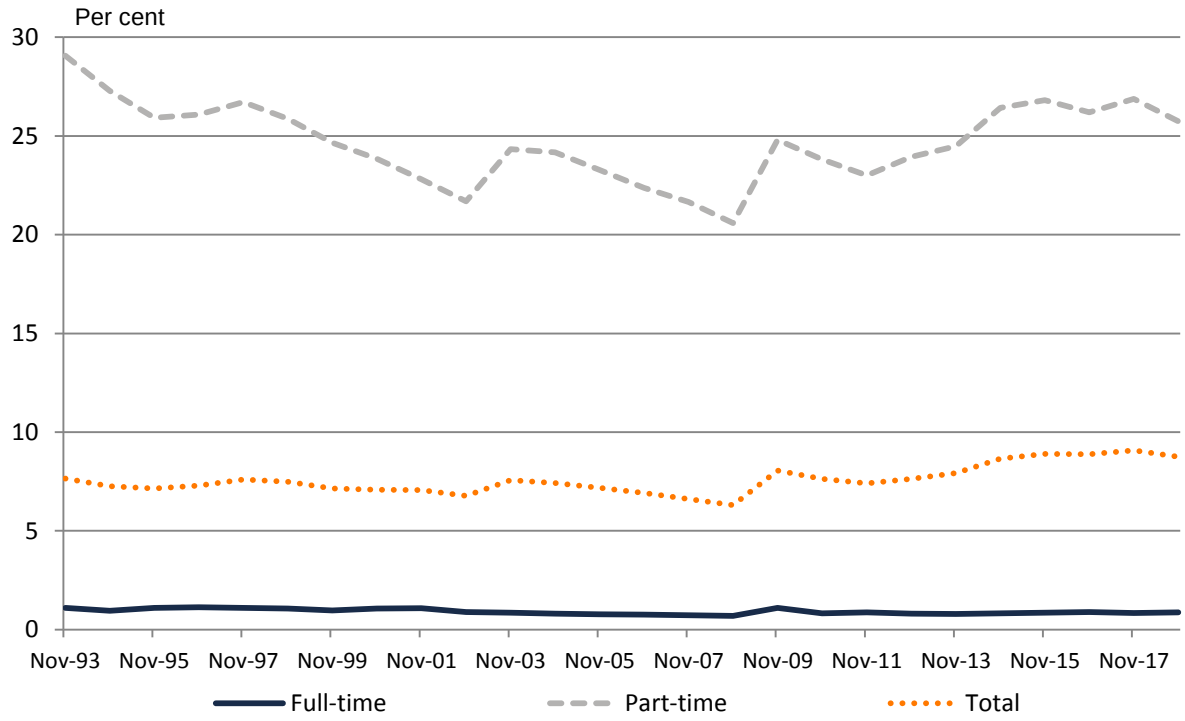
[16] ABS (2018), *Labour Statistics Concepts, Sources and Methods 2018*, Catalogue No. 6102.0.55.001, p. 83.

These workers are still considered by the ABS to be employed on a full-time basis, despite also being considered as underemployed during the reference period. In November 2018, these full-time workers accounted for 6.9 per cent of total underemployed workers.[17]

Chart 2.6 shows that over the past 25 years, the underemployment ratio for part-time workers fell from 28.8 per cent in November 1993 to 26.4 per cent in November 2018, though it is higher than in 2008. The underemployment ratio for full-time workers was 0.9 per cent in November 2018 and was relatively unchanged over the last 25 years.

Chart B4 shows that part-time employment as a proportion of total employment has increased over the 25-year period, from 23.8 per cent in November 1993 to 31.5 per cent in November 2018.

Chart 2.6: Underemployment ratio by full-time/part-time status, November 1993 to November 2018



Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Australia*, *November 2018*, Catalogue No. 6202.0; ABS, *Labour Force, Detailed – Electronic Delivery, Nov 2018*, Catalogue No. 6291.0.55.001.

3 Analysing changes in the underemployment rate

A shift-share analysis is used to investigate changes in the underemployment rate. A shift-share analysis is a method commonly used to capture the underlying changes in economic variables between different time periods. Drawing on the characteristics analysed in Chapter 2, the analysis focuses on these demographic and job characteristics to help understand what factors are associated with changes in the aggregate underemployment rate.

[17] ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0.

Looking at each characteristic over time, the shift-share methodology separates changes to the aggregate underemployment rate/ratio into two components:

- changes in the composition of the labour force/employment (such as shifts due to ageing across the labour force); and
- changes in the underemployment rate/ratio for each selected characteristic.[18]

Similar with the discussion presented in the previous section, the analysis focuses on two periods—over the 25 years to 2018 and over the decade to 2018. This means that the analysis captures changes in the longer term as well as the period after the global financial crisis (GFC). As shown in the previous chapter, the underemployment rate began to increase from 2008.

These two periods incorporate both structural and cyclical influences on the economy. Specifically, the longer time series commences just after a major downturn in the early 1990s and includes the mining boom period that occurred in the 2000s. The shorter time series, which commences from 2008, incorporates the onset of the GFC, the period of slower growth following the GFC and the end of the mining boom.

The analysis finds that compositional changes in the labour force/total employment affecting the selected characteristics were larger when the 25 year period was considered, compared with the most recent decade. Therefore, the effects of compositional change on the rates/ratios of underemployment for each characteristic had a greater impact over the past 25 years than over the decade.

Original data are used in this section as the shift-share method requires that underemployment across each characteristic sum to aggregate underemployment—a condition that is often not met for trend data.[19]

Due to the volatility in original data, year averages to November of each year are used. Based on the year averages:

- the underemployment rate increased by 1.5 percentage points over the 25 years to 2018 (from 6.9 per cent to 8.4 per cent) and by 2.4 percentage points (from 6.0 per cent to 8.4 per cent) over the past 10 years; and
- the underemployment ratio increased by 1.1 percentage points over the past 25 years (from 7.6 per cent to 8.8 per cent) and also by 2.4 percentage points over the decade to 2018 (from 6.3 per cent to 8.8 per cent) .[20]

3.1 Age

Chart 3.1 shows the contributions to changes in the underemployment rates by each age group, and the effect of changes in the composition of the labour force to the aggregate underemployment

[18] The underemployment rate is affected by changes in the composition of the labour force, while the underemployment ratio is affected by changes in the composition of employment.

[19] For example, the sum of underemployment for each of the 10-year age groups must equal to aggregate underemployment.

[20] Due to rounding, percentage point changes may not appear to correspond with the difference in the underemployment rates/ratios over the periods. For consistency with the quarterly employment characteristics data, the year averages for the underemployment ratios by full-time/part-time status are calculated using the quarterly rather than the monthly figures.

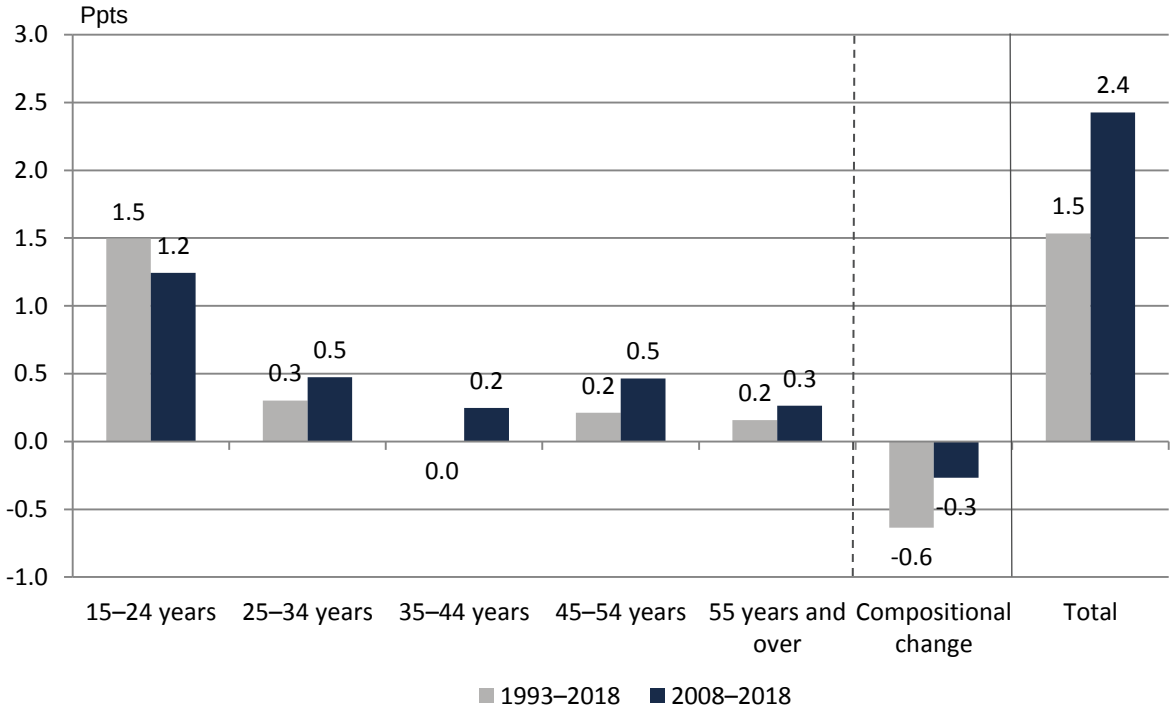
rate. The chart shows that increases in the underemployment rates across most age groups contributed to the increase in the aggregate underemployment rate.

Over the 25 years to 2018, the underemployment rate for 15–24 year olds accounted for all of the increase in the aggregate underemployment rate. Increases in the underemployment rates of older age groups were offset by the change in the age composition of the labour force reducing the underemployment rate.

The change in the underemployment rate of 15–24 year olds accounted for half of the increase in the aggregate underemployment rate over the 10 years to 2018. While the increase in the underemployment rates of older age groups made a smaller contribution, it was still larger than over the last 25 years. The change in the age composition of the labour force had a smaller negative effect than over the past 25 years.

The negative effects from the changes in the age composition of the labour force can be explained by a higher proportion of those aged 55 years and over in the labour force (who have lower underemployment rates) and a lower proportion of 15–24 year olds (who have higher underemployment rates).

Chart 3.1: Shift-share decomposition of contributions to the change in the underemployment rate, by age groups



Note: Data are in original terms and year averages to November.

Source: ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0.

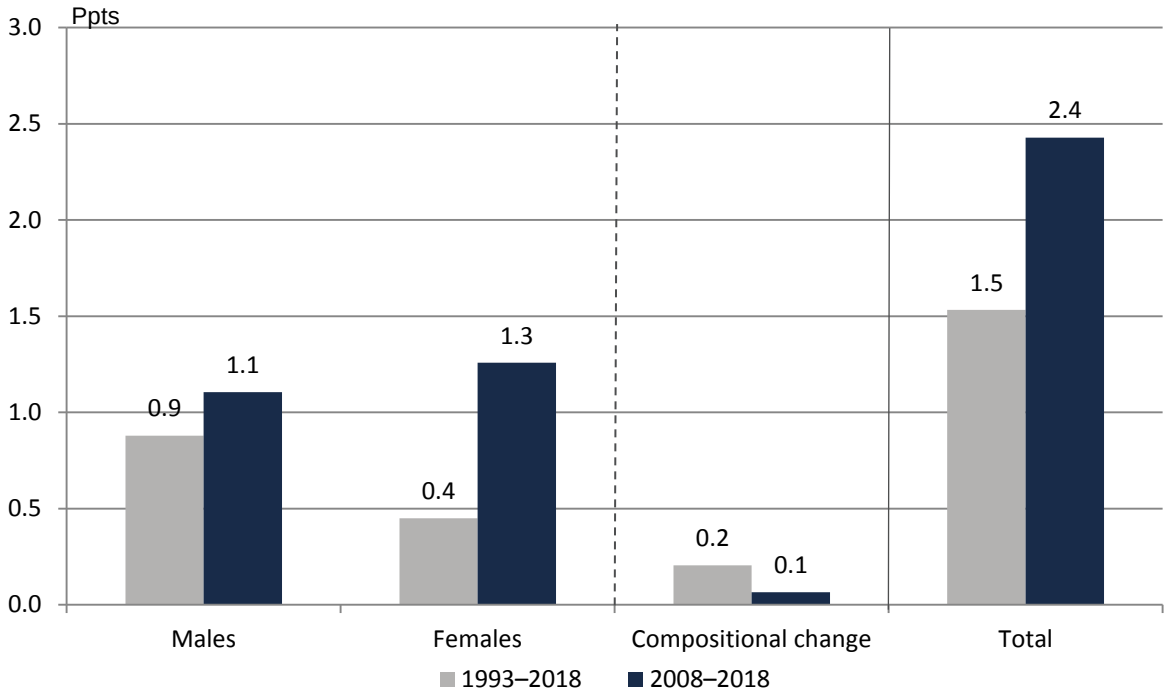
3.2 Gender

Increases in the underemployment rates for both males and females made the largest contribution to the increase in the aggregate underemployment rates over both periods. The gender

composition of the labour force had a relatively small effect despite the increase in female labour force participation over time.

Chart 3.2 shows that an increase in the underemployment rate for males accounted for over half of the increase in the aggregate underemployment rate over the 25 years to 2018, more than double the contribution from the underemployment rate for females. Over the decade to 2018, the underemployment rate for females accounted for a larger contribution than males.

Chart 3.2: Shift-share decomposition of contributions to the change in the underemployment rate, by gender



Note: Data are in original terms and year averages to November.

Source: ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0.

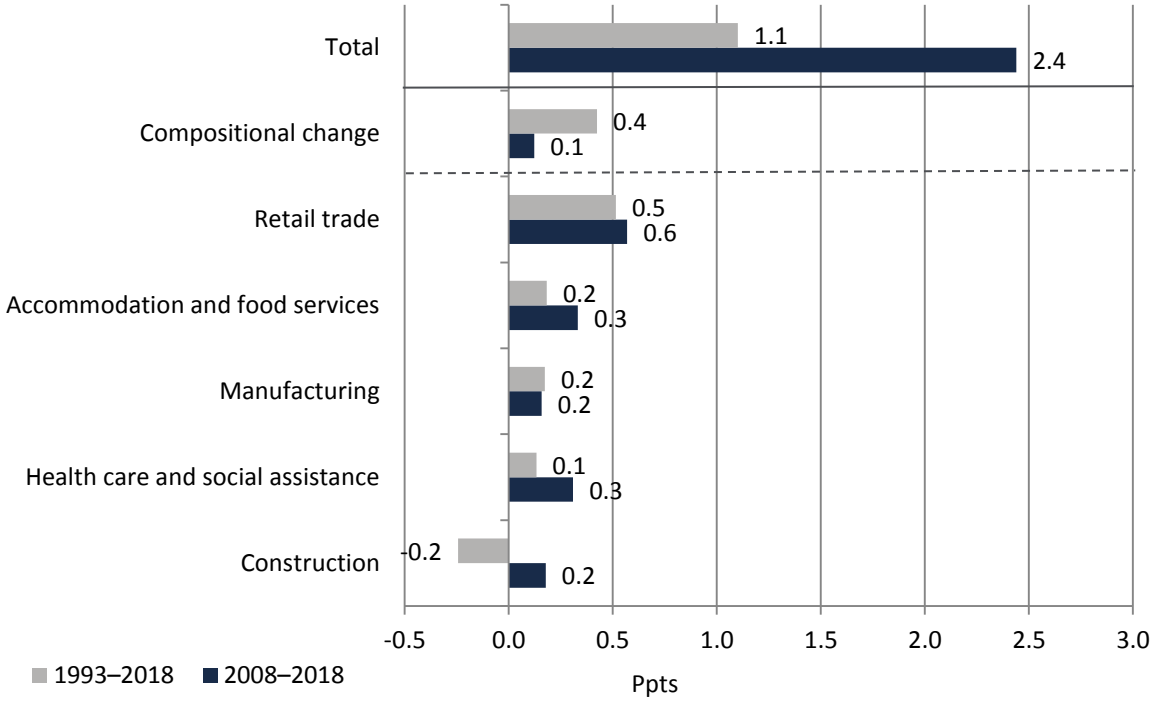
3.3 Industry

Retail trade contributed almost half of the increase in the underemployment ratio over the past 25 years and around one quarter over the last decade (Chart 3.3). The increase in the underemployment ratios for Accommodation and food services and Health care and social assistance also made relatively large contributions over the last decade.

Compositional change in total employment by industry contributed almost two-fifths of the increase in the aggregate underemployment ratio over the 25 years to 2018 and a smaller contribution over the last 10 years. The contribution mainly reflects a lower proportion of employment in the goods-producing industries (which mostly have lower underemployment rates) and a higher proportion of employment in the services industries (such as Accommodation and food services, which mostly have higher underemployment rates).

The results of the shift-share analysis for all industries are included in Appendix C.

Chart 3.3: Shift-share decomposition of contributions to the change in the underemployment ratio, by selected industries



Note: Data are in original terms and year averages to the November quarter. A chart showing all industries is provided in Appendix C.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly, Nov 2018*, Catalogue No. 6291.0.55.001.

3.4 Occupation

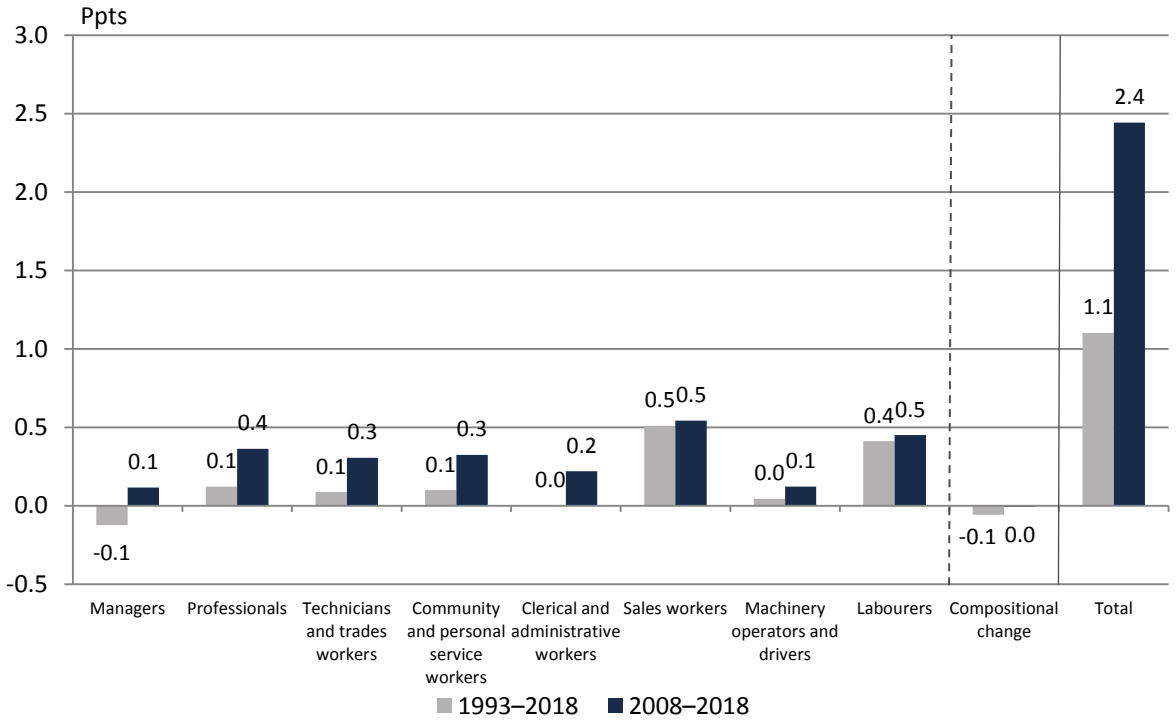
Changes in the underemployment ratios for each occupation made a larger contribution to the increase in the aggregate underemployment ratio than the effects of compositional change in occupations over time.

Increases in the underemployment ratio of Sales workers and Labourers accounted for the highest proportion of the increase in the aggregate underemployment ratio. Over the last 25 years, Sales workers contributed almost half of the increase in the aggregate underemployment ratio, while Labourers contributed over one third (Chart 3.4).

Contributions to the change in the aggregate underemployment ratio was greater across all occupations over the decade to 2018. Increases in the underemployment ratios of Sales workers and Labourers contributed around two-fifths of the increase in the total underemployment ratio.

The analysis found a small compositional effect, which may suggest that changes in the proportion of total employment for occupations that recorded higher or lower underemployment ratios offset each other.

Chart 3.4: Shift-share decomposition of contributions to the change in the underemployment ratio, by occupation



Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly, Nov 2018*, Catalogue No. 6291.0.55.001.

3.5 Full-time/part-time status

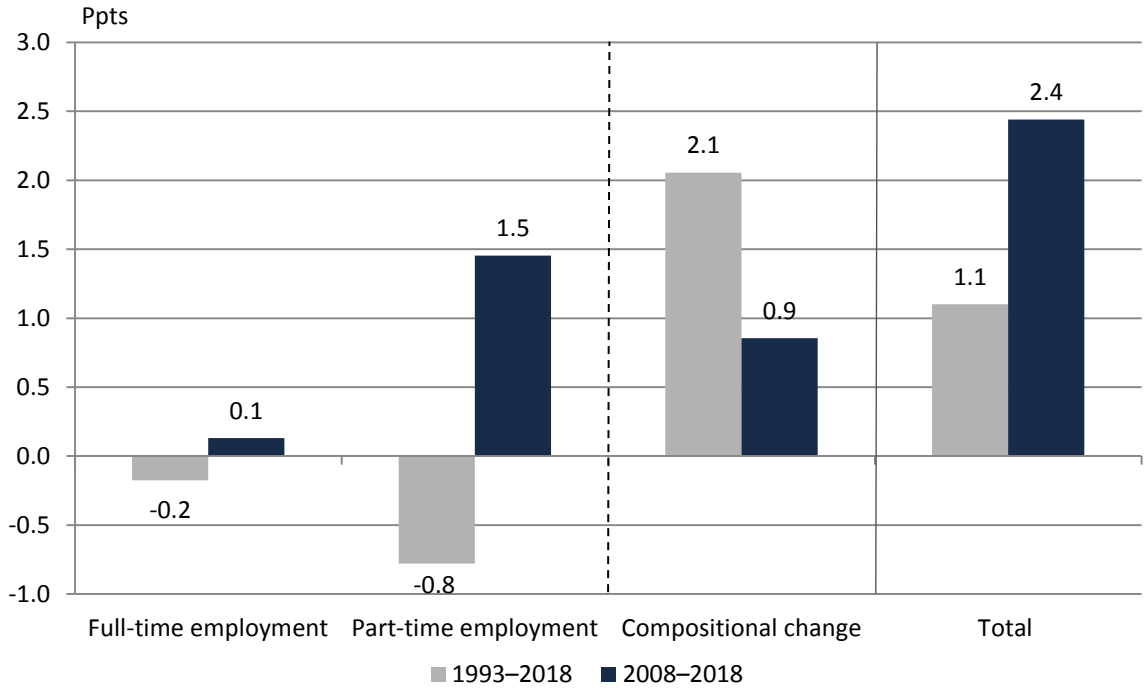
The analysis considered so far has shown that the compositional change of the labour force or total employment has had a smaller effect on changes in the aggregate underemployment rate/ratios compared with changes recorded in the underemployment rates for selected characteristics.

However, the analysis in this section finds that the compositional change in total employment of full-time and part-time workers has had a larger influence on total underemployment compared with the other characteristics considered (Chart 3.5).

Over the 25 years to 2018, the contribution from compositional change in total employment was almost double the increase in the aggregate underemployment ratio. Unlike for most other characteristics, changes in the underemployment rates for full-time and, in particular, part-time employment had a negative effect over this period.

However, over the decade to 2018, only around one-third of the total increase in the underemployment ratio was due to changes in the composition of full-time/part-time employment. The increase in the underemployment ratio for part-time workers accounted for more than half of the total increase in the underemployment ratio.

Chart 3.5: Shift-share decomposition of contributions to the change in the underemployment ratio, by full-time/part-time status



Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0; ABS, *Labour Force, Detailed – Electronic Delivery, Nov 2018*, Catalogue No. 6291.0.55.001.

The analysis suggests that the increase in part-time employment has been a major contributor to the increase in the underemployment rate, particularly over the last 25 years. It also found that the highest underemployment rates/ratios were reported for 15–24 year olds; females; those in Accommodation and food services, Retail trade, and Arts and recreation services; and Sales workers, Labourers, and Community and personal service workers. As shown in Appendix D, the highest proportions of part-time employment were also reported among these particular demographic and job characteristics. This aligns with similar findings from the Expert Panel discussed in the 2016–17 Review decision, which found that industries and occupations with high proportions of part-time employment also had high proportions of underemployment.[21]

The data in Appendix D also show that the characteristics that were found to contribute most to the increase in the aggregate underemployment rate/ratio also experienced higher increases in their proportions of part-time employment.

For example, the proportion of 15–24 year olds that worked part-time between 1993 and 2018 had increased by 21.8 percentage points. This compares with increases recorded for age groups 25 years and above which ranged from 3.3 percentage points to 9.6 percentage points (Chart D1).

The industries and occupations that contributed the most to the increase in the aggregate underemployment ratio also experienced larger than average increases in their proportion of

[21] [2017] FWCFB 3500 at para. 561.

part-time employment. The proportion in part-time employment in Accommodation and food services increased by 12.7 percentage points and for Retail trade it increased by 11.4 percentage points, higher than the average increase over the 25 years to 2018 across all industries (8.3 percentage points) (Table D1).

Sales workers (14.6 percentage points) and Labourers (12.8 percentage points) recorded the highest increases in part-time employment over the 25 years to 2018 (Chart D3).

The reason why there is an association between higher underemployment and higher part-time employment is because underemployment mostly comprises part-time workers. This would be expected as the ABS definition of underemployment has stronger restrictions on full-time workers. To be underemployed under this definition, full-time workers must have worked part-time hours in the reference week due solely to economic reasons. As part-time workers need only to want and be available to work more hours to be underemployed, they comprise a majority of underemployed persons.

Based on data for November 2018, if all full-time workers who preferred to work more hours could be defined as underemployed, the number of full-time underemployed persons would be almost nine times larger, and would account for around 40 per cent of all underemployed persons compared with 6.9 per cent under the current definition.[22]

This association between part-time employment and underemployment also provides an explanation as to why certain characteristics have a higher prevalence of underemployment and why they contributed more to the increase in underemployment.

3.5.1 Further analysis of part-time employment

As the proportion of part-time employment has increased significantly over the past 25 years (Chart D4), this section uses the shift-share method to decompose the effects of the increase in part-time employment on underemployment. This is able to be undertaken for age and gender where data on full-time/part-time status are also available. Shift-share analyses are undertaken separately for full-time and part-time workers across each age group and for males and females.

Table 3.1 summarises the findings of each age group for both time periods—over the 25 years and over the decade—by age and full-time/part-time status.

The first row of the table shows that the underemployment ratio for 15–24 year olds increased by 6.5 percentage points between 1993 and 2018. Most of this increase (7.5 percentage points) was caused by changes in the composition of employment toward part-time employment. The increase in the underemployment ratio for full-time workers contributed only 0.1 percentage points, while the underemployment ratio for part-time workers detracted 1.1 percentage points from the total underemployment ratio for 15–24 year olds.

Over the last 25 years, the increase in the proportion of part-time work, reflected in the compositional change of employment, explains all of the increase in the underemployment ratio for most age groups, with15–24 year olds recording the largest effect.

[22] ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0.

However, over the past decade, an increase in the underemployment ratio for part-time workers across most age groups accounted for most of the increase in the underemployment ratio, though compositional change still played a role for most age groups.

Table 3.1: Shift-share decomposition of contributions to the change in the underemployment ratio, by full-time/part-time status and age group, 1993–2018

	Full-time employment	Part-time employment	Compositional change	Total
1993–2018				
15–24 years	0.1	–1.1	7.5	6.5
25–34 years	–0.2	–0.6	1.5	0.6
35–44 years	–0.3	–0.7	0.7	–0.3
45–54 years	–0.3	0.2	1.2	1.1
55 years and over	–0.1	0.5	1.3	1.7
All ages	–0.2	–0.8	2.1	1.1
2008–2018				
15–24 years	0.2	3.6	3.6	7.4
25–34 years	0.2	0.7	1.3	2.1
35–44 years	–0.0	0.9	0.0	0.9
45–54 years	0.1	1.7	0.4	2.1
55 years and over	0.3	1.2	0.4	2.0
All ages	0.1	1.5	0.9	2.4

Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0; ABS, *Labour Force, Detailed – Electronic Delivery, Nov 2018*, Catalogue No. 6291.0.55.001.

Charts presented in Appendix D provide an explanation for why the increase in the proportion of part-time work had such a large effect on the increase in the underemployment ratio for 15–24 year olds. Charts D1 and D5 show that:

- 15–24 year olds had the largest increase in the proportion of part-time employment relative to other age groups (Chart D1); and
- the part-time underemployment ratio was consistently higher among 15–24 year olds compared with other age groups (as shown in Chart D5).

This suggests that increases in the proportion of part-time employment would have a much larger effect on the underemployment ratio for 15–24 year olds, compared with other age groups.

Table 3.2 presents a similar analysis by gender and full-time/part-time status. Over the last 25 years, the compositional change in employment, reflected by an increase in the proportion of part-time employment, contributed all of the increase in the underemployment ratio for males and females.

Although the increase in the compositional change in employment (the shift to part-time employment) explained most of the increase in the underemployment ratio for males over the past decade, this was not the case for females, with most of the growth in the female underemployment ratio stemming from an increase in the underemployment ratio for part-time workers.

Table 3.2: Shift-share decomposition of contributions to the change in the underemployment ratio, by full-time/part-time status and gender, 1993–2018

	Full-time employment	Part-time employment	Compositional change	Total
1993–2018				
Males	–0.2	–1.2	2.7	1.3
Females	–0.1	–0.5	1.1	0.5
Total	–0.2	–0.8	2.1	1.1
2008–2018				
Males	0.2	0.8	1.1	2.2
Females	0.0	2.1	0.5	2.6
Total	0.1	1.5	0.9	2.4

Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Australia*, *November 2018*, Catalogue No. 6202.0; ABS, *Labour Force, Detailed – Electronic Delivery, Nov 2018*, Catalogue No. 6291.0.55.001.

4 Conclusion

Underemployment and unemployment are indicators of labour market underutilisation. At the aggregate level, the trends in the unemployment and underemployment rates were mostly different over the 25 years to 2018. Over this period, the unemployment rate decreased while the underemployment rate increased and, more recently, reached near record highs.

This report provided analysis of changes in the underemployment rate. Across selected job and demographic characteristics, the underemployment rates/ratios were higher among 15–24 year olds; females; employees in Arts and recreation services, Retail trade, and Accommodation and food services; Sales workers, Community and personal service workers and Labourers; and part-time workers. Many of these characteristics also experienced a larger increase in their underemployment rate/ratio over the 25 years to 2018 than their counterparts.

In determining what contributed to the increase in the underemployment rate/ratio, the shift-share analysis found that the rise in part-time employment explained more than all of the increase in the aggregate underemployment ratio over the last 25 years. This was despite a fall in the underemployment ratio among part-time workers. However, over the last 10 years, only around one quarter of the increase in the aggregate underemployment ratio was driven by the rise in the composition of part-time employment.

Other major contributors to the increase in the underemployment rate/ratio over the two periods were the increases in the underemployment rates among 15–24 year olds; workers in Retail trade; and Sales workers and Labourers. All of these characteristics were associated with higher proportions of part-time employment and a higher than average increase in the proportion of part-time employment over the period. Differences between males and females were found over the two periods. Males accounted for more than double the female contribution to the rise in the underemployment rate over the 25 years, but females contributed more than males to the rise in the underemployment rate over the decade.

An important reason why there is an association between underemployment and part-time employment is that underemployment mostly comprises part-time workers. This is influenced by the definition of underemployment, which has stronger restrictions on full-time workers. This association between part-time work and underemployment also provides an explanation as to why certain characteristics have a higher prevalence of underemployment and made greater contributions to the increase in underemployment.

The extent to which the increase in part-time employment influenced other characteristics was further analysed by age and gender. This analysis showed that the increase in the proportion of part-time employment explains all of the increases in the underemployment ratio across most age groups (particularly for 15–24 year olds); and increases in the underemployment ratio for males and females over the past 25 years.

Differences in the shift-share analysis over the decade and over the 25 years to 2018 have mainly been due to compositional changes in the labour force or in total employment. However, over the past decade, changes in the underemployment rate/ratio for selected characteristics were shown to have an effect on the increase in the aggregate underemployment rate/ratio more so than compositional change.

References

[2017] FWCFB 3500.

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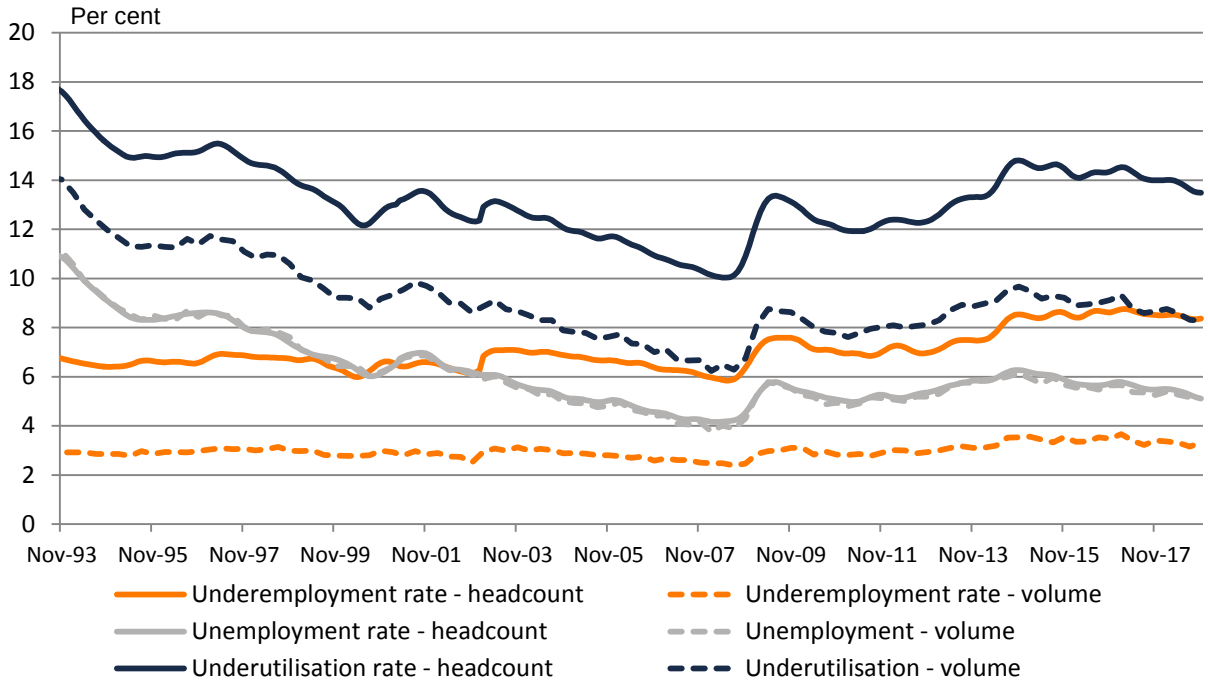
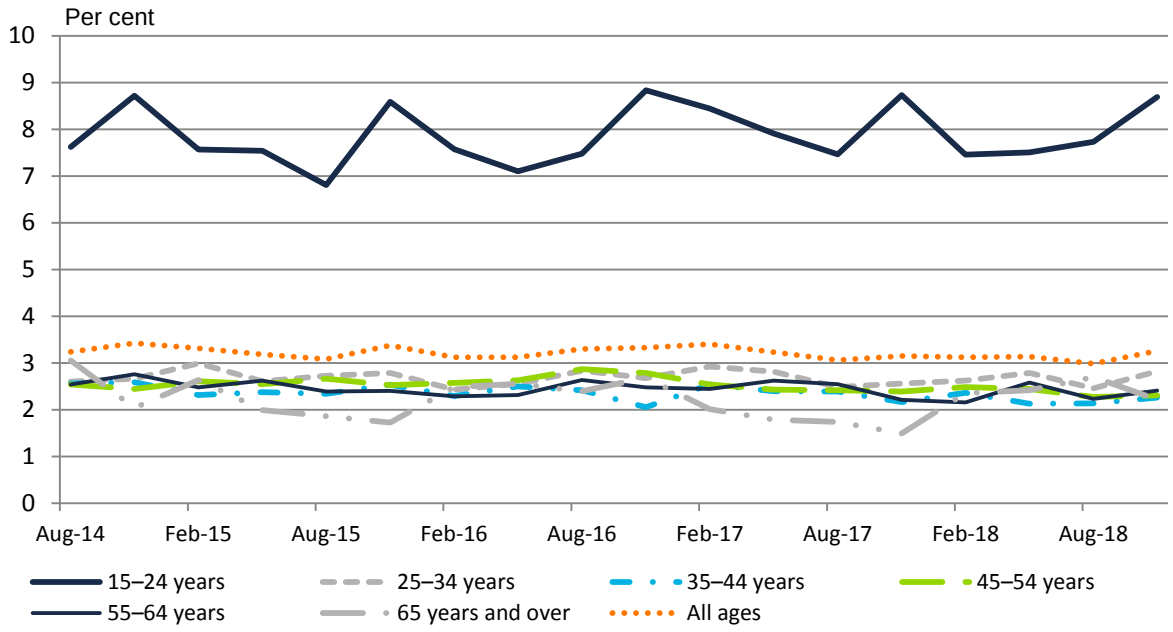
Appendix A—Volume measures of underutilisation

Chart A1: Volume and headcount measures of underemployment and underutilisation rates, November 1993 to November 2018



Source: RBA; ABS, *Labour Force, Australia*, *November 2018*, Catalogue No. 6202.0.

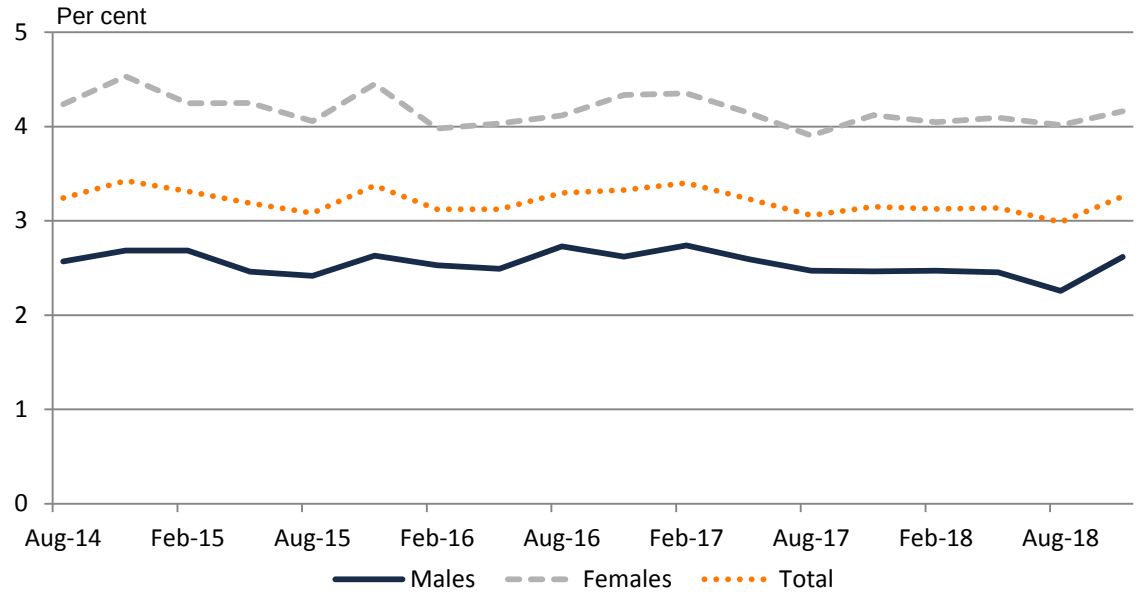
Chart A2: Volume measures of the underemployment rate by age, August 2014 to November 2018



Note: Data are quarterly and expressed in original terms. This series starts in August 2014.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly*, Nov 2018, Catalogue No. 6291.0.55.003.

Chart A3: Volume measures of the underemployment rate by gender, August 2014 to November 2018

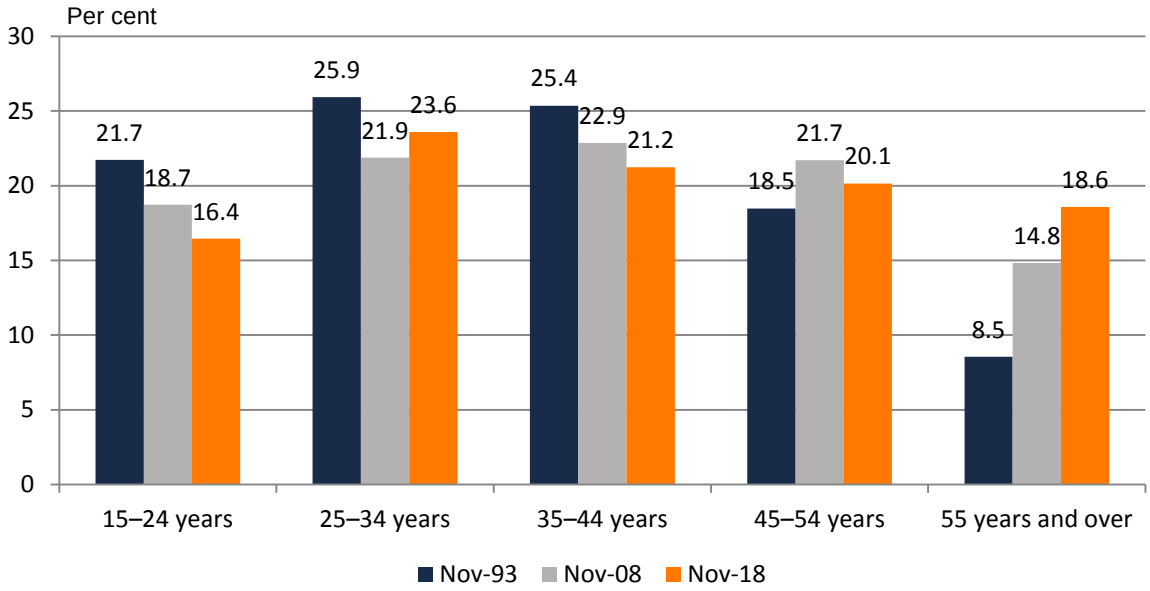


Note: Data are quarterly and expressed in original terms. This series starts in August 2014.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly*, Nov 2018, Catalogue No. 6291.0.55.003.

Appendix B—Composition of total labour force/employment

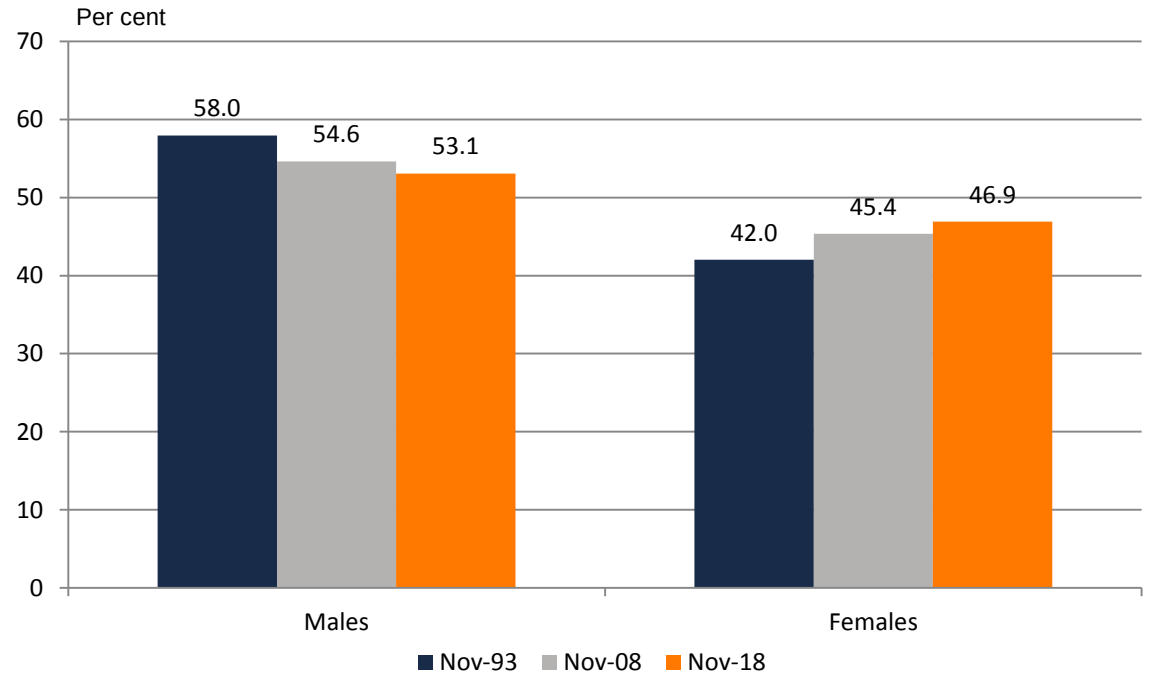
Chart B1: Composition of total labour force by age group, 1993 to 2018



Note: Data are in original terms and year averages to November.

Source: ABS, *Labour Force, Australia, Detailed – Electronic Delivery, Nov 2018*, Catalogue No. 6291.0.55.001.

Chart B2: Composition of total labour force by gender, 1993 to 2018



Note: Data are in original terms and year averages to November.

Source: ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0.

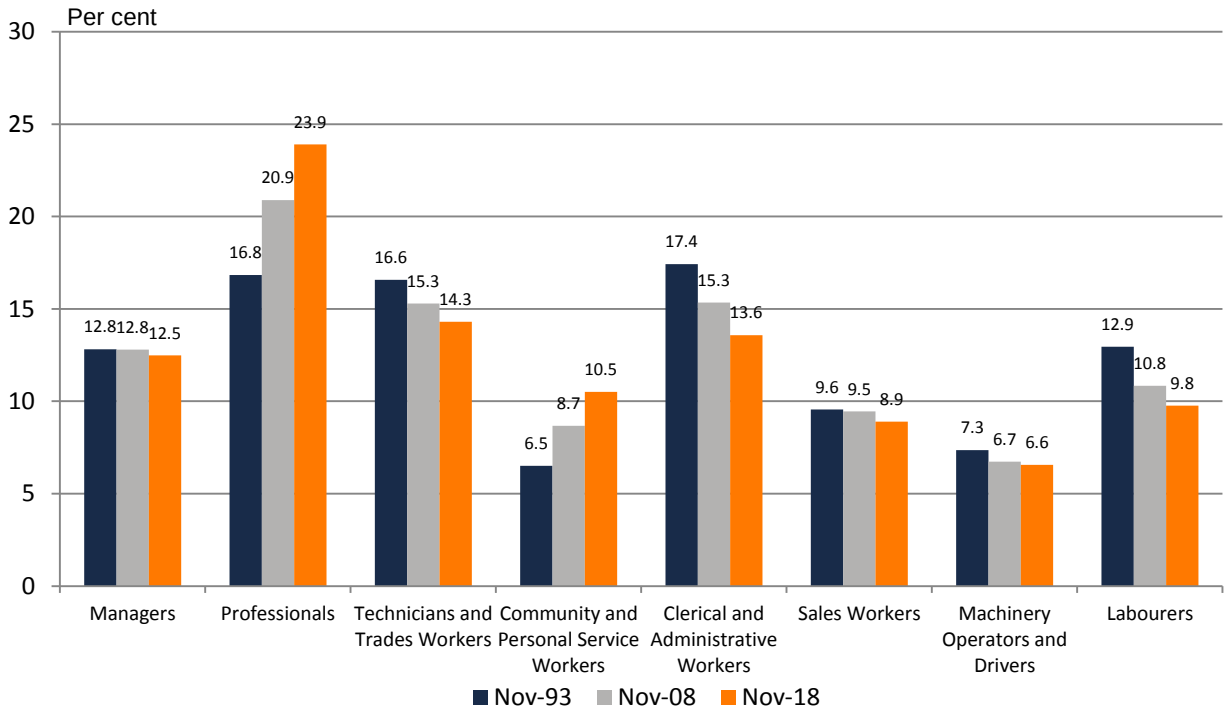
Table B1: Composition of total employment by industry, 1993 to 2018

	Composition of total employment (%)			Change in proportion (Ppts)	
	1993	2008	2018	1993–2018	2008–2018
Agriculture, forestry and fishing	5.1	3.2	2.6	–2.5	–0.6
Mining	1.1	1.5	1.9	0.8	0.4
Manufacturing	13.6	9.8	7.4	–6.1	–2.4
Electricity, gas, water and waste services	1.4	1.1	1.2	–0.2	0.1
Construction	7.2	9.2	9.3	2.2	0.1
Wholesale trade	5.5	3.8	3.0	–2.5	–0.8
Retail trade	11.2	11.3	10.1	–1.0	–1.2
Accommodation and food services	6.1	6.6	7.1	0.9	0.5
Transport, postal and warehousing	5.1	5.3	5.1	–0.0	–0.2
Information media and telecommunications	2.1	2.1	1.8	–0.4	–0.3
Finance and insurance services	4.1	3.8	3.5	–0.6	–0.2
Rental, hiring and real estate services	1.5	1.9	1.7	0.2	–0.2
Professional, scientific and technical services	4.8	7.4	8.4	3.6	1.0
Administrative and support services	2.4	3.2	3.3	0.9	0.1
Public administration and safety	6.1	6.0	6.2	0.1	0.2
Education and training	7.4	7.5	8.2	0.7	0.7
Health care and social assistance	9.0	10.3	13.3	4.4	3.1
Arts and recreation services	1.3	1.7	2.0	0.7	0.2
Other services	4.8	4.2	3.8	–0.9	–0.4
All industries	**100.0**	**100.0**	**100.0**		

Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly, Nov 2018*, Catalogue No. 6291.0.55.003.

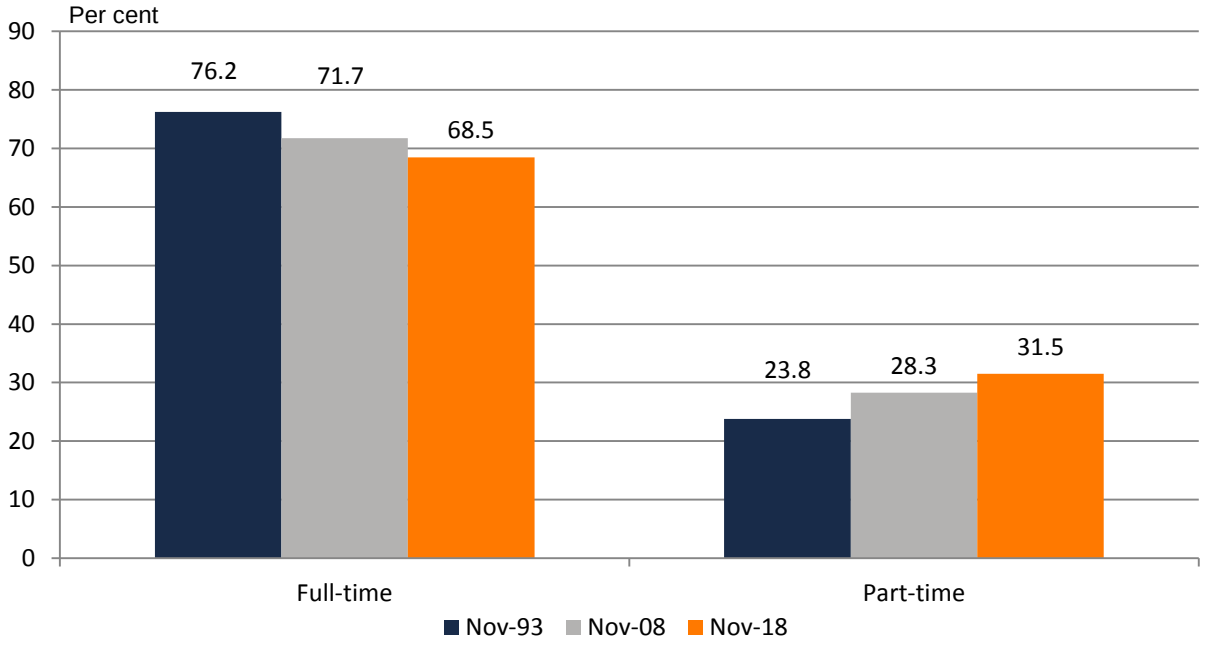
Chart B3: Composition of total employment by occupation, 1993 to 2018



Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Detailed, Quarterly, Nov 2018*, Catalogue No. 6291.0.55.003.

Chart B4: Part-time employment as a proportion of total employment, 1993 to 2018

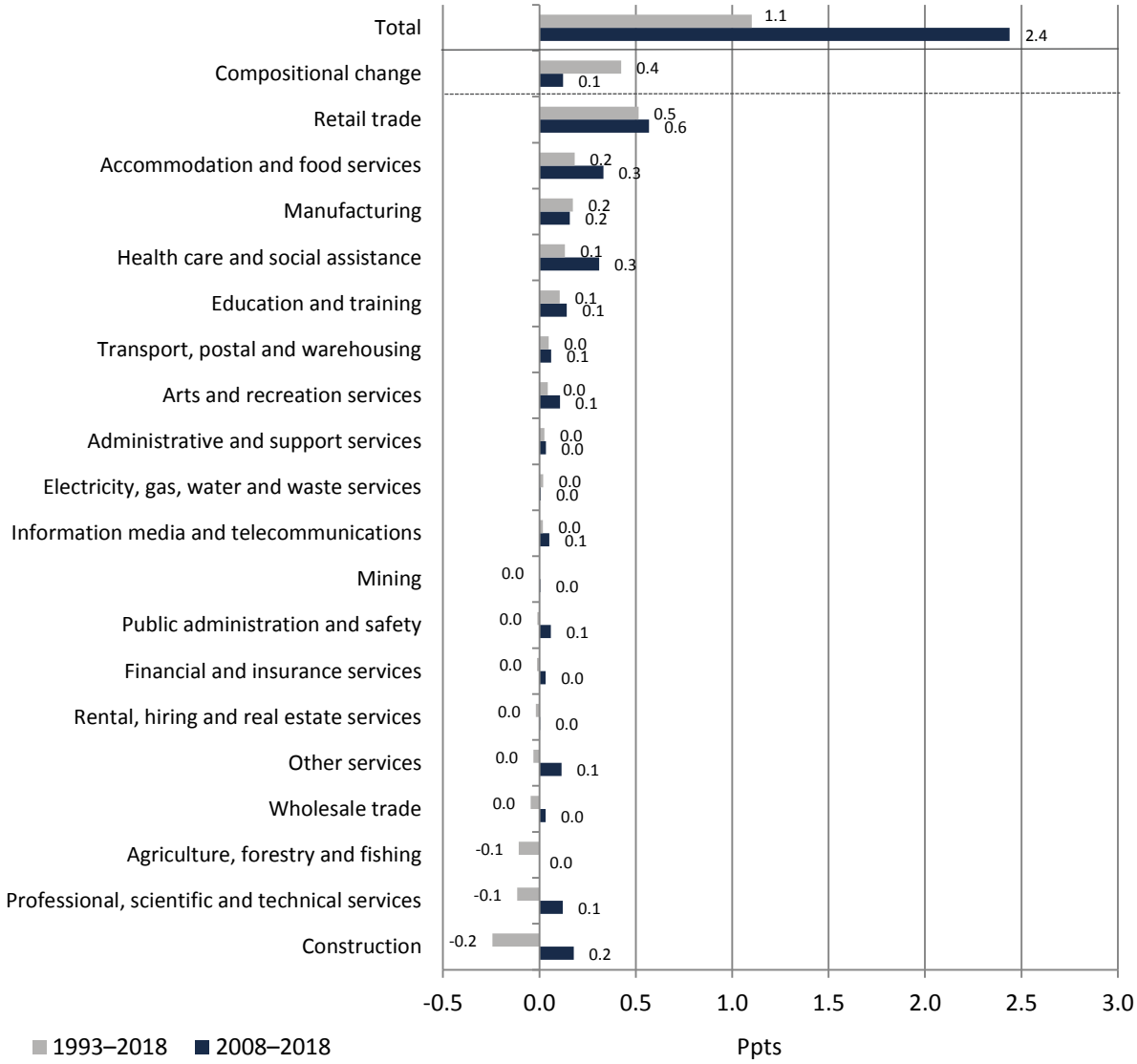


Note: Data are in original terms and year averages to November.

Source: ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0.

Appendix C—Shift-share analysis results for industry

Chart C1: Shift-share decomposition of contributions to the change in the underemployment ratio, by industry

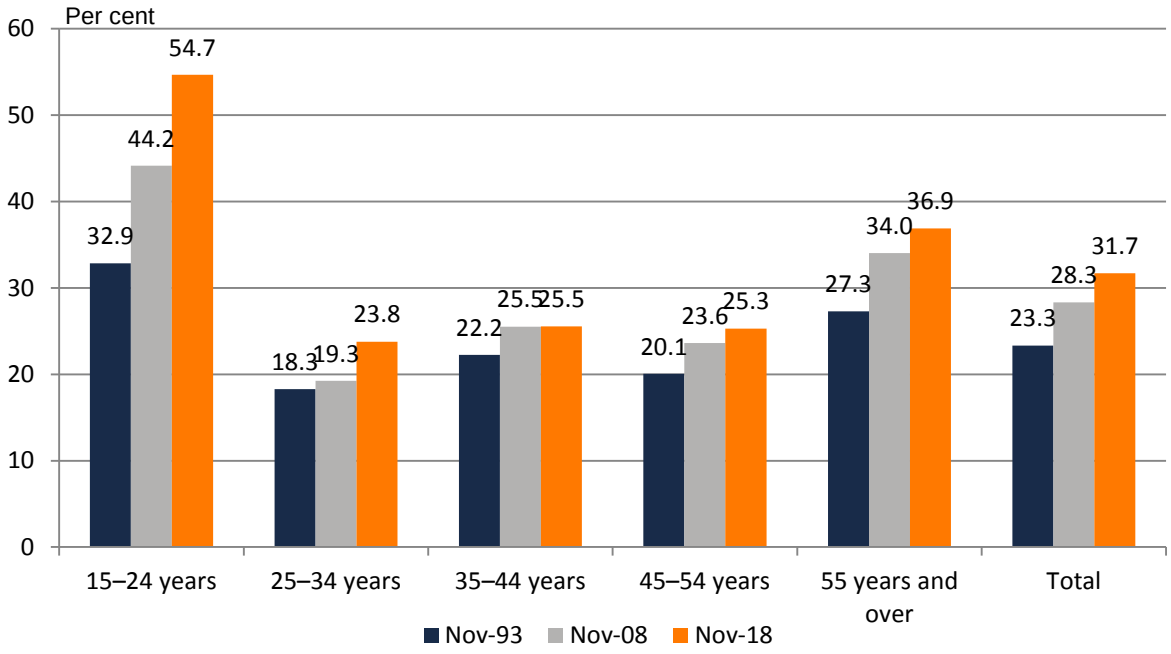


Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly, Nov 2018*, Catalogue No. 6291.0.55.001.

Appendix D—Proportion in part-time employment

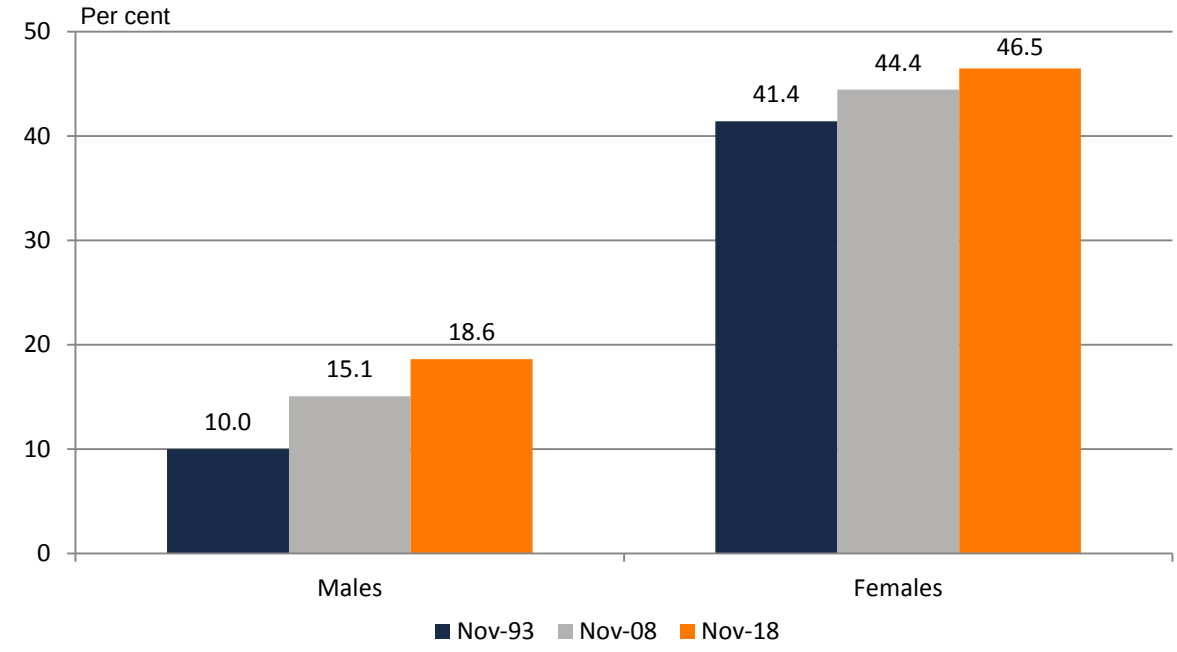
Chart D1: Proportion of age group in part-time employment, 1993 to 2018



Note: Data are in original terms and year averages to November.

Source: ABS, *Labour Force, Australia, Detailed – Electronic Delivery, Nov 2018*, Catalogue No. 6291.0.55.001.

Chart D2: Proportion of males and females in part-time employment, 1993 to 2018



Note: Data are in original terms and year averages to November.

Source: ABS, *Labour Force, Australia*, *November 2018*, Catalogue No. 6202.0

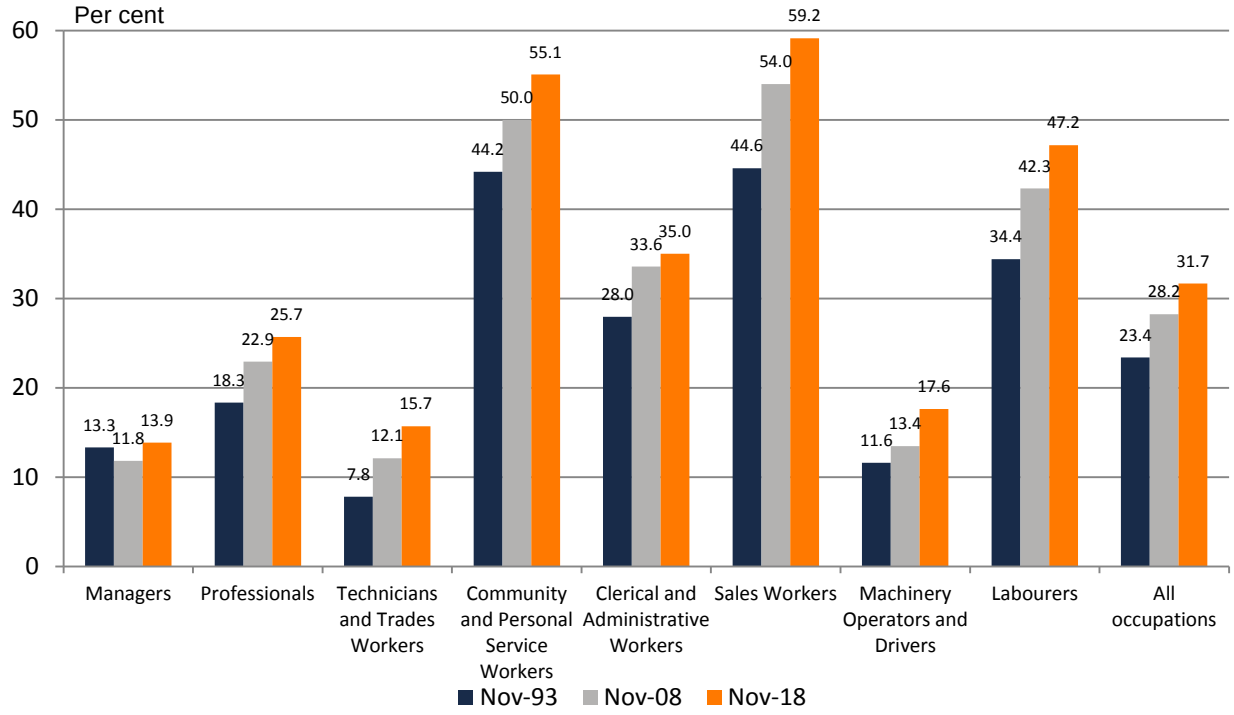
Table D1: Proportion of industry in part-time employment, 1993 to 2018

	Proportion of part-time employment (%)			Change in proportion (Ppts)	
	1993	2008	2018	1993–2018	2008–2018
Agriculture, forestry and fishing	22.8	25.5	27.7	4.9	2.2
Mining	3.0	3.0	4.0	1.1	1.0
Manufacturing	10.1	13.0	16.1	5.9	3.0
Electricity, gas, water and waste services	3.2	8.5	11.1	8.0	2.7
Construction	15.3	13.0	15.1	–0.2	2.1
Wholesale trade	14.7	16.6	17.3	2.6	0.7
Retail trade	39.6	46.3	51.1	11.4	4.7
Accommodation and food services	47.3	54.6	60.0	12.7	5.4
Transport, postal and warehousing	11.7	18.2	21.3	9.6	3.1
Information media and telecommunications	18.0	19.1	21.6	3.6	2.5
Finance and insurance services	15.1	17.6	16.5	1.4	–1.0
Rental, hiring and real estate services	20.7	26.4	25.0	4.3	–1.5
Professional, scientific and technical services	22.6	20.7	23.1	0.5	2.4
Administrative and support services	27.7	39.8	42.4	14.7	2.6
Public administration and safety	11.7	16.0	17.3	5.5	1.3
Education and training	28.8	36.6	38.8	10.0	2.2
Health care and social assistance	36.9	42.3	44.9	8.0	2.6
Arts and recreation services	39.0	42.3	48.0	9.0	5.7
Other services	24.9	28.4	31.9	7.0	3.5
All industries	**23.4**	**28.2**	**31.7**	**8.3**	**3.4**

Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly, Nov 2018*, Catalogue No. 6291.0.55.003.

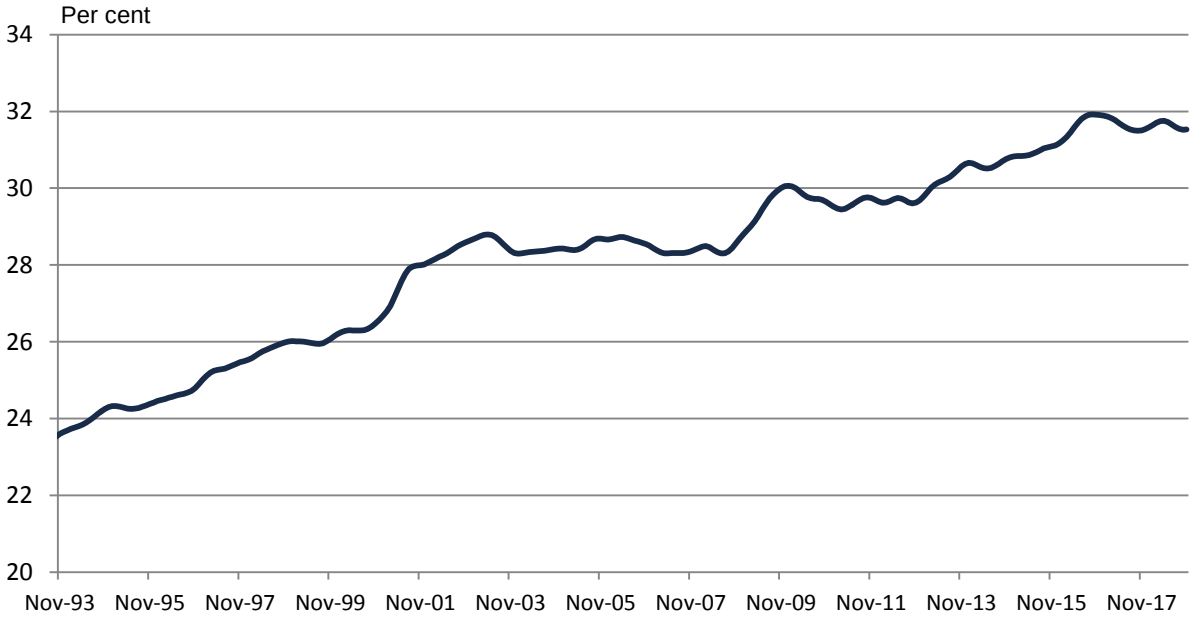
Chart D3: Proportion of occupation in part–time employment, 1993 to 2018



Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Detailed, Quarterly, Nov 2018*, Catalogue No. 6291.0.55.003.

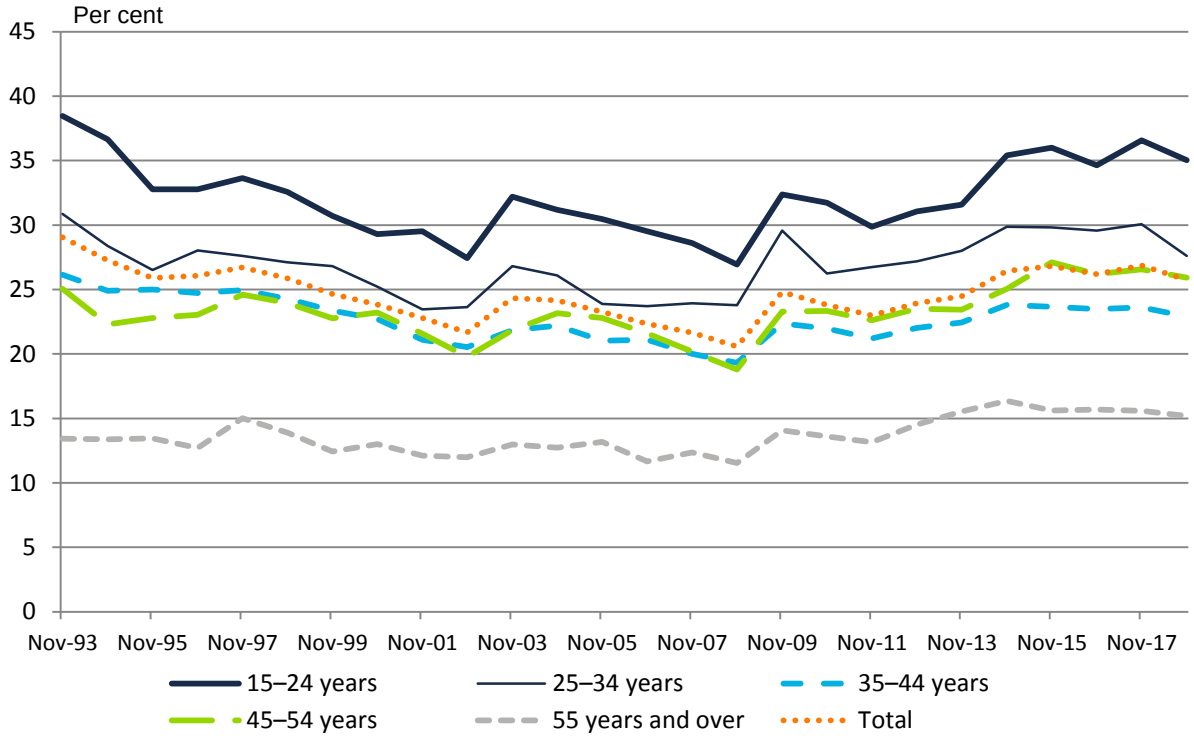
Chart D4: Part-time employment as a proportion of total employment



Note: Data are in trend terms.

Source: ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0.

Chart D5: Part-time underemployment ratio by age groups, 1993 to 2018



Note: Data are in original terms and year averages to the November quarter.

Source: ABS, *Labour Force, Australia, November 2018*, Catalogue No. 6202.0; ABS, *Labour Force, Australia, Detailed – Electronic Delivery, Nov 2018*, Catalogue No. 6291.0.55.001.