Determinants of Household Wealth: Assets of Divorcing Couples in Australia

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Abstract

Recent reviews indicate that research on wealth in Australia has been limited by a lack of reliable data. The Economic Consequences of Marital Breakdown Survey containing data on the wealth of couples about to divorce, and items from the National Social Science Survey, provide new data for analysis. Shares of net wealth of housing (55 per cent) and superannuation (14 per cent) are comparable to those in previous studies. A 'wealth function' was developed taking account of age, gender, years of schooling and further education. There was a 2.6 per cent gain for each year of age and a decumulation of assets after age 58 years. Each year of schooling adds another 10 per cent to net wealth. There is a 16 per cent gain for those who have undertaken some further education after completing school. Some 22 per cent of adult Australians report ever receiving an inheritance. This new information begins to provide some of the answers on 'how' and, by inference, 'why' Australian households save.

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1. Introduction

In the work of government statisticians like Coghlan (1900) and Knibbs (1918) Australia had a good start in the study of private wealth. However, as reviews by Nevile and Warren (1984) and Piggott (1984) amply demonstrate, this good start has not carried through to post–World War II studies of wealth. The basic problems are poor data and flawed analyses which limit work on issues of interest. Piggott's conclusion to his review remains relevant:

> Research into [savings patterns, retirement provision behaviour, marriage and fertility patterns, and bequests (among other elements of the determinants of wealth distribution)] is at an early stage internationally and empirical work on Australia is almost non-existent.
> [1984, pp. 263–4]

Since this review Dilnot (1990) has produced new estimates of the personal sector of wealth using two sources: the 1986 Australian Bureau of Statistics Income Distribution Survey, as a source of self-reported valuations of housing; and Reserve Bank sources for other assets, for which he uses an investment income approach. This article extends analyses of personal wealth data using a single survey of households, the Economic Consequences of Marital Breakdown Survey 1984. This allows more reliable estimation of the components of wealth and their effects on wealth distribution. Information from a second survey, the 1984 National Social Science Survey, is used to provide new evidence on inheritance.

Two weak areas in Australian research on wealth are addressed in the article: firstly, the relative inability to put together all the pieces of the wealth puzzle into a composite picture and, secondly, the absence of quantification of the determinants of wealth.

2. Wealth Debates

The focus of Australian debates on wealth varies with the major economic and political issues of the day. A political interest in inequality led to the inquiries of the 1970s with 'an echo' in the early 1980s in the proposal for a National Inquiry into Wealth (Raskall 1987). The Australian Catholic Bishops (Bishop's Committee for Justice, Development and Peace 1991) has attempted, with moderation, to renew discussion on this issue. Issues of national debt and saving (EPAC 1988), particularly associated with the ageing of the population, were more prominent in the second half of the 1980s. Further the development of award superannuation has provided a major new impetus for personal saving and for changing the balance of assets in wealth portfolios.

One relevant debate from the 1980s was whether or not older people dissave. If they do not, the need for the current babyboom generation to save for old age is diminished. The lifecycle consumption hypothesis (King 1985) argues for dissaving in old age. Alternatively people may seek to leave their wealth as a bequest so there will be little dissaving in retirement.

The Economic Planning and Advisory Council (1988) reported evidence of dissaving after retirement but argued that the extent of dissaving is less than might be expected from lifecycle factors and that there is a strong bequest motive. Edey and Britten-Jones (1990) found that consumption smoothing in the Household Expenditure Survey did not match lifecycle expectations. Piggott (1990) criticises their use of a data set

(also used by EPAC) with very limited information about the two major forms of saving, superannuation and owner-occupied housing, to reach such a conclusion. Piggott reasserts the need for concern about population ageing and savings.

The Social Security Review reported, from Commonwealth Department of Social Security age pensioner assets test declarations, that 'the value of financial assets of pensioners in successive age groups does not fall' (Foster 1988, p. 44). This assets test evidence, because of mortality and cohort differences in the cross-section, as well as, concerns with over-sampling those with high levels of assets and accuracy of reports, is inconclusive.

Social Security arrangements and patterns of asset holdings suggest it is more likely that Australians will dissave rather than save after retirement. Older people have high rates of home ownership, around 80 per cent of household heads 65 years and over are owners or live rent free (McCallum 1990). There are also low rates of housing turnover, around 3 per cent per annum, for people 60 years and over (McCallum 1991) which is similar to US rates (Hurd 1990). However the low earnings replacement for older Australians around 40 per cent on average (McCallum 1990), resulting from the minimum income age pension system, would be expected to allow less capacity to save compared to older Americans. There are, then, generally low levels of non-housing assets and high rates of home ownership along with low levels of turnover. Thus housing wealth is practically irrelevant to consumption and saving decisions, and dissaving rather than saving is expected in retirement.

Recent international evidence favoured a strong bequest motive (Darby 1979; Kotlikoff & Summers 1981; Menchik & David 1983). Wolff (1988), however, has found that these studies either over aggregated ages or observed ages over periods not long enough to show the declines he observed using the same data. Furthermore Hurd (1987) reported that average wealth changes matched lifecycle hypotheses in panel study data, that is, from the same people over time. For Japan Maki (1989) observed double 'humped' savings profiles by age because of the high levels of deposits required to purchase housing in mid-life. This confirms the lifecycle model for Japanese saving but with the addition of an extra hump associated with housing purchases earlier in life. This finding more generally points to the need to disaggregate components of wealth to map their different patterns by age.

Estimates of the extent of wealth derived from inheritances relative to lifecycle savings in the United States (Kotlikoff 1988) and Japan (Shimono 1989) put the figure at around 80 per cent. This is not necessarily inconsistent with the lifecycle hypothesis but the size of the fraction suggests a strong bequest motive. The high figure may be an artifact of measuring inherited wealth as a residual after indirectly calculating lifecycle savings. Factors like rising property prices also may be erroneously counted as bequests.

Beyond the lifecycle or age factor, Australian studies concentrate on inequalities in wealth holdings. Different methods with data of varying quality yield sometimes contradictory findings. Gunton (1971) reported that the top 1 per cent of the population held nearly 30 per cent of the nation's wealth while Podder and Kakwani (1976) reported less than 10 per cent for the same group. More recently Dilnot (1990) found that the top 1 per cent of the population held nearly 20 per cent of wealth. In international comparisons, Gunton (1971) found that wealth concentration in Australia was worse than in the United States and the United Kingdom; however, Podder's (1978) and Harrison's (1979) reworking of the Gunton data show that Australia is more equal than a range of countries. Different methods using estate mortality multipliers, investment income and population surveys make such comparisons complex. Piggott (1984, p. 260) in distinguishing 'lifecycle' from what he calls 'inequality' differences reaches the general conclusion that the wealth holding of the top 10 per cent of the population can be seen primarily as a reflection of unequal life chances. It is important that the factors contributing to 'unequal life chances' are identified more specifically.

Two issues that arise from these recent debates are the need to disaggregate wealth data into their component types and to model more specifically the factors involved in differential life chances. Further the issue of what action needs to be taken to deal with Australia's demographic transition depends on findings about age effects.

3. Data and Methods

The data for analysis are drawn from the Institute of Family Studies Economic Consequences of Marital Breakdown Survey 1984 (McDonald 1986). The population from which samples were drawn was people divorcing from their first marriage. There were 126 couples among the 825 respondents. Wealth holdings were reported for 699 households of which 126 households had reports from both spouses about the same household wealth. Two groups, couples married 5 to 14 years with two children and couples married 15 years or more

with the wife's age at separation between 45 and 59 years, were selected from the ABS data tapes on divorces in Victoria.

The response rates matched those in comparable US divorce studies; namely, 25 per cent of the initial sample with a 14 per cent refusal rate, an 18 per cent return to sender and a 43 per cent no response. Considering only those who responded two-thirds were acceptances and one-third were refusals. A comparison of known characteristics of non-respondents with respondents showed no major differences. When the sample was compared to the income categories in the 1981 Census there were fewer low income respondents and more high income respondents than in the general population. Since we know that there is a close association between being employed and probability of first marriage (Bracher 1988) we also expect that the younger the age of the respondent the stronger will be this bias toward higher socioeconomic status. With this exception the sample is representative of married couples in Australia. It should be remembered, because of the focus on divorcing couples, that single persons are not included in this study.

The divorce situation provides an opportunity for valuation of all household assets, which can be subject to contest, if one party is unhappy with a valuation. The assets valued at the point of divorce were: house and furniture, motor vehicles, superannuation and insurance, farm or business, liquid cash assets and other assets (including other land and real estate, shares and bonds, jewellery and furs for women and tools for men, artwork, and boats and camping equipment). Despite the need for settlement in divorce significant problems of valuation remain. Respondents may not have actually valued all items and may have been unsure of the value of businesses, farms, life insurance policies and other assets in particular. Where respondents were not able to report values, means were substituted for less valuable items. In the case of more valuable items, values were substituted on a case by case basis by the Institute of Family Studies. In the case of superannuation, particularly for younger respondents in defined benefit schemes, there were a range of possibilities for valuation. All values were reached on the basis of formulae derived from cases where valuations could be made, namely where people were approaching retirement or where there were defined contribution schemes. The total net wealth is simply the sum of these items and it can be a negative number. Human capital and contingent claims on the public sector are not included as specific items in the valuation of wealth as is typical for definitions of private wealth.

Inheritances are not available separately in the Economic Consequences of Marital Breakdown data set but information is available from a second survey. The 1984 National Social Science Survey (Kelley, Cushing & Headey 1987) was a national random sample of 3012 non-institutionalised persons aged 18 years and above. Information was sought by mailed questionnaire with two relevant questions about inheritances:

> Q60(a) Have you ever received any inheritance or bequest? (b) Roughly how much was it, or how much would it be worth if you sold it? (If several give the value of all combined.)

The problem with the question about value (b) is that it does not clearly ask for current values of bequests nor does it signal this as an issue to the respondent. We cannot be sure therefore that the values reported take account of historical and inflationary changes in the value of assets. The value of inheritance will be used with caution here. The question about frequency of receiving bequests does not have the same problems.

4. The Model

Regression analysis was used to estimate the wealth function with the log of wealth as the dependent variable and negative net wealth cases excluded. The analysis estimated the following model:

$$\ln(\text{net wealth}) = K + B_1\,\text{Age} + B_2\,\text{Age}^2 + B_3\,\text{Years of Schooling} + B_4\,\text{More Education} + B_5\,\text{Sex}$$

The 'Age' variables test lifecycle effects, and 'Years of Schooling' and 'More Education (After School)' estimate effects of human capital investments. 'More Education' and 'Sex' are entered as dummy variables. Because the wealth and asset values reported are for households not individuals, 'Sex' is used only as a control for different reporting by men and women for couples in divorcing situations. All dollar values reported are in 1984$A.

5. Results

5.1 The Composite Picture

The high concentration of wealth in most of its forms makes it difficult to find wealth measures that represent the situation of most people. The use of the median as an alternative to the mean has limitations because medians cannot be aggregated and are zeros for many assets which is unhelpful. Thus means are used here and standard deviations, often relatively large, are reported for

Table 1 Total and Shares of Net Wealth

Asset type	*Share mean(a) (per cent)*		*Value mean(a) (1984$)*	
House and furniture	55.0	(27.7)	39 847	(38 369)
Superannuation and insurance	14.3	(19.9)	12 919	(23 512)
Business and property	6.7	(18.4)	19 164	(96 840)
Money assets (for example, bank)	5.5	(9.6)	4 258	(8 959)
Vehicles	9.0	(19.1)	4 710	(5 480)
Other assets	9.3	(16.8)	17 372	(81 836)
Total net wealth	100.0		98 271	(169 340)

Note: (a) The standard deviations are given in parentheses.

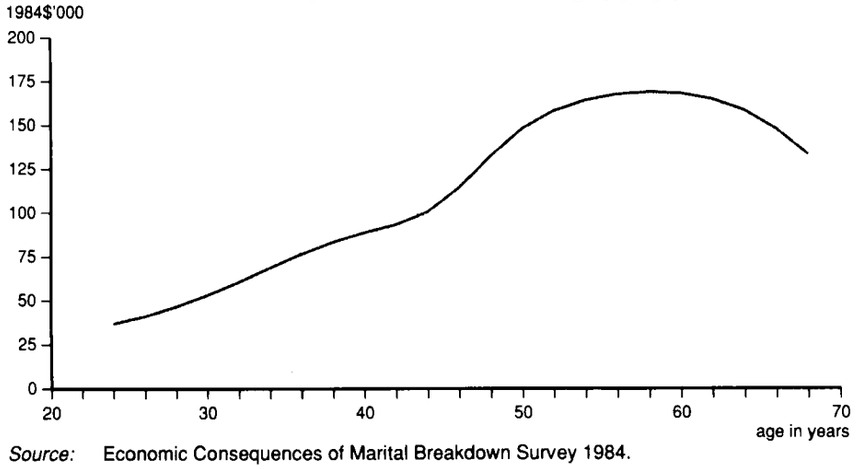
Source: Economic Consequences of Marital Breakdown Survey 1984.

Table 2 Distribution of Wealth in Various Assets
(1984$)

Asset type	*10th percentile*	*Median*	*90th percentile*
House	0	28 000	64 800
Furniture	2 500	6 000	15 000
Cash assets	100	2 000	10 000
Vehicles	600	3 400	10 000
Superannuation	0	3 500	39 800
Other assets	0	1 300	32 000
Businesses	0	0	23 000

Source: Economic Consequences of Marital Breakdown Survey 1984.

Chart A Lifecycle Mean Net Wealth Holdings (by Age)



Source: Economic Consequences of Marital Breakdown Survey 1984.

both relative shares and mean values of wealth.

The largest share of wealth is held in house and furniture and the second largest share is held in superannuation and insurance (Table 1). Vehicles and other assets account for 9 per cent each and money assets and business assets are around 6 per cent of net wealth overall.

There are differences in the holdings of the top 10 per cent and the bottom 10 per cent of wealth holders. The 10th percentile holds only furniture, a vehicle and some cash totalling $3200 (Table 2). By contrast the 90th percentile has net wealth of nearly $200 000 and its cash assets at $10 000 exceed the total wealth of the bottom 10 per cent by a factor of 3. The mean value of business assets is zero but it accounts for slightly under half the net wealth of the top 10 per cent of households.

The pattern (using kernel smoothing[1]) of mean net wealth holdings by age (Chart A) shows a steady increase to age 45 then a rapid increase up to age 58 years, after that there is a decrease in the wealth holdings of households relative to earlier ages.

5.2 Determinants of Wealth

The mean value of net wealth $98 271 has a large standard deviation and a range from $1000 to $2 373 200 (Table 3). The mean value of age is 41 years and ranges from 24 to 69 years. About 70 per cent of the group have done

1
A 'kernel smoother' (Hastie & Tibshirani 1990) uses a set of weights defined by the kernel to produce an estimate of each target value. The kernel smoother, usually a Gaussian kernel, uses weights that decrease in a smooth fashion as one moves away from the target point. The purpose of smoothing here was to deal with age-specific variation in the small sample used here.

some form of further education and respondents were 50 per cent female.

Estimates of the wealth function are given in Table 4. This model explains about one-quarter of the variance in the dependent variable. All t-ratios are significant at 5.0 per cent.

The advantages of a good start in life for wealth accumulation become clear when values are calculated from this model, using the average value of education in estimating values of net wealth. The top 10 per cent begin at age 25 years at the same value of net wealth $39 400 where the bottom 10 per cent finishes at age 65. The increase in wealth for the top 10 per cent is rapid up to age 60 relative to growth in the median net wealth and to the slow increases of the 10th percentile. At age 55 years the bottom 10 per cent have $38 220, the median is $117 450 and the top 10 per cent have $360 950 on average.

Table 3 Variables in Wealth Function: Descriptive Statistics

Variable	*Mean(a)*	*Minimum value*	*Maximum value*
Net wealth (1984$)	98 271 (169 340)	1 000	2 373 200
Log of net wealth (1984$)	6.4 (1.0)	2.3	10.1
Age (years)	41.3 (10.0)	24	69
Schooling (age of leaving)	15.7 (1.5)	8	23
More education(b) (per cent)	0.7 (0.5)	0	1
Sex (Female) (per cent)	0.5 (0.5)	0	1
Number	727(c)		

Notes: (a) The standard deviations are given in parentheses.
(b) The question: Have you done any further study, training courses or apprenticeship since you left school? Exclude any short courses which you took purely for interest or pleasure but I do want to know about courses which you started but did not finish.
(c) Missing cases were due to listwise deletion of item missing values.

Source: Economic Consequences of Marital Breakdown Survey 1984.

Table 4 The Wealth Function

Variable	*Coefficient(a) (per cent)*	*t-ratio*
Age	19.0 (3.4)	5.67
Age squared	–0.2 (0.04)	–4.29
Schooling	10.0 (2.3)	4.38
More education	16.0 (7.4)	2.16
Gender	21.0 (6.7)	3.14
Constant	–28.0 (81.0)	–0.34

Note: (a) The standard errors are given in parentheses.

Source: Economic Consequences of Marital Breakdown Survey 1984.

5.3 Portfolio Choices

The patterns in the portfolios of assets vary across the lifecycle (Chart B). Whilst housing dominates, its relative share declines around age 45 years when the shares of superannuation and other assets increase. At young ages the share of cars and vehicles is high but declines rapidly thereafter. The share of cash savings may be underestimated from this data because of withdrawals due to the low trust associated with divorce.

Asset portfolios are affected not only by different needs people have at different ages but also by the 'wealthiness' of the household. Persons with total net wealth holdings above or below the average value were identified and dummy variables were added to the model variables. The new model was then re-estimated for each asset, with share of each asset type being the dependent variable (Table 5). This analysis estimates the effect on shares of wealth holdings of a 1 per cent increase in wealth, net of gender, age and schooling.

For persons with 'above average' wealth a 1 per cent increase in net wealth leads to an increase in the share of businesses, and in other equities – with a small increase in the share held in the car. For persons with 'below average' wealth, a 1 per cent increase in wealth

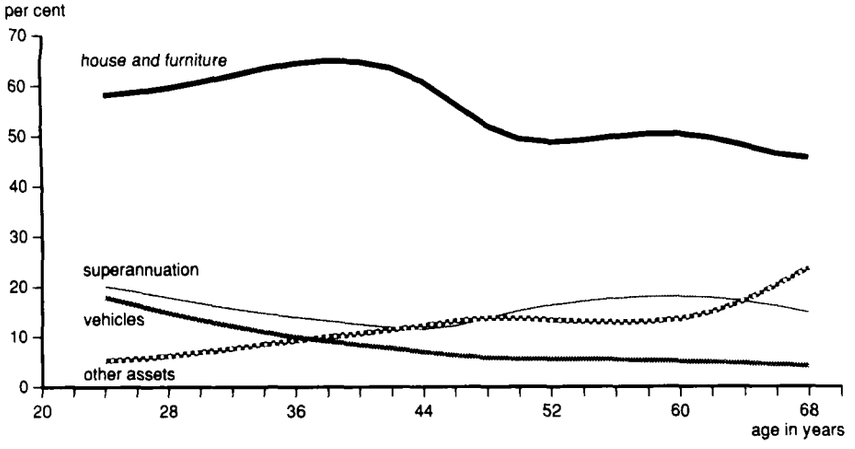
leads to an increase in the share going to superannuation and housing and a decreased share going to other equities, businesses, and cash held in banks and other institutions (Table 5).

5.4 Inheritance

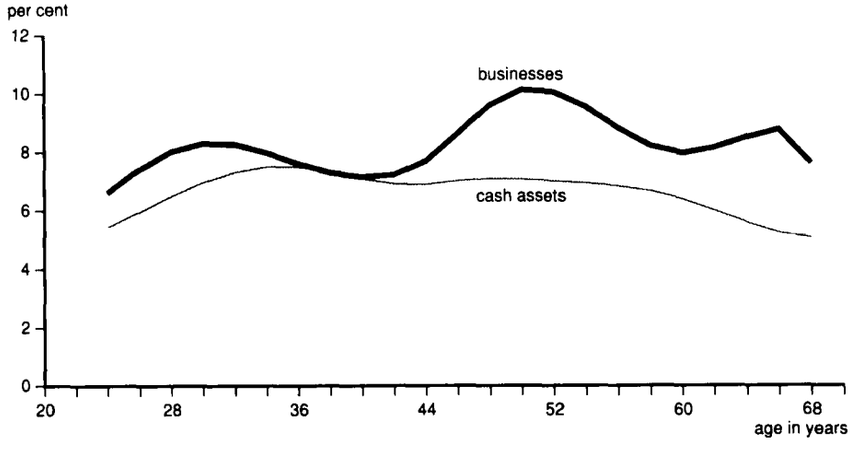
Turning to the National Social Science Survey, 22 per cent of Australians reported ever receiving an inheritance or bequest with the rate (cumulative) rising with age from 10 per cent of those aged 18 to 29 years to nearly 40 per cent of those aged 70 to 79 years (Chart C). Women (25 per cent) are more likely to inherit than men (19 per cent). The rates of women receiving inheritances plateau at age 50 while the rate for men rises monotonically for each age group. These differences match mortality differences between male and female spouses. The accuracy of the 1984 National Social Science Survey responses about receiving bequests is dependent only on the ability and willingness of respondents to recall them. There are more serious concerns about the measurement of the value of bequests.

Assuming the inheritance amounts are reliably measured in current values (caution is needed with this assumption), women, despite the greater probability of inheriting, receive lesser inheritances (Chart D). Mean inheritances only rise above $25 000 for older men. The median inheritance amount rises above $10 000 only for men at ages 50 and above. There is a double hump in the age distribution of inheritance around ages 30 and 70. This is consistent with inheritance from parents, peaking at

Chart B Asset Type Shares of Net Wealth by Age



Expanded Inset to Chart B: Low Share Assets



Source: Economic Consequences of Marital Breakdown Survey 1984.

Table 5 Wealth Effects on Portfolio Choices
(percentage point change in the share of each asset resulting from a 1 per cent increase in wealth; controlling for gender, age and schooling)

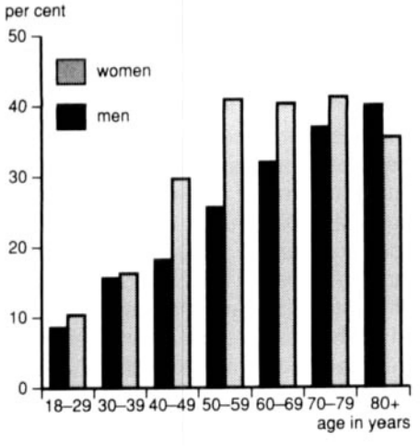
Asset type	*Persons with below average wealth*	*Persons with above average wealth*
House	0.149*	–0.163*
Furniture	–0.100*	–0.057*
Money assets	–0.031*	–0.010
Cars	–0.015*	0.002
Superannuation	0.045*	–0.045*
Businesses	–0.007	0.178
Other assets	–0.013	0.084*

Note: * t-value significant at a level > 0.05.

Source: Economic Consequences of Marital Breakdown Survey 1984.

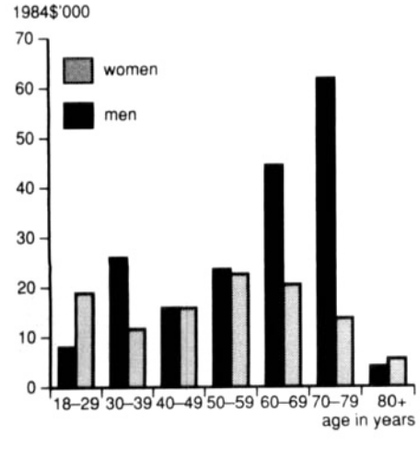
ages 30 to 40, and inheritance from spouses, peaking in the 70s. Concerns with the accuracy of measurement of amounts of inheritance preclude introduction of this survey data into the wealth function.

Chart C Inheritance Rates by Age and Sex



Source: 1984 National Social Science Survey.

Chart D Mean Inheritance by Age and Sex



Source: 1984 National Social Science Survey.

6. Discussion

The age pattern of the net wealth accumulation, in particular, the significance of age-squared in the quadratic equation generally supports a lifecycle hypothesis; however, caution is needed in interpreting cross-sectional data in this way. Firstly, if more wealthy members of a cohort retire before others then wealth will decline in a cross-section but the wealth paths of individuals may not necessarily decline. Secondly if wealthier people live longer or divorce more than others, wealth will rise in the cross-section but not for individuals. Finally there may be cohort differences, for example if older people have accumulated less wealth than younger cohorts, that cause cross-sectional wealth to decline but not because of dissaving by older people. What supports our interpretation is a prediction derived from the structure of the retirement income system and the US evidence reviewed earlier showing that wealth in cohort studies also declines.

The rapid increase in the amount of net wealth holdings from age 45 to 60 years matches the evidence from the United States which Kotlikoff (1988, p. 43) refers to as 'hump saving' because earnings profiles exceed consumption profiles. The fact that this increase occurs for the 90th percentile rather than at the median net wealth values for each age supports Podder's (1978) survey finding of an inverse relationship between degree of diffusion of wealth and age of head of household. The older the head of household was, the more wealth was concentrated among families in the top income brackets. The evidence here suggests that this is because the top wealth holders have money in high-earning areas like businesses and stocks and shares which are not options for less wealthy households. They also gained most advantage from saving in superannuation. Those with more years of education are also known to have continuously increasing wage profiles while those with less education plateau after their mid-30s (Beggs & Chapman 1988). Clearly a good start in accumulating wealth through an intergenerational transfer also yields increasing returns by age because it gives access to high yield assets.

The share of housing in total net personal wealth, 55 per cent, is slightly lower than that reported by Williams (1983), 64 per cent for 1981, which he identified as an increase from the 1960s (when it was about 50 per cent) mainly at the expense of equities. Dilnot (1990) estimated the housing share as 59 per cent which is closer to our figure. Different methods and samples are most likely to account for these differences, in particular the bias towards wealthier households in our divorcing sample.

Our estimate of the share of superannuation, 14 per cent, matches that of Dilnot (1990), 15 per cent, and both are higher than Williams (1983), 9 per cent, probably due to historical increases in superannuation coverage. At retirement ages the share of superannuation crosses with 'other assets' due to conversion of lump sums into equities and other property (McCallum & Beggs 1989). Dilnot's (1990) estimate of the share of equities, 15 per cent, is much higher than our other assets variable which includes equities.

The share of superannuation will increase as the proportional coverage and the depth of cover increases. The coverage for all employees has increased from 32 per cent in 1974, to 40 per cent in 1984, rapidly increasing to 52 per cent in 1990. The assets held in superannuation funds increased by 22 per

cent per annum over the 1980s to reach $124 641 million in 1990. At this stage the increases in coverage are largely confined to new industry schemes based on contributions of 3 per cent of salary (McCallum forthcoming).

As discussed at length in Dilnot (1990), both superannuation and housing were tax advantaged in the time leading up to the survey. The accumulation of the two different assets is motivated by different reasons to save. Investing in a house has the dual motive of purchasing a service and providing a bequest to family when one dies. By contrast investment in superannuation is a compulsory part of an employment contract and to a lesser extent a tax-advantaged saving, consequently it is a high proportion of the wealth of younger respondents whose consumption typically exceeds income. Savings could potentially be shifted to bank and other financial institution accounts if they were similarly tax advantaged. Changing preservation requirements to superannuation may also increase the attractiveness of negative gearing, specific savings plans, tax-effective mortgage repayments, buying housing and negotiation of special remuneration packages.

The 10 per cent gain for each year of schooling, net of post-school education, is of a similar order of magnitude to that for income functions in Australia (Chapman & Mulvey 1986). The 16 per cent coefficient for further education would add around 4 per cent per annum for a 4-year post-school course. This earned differential in wealth holdings needs to be distinguished from the unearned bequest from family which also allows advantages in wealth accumulation as already discussed. There are potential wealthy family effects operating through the education variable. The National Social Science Survey inheritance data show that around a quarter of adults receive inheritances which are not large, usually less than $10 000.

Finally the male–female difference (used here as a control variable), 21 per cent, may be due to a higher valuation of household wealth at divorce by women relative to men because men perceive they gain from a lower valuation of assets and vice versa for women. It is used, however, not as an explanatory variable but as a control in this wealth function.

7. Conclusion

The analysis of new data on household wealth and inheritance demonstrates the central role of policies on housing, superannuation and education in determining the distribution of household wealth. In the second half of the 1980s housing increased its share of household wealth in many localities but then prices decreased after the stock and housing market collapses. The major new policy initiative in the 1980s has been in superannuation where coverage has increased to two-thirds of the workforce with the development of award superannuation. If this policy initiative flows through to increase the depth of cover, for example from 3 to 10 per cent of salary contributions, the relative share of superannuation in household wealth will increase and other saving decrease as a direct consequence of policy changes.

Portfolio analysis predicts that the greatest gains from this change will be among households with below average wealth. The reforms will have little effect on those individuals who do not work and will offer more retirement income gains to men than to women. Women have less continuous work participation and typically work in jobs with worse conditions of employment than men with similar educational levels. Wealthy individuals who already have adequate superannuation will continue to invest in businesses, stocks and shares and other assets which are not accessible to households with below average wealth. Such assets, which may be high risk, will continue to skew the distribution of income towards the wealthy regardless of changes to superannuation coverage.

Access to education, training and employment remains a major issue in the accumulation of wealth. Any changes which systematically decrease or increase the access of groups to education, training or employment will alter the wealth distribution accordingly. Besides this human capital factor, wealth varies because of luck, inheritances and different abilities and motivation.

Finally dissaving at older ages was predicted and confirmed in the analysis. Bequests were typically of small amounts and occurred at expected points in the lifecycle. Whilst testing of lifecycle hypotheses was not argued to be conclusive nor were data used always ideal, the issue of dissaving in old age is important. Regardless of theoretical considerations about causes, the balance of evidence is that older people do dissave and this has major implications in an ageing population. Policies which increase the saving of the baby boom through superannuation or other means are important to prepare for the expected dissaving in old age. Intergenerational equity in sharing of the financial burden of a dependent older population early in the next century deserves as much attention as the equitable treatment of gender and class groups is receiving at present.

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References

Beggs, J. J. & Chapman, B. J. 1988, 'Immigrant wage and unemployment experience in Australia', Discussion Paper no. 200, Centre for Economic Policy Research, Australian National University.

Bishop's Committee for Justice, Development and Peace 1991, *Common Wealth and Common Good [Draft]. A Statement on Wealth Distribution from the Catholic Bishops of Australia*, Collins Dove, Melbourne.

Bracher, M. 1988, 'A reconsideration of first marriage trends in Australia', Australian Family Project Working Paper no. 7, Australian National University, Canberra.

Chapman, B. J. & Mulvey, C. 1986, 'An analysis of the origins of sex differences in Australian wages', *Journal of Industrial Relations*, vol. 28, no. 4, pp. 504–20.

Coghlan, T. W. 1900, *The Seven Colonies of Australia, 1899–1900*, Government Printer, Sydney.

Darby, M. R. 1979, *Effects of Social Security on Income and Capital Stock*, American Enterprise Institute, Washington, DC.

Dilnot, A. W. 1990, 'The distribution and composition of personal sector wealth in Australia', *Australian Economic Review*, 1st quarter, pp. 33–40.

Economic Planning and Advisory Council 1988, *Trends in Private Saving*, Council Paper no. 36, AGPS, Canberra.

Edey, M. & Britten-Jones, M. 1990, 'Saving and investment', in *The Australian Macro-Economy in the 1980s*, ed. S. Grenville, Research Department, Reserve Bank of Australia, Canberra.

Foster, C. 1988, *Towards a National Retirement Incomes Policy*, Social Security Review Issues Paper no. 6, Department of Social Security, Canberra.

Gunton, R. 1971, A distribution of personal wealth in Australia: 1967–68, Paper presented to 43rd ANZAAS Congress, Brisbane.

Harrison, A. 1979, *The Distribution of Wealth in Ten Countries*, Royal Commission on the Distribution of Income and Wealth, Background Paper no. 7, HMSO, London.

Hastie, T. J. & Tibshirani, R. J. 1990, *Generalized Additive Models*, Monographs on Statistics and Applied Probability 43, Chapman & Hall, Melbourne.

Hurd, M. D. 1987, 'Savings of the elderly and desired bequests', *American Economic Review*, vol. 77, no. 3, pp. 298–312.

Hurd, M. D. 1990, 'Research on the elderly: Economic status, retirement, and consumption and saving', *Journal of Economic Literature*, vol. 28, no. 2, pp. 565–637.

Kelley, J., Cushing R. G. & Headey, B. 1987, *Australian National Social Science Survey, 1984*, Social Science Data Archives, Canberra.

King, M. 1985, 'The economics of saving: A survey of recent contributions', in *Frontiers of Economics*, eds K. J. Arrow & S. Honkapohja, Blackwell, Oxford.

Knibbs, G. H. 1918, *The Private Wealth of Australia and Its Growth as Ascertained by Various Methods, Together with a Report of the War Census of 1915*, Commonwealth Bureau of Census and Statistics, Melbourne.

Kotlikoff, L. J. 1988, 'Intergenerational transfers and savings', *Journal of Economic Perspectives*, vol. 2, no. 2, pp. 41–58.

Kotlikoff, L. J. & Summers, L. 1981, 'The role of intergenerational transfers in aggregate capital accumulation', *Journal of Political Economy*, vol. 89, no. 4, pp. 706–32.

McCallum, J. 1990, 'Noncontributory pensions for less developed countries: Rehabilitating an old idea', *Journal of Cross-Cultural Gerontology*, vol. 5, no. 3, pp. 255–75.

McCallum, J. 1991, 'The 7-year follow-up of the ageing and the family project', in *Successful Ageing*, eds R. B. Lefroy & R. W. Warne, Australian Association of Gerontology, Parkville.

McCallum, J. forthcoming, *The Provision of Retirement Incomes by Private and Non-Public Institutions: The Australian Superannuation System*, Report to Social Affairs Division, OECD, Paris.

McCallum, J. & Beggs, J. 1989, 'New pieces of the wealth puzzle: Shares of wealth across the life cycle', *Australian Society*, vol. 8, no. 7, pp. 39–40.

McDonald, P. 1986, *Settling Up: Property and Income Distribution on Divorce in Australia*, Prentice-Hall, Sydney.

Maki, A. 1989, 'Savings and portfolio behavior of Japanese households: Effects of purchasing housing and preparation for retirement', *Japan and the World Economy*, vol. 1, no. 2, pp. 145–62.

Menchik, P. L. & David, M. 1983, 'Income distribution, lifetime savings and bequests', *American Economic Review*, vol. 73, no. 4, pp. 672–90.

Nevile, J. W. & Warren, N. A. 1984, 'How much do we know about wealth distribution in Australia?', *Australian Economic Review*, 4th quarter, pp. 23–33.

Piggott, J. 1984, 'The distribution of wealth in Australia – A Survey', *Economic Record*, vol. 60, no. 170, pp. 252–65.

Piggott, J. 1990, 'Discussion', in *The Australian Macro-Economy in the 1980s*, ed. S. Grenville, Research

Department, Reserve Bank of Australia, Canberra.

Podder, N. 1978, 'The economic circumstances of the poor', in *Australian Government Commission of Inquiry into Poverty*, AGPS, Canberra.

Podder, N. & Kakwani, N. C. 1976, 'Distribution of wealth in Australia', *Review of Income and Wealth*, vol. 22, pp. 75–92.

Raskall, P. 1987, 'Wealth: Who's got it? Who needs it?', *Australian Society*, vol. 6, no. 5, pp. 21–4.

Shimono, K. 1989, Human capital and bequests in Japan, Paper presented to Centre for Economic Policy Research, Australian National University, 6 October.

Williams, R. A. 1983, 'Ownership of dwellings and personal wealth in Australia', *Australian Economic Review*, 2nd quarter, pp. 55–62.

Wolff, E. N. 1988, 'Social security, pensions and the life cycle accumulation of wealth: Some empirical tests', *Annales d'Economie et de Statistique*, no. 9, pp. 199–226.