



Australian Government
Productivity Commission

Why did young people's incomes decline?

Productivity Commission
Research Paper

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The Productivity Commission

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The Commission's independence is underpinned by an Act of Parliament. Its processes and outputs are open to public scrutiny and are driven by concern for the wellbeing of the community as a whole.

Further information on the Productivity Commission can be obtained from the Commission's website (www.pc.gov.au).

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Abbreviations

ABS	Australian Bureau of Statistics
ANZSCO	Australian and New Zealand Classifications of Occupations
ANZSIC	Australian and New Zealand Standard Industrial Classification
ASX	Australian Securities Exchange
AUSEI06	Australian Socioeconomic Index 2006
CP	Carer Payment
CPI	Consumer price index
DSP	Disability Support Pension
DSS	Department of Social Services
ECDF	Empirical cumulative distribution function
FTB	Family Tax Benefit (both Part A and Part B)
FTB-A	Family Tax Benefit Part A
FTB-B	Family Tax Benefit Part B
GDP	Gross domestic product
GFC	Global financial crisis
HILDA	Household, Income and Labour Dynamics in Australia
MTAWE	Male total average weekly earnings
NEET	Not in employment, education or training
NILF	Not in labour force
NSA	Newstart Allowance
OECD	Organisation for Economic Cooperation and Development

PBLCI	Pensioner and beneficiary living cost index
PC	Productivity Commission
PDF	Probability density function
PISA	Programme for International Student Assessment
PP	Parenting Payments
PP-P	Parenting Payment Partnered
PP-S	Parenting Payment Single
RBA	Reserve Bank of Australia
SEIFA	Socio-Economic Indexes of Areas
SIH	Survey of Income and Housing
TAFE	Technical and further education
VET	Vocational education and training
WPI	Wage Price Index
YA	Youth Allowance

Glossary

Allowances	See income support payments .
Australian socioeconomic index 2006	Assigns a number between 0 and 100 to occupations in the Australian and New Zealand Standard Classification of Occupations. Generally, occupations associated with high human capital and earning potential have a high score while occupations associated with low human capital and earning potential have a low score.
Business income	See income .
Contribution to growth	A component's contribution to income growth , measured in percentage points.
Dividend income	See income .
Disposable income	See income .
Family payments	Non-income support payments that are made to families and are designed to complement other income sources.
Global financial crisis	Refers to the period of stress in global financial markets and banking systems between November 2007 and February 2009.
Growth	Growth rates in this report are average (or compound) annual growth rates and are calculated as the geometric average, with: $final\ value = (1 + r)^t \times initial\ value$, where r represents the average growth rate.
Heckman estimation	See box 4.2.
Income	<p>In this study, income is used to refer to gross income, which is total income from labour, transfers, and other income, before taxes. Gross income is divided into three main <i>sources</i>.</p> <ul style="list-style-type: none">• Labour income: wages and other employment-related income.



- **Transfer income:** payments from governments to individuals and families via the transfer system.
- **Other income:** income that is not sourced from labour income or government transfers.

Disposable income: income net of income tax.

Investment income: sum of interest, rental, and dividend incomes.

Business income: net income (revenue minus expenses) earned through owning an unincorporated business.

Interest income: interest earned on cash holdings (bank accounts, bonds, and trusts).

Dividend income: income from an incorporated business, company shares, managed funds, or property trusts.

Rental income: income from real estate, net of maintenance and other costs.

Income per person

Income (or an income source or component) for an age group divided by the total number of people in the age group.

Income per earner is income divided by the number of earners. For example, labour income divided by the number of workers.

Income per recipient is income divided by the number of transfer recipients. For example, gross income (including any labour income) divided by the number of transfer recipients.

Income support payments

Transfers that are intended to provide a basic, acceptable standard of living for people who are unable to fully support themselves.

Allowances: Income support payments that provide temporary assistance, such as Youth Allowance, and Newstart Allowance.

Parenting payments: Income support payments that provide assistance to parents when a child is young, such

	as Parenting Payment Single and Parenting Payment Partnered.
	Pensions: Income support payments to provide long-term assistance, such as Disability Support Pension, Age Pension and Carer Payment.
Interest income	See income .
Investment income	See income .
Labour demand	The number of hours demanded by firms at a given wage rate.
Labour income	See income .
Labour supply	The number of hours supplied at a given wage rate.
Mining boom	A period of high mining commodity prices and investment activity, commonly thought to have occurred between late 2004 and late 2015. Price phase: late 2004 to mid-2012; investment phase: late 2011 to late 2015.
Other income	See income .
Parental transfers	Cash transfers from parents (can be either resident parents or non-resident parents) to young people.
Parenting payments	See income support payments .
Pensions	See income support payments .
Prime-aged people/workers	People/workers aged 35-64.
Real	Values expressed in 2018-19 financial year dollars unless otherwise stated.
Rental income	See income .
Retirees	People aged 65 and over.
Shift-share analysis	<p>Shift-share analysis decomposes a variable such as income per person or hours worked, into different components. It analyses two effects:</p> <p>Shift effect: changes in income per person that can be linked to shifts between groups (the between group effects), such as young people moving to lower paid jobs.</p>

	Share effect: changes in income per person that can be linked to changes in income per person in a given group (the within group effects), such as young people receiving a lower wage for the same job types.
Transfer income	See income .
Wage rate	In this study, wage per hour.
Young people/workers	People/workers aged 15-34.

Chart and table definitions

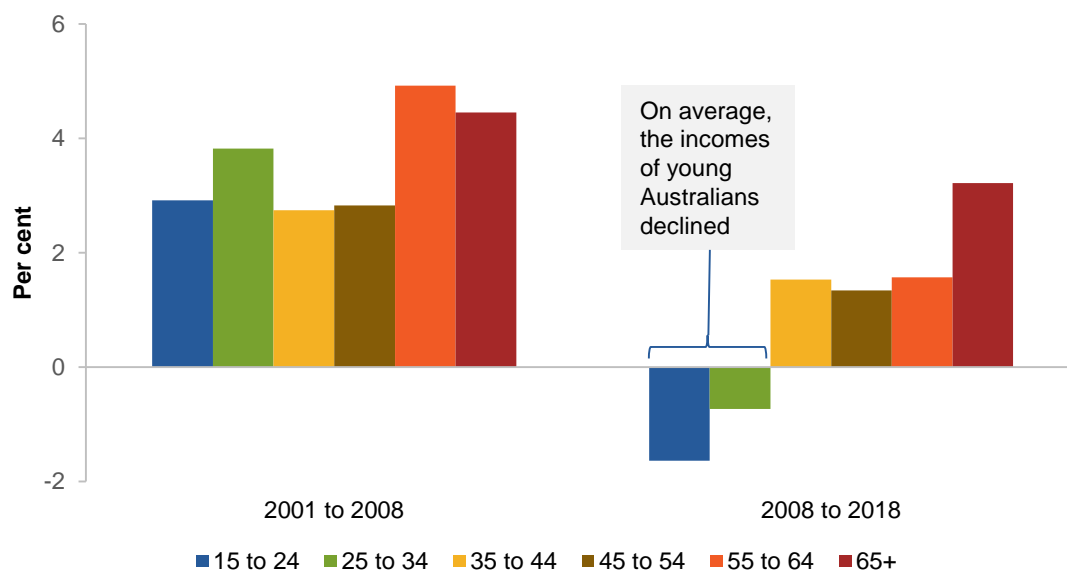
The following glossary provides definitions of key words used in the titles and subtitles of the study.

Average	Averages constructed from the HILDA survey are population weighted averages.
Empirical cumulative distribution function	In this study, function showing the proportion of people in an occupation with a ‘given Australian socioeconomic index 2006 score or less.’
Index	Indexes based on the first year of the data series unless otherwise stated.
Year and dates	Annual data are for a financial year; for example, 2018 refers to the period from 1 July 2017 to 30 June 2018. Other data might relate to the collection date, such as payment rates at 30 June or wage income during a week.

Executive summary

This study arose from concerns about income growth for young people (people aged 15-34). Young people's average incomes *declined* in real terms from 2008 to 2018 (figure 1). This 'lost decade' of income growth raises questions about how different sources of income have evolved, and why. It is likely that this negative income growth has been compounded by the effects of the current COVID-19 crisis. Young people's labour income has been hardest hit by high unemployment, and many young people are seeing their savings depleted.

Figure 1 **Young people's incomes have declined**
Annual growth in average disposable incomes by age^a



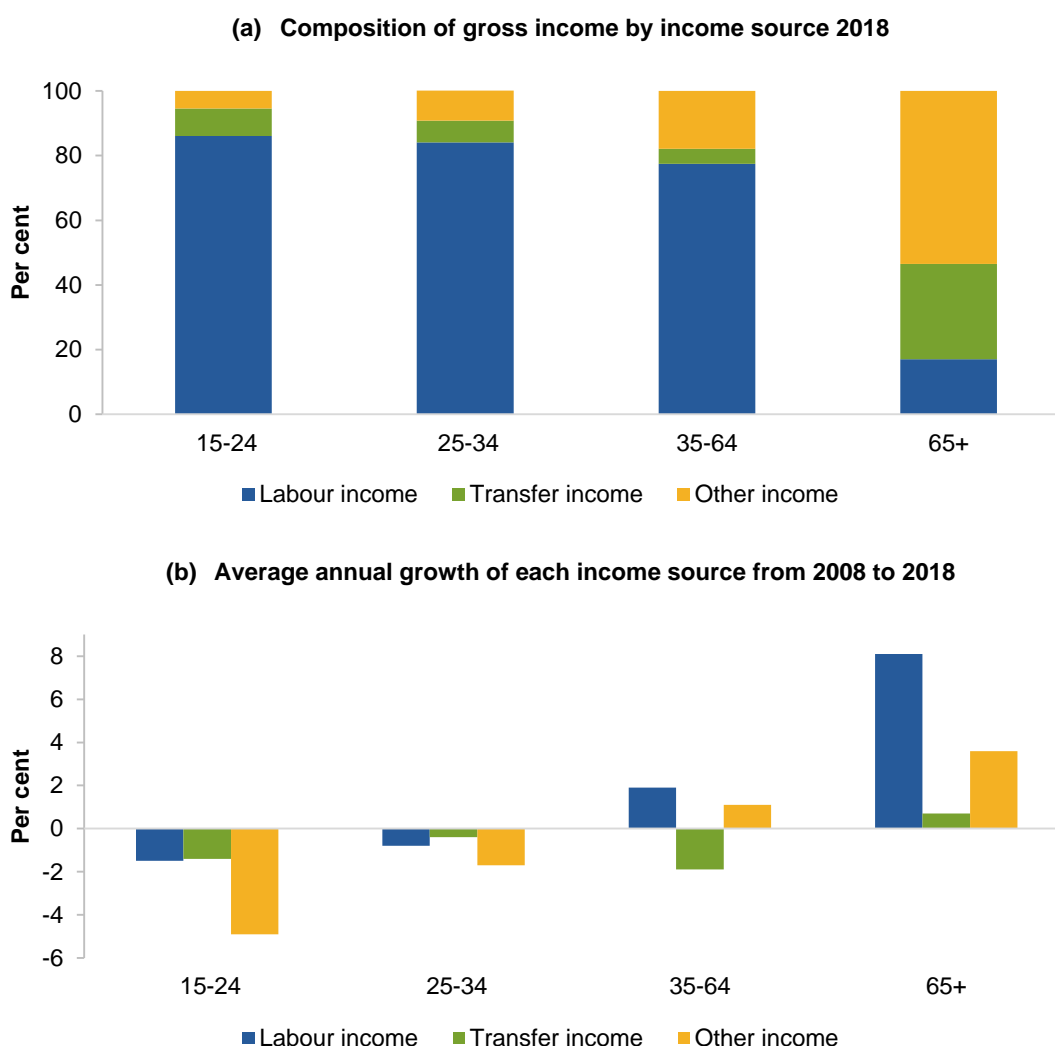
^a In real terms; adjusted by the CPI.

Data source: Commission estimates based on HILDA data.

Declining labour income growth is the primary driver behind the decline in young people's income

The main income source for young people is labour income, so labour income is key to understanding the lost decade of income growth (figure 2).

Figure 2 Labour income matters for young people

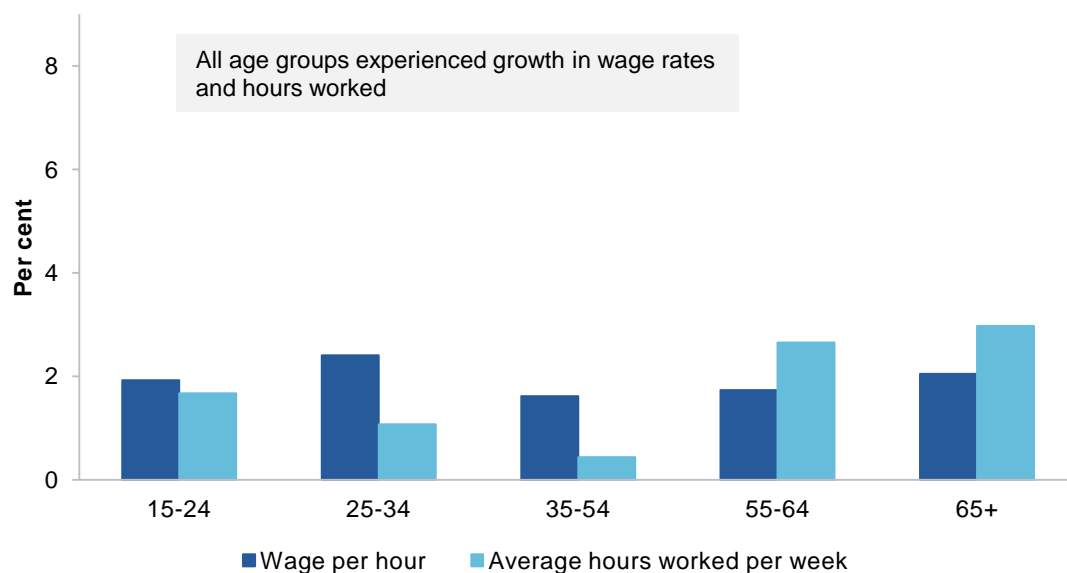


Data source: Commission estimates based on HILDA data.

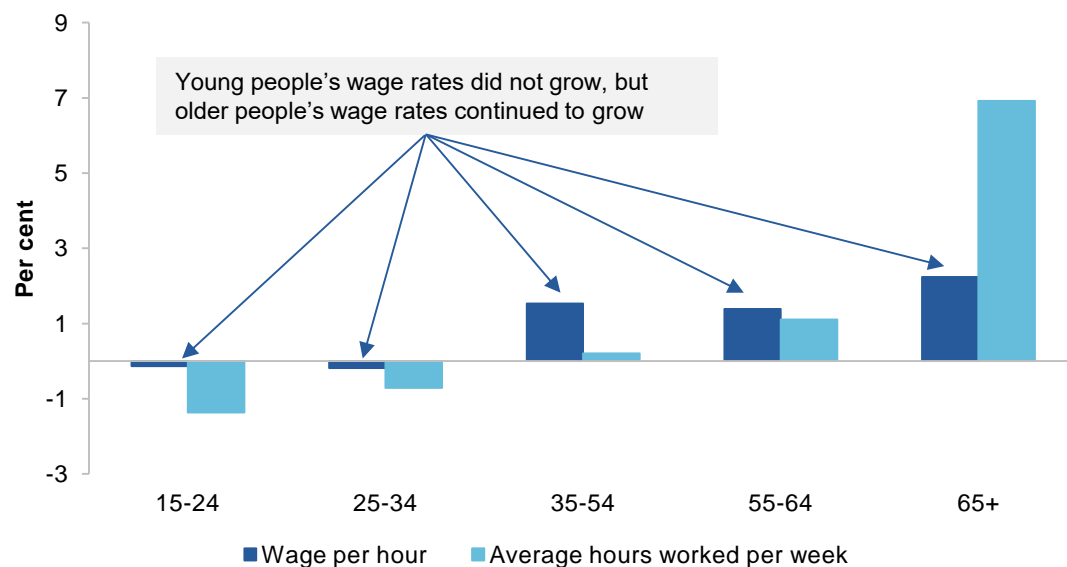
Our analysis suggests that growth in wage rates for people aged 20-34 was flat from 2008 to 2018. In contrast, average wage rates for people aged 35-54 continued to grow as they had before 2008 (figure 3). Thus the ‘slow wage rate growth’ observed since the global financial crisis (GFC) was primarily a phenomenon experienced by workers aged under 35. The gap in the growth of wage rates between young and older workers was not driven by labour market changes that affected specific education levels, industries or occupations; nor was it driven by longer-term trends such as job polarisation. It is a phenomenon experienced by the majority of workers aged under 35, even if some subgroups did see some increase in their wages.

Figure 3 Wage rates have stalled and hours have fallen for young people after 2008
Average annual growth rates in labour income, average wage rate and hours worked per person, by age group^a

(a) 2001 to 2008



(b) 2008 to 2018



^a Wage rates are in real terms, adjusted by the CPI.

Data source: Commission estimates based on HILDA data.

A shift from full-time to part-time work for people aged 15-24 is also contributing to a decline in hours worked and in incomes. This age group has seen a slow decline in full-time employment since the early 1990s, a decline that was briefly interrupted during the first part of the mining boom from 2001 to 2008. The long-term decline since the 1990s is associated with young people studying longer. But after 2008, the decline in hours worked was only experienced by those not currently studying, which means that increased participation in education did not reduce hours worked in this latter period. (That said, women over 25 have increased their labour force participation, both in full-time and part-time work; this additional income for women aged 25-34 partly counteracts the declines that have affected other groups.)

The most likely explanation for the decline in wage rates and in full-time work is an imbalance between labour demand and labour supply. Some of this imbalance relates to the business cycle: the slowdown in the economy after the GFC and the slowing of the mining boom reduced economy-wide labour demand after 2008. Some of this imbalance is due to long-term changes in the economy. Later retirement for over 55s increased the supply of workers, and strong increases in the number of university graduates increased the supply of workers who compete for jobs that require more education. Although immigrants increased labour supply, evidence shows that they also created labour demand in the firms they bought goods and services from; the overall effect was neutral.

It seems likely that the imbalance between labour supply and labour demand affected job seekers much more than workers who were already employed. A much higher share of under 35s are job seekers: they are searching for their first job, or their first full-time job after finishing their education. And young people are much more likely to change jobs. Thus statistics about under 35s are driven by outcomes for job seekers. This explains why statistics about job seekers (such as unemployment rates) look very similar in all age groups; but when we turn to statistics about entire age groups, such as total hours worked, we see a divergence between younger and older age groups, because more of the older age group are already employed.

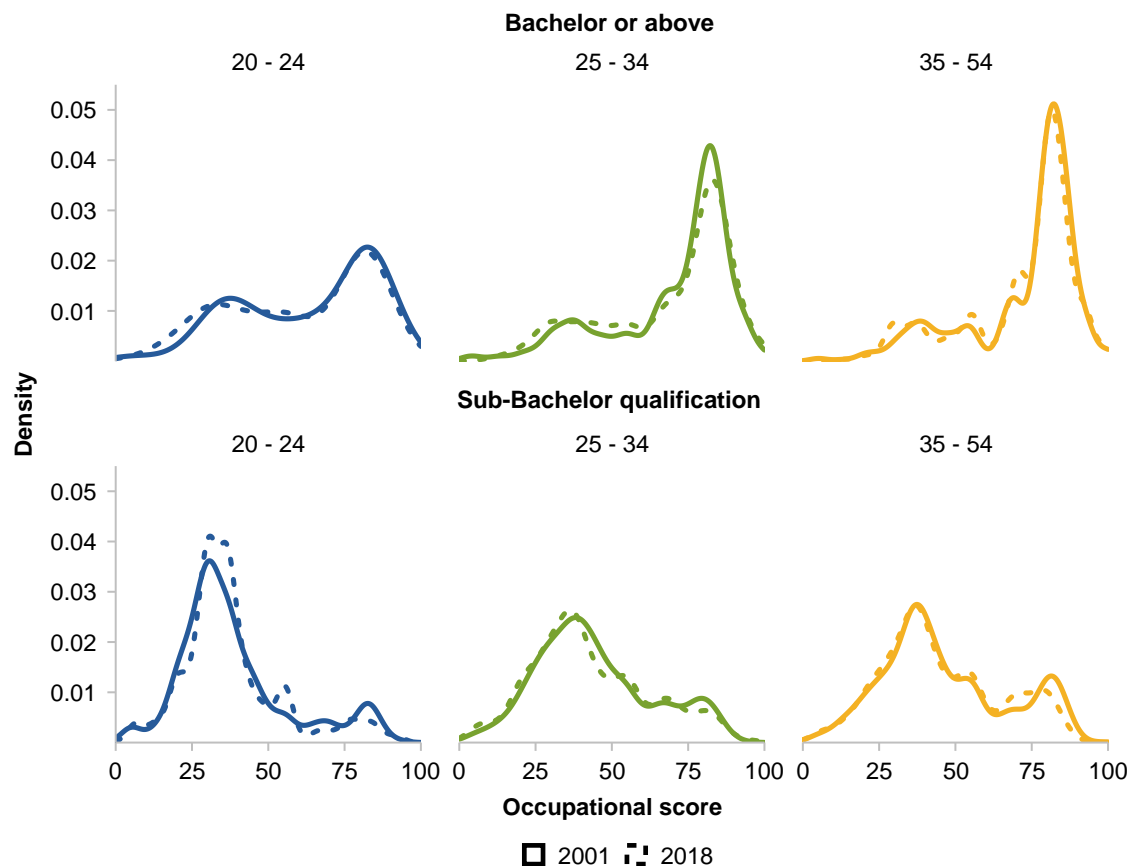
Seeing greater competition for starting positions, firms offered lower starting wages. But evidence suggests that firms did not use their enhanced bargaining power to reduce wages for existing workers (although wage rises were smaller). This lack of wage flexibility within existing firms and for existing workers meant that new jobs were created in smaller firms, and in sectors with more casual and part-time work.

In line with this explanation, we find that after 2008, young workers obtained jobs that were further down the ‘jobs ladder’. We draw on a ranking of occupations (based on their educational requirements and earning potential) developed by the Australian National University. We find that after 2008, young people obtained work in lower-scored occupations than did comparably-skilled young people before 2008; on balance they were worse off by 2018 than in 2001. Young job seekers still found work in the more competitive labour market, but accepted ‘lower-scored’ occupations. Admittedly, earning potential is not the only important characteristic of a job, and everyone’s preferences are different; but if occupational scores decline for a whole cohort of workers, this is likely to be involuntary to a large extent. The movement down the jobs ladder of

young people with Bachelor degrees is likely to have pushed those with vocational degrees further down the ladder, in turn (figure 4).

Figure 4 **Graduates under 35 were more likely to be in lower-scored occupations in 2018 than in 2001^a**

Frequency distribution of occupational scores by highest education level



^a Observations concentrated toward the left of the distributions indicate a concentration of lower-scored occupations in a population. The propensity of the dashed lines to be further left than the solid lines is consistent with that tendency for 2018 relative to 2001.

Data source: Commission estimates based on HILDA data.

Most concerning is that this movement down the jobs ladder, while not large, is persistent. While every cohort of young people moves up the jobs ladder in the years after graduation, the later cohorts do not make up the lost ground: their occupational status does not catch up to that of previous cohorts. As a result, young people in the labour market after 2008 are likely to experience some ‘scarring’ — long-term negative impacts on their wages and occupational choices.

Further down the occupation ladder, wage rates and hours vary more quickly with market forces, and so the labour market was able to absorb the larger supply of workers in lower-scored and sometimes part-time work. On the positive side, this meant that unemployment did not rise dramatically after the GFC. But on the negative side,

underemployment rose with the rise of part-time work, suggesting that many workers wanted more, and possibly full-time, work. And some young workers were pushed out of employment completely; the long-term unemployed as a share of all under 25s more than doubled by 2018.

As an aside, it is worth noting that the relatively low unemployment rate was not due to the rise of the ‘gig’ economy, which was slight. Workers in the gig economy are technically self-employed in their own business; yet only a small and declining share of young people relied on business income as their main source of income. Fewer people aged 20-34 earned any business income, and that income decreased. There was a substantial decline in business income from high-value sectors, only partially compensated for by more business income from low-value sectors (the gig economy). It would seem that ‘starting a business’ was one strategy that young people did not adopt when faced with a worsening labour market. In contrast, older age groups saw increases in their business income, and the share of these age groups earning a business income remained constant.

In the absence of the COVID-19 crisis, how long would these features of the labour market have persisted? The evidence shows that 2010-2015 was the low point in terms of slow wage growth and occupational downgrading for all age groups, which suggests that the business cycle was more important than long-term factors. However, the long-term factors are still in play; the number of university graduates is much higher than in earlier decades, and the number of over 55s who keep working is higher. It remains to be seen whether the availability of high-scored jobs will eventually adjust to the increased supply of qualified workers.

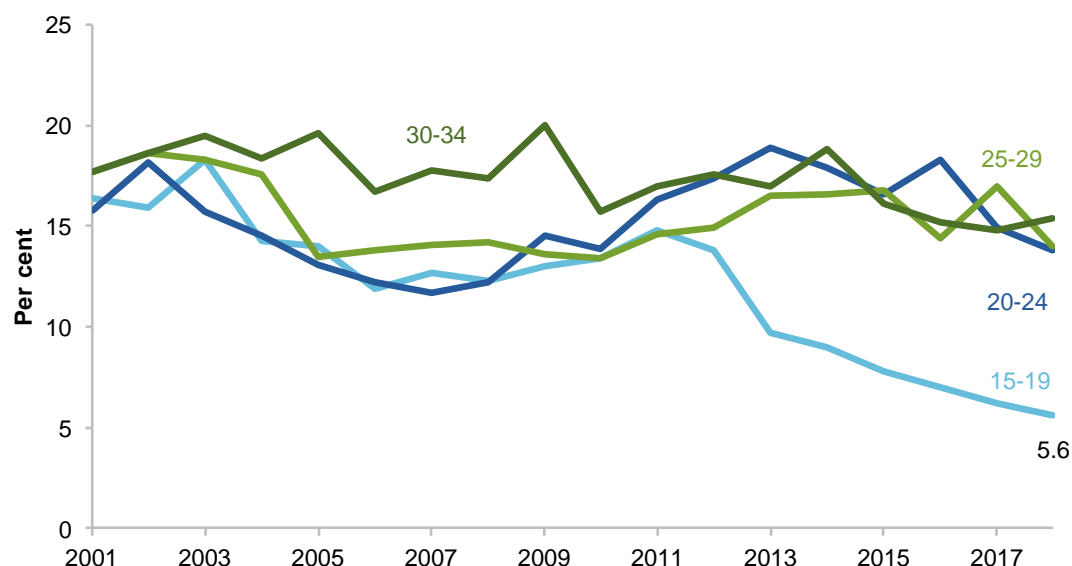
Transfer income was influenced by changes to eligibility

Changes to transfer income after 2008 did not compensate for the decline in labour income for the young. Transfer income declined substantially for people aged 15-19, and remained relatively steady in real terms for people aged 20-34.

Aggregate transfer income declined because of changes in eligibility (figure 5). Students aged 16-17 became ineligible for Youth Allowance. (For these students, Family Tax Benefit Part A became their main form of support; since it was paid to parents, it was therefore not counted as income of 15 to 19 year olds.) Job seekers aged 21 qualified for the lower Youth Allowance rather than Newstart (now called JobSeeker). And fewer families were eligible for Family Tax Benefit and Parenting Payments.

Figure 5 Reliance on transfers has decreased, especially for people aged 15-19

Percentage of young people relying on transfers, 2001–2018^a



^a Reliance is defined as more than 50 per cent of income sourced from transfers.

Data source: Commission estimates based on HILDA data.

At the same time, transfer income rose in real terms for age groups for whom pensions (such as the Disability Support Pension and the Age Pension) rather than allowances (such as Newstart or Parenting Payments) form a larger part of their transfer income. Pensions are indexed to average wage rates, which rose faster than the CPI, and therefore the value of pensions rose in real terms.

Intra-family transfers have become an increasing source of income for young people

In response to the income pressures on young people, transfers from parents grew substantially. Parents transferred more funds to children who had moved out of home. And many more young people remained in the family home. Remaining at home represents a sizeable transfer in the form of free or concessional rent, food, and other amenities; for people aged 20-24, for example, the savings is equivalent to about a third of the group's income. These intra-family transfers have helped cushion young people from the decline in expected income that they face, and they also reflect the growth in income for older Australians. But transfers have not been possible for all families: low-income families transfer less, and are less likely to have their children continue to live at home.

Young people's incomes and the COVID-19 crisis

These findings have implications for our understanding of the current COVID-19 crisis. Wage rates and occupational status continued to improve for workers aged over 35 after 2008, which suggests that there is a strong difference in the experiences of people already holding a job and people seeking a job during the post-2008 slowdown (and probably during the COVID-19 downturn). The COVID-19 crisis likely reinforces the difference in impact for job holders and job seekers. But young people's adverse experiences in the labour market during, and immediately after, the crisis are likely to have enduring effects on their future labour market outcomes ('scarring'). They might struggle to find employment, a job that fits their training, the number of hours they wish or require, or wage rates or career progressions comparable to those of earlier generations.

This work also highlights the multiple ways in which the labour market responds to a period of weak demand, aside from merely increased unemployment. The labour market also adjusts through lower starting wages, lower wage growth, lower hours worked, more employment in small firms, and workers moving down the occupational ladder. It raises the question as to which of these mechanisms might 'fail' in the COVID-19 crisis, leaving more of the adjustment burden to take the form of higher unemployment. The relatively weak labour market from 2008 to 2018 did not lead to high rates of unemployment (as in the 1991 recession, for example). The apparent imbalance between labour demand and labour supply led to a number of adjustments, among them an increase in part-time work in sectors with a high absorptive capacity, rather than widespread unemployment. But many of the sectors with absorptive capacity (such as retail, hospitality, and tourism) are precisely the sectors that have been most damaged by the current crisis, and whose pattern of recovery is uncertain. Evidence from the first three months of the crisis suggests that the workers in these sectors were primarily young, and on low wages. The COVID-19 recovery period may not see strong growth in those sectors, and therefore unemployment among the young could remain high for some time.

As in 2008-2018, the negative effects of the crisis will likely be cushioned by parents, for some young people. But low-income parents and parents who are themselves hit by an income shock may not be in a position to help.

Finally, this study centres on the issue of young people's *incomes*. Income allows young people to accumulate savings, as a cushion against shocks and a source of investment income. The inescapable conclusion of this study is that because of slower income growth, young people were not able to build their savings at the same rate as earlier generations: for example, we find that income from investment grew for older age groups but decreased for the young. As a result, people under 35 entered the COVID-19 recession with less protective savings, and they face a much more difficult job market as job seekers and job switchers. Many have depleted their savings. The generational divide is compounded by the fact that the COVID-19 recession has had much greater impacts on workers than on share-market investors (so far). And finally, young people are likely to experience higher taxes during their working life, to recover the current cost

of dealing with the pandemic. This highlights the need for future policy to take account of the distributional impacts of the current recession.

This study suggests that there are no easy answers when designing policy responses seeking to support young people in the post-COVID-19 job market. Policies such as wage subsidies may maintain some employment, but most likely at the lower-scored end of the occupation ladder. While accepting a low-scored occupation is significantly less scarring than remaining in long-term unemployment, it still has negative effects. And higher-educated young people may continue to push less-educated ones ‘off the ladder’. An alternative is to subsidise further education for this generation of young people. While additional training may enhance their probability of employment, and would postpone their entry into the job market until conditions improve, the demand for workers in middle and high-scored occupations is unlikely to rapidly absorb the new graduates. However, a difficult labour market for young people with qualifications may be preferable to a difficult labour market for young people with limited education.

1 About this study

‘Young people’s incomes have stopped growing’ — variants of this assertion, and its consequences for the economic wellbeing of young people, have been the subject of research, media commentary and policy discussion around the world. In Australia, the debate over this assertion concerns about 28 per cent of the population and continues to draw many views (box 1.1).

Box 1.1 Many views on young people’s incomes and spending

Popular debate often features young people’s avocado consumption.

I have seen young people order smashed avocado with crumbled feta on five-grain toasted bread at \$22 a pop and more. I can afford to eat this for lunch because I am middle-aged and have raised my family. But how can young people afford to eat like this? Shouldn’t they be economising by eating at home? How often are they eating out? Twenty-two dollars several times a week could go towards a deposit on a house. (Salt 2016)

There’s a war being waged in Australia - on our 4.3 million young people. You hear it in the negative and dispiriting language of our national conversation, from being told to just ‘get a good job’ or ‘cut back on the smashed avo’ as the solution to housing affordability, to Prime Minister Turnbull’s assertion his cabinet is ‘young at heart’ when the average age of that cabinet is over 50. Young people and the issues they face are being trivialised. (Acheson 2018)

Some authors focus on the relationship between young people and older Australians.

Generation-on-generation economic progress has been the norm for the past century. But continuing progress is not guaranteed. Older Australians today have substantially greater wealth, income and expenditure than older Australians three decades ago, but living standards have improved far less for younger Australians. (Wood, Griffiths and Emslie 2019, p. 3)

Pension costs are projected to continue to grow into the future ... the effect of this growth in income transferred from those of working age to retirees has made the bargain between the generations unbalanced. Each successive generation is asking more of the next generation than they were willing to contribute to past generations. (Cowan 2016, p. 1)

Other authors and advocates highlight the inadequacy of government support.

Young people in receipt of Youth Allowance and Newstart Allowance regularly report going without meals, not being able to afford access to appropriate housing, and forgoing health care, pharmaceuticals, dental care and optometrist services. (YACSA 2019, p. 1)

Many paint a bleak picture.

Being young, even in one of the most prosperous nations in the world, isn’t what it used to be. (Brotherhood of St Laurence 2018, p. 1)

I see my generation becoming the first in over 80 years to go backwards in work, wealth and wellbeing. (Rayner 2016)

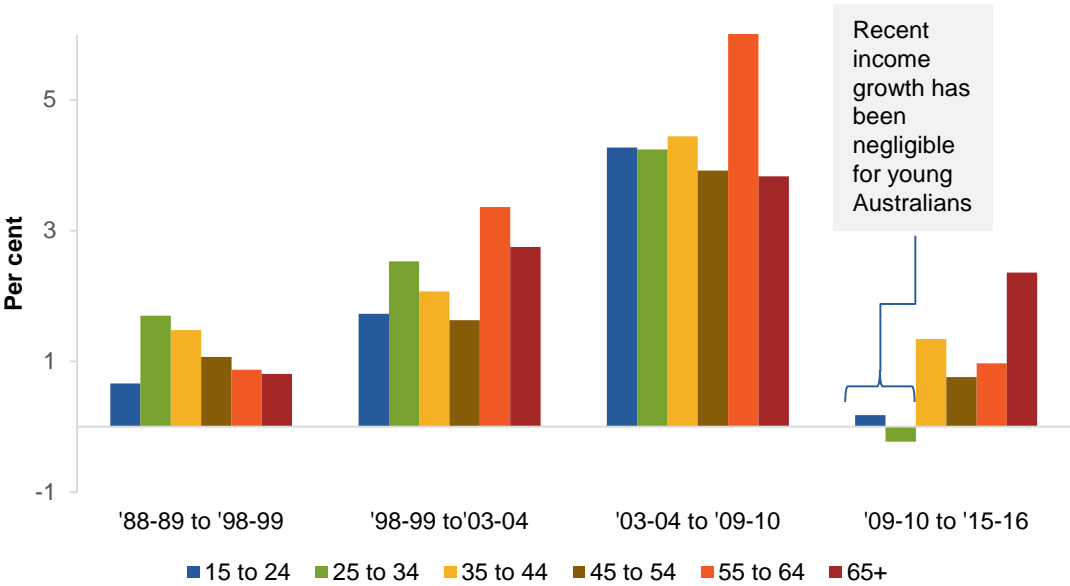
According to the Grattan Institute, this generation could be the first not to experience income gains relative to its predecessors (Wood, Griffiths and Emslie 2019, pp. 19–21). And the

OECD found that, despite uninterrupted economic growth in Australia during the global financial crisis (GFC), labour market outcomes for young Australians had not improved since then (OECD 2016, p. 23).

In 2018, the Productivity Commission released *Rising inequality? A stocktake of the evidence* (hereafter, *Rising inequality*), which assessed Australian trends in income, consumption and wealth. *Rising inequality* found that people aged 15-34 experienced negligible growth in their real incomes from 2009-10 to 2015-16, while other age groups experienced some growth in real incomes (figure 1.1). That finding prompted this study.

A lack of income growth for young people is concerning as it affects their lifetime wellbeing. Lower income growth results in lower consumption, lower savings and lower wealth. Lower savings means less resources used to support future wellbeing; while lower wealth reduces people’s ability to smooth their consumption over their lifetime. Young people will have a lower level of economic wellbeing over their lifetime, with lower consumption now and greater exposure to economic shocks.

Figure 1.1 Young people have seen little income growth recently
Average annual growth rates in equivalised disposable income by time period and age group



Data source: Reproduced from Productivity Commission (2018, p. 60).

This study aims to explain recent negligible growth in the incomes of Australians aged 15-34, by identifying how incomes have grown across different demographic groups and by examining the determinants of income growth.

1.1 Income growth across countries

Analysis of generation-on-generation real income shows that there is a great deal of variety in the experience of millennials (people born between 1981/2 and 1995) relative to the preceding generation, generation X (born between 1965 and 1981/2), at the same age. Among nine countries, millennials had higher incomes in the United Kingdom, Finland and Norway and lower incomes in the other four countries (figure 1.2).

Figure 1.2 Millennials aged 25 to 29 have higher incomes than the preceding generation at the same age in only a few countries
Median real equivalised household disposable income (on a head of household basis) for each generation at the age of 25 to 29, 1969–2013^a



^a Data on boomers are missing for Germany and Greece.

Data source: Rahman and Tomlinson (2018, pp. 26–33).

Lower real incomes for people aged less than 30 have been attributed to changes in their labour market outcomes that cancelled out earlier gains. Youth unemployment rates peaked after the GFC and are taking time to decrease to pre-GFC levels. In Italy, Spain and Greece, youth unemployment rates increased more than in other countries and had not returned to pre-GFC levels by 2016. In many other countries, such as the United States and the United Kingdom, youth unemployment rates had recovered closer to pre-GFC levels by 2016 (Rahman and Tomlinson 2018, p. 35).

Youth labour participation rates in most countries also dropped after the GFC and had not recovered by 2016 (Rahman and Tomlinson 2018, p. 37). Young people who are not in the labour force may either be disengaged or spending more time in education. The proportion of young people not in employment, education or training (NEET) increased in some countries

after the GFC (OECD 2018). In Japan, attention concentrated on the hikikomori, young people who are disengaged and withdrawn from society. This group is likely to require intensive support to encourage them to re-enter education and work (OECD 2017, pp. 13–14).

However, some of the decline in participation is due to increased participation in tertiary education after the GFC (though not in the United States) (Roser and Ortiz-Ospina 2019). In many countries the NEET rates remained steady after the GFC, despite the decline in the labour market conditions. And in the countries where NEET rates increased, this increase did not fully account for the decline in labour market participation. Faced with high youth unemployment rates, young people were spending more time in education as an alternative to unemployment.

Real wage rates for people aged under 30 decreased from 2006 to 2014 in the sample of countries shown in figure 1.2, except in Norway (Rahman and Tomlinson 2018, p. 38). That said, in the United States, Spain, Germany, France and Italy, the decline was not as large as the decline for people aged 50 to 59 (Rahman and Tomlinson 2018, p. 38). In Australia, real wage rate growth declined from 2010 to 2015, with those under 25 experiencing the lowest growth (The Treasury 2017, p. 49).

In terms of employment outcomes, young Australians were faring better than young people in other countries. The OECD found that in 2015, Australia's youth unemployment rate (10.2 per cent) was lower than the OECD average (11.6 per cent) and that the 'labour market situation of youth in Australia is quite favourable by international standards' (OECD 2016, p. 23). This can be attributed to relatively favourable economic conditions in Australia. That said, the youth unemployment rate had not returned to pre-GFC levels by the end of 2019.

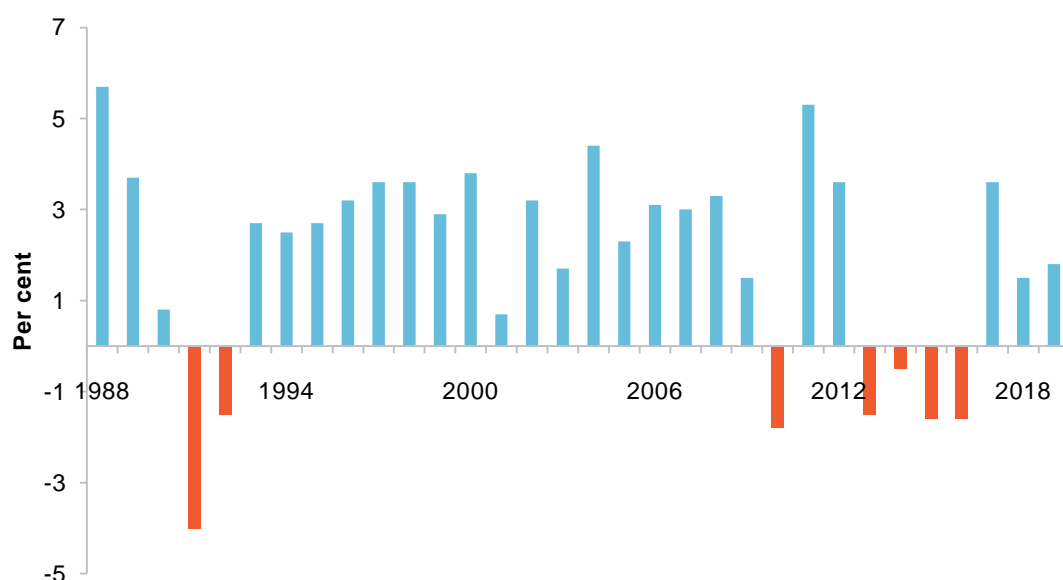
1.2 The broader Australian context

From the early 1990s to 2019, the Australian economy experienced uninterrupted economic growth and strong income growth in most years, with unemployment declining from about 11 per cent in the early 1990s to 5 per cent by 2019 (figure 1.3). Australia experienced two downturns during this time. The early 1990s recession resulted in a sharp increase in unemployment and a shrinking economy (figure 1.3). And the GFC caused a short-term decline in GDP and an increase in unemployment, although the increase was less than in other countries.

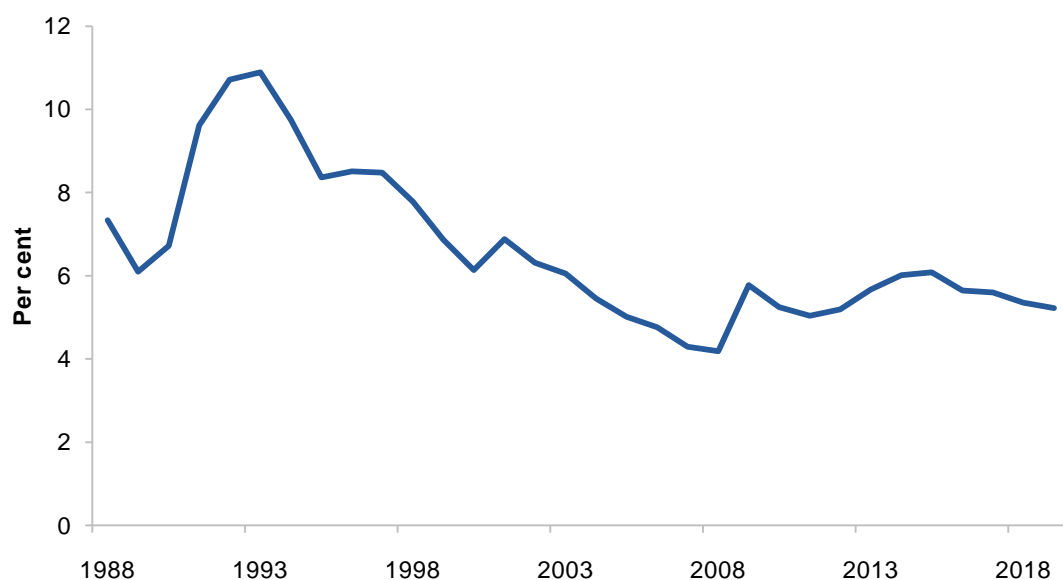
Figure 1.3 Australia has experienced strong and nearly uninterrupted income growth

Growth in real net national disposable income per capita for year ended June and unemployment rate, 1988–2019^{a,b}

(a) Real net national disposable income per capita has grown, but was weaker after 2008



(b) Unemployment decreased from the 1990s



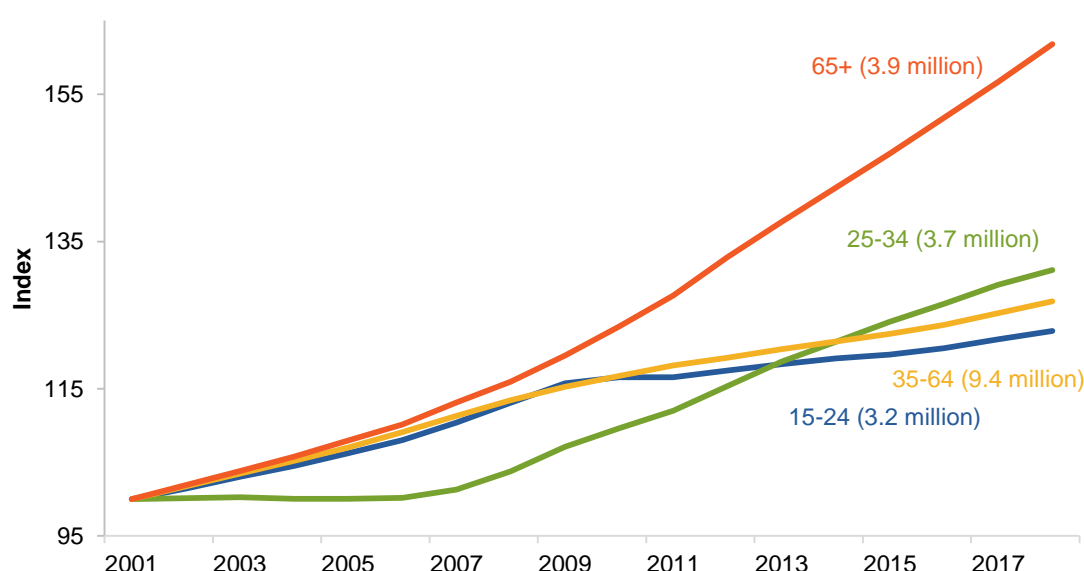
^a Trend unemployment rate, as at June. ^b Real net national disposable income is a preferred measurement of the economic wellbeing of Australians rather than GDP as it takes into account factors that are not included in GDP that are relevant to Australians' wellbeing (such as changes in the terms of trade).

Data sources: ABS (*Australian National Accounts: National Income, Expenditure and Product*, Dec 2019, Cat. no. 5206.0; *Labour Force, Australia*, Oct 2019, Cat. no. 6202.0).

However, the post-GFC period featured:

- slower wage growth, with a trend towards smaller and less frequent wage increases relative to the pre-GFC period (Bishop and Cassidy 2017, p. 17)
- an increased household saving ratio, reflecting increased precautionary savings due to expectations of reduced future incomes (Price and Finlay 2014, p. 1).
- demographic changes; the proportion of people aged 65 and over grew from 13 per cent in 2001 to 16 per cent in 2018 (figure 1.4).

Figure 1.4 The numbers of people aged over 65 are growing
Population, 2001–2018^a



^a Population in 2018 in parentheses.

Data source: ABS (Australian Demographic Statistics, Dec 2018, Cat. no. 3101.0).

The GFC coincided with the mining boom which occurred between 2004 and 2015 (box 1.2). One analysis compared the Australian economy to a counterfactual Australian economy where there was no mining boom. It suggested that from 2002 to 2013, the mining boom increased real per capita disposable income by 13 per cent, increased real wage rates by 6 per cent, and reduced the unemployment rate by 1.25 percentage points (Downes, Hanslow and Tulip 2014, p. 1).

The strong performance and resilience of the Australian economy underpinned steady growth in average real household income. *Rising inequality* found that real disposable income rose from \$31 000 in 1988-89 to \$54 000 by 2015-16 (2016-17 dollars) (PC 2018, p. 15). During that time, the relative income poverty rate in Australia fluctuated; it was slightly lower than its 30-year average by 2015-16 (PC 2018, p. 112).

Non-income indicators also show that the wellbeing of Australians had improved in some ways.

- Life expectancy increased. Between 2003 and 2015, life expectancy increased from 82.8 to 84.5 for women and from 77.8 to 80.4 for men (AIHW 2017, table A1).
- Australians were less likely to experience personal crime. The proportion of people aged 15 and over who had experienced a face-to-face assault in the past 12 months decreased from 3.9 per cent in 2008-09 to 2.6 per cent in 2017-18 (ABS 2019c).

Box 1.2 Timing of the global financial crisis and of the mining boom

There is no consensus about when the global financial crisis and the mining boom occurred. For the purpose of this study, the following dates are adopted.

The mining boom:

- price phase: late 2004 to mid-2012 (as indicated by the contribution of a rapid rise in commodity prices to the value of Australia's resources and energy exports)
- investment phase: late 2011 to late 2015 (as indicated by mining investment as a per cent of GDP and gross fixed capital formation).

The global financial crisis:

- crisis: November 2007 to February 2009 (based on movements in the Australian Stock Exchange all ordinaries price index)
- recovery: starting in March 2009.

The two time periods of interest in this study are 2001 to 2008 and 2008 to 2018. The effects of the global financial crisis are included in the second period, 2008 to 2018. The effects of the mining boom are observed in both periods as the mining boom price phase overlaps the two time periods. Although the mining boom influenced the period after 2008, growth in economic activity and in income was lower than it had been before 2008 (as shown by figure 1.1 and figure 1.3).

Source: Department of Industry, Innovation and Science (DIIS 2017, p. 12).

But other indicators had not improved.

- Fewer Australians owned their own home and more experienced rental stress — where lower-income households spend more than one-third of their income on rent. The proportion of people under 35 who are renting increased from 47 per cent in 2006 to 54 per cent in 2016 and the proportion of renters reporting rental stress increased from 48 per cent in 1995 to 54 per cent in 2015 (AIHW 2019a, pp. 12–15; PC 2019b, p. 6).
- The proportion of long-term unemployed people increased. From 2009 to 2018, the proportion of long-term unemployed increased from 15 per cent of people unemployed to 25 per cent (AIHW 2019a, p. 4).

Young people's wellbeing also improved in some domains and stagnated in others. Young people are benefiting from increased life expectancy and lower rates of personal crime, but other outcomes such as mental health are stagnating. The suicide rate for people aged 15-24 decreased from 1990, but remained unchanged after 2005 (IYF 2017, p. 81).

1.3 An overview of our approach

This study uses two methods to analyse how young people's incomes have grown (figure 1.5). (The definition of young people is discussed below.)

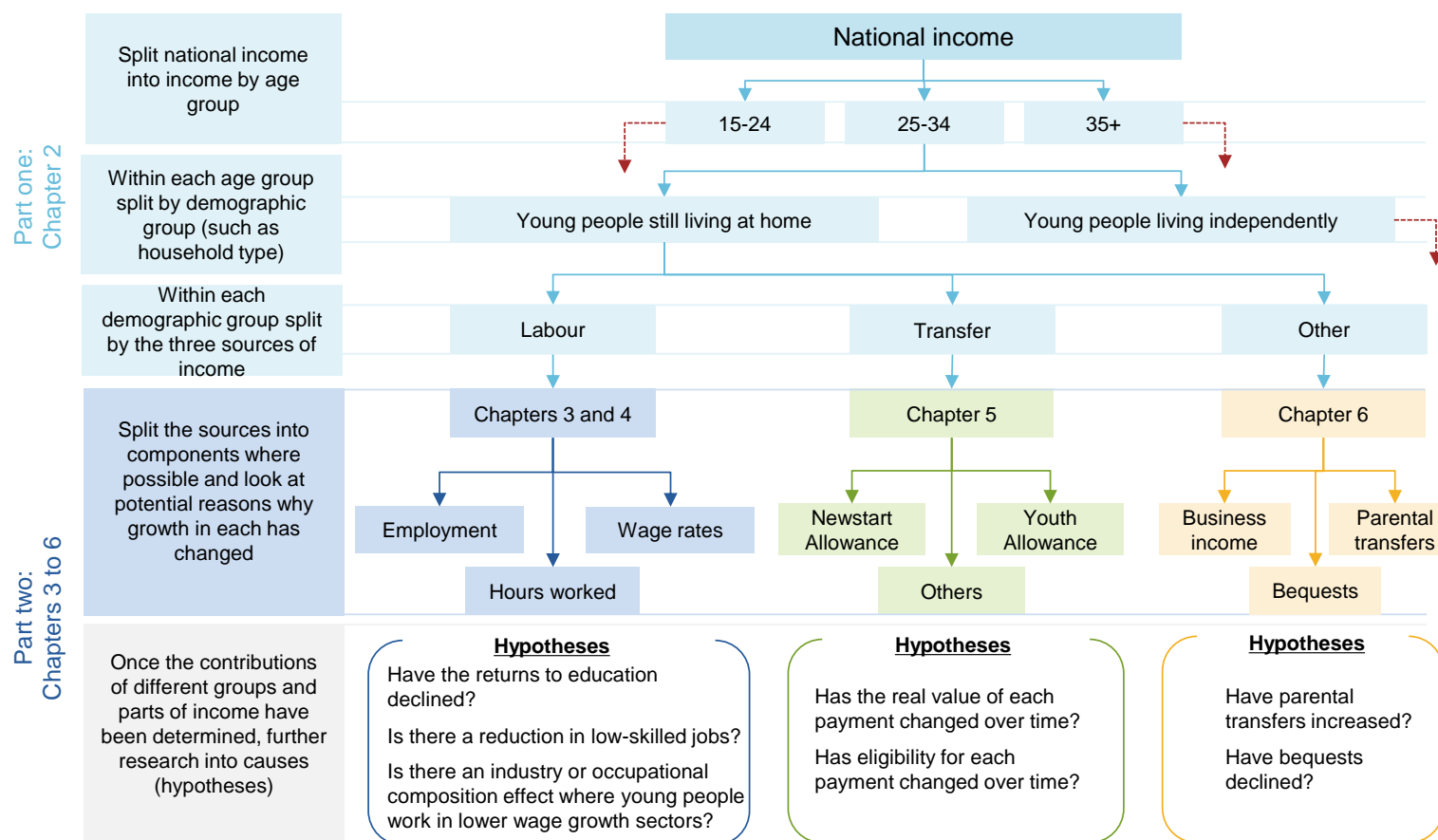
In the first part, young people's income growth is decomposed into different groups and the three sources of income — labour, transfers and other — to examine whether the slower growth is concentrated among certain groups or attributable to a particular source of income (chapter 2). Groups considered in this analysis include young people still living at home and those who have formed their own household, along with men, women, and people of different socioeconomic status. This first method compares young people's income growth from 2008 to 2018 to that of young people's income growth from 2001 to 2008; that is, it compares people at the same age, but at a different time.

In the second part, the decomposition of income is used as a basis to investigate *why* young people's income growth is slow. The trends identified in chapter 2 are analysed in the remaining chapters.

The study seeks to test hypotheses about the source of income growth and the possible determinants of this growth.

- Chapter 2 investigates the basic hypothesis that growth in real incomes slowed for many young people after 2008, both relative to the past and relative to other groups in Australia.
- Chapters 3 and 4 assess the argument that slower growth in **labour income** is attributable to decreases in hours worked, or slower wage rate growth for young people relative to other age groups and preceding generations. These chapters also investigate the potential for structural changes relating to greater participation in education, or increased supply of other workers. Some of the resulting insights lead to policy-relevant observations.
- Chapter 5 investigates **transfer income**, concentrating on changes in eligibility for transfer payments.
- Chapter 6 looks at **other income**, which encompasses intra-family transfers (including the savings that young people gain when still living at home) and business and investment income.

Figure 1.5 Framework and approach^a



^a The red arrows represent further breakdowns, as illustrated for other demographic groups.

Who are the young people?

This study concerns the incomes of a heterogeneous group of young people aged 15-34; the group of people whose incomes grew negligibly in the last period in figure 1.1. Most of the analysis distinguishes between people aged 15-24, and people aged 25-34, and in more detailed age groups when required. Other studies focus on different subsets of young people, depending on the context (box 1.3).

Another reason to include people aged 25-34 in the analysis is that milestones traditionally used to define the transition from youth to adulthood are now occurring later in life. For example:

- Australians are living at home for longer. In 1981, 9.7 per cent of people aged 25-29 lived at home; by 2016, this proportion had increased by nearly three-quarters to 17.1 per cent (AIFS 2019)
- the median age of first marriage is increasing. For men, it increased from 27.2 in 1994 to 30.7 in 2018, and for women it increased from 25.1 in 1994 to 29.2 in 2018 (ABS 1995, p. 2, 2019e).

Box 1.3 **The many definitions of ‘young people’**

There is no consensus on how to define ‘young people’. Definitions used broadly cover the range from 15 to 34.

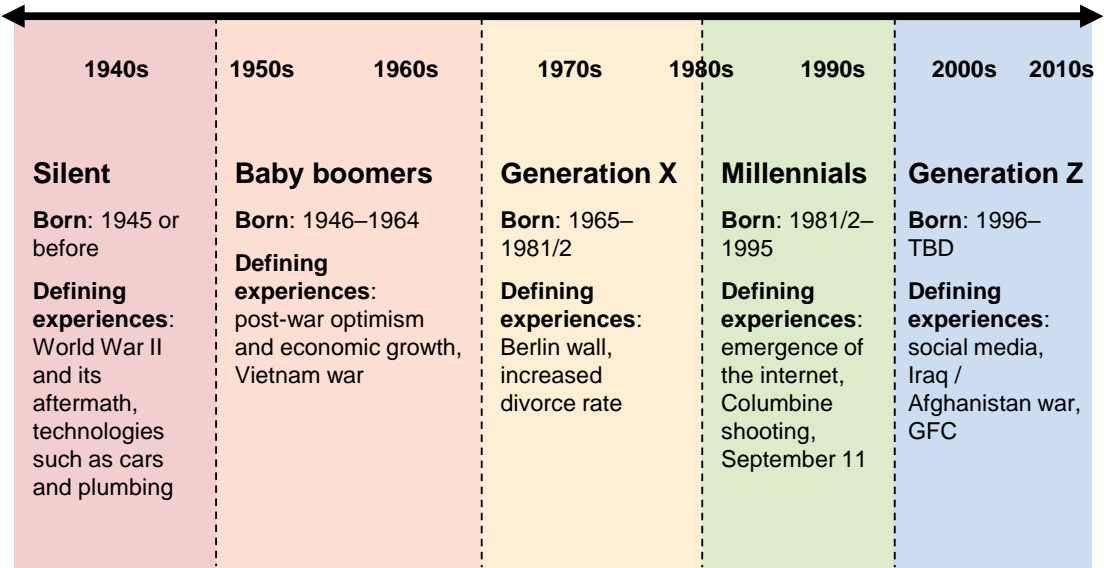
- The Longitudinal Surveys of Australian Youth includes people aged 15-24.
- The National Strategy for Young Australians encompasses people aged 12-24.
- When examining the proportion of youth who are not in employment, education or training, the OECD uses the range 15-29.
- One report from the Federal Reserve Bank of St. Louis used the term ‘young’ to refer to families whose household head was under 40 years of age.
- Other authors have grouped young people into two groups; ‘young emerging’ (people aged 18-24) and ‘early adults’ (people aged 25-34).
- Some researchers have argued that there is an ‘emerging adulthood’ stage between adolescence and adulthood. This stage is characterised by identity formation and risky behaviours (such as use of illegal drugs) and is thought to be between the ages of 18-29.

Sources: Arnett (2015); Australian Government (2010); Boshara et al. (2015); LSAY (2019); OECD (2018); Parkinson et al. (2019).

Others have argued that when using the concept of youth, the focus should be on ‘generations’ because they capture the complex relationships between individual and societal factors that shape people (Woodman and Wyn 2013). Generations are typically defined by age groups and by world events or experiences that shape a cohort (ABS 2006; Wood, Griffiths and Emslie 2019) (figure 1.6). This study focuses broadly on millennials and generation Z, comparing growth in their various sources of income from 2001 to 2018

to that of older generations. The older age groups are referred to as ‘prime-aged’ (aged between 35 and 64), and ‘retirees’ (aged 65 and over).

Figure 1.6 **Generations**



Sources: Abrams and Frank (2014, pp. 6–17); McCrindle (2012); Team CGK (2020); Wood, Griffiths and Emslie (2019, p. 7).

The different definitions of income and where they fit in this study

There are many potential measures of income. Income can be measured as individual, family or household income, gross or net of taxes, including or excluding transfers from government, and accounting or not accounting for in-kind transfers. Two common measures of income are equivalised household income and individual income.

Equivalised household vs individual

Equivalised household income measures are based on the assumption that household income is shared among household members. Equivalised measures account for the fact that larger households need more resources to achieve the same standard of living as smaller households, and also account for some of the ‘economies of scale’ that occur when sharing living costs. (For example, two people living alone in two separate households typically incur higher living costs in total than two people living in one household.)

On the other hand, individual measures only look at the income of individuals and do not take into account the pooling of resources that occur in a household.

In *Rising inequality*, the focus was on the distribution of household incomes; for this reason, the Commission used equivalised household income as the main measure. In this study, the focus is on young people's incomes; for this reason, the Commission has looked at individual income.

Gross vs disposable

Disposable income (private income net of taxes) strongly influences the capacity for private consumption (a measure of current material wellbeing). Disposable income can also be saved, contributing to a person's wealth and, in turn, support their future material wellbeing. In the first part of this study (chapter 2), disposable income is used to determine the changes in average income growth for age groups.

The second part of the study (chapters 3-6) focuses on the sources of income by disaggregating gross income (income before tax) into its components to identify their contribution to its growth, abstracting from the effects of taxes.

What do we mean by 'income per person'?

In most of the study, income per person is calculated as the sum of income for an age group divided by the number of people in the age group. Changes in this average measure are an indicator of changes in incomes for the age group as a whole, an appropriate summary of changes in all income sources, and is used in particular in chapter 2.

When focusing on a specific source of income that is relevant to a sub-group, the income relevant to that sub-group is divided by the number of people in the sub-group. For example, labour income is divided by the number of workers in chapters 3 and 4.

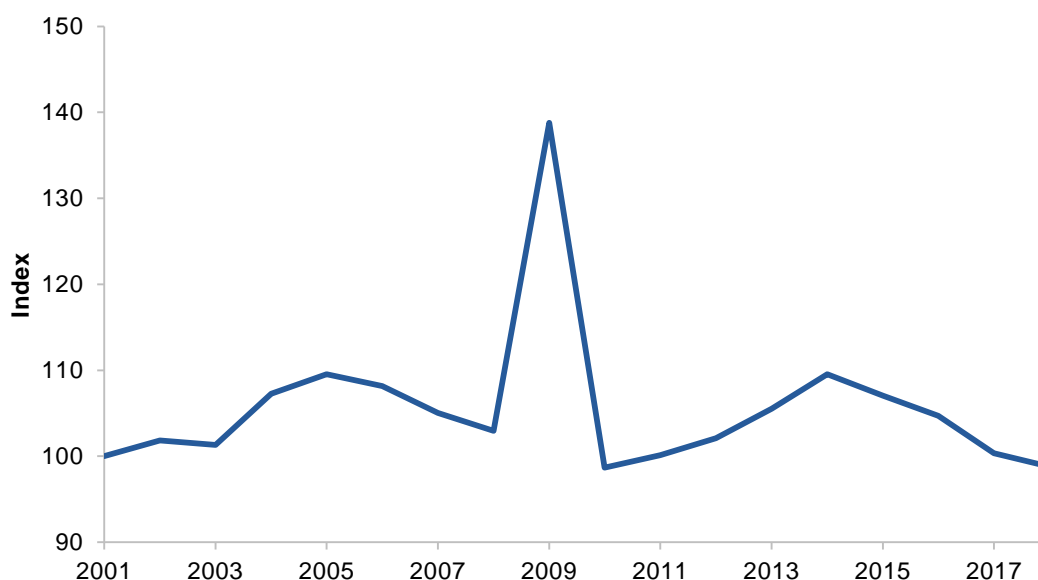
The combination of overall and more specific indicators of real income per person is used to paint a picture of changes in living standards. All analysis presented in this study is in real terms, using the CPI as deflator.

Income growth

This study focuses on income growth after 2008. The primary measure of growth used is compound annual growth, which estimates the average growth per year over a defined period. A drawback to this approach is that it is sensitive to the base year selected, the end year selected, and does not account for any intervening volatility.

For example, in figure 1.7, 2009 is an abnormal year where transfer income increased, because of stimulus packages that increased transfer payments in response to the GFC. Using 2009 as the base year leads to an average decline of 4 per cent per year from 2009 to 2018. When using 2008 as the base year the average decline in transfer income is much lower, at 0.4 per cent and the intervening volatility is not captured.

Figure 1.7 Base year and end year affect average annual growth rates
Transfer income, 25 to 34 year olds, 2001-2018



Data source: Commission estimates based on HILDA data.

The main data used in the analysis

The Melbourne Institute's Household, Income and Labour Dynamics in Australia (HILDA) Survey Release 18 was the main data source for this study. It is a panel dataset that includes comprehensive information on income sources, consumption, education and demographic characteristics for a representative sample of the Australian population. The HILDA survey has been conducted annually since 2001. Where possible, other datasets have been used to validate results (appendix A).

HILDA has some limitations, such as non-random attrition, that could bias results. Analysis of attrition has found that people aged 15-24, born in a non-English speaking country, unemployed, or working in low-skilled occupations are particularly likely to leave the survey. The survey producers have managed this by weighting each wave of data according to key characteristics of the initial wave and from 2011, by adding households to the original sample (Summerfield et al. 2019, p. 178; Watson 2011, p. 1).

Although it is based on a large sample, the HILDA dataset has limitations when detailed analysis of particular groups is conducted due to small sample size; for example, the survey does not allow for detailed geographic analysis. The increasing availability of more detailed data, especially administrative data, will facilitate more detailed analyses in the future. However, those datasets are unlikely to include many other variables that describe people's and households' circumstances, and it is these variables that make the HILDA dataset so valuable for the present study.

2 Young people's incomes declined

Key points

- Between 2008 and 2018 average real incomes of young people declined.
 - Disposable income per person of people aged 15-24 declined by 1.6 per cent per year.
 - Disposable income per person of people aged 25-34 declined by 0.7 per cent per year.
 - Negative disposable income growth meant that people aged 15-24 in 2018 had similar disposable income per person to people aged 15-24 in 2001. The disposable income per person of people aged 25-34 in 2018 was only 21 per cent greater than that of people aged 25-34 in 2001. The greatest increase in disposable income per person over this time was that of people aged 65 and over, whose disposable income per person was 86 per cent higher than in 2001.
- Growth in average disposable income growth for different demographic groups of people aged 15-24 and 25-34, such as by gender and socioeconomic status, was lower than the growth for older age groups.
- Income distribution by age group shows no increase in the spread of young people's incomes from 2001 to 2018; the distribution is very similar. On the other hand, the spread of the income distribution for people aged 35 and over increased, indicating rising inequality in the incomes of older age groups.
- Reliance on income sources changes as people age. The share of labour income decreases as people age, the share of other income increases as people age, and the share of transfer income fluctuates with young people and people aged 65 and over having a higher share than people aged 35-64.
- The main contributor to young people's decline in gross income per person was negative labour income growth.
 - Labour income for people aged 15-24 declined at an average annual rate of 1.5 per cent, accounting for about three-quarters of the 1.7 per cent decline in gross income.
 - Labour income for people aged 25-34 declined at an average annual rate of 0.8 per cent, accounting for about three-quarters of the 0.8 per cent decline in gross income.
- Other income sources (such as business and investment income) accounted for about one-fifth of the decline in both 15 to 24 year olds' and 25 to 34 year olds' gross income. Transfer income played only a minor role in the decline of young people's gross income — accounting for about 5 per cent of the decline in both 15 to 24 year olds' and 25 to 34 year olds' gross income.

The lack of income growth among 15 to 34 year olds shown in figure 1.1 is puzzling. This chapter investigates the apparent lack of growth through the contributions of the main sources of income. In particular, it seeks to answer questions like:

- is this lack of growth attributable to labour income, transfer income, or other income sources, like investment and business incomes?
- is this lack of growth concentrated among certain groups or is it more generalised across the group of young people as a whole?

This chapter compares income growth of age groups over time, rather than comparing the incomes of the same individuals across their lifetimes. This means that the people in the age groups change as their incomes are compared over time.

2.1 After 2008, young people's disposable incomes declined

Average disposable incomes grew at different rates between 2001 and 2018 (figure 2.1).

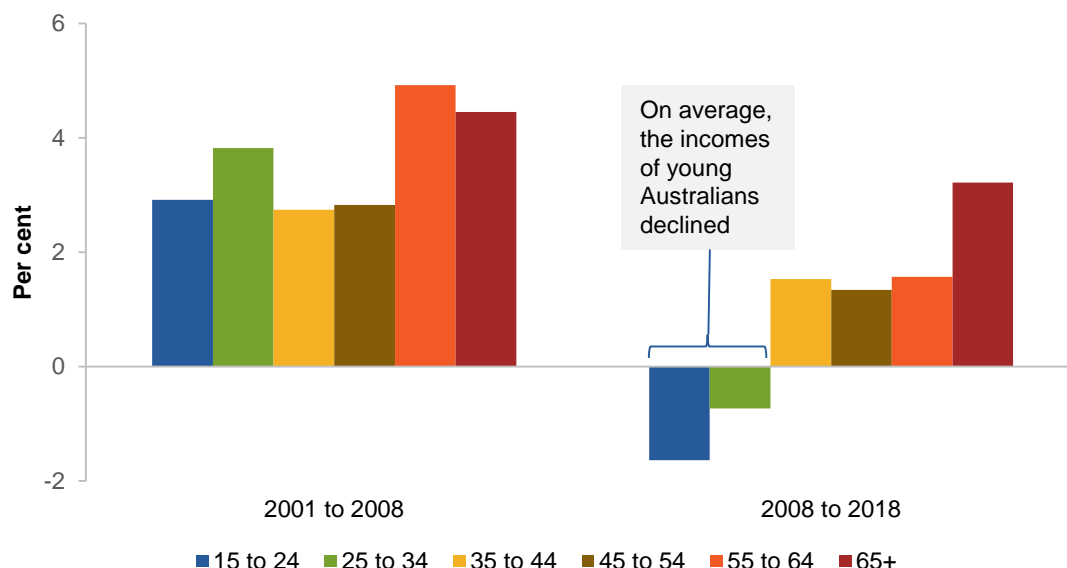
- From 2001 to 2008, income growth for all age groups exceeded 2.7 per cent per year.
- From 2008 to 2018, the average income of people aged 15-24 declined by 1.6 per cent per year, while the average income of people aged 25-34 declined by 0.7 per cent per year. The average income of prime-aged people (aged 35-64) grew 1.4 per cent per year, while the average income of people aged 65 and over grew 3.2 per cent per year.

These growth rates refer to individual incomes, whereas the growth rates reported in *Rising inequality* and in figure 1.1 refer to equivalised household incomes. The different income measures used account for the differences across the figures: on an equivalised basis, the growth in incomes of young people is practically zero between 2008 and 2018, whereas on an individual basis, their incomes show an unarguable decline (box 2.1).

From 2008 to 2018, average disposable income of people aged 15-24 declined the most. The decline offset most of the gains that had occurred from 2001 to 2008: average disposable income of people aged 15-24 was only about 4 per cent higher in 2018 than it was in 2001.

People aged 25-34 fared better: by 2018, their average disposable income was 21 per cent higher than in 2001. The high income growth of people aged 25-34 from 2001 to 2008 was not entirely offset by the decline between 2008 and 2018.

Figure 2.1 Young people's incomes have declined
Average annual growth in real disposable income by age



Data source: Commission estimates based on HILDA data.

By 2018, the average disposable income of prime-aged people had increased 43 per cent relative to 2001; during that same period, the average income of people aged 65 and over had grown 86 per cent.

Box 2.1 Individual and household income grew differently

The income growth rates shown in figure 1.1 and figure 2.1 differ because they use different income measures: figure 1.1 reports changes in equivalised household income, whereas figure 2.1 reports changes in individual income. In the equivalised income measure, the decline in young people's individual income is offset by the growth in the incomes of older household members. Changes in equivalised income look more like changes in individual incomes for the subgroup of young households.

The difference in the figures highlights the potential importance of transfers within households, particularly because young people are living at home for longer. Such transfers, in the form of room and board, likely mitigate the impact of recently declining incomes.

Source: Productivity Commission (2018, p. 27).

Disposable income growth was lower for all groups of young people than for older age groups

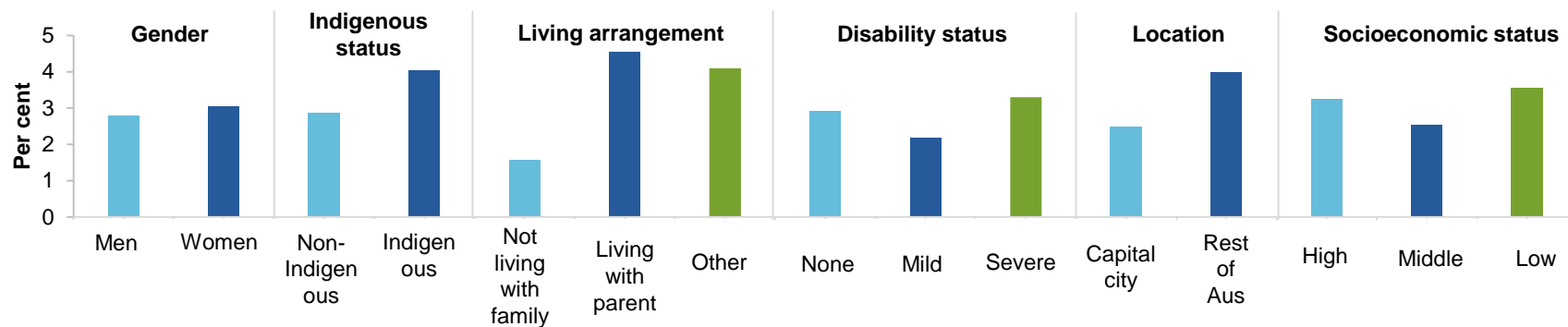
Income growth was negative for all groups of people aged 15-24 from 2008 to 2018 (figure 2.2). Income grew quickly for some age groups from 2001 to 2008, and declined quickly from 2008 to 2018; this was the case, for example, for people aged 15-24 living outside capital cities and people aged 15-24 who lived with their parents.

For some groups within of the 25-34 age group, average incomes did not decline from 2008 to 2018 (figure 2.3); for example, incomes did not decline for people of low socioeconomic status or for women aged 25-34. That said, income growth for these groups was well below older age groups' average income growth.

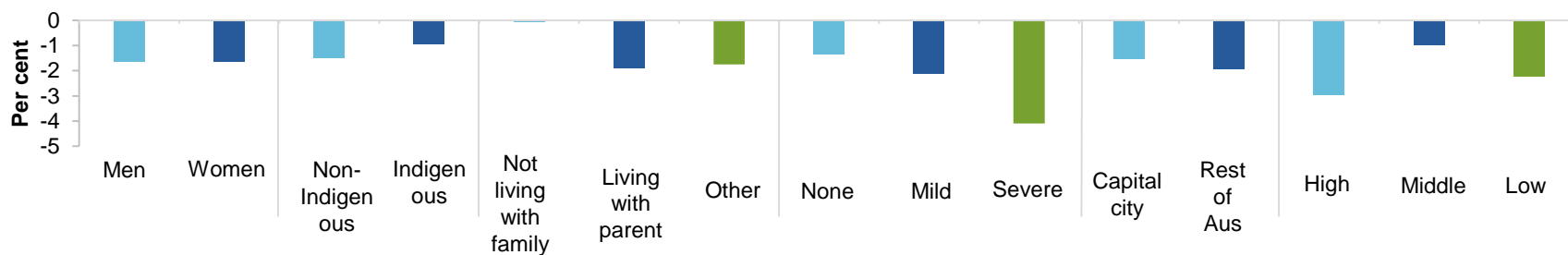
The negative income growth experienced by young people who lived with their parents is consistent with reports of young people staying at home because of financial pressures. For example, Parkinson et al. (2019, p. 114) found that, of people aged 18-24 who moved back home, 24.5 per cent said their reason was that they wanted to move out but could not afford it.

Figure 2.2 After 2008, income growth for 15 to 24 year olds was consistently negative across demographic groups
Average annual growth in real disposable income by demographic group, 15 to 24 year olds, 2001–2018^a

(a) 2001 to 2008 — positive income growth for all 15 to 24 year olds



(b) 2008 to 2018 — negative income growth for all 15 to 24 year olds



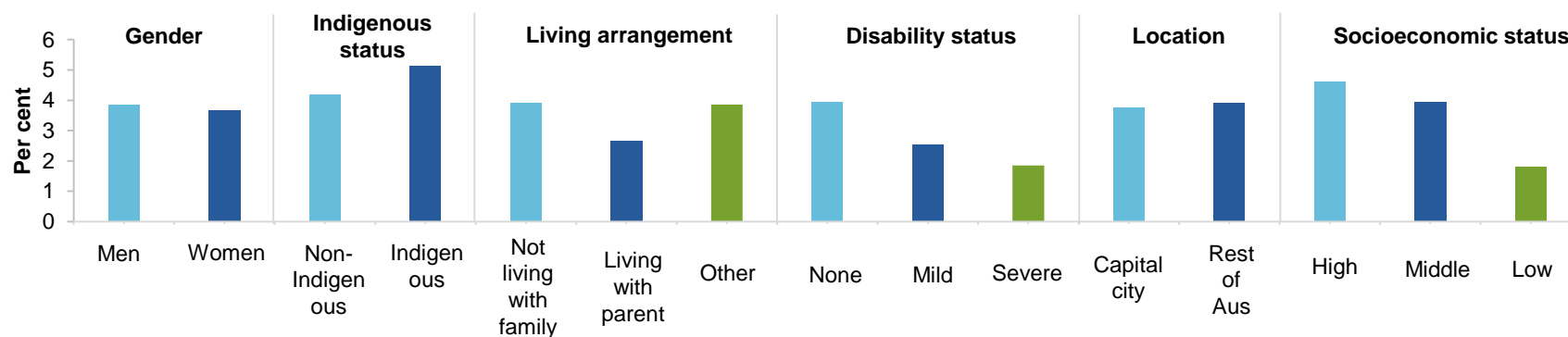
^a Living arrangement: 'other' includes living with a partner, and living with other family. Socioeconomic status: high is the top quintile; middle is quintiles 2-4 and low is the bottom quintile.

Data source: Commission estimates based on HILDA data.

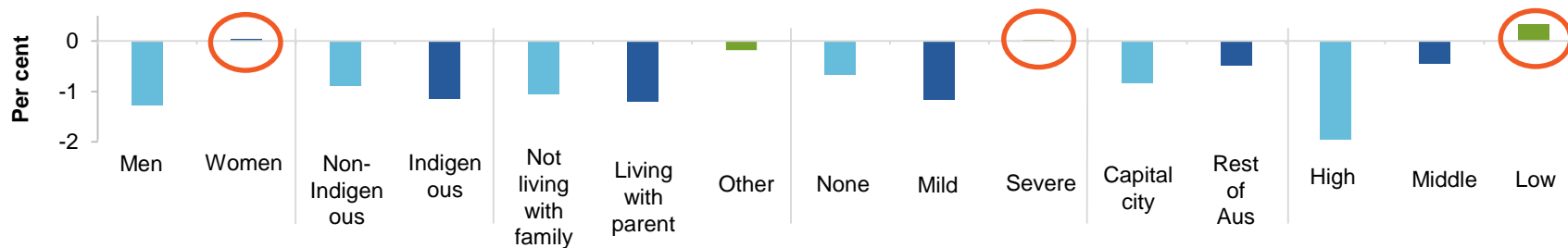
Figure 2.3 **Incomes grew for some groups of 25 to 34 year olds**

Average annual growth in real disposable income by demographic group, 25 to 34 year olds, 2001–2018^a

(a) 2001 to 2008 — positive income growth for all 25 to 34 year olds



(b) 2008 to 2018 — positive income growth for only a few 25 to 34 year olds



^a Living arrangement: other includes living with a partner, and living with other family. Socioeconomic status: high is the top quintile; middle is quintiles 2-4 and low is the bottom quintile.

Data source: Commission estimates based on HILDA data.

The distribution of disposable incomes

Most of the analysis in this study compares averages; for example, the income growth of young people on average, over different periods, and the average income growth of different groups. But it is worth bearing in mind that the people who make up these groups change from one period to another: people aged 20-24 in 2008 are in the 25-34 age group in 2018 (they are actually 30 to 34 years old). Thus, for example, people aged 25-34 experienced strong average income growth in the period 2001 to 2008 (a period of strong growth across age groups), and then many of them experienced strong average income growth as over 35 year olds after 2008 — this group experienced strong growth in its income throughout the period from 2001 to 2018.

Using averages simplifies the analysis and discussion, but also hides the diversity in the data. For example, the incomes of some young people were higher than the average. Likewise, there were diverse outcomes for other Australians; for example, incomes for some older Australians in 2018 were not higher than those of older Australians in 2008 or 2001.

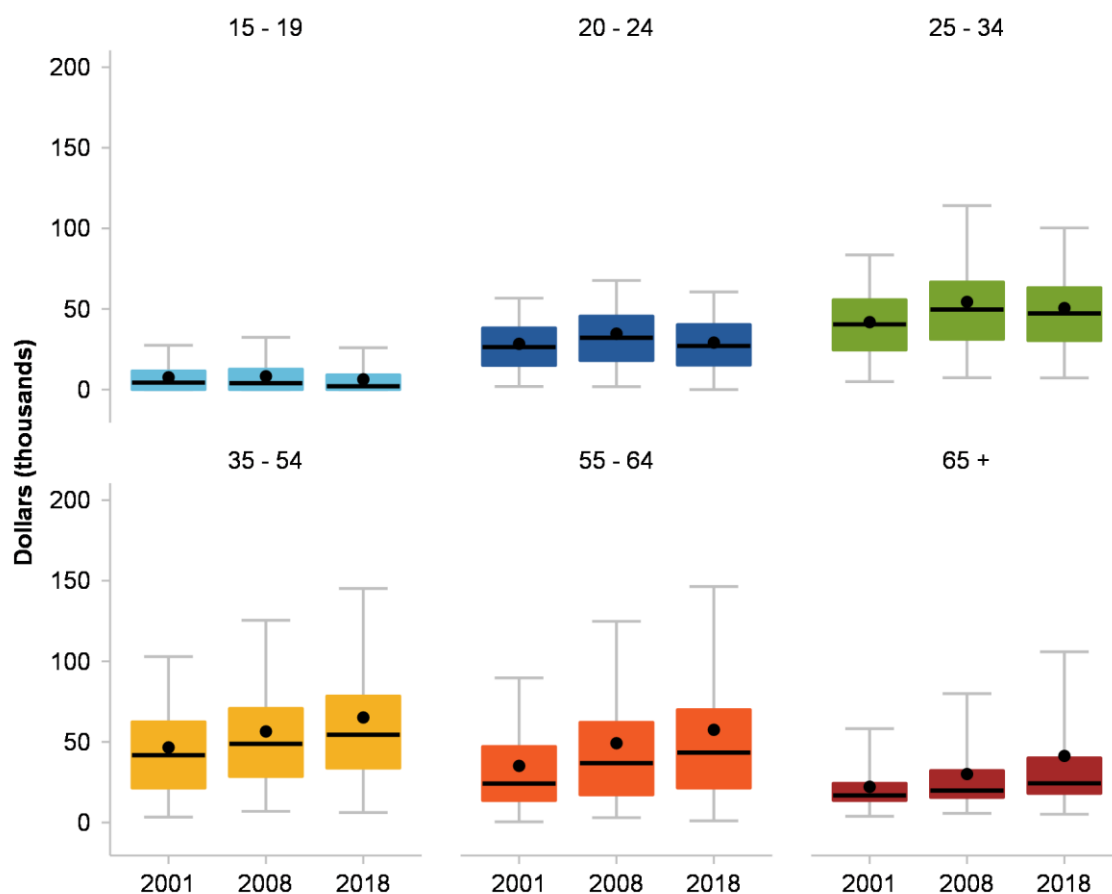
Box plots of income by age show how the distribution of income of each age group changed over time (figure 2.4). Features of these box plots include: ‘whiskers’ representing the 5th and 95th percentile of the income distribution; a box showing the 25th and 75th percentiles (the interquartile range); a line showing the median; and a dot representing the mean.

The box plots reflect the findings already reported: the average income of young people increased from 2001 to 2008, then decreased from 2008 to 2018; and the average income of people aged 35 and over increased from 2001 to 2018. The box plots also show that incomes for most young people in 2008 were higher than those of young people in 2001, as shown by the increase in the median, the mean, the 95th percentile and the interquartile range. But by 2018, young people’s incomes had typically declined relative to 2008, as shown by the income distribution for young people shifting downwards. The 2018 income distribution is similar to the 2001 distribution, particularly for people aged 20-24, suggesting that the 2018 incomes of most young people were similar to young people in 2001.

The experience of young people contrasts with the experience of older people. The spread in incomes for people aged 35 and over increased from 2001 to 2018. The increase was substantial; for example, the 95th percentile of 55 to 64 year olds increased by nearly \$55 000 from 2001 to 2018. The increase in the median and average income means most people aged 35 and over had greater incomes in 2018 than in 2001. That said, the income of the 5th percentile increased only slightly from 2001 to 2018, so there would be some people aged 35 and over in 2018 who did not experience income gains relative to older Australians in 2001 and 2008. This is also shown by the average income increasing by more than the median income — the average income is being dragged upwards by some people in these age groups having large incomes.

Figure 2.4 Incomes of 15 to 34 year olds did not increase, while those of 35 and older did

Real disposable income by age, for 2001, 2008, and 2018^{a,b}



^a Some business or investment income is negative, contributing to low or negative figures for some of the 5th percentile. ^b The box represents the 25th to 75th percentiles. The whiskers represent the 5th and 95th percentiles.

Data source: Commission estimates based on HILDA data.

2.2 Decomposing gross income

Gross income, rather than disposable income, is used to analyse how income sources contributed to the decline in young people's incomes (as a result, the analysis abstracts from the effect of taxes and income sources sum up to gross income). Both gross and disposable incomes grew at similar rates from 2008 to 2018 for each age group (table 2.1).

Table 2.1 Disposable income and gross income had similar growth
Average annual growth in real disposable income and real gross income by age, 2008 to 2018

<i>Age group</i>	<i>Disposable income (per cent)</i>	<i>Gross income (per cent)</i>
15-24	-1.6	-1.7
25-34	-0.7	-0.8
35-64	1.4	1.6
65+	3.2	3.2

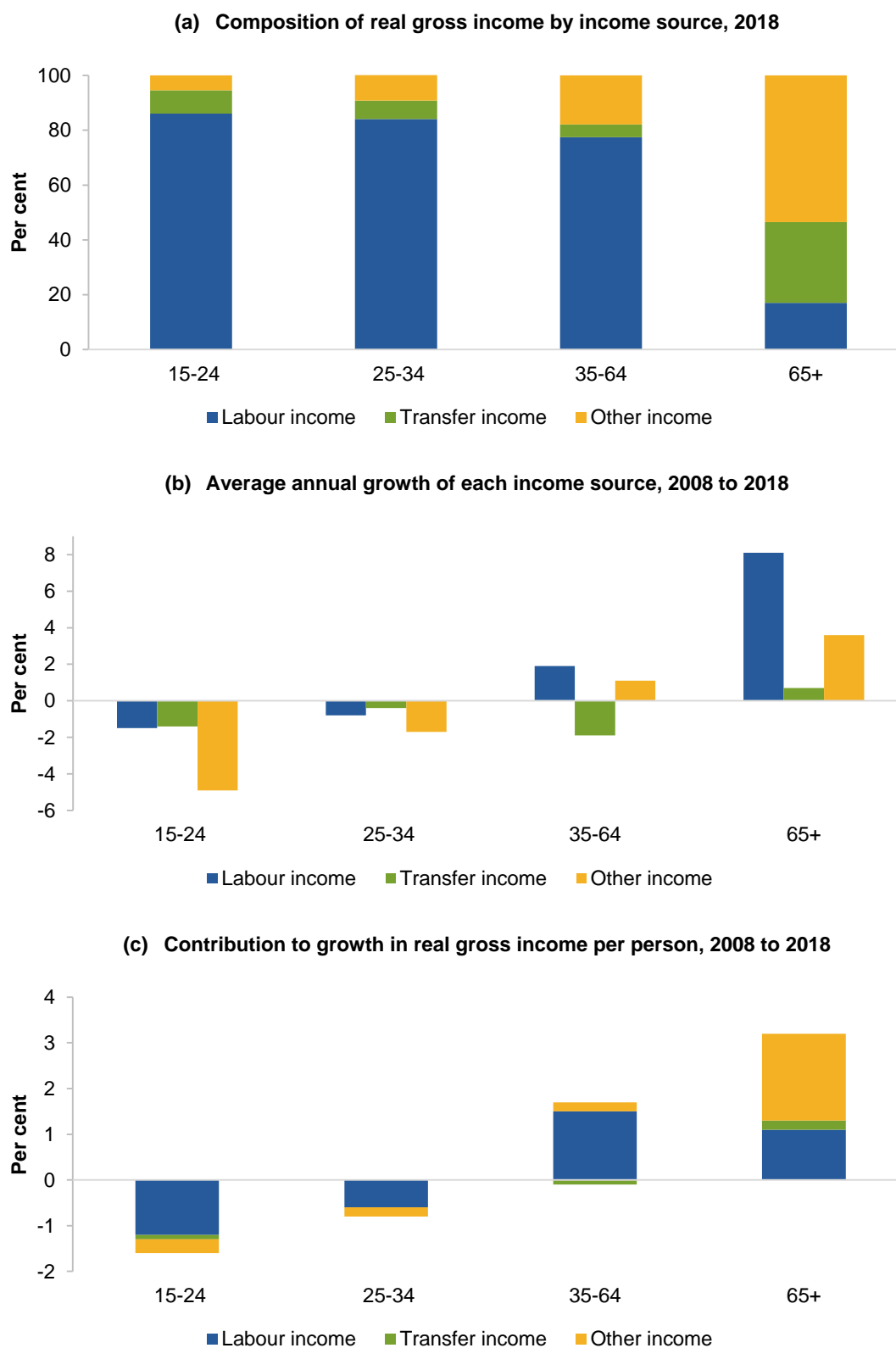
Source: Commission estimates based on HILDA data.

Reliance on each income source varies across age groups (figure 2.5).

- The **labour income** share of gross income declines with age, from 86 per cent for people aged 15-24, to 17 per cent for people aged 65 and over. This reflects the fact that young people's other sources of income are limited (chapter 3 and chapter 4).
- The **transfer income** share of gross income fluctuates with age, from 9 per cent for people aged 15-24 to a low of 5 per cent for the prime-aged, then a high of 30 per cent for people aged 65 and over. This is consistent with job seekers, students, and retired Australians being the main recipients of transfer payments (chapter 5).
- The **other income** share of gross income increases with age, from 5 per cent for people aged 15-24 to 54 per cent for people aged 65 and over. Much of 'other' income comprises investment income (particularly dividends, rental income and superannuation¹) and business income. These income sources become more important with age, as the relative importance of labour income declines (chapter 6).

¹ In HILDA, regular payments from superannuation are accounted for as part of other income but lump-sum withdrawals are not accounted for. Similarly, the realisation of an asset, such as the sale of a house, is not treated as income in the HILDA survey (Wilkins 2014, p. 7).

Figure 2.5 **Labour income is important for young people**



Data source: Commission estimates based on HILDA data.

Labour income is the largest source of income for most age groups; so changes in labour income growth explain most of the changes in income (box 2.2). Young people rely more on labour income than other age groups, so labour income growth accounts for a large part of the average growth in their incomes.

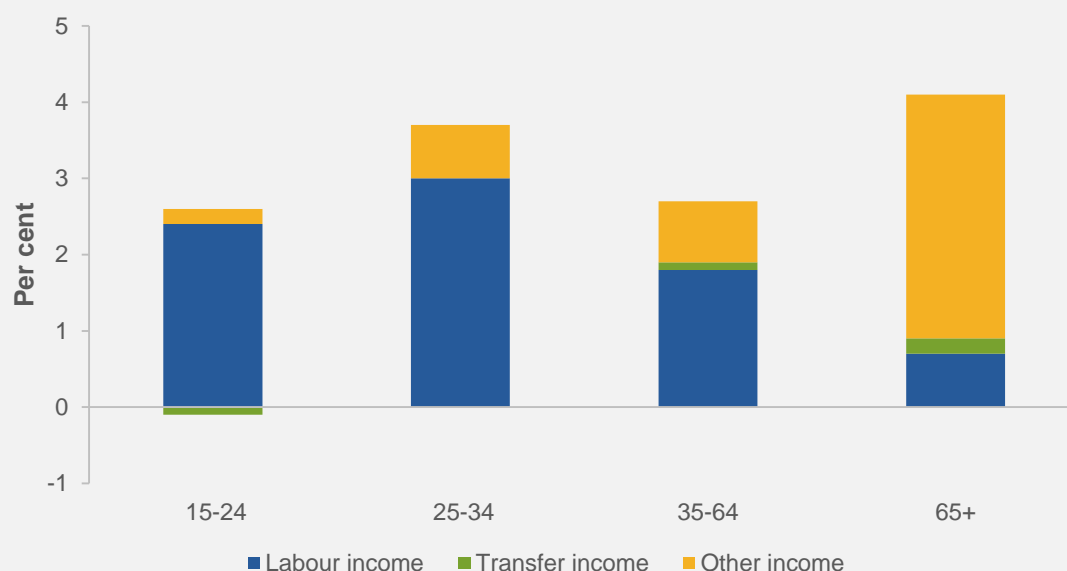
- People aged 15-24 experienced an average annual decline in labour income growth of 1.5 per cent, which accounted for about three-quarters of the 1.7 per cent per year decline in their gross income.
- People aged 25-34 experienced an average annual decline in labour income growth of 0.8 per cent, which accounted for about three-quarters of the 0.8 per cent per year decline in their gross income.

Box 2.2 From 2001 to 2008 young people's labour income grew

From 2001 to 2008 labour income drove young people's income growth. Some of this growth was offset by negative transfer income growth for people aged 15-24. These results reinforce the importance of labour income for young people — labour income growth drove income growth from 2001 to 2008 and the decline in income from 2008 to 2018.

Labour income also grew for older age groups, but the more important source of income growth for people aged 65 and over was income from superannuation and other investments.

Contributions to growth in real gross income per person from 2001 to 2008



Data source: Commission estimates based on HILDA data.

After labour income, other income was the greatest contributor to the decline in young people's incomes. Other income is a small share of young people's income, but the decline in its average annual growth was significant — for young people, it was the largest decline in growth among the three sources of income (figure 2.5b). The decline in other income accounted for about one-fifth of the decline in 15 to 34 year olds' gross income growth.

Transfer income growth contributed only slightly to the decline in young people's incomes. For young people, transfer income steadily declined from 2001 to 2018. The rate of decline in transfer income was sharper for people aged 15-24 (down 1.4 per cent per year from 2008 to 2018) than for people aged 25-34 (down 0.4 per cent per year from 2008 to 2018). Several policy changes are shown in chapter 5 to have contributed to these trends.

Labour income growth explains some positive income growth

Most of the groups of people aged 25-34 who had positive income growth did so because they had positive labour income growth. From 2008 to 2018, labour income per person for people aged 25-34:

- of low socioeconomic status grew by about 0.8 per cent per year
- who were women grew by about 0.3 per cent per year.

Reasons for some of these patterns are explored in chapters 3 and 4.

Labour income growth was not the driver behind the positive income growth experienced by other groups. For example, the positive income growth for people aged 25-34 with a severe disability was because their transfer income grew 3.8 per cent per year.

Older age groups' income growth was because of investment income and labour income

Growth in income of people aged 65 and over also slowed after 2008, but at 3.2 per cent per year it remained higher than that of younger people. This group — a large part of which is retired — has greater variation in their income sources than other age groups (figure 2.5 (a)). People aged 65 and over typically rely on investment income and pensions (such as the Age Pension and the Disability Support Pension), and to a lesser extent, on labour income.

In 2018, investment income comprised 43 per cent of gross income for people aged 65 and over, much of which comes from superannuation. Investment income grew rapidly from 2001 to 2008 (by 7 per cent per year) and as a result accounted for most (74 per cent) of the growth in income for people aged 65 and over in the period (figure 2.6). From 2008 to 2018, investment income growth was slower at 2.4 per cent per year. That said, investment income was one of the largest contributors to income growth for people aged 65 and over in the period. (This differs from the group of young people who had a decline in investment income growth from 2008 to 2018 of 3.4 per cent per year.)

From 2008 to 2018, labour income growth was the other biggest contributor to income growth for people aged 65 and over (figure 2.6). Most of the increase in labour income was due to increased hours worked (by women), and not due to wage rate growth. The increase in hours worked could be attributed to an increase in the age required to access the Age Pension and to access to superannuation (chapter 4).

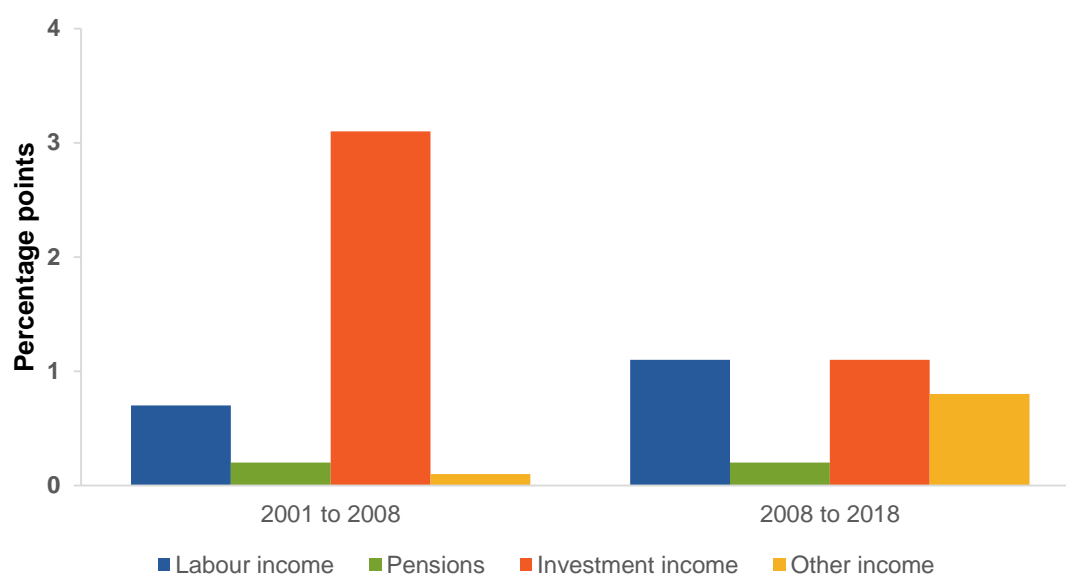
Pensions grew slowly from 2001 to 2018: 0.6 per cent per year from 2001 to 2008 and 0.7 per cent per year from 2008 to 2018. Pensions declined as a share of gross income for people aged 65 and over from 48 per cent in 2001 to 29 per cent in 2018.

These results align with a Grattan Institute report that found that superannuation and pension income had increased, and older women increased their participation in the paid workforce (Wood, Griffiths and Emslie 2019, p. 22).

The Grattan Institute also found a wealth gap between older and younger Australians. This gap is driven by older Australians' 'windfall gains' in property and superannuation asset prices, which grew more than real average full-time earnings from 1997 to 2015 (Wood, Griffiths and Emslie 2019, fig. 2.6). The Grattan Institute concluded that these wealth gains are unlikely to be experienced by young Australians. This study, however, does not investigate the growing wealth gap between older and young Australians and instead focuses on income growth.

Figure 2.6 Growth in investment and labour income drove older Australians' income growth

Contributions to average annual growth in real gross income, people aged 65 and over^{a,b}



^a Not shown is the contribution to income growth from transfers other than pensions; this contributed negligibly to growth in gross income. ^b Other income in this instance is income that is not labour income, pensions or investment income.

Data source: Commission estimates based on HILDA data.

Framework for the rest of the study

The following chapters investigate *why* young people's income declined from 2008 to 2018. Each chapter focuses on one income source, and each source is split (where possible) to look at the contributions of its different components. The framework in figure 2.7 is used as the starting point for each chapter. Labour income can be split into the average number of hours worked and the average hourly wage rate. Changes in transfer income and other income can occur through changes in the proportion of people who rely on each income source or through the corresponding income per person.

Figure 2.7 **Framework for decomposing each source of income**

$\frac{\text{Income}}{\text{Young people}}$	
=	
$\frac{\text{Young workers}}{\text{Young people}} \times \frac{\text{Labour income}}{\text{Young workers}}$	Labour income: chapters 3 and 4
+	
$\frac{\text{Young transfer recipients}}{\text{Young people}} \times \frac{\text{Transfer income}}{\text{Young transfer recipients}}$	Transfer income: chapter 5
+	
$\frac{\text{Young other income earners}}{\text{Young people}} \times \frac{\text{Other income}}{\text{Young other income recipients}}$	Other income: chapter 6

3 Determinants of changes in labour income: hours worked

Key points

- Labour income was the driver behind the decline in young people's income from 2008 to 2018.
- Labour income is the product of hours worked and wage rates; both contributed to the decline in young people's income.
 - Young people's hours worked declined. There was a decline in hours worked for people aged 15-34, no change in hours worked for people aged 35-54, and growth in hours worked for people aged 55 and over.
 - There was also a divergence in wage rate growth. Wage rate growth was negligible for people aged 20-34, but was in the order of about 1.4 per cent per year for people aged 35-64.
- The decline in hours worked for people aged 15-24 reflects an acceleration of the shift from full-time to part-time work.
- People aged 25 and over benefited from increased participation of women, which offset a slight shift from full-time to part-time work.
- The gender gap in labour income for people aged 15-24 narrowed after 2008 — but this was because women increased their hours worked in the labour market, not because the wage gap closed.
- The unemployment rate should not be the only measure used to assess labour market health.
 - Long-term unemployment increased for all age groups after 2008. Despite some decreases in the rate, people aged 15-24 still have a relatively higher long-term unemployment rate than other age groups.
 - Underemployment for all age groups increased after 2008. While other age groups experienced a slight increase after the initial 2008 shock, young people's underemployment increased more rapidly.

This chapter investigates labour income's effect on young people's income growth after 2008. It splits labour income into its components: hours worked and the wage rate (hourly wage) (section 3.1); looks at the effect of changes in employment status and labour force participation on hours worked (section 3.2); and sheds light on the changing nature of unemployment (section 3.3).

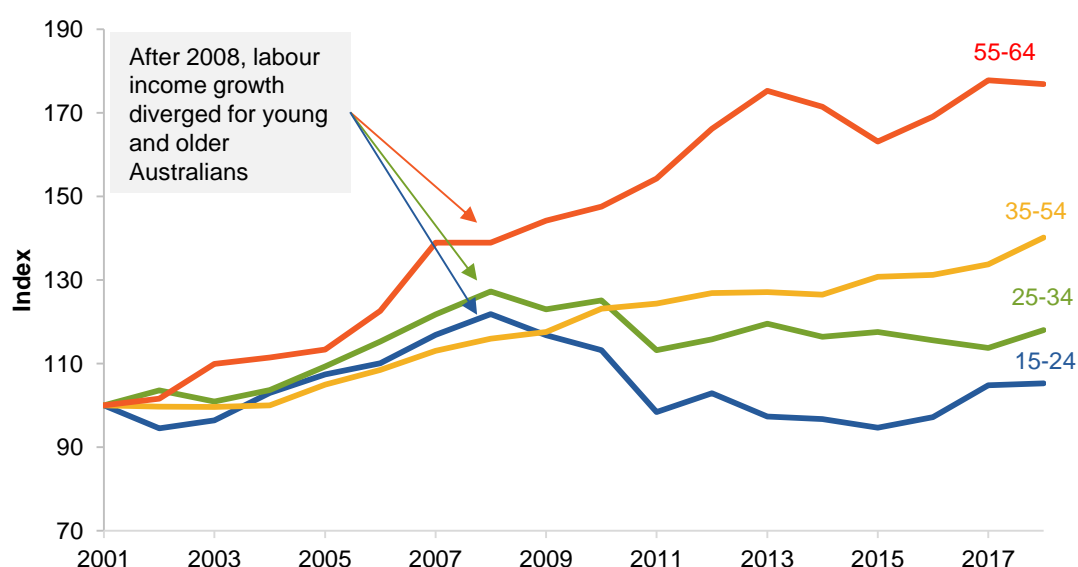
3.1 Labour income, wage rates and hours worked

Young people's labour income declined from 2008 to 2018

The slowdown in total average labour income growth from 2008 to 2018 was almost entirely driven by young people's labour market outcomes (figure 3.1). Although labour income growth slowed for prime-aged people from 2008 to 2018, the rate of growth then was close to the rate from 2001 to 2008. By contrast, young people's labour income declined between 2008 to 2018.

While the labour income of people aged 15-24 increased toward the end of the period, it was 12 per cent lower in 2018 than in 2008. Labour income for people aged 25-34 in 2018 was 6 per cent lower than in 2008, while labour income for prime-aged people in 2018 was 27 per cent higher.

Figure 3.1 Labour income fell for young people, but continued to grow for prime-aged people
Average real labour income by age group, 2001-2018^a



^a Real labour income, deflated by the CPI.

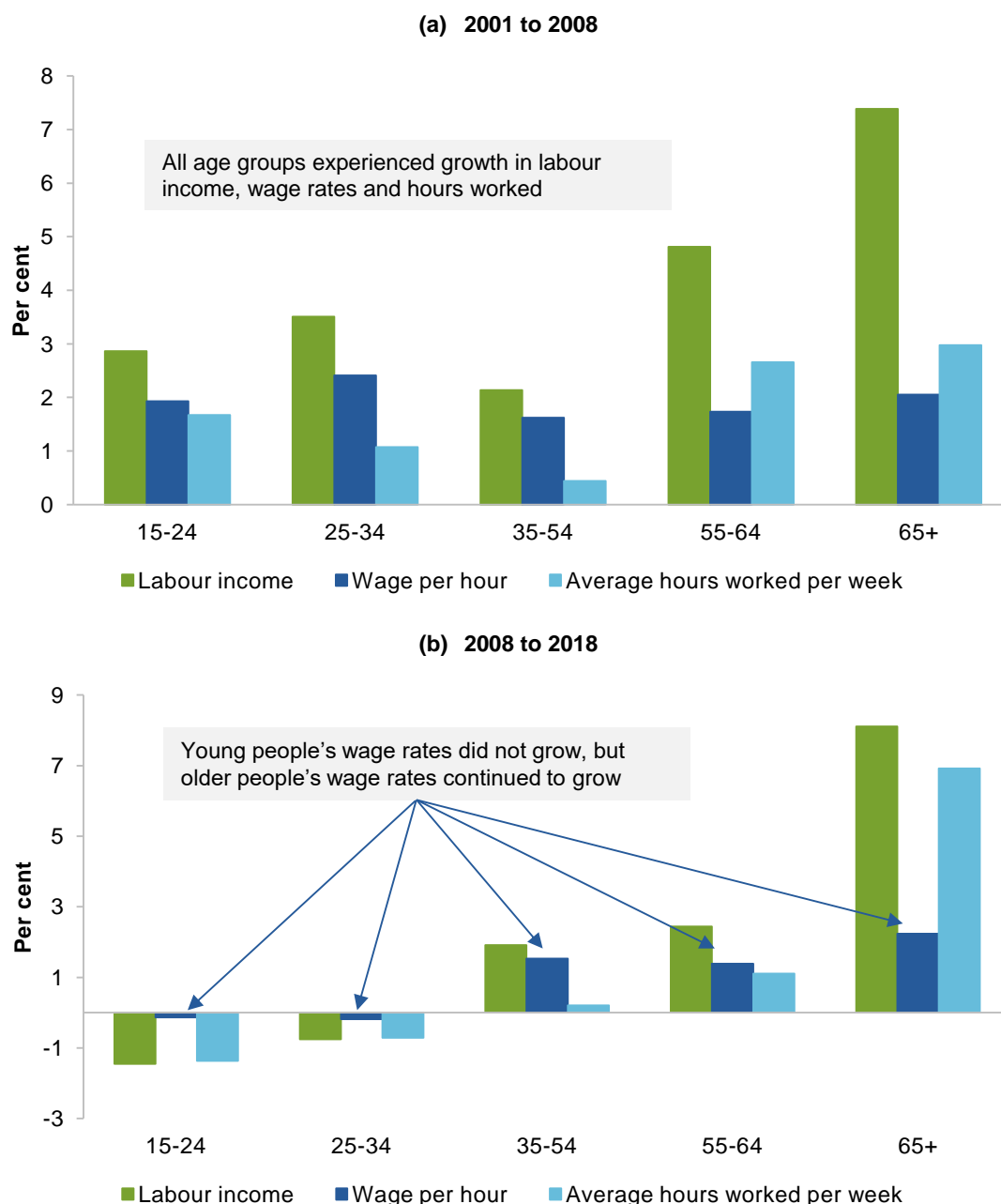
Data source: Commission estimates based on HILDA data.

Young people's wage rates stagnated and their hours declined

Labour income is the product of hours worked and the wage rate. Both contributed to the decline in young people's labour income (figure 3.2b).

Between 2001 and 2008, wage rate growth was positive and similar for most age groups, at between 1.5 and 1.9 per cent per year (figure 3.2a).

Figure 3.2 Wage rates stalled and hours fell for young people
Average annual growth rates in labour income, average wage rate and hours worked per person, by age group^a



^a Wage rates are in real terms, inflated by CPI to 2018-19 financial year.

Data source: Commission estimates based on HILDA data.

After 2008, wage rate growth slowed for most age groups, but growth slowed the most for young people (figure 3.2). People aged 15-24 and 25-34 experienced negative or no wage rate growth. People aged 65 and over also experienced negative wage rate growth. At the same time, wage rates continued to grow for people aged 35-64 (by 1.4 per cent per year on average).

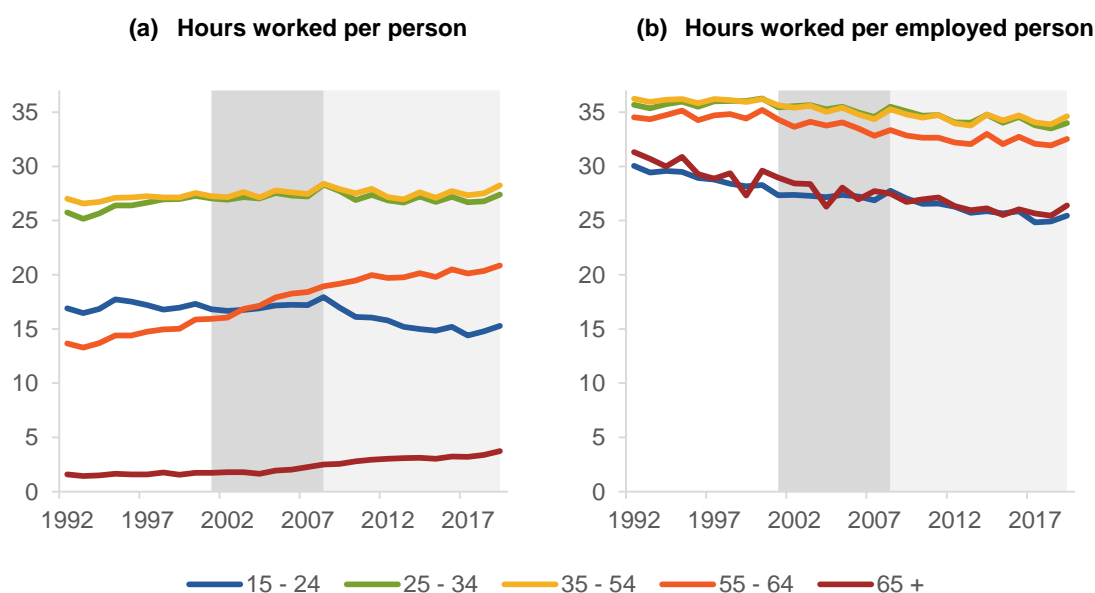
Declines in average hours worked also contributed to the fall in labour income for young people (figure 3.2). Between 2008 and 2018, there was a decline in hours worked for people aged 15-34, no change in hours worked for people aged 35-54, and growth in hours worked for people aged 55 and over.

This chapter focuses on the reasons why young people's hours worked declined. Chapter 4 investigates the 'wage puzzle' of stagnating wage rates for young people but relatively steady growth for prime-aged workers.

3.2 Hours worked, participation and employment

Hours worked depends on labour force participation (the share of the population either working or looking for work), the employment rate, and the type of employment: part-time or full-time. Analysis of hours worked showed that: hours worked per person were stable after 1991 (figure 3.3a); and hours worked per employed person declined after 1991 (figure 3.3b). A shift from full-time work to part-time work, and increases in labour force participation and in the employment rate, offset the decline in hours worked by full-time workers.

Figure 3.3 Hours worked by young people declined after 2008
Average weekly hours worked by age group and employment status, 1992-2019^{a,b}



^a The calculation of hours worked per person assumes that those who were not employed worked zero hours. ^b The shaded areas represent 2001 to 2008 and 2008 to 2019.

Data source: Commission estimates based on ABS (*Labour Force, Australia, Detailed – Electronic Delivery, Dec 2019*, Cat. no. 6291.0.55.001, Data cube EM1a and LM1).

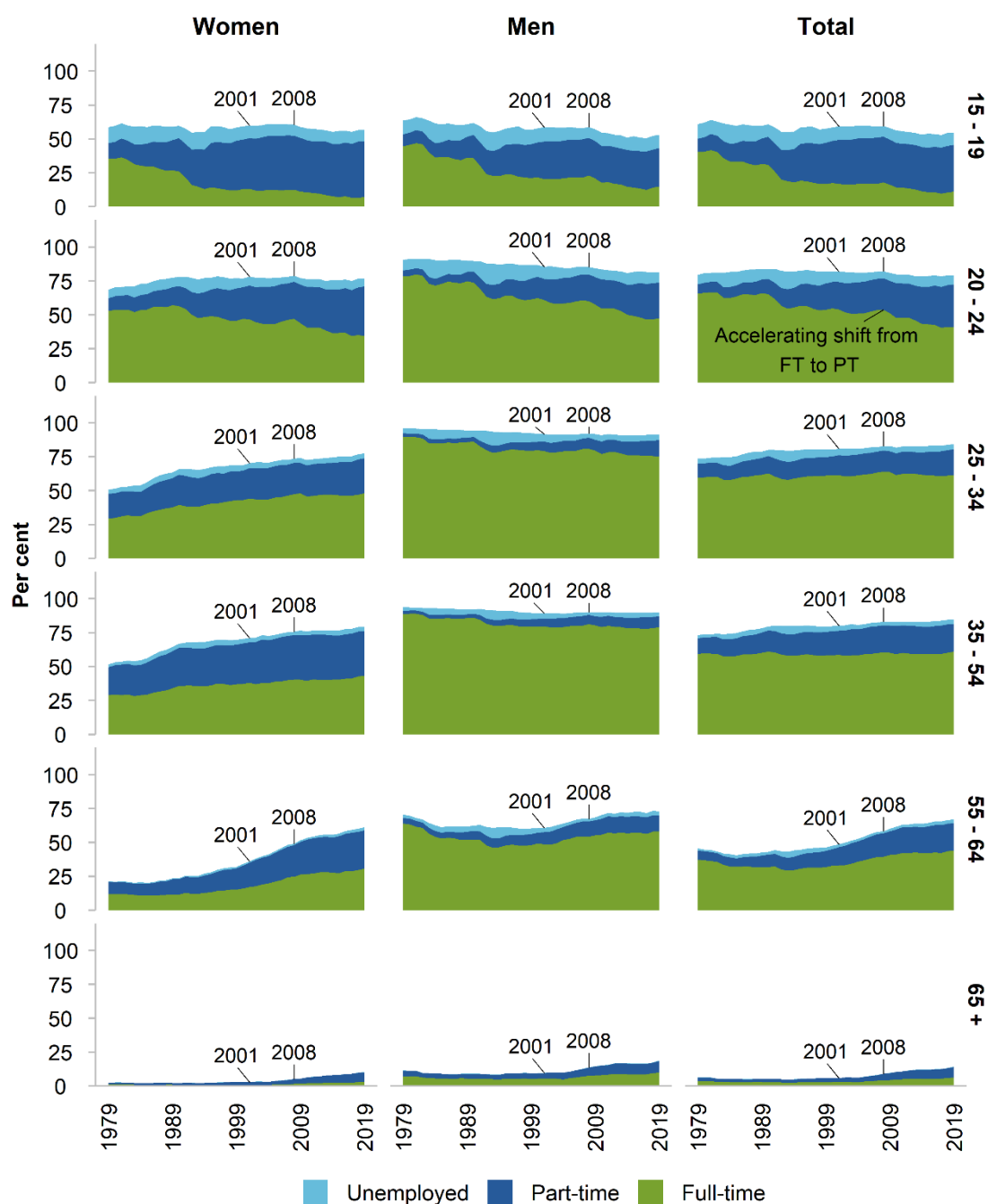
Long-term decline in full-time employment for 15 to 24 year olds

People aged 15-19 and 20-24 experienced a decline in hours worked per person and per employed person from 2008 to 2018 (figure 3.3). This reflects a decline in labour force participation from 2008, and an acceleration of the long-term shift from full-time to part-time work that has been observed since at least 1978 (figure 3.4).

The long-term decline in full-time employment for people aged 15-24 was interrupted by a period of growth from 2002 to 2008, likely due to the mining boom. This could indicate that the growth in young people's hours worked from 2001 to 2008 was unusual (figure 3.2).

Figure 3.4 Declining full-time employment is the main driver of falling hours for young people

Shares of unemployment, full- and part-time employment, by age group^a



^a The sum of the unemployment and employment rates is the participation rate, for that age group.

Data source: Commission estimates based on ABS (*Labour Force, Australia, Detailed – Electronic Delivery, Dec 2019*, Cat. no. 6291.0.55.001, Data cube LM1).

One possible explanation for the shift from full-time work to part-time work and the decline in labour force participation is that people aged 15-24 were increasing their participation in education. While studying, many young people work part-time rather than full-time (Dhillon and Cassidy 2018, p. 6). Borland (2020a)², however, found that increasing participation in education did not solely explain the changes in young people's employment. This argument is supported by a shift-share analysis (box 3.1) showing that the majority of changes in the number of hours that people aged 15-24 worked from 2008 to 2018 were driven by people who were not studying but worked fewer hours (figure 3.5, indicated by [1]).

Box 3.1 What is shift-share decomposition?

Shift-share analysis can be used to decompose changes in hours worked into 'within-group contributions' and 'between-group contributions'. For example, changes in hours worked by labour force status can be decomposed into:

- within-group contributions — measuring the change in hours worked for each labour force status, that is, each group
- between-group contributions — measuring the change in hours worked due to the change in the number of people with each labour force status (further details in appendix B).

Example: figure 3.5 — Study status, 2008 to 2018

This figure shows that two groups contributed to the decline in average weekly hours worked, while three groups contributed both a decline and an increase. Consider the group 'Bachelor degree' (identified as [2]). The two effects can be explained by:

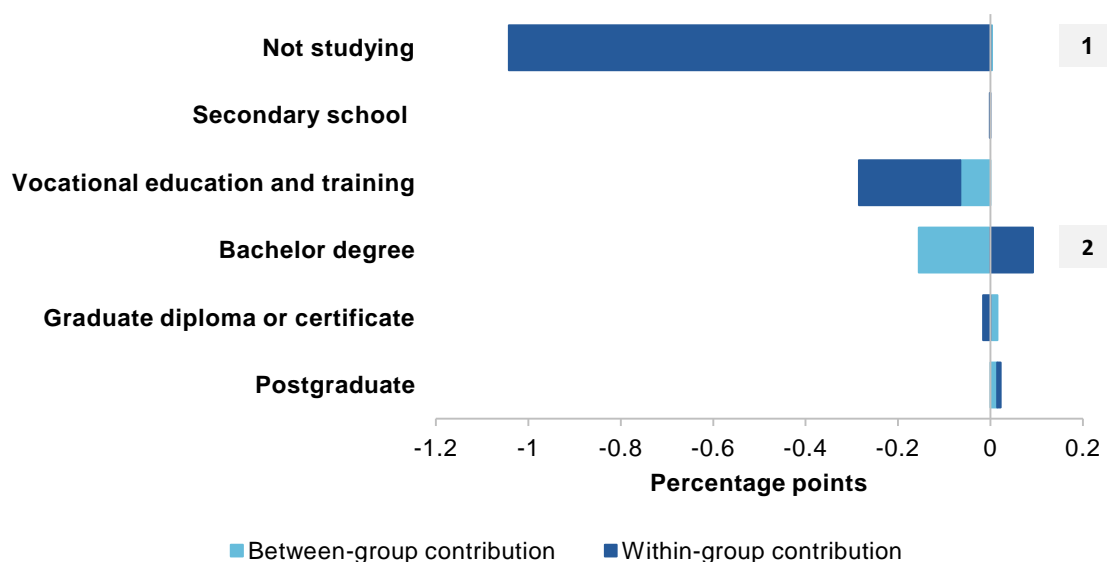
- an increase in the hours worked by people aged 15-24 who were studying a Bachelor degree (the dark blue component, 0.1 per cent)
- an increase in the number of people aged 15-24 who were studying a Bachelor degree and whose hours worked were lower than the number of hours worked by people of another study status (the light blue component, negative 0.2 per cent).

Shift-share analysis is used in other parts of the study to decompose changes in other aggregates, such as average wage rates.

² This publication draws on unpublished work by Michael Coelli and Jeff Borland.

Figure 3.5 Non-studying 15-24 year olds are driving the decline in hours

Shift-share analysis. Contributions to average growth in weekly hours worked for people aged 15-24 by study status, 2008-2018



Data source: Commission estimates based on HILDA data.

Women's participation and employment are changing

Women aged 25 and over, particularly women aged 55-64, have increased their participation in the labour market (figure 3.4). By contrast, participation for women aged 15-19 has been stable since 1978, and participation for women aged 20-24 has been stable since 1990.

For 15 to 19 and 20 to 24 year olds, the part-time employment rate for both men and women increased, with part-time employment increasing and full-time employment decreasing. For people aged 25-34, these trends differed by gender. Part-time employment increased due to an increase in women's labour market participation, while a slight decline in men's full-time employment was associated with increased part-time employment and unemployment (figure 3.4).

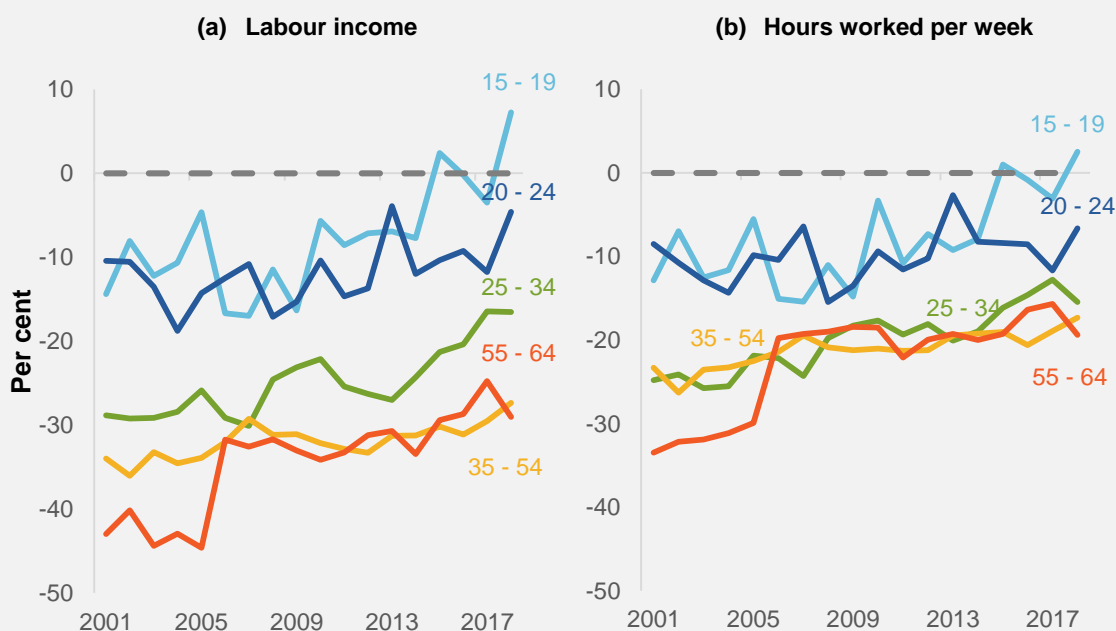
Women's growing labour force participation increased their hours worked and decreased the difference in labour income between men and women (box 3.2).

Box 3.2 Young women did not experience a decline in labour income, because their hours did not fall

In dollar terms, women's labour income is lower than men's on average. But in 2016, the labour income of women aged 15-19 reached the same level as men's of the same age group (see figure below). From 2001 to 2018, the labour income gap narrowed across all age groups, but it narrowed most rapidly for people aged 15-24 and 25-34. This was facilitated by a much smaller decline in the hours worked by women than in the hours worked by men of the same age. Unlike young men's average wage rate, young women's average wage rate grew — although by less than wage rates for prime-aged men and women.

Women's labour income is lower than men's but the gap is narrowing

Percentage difference between women and men age-specific hours worked and labour income

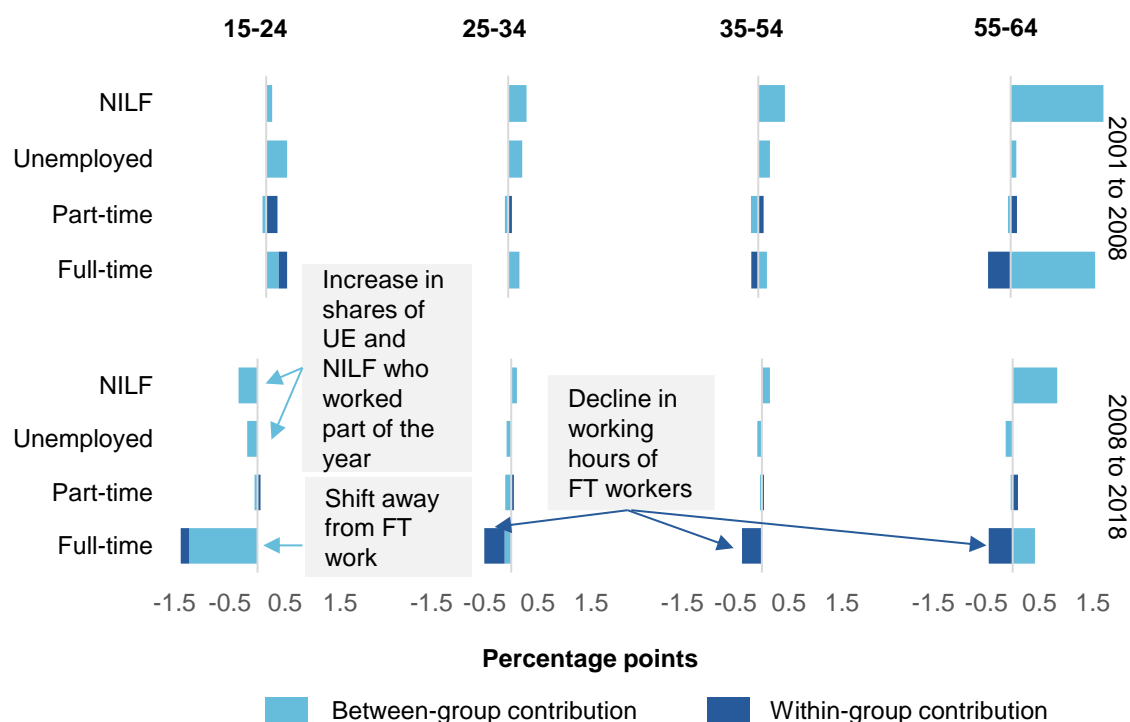


Data source: Commission estimates based on HILDA data.

How did changes in labour market composition affect hours worked?

From 2008 to 2018, hours worked decreased by about 2 per cent per year for people aged 15-24. About 1.4 percentage points were due to a decline in the share of employment that was full-time (figure 3.6). Because full-timers work more than the average number of hours, a decline in the share of full-time workers contributes to a decline in average hours worked. The remainder of the decrease, about 0.5 percentage points, was due to an increase in the share of people who are classified as unemployed or not in the labour force but worked nonetheless during part of the year. An increase in the share of these groups from 2008 to 2018 contributed to the decline in hours worked, because they worked fewer hours than the average.

Figure 3.6 For young people, a decline in the number of full-time workers explains most of the fall in hours worked
Shift-share analysis. Contributions to average annual growth in hours worked by age group and labour force status^a



^a NILF: not in the labour force; UE: unemployed.

Data source: Commission estimates based on ABS (*Labour Force, Australia, Detailed – Electronic Delivery*, Dec 2019, Cat. no. 6291.0.55.001, Data cube LM1).

These falls in full-time employment occurred after relative stability from 2001 to 2008 for all age groups, with the exception of 55 to 64 year olds (who continued to grow their share of the labour market).

Also observed from 2008 to 2018, was a small shift away from part-time work for 25 to 34 year olds, and a reduction in their full-time working hours. People aged 35-54 and 55-64 also experienced a reduction in their full-time working hours (shown as a negative within-group contribution).

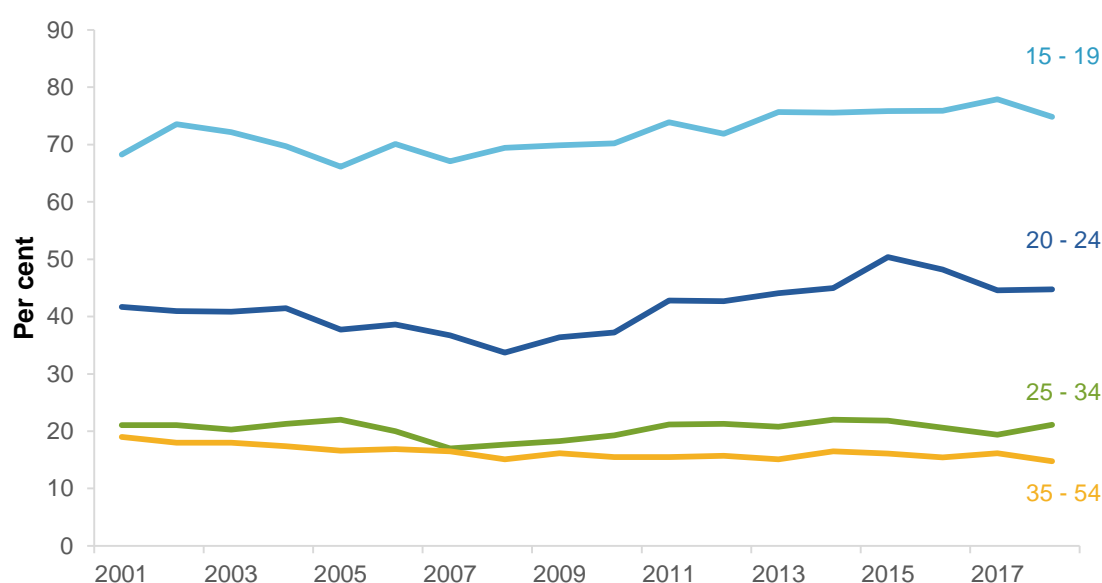
Young workers are increasingly likely to be employed as casuals

‘Casual employment’ exists where an employee has no guaranteed hours of work, usually works irregular hours, is not entitled to paid sick or annual leave and can be terminated without notice. This makes casual employment a more precarious option than full-time or part-time employment, but it also makes casual employment a more flexible option for workers and for employers.

Young workers are more likely to be employed on a casual basis than older workers. While the total share of casual workers in the national workforce changed little from 2001 to 2018 — it remained about 24 per cent — the casual share of employment for younger workers increased after 2008. The share of casual workers increased most among 20 to 24 year olds — 34 per cent of all 20 to 24 year old workers were casual in 2008, but 45 per cent were casual in 2018 (figure 3.7). This was despite a decline in the casual employment rate between 2001 and 2008. People aged 25-34 and 35-54, by contrast, were far less likely to be employed on a casual basis — and their casual share of employment was steady between 2001 and 2018.

Figure 3.7 Young people are more likely to be casually employed, and increasingly so

Casual share of employment, by age group, 2001-2018



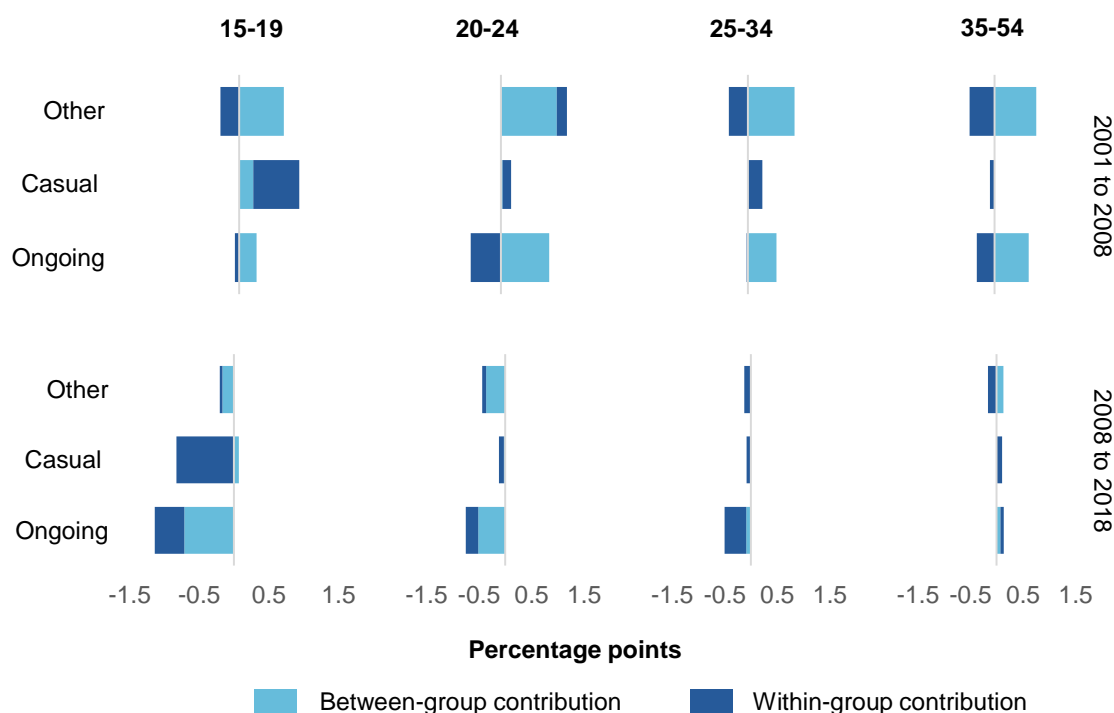
Data source: Commission estimates based on HILDA data.

Approximately 89 per cent of full-time workers are employed on an ongoing basis, and nearly three quarters of part-time workers are employed on a casual basis. The increase in part-time employment and decrease in full-time employment for people aged 15-24 therefore presents itself as a shift from on-going to casual work (figure 3.8).

Casual workers aged 15-19 also experienced a particularly large increase in hours leading up to the global financial crisis (GFC) in 2008, followed by declines in hours worked from 2008 to 2018 (figure 3.8). This likely reflects the sensitivity of casual workers to the business cycle.

Figure 3.8 A decline in the number of ongoing workers explains most of the fall in hours for young people

Shift-share analysis. Contributions to average annual growth in hours worked by age group and labour force status^a



^a Other includes unemployed and not in the labour force.

Data source: Commission estimates based on HILDA data.

3.3 The changing nature of unemployment

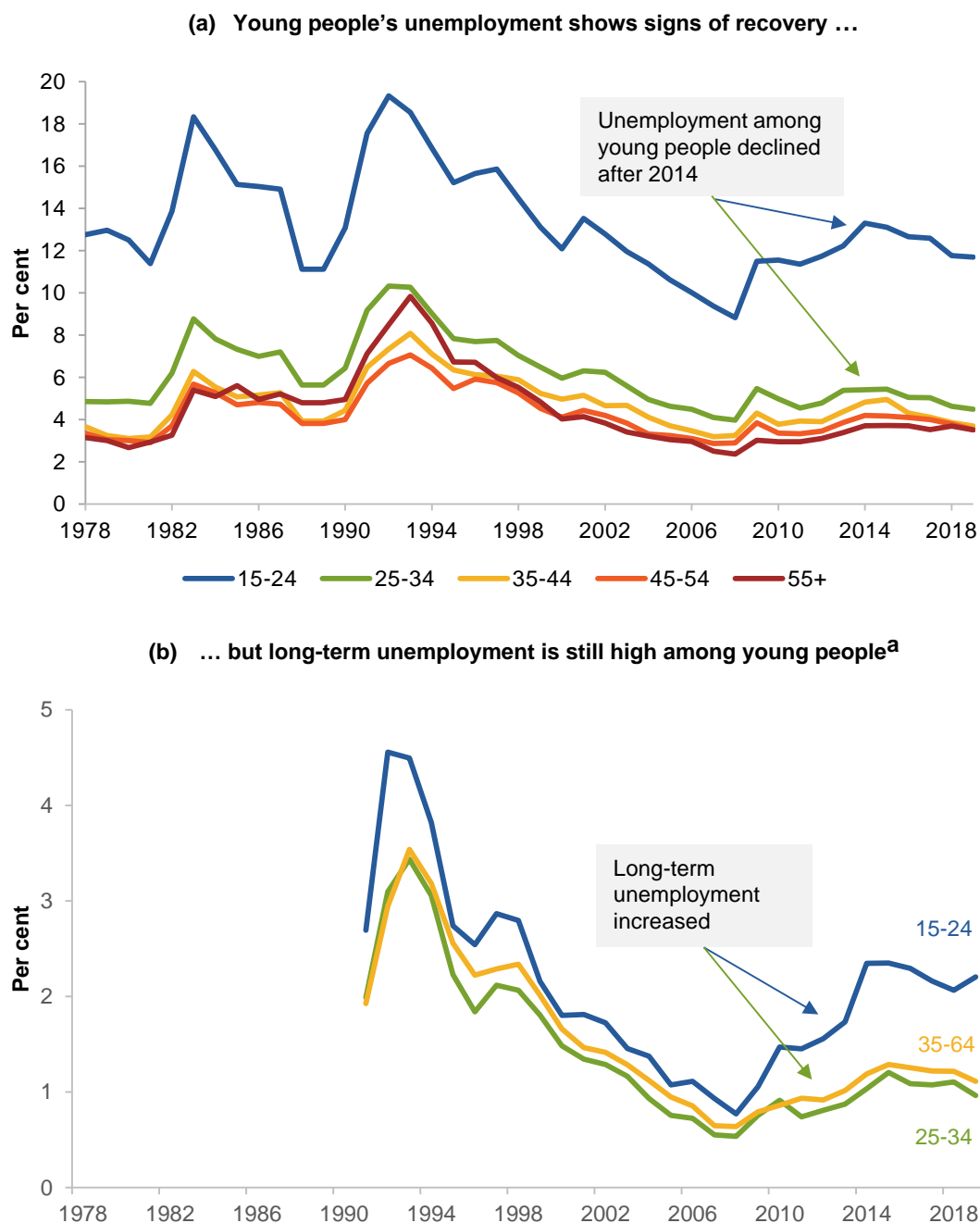
After 2008, young people's unemployment rate increased, it only started to decrease around 2014 (figure 3.9a). The unemployment rate, however, is a partial measure of labour market health in the presence of very diverse forms of employment, and should not be the only measure used when assessing labour market health. Measures such as long-term unemployment and underemployment provide more information.

Long-term unemployment is not decreasing

Long-term unemployment — defined as the proportion of people who have been searching for a job for 12 months or more — increased after 2008 (for all age groups) and did not show signs of recovery for people aged 15-24 (figure 3.9b).

Figure 3.9 Young people's unemployment hides an increasing trend in long-term unemployment

Unemployment rate by age for 1978–2019, and long-term unemployment rate for 1991–2019



^a Data for long-term unemployment were not available prior to 1991.

Data source: Commission estimates based on HILDA data and ABS (*Labour Force, Australia, Detailed – Electronic Delivery*, Dec 2019, Cat. no. 6291.0.55.001, Data cube EM1a).

The types of people who were long-term unemployed also changed. Using HILDA, a regression model was estimated to predict the odds of being long-term unemployed based

on selected characteristics. The model was also used to determine how the odds of being long-term unemployed changed for particular groups of people from 2001 to 2008 and 2008 to 2018. The results show that:

- migrants had lower odds of being long-term unemployed post-2008 compared to pre-2008, but they still had higher odds than people born in Australia
- people living in Queensland and Western Australia had higher odds of being long-term unemployed post-2008 compared to pre-2008
 - people living in these states had much lower odds of being long-term unemployed than people in New South Wales before 2008; however, after 2008, Queensland residents had higher odds of being long-term unemployed than residents of any other state
- people with higher levels of education had slightly higher odds of being long-term unemployed post-2008 compared to pre-2008
 - people who had not completed year 10 still had the highest odds
- people who studied full-time in the previous year had higher odds of being long-term unemployed post-2008, and higher odds than people who had not studied at all.

There are two potential explanations for these observed changes:

- strong economic conditions in Queensland and Western Australia allowed relatively unskilled people to find employment in the pre-2008 period
- weak labour market conditions for young people who graduated following the GFC them to search longer for jobs (perhaps even holding out for a higher-skilled job).

The results suggest that both explanations have some validity.

Underemployment is rising

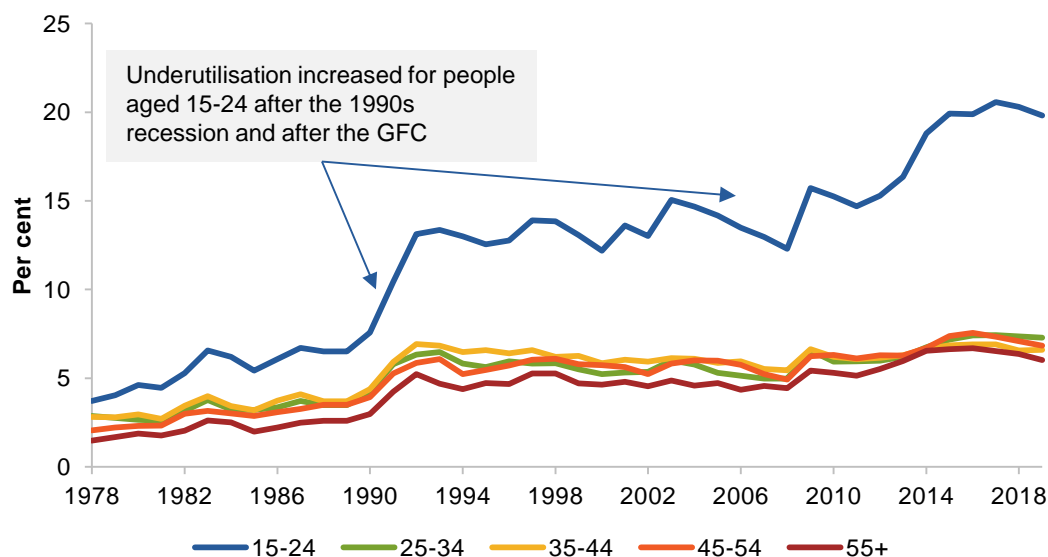
Borland (2020b) has argued that with increasing part-time employment, the traditional unemployment rate has become an inadequate measure of the state of the labour market. This is because increasing part-time work, at the expense of full-time work, could give rise to some underemployment.

A person is said to be underemployed if they state that they want more hours than they are currently working. Underemployment has been linked to lower income, welfare dependence, and poor subjective wellbeing (Wilkins 2007).

The underutilisation rate calculates the proportion of the labour force that is underemployed or unemployed. After 2008, the underutilisation rate among people aged 15-24 increased by about eight percentage points, while for other age groups it increased by about two percentage points (figure 3.10).

Figure 3.10 The underutilisation rate increased after 2008

Labour force underutilisation rate, by age group, 1979-2019



Data source: Commission estimates based on ABS (*Labour Force, Australia, Detailed – Electronic Delivery*, Dec 2019, Cat. no. 6291.0.55.001, Data cube EM1a).

The rise in long-term unemployment and underemployment suggests that the labour market outlook was consistently poor after the GFC. Yet this was not reflected in the unemployment rate. This chapter has shown that some of the adjustment took place in the form of reduced hours worked and a move from full-time to part-time employment. Chapter 4 shows that the adjustment also took place in the form of workers accepting ‘lower-scored’ occupations, that is, occupations that were lower on an occupational scale that combines educational requirements and earning potential.

4 The wage puzzle: stagnating wages only for young people

Key points

- The weak growth in average wages hides a ‘wage puzzle’:
 - from 2001 to 2008, wage rates for young people grew at the same rate or faster than wage rates for prime-aged workers
 - from 2008 to 2018, wage rates for young people grew slower than wage rates for prime-aged workers.
- The divergence in wage rate growth was not restricted to young people with less education, or from a specific industry or occupation.
- One possible explanation for the wage puzzle is an imbalance between labour supply and demand.
- Labour demand grew more slowly than the population between 2008 and 2018.
- Labour supply likely also played a role.
 - The relative supply of workers aged 55 and over increased, probably because of long-term demographic trends and an increased retirement age.
 - Increases in the number of skilled workers and in the number of university graduates after 2010 may have increased competition for skilled jobs. University graduates have less chance of finding work in their desired occupations than in 2001, even though there are more high-education jobs available.
- People looking for jobs (who are primarily young) are more vulnerable to an imbalance between labour supply and demand.
 - The labour market becomes more competitive, suppressing wage offers for new hires and forcing less competitive graduates into smaller firms (which tend to pay lower wage rates) or less desirable occupations.
 - Workers who are already employed may not receive pay cuts — because wages are ‘sticky’ (outside of a major recession), so their wages are not affected by the imbalance in the short term.
- There are other possible explanations for the wage puzzle, but it is not possible to be conclusive. There could have been a long-term decline in the quality of education, masked by the strong economy of 2001–2007. ‘Job polarisation’ (the disappearance of middle-skill jobs) is an important long-term force in Australia and elsewhere, but cannot explain the wage puzzle.

After investigating other determinants of labour income (chapters 2 and 3), this chapter investigates the effects of wage rates and some of their determinants. Specifically, it looks into the ‘wage puzzle’ of stagnating wage rates for young workers (aged 15–34) but steady growth

for prime-aged workers (aged 35-64). Section 4.1 ascertains the existence of the wage puzzle and tests whether it is attributable to compositional changes via formal statistical techniques. Section 4.2 discusses one potential reason for the puzzle using a labour demand and supply framework. And section 4.3 sets out additional explanations proposed by the literature.

Labour markets are complex and include many dimensions, such as the skill, occupational, experience and geographical dimensions. Any analysis is necessarily partial, and it is difficult to separately identify the effects of different factors in section 4.2 or 4.3.

4.1 The wage puzzle: wage rates grew for people aged 35-64, but stagnated for people aged 15-34

There has been considerable public concern about slow wage rate growth (box 4.1). After average annual growth of 3.6 per cent from 2000 to 2013, nominal wage rate growth dropped to an average of 2.2 per cent from 2014 to 2018 (ABS 2020). Weak wage rate growth, declining hours worked (chapter 3), slow productivity growth, high rates of participation and spare capacity in the labour market (Quinn 2019) suggest that the labour market was relatively weak after about 2008.

Box 4.1 Commentary on the weak labour market

ABC News has reported that:

Over the June quarter, the seasonally adjusted wage price index rose by 0.6 per cent, with a 0.8 per cent increase in the public sector more than compensating for a disappointing 0.5 per cent increase in the private sector. (Letts 2019)

Wage growth is forecast to be well below the highest inflation forecast and only a little above the central forecast, resulting in continued low real wage growth and seeing the budget miss its wage growth target for the eighth year in a row. (Martin 2020)

The Guardian has noted that:

The latest wages growth data released by the Australian Bureau of Statistics on Wednesday suggests the small improvements that occurred during 2017 and early 2018 have stalled, with private sector wages growth now stuck at 2.3% for the past nine months. (Jericho 2019)

Some reports have noted the unprecedented nature of the weak labour market. Jeff Borland observed in *The Conversation* that:

Take, for example, the Wage Price Index (WPI) (the measure that the ABS now prefers as a way to estimate wage growth). Between the December quarters of 2014 and 2015 it increased by 2.1%, the lowest rate since the series commenced in the late 1990s. Or, look at the main alternative measure, the series for ordinary full-time weekly earnings of adult males, which goes back to the early 1980s.

That measure increased by only 1% between November 2014 and 2015, again the lowest rate since the series began. (Borland 2016)

(continued next page)

Box 4.1 (continued)

Some have commented that the labour market had been weak for a relatively long time:

Wage growth, forecast in the budget to climb to 3 per cent, will instead remain stuck near 2.2 per cent, where it has been for half a decade. (Martin 2020)

In 2019, the RBA held a conference about the weak labour market. One participant observed:

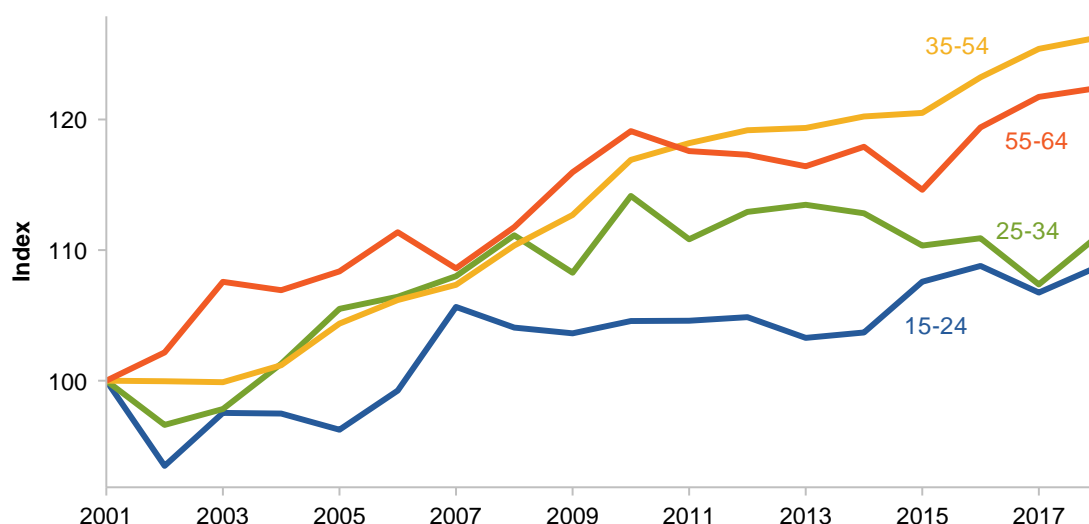
The low level of wages growth over the past five years has had important macroeconomic implications. Low wages growth has weighed on both household spending and government revenue as wages are the largest source of household income. Labour costs are also the largest component of business costs, so subdued wages growth has been associated with low inflation outcomes. (Cassidy 2019, p. 1)

The remainder of this chapter looks at the growth in real (hourly) wage rates³ rather than nominal wage rates — which are often the subject of commentary but do not account for the effects of inflation. Stagnating or declining real wage rates mean that young people's purchasing power is not improving (and so neither is their material wellbeing).

The weak growth in average wage rates hides different patterns of growth across age groups (figure 4.1). Growth rates were similar across age groups until about 2008 but then diverged, creating a gap between young and prime-aged workers' wage rate growth.

Figure 4.1 **Young workers' wage rates diverged from about 2008**

Average real wage rate per hour, 2001–2018



Data source: Commission estimates based on HILDA data.

³ In this chapter, hourly wage rates are calculated using the average weekly wage earned in all jobs divided by average weekly hours worked in all jobs. Real wage rates are in 2018-19 financial year dollars. Outliers — such as hourly wage rates below \$5 and above \$300 and people who reported a weekly wage but claimed not to be employed — are excluded from the analysis.

In fact, young workers account for a disproportionate part of the much-discussed weak labour market (table 4.1). For workers aged 25-34, wage rate growth before 2008 averaged 1.5 per cent per year — close to the growth rate for workers aged 35-54 — but wage rates *declined* by an average of 0.01 per cent per year after 2008. For workers aged 20-24, wage rates grew by an average of 0.8 per cent per year before 2008, but that growth slowed to less than 0.1 per cent per year afterwards. In contrast, for workers aged 35-54, wage rate growth averaged 1.4 per cent per year before 2008 and was nearly identical after 2008.

Table 4.1 Young workers' wages grew the least during the slowdown
Average annual growth rate of real wage rate per hour, 2001–2018

Age group	2001–2008	2008–2018
	per cent	per cent
15–19	-0.32	1.12
20–24	0.80	0.08
25–34	1.52	-0.01
15–34	1.01	0.30
35–54	1.42	1.36
55–64	1.60	0.91

Source: Commission estimates based on HILDA data.

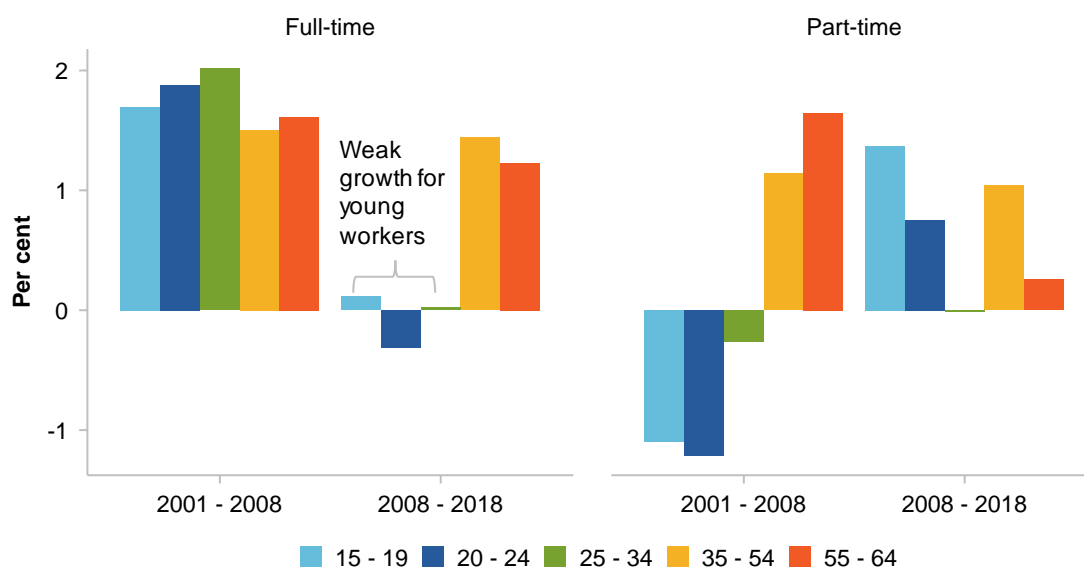
The growth path of wage rates for workers aged 15-19 was different from that of other young people, with their average wage rate declining from 2001 to 2008 and growing from 2008 to 2018.

That is not to say that real wage rate growth for prime-aged workers never slowed, it did slow from 2010 to 2015. For workers aged 35-54, wage rate growth averaged about 1.8 per cent per year from 2001 to 2010 and only 0.6 per cent per year from 2010 to 2015. For workers aged 55-64, wage rate growth averaged about 2.0 per cent per year from 2001 to 2010 and *declined* on average by 0.8 per cent per year from 2010 to 2015 (appendix C). But strong wage rate growth for prime-aged workers on either side of that period offset the period of weak growth.

The wage rates of full-time workers drove the differences in growth (figure 4.2). Average wage rates for full-time workers grew at a similar pace for all age groups before 2008 and slowed only for young workers after 2008.

For workers aged 15-19, the pattern of growth in part-time wage rates mostly explained the pattern in overall wage rate growth, which was negative from 2001 to 2008 and positive from 2008 to 2018 (table 4.1). People aged 15-19 (particularly those who are studying) are predominantly in the part-time market, and some are unavailable for full-time work. Given the growth of part-time employment after 2008 (chapter 3), it is likely that higher-wage part-time work shifted to full-time before 2008 and then back to part-time afterwards. Another factor may be the general decline in employment for people aged 15-19 after 2008 (figure 3.6); some of those offered part-time work at low wage rates may have chosen not to work.

Figure 4.2 Wage rates for full-time, young workers stagnated
Average annual growth rate of real wage rate, by employment type, 2001–2018



Data source: Commission estimates based on HILDA data.

Estimation techniques confirm the wage puzzle

Changes to average wage rates could arise from changes in the characteristics of employed workers. For example, if employment increases for people with less than a year 12 education, this is a positive outcome, but average wage rates will fall. This study undertakes statistical analysis of individuals' wage rates to see what wage rate an individual is likely to earn based on their characteristics. Characteristics such as education level, experience, and living in a major city can be used to predict someone's wage rate. This study adds 'year effects' to see how the predicted wage rate changes with the business cycle or other economy-wide influences.

The specific wage rate estimation used is a Heckman two-step model (box 4.2). Heckman estimation is a well-established technique for estimating the probability of employment and the wage rate for each worker based on their characteristics. The Heckman method controls for the fact that people who are likely to be offered low wages are also less likely to be employed.

Box 4.2 The Heckman estimation approach

A Heckman two-step estimation first estimates the probability that each individual is employed and then (the natural logarithm of) each individual's wage rate, with both estimated as a function of observable characteristics. Information from the first step is used to create an additional variable in the second step to 'correct' for the fact that wage rates are only observed if a person is employed. Estimating individuals' wages without including this correction term would bias parameter estimates.

Another important part of a Heckman estimation is that some variables are included in the employment equation but excluded from the wage equation. To do this, this study uses the ratio of children aged under 15 to people aged over 15 in the household and the ratio of children interacted with the individual's gender as an additional predictor of the probability of employment. The assumption is that these characteristics predict whether individuals in the household participate in employment but they do not predict their wage.

The Heckman approach ensures that changes in the characteristics of those who participate in the labour market do not affect estimates of the effect of characteristics on wages. For example, if more young people who left school before year 12 found jobs, it is likely that those who had newly found work would be less easily employable than those who already had jobs, and therefore that their wages would be lower. Without the Heckman correction term, the prediction of wages might incorrectly attribute that fall in wages to changes in, say, the business cycle or other economy-wide influences.

Source: Heckman (1979).

The Heckman estimation confirms that changes in young people's characteristics did not drive the wage puzzle (figure 4.3). It also shows the weak growth in prime-aged workers' wage rates from 2010 to 2015 discussed in the literature (box 4.1). Full results are presented in appendix C.

Wage rate growth attributable to economy-wide factors was similar for all workers before 2008, but young people's wage rate growth slowed more than prime-aged workers' afterwards. Before 2008, economy-wide factors increased the average wage rate (above the average wage rates in 2001) of:

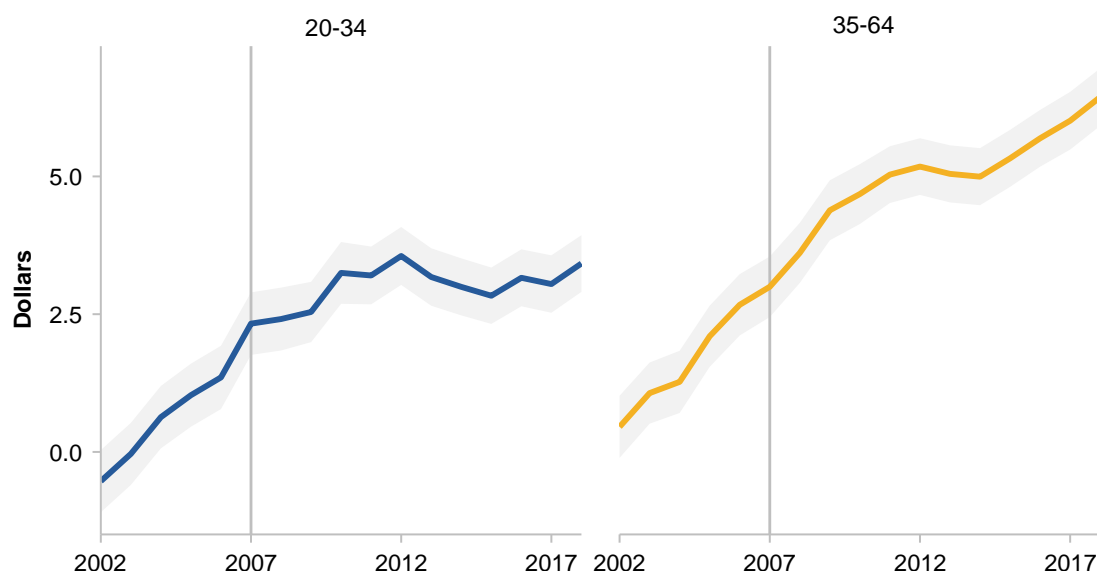
- young workers by \$2.41, consistent with growth of 1.3 per cent per year
- prime-aged workers by \$3.61, consistent with growth of 1.7 per cent per year.

From 2008 to 2018, economy-wide factors increased the average wage rates of:

- young workers by only an additional \$1.01, with growth slowing to 0.4 per cent per year (about a third of pre-2008 growth)
- prime-aged workers by an additional \$2.81, with growth slowing to 0.9 per cent per year (about half of pre-2008 growth).

Figure 4.3 Wage rate growth attributable to economy-wide factors slowed for young people after 2007

Change in average hourly real wage rate from 2001 due to economy-wide influences, 2002–2018^{a,b,c}



^a Results from Heckman regression of natural logarithm of wages on selected covariates. ^b These plot the coefficients on the year variable after transformation to dollar values. ^c The shaded areas represent 95 per cent confidence intervals.

Data source: Commission estimates based on HILDA data.

These results show that the growth attributable to economy-wide factors slowed more for prime-aged workers than aggregate wage rate data reveal (table 4.1). Therefore, changes to the characteristics of the average prime-aged worker (such as improved education) supported prime-aged wage rates.

Specific industries or occupations do not explain the wage puzzle

The divergence in wage rates could have arisen if young workers were employed in occupations or industries that grew relatively slowly after 2008. Kalb and Meekes (2019, p. 1) found that (among workers who remained in their job) wage rate growth in Australia varied by industry and occupation for workers of all ages. However, this study finds that the weak growth in young people's wage rates after 2008 was not limited to any specific occupation (tables 4.2 and 4.3).

- Before 2008:
 - most occupations contributed positively to wage rate growth for workers aged 20-54
 - the between-group contribution was comparatively small, suggesting that the growth in wage rates was not because young people moved into higher-paid occupation categories before 2008 (table 4.2).

Table 4.2 The wage puzzle was not limited to any specific occupation

Contributions to real wage rate growth by occupation, 2001–2008

<i>Occupation</i>	<i>15 -19</i>	<i>20 -24</i>	<i>25 -34</i>	<i>35-54</i>
	% points	% points	% points	% points
Clerical and administrative workers	0.21	0.04	0.01	0.14
Community and personal service workers	-0.06	-0.13	0.05	0.14
Labourers	-0.52	0.14	0.10	0.10
Machinery operators and drivers	-0.02	0.21	0.11	0.01
Managers	0.02	0.10	0.49	0.30
Professionals	0.04	0.25	0.13	0.57
Sales workers	0.10	-0.06	0.16	0.03
Technicians and trades workers	-0.01	0.29	0.18	0.23
Total within-group contribution^a	-0.23	0.84	1.24	1.51
Total between-group contribution^b	-0.09	-0.04	0.28	-0.10
Total growth 2001–2008 (table 4.1)^c	-0.32	0.80	1.52	1.42

^a Results from shift-share decomposition. The within-group contribution captures growth from changes in the average wage rate (the share effect). It abstracts from growth due to workers changing from, for example, low- to high-paying occupations (the shift or between-group contribution). ^b The between-group contribution captures the change in growth from changes in the distribution of occupations. ^c The within- and between-group contributions sum to total growth. See appendix B for more information on the shift-share decomposition.

Source: Commission estimates based on HILDA data.

- After 2008:
 - most occupations contributed little (or negatively) to wage rate growth for workers aged 20-34, while all occupations contributed positively to wage rate growth for workers aged 35-54
 - the between-group contribution was close to zero for workers aged 20-34, suggesting that the slow growth in wage rates was not because young people moved in large numbers into lower-paid occupation categories⁴ (table 4.3)
 - the positive contributions for workers aged 15-19 were likely driven by occupations with many part-time workers who experienced positive wage rate growth (figure 4.2).

A similar analysis by industry suggests that no particular group of industries drove the divergence in wage rate growth either (appendix C).

⁴ The occupation categories shown here are very broad. Occupational choice is revisited later using a much finer measure. The measure used later paints a more nuanced picture.

Table 4.3 The wage puzzle was not limited to any specific occupation

Contributions to real wage rate growth by occupation, 2008–2018

<i>Occupation</i>	<i>15 -19</i>	<i>20 -24</i>	<i>25 -34</i>	<i>35-54</i>
	% point	% point	% point	% point
Clerical and administrative workers	-0.05	0.05	0.01	0.02
Community and personal service workers	0.22	0.01	0.06	0.06
Labourers	0.17	-0.01	-0.01	0.07
Machinery operators and drivers	-0.01	-0.03	-0.01	0.07
Managers	-0.04	-0.02	-0.18	0.28
Professionals	0.07	-0.06	0.13	0.37
Sales workers	0.33	0.28	-0.01	0.01
Technicians and trades workers	0.28	-0.15	0.04	0.06
Total within-group contribution^a	0.97	0.08	0.03	0.94
Total between-group contribution^b	0.15	-0.01	-0.04	0.42
Total growth 2008–2018 (table 4.1)^c	1.12	0.08	-0.01	1.36

^a Results from shift-share decomposition. The within-group contribution captures growth from changes in the average wage rate (the share effect). It abstracts from growth due to workers changing from, for example, low- to high-paying occupations (the shift or between-group contribution). ^b The between-group contribution captures the change in growth from changes in the distribution of occupations. ^c The within- and between-group contributions sum to total growth. See appendix B for more information on the shift-share decomposition.

Source: Commission estimates based on HILDA data.

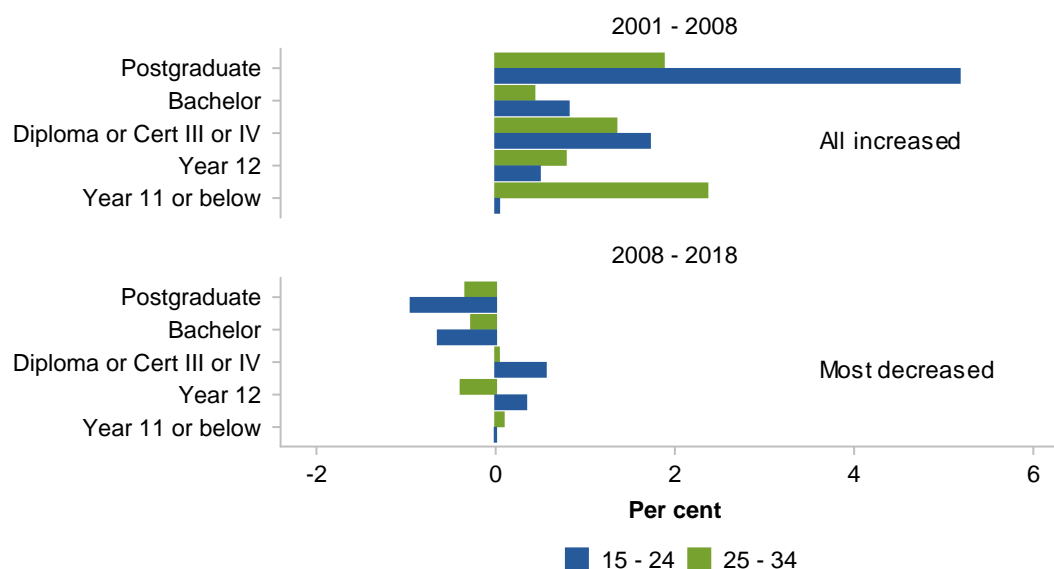
Growth in wage rates was weak or negative across education levels

The weak or negative growth in young people's wage rates after 2008 occurred across all levels of education (figure 4.4). In contrast, prime-aged workers experienced positive average growth in their wage rates across all levels of education during both periods under consideration (figure 4.5). Furthermore, the negative wage rate growth was concentrated among workers with a Bachelor's degree or higher, while the weak wage rate growth was concentrated among workers with vocational education and training (VET) or high-school qualifications.⁵

The weak growth in young people's wage rates after 2008 is unusual when compared to other slowdowns or recessions. It affected young people of all education levels and backgrounds, across industries and occupations, but did not affect prime-aged workers in the same way. Any explanation will have to account for the broad nature of the wage rate growth puzzle.

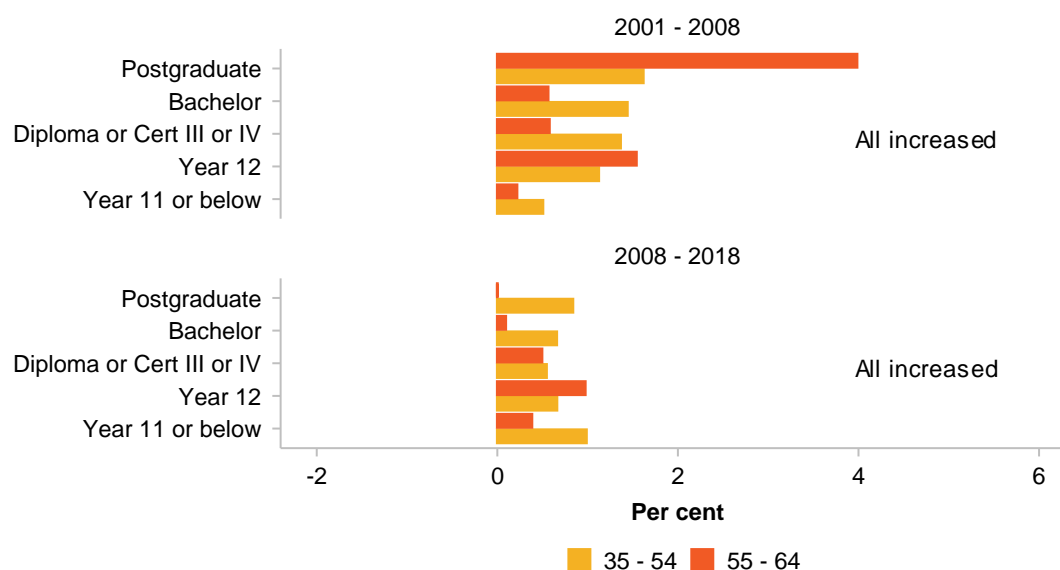
⁵ The weak growth in young people's wage rates also occurred across most socioeconomic backgrounds (as measured by the 2011 SEIFA) (appendix C).

Figure 4.4 Young people's wage rates mostly declined after 2008
Average growth in real wage rate, by highest level of education, 2001–2018



Data source: Commission estimates based on HILDA data.

Figure 4.5 Prime-aged workers' wage rates did not decline after 2008
Average growth in real wage rate, by highest level of education, 2001–2018



Data source: Commission estimates based on HILDA data.

4.2 An imbalance between labour supply and demand could explain the wage puzzle

The wage puzzle and the period of weak wage rate growth

This chapter does not review all the reasons for weak wage rate growth after 2008, which affected most age groups to some extent (figure 4.3). Some of the reduction in wage rate growth is accounted for by macroeconomic factors that the chapter will not analyse, such as lower inflation expectations and slower productivity growth (Quinn 2019).

But, why was weak wage rate growth more pronounced for young people? For example, wages of young workers aged 25-34 grew faster than wages of workers aged 35-54 before 2008, but this strong growth turned negative after 2008. That wage puzzle has not been explained.

Explanations for the wage puzzle fall into two categories.

1. There could be a change in the labour market that affects people looking for jobs more than people with existing jobs (section 4.2).
 - (a) The pool of young workers has a higher share of people looking for jobs — it includes almost all those looking for their first job or their first job after study — and young workers change jobs more than prime-aged workers (Deutscher 2019, p. 5).
 - (b) A weak or recessionary labour market could have worse consequences for people looking for jobs than for people with existing jobs.
 - (i) Firms reduce hiring in a weak labour market.
 - (ii) When applicants exceed the number of positions, firms have increased bargaining power and can offer lower entry wage rates.
 - (iii) Firms might not use this increased bargaining power to decrease the wage rates of their current employees — in part because of constraints, such as collective bargaining, implicit contracts, or existing contracts.
 - (c) In response, young job applicants accept jobs at smaller firms, in less desirable occupations or, sometimes, with fewer hours. They move ‘down the jobs ladder’ (Haldane 2019).

A change in the labour market that primarily affects people looking for work would explain why outcomes look very different for young people compared to the prime-aged (most of whom have existing jobs). In fact, when this study compares prime-aged people looking for work to young people looking for work, outcomes can appear similar. For example, long-term unemployment has increased among both the young and the prime-aged (chapter 3).

2. There could be a change in the value that employers place on young workers relative to prime-aged workers (section 4.3).
 - (a) If the quality of young workers’ education (as it relates to the labour market) fell, their wages would fall relative to those of prime-aged workers with better education.

-
- (b) If the value of on-the-job experience increased, the premium on experience relative to the premium on education would rise.
 - (c) If workers over 35 became more educated and employers valued the combination of education *and* experience, the remuneration paid to prime-aged workers would rise relative to that of younger workers who had education but little to no experience.

This chapter begins with the first possible explanation — looking at whether there was an imbalance in labour supply and labour demand, either in the whole labour market or in certain sub-markets. It then explores explanations in the second category. The complexity of labour markets makes it difficult to be confident about which of these factors contributed most to the weak growth in young people's wage rates.

That said, Quinn (2019, p. 3) noted that the slowdown in nominal wage growth is unlikely to be driven only by compositional changes, such as changes in the nature of workers' skills, occupations, age, or industries. This is because the slowdown was broad-based and because the slowdown is apparent when following trends for individual firms, individual workers, or fixed firm-worker relationships (Andrews et al. 2019). Therefore, an imbalance of labour supply and demand seems to play a large part in explaining the wage puzzle.

Slower growth in aggregate labour demand

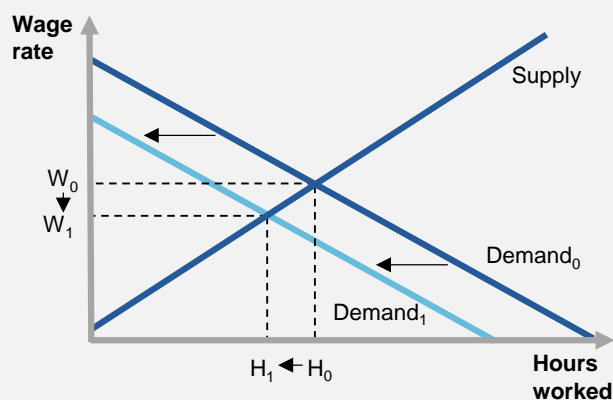
Generally, wage rates fall in response to either a decrease in labour demand or an increase in labour supply; both of these forces have a negative effect on equilibrium wage rates (box 4.3). However, only one of these forces leads to a lower equilibrium quantity of labour — if wage rates fall and workers work fewer hours in total, then it must be because the main influence is that labour demand has decreased, rather than because labour supply increased. The same argument applies in per capita terms if both labour demand and supply grow roughly in line with population. If labour demand per capita decreases, then hours worked per capita decline *and* wage rates fall.

Labour demand was unusually strong between 2001 and 2008. This can be seen, for instance, in full-time hours worked — which increased for people aged 15-24 between 2001 and 2008 (figure 3.6), temporarily halting a long decline (figure 3.4). However, the global financial crisis (GFC) and the end of the mining boom contributed to a subsequent slowdown in the Australian economy. For instance, growth in GDP per capita was negative in 2009 for the first time since 1992, and 1 per cent or less for six of the nine years from 2010 to 2018 (ABS 2019b, table 34).⁶

The growth in hours worked slowed after 2008 and dropped below population growth between 2012 and 2018 (figure 4.6). Based on box 4.3, it seems likely that labour demand per capita declined, consistent with labour demand growing more slowly than the population.

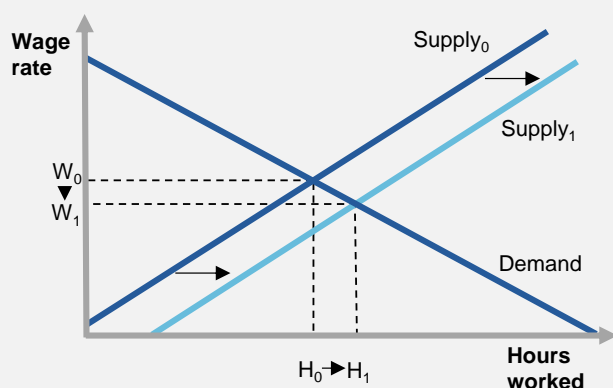
⁶ The simple average of the change in GDP per capita (chain volume measure) was 2.1 per cent between 2000 and 2007 and 1 per cent between 2008 and 2018 (ABS 2019b, table 34).

Box 4.3 Simple economic theory of an aggregate labour market



Wage rates and the number of hours worked move in the same direction when demand shifts

When labour demand decreases, firms hire fewer people, reducing the number of hours worked. Competing for fewer jobs means workers accept lower wage rates. As the economy moves to a new equilibrium, wage rates and hours worked decrease.

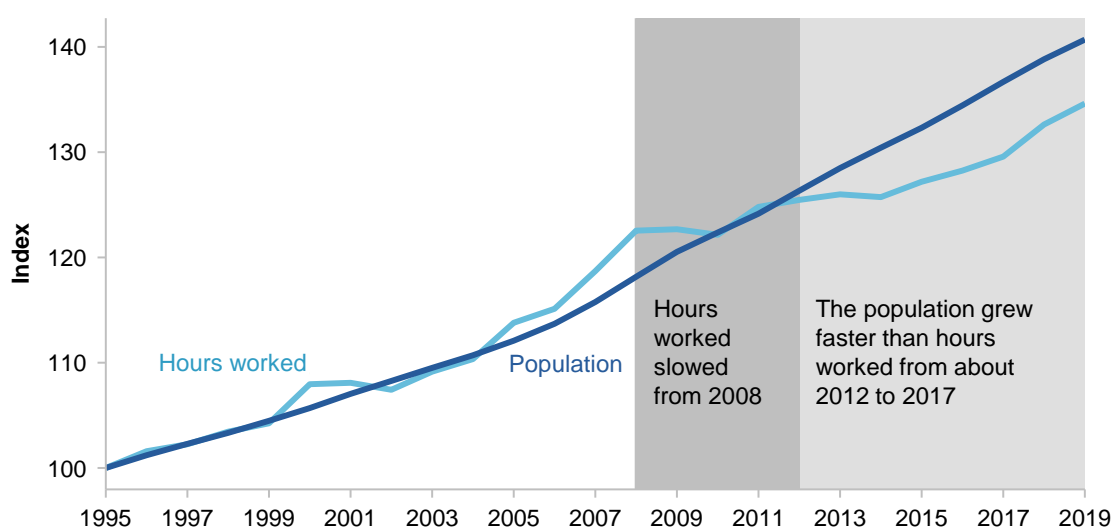


Wage rates and the number of hours worked move in different directions when supply shifts

When labour supply increases, more people want to work, increasing the number of hours worked. Competition between more workers means firms pay lower wage rates. As the economy moves to a new equilibrium, wage rates decrease and hours worked increase.

Figure 4.6 The growth in hours worked slowed after 2008

Hours worked and population growth, 1995–2019



Data sources: ABS (Australian System of National Accounts, 2018–19, Cat. no. 5204.0, table 13) and ABS (Australian Demographic Statistics, Sep 2019, Cat. no. 3101.0, table 1).

Faster growth in aggregate labour supply

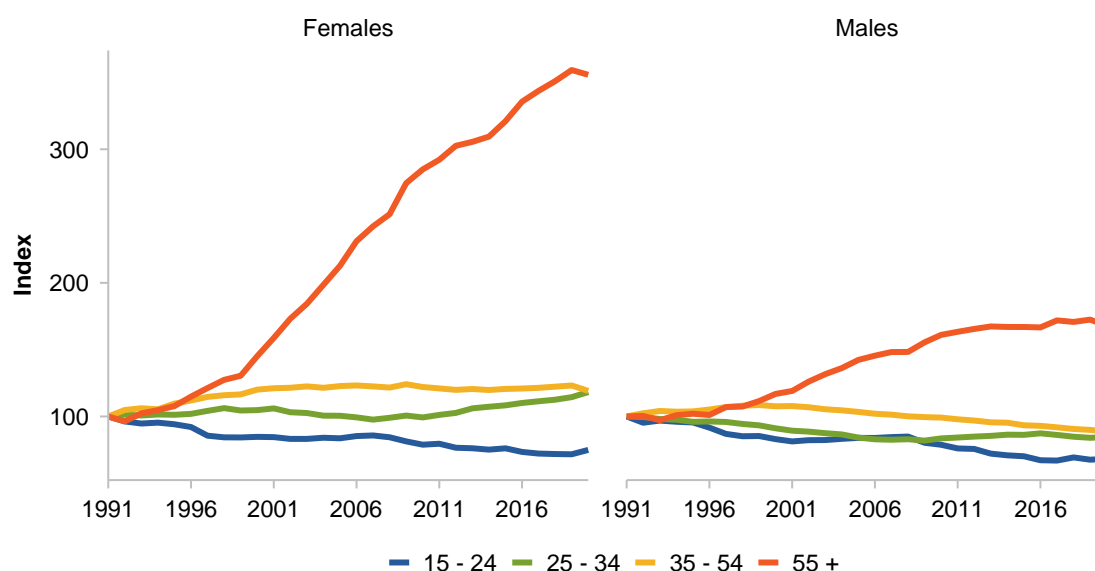
At the same time, it is likely labour supply grew between 2008 and 2018 (although apparently by less than demand declined).⁷ Significant changes to the composition of the workforce suggest some young workers faced increased competition from other demographic groups.

Participation increased for workers aged 55-64

The delayed retirements of workers over 55 significantly increased labour force participation. Women drove much of that increase. From 1991 to 2019:

- the proportion of women aged 55-64 working part-time more than doubled (from 12 to 28 per cent), and the proportion working full-time more than doubled too (from 13 to 31 per cent) (figure 3.4)
- the proportion of men aged 55-64 working part-time nearly doubled (from 7 to 12 per cent), and the proportion working full-time increased from 49 to 58 per cent (figure 3.4)
- the share of hours worked by women over 55 more than tripled (from 2 to 7 per cent), and the share of hours worked by men over 55 almost doubled (from 6 to 10 per cent) (figure 4.7).

Figure 4.7 The supply of labour by women over 55 almost quadrupled
Share of hours worked by gender, 1991–2019



Data source: Commission estimates based on ABS (*Labour Force, Australia, Detailed – Electronic Delivery*, Dec 2019, Cat. no. 6291.0.55.001, Data cube EM1a).

⁷ Labour supply must be increasing at a slower rate than the decrease in labour demand, or else the number of hours worked would also have increased.

This reflects increased participation of women in earlier decades, along with changes to rules about access to superannuation and the Age Pension that led to people working later in life.

- Between 1995 and 2013, the Age Pension age for women increased from 60 to 65.
- In 2015, the age at which people could access their superannuation was increased from 55 to 60. (This is being implemented gradually.)
- In 2017, the age of eligibility for the Age Pension was further increased, from 65 to 67.

In addition to higher labour-force participation, demographic shifts increased the supply of labour by people over 54 — people over 54 made up about 20 per cent of the population in 1991 and about 27 per cent in 2019 (ABS 1991, table 11, 2019a, table 6).

Borland argued that the increase in labour supplied by older workers pushed young people into part-time work or out of the market entirely:⁸

From 1996 to 2008 there was sufficient positive growth in aggregate annual hours worked per person to allow strong growth in hours worked by persons aged 25 to 54 and 55 plus years, without a crowding-out impact on the young population. But from 2008 to 2019 there has been overall negative growth in annual hours worked per person. With hours worked still growing for the population aged 55 years plus, this has forced the adjustment onto prime-age and younger populations — with the largest contribution to the decline in hours coming from young. (Borland 2020a, p. 2)⁹

Other potential increases in aggregate labour supply

Increased immigration could have contributed to increased aggregate labour supply. However, migration has been found not to have had negative effects on the Australian labour market (Breunig, Deutscher and To 2016, p. 3). Increased numbers of overseas students did add to the labour force, but they made up between 2 and 2.4 per cent of labour hours for people aged 15-24 and 25-34 in 2016 (appendix C). Given that migrants also contribute to demand for goods and services, and therefore labour demand, it seems unlikely that migrants aggravated the imbalance between demand and supply.

Imbalance between labour supply and demand in the university graduate market

At the same time as the imbalance in the aggregate labour market, changes in the composition of the labour market may have also contributed to an imbalance. This study's evidence suggests that there was an oversupply of people with university degrees looking for jobs relative to the number of jobs that traditionally required those degrees.¹⁰

⁸ Recall that it was young people aged 15-24 who were not studying who saw large declines in full-time work, with a less-than-proportional rise in part-time work (chapter 3).

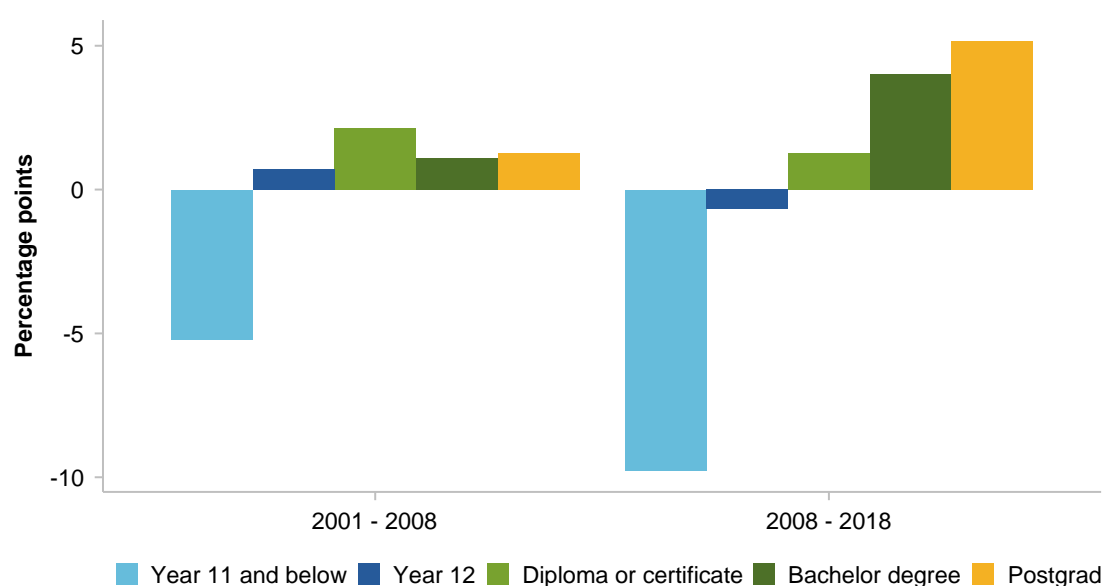
⁹ This note refers to an unpublished paper co-authored with Michael Coelli.

¹⁰ See section 'Adjustment by changing occupation', below.

The average education level of the Australian workforce has been steadily increasing for decades, as more young people have completed vocational education certificates, and university degrees. For example, the share of hours worked by people with a Bachelor or a Postgrad degree grew by 2.3 percentage points from 2001 to 2008 and faster after 2008 (figure 4.8).

In addition to the long-term increase in the education level of young Australians, there was an influx of university graduates following the ‘demand driven university’ policy. In 2010, the Australian government eased constraints on the number of university places available to domestic students. By 2017, when constraints were reinstated, the number of domestic students had increased by a third — from 577 000 in 2009 to 769 000 in 2017. This growth of about 3.7 per cent per year was almost twice as fast as the growth from 2001 to 2009 (PC 2019a, p. 23).

Figure 4.8 The education level of the workforce has increased
Change in the share of hours worked, by highest qualification, 2001–2018



Data source: Commission estimates based on HILDA data.

The effects of labour market imbalance

It is likely that the imbalance between labour supply and labour demand after 2008 increased competition in the labour market among young people looking for work, while having little effect on workers who had already secured full-time work.

Had the GFC led to a major recession, as it did in many other countries, firms would have retrenched workers as they adjusted to lower demand for their goods and services. However, during a period of weak growth, many firms do not face an urgent need to reduce their workforce — they might instead simply not expand. In this context, people looking for work (who are mostly young) compete for fewer positions, particularly if there are fewer retirements.

As Borland put it:

Our main contention is that the increasing gap between labour supply and employment following the GFC has had a disproportionate negative effect on the young. Why has this happened? It is all to do with the way available jobs are allocated between labour force participants.

At any point in time jobs are not simply rationed among age groups according to their shares in the labour force. Instead, older workers have an incumbency advantage in their existing jobs, compared to the younger population who are making the transition to employment. Hence, the older population has a first-mover advantage in taking up growth in total employment (via for example delaying retirement). Whereas the younger population are a residual claimant whose employment opportunities will only expand when aggregate employment growth exceeds the extra employment being taken by older population. (Borland 2020a, p. 2)

Some reasons for the ‘incumbency advantage’ include:

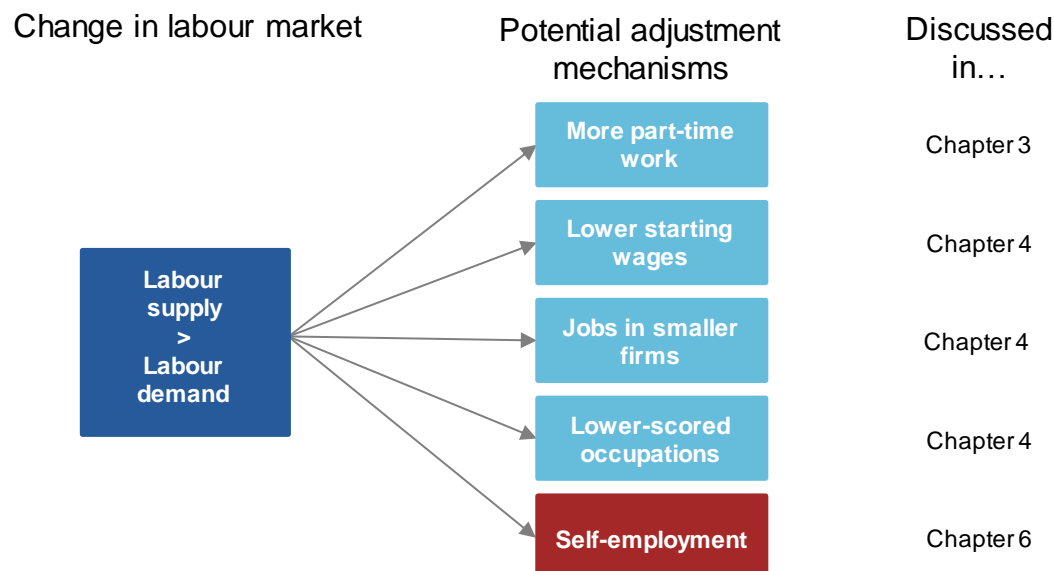
- the difference in the cost of keeping current workers versus hiring new workers
- the cost to morale of retrenching current workers to ‘make room’ for new workers
- the risk firms face when hiring new workers that they do not face when keeping current workers, such as hiring a worker without knowing their work ethic.

Either way, increased competition for fewer jobs might have prompted several types of adjustments (figure 4.9). It could be that the starting wage rates offered to new hires declined. Alternatively, young people might have found jobs in smaller firms, jobs in less attractive occupations, or jobs that were part-time or casual instead of full-time (chapter 3).

When competition in the labour market increases, firms are likely to offer lower entry wage rates to prospective new workers. Entry wages appear to be more closely related to the business cycle than current wage rates; a study of the German labour market found that entry wages were significantly lower during downturns (Hirsch, Jahn and Schnabel 2018, p. 691). Although the increased competitiveness of the labour market increases the bargaining power of firms, many firms may be reluctant to negotiate wage cuts with their existing workforce (which is one of the reasons behind the ‘sticky wages’ phenomenon). Kalb and Meekes (2019, p. 10) found evidence of nominal wage stickiness and a resistance to nominal wage cuts for workers employed for a year or more in Australia from 2002 to 2017.

Alternatively, some young workers might not have found work in their desired firm or occupation. Kalb and Meekes (2019, p. 20) found that young workers’ wages, once they had been hired, grew faster than those of other workers, even after 2008. This implies that young people’s slow average wage growth did not come from weak growth among those who were already employed — it must have come from low starting wages. Either firms were offering lower wage rates for the same jobs (lower starting wage rates), or young people found themselves working in different jobs with lower wage rates (jobs in smaller firms or in occupations that did not use their skills or qualifications). For example, a young law graduate unable to find an associate role in a prestigious law firm might accept an associate role in a smaller firm, or a role as a paralegal, or might continue to search while working part-time.

Figure 4.9 Adjustment mechanisms in response to an imbalance between labour demand and supply



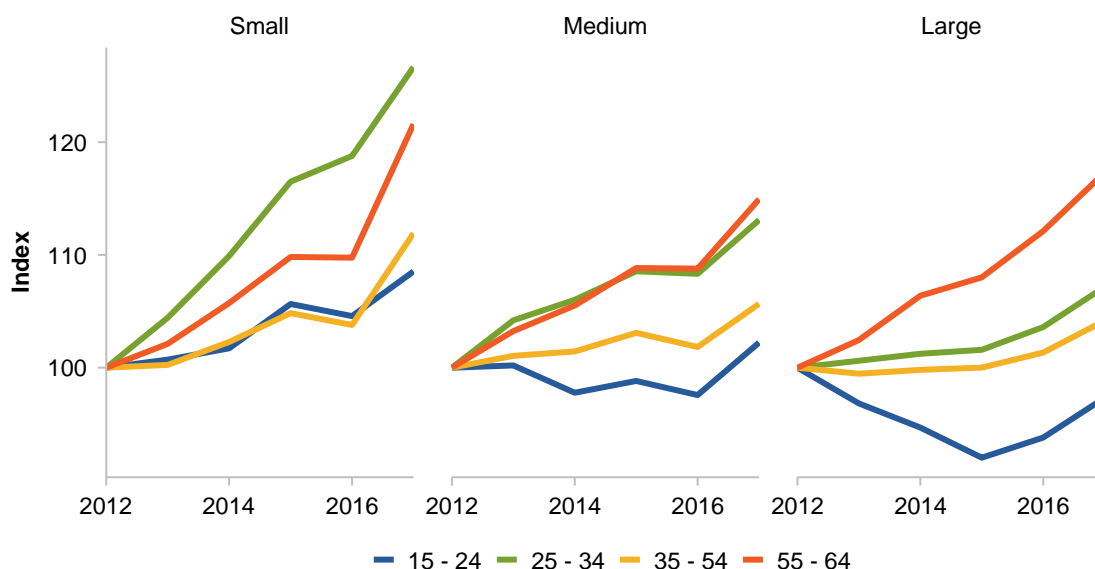
Young people who were not able to find work in the large firm of their choice were willing to consider smaller firms. Employment growth for young people came mainly from small firms after 2011-12, while growth for prime-aged workers came from all firm sizes (figure 4.10). Smaller firms tend to pay less than large firms (figure 4.11), and have less formally established pay scales, so they can more flexibly respond to a weak labour market by lowering wages and expanding employment. The lower wage rates at small firms contributed to lower wage rate growth.

Some young people were unable to find work in their desired occupation, even in smaller firms. They moved ‘down the jobs ladder’ and looked for work in other occupations (as discussed in the next section). This type of adjustment has been observed in other weak labour markets, for instance workers in the United Kingdom faced the same type of choices after the GFC (Haldane 2019, p. 2). It can have further implications: other young workers have been pushed even lower down the occupations ladder.

Why did this adjustment process not result in large-scale unemployment? Most likely because there was flexibility in the job market at the ‘bottom of the ladder’. Many occupations include roles that are casual or part-time, and many of those roles have more flexible wage rates and hours. Furthermore, some sectors — such as retail and hospitality — may have had more flexibility to adjust the number of roles created (and their hours).

Figure 4.10 Young people are increasingly employed by small firms

Growth in number of people employed, by firm size^a, 2012–2017

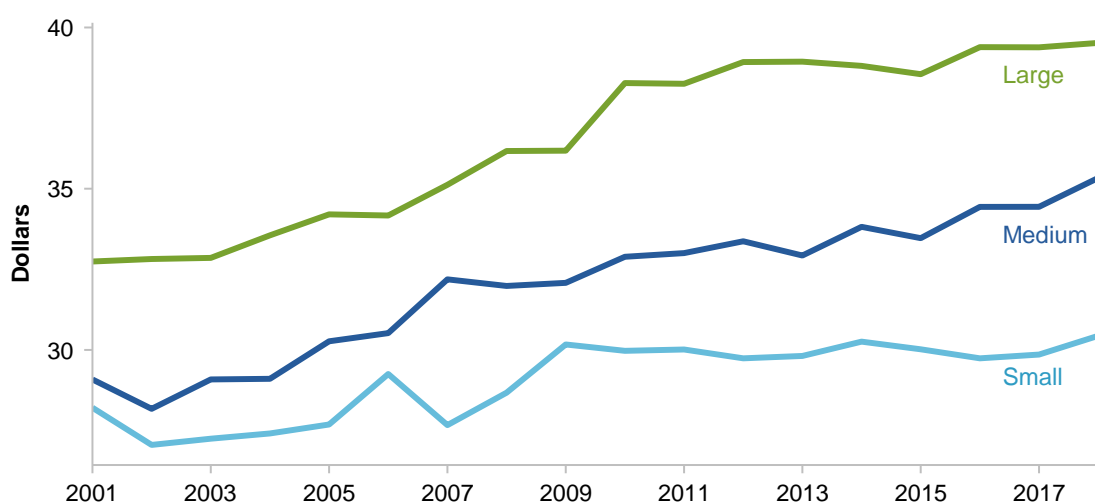


^a Here 'small' firms employ 1–19 people, 'medium' firms 20–199 people and 'large' firms 200 + people.

Data source: Commission estimates based on ABS (*Tablebuilder, Jobs in Australia*, Cat. no. 6160.0).

Figure 4.11 Wage rates are generally lower in small and medium firms

Average hourly wage rate by firm size^a, 2001–2018



^a Here 'small' firms employ 1–19 people, 'medium' firms 20–499 people and 'large' firms 500 + people.

Data source: Commission estimates based on HILDA data.

Many of the workers in part-time roles still aspired to full-time work, which explains the rise in underemployment after 2008 (chapter 3). However, this process increased long-term unemployment — it seems likely that some workers were pushed out of employment entirely

by the increased competition. (And some young people likely continued to search for jobs in their desired occupation or firms, remaining unemployed rather than moving down the ladder.)

Interestingly, while young people took work at small firms or in other occupations, they do not appear to have considered self-employment in greater numbers. The share of young people who earned business income declined steadily (chapter 6). The marketing graduate who could not find a job at a prestigious firm might have ended up in a smaller firm, or another occupation (as discussed below) but was no more likely to start their own business.

Adjustment by changing occupation

Did young people respond to the labour market imbalance through their occupational choices? To answer that question, this study uses an ‘occupational score’ to analyse links between changes in labour market conditions and occupations. The Australian Socioeconomic Index 2006 (AUSEI06) ‘scores’ occupations from 0 to 100 based on each occupation’s educational requirements and earning potential (McMillan, Beavis and Jones 2009)¹¹ (box 4.4). For example, medicine scores highly because its educational requirements and earnings are high.

Box 4.4 The AUSEI06 connects education with earning potential

The Australian Socioeconomic Index 2006 (AUSEI06) assigns a number (between 0 and 100) to the Australian and New Zealand Standard Classification of Occupations. The value assigned under the AUSEI06 reflects the average educational requirement and potential income for that occupation in 2006. The resulting scores can be ordered along an occupational ladder. The mapping between the two-digit Australian and New Zealand Standard Classification of Occupations and the AUSEI06 is presented in appendix C. The AUSEI06 variable is included in the HILDA dataset.

Occupations that were associated with many years of education and high earning potential in 2006 have a high score, while occupations that required few years of education and had low earning potential have a low score.

The index represents the educational requirements and potential income of an occupation in 2006, so changes in educational requirements or the potential income of occupations over the sample period are not represented in the occupational score. In other words, even if the young people in the dataset obtained more education for a given occupation in 2013 than in 2001, the occupation would have the same score in 2013 as in 2001.

Source: McMillan, Beavis and Jones (2009).

Holding the scoring *fixed*, this study looks at the occupational scores of young people from 2001 to 2018. No ranking fully reflects the preferences of any person; however, if average occupational scores declined for a generation of young people, it is likely that those young people had to accept less attractive occupations than the previous generation.

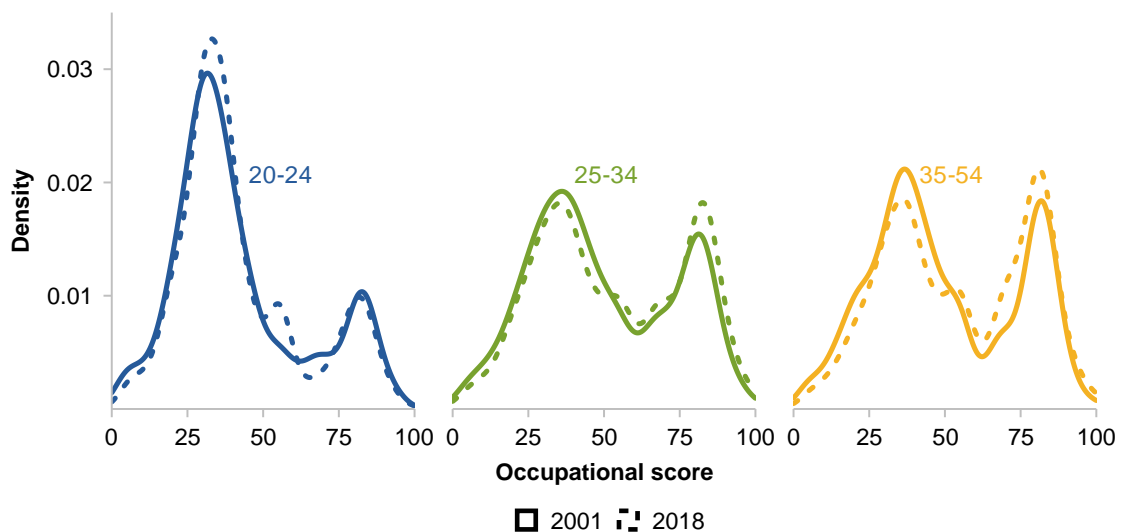
¹¹ The AUSEI06 is developed by the ANU and available as part of the HILDA releases. This study uses the measure as developed by the ANU.

How did the distribution of occupations change?

This section assesses changes in empirical probability density functions (PDF) to show how changes in education, among other factors, have led more people to work in higher- or lower-scored occupations. PDF are very similar to frequency tables, in that they provide a visual representation of the share of workers with a given occupational score.

The share of high-scored occupations grew for most age groups (figure 4.12). Workers aged 25-54 were more likely to be in higher-scored occupations in 2018 than in 2001. The picture is more nuanced for workers aged 20-24: they were more likely to be in mid-scored occupations than in low-scored occupations relative to 2001. (Relatively few workers aged 20-24 were in high-scored occupations in 2001, and even fewer were by 2018.) This study verifies the results of the PDF using the corresponding empirical cumulative distribution functions (ECDF) (appendix C).

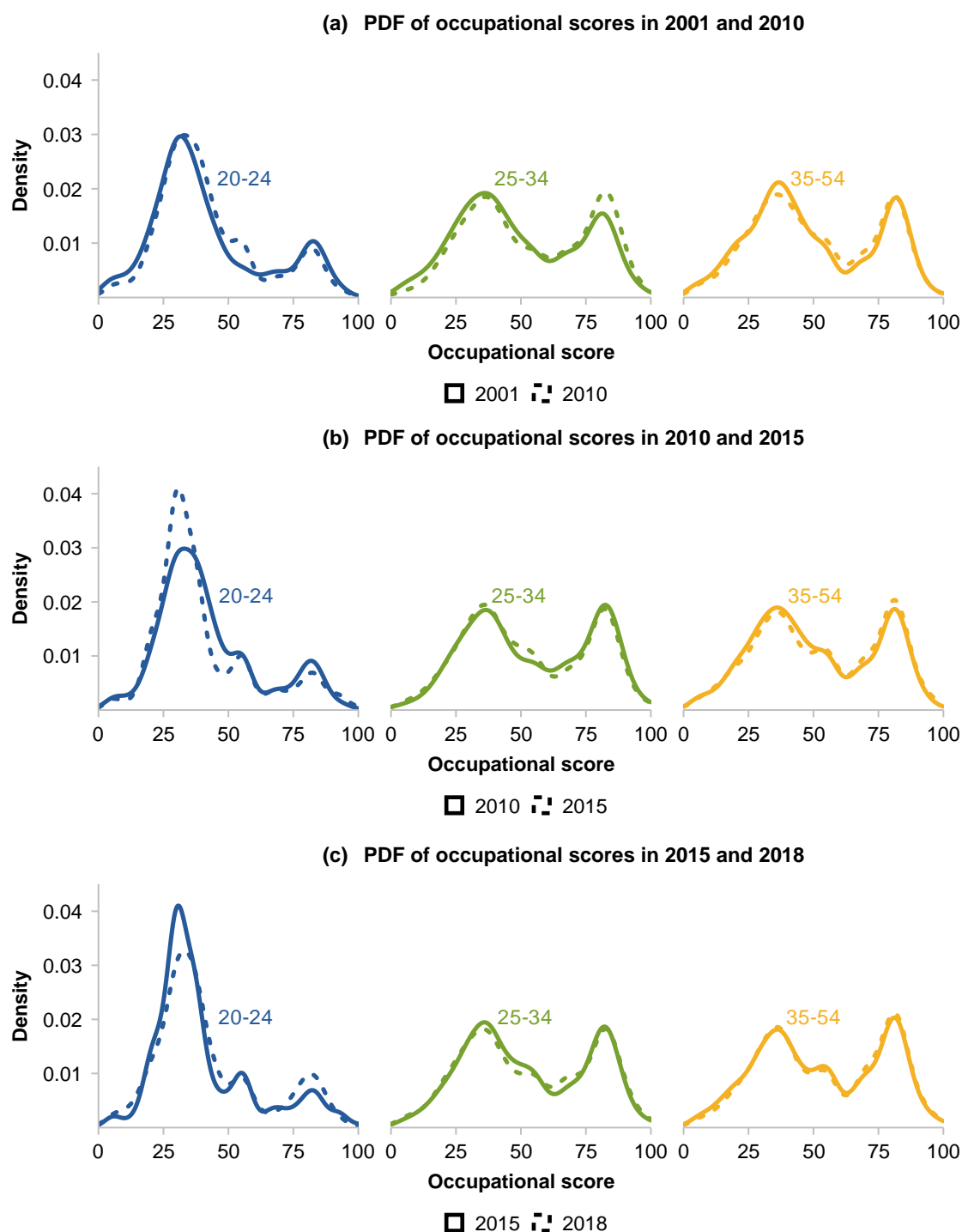
Figure 4.12 **Workers aged 25-54 were in higher-scored occupations in 2018**
PDF of occupational scores



Data source: Commission estimates based on HILDA data.

One nuance is that the weak labour market between 2010 and 2015, which reduced wage rate growth for all workers, reduced the likelihood of working in higher-scored occupations only for under 35s (figure 4.13). The movement into lower-scored occupations began earlier for workers aged 20-24, who had a low probability of being in high-scored occupations (with a score over 50) between 2001 and 2010, and then again between 2010 and 2015. The occupational scores for workers aged 25-34 worsened between 2010 and 2015. In contrast, the proportion of prime-aged workers in high-scored occupations increased in each period, suggesting that young people's occupational outcomes were more sensitive to market conditions while prime-aged workers' outcomes were less sensitive to market conditions.

Figure 4.13 Workers aged 20-34 were more likely to be in lower-scored occupations during the weak labour market in 2010–2015
PDF of occupational scores

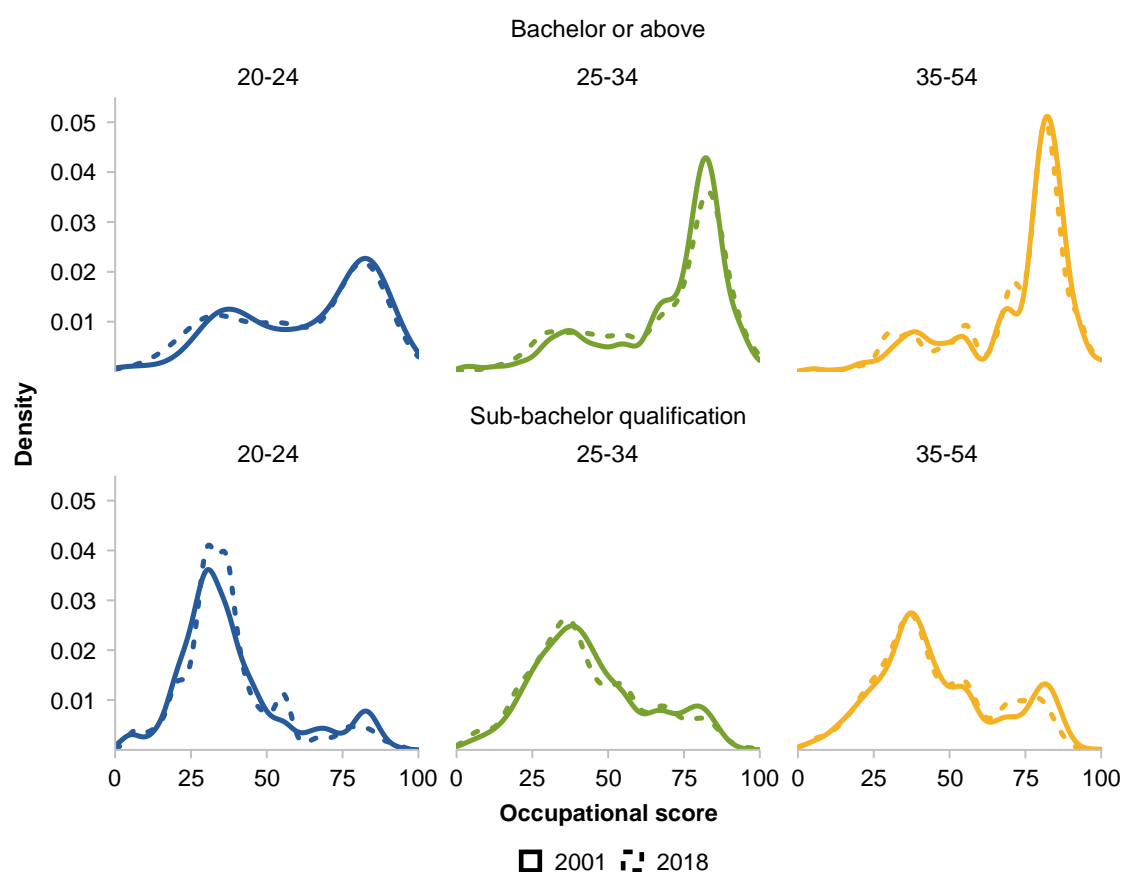


Data source: Commission estimates based on HILDA data.

This study found that the supply of university graduates increased. Returning to supply and demand analysis (box 4.3), if this increase in supply decreased the wage rates people would accept, one would also expect some increase in the equilibrium number of high-scored jobs (holding labour demand constant). And this is what is observed in figure 4.12, for the two older age groups. However, the probability that an individual worker who increased their qualifications obtained one of these high-scored jobs declined, particularly for young workers. Comparing workers with similar qualifications, the proportion of young workers in lower-scored occupations was higher in 2018 than in 2001 (figure 4.14).¹²

Figure 4.14 Graduates under 35 were more likely to be in lower-scored occupations in 2018

PDF of occupational scores by highest education level



Data source: Commission estimates based on HILDA data.

This evidence is consistent with an increase in the supply of people with university degrees that exceeded the growth in jobs that required those degrees. Given the increased supply of highly-educated workers was not absorbed by the labour market, a person looking for a

¹² The occupational score distribution by education level is not as ‘neat’ as the previous charts. In general, the ECDFs of 2018 have a higher proportion of people in lower-scored occupations than the ECDFs of 2001.

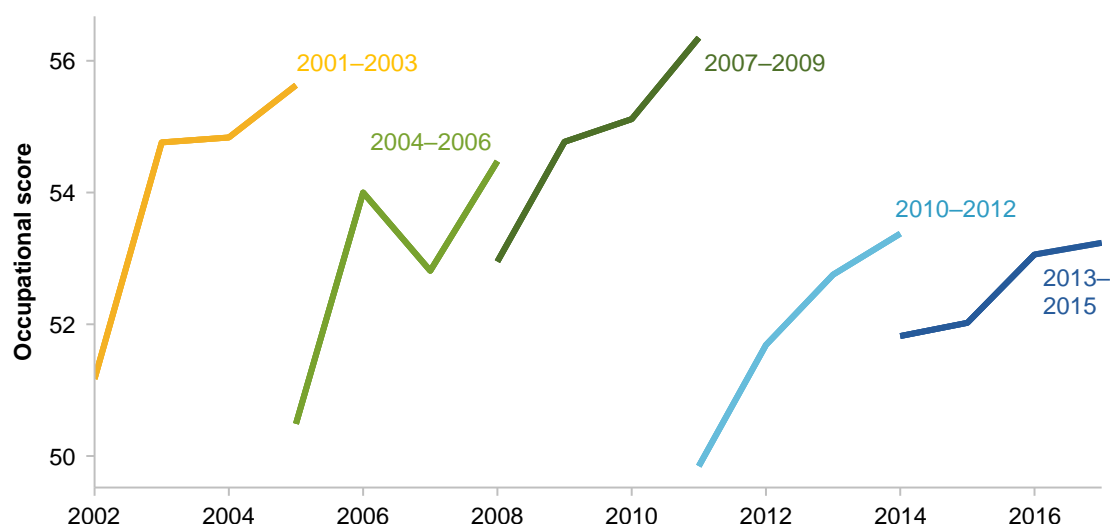
high-scored occupation in 2018 faced a more competitive labour market, and was more likely to have ended up in a lower-scored occupation than they would have been in 2001 (figure 4.14).

As workers move further and further down the ‘jobs ladder’, there is more competition in lower-scored occupations, which may explain why occupational scores have also declined for sub-Bachelor qualifications. Some workers then find themselves in part-time and casual work in the service sector, which accounts for some of these low-score occupations. The service sectors can absorb a significant number of workers because firms offering casual and part-time work in the service sector could respond most flexibly to changing labour market conditions by expanding employment and hours worked at lower wage rates.

The expansion of the service sector also allows young people to work a casual job while taking additional time to search for the right job for them. This could look like a shift ‘down the jobs ladder’ on a static distribution. There is evidence that Australian graduates took longer to find their first graduate job after 2008 (Pennington and Stanford 2019, p. 58).¹³ But that does not explain a decline in occupational score. Even after four years, university graduates are in lower-scored occupations than graduates were previously (figure 4.15).¹⁴

Figure 4.15 Occupational scores for graduates have not improved

Average occupational score in the first four years after graduation,^a by graduation cohort,^b 2002–2018



^a ‘Graduates’ includes both VET and university graduates. ^b A ‘graduate cohort’ includes all people who graduated between the specified years, for instance between 2001 and 2003 (the yellow cohort).

Data source: Commission estimates based on HILDA data.

¹³ The share of Bachelor’s degree graduates in full-time employment (as a percentage of those available for full-time hours) steadily increased from the late 1990s until 2008 and then fell to its lowest rate in 17 years in 2014 (Pennington and Stanford 2019, p. 58).

¹⁴ But the decline in graduates’ full-time employment is not necessarily long-lasting. As Pennington and Stanford (2019, p. 60) noted, ‘the full-time employment rates among graduates four months after graduation in 2015 was about 67 per cent; three years later in 2018, it was about 89 per cent for the same cohort’.

4.3 Other explanations for the wage puzzle

The remainder of this chapter outlines some alternative hypotheses that could also explain the difference in wage growth, including:

- technological improvements displacing mid-skilled workers
- declining educational quality (and therefore productivity) of young workers
- increasing importance of experienced and prime-aged workers.

While these explanations are possible, they cannot be formally tested in the context of this study.

Job polarisation

Job polarisation is a frequent explanation when wage rates decline for certain demographic groups, and particularly for certain skill groups. Job polarisation is the idea that middle-skill jobs are disappearing in favour of increasing shares of high- and low-skill jobs (Borland and Coelli 2016). The result is high wage rates for high-skill occupations, and increased employment in low-skill occupations. There is evidence in Australia of increasing demand for the most skill-intensive occupations over the long term (Wilkins and Wooden 2014, pp. 423-424), and a small decline in middle-income jobs at the end of the mining boom (Salvatori and Manfredi 2019, p. 17).

While the effects of job polarisation on different age groups have not been examined, there are reasons to suspect that polarisation would affect older workers more than younger workers. Young people are better able to respond to trends in labour demand, such as polarisation, by adjusting their studies towards areas of high demand. As such, job polarisation is unlikely to be a candidate explanation for the wage puzzle.

Decline in education quality

Another possible explanation for young workers' lower wage rates is that their skills are less valued by the labour market than previous generations' skills, due to a decline in the quality of their education.¹⁵ PISA test scores, which compare Australian high school students to their international counterparts, have been falling (ACER 2019). This may indicate that the quality of high school education has decreased over time, or that students absorb less material from their studies on average. It is also estimated that during the era of the 'demand-driven university' policy from 2010–2017, the additional students admitted to

¹⁵ There are many aspects to the quality of education. In the context of this study, it is meant as the way in which skills acquired in education fit with the needs of the labour market. This can be influenced by the quality of education provided by schools, the ability of students to absorb material from their studies, or the relevance of the material provided by the education system.

university had lower high school exam grades, which could mean a lower aptitude for study (PC 2019b, pp. 34-35).

If graduates are less skilled than before, their productivity could be lower than the productivity of older workers. This could mean that they are paid lower wage rates in the long term, but more research would be needed to confirm this hypothesis.

An increasing role for experience

A related hypothesis is that rapid technological change has left school and university curricula out of touch with current work requirements. Deloitte (2019, p. 32) contend that ‘there is also evidence of a lack of alignment between the skills that are learnt in the classroom and the skills that are demanded in the workplace’. One possible implication of this shift is that, in a rapidly changing environment, firms must offset the decrease in education quality with their own on-the-job training. In this setting, skills learned on the job may be more valuable than other models of learning because they are strongly linked to job requirements. (And self-employment before on-the-job training may not be a viable option.)

As on-the-job training becomes more important, experienced workers become more valuable because they are needed to train new employees. The wage rates of experienced workers could rise, even as new workers’ wage rates fall — new workers could be paid less because they are less productive until they have developed workplace skills.

Finally, it could also be that as the prime-aged group has increased its average education levels, those workers have become much more valuable. In an environment where young people have relatively more education than prime-aged workers but less experience, the young and prime-aged might be comparable. Over time, if education increases for both groups, the level of education held by young and prime-aged may converge. At that point, the young would be educated and the prime-aged would be educated *and* experienced. If this combination is highly valuable, the prime-aged have an advantage in the market.¹⁶

Concluding remarks

An imbalance between labour demand and labour supply leading to young people facing greater competition as job seekers while older workers benefit from the advantage of incumbency (section 4.2) is consistent with the divergence in wage rate growth observed in figure 4.2. The evidence in support of this is convincing. However, a possible decline in the market value of young people’s skills (section 4.3) cannot be discounted. It is possible that both influences play a role, but the complexity of the labour market makes it difficult to identify their respective weights in explaining the labour market outcomes.

¹⁶ However, if this study includes a term in the Heckman wage equation to measure whether the combination of education and experience is particularly valuable, the effect is not statistically significant for prime-aged workers. So this study does not find strong evidence to support this hypothesis.

In the long-run labour market equilibrium, workers tend to be paid the monetary value of their marginal productivity. Although factors could be pushing wage rates apart temporarily in different labour markets, eventually wages should converge (section 4.2). On the other hand, it could be that long-run factors are changing the relationship between young and prime-aged workers, pushing wage rates apart permanently (section 4.3).

Whether the explanation is as described by Borland (2020a) or Deloitte (2019, p. 32), it appears that the poor labour market outcomes for young people have manifested as slow wage rate growth rather than as an increase in unemployment. It is a promising sign that the Australian labour market is able to absorb young workers in the face of lower demand. It implies that young workers are showing some flexibility in the jobs they will accept, and that labour demand has some flexibility to create new jobs. However, some of that flexibility is in the availability of jobs in lower-scored occupations. For young people entering the labour force during a weak period, there could be long-term negative career effects from joining a smaller firm or a lower-scored occupation if they are unable to compensate by ‘climbing the ladder’ more quickly afterwards (de Fontenay et al. 2020). But it would be worse to face long-term unemployment, as many young people did in the recession of the 1990s.

5 The role of government transfers

Key points

- Government transfers account for a small share of young people's income, but they are the main source of income for a small number of young people.
- From 2001 to 2018, the proportion of people aged 15-19 who relied on transfers as their main source of income decreased. For people aged 20-29, reliance on transfers decreased in the early 2000s and increased following the global financial crisis; reliance remained steady throughout for people aged 30-34.
- From 2008 to 2018, transfer income per person decreased by 7.2 per cent per year for all people aged 15-19; there was a negligible increase in transfer income per person for all people aged 20-29; and transfer income per person decreased by 1.1 per cent per year for all people aged 30-34.
- The transfers that young people receive differ by their age. For people aged 15-24, transfer income is made up mostly of transfers for students, job seekers, and people with a disability. For people aged 25-34, transfer income is made up mostly of transfers for families with children.
- For 15 to 19 year olds, decreases in allowances made the largest contribution to the decrease in transfer income per person from 2008 to 2018. This is explained by changes to eligibility for Youth Allowance (student), which reduced the number of recipients.
- For 20 to 29 year olds, decreases in family payments offset increases in pension and allowance income from 2008 to 2018.
- For 30 to 34 year olds, decreases in family payments made the largest contribution to the decrease in transfer income per person from 2008 to 2018. Changes in eligibility for Family Tax Benefit reduced the number of recipients.
- There were no changes in the real value of allowances and family payments between 2002 and 2019. But pensions increased in real value which helped offset the decrease in transfer income per person. This is because pensions are indexed to wage rates.
- For young people for whom income support is the majority of their income, average real income per allowance recipient and per parenting payment recipient remained relatively constant between 2008 and 2018, but average real pension income increased.

Government transfers constitute a small part of young people's incomes. In 2018, for six million young people, transfers accounted for an average of 2.5 per cent of income, but for another 850 000 — 12 per cent of young people — transfers were their primary source of income. The Australian transfer system is reputed to be well targeted (OECD 2014, p. 5) and plays an important role in reducing inequality (PC 2018, p. 53).

This chapter investigates the role of transfers in the growth of incomes after 2001. It provides information about the Australian transfer system as it pertains to young people, including

which payments they were eligible for and which were most commonly received (section 5.1). It then: decomposes transfer income into components to highlight which payments were important for young people's income and income growth between 2008 and 2018 (section 5.2); looks at how changes in eligibility (section 5.3) and indexation (section 5.4) contributed to changes in young people's transfer income (box 5.1); and shows the changes in the average income of young people who received an income support payment (section 5.5).

Box 5.1 The link between transfer income and income growth

Changes in transfer income affect the composition of young people's average income. Real total transfer income is determined by the number of people receiving transfers and the real payment rate that each person receives.

- Changes in eligibility affect the contribution of transfers to the composition of income per person. For example, a policy that tightens eligibility decreases the number of recipients. The contribution of transfer income to total income decreases, even if payment rates do not decrease.
- Changes to the way payment rates are indexed affect the real value of payments. For example, payments indexed to wages, rather than prices, typically increased in real value over time and contributed to an increase in real total transfer income.

5.1 The Australian transfer system and young people

Transfer system overview

Australia's transfer system can be split into income support payments, family payments, other payments, supplements, bonuses, and in-kind benefits (box 5.2).

Income support payments are intended to provide a basic, acceptable standard of living for people who are unable to fully support themselves (ABS 2010, p. 17). These payments are generally targeted towards people with a disability and their carers, full-time students, unemployed people, and low-income families who are raising children (mainly single parent families). Income support payments are based on categories of eligibility and are income and assets tested, while some are also activity tested. A person can only receive one income support payment at a time, even if they meet the criteria for others.

Within the category of income support payments, there are:

- pensions, which provide long-term assistance (for disability, for example)
- allowances, which provide temporary assistance at a lower rate
- parenting payments, which provide assistance to parents when a child is young.

All other transfers are designed to complement other income sources (transfer or private income), and are not targeted as narrowly as income support payments. For example, Family Tax Benefit can be paid alongside an income support payment.

Box 5.2 **Types of transfers**

Income support payments are classified into pensions and allowances.

- Pensions: Age Pension, Disability Support Pension, Carer Payment, Parenting Payment Single, Bereavement Allowance, Service Pension, Wife Pension, and Widow B Pension.
- Allowances: Newstart Allowance^a, Parenting Payment Partnered, Youth Allowance (job seeker, apprentice, student), Austudy, ABSTUDY (living allowance), Mature Age Allowance, Sickness Allowance, Widow Allowance, Special Benefit, and Partner Allowance.

In this study, Parenting Payment Single and Parenting Payment Partnered are separated from allowances and pensions and identified as a separate category: 'parenting payments'.

Non-income support payments include:

- family payments: Family Tax Benefit Part A and Part B, and the maternity payment (the transfer paid upon the birth or adoption of a newborn; the name and amount of support has changed over time, but it is most commonly known as the Baby Bonus)
- other payments: Carer Allowance, ABSTUDY (non-living allowance), and Paid Parental Leave.

There are also a range of supplementary payments, bonus payments, and concession cards available (these are typically received as part of a payment listed above).

- Supplements: Rent Assistance, Energy Supplement, Pension Supplement, Single Income Family Supplement, Mobility Allowance, Pharmaceutical Allowance, Remote Area Allowance, Telephone Allowance, and Carers Supplement.
- Bonus payments: 2008-09 Stimulus payments, Clean Energy Advance Payments, and Schoolkids Bonus.
- Concession cards: Pensioner Card, Health Care Card, Seniors Health Card, and Low Income Health Care Card.

^a As of March 2020, JobSeeker Payment replaced Newstart Allowance, Sickness Allowance, Wife Pension, Partner Allowance, Bereavement Allowance, Widow B Pension, and Widow Allowance.

Sources: DHS (2019); Harmer (2008); Wilkins (2014).

Transfers young people receive

To receive a payment, a person must meet all relevant eligibility criteria, including means and activity tests. Some payments are also restricted by age (table 5.1). For example, Youth Allowance (student) is restricted to people aged 16-24; this payment is therefore irrelevant to people aged 25-34 as they are ineligible.

Table 5.1 Main payments young people are eligible for

Eligibility criteria for July to September 2019^a

<i>Payment</i>	<i>Main eligibility criteria</i>	<i>Age eligibility</i>
Pensions		
Carer Payment	Provide constant care for someone with a severe disability/illness or who is frail/aged	none
Disability Support Pension	Have a permanent diagnosed disability OR have attended program support and be unable to work for >15hr/week for the next 2 years	16 to Age Pension age
Allowances		
ABSTUDY (living allowance)	Be a full-time student or apprentice of Aboriginal or Torres Strait Islander descent	none
Austudy	Be a full-time student or apprentice	25+
Newstart Allowance	Be looking for paid work	22 to Age Pension age
Youth Allowance (student)	Be a full-time student or apprentice	18-24 for students ^b 16-24 for apprentices
Youth Allowance (job seeker)	Be looking for paid work	16-21
Parenting payments		
Parenting Payment Partnered	Be the primary carer of a child aged under 6	none
Parenting Payment Single	Be the primary carer of a child aged under 8	none
Family payments		
Family Tax Benefit Part A	Care for a dependent child aged 0-15 OR aged 16-19 and who is studying full-time	none
Family Tax Benefit Part B	Be a member of a couple, with one main income, caring for a dependent child aged <13 OR be a single parent/carer caring for a child aged <18 (ages 16-18 must be studying)	none
Other payments		
ABSTUDY (non-living allowance)	Be a full-time student or apprentice of Aboriginal or Torres Strait Islander descent	none
Carer Allowance	Provide additional daily care for someone with a severe disability/illness or who is frail/aged	none
Paid Parental Leave	Be the primary carer of a newborn or recently adopted child	none
Supplements		
Rent Assistance	Receive certain income support payments OR receive above the base rate of FTB-A, AND pay rent above a threshold	none

^a Income, asset, and activity test criteria can be found in DHS (2019). ^b Students aged 16-17 may be eligible if they are independent or have completed Year 12 or equivalent.

Source: DHS (2019).

About 12 per cent of all young people (nearly 841 000) received an income support payment in June 2019 (table 5.2). Among income support payments, parenting payments had the highest number of recipients, followed by Newstart Allowance and Youth Allowance.

Among the other payments, Family Tax Benefit (both Part A and B) had the highest number of recipients. Many transfer recipients also received the Rent Assistance supplement.

The proportion of young people receiving transfers decreased between 2002 and 2019 (table 5.2). During this period, the population grew and the number of transfer recipients declined, especially for parenting payments, Newstart Allowance, Youth Allowance (student), and Family Tax Benefit.

Table 5.2 Main payments received by young people
Recipients aged 15-34, 30 June^a

<i>Payment</i>	<i>Percentage of all people aged 15-34</i>			<i>Number in 2019</i>
	<i>2002</i>	<i>2008</i>	<i>2019</i>	
Parenting payments	5.5	4.2	2.7	193 101
Newstart Allowance	4.7	2.6	2.7	192 779
Youth Allowance (student)	5.7	4.3	2.6	180 917
Disability Support Pension	2.0	2.0	1.8	123 983
Youth Allowance (job seeker)	1.6	1.1	1.2	82 770
Carer Payment	0.2	0.2	0.5	37 386
Austudy	0.5	0.3	0.3	22 422
ABSTUDY (living allowance)	0.2	0.1	0.1	7 589
Income support total	20.3	14.8	11.9	840 947
Family Tax Benefit Part A	13.0	10.3	6.6	464 937
Family Tax Benefit Part B	9.9	9.0	5.9	413 667
Carer Allowance	0.9	0.8	0.9	64 146
ABSTUDY (non-living allowance)	0.6	0.4	0.3	21 632
Rent Assistance	7.3	5.8	4.9	349 315

^a Data are collected as close to June 30 as possible. A small number of people aged 14 and under receive payments, which introduces non-material errors in totals. Sickness Allowance and Sickness Benefit were excluded because historical data are unavailable, and <0.05 per cent of young people received either payment in June 2019 (DSS 2019). Eligibility for Youth Allowance, Austudy, and Newstart Allowance is age dependent; thus, the calculated percentage of young people receiving these payments is not truly representative of the coverage rate. People who receive Family Tax Benefit Part A and Part B are included in both totals. A small share of people receive either Part A or Part B.

Sources: ABS (*Australian Demographic Statistics*, Sep 2019, Cat. no. 3101.0); unpublished Department of Social Services (DSS) data.

The payments people receive change as they move through life (table 5.3 and figure 5.1). People aged 15-24 mostly receive payments associated with studying or looking for work (that is, allowances). People aged 25-54 receive payments related to caring for children or looking for work. People nearing retirement receive payments related to disability, looking for work, or caring for another person. Retirees mostly receive the Age Pension. In contrast, the coverage of Rent Assistance extends to all age groups because it is a supplement.

Table 5.3 Top five payments received by age group, 30 June 2019

Proportion of the age group receiving the payment in parentheses^{a,b}

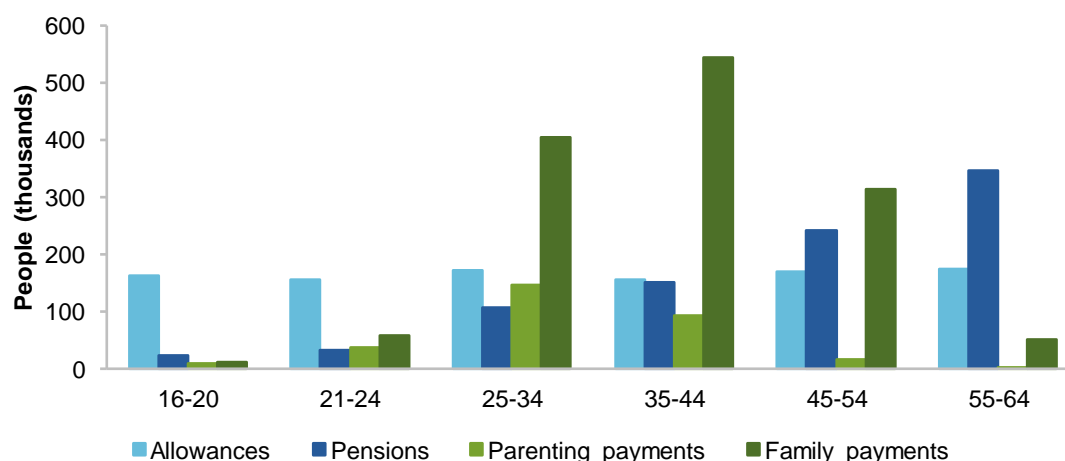
	16-20	21-24	25-34	35-54	55-64	65+
1	Youth Allowance (student) (6.0%)	Youth Allowance (student) (5.5%)	Family Tax Benefit Part A (10%)	Family Tax Benefit Part A (13%)	Disability Support Pension (9.1%)	Age Pension (63%)
2	Youth Allowance (job seeker) (4.2%)	Family Tax Benefit Part A (4%)	Family Tax Benefit Part B (9.1%)	Family Tax Benefit Part B (9.8%)	Newstart Allowance (5.9%)	Carer Allowance (4.5%)
3	Disability Support Pension (1.3%)	Newstart Allowance (3.9%)	Newstart Allowance (3.6%)	Newstart Allowance (4.7%)	Carer Allowance (4.3%)	Disability Support Pension (1.9%)
4	Family Tax Benefit Part A (0.8%)	Family Tax Benefit Part B (3.8%)	Parenting Payment Single (2.9%)	Disability Support Pension (4.2%)	Carer Payment (2.7%)	Carer Payment (1.2%)
5	Family Tax Benefit Part B (0.8%)	Parenting Payment Single (2.0%)	Disability Support Pension (2.0%)	Carer Allowance (3.8%)	Family Tax Benefit Part A (1.7%)	Family Tax Benefit Part A (0.3%)

^a Data collected as close to June 30 as possible. ^b Light blue: allowances; dark blue: pensions; light green: parenting payments; dark green: family payments; purple: Carer Allowance.

Source: Unpublished DSS data.

Figure 5.1 Main transfer type received by each age group

Number of recipients, 30 June 2019^a



^a Data are collected as close to June 30 as possible. People aged 65+ are excluded because they mainly receive a pension (that is, the Age Pension).

Data source: Unpublished DSS data.

5.2 Contribution of transfers to young people's income and income growth

Reliance on transfers

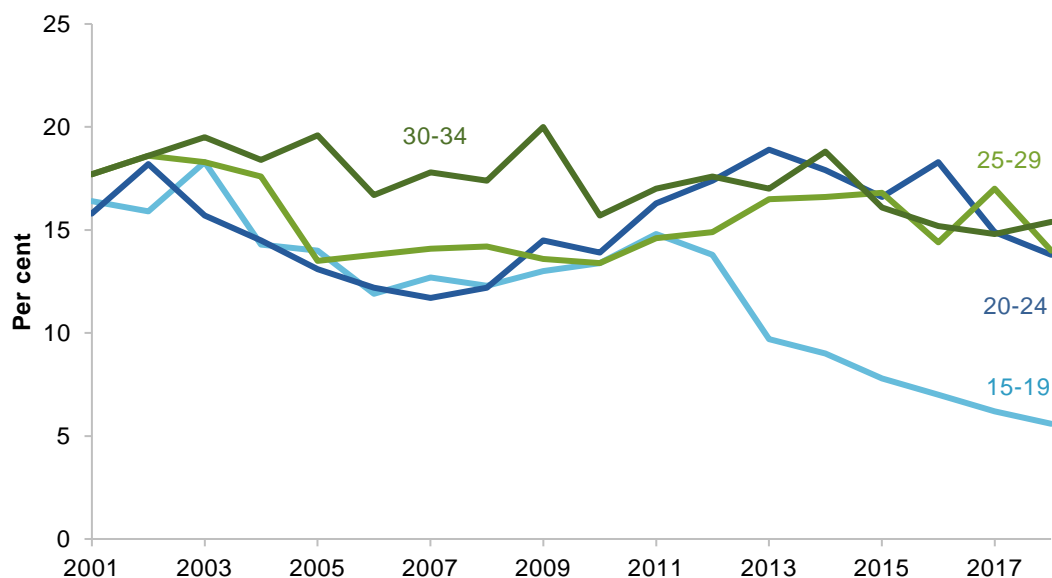
Transfers make up a small proportion of income for young people relative to labour income (chapter 2). In 2018, transfers accounted for 8.5 per cent of income for people aged 15-24 and 6.7 per cent of income for people aged 25-34.

There are groups of young people, however, who rely on transfers as their primary source of income. For example, in 2018, transfer income accounted for 59 per cent of yearly income for single parents, more than 56 per cent of yearly income for the long-term unemployed, and more than 53 per cent of yearly income for people not in the labour force.

Between 2001 and 2018, the percentage of young people reliant on transfers as their main source of income trended downwards, although the global financial crisis disrupted the trend for most age groups (figure 5.2). The largest decrease in reliance on transfers occurred for people aged 15-19: the proportion deriving more than half their income from transfers decreased from about 16 per cent in 2001 to less than 6 per cent by 2018.

Figure 5.2 **Reliance on transfers decreased, especially for people aged 15-19**

Percentage of young people relying on transfers, 2001–2018^a



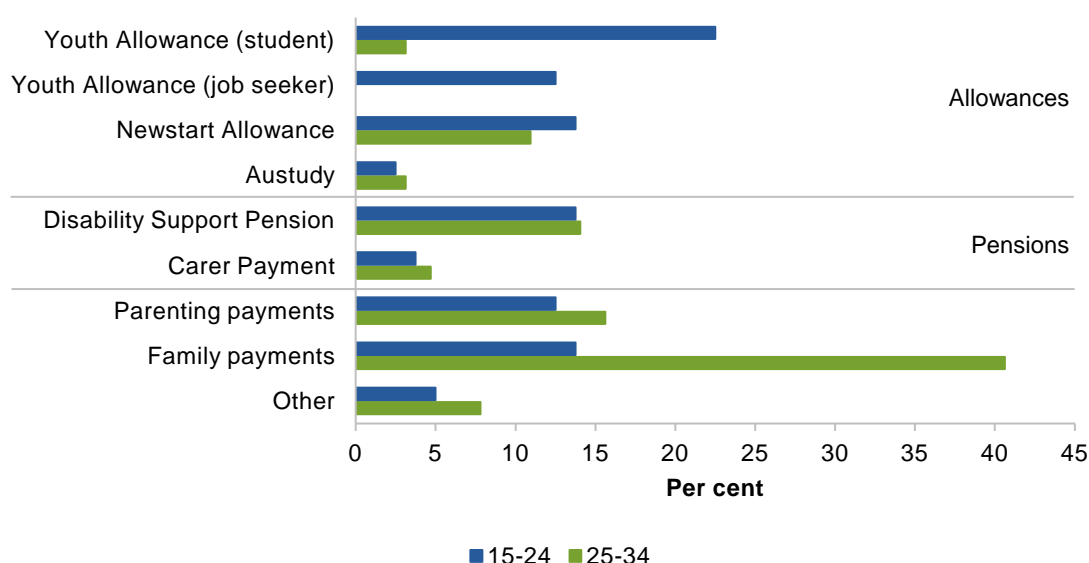
^a Reliance is defined as having more than 50 per cent of income sourced from transfers.

Data source: Commission estimates based on HILDA data.

Which transfers contribute most to young people's incomes?

The main transfer types and payments that contribute to transfer income differ across age groups (figure 5.3). Payments to 15 to 24 year olds are dominated by allowances (51 per cent), primarily Youth Allowance (student). Payments to 25 to 34 year olds are dominated by family payments (41 per cent).

Figure 5.3 Components of transfer income for young people
Percentage of transfer income sourced from payments, 2018^a



^a Rent Assistance is a supplement that is paid and reported as part of another payment, therefore it cannot be separated out. 'Other' includes Carer Allowance, Paid Parental Leave, and other regular public benefits (scholarships). A person is eligible for Youth Allowance (job seeker) until the age of 21.

Data source: Commission estimates based on HILDA data.

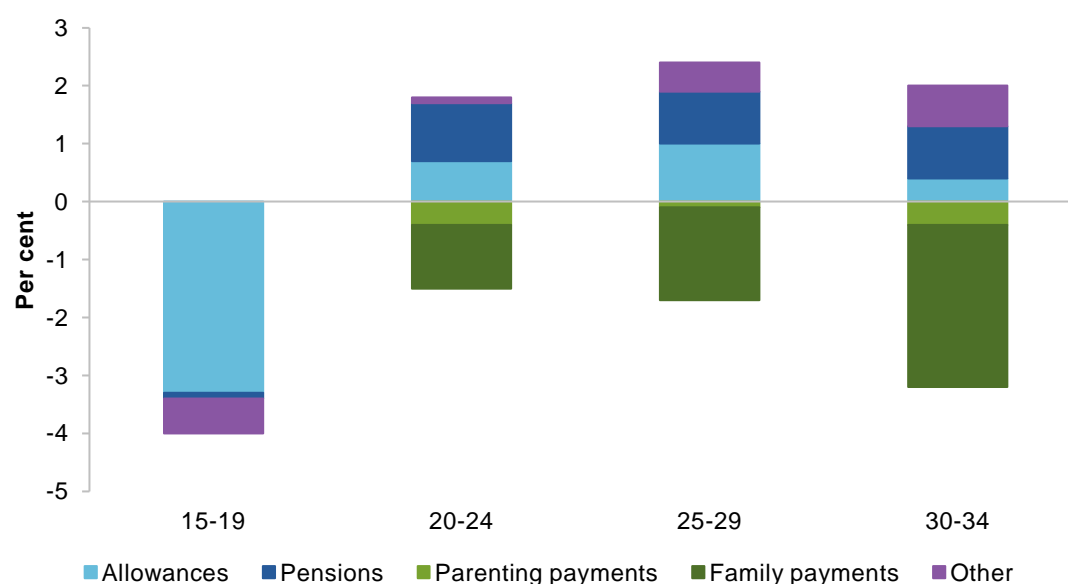
Which transfers contribute most to young people's income growth?

Changes in transfer income explained a small proportion of the decrease in income per person from 2008 to 2018 (chapter 2).

- For people aged 15-19, transfer income decreased by an average of 7.2 per cent per year and this decrease explains a third of the decrease in income per person.
- For people aged 20-29, transfer income increased by under 1.0 per cent per year and this increase slightly offset the decrease in income per person.
- For people aged 30-34, transfer income decreased by an average of 1.1 per cent per year and this decrease explains a tenth of the decrease in income per person.

Decomposing the 2008 to 2018 change sheds light on which transfer types contributed to the change in transfer income (figure 5.4). For people aged 15-19, decreases in allowance income made the largest contribution to the decrease in transfer income. For people aged 20-34, decreases in family payment income made the largest contribution to the decrease in transfer income. These decreases were offset by increases in allowance and pension income for people aged 20-29. For people aged 30-34, the decrease in family payment income was not completely offset by increases in allowance and pension income. For people aged 20-34, income from parenting payments also decreased.

Figure 5.4 Contribution to changes in transfer income
Average annual growth in transfer income by component, 2008–2018^a



^a Rent Assistance is a supplement that is paid and reported as part of another payment, therefore it cannot be separated out. 'Other' includes Carer Allowance, Paid Parental Leave, and other regular public benefits (scholarships). For people aged 15-19, the contributions of family payments and parenting payments are not shown because the number of recipients in the HILDA data is small — this accounted for 3.2 percentage points of the 7.2 per cent decrease in transfers. Results for pensions should be interpreted with care given the small number of young people recorded in HILDA as receiving a pension.

Data source: Commission estimates based on HILDA data.

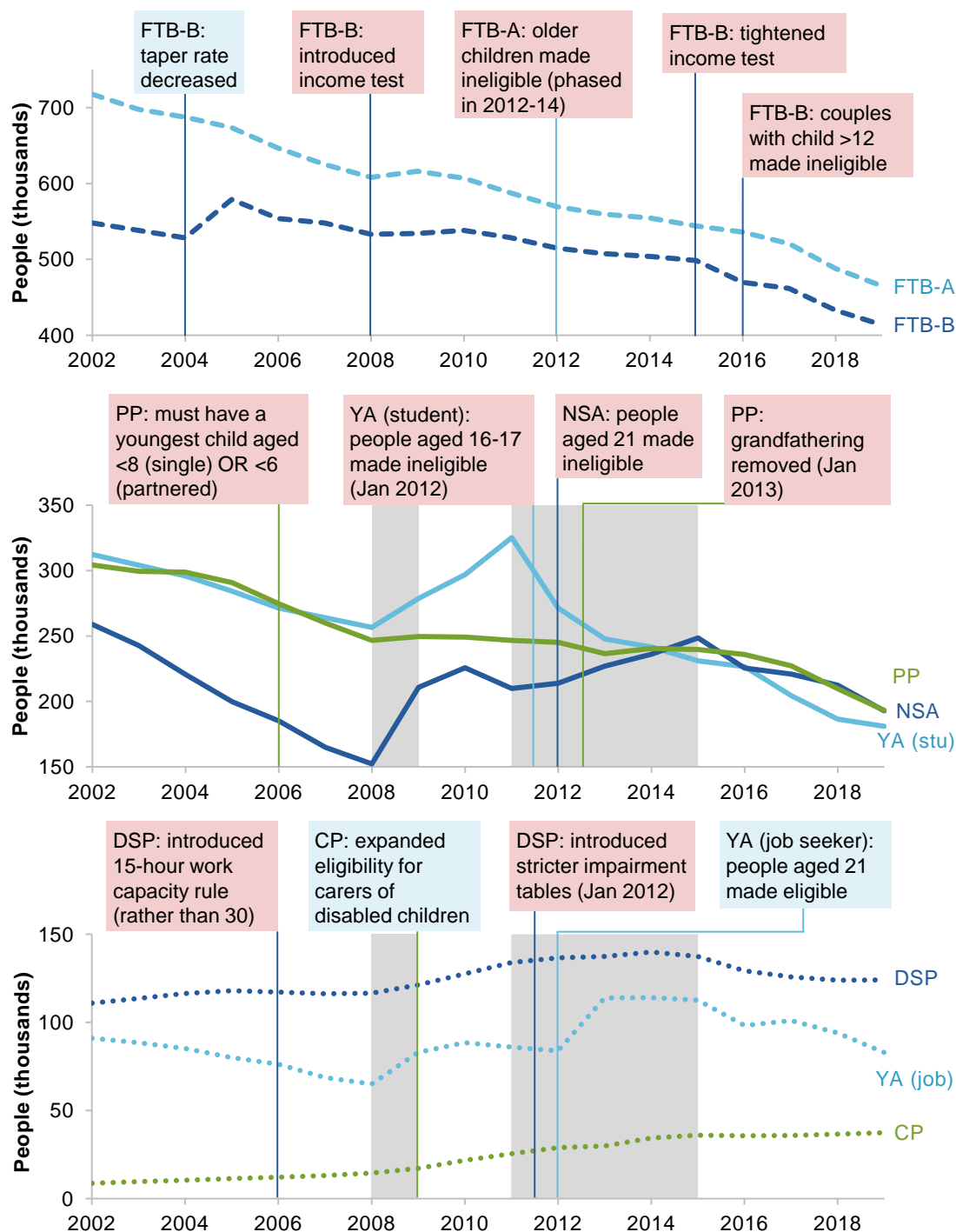
5.3 Changes to transfer eligibility

This section focuses on changes to eligibility for payments that many young people receive or that are large sources of transfer income for young people.

Figure 5.5 presents a timeline of the major policy changes to eligibility that affected the number of young recipients between 2002 and 2019. With many policy changes tightening eligibility (identified in red boxes), the number of recipients declined for many payments.

Figure 5.5 **Major changes to eligibility that affected recipient numbers**

Number of recipients aged 15-34, 30 June 2002–2019^{a,b,c,d}



^a Data are collected as close to June 30 as possible. ^b Acronyms: Family Tax Benefit Part A (FTB-A) and Part B (FTB-B); Youth Allowance (YA); Newstart Allowance (NSA); Parenting payments (PP); Disability Support Pension (DSP); and Carer Payment (CP). ^c Red boxes reflect tightening eligibility, blue boxes reflect expanding eligibility. A complete list of eligibility changes for each transfer are in appendix D. ^d Shaded areas represent periods in which the unemployment rate increased compared to June of the previous year.

Data sources: ABS (*Labour Force Statistics*, Nov 2019, Cat. no. 6202.0); unpublished DSS data.

Students

The number of Youth Allowance (student) recipients aged 15-20 decreased by 60 per cent between 2002 and 2019. The GFC contributed to an increase in the number of recipients from 2008 to 2010, consistent with young people studying more rather than entering an uncertain job market. That said, the decrease in the number of recipients from 2011 to 2013 was a result of making students aged 16-17 ineligible for the allowance (figure 5.5). For these students, FTB-A became their main form of support, but this was paid to parents rather than the students themselves.

Changes in the eligibility for Youth Allowance (student) are important for explaining the decrease in allowance income. For people aged 15-19, decreases in allowance income made the largest contribution to the decrease in transfer income per person from 2008 to 2018 (figure 5.4). The tightening in eligibility and downwards trend in the number of recipients contributed to the decrease in transfer income per person.

Making students aged 16-17 ineligible for Youth Allowance also removed their access to Health Care Cards, Low Income Cards, and in some cases Pensioner Concession Cards, which reduced their access to in-kind benefits.

Job seekers

Year-on-year changes in the number of young recipients of Youth Allowance (job seeker) and Newstart Allowance largely followed changes in the unemployment rate (figure 5.5). For example, there was a decrease in the number of recipients during the 2002 to 2008 economic boom, a steep rise from 2008 to 2009 as a result of the GFC, and a steady increase from 2011 to 2015 coinciding with increases in the unemployment rate (grey area in figure 5.5). The decrease in the number of recipients between 2015 and 2019 was due to falling unemployment rates.

In 2012, Youth Allowance (job seeker) was extended to job seekers aged 21 (previously 16 to 20), while the age eligibility for Newstart Allowance was increased to 22 (previously 21 to Age Pension age). This policy contributed to an increase in the number of Youth Allowance (job seeker) recipients. Job seekers aged 21 now faced stricter eligibility criteria (that is, a parental income test) and a lower payment rate. For example, the fortnightly Youth Allowance (job seeker) payment in 2012 for a single person aged 18-21 with no children was \$265 if living at home and \$402.70 if living away from home, compared with \$489.70 for Newstart Allowance (in 2012 prices). This policy likely reduced the number of job seekers aged 21 who could apply for any payment, and reduced the payment rate when they received one.

Poorer economic conditions after 2008 help to explain the increase in allowance income for people aged 20-34 (figure 5.4). The increase in the number of Youth Allowance (job seeker) and Newstart Allowance recipients that occurred after the GFC contributed to the increase

in allowance income between 2008 and 2018. The increase in the number of recipients cancelled out any decrease in allowance income resulting from changes to age eligibility.

Families with children

Families with children may be eligible for Family Tax Benefit (FTB) and parenting payments. Using administrative data, the Australian Institute of Health and Welfare (2019b, pp. 160–161) reported that 21 per cent of FTB recipients were also receiving parenting payments (which are income support payments) as at June 2018.

Family Tax Benefit

FTB is considered a family payment, but is paid to one parent only. There are two parts to FTB. FTB-A is a payment based on the number of eligible children, while FTB-B is a payment for families with at least one eligible child, independent of the number of children. Families may be eligible for: (i) only Part A, (ii) only Part B, or (iii) both parts jointly depending on the ages of their children and their income levels. One parent is nominated as the recipient and collects payments on behalf of the family unit. The total number of recipients over time is shown in figure 5.5.

FTB-B was more generous and available to more families in the early 2000s, despite the decreasing trend in the number of recipients. In 2004, the taper rate for FTB-B was reduced from 30 to 20 cents, meaning that for every dollar of income earned above a threshold, FTB-B was reduced by 20 cents instead of 30 cents. The reduction in the taper rate increased the payment amounts. The reduction also expanded eligibility by increasing the implied income limit: that is, families could earn more income before their FTB-B payment reduced to \$0. As a result, the number of FTB-B recipients increased (figure 5.5).

Changes to the age eligibility of children contributed to the steady decline in the number of FTB recipients. FTB-A was originally available to families with dependent children aged under 22 or dependent full-time students aged 22–24. By 2014, FTB-A was available to families with children aged up to 15 or dependent full-time students aged 16–19. As a result, Whiteford (2017, fig. 9) estimated that the coverage rate (the proportion of all children for whom a parent collects an FTB-A payment) decreased from about 70–80 per cent in 2001 to 50–60 per cent in 2015. FTB-B was originally payable to any family in which the youngest child was aged under 16 or a secondary student aged 16–18. From 2016, couples could only receive FTB-B if their youngest child was under 13.

Eligibility for FTB-B was tightened to target families who needed it most. In 2008, families whose primary earner had a yearly adjusted taxable income of \$150 000 or above were made ineligible for FTB-B; in 2015, this limit was reduced to \$100 000. These policies reduced the number of young families that received FTB-B from about 533 000 in 2008 to about 470 000 in 2016.

Tightened eligibility criteria for FTB are important for explaining the decrease in family payment income between 2008 and 2018 (figure 5.4). FTB has a large number of recipients aged 25-34, and is the largest source of transfer income for this age group (figure 5.3). The decrease in the number of FTB recipients reduced family payment income and transfer income per person for people aged 20-34. The decrease in family payment income was largest for people aged 30-34 because these parents likely had older children and higher incomes than younger parents, making more of them ineligible following policy changes.¹⁷

Parenting payments

After 2002, there was a large decrease in the number of young people receiving parenting payments — Parenting Payment Single and Parenting Payment Partnered (figure 5.5). Between 2002 and 2019, the number of recipients decreased by:

- 58 per cent among people aged 15-20
- 31 per cent among people aged 21-24
- 25 per cent among people aged 25-29
- 44 per cent among people aged 30-34.

Policy changes contributed to the decrease.

- In 2006, eligibility for parenting payments was restricted to single parents whose youngest child was aged less than eight or to partnered parents whose youngest child was aged less than six (previously the age cut-off was 16). This rule applied to new applicants, while existing applicants were exempted (that is, their access was grandfathered). In addition, participation requirements were strengthened. These policies contributed to a decrease in the number of recipients aged 30-34, but had little effect on younger parents who likely had younger children.
- Recipients whose access to parenting payments was grandfathered in the 2006 restriction lost access to them in 2013. This mostly affected recipients aged 35 and over, but there was also a slight decrease in the number of recipients aged 30-34 by June of 2013.

Tightening eligibility for parenting payments contributed to the decrease in parenting payment income for 30 to 34 year olds between 2008 and 2018 (figure 5.4).

The decline in the number of people aged 15-29 receiving parenting payments may reflect declining fertility rates among younger women (ABS 2018a).

¹⁷ The decline in the number of FTB-A recipients masks the extent of the decrease in the amount of FTB-A payments between 2002 and 2019. A parent is counted as a recipient if they had at least one child for which they collected FTB-A for. Making older children ineligible reduced the number of payments without reducing the number of recipients in the same way. A parent with a younger child on account of whom she was collecting an FTB-A payment was still counted as a recipient even though she no longer collected a payment for her older child.

People with a disability and their carers

The number of young Disability Support Pension recipients increased until 2014, but decreased between 2015 and 2019 (figure 5.5). This is a result of the tightening of eligibility criteria, along with the implementation of targeted reviews to assess whether young Disability Support Pension recipients still qualified for the payment. The number of recipients aged 16-20 had fallen below the 2001 level by 2019.

Between 2002 and 2019, the number of young Carer Payment recipients increased (figure 5.5). This is likely due partly to the expansion of eligibility for the carers of children with a disability, and partly to the increase in the number of aged people requiring care.

In total, from 2008 to 2018, pension income decreased for people aged 15-19, whereas pension income increased for people aged 20-34 (figure 5.4).

5.4 Indexation of transfers

The indexation of transfers is an important and complex part of the Australian transfer system. Transfers are indexed once or twice a year to ‘ensure that payments reflect changes in community living standards’ (Whiteford 2017, p. 11). Box 5.3 summarises the indexes and benchmarks used in transfer indexation policy.

Box 5.3 Indexing transfers

Allowances and family payments are indexed to the CPI. The quarterly index measures changes in the price of a basket of goods and services that accounts for a high proportion of expenditure by metropolitan households.

Pensions and Parenting Payment Single are indexed to the greater of the movements in the CPI and the Pensioner and Beneficiary Living Cost Index (PBLCI). The PBLCI measures quarterly changes in the purchasing power of the after-tax incomes of age pensioners and other government transfer recipients.

After pensions and Parenting Payment Single are indexed to the higher of the growth rates of the CPI and PBLCI, they are benchmarked to wage rates using Male Total Average Weekly Earnings (MTAWE).

Benchmarking is a process of linking transfers to wage rates to maintain the adequacy of transfers relative to wage rates in the community (Klapdor 2014). For example if, after indexation to the greater movement in the CPI and PBLCI, the pension is lower than the benchmark level of 25 per cent of MTAWE, then the pension is increased to equal 25 per cent of MTAWE. If MTAWE grows more than the CPI and PBLCI, then pensions and Parenting Payment Single effectively grow at the rate of MTAWE.

Sources: ABS (Average Weekly Earnings, Australia, May 2019, Cat. no. 6302.0; Consumer Price Index, Australia, Sep 2019, Cat. no. 6401.0; Selected Living Cost Indexes, Australia, Sep 2019, Cat. no. 6467.0).

While few policy changes directly changed payment rates, indexation policy affected real payment rates of transfers.

Figure 5.6 shows how changes in indexation policy affected the real value of selected transfers between 2002 and 2019. The real value of allowances and family payments¹⁸ relative to the CPI was maintained as indicated by the flat lines. But the real value of pensions and parenting payments for single parents increased. There are two reasons why: wage rates had grown faster than prices, and the pension for a single person was increased by \$30 per week in 2009. The real value of different transfers will continue to diverge if the CPI continues to rise more slowly than other indexes.

The purposes of different types of transfers justify the differences in payment rates. Pensions:

... provide for those whom the community does not expect to fully support themselves through workforce participation. (DEEWR et al. 2012, p. 8)

While allowances:

... seek to maintain the incentive for recipients to take up paid work and to ensure that a person who is undertaking paid work is always financially better off than a person who is not. (DEEWR et al. 2012, p. 26)

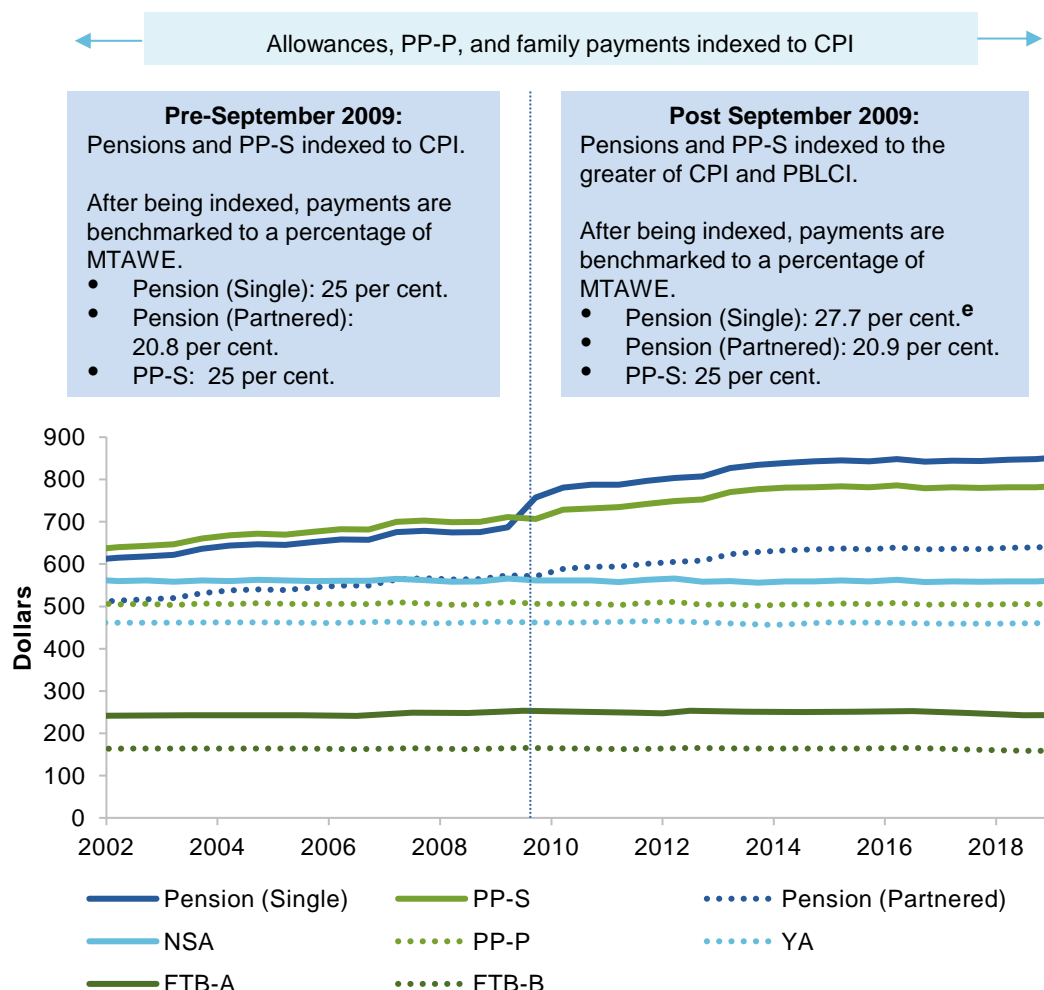
Accordingly, payment rates for allowances are lower than those for pensions to avoid creating disincentives to work. But the rationale for a growing gap in the real value of two payment types is unclear.

The increase in the real value of pensions contributed to an increase in transfer income per person. But these gains were mostly realised by people aged 55 and over because they mainly receive pensions, whereas young people tend to receive allowances and family payments (figure 5.1). From 2008 to 2018, growth in transfer income for people aged 65 and over was a result of increases in pension income, while increases in pension income helped to offset decreases in transfer income for young people (figure 5.4). Parts of these increases can be attributed to indexing pensions to wages, the other, to increases in the number of recipients.

¹⁸ Between 2000 and 2009, FTB-A maximum payment rates were benchmarked to wages, but these benchmarks did not influence the real payment rate because the payment rate was above the benchmark (Parliament of Australia 2004). Had the benchmark not been removed in 2009, the real payment rate would have increased because wage growth outstripped price growth and the benchmark would have mattered (Whiteford et al. 2018). Other changes to FTB-A included increasing the payment rate for a child aged 16-17 to match the payment rate for a child aged 13-15 in 2012, and pausing the indexing of payment rates from 2017 to 2019 (which resulted in a decrease in the real payment rate).

Figure 5.6 Pensions increased in real terms

Real fortnightly payment rates and indexation policy for transfer types, 2002–2019^{a,b,c,d}



^a The twice-yearly adjustments account for the 'wavy' patterns. ^b Light blue: allowances; dark blue: pensions; light green: parenting payments; dark green: family payments. ^c Acronyms: Consumer Price Index (CPI); Pensioner and Beneficiary Living Cost Index (PBLCI); Male Total Average Weekly Earnings (MTAW); Family Tax Benefit Part A (FTB-A) and Part B (FTB-B); Youth Allowance (YA); Newstart Allowance (NSA); Parenting Payment Single (PP-S); and Parenting Payment Partnered (PP-P). ^d Basic payment rates are presented, except for FTB because FTB-B does not have a basic payment. FTB-A is the maximum payment for a child aged 13-15; FTB-B is the maximum payment for a youngest child aged <5; YA and NSA show the payment for a single person, without dependent children, and living away from home. Pensions (Disability Support Pension, Carer Payment) are paid at the same rate, and only differ by whether a person is single or partnered. ^e The combined couple rate, which is two times the partnered rate, is benchmarked to 41.76 per cent of MTAW. Benchmarks for single and partnered persons are made in reference to the combined couple rate. For example, the single rate of pension is set at 66.33 per cent of the combined couple rate, which is equal to about 27.7 per cent of MTAW.

Data sources: ABS (*Consumer Price Index, Australia, Sep 2019*, Cat. no. 6401.0); DSS historical payment information (2020a, 2020b, 2020c); Harmer (2008, pp. 78–79); McClure review (Reference Group on Welfare Reform 2015, p. 55).

5.5 Changes in the incomes of recipients

This section sheds light on the changes in the average income of young people who received an income support payment. Allowances, pensions, and parenting payments generally make up a significant share of recipients' income. These payments are income-tested, so the incomes of most of their recipients are low.

While income support payments are designed to be the main source of income for recipients, many recipients also work. In some cases, they may work for part of the year and receive transfers for the other part (if, for instance, people become unemployed, or start work partway into the year). In other cases, people might work, but have sufficiently low labour income to make them eligible for transfers.

This section focuses on the income support payments that matter most for young people. In June of 2019, about 13 per cent of people aged 15-24 received an income support payment; most received allowances, with few receiving pensions or parenting payments (figure 5.1). While about 11 per cent of people aged 25-34 received an income support payment, in the form of allowances, pensions, and parenting payments.

Allowance recipients

People aged 15-24

Between 2001 and 2018, the mean income of allowance recipients in this age group remained constant in real terms at about \$17 700 per year (2019 prices) (figure 5.7a). Labour income accounted for 56 per cent of income, while allowances accounted for 36 per cent. The proportion of people aged 15-24 who received an allowance decreased from 22 per cent to 13 per cent (figure 5.7b). This was because students aged 16-17 became ineligible for Youth Allowance (student) in 2012. For these students, FTB-A became their main form of support, but this was paid to parents rather than the students themselves.

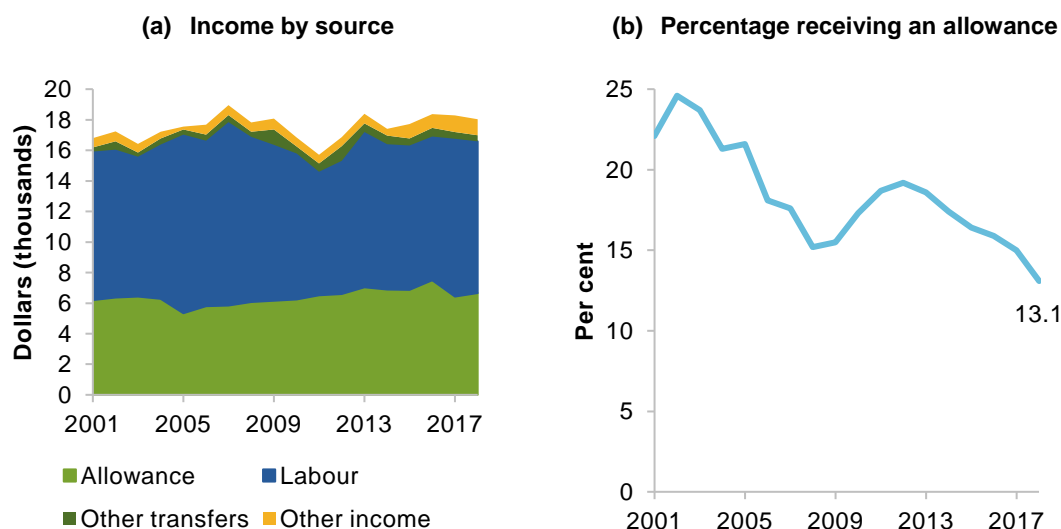
People aged 25-34

Allowance income (mainly from Newstart Allowance) makes up a high proportion of income during periods of unemployment, but over the course of a year, periods of employment also generate labour income. Between 2001 and 2018, the mean income of allowance recipients aged 25-34 remained constant in real terms at about \$29 500 per year; over this time their labour income decreased (figure 5.8a). By comparison, average income for people aged 25-34 increased by 21 per cent between 2001 and 2018, driven by growth in labour income (chapter 2).

The proportion of people aged 25-34 who received an allowance (over the course of a year) decreased between 2001 and 2008, when unemployment rates were falling. But after the GFC, the proportion remained relatively steady at 7.5 per cent on average (figure 5.8b).

Figure 5.7 Income per allowance recipient unchanged for 15 to 24 year olds

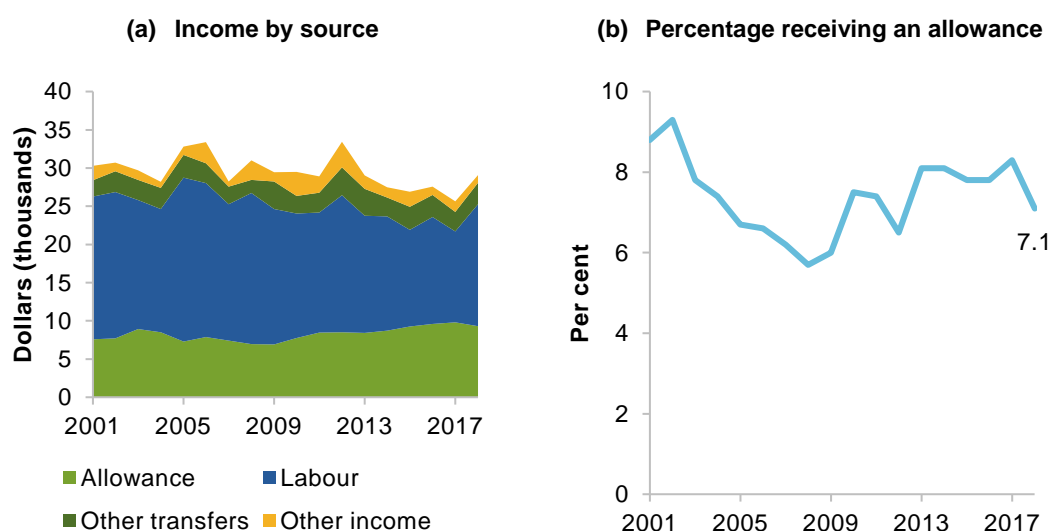
Real income per allowance recipient aged 15-24 (left); percentage of people aged 15-24 who received an allowance (right); 2001–2018



Data source: Commission estimates based on HILDA data.

Figure 5.8 Income per allowance recipient unchanged for 25 to 34 year olds

Real income per allowance recipient aged 25-34 (left); percentage of people aged 25-34 who received an allowance (right); 2001–2018



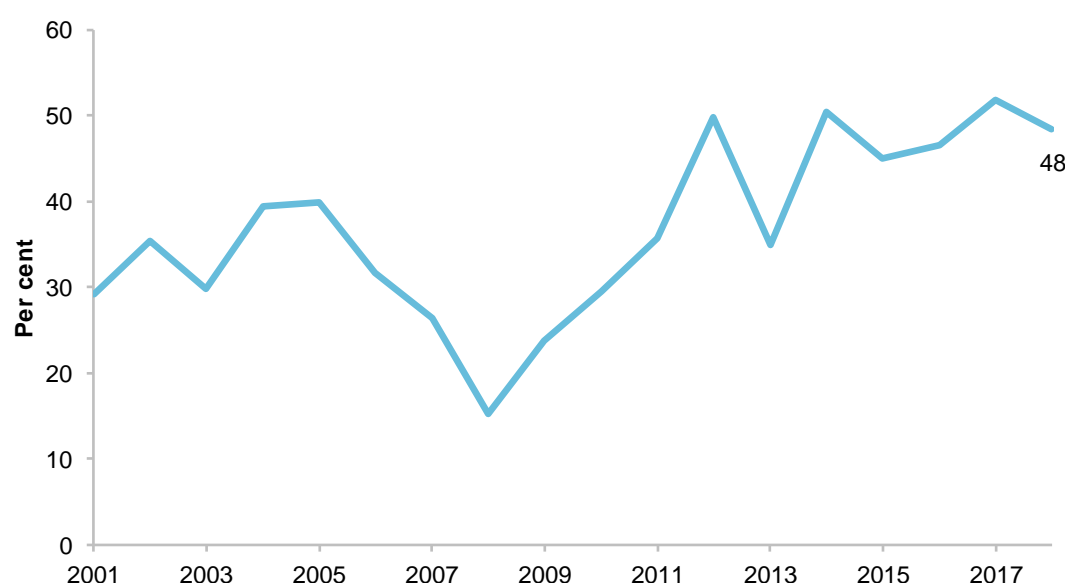
Data source: Commission estimates based on HILDA data.

Given few changes to the eligibility of Newstart Allowance and no change in the real payment rate, the increase in allowance income per recipient is consistent with young people collecting Newstart Allowance for longer periods. By 2018, 48 per cent of recipients

aged 25-34 collected Newstart Allowance for an entire year (figure 5.9). Data from the Department of Social Services revealed that the average Newstart Allowance recipient collected the payment for more than three years in 2019, up from just over two years in 2014 (Henriques-Gomes 2019).

Figure 5.9 More people aged 25-34 receive Newstart for longer periods

Percentage of Newstart Allowance recipients aged 25-34 who received the allowance for at least one continuous year, 2001–2018^a



^a HILDA collects information on the number of weeks per year that a person receives Newstart Allowance. For a given year, the minimum time recorded is one week and the maximum is 52 weeks (that is, Newstart Allowance was received for one continuous year).

Data source: Commission estimates based on HILDA data.

Parenting payment recipients

Between 2005 and 2018, the mean income per recipient remained about \$42 600 per year for people aged 25-34 who received parenting payments (figure 5.10a). Transfers, including parenting payments and family payments, made up over 60 per cent of income. Recipients of parenting payments were generally not in the labour force, but when they were, they were likely to be working part-time. Therefore, labour income made up a relatively small share of income.

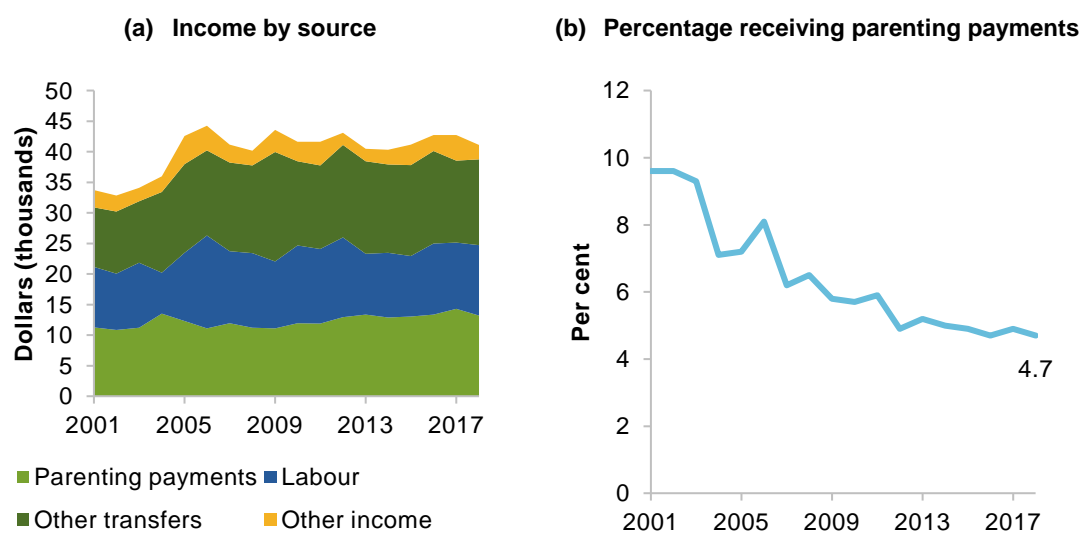
The proportion of people aged 25-34 who received parenting payments decreased from 9.6 per cent to 4.7 per cent between 2001 and 2018 (figure 5.10b). This is partly explained by tightened eligibility, which excluded parents with older children after 2006.

The tightening of eligibility could also help to explain why income per recipient did not increase. After 2006, parenting payments were targeted at parents with younger children,

who likely have lower incomes than parents with older children. This increased the number of lower-income recipients, part of the reason for which income per recipient did not grow.

Figure 5.10 Income per parenting payment recipient unchanged for 25 to 34 year olds

Real income per parenting payment recipient aged 25-34 (left); percentage of people aged 25-34 who received parenting payments (right); 2001–2018^{a,b}



^a Other transfers are largely made up of family payments. ^b Income from family payments increased in 2004 as a result of a reduction to taper rates for FTB-B that made more families with children eligible.

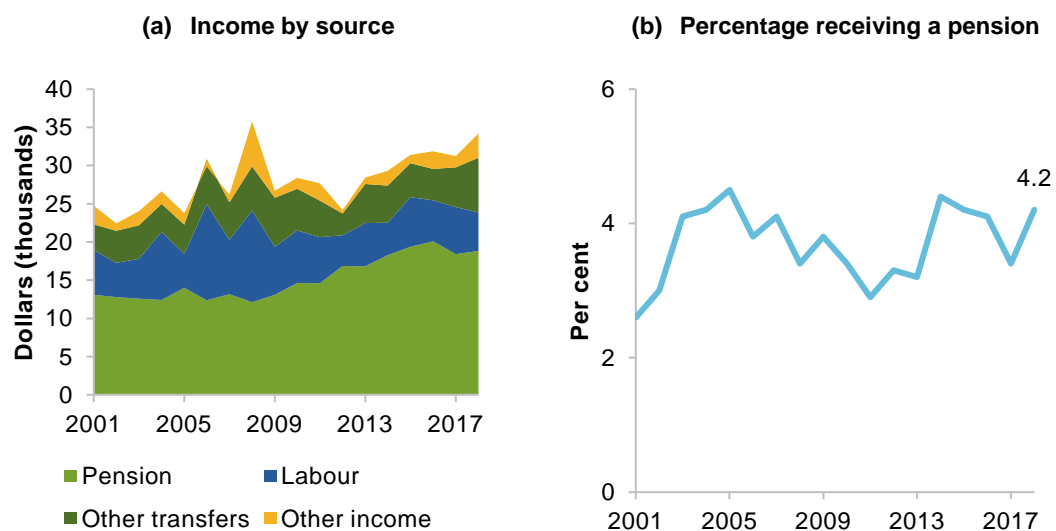
Data source: Commission estimates based on HILDA data.

Pension recipients

Between 2001 and 2018, the mean income per recipient increased by 1.9 per cent per year for people aged 25-34 who received a pension (that is, a Disability Support Pension or Carer Payment) (figure 5.11). Growth stemmed largely from increases in pension income, driven partly by pensions being indexed to wages rather than prices.

Figure 5.11 Income growth for people aged 25-34 who receive the pension

Real income per pension recipient aged 25-34 (left); percentage of people aged 25-34 who received a pension (right); 2001–2018



Data source: Commission estimates based on HILDA data.

6 The role of other income

Key points

- ‘Other’ income includes all income that is not sourced from labour income or government transfers. In 2018, other income accounted for a small proportion of young people’s income — 5.4 per cent for people aged 15-24 and 9.3 per cent for people aged 25-34.
- From 2008 to 2018, other income decreased by 4.9 per cent per year for people aged 15-24 and 1.7 per cent per year for people aged 25-34.
- For people aged 15-24, decreases in business income and inheritances made the largest contributions to the decrease in other income per person. The decrease in other income was partially offset by increases in parental transfers.
- For people aged 25-34, decreases in many components — business income, dividends, interest income, and inheritances — contributed to the decrease in other income per person.
 - The number of business income earners declined, mean business profits fell, and self-employment shifted towards relatively low-paying industries.
 - Investment income decreased as a result of poor macroeconomic conditions following the global financial crisis; returns to savings also decreased, as did deposit and equity holdings. Increased income from real estate partly compensated for the decline in income from other assets.
 - Inheritances are decreasing for people aged 15-34 because people are dying later and passing on their assets to their children who are typically older than 35.
- The value of cash transfers from parents increased, as did the number of people who received such transfers.
- The percentage of people aged 20-34 living at home increased from about 24 per cent to 31 per cent between 2001 and 2018.
- Living at home with parents allows a young person to save, on average, \$381 per week (almost \$20 000 per year) in the form of accommodation, groceries, and household expenses.

This chapter analyses the evolution of all income that is not sourced from labour or from government transfers. It decomposes this ‘other’ income into components to highlight which are important to young people’s income and income growth (section 6.1). The chapter then provides possible explanations for the observed:

- decrease in business income (section 6.2)
- decreases in investment income and in inheritance income (section 6.3)
- increase in parental transfers, including an analysis of the savings that young people make when living with their parents rather than independently (section 6.4).

6.1 Contribution of other income to young people's income growth

In 2018, other income accounted for 5.4 per cent of income for people aged 15-24 and 9.3 per cent of income for people aged 25-34. Only 23 per cent of people aged 15-24 received other income, compared with 46 per cent of people aged 25-34.

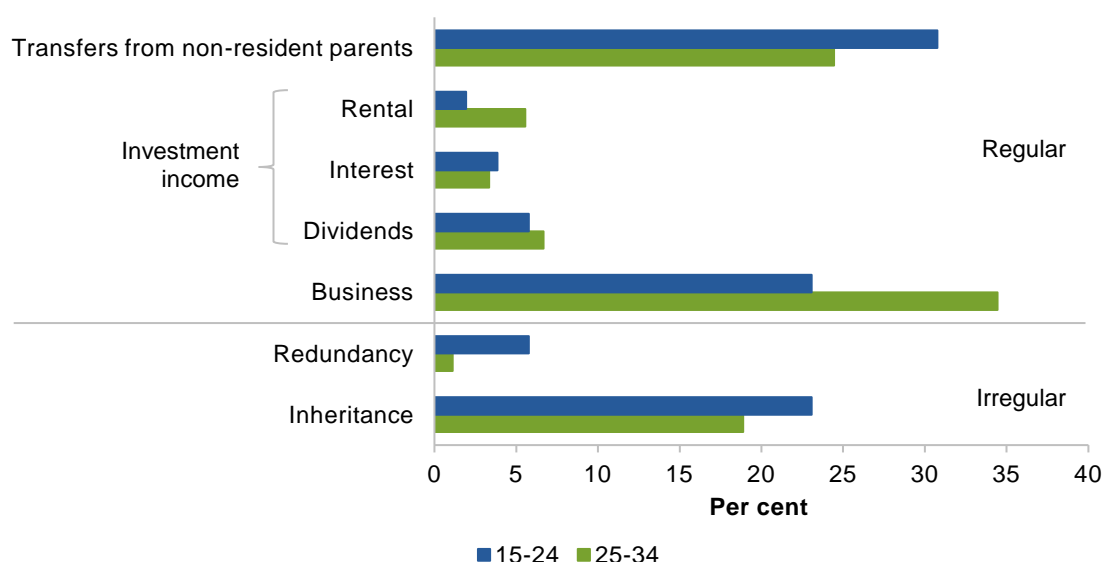
Components of other income

In HILDA, other income is split into regular and irregular income. Regular income:

... does not necessarily mean that the payment is recurring; it is loosely interpreted as income that is not a one-off, is not a capital transfer, and is likely to be used to fund current consumption [... while irregular income] is an income flow that is both large in value and a one-off/lump sum. (Wilkins 2014, p. 18)

In 2018, regular income accounted for about 71 per cent of other income for people aged 15-24, and 80 per cent for people aged 25-34 (figure 6.1).

Figure 6.1 **Business income and transfers from non-resident parents are the largest components of other income for young people**
Percentage of other income sourced from components, 2018^{a,b}



^a HILDA classifies transfers from non-resident parents as irregular income if the value of the transfer is greater than 22 times the average full-time wage (which in 2017-18, for instance, was about \$35 200); this study combines all transfers from non-resident parents into a single component. ^b The chart excludes child support, workers compensation, and transfers from other households (not parents); these components represent a small proportion of young people's income.

Data source: Commission estimates based on HILDA data.

For 15 to 24 year olds, transfers from non-resident parents (that is, from parents who do not live in the same household as the young person) made up 31 per cent of other income; business income and inheritances each made up about 23 per cent, and investment income accounted for 12 per cent (figure 6.1).

Business income was the largest component of other income for 25 to 34 year olds, accounting for almost 35 per cent of other income. It was followed by transfers from non-resident parents (24 per cent), inheritances (19 per cent), and investment income (16 per cent).

Contribution of other income to young people's income growth

Decreases in other income explained some of the decline in young people's income from 2008 to 2018 (chapter 2).

- For people aged 15-24, other income decreased by 4.9 per cent per year, and this decrease contributed about a fifth of the decrease in income.
- For people aged 25-34, other income decreased by 1.7 per cent per year, and this decrease contributed about a fifth of the decrease in income.

Decomposing the decrease in other income from 2008 to 2018 shows which components contributed to the decrease (figure 6.2).

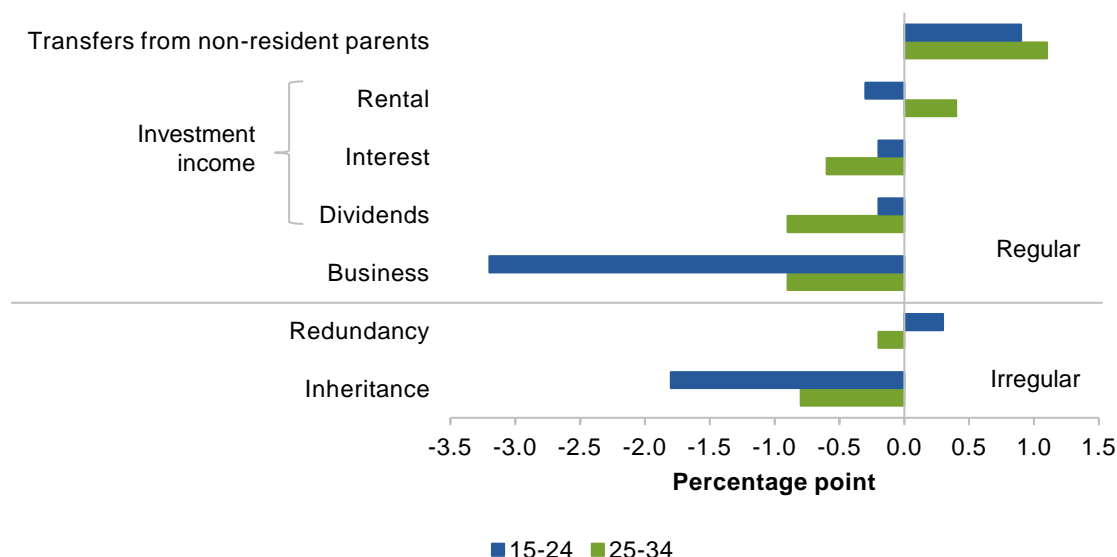
- For people aged 15-24, decreases in business income and inheritances made the largest contributions.
- For people aged 25-34, decreases in many components — business income, dividends, interest income, and inheritances — contributed to the decrease.
- For both age groups, decreases in other income were partially offset by increases in transfers from non-resident parents.

Who earns other income?

Other income is less common for 15 to 19 year olds (figure 6.3). Business income and investment income components are extremely small for 15 to 19 year olds, and their main source of other income is parental transfers. Therefore, the remainder of this chapter will analyse the components of other income — except parental transfers and irregular income — for people aged 20 and above.

Figure 6.2 Contributions to the decrease in other income

Percentage point change per year between 2008 and 2018^a

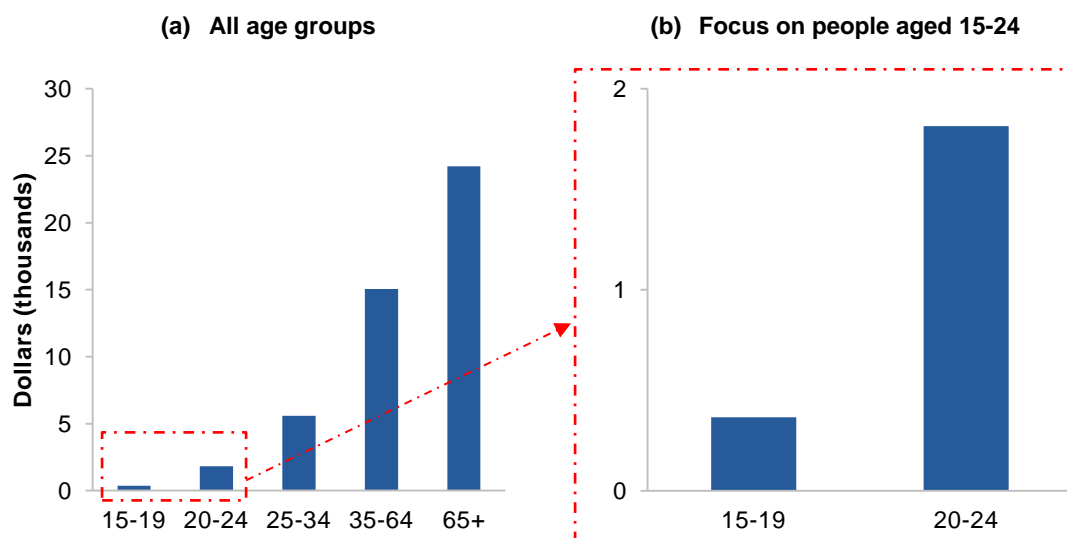


^a Contributions sum to the total decrease in other income for each age group. The following components make negligible contributions: child support, workers compensation, transfers from other households (not parents).

Data source: Commission estimates based on HILDA data.

Figure 6.3 Other income is less common for people aged 15-19

Real average other income per person, 2018



Data source: Commission estimates based on HILDA data.

6.2 Why did business income decrease?

Business income refers to net income (revenue minus expenses) earned through owning an unincorporated business — including from side businesses. In a given year a person can make either a profit or a loss.

How important is business income to young people?

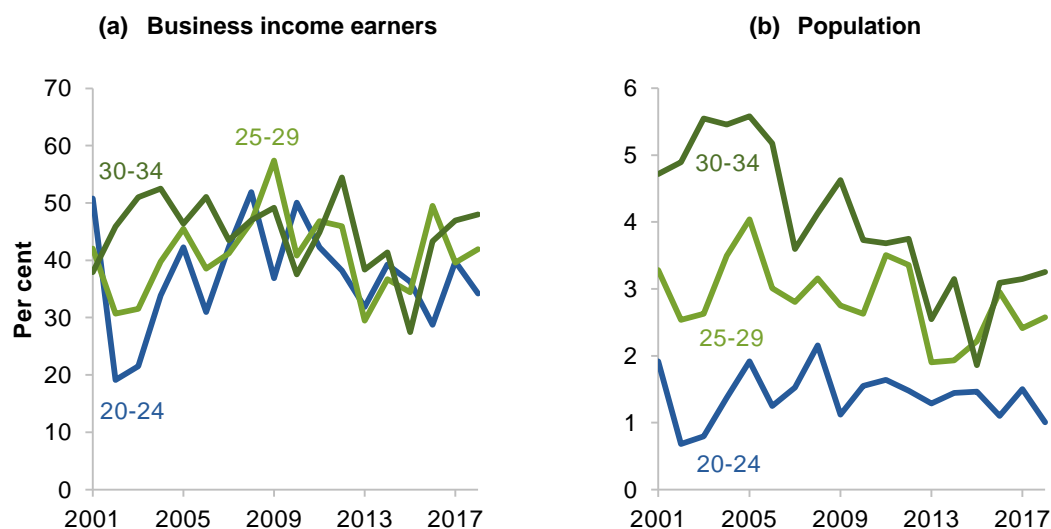
Business income is less common for 20 to 24 year olds than for 25 to 34 year olds, because they likely lack the human, social, and financial capital needed to successfully run a business (Green 2013, p. 11). Also, 20 to 24 year olds are more likely to be in education or training, rather than start a business (PC 2015, p. 70). In 2018, business income made up 24 per cent of other income for people aged 20-24, and 35 per cent for people aged 25-34.

Although business income represents a small proportion of other income, many business income earners rely on it as their primary income source. In 2018, among business income earners, 34 per cent of 20 to 24 year olds, 42 per cent of 25 to 29 year olds, and 48 per cent of 30 to 34 year olds, relied on business income as their primary source of income (figure 6.4a). This corresponds to a small proportion of the population (figure 6.4b). After 2008, reliance on business income declined for young people.

People who earn business income typically come from high socioeconomic backgrounds. SEIFA quintiles rank areas of residence according to their relative socioeconomic advantage and disadvantage: 54 per cent of business income earners aged 20-24, and 46 per cent of business income earners aged 25-34, were in the two highest SEIFA quintiles. In comparison, only 26 per cent of business income earners aged 20-24, and 32 per cent of business income earners aged 25-34, were in the two lowest SEIFA quintiles.

Figure 6.4 Nearly half of young business income earners rely on business income

Percentage of business income earners (left), and population (right), who rely on business income as a primary income source, by age, 2001–2018^a.



^a A person is defined as reliant on business income if the absolute value (profit or loss) of their business income is greater than that of their labour income and transfer income.

Data source: Commission estimates based on HILDA data.

How has business income growth changed?

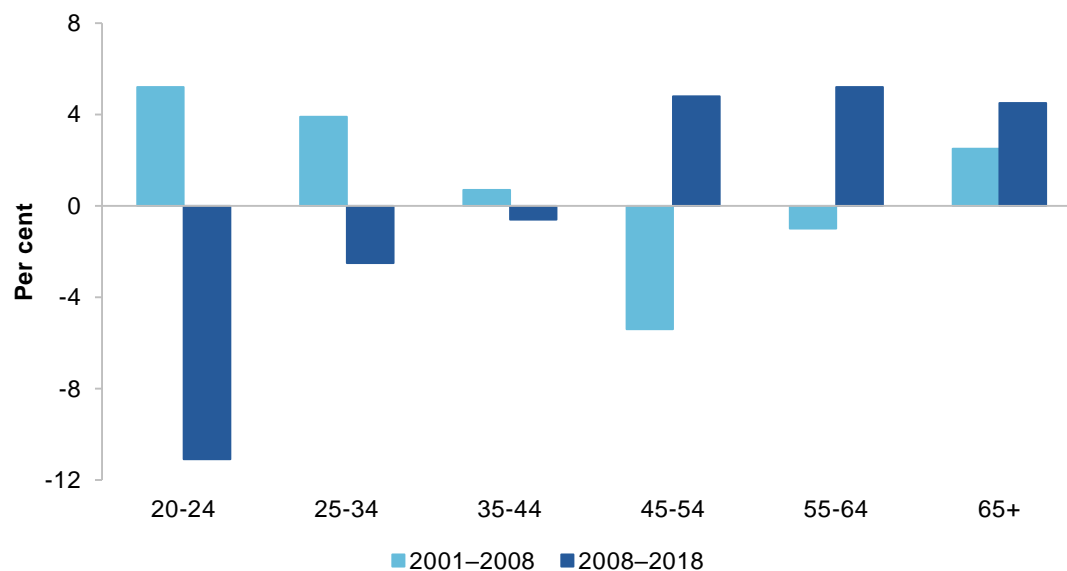
After 2008, there was a reversal in business income growth for most age groups¹⁹ (figure 6.5). For 20 to 34 year olds, business income growth was positive between 2001 and 2008, but negative between 2008 and 2018. People aged 20-24 experienced the largest decline with business income decreasing by 11 per cent per year, while business income decreased by 2.5 per cent per year for 25 to 34 year olds.

Negative business income growth is a young people's phenomenon. Australians aged 45 and older experienced positive annual business income growth from 2008 to 2018 (figure 6.6).

¹⁹ From 2001 to 2008, the large negative business income growth experienced by 45 to 54 year olds was a result of a large decrease in the proportion of people earning business income (figure 6.8).

Figure 6.5 Reversal of business income growth

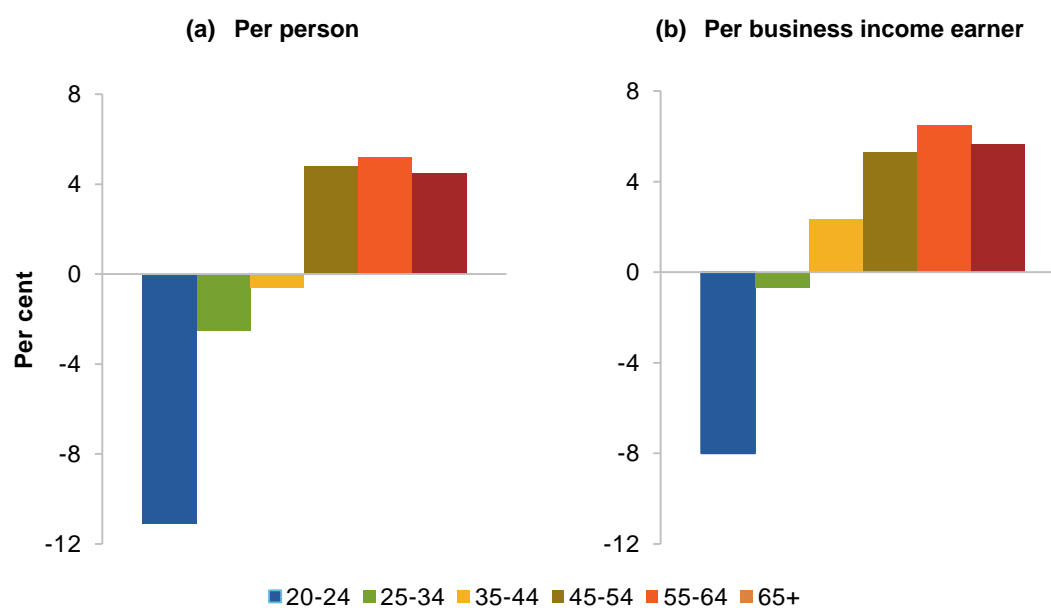
Average annual growth of real business income per person, 2001–2008 and 2008–2018



Data source: Commission estimates based on HILDA data.

Figure 6.6 Business income increased for older Australians

Average annual growth rate of real business income, 2008–2018



Data source: Commission estimates based on HILDA data.

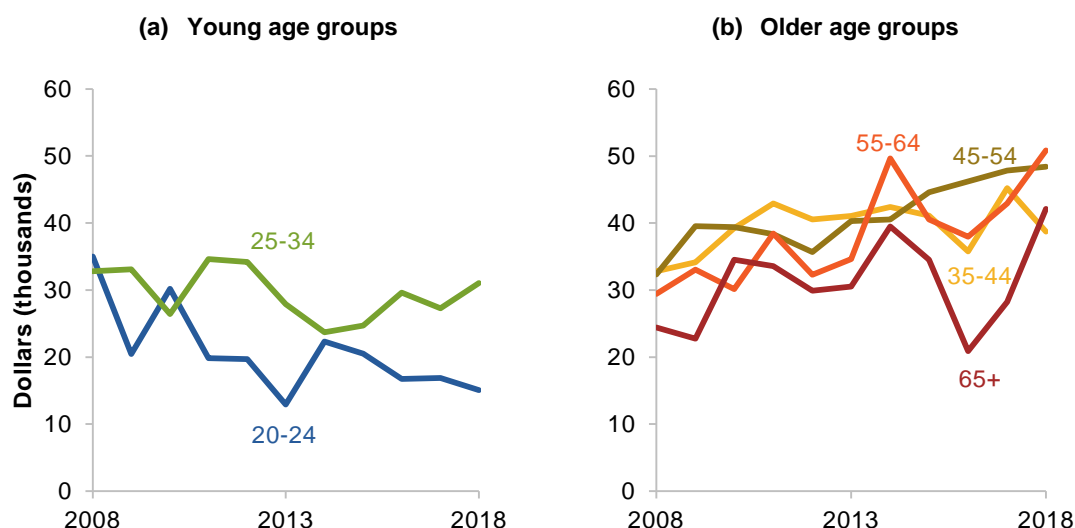
Why has business income declined?

The decrease in young people's business income is a result of:

- a decline in their average profits
- a decline in the percentage of young people earning a business income
- a shift in self-employment towards relatively low-paying industries and away from relatively high-paying industries.

Despite year-to-year volatility, average business profits for young earners declined after 2008, whereas the opposite occurred for older earners (figure 6.7).

Figure 6.7 Business profits have decreased for young people
Average real business profits for business income earners, 2008–2018



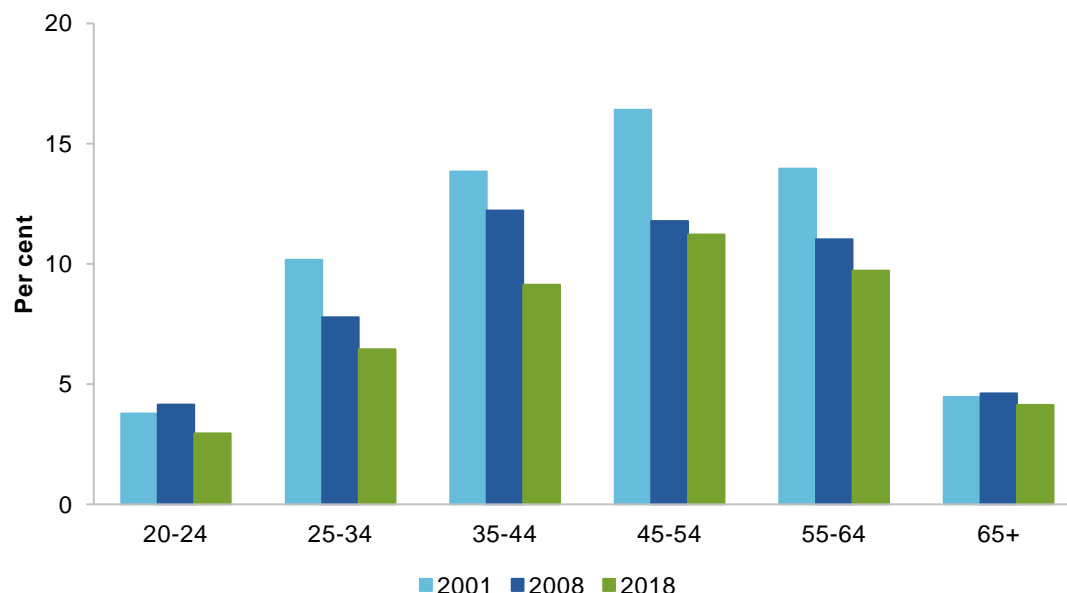
Data source: Commission estimates based on HILDA data.

From 2008 to 2018, the proportion of young people earning a business income also decreased (figure 6.8). For instance, the percentage of 25 to 34 year olds earning business income declined from 7.8 per cent to 6.5 per cent.

There is also a group of people in HILDA who identify as self-employed and report earning labour income, rather than business income; this group accounted for 39 per cent of self-employed young people. Adding these people to business income earners does not change the decline shown in figure 6.8.

The decline in self-employment suggests that it does not act as an adjustment mechanism for young people when labour markets are weak, the way others mechanisms do, as shown in chapter 4. It is also consistent with evidence that growth in the gig economy is likely smaller than is sometimes thought (box 6.1).

Figure 6.8 Fewer people are earning business income
Percentage of people in each age group earning business income, 2001–2018



Data source: Commission estimates based on HILDA data.

All other age groups also shifted away from earning business income, but the shift was larger among the young. After 2008, the proportion of total business income earners who were young declined (except for people aged 25–29), while the proportion of total business income earners aged 45 and above increased (figure 6.9).

The demographic shift in business income could be due to:

- more young Australians opting for and prolonging education rather than starting a business (ABS 2018b)
- an increase in the life expectancy of Australia’s ageing population, resulting in a larger proportion of total business owners in the older age groups (ABS 2018b)
- poor access to credit after the global financial crisis (GFC) acting as a barrier to starting a business — especially for young people (Connolly and Jackman 2017, pp. 55–56).

Generally, people who record business income identify as self-employed in HILDA.²⁰ On average, from 2001 to 2018, 60 per cent of business income earners aged 25–34, and 48 per cent of business income earners aged 20–24, identified as being self-employed. Examining self-employment by industry, and across different age groups, helps to identify another source of the decline in young people’s business income.

²⁰ Most of the other people who earn business income identify as employees who earn labour income and also own a small business.

Box 6.1 The ‘gig’ economy and young people

The gig economy is a labour market characterised by short-term contracts or freelance work. The gig economy is flexible: workers are independent contractors for a ‘gig’, rather than employees of a company. The use of contracts allows earnings and hours to adjust more freely to reflect business conditions and demand for services (Friedman 2014, p. 172).

The gig economy can benefit workers by offering flexibility in the number of hours worked and when those hours are worked, making it easier for some demographics to find work, and enabling people to supplement their income (PC 2016, pp. 77–78). That said, the gig economy shifts the risks of economic fluctuations onto workers (Friedman 2014, p. 172). The increased risks that workers bear, often raise concerns about the lack of work entitlements (such as paid leave and unfair dismissal) that characterises this type of employment.

Evidence of the growing gig economy

With the emergence of peer-to-peer platforms — a technology that helps strangers to interact and do business — growth in the gig economy is expected to increase (Minifie and Wiltshire 2016, p. 33). Recent Australian data are unavailable; however, in 2015, fewer than 80 000 Australians (0.7 per cent of workers) had worked on peer-to-peer platforms more than once a month (Minifie and Wiltshire 2016, p. 33). Based on data from 2014–2018, the OECD reported that, in a selection of countries other than Australia, gig workers’ share of total employment ranged from 1–3 per cent, with indications of fast growth (Schwellnus et al. 2019, p. 8).

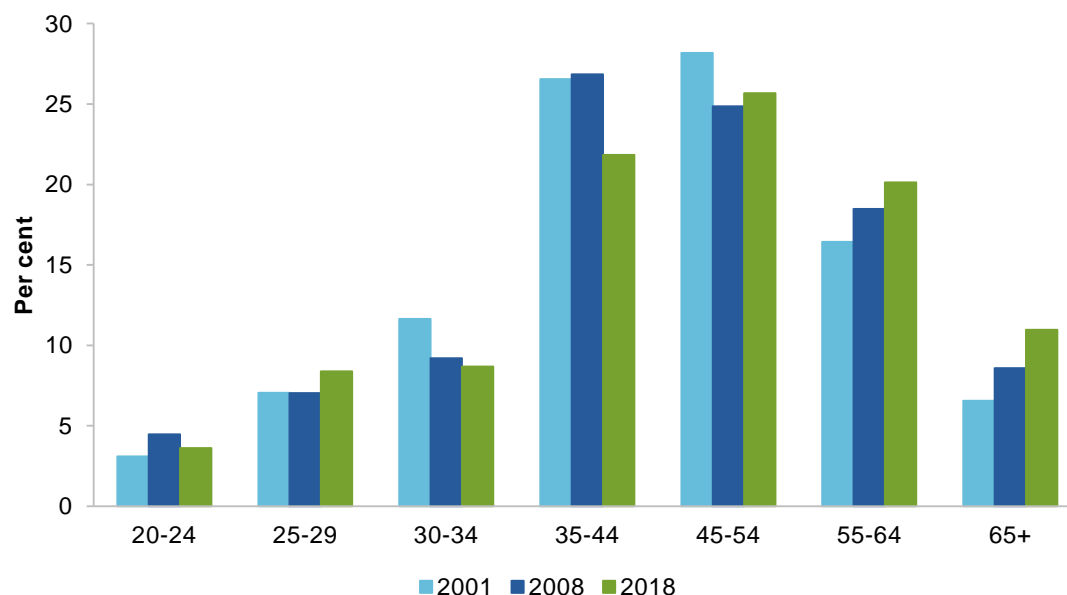
In the absence of more recent data, it is difficult to estimate the role of gig employment in Australia. Evidence suggests, however, it may not be growing as much as some might think. ABS data show that independent contracting did not increase between 2012 and 2019 (8.5 and 8.2 per cent of employment, respectively). Furthermore, HILDA data show that, between 2008 and 2018, employment rates for self-employed persons with no employees increased only slightly across all age groups, and did not increase for 25 to 34 year olds.

Therefore, the share of self-employed persons with no employees appears stable in Australia. If the gig economy is growing, it could be as a substitution between different types of self-employment (for example, taxi drivers becoming ‘share-ride’ drivers would not increase the share of contractor-type work), or might be limited to second jobs (Wilkins and Laß 2018, p. 97).

Self-employed workers are concentrated in a few industries. According to ABS census data, this concentration is fairly consistent across age groups and time.

- Construction services, and professional, scientific and technical services, were two industries among the top five industries of self-employment across all age groups.
- Health care and social assistance services, administration and support services, and retail trade services accounted for a large proportion of self-employed workers aged 25 and over.
- Agriculture, forestry and fishing accounted for a large proportion of self-employed workers aged 55 and over.
- Other services, and arts and recreation services accounted for a large proportion of self-employed workers aged under 35.

Figure 6.9 Fewer business income earners are young
Percentage of all business income earners by age group, 2001–2018



Data source: Commission estimates based on HILDA data.

Although self-employed people work in similar industries, differences emerge when examining the age distribution across high- and low-paying industries (that is, the top five and bottom five income earning industries for self-employed workers) (figure 6.10).²¹ While self-employed workers are typically concentrated in low-paying industries:

- 20 to 24 year olds are more likely to be in low-paying industries than older workers (except those aged over 65)
- 20 to 34 year olds are less likely to be in high-paying industries than older workers.

Compared to 2006, in 2016 self-employed workers were generally more likely to work in low-paying industries and less likely to work in high-paying industries (figures 6.10). The largest change, however, was experienced by young people. For instance, the difference in the proportion of self-employed persons in low- and high-paying industries increased by 10 percentage points for people aged 20-24, but decreased by 3 percentage points for people aged 65 and above.

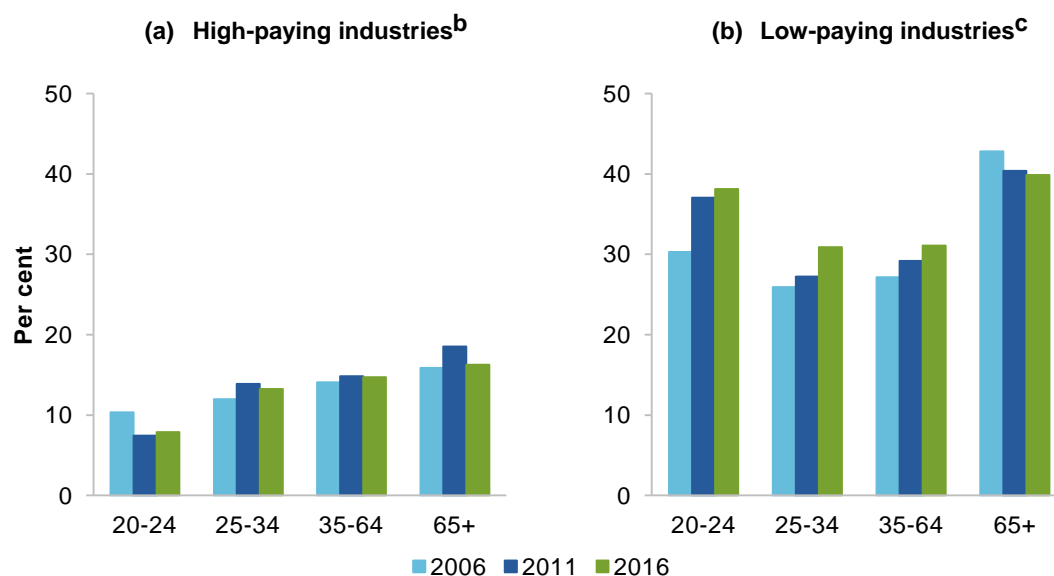
The observed change in self-employment could be driven by the gig economy. For example, new peer-to-peer platforms could be increasing the accessibility and attractiveness of

²¹ High-paying industries include: mining; wholesale trade; financial and insurance services; rental, hiring and real estate services; and professional, scientific and technical services. Low-paying industries include: arts and recreation services; education and training; administrative and support services; other services; and agriculture, forestry and fishing services.

low-paying industries, resulting in a larger percentage of the self-employed in these industries (box 6.1).

Figure 6.10 Self-employed young people are more likely to be in low-paying industries, and less likely to be in high-paying industries

Percentage of the self-employed, by age group, 2006, 2011, and 2016^a



^a ABS census data were used to determine the proportion of self-employed workers (unincorporated businesses) in high- and low-paying industries, across each age group. HILDA data were used to rank the high- and low-paying industries. ^b 'High-paying industries' are the top five mean income (real business income + real labour income) earning industries for self-employed workers from 2001 to 2018. ^c 'Low-paying industries' are the bottom five mean income earning industries for self-employed workers from 2001 to 2018.

Data sources: Commission estimates based on HILDA data and ABS (*TableBuilder, Microdata: Australian Census Longitudinal Dataset, Mar 2019, Cat. no. 2080.0*).

6.3 Investment income and inheritances

Investment income decreased for young people

Investment income includes:

- interest income: interest earned on cash holdings (bank accounts, bonds, and trusts)
- dividend income: income derived from owning an incorporated business (business dividends), or company shares, managed funds or property trusts (dividends)
- rental income: net income earned from owning real estate. This income is received net of expenses, so it is possible to record a profit or loss.

Investment income is not relevant for most young people. In 2018, only one in four people aged 20-34 earned investment income and these people were mainly high-income earners.

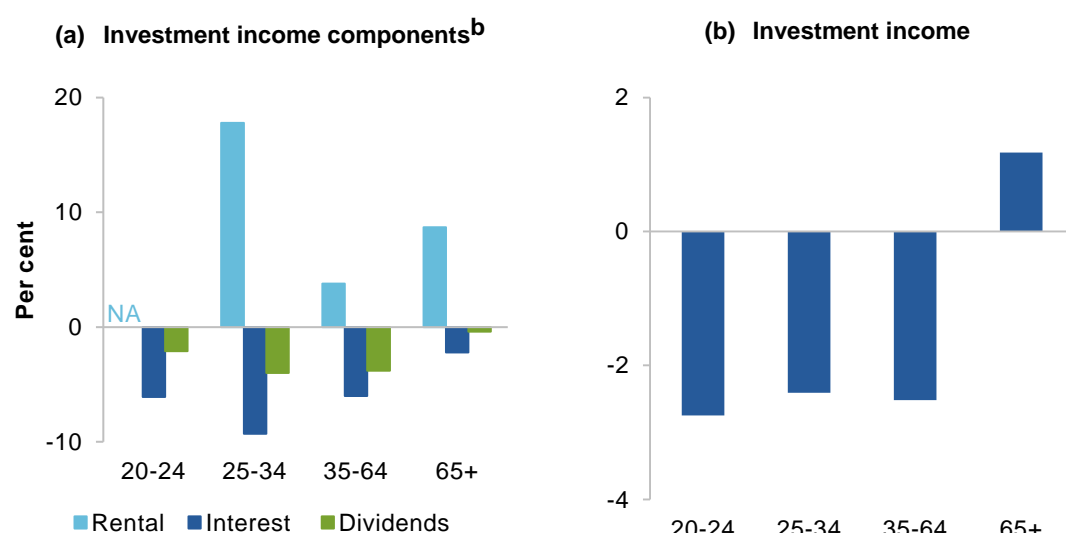
Changes in investment income

Between 2008 and 2018, investment income components changed in similar ways across age groups (figure 6.11a). Interest and dividend income decreased, while rental income increased.

There was, however, a divergence in investment income growth between age groups (figure 6.11b). People aged 65 and over experienced an increase in investment income, while people aged under 65 experienced a decrease.

Figure 6.11 Investment income changes were similar across age groups

Average annual growth rate of investment income components (left)^a and total investment income (right) per person by age, 2008–2018



^a Rental income is not relevant for 20 to 24 year olds as few own investment properties. Growth rates for business dividends are not presented because young people typically do not own incorporated businesses and also because business dividends only made small negative contributions to older people's investment income growth. ^b Rental income growth rate for 25 to 34 year olds is large because rental income per person is small and volatile for this group.

Data source: Commission estimates based on HILDA data.

What caused the changes in investment income?

Macroeconomic conditions help to explain the change in income from investments between 2008 and 2018.

- A decrease in the cash rate from 7.25 to 1.5 percentage points resulted in low returns on cash investments (such as savings), especially when compared with interest earnings

prior to the GFC (RBA 2020). Government bond yields (the returns on holding a bond until maturity) have also steadily decreased since the GFC (RBA 2019, p. 27).

- The low cash rate also reduced interest repayments on mortgages, which contributed to an increase in net income for rental property owners.
- Dividends are volatile because they depend on a company's profits and dividend policy. This makes their reported growth rate sensitive to the base year used in the calculation. Because 2008 (the base year) was a high-paying dividend year, it overstates the decrease in dividend income. Average dividends per earner actually increased for most age groups between 2008 and 2018.

There have also been changes in holdings of investments between 2008 and 2018. The HILDA data are not ideal for exploring asset holdings — the data only capture whether a person earned investment income from a given source, rather than whether they owned a particular asset. That said, HILDA data do provide some insights into why investment income growth diverged for people aged under and over 65.

Between 2008 and 2018:

- there was a decrease in the proportion of people, across all age groups, who reported earning interest and dividend income. This decrease could reflect some people switching to higher-yielding investments, such as property. Older people, for instance, are better able to substitute between asset classes due to their higher capital base
- a greater proportion of people aged 35 and over reported earning rental income, suggesting that property investment increased. The increase was especially large for people aged 65 and over. In comparison, the proportion of young people earning rental income decreased — this reflects the way young people have been locked out of the property investment market due to higher prices and lower income growth.

The increase in property investment for people aged 65 and over, combined with the fact that this age group is most likely to earn a rental profit (from positive gearing) (ACIL Allen Consulting 2015, fig. 16), explains the divergence in investment income growth between older and younger people.

Overall, it appears that young people invested less across all asset classes, with no evidence of substitution into property like their older counterparts. Combined with low returns on cash investments (young people's main asset class of investment), this caused young people's investment income to decline. However, it was still on a similar growth path to prime-age people's, emphasising how poor returns affected income from investments across most age groups.

Irregular income is volatile

Explaining changes in irregular income growth is difficult because it is irregular and volatile. The HILDA sample is too small to analyse changes in all sources of irregular income over time. That said, this section provides some summary statistics about inheritances and

redundancy payments, which are relevant to the issue of young people's incomes. The next section then uses stylised facts to draw conclusions about the likely trends for inheritances.

Fewer than 2 per cent of young people received an inheritance or redundancy payment in a given year, and the real amount received differed significantly across people and years (table 6.1). For example:

- of the 46 young people who reported receiving an inheritance in 2008, 50 per cent inherited less than \$15 300, and 10 per cent inherited more than \$250 000
- of the 83 young people who reported receiving an inheritance in 2018, 50 per cent inherited less than \$12 200, and 10 per cent inherited more than \$170 000.

Table 6.1 Irregular income components are volatile

Summary statistics for irregular income components received by people aged 15-34^a

	<i>Observations</i>	<i>Mean</i>	<i>Median</i>	<i>90th percentile</i>	<i>Maximum</i>
	N	\$	\$	\$	\$
Inheritances					
2008	46	96 770	15 246	254 105	762 316
2013	61	18 991	11 161	55 807	139 517
2018	83	60 872	12 198	172 801	1 016 477
Redundancy Payments					
2008	48	10 007	3 303	12 705	180 415
2013	87	12 032	5 581	33 484	99 336
2018	43	13 570	5 591	50 824	64 038

^a Dollar amounts are real (adjusted by the CPI) and population weighted.

Source: Commission estimates based on HILDA data.

Older Australians are receiving inheritances

Young people receive a relatively small proportion of inheritances. Less than 5 per cent of total inheritance income is received by people aged under 40, while more than 80 per cent is received by people aged 50 and over (Wood, Griffiths and Emslie 2019, fig. 6.2). Therefore, people are not receiving inheritances when they would potentially benefit from them most: when raising a family or saving for a house deposit.

When young people did receive an inheritance, it was small and the amount decreased over time. HILDA data reveal that between 2001 and 2018, the median inheritance was about \$12 300 for people aged 15-34, and over \$50 000 for people aged over 35. Also, from 2008 to 2018, inheritance income decreased for young people but increased for people aged over 35.

The decrease in young people's inheritance income is consistent with population ageing. The Grattan Institute reported that the majority of wealth is inherited by people aged over 55; as

life expectancy rises the ages of parents making bequests, and the ages of the children receiving them, are both increasing (Daley et al. 2014, p. 36). Given Australia's ageing population, inheritance income is likely to continue to fall for young people.

In light of the current decline in young people's incomes, families could eventually adjust by targeting bequests towards their younger members. For instance, it may become standard to leave bequests to grandchildren rather than children.

6.4 Parents are supporting young people

Parents have increased cash transfers to young people and allowed them to remain at home, enabling them to save. This section explores how parents' financial support of young people has increased.

Transfers to young people

Parental transfers allow young people to focus on their studies, supplement their incomes, and increase savings for housing or other investments (box 6.2).

Box 6.2 Parental transfers help young people break into the housing market

Cigdem and Whelan (2017) observed that:

... partly in response to higher house prices, there is an increasing perception that transfers, largely from parents, are increasingly important determinants of an individual's or household's ability to attain home-ownership. (p. 231)

To assess the merit of this statement, Cigdem and Whelan (2017) analysed the HILDA data and found that people aged 25-45 had a:

- 5.2 percentage point higher chance of transitioning to homeownership the following year if they received a parental transfer of more than \$5000 (p. 242)
- 3.7 percentage point higher chance of transitioning to homeownership the following year if they received an inheritance (p. 241).

International evidence corroborates the Australian findings. For example, in the United States, young adults aged 25-44 had a 3.1 percentage point higher chance of transitioning to homeownership if they received a parental transfer greater than \$5000, which increased to 7.3 percentage points during the GFC (Lee et al. 2018, p. 2).

The relationship between economic downturns and parental transfers is unclear. On one hand, parental transfers might increase because young people need more financial support. On the other hand, transfers might decrease if parents suffer large losses, or if young people receive extra assistance through government transfers. For the United States, Zissimopoulos et al. (2019, p. 1) showed that the likelihood of receiving a parental transfer decreased in 2009, likely due to large declines in parental income. Meanwhile, Gottlieb et al.

(2014, p. 1011) found evidence that transfers from parents to young mothers increased during times of high unemployment.

While few studies have analysed parental transfers in Australia; the results in this chapter suggest that they increased following the GFC. This occurred while young people's incomes declined and their parents' incomes continued to increase.

Parental transfers are separated here into those received by young people not living at home (from 'non-resident parents') and those received by young people living at home (from 'resident parents').

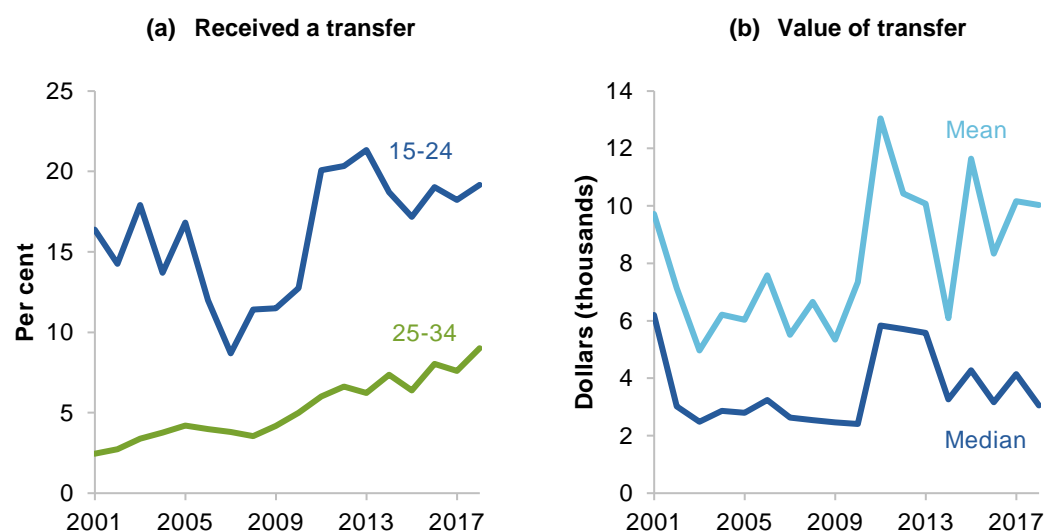
Transfers from non-resident parents increased

From 2001 to 2018, the proportion of independent young people (young people who do not live with their parents) who received a parental transfer increased (figure 6.12a). The sharpest increase occurred between 2009 and 2014; this increase was mainly driven by 15 to 24 year olds.

The value of parental transfers also increased immediately following the GFC (figure 6.12b). For example, from 2009 to 2011, the average transfer more than doubled (from about \$5300 to \$13 000), as did the median (from about \$2500 to \$5800). These factors helped to offset the overall decrease in other income between 2008 and 2018 (figure 6.2).

Figure 6.12 Increase in transfers from non-resident parents

Percentage of independent young people who received a parental transfer (left); real value of transfer (right); 2001–2018



Data source: Commission estimates based on HILDA data.

Transfers from resident parents increased

The measure of young people's income reported in the HILDA data does not include transfers from resident parents.²² But these transfers can represent an important source of income for young people who live with their parents.

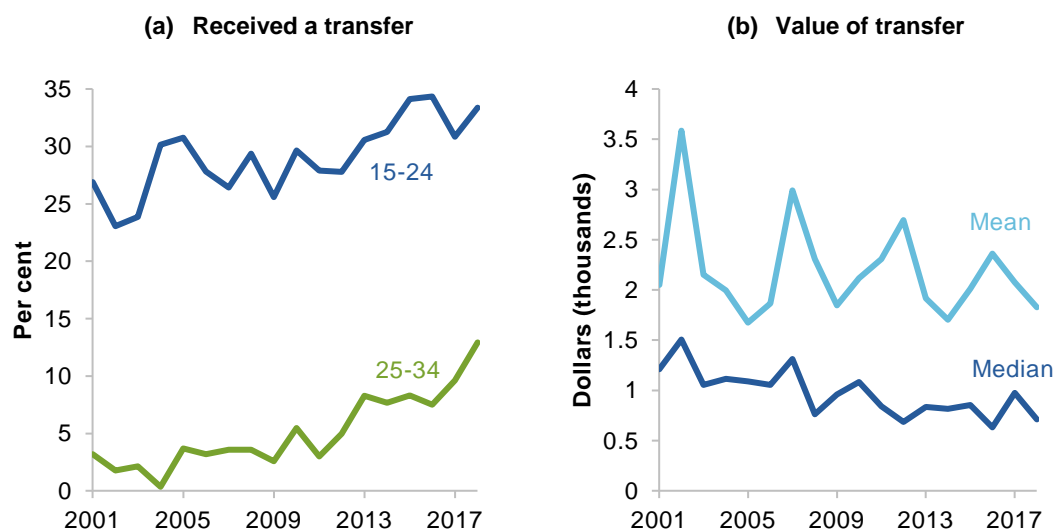
Of the young people who lived with their parents, the proportion who received a parental transfer increased between 2001 and 2018, particularly for 25 to 34 year olds (figure 6.13a). This was partly caused by more young people living at home (Wilkins et al. 2019, p. 112).

Between 2001 and 2018, the value of parental transfers was relatively low compared with the value of transfers made to young people living independently (figure 6.13b). The value of transfers increased with household income.²³

Although transfers from resident parents are generally small, the main benefit for young people who live with their parents is the savings they make on living expenses, which is explored in the next section.

Figure 6.13 Increase in transfers from resident parents

Percentage of young people living with their parents who received a parental transfer (left); real value of transfer (right); 2001–2018



Data source: Commission estimates based on HILDA data.

²² HILDA collects information on within-household transfers, but does not count these transfers towards a person's income to avoid double counting the transfer at the household level.

²³ This result is likely similar for young people living independently, but it is difficult to ascertain using HILDA data.

Savings to young people who live with their parents

Young people are living at home longer and delaying their transition to independent living. In 2001, 47 per cent of men aged 18-29 and 37 per cent of women aged 18-29 were living with their parents; by 2017, these rates had increased to 56 per cent for men and 54 per cent for women (Wilkins et al. 2019, p. 112).

Most young people cite affordability as the main reason for staying at home (Parkinson et al. 2019, pp. 34–35). Sustained growth in house prices and rents over the past 20 years, and declining real incomes from 2008 to 2018, restricted young people's access to affordable housing. Living at home offers stability; it also gives young people the opportunity to avoid the expenses incurred from living independently, enabling some of them to save.

Estimating the savings

The HILDA data are used to estimate the savings a young person accrues by living at home (appendix E outlines the method in detail).²⁴

It is assumed that young people living with their parents:

- do not contribute board.²⁵ To the extent that they do contribute board, the estimated savings decrease
- pay for their personal expenses (clothing, transport costs, health care, personal care, recreation, meals eaten outside the home, and alcohol), which are assumed not to change regardless of who they live with. If parents contribute to personal expenses, then a young person's savings increase.

These assumptions are based on patterns observed by Hill and Hirsch (2019, pp. 25, 43), who gathered data on what young people who live with their parents pay for in the United Kingdom. Under these assumptions, young people accrue savings by avoiding the household expenses they would incur if they lived independently: housing (rent or mortgage); groceries; and household goods and services.

Using HILDA data, savings for young people who live with their parents are estimated from the household expenditure patterns of young people who do not live with their parents. Young people who live with their parents make an estimated average saving of \$383 per week (table 6.2). This average saving includes: \$210 per week on housing; \$94 on groceries; and \$79 on other household expenses. The estimated average yearly saving is substantial: \$19 930.

²⁴ An alternative way to estimate the benefits of living at home is to calculate the additional cost to parents of housing a young person.

²⁵ Using survey data, Emmerton (2018) reported that, in 2018, 60 per cent of people aged 19-34 who lived with their parents were not paying rent; 75 per cent did not contribute to household bills, and 70 per cent did not buy groceries.

The estimated savings differ by state (table 6.2). For example, a young person in the ACT saves on average \$433 per week (\$22 497 per year), while a young person in Tasmania saves \$312 per week (\$16 201 per year). The difference is largely related to the variation in housing costs across states: that is, rent and mortgages, which are linked to house prices.

Table 6.2 Estimated savings are substantial and differ by state

Average real savings per week, by state, 2018

	<i>Housing</i>	<i>Groceries</i>	<i>Household expenses^a</i>	<i>Total saving</i>	<i>Total saving (per year)</i>
	\$	\$	\$	\$	\$
New South Wales	234	95	81	411	21 354
Victoria	204	93	81	379	19 690
Queensland	189	91	71	351	18 269
South Australia	168	89	71	327	17 028
Western Australia	218	100	81	399	20 759
Tasmania	153	86	72	312	16 201
Northern Territory	187	103	63	353	18 363
ACT	239	99	95	433	22 497
Australia	210	94	79	383	19 930

^a Household expenses include: utilities; telephone and internet charges; home and contents insurance; home maintenance; and household appliances and furniture.

Source: Commission estimates based on HILDA data.

How have savings changed over time?

From 2008 to 2018, the yearly average savings decreased from about \$24 700 to \$19 900, or about 1.9 per cent per year, which is slightly larger than the negative income growth observed for the same period (figure 6.14a). The decrease in estimated savings appears to be a result of independent young people minimising household expenses in response to falling incomes. The estimated savings, however, remained large.

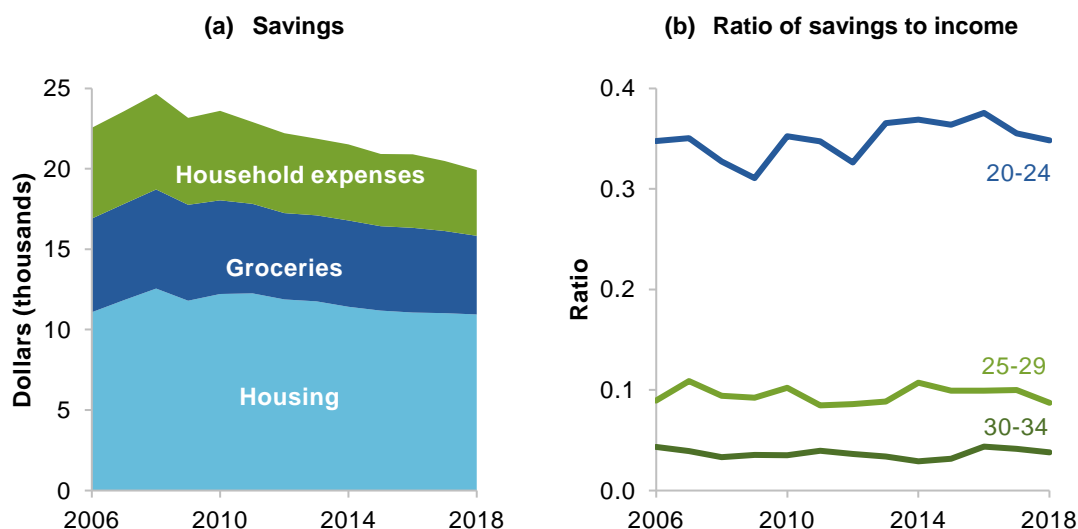
The estimated savings represented a larger proportion of total income for the younger age groups (figure 6.14b). The ratio of total savings to income was about:

- 35 per cent for people aged 20-24
- 10 per cent for people aged 25-29
- 4 per cent for people aged 30-34.

This is because younger people are more likely to live with their parents and have lower incomes (figure 6.15a).

Figure 6.14 Savings from not living independently account for a large share of income for people aged 20-24

Average real savings for people aged 20-34 (left); ratio of real total savings to real total income (right); 2006–2018^a



^a For each age group and year, this ratio is the total savings (that is, the sum of all savings) divided by total income.

Data source: Commission estimates based on HILDA data.

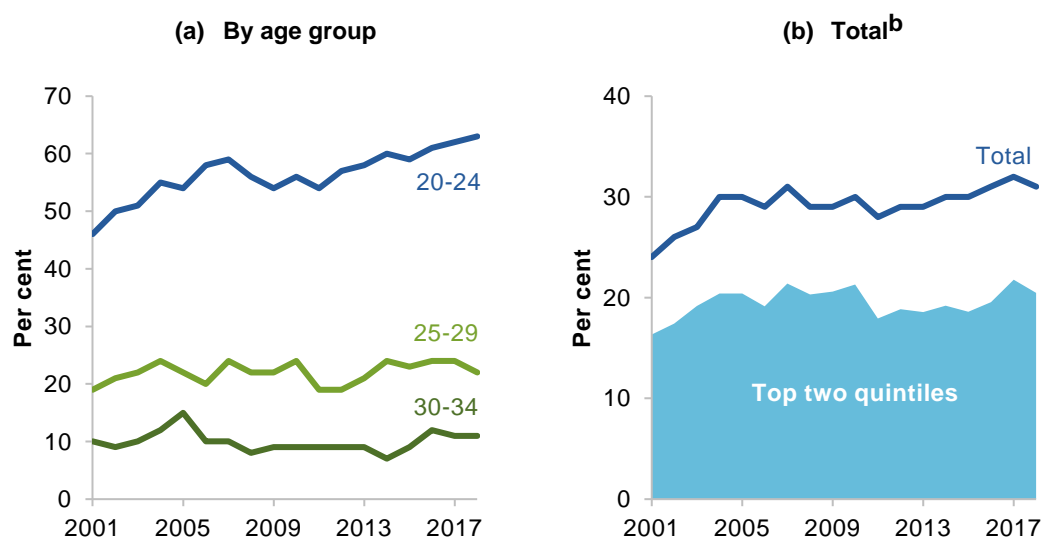
Savings are large for people aged 20-24 because of their increased propensity to live at home. From 2001 to 2018, the proportion of young people who lived with their parents increased — people aged 20-24 experienced the largest rise at 17 percentage points (figure 6.15a). This likely reflects an increased uptake of post-secondary education, along with more uncertain labour market conditions (lower wage rates and increased non-permanent employment).

The estimated savings mainly benefit young people from high-income households. Roughly two thirds of young people who lived at home were from the top 40 per cent of households by income (figure 6.15b). Young people in high-income households have a higher opportunity cost from living independently (a larger drop in living standards), which incentivises them to remain in the family home. Also, high-income parents can more easily accommodate young people in a larger home, and can afford to support them.

These savings from living at home may have helped to offset the decrease in young people's incomes, but mainly for people aged 20-24, and for young people whose parents could afford to accommodate them.

Figure 6.15 People aged 20-24 and people in high-income families are most likely to make savings

Percentage of people aged 20-34 who lived with their parents, 2001–2018^a



^a Over 90 per cent of people aged 15-19 live with their parents; this group is excluded from both charts.

^b The blue area shows the share of people aged 20-34 who live with their parents whose household income was in the top two quintiles. The white area between the blue area and the total line shows the share for the bottom three income quintiles.

Data source: Commission estimates based on HILDA data.

A Comparing data sources

Most of the analysis contained in this study is based on data from the annual Household Income and Labour Dynamics of Australia (HILDA) survey, that the Melbourne Institute of Applied Economic and Social Research produces. HILDA is used in this study because it covers the period under investigation (2001 to 2018), it is known to be reliable and consistent (the Commission has used HILDA in the context of many projects, testing and assessing repeatedly the high quality of the data). And it includes highly detailed data of people's income sources and characteristics that relate to their incomes, such as education and health.

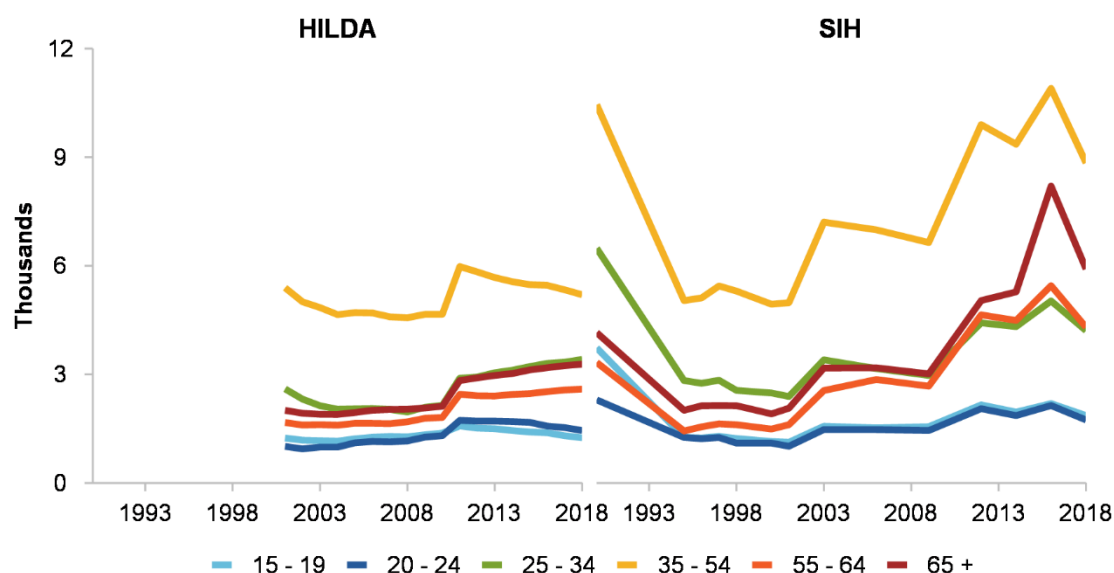
The Survey of Income and Housing (SIH), conducted by the Australian Bureau of Statistics (ABS), contains similar data about income sources and has been conducted for longer than HILDA. The ABS first conducted SIH in 1969 but initially collected only data on households; data on individuals were collected after 1982. The 1982, 1986 and 1990 surveys were conducted over two to three months in the December quarter. The surveys conducted from 1994-95 until the most recent in 2017-18 were conducted over a 12 month period, aligning with the Australian fiscal year (1 July to 30 June)²⁶. One appeal of SIH is the potential to build a longer time series than HILDA. That said, the infrequent collection of data is a disadvantage of SIH.

The sample size of SIH has also been on par or greater than that of HILDA in most years (figure A.1). Both surveys have increased the sizes of their samples over time: in 2001, SIH sampled 13 000 individuals, compared with HILDA's 14 000; by 2018 SIH had a sample size of 27 000, compared with HILDA's 17 000.

Like HILDA, SIH contains detailed data on individuals' incomes. However, one major limitation of SIH — and the primary reason why it is not the main data source in this study — is that the construction of income variables is not consistent over time. This is a significant limitation as it cannot be ascertained whether changes in income observed in the data are due to changes in people's incomes or changes in the survey method. This is particularly true of SIH data published before 2006. In an attempt to address the problem of survey comparability, the ABS publish multiple measures of income beginning from the 2006 survey. In order to obtain the most consistent time series possible, this appendix uses the consistent measures of income that were published between the 2006 and 2018 surveys, with the caveat that figures extracted from surveys prior to 2006 are not measured consistently.

²⁶ The reported dates for SIH and HILDA are annual data are for a financial year; for example, 2018 refers to the period from 1 July 2017 to 30 June 2018.

Figure A.1 Sample sizes of HILDA and SIH, by age group

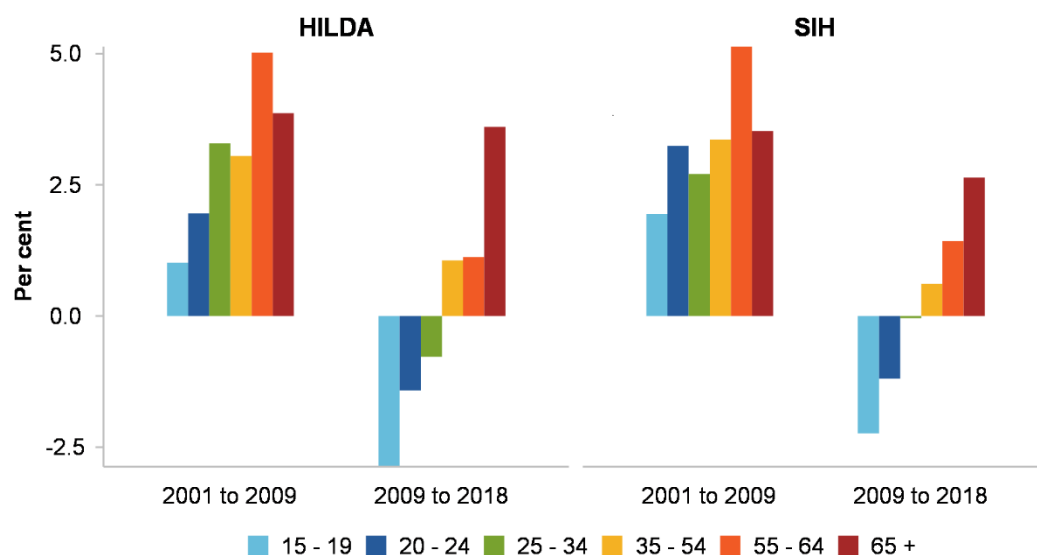


Data sources: Commission estimates based on HILDA and ABS SIH Basic Confidentialised Unit Record Files for 1994 through to 2018.

Despite the possible inconsistencies that might affect SIH data over time, this appendix compares headline income figures in HILDA and SIH to validate the robustness of conclusions based on the more detailed HILDA dataset.

The primary motivation for this study is the finding in figure 2.1 — based on HILDA data — that young people’s average income declined between 2008 and 2018. SIH was not published in 2008, but the same pattern can be seen by comparing 2009 and 2018 in both HILDA and SIH (figure A.2). There are some differences, most notably the income growth of people aged 65 is lower in SIH than in HILDA from 2009 to 2018, and there are smaller declines in income growth for 15 to 19 year olds and 25 to 34 year olds. However, the broad finding that young people’s incomes declined while older people’s did not is consistent across the two surveys. Both surveys also show that incomes increased for all age groups between 2001 and 2009.

Figure A.2 Average annual growth in average disposable income^a



^a Periods adjusted to 2009 to match the years for which SIH data are available.

Data sources: Commission estimates based on HILDA and ABS SIH Basic Confidentialised Unit Record Files for 1994 through to 2018.

A.1 Comparing HILDA and SIH

Changes to ABS income definitions and survey methods in the mid-2000s affect the comparability of income estimates across time, and account for some of the divergence in estimates between SIH and HILDA (Wilkins 2014). Definitional changes of income and modifications to survey questions in the 2004 and 2010 SIHs affected (PC 2018, p. 41):

- wage and salary income estimates, through the more explicit inclusion of salary-sacrificed income and inclusion of bonuses, termination payments and irregular overtime payments
- business and investment income estimates, through more explicit inclusion of dividend imputation credits, changes to the reporting period for unincorporated business income and reclassification of some types of income that improved income capture
- other income estimates, through the inclusion of lump sum workers' compensation payments and the inclusion of a wider range of financial support from non-resident family members (such as rent, food and clothing).

Many of these changes are likely to have increased average income. Changes to SIH survey methods that are likely to have affected income estimates include (PC 2018, p. 41):

- the introduction of computer-assisted personal interviewing in 2003-04, which can improve income reporting by, for example, reducing contradictory or implausible responses, and may disproportionately increase measured income among high-income households

- the introduction of wealth data collection in 2003-04, which improved the quality of reporting of associated income streams.

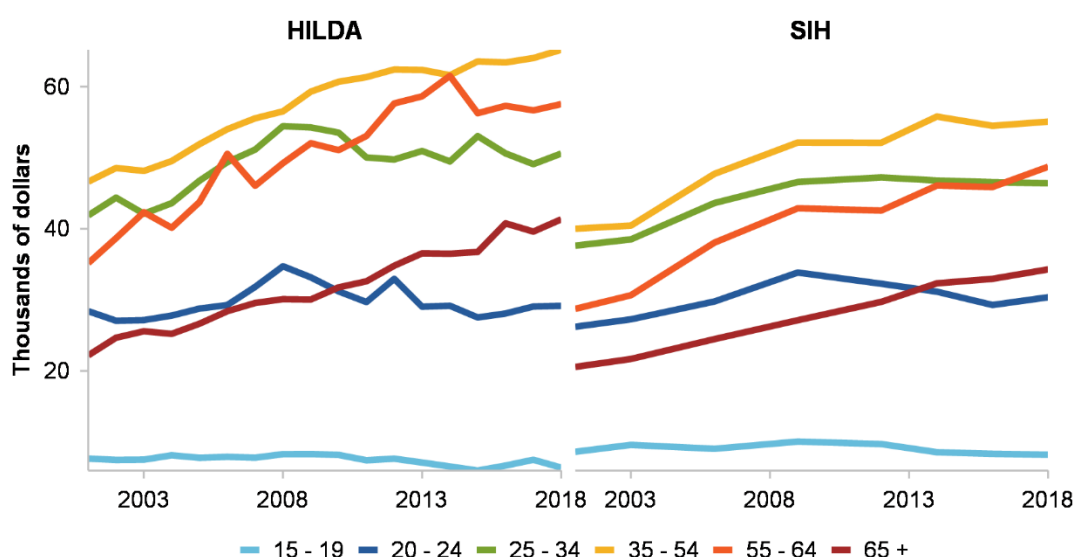
Changes to survey methods and income definitions, and sample attrition in HILDA, may also account for divergences between the two surveys. However, Wilkins (2014, p. 78) indicated that such changes through the 2000s were minor and sample attrition was minimal.

A difficulty in constructing time-series from SIH is that variable names are not consistent across survey years and that the categories within categorical variables also change. Some categorical variables, for example age ranges and hours worked ranges, have also switched to continuous variables in the most recent surveys (2016 and 2018). To construct time-series for SIH, the variables and categories were first aligned and categorical variables were standardised. Where only ranges were supplied (for example, for the hours worked variables), the mid-point of the range was taken.

Disposable income

Notwithstanding the method changes over time, the trends of disposable income growth by age group are broadly similar across HILDA and SIH (figure A.3).

Figure A.3 Average annual disposable income, by age group^{a,b}



^a Real, adjusted by the CPI. ^b SIH data was annualised, based on reported figures for weekly income and taxes.

Data sources: Commission estimates based on HILDA and ABS SIH Basic Confidentialised Unit Record Files for 1994 through to 2018.

Both surveys show that disposable income for:

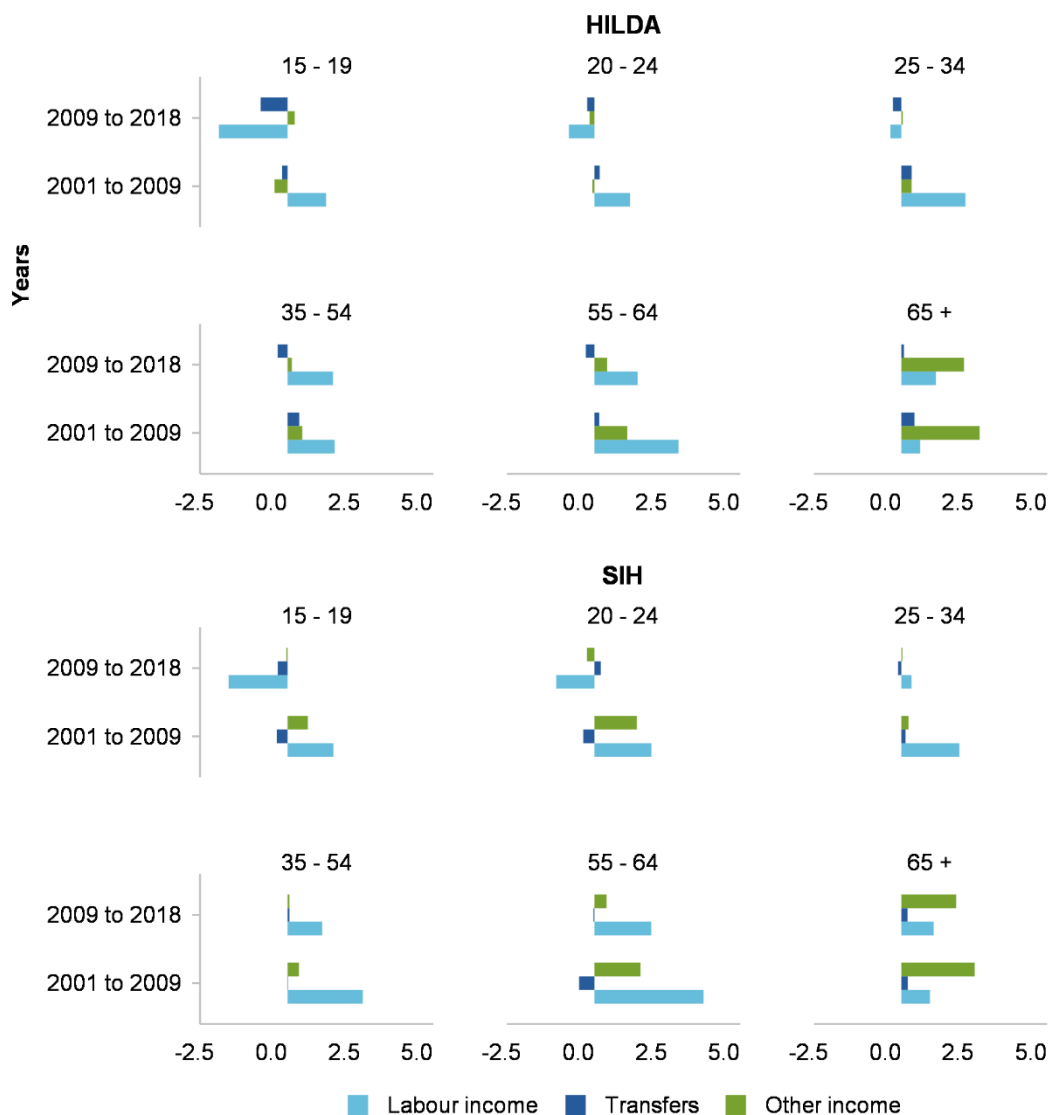
- 15 to 19 year olds did not grow after 2001
- 20 to 24 year olds peaked in 2008
- 25 to 34 year olds did not grow after 2008
- the older age groups continued to grow.

However, there is a substantial difference in the reported levels — primarily in the older age groups for which reported incomes are considerably lower in SIH than in HILDA. Most of the difference in disposable income levels is attributable to differences in how other income (income not from labour or government transfers) is reported.

The relative importance of labour income, transfer income, and other income in explaining gross income growth by age group is broadly consistent across HILDA and SIH (figure A.4). Broadly speaking, labour income, which is the largest source of income for most age groups, explains most of the changes in income, with the exception of people aged 65 and over whose income growth was explained by other income.

One difference is that transfer income is relatively more important than other income in SIH. This can be accounted for, by the fact that SIH does not include some capital transfers and life insurance claims, which are included in HILDA (both as parts of other income).

Figure A.4 Contributions to average annual growth in gross income by age group^{a,b}



^a Real, adjusted by the CPI. ^b The contributions from labour, transfer and other income sum to growth in gross income, for that age group.

Data sources: Commission estimates based on HILDA and ABS SIH Basic Confidentialised Unit Record Files for 1994 through to 2018.

Labour income

Labour income growth by age group shows similar trends across both surveys (figure A.5).

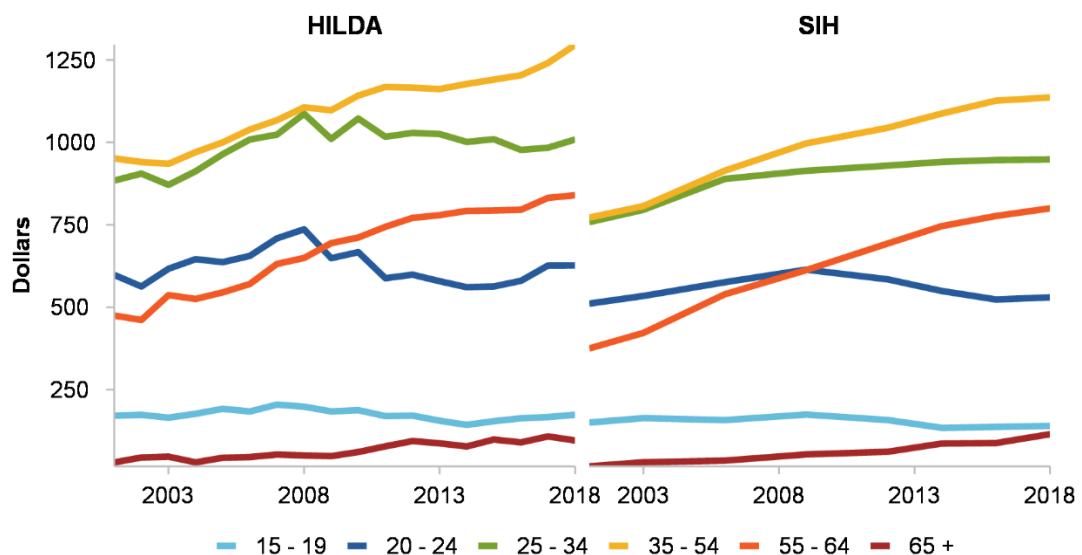
- From 2001 to 2018, there was no growth for 15 to 19 year olds.

- From 2001 to 2008, there was some growth for 20 to 24 year olds and 25 to 34 year olds, then a decline after 2008
- From 2001 to 2018, income grew consistently for older age groups.

The two surveys show different levels of labour income for people aged 65 and over. This possibly reflects the relatively small sample size of employed workers in that age group in both SIH and HILDA. In 2018, HILDA sampled 313 workers aged 65 and over, while SIH sampled 587.

Hours worked are similar across HILDA and SIH (figure A.6). The reason for the sharp increase in hours worked between the 2003 and 2006 SIHs is unknown, but also appears to be inconsistent with data reported in the ABS labour force survey (ABS 2019d).

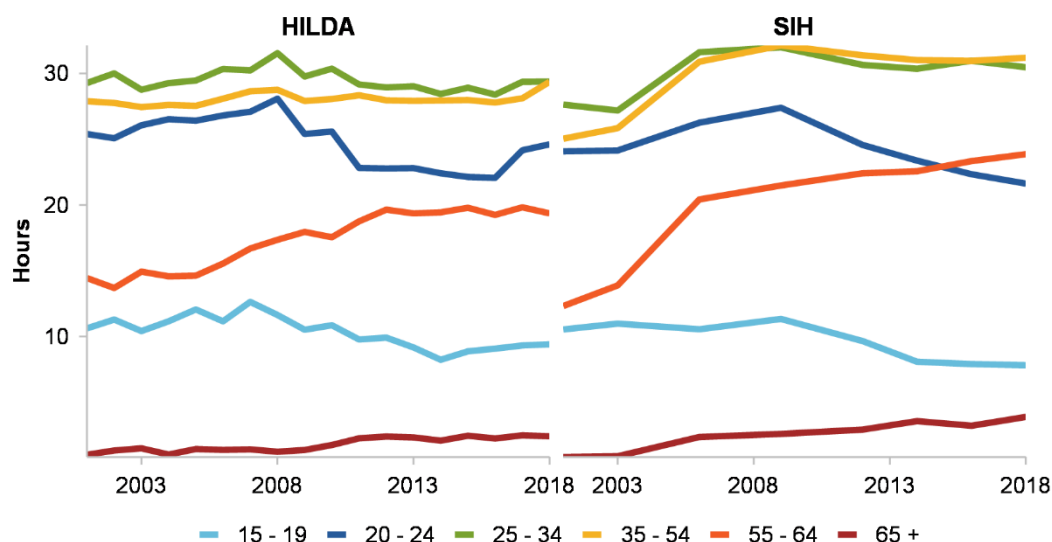
Figure A.5 **Average weekly labour income, by age group^a**



^a Real, adjusted by the CPI.

Data sources: Commission estimates based on HILDA and ABS SIH Basic Confidentialised Unit Record Files for 1994 through to 2018.

Figure A.6 Average weekly hours worked, by age group



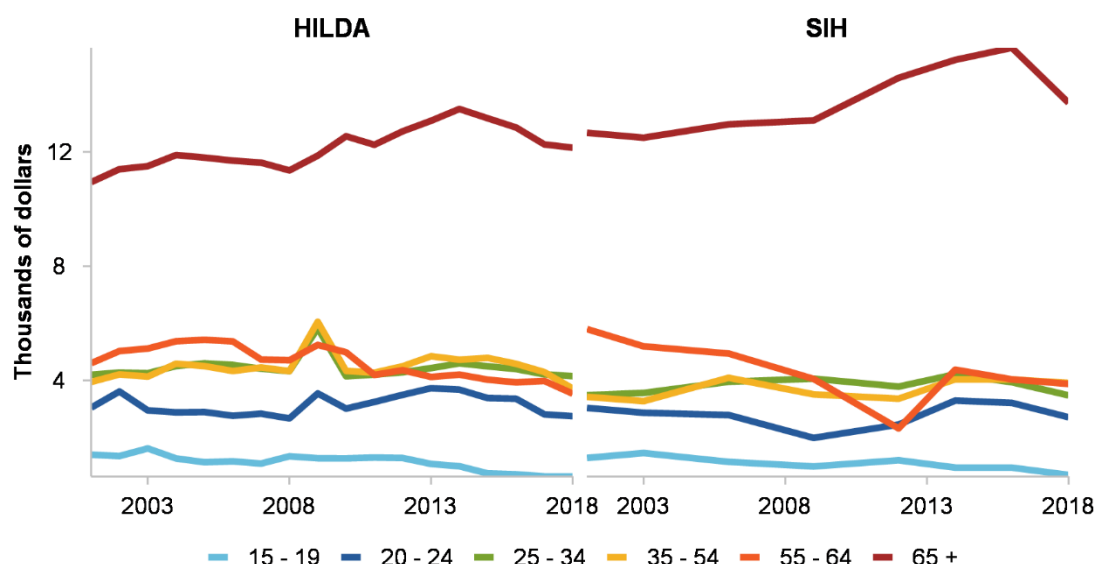
Data sources: Commission estimates based on HILDA and ABS SIH Basic Confidentialised Unit Record Files for 1994 through to 2018.

Transfer income

Transfer income is similar across HILDA and SIH (figure A.7). The spike from the economic stimulus payment during the global financial crisis, does not appear in SIH because the survey was not conducted that year.

Transfer income of people aged 55-64 and 65 and over is slightly higher in SIH than HILDA. One factor that contributed to this difference was the exclusion of foreign pensions from transfer income in HILDA (this study includes foreign pensions in other income). This, however, does not explain the substantial decline in transfer income for people aged 55-64 observed in SIH from 2001 to 2012. This decline can be explained by an increase in the age eligibility for the Age Pension for women.

Figure A.7 Average annual transfer income, by age group^{a,b}



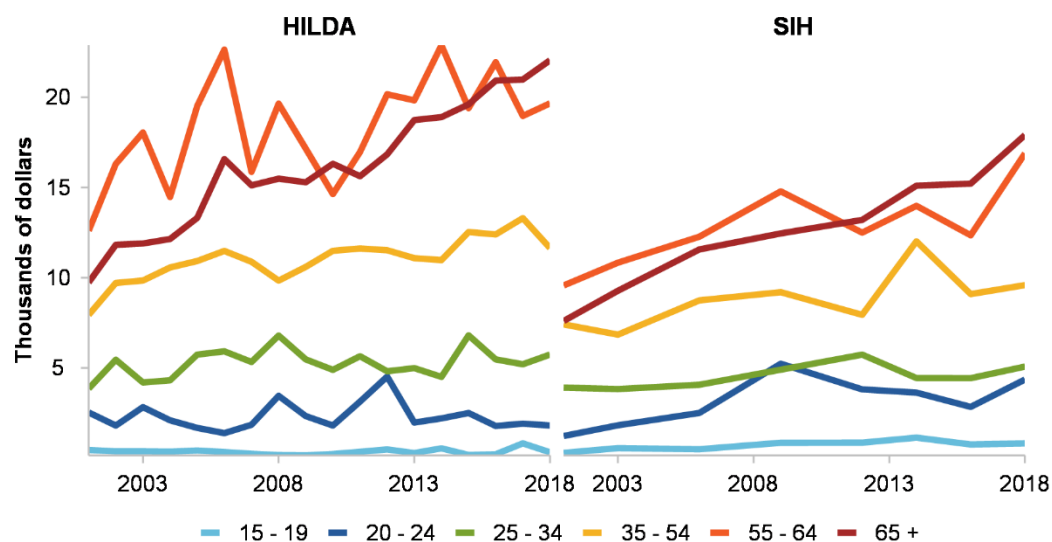
^a Real, adjusted by the CPI. ^b SIH data were annualised from weekly data.

Data sources: Commission estimates based on HILDA and ABS SIH Basic Confidentialised Unit Record Files for 1994 through to 2018.

Other income

Relativities across age groups are similar for other income in SIH and HILDA, as is the change in other income over time. However, the level of other income is substantially lower in SIH than in HILDA (figure A.8). The difference in levels arises because SIH does not include some transfers such as inheritance, lump-sum retirement benefits and life insurance claims (except annuities), which are included as sources of other income in HILDA.

Figure A.8 Average annual other income, by age group^{a,b}



^a Real, adjusted by the CPI. ^b SIH data was annualised from weekly data.

Data sources: Commission estimates based on HILDA and ABS SIH Basic Confidentialised Unit Record Files for years the 1994 through to 2018.

B Shift-share decomposition

A decrease in average wage income per person can be attributed to ‘shift effects’ (that is, moving to lower paid jobs) and ‘share effects’ (that is, receiving a lower wage for the same job type or the change in wage). A similar shift-share decomposition can be applied to the average number of hours worked or to the average wage rate. Shift-share decomposition can be used to identify the contributions of various groups to changes in any average or aggregate variable, including any variables that affect income, such as wage rates or hours worked.

Income per person (ω) can be described as the weighted average of incomes per person for each group i (ω_i), with S_i , the share of group i in the total population:

$$\omega = \sum_{i=1}^N S_i \omega_i$$

A change in income per person can be decomposed as:

$$\Delta\omega = \left[\sum_{i=1}^N \Delta\omega_i \left(\frac{S_{i,t=0} + S_{i,t=1}}{2} \right) \right] + \left[\sum_{i=1}^N \Delta S_i \left(\frac{\omega_{i,t=0} + \omega_{i,t=1}}{2} - \frac{\bar{\omega}_{t=0} + \bar{\omega}_{t=1}}{2} \right) \right]$$

Where $\frac{\bar{\omega}_{t=0} + \bar{\omega}_{t=1}}{2}$ is the change in average income over the period $t=0$ to $t=1$.

The terms in the first square brackets represent the contribution of changes in income per person that can be linked to changes in income in group i (the within-group contribution, also known as share effects).

The terms in the second square brackets represent the contribution of changes in income per person that can be linked to shifts between groups, or change in income shares, weighted by the difference in per person income between the group of interest and average per person income, measured as their average values over the period (the between-group contribution, also known as shift effects). These shift effects are positive if people are moving into a group with above-average income or if they are moving out of a group with below-average income. Conversely, shift effects are negative if people are moving into a group with below-average income or if they are moving out of a group with above-average income.

For example, using an occupational decomposition, the within-group contribution is the contribution of changes in the incomes associated with each occupation. The between-group contribution is the contribution of workers changing occupations; for example, some workers might move to occupations with higher than average levels of income. Other workers might move to occupations whose incomes are lower than the average. In net terms, the sum of the shift effects can be positive or negative.

C Additional labour market analysis

This appendix presents additional labour market analysis. This includes:

- wage rate growth for workers in different periods from 2001 to 2018 (section C.1)
- analysis of the role of industry in the wage puzzle (section C.2)
- wage rate growth by socioeconomic status (section C.3)
- empirical cumulative density functions and occupational score (section C.4)
- analysis of additional overseas students in the labour market (section C.5)
- the full Heckman regression results (section C.6).

C.1 Prime-aged wage rate growth slowed but then recovered

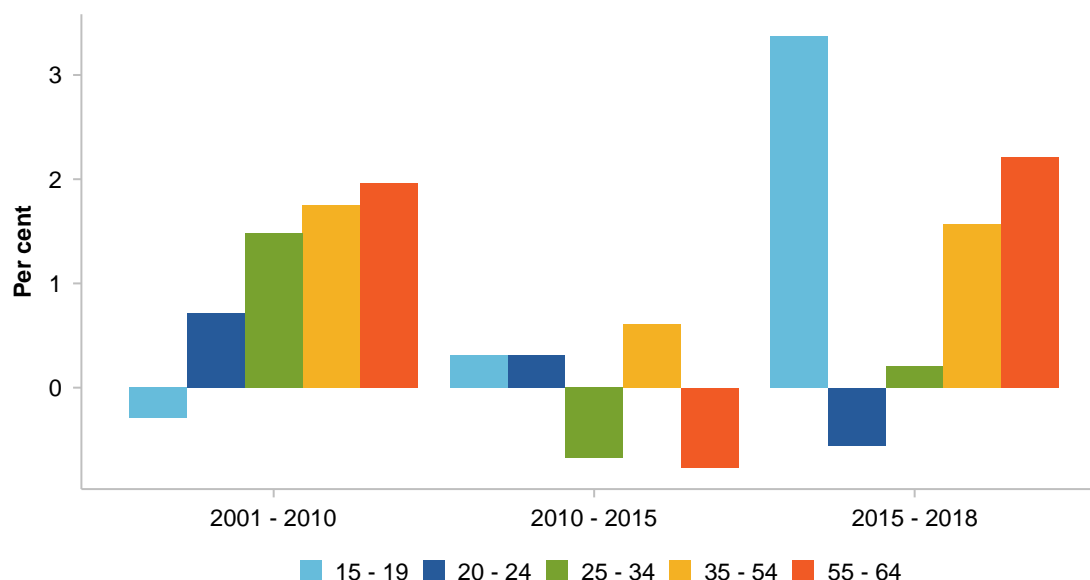
The wage puzzle is still evident when viewed over different time periods (figure C.1).

- From 2001 to 2010 wage rates grew at a similar pace for workers aged 25-64.
- From 2010 to 2015 wage rates slowed for workers aged 20-64; wage rates declined for workers aged 25-34 and 55-64.
- After 2015, wage rate growth recovered for workers aged 35-64 but not for younger workers.

Workers aged 15-19 bucked the trend but this is explained by growth in part-time wage rates in specific industries and occupations (chapters 3 and 4).

Figure C.1 **Young workers' wage rate growth did not recover after 2015**

Average growth rate of real wage rate, by age group



Data source: Commission estimates based on HILDA data.

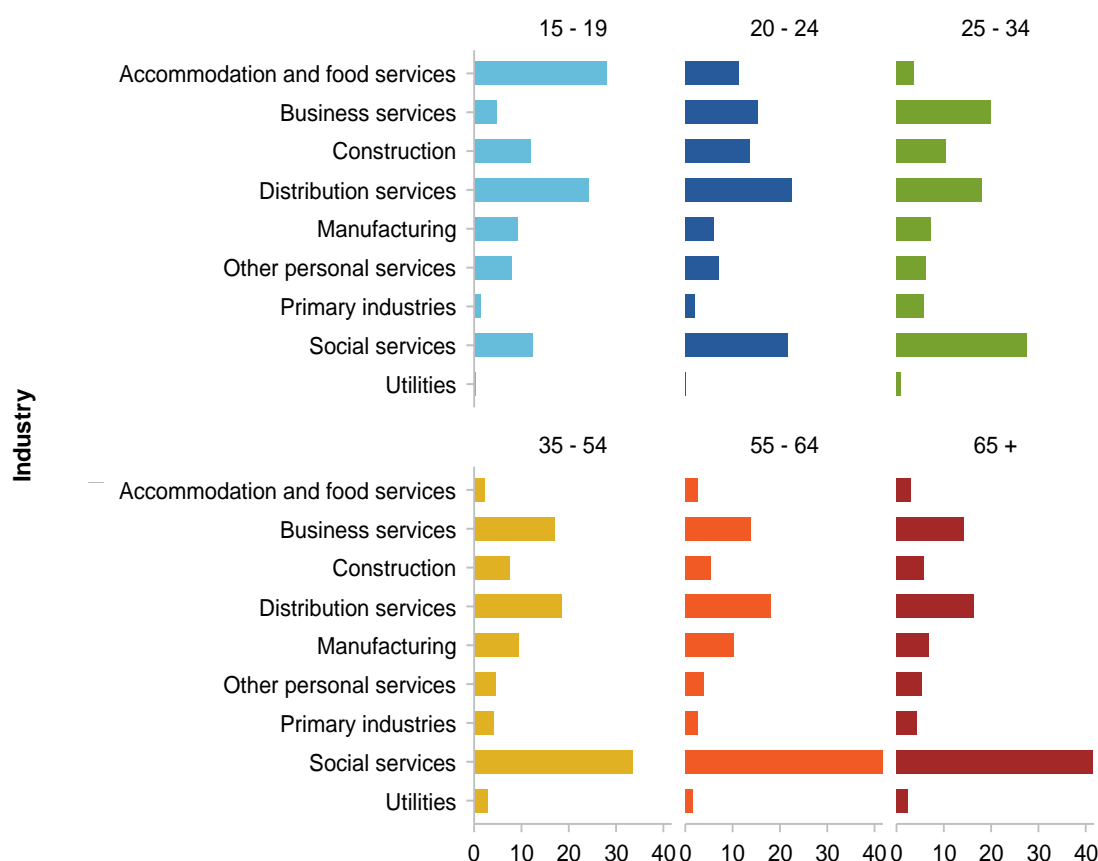
C.2 Industry does not explain the wage puzzle

Different industries pay different wage rates and experience different wage rate growth trajectories. The Commission used shift-share decomposition to show that industries (section C.2) and occupations (chapter 4) do not explain the divergence in wage rate growth.

Young people are employed in different industries than prime-aged workers (figure C.2). When compared to prime-aged workers:

- workers aged 15-19 are:
 - more likely to work in accommodation and food services, construction and distribution services
 - less likely to work in social services and business services
- workers aged 20-24 are:
 - somewhat more likely to work in accommodation and food services and construction
 - less likely to work in social services
- workers aged 25-34 are:
 - somewhat more likely to work in business services
 - less likely to work in social services.

Figure C.2 The industry composition of employment differs by age
Proportion^a of hours age groups work in each industry,^b by age group, 2018



^a The proportion of hours worked across industries for a given age group will sum to one. ^b Industry groupings are aggregated from one digit ANZSIC 2006 industries. Agriculture, forestry and fishing and mining have been grouped into 'Primary industries'. Wholesale trade, retail trade and transport, postal and warehousing have been grouped into 'distribution services'. Financial and insurance services, rental, hiring and real estate services, professional, scientific and technical services and administrative support services have been grouped into 'business services'. Public administration and safety, education and training and health care and social assistance have been grouped into 'social services'. Arts and recreation services and other services have been grouped into 'other personal services'.

Data source: Commission estimates based on HILDA data.

The top four industries vary by age group but employ between 73 and 79 per cent of workers.

- Accommodation and food services (28 per cent), distribution services (24 per cent), social services (12 per cent) and construction (12 per cent) employ 76 per cent of workers aged 15-19.
- Distribution services (22 per cent), social services (22 per cent), business services (15 per cent) and construction (14 per cent) employ 73 per cent of workers aged 20-24.
- Social services (28 per cent), business services (20 per cent), distribution services (18 per cent), and construction (11 per cent) employ 77 per cent of workers aged 25-34.

-
- Social services (34 per cent), distribution services (19 per cent), business services (17 per cent) and manufacturing (9 per cent) employ 79 per cent of workers aged 35-54.

Part-time work drives some of the difference in the industries in which workers aged 15-19 are employed. When only considering full-time workers aged 15-19 there was some slight differences in the top four industries worked; construction (21 per cent), manufacturing (17 per cent), social services (17 per cent) and distribution services (16 per cent) employ 71 per cent of workers aged 15-19. For other age groups, the top four industries that employ between 73 and 79 per cent of each age group remained the same.

Wage rate growth within industries explains little of the divergence for most age groups

The wage puzzle for workers aged 20-34 was not limited to any specific industry (table C.1).

- Most industries contributed positively to wage rate growth for workers aged 25-54 between 2001 and 2008.
- Growth was more varied for workers aged 15-24 before 2008.
 - For workers aged 15-19, accommodation and food services, distribution services, manufacturing, and social services contributed negatively to wage rate growth.
 - For workers aged 20-24, accommodation and food services, construction and distribution services contributed negatively to wage rate growth.
- After 2008, most industries contributed little (or negatively) to wage rate growth for workers aged 20-34, while all occupations contributed positively to wage rate growth for workers age 35-54.
 - For workers aged 15-19, growth was more varied after 2008, with accommodation and food services, distribution services and manufacturing contributing significantly to positive wage rate growth.
 - For workers aged 20-24, distribution services was the only industry that contributed significantly to positive wage rate growth.
 - For workers aged 25-34, social services was the only industry that contributed significantly to positive wage rate growth.

The strong wage rate growth for workers aged 15-19 in accommodation and food services, and (to a lesser degree) distribution services and manufacturing, likely propped up wage rate growth for that age group. Wage rates for workers aged 15-19 grew strongly from 2008 to 2018, with part-time wage rates driving growth (distribution services and accommodation and food services employ a large proportion of all workers aged 15-19 but employ a lower proportion of full-time workers aged 15-19).

Table C.1 The wage puzzle for workers aged 20-35 is not explained by industries

Within-group^a contribution to changes in real wage rate by industry

	15-19	20-24	25-34	35-54
	% point	% point	% point	% point
2001- 2008				
Accommodation and food services	-0.46	-0.25	0.11	0.04
Business services	0.15	0.15	0.06	0.20
Construction	0.22	-0.06	0.21	0.24
Distribution services	-0.26	-0.05	0.25	0.02
Manufacturing	-0.03	0.17	0.31	0.12
Other personal services	0.00	0.18	0.09	0.06
Primary industries	0.09	0.19	0.08	0.17
Social services	-0.05	0.32	0.13	0.47
Utilities	0.00	0.07	0.05	0.03
2008 - 2018				
Accommodation and food services	0.67	0.06	0.00	0.01
Business services	-0.03	-0.09	-0.1	0.27
Construction	-0.06	-0.05	-0.05	0.03
Distribution services	0.18	0.42	-0.1	0.21
Manufacturing	0.10	-0.04	-0.06	0.13
Other personal services	0.06	-0.07	0.03	0.05
Primary industries	-0.02	-0.05	-0.03	0.00
Social services	0.02	-0.07	0.30	0.48
Utilities	0.07	-0.01	0.02	0.02

^a The within-group contribution measures the contribution to changes in the wage rate by people who remained within the industry (shift effect is not reported). The within-group contribution abstracts from growth resulting from workers changing from, for example, low-paying to high-paying industries.

Source: Commission estimates based on HILDA data.

Compositional changes explain little of the divergence

People moving between industries with different wage rates explains little of the wage puzzle (table C.2). Contributions to wage rate growth from moving between industries range from -0.11 percentage points to 0.11 percentage points. The largest contributions to growth from movement between industries are from workers aged 15-19. When only workers aged 20-54 (workers for which the wage puzzle holds most) are considered, the contribution to growth ranges from -0.05 percentage points to 0.06 percentage points.

Table C.2 Movement between industries explained some growth in wage rates for workers aged 15-19

Between-group^a contribution to changes in real wage rate by industry

	15-19	20-24	25-34	35-54
	% point	% point	% point	% point
2001- 2008				
Accommodation and food services	0.00	0.02	0.03	0.01
Business services	0.01	0.01	0.06	0.02
Construction	0.01	-0.01	0.00	0.00
Distribution services	0.01	0.04	0.05	0.01
Manufacturing	0.00	0.00	0.00	0.01
Other personal services	0.01	-0.01	0.00	0.02
Primary industries	-0.04	-0.01	0.01	-0.01
Social services	-0.01	0.03	0.00	0.01
Utilities	0.00	0.00	0.01	-0.01
2008 - 2018				
Accommodation and food services	-0.11	-0.05	0.02	0.01
Business services	-0.05	0.00	-0.03	0.03
Construction	-0.01	0.00	0.01	0.01
Distribution services	0.06	0.00	0.00	0.03
Manufacturing	0.00	0.00	0.02	0.02
Other personal services	-0.01	0.00	-0.02	-0.01
Primary industries	0.00	0.00	0.00	0.00
Social services	0.11	0.06	0.03	0.00
Utilities	-0.01	-0.02	-0.02	0.01

^a The between-group contribution measures the contribution to changes in the wage rate by people who moved between industries (share effect is not reported). The between-group contribution measures growth resulting from workers changing from, for example, low-paying to high-paying industries.

Source: Commission estimates based on HILDA data.

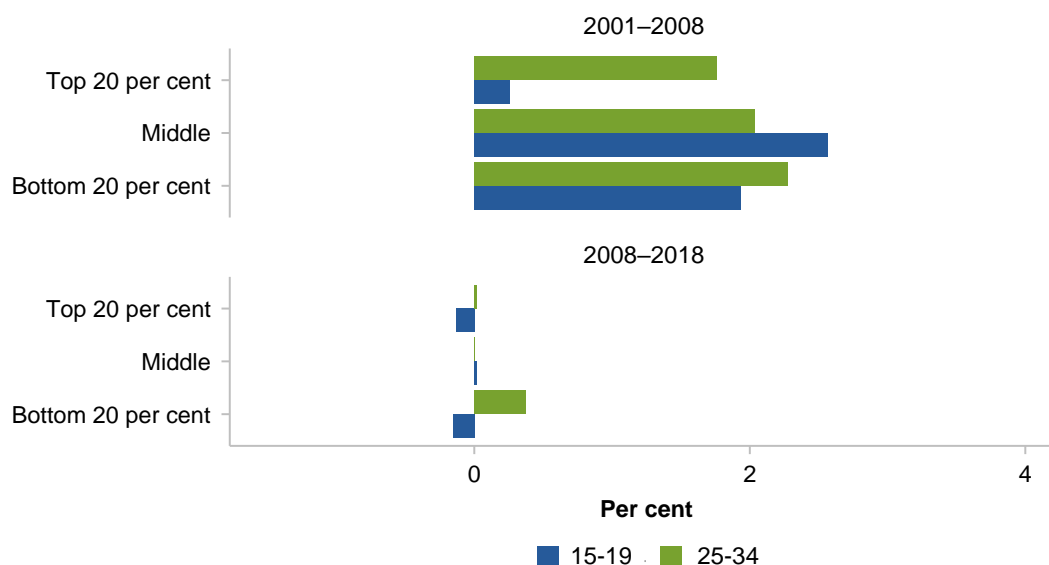
C.3 Socioeconomic status does not explain the wage puzzle

The wage puzzle is not explained by socioeconomic status (as measured by the Socioeconomic Index for Areas (SEIFA), figures C.3 and C.4). People aged 15-34 of any socioeconomic status working full-time²⁷ experienced almost no wage rate growth after 2008. This compares with wage rate growth of about 2 per cent for most SEIFA groups before 2008 for people aged 15-34. In contrast, prime-aged workers from most socioeconomic backgrounds experienced wage rate growth of over 1 per cent per year in both periods.

²⁷ If part-time workers are included these results are more nuanced for people aged 15-24. The role of part-time work, particularly for workers aged 15-24, is discussed in chapter 3.

Figure C.3 Wage rates slowed for young people from all socioeconomic backgrounds

Average growth in real full-time wage rate, by SEIFA level^a

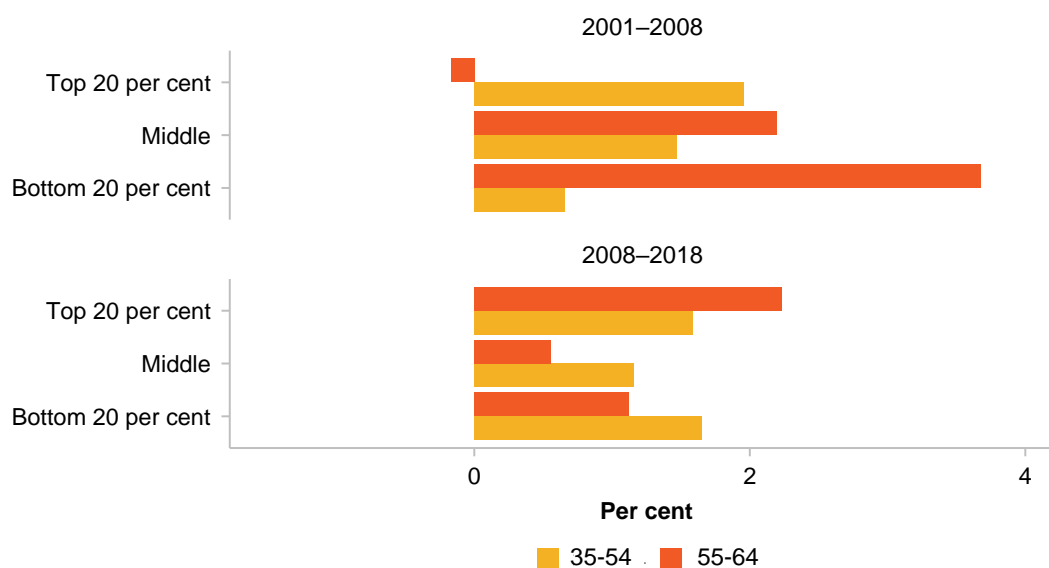


^a 'Middle' contains the middle 60 per cent of SEIFA areas.

Data source: Commission estimates based on HILDA data.

Figure C.4 Wage rates did not slow for prime-aged across SEIFA levels

Average growth in real full-time wage rate, by SEIFA levels^a



^a 'Middle' contains the middle 60 per cent of SEIFA areas.

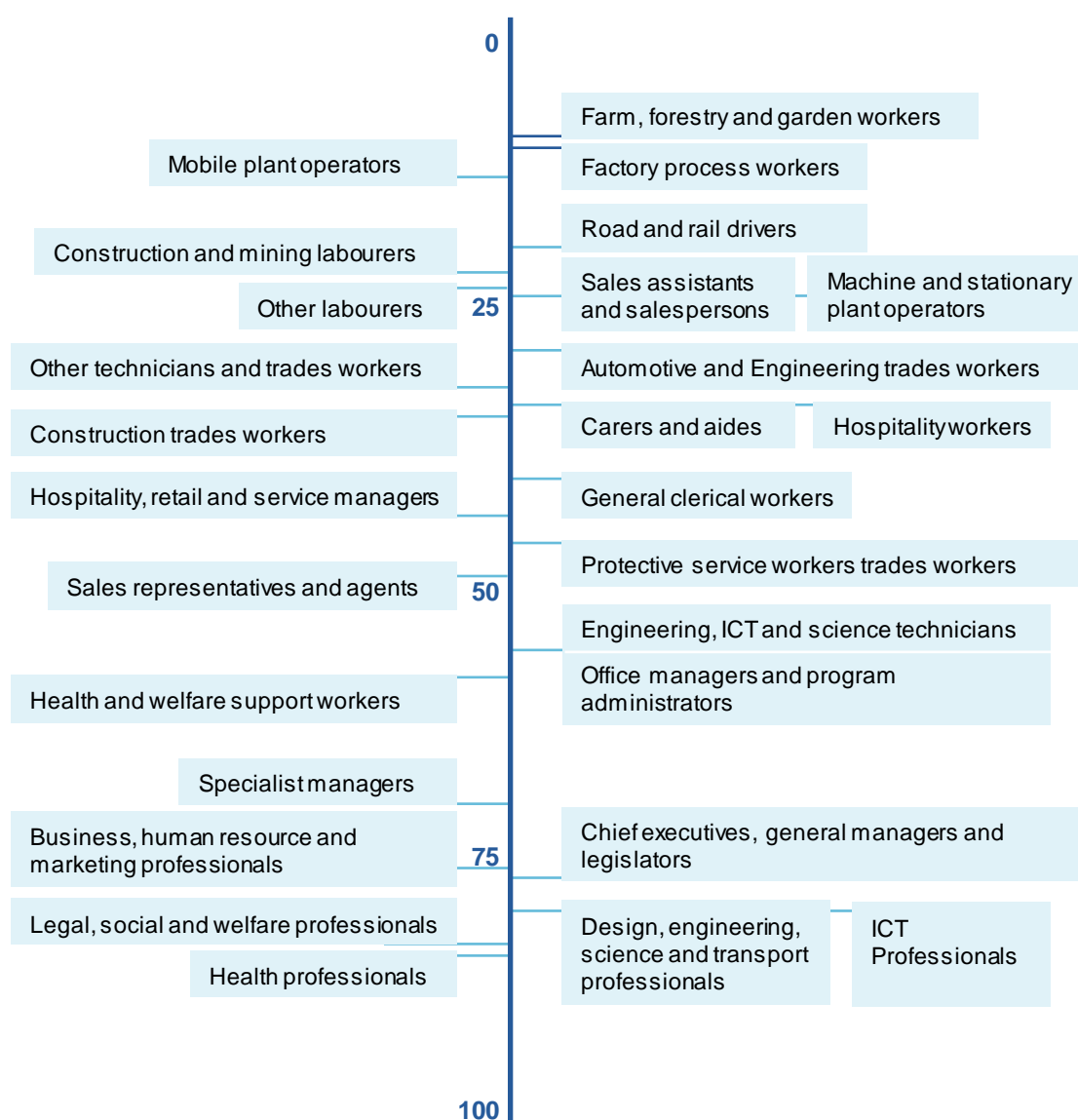
Data source: Commission estimates based on HILDA data.

C.4 The Australian Socioeconomic Index 2006 scale

Where do occupations fit on the Australian Socioeconomic Index 2006 scale?

The Australian Socioeconomic Index 2006 (AUSEI06) assigns a number (between 0 and 100) to the Australian and New Zealand Standard Classification of Occupations (ANZSCO) (figure C.5).

Figure C.5 Mapping ANZSCO 2-digit level to AUSEI06



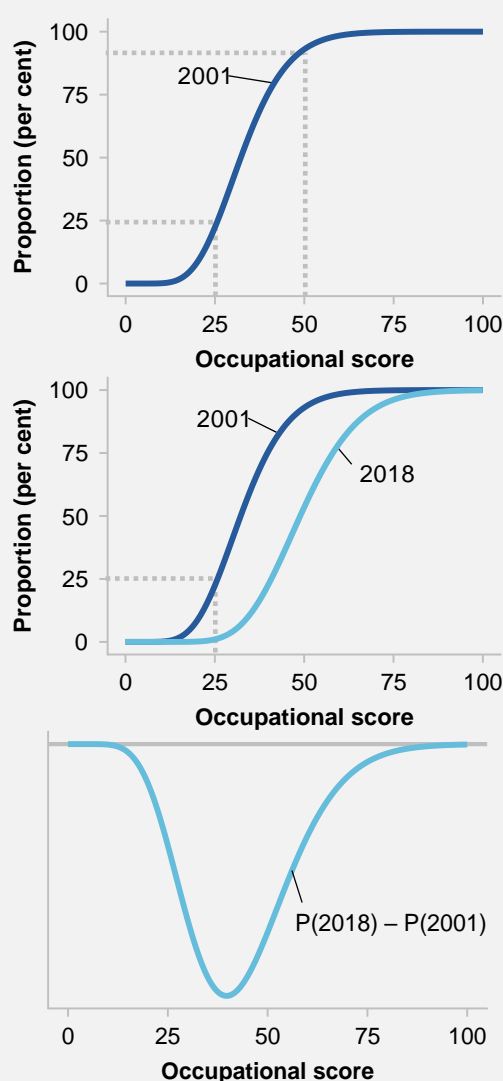
Data sources: ABS (ANZSCO, Australian and New Zealand Standard Classifications of Occupations, first edition, revision 1, Jun 2009, Cat. no 1220.0) and McMillan Beavis and Jones (2009) (ANZSCO sub-major group conversion files).

Generally, occupations associated with many years of education and high earning potential have a high score, including health professionals and ICT professionals. Occupations requiring few years of education and having a low earning potential have a low score, including factory process workers and mobile plant operators. Scores in between can be a combination of few years of education and relatively high earning potential or relatively many years of education and relatively low earning potential.

How has the distribution of the occupational scale changed over time?

This section uses empirical cumulative distribution functions (ECDFs, box C.1) to show how changes in education and the growth of high-scored occupations led to people, on average, working in different occupations.

Box C.1 Measuring changes in the distribution of occupations



Empirical cumulative density functions

The proportion of people in an occupation with a 'given score or less' can be represented using an 'empirical cumulative distribution function' (ECDF). A hypothetical ECDF of occupational score for 2001 (left) shows 25 per cent of the population in occupations with a score below 25 and almost everyone is in occupations with a score below 50.

Comparing ECDFs

When one ECDF is always below another ECDF there are fewer people in low-scored occupations in the lower ECDF.

In this example, the 2018 ECDF has very few people in occupations with a score of 25 or less, indicating that a greater proportion of the population is in higher-scored occupations.

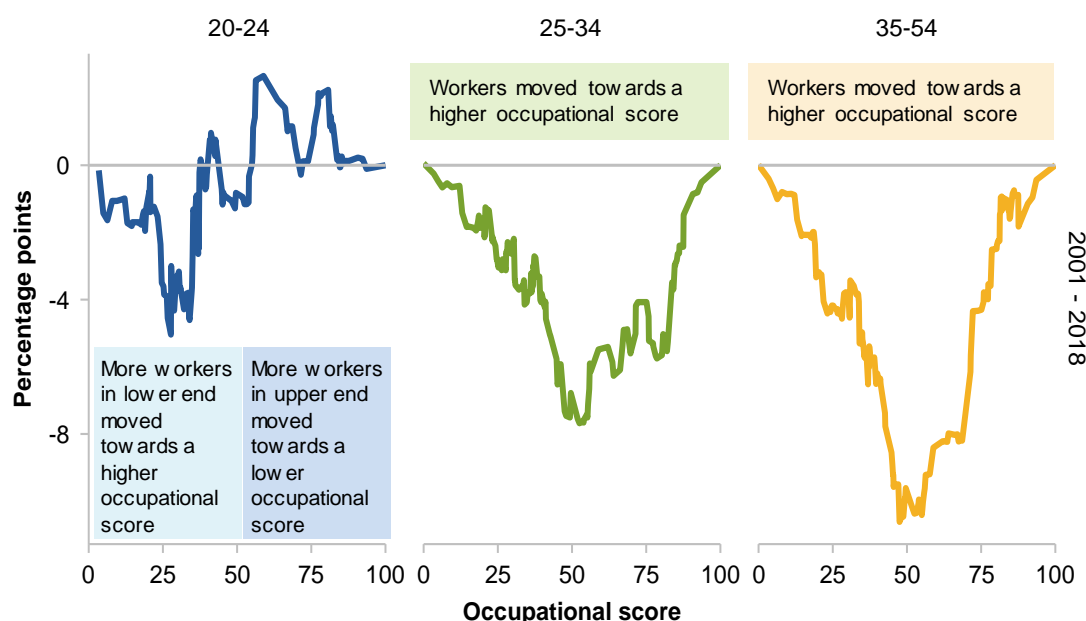
Difference between two ECDFs

Two ECDFs can be compared by taking the difference between them. For instance, the 2018 ECDF *minus* the 2001 ECDF (from the example above) always gives negative values at all scores because the 2018 ECDF is below and to the right of the 2001 ECDF at all scores. The negative difference indicates that the 2018 distribution includes a greater share of people in higher score occupations.

The share of high-scored occupations grew for most age groups (figure C.6). Workers aged 25-34 and 35-54 were more likely to be in higher-scored occupations in 2018 than in 2001. The picture is more nuanced for workers aged 20-24: they were more likely to be in mid-score occupations than in low-score occupations, relative to 2001.²⁸

Figure C.6 People aged 25-54 are in higher-scored occupations in 2018

Difference in ECDF of occupational scores^{a,b}



^a The difference is calculated as the ECDF of 2018 minus the ECDF of 2001. ^b Occupational score measured using the Australian Socioeconomic Index 2006 occupational scale.

Data source: Commission estimates based on HILDA data.

The weak labour market between 2010 and 2015 reduced the movement to higher-scored occupations for workers under 35, but not for prime-aged workers (figure C.7). The proportion of young workers in lower-scored occupations increased between 2010 and 2015. The movement into lower-scored occupations began earlier for workers aged 20-24, with workers in high-scored occupations (greater than 50) shifting toward lower-scored occupations (toward 50) between 2001 and 2010. In contrast, for each period shown, the proportion of prime-aged workers in lower-scored occupations decreased.

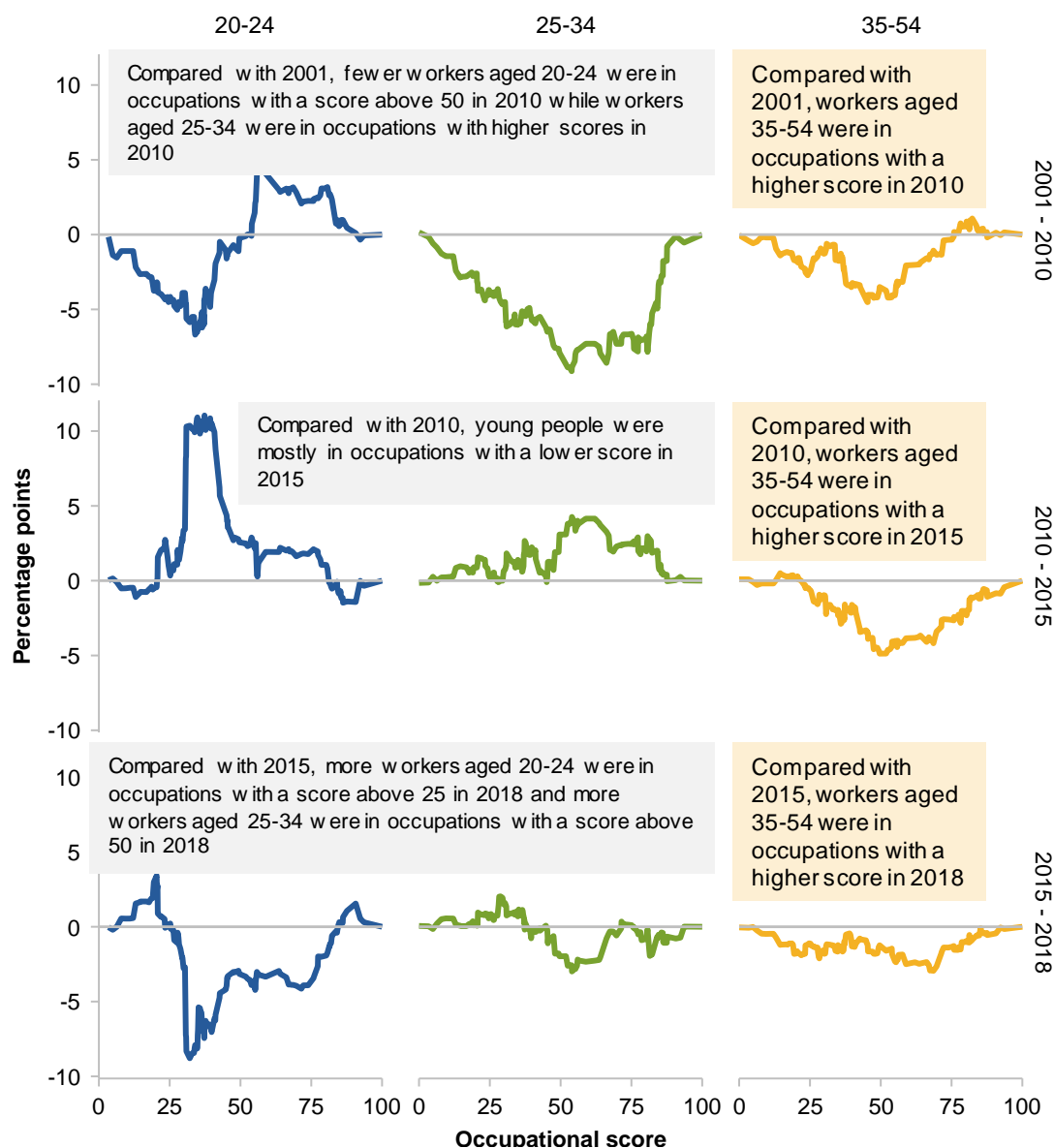
However, once we account for workers' education level, the picture changes significantly. Comparing to workers with similar qualifications, people of all ages are predominately²⁹ in lower-scored occupations in 2018 than in 2001 (figure C.8).

²⁸ A relatively small number of workers aged 20-24 are in high-scored occupations (chapter 4).

²⁹ The occupational score distribution by education level is not as 'neat' as the previous charts (the ECDF of 2018 crosses the ECDF of 2001 at some points, making the interpretation less clear). In general, the ECDFs of 2018 tend to have a higher proportion of people in lower-scored occupations than the ECDFs of 2001.

Figure C.7 Young workers were more likely to be in lower-scored occupations during the weak labour market in 2010–2015

Difference in ECDF of occupational scores, 2010 minus 2001, 2015 minus 2010 and 2018 minus 2015^a



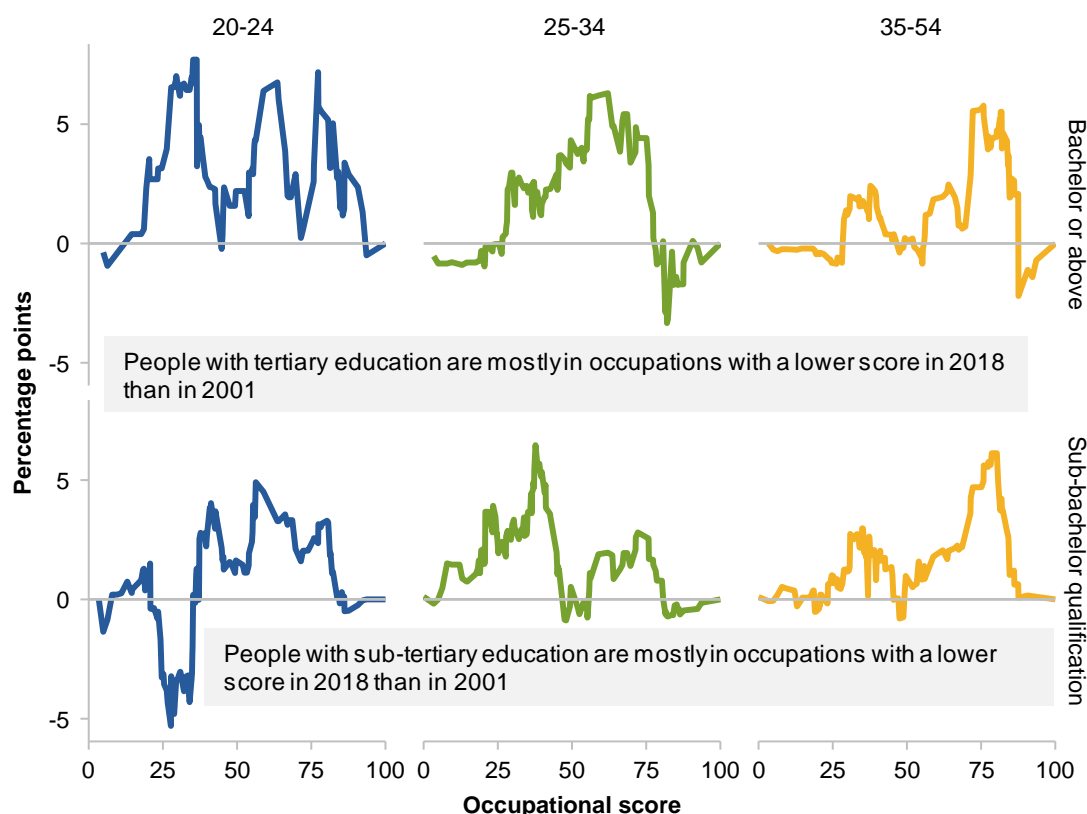
^a The difference is calculated as the ECDF of the final year minus the ECDF of the first year. For example, in the period 2001 – 2010, the difference is the ECDF of 2010 minus the ECDF of 2001.

Data source: Commission estimates based on HILDA data.

This is consistent with the growth in the supply of skilled people exceeding the growth in demand for those skills, resulting in an increased competition for high-scored occupations. The growth in higher-scored occupations was not large enough to absorb the increased supply of high-skilled workers. A person looking for a high-scored occupation in 2018 faced a more competitive labour market, and is more likely to have ended up in a lower-scored occupation than they would have in 2001 (figure C.8).

Figure C.8 Graduates are more likely to be in lower-scored occupations in 2018

Difference^a in empirical cumulative density functions (ECDF) of occupational scores^b by qualification type, 2018 minus 2001, by highest education



^a The difference is calculated as the ECDF of the final year minus the ECDF of the first year. For example, in the period 2001 – 2018, the difference is the ECDF of 2018 minus the ECDF of 2001. ^b Occupational score is measured by the Australian Socioeconomic Index 2006 occupational scale.

Data source: Commission estimates based on HILDA data.

As workers move further and further down the ‘jobs ladder,’ some workers find themselves in part-time and casual work in the service sector, which forms part of these low-score occupations. Firms offering these occupations could respond most flexibly to changing labour market conditions by expanding employment at lower wages.

The weak labour market between 2010 and 2015 may have increased competition in the labour market so much that young people ended up in lower-scored occupations *regardless* of their education (figure C.7). Because more young people are looking for work, the impact of labour-market competition on occupations is more noticeable for young people.

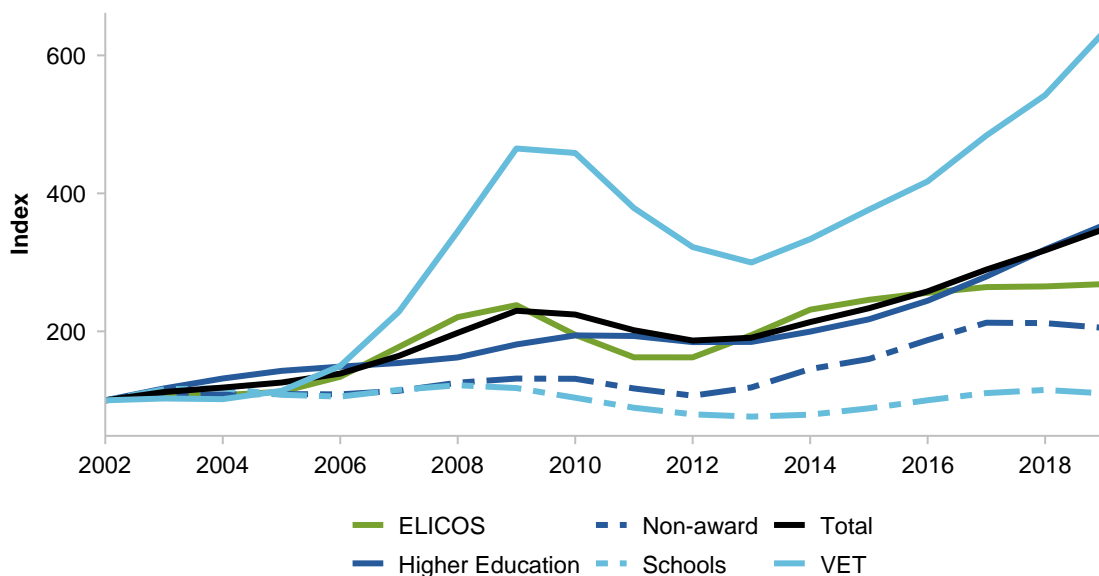
C.5 The role of immigration

One hypothesis considered in this study is that the increase in student visas after 2012 increased competition for the types of jobs that young people might be employed in.

Immigration increases labour supply ...

After a small decline in 2008, overseas visas resumed their rapid growth until 2019 (figure C.9). The number of people on student visas increased nearly three and a half times, from about 275 000 in 2002 to about 957 000 in 2019 (Department of Education, Skills and Employment 2019a). The majority of these students were young — in 2016, 53 per cent were aged 15-24 and 37 per cent were aged 25-34 (Commission estimates based on ABS 2016, TableBuilder).

Figure C.9 The number student visas increased after 2012
International student enrolments by sector, 2002–2019^a



^a ELICOS stands for English Language Intensive Courses for Overseas Students and VET stands for vocational education and training.

Data source: Department of Education, Skills and Employment (2019a).

However, people on international student visas are less likely to be employed than people in the general population; and, of those employed, they worked fewer hours than people in the general population. This suggests that the competitive pressure from increased immigration might not have been that great (table C.3).

The share of hours worked by young people with student visas is small, but did increase from 2002 to 2016 (table C.3). In 2016, people on student visas worked about 2.4 per cent of the total hours worked by people aged 15-24, up from 1.0 per cent in 2002.

Table C.3 People on student visas work less than the general population

	15-24	25-34	35-64
Average hours worked (employed) in 2016 (hours)			
All people	25.8	34.5	34.2
Those on a student visa	17.5	20.4	20.6
Employment rate (share of population) in 2016 (per cent)			
All people	58.3	79.0	74.7
Those on a student visa	27.6	53.8	56.8
Share of age cohort total hours worked by those on a student visa (per cent)			
2002 ^a	1.0	1.0	0.1
2016	2.4	2.0	0.2

^a The number of student visa holders in 2002 was estimated using the ratio of student visa holders to international students in 2016. Next, total hours worked for student visa holders in 2002 were estimated by assuming that hours worked grew at the same rate of growth as the number of student visa holders.

Data sources: Commission estimates based on ABS (*Labour force, Australia, Detailed – Electronic Delivery, Dec 2019*, Cat. no. 6291.0.55.001; *TableBuilder, Australian Census and Temporary Entrants Integrated Dataset, 2016*, Cat. no. 3419.0.55.001) and data from the Department of Education, Skills and Employment (2019a).

Breunig et al. (2016, p. 3) found that immigrants (not just those on student visas) were generally employed in positions with high wage and employment rates. This suggests an increase in labour supply from migration could account for the higher-skilled occupation part of the wage puzzle, but it cannot account for the more wide-spread slow growth in young people's wage rates observed in chapter 4.

Breunig et al. also found that:

There is very little evidence of any negative labour market effects, in aggregate, on those born in Australia or the broader group of incumbents resulting from immigration. (2016, p. 21)

... but immigration also increases labour demand

Increases in immigration also increases the demand for goods and services, and subsequently labour. Between 2013 and 2018, international students contributed 1.8 per cent per year to the growth in full-time equivalent jobs (Department of Education, Skills and Employment 2019b).

The increase in labour demand from immigration can offset the increase in labour supply. On balance, it is likely that the increase in labour demand from immigration was larger than the increase in labour supply.

Successive waves of recent migrants (those who have arrived since 1996) have not adversely impacted the labour market outcomes of local workers, and in some cases is associated with a small positive impact on aggregate labour force participation rates and wage. (CEDA 2019, p. 56)

C.6 Heckman regression results

A Heckman two-step estimation first estimates the probability that each individual is employed and then each individual's wage rate, both as a function of observable characteristics (tables C.4 to C.7). Information from the first step is used as an additional variable in the second step to 'correct' for the fact that wage rates are only observed if a person is employed. Estimating individual's wages without including this correction term would bias parameter estimates.

A Heckman estimation can also track how conditions changed over time. A year variable in both regressions accounts for any events that might affect all individuals' employment or wage rate outcomes in a similar way in that year.

Six models are presented below, five different Heckman specifications and one ordinary least squares. Each models uses the exclusion restrictions of 'household child ratio' and 'household child ratio x female wage-earner' unless specified otherwise.

The six probit specifications for people aged 20-34 and 35-64 are:

1. baseline specification
2. sensitivity test with exclusion restrictions of number of 'children' and 'married'
3. sensitivity test with additional exclusion restrictions of selected variables interacted with the year dummies
4. sensitivity test with restricted sample based on two periods:
 - sample split for years 2001–2007
 - sample split for years 2007–2018 (the overlap of 2007 allows for consistent comparison of the year dummies across the samples)
5. sensitivity test predicting full-time employment, with the exclusion restriction of 'household child ratio'.

The six wage specifications for people aged 20-34 and 35-64 are:

1. baseline specification
2. sensitivity test with exclusion restrictions of number of 'children' and 'married'

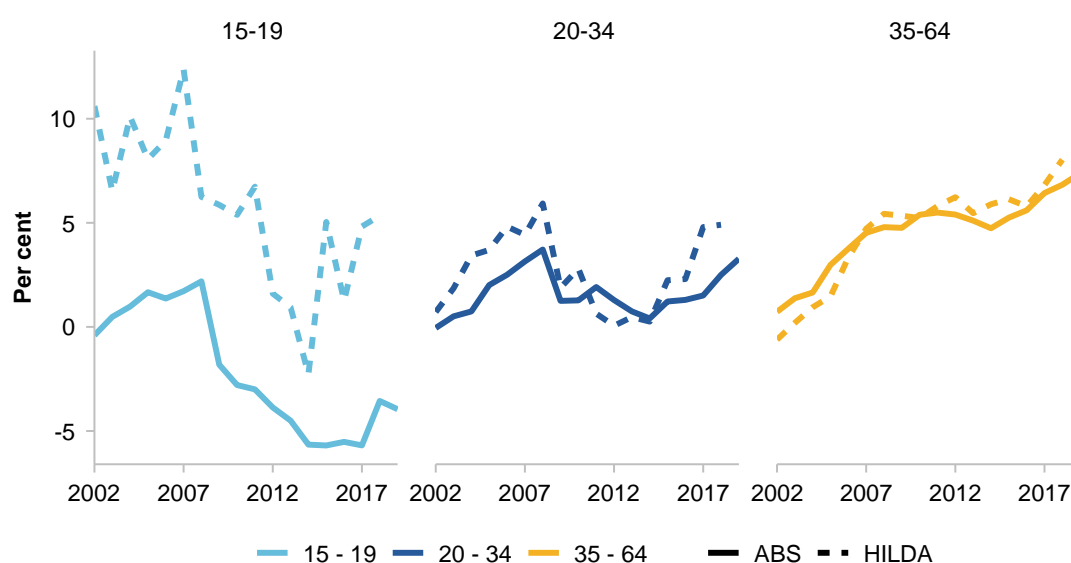
3. sensitivity test with additional exclusion restrictions of number of ‘household child ratio’, ‘household child ratio x female wage-earner’, and selected variables interacted with the year dummies
4. sensitivity test with whole sample using probit specification (4a) and (4b) to calculate the inverse mills ratio for each period separately (4a was used for 2007)
5. sensitivity test predicting full-time employment with exclusion restrictions of ‘household child ratio’ and ‘household child ratio x female wage-earner’
6. OLS regression.

The regressions omit workers aged 15-19

The sample of workers aged 15-19 is not well represented when HILDA is compared with equivalent ABS data (figure C.10). The regressions omit workers aged 15-19 because of this discrepancy.

Figure C.10 HILDA data over estimates employment of people aged 15-19

Change in employment to population rate above 2001 level, 2002-2018



Data sources: Commission estimates based on HILDA data and ABS (*Labour force, Australia, Detailed – Electronic Delivery*, Mar 2020, Cat. no. 6291.0.55.001).

Heckman regression results: employment equation

Table C.4 Probability of employment – people aged 35-64

Probit estimation results, first stage Heckman results

	(1)	(2)	(3)	(4a)	(4b)	(5)
	employed	employed	employed	employed	employed	employed (full-time)
2002	0.021 (0.027)	0.020 (0.027)	0.030 (0.060)	0.020 (0.027)		0.004 (0.026)
2003	0.069** (0.028)	0.068** (0.028)	0.188*** (0.062)	0.066** (0.028)		0.053** (0.026)
2004	0.092*** (0.028)	0.095*** (0.028)	0.199*** (0.063)	0.089*** (0.028)		0.073*** (0.026)
2005	0.164*** (0.028)	0.165*** (0.028)	0.244*** (0.064)	0.163*** (0.028)		0.108*** (0.026)
2006	0.210*** (0.028)	0.216*** (0.028)	0.343*** (0.065)	0.208*** (0.029)		0.142*** (0.026)
2007	0.249*** (0.029)	0.257*** (0.029)	0.418*** (0.066)	0.248*** (0.029)		0.184*** (0.027)
2008	0.272*** (0.029)	0.282*** (0.029)	0.422*** (0.066)		0.023 (0.030)	0.197*** (0.027)
2009	0.253*** (0.029)	0.259*** (0.029)	0.412*** (0.066)		0.003 (0.030)	0.199*** (0.026)
2010	0.248*** (0.028)	0.253*** (0.028)	0.403*** (0.066)		-0.002 (0.030)	0.189*** (0.026)
2011	0.259*** (0.026)	0.266*** (0.026)	0.379*** (0.062)		0.006 (0.028)	0.191*** (0.025)
2012	0.235*** (0.026)	0.247*** (0.026)	0.431*** (0.062)		-0.016 (0.028)	0.187*** (0.025)
2013	0.208*** (0.026)	0.218*** (0.026)	0.381*** (0.063)		-0.044 (0.028)	0.170*** (0.025)
2014	0.233*** (0.027)	0.247*** (0.027)	0.408*** (0.063)		-0.019 (0.028)	0.170*** (0.025)
2015	0.241*** (0.027)	0.256*** (0.027)	0.447*** (0.064)		-0.011 (0.028)	0.183*** (0.025)
2016	0.249*** (0.027)	0.262*** (0.027)	0.459*** (0.065)		-0.004 (0.029)	0.195*** (0.025)
2017	0.314*** (0.027)	0.327*** (0.027)	0.542*** (0.066)		0.062** (0.029)	0.247*** (0.025)
2018	0.339*** (0.027)	0.349*** (0.027)	0.579*** (0.068)		0.087*** (0.029)	0.275*** (0.025)

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Table C.4 (continued)

	(1)	(2)	(3)	(4a)	(4b)	(5)
	employed	employed	employed	employed	employed	employed (full-time)
Age	0.224*** (0.008)	0.146*** (0.008)	0.223*** (0.008)	0.232*** (0.013)	0.228*** (0.009)	0.186*** (0.008)
Age squared/100	-0.346*** (0.008)	-0.267*** (0.008)	-0.346*** (0.008)	-0.357*** (0.013)	-0.350*** (0.009)	-0.298*** (0.008)
Experience	0.099*** (0.002)	0.115*** (0.002)	0.099*** (0.002)	0.102*** (0.003)	0.098*** (0.002)	0.095*** (0.002)
Experience squared/100	-0.000*** (0.000)	-0.001*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
University degree	0.587*** (0.013)	0.598*** (0.013)	0.765*** (0.055)	0.665*** (0.022)	0.546*** (0.016)	0.490*** (0.012)
Diploma or VET certificate	0.246*** (0.012)	0.238*** (0.012)	0.227*** (0.047)	0.245*** (0.019)	0.241*** (0.015)	0.249*** (0.011)
High school	0.210*** (0.017)	0.197*** (0.017)	0.302*** (0.065)	0.244*** (0.027)	0.187*** (0.020)	0.195*** (0.016)
In full-time study	-0.821*** (0.037)	-0.849*** (0.036)	-0.908*** (0.141)	-0.821*** (0.060)	-0.810*** (0.045)	-0.843*** (0.041)
VIC	0.022* (0.013)	0.015 (0.013)	0.024* (0.013)	-0.001 (0.021)	0.044*** (0.015)	-0.054*** (0.011)
QLD	-0.006 (0.013)	-0.000 (0.013)	-0.005 (0.013)	-0.046** (0.023)	0.024 (0.016)	0.052*** (0.012)
SA	-0.065*** (0.017)	-0.068*** (0.017)	-0.065*** (0.017)	-0.146*** (0.029)	-0.021 (0.021)	-0.146*** (0.016)
WA	0.005 (0.018)	0.006 (0.018)	0.006 (0.018)	-0.046 (0.029)	0.037* (0.021)	-0.038** (0.016)
TAS	0.057** (0.028)	0.049* (0.028)	0.058** (0.028)	-0.055 (0.045)	0.119*** (0.034)	-0.075*** (0.026)
NT	0.595*** (0.068)	0.578*** (0.067)	0.597*** (0.068)	0.532*** (0.117)	0.617*** (0.080)	0.542*** (0.052)
ACT	0.032 (0.035)	0.005 (0.035)	0.032 (0.035)	0.200*** (0.062)	-0.033 (0.041)	0.126*** (0.031)
Lives in regional area	-0.097*** (0.010)	-0.097*** (0.010)	-0.003 (0.040)	-0.079*** (0.017)	-0.111*** (0.012)	-0.142*** (0.010)
Indigenous	-0.112*** (0.033)	-0.122*** (0.032)	-0.113*** (0.033)	-0.113* (0.059)	-0.100*** (0.038)	-0.008 (0.033)
Female	0.216*** (0.012)	0.026** (0.011)	0.347*** (0.040)	0.193*** (0.021)	0.223*** (0.014)	-0.769*** (0.009)
Proportion of life spent unemployed	-1.182*** (0.066)	-1.090*** (0.066)	-1.183*** (0.066)	-1.273*** (0.113)	-1.105*** (0.078)	-1.759*** (0.075)
Not English speaking	-0.118*** (0.014)	-0.111*** (0.014)	-0.115*** (0.014)	-0.268*** (0.022)	-0.028* (0.017)	0.046*** (0.013)

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Table C.4 (continued)

	(1)	(2)	(3)	(4a)	(4b)	(5)
	employed	employed	employed	employed	employed	employed (full-time)
Married	0.090*** (0.011)		0.090*** (0.011)	0.139*** (0.018)	0.066*** (0.013)	-0.034*** (0.010)
Intercept	-4.487*** (0.180)	-2.739*** (0.189)	-4.606*** (0.184)	-4.520*** (0.303)	-4.397*** (0.217)	-3.555*** (0.171)
Exclusion restrictions:						
Child ratio	0.119*** (0.016)		0.122*** (0.016)	0.063** (0.025)	0.139*** (0.020)	-0.342*** (0.009)
Child ratio x female	-0.519*** (0.019)		-0.523*** (0.019)	-0.488*** (0.030)	-0.533*** (0.023)	
Married		0.146*** (0.011)				
Number of kids aged 0 to 4		-0.346*** (0.011)				
Number of kids aged 5 to 14		-0.051*** (0.006)				
Number of kids aged 15 to 24		0.137*** (0.007)				
Year x degree type	No	No	Yes	No	No	No
Year x lives in regional area	No	No	Yes	No	No	No
Year x in full-time study	No	No	Yes	No	No	No
Year x female	No	No	Yes	No	No	No
N	115 217	115 217	115 217	40 519	80 245	115 217
Log likelihood	-46 906	-46 817	-46 829	-16 847	-32 053	-57 386
AIC	93 895.470	93 718.445	93 945.768	33 754.151	64 176.399	114 852.858

Source: Commission estimates based on HILDA data.

Table C.5 Probability of Employment – people aged 20-34

Probit estimation results, first stage Heckman results

	(1)	(2)	(3)	(4a)	(4b)	(5)
	employed	employed	employed	employed	employed	employed (full-time)
2002	0.087** (0.040)	0.088** (0.041)	0.154 (0.098)	0.078* (0.040)		0.070* (0.037)
2003	0.123*** (0.041)	0.115*** (0.042)	0.148 (0.101)	0.111*** (0.041)		0.063* (0.037)
2004	0.193*** (0.042)	0.180*** (0.042)	0.395*** (0.106)	0.177*** (0.042)		0.117*** (0.038)
2005	0.253*** (0.043)	0.240*** (0.043)	0.358*** (0.108)	0.236*** (0.042)		0.153*** (0.038)
2006	0.230*** (0.042)	0.221*** (0.043)	0.386*** (0.108)	0.214*** (0.042)		0.156*** (0.038)
2007	0.224*** (0.042)	0.232*** (0.043)	0.367*** (0.109)	0.208*** (0.042)		0.172*** (0.038)
2008	0.298*** (0.043)	0.308*** (0.044)	0.402*** (0.110)		0.073 (0.046)	0.257*** (0.038)
2009	0.158*** (0.041)	0.175*** (0.041)	0.251** (0.105)		-0.066 (0.044)	0.140*** (0.037)
2010	0.157*** (0.040)	0.173*** (0.041)	0.209** (0.102)		-0.067 (0.044)	0.130*** (0.037)
2011	0.073** (0.037)	0.107*** (0.038)	0.201** (0.095)		-0.151*** (0.041)	0.064* (0.034)
2012	0.068* (0.037)	0.099*** (0.037)	0.007 (0.093)		-0.155*** (0.040)	0.057* (0.034)
2013	0.068* (0.037)	0.095** (0.037)	0.081 (0.094)		-0.157*** (0.040)	0.029 (0.034)
2014	0.101*** (0.037)	0.124*** (0.037)	0.138 (0.094)		-0.123*** (0.040)	0.002 (0.034)
2015	0.153*** (0.037)	0.166*** (0.037)	0.089 (0.096)		-0.070* (0.041)	0.022 (0.034)
2016	0.117*** (0.037)	0.126*** (0.037)	0.104 (0.098)		-0.105*** (0.041)	0.035 (0.034)
2017	0.226*** (0.038)	0.230*** (0.038)	0.249** (0.100)		0.006 (0.041)	0.068** (0.034)
2018	0.295*** (0.038)	0.295*** (0.039)	0.410*** (0.103)		0.075* (0.042)	0.114*** (0.034)

(continued next page)

Table C.5 (continued)

	(1)	(2)	(3)	(4a)	(4b)	(5)
	employed	employed	employed	employed	employed	employed (full-time)
Age	-0.312*** (0.024)	-0.286*** (0.024)	-0.312*** (0.024)	-0.240*** (0.042)	-0.342*** (0.028)	0.051** (0.022)
Age squared/100	0.360*** (0.044)	0.260*** (0.045)	0.361*** (0.044)	0.252*** (0.078)	0.407*** (0.053)	-0.255*** (0.041)
Experience	0.303*** (0.006)	0.320*** (0.006)	0.304*** (0.006)	0.233*** (0.010)	0.332*** (0.007)	0.213*** (0.006)
Experience squared/100	-0.009*** (0.000)	-0.008*** (0.000)	-0.009*** (0.000)	-0.006*** (0.001)	-0.010*** (0.000)	-0.005*** (0.000)
University degree	0.838*** (0.023)	1.000*** (0.024)	0.974*** (0.084)	0.847*** (0.039)	0.822*** (0.028)	0.674*** (0.021)
Diploma or certificate	0.418*** (0.020)	0.478*** (0.020)	0.484*** (0.075)	0.440*** (0.033)	0.406*** (0.024)	0.371*** (0.019)
High school	0.416*** (0.020)	0.497*** (0.020)	0.457*** (0.076)	0.417*** (0.034)	0.416*** (0.025)	0.234*** (0.019)
In full-time study	-0.522*** (0.020)	-0.548*** (0.020)	-0.670*** (0.091)	-0.620*** (0.039)	-0.481*** (0.023)	-1.443*** (0.022)
VIC	0.041** (0.018)	0.044** (0.018)	0.040** (0.018)	0.069** (0.032)	0.026 (0.021)	-0.021 (0.016)
QLD	-0.105*** (0.019)	-0.125*** (0.019)	-0.105*** (0.019)	-0.035 (0.033)	-0.133*** (0.022)	-0.039** (0.017)
SA	-0.049** (0.025)	-0.078*** (0.025)	-0.052** (0.025)	-0.023 (0.044)	-0.069** (0.029)	-0.135*** (0.022)
WA	-0.125*** (0.025)	-0.136*** (0.025)	-0.126*** (0.025)	-0.092** (0.042)	-0.135*** (0.030)	-0.069*** (0.022)
TAS	0.069* (0.040)	0.051 (0.040)	0.066* (0.040)	0.036 (0.069)	0.083* (0.047)	-0.090** (0.037)
NT	0.286*** (0.074)	0.279*** (0.074)	0.284*** (0.075)	0.523*** (0.149)	0.193** (0.083)	0.397*** (0.063)
ACT	0.088* (0.048)	0.080* (0.048)	0.086* (0.048)	-0.044 (0.085)	0.114** (0.056)	0.117*** (0.040)
Lives in regional area	-0.053*** (0.015)	-0.065*** (0.015)	-0.087 (0.060)	-0.064** (0.027)	-0.053*** (0.018)	-0.046*** (0.014)
Indigenous	-0.196*** (0.032)	-0.214*** (0.032)	-0.196*** (0.032)	-0.237*** (0.066)	-0.167*** (0.036)	-0.156*** (0.033)
Female	-0.232*** (0.016)	-0.425*** (0.014)	-0.194*** (0.057)	-0.275*** (0.029)	-0.220*** (0.019)	-0.850*** (0.012)
Proportion of life spent unemployed	-1.402*** (0.048)	-1.254*** (0.049)	-1.404*** (0.048)	-1.289*** (0.088)	-1.407*** (0.057)	-1.636*** (0.054)
Not English speaking	0.021 (0.023)	0.066*** (0.023)	0.020 (0.023)	-0.098*** (0.038)	0.081*** (0.028)	0.019 (0.021)

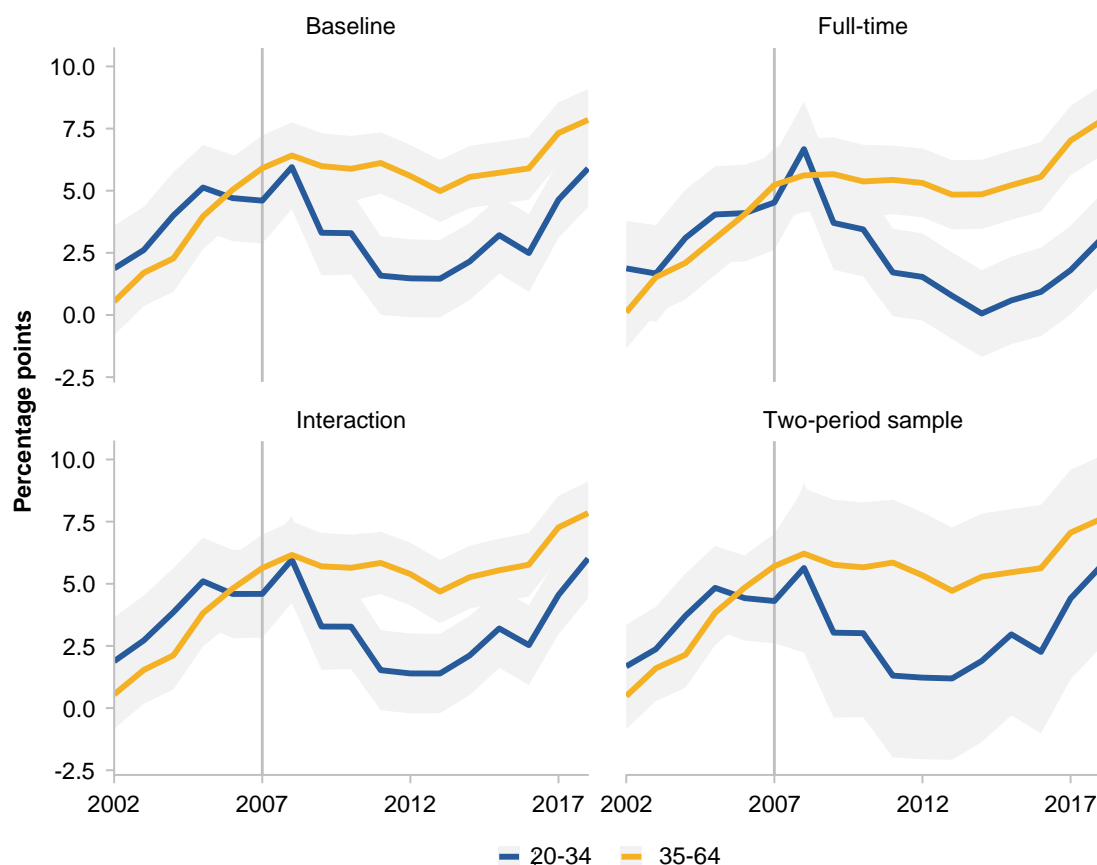
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Table C.5 (continued)

	(1)	(2)	(3)	(4a)	(4b)	(5)
	employed	employed	employed	employed	employed	employed (full-time)
Married	-0.083*** (0.015)		-0.082*** (0.015)	-0.136*** (0.026)	-0.057*** (0.018)	0.136*** (0.013)
Intercept	5.045*** (0.315)	4.886*** (0.318)	5.003*** (0.321)	4.264*** (0.556)	5.596*** (0.370)	0.011 (0.291)
Exclusion restrictions:						
Child ratio	-0.066*** (0.023)		-0.066*** (0.024)	-0.112*** (0.040)	-0.055* (0.028)	-0.683*** (0.014)
Child ratio x female	-0.543*** (0.027)		-0.543*** (0.027)	-0.512*** (0.046)	-0.543*** (0.032)	
Married		0.158*** (0.016)				
Number of kids aged 0 to 4		-0.550*** (0.010)				
Number of kids aged 5 to 14		0.011 (0.012)				
Number of kids aged 15 to 24		0.248*** (0.077)				
Year x degree type	No	No	Yes	No	No	No
Year x lives in regional area	No	No	Yes	No	No	No
Year x in full-time study	No	No	Yes	No	No	No
Year x female	No	No	Yes	No	No	No
N	64 971	64 971	64 971	20 712	47 129	64 971
Log likelihood	-23 459	-22 902	-23 408	-7 560.896	-16 830	-30 192
AIC	47 001.486	45 888.407	47 102.602	15 181.792	33 730.756	60 465.867

Source: Commission estimates based on HILDA data.

Figure C.11 Comparison of specifications (1), (3), (4a) and (4b) and (5)
Average marginal effect of year on the probability of employment^a



^a Two-period is the combined results from (4a) and (4b) the Average Marginal Effect (AME) in the two-period graph was calculated by adding the value of the AME at 2007 from regression (4a) to the AME of each year dummy from regression (4b).

Data source: Commission estimates based on HILDA data.

Heckman regression results: wage equation

Table C.6 In(wage) regression – people aged 35-64
Linear wage rate estimation results, second stage Heckman results

	(1)	(2)	(3)	(4)	(5)	(6)
	ln(wage)	ln(wage)	ln(wage)	ln(wage)	ln(wage) (full-time)	ln(wage) (OLS)
2002	0.016* (0.009)	0.016* (0.009)	0.016* (0.009)	0.016* (0.009)	0.016 (0.009)	0.015 (0.009)
2003	0.038*** (0.010)	0.038*** (0.010)	0.038*** (0.010)	0.037*** (0.010)	0.040*** (0.010)	0.034*** (0.010)
2004	0.045*** (0.010)	0.045*** (0.010)	0.045*** (0.010)	0.044*** (0.010)	0.048*** (0.010)	0.040*** (0.010)
2005	0.075*** (0.010)	0.076*** (0.010)	0.074*** (0.010)	0.073*** (0.010)	0.077*** (0.010)	0.066*** (0.010)
2006	0.095*** (0.010)	0.097*** (0.010)	0.094*** (0.010)	0.093*** (0.010)	0.098*** (0.010)	0.084*** (0.009)
2007	0.106*** (0.010)	0.109*** (0.010)	0.106*** (0.010)	0.104*** (0.010)	0.112*** (0.010)	0.093*** (0.009)
2008	0.128*** (0.010)	0.131*** (0.010)	0.127*** (0.010)	0.125*** (0.010)	0.133*** (0.010)	0.114*** (0.009)
2009	0.156*** (0.010)	0.159*** (0.010)	0.155*** (0.010)	0.153*** (0.010)	0.162*** (0.010)	0.143*** (0.009)
2010	0.166*** (0.010)	0.169*** (0.010)	0.166*** (0.010)	0.163*** (0.010)	0.172*** (0.010)	0.153*** (0.009)
2011	0.179*** (0.009)	0.182*** (0.009)	0.178*** (0.009)	0.176*** (0.009)	0.184*** (0.009)	0.165*** (0.009)
2012	0.184*** (0.009)	0.187*** (0.009)	0.183*** (0.009)	0.181*** (0.009)	0.190*** (0.009)	0.171*** (0.009)
2013	0.179*** (0.009)	0.182*** (0.009)	0.179*** (0.009)	0.177*** (0.009)	0.185*** (0.009)	0.168*** (0.009)
2014	0.177*** (0.009)	0.181*** (0.009)	0.177*** (0.009)	0.175*** (0.009)	0.182*** (0.009)	0.164*** (0.009)
2015	0.189*** (0.009)	0.193*** (0.009)	0.189*** (0.009)	0.186*** (0.009)	0.195*** (0.009)	0.176*** (0.009)
2016	0.202*** (0.009)	0.205*** (0.009)	0.201*** (0.009)	0.199*** (0.009)	0.208*** (0.009)	0.188*** (0.009)
2017	0.214*** (0.009)	0.217*** (0.009)	0.213*** (0.009)	0.210*** (0.009)	0.221*** (0.009)	0.196*** (0.009)
2018	0.229*** (0.009)	0.233*** (0.009)	0.228*** (0.009)	0.225*** (0.009)	0.237*** (0.009)	0.211*** (0.009)

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Table C.6 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	ln(wage)	ln(wage)	ln(wage)	ln(wage)	ln(wage) (full-time)	ln(wage) (OLS)
Age	0.005 (0.003)	0.009*** (0.003)	0.004 (0.003)	0.002 (0.003)	0.012*** (0.003)	-0.008*** (0.003)
Age squared/100	-0.016*** (0.004)	-0.023*** (0.004)	-0.015*** (0.004)	-0.013*** (0.004)	-0.028*** (0.004)	0.004 (0.003)
Experience	0.020*** (0.001)	0.021*** (0.001)	0.020*** (0.001)	0.019*** (0.001)	0.024*** (0.001)	0.013*** (0.001)
Experience squared/100	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
University degree	0.460*** (0.006)	0.469*** (0.006)	0.458*** (0.006)	0.454*** (0.006)	0.479*** (0.006)	0.428*** (0.004)
Diploma or certificate	0.133*** (0.004)	0.136*** (0.004)	0.133*** (0.004)	0.131*** (0.004)	0.144*** (0.005)	0.120*** (0.004)
High school	0.126*** (0.006)	0.128*** (0.006)	0.126*** (0.006)	0.124*** (0.006)	0.135*** (0.006)	0.114*** (0.006)
In full-time study	-0.047*** (0.018)	-0.064*** (0.018)	-0.044*** (0.018)	-0.037*** (0.018)	-0.087*** (0.018)	0.006 (0.017)
VIC	-0.045*** (0.004)	-0.045*** (0.004)	-0.045*** (0.004)	-0.045*** (0.004)	-0.050*** (0.004)	-0.046*** (0.004)
QLD	-0.039*** (0.004)	-0.040*** (0.004)	-0.039*** (0.004)	-0.039*** (0.004)	-0.034*** (0.004)	-0.039*** (0.004)
SA	-0.096*** (0.006)	-0.097*** (0.006)	-0.096*** (0.006)	-0.095*** (0.006)	-0.106*** (0.006)	-0.093*** (0.006)
WA	0.017*** (0.006)	0.016*** (0.006)	0.017*** (0.006)	0.017*** (0.006)	0.014*** (0.006)	0.017*** (0.006)
TAS	-0.027*** (0.009)	-0.028*** (0.009)	-0.027*** (0.009)	-0.028*** (0.009)	-0.036*** (0.009)	-0.030*** (0.009)
NT	0.119*** (0.016)	0.121*** (0.016)	0.118*** (0.016)	0.115*** (0.016)	0.139*** (0.016)	0.097*** (0.016)
ACT	0.122*** (0.010)	0.127*** (0.010)	0.122*** (0.010)	0.123*** (0.010)	0.132*** (0.010)	0.120*** (0.010)
Lives in regional area	-0.111*** (0.003)	-0.109*** (0.003)	-0.111*** (0.003)	-0.110*** (0.003)	-0.120*** (0.004)	-0.106*** (0.003)
Indigenous	0.050*** (0.013)	0.042*** (0.013)	0.050*** (0.013)	0.051*** (0.013)	0.054*** (0.012)	0.057*** (0.013)
Female	-0.122*** (0.003)	-0.125*** (0.003)	-0.122*** (0.003)	-0.122*** (0.003)	-0.190*** (0.006)	-0.125*** (0.003)
Proportion of life spent unemployed	-0.866*** (0.030)	-0.944*** (0.030)	-0.863*** (0.030)	-0.852*** (0.030)	-0.940*** (0.031)	-0.793*** (0.029)
Not English speaking	-0.102*** (0.005)	-0.099*** (0.005)	-0.102*** (0.005)	-0.101*** (0.005)	-0.091*** (0.005)	-0.098*** (0.005)

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Table C.6 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	ln(wage)	ln(wage)	ln(wage)	ln(wage)	ln(wage) (full-time)	ln(wage) (OLS)
Married	0.064*** (0.004)		0.064*** (0.004)	0.063*** (0.004)	0.052*** (0.004)	0.058*** (0.004)
Intercept	2.970*** (0.075)	2.914*** (0.075)	2.987*** (0.075)	3.035*** (0.074)	2.761*** (0.077)	3.337*** (0.062)
Mills ratio coefficient ($\rho \cdot \sigma$)	0.138*** (0.016)	0.167*** (0.015)	0.131*** (0.015)	0.114*** (0.015)	0.168*** (0.013)	
N	83 586	83 586	83 586	83 586	83 586	83 586
R-squared	0.218	0.216	0.218	0.218	0.219	0.217
F-statistic	597.243	606.286	597.121	596.672	600.083	610.421

Statistical significant reported at: * 10 per cent; ** 5 per cent; *** 1 per cent.

Source: Commission estimates based on HILDA data.

Table C.7 ln(wage) regression – people aged 20-34

Linear wage rate estimation results, second stage Heckman results

	(1)	(2)	(3)	(4)	(5)	(6)
	ln(wage)	ln(wage)	ln(wage)	ln(wage)	ln(wage) (full-time)	ln(wage) (OLS)
2002	-0.021* (0.011)	-0.017 (0.011)	-0.021* (0.011)	-0.021* (0.011)	-0.020* (0.011)	-0.021* (0.011)
2003	-0.001 (0.011)	0.004 (0.011)	-0.001 (0.011)	-0.002 (0.011)	-0.000 (0.011)	-0.001 (0.011)
2004	0.025** (0.011)	0.034*** (0.011)	0.025** (0.011)	0.025** (0.011)	0.027** (0.011)	0.025** (0.011)
2005	0.040*** (0.011)	0.052*** (0.011)	0.040*** (0.011)	0.040*** (0.011)	0.043*** (0.011)	0.041*** (0.011)
2006	0.053*** (0.011)	0.064*** (0.011)	0.053*** (0.011)	0.053*** (0.011)	0.056*** (0.011)	0.053*** (0.011)
2007	0.091*** (0.011)	0.104*** (0.011)	0.091*** (0.011)	0.091*** (0.011)	0.094*** (0.011)	0.091*** (0.011)
2008	0.095*** (0.011)	0.110*** (0.011)	0.094*** (0.011)	0.094*** (0.011)	0.099*** (0.011)	0.095*** (0.011)
2009	0.100*** (0.011)	0.109*** (0.011)	0.100*** (0.011)	0.099*** (0.011)	0.102*** (0.011)	0.100*** (0.011)
2010	0.127*** (0.011)	0.139*** (0.011)	0.127*** (0.011)	0.127*** (0.011)	0.130*** (0.011)	0.128*** (0.011)
2011	0.126*** (0.010)	0.133*** (0.010)	0.126*** (0.010)	0.125*** (0.010)	0.127*** (0.010)	0.126*** (0.010)
2012	0.139*** (0.010)	0.147*** (0.010)	0.139*** (0.010)	0.139*** (0.010)	0.141*** (0.010)	0.140*** (0.010)
2013	0.124*** (0.010)	0.132*** (0.010)	0.124*** (0.010)	0.124*** (0.010)	0.125*** (0.010)	0.125*** (0.010)
2014	0.117*** (0.010)	0.125*** (0.010)	0.117*** (0.010)	0.117*** (0.010)	0.118*** (0.010)	0.118*** (0.010)
2015	0.111*** (0.010)	0.122*** (0.010)	0.111*** (0.010)	0.111*** (0.010)	0.112*** (0.010)	0.111*** (0.010)
2016	0.124*** (0.010)	0.133*** (0.010)	0.124*** (0.010)	0.124*** (0.010)	0.125*** (0.010)	0.124*** (0.010)
2017	0.119*** (0.010)	0.133*** (0.010)	0.119*** (0.010)	0.119*** (0.010)	0.121*** (0.010)	0.120*** (0.010)
2018	0.134*** (0.010)	0.149*** (0.010)	0.134*** (0.010)	0.134*** (0.010)	0.136*** (0.010)	0.134*** (0.010)

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Table C.7 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	ln(wage)	ln(wage)	ln(wage)	ln(wage)	ln(wage) (full-time)	ln(wage) (OLS)
Age	0.023*** (0.007)	0.015** (0.007)	0.023*** (0.007)	0.023*** (0.007)	0.023*** (0.007)	0.022*** (0.007)
Age squared/100	-0.017 (0.012)	-0.013 (0.012)	-0.017 (0.012)	-0.017 (0.012)	-0.021* (0.012)	-0.016 (0.012)
Experience	0.026*** (0.003)	0.042*** (0.002)	0.025*** (0.003)	0.025*** (0.003)	0.030*** (0.002)	0.026*** (0.002)
Experience squared/100	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
University degree	0.268*** (0.008)	0.313*** (0.008)	0.268*** (0.008)	0.267*** (0.008)	0.283*** (0.007)	0.269*** (0.006)
Diploma or certificate	0.064*** (0.006)	0.087*** (0.006)	0.064*** (0.006)	0.063*** (0.006)	0.071*** (0.006)	0.064*** (0.006)
High school	0.059*** (0.006)	0.080*** (0.006)	0.058*** (0.006)	0.058*** (0.006)	0.064*** (0.006)	0.059*** (0.006)
In full-time study	-0.002 (0.007)	-0.034*** (0.007)	-0.001 (0.007)	-0.001 (0.007)	-0.029*** (0.010)	-0.002 (0.006)
VIC	-0.049*** (0.004)	-0.046*** (0.004)	-0.049*** (0.004)	-0.049*** (0.004)	-0.048*** (0.004)	-0.049*** (0.004)
QLD	-0.036*** (0.005)	-0.038*** (0.005)	-0.036*** (0.005)	-0.036*** (0.005)	-0.037*** (0.005)	-0.036*** (0.005)
SA	-0.052*** (0.006)	-0.052*** (0.006)	-0.052*** (0.006)	-0.052*** (0.006)	-0.054*** (0.006)	-0.052*** (0.006)
WA	0.035*** (0.006)	0.031*** (0.006)	0.035*** (0.006)	0.035*** (0.006)	0.034*** (0.006)	0.035*** (0.006)
TAS	-0.056*** (0.011)	-0.053*** (0.011)	-0.056*** (0.011)	-0.056*** (0.011)	-0.057*** (0.011)	-0.056*** (0.011)
NT	0.068*** (0.016)	0.076*** (0.016)	0.068*** (0.016)	0.068*** (0.016)	0.073*** (0.016)	0.068*** (0.016)
ACT	0.072*** (0.011)	0.077*** (0.011)	0.072*** (0.011)	0.072*** (0.011)	0.073*** (0.011)	0.072*** (0.011)
Lives in regional area	-0.047*** (0.004)	-0.047*** (0.004)	-0.047*** (0.004)	-0.047*** (0.004)	-0.049*** (0.004)	-0.047*** (0.004)
Indigenous	0.008 (0.011)	-0.005 (0.011)	0.008 (0.011)	0.008 (0.011)	0.004 (0.011)	0.008 (0.011)
Female	-0.071*** (0.004)	-0.086*** (0.004)	-0.071*** (0.004)	-0.071*** (0.004)	-0.085*** (0.005)	-0.072*** (0.003)
Proportion of life spent unemployed	-0.327*** (0.020)	-0.431*** (0.020)	-0.326*** (0.020)	-0.325*** (0.020)	-0.356*** (0.020)	-0.328*** (0.018)
Not English speaking	-0.047*** (0.006)	-0.045*** (0.006)	-0.047*** (0.006)	-0.048*** (0.006)	-0.046*** (0.006)	-0.047*** (0.006)

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Table C.7 (continued)

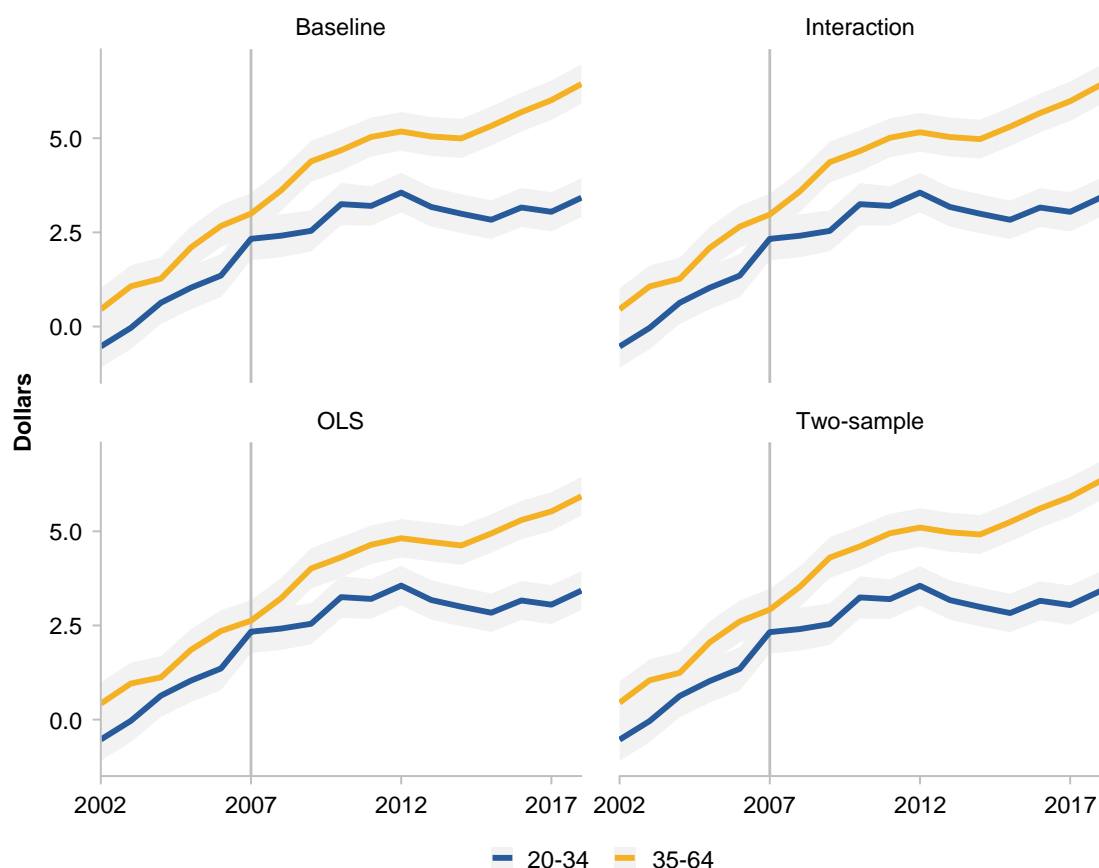
	(1)	(2)	(3)	(4)	(5)	(6)
	ln(wage)	ln(wage)	ln(wage)	ln(wage)	ln(wage) (full-time)	ln(wage) (OLS)
Married	0.058*** (0.004)		0.058*** (0.004)	0.058*** (0.004)	0.059*** (0.004)	0.058*** (0.004)
Intercept	2.556*** (0.090)	2.625*** (0.089)	2.555*** (0.090)	2.551*** (0.090)	2.541*** (0.088)	2.560*** (0.088)
Mills ratio coefficient (rho * sigma)	-0.002 (0.013)	0.128*** (0.012)	-0.003 (0.013)	-0.006 (0.013)	0.029*** (0.008)	
N	50 893	50 893	50 893	50 893	50 893	50 893
R-squared	0.203	0.201	0.203	0.203	0.203	0.203
F-statistic	331.668	335.717	331.669	331.673	332.047	340.402

Statistical significant reported at: * 10 per cent; ** 5 per cent; *** 1 per cent.

Source: Commission estimates based on HILDA data.

Figure C.12 Comparison of specifications (1), (3), (4) and (6)

Coefficients of year dummies transformed to dollars



Data source: Commission estimates based on HILDA data.

D Changes to the eligibility for transfers

Young people receive income from a variety of sources (chapter 2). Government transfers accounted for 7.1 per cent of young people's total income in 2018, of which the most common payments were Youth Allowance and the Family Tax Benefit (chapter 5).

This appendix outlines changes in policy that affected eligibility for transfers and the contribution of transfer income to changes in average income per young person. For example, a decrease in the number of young transfer recipients reduces the total transfer income that young people receive, and reduces transfer income per person. This can contribute to a decrease in income per person.

The appendix contains two sections.

- Section D.1 details the effects of policy changes on the number of recipients and how these changes contributed to changes in transfer income per person.
- Section D.2 presents a timeline of the main policy changes to eligibility for selected transfer payments between 2001 and 2019.

D.1 Eligibility changes — a detailed analysis

This section presents a detailed analysis of the effects of policy changes on eligibility and the number of recipients (for details about the main eligibility criteria and number of young recipients for each payment, as at June 2019, see table 5.1 and table 5.2 in chapter 5). For each payment, recipients are split into age groups to identify how changes affected particular sub-groups. The changes in the number of recipients are linked to changes in transfer income per person.

The policy changes are classified as either 'expanding' (blue boxes) or 'tightening' (red boxes) eligibility. The 'policy year' is the year in which a policy was implemented, that is, when eligibility changed, usually less than a year after legislation was passed.

Youth Allowance

Youth Allowance is targeted towards young people and consists of two separate payments: one for students (including apprentices) and one for job seekers.

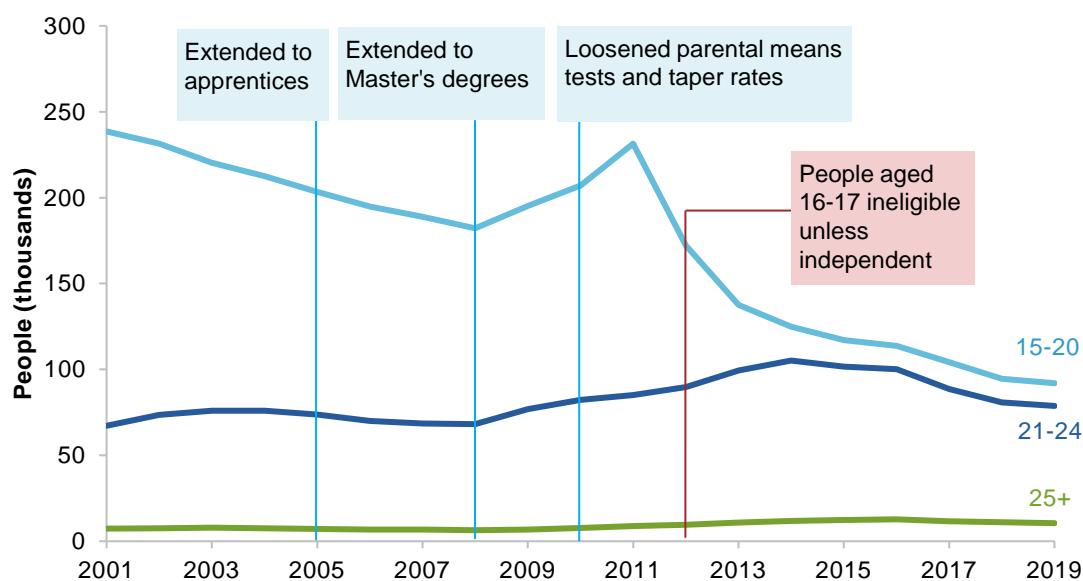
Youth Allowance (student)

Between 2001 and 2019, the number of Youth Allowance (student) recipients decreased. This trend persisted despite multiple policy changes to expand eligibility (typically implemented in January to coincide with the beginning of the school year). For example, Youth Allowance (student) was extended to apprentices and certain Master's degree students, parental income tests were loosened, taper rates (the rate at which a fortnightly payment is reduced when a person's or family's income is over a threshold) were reduced, and the age at which a child is deemed to be financially independent (referred to as the 'age of independence') was reduced from 25 to 22.

A tightening to eligibility in January 2012 caused a significant reduction in the number of recipients. Students aged 16-17 were made ineligible. This explains the large decrease in the number of recipients aged 15-20 between 2011 and 2012 (figure D.1).

Figure D.1 The number of Youth Allowance (student) recipients aged 15-20 decreased

Number of recipients by age group, 30 June, 2001–2019^a



^a There are students aged 15 who are independent and qualify for Youth Allowance. Students aged 25+ are recipients who are still completing studies and that were on Youth Allowance prior to turning 25.

Data source: Unpublished Department of Social Services (DSS) data.

Some trends are explained by factors other than policy changes. The increase in the number of recipients in 2009 stemmed mainly from the global financial crisis (GFC), and is consistent with young people pursuing further studies and claiming Youth Allowance (student) rather than entering an uncertain job market. Also, declines in parental incomes made more students eligible.

Youth Allowance (job seeker)

The trends in the number of recipients of Youth Allowance (job seeker) mostly followed changes in the unemployment rate (figure D.2). For example, there was a decrease in the number of recipients during the 2001 to 2008 economic boom, and a steep rise from 2008 to 2009 as a result of the GFC. Decreases in the number of recipients between 2015 and 2019 are largely explained by falling unemployment rates.

In 2012, eligibility for Youth Allowance (job seeker) was extended to job seekers aged 21 (previously 16 to 20). This change contributed to an increase in the number of Youth Allowance (job seeker) recipients (figure D.2).

This policy change meant that job seekers aged 21 could only apply for Youth Allowance (job seeker) — rather than Newstart Allowance — but they faced stricter eligibility requirements and lower payment levels than under Newstart. This policy change reduced:

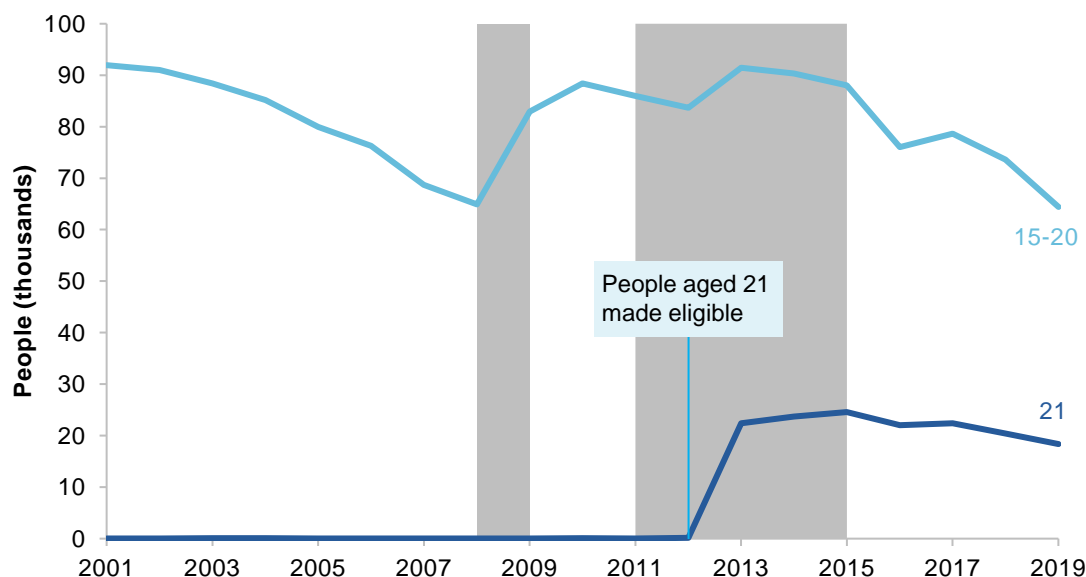
- the number of job seekers aged 21 who could claim any transfer, because there is a parental income test under Youth Allowance, but not under Newstart
- the value of transfers when job seekers aged 21 received one. For example, the fortnightly Youth Allowance (job seeker) payment in 2012 for a single person aged 18-21 with no children was \$265 if living at home and \$402.70 if living away from home, compared with \$489.70 for Newstart (2012 prices).

Policy changes to Youth Allowance mattered for young people's incomes.

- HILDA data show that, between 2008 and 2018, decreases in allowance income made the largest contribution to the decrease in transfer income for people aged 15-19. Youth Allowance is the main allowance that this group is eligible for. The decrease in the number of Youth Allowance (student) recipients contributed to the decrease in transfer income for people aged 15-19.
- Making 16 to 17 year olds ineligible for Youth Allowance (student) in 2012 meant that Family Tax Benefit Part A (FTB-A) became the main form of support for them (previously a student could receive Youth Allowance, but the family could not also receive FTB-A for that same student). The payment rate of FTB-A was increased to match that of Youth Allowance. But unlike Youth Allowance, FTB-A is paid to parents.

Figure D.2 Numbers of Youth Allowance (job seeker) recipients over time

Number of recipients by age group, 30 June, 2001–2019^a



^a Job seekers aged 15 who are independent may qualify for Youth Allowance. Shaded areas represent periods in which the aggregate unemployment rate had increased compared to June of the previous year.

Data sources: ABS (*Labour Force Statistics*, Nov 2019, Cat. no. 6202.0); Unpublished DSS data.

Newstart Allowance (now JobSeeker Payment)

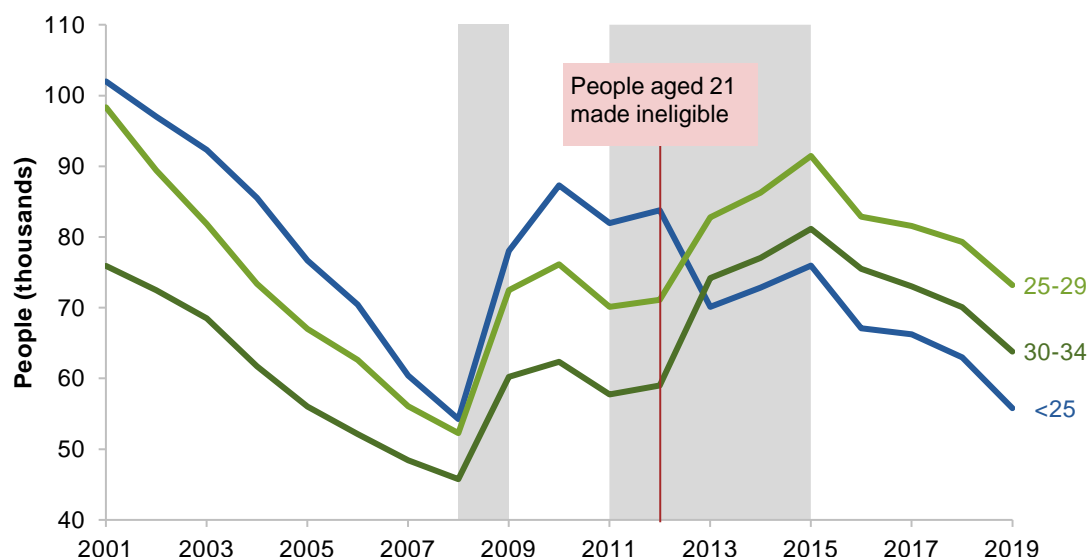
Trends in the number of Newstart Allowance recipients largely followed the unemployment rate (figure D.3). There was a decline in the number of recipients during the 2001 to 2008 boom, a steep rise in 2008 and 2009 as a result of the GFC, and again between 2011 and 2015 as a result of increasing unemployment. Decreases in the number of recipients between 2015 and 2019 are largely explained by falling unemployment rates.

Two policy changes explain the changes in the number of recipients between 2012 and 2013. First, the age at which people become eligible for Newstart Allowance increased from 21 to 22 in 2012, which reduced the number of recipients aged under 25. Second, grandfathering provisions for parenting payments were removed in 2013; people who lost access to parenting payments applied for Newstart Allowance, which increased the number of recipients.

HILDA data show that, between 2008 and 2018, allowance income increased for people aged 20–34. This was a result of weaker economic conditions after 2008, which translated into increased unemployment, and therefore an increase in the number of Newstart Allowance recipients.

Figure D.3 The number of Newstart Allowance recipients follows trends in the unemployment rate

Number of recipients by age group, 30 June, 2001–2019^a



^a Shaded areas represent periods in which the aggregate unemployment rate had increased compared to June of the previous year.

Data sources: ABS (*Labour Force Statistics*, Nov 2019, Cat. no. 6202.0); Unpublished DSS data.

Parenting payments

Parenting Payments combine two transfers — Parenting Payment Single, which is for single parents, and Parenting Payment Partnered, which is for couples with children. Parenting payments are mostly received by mothers (94 per cent of recipients).

Between 2001 and 2019, the number of recipients decreased by:

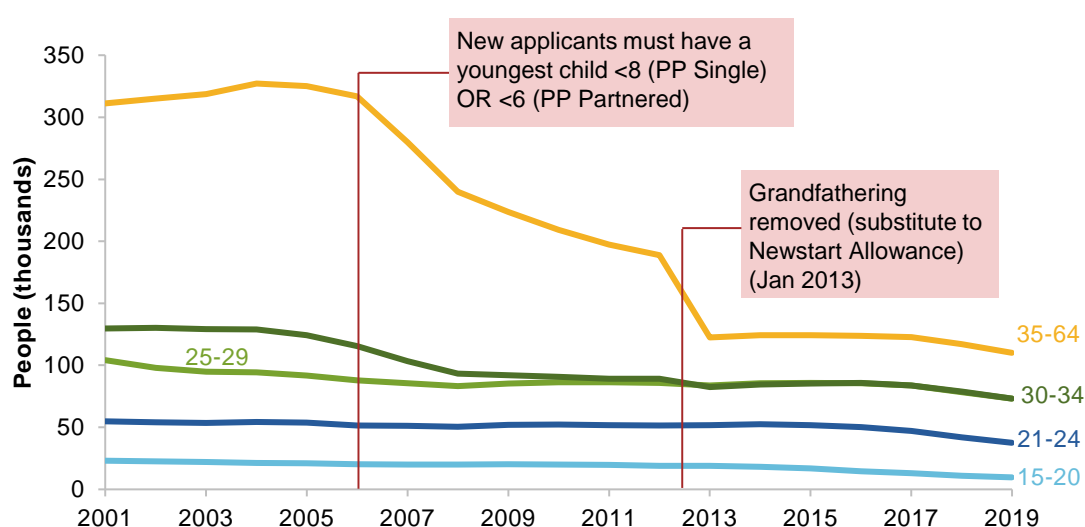
- 59 per cent among people aged 15-20
- 32 per cent among people aged 21-24
- 30 per cent among people aged 25-29
- 44 per cent among people aged 30-34 (figure 5.5).

The decline in the number of parenting payment recipients may reflect declining fertility rates for this age group (ABS 2018a).

Policy changes also contributed to the decrease in the number of recipients (figure D.4). In 2006, eligibility was restricted to single parents whose youngest child was aged under eight or to partnered parents whose youngest child was aged under six years (previously the age

cut-off was 16). Existing recipients were grandfathered if they continued to meet the previous eligibility criterion. Participation requirements were also strengthened. These policies substantially reduced the number of recipients aged 35-64, who likely had children aged over eight. The effect on young recipients was less noticeable, reflecting the younger ages of children in these families. In 2013, grandfathered recipients lost access to parenting payments, which resulted in a large decrease in the number of recipients aged 35-64 and a relatively smaller decrease in the number of recipients aged 30-34.

Figure D.4 The number of parenting payments recipients decreased
Number of recipients by age group, 30 June, 2001–2019^a



^a PP refers to parenting payments.

Data source: Unpublished DSS data.

The decrease in the number of parenting payment recipients contributed to the decrease in transfer income for young people, especially 30 to 34 year olds. HILDA data show that, between 2008 and 2018, young people experienced a decrease in income from parenting payments.

Family Tax Benefit

Family Tax Benefit (FTB) is a family payment, but it is paid to one parent only. There are two separate FTB payments.

- Part A (FTB-A) is based on the number of eligible children, and is designed to assist with the costs of raising children.
- Part B (FTB-B) is for families with at least one eligible child, independent of the number of children and is designed to provide extra assistance to sole parents and families with one main income.

One parent is nominated as the recipient and collects payments on behalf of the family unit. A young parent can be eligible for (i) both parts jointly, (ii) only Part A, or (iii) only Part B, depending on the ages of their children and the family's income level. Policy changes affected the three categories of recipients differently (figure D.5).

FTB-B was more generous and available to more families in the early 2000s. Assistance was increased in 2004 by reducing the taper rate for FTB-B from 30 to 20 cents. This meant that for every dollar of income earned above a certain level, FTB-B payments were reduced by 20 cents instead of 30 cents. The lower taper rate also expanded eligibility by increasing the implied income limit (that is, families could earn more before their FTB-B payment reduced to zero). As a result, the number of FTB-B recipients increased; the number of people who only received FTB-A decreased, because there was an increase in the number of people who received FTB-A and FTB-B jointly (figure D.5).

From 2008, eligibility for FTB-B was tightened to exclude higher-income families in order to ensure it targeted families who needed it most. In 2008, families whose primary earner had an adjusted taxable income of \$150 000 per year were made ineligible for FTB-B. In addition, indexation on this limit was paused, meaning that as incomes grew more families would become ineligible. In 2015, this limit was reduced to \$100 000 in an attempt to better target assistance to lower-income families. These policies reduced the number of families that received FTB-B only (these families were not receiving FTB payments jointly because FTB-A had a more restrictive income test than FTB-B) (figure D.5).

Changes to eligibility based on the age of the children contributed to a steady decline in the number of recipients between 2002 and 2019.

- FTB-A was originally available to families with dependents aged under 22 or dependent full-time students aged 22-24. By 2014, FTB-A was only available to families with children aged up to 15 or dependent full-time students aged 16-19. Whiteford (2017, fig. 9) estimated that the coverage rate (the proportion of all children for whom a parent collects an FTB-A payment) decreased from about 70-80 per cent in 2001 to 50-60 per cent in 2015.
- FTB-B was originally payable to families where the youngest child was aged under 16 or a secondary student aged 16-18. From 2016, couples could only receive FTB-B if their youngest child was aged under 13.

These policy changes contributed to the decrease in the incomes of young people.

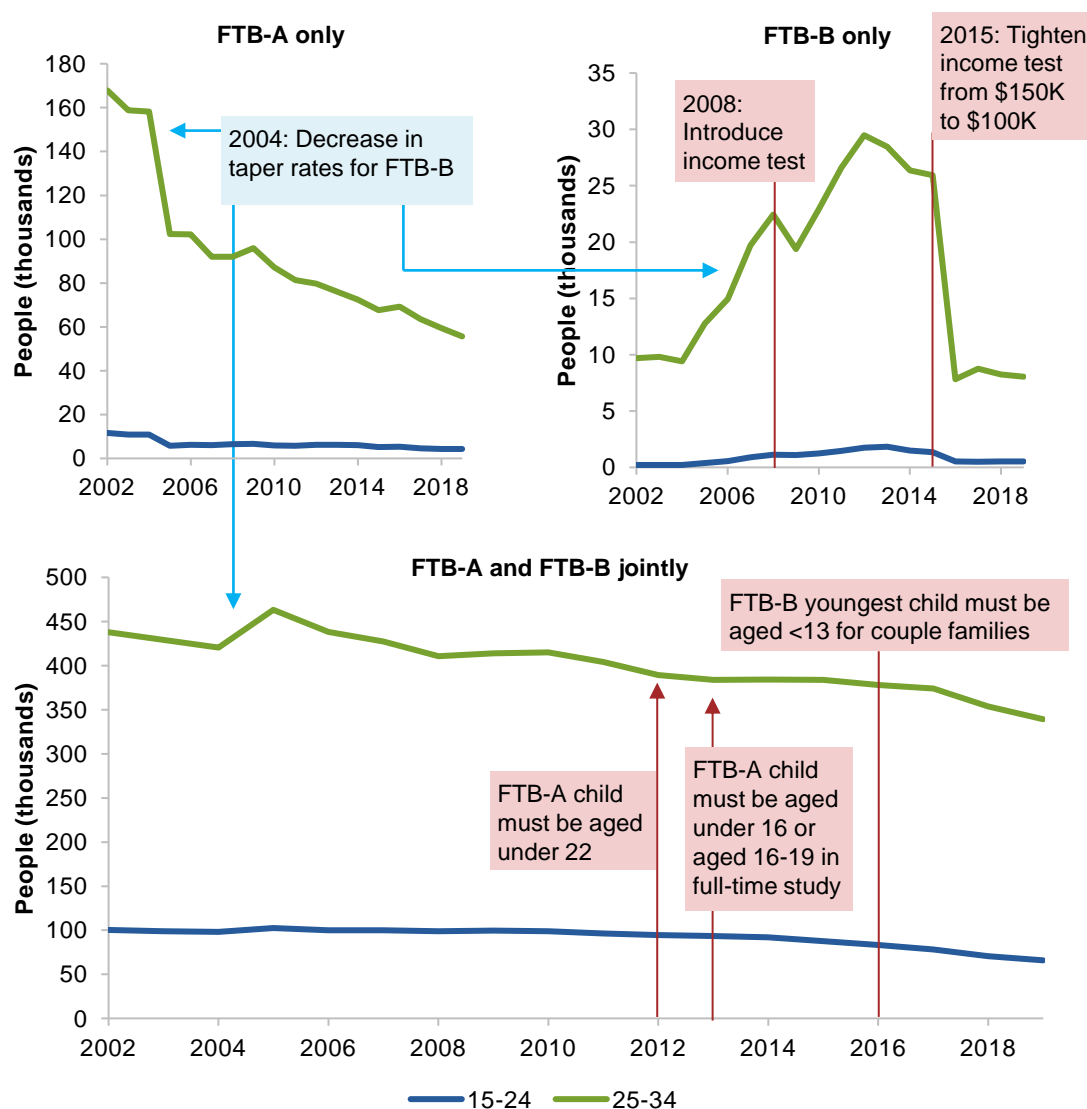
- HILDA data show that, between 2008 and 2018, income from family payments decreased for people aged 20-34. The policy changes that tightened eligibility, combined with decreasing trends in fertility among people aged 15-34, help to explain the negative contribution of family payments to young people's income.

The decline in income from FTB is much steeper than figure D.5 suggests. The decline in the number of FTB-A recipients masks the extent of the decrease in the number of payments made. A parent is counted as a recipient if they had at least one child for which they were

collecting FTB-A. The policy which made older children ineligible for FTB-A reduced the number of payments without necessarily reducing the number of recipients. For instance, a parent with a younger child for which they were collecting an FTB-A payment for was still counted as a recipient even though they no longer collected a payment for their older child.

Figure D.5 The number of FTB recipients decreased

Number of recipients by age group, 30 June, 2002–2019^a



^a Data by age group not available for 2001. Data include recipients that receive fortnightly instalments, and not those who receive lump sums; this covers 93 per cent of recipients. Changes to FTB-A affected all FTB-A recipients, regardless of whether the parent was receiving FTB-A only or with FTB-B jointly. This also applies to changes to FTB-B.

Data source: Unpublished DSS data.

Other family payments

HILDA also records income from maternity payments (most commonly known as the Baby Bonus). This payment is of lower value than FTB, and accounts for a small proportion of transfer income.

The value of the maternity payment changed between 2001 and 2019. In 2004, a lump sum of \$3000 was payable upon the birth or adoption of a child. The value increased to \$5000 in 2012, and decreased to \$2000 for the first birth and \$1000 for subsequent children in 2014. The decrease in the value of the maternity payment may have contributed to the decrease in family payments for new parents.

Disability Support Pension

The number of young Disability Support Pension recipients increased until 2014, but decreased between 2015 and 2019, such that the number of recipients aged 16-20 had fallen below the 2001 level by 2019 (figure D.6). This is a result of tightening eligibility criteria that curb growth in the number of recipients, such as introducing:

- a 15 hour work capacity rule in 2006
- stricter impairment tables in 2012
- compulsory activity requirements for young people in 2014.

In addition, the implementation of targeted reviews to assess whether young recipients still qualified for the payment decreased the number of recipients.

The decrease in the number of recipients aged 16-20 explains part of the decrease in pension income for 15 to 19 year olds between 2008 and 2018. For people aged 20-29, the increase in the number of recipients between 2008 and 2019 likely contributed to the increase in pension income. Given the number of recipients aged 30-34 was similar in 2008 and 2018, it's likely that other factors contributed to the increase in the pension income (such as increased pension payment rates in real terms).

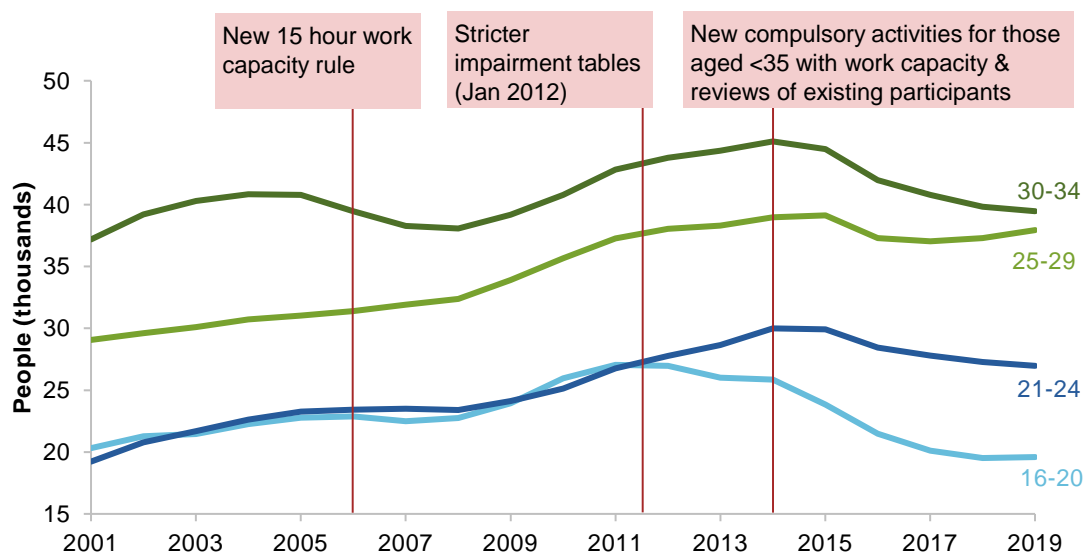
Carer Payment

One important change affected the number of young Carer Payment recipients: in 2009 eligibility requirements for carers of children with a disability were relaxed to make eligibility based on the level of care required rather than on more restrictive medical criteria. In addition, the ageing population increased the number of people requiring care. Both factors increased the number of young recipients (figure D.7).

The number of young recipients overall is small, and so the increase in the number of Carer Payment recipients only made a small contribution to the increase in aggregate pension income for young people.

Figure D.6 The number of young Disability Support Payment recipients increased prior to 2014, but then decreased

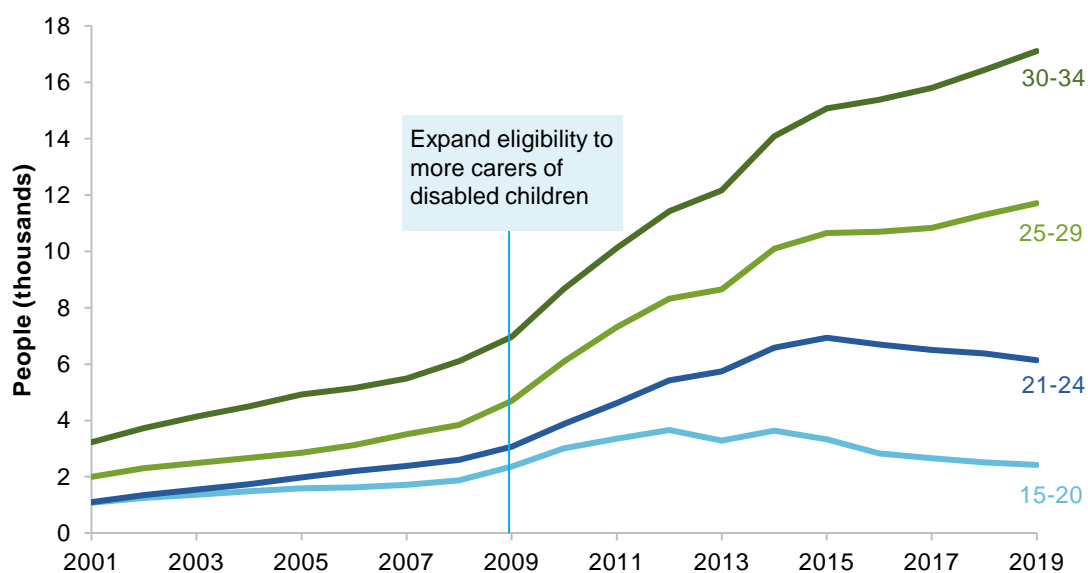
Number of recipients by age group, 30 June, 2001–2019



Data source: Unpublished DSS data.

Figure D.7 The number of Carer Payment recipients increased

Number of recipients by age group, 30 June, 2001–2019



Data source: Unpublished DSS data.

Austudy and ABSTUDY

Austudy is a payment made to people aged 25 and over who are studying full time or in an apprenticeship. ABSTUDY is a payment for Aboriginal or Torres Strait Islander students or apprentices, with no age restriction.

The trends in the total number of Austudy and ABSTUDY recipients do not always reflect policy changes to eligibility (figure D.8).³⁰

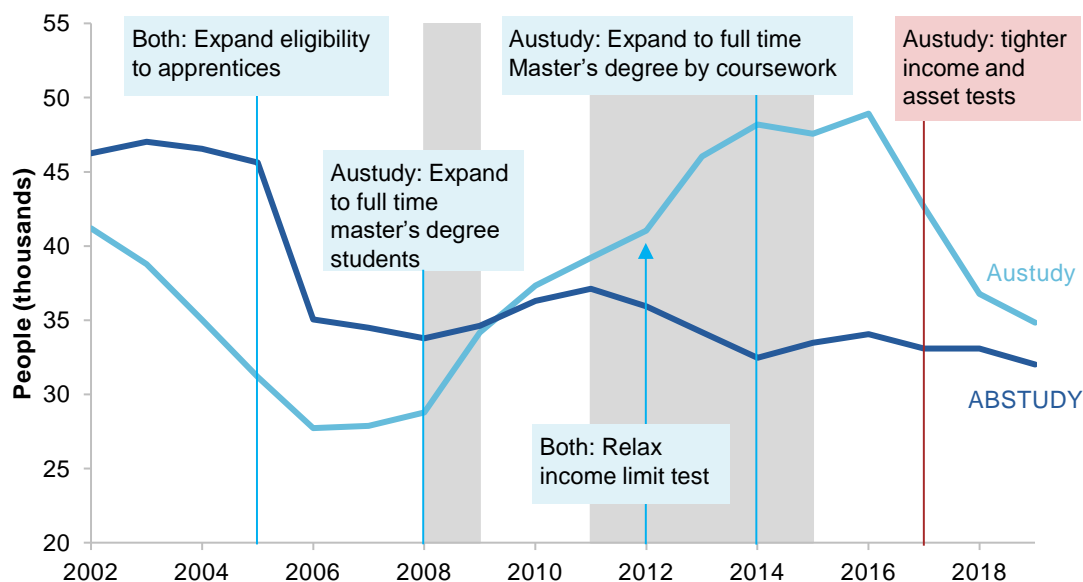
- In 2005, both payments were extended to full-time Australian apprentices but it is unclear what impact this had on the number of recipients, especially given the decreasing trend that preceded this policy change.
- Eligibility for Austudy expanded over 2001 to 2015; including extending the payment to full-time Master's degree students and increasing the income test limit. These policies may be responsible for part of the increase in the number of recipients from 2008 to 2015. But part of this growth is likely explained by macroeconomic conditions, such as the GFC, which made full-time study more attractive for older students by reducing employment opportunities.
- In 2017, eligibility for Austudy was tightened. Persons with partners on income support were no longer exempt from the assets test, and a tighter means test for interests in trusts/companies was introduced. These policy changes may help explain the decrease in the number of recipients after 2016, along with improving labour market conditions.

The number of young recipients is small, and therefore, these payments are unlikely to contribute to major changes in average income per person. For people aged 20-34, income from allowances (which includes Newstart Allowance, Austudy, and ABSTUDY) increased between 2008 and 2018; this increase is mostly a result of increased numbers of Newstart Allowance recipients, but the increase in the number of Austudy recipients may have played a part.

³⁰ Data for the number of recipients by age were not available for 2002-2019. DSS data (2019) show that in June 2019, 64 per cent of Austudy recipients were aged 25-34, and 91 per cent of ABSTUDY recipients were aged 15-34. Additionally, ABSTUDY data were not split into the income support (living allowance) and non-income support payment (non-living allowance).

Figure D.8 The number of Austudy and ABSTUDY recipients

Number of recipients, 30 June, 2002–2019^{a,b}



^a Data by age group not available. ^b Shaded areas represent periods in which the aggregate unemployment rate increased compared to June of the previous year.

Data sources: ABS (*Labour Force Statistics*, Nov 2019, Cat. no. 6202.0); Unpublished DSS data.

D.2 Timeline of eligibility policy changes

This section presents a list of the main policy changes that affected young people's eligibility for each transfer payment between 2001 and 2019. Each policy change is classified as either 'expanding' or 'tightening' eligibility to highlight the likely effect of the policy change on the size of the transfer recipient population. The 'policy year' is the year a policy was implemented, that is, when eligibility criteria changed, usually within the year after which the legislation was passed.

Information on policy changes are sourced from:

- budgetary papers and associated bills and legislation (Australian Government 2020)
- Parliament of Australia's background notes on the changes to transfer payments (Daniels 2009, 2011, 2017; Ey 2012)
- historical versions of *A Guide to Australian Government Payments* (DHS 2019)
- *Guides to Social Law Policy* (DSS 2020d).

Youth Allowance (student)

- **2001** — family asset test relaxed (expand) [details: proportion of business assets excluded was increased from 50 to 75 per cent]
- **2005** — extended to apprentices (expand)
- **2006** — personal income taper rate³¹ reduced (expand) [details: second taper rate reduced from 70 to 60 cents, which affected eligibility by increasing the income a person can earn before their payment is reduced to \$0]
- **2008** — extended to full-time students undertaking certain Master's degrees (expand)
- **2010** — age of automatic independence reduced from 25 to 22, phased in from 2010 to 2012 (expand) [details: the age of independence was reduced from 25 years in 2009 to 24 years in 2010, 23 years in 2011, and 22 years from 2012. Independent youth do not have to undertake the parental income test]
- **2010** — two workforce participation criteria for claiming early independence abolished (tighten) [details: prevent high-income students who take a gap year or were employed after finishing school from claiming independence and avoiding the parental income test]
- **2010** — parental income threshold relaxed and the taper rate lowered (expand) [details: parental income threshold increased from \$32 800 to \$44 165 (30 per cent increase) and the taper rate was lowered from 25 per cent to 20 per cent (box D.1)]
- **2012** — people aged 16-17 ineligible, unless they are independent and required to live away from home or already receiving Youth Allowance (tighten)
- **2012** — threshold for personal income test increased (expand) [details: income free area increased from \$236 to \$400 per fortnight, and income brackets for taper rates also increased; affects eligibility by changing the level of income at which the taper rates start, effectively increasing the implied income limit]
- **2014** — extended to more students undertaking Master's degrees (expand) [details: the list of approved courses and education providers expanded]
- **2015** — indexation of assets value limits frozen for 2 years (tighten)
- **2016** — family asset test and family actual means test were abolished (expand)
- **2017** — people with partners who receive certain income support payments no longer exempt from the benefit assets test (tighten)
- **2018** — relaxed independence criteria for those from regional/remote areas (expand)

³¹ The taper rate is the rate at which a fortnightly payment reduced once an person's or family's income is over a certain threshold.

Box D.1 **How income free areas, income limits, and taper rates affect payment rates and eligibility**

Payments, such as the Newstart Allowance and FTB-A, are contingent on a person's income.

- Below an 'income free area', the full value of the transfer payment is received.
- As income grows, the payment is reduced according to a taper rate.
- From some income level, no payment is made because a person becomes ineligible.

So, taking Newstart Allowance as an example, a single person with no children that was not a principal carer would in 2019 have received:

- \$555.70 per fortnight — the full amount of Newstart Allowance — if their income was less than \$104 per fortnight (income free area)
- 50 cents less for each dollar over \$104 per fortnight up to \$254 per fortnight
- \$75 less and 60 cents less for each dollar over \$254 per fortnight
- no payment if their income was \$1069.84 per fortnight or more.

Source: DHS (2019).

Youth Allowance (job seeker)

- **2006** — personal income test area increased and taper rate reduced (expand) [details: threshold for the second taper rate increased from \$142 to \$250 per fortnight and the second taper rate reduced from 70 to 60 cents]
- **2010** — job seekers who had not completed Year 12 or equivalent would usually need to participate in part-time study or training for at least 25 hours per week, in combination with other approved activities, until they complete a Year 12 or equivalent qualification (tighten)
- **2012** — people aged 21 become eligible (expand) [details: previously age limited to 16 to 20]
- **2012** — personal income test free area increased (expand) [details: from \$62 to \$143 per fortnight, thereby changing the level of income at which the first taper rate starts and effectively increasing the implied income limit]
- **2015** — indexation of asset test limits frozen for 2 years (tighten)
- **2016** — family asset test and family actual means test abolished (expand)

Newstart Allowance

- **2006** — income test free area increased and taper rate lowered (expand) [details: threshold for the second taper rate increased from \$142 to \$250 per fortnight and the second taper rate reduced from 70 to 60 cents]

-
- **2012** — people aged 21 become ineligible (tighten) [details: eligibility for new recipients restricted to those aged from 22 years to the Age Pension age]
 - **2015** — indexation of asset test limits frozen for 2 years (tighten)

FTB-A

- **2012** — children aged 22 and over ineligible (tighten) [details: previously children aged up to 25 were eligible]
- **2013** — children aged 20 and over become ineligible (tighten) [details: to be eligible children aged 16 to 19 have to be in full-time education, or aged 16 to 17 and have completed Year 12]
- **2014** — children aged 16 to 17 that have completed Year 12 become ineligible (tighten)

FTB-B

- **2004** — decrease in the taper rate (expand) [details: taper rate reduced from 30 to 20 cents]
- **2008** — income limit test introduced for primary earner's income (tighten) [details: primary earner's income test limit set to \$150 000]
- **2015** — income limit test for primary earners income reduced to \$100 000
- **2016** — couple families (other than grandparents and great-grandparents) with a youngest child aged 13 or over become ineligible (tightened)

Parenting payments

- **2003** — participation requirements introduced (slightly tighten) [details: parents whose youngest child was aged under 12 required to attend an annual interview, and parents whose youngest child was aged 13-15 required to undertake 150 hours of activities each six months, both to help prepare for a return to work]
- **2006** — for new applicants, single parents must have a youngest child aged under eight and partnered parents must have a youngest child aged under six (tighten) [details: previously available for children below age 16; grandfathering for existing recipients]
- **2006** — participation requirements strengthened (tighten) [details: recipients whose youngest child turned seven required to look for suitable work of at least 15 hours per week]
- **2013** — grandfathering provisions removed (tighten) [details: recipients who were grandfathered had their parenting payments revoked in January]

Disability Support Pension

- **2006** — 15-hour work capacity rule introduced (tighten) [details: a person must be incapable of working 15 hours per week, at award wages, and be unable to be retrained for such work within two years to be eligible (previously 30 hours)]
- **2011** — participation in a Program of Support required (tighten) [details: future work capacity also assessed by participation in a Program of Support, training or work-related activities, if not severely disabled (that is, less than 20 points of impairment)]
- **2012** — stricter impairment tables introduced (tighten) [details: implemented in January]
- **2014** — new compulsory activities introduced (tighten) [details: people aged under 35, with a work capacity of at least eight hours a week, who are subject to participation requirements, must also complete one compulsory activity (such as, active participation with an Employment Service Provider or education or training that promotes work readiness)]
- **2014** — review of recipients under 35 that were granted access between 2008 and 2011 (tightened) [details: reviewed against the impairment tables introduced in 2012]
- **2015** — requirement to provide raw medical evidence to support their claim (tighten) [details: previously a Treating Doctor's Report was used]
- **2015** — new applicants may be required to undergo a Disability Medical Assessment (tighten) [details: assessments undertaken by a Government contracted doctor]

Carer Payment

- **2005** — the number of hours that a carer can spend in work, training, or study increased from 20 to 25 hours per week (expand)
- **2006** — extended to carers of children with severe intellectual, psychiatric or behavioural disabilities who require constant care or supervision (expand)
- **2009** — eligibility expanded to include more carers of children (expand) [details: eligibility criteria based on level of care required rather than restrictive medical criteria]

Austudy

- **2005** — extended to apprentices (expand)
- **2006** — taper rate reduced (expand) [details: second taper rate reduced from 70 to 60 cents]
- **2008** — extended to full-time students undertaking Master's degrees (expand)
- **2012** — personal income test free area increased (expand) [details: income free area increased from \$236 to \$400 per fortnight]
- **2014** — extended to students studying for a Master's program by coursework (expand)
- **2017** — people with partners who receive certain income support payments no longer exempt from the benefit assets test (tighten)

ABSTUDY

- **2005** — extended to apprentices (expand)
- **2006** — taper rate reduced (expand) [details: second taper rate reduced from 70 to 60 cents]
- **2012** — personal income test free area increased (expand) [details: income free area increased from \$236 to \$400 per fortnight]

E Savings of young people who live with their parents

This appendix examines the rise in the number of young people who live with their parents (section E.1), and the associated savings a young person makes by doing so (section E.2).

E.1 Young people are living at home longer

Young people are living at home longer and delaying the transition to independent living. In 2001, 47 per cent of men aged 18-29 and 37 per cent of women aged 18-29 were living with their parents. By 2017, these rates had increased to 56 per cent for men and 54 per cent for women (Wilkins et al. 2019, p. 112). Between 2001 and 2017, the average age at which women left the family home increased from 22.1 to 24.2, while for men it increased from 23.1 to 23.5 (Wilkins et al. 2019, p. 112). Young people living at home are more likely to be single than young people who have moved out. Further, they are more likely to be unemployed or out of the labour force, and more likely to be studying full-time (Wilkins et al. 2019, chap. 7).

Many factors have contributed to the rise in the number of young people staying at home longer. Young people are:

- undertaking longer post-secondary education
- facing more uncertain labour market outcomes (lower wage rates and worse occupations)
- marrying later, in part because of these economic pressures.

Living at home offers stability.

Affordability is the most frequently cited reason for young people staying at home longer (Parkinson et al. 2019, pp. 34–35). Sustained growth in house prices and rents over the past 20 years and negative real income growth hampered young people's ability to access affordable housing. Living at home offers young people a way to save money for their future by avoiding expenses from living independently. They also receive in-kind transfers from their parents, who pay for many household expenses and housing. Further, the costs per person in larger households is lower because they share the amenities of goods and services (that is, they achieve economies of scale).

E.2 Estimating the savings to young people using HILDA

This section sets out the methodology for estimating the savings young people make by living with their parents, using HILDA data. Savings for young people are assumed to be the expenses that they forego by living with their parents and are estimated from observing the expenses of young people who *do not* live with their parents.

The method draws on the findings and assumptions in Hill and Hirsch (2019, pp. 25, 43). That is, it is assumed that when young people live with their parents, they:

- do not contribute board (to help parents cover the cost of household expenses)
- pay for their personal expenses (clothing, transport costs, health care, personal care, recreation, meals eaten outside the home, and alcohol), and that the amount does not change regardless of who they live with.

Under these assumptions, the savings for young people are estimated as the household expenses that they would have incurred if they were living independently, including housing (rent or mortgage), groceries, and household goods and services.

Household expenditure data are used to estimate the savings of young people who live with their parents by observing the household expenses of young people who do not. HILDA data contain information on the following household expenses: rent/mortgages, groceries, and other household expenses, including utilities, telephone and internet charges, home and contents insurance, home maintenance, and household appliances and furniture.³² These data are used to predict the household expenditures of young people if they had lived independently rather than with their parents. All expenditures are converted to real amounts (\$2019 prices). The steps are detailed below.

1. Real household expenditure per adult is calculated by dividing household expenditure (by component: housing, groceries, other household expenses) by the number of adults in the household. This assumes that the adults living in a household pay for household expenses equally. This is a reasonable assumption for young people who have moved out of home who might be living with a partner or with peers.
2. Using the sample of people aged 20-34 who **do not** live with their parents, equation (1) is estimated for each component of real household expenditure per adult:

$$hhexpen_{ist} = (age2024_{it} \times \mathbf{x}'_{it})\boldsymbol{\beta} + (age2529_{it} \times \mathbf{x}'_{it})\boldsymbol{\alpha} + (age3034_{it} \times \mathbf{x}'_{it})\boldsymbol{\theta} + \gamma_s + \delta_t + e_{ist} \quad (1),$$

where \mathbf{x}_{it} is a vector of selected demographics (whether the young person is male, single, employed, unemployed, studying; their education level; and the number of children in

³² Mortgage and rent data were collected in all waves; groceries, home maintenance, and utilities were collected from 2005 to 2018; telephone and internet, and insurance were collected from 2006 to 2018; furniture and household appliances were collected from 2006 to 2010 and are imputed for 2011 to 2018.

the household) for person i at time t , demographics are interacted with age dummies (that is, age groups 20-24, 25-29, and 30-34) such that the effect of each demographic on household expenditure differs by age group, γ_s are state fixed effects, δ_t are year fixed effects, and e_{ist} is an error term.

3. For each person aged 20-34 who lives with their parents, the estimated coefficients from equation (1) (that is, $\hat{\beta}, \hat{\alpha}, \hat{\theta}, \hat{\gamma}_s, \hat{\delta}_t$) are combined with their demographic data to predict real household expenditure ($hhexpen_{ist}$) for each component and summed to provide an estimate of total real household expenditure. This is an estimate of what a young person might have spent if they lived independently. It is assumed that if a young person moved out of home they would have no dependent children and move within their home state. Personal income is not included in equation (1) because, while it is a determinant of household expenditure, it is also a main factor in the decision to move out (that is, it is endogenous).

For young people living with parents, estimated savings are \$383 per week, on average (table E.1). That is, on average, a young person who lives with their parents saves \$210 per week on housing, \$94 on groceries, and \$79 on other household expenses.

Table E.1 Savings from living at home are substantial and differ by state
Average real weekly savings by state, 2018

	<i>Housing</i>	<i>Groceries</i>	<i>Household expenses^a</i>	<i>Total savings</i>
	\$	\$	\$	\$
New South Wales	234	95	81	411
Victoria	204	93	81	379
Queensland	189	91	71	351
South Australia	168	89	71	327
Western Australia	218	100	81	399
Tasmania	153	86	72	312
Northern Territory	187	103	63	353
ACT	239	99	95	433
Australia	210	94	79	383

^a Household expenses include: utilities; telephone and internet charges; home and contents insurance; home maintenance; and household appliances and furniture.

Source: Commission estimates based on HILDA data.

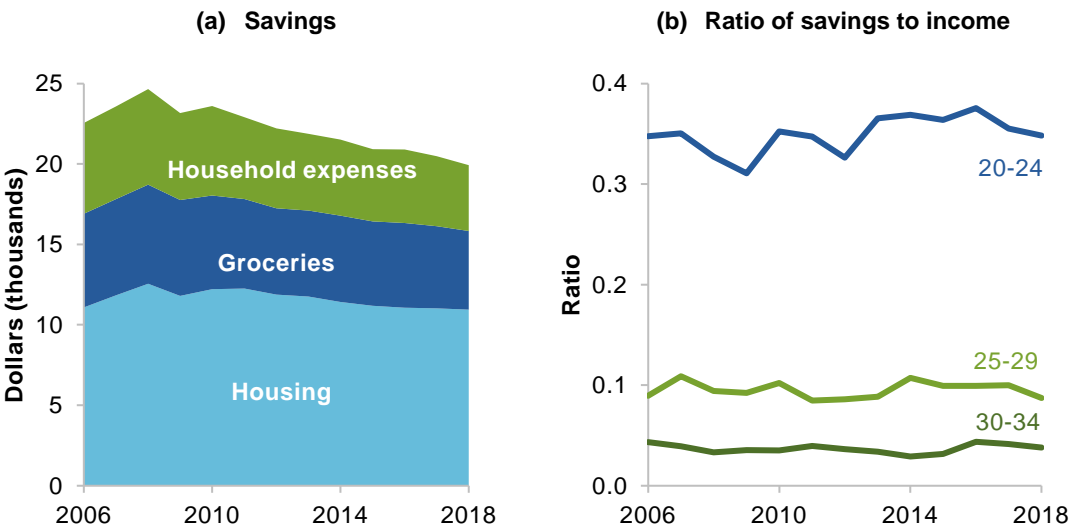
By including state indicators in equation (1), differences in savings across states can be examined. This is important given the large variation in housing costs across states. For example, a young person in the ACT saves an average of \$239 per week on housing, while a young person in Tasmania saves \$153 per week (table E.1). The housing costs are an average of all types of housing (such as, location, whether housing is shared, and whether someone rents or buys), and so reflects an average expected housing cost for a young person within a state.

The estimates in table E.1 are converted to yearly amounts to assess how savings have changed over time. The estimated yearly savings range between \$16 201 in Tasmania and \$22 497 the ACT.

From 2008 to 2018, the real average yearly saving decreased from about \$24 700 to \$19 900 (figure E.1a), or about 1.9 per cent per year, which is slightly larger than the decline in income observed for the same period. The decrease in savings appears to be a result of independent young people minimising expenditure in response to falling incomes.

The estimated savings represent a larger proportion of total income for the younger age groups and this proportion was relatively constant between 2006 and 2018 (figure E.1b). The ratio of total savings to income was about 35 per cent for people aged 20-24, 10 per cent for people aged 25-29, and 4 per cent for people aged 30-34. This is because younger people are more likely to live with their parents (and their total income is smaller).

Figure E.1 Savings from not living independently account for a large share of income for people aged 20-24
 Average real saving for people aged 20-34 (left); ratio of real total savings to real total income (right); 2006–2018^a



^a For each age group and year, this ratio is the total savings (that is, the sum of all savings) divided by total income.
Data source: Commission estimates based on HILDA data.

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