Gender Comparisons of Asset and Debt Portfolios in Australia

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Abstract: This paper aims to address the gap in the evidence on gender differences in asset and debt holdings by comparing the level of net worth of single women and single men in Australia, and their asset portfolio composition. The findings reveal important gender differences in the level of net worth, especially at the top end of the wealth distribution. Using quantile regression models, we identify that the "route" to high net worth by single women is typically a longer one than it is for single men – in that single women with high net worth are, on average, older than their male counterparts – and the achievement of high net worth by single women is much more heavily dependent on inheritance through widowhood than it is for single men. These findings carry the important implication that there are important gender differences in the ability to independently achieve high levels of wealth in Australia, and single women's ability to achieve comparable levels of wealth to their male counterparts at each life stage is limited. Furthermore, our findings on asset portfolio composition reveal that single women's asset portfolios tend to be less diversified than single men; asset portfolios are least diversified among single women aged 65 years or over, reflecting the concentration of wealth held in the primary home among these households.

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1. Introduction

Asset accumulation is widely acknowledged in theoretical and empirical literature to be one cornerstone of economic and social well-being, with current income being another. The capacity to access both debt and assets is an important mechanism for smoothing consumption across the life-cycle and providing a buffer against life's emergencies. Assets can also generate current services such as accommodation, contribute income such as rent, interest and dividends, provide collateral when credit is required, be converted to cash to support current consumption, and satisfy our motivations to leave a bequest (Deere and Doss 2006). Wealth is one factor, which combined with income and consumption, determines the medium to long term risk of poverty (Headey 2008). As noted by Denton and Boos (2007:106), "beyond income, wealth is also an important measure of economic well-being, because while income captures the current state of inequality, wealth has the potential for examining accumulated and historically structured inequality."

Although gendered analysis of asset and debt portfolios is an important part of inquiry into the sources and dimensions of economic well-being across the life-cycle, there have been no comprehensive investigations of this nature in Australia. To date, gender analyses of wealth have focused on particular types of assets. Several studies have identified how the nation's compulsory pension contribution scheme is highly gendered in its impacts (see Jefferson 2005; 2009). Smith (1990) contributed a study of the links between housing wealth, income, and gender. Other Australian studies have identified gender differences in the distribution of assets on divorce (Sheehan and Hughes 2001; Sheehan, Chrzanowski and Dewar 2008). However, a recent 50-page literature review by Deere and Doss (2006) examining the available international literature on the distribution of wealth by gender uncovered only one Australian paper.[1]

This paper aims to address this important gap in the evidence on Australian women's economic well-being by using a large nationally representative survey with a special wealth module. A gender analysis is provided by comparing the level of net worth of single women and single men in Australia, and their asset portfolio composition. The findings reveal important gender differences in the level of net worth, which is defined as the net balance of total assets less total debt. The gender difference in net worth is especially evident at the top end of the wealth distribution; this parallels findings on gendered wage patterns (Miller 2005; Kee 2006). Through our analysis, we identify that the "route" to high net worth by single women is typically a longer one than it is for single men – in that single women with high wealth are, on average, older than their male counterparts – and the achievement of high net worth by single women is much more heavily dependent on inheritance through widowhood than it is for single men. These findings carry the important implication that there are important gender differences in the ability to independently achieve high levels of wealth in Australia, and single women's ability to achieve comparable levels of wealth to their male counterparts at each life stage is limited. Our findings also demonstrate the consequences of women's relatively low rates of workforce participation; their greater involvement in paid work than men; and their relatively low average wage rates for their ability to accumulate wealth. Finally, our findings on asset portfolio composition reveal that single women's asset portfolios tend to be less diversified than single men; asset portfolios are least diversified among single women aged 65 years or over, reflecting the concentration of wealth held in the primary home among these households.

[1] The paper in question is Shaver (2001) which highlighted the lack of superannuation coverage among women.

The paper is structured as follows. Section 2 provides an overview of the data and discusses the sample frame and unit of analysis. Section 3 presents some descriptive statistics in socio-economic characteristics by gender, followed by an analysis of differences in the asset and debt portfolios of single women and men in section 4. Section 5 uses regression analysis to highlight the relative importance of various socio-economic characteristics associated with differences in net worth and asset portfolio composition. Section 6 concludes with a summary of key findings, policy implications and directions for future research.

2. Data and sample

The data used in this investigation are taken from the 2006 Household, Income and Labour Dynamics in Australia (HILDA) survey, which is a nationally representative survey. Although the survey is designed to be longitudinal, we analyse cross-sectional data from a single wave of this survey (wave 6, conducted in 2006) because it contained a special wealth module relevant to the assets and debt held by survey participants.

A wide range of 'asset' categories were measured in the 2006 HILDA survey, including wealth stored in the primary home, other property, superannuation, business, equity and cash investments, bank accounts, trust funds, cash redeemable life insurance, vehicles and collectibles. The survey also measured a range of 'debt' categories, including debt secured against the primary home, other property, business, credit card and Australia's tertiary education loan scheme, the Higher Education Contribution Scheme (HECS). As mentioned previously, 'net worth' is used to describe the net balance of total assets less total debt.

Because asset and debt data is collected in the HILDA survey from households rather than individuals it is only possible to conduct a gender analysis of differences in household wealth between two categories of household: single female-headed households (SFHs) and single male headed households (SMHs).[2] The household sample is restricted to households where all adults are responding interviewees to the HILDA survey and the oldest member of the household is aged 25 years or over. Furthermore, across both household types our sample is limited to households comprising one income unit only. An income unit is a group of persons who share income. In contrast, a household is a group of people living in the same dwelling and it can be made up of multiple income units. For example, a single young full-time employed adult could be still living in the same house as his parents. He would be classified as a separate income unit from his parents as he has an independent source of income and his and his parent's household would be classified as a multiple income unit household. It and other multiple income unit households (approximately 15 percent of all households) are excluded from our sample on the grounds that it is not possible to identify who owns household assets in these household types. However, we do acknowledge that the exclusion of these households does limit our ability to provide insights to the level and patterns of wealth of the significant number of especially young women and men who share a household with others.

[2] The collection of data on a household basis makes it difficult to attribute the ownership of assets and debt to different household members in couple households. This is an important limitation of our study as intrahousehold allocations have long been recognised as important determinants of women's economic well-being (Browning 2000; Lundberg, Starz and Stillman 2003).

Applying these sample framing rules gives us a final sample of 1,926 households, distributed across the two household types: SMHs (773 units) and SFHs (1,153 units). In the following analysis we also divide households into three broad age groups: younger (25-44 years); middle (45-64 years); and older (65 years or over) groups. The age categories have been chosen to examine patterns of asset and debt accumulation over broad stages the life cycle by focusing on the younger years in which many households have dependent children, the middle years in which fewer households have dependent children and may be planning for retirement, and older years in which asset divestment may be a more common occurrence.

3. Socio-economic characteristics by gender, household type and age band

As is shown in Table 1, there are important socio-economic differences across the household types within the same age categories. Marital history is an obvious defining characteristic of the household types in our study. The data in Table 1 show that SFHs are more likely to be widows than SMHs. Over one-third of SFHs are widows compared to 13 percent of SMHs. This is because females have longer life expectancies and thus are more likely to outlive their male partners. On the other hand, just under half of SMHs are never married, compared to around one-quarter of SFHs. These gender patterns persist across all age groups, though it is clear that among both SFHs and SMHs, the likelihood of separation and divorce peaks in mid-life and widowhood occurs in later life. These life cycle events underscore the importance of conducting asset and debt portfolio analysis by age groups.

There are large differences between SFH and SMH households with regards the presence of children. Child care responsibilities in Australia are commonly associated with part-time work and households with high child care obligations are likely to be restricted in their ability to accumulate assets. The presence of children may also affect their need to access debt. The data on younger households in Table 1 shows that the incidence of children of all age groups is higher among SFHs than SMHs. However, among mid age households, SMHs are more likely to have children aged under 25 years. However, it remains that SFHs are more likely to have adult children aged 25 years or over. It is not surprising to find that few elderly age household types have dependent children.

There are also important differences in household earnings between the household types that are likely to have a bearing on their ability to accumulate wealth. The household earnings distribution is divided into four segments divided by the following earnings thresholds: $0, $33,000 and $74,000. $33,000 represents the median earnings among all households in Australia; $74,000 represents the 75th percentile earnings among all households in Australia. Table 1 shows that almost 60 percent of SFHs having zero earnings, and just under 4 percent having earnings in excess of $74,000; in comparison 43 percent of SMHs have zero earnings, and over 10 percent earn more than $74,000.

A similar gender pattern exists with respect to the proportion of time that SFHs and SMHs have spent in paid work since leaving full-time education. One-fifth of SFHs have spent up to 25 percent of their time in paid work; a proportion that is substantially higher than the 5 percent of SMHs. On the other hand, 39 percent of SFHs have spent more than 75 percent of their time in paid work; a significantly lower proportion than the 71 percent observed among SMHs. This pattern is evident across all age groups, though the older age group appears to have spent a lower proportion of time in paid work than younger and mid age households.

Given their earnings characteristics and paid work history, it is perhaps surprising to find that younger SFHs are more likely to be university educated than SMHs, a characteristic that persists in middle and older households. Younger SMHs, in comparison are more likely to have other post-school qualifications such as diploma or certificate qualifications. This discrepancy could reflect the influence of a number of factors, such as the relatively high rewards to men with vocational education qualifications in Australia and the prevalence of part-time work among Australian women across qualification levels. However, it is notable that SFHs are also more likely to have no post-school qualifications than SMHs.

Table 1:Socio-economic characteristics of Australian single households, by household type and age band, 2006, percent by column

Characteristics	All age bands		25-44 years		45-64 years		65 years or over	
	SFH	SMH	SFH	SMH	SFH	SMH	SFH	SMH
N	1153	773	320	313	385	286	448	174
Marital status								
Separated	10.6	13.7	14.4	11.5	16.4	16.4	2.9	13.2
Divorced	27.1	28.5	26.9	15.7	43.9	48.3	12.9	19.0
Widowed	37.6	12.9	2.8	.3	18.7	4.2	78.6	50.0
Single never married	24.7	44.9	55.9	72.5	21.0	31.1	5.6	17.8
Presence of children								
Has children 0-14 years	18.8	19.5	50.6	31.3	13.5	17.5	0.7	1.7
Has children 15-24 years	14.7	18.0	20.0	9.6	27.5	35.7	0.0	4.0
Has children 25+ years	53.2	29.8	1.3	0.3	56.6	35.3	87.3	73.6
Annual earnings [a]								
E = \$0	58.4	43.0	26.6	14.1	39.7	45.5	97.1	93.1
\$0 < E <= \$33,000	15.7	12.2	28.4	16.9	21.6	12.2	1.6	3.4
\$33,000 < E <= \$74,000	22.3	34.0	38.1	54.6	33.5	30.8	1.3	2.3
E > \$74,000	3.6	10.3	6.9	14.4	5.2	11.5	0.0	1.1
Percent of time in paid work left full-time education [c]								
0 < T_w <= 25	19.4	4.7	11.6	5.4	9.9	5.6	33.3	1.7
25 < T_w <= 50	16.5	3.6	14.1	2.6	8.6	3.8	25.0	5.2
50 < T_w <= 75	25.2	20.8	21.3	16.0	26.8	14.0	26.8	40.8
75 <T_w <= 100	38.9	70.9	53.1	76.0	54.8	76.6	15.0	52.3
Qualification								
Bachelor degree or higher	21.2	17.3	29.1	22.0	28.8	18.5	9.2	6.9
Other post-school qualification	23.9	41.4	33.4	43.8	27.3	39.9	14.3	39.7
Year 12 or under	54.8	41.3	37.5	34.2	43.9	41.6	76.6	53.4

Source: Authors' own calculations from the confidentialised unit record files of the 2006 HILDA Survey
Notes:

a. \$33,000 represents median household earnings (E), while \$74,000 represents the earnings at the 75th percentile of all households in Australia (including couple households).
b. T_w refers to the proportion of time in paid work.

4. Asset and debt portfolios by gender and age band

4.1 Level and composition of average asset and debt portfolios

The different socio - economic characteristics of single female and single male households also have implications for the size and composition of the two groups' asset and debt portfolios. This is shown in the data in Table 2, which profiles the typical asset and debt portfolios of SFHs and SMHs.

Table 2 is divided into three broad sections. The left columns report the average Australian dollar value (in thousands) of each asset and debt type for each household type. In the centre columns, for each household type, the average dollar value of each asset (debt) type is

expressed as a proportion of total assets (total debt). These columns show the typical composition of these households' asset and debt portfolios and indicate which asset and debt categories dominate these portfolios. The columns on the right hand side show the proportion of households within each household type that have some level of ownership of each asset (debt) type. It provides an indication of how Australians in each household type store their wealth and incur debt. Finally, for each household type and age category, average net worth and the Herfindahl index are reported. The latter is a measure of the diversification in asset portfolios. It equals the sum of the squared values of each asset's share in the total asset portfolio. The index ranges from 0 to 1, with higher values indicating less diversified asset portfolios.

The figures in Table 2 show that, on average, the net worth of SFHs is lower, at $365,900, than the average net worth of SMHs, at $398,000. As might be expected, average net worth varies considerably between age categories. Younger households have the lowest net worth, with SFH holding an average of $163,000, which is approximately two-thirds of the average net worth of SMHs at $248,200. The relative net worth of SFHs in the middle age group exceeds that of SMHs, $501,900 compared with $467,200. In older households the pattern of relatively higher net worth among SMH's reemerges with older SFHs net worth (at $393,900 on average) approximately 70 percent of that held by SMHs (at $553,700 on average).

The data in Table 2 also demonstrate the importance of the primary home in the asset portfolios of SFHs. At $221,600, the average value of the primary home among all SFHs is almost 30 percent above the average value of primary homes held by SMHs ($174,000). Reflecting this, the average proportion of total assets represented by the primary home is 55 percent for SFHs, as compared to around 38 percent for SMHs. The relatively high proportion of assets held in the form of the primary home for SFHs compared with SMHs, and their relatively high estimated dollar value, is apparent for both younger and middle age categories. For older households, the dollar value of the primary home is similar among SFHs and SMHs, although it represents a smaller proportion of asset holdings for SMHs due to their relatively larger holdings of other assets.

Across all SFHs, the concentration of assets in the form of the primary home is due, in part, to the relatively low value of their other assets, particularly superannuation and financial instruments. Only 52 percent of SFHs have superannuation assets, compared to 70 percent of SMHs. On average, superannuation accounts for only 11 percent and financial instruments 13 percent of the assets of SFHs, whilst in SMHs they comprise 17 and 20 percent of assets respectively. The gender gap in ownership rates of superannuation assets are particularly pronounced among younger and older single households. In the younger group this might reflect the limited access to employer superannuation of younger part-time workers, while in the older group it might be linked to the limited workforce participation of older women. The gender gap in the value of financial instruments held by single households persists across all age groups but is largest in the younger age group. Here the value of financial instruments held by SFHs is, on average, half that held by SMHs. The gender difference is even more pronounced in relation to business assets. On average these comprise 3 percent of the assets of SFHs, compared to almost over 9 percent of the assets of SMHs.

In total, the figures in Table 2 indicate that the asset portfolios of SMHs are more diversified than those of the typical SFH. This is also reflected in the Herfindahl index. As shown in Table 2, it is lower (indicating a relatively high level of diversity) at 0.61 for SMHs as compared to 0.70 for SFHs. The highest value on the Herfindahl index that is recorded in

specific age categories is that for older SFHs, with an index of 0.75, reflecting the concentration of wealth held in the primary home among these households.

Different household categories also show different patterns of debt. Primary home debt as a proportion of total debt is markedly higher in SFHs (at 65 percent) than in SMHs (45 percent). This is a feature of debt patterns across all age groups with debt related to the primary home comprising, on average, 70, 61 and 66 percent of the debt portfolios of younger, middle and older SFHs respectively. In comparison, debt on the primary home among younger, middle and older SMHs represents, on average, 59, 40 and 2 percent of their respective debt portfolios. The relatively high dollar values of debt held by middle and older SMHs appears to be related to higher debt levels associated with “other property” and “other debt”, which, given SMHs’ relatively high holdings of financial instruments, may include investment loans.

Table 2: Asset and debt profile of Australian households, by household type and age band, 2006

Asset/debt type		Mean ($ '000)		Percent of asset/debt		Percent of household type that owns asset/debt[b]	
		SFH	SMH	SFH	SMH	SFH	SMH
All age bands							
Asset:	Primary home	221.6	174.0	54.7	37.9	60.3	51.4
	Other property	63.4	57.7	15.7	12.6	11.4	13.5
	Superannuation	43.5	75.5	10.7	16.5	52.3	69.6
	Business	13.3	43.1	3.3	9.4	3.6	8.5
	Financial instruments[a]	51.1	91.5	12.6	19.9	97.5	95.0
	Total assets[c]	404.9	458.9	100.0	100.0	99.3	99.4
Debt :	Primary home	25.5	27.7	65.2	45.4	21.8	21.5
	Other property	8.0	16.9	20.4	27.7	5.2	7.6
	Business	1.1	4.6	2.7	7.6	1.1	3.2
	Other[d]	4.6	11.7	11.7	19.3	36.9	38.9
	Total debt	39.1	61.0	100.0	100.0	48.4	54.3
Net worth:		365.9	398.0				
Herfindahl index:		0.70	0.61				
25-44 years							
Asset:	Primary home	134.5	107.0	58.4	33.4	40.9	33.2
	Other property	31.7	37.7	13.8	11.8	11.9	11.5
	Superannuation	32.1	49.6	13.9	15.5	82.2	92.0
	Business	4.0	47.2	1.7	14.7	6.3	8.9
	Financial instruments[a]	17.2	62.2	7.5	19.4	98.8	94.2
	Total assets[c]	230.2	320.1	100.0	100.0	100.0	99.7
Debt :	Primary home	46.9	42.2	69.7	58.7	33.4	26.8
	Other property	12.2	12.5	18.2	17.3	7.8	8.3
	Business	1.5	6.0	2.2	8.4	1.3	5.1
	Other[d]	6.7	11.2	9.9	15.6	60.0	57.2
	Total debt	67.2	71.9	100.0	100.0	76.6	74.8
Net worth:		163.0	248.2				
Herfindahl index:		0.65	0.60				
45-64 years							
Asset:	Primary home	269.3	199.2	48.1	37.1	64.9	57.3
	Other property	108.6	81.7	19.4	15.2	16.9	18.5
	Superannuation	87.3	114.6	15.6	21.3	75.6	72.7
	Business	22.9	41.5	4.1	7.7	4.7	11.2
	Financial instruments[a]	55.3	82.1	9.9	15.3	95.1	94.1
	Total assets[c]	559.7	537.4	100.0	100.0	99.0	99.3
Debt :	Primary home	35.1	28.3	60.7	40.3	33.2	26.6
	Other property	13.2	20.7	22.9	29.5	8.3	10.1
	Business	1.8	6.0	3.1	8.5	1.8	3.1
	Other[d]	7.7	15.2	13.3	21.6	47.3	37.4
	Total debt	57.8	70.2	100.0	100.0	64.9	56.3
Net worth:		501.9	467.2				
Herfindahl index:		0.65	0.60				
65 years or over							
Asset:	Primary home	242.8	253.3	61.2	43.7	70.1	74.1
	Other property	47.3	54.2	11.9	9.4	6.5	8.6
	Superannuation	14.1	57.9	3.5	10.0	10.9	24.1
	Business	11.7	38.3	3.0	6.6	0.9	3.4
	Financial instruments[a]	71.7	159.6	18.1	27.5	98.7	97.7
	Total assets[c]	396.7	579.7	100.0	100.0	99.1	98.9
Debt:	Primary home	1.9	0.6	66.2	2.2	3.6	3.4
	Other property	0.4	18.4	14.3	70.7	0.7	2.3
	Business	0.1	0.0	5.2	0.0	0.4	0.0
	Other[d]	0.4	7.1	14.3	27.1	11.4	8.6
	Total debt	2.8	26.1	100.0	100.0	14.1	14.4
Net worth:		393.9	553.7				
Herfindahl index:		0.75	0.65				

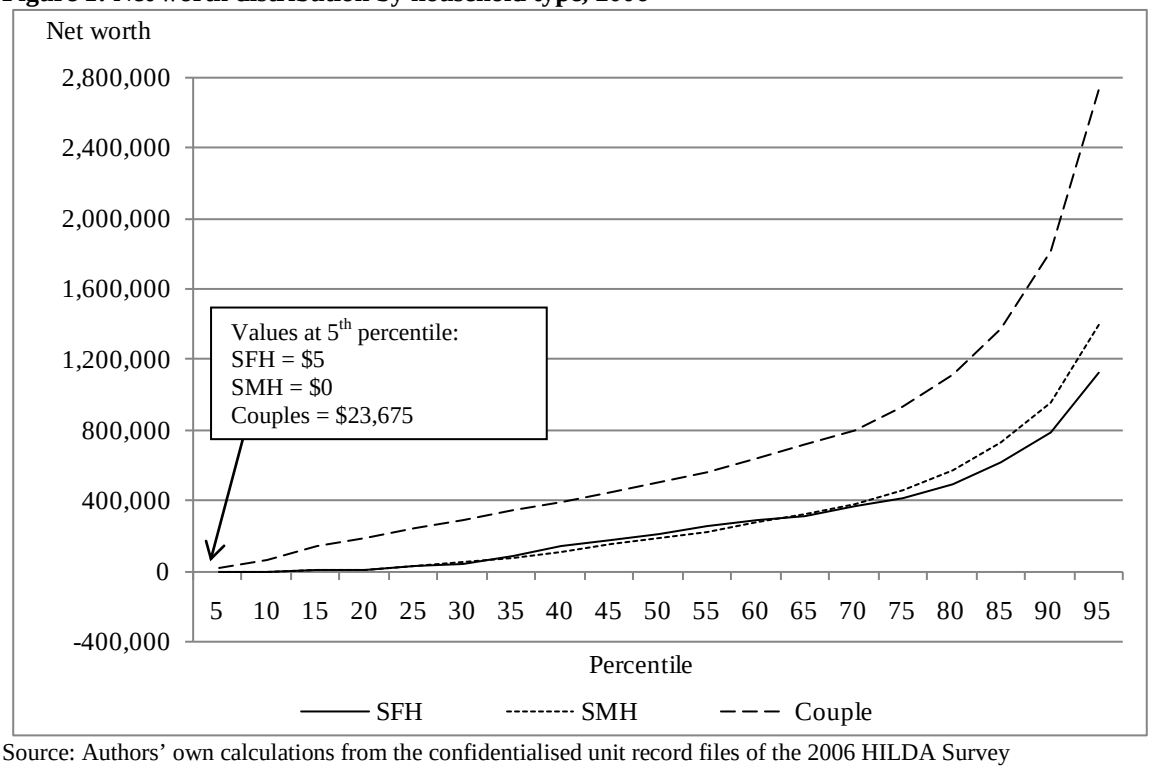
Source: Authors' own calculations from the confidentialised unit record files of the 2006 HILDA Survey
Notes:

a. Financial instruments comprise equity investments, cash investments, bank accounts, trust funds and redeemable life insurance.
b. The proportion of households owning financial instruments 100%. This is because most households own bank accounts.
c. This is the sum of wealth stored in the primary home, other property, superannuation, business, financial instruments, vehicles and collectibles. The value of vehicles and collectibles combined comprise only around 3.5% of average asset values and so are not reported separately in the table.
d. Other debt is the sum of credit card loans, HECS loans, car loans, hire purchase agreements, investment loans, personal loans from a bank/financial institution, loans from other lenders, loans from friends/relatives and overdue personal bills.

4.2 Distribution of net worth

The information in Table 2 raises some immediate questions about the pattern of assets, debt and net worth across Australian households. The first concerns the degree of inequality in the distribution of net worth and the 'location' of the gender gap in net worth: are the average values reported in the table derived from an equal or unequal distribution of net worth and does is gap in net worth between SFHs and SMHs associated with low and high net worth households? To address these questions we generated the net worth distribution of SFHs, SMHs and couple households, as shown in Figure 1. In line with the results of Schmidt and Sevak's (2006) United States study we find that net worth is characterized by a very unequal distribution. Furthermore, the gap in net worth between SMHs and SFHs is only prevalent among households with relatively high net worth.

Figure 1: Net worth distribution by household type, 2006



Source: Authors' own calculations from the confidentialised unit record files of the 2006 HILDA Survey

5. Regression analysis

In this section, regression analysis is performed to investigate the relative importance of socio-economic characteristics in the level of net worth of single headed households. Given the pattern of gender difference indicated in Figure 1, our analysis focuses on the differences

in net worth of single headed households at the top of the wealth distribution and addresses the question of what factors contribute to this difference. To enable this we estimate quantile regression models separately for SFHs and SMHs at the 25th, 50th and 75th percentiles of each household type's net worth distribution in order to produce a vector of coefficients for each of these percentiles.[3]

We estimate net worth as a function of observable socio-economic characteristics defined algebraically as follows:
$NW = f(D, H, I)$
where
NW = net worth
D = demographic characteristics
H = human capital characteristics
I = proxies for asset inheritance

The dependent variable *NW* represents net worth of the household expressed in hundreds of thousands of dollars and it is a function of vectors that describe demographic and human capital characteristic and propensity to receive asset inheritance.

The vector *D* comprises variables that represent marital history, age, ethnicity, presence of children, disability and location. We identify SFHs and SMHs that have undergone household dissolution to estimate the impact of the loss of a partner through separation, divorce or widowhood on net worth. Both age and age squared are entered into the regression to reflect asset accumulation then divestment over the life course. Following Headey, Marks and Wooden (2005), we hypothesize that households are wealthier if from an English-speaking background than if from non-English speaking backgrounds. If the life cycle hypothesis of wealth accumulation holds, then the presence of younger children may have a negative impact on household net worth and parents' tap into their savings in order to meet expenditure associated with child-raising, while the presence of adult children should be correlated with greater wealth holdings, possibly due to bequest motives. The presence of a disability in the household is expected to lower the rate of wealth accumulation by household members and this is accounted for in the regression. Using a binary variable representing residence in major city, we account for any variations in net worth that may be associated with geographic location.

Human capital characteristics (*H*) such as earnings, labour market history and educational qualifications are expected to be strongly correlated with households' ability to accumulate assets during their working years. We expect that higher earnings and qualifications, and longer time spent in paid work, would be associated with higher rates of wealth accumulation.

We also include a set of variables designed to proxy for the propensity to inherit assets (*I*). The first proxy for asset inheritance is whether the household head's father was a manager or professional. This is expected to be positively correlated with net worth. The second is whether the household head had parents who divorced or separated when s/he was 14 years of age. We hypothesize that if one's parents had divorced or separated, this reduces the amount of wealth one is likely to inherit due to the loss of wealth during household

[3] A more detailed discussion of quantile regression methods can be found in Koenker and Hallock (2001).

dissolution. A third proxy we use is number of siblings. We hypothesise that having a large number of siblings reduces the level of parental assets that one is likely to inherit.

The measurement of the explanatory variables is summarised in Table 3.

Table 3: Regression variables

Vector	Broad category	Binary/Continuous	Detailed category
D	Marital history	Binary	Separated
			Divorced (omitted)
			Widowed
			Single never married
	Age	Continuous	Age
			Age squared
	Presence of children	Binary	Has children aged 0-14 years
			Has children aged 15-24 years
			Has children aged 25 years or over
	Ethnicity	Binary	Australian-born (omitted)
			From main English-speaking countries[a]
			From non main English-speaking countries
	Disability	Binary	Has disability or long-term health condition
	Major city	Binary	Lives in a major city
H	Earnings	Continuous	Annual earnings
	Labour market history	Continuous	Number of years in paid work as a proportion of time since left full-time education
	Educational qualifications	Binary	Bachelor degree or higher
			Other post-school qualification
			No post-school qualification (omitted)
I	Father's occupation	Binary	Whether father was a manager or professional
	Parents' marital status	Binary	Whether parents ever separated or divorced
	Number of siblings	Continuous	Number of siblings

Note:

a. In the HILDA Survey, a person is defined as being from main English Speaking countries if s/he was born in New Zealand, United Kingdom, Ireland, Canada, United States or South Africa.

Schmidt and Sevak (2006) argue that various socio-economic characteristics are endogenous in a net worth equation. Obvious examples include income and presence of dependent children. Hence, it is important to note that the regression does not extend to uncovering underlying influences of socio-economic characteristics on net worth. Nevertheless, the present analysis has appeal in that it uncovers the strength and direction of associations between various socio-economic characteristics and net worth and importantly, whether the gender gap in net worth persists after controlling for these characteristics.

5.1 Socio-economic variables and net worth

Table 4 shows the effect of a range of socio-economic characteristics on the net worth of SFHs and SMHs. The results in the table indicate that statistically differences in the 25^{th}, 50^{th} and 75^{th} percentiles of net worth across both SFHs and SMHs are associated with widowhood, age, earnings, paid work history, university education and the number of siblings. The presence of older children and urban location are identified as statistically significant sources of variation in the net worth of SFHs but not SMHs. In contrast, non-university post-school education is a statistically significant source of variation in the net worth of SMHs but not SFHs. We focus the follow analysis of regression findings on coefficients of the 75^{th} percentile net worth of SFHs and SMHs. This is because Figure 1 indicates that the divergence in net worth between SFHs and SMHs begin at around this percentile. The interpretation of the regression findings is aided by statistics on the mean

characteristics of SFHs and SMHs in the top quartile of the net worth distribution of SFHs and SMHs respectively (reported in Table 5).

Widowhood is a key factor in the net worth of SFHs and SMHs and plays an important role in understanding gender differences in net worth. Widowhood has a large positive effect on net worth in each quartile among both SFHs and SMHs. This is particularly the case in the top quartile of net worth. The figures in Table 4 indicate that at the 75th percentile of net worth, widows in SFHs have a level of net worth that is $290,000 higher than divorcee SFHs. Widowers have a level of net worth $220,000 higher than divorcees in SMHs at this percentile holding all other factors constant. However, it is important to note that widowhood is much more prevalent among SFHs than SMHs. For example, in the top quartile of the net worth distribution 45 percent of SFHs are widows, whilst only 25 percent of top quartile SMHs are widowers (see Table 5). By implication, the net worth of SFHs relative to SMHs is inflated by the effects of the inheritances received by women. This raises important questions about the ability of single women to independently achieve the levels of net worth recorded by similarly situated men.

Age is a further important factor in explaining variation in net worth across both SFHs and SMHs. It is important here again to note that the characteristics of top quartile SFHs and SMHs differ and that this has implications for understanding gender differences in net worth. As shown by the data in Table 5, SFHs in the top quartile have an average age of 61, three years older than the mean age of top quartile SMHs. As such, absent these age differences (given the positive impact of age on net worth), the gender gap in net worth would be larger. This raises further questions about the ability of single women to accumulate a similar amount of net worth at each stage in the life course as single men.

The data in Table 4 indicate a positive relationship between current household earnings and the net worth of both SFHs and SMHs. A $10,000 increment in household earnings is associated with an increment of $21,330 in the 75th percentile net worth of SFHs and $17,690 in the 75th percentile net worth of SMHs. The lower average household earnings of top quartile SFHs (at $23,200) compared to top quartile SMHs (at $33,100) can thus be identified as a source of the gender gap in net worth.

Lifetime involvement in paid work can also be linked to the gender gap in net worth. The figures in Table 4 show that, at the 75th percentile, a 10 percentage point increase in the amount of time spent in paid work since leaving full time education is associated with a $23,000 increase in net worth in SMHs and a $11,000 increase in the net worth in SFHs. The relatively small impact of paid work on the net worth of SFHs is likely to reflect women's greater involvement in part time work and their lower average wage rates. It is also important to note that the average proportion of time spent in paid work is substantially lower in SFHs than SMHs. For example, as shown in Table 5, in the group of top quartile SFHs the average proportion of time spent in paid work since finishing full time education is only 70 percent, whilst it is 85.6 percent in the group of top quartile SMHs. As such, the gender gap in net worth is influenced both by women's relatively low rate of participation in paid work over the life course, their high engagement in part time work and their relatively low average rates of pay.

Higher education is the final socio-economic factor where we can observe either a difference in the characteristic's impact on net worth between SFHs and SMHs or a difference in the characteristic between SFHs and SMHs that have relevance to the gender gap in net worth.

The figures in Table 4 indicate that having a university qualification is an important positive factor in determining net worth in both SFHs and SMHs. In the group of SFHs, at the 75th percentile, degree holders had a net worth $120,700 higher than individuals without post-school qualifications. In the group of SMHs this difference in net worth was $180,000. However, whilst the 'returns' to a degree are lower in the SFHs the proportion of top quartile SFHs with degree qualifications is relatively high (at 32.9 as compared to 23.2 percent in SMHs). This implies that, absent the current differences in higher qualifications between the two groups the gender gap in net worth would be larger than it currently is.

Table 4: Quantile regression results, SFHs and SMHs, 2006

Explanatory variables	25th percentile				50th percentile				75th percentile			
	SFH		SMH		SFH		SMH		SFH		SMH	
	Coef.	Std. error	Coef.	Std. error	Coef.	Std. error	Coef.	Std. error	Coef.	Std. error	Coef.	Std. error
Separated	0.034	0.233	0.062	0.206	0.101	0.309	0.030	0.274	0.363	0.431	0.698	0.546
Widowed	1.276 ***	0.207	1.513 ***	0.260	1.755 ***	0.274	1.561 ***	0.345	2.910 ***	0.388	2.176 ***	0.723
Single never married	-0.130	0.220	0.265	0.213	0.033	0.290	0.564 **	0.269	0.296	0.395	0.786	0.550
Age	0.139 ***	0.029	0.112 ***	0.028	0.259 ***	0.038	0.287 ***	0.036	0.453 ***	0.054	0.388 ***	0.079
Age squared	-0.001 ***	0.000	-0.001 ***	0.000	-0.002 ***	0.000	-0.002 ***	0.000	-0.003 ***	0.000	-0.002 ***	0.001
Has children aged 0-14 years	0.183	0.221	-0.161	0.187	0.239	0.281	-0.490 **	0.242	0.023	0.375	-0.669	0.496
Has children aged 15-24 years	-0.056	0.215	-0.250	0.190	-0.254	0.278	-0.136	0.251	-0.432	0.391	-0.955 **	0.491
H children aged 25+ years	-0.355 *	0.207	0.191	0.211	-0.529 *	0.277	0.160	0.267	-0.929 **	0.401	-0.015	0.539
Main English-speaking countries	-0.320	0.222	-0.113	0.193	-0.807 ***	0.286	-0.035	0.253	-0.621	0.401	-0.333	0.507
Non main English-speaking countries	-0.031	0.220	-0.113	0.232	-0.029	0.291	-0.362	0.312	0.286	0.412	1.729 ***	0.638
Has disability	-0.148	0.144	0.082	0.148	-0.241	0.191	-0.582 ***	0.197	-0.541 **	0.266	-0.613	0.411
Major city	-0.005	0.140	-0.162	0.136	0.472 ***	0.181	0.046	0.173	0.934 ***	0.252	-0.208	0.350
Annual household earnings / $100,000	1.495 ***	0.330	0.777 ***	0.213	2.169 ***	0.451	1.339 ***	0.271	2.133 ***	0.673	1.769 ***	0.583
Number of years in paid work as a proportion of time since left full-time education	0.005 **	0.003	0.016 ***	0.003	0.009 **	0.004	0.020 ***	0.004	0.011 **	0.005	0.023 ***	0.008
Bachelor degree or higher	0.360 *	0.196	0.383 *	0.199	0.509 **	0.265	0.660 **	0.258	1.207 ***	0.378	1.813 ***	0.513
Other post-school qualification	0.188	0.167	0.362 **	0.140	0.425 *	0.222	0.662 ***	0.184	0.600 **	0.312	0.413	0.370
Whether father was a manager or professional	0.060	0.142	0.080	0.140	0.043	0.187	0.096	0.184	0.269	0.263	-0.399	0.370
Whether parents ever separated or divorced	0.051	0.174	-0.024	0.167	-0.134	0.227	0.116	0.217	-0.332	0.314	-0.101	0.438
Number of siblings	-0.062 **	0.031	-0.060 **	0.029	-0.135 ***	0.037	-0.109 ***	0.038	-0.230 ***	0.055	-0.174 **	0.080
Constant	-3.915 ***	0.844	-4.264 ***	0.792	-6.839 ***	1.131	-8.799 ***	1.045	-10.826 ***	1.607	-10.549 ***	2.352
Sample	1153		773		1153		773		1153		773	
Pseudo R^2	0.067		0.065		0.123		0.125		0.126		0.141	

Source: Authors' own calculations using the 2006 HILDA Survey

*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level

Table 5: Mean characteristics of SFHs and SMHs in the top quartile of the net worth distribution of SFHs and SMHs respectively, 2006

Characteristic		SFHs	SMHs
Marital status:	Separated (%)	8.3	12.9
	Divorced (%)	25.3	27.3
	Widowed (%)	45.3	24.7
	Single never married (%)	21.1	35.1
Age:	Age (years)	61.5	58.3
Presence of children:	Has children aged 0-14 years (%)	9.7	10.8
	Has children aged 15-24 years (%)	13.1	16.5
	Has children aged 25+ years (%)	56.4	43.3
Ethnicity:	Australia (%)	79.9	79.4
	Main English-speaking countries (%)	9.7	11.9
	Non main English-speaking countries (%)	10.4	8.8
Disability:	Has disability (%)	37.4	34.5
Location:	Major city (%)	73.7	61.9
Earnings:	Annual household earnings / $100,000	0.2	0.3
Paid work history:	Number of years in paid work as a proportion of time since left full-time education (%)	67.0	85.8
Qualification:	Bachelor degree or higher (%)	32.9	25.8
	Other post-school qualification (%)	23.2	39.7
	No post-school qualification (%)	43.9	34.5
Inheritance proxies:	Whether father was a manager or professional (%)	38.8	32.0
	Whether parents ever separated or divorced (%)	12.8	12.9
	Number of siblings	2.5	2.5

Source: Authors' own calculations using the 2006 HILDA Survey

5.2 Socio-economic variables and asset portfolio composition

Table 6 reports the results from a second regression analysis that examined the impacts of socio-economic characteristics on the extent to which asset portfolios are diversified. The dependent variable is the Herfindahl index. As the index ranges between 0 and 1, a tobit regression is utilized that treats the dependent variable as censored, with the lower limit being 0 and upper limit being 1. A positive coefficient indicates that a characteristic is associated with a less diversified asset portfolio; a negative coefficient indicates that a characteristic is associated with a more diversified asset portfolio. Interaction variables are used to examine by how much the association between each socio-economic characteristic and asset portfolio composition changes by gender.

A key finding of this analysis is that regardless of gender, higher net worth is associated with greater asset portfolio diversification. By implication, this suggests that higher net worth is also associated with lower risk. Among both SFHs and SMHs widowhood is associated with a more diversified portfolio compared with being separated or divorced. Consistent with the finding that diversification increases with net worth, the extent of diversification increases as one ages. Age has a similar effect on portfolio diversification for both SMHs and SFHs.

Variables associated with less diversified portfolios are having a disability and living in a major city. SMHs from main English-speaking countries have less diversified portfolios; among SFHs, it is those from non main English-speaking countries that have less diversified portfolios.

In contrast, higher earnings, longer times in paid work and post-school qualifications are all associated with more diversified portfolios. The effect is greater for SMHs than SFHs and, as noted in the previous section, SMHs are also characterized by relatively high earnings and longer time spent in paid work. Thus, these characteristics of men's economic experience are shown here to contribute to their ability to achieve diversified asset portfolios.

Table 6: Herfindahl index regression results, 2006

Explanatory variables	Coef.		Std. error
SFH	-0.197		0.121
Separated	-0.006		0.813
Widowed	-0.065	**	0.041
Single never married	-0.011		0.659
Age	-0.007	**	0.043
Age squared	0.000	*	0.061
Has children aged 0-14 years	0.029		0.185
Has children aged 15-24 years	0.041	*	0.076
Has children aged 25+ years	0.019		0.445
Main English-speaking countries	0.056	**	0.016
Non main English-speaking countries	-0.009		0.738
Has disability	0.068	***	0.00
Major city	0.036	**	0.02
Annual household earnings / $100,000	-0.087	***	0.00
Number of years in paid work as a proportion of time since left full-time education	-0.002	***	0.00
Bachelor degree or higher	-0.128	***	0.00
Other post-school qualification	-0.065	***	0.00
Whether father was a manager or professional	-0.007		0.66
Whether parents ever separated or divorced	-0.013		0.50
Number of siblings	0.005		0.14
Net worth / $100,000	-0.006	***	0.00
SFH * Separated	-0.037		0.27
SFH * Widowed	0.031		0.41
SFH * Single never married	0.019		0.56
SFH * Age	0.003		0.48
SFH * Age squared	0.000		0.73
SFH * Has children aged 0-14 years	0.040		0.18
SFH * Has children aged 15-24 years	-0.005		0.86
SFH * Has children aged 25+ years	0.001		0.97
SFH * Main English-speaking countries	-0.056	*	0.07
SFH * Non main English-speaking countries	0.102	***	0.00
SFH * Has disability	-0.036		0.11
SFH * Major city	-0.019		0.35
SFH * Annual household earnings / $100,000	-0.059		0.14
SFH * Number of years in paid work as a proportion of time since left full-time education	0.001	***	0.00
SFH * Bachelor degree or higher	0.065	**	0.03
SFH * Other post-school qualification	0.022		0.34
SFH * Whether father was a manager or professional	-0.016		0.45
SFH * Whether parents ever separated or divorced	0.007		0.78
SFH * Number of siblings	0.005		0.30
SFH * Net worth / $100,000	0.000		0.95
Constant	0.961	***	0.00
Sigma	0.204		0.003
LR(Chi^2)	559.18	***	
Sample	1913		

Source: Authors' own calculations using the 2006 HILDA Survey
*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level

6. Discussion and future research directions

The explorations described in this paper indicate that there are gendered dimensions to both the value and composition of asset and debt holdings in Australia. If we compare single male and female households then we find that the latter have both lower net worth and less diversified portfolios. Furthermore the primary home is over-weighted in wealth portfolios of single female as compared to single male households.

The gendered patterns of both net worth and portfolio composition can be related to differences in the socio-economic characteristics of SFHs and SMHs. The lower net worth of SFHs, which is most apparent in the top quartile of the distribution of net worth, appears to be closely associated with the lower current earnings and fewer years in paid work of SFHs as compared to SMHs. The high rates of widowhood and the older age characteristic of SFHs boosts this group's average net worth. If we take the different prevalence of widowhood into account, the gender gap in net worth between single female and single male households increases. If we take account of the different age characteristics of the two groups we can identify a large gap in the net worth accumulated by single women and men at equivalent life stages.

The different socio-economic characteristics of SFHs and SMHs are also important in explaining the differences in the portfolio composition of the two groups. The lower current earnings of the SFHs and their lower level of involvement in paid work contribute to their relatively low degree of portfolio diversification.

At least two key policy implications arise from the findings. Firstly, while it is relatively well known that women's relatively lower incomes lead to lower accumulated superannuation holdings, it is apparent that, being over represented among low net worth households, SFH's have relatively lower holdings of almost all types of asset which can provide a buffer against financial vulnerability in later life. Secondly, SFH's relatively concentrated asset portfolios suggest both they are exposed to both higher investment risk and are more likely to face financial options that involve decisions about divestment or reverse mortgaging of the primary home. These outcomes appear to be a relatively predictable outcome of the characteristics of SFHs but there is little concerted research that has examined the potential outcomes from this particular pattern of asset holding in later life. However, housing represents a as a relatively illiquid asset that has potentially significant geographic and emotional dimensions that may not be as relevant to other forms of asset holdings. Each of these features of housing as a financial asset might be expected to hold important implications for well being in later life.

There are several key limitations to this study that warrant further research. First, this paper does not distinguish between age and cohort effects. In order to carry out this analysis we need longitudinal data. A wealth module will form part of wave 10 of the HILDA data collection, providing an opportunity for analysis spanning eight years and potentially capable of identifying age effects. Another limitation is the exclusion of couple households from analysis of gender patterns of net worth and portfolio diversification. An analysis which draws on the available, albeit limited, data on individual asset holdings within couple households is an important possibility for future research.

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