# Financial Literacy and Superannuation (Pension) Savings for Retirement

Submission to the

Australian Government Retirement Income Review

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This submission has been prepared, and is made, by Professor Alison Preston. It draws on two programs of research that Alison is involved in. The first is with Professor Robert E. Wright (University of Glasgow) on financial literacy. The second is with Dr Elisa R. Birch (University of Western Australia) on developments in the labour market and the evolving wage structure.

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## Executive Summary

In November 2019 the Australian Government released a 'Retirement Income Review' Consultation Paper to inform and guide a review of the Australian retirement incomes system (Commonwealth of Australia (CoA), 2019). The purpose of the review, as described in the consultation paper, is to, amongst other things: (a) understand how the system supports Australians; (b) understand the distributional impact of the system; and (c) understand how current policy settings impact on public finances.

Using data from the Household, Income and Labour Dynamics in Australia (HILDA) survey, this submission seeks to inform item (b), *the distributional impact of the occupational superannuation system*. The particular focus is on how the occupational superannuation component of the Australian retirement income system results in large and highly significant gaps in the superannuation savings of men and women and, as a result, large and significant differences in the retirement incomes of men and women. Any review of the distributional impacts of the Australian retirement income system must, necessarily, seek to understand how the system works to the advantage of some but not all and how women (in particular) are disadvantaged by prevailing arrangements.

A key focus in this submission is on the relationship between financial literacy and superannuation savings. Research elsewhere shows that there is an important link between financial literacy, planning for retirement, wealth accumulation and superannuation (van Rooji, Lusardi and Alessie, 2012; Bateman et al., 2012). Research also shows that women, on average, have lower levels of financial literacy than men (Preston and Wright, 2019; Hasler and Lusardi, 2017). Australia is an interesting country in this respect as it has a comparatively high level of financial literacy. It also one of the largest gender gaps in financial literacy (Hasler and Lusardi, 2017).

The submission is comprised of three parts. Key findings and recommendations are presented within this Executive Summary (see below). The three parts to the submission are as follows:

- Part I: A paper by Professor Alison Preston (University of Western Australia) (UWA) and Professor E. Wright (University of Glasgow) examining the impact of financial literacy on the superannuation savings of men and women in Australia.
- Part II: A research note prepared by Professor Alison Preston describing the current superannuation balances of non-retired Australians based on 2018 HILDA data.
- Part III: Summary findings from a forthcoming paper by Dr Elisa R. Birch (UWA) and Professor Alison Preston (UWA) describing recent trends in the Australian labour market.

The three papers contained herein make an important contribution to the debate on pension policy in Australia. The research by Preston and Wright, in particular, is innovative and to the best of our knowledge, the first to use nationally representative data to show that there is an important relationship between financial literacy and superannuation. The work also shows that around 16.5% of the explained difference in male and female superannuation balances (i.e. the gender gap in superannuation) may be explained by male-female differences in financial literacy (i.e. the gender gap in financial literacy). This, together with a summary of other important findings and key recommendations follows below.

## Part I: Financial literacy and superannuation savings - summary of findings and recommendations

### *Key findings*

1. There is a highly significant correlation between financial literacy and superannuation savings in Australia.
2. Age and sex are key determinants of financial literacy and of superannuation savings.
3. The relationship between age and financial literacy takes an inverted-U shape, meaning that it is low when individuals are young and rises as individual's age, but tapers off at older ages. The tapering off, relates, in part, to cognition effects. Financial literacy is important at all ages, but particularly important when young and when initial decisions and plans are being made concerning retirement incomes. It is also critical at older ages

when important decisions are being made about pensions, investments and superannuation savings.

4. Women, on average, are less financially literate than men, although across the population as a whole there is widespread financial illiteracy.

5. When financial literacy is tested in Australia (using a 5-question set that tests knowledge about concepts such as compound interest, inflation, risk, diversification and money illusion), only 50% of adult males in Australia may be described as having 'high' financial literacy' (i.e. correctly answer all five questions); the corresponding share for women is 36%.

6. Descriptive analysis shows that males with high levels of financial literacy (correctly answering all five questions) have a mean superannuation balance of $182,782. This compares to $124,476 (or a gap of $58,306) for high financially literate women.

7. There is a large and significant gap in the mean superannuation balances of non-retired adult (aged 20-64 and not-retired) males and females, irrespective of financial literacy.
   a) At the mean men had a superannuation balance of $57,930 in 2018.
   b) At the mean women had a superannuation balance of $34,098 in 2018.
   c) The mean gender gap in the superannuation balances of Australian non-retirees aged 20-64 was equal to 53% in 2018.

8. Decomposition analysis shows that there is an *explained* gap in the superannuation balances of non-retired males and females equal to 20%. In other words, controlling for sex differences in a range of characteristics such as labour market participation, workforce attachment, occupation and industry of employment) allows us to explain just over two-thirds of the observed 53% gender gap in superannuation.

9. Of the 20% (or 20 percentage point) explained gender gap in superannuation, half of it derives from gender differences in labour market attachment and employment participation as well as sector of employment.

10. Importantly, 16.5% of the 20 percentage point gender gap in superannuation derives from a gender gap in financial literacy.

11. The findings in this submission quantify the extent to which women are disadvantaged (in terms of their lower superannuation balances) as a result of career interruptions and gender differences in their patterns of work.

12. The findings also quantify the relationship between financial literacy and superannuation. They imply:

a) That interventions to improve financial literacy could be expected to raise the superannuation balances of males and females.

b) Interventions to improve the financial literacy of women could be expected to narrow the gender gap in the superannuation balances of males and females.

13. Estimates show that within sex groups there are particular groups who are especially disadvantaged by present occupational superannuation arrangements. These include: immigrants, persons residing outside of the capital cities in Australia, low skilled workers, employees in the Accommodation and food services sector and those who are either currently self-employed or have had a spell in self-employment. In the case of women, the estimates reported in this submission (see appendix to Part I) show:

a) Women who have been or are self-employed have balances which are 52% lower than those who have never been self-employed

b) Women who are migrants from a non-English speaking background (NESB) country have balances that are 63% lower than their Australian born counterparts, even after controlling for time spent in Australia.

c) Women in low skilled occupations have significantly lower balances than their counterparts in higher skilled occupations

d) Women who are currently employed in the Accommodation and food services sector or have been employed in this sector have balances which are 27% lower than the benchmark case (women currently or ever employed in Retail trade). This compares to women currently (or ever) in the finance sector where balances are 73% higher than the benchmark case.

*Recommendations*

R1. Internationally there is a large and growing literature examining the relationship between financial literacy and pension planning. Within Australia research in this area is limited. More needs to be done to understand how financial literacy impacts with the various pillars of the retirement income system. This is particularly important research in the context of any debate to reform the pension system.

R2. The research reported in this submission assumes that financial literacy is an exogenous determinant of superannuation (eg. that financial literacy is unrelated to one's superannuation balances). For some this may not be the case. It may be that as

superannuation balances grow individuals become more interested in their balances and in the decisions being made on their part by their superannuation fund. They may, as a result, be incentivised to invest in the acquisition of financial literacy and enhance their understanding of important and relevant concepts such as risk and compound interest. If this is the case then financial literacy may be an *endogenous* determinant. Understanding the causal linkage (rather than the correlation) is critical for policy formulation and should be a priority for future research. If there is no causal relationship between financial literacy and superannuation balances then interventions to raise the financial literacy of individuals may have zero impact on their superannuation balances.

R3. There is an inverted-U shaped relationship between financial literacy and superannuation. Further research is required to understand how low levels of financial literacy amongst young people and emerging adults impacts on their subsequent superannuation balances. Further research is also required to understand how financial literacy and cognitive decline in older ages impacts on superannuation. Australian evidence suggests that financial literacy rises with age and that the turning point around 50 years of age.

R4. Further research is required to better understand the determinants of financial literacy for particular groups (eg. immigrants, Indigenous Australians, self-employed, low skilled workers) and how financial literacy affects the superannuation savings of these groups. Gaps in the superannuation balances of Australian born and immigrants (even after controlling for time in Australia) may, for example, derive from cultural factors and/or differing institutional arrangements in their originating countries regarding pension policies.

R5. While increasing the mandated employer contribution rate to 12% will help raise the superannuation balances of men and women, it is clear that the majority of retirees will be dependent upon a full or part Age Pension payment in retirement. The Age Pension is a critical pillar of the Australian retirement incomes framework and it is critical that this is recognised and acknowledged. Further research is required to better understand how the two systems interact to support men and women in retirement and how the Age Pension system may deliver women an adequate and equitable income in retirement.

## Part II: Stylised facts about superannuation in Australia

### *Key findings*

1. Of all superannuation account holders in Australia (non-retirees aged 20-64), 9.1% do not know what their balance is and 7.7% report having a zero ($0) balance.

2. The majority of superannuation plans in Australia today are defined contribution plans. A high share of men and women, however, do not know what type of superannuation plan they have; 34% of female account holders and 28% of male account holders are unsure as to whether or not they have a defined benefit component in their superannuation plan.

3. There are sizeable and significant differences in the mean balances of men and women. ABS and HILDA estimates both show that the common ratio of female to male balances amongst persons 45-54 years is 63%. This equates to a gender gap of 37% for this age groups.

4. While superannuation balances correspond with education attainment, large gender gaps remain. Tertiary qualified males have a mean balance of $198,324 while tertiary qualified females have a mean balance of $121,317. This equates to a female to male ratio of 61% or a gender gap of 39%. (The sample is comprised of non-retirees aged 20-64 with a superannuation account and a reported balance of $0 or more).

5. Differences in the superannuation balances of men and women emerge early in their careers and worsen across the life-course.

6. Estimates show that men who are aged 20-35 and who have a history of continuous full-time employment have a superannuation balance of $61,386 in 2018; this compares to $45,951 for females for the same age group and with the same employment history. It equates to a gender ratio of 75% or a gender gap of 25%.

7. Women are more likely than men to have a zero or very low superannuation balance.

8. At the 25th percentile of the distribution of male superannuation balances, the mean balance was $25,000 in 2018. The corresponding balance for women was $13,000. At the median (50 percentile) males had a balance of $75,000 and females a balance of $42,200. This translates to a female/male ratio of 60% or a gap of 40%.

R6. Significant resources have been spent setting up and promoting the MySuper Dashboard. The MySuper Dashboard provides invaluable information on fees, costs, investment returns and account balances. The Dashboard also assists superannuation account holders consolidate their accounts and find any lost superannuation. Notwithstanding the existence of the MySuper Dashboard nearly a third of account holders do not understand what type of superannuation account they have. Further research is required to understand who understands what (and why) about the Australian retirement income system, who uses the MySuper Dashboard and, relatedly, the MyGov dashboard / website (as it pertains to superannuation). Research is also required to understand why a large portion of superannuation account holders report having a balance of zero ($0). Is there a gender effect? Are women more likely than men to access some of their superannuation in the case of severe hardship (such a provision is allowed in the system)?

R7. Estimates show that there are large and significant gaps in the superannuation balances of men and women and that these gaps emerge early in adulthood, even in the presence of continuous full-time employment. Further research is required to better understand why such sizeable gaps emerge, even in the presence of full-time employment. How much of it derives from the gender pay gap? How much derives from segmented labour markets and from differences in employer contributions by industry and sector. Is the employer contribution rate for men greater than it is for women and, if so, why? Do employers make a higher voluntary contribution (i.e. above the mandated amount) for men than women? If so, what explains this?

R8. Greater transparency is required on the superannuation (mandatory and voluntary) employer payments made to men and women. Presently large employers provide the Workplace Gender Equality Agency (WEGA) with information on base salaries (before tax) paid to their workforce along with total remuneration (base salary plus superannuation, bonus payments, overtime and allowances). Consideration should be given to reporting separately on superannuation payments.

## Part III: Recent developments in the Australian labour market

### *Key findings*

1. The structure and composition of the Australian labour market has significantly changed over recent decades. Amongst other things there has been a significant increase in the share of the working population in employment (the employment/ population or E/P ratio). Presently the E/P ratio is equal to 78.5% for men and 70.3% for women (aged 15-64). In other words, the majority of men and women of working age are in employment and, therefore, in receipt of superannuation contributions.

2. Much of the increase in the E/P ratio derives from an increase in the share of women in employment. It derives from a change in the demand for labour in female dominated industries (eg. Health and care sector) and a rise in the supply of women wishing to work. Much of the employment growth has, however, been part-time (fewer than 35 hours per week). In 2000 26.8% of persons were employed part-time; by 2019 the share had increased to 32.1%. Part-time employees, by definition, have lower weekly earnings than full-time employees. While the increased participation of women in employment will see their mean superannuation balances increase, differences in the way men and women participate in the labour market (deriving from differing demand and supply factors) will generate differences in male and female superannuation balances.

3. A particular trend in recent years has been the growth in the incidence of multiple jobholding, particularly amongst younger workers. It is important to understand that working full-time in one job does not equate to working two part-time jobs, particularly where remuneration and superannuation payments are concerned. Research shows that part-timers generally earn less than full-timers, even in the presence for controls for schooling and labour market experience. Part-timers are also more likely than full-timers to be employed on casual and fixed term contracts. These in turn may attract lower employer co-contributions. This is especially likely in cases where a part-timer works short-hours and falls short of the earnings threshold at which employer compulsory superannuation contributions kicks in.

4. Research suggests that, over recent years and net of composition effects, wage growth has been slower for younger employees than older employees and slower for younger women than younger men.

R9.  Further research is required to better understand how recent labour market developments are impacting on the superannuation balances of men and women. Is the growth in part-time employment helping to narrow or widen the gender gap in superannuation balances?

R10. Research is also required to better understand how slower than usual wage growth is impacting on the superannuation contributions and balances of Australian employees. How has the is slower than usual wage growth amongst young people and young women in particular affected their superannuation balances?

R11. Historically Australia's labour market institutions played an important role in protecting the low paid. Over recent decades there has been a significant growth in wage inequality. The relative position of the low paid has deteriorated and there are calls to debate and review wages policy in Australia to ensure a system of decent pay for all. In reviewing the wages system and wages policy in Australia it is increasingly important that superannuation payments are also taken into account, particularly where equity considerations are at play.

R12. Related to the above we strongly recommend that the current $450 per month minimum earnings threshold be immediately removed and that all employees are entitled to minimum employer co-contributions to superannuation.

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Part I:

# The Impact of Financial Literacy on the Superannuation (Pension) Savings of Men and Women

# Part I: The Impact of Financial Literacy on the Superannuation (Pension) Savings of Men and Women in Australia

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**ABSTRACT**

Using data from the Household, Income and Labour Dynamics in Australia (HILDA) for a sample of non-retirees aged 20-64 with a superannuation account balance greater than $0, this paper examines the impact of financial literacy on the superannuation savings of men and women in Australia. We show that financial literacy is significantly correlated with superannuation savings and that, for each additional financial literacy question correctly answered, mean balances increase by around 10%. We also show that there is a large gender gap in superannuation balances. At the mean the gender gap is equal to 53%, of which one just over one third (19.6 percentage points) can be explained by covariates in the regression. Of the set of characteristics controlled for, gender differences in demographic characteristics (eg. age, schooling, marital status, children and migrant status) accounts for 10% of the explained gap while differences in financial literacy accounts for 16.5% of the explained gap. Overall, the research highlights the risk to women with low financial literacy within a retirement income system centred on private superannuation (pension) savings.

*Disclaimer*

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# The Impact of Financial Literacy on the Superannuation (Pension) Savings of Men and Women in Australia

## I        Introduction

Population ageing has fuelled an interest and debate on pensions and on the fiscal costs of retirement income systems. A common policy response has been the promotion of private pensions (commonly referred to in Australia as superannuation) in the hope that the latter will reduce reliance on the state pension. A number of countries have also responded by raising the state Age Pension eligibility age (APA).

Australia's primary response to the policy challenge has been the adoption of a Superannuation Guarantee (SG): a system of compulsory minimum employer contributions into privately managed defined contribution accounts. The latter was introduced in 1992 and by 2017 Australia had the world's fourth largest pool of retirement savings (Kingston and Thorp, 2019). The remarkable growth in Australia's superannuation assets has been attributed to strong population and employment growth. It also relates to the fact that the monies are largely in defined contribution accounts which are less conservatively managed than the defined benefit funds characteristic of other countries (Myer, 2019).

For many in Australia superannuation is now an important component of their individual and household wealth and an important source of income in retirement (Productivity Commission, 2015). Australians are, however, now more exposed than ever to volatility in financial markets (Kingston and Thorp, 2019). They are also more responsible for managing their wealth and their superannuation savings. This has happened alongside an increase in the Australian APA, particularly for women (by 2023 the Australian APA will be 67 years for men and women) and a steeper taper rate for the means tested age pension in Australia (Kingston and Thorp, 2019).

The risks to women within a superannuation where the emphasis is on private superannuation / pension saving have been well documented and the subject of much debate (Austen et al., 2020; Feng et al., 2019; SERC, 2016; Jefferson, 2009; Ginn et al., 2001). Women, on average, accumulate less superannuation than men with key contributory factors being

their time spent in caring roles, their lower levels of attachment to paid work and gender wage gaps.

Women are also at greater risk of financial insecurity in retirement on account of their lower financial literacy (Hasler and Lusardi, 2017). Financial literacy has been shown to be an important correlate of wealth and saving for retirement (Lusardi and Mitchell, 2008; Lusardi et al., 2017). There is, however, widespread financial illiteracy within developed and developing countries and large gender gaps (ibid.) In Australia the adult gender gap in financial literacy is around 14 percentage points; 50% of men have 'high' financial literacy (in that they are able to correctly answer all questions in a five question-set basic financial literacy test (see Table 1)). The corresponding share for women is 36% (Preston and Wright, 2019).

In this paper we offer an empirical investigation of the relationship between financial literacy and superannuation using data from the Household, Income and Labour Dynamics in Australia (HILDA) survey. The analysis is disaggregated by sex. While there is a growing literature examining the determinants of superannuation savings of men and women in Australia (Parr, Ferris and Mahuteau, 2007; Sheen, 2017; Feng et al., 2019), very little is known about the impact of financial literacy on their pension savings. This is somewhat surprising given the risks noted above. The paper, therefore, seeks to fill this void.

Australia is a valuable case study for several reasons. The first is that Australia has, as noted, a system of compulsory superannuation and was the first English-speaking country to adopt such arrangements. The system is now nearing maturity and the majority of adults in Australia have a defined contribution superannuation account. The second is that while Australia has a relatively high level of financial literacy globally it also has one of the largest gender gaps in financial literacy (Hasler and Lusardi, 2019). The third reason for studying Australia is that the HILDA survey is a large nationally representative dataset with data suited to the analysis proposed.

The remainder of the paper is organised as follows. It begins with a brief outline of the Australian superannuation system (Section 2). Section 3 outlines the mechanism or channels through which financial literacy may affect superannuation. The HILDA dataset is described

in Section 4 along with some stylised facts about financial literacy of non-retirees in Australia. Section 5 discusses the regression model and the proposed statistical method. The regression results are presented in Section 6. Section 7 concludes the paper and offers some suggestions for future research.

## II    Australian superannuation system

The occupational superannuation system within Australia is comprised of a compulsory component and a voluntary component. The former was introduced in 1992 through the Superannuation Guarantee Charge Act which initially mandated a contribution rate of 3% of base salary for employees of small businesses and 5% of base salary for large employers (Kingston and Thorp, 2019). By 2002/3 the mandated minimum contribution rate had been increased to 9% (all employers) and in July 2014 it was again increased to 9.5%. Further increases have been mandated, to be phased in at a rate of 5 basis points per year until it reaches 12% in 2025. While most employees qualify for the mandatory contribution there are some exemptions. Employers, for example, are not required to contribute where their employees earn less than A$450 per month.  Employees on short-hour contracts, low wages and/or employees working multiple jobs are, therefore, particularly at risk within this system.

Employers may contribute above the mandated minimum amount. Employees also have the option (indeed are incentivised through the tax system) to make additional voluntary contributions. Voluntary superannuation contributions are important for those not covered by compulsory superannuation such as the self-employed. They may also be made by persons out of the workforce. Since 2006 couples may split personal or mandatory employer contributions. This arrangement confers particular tax benefits on couples where there is a high income earner. It is also expected to increase the superannuation savings of women (recognising that in many couple relationships men earn more than women) (Olsberg, 2006). Presently total superannuation contributions are capped at $25,000 of pre-tax income per year (contributions above this amount are taxed).

Following the passage of the Family Law Legislation Amendment (Superannuation) Act 2001 superannuation may be split in the event of a divorce or a breakdown in a de-facto relationship (the exception is in Western Australia where superannuation splitting is not provided for in the case of de-facto relationships). There is, however, nothing to guarantee

an equitable split. Partners presently have no legal way of knowing the balance in their partner's superannuation account or of any decisions taken in relation to that account (Austen et al., 2020). Moreover, the process of obtaining a legal order to split the super can be onerous and require legal assistance – thus acting as a deterrent for some (ASFA, 2018).

The preservation age (the minimum legal age when superannuation may be accessed) is presently 55 years. This contrasts with the state pension where, since 2013, the Age Pension eligibility age (APA) has been 65 years for men and women. From mid-2017 the latter will be gradually increased (by 6 months every two years), reaching 67 years July 2023. (Prior to reforms introduced in 1994 the APA was 60 for women and 65 for men. The former was gradually increased between 1995 and 2013). On reaching the preservation age employees may be eligible for a 'transition to retirement' (TTR) arrangement. Under a TTR employees may reduce their working hours and supplement their income by drawing down on some of their superannuation.

## III     Financial literacy and superannuation

There are a number of channels through which financial literacy may affect pension savings. Higher levels of financial literacy correlates with developing and setting up a retirement plan and saving for retirement (van Rooij et al., 2012). In terms of superannuation balances, higher levels of financial literacy may correlate with efficiency in processing information about the superannuation system and the interplay of the tax system. Broomhill et a.'s qualitative work on superannuation in Australia (cited in Austen et al., 2020) notes that households with substantial superannuation savings also tend to be educated in financial matters and have "…embraced the 'investor' ideology…" (Austen et al., 2020, p.11).

Those with higher financial literacy will be better placed to make informed decisions about the investment portfolio within their superannuation fund. Examples might be between cash and bonds, conservatively balanced, growth and high growth. Similarly higher levels of financial literacy may see individuals make informed choices about tied products such as life insurance (death, disability and income protection). Presently superannuation funds automatically provide (and charge) for death cover. Many account holders are unaware of the arrangement and may be paying for cover that they neither need nor requested. Indeed, in recognition of widespread financial illiteracy in Australia, from April 2020 the

superannuation funds in Australia will be required to cancel insurance on inactive accounts, accounts with balances less than $6,000 and in new accounts for members under the age of 25 (unless they opt in).

## IV     Data and the financial literacy of non-retirees in Australia

The data used in the empirical and descriptive analysis below are drawn from the Household, Income and Labour Dynamics in Australia (HILDA) survey. HILDA is a large nationally representative household survey which commenced in 2001 and has been conducted annually since then. As of writing there are 18 waves (2001 to 2018).  A particular advantage with HILDA is that it contains rich information on the respondent's characteristics including family background, education and labour market activity. The extensive information gathered in the HILDA survey is from all household members (aged 15 and over) and not just select individuals such as the family head.

Of particular relevance to this paper are two special modules, one on wealth and superannuation and the other on financial literacy. The wealth and superannuation module collects self-reported data and is conducted every four years: 2002, 2006, 2010, 2014, 2018. The module containing testing financial literacy has, thus far, only been run once (in 2016), with a second scheduled for 2020. The financial literacy questions in wave 16 (2016) follow best practice and have been informed by the earlier work of Lusardi and Mitchell (2011). The specific questions are listed in Table 1.

Figure 1 shows the distribution of financial literacy for the sample of non-retired males and females aged 20-64. Our measure of financial literacy is a count measure; i.e. the total number of financial literacy questions correctly answered. While the total HILDA sample of non-retired persons aged 20-64 in 2018 is equal to 11,977 persons, we are only able to match the financial literacy from wave 16 for 10,869 observations.  Information on the financial literacy for 9% of the 2018 sample is, therefore missing. Of those with observable data the mean number of correct responses for sample members is 4.18 for males and 3.81 for females. The gender gap of 0.37 correct responses is significant (p<0.01).  The share of males and females able to correctly answer all five financial literacy questions is equal to 52.4% and 38% respectively. This equates to a gender gap of 14 percentage points.

- Q1: ***Interest rate.*** *Suppose you put $100 into a no-fee savings account with a guaranteed interest rate of 2% per year. You don't make any further payments into this account and you don't withdraw any money. How much would be in the account at the end of the first year, once the interest payment is made?*

- *Q2.* ***Inflation.*** *Imagine now that the interest rate on your savings account was 1% per year and inflation was 2% per year. After one year, would you be able to buy more than today, exactly the same as today, or less than today with the money in this account?*

- *Q3.* ***Diversification.*** *Buying shares in a single company usually provides a safer return than buying shares in a number of different companies. [True, False]*

- *Q4.* ***Risk.*** *An investment with a high return is likely to be high risk. [True, False]*

- *Q5.* ***Money illusion.*** *Suppose that by the year 2020 your income has doubled, but the prices of all of the things you buy have also doubled. In 2020, will you be able to buy more than today, exactly the same as today, or less than today with your income?*

For all questions respondents also had the option of a "don't know" or a "refused to answer" response.

*Figure 1: Distribution of financial literacy knowledge; non-retired adults; aged 20-64; 2018*



Source: HILDA. Weighted estimates. Non-retired adults aged 20-64 in 2018. Financial literacy scores from 2016.
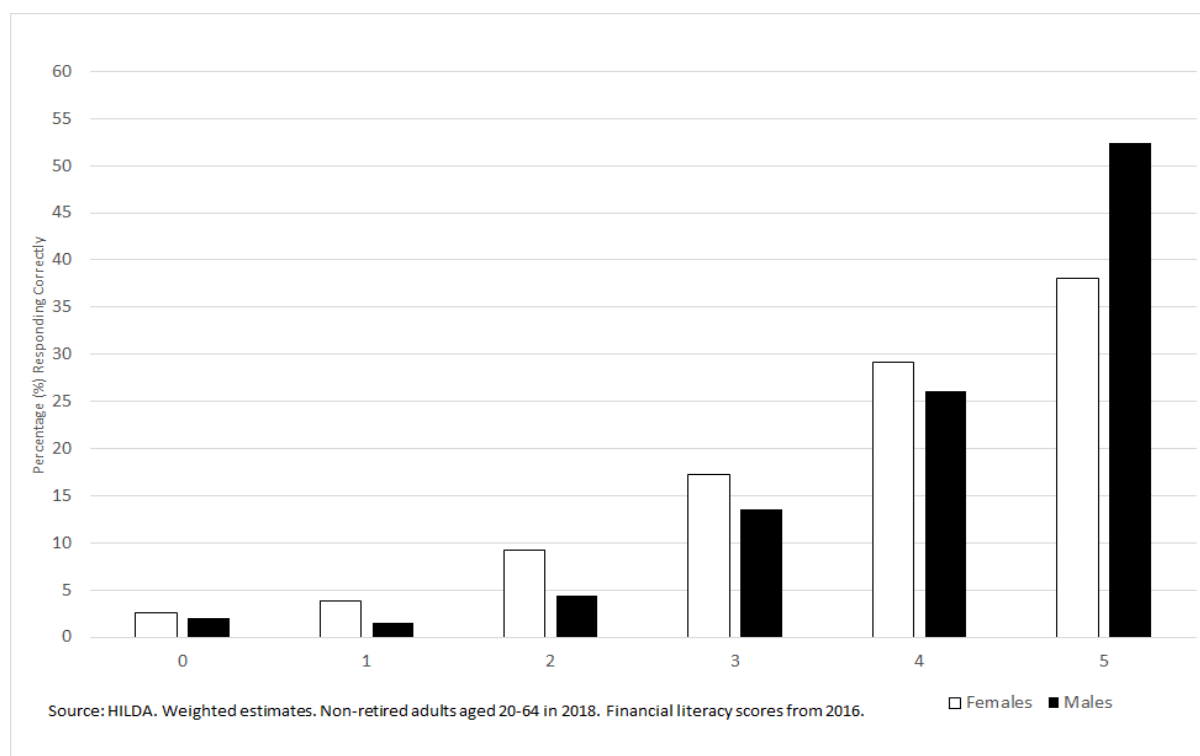
Table 2 cross-tabulates the mean superannuation balances by the respondent's financial literacy score. Significant differences in male and female balances are only observed for those with relatively 'high' financial literacy (those correctly answering four or more questions). Of

those who correctly answered all five question, the mean superannuation balance of men was $182,782 and of women was $124,475 with the gap (of $58,306) highly significant (p<0.01).

*Table 2: Mean superannuation balances; non-retired adults; aged 20-64; by sex; by financial literacy*

| | Number of Financial Literacy Questions Correctly Answered (out of Five) | | | | | |
|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 |
| Males | $58,794 | $25,519 | $60,856 | $68,183 | $121,356 | $182,782 |
| Females | $24,712 | $26,360 | $34,631 | $56,531 | $74,065 | $124,475 |
| Difference | $34,082 | -$841 | $26,225 | $11,652 | $47,290*** | $58,306*** |
| Std.Err | ($23,602) | ($9,736) | ($25,050) | ($9,001) | ($8,649) | ($8,234) |
| Gender Ratio (f/m) (%) | 42% | 103% | 57% | 83% | 61% | 68% |
| N | 191 | 269 | 658 | 1,525 | 2,915 | 5,118 |

Source: HILDA. Wave 18. Weighted estimates.[1] Note: standard errors in parentheses. Significance levels given by *** p<0.01; ** p<0.05; * p<0.1.

# V    Sample, variables and estimation method

*Sample*

The empirical analysis in this paper is based on the HIILDA survey. The analysis is, necessarily, cross-sectional as the financial literacy test questions have, as yet, only been administered once in HILDA (as part of wave 16, administered in 2016). The analysis, as noted, makes use of the self-reported superannuation information collected was part of wave 18 in 2018.

In wave 18 there are 11,977 non-retired persons aged 20-64. A large share (16% or 1935 observations), however, either neither know their balance or have a balance of zero and a small minority (0.25% or 30 observations) refused to provide information (see Table 3). We, therefore, restrict the sample to the 10,012 observations with an account balance greater than $0. In subsequent papers we will examine the effect of financial literacy on the don't know and refused to answer responses as well as those with zero balances as this may also be a financial literacy effect.

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[1] In the HILDA data there is one observation aged 33 years old with more than $3m in superannuation savings and two other observations with more than $1m. These are extreme outliers and for the purpose of this analysis their balances have been recoded (top-coded) to $750,000.

*Table 3: Knowledge of superannuation balances by sex, non-retirees, Australia, aged 20-64, 2018*

|  | Males | Females | Total |
|---|---|---|---|
| Refused / not stated | 0.4% | 0.3% | 0.3% |
| Don't know | 8.7% | 9.5% | 9.1% |
| Zero Balance | 6.8% | 8.7% | 7.7% |
| Balance > $0 | 84.2% | 81.6% | 82.9% |
|  | 100% | 100% | 100% |

Source: HILDA. Wave 18. Weighted estimates. Non-retirees, aged 20-64.

## Estimation method

We estimate the equivalent of an earnings regression:

$$\ln SupBal_i = \alpha_i + \boldsymbol{\beta}_i FinLit + \delta_i \mathbf{X}_i + \varepsilon_i \tag{1}$$

where the dependent variable is the natural logarithm of each individual's superannuation savings (i.e. superannuation account balance in 2018) where balances are greater than $0. The variable mnemonic is *lnSupBal.* Our key interest is on the coefficient or parameter estimate ("β") on the variable measuring financial literacy *(FinLit)*. We control for the latter via measure capturing the number of financial literacy questions correctly answered. The financial literacy information is, as noted, matched from wave 16. To avoid losing observations where financial literacy information cannot be matched our regression analysis includes a flag variable (a binary variable set equal to 1 if financial literacy information is observed in wave 16 and zero otherwise). Males and females with missing financial literacy are then assigned the mean financial literacy (number of correct answers) from their non-retired counterparts aged 20-64 (4.18 for males and 3.81 for females).

In the empirical analysis below we assume that financial literacy is exogenous; ie. given and unrelated to the level of superannuation savings. We accept that, for some, this assumption may not hold and that their levels of financial literacy may increase with their superannuation savings (as they acquire knowledge and skills in managing their investment). Future research will examine the exogeneity assumption. For the meantime we believe it is not an unrealistic assumption given that many superannuation members are passive participants, accepting the default fund or default investment strategy (Kingston and Thorp, 2018). We also handle the problem by using financial literacy from period t-2; i.e. 2016.

Our regressions also control for a vector ("X" in equation (1)) of other characteristics or variables thought affect superannuation accumulation. The set of independent variables, therefore, includes age and its square, years of schooling, three marital status dummies, a count of the number of dependent children, birthplace (to proxy migrant status), years in Australia (capturing time to accumulate balances under the compulsory scheme), geographical dummies for each state and territory, a control for main urban residence and a series of historical variables capturing whether or not the respondent has: ever worked part-time in their main job; ever worked in the public sector (accommodating the fact that the public sector generally has a more generous superannuation system in Australia); ever self-employed (with the self-employed responsible for managing their own pension savings); ever unemployed and ever not in the labour force. We also control for the respondents current (or previous if they are not currently employed) occupation and industry. These controls are entered at the 1 digit level.

Table 4 below provides a complete list of variables included in the regressions, together with summary statistics. The table also provides a precise definition of all mnemonic variable names.  The average age in the sample is 40 years; 55% are married or separated; 26.7% are currently (or were last) employed as a Professional; 16% are currently (or were last) employed in the health industry. The mean financial literacy score 4.1.

*Table 4: Variable labels, definitions and descriptive statistics*

| Name | Definition | Mean |
|---|---|---|
| lnsupbal | = natural logarithm of superannuation savings in 2018 (where balance is greater than $0) | 10.7 (0.02) |
| age | Age in years | 40.4 (0.16) |
| yrsed | Years of schooling | 13.1 (0.06) |
| defacto | =1 if in a defacto relationship | 15.7% |
| marsep | =1 if married or separated | 54.9% |
| widdiv | =1 if widowed or divorced | 5.8% |
| crkids | Number of dependent children | 0.6 (0.01) |
| besb | =1 if migrant, born main English speaking country | 9.7% |
| bnesb | =1 if migrant, born other speaking country | 19.5% |
| yrsinoz | Years in Australia (zero if Australian born) | 6.0 (0.15) |
| vic | =1 if resides in Victoria | 27.6% |
| qld | =1 if resides in Queensland | 20.1% |
| sa | =1 if resides in South Australia | 6.5% |
| wa | =1 if resides in Western Australia | 9.9% |
| tas | =1 if resides in Tasmania | 2.2% |

| ntact | =1 if resides in the territories (Northern or Australian Capital) | 2.7% |
|---|---|---|
| murban | =1 if resides in a main urban area | 67.9% |
| mgr | =1 if currently or more recent job manager | 14.2% |
| prof | =1 if current or more recent job professional | 26.7% |
| trade | =1 if current or more recent job trade | 12.0% |
| service | =1 if current or more recent job service worker | 12.5% |
| clerical | =1 if current or more recent job clerical worker | 13.4% |
| sales | =1 if current or more recent job sales worker | 6.8% |
| operator | =1 if current or more recent job operator | 6.3% |
| agff | =1 if current or more recent industry agriculture | 1.9% |
| mining | =1 if current or more recent industry mining | 1.8% |
| manuf | =1 if current or more recent industry manufacturing | 8.2% |
| egw | =1 if current or more recent industry electricity, gas, water | 1.3% |
| construc | =1 if current or more recent industry construction | 7.8% |
| wt | =1 if current or more recent industry wholesale trade | 3.5% |
| accfs | =1 if current or more recent industry accommodation, cafes | 5.0% |
| transp | =1 if current or more recent industry transport | 4.7% |
| media | =1 if current or more recent industry media | 1.7% |
| fin | =1 if current or more recent industry finance | 4.3% |
| realest | =1 if current or more recent industry real estate | 1.3% |
| profsci | = 1 current or more recent industry professional scientific | 8.9% |
| adminss | =1 if current or more recent industry administrative services | 3.2% |
| pubad | =1 if current or more recent industry public administration | 6.4% |
| edtrain | =1 if current or more recent industry education and training | 9.3% |
| health | =1 if current or more recent industry health | 16.0% |
| arts | =1 if current or more recent industry arts | 1.9% |
| oserv | =1 if current or more recent industry other services | 3.8% |
| Ever-notlf | =1 if ever not in the labour force | 42.7% |
| Ever-unemp | =1 if ever unemployed | 26.0% |
| Ever-ptmj | =1 if ever part-time main job | 63.3% |
| Ever-casual | =1 if ever casual main job | 55.2% |
| Ever-govt | =1 if ever worked in public sector main job | 32.9% |
| Ever-SelfEmp | =1 if ever self-employed main job | 17.6% |
| FinLit | Number of financial literacy questions correctly answered (0,5) | 4.1 (0.01) |
| flagFL18 | =1 if financial literacy information observed (from 2016) | 91.4% |

Source: HILDA. Weighted estimates. Standard errors in parentheses for continuous variables only.

## Regression approach and decomposition

Our initial analysis employs ordinary least squares (OLS) regression with the specification estimated for males and females together and separately. Our paper also offers a decomposition analysis of the gender gap in superannuation. Specifically we are interested in how much of the gender gap in superannuation may be explained by the gender gap in financial literacy. To undertake the decomposition we employ the Oaxaca-Blinder

decomposition as explained below. The technique first requires the estimation of separate male and female equations as per (2) and (3) below:

$$\ln SupBal_M = \alpha_M + \boldsymbol{\beta}_M \mathbf{X}_M + \varepsilon_M \qquad (2)$$

$$\ln SupBal_F = \alpha_F + \boldsymbol{\beta}_F \mathbf{X}_F + \varepsilon_F \qquad (3)$$

After estimation with OLS equations (2) and (3) become:

$$\overline{\ln SupBal_M} = \hat{\alpha}_M + \hat{\boldsymbol{\beta}}_M \overline{\mathbf{X}}_M \qquad (4)$$

$$\overline{\ln SupBal_F} = \hat{\alpha}_F + \hat{\boldsymbol{\beta}}_F \overline{\mathbf{X}}_F \qquad (5)$$

Subtracting equation (5) from equation (4) and rearranging terms gives the Blinder-Oaxaca decomposition as follows:

$$GapSuper. = \hat{\boldsymbol{\beta}}_M (\overline{\mathbf{X}}_M - \overline{\mathbf{X}}_F) + (\hat{\boldsymbol{\beta}}_M - \hat{\boldsymbol{\beta}}_F)\overline{\mathbf{X}}_F + (\hat{\alpha}_M - \hat{\alpha}_F) \qquad (6)$$

where 'GapSuper.' is the difference between male and female superannuation savings. The first term on the right hand side is the amount of the gap that may be attributed to differences in the values of "$\mathbf{X}$" between males and females. It is common to refer to this as the "explained" component (or the component 'due to data'). This component is attributable to differences in the characteristics of males and females. The second component is the amount that may be attributed to differences in the regression coefficients, "β", between males and females. The third term is the amount of the gap that can be attributed to differences in the constant terms, "∝", of males and females. Taken together the second and third terms are typically referred to as the "unexplained" component. It is important to note that each of these components may be expressed as percentage shares of the raw gap.

# VI    Results

Table 5 presents a summary of select coefficients from the OLS regressions. For large coefficient estimates it is usual to calculate the percentage effects as follows: 100*(exp(coefficient)-1) (Halvorsen and Palmquist, 1980). For smaller coefficients the coefficient itself is approximately equal to the percentage effect. Following this approach, the 0.331 coefficient on the male dummy variable in column (3) indicates that there is a 39% gender gap in the superannuation balances of the sample group. The coefficients on the various historical ('ever') variables show that those who have had at least one spell out of the labour force (over the 18 waves of the HILDA survey) have balances which are 40% lower than those with constant labour force participation. Persons who have spent time in casual jobs also have significantly lower balances, with the difference (relative to those who have never been casual) equal to -14%.

The key variable of interest, however, is FinLit. The coefficient of 0.103 shows that there is, indeed, a significant correlation between financial literacy and superannuation balances. For each additional financial literacy question correctly answered the superannuation balances increase by around 10%.

*Table 5: Determinants of superannuation: Select OLS results*

| VARIABLES | (1)<br>Men | (2)<br>Women | (3)<br>All Persons |
|---|---|---|---|
| male | | | 0.331*** |
| | | | (0.039) |
| FinLit | 0.095*** | 0.106*** | 0.103*** |
| | (0.023) | (0.021) | (0.016) |
| Ever-notlf | -0.475*** | -0.488*** | -0.515*** |
| | (0.055) | (0.048) | (0.038) |
| Ever-unemp | -0.274*** | -0.359*** | -0.338*** |
| | (0.053) | (0.057) | (0.041) |
| Ever-pt main job | -0.153*** | 0.140** | -0.037 |
| | (0.048) | (0.070) | (0.041) |
| Ever-casual | -0.105** | -0.214*** | -0.145*** |
| | (0.049) | (0.055) | (0.038) |
| Ever-govt. sector | 0.341*** | 0.376*** | 0.358*** |
| | (0.057) | (0.054) | (0.040) |
| Ever-SelfEmployed | -0.564*** | -0.420*** | -0.512*** |
| | (0.058) | (0.073) | (0.047) |
| Industry, occupation, demographic and geographic controls | Yes | Yes | Yes |
| $R^2$ | 58.5% | 52.2% | 55.6% |

Source: HILDA. Estimates weighted. See the appendix to this paper for the detailed set of regression results.

Table 6 presents the results associated with the O-B decomposition. At the mean males have an average superannuation balance of $57,923 while women have a balance of $34,095. The difference is equal to $23,828 or a gender gap of 53% (shown in the table as 0.53). Of this 53 percentage point gap, 36.7% (or 19.6 percentage points) can be explained by gender differences in the set of characteristics controlled for.

Gender differences in industry of employment, for example, accounts for one fifth (20.2%) of the total explained component (i.e. the 19.6 percentage point explained gap. Gender differences in the set of 'historical' (or 'ever') variables (eg. ever part-time main job, ever casual, ever not in the labour force) contributes 46.9% to this explained gap (significant at the 1% level). Our particular interest, however, lies in the financial literacy effect. Here we show (column 5) that 16.5% of the explained gap derives from gender differences in financial literacy skills. The result is statistically significant at the 1% level ($p<0.01$). If we believe that financial literacy is an exogenous determinant of superannuation, then this is a very important finding and suggests that part of the gender gap in superannuation balances derives from gender differences in financial literacy, *ceteris paribus* (ie. all else held constant).

*Table 6: Oxaca-Blinder Deomposition of the Gender Gap In Superannuation Balances*

| Insupbal | (1) Coef. | (2) Std.Err | (3) t | (4) P>\|t\| | (5) |
|---|---|---|---|---|---|
| Male mean balance (natural log) | 10.967 | 0.031 | 354.2 | 0.000 | |
| Female mean balance (natural log) | 10.437 | 0.034 | 305.2 | 0.000 | |
| Gender gap | 0.530 | 0.046 | 11.5 | 0.000 | |
| **Explained component** | | | | | % contribution to Total Explained Gap |
| Financial Literacy | 0.032 | 0.009 | 3.6 | 0.000 | 16.5% |
| Demographic factors | 0.019 | 0.028 | 0.7 | 0.489 | 9.8% |
| Occupation variables | 0.013 | 0.020 | 0.6 | 0.514 | 6.6% |
| Industry variables | 0.039 | 0.022 | 1.8 | 0.077 | 20.2% |
| Historical variables | 0.092 | 0.022 | 4.2 | 0.000 | 46.9% |
| **Total Explained Gap** | **0.196** | **0.045** | **4.350** | **0.000** | **100%** |
| % of gender gap explained (0.196/0.530) | 36.7% | | | | |

**Source: HILDA. Wave 18.** Sample: Aged 20-64, non-retired, with superannuation balance > $0.
Dependent variable: ln(SupBal). Exp(10.967) = $57,923.6; exp(10.437) = $34,095. Gender gap $23,828, or 53% taken at the mid-point.
**Variable set:**
**FL:** FinLit, FlagFL18;
**Demog:** age, agesq, yrsed, defacto, marsep, widdiv, crkids, besb, bnesb, yrsinoz, vic, qld, sa, wa, tas, ntact, murban;
**Occupation:** mgr, prof, trade, service, clerical, sales, operator;
**Industry:** agff, mining, manuf, egw, construc, wt, accfs, transp, media, fin, realest, profsci, adminss, pubad, edtrain, health, arts, noserv;
**History**: evernotlf everunemp everptmj evercas evergovt everse

# VII    Summary and conclusion

The paper is motivated by the fact that, globally, individuals are increasingly responsible for saving for retirement through defined-contribution superannuation accounts and yet, globally, there is widespread financial illiteracy. Many individuals lack an understanding of basic financial concepts such as compound interest, inflation and risk diversification and many are, therefore, likely ill-equipped to optimally manage their superannuation accounts and savings. Using Australia as a case study this paper examines how financial literacy impacts on the pension (superannuation) savings of men and women in Australia. To the best of our knowledge we are the first to offer such an analysis.

The empirical analysis is based on the HILDA data and focuses on non-retirees aged 20-64 with a superannuation account balance greater than $0. We find that, even in the presence of a detailed set of controls for factors likely to affect superannuation balances, there is a highly significant statistical relationship between financial literacy and the superannuation savings of Australians. The coefficient estimate suggests that each additional financial literacy question correctly answered is associated with a 10% increase in average superannuation balances.

Using the Oaxaca –Blinder decomposition technique we also examine how the gender gap in financial literacy impacts on the gender gap in superannuation savings. At the mean there is a gender gap of 53% in the superannuation balances of non-retired men and women aged 20-64 in Australia. Just over one third (or 19.6 percentage points) of this gap may be explained by our regression; i.e. arises from gender differences in characteristics such as industry, occupation, marital status, history of employment and financial literacy. Whilst the majority of the explained gap (47%) arises from factors related to employment participation, part-time work and whether or not the respondent ever worked in the public sector, we do note that a sizeable share (significant at the 1% level) relates to financial literacy. On its own gender differences in financial literacy would appear to explain 16.5% of the gender gap in superannuation.

The results reported in this paper should be of interest to policy makers within Australia and in other countries where individuals carry the risk and responsibility of saving for their own retirement.

Kingston and Thorp (2019) note that many members of superannuation funds are daunted by financial decisions such as comparing the performance of funds and making decisions on choice of investment strategy. Moreover, financial literacy amongst non-retirees is low. Descriptive analysis using HILDA, for example, suggests that a high share (28% of men and 34% of women) on non-retirees with a superannuation account do not know whether or not they have a defined benefit component (Preston, 2020). While the Australian government has issued a MySuper dashboard to help consumers engage with their superannuation and make informed choices, it is likely that its usefulness and effectiveness of this dashboard is

constrained by general financial literacy. Interventions to raise the latter could, perhaps, therefore enhance the usefulness of the MySuper initiative.

Overall the results show that private superannuation is the source of large differences in the inequalities in the wealth of Australian males and females and in sources of independent income for retirement. While labour market factors, by definition, impact on occupational superannuation outcomes there are other attenuating factors such as financial literacy. Moreover, estimates show that younger persons generally have poorer financial literacy. This, therefore, has the potential to further confound the inequalities as superannuation decisions made when young have long-term repercussions.

There is much more research required to understand how financial literacy impacts on superannuation. Aside from understanding the link between zero balances and those who do not know their balances, further research is required to identify a causal (rather than correlation) effect. Future research might also examine in more detail how poor financial literacy amongst the young impacts on their subsequent balances.

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## Appendix

Table A1: OLS Estimates. Determinants of superannuation savings, 2018; Non-retirees; Aged 20-64; Superannuation balance >$0.

| VARIABLES | (1)<br>Men | (2)<br>Women | (3)<br>All Persons |
|---|---|---|---|
| male | | | 0.331*** |
| | | | (0.039) |
| FinLit | 0.095*** | 0.106*** | 0.103*** |
| | (0.023) | (0.021) | (0.016) |
| flagFL18 | 0.249*** | 0.115 | 0.210*** |
| | (0.072) | (0.104) | (0.062) |
| Ever-notlf | -0.475*** | -0.488*** | -0.515*** |
| | (0.055) | (0.048) | (0.038) |
| Ever-unemp | -0.274*** | -0.359*** | -0.338*** |
| | (0.053) | (0.057) | (0.041) |
| Ever-ptmj | -0.153*** | 0.140** | -0.037 |
| | (0.048) | (0.070) | (0.041) |
| Ever-casual | -0.105** | -0.214*** | -0.145*** |
| | (0.049) | (0.055) | (0.038) |
| Ever-govt. sector | 0.341*** | 0.376*** | 0.358*** |
| | (0.057) | (0.054) | (0.040) |
| Ever-SelfEmployed | -0.564*** | -0.420*** | -0.512*** |
| | (0.058) | (0.073) | (0.047) |
| age | 0.246*** | 0.213*** | 0.227*** |
| | (0.014) | (0.016) | (0.011) |
| agesq | -0.002*** | -0.002*** | -0.002*** |
| | (0.000) | (0.000) | (0.000) |
| yrsed | -0.014* | 0.005 | -0.005 |
| | (0.008) | (0.009) | (0.006) |
| defacto | 0.045 | 0.153** | 0.093** |
| | (0.058) | (0.067) | (0.046) |
| marsep | 0.161** | 0.183*** | 0.172*** |
| | (0.064) | (0.066) | (0.049) |
| widdiv | -0.078 | 0.091 | 0.013 |
| | (0.110) | (0.097) | (0.075) |
| crkids | 0.014 | -0.044* | -0.008 |
| | (0.022) | (0.026) | (0.018) |
| besb | -0.383*** | -1.118*** | -0.748*** |
| | (0.122) | (0.167) | (0.112) |
| bnesb | -0.679*** | -1.005*** | -0.852*** |
| | (0.103) | (0.127) | (0.085) |
| yrsinoz | 0.010*** | 0.027*** | 0.019*** |
| | (0.004) | (0.005) | (0.003) |
| vic | 0.017 | 0.028 | 0.024 |
| | (0.050) | (0.057) | (0.039) |
| qld | 0.026 | 0.031 | 0.021 |
| | (0.058) | (0.064) | (0.045) |
| sa | -0.014 | 0.002 | -0.002 |
| | (0.064) | (0.079) | (0.051) |
| wa | -0.086 | -0.024 | -0.049 |
| | (0.077) | (0.085) | (0.059) |
| tas | -0.249* | 0.177 | -0.055 |
| | (0.136) | (0.113) | (0.091) |
| ntact | 0.103 | 0.306*** | 0.205*** |
| | (0.107) | (0.106) | (0.077) |
| murban | 0.059 | 0.113** | 0.084** |

|  |  |  |  |
|---|---|---|---|
|  | (0.044) | (0.047) | (0.033) |
| mgr | 0.666*** | 0.949*** | 0.779*** |
|  | (0.084) | (0.122) | (0.070) |
| prof | 0.623*** | 0.807*** | 0.723*** |
|  | (0.086) | (0.119) | (0.069) |
| trade | 0.376*** | 0.354** | 0.404*** |
|  | (0.080) | (0.141) | (0.070) |
| service | 0.127 | 0.096 | 0.078 |
|  | (0.102) | (0.124) | (0.079) |
| clerical | 0.254** | 0.495*** | 0.406*** |
|  | (0.109) | (0.115) | (0.074) |
| sales | 0.378*** | 0.182 | 0.249*** |
|  | (0.116) | (0.151) | (0.095) |
| operator | 0.282*** | 0.117 | 0.297*** |
|  | (0.097) | (0.277) | (0.096) |
| agff | -0.182 | -0.166 | -0.167 |
|  | (0.174) | (0.200) | (0.133) |
| mining | 0.626*** | 0.672*** | 0.665*** |
|  | (0.128) | (0.204) | (0.108) |
| manuf | 0.198** | -0.031 | 0.164** |
|  | (0.094) | (0.146) | (0.081) |
| egw | 0.407 | 0.209 | 0.412 |
|  | (0.296) | (0.232) | (0.268) |
| construc | 0.124 | 0.507*** | 0.192** |
|  | (0.097) | (0.157) | (0.082) |
| wt | -0.003 | 0.318** | 0.113 |
|  | (0.112) | (0.159) | (0.093) |
| accfs | -0.222* | -0.321** | -0.299*** |
|  | (0.133) | (0.129) | (0.095) |
| transp | 0.201* | 0.567*** | 0.290*** |
|  | (0.112) | (0.147) | (0.091) |
| media | 0.071 | 0.369** | 0.173 |
|  | (0.178) | (0.179) | (0.133) |
| fin | 0.351*** | 0.544*** | 0.438*** |
|  | (0.130) | (0.131) | (0.091) |
| realest | 0.164 | 0.128 | 0.130 |
|  | (0.156) | (0.437) | (0.257) |
| profsci | 0.061 | 0.147 | 0.095 |
|  | (0.115) | (0.128) | (0.088) |
| adminss | -0.058 | -0.191 | -0.118 |
|  | (0.137) | (0.145) | (0.102) |
| pubad | 0.422*** | 0.198 | 0.327*** |
|  | (0.114) | (0.144) | (0.097) |
| edtrain | 0.010 | -0.001 | 0.006 |
|  | (0.116) | (0.124) | (0.088) |
| health | 0.105 | 0.063 | 0.073 |
|  | (0.117) | (0.114) | (0.081) |
| arts | -0.009 | -0.259 | -0.099 |
|  | (0.148) | (0.202) | (0.124) |
| oserv | 0.010 | 0.058 | 0.049 |
|  | (0.116) | (0.146) | (0.094) |
| Constant | 4.266*** | 4.281*** | 4.163*** |
|  | (0.301) | (0.329) | (0.226) |
| Observations | 4,951 | 5,061 | 10,012 |
| R-squared (%) | 58.5% | 52.2% | 55.6% |

Estimates weighted. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Reference groups: Born Australia; never married; labourer and related worker; retail trade; New South Wales.

**Part II:**

**Stylised facts about superannuation in Australia**

*Part II:       Stylised facts about superannuation in Australia*

Alison C. Preston,

UWA Business School, University of Western Australia

## I      Introduction

There is increasing debate about the performance of Australia's retirement income system and on the capacity of individuals to save an adequate retirement income. While the Superannuation Guarantee introduced in 1992 has delivered widespread coverage of superannuation (private pension saving arrangements) in Australia, balances remain low and highly unequal. There is increasing concern about the capacity of the system to ensure that the majority (rather than the minority) are able to generate an adequate (private) retirement income. Moreover, there are particular concerns for women in the system given the mounting evidence to suggest that the system will not produce adequate retirement incomes for both men and women.

Using data from the Household, Income and Labour Dynamics in Australia (HILDA) survey this research note provides a descriptive analysis of the superannuation balances (savings) of non-retirees in Australia. The analysis is restricted to persons aged 20-64. It is intended that the descriptive analysis further inform deliberations as part of the 2020 Review of the Australian Retirement Incomes System.

## II      Non-retirees and superannuation coverage

Table 7 summarises the characteristics of males and females aged 20-64 in terms of their employment status and retirement status.  As shown, 94.7% of men and 91.6% of women aged 20-64 in 2018 did not consider themselves formally retired.

Of those in employment at the time of the 2018 HILDA survey, 82% of men and 86% of women reported having a superannuation fund which their employer contributed to. At the mean the self-reported employer contribution rate (as a share of wages and salaries) for men and women was 10% and 9.9% respectively.

*Table 7: Labour Force Status, Retirement Status and Superannuation, Persons Aged 20-64, Australia*

| | | As share of total population (aged 20-64) | | | Of those in employment (aged 20-64) | |
|---|---|---|---|---|---|---|
| | Total pop | Total employed | Total not-retired | Total retired | Has super and employer contributes | % share of er-cont. |
| Males | 7,194,990 | 83.0% | 94.7% | 5.3% | 82.2% | 10.0% |
| Females | 7,386,812 | 72.4% | 91.6% | 8.4% | 86.2% | 9.9% |

Source: HILDA. Wave 18. Weighted estimates. Sample: total number of observations = 6,090 (male) and 6,720 (female); total not retired = 5,786 (male) and 6191 (female); total employed = 5078 (male) and 4904 (female).

Table 8 shows the share of the population (by age) who report having a superannuation balance of zero and above. Of those aged 15-54 years, the total coverage (with a balance greater than zero) was 76.9% in 2018. This compares to the 77.4% share for the same group in 2015/16 based on Australian Bureau of Statistics (ABS 2017) estimates.

*Table 8: % of Population Aged 15-64 with Superannuation Balances Greater than Zero ($0)*

| | Males | Females | Total |
|---|---|---|---|
| Age | | | |
| 15–24 | *54.9%* | *59.0%* | *56.9%* |
| 25–34 | *82.2%* | *77.4%* | *79.8%* |
| 35–44 | *89.9%* | *84.0%* | *86.9%* |
| 45–54 | *85.0%* | *78.2%* | *81.5%* |
| 55–64 | *67.3%* | *56.2%* | *61.6%* |
| | | | |
| *Total aged 15-64* | *76.5%* | *71.8%* | *74.1%* |
| **Total aged 15-54** | **78.5%** | **75.3%** | **76.9%** |

Source: HILDA. Estimates weighted.

Table 9 shows the share of superannuation account holders with a balance of greater than $0, those with a balance of $0 and those who do not know what their balance is. A sizeable share (9.1%) fall into the latter category

*Table 9: Knowledge of account balance; persons aged 20-64; 2018*

|  | Males | Females | Total |
|---|---|---|---|
| Refused / not stated | 0.4% | 0.3% | 0.3% |
| Don't know | 8.7% | 9.5% | 9.1% |
| Zero Balance | 6.8% | 8.7% | 7.7% |
| Balance > $0 | 84.2% | 81.6% | 82.9% |
|  | 100% | 100% | 100% |

Source: HILDA. Wave 18. Weighted estimates. Non-retirees, aged 20-64, with a superannuation account.

In Table 10 the focus is on the type of superannuation account; specifically the share covered by a defined benefit account. As shown, fewer than 4% report having a defined benefit component (whereby the retirement benefit payment is linked to final salary, length of service etc.) in their superannuation. Most superannuation plans today are defined contribution plans. Of concern is the high share of men and women (27.8% and 33.9%, respectively) who were unable to answer the question ('don't know'). As with the responses in Table 9, this lack of knowledge may be reflective of the fact that members are disengaged and not interested in their superannuation affairs. It may also reflect poor financial literacy.

*Table 10: Knowledge of account type; persons aged 20-64 with a superannuation account, 2018*

|  | Has defined benefit component in superannuation: | | | |
|---|---|---|---|---|
|  | yes | no | don't know | Refused/not stated |
| Males | 3.9% | 68.2% | 27.8% | 0.2% |
| Females | 3.2% | 62.8% | 33.9% | 0.1% |

Source: HILDA. Wave 18. Weighted estimates. Sample: Non-retirees with a superannuation account (irrespective of balance), aged 20-64, Australia, 2018.

## III    Superannuation balances in 2018

Table 11 summarises the mean superannuation balances of males and females disaggregated by age. Comparisons are made with ABS data for the period 2015-16. Focussing on those aged 45-54, both the ABS and HILDA estimates show that the common ratio of superannuation balances for females to males is 63%. The data also shows that the gender gap in balances widens with age. At the mean males aged 45-54 in 2018 (non-retired and with a balance

greater or equal to zero) had $240,722 savings in their superannuation account while females had $151,744.

Tables 12 through 14 describe the mean superannuation balances disaggregated by various characteristics such as age, qualifications, marital status and employment history.

As might be expected, superannuation balances are positively correlated with qualifications. Tertiary qualified persons have, on average, higher superannuation balances than their less qualified counterparts. Significant gender gaps are also present within each qualification band. The is particularly the case for those who hold a certificate or diploma where the female/male ratio is equal to 48%.

In Table 12 the analysis is disaggregated by marital status. There is no statistically significant difference in the account balances of never married males and females. Females who are married or separated have half the superannuation balances of males who are married or separated.

Table 13 details the account balances disaggregated by employment history. As the HILDA survey is a longitudinal panel dataset it is possible to observe labour market histories and disaggregate by characteristics such as: ever unemployed, ever part-time main job. The analysis is, however, is not representative of the whole population on account of observations dropping out of the survey. It nevertheless is instructive and provides insight into how various characteristics impact on superannuation balances. Of particular interest is the balances of emerging adults (aged 20-34) who have never been unemployed, never been unemployed and never worked part-time in their main job. As reported, there is still a significant gender gap of 25 percentage points even when adjustments are made for labour market attachment.

*Table 11: Superannuation account balances of persons with a superannuation account; by age and sex*

| Age: | 2015–16[a] | | | | HILDA 2018[b] | | | | | |
| | Males | Females | Total | F/M Ratio (%) | Males | Females | Total | F/M Ratio (%) | Gender gap (2018) | Std.Err |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15–24 years | $6,600 | $5,600 | $6,100 | 84.8% | $8,204 | $6,569 | $7,380 | 80.1% | $1,635** | $716 |
| 25–34 years | $38,200 | $32,000 | $35,000 | 83.8% | $45,314 | $37,509 | $41,468 | 82.8% | $7,805 | $4,039 |
| 35–44 years | $91,800 | $65,800 | $79,000 | 71.7% | $130,232 | $78,013 | $104,640 | 59.9% | $52,219*** | $6,066 |
| 45–54 years | $179,400 | $114,300 | $146,800 | 63.7% | $240,722 | $151,774 | $197,254 | 63.0% | $88,948*** | $12,604 |
| 55–64 years | $310,100 | $196,400 | $257,000 | 63.3% | $346,500 | $226,064 | $289,642 | 65.2% | $120,436*** | $21,724 |

Notes:

(a)        Source: ABS (2017) ; estimates are for those with a mean balance greater than $0. The population also includes those receiving a regular income from superannuation and/or who received a lump sum superannuation payment in the last two years.

(b)        Source: HILDA, 2018. Estimates weighted. Sample: Non-retired persons with a superannuation account and a balance greater than or equal to $0. The significance tests have only been conducted on the HILDA data.

(c)        Note: In the HILDA data there are three observations with superannuation balances of greater than or equal to $1m. These are extreme outliers and for the purpose of the analysis in this report (including this table and all other tables and figures that follow), their balances have been recoded (top-coded) to $750,000.

Significance levels : * p<0.1; **p<0.05; ***p<0.01.

*Table 12: Superannuation account balances of by qualification and sex; aged 20-64*

| Qualifcation: | Males | Females | Total | F/M Ratio (%) | Gender gap (difference) | Std.Err |
|---|---|---|---|---|---|---|
| High school or less | $73,404 | $50,725 | $61,789 | 69% | $22,679*** | $4,583 |
| Certificate / Diploma | $135,181 | $64,665 | $102,704 | 48% | $70,516*** | $6,606 |
| Tertiary | $198,324 | $121,317 | $156,504 | 61% | $77,007*** | $11,582 |

Source: HILDA. See notes (b) and (c) to Table 11.

*Table 13: Superannuation account balances of by marital status and sex; aged 20-64*

| Marital status: | Males | Females | Total | F/M Ratio (%) | Gender gap (difference) | Std.Err |
|---|---|---|---|---|---|---|
| Never married | $46,852 | $40,602 | $44,077 | 87% | $6,250 | $4,442 |
| De facto | $97,008 | $67,707 | $102,704 | 70% | $29,301*** | $7,756 |
| Married or separated | $194,311 | $98,099 | $144,618 | 50% | $96,212*** | $7,906 |
| Divorced | $138,290 | $96,505 | $112,053 | 70% | $41,785** | $19,375 |
| Widowed | $88,238 | $86,225 | $86,968 | 98% | $2,014*** | $40,088 |

Source: HILDA. See notes (b) and (c) to Table 11.

*Table 14: Superannuation account balances of by labour market activity and history and sex; aged 20-64*

| Marital status: | Males | Females | Total | F/M Ratio (%) | Gender gap (difference) | Std.Err |
|---|---|---|---|---|---|---|
| Has had time out of the labour force | $54,407 | $52,277 | $ 53,078 | 96% | $2,129 | $4,554 |
| Has had a period unemployed | $65,140 | $39,438 | $52,004 | 61% | $25,701*** | $4,624 |
| Has worked part-time main job | $94,419 | $81,091 | $86,304 | 86% | $13,328** | $6,141 |
| Employed, never unemployed or had time out of the labour force | $225,483 | $180,297 | $215,595 | 80% | $45,187** | $14,089 |
| *Employed, never unemployed or out of the labour force and never part-time main job (aged 20-35)* | *$61,386* | *$45,951* | *$56,133* | *75%* | *$15,436*** | *$5,159* |

Source: HILDA. See notes (b) and (c) to Table 11. Note – historical data drawn from previous HILDA waves.

Figure 2 and 3 show, graphically, superannuation savings disaggregated by age and by select characteristics. From Figure 2 it is apparent that the gender gaps in superannuation start in the mid- to late-20s with the divergence more marked from the mid-30s onwards (the prime fertility and child-rearing years for women). In Figure 3 the focus is on the superannuation trajectories disaggregated by highest qualification. As noted earlier, tertiary qualified persons have significantly higher balances. The estimates in this chart also suggest that the divergence in accumulations occurs from the mid-30s (prime child-rearing years).

Figure 4 plots the superannuation balances disaggregated by sex and employment status in 2018. It is possible that a person employed full-time at age 40 (for example) may have had a spell of part-time employment in the past (and thus lower contributions). Similarly a person employed part-time at age 40 may have had a spell of full-time employment in the past. The main purpose of the exercise is to simply illustrate how superannuation balances are affected by differing working hour arrangements. The difference in the mean balances of males and females employed full-time at each age level will reflect gender differences in: earnings (the gender pay gap); in employer and own contributions; and the fact that a sizeable portion of women will have had broken work histories and/or periods of part-time employment.

*Figure 2: mean superannuation balances by sex, aged 24-55*



Source: HILDA. Weighted Estimates. Non-retirees with superannuation accounts and balances greater or equal to zero.
Note, the data have been smoothed using a three (age) year rolling average.
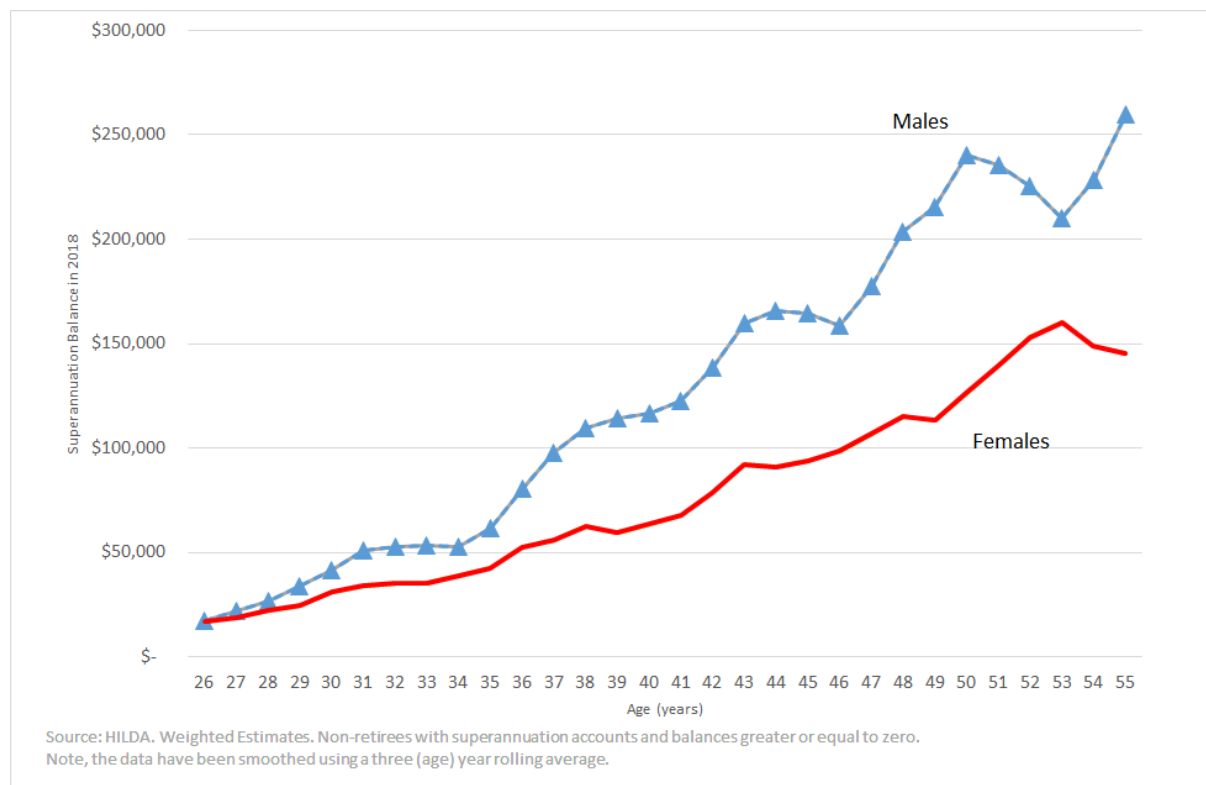
*Figure 3: mean superannuation balances by sex and qualifications*



Source: HILDA. Weighted Estimates. Non-retirees with superannuation accounts and balances greater or equal to zero.
Note, the data have been smoothed using a three (age) year rolling average.
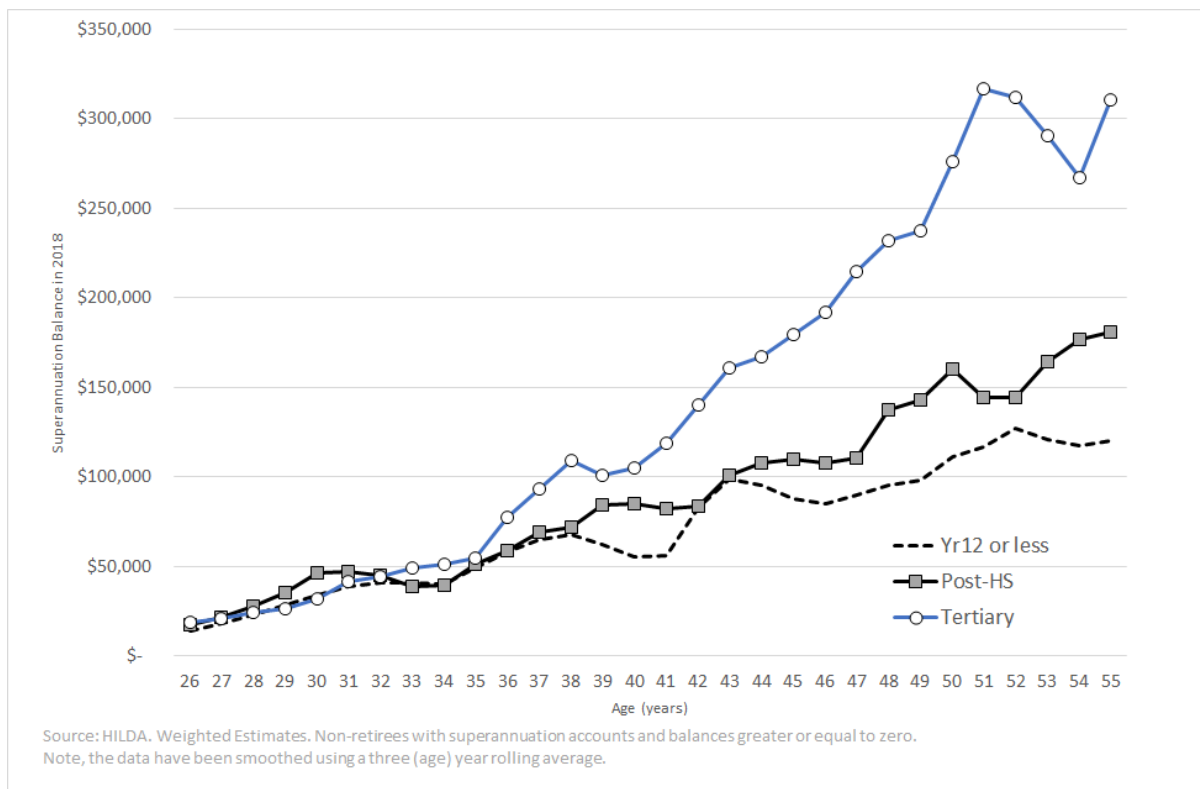
*Figure 4: mean superannuation balances by sex and employment status*



Source: HILDA. Weighted Estimates. Non-retirees with superannuation accounts and balances greater or equal to zero.
Note, the data have been smoothed using a three (age) year rolling average.
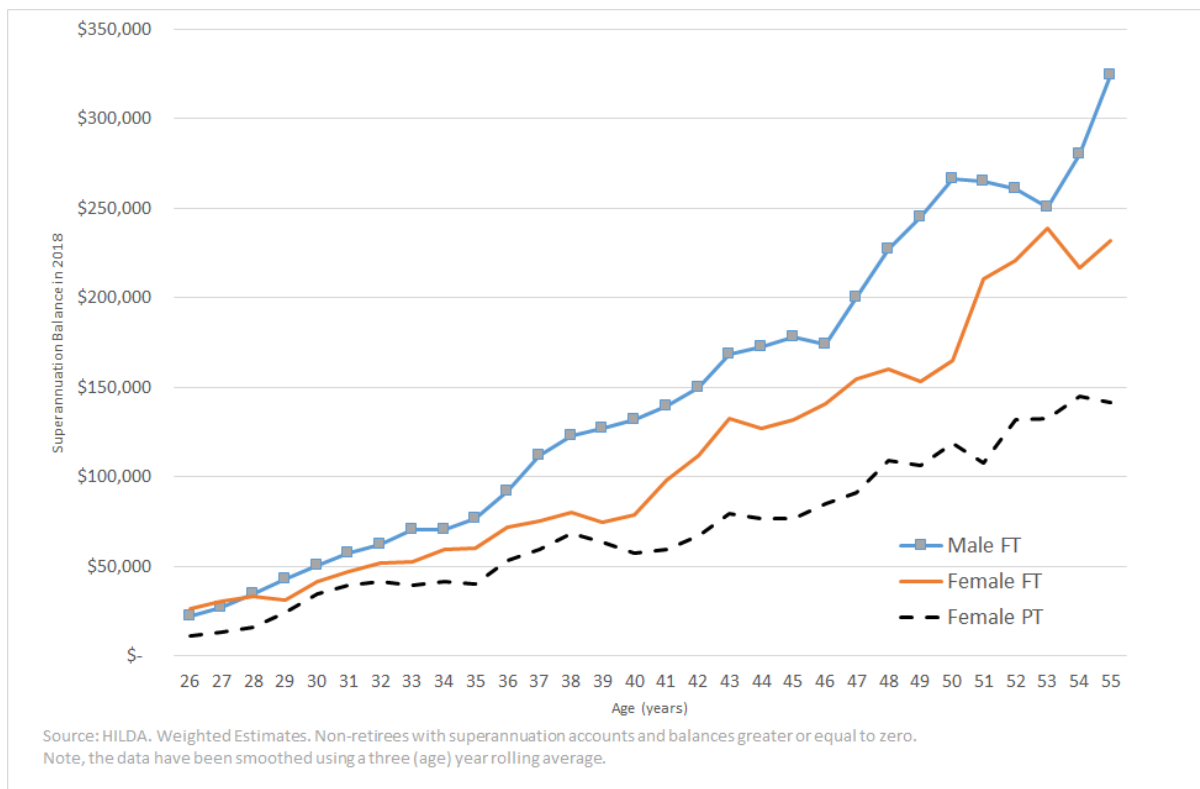
## IV    Superannuation distribution, 2018

Figure 5 shows a density plot of the overall superannuation balances of non-retired males and females in 2018 (aged 20-64). The charts show that the balances are highly skewed to the left and that a greater share of women, relative to men, have zero and very low balances. Figure 6 presents the mean balances by percentile and shows that, at each percentile, there are sizeable gender gaps.  These data are also summarised in Table 15.

At the 25th percentile of the male distribution men have a mean balance of A$25,000 while women at the 25th percentile of the female distribution have a mean superannuation balance of $13,000. At the median the superannuation balance is equal to $75,000 for males and $45,200 for females. This corresponds to a gender ratio (female to male share) of 60% (or a gender gap of 40 percentage points).

*Figure 5: Density plot of superannuation balances*
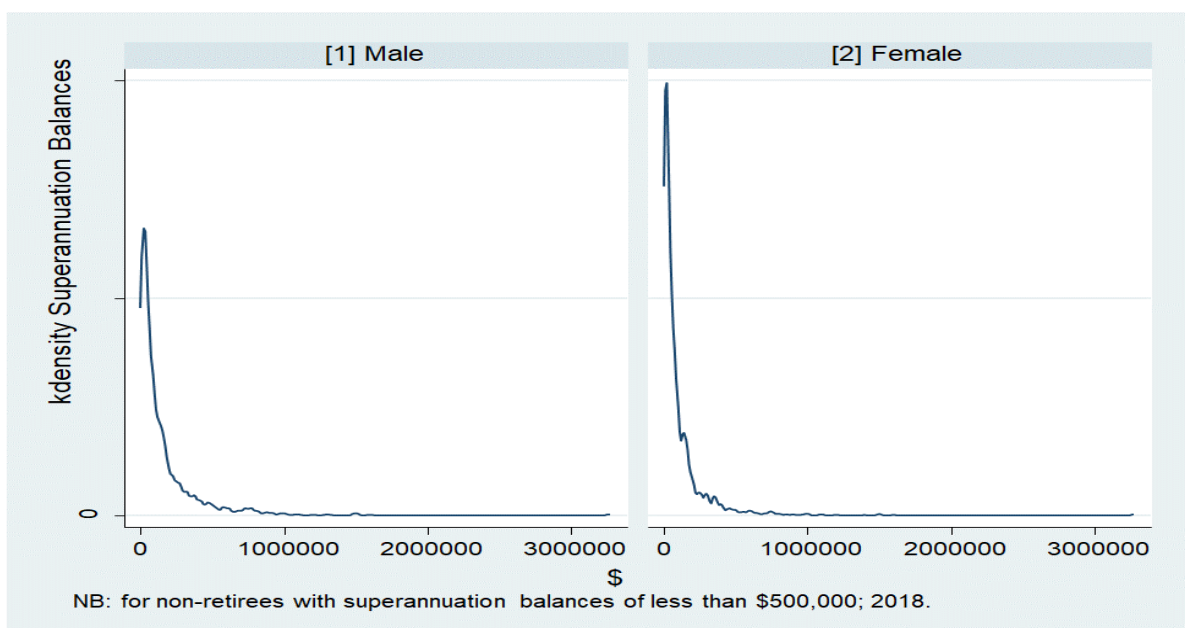


Source: HILDA, wave 2018.

*Table 15: Superannuation account balances by percentile; aged 20-64; 2018*

| | Percentile | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 99% |
| Males | $500 | $2,500 | $7,000 | $25,000 | $75,000 | $180,000 | $400,000 | $600,000 | $1,100,000 |
| Females | $351 | $2,080 | $3,000 | $13,000 | $45,200 | $120,000 | $260,000 | $400,000 | $880,000 |
| Difference | $149 | $420 | $4,000 | $12,000 | $29,800 | $60,000 | $140,000 | $200,000 | $220,000 |
| Gender ratio (%) | 70.2% | 83.2% | 42.9% | 52.0% | 60.3% | 66.7% | 65.0% | 66.7% | 80.0% |

Source: HILDA. Wave 2018. Sample: Non-retirees aged 20-64 with a balance of > $0.

*Figure 6: Distribution of superannuation; percentiles; by sex and age*



Source: HILDA. Non-retirees with superannuation accounts and balances greater or equal to zero. Note, three observations (at age 33) have been topcoded to $750,000.
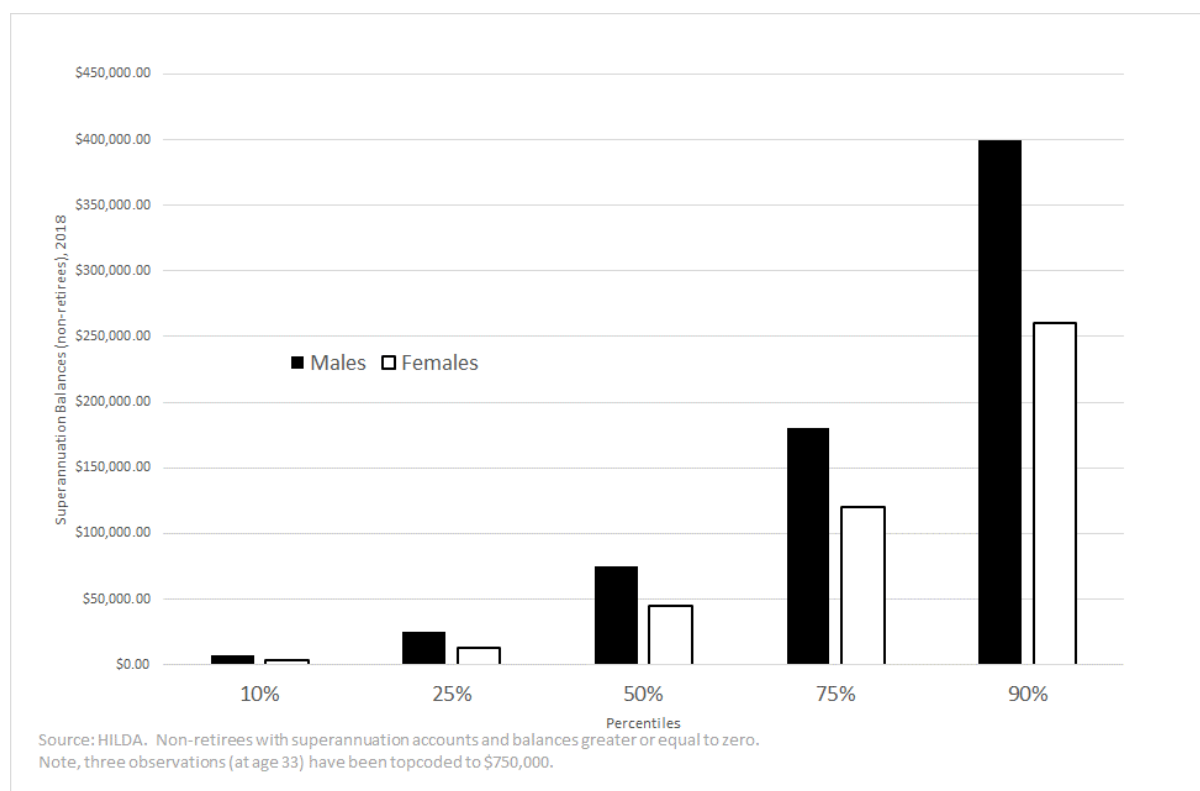
Source: Table 15.

# V       Summary

This research note uses data from the most recent wave of HILDA (2018) to describe the superannuation situation of non-retirees in Australia. Of those with a superannuation account, only 83% had a balance greater than zero (A$0). A large share (7.7%) had a balance of zero and an even larger share (9.1%) did not know their balance. Similarly, a significant share (28% for males and 34% for females) did not know what type of superannuation account they had (specifically, whether or not they had a defined benefit component).

Of those with a superannuation account and known balance (greater or equal to $0) descriptive analysis shows that there are large differences in the balances of men and women and that the gender gaps emerge when young (even before the main child-rearing years). The gender gap rises across the age distribution. For those aged 45-54 the mean balance for males and females in 2018 was $240,722 and $151,744, respectively.  Presently couples are eligible for a part pension payment if they are a homeowner and the value of their assets (not including the family home) is less than A$863,500. The mean estimates reported here would suggest that the majority of individuals will be dependent on the Age Pension for the foreseeable future.  Moreover, given that women live longer than men, have fewer opportunities to accumulate superannuation savings and enter retirement with lower superannuation savings, it is clear that the Age Pension will remain an important source of income for women in retirement.

**References**

Australian Bureau of Statistics (ABS) (2017), *Household Income and Wealth, Summary of Results, 2015-16*, ABS Cat. No. 65230, Table 15.2.

# Part III:

# Recent developments in the Australian Labour Market

## Part III:     *Recent developments in the Australian labour market*

Elisa R. Birch and Alison C. Preston,

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# I     Introduction

Occupational superannuation is, by definition, linked to labour market outcomes such as employment participation (the share of the working age population in employment), wages and wage growth. It is also dependent upon employer compulsory and voluntary contributions as well as the individual's capacity to make individual voluntary contributions. Recent years have seen a number of developments in the labour market that can be expected to impact on superannuation savings. This includes the shift towards part-time employment and low wage sectors, the growth in casual employment, the large incidence of under-employment and historically slow wages growth. This section of the submission draws on a forthcoming paper by Birch and Preston (2020) to describes select trends and developments in the labour market. The analysis provides important contextual information for the Review of the Australian Retirement Income System.

# II     Trends in employment participation and part-time work

Figure 7 shows the employment / population (E/P) ratios disaggregated by sex and age. Between 2000 and 2019 there has been an upward shift in the E/P ratio for most groups, especially older women aged 55 and over. The latter reflects, in part, the increase in the female APA from 60 to 65 (Atalay and Barrett, 2015). At September 2019 the overall male EP ratio was 78.5% and the female equivalent 70.3% for individuals aged 15-64 years.  It is apparent from these data that, between the aged of 20 and 64 years, the majority of men and women are in employment.  While this upward shift in employment participation increases the exposure to the occupational superannuation system and to mandated employer

contributions it is important to note that much of the employment growth in recent years has been of a part-time nature.

*Figure 7: Employment / Population Ratios by age and sex, 2000 and 2019*



Source: Birch and Preston (forthcoming, 2020, Figure 1). Data: ABS Cat. no. 6291.0.55.001.

Tables 16 and 17 (also from Birch and Preston, 2020) shows how the composition of Australian industries has changed in recent decades and shows the marked differences in the incidence of part-time employment, not only across industries but also within industries in terms of the share of males and females employed part-time. Between 2000 and 2019 the Health care and social assistance sector was the fastest growing sector (in terms of employment creation (Table 16). Table 17 shows that this is a highly feminised sector (the majority of employees are women) with 38.4% of all employees in the sector comprised of women working part-time. The Health care sector also has a large number of aged care workers and others working in low paid jobs. As a result of a combination of factors such as those mentioned here women will, on average, accumulate less superannuation savings than men.

*Table 16: Distribution of employees across and within industries, 2000 and 2019*

| Industry | August 2000 | | August 2019 | | Industry Contribution to Employment Growth (2000-2019) |
|---|---|---|---|---|---|
| | Proportion of Employees Within Each Industry (%) | Proportion of Employees Working Part-Time (%) | Proportion of Employees Within Each Industry (%) | Proportion of Employees Working Part-Time (%) | |
| Agriculture, Forestry and Fishing | 4.9 | 23.3 | 2.5 | 25.0 | -2.9 |
| Mining | 0.9 | 3.7 | 1.8 | 3.2 | 3.9 |
| Manufacturing | 12.1 | 11.0 | 6.7 | 17.4 | -5.6 |
| Electricity, Gas, Water and Waste Services | 0.9 | 4.9 | 1.3 | 14.9 | 2.1 |
| Construction | 7.9 | 13.9 | 9.1 | 15.6 | 11.8 |
| Wholesale Trade | 4.2 | 13.8 | 3.2 | 18.1 | 1.1 |
| Retail Trade | 11.0 | 45.4 | 9.6 | 50.7 | 6.5 |
| Accommodation and Food Services | 7.0 | 51.1 | 7.0 | 61.9 | 7.1 |
| Transport, Postal and Warehousing | 5.2 | 16.4 | 5.2 | 20.2 | 5.2 |
| Information Media and Telecommunications | 2.5 | 16.9 | 1.6 | 22.5 | 0.2 |
| Financial and Insurance Services | 3.4 | 18.8 | 3.4 | 17.7 | 3.5 |
| Rental, Hiring and Real Estate Services | 1.6 | 24.9 | 1.6 | 23.5 | 1.6 |
| Professional, Scientific and Technical Services | 6.6 | 19.2 | 9.1 | 21.2 | 14.5 |
| Administrative and Support Services | 3.9 | 36.8 | 3.7 | 43.3 | 3.2 |
| Public Administration and Safety | 5.4 | 14.3 | 6.2 | 17.6 | 8.1 |
| Education and Training | 7.3 | 34.1 | 8.7 | 39.6 | 11.6 |
| Health Care and Social Assistance | 9.5 | 41.0 | 13.5 | 44.7 | 22.6 |
| Arts and Recreation Services | 1.5 | 46.8 | 1.9 | 47.7 | 2.7 |
| Other Services | 4.3 | 25.9 | 3.9 | 34.5 | 3.1 |
| Total (%) | 100.0 | | 100.0 | | 100.0 |
| Total ('000) | 8,867.4 | | 12,859.4 | | 3,992.0 |

Source: Birch and Preston (2020, forthcoming; Table 2)

*Table 17: Gender composition of industries, 2019*

| Industry | Proportion of male employees (%) | Proportion of female employees (%) | Proportion of male full-time employees (%) | Proportion of male part-time employees (%) | Proportion of female full-time employees (%) | Proportion of female part-time employees (%) |
|---|---|---|---|---|---|---|
| Agriculture, Forestry and Fishing | 67.2 | 32.8 | 56.4 | 10.8 | 18.6 | 14.2 |
| Mining | 82.4 | 17.6 | 81.4 | 1.0 | 15.4 | 2.2 |
| Manufacturing | 73.6 | 26.4 | 66.8 | 6.8 | 15.8 | 10.6 |
| Electricity, Gas, Water and Waste Services | 75.5 | 24.5 | 68.9 | 6.6 | 16.2 | 8.3 |
| Construction | 88.2 | 11.8 | 78.2 | 10.0 | 6.3 | 5.5 |
| Wholesale Trade | 67.1 | 32.9 | 58.8 | 8.3 | 23.1 | 9.8 |
| Retail Trade | 44.2 | 55.8 | 27.9 | 16.3 | 21.4 | 34.4 |
| Accommodation and Food Services | 43.5 | 56.5 | 20.1 | 23.4 | 18.0 | 38.5 |
| Transport, Postal and Warehousing | 78.3 | 21.7 | 65.0 | 13.3 | 14.9 | 6.8 |
| Information Media and Telecommunications | 64.8 | 35.2 | 55.5 | 9.3 | 22.0 | 13.2 |
| Financial and Insurance Services | 50.5 | 49.5 | 46.8 | 3.7 | 35.6 | 13.9 |
| Rental, Hiring and Real Estate Services | 50.7 | 49.3 | 43.5 | 7.2 | 33.0 | 16.3 |
| Professional, Scientific and Technical Services | 58.7 | 41.3 | 51.2 | 7.5 | 27.7 | 13.6 |
| Administrative and Support Services | 46.2 | 53.8 | 30.1 | 16.1 | 26.6 | 27.2 |
| Public Administration and Safety | 49.4 | 50.6 | 45.5 | 3.9 | 36.9 | 13.7 |
| Education and Training | 29.3 | 70.7 | 20.7 | 8.6 | 39.7 | 31.0 |
| Health Care and Social Assistance | 22.2 | 77.8 | 15.9 | 6.3 | 39.4 | 38.4 |
| Arts and Recreation Services | 50.1 | 49.9 | 31.1 | 19.0 | 21.1 | 28.8 |
| Other Services | 54.1 | 45.9 | 43.6 | 10.5 | 21.9 | 24.0 |
| All Industries | 52.9 | 47.1 | 42.7 | 10.2 | 25.3 | 21.8 |
| Total employed ('000) | 6798.7 | 6060.7 | 5490.8 | 1307.9 | 3256.2 | 2804.5 |

Source: Birch and Preston (2020, forthcoming; Table 3)

## III    Trends in multiple jobholding

An additional trend worth highlighting is the growth in multiple job holding. As shown in Figure 8 there has been a marked increase in the incidence of multiple jobholding in recent years. This is particularly the case for younger workers and is largely in response to under-employment in the main job (Preston and Wright, 2019). From a superannuation perspective it means that mandatory contributions will be made by multiple employers and may involve multiple occupational superannuation accounts (and associated fees). It also means that some workers (those working short hours and earning less than A$450 per calendar month) will be at increased risk of receiving no employer related mandatory contributions.

*Figure 8: Main and secondary jobs, Australia*
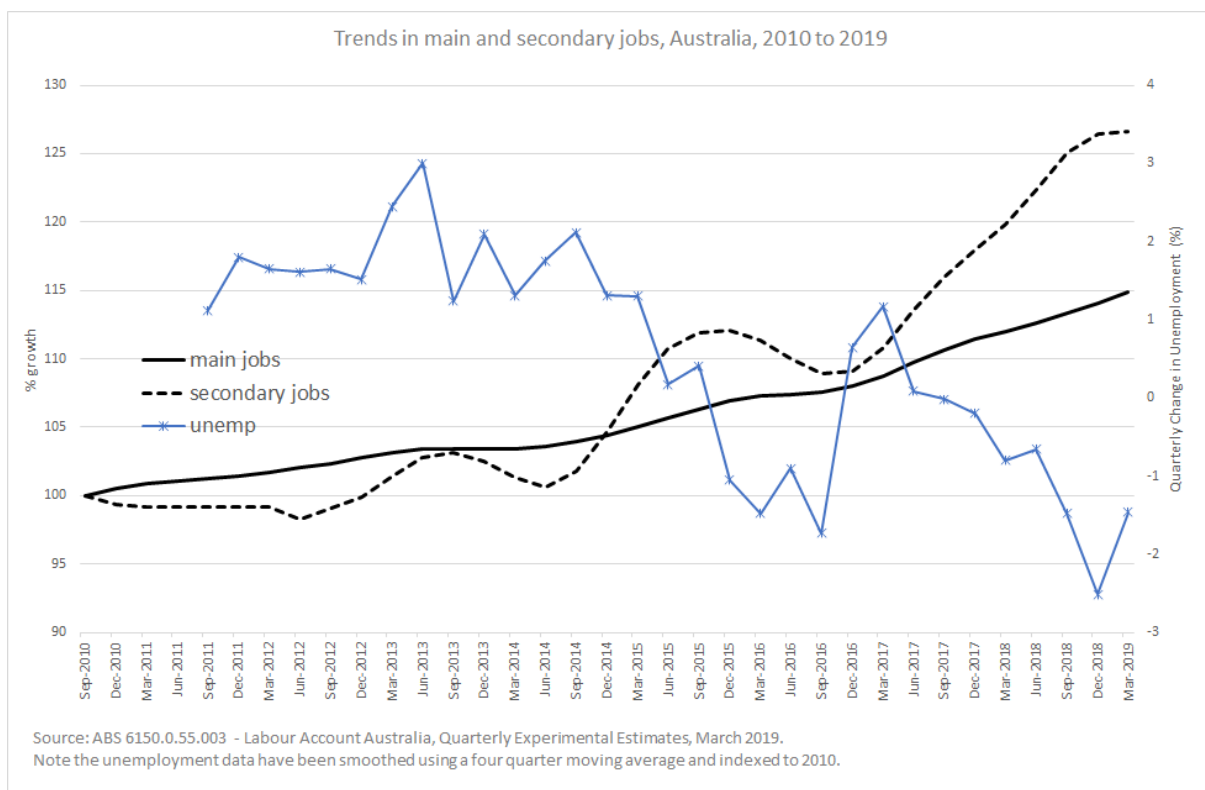


Source: Birch and Preston (2020, Figure 3).

*Table 18: Distribution of employees across and within industries, 2000 and 2019*

| Industry | August 2000 | | August 2019 | | Industry Contribution to Employment Growth (2000-2019) |
| --- | --- | --- | --- | --- | --- |
| | Proportion of Employees Within Each Industry (%) | Proportion of Employees Working Part-Time by Industry (%) | Proportion of Employees Within Each Industry (%) | Proportion of Employees Working Part-Time by Industry (%) | |
| Agriculture, Forestry and Fishing | 4.9 | 23.3 | 2.5 | 25.0 | -2.9 |
| Mining | 0.9 | 3.7 | 1.8 | 3.2 | 3.9 |
| Manufacturing | 12.1 | 11.0 | 6.7 | 17.4 | -5.6 |
| Electricity, Gas, Water and Waste Services | 0.9 | 4.9 | 1.3 | 14.9 | 2.1 |
| Construction | 7.9 | 13.9 | 9.1 | 15.6 | 11.8 |
| Wholesale Trade | 4.2 | 13.8 | 3.2 | 18.1 | 1.1 |
| Retail Trade | 11.0 | 45.4 | 9.6 | 50.7 | 6.5 |
| Accommodation and Food Services | 7.0 | 51.1 | 7.0 | 61.9 | 7.1 |
| Transport, Postal and Warehousing | 5.2 | 16.4 | 5.2 | 20.2 | 5.2 |
| Information Media and Telecommunications | 2.5 | 16.9 | 1.6 | 22.5 | 0.2 |
| Financial and Insurance Services | 3.4 | 18.8 | 3.4 | 17.7 | 3.5 |
| Rental, Hiring and Real Estate Services | 1.6 | 24.9 | 1.6 | 23.5 | 1.6 |
| Professional, Scientific and Technical Services | 6.6 | 19.2 | 9.1 | 21.2 | 14.5 |
| Administrative and Support Services | 3.9 | 36.8 | 3.7 | 43.3 | 3.2 |
| Public Administration and Safety | 5.4 | 14.3 | 6.2 | 17.6 | 8.1 |
| Education and Training | 7.3 | 34.1 | 8.7 | 39.6 | 11.6 |
| Health Care and Social Assistance | 9.5 | 41.0 | 13.5 | 44.7 | 22.6 |
| Arts and Recreation Services | 1.5 | 46.8 | 1.9 | 47.7 | 2.7 |
| Other Services | 4.3 | 25.9 | 3.9 | 34.5 | 3.1 |
| Total (%) | 100.0 | | 100.0 | | 100.0 |
| Total ('000) | 8,867.4 | | 12,859.4 | | 3,992.0 |

Source: Birch and Preston (forthcoming, 2020). Data: ABS Cat. no. 6291.0.55.003.

Table 19: sex composition of industries, May 2019

| | AGFF | Mining | Manuf | EGWW | Const. | WT | RT | Aco.& Food | Tran.p. &ware. | Info & tele. | Fin & Ins. | Hir. & RealE. | Prof.Sci & Tech | Adm. & Sup. | Pub. Adm. | Ed& Train | Health & Soc. As. | Art & Rec | Other | Total (%) | Total Employed ('000) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | - | % (column) | - | | | | | | | | | |
| *Males* | *67.2* | *82.4* | *73.6* | *75.5* | *88.2* | *67.1* | *44.2* | *43.5* | *78.3* | *64.8* | *50.5* | *50.7* | *58.7* | *46.2* | *49.4* | *29.3* | *22.2* | *50.1* | *54.1* | *52.9* | 6798.7 |
| M-FT | 56.4 | 81.4 | 66.8 | 68.9 | 78.2 | 58.8 | 27.9 | 20.1 | 65.0 | 55.5 | 46.8 | 43.5 | 51.2 | 30.1 | 45.5 | 20.7 | 15.9 | 31.1 | 43.6 | 42.7 | 5490.8 |
| M-PT | 10.8 | 1.0 | 6.8 | 6.6 | 10.0 | 8.3 | 16.3 | 23.4 | 13.3 | 9.3 | 3.7 | 7.2 | 7.5 | 16.1 | 3.9 | 8.6 | 6.3 | 19.0 | 10.5 | 10.2 | 1307.9 |
| *Females* | *32.8* | *17.6* | *26.4* | *24.5* | *11.8* | *32.9* | *55.8* | *56.5* | *21.7* | *35.2* | *49.5* | *49.3* | *41.3* | *53.8* | *50.6* | *70.7* | *77.8* | *49.9* | *45.9* | *47.1* | 6060.7 |
| F-FT | 18.6 | 15.4 | 15.8 | 16.2 | 6.3 | 23.1 | 21.4 | 18.0 | 14.9 | 22.0 | 35.6 | 33.0 | 27.7 | 26.6 | 36.9 | 39.7 | 39.4 | 21.1 | 21.9 | 25.3 | 3256.2 |
| F-PT | 14.2 | 2.2 | 10.6 | 8.3 | 5.5 | 9.8 | 34.4 | 38.5 | 6.8 | 13.2 | 13.9 | 16.3 | 13.6 | 27.2 | 13.6 | 31.0 | 38.4 | 28.8 | 23.0 | 21.8 | 2804.5 |

Source: ABS 6291.0.55.006 Labour Force, Australia, Detailed, Quarterly (original series). At May 2019. Note: M=males; F=females; FT=employed full-time (35+ hours per week); PT=employed part-time.

# IV    Wages

Table 20 summarises the methods of pay setting in Australia, disaggregated by age. It is clear from these data that young workers (aged 25-34) are more likely to be covered by an award that specifies minimum payment or an individual agreement.  Decisions of the Fair Work Commission flow through to employees in award reliant jobs. Wage increases in sectors (and age groups) dependent upon the award have, however, been flat as a result of low (and in some cases zero) changes to the National Minimum Wage.

*Table 20: Methods of Pay Setting, May 2018*

| Age (Years) | Number of Employees | | | | Distribution of Method of Pay Setting | | | |
|---|---|---|---|---|---|---|---|---|
| | Award Only ('000) | Collective Agreement ('000) | Individual Arrangement ('000) | Total ('000) | Award Only | Collective Agreement | Individual Arrangement | Total |
| 25 to 34 | 539.2 | 884.3 | 1,135.8 | 2,559.3 | 21.1% | 34.6% | 44.3% | 100.0% |
| 35 to 44 | 369.4 | 855.7 | 989.0 | 2,214.1 | 16.7% | 38.6% | 44.7% | 100.0% |
| 45 to 54 | 354.3 | 940.1 | 833.6 | 2,128.0 | 16.6% | 44.2% | 39.2% | 100.0% |
| 55 to 64 | 274.1 | 625.0 | 486.9 | 1,386.0 | 19.8% | 45.1% | 35.1% | 100.0% |
| 25 to 64 | 1,537.0 | 3,305.1 | 3,445.3 | 8,287.4 | 18.5% | 39.9% | 41.6% | 100.0% |

Source: Birch and Preston (2020, Table 12).

Table 21 examines the changing wage structure of young (aged 25-34) and older employees (aged 35-54) using HILDA data. The objective of the exercise is to net out any compositional changes (eg. wage increases as a result of an increase in the share of degree qualified persons and/or skilled migrants) and focus on the pure price effects. It allows us to ask the question, if the composition of the workforce had not changed since 2001, what would their mean earnings be. The results from this exercise (summarised in Table 21 the second last row in italics; row f) shows that in the absence of a compositional change in the workforce, the hourly wages of young men aged 25-34 would have increased by 59.2% between 2001 and 2018. The corresponding change for young women would have been 53.9%. The corresponding estimates for older works (aged 35 to 54) shows that the mean increase for men and women would have been around 61%.

*Table 21: Wages growth by age, 2000 to 2018. A Decomposition of price and composition effects.*

| | | Persons Aged 25-34 | Persons Aged 35-54 | Males Aged 25-34 | Females Aged 25-34 | Males aged 35-54 | Females aged 35-54 |
|---|---|---|---|---|---|---|---|
| (a) | 2001 log wage | 2.863 | 2.929 | 2.879 | 2.845 | 3.012 | 2.849 |
| (b) | 2018 log wage | 3.444 | 3.594 | 3.461 | 3.428 | 3.658 | 3.535 |
| (c) | Human capital constant (X=2001; β = 2018) | 3.434 | 3.546 | 3.471 | 3.384 | 3.629 | 3.463 |
| (d) | Rate of return constant (X=2018; β = 2001) | 2.877 | 2.979 | 2.874 | 2.878 | 3.034 | 2.916 |
| (e) | Actual change in wage 2001-2018. (= (b)-(a)) | 0.582 | 0.666 | 0.582 | 0.584 | 0.646 | 0.686 |
| *(f)* | *Change due to prices (nominal wage growth) (HC constant). (= (c)-(a))* | *0.571* | *0.617* | *0.592* | *0.539* | *0.617* | *0.614* |
| (g) | Change due to composition (human capital): (=(d)-(a)) | 0.014 | 0.050 | -0.005 | 0.033 | 0.022 | 0.067 |

Source: HILDA.  Authors calculations.

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