Understanding the retirement savings of self-employed tradespeople in Australia

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Abstract

Over the last decade, the Australian Building and Construction Commissioner (ABCC) together with the Association of Superannuation Funds Australia (ASFA) have raised concerns over the exclusion of self-employed tradespeople from Australia's compulsory contribution system for employed people. We use logit models to compare the superannuation investment, as well as other assets, of self-employed tradespeople to employed tradespeople. We find self-employed tradespeople are less likely to hold superannuation assets and more likely to hold business assets, the family home, other property and equities. Self-employed tradespeople therefore save for retirement through investment in these alternative assets but are exposed to market uncertainty if they are reliant on the sale of the business to fund retirement consumption. We argue that, while self-employed tradespeople are relatively wealthier, superannuation exclusion has wider impacts related to the property industry, such as higher construction costs, increased demand for investment properties and associated tax advantages, and automation risk.

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1. Introduction

Compulsory superannuation was introduced in 1992 via the *Superannuation Guarantee Charge (SGC) Act* to shift much of the retirement funding burden from the public to the private purse (McDonald 2016). From July 2014, 9.5 per cent of an employee's income is deposited into a superannuation fund and employers are fined if they are not compliant with the SGC legislation. However, not all Australians are eligible for SGC. In other words, employees earning less than $450 per month, or employees aged under eighteen or over the age of seventy, as well as people not in the workforce or on government allowances are excluded (Chomik and Piggot 2016). Therefore, self-employed people are excluded from the SGC.

Independent contractors (ICs), as defined by the Australian Bureau of Statistics (ABS), are persons who operate their own business (self-employed) and who are contracted to perform services for others without having the legal status of an employee (Australian Bureau of Statistics, 2016). This means that ICs are engaged under a contract *for* service (a commercial contract), while employees are engaged under a contract *of* service (an employment contract). Problematically, the distinction for classifying ICs is not always clear and there have been cases where this has been subject to manipulation (Australian Building and Construction Commissioner 2010). It is in this area that small business operators such as self-employed tradespeople may be taken advantage of by other (often larger) businesses. The larger businesses force or attempt to create the impression of a 'contractor' relationship rather than one of employment of the operator—this is known as 'sham contracting' (Gunasekara 2011). Therefore, 'contractors' (as opposed to employees) of larger businesses could be inadvertently excluding themselves from their superannuation entitlement and undermining an important pillar of Australia's retirement system (Gunasekara 2011).

However, there are provisions for contractors to be entitled to SGC if the contract is principally for labour, known as 'personal services income' (Australian Taxation Office 2017). Specifically, if someone derives their income from contracting labour, then by law they should be paid superannuation by the person(s) contracting them.

Furthermore, the Association of Superannuation Funds Australia (ASFA) has highlighted for many years the exclusion of the SGC has resulted in low superannuation balances for independent contractors (ASFA 2017). Using data from the Australian Taxation Office (ATO), this paper finds that during the 2014–15 period, only one-quarter of ICs made tax-deductible contributions to their superannuation accounts (ASFA 2017). As a result of this low contribution rate, the average superannuation balance for self-employed males was approximately $155,000 compared with $386,510 for male wage and salary earners. For self-employed women, it was $86,000 compared with $159,000 for female wage and salary earners (ABS 2014). The result of this finding maintained that, without SGC, self-employed people will have lower superannuation balances compared with employees across the entire age distribution (ASFA 2017). This research follows an earlier report by the Construction, Forestry, Mining and Energy Union (CFMEU) in 2011 which highlighted the issue by stating that 'avoidance of superannuation associated with sham contracting reduces workers'

retirement incomes and will result in a heavier reliance on taxpayer-funded pensions as workers with inadequate retirement income leave the workforce' (CFMEU 2011, p. 2).

In 2016, there were just over one million persons who were ICs with almost three quarters (72 per cent) of all ICs being males and more than half (55 per cent) aged forty-five years and over (ABS 2016). One third of ICs are in the construction industry. Taking into account that superannuation is an important source of private retirement savings in Australia and accounts for a significant proportion of household wealth, we hypothesise that self-employed tradespeople are disadvantaged compared with employed tradespeople in accumulating wealth for retirement. We use a logit model for each of the eleven asset classes as the dependent variable to determine the likelihood of ownership if a self-employed tradesperson, with a set of control variables. This analysis provides information as to how this cohort is making financial decisions in response to public policy (tax and superannuation) and the economic climate. It is an increasingly important issue to understand the financial implications of SGC exclusion given the rise in other types of IC work (e.g., that seen in the gig economy).

The remainder of this paper is organised as follows. The next section briefly reviews the literature on retirement savings and the related financial decisions of Australian households. The subsequent section explains the empirical methodology and the data used in the analysis. Finally, presentation of the results and a discussion of the findings is provided.

2. Literature review

Globally, household finance studies find overwhelming evidence to support the significance of age, gender, education, income and household structure on retirement decisions. For example, females are shown to have a higher probability of participating in a retirement savings plan (see, Huberman, Iyengar, and Jiang 2007; and Papke and Poterba 1995) while males are more active in managing retirement savings by making extra savings and choosing investment strategies (Mitchell *et al*. 2006). Higher levels of education and higher income are positively associated with voluntary retirement savings (see, Chatterjee and Zahirovic-Herbert 2009; and Gough and Niza 2011). Married couples are more likely to save for retirement due to having more resources and household production in comparison to single persons (Shuey 2004), but having dependent children reduces the funds available for saving due to the costs associated with raising children (Shuey and O'Rand 2006).

In Australia, research on retirement adequacy, voluntary contributions and other investment decisions of households is emerging. Burnett *et al*. (2013) use the Household, Income and Labour Dynamics in Australia (HILDA) Survey to estimate whether Australians are on track to achieve a comfortable standard of living in retirement. The amount needed to achieve a comfortable retirement was taken from the ASFA 2019 retirement standard benchmark, where an amount of $43,225 and $61,061 per year for singles and couples, respectively, was found (ASFA 2019). Burnett *et al*. (2013) found significant shortfalls in all projections, and some involving utilising additional sources of money and investments outside of superannuation. They found

half of the Australian population are expected to run out of savings before reaching their life expectancies, with approximately nine out of ten Australians expected to receive the age pension either partially or fully at some stage during retirement. On average, the age pension would still contribute to approximately 42 per cent of the target consumption level during retirement. The research concluded that, without any changes, Australians will continue to be heavily dependent on the age pension to fund their retirement (Burnett *et al*. 2013). Additional work on retirement adequacy conducted by Bianchi *et al*. (2016)—also using the HILDA Survey—found the adequacy of retirement savings in superannuation is especially low for Indigenous Australians and female employees. Recommendations to address this concern included increasing the SGC rate and provision of improved education to increase financial literacy skills.

An important study by Feng (2018) demonstrated that the compulsory superannuation system discourages voluntary contributions to superannuation funds. Feng (2018) surveyed employees and found participation rates in voluntary retirement savings as an addition to Australians' compulsory superannuation savings was substantially lower than countries with a purely voluntary direct contribution system. Those that did participate in voluntary savings were found to be older, financially secure individuals, as these individuals are able to afford more and, thus, are more likely to make additional savings. Non-participants in voluntary savings involved young, low-income earners, or workers without job stability who face affordability issues in retirement savings. Affordability issues were a result of competing saving priorities such as repaying debt for education, mortgages, or emergency savings, since superannuation preservation rules do not allow withdrawals except under very strict conditions. Additionally, tax incentives and retirement policies were also found to have a significant influence in participation decisions into superannuation. Higher-income earners had a higher chance of making substantially more voluntary pre-tax contributions into superannuation in order to reduce their tax liabilities. Alternatively, as owner-occupier properties do not attract capital gains tax at disposal and are exempt from the age pension asset test, housing was found to make a competing demand for funds as mortgagees and renters prioritise cash flows to properties instead of making voluntary contributions to superannuation.

Much of the household finance literature important for this study focuses on holdings of risky financial assets such as equities, as well as the interaction of risky asset holdings by those with other risks (e.g., uncertain income) such as business owners. Cardak and Wilkins (2009) used HILDA data to quantify the level of participation in equities by Australian households and found 44 per cent of households have direct holdings. However, Cardak and Wilkins (2009) found those with labour income uncertainty and health risks are less likely to directly own equities. In other contexts, age, home ownership and highest level of education attained are positively associated with risky asset holdings (see, Bertaut 1998; Bertaut and McCluer 2002; Guiso, Jappelli, and Terlizzese 1996; and Polkovnichenko 2005). Additionally, labour income risk was found to have a negative effect (Bertaut 1998). Additional factors associated with willingness to undertake more financial risk and invest in a broad range of asset classes include good health and couple households (Polkovnichenko 2005).

More recently, West (2017) used HILDA data to compare the equity ownership and equity portfolio share of baby-boomer households in the pre-retirement lifecycle phase and found the average level of equity investment and portfolio share of equities had declined over time. However, a detailed analysis showed that wealthier baby boomers had increased direct equity holdings in 2014, while lower-wealth baby boomers had reduced equity exposure. Higher levels of financial literacy and willingness to take financial risks were significant determinants of these financial decisions.

This brief overview of empirical literature shows a growing body of work emerging from household survey data on household financial decisions abroad, as well as retirement savings decisions in Australia. Tradespeople comprise one third of independent contractors and, thus, are an important labour market in the Australian economy. Although several studies investigate the retirement savings of Australians, much of this research samples individuals who are employees. There is a lack of academic research on the retirement savings of independent contractors in general, and self-employed tradespeople more specifically. This identified gap in the literature together with concerns raised by industry provided the impetus for this study.

3. Methodology

Our primary hypothesis is that, due to SGC exclusion, self-employed tradespeople have lower superannuation balances compared with employed tradespeople and, on this basis, we argue this cohort is financially disadvantaged. However, other asset classes may be used to smooth consumption in retirement and, therefore, we look more broadly across asset class holdings for greater insight. For tradespeople generally, it is predicted they attribute more portfolio weight to property assets due to familiarity with the property market and can easily utilise their own skills and tradesperson networks to improve property assets. For self-employed tradespeople, we expect to see higher portfolio weight to business assets. There may also be higher ownership of equities given the dominance of male tradespeople and the healthy literature on male financial risk-taking (see, West and Worthington 2018; Dvorak and Hanley 2010; and Hung *et al*. 2012).

We draw on the Life Cycle Hypothesis (LCH) to inform our sample selection. The LCH model is a prominent savings theory that suggests that where an individual is at in their life-cycle provides a predictable indicator of when individuals accumulate or divest assets to satisfy savings functions (Modigliani and Brumberg 1954). The model recognises that individuals needs change over the course of their lifetime and therefore assumes that the consumption and saving decisions of the household at each point of time reflects a conscious attempt at achieving a preferred distribution of consumption. When the savings of individuals over their life is modelled, a 'hump-shaped' pattern illustrates where wealth accumulation is low during youth and old age, and high during middle age.

There are three distinct phases: early career, accumulation, and post retirement. The early years (twenties to thirties) are characterised by relatively low earnings due to being early career, however their consumption is high as individuals cover expenses such as rent or mortgage payments. During this phase it is expected that individuals

will start with a negative savings rate as their income is expected to be lower than their consumption. People aged in their late forties to fifties are generally characterised by positive savings when incomes peak, and consumption is lower than income. During this period, individuals accumulate the most wealth, with saving for retirement being an important motive (Modigliani 1966). Post retirement, individuals are likely to have a negative savings rate again as income is drawn from the accumulated savings.

Therefore, the LCH model finds that age has the biggest influence on retirement savings behaviour over the life-cycle stages of an individual. Like many theories, however, the LCH omits heterogeneous human behaviour and circumstances. Empirical work in behavioural economics highlight deficiencies individuals have with retirement planning. For example, Benartzi and Thaler (2007) find that many people misjudge the amount needed for retirement and use simple heuristics when saving (Benartzi and Thaler 2007). Other people find themselves in positions of involuntary retirement due to health or economic downturns (Knox 2003). Further, part-time transitions to retirement were often needed but not planned, especially for blue-collar workers with physical jobs (Warren 2008).

Accordingly, it is highly likely that many tradespeople in the construction industry will retire at 65 and/or may switch to part time pre-retirement, thus earning less income. Following the assumption of the LCH where individuals' saving behaviour occurs during the accumulation phase (late forties and fifties), tradespeople have a shorter period of time to accumulate assets for retirement compared to other industries. For self-employed tradespeople in particular, exclusion from the SGC means that they face a shortened accumulation phase without the benefit of the compulsory superannuation savings safety net. In the event that self-employed tradespeople do not accumulate enough assets at retirement to self-fund consumption, they will defer to public pensions. On this basis, this study focuses on tradespeople in the accumulation phase, that is, aged 45 to 64.

We utilise the HILDA Survey as it is a nationally representative household-based longitudinal social and economic survey. HILDA aims to follow the initial sample in 2001 (Wave 1) which comprised 7,682 households and 13,969 individuals, with changes in their lives captured over time. Heady (2003) found that, when looking at household wealth, the Wealth Module of the HILDA Survey (Waves 2, 6, 10 and 14) provides a good source of household wealth data as it satisfactorily matches the national aggregate statistics from the Australian Bureau of Statistics and Reserve Bank of Australia (RBA). The wealth module survey questions relate to householders' assessments of their investment in eleven assets such as bank accounts *(BNK)*, cash investments *(CSH)*, equities *(EQT)*, superannuation *(SPR)*, cash-in values of life insurance policies (INS), trust funds *(TST)*, the family home *(HOM)* and other property *(OPR)*, business assets *(BUS)*, vehicles *(VEH)* and collectibles *(COL)*. We use a binary variable of ownership of assets in these asset classes as a dependent variable in eleven regressions. A description of asset classes provided in the Wealth Module and used for analysis in this study are provided in Table 4.2. We apply the population weights provided by HILDA.

Limitations exist in using the data collected from the Wealth Module. First, asset values are recorded at the household level, and not at the individual level. To

simplify the analysis, we ascribe the household asset values to the cohort of interest if one is identified in the household, but ignore financial contributions from other household members. We add household structure to the regression model as a control variable to help address this issue. Second, the accuracy of the data relies on respondents being able to correctly record their asset values. Third, only the total amount for the wealth variable is given, and no further details for each asset class (e.g., the data does not specify whether the superannuation fund is a self-managed superfund or SGC superannuation account) are provided. These limitations were identified in the study by Heady (2003), which found that surveys have issues regarding data quality and response rates relating to wealth data.

For ease of classification, this study defines 'tradespeople' as those individuals who work in the construction industry. A comparison of the HILDA data to the ABS data in 2010, based on Australia and New Zealand Standard Industrial Classification codes, shows that tradespeople in the construction industry represent 10 per cent of the working population, while the HILDA construction category is 8.43 per cent of the sample (ABS 2017). To distinguish self-employed and employed tradespeople, we use occupation type and employment type in the HILDA data. Accordingly, we use *SET* and *ET* to differentiate between self-employed tradespeople and employed tradespeople, respectively. The remainder of the population are named *OTHER*. Comparison to ABS data for independent contractors highlights some differences in the HILDA sample to the Australian census data. ABS data shows that 30 per cent of construction workers were independent contractors in 2016, while 48 per cent were classified as self-employed tradespeople in the HILDA sample, leaving 52 per cent as employed tradespeople. Accordingly, reconciliation of the ABS and HILDA data shows some minor differences which should be considered when generalising results.

Descriptive statistics in Table 4.1 provide an overview of the demographic and socio-economic characteristics of each of the self-employed tradespeople *(SET)* and employed tradespeople *(ET)* sample. Many of the variables have been recoded from the HILDA data into a smaller number of categories. We include age categories, level of educational attainment, income and household type. These set of characteristics are important as they are associated with wealth. For example, being older, having a high level of income and being a couple household are associated with higher levels of wealth (West 2017). To address this issue, we use these categories for control variables in the regression model.

The descriptive statistics presented in Table 4.1 show differences in the composition of the *SET*, *ET* and *OTHER* samples for those aged 45 to 64. Across the Wealth Modules spanning twelve years, there are 534 people in the *SET* category, 525 people in the *ET* category, and 18,118 people in the remaining *OTHER* category. For *SET*, approximately 28 per cent of the sample comprises 45 to 54 year-olds, 64.4 per cent have a vocational qualification, 36.1 per cent have a personal income between $20,000 to $49,999, and 62.7 per cent are in couple with children households. Conversely, the *ET* is younger, with 17.3 per cent aged 45-54, 52.4 per cent have a vocational qualification, 48.0 percent have an income between $20,000 to $49,999, and most are also in a couple with children household (57.0 per cent). Overall, the *SET* sample have higher levels of wealth than the *ET* sample, and twice as many people in

the highest wealth category (15.7 per cent compared with 8 per cent). Both *SET* and *ET* are mostly male (90.3 percent and 86.9 percent, respectively). For comparison, the typical person in the same age range in the *OTHER* category is female (55 percent), in a couple with children household (50.2 percent), has a school level qualification (40.5 percent), earns $20,000-$49,999 (33.4 percent) and has net wealth of less than $500,000.

We quantify the investment decisions first with an inspection of the descriptive statistics and then with a logit model that will analyse the direction and magnitude of the likelihood of investment in each asset class. The dependent variable in each set of regressions is the dummy variable for the asset class (i.e., for bank accounts, (1) if the respondent has more than $0 in *BNK*, else (0)). The logit individual-effects model specifies that:

$$\Pr(y_{it}=1 \mid x_{it}, \beta, \alpha\_i) = \Lambda(\alpha\_i + x\_it^{\wedge\prime} \beta) \qquad (3.1)$$

where α_i may be a fixed effects or a random effects estimator (Cameron and Trivedi 2009). In each model, the control variables of age (continuous), gender, household type, income and net wealth are included to control for known associations with wealth.

4. Results

We begin with an inspection of the average balances and portfolio share, noting the participation rates, presented in Table 4.2. Participation rates reflect the proportion of the population that have more than $0 in the asset class. There are notable differences in participation rates for the *SET* cohort, with higher rates for equities (45.71 per cent versus 35.81 per cent), trusts (5.00 per cent versus 2.03 per cent), family home (83.57 per cent versus 78.38 per cent), other property (41.43 per cent versus 32.42 per cent), businesses (57.14 per cent versus 6.08 per cent), and collectibles (17.86 per cent versus 10.14 per cent). Conversely, *ET* have marginally higher rates of ownership in superannuation (96.62 per cent versus 91.43 per cent) and insurance assets (12.84 per cent versus 9.29 per cent). In comparison to the remainder of the population, rates of superannuation ownership is slightly higher than *ET* (97.88 per cent), family home ownership is lower (70.07 per cent), other property ownership is lower (26.91 per cent), business ownership is lower than *SET* (16.88 per cent) and collectibles are lower (1.50 per cent). In Australia, participation rates are high for bank accounts and vehicle ownership (West 2017).

The mean balances for the asset classes show *SET* have higher average balances in many asset classes than *ET*. For example, *SET* have an average of $579,117 in family home assets and $642,225 in other property assets, compared with $488,928 and $544,774 for *ET*. *SET* also have an average of $82,685 invested in equities compared with *SET*s $74,957. Not surprisingly, *SET* have much higher average balances in businesses ($288,376 versus $200,556). An inspection of differences in average superannuation balances shows that *ET*s do have more favourable average

Table 4.1: Descriptive statistics of demographic and socioeconomic variables, aged 45-64

			SET			*ET*			*OTHER*		
			N	*Mean*	*SD*	*N*	*Mean*	*SD*	*N*	*Mean*	*SD*
Age	45-54	AGE4	150	0.280	0.449	91	0.173	0.378	7,108	0.392	0.488
	55-64	AGE5	121	0.226	0.418	59	0.112	0.314	6,279	0.347	0.645
Gender	Female	FEM	52	0.097	0.297	69	0.131	0.338	9,958	0.550	0.498
	Male	MAL	482	0.903	0.297	456	0.869	0.338	8,160	0.450	0.050
Household type	Couple with children	CWC*	335	0.627	0.484	299	0.570	0.496	9,102	0.502	0.500
	Couple	CPL	113	0.212	0.409	128	0.244	0.429	4,496	0.248	0.432
	Lone parent	LPC	21	0.039	0.193	33	0.063	0.243	1,845	0.102	0.302
	Lone person	LNP	56	0.105	0.314	77	0.147	0.354	2,355	0.130	0.336
	Multiple family/other	MFO	6	0.011	0.106	4	0.008	0.070	312	0.017	0.130
Educational attainment	Degree and above	DEG	46	0.086	0.808	50	0.095	0.294	4,889	0.270	0.444
	Vocational qualification	VOC	344	0.644	0.479	275	0.524	0.500	5,887	0.325	0.468
	Year 11 and Year 12	Y12*	144	0.270	0.444	200	0.381	0.486	7,342	0.405	0.491
Income	Less than $19,999	INC1	64	0.120	0.325	25	0.048	0.332	4,176	0.230	0.421
	$20,00-$49,999	INC2	193	0.361	0.481	143	0.272	0.446	6,056	0.334	0.472
	$50,000-$99,999	INC3*	186	0.348	0.477	252	0.480	0.501	5,598	0.309	0.462
	Above $100,000	INC4	91	0.170	0.376	105	0.200	0.400	2,288	0.126	0.332
	Less than $500,000	NW1	221	0.414	0.493	283	0.539	0.499	8,580	0.474	0.499
Net Wealth	$500,000-$999,999	NW2	153	0.287	0.453	149	0.284	0.451	4,701	0.259	0.438
	$1,000,000-$1,499,999	NW3*	65	0.122	0.327	39	0.074	0.262	2,036	0.112	0.316
	$1,500,000 and over	NW4	84	0.157	0.364	42	0.080	0.272	2,331	0.129	0.335

balances (i.e., $292,785 compared with *SET*s average balances of $140,552). The mean balances for OTHER shows a high average for cash investments of $111,027, though a small participation rate (1.28 per cent). Average superannuation balances are lower than *ET* but higher than *SET*, at $188,351. Business asset values are also higher than *SET* and *ET*, at $397,791.

Statistical t-tests for difference in means for the eleven asset classes between *SET* and *ET*, *SET* and *OTHER*, and *ET* and *OTHER* provide insight, that is, that balances between the groups were not equal. Statistically significant differences were found between *SET* and *ET* for bank accounts (5 per cent level), cash investments (5 per cent level), superannuation (5 percent level), family home (1 per cent level), other property (5 per cent level), business (1 per cent level), vehicles (1 per cent level) and collectibles (5 per cent level). Between *SET* and *OTHER*, statistically significant differences were found between superannuation (1 per cent level), family home (1 per cent level), other property (5 per cent level), business (1 per cent level), vehicles (1 per cent level), and collectibles (5 per cent level). Between *ET* and *OTHER*, statistically significant differences were found between bank accounts (5 percent level), superannuation (5 per cent level), and business (1 per cent level). Accordingly, superannuation and business balances were statistically significantly different between all groups. *SET* had the most statistically significant differences in balances, providing support for further analysis of this unique cohort.

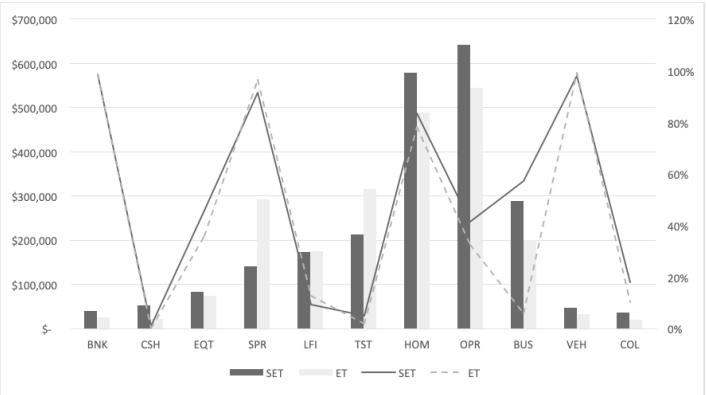
Similarly, we compare portfolio share of each asset class, being the ratio of the balance divided by total assets. For most households, the family home takes the largest proportion of the asset portfolio, for *SET* this is 43.78 per cent, for *ET* this is 37.40 per cent, and for *OTHER* this is 39.68 per cent. The next largest portfolio share for all households is superannuation, for *SET* this is 14.55 per cent, for *ET* this is 27.93 per cent, and for *OTHER* this is 26.29 per cent. For *SET*s, other property (11.05 per cent), business (10.19 per cent) and vehicles (10.19 per cent) follow superannuation. For *ET*, vehicles (13.49 per cent) and other property (8.93 per cent) follow superannuation. For *OTHER*, vehicles (9.58 per cent), other property (9.38 per cent) follow superannuation. Pearson chi-square tests of significance in proportions found positive results for business between *SET* and *ET*, no other asset classes were significantly different. Pearson chi-square tests with the *OTHER* category were not possible due to too many values.

Considering the unavailability in detailed asset data, we make two inferences from the relatively high average superannuation balances of *SET*s compared with *ET*s. First, *SET*s may have been employed previously and have thus accumulated some superannuation through their employment. Second, *SET*s are making voluntary contributions to superannuation, which may be through self-managed-super funds (SMSF). Given the 25 per cent growth in SMSFs in Australia since June 1994 to 2012, this is likely (Australian Prudential Regulation Authority, 2012). Assets held in SMSFs enjoy the same tax advantaged status as mainstream superannuation funds. Unfortunately, HILDA data does not provide disaggregated asset ownership data to provide more insight, and this is an avenue for future research. Figure 4.1 provides a graphical comparison of the participation rates and mean asset values between *SET* and *ET*.

Table 4.2: Participation rates and mean balances for each asset class, aged 45-64

		Self-Employed Tradespeople (SET)			*Employed Tradespeople (ET)*			*OTHER*		
Financial Assets	*Description*	*Participation Rate*	*Mean and (SD) ($)*	*Portfolio Share*	*Participation Rate*	*Mean and (SD) ($)*	*Portfolio Share*	*Participation Rate*	*Mean and (SD) ($)*	*Portfolio Share*
Bank Accounts (BNK)	Own, joint and children bank accounts	98.57%	39,331	5.44%	98.65%	25,731	6.66%	98.61%	35,135	6.59%
			(108,148)			(64,383)			(93,267)	
Cash Investments (CSH)	Bonds, debentures and certificates of deposit	0.71%	52,249	0.10%	0.00%	22,275	0.06%	1.28%	111,027	0.11%
			(66,082)			(27,270)			(186,095)	
Equity Investments (EQT)	Shares, managed funds and property trusts	45.71%	82,685	1.95%	35.81%	74,957	1.50%	39.39%	87,348	2.54%
			(327,315)			(341,088)			(300,606)	
Superannuation (SPR)	Includes retiree and non-retiree superannuation	91.43%	140,552	14.55%	96.62%	292,785	27.93%	97.88%	188,351	26.29%
			(305,717)			(247,091)			(324,603)	
Life Insurance (LFI)	Includes the cash-in value of redeemable insurance policies. Excludes policies only payable on death	9.29%	172,921	1.42%	12.84%	174,340	1.23%	8.16%	160,184	1.11%
			(359,728)			(409,107)			(331,347)	
Trust Funds (TST)	Total share of household wealth in trust fund	5.00%	213,661	0.51%	2.03%	315,282	0.34%	4.28%	330,411	0.59%
			(506,823)			(631,718)			(686,032)	
Family home (HOM)	Household share of the current value of main home	83.57%	579,117	43.78%	78.38%	488,928	37.40%	70.07%	589,570	39.68%
			(482,613)			(400,865)			(437,470)	
Other Property Assets (OPR)	Household share of current value of other property	41.43%	642,225	11.05%	32.43%	544,774	8.93%	26.91%	618,416	9.38%
			(945,697)			(650,027)			(748,662)	
Business Assets (BUS)	Business/farm assets owed by the household.	57.14%	288,376	10.28%	6.08%	200,556	1.74%	16.88%	397,791	3.37%
			(714,260)			(593,231)			(856,198)	
Vehicles (VEH)	Includes transport and recreational vehicles	97.86%	46,951	10.19%	99.32%	33,151	13.49%	95.30%	33,588	9.58%
			(58,986)			(38,505)			(47,074)	
Collectibles (COL)	Antiques, collectibles	17.86%	37,103	0.71%	10.14%	20,232	0.71%	1.50%	26,450	0.76%
			(90,390)			(48,234)			(59,624)	

Figure 4.1 Participation rates and average balances of asset classes (SET vs ET).



The results of the logit regressions are presented in Table 4.3. Model testing showed that the panel data specification is more suitable than a pooled data model (Wald $\chi 2$), and that the random effects specification is appropriate as the Breusch and Pagan Lagrangian multiplier (BPλ) rejects the null hypothesis of homescedasticity, as it confirms the independent variables are jointly significant. We report only on the significant coefficients.

First and unsurprisingly, with a high level of statistical significance, the results show that *SET*s are very likely to hold business assets (3.358), followed by other property (OPR) with a 61.1 per cent likelihood. However, *SET*s are very unlikely to have superannuation accounts (-0.948). In contrast, *ET*s are much more likely to have superannuation accounts (1.897) and vehicles (1.113), and less likely to have businesses (-0.815).

We draw together the regression results and descriptive statistics to provide three insights into the retired preparedness of *SET*s. First, we confirm our hypothesis that *SET*s have lower superannuation balances and are less likely to hold these accounts compared with *ET*s due to SGC exclusion. However, *SET*s have navigated this challenge by finding alternative investments. *SET*s have higher levels of wealth invested in their own businesses (BUS), family homes (HOM), other property (OPR) and equities (EQT). We conclude they are making preparations for retirement outside of SGC, but note that much of *SET* wealth is concentrated in risky assets, such as their own business and equities. *SET*s may rely on the sale of their business to support consumption in retirement. The wealth data illustrates that perhaps *SET*s diversify this risk by investment in the property market (family home and other property). As OPR was significant in the regression analysis we confirm our original inference that tradespeople are more likely to invest in other property due to familiarity with construction and the property market. Interviews with *SET*s may uncover the intentions and motivations behind these financial decisions more clearly and provide an opportunity for future research.

Table 4.3: Odds ratios and standard errors for the random effects logit models on asset ownership

	BNK	*CSH*	*EQT*	*SPR*	*LFI*	*TST*	*HOM*	*OPR*	*BUS*	*VEH*	*COL*
SET	0.090	0.330	0.092	-0.948	0.061	0.200	0.556	0.611	3.358	-0.298	0.131
	-0.200	-0.870	-0.440	(2.95)**	-0.270	-0.700	-1.790	(3.22)**	(16.18)**	-0.710	-0.690
ET	0.428	-1.219	-0.360	1.897	0.167	-0.144	-0.146	0.311	-0.815	1.113	-0.277
	-0.900	-1.610	-1.840	(3.31)**	-0.750	-0.440	-0.560	-1.690	(3.29)**	(2.16)*	-1.410
AGE	0.028	0.046	-0.038	-0.073	-0.041	-0.045	0.062	-0.009	-0.061	0.063	-0.007
	(2.24)*	(3.61)**	(6.07)**	(7.55)**	(5.51)**	(4.73)**	(7.42)**	-1.450	(8.81)**	(5.58)**	-1.270
FEM	0.324	-0.086	0.094	0.272	-0.157	0.048	0.495	0.210	-0.145	-0.116	0.065
	(2.10)*	-0.580	-1.080	(2.08)*	-1.670	-0.410	(4.07)**	(2.61)**	-1.580	-0.770	-0.880
CPL	-1.515	0.153	0.151	-0.857	0.051	-0.373	-0.906	0.392	-0.081	-1.332	0.534
	(7.26)**	-0.930	-1.770	(5.44)**	-0.530	(2.86)**	(7.24)**	(4.87)**	-0.880	(6.68)**	(6.82)**
LNP	-3.100	0.091	-0.934	-2.886	-0.777	-0.974	-3.666	-0.509	-1.050	-4.130	0.228
	(14.08)**	-0.400	(8.09)**	(15.96)**	(5.34)**	(4.48)**	(22.75)**	(4.52)**	(7.50)**	(15.72)**	(2.23)*
LPC	-1.167	-0.147	-1.088	-2.640	-1.004	-0.400	-2.589	-0.846	-1.769	-3.028	-0.243
	(4.21)**	-0.520	(8.61)**	(14.37)**	(5.97)**	-1.950	(16.43)**	(6.66)**	(10.20)**	(12.60)**	(2.06)*
MFO	-1.570	0.360	-0.959	-1.826	-0.381	-0.922	-4.118	-0.296	-0.267	-3.174	0.495
	(3.54)**	-0.720	(3.64)**	(5.62)**	-1.190	-1.690	(12.82)**	-1.140	-0.900	(8.47)**	(2.18)*
VOC	-0.112	0.083	0.152	0.757	-0.131	-0.153	0.476	0.242	0.084	0.500	0.333
	-0.670	-0.480	-1.640	(5.48)**	-1.280	-1.130	(3.77)**	(2.76)**	-0.850	(3.02)**	(4.07)**
DEG	0.050	0.335	0.675	1.582	-0.172	0.034	0.555	0.507	-0.231	0.094	0.778
	-0.240	-1.840	(6.26)**	(7.59)**	-1.490	-0.240	(3.60)**	(5.18)**	(2.04)*	-0.500	(8.56)**
INC1	-0.833	0.644	-0.455	-3.711	-0.080	-0.272	-0.646	-0.582	0.054	-1.016	-0.036
	(4.24)**	(3.30)**	(4.83)**	(18.46)**	-0.720	-1.780	(4.98)**	(6.28)**	-0.530	(5.87)**	-0.410
INC2	-0.482	0.449	-0.319	-1.772	0.087	-0.129	-0.345	-0.359	0.078	-0.322	-0.031
	(2.66)**	(2.58)**	(4.14)**	(9.36)**	-0.950	-1.030	(3.15)**	(4.77)**	-0.910	(2.05)*	-0.410
INC4	-0.140	-0.085	0.073	-0.802	-0.322	0.251	-0.157	0.106	-0.078	-0.179	0.049
	-0.550	-0.390	-0.720	(2.78)**	(2.73)**	-1.860	-1.000	-1.130	-0.720	-0.820	-0.520
NW1	0.132	-0.727	-1.200	-0.789	-0.726	-0.766	-2.093	-1.320	-1.112	-0.106	-0.189
	-0.830	(4.13)**	(16.48)**	(6.16)**	(8.07)**	(5.56)**	(19.51)**	(18.10)**	(12.96)**	-0.760	(2.68)**
NW3	0.461	0.641	1.180	0.879	0.482	0.909	1.172	1.010	0.328	0.726	0.104
	-1.600	(3.37)**	(11.87)**	(3.29)**	(4.41)**	(6.22)**	(6.02)**	(11.12)**	(3.10)**	(2.77)**	-1.090
NW4	-0.094	0.787	1.445	0.611	0.778	2.021	1.897	1.918	1.446	-0.090	0.212
	-0.360	(4.12)**	(13.46)**	(2.29)*	(6.92)**	(14.53)**	(8.20)**	(19.08)**	(13.52)**	-0.380	(2.19)*
CONS	5.822	-8.161	1.501	11.348	-1.138	-2.444	1.988	-1.298	0.465	4.773	-2.733
	(8.70)**	(11.72)**	(4.74)**	(19.29)**	(3.15)**	(5.05)**	(4.69)**	(4.34)**	-1.350	(8.11)**	(9.43)**
Insig2u	1.410	1.172	2.124	1.889	1.692	1.419	2.675	1.746	1.872	2.212	1.251
	(8.87)**	(6.53)**	(38.27)**	(19.53)**	(22.63)**	(13.04)**	(44.69)**	(30.61)**	(29.49)**	(15.96)**	(18.15)**
N	19,177	19,177	19,177	19,177	19,177	19,177	19,177	19,177	19,177	19,177	19,177
lnLR	-181.35	-135.62	-1,452.36	-400.01	-434.80	-778.59	-1,323.60	-1,316.45	-1,161.59	-368.87	-1,025.18
Wald $\chi 2$	61.200	33.560	312.680	109.400	120.770	110.510	674.470	426.010	834.490	91.300	33.800
	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019
McFadden pseudo-R2	0.036	0.024	0.125	0.093	0.081	0.053	0.165	0.097	0.104	0.115	0.057
Cox and Snell pseudo-R2	-0.287	-0.278	-4.293	-0.693	-1.571	-0.626	-2.155	-3.302	-2.206	-0.617	-2.364

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

5. Discussion

The goal of this study was to understand the retirement savings of self-employed tradespeople in the absence of compulsory superannuation contributions. This is important to policymakers because the lack of SGC coverage may disadvantage some cohorts and put strain on the public purse. Self-employed tradespeople face similar issues to that of people in the 'gig' economy, and on an aggregate level the financial implications for government can be extensive when people do not have access to retirement savings, sick leave, holiday leave, long service and other workplace entitlements taken for granted.

The results demonstrated that financial decisions were distinctly different between self-employed tradespeople and employed tradespeople. We found that the SGC exclusion for self-employed tradespeople was evident from the data, with the regression results showing they are highly unlikely to hold superannuation accounts. The low average superannuation balances shown in the descriptive statistics confirm prior research findings (ASFA 2017).

Instead of superannuation, self-employed tradespeople had higher likelihoods of investing more money in business assets and other property. We consider these asset classes as likely alternatives for SGC as retirement savings products. Self-employed tradespeople are therefore vulnerable to market conditions, regulatory change and taxation policy change regarding both their business and property assets. Furthermore, self-employed tradespeople may charge higher hourly wages than are paid to employed tradespeople, commensurate with risk assumed and missed entitlements. In addition to superannuation, self-employed tradespeople are excluded from annual leave, sick leave and redundancy payments (CFMEU 2011). Moreover, higher wages paid during the construction process contribute to increasing construction costs, which in turn feed into higher property prices (Kohler and van der Merwe 2015). Thus, this issue should be monitored and the wider impacts of SGC exclusion should be carefully considered by policymakers.

Suggestions for future research include investigation into the financial decision-making of cohorts also excluded from compulsory superannuation due to self-employment, like Uber drivers, Airbnb and other participants in the 'gig' economy. For self-employed tradespeople, interviews and focus groups on financial risk-taking would provide a more in-depth investigation into the vulnerabilities associated with this cohort and help inform public policymakers. Further investigation can also be achieved through use of other data sets, such as the recently available Australian Longitudinal Individuals File (Alife) by the Australian Tax Office.

Finally, in the context of the OECD nations, Australians are relatively wealthy and the self-employed tradesperson cohort in particular is not a cohort facing dire financial circumstances. Australia has the fourth highest mean net wealth when superannuation is excluded of the twenty-eight OECD states, behind that of Great Britain, USA and Luxembourg. When superannuation is included, Australia has the fifth highest mean net wealth, with Canada coming fourth place. While many Australians maintain a relatively good standard of living, over the last nine years household savings rates have steadily declined, from 8.87 per cent of disposable income

in 2008 to 3.51 per cent in 2017 (OECD, 2019). Similar declines have been observed in Canada, the United Kingdom, New Zealand, Portugal, Lithuania and Greece. Consequently, public policies like the superannuation guarantee scheme are necessary to provide households with a long-term investment and a safety net to provide a modest lifestyle in retirement. Given declining savings rates and the changing nature of work, reviews and analysis of superannuation efficiency and effectiveness is timely.

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