Determinants of Real Estate Holdings in the Household Asset Portfolio

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Abstract

Using the five most recent Surveys of Consumer Finance I examine the determinants of the percentage of real estate in household asset portfolios and how it is financed. I find that over 90% of households with a head over 35 years and a net worth of at least $100K own real estate according to the most recent SCF. Controlling for income and net worth, age does not have an economically significant affect on the total amount of real estate, but a large affect on how it is financed. Households pay off their mortgage as they age and do not move into smaller houses relative to their total assets. While there has been almost no change in the percentage of households owning real estate, in the most recent survey fewer assets are invested in real estate and more of these assets are borrowed.

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1 Introduction

Real estate forms the bulk of US consumer assets. However, most models of asset allocation ignore its role in household portfolios. Real estate assets are difficult to model because of their simultaneous role as a consumption and investment good, illiquidity, and high transaction costs. Determining the most important factors affecting the amount of real estate assets in household portfolios is the first step toward a parsimonious parametrization of a life cycle model of investment and savings. Its inclusion in these models is important for economists and policymakers trying to anticipate changes in demand due to demographic shifts, and also may shed light on asset puzzles such as the stock non-participation puzzle.

In this paper I use the five most recent Surveys of Consumer Finance (SCFs) to examine three important questions that need to be answered before real estate can be studied in a dynamic model. The first question I address is who owns real estate. The issue of renting or owning adds complexity to already cumbersome asset allocation models. Existing models such as Hu (2002) incorporate the rent vs. own decision, while others such as Cocco (2002) do not. One possible simplification is to limit the analysis to households that own real estate. I find that over 90% of households headed by persons over 35 years and a net worth of at least \$100K own real estate according to the most recent SCF. Although household demographic characteristics have some explanatory power, high net worth is more closely linked to real estate ownership than age, income, or household demographic characteristics. Among households that own real estate, real estate is the largest household asset at all ages.

Next I address the question of how real estate assets are financed. Mortgage size impacts real estate investment return. There are several interesting results in the most recent SCF. I find that controlling for income and net worth, age does not have an economically significant affect on the total amount of real estate, but a large affect on how it is financed. Household characteristics such as marital status, number of children and years of education are more important in determining if real estate is owned than how it is financed. Employment related household characteristics are more important than demographic characteristics in determining real estate holdings and financing. Also, households pay off their mortgage as they age and do not move into smaller houses relative to their total assets. This is very interesting because this may be a non-optimal asset allocation decision. These results suggest that age and net worth are both important as predictors of the amount of real estate assets and how they are financed, and are vital in parametrizing an asset allocation model. In addition, models which assume that all assets are consumed in the last period of life are incorrect because there is strong evidence of bequests.

Finally, I examine real estate assets over the last five SCF surveys to see if there are any identifiable age or cohort trends. This is important if the results are going to be used in estimating demand due to demographic shifts. While there has been almost no change in the percentage of households owning real estate, in the most recent survey fewer assets are invested in real estate, and a slightly higher percentage of real estate assets are borrowed Real estate assets remain almost constant after age 35 in all surveys, and are not liquidated until well after retirement.

This paper differs from existing research in several important ways. Current studies of SCF data do not closely examine real estate leverage. My analysis most closely follows that of Di (2001), but I provide more detail on mortgage balances, income and age effects. I also use imputation weights to try to match the observations to the population. My analysis expands upon the analysis of Yao and Zhang (2002) who examine the difference between households with and without real estate assets. They focus only on the state variable of the ratio of financial wealth to labor income, and do not separately model the real estate leverage decision. My analysis provides the information needed to robustly parameterize the buffer stock model of Cocco (2001). The paper continues as follows: Section 2 provides a review of existing research, Section 3 describes the data and the empirical analysis, Section 4 discusses the results, and Section 5 concludes.

2 Previous Evidence

Most of the focus of the relevant existing research is on the empirical puzzle that on average households invest less in stocks than the optimal level predicted by consumption equilibrium models given the mean variance characteristics of the various asset classes. Some of this research includes real estate as part of an analysis of the affect of the ownership of other assets on stockholding. Several studies suggest that real estate holdings may be driven by income and net worth, and that tax rules play a role. Heaton and Lucas (2000) discuss the effect of entrepreneurial income on portfolio choice for stockholding households. They present evidence from the SCF showing that the share of assets invested in real estate is decreasing in net worth. In the model proposed by Flavin and Yamashita (1998) the ratio of housing to net worth declines as the household accumulates wealth, inducing a life-cycle pattern in the portfolio shares of stocks and bonds. Di (2001) examines the role of real estate as an investment for households of different income levels and racial backgrounds. He finds that two-thirds of American households own their homes while less than half own stocks, and 60% of those who owned both stocks and homes have more wealth in home

equity than in stocks. He identifies a deepening of mortgage debt between the 1995 and 1998 SCFs, and racial differences in asset allocation. Despite the optimal asset allocation predictions of many models, Venti and Wise (2001) conclude that, on average, home equity is not liquidated to support general non-housing consumption needs as households age. Using data from the 1995 SCF, Faig and Shum (2002) find that households that are saving to invest in their own businesses or in their own homes have a significantly smaller percentage of their assets in risky investments than households that are saving for retirement.

Several papers have examined the investment return to real estate. Henderson and Ioannides (1987) determine that when housing investment is constrained to be at least as large as consumption, agents may rationally over invest in housing from a mean-variance perspective because of it's role as a consumption good. Brueckner (1997) shows that this can lead to a risky asset allocation below that which is mean-variance efficient, although not irrational because households are using the consumption services of housing. Robst et. al. (1999) find evidence from the PSID that income uncertainty favors renting over owner–occupancy, and that individuals with more children, who are married, older, or have more financial asset income are more likely to own their home. Fratantoni (1998) examines the 1989 SCF and finds that households with high ratios of housing expenditure to labor income hold a lower amount of risky assets in financial wealth. Regression analysis shows that as homeowner mortgage payments grow the percentage of risky assets decrease, but for renters, higher rent did not lead to the same sharp decrease in risky assets. The author suggests that this is due to the liquidity risk of housing.

Cocco (2000 and 2001) solves a model of the optimal asset and consumption choices of a liquidity-constrained investor who derives utility from the consumption of both non-durable consumption goods and housing, and can invest in bonds, housing and risky assets. Using PSID labor income and house price data he finds a large positive correlation between income shocks and house price shocks, and a large negative correlation between house prices and interest rates. Labor income and interest rate risk reduce housing investment, and transaction costs of selling a house reduce the number of house trades and restrict investors' ability to take advantage of serial correlation in house prices. House price risk and transaction costs reduce stock holdings, with a larger effect at low levels of financial net worth. He also finds that investors with higher human capital acquire more expensive houses and borrow more due to the consumption dimension of housing.

Hu (2002) studies portfolio choices in a life cycle model in the presence of a rental market for homes. She finds higher housing adjustment transactions costs lead to higher investment in risky assets because of the lower probability of housing adjustment. Yao and Zhang

(2002) investigate the optimal dynamic consumption and asset allocation for an investor who receives stochastic labor income and can either rent or own a house. Their model predicts that owners hold more stock as a percentage of financial assets, but fewer financial assets as a percentage of total assets. When indifferent between renting and owning, the household holds more equity when it owns because home equity is risky but has a very low correlation with stock returns so there is a diversification benefit.

3 Empirical Method

3.1 Data Description

The SCF is conducted every three years by the Board of Governors of the Federal Reserve System and the Statistics of Income Division of the Internal Revenue Service. My analysis includes the five most recent public versions, 1989, 1992, 1995, 1998 and 2001. The surveys contain detailed information on household assets, sources of income, liabilities, demographic characteristics, and investment attitudes. For each household five implicates are provided to address issues of sample selection bias and missing information[1]. The full 2001 public sample surveyed 4,449 households, and there are 106.5M imputed households. In most tables I include 84.0M households with positive reported net worth.

3.2 Empirical Analysis

The tables contain four entries for real estate in order to identify the percentage of household assets invested in real estate and how it is financed. Residential real estate holdings are divided into the amount of owner-occupied residential real estate net of outstanding mortgages and home equity loans (RE Equity), the amount of residential real estate secured loans outstanding (RE Leverage), total real estate holdings (RE Total = RE Equity + RE Leverage) and the ratio of real estate leverage to total real estate holdings (Leverage Ratio = RE Leverage/RE Total). This ratio is shown because it is a measure of the riskiness of the real estate position. I compute means and medians of each entry relative to total assets for each household using the RII weights or the weights in the public dataset to adjust for survey sampling biases in addition to imputation weights. All regressions use the 5 imputation weights reported in the public dataset.

[1]Imputation is used to fill in missing information. Multiple imputation in the SCF is discussed in Kennickell (1998), and the Repeated-Imputation Inference (RII) technique is described in Montalto and Sung (1996). Recent concerns with survey bias, particularly regarding the exclusion of the some of the wealthiest households are discussed at http://www.federalreserve.gov/pubs/oss/oss2/papers/concent.1.pdf.

I use a normal kernel to weight the data and generate life-cycle profiles of real estate assets. For the profiles for each SCF survey I use a normal distribution with a standard deviation of 1 year to weight neighboring observations. The data by net worth is highly variable, so I increase the standard deviation to 5 years.

4 Results

4.1 Real Estate Ownership

The first question I address is who owns real estate. I find that although household demographic characteristics have some explanatory power, net worth is more important than age, income, and household characteristics as a predictor of real estate ownership. Among households that own real estate, real estate is the largest household asset at all ages.

Table 1 shows how widely real estate is held according to the 2001 SCF, and how it varies with age and net worth. Peak real estate holdings occur at ages 55-64 at all net worth levels. Over 90% of households aged 35 and up with net worth of at least $100K own real estate[2]. This fact underscores the importance of including real estate in any asset allocation model. It also suggests one possible simplifying parametrization of a dynamic asset pricing model that includes real estate. By limiting attention to these households, it may be reasonable to assume that all households own real estate without significantly changing the results. Table 2 shows real estate assets and details some characteristics of households that own real estate and those that do not. For owners, the largest percentage of household assets are invested in real estate at all ages[3]. I also include characteristics typically used in life-cycle models[4]. From this table it is apparent that there are many factors influencing home ownership. Households that own real estate have significantly higher income, assets, and net worth than households with no real estate holdings. More owners are married, have children, and have slightly more years of education.

It is unclear if home ownership is an effect of high net worth or a cause due to the necessity to accumulate enough assets for a down payment in order to purchase a home. Table 2 also shows the percentage of households who indicate that they are saving to buy a home. On average, 10% of households with no real estate assets indicated that they are saving to buy a home, while less than 2% of households that already own real estate assets

[2]Yao and Zhang (2002) Table 4 reports slightly lower owner fractions. This is possibly due to the fact that they do not use the imputation weights.

[3]In results not shown, cash was the largest percentage of assets for non-owners.

[4]For example see Gourinchas and Parker (2002).

indicate that they are saving for a home. This suggests that home ownership is only a small factor driving real estate asset acquisition, so it may be more of a result of higher net worth than a cause.

Four logit regressions are shown in Table 3 in order to separate the effect of each factor on real estate ownership. In each regression the dependent variable is a binary indicator equal to 1 if (RE Total > 0). Regressions (1), (2), and (3) suggest that net worth is more economically important than income as a determinant of real estate ownership. Age has very little economic significance in all the regressions. Number of children, years of education, and a binary variable indicating if the head of household is married all enter significantly into regression (4). However, the pseudo adjusted-R^2 decreases indicating that these variables do not add much explanatory power.

4.2 Real Estate Financing

Next I address the question of how real estate assets are financed. There are several interesting results. I find that controlling for income and net worth, age does not have an economically significant affect on the total amount of real estate, but a large affect on how it is financed. Household characteristics such as marital status, number of children and years of education are more important in determining how much real estate is owned than how it is financed, and households pay off their mortgage as they age. Employment related household characteristics are more important than demographic characteristics in determining real estate holdings and financing.

Table 4 contains regressions of the real estate variables conditional on the household owning real estate[5]. Regression (1) shows that Total RE decreases with both income and net worth, indicating that those with more wealth are shifting their assets away from real estate[6]. Regressions (5) and (7) show that RE Leverage and Leverage Ratio both increase with income and decrease with net worth. These results suggest there is a minimum net worth required to own real estate and obtain mortgage financing, and then as income and net worth continue to increase the amount of real estate decreases as the household diversifies its assets. As the head of household ages, RE Total stays about the same while RE Equity increases and RE Leverage decreases[7]. This indicates that households are paying off their mortgage as they age. Regressions (3) and (5) show that a 20 year increase in age results

[5] In all the regressions, log income and log net worth had higher power than income and net worth, so only log results are shown. Fratantoni (1998) found a similar result.

[6] This is consistent with the results of Flavin and Yamashita (1998) and Heaton and Lucas (2000).

[7] Consistent with the finding of Venti and Wise (2001), real estate is not liquidated during retirement, and there does not appear to be much of an age effect in the amount of real estate held.

in an increase in RE Equity of 8.0% and a decrease in RE Leverage of 7.8%.

Regressions (2), (4), (6), and (8) in Table 4 include household characteristics and occupation fixed effects to capture factors specific to the employment risks faced by the head of household[8]. In addition to those characteristics shown in previous tables, I also include tenure (years in current home), an indicator if the head of household is employed by and part-owner of a partnership, and an indicator if the head of household is self-employed excluding partnerships. Including these characteristics slightly increased the explanatory power of the regressions[9]. Demographic characteristics added little economic significance, but the occupation related variables were economically significant. Households that own a partnership own less real estate and are more highly leveraged, while those that are self-employed own more real estate. One potential explanation is that those in a partnership have shifted their assets to their business, while those who are on their own are more risk-averse and have more of there assets in real estate. This area needs further study.

Life-cycle profiles of the real estate variables by net worth are shown in Figure 1. Total RE peaks and then begins to slowly decrease after age 35, and is decreasing in net worth for all ages. It is not liquidated after retirement. RE Equity increases with age for all except the highest net worth quintile, and is decreasing in net worth. RE Leverage and Leverage Ratio peak around age 35 and are decreasing in net worth. Overall there are clear wealth and age effects for the real estate variables.

4.3 Trends in Real Estate Ownership

Finally, in this subsection I examine changes in real estate allocation over the last five SCF surveys to see if there are any identifiable trends. While there has been almost no change in the percentage of households owning real estate, in the most recent survey fewer assets are invested in real estate and a higher percentage of these assets are borrowed. Real estate assets remain almost constant after age 35 in all surveys, and are not liquidated until well after retirement.

During the last decade there has been an unprecedented increase in home prices. There

[8] In the public dataset the occupation of the head of household is top-coded into one of seven categories: 1 - Agriculture, 2 - Mining & Construction, 3 - Manufacturing, 4 - Wholesale Trade, 5 - Finance, Insurance, & Real Estate, 6 - Personal Services, 7 - Public Administration & Military, and 0 - Unemployed.

[9] In results not shown, when these regressions are run including all households (not just those that own real estate) adding household characteristics significantly increases the explanatory power of the regressions. This suggests that characteristics are more important as a determinant of real estate ownership than its quantity or method of financing. However, the R^2 of regressions were much lower that those that only include households with real estate, indicating that there are factors important to the real estate ownership that have not been captured.

has been virtually no change on the breadth of home ownership, however. Table 5 shows how the percentage of households owning real estate has changed over the five surveys. There is a slight increasing trend in the overall mean, but there is not trend among the age groups.

Table 6 shows that the mean and median percentage of real estate was the lowest in 2001 for all age groups except for 35-44. There was a greater than 10% decrease in the median amount of Total RE over the five surveys, and a slight increase in RE Leverage peaking in 1998. The net effect is a slight Leverage Ratio increase, peaking in 1998. The increase over the five surveys from 13.2%, 22.5%, 25.0%, 30.0%, to 25.8%. This is interesting because total real estate assets decreased at the same time home prices increased, suggesting that the value of other assets increased faster than home prices. One potential explanation is that households borrowed against the higher real estate equity from rising home prices and invested it in stocks or other assets[10].

Simply viewing this as a time effect is incorrect because this analysis suffers from an identification problem[11]. Figures 2 and 3 show life-cycle profiles of the real estate variables from both age and cohort views. Figure 2 shows that from a time view, RE Total and RE Equity are slightly decreasing until 1998. Real estate is not liquidated as households age. From a cohort view these variables are still decreasing, but the decrease is less dramatic. Figure 3 shows that RE Leverage increases after 1989 at all ages from a time view, while from a cohort view there does not appear to be a trend, suggesting that a change in lending practices is responsible for this effect. The Leverage Ratio is slightly increasing from an age view, but this is primarily due to the decreasing amount of RE Equity. From a cohort view the results of the Leverage Ratio are inconclusive.

To further investigate time effects, Table 7 shows the results of regressions of the real estate variables with year fixed effects. Trends can be seen looking at the fixed effect constants. RE Total and RE Equity are decreasing until 1998, while RE Leverage is significantly increasing until 1995 and Leverage Ratio increases until 1998. Age is economically significant for all 4 variables. These results confirm what was observed in the life cycle graphs.

5 Conclusion

In this paper I address issues important for the inclusion of real estate in life-cycle models of asset allocation. I find that controlling for income and net worth, age does not have an

[10] In results not shown, regressions showed no relationship between higher leverage ratio and higher stock holdings in the 1998 SCF, so I have not found any support for this explanation.

[11] Identification issues in the SCF are discussed in detail by Ameriks and Zeldes (2001).

economically significant affect on the total amount of real estate, but a large affect on how it is financed. Households pay off their mortgage as they age and do not move into smaller houses relative to their total assets. Over the last five SCF surveys, while there has been almost no change in the percentage of households owning real estate, in the most recent survey fewer assets are invested in real estate. Real estate assets remain almost constant after age 35 in all surveys, and are not liquidated until well after retirement.

Additional research is needed in several areas. First, further isolation of the effect of income uncertainty is possible. In future research I plan on including a measure of occupation specific income risk. Second, I have identified several interesting real estate trends, and intend to develop a model of real estate asset allocation to capture them. Third, one interesting question that I have not addressed in this paper is if increased real estate leverage lead to increased risky asset investment. Finally, other issues still exist before I can incorporate these results into a dynamic asset allocation model. In particular I wish to look in the incorporation of the real estate into the consumer utility function. Existing models use a Cobb-Douglas specification, but there has been no empirical evidence for using this functional form. Once this is resolved, by using the simplifying assumptions identified in this paper I will be able to robustly estimate an asset allocation model.

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Table 1: Percentage of Households Owning Real Estate - 1998 SCF

Net Worth		<35	35-44	45-54	55-64	65+	All
$0-$100K	Real Estate	51.3	70.4	74.9	78.7	66.1	66.7
	Std. Dev.	1.7	1.7	1.8	2.1	2.2	0.8
	Number	10.4M	10.4M	8.5M	4.9M	7.8M	42.1M
$100K-$250K	Real Estate	87.2	93.8	96.2	97.6	91.0	93.5
	Std. Dev.	3.5	1.8	1.3	1.2	2.1	0.9
	Number	1.9M	4.2M	4.1M	2.8M	4.9M	17.9M
$250K-$500K	Real Estate	96.2	94.4	92.4	98.6	95.4	95.2
	Std. Dev.	2.4	2.3	0.8	0.9	1.5	0.3
	Number	0.6M	1.9M	2.6M	2.1M	3.6M	10.8M
$500K-$1M	Real Estate	84.5	91.3	98.5	99.8	95.9	96.3
	Std. Dev.	11.2	3.8	1.3	0.2	3.1	0.9
	Number	0.3M	1.0M	1.7M	1.1M	2.1M	6.9M
$1M+	Real Estate	56.0	91.8	98.2	99.2	95.9	95.6
	Std. Dev.	17.5	2.8	0.7	0.5	3.1	1.4
	Number	0.2M	0.8M	1.6M	1.6M	2.1M	6.3M

This table reports means and standard deviations of the number of households reporting positive residential real estate holdings. Values are computed using the RII weights, and the imputed number of households is shown. There are 106.5 M imputed households in the full 2001 SCF sample. All households with positive reported net worth are included.

Table 2: Real Estate Assets and Characteristics by Age

	Real Estate Owners				
	<35	35-44	45-54	55-64	65+
RE Total	70.3 / 76.5	64.7 / 67.8	58.6 / 58.7	56.3 / 54.5	58.8 / 59.7
RE Equity	28.7 / 21.7	32.2 / 25.5	34.9 / 28.1	42.8 / 36.0	52.3 / 48.4
RE Leverage	41.6 / 39.9	32.5 / 30.0	23.7 / 17.2	13.5 / 3.3	6.5 / 0.0
Leverage Ratio	65.2 / 66.7	50.5 / 52.8	39.4 / 39.5	23.3 / 10.9	10.1 / 0.0
Total Assets (K)	264 / 148	460 / 222	715 / 260	910 / 267	668 / 231
Income (K)	67 / 54	96 / 64	115 / 68	99 / 50	51 / 28
Net Worth (K)	152 / 47	317 / 100	566 / 151	790 / 185	643 / 227
% Saving for Home	1.4	1.0	0.2	0.4	0.0
% Married	77.8	78.8	72.9	68.9	59.7
% With Children	59.4	75.5	54.6	24.7	9.7
Years Education	13.7 / 14.0	14.0 / 14.0	14.0 / 14.0	13.2 / 13.0	12.3 / 12.0
Imputed No.	7.9M	14.8M	16.1M	11.4M	17.8M
	No Real Estate Assets				
Total Assets (K)	76 / 9	98 / 16	114 / 15	108 / 11	147 / 14
Income (K)	37 / 28	43 / 31	44 / 32	36 / 29	29 / 13
Net Worth (K)	69 / 4	83 / 9	93 / 8	87 / 6	140 / 12
% Saving for Home	19.0	13.0	6.0	5.0	0.0
% Married	42.0	45.0	35.0	41.0	25.0
% with Children	37.0	50.0	36.0	16.0	5.0
Years Education	13.3 / 13.0	13.7 / 14.0	13.1 / 13.0	13.2 / 14.0	11.8 / 12.0
Imputed No.	5.5M	3.6M	2.5M	1.2M	3.4M

All data is from the 2001 SCF. All households with positive reported net worth are included. All values are the mean/median ratio of the row entry relative to total assets, computed using the weights in the public dataset. RE Equity is the value of all owner-occupied residential real estate owned net of RE Leverage. RE Leverage includes mortgages, home equity and other lines of credit which use this real estate as collateral. RE Total is the sum of RE Equity and RE Leverage. Leverage Ratio is RE Leverage/RE Total. All RE variables are scaled by total assets. Assets are defined as the sum of stocks, bonds, cash, pension, business, other and real estate holdings. Income is the amount reported on the tax return in the previous year. Net worth is total assets less debt of all types.

Table 3: Household Characteristics and Real Estate Ownership - Logit Regressions

	RE Ownership Indicator			
	(1)	(2)	(3)	(4)
Intercept	-10.32	-6.47	-9.06	-7.24
	(0.004)	(0.002)	(0.004)	(0.005)
Age	0.04	0.01	0.01	0.01
	(0.001)	(0.001)	(0.001)	(0.001)
Log Income	0.94		0.28	0.18
	(0.001)		(0.004)	(0.005)
Log Net Worth		0.73	0.68	0.76
		(0.001)	(0.001)	(0.002)
Children (Number)				0.27
				(0.003)
Married (Yes=1)				0.86
				(0.008)
Education (Years)				-0.17
				(0.001)
Pseudo Adj-R^2	0.46	0.40	0.40	0.39

All data is from the 2001 SCF. Standard errors are in parentheses. In all regressions the binary dependent variable is set equal to 1 if (RE Total > 0). All households with positive reported net worth are included. Income is the amount reported on the tax return in the previous year. Net worth is total assets less debt of all types. The pseudo adj-R^2 is calculated as -2 log L divided by the sample size plus the -2 log L. The regressions use the weights in the public data set.

Table 4: Household Characteristics and Real Estate Asset Financing

	Residential Real Estate Owners							
	RE Total		RE Equity		RE Leverage		Lev. Ratio	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	231.50	223.35	164.18	155.85	67.3	67.50	47.69	59.33
	(45.4)	(38.6)	(28.5)	(24.1)	(15.8)	(14.0)	(6.2)	(6.9)
Age	0.00	-0.09	0.40	0.11	-0.39	-0.19	-0.77	-0.37
	(0.1)	(2.2)	(11.9)	(2.4)	(15.9)	(5.9)	(17.6)	(6.4)
Log Income	-4.25	-3.08	-12.35	-9.17	8.10	6.09	10.37	6.95
	(8.2)	(5.1)	(21.0)	(13.7)	(18.6)	(12.2)	(13.3)	(7.6)
Log Net Worth	-10.54	-9.87	-1.01	-0.31	-9.54	-9.55	-7.19	-7.82
	(33.9)	(29.0)	(2.9)	(0.8)	(36.5)	(33.6)	(15.4)	(15.4)
Children (Number)		1.61		0.04		1.56		2.33
		(4.2)		(0.1)		(4.9)		(4.1)
Married (Yes=1)		0.24		-1.81		2.06		2.32
		(0.3)		(1.7)		(2.5)		(1.6)
Education (Years)		-0.64		-1.25		0.61		0.63
		(4.03)		(7.0)		(4.6)		(2.7)
Tenure (Years)		0.10		0.30		-0.21		-0.42
		(2.6)		(7.4)		(6.7)		(7.7)
Self Emp (Yes=1)		5.01		4.40		0.60		-1.52
		(2.0)		(1.6)		(0.3)		(0.4)
Partnership (Yes=1)		-6.64		-8.16		1.52		11.95
		(5.8)		(6.4)		(1.6)		(7.1)
Adjusted R^2	0.45	0.47	0.28	0.33	0.48	0.51	0.28	0.32

All data is from the 2001 SCF. The regressions use the weights in the public dataset. T-statistics are in parentheses. All households with positive reported net worth and RE Total are included. See Table 2 for definitions of real estate variables. Regressions (2), (4), (6) and (8) include occupation fixed effects. In the public dataset the occupation of the head of household is top-coded into one of seven categories:
1 - Agriculture, 2 - Mining & Construction, 3 - Manufacturing, 4 - Wholesale Trade, 5 - Finance, Insurance, & Real Estate, 6 - Personal Services, 7 - Public Administration & Military, and 0 - Unemployed.

Table 5: Percentage of Households Owning Real Estate

		<35	35-44	45-54	55-64	65+	All
1989	Mean	56.1	80.5	86.3	90.0	80.2	77.4
	Std. Dev.	1.6	1.3	1.6	1.3	1.2	0.7
	Number	16.2M	15.5M	12.2M	11.3M	18.3M	73.4M
1992	Mean	55.9	78.0	85.1	83.6	84.0	77.4
	Std. Dev.	1.0	1.0	1.0	1.3	0.9	0.4
	Number	14.3M	16.8M	13.4M	11.4M	19.6M	75.5M
1995	Mean	57.0	78.3	86.6	91.1	81.5	78.9
	Std. Dev.	1.4	1.0	1.0	1.3	1.0	0.5
	Number	13.4M	17.3M	14.8M	10.9M	20.3M	76.5M
1998	Mean	55.1	79.7	84.0	88.4	83.2	78.7
	Std. Dev.	1.3	1.1	1.1	1.3	0.8	0.4
	Number	13.3M	18.2M	16.6M	11.8M	20.9M	80.8M
2001	Mean	59.1	80.3	86.3	90.7	83.9	80.7
	Std. Dev.	1.2	1.0	1.0	0.9	0.7	0.4
	Number	13.4M	18.4M	18.6M	12.6M	21.2M	84.1M

This table reports mean and standard deviation of the number of households reporting positive residential real estate holdings, computed using the RII weights. All households with positive reported net worth are included. There are 93.0 M imputed households in the full 1989 sample, 95.9 M in the full 1992 sample, 99.0 M in the full 1995 sample, 102.5M in the full 1998 sample, and 106.5M in the full 2001 sample.

Table 6: Asset Allocation Trends

		<35	35-44	45-54	55-64	65+	All
1989	RE Total	77.1 / 86.9	68.5 / 75.9	62.9 / 68.2	59.6 / 61.7	60.2 / 62.5	65.3 / 72.2
	RE Equity	34.6 / 26.4	41.7 / 40.4	48.5 / 47.5	51.1 / 51.4	56.9 / 59.0	47.1 / 43.4
	RE Leverage	42.5 / 44.4	26.8 / 23.6	14.4 / 8.3	8.5 / 0.0	3.3 / 0.0	18.1 / 6.9
	Lev. Ratio	62.2 / 62.5	50.9 / 39.5	24.2 / 16.4	14.2 / 0.0	4.7 / 0.0	30.1 / 13.2
1992	RE Total	77.6 / 85.0	72.0 / 78.8	65.2 / 69.0	58.8 / 58.0	62.2 / 65.6	66.7 / 72.9
	RE Equity	37.0 / 30.1	37.4 / 30.5	42.6 / 36.8	47.7 / 44.5	58.4 / 58.4	45.4 / 39.1
	RE Leverage	40.6 / 44.5	34.6 / 32.0	22.6 / 15.5	11.0 / 1.3	3.8 / 0.0	21.3 / 11.2
	Lev. Ratio	54.9 / 60.0	49.1 / 51.8	40.8 / 32.1	18.8 / 3.2	6.3 / 0.0	32.4 / 22.5
1995	RE Total	76.3 / 83.1	70.6 / 77.1	64.0 / 67.8	62.1 / 66.1	63.7 / 67.4	66.6 / 72.6
	RE Equity	29.4 / 21.5	36.4 / 29.6	39.6 / 34.3	47.7 / 44.4	57.9 / 57.2	43.5 / 37.7
	RE Leverage	46.9 / 52.3	34.3 / 32.0	24.4 / 18.9	14.4 / 4.1	5.9 / 0.0	23.1 / 12.4
	Lev. Ratio	62.4 / 68.7	49.4 / 53.3	38.0 / 36.0	22.1 / 8.3	8.2 / 0.0	33.4 / 25.0
1998	RE Total	73.3 / 79.7	63.1 / 64.4	58.8 / 60.6	56.6 / 55.3	60.3 / 62.4	61.1 / 63.4
	RE Equity	32.0 / 23.1	29.7 / 22.4	35.3 / 28.1	40.7 / 34.0	54.3 / 54.2	39.1 / 31.7
	RE Leverage	41.3 / 45.8	33.4 / 31.0	23.6 / 18.4	15.8 / 7.0	6.0 / 0.0	22.0 / 13.2
	Lev. Ratio	56.4 / 65.0	53.9 / 60.0	42.2 / 40.0	27.0 / 17.5	11.4 / 0.0	36.3 / 30.0
2001	RE Total	70.3 / 76.5	64.7 / 67.8	58.6 / 58.7	56.3 / 54.5	58.8 / 59.7	60.2 / 61.5
	RE Equity	28.7 / 21.7	32.2 / 25.5	34.9 / 28.1	42.8 / 36.0	52.3 / 48.4	39.8 / 31.9
	RE Leverage	41.6 / 39.9	32.5 / 30.0	23.7 / 17.2	13.5 / 3.3	6.5 / 0.0	20.4 / 10.8
	Lev. Ratio	65.2 / 66.7	50.5 / 52.8	39.4 / 39.5	23.3 / 10.9	10.1 / 0.0	32.9 / 25.8

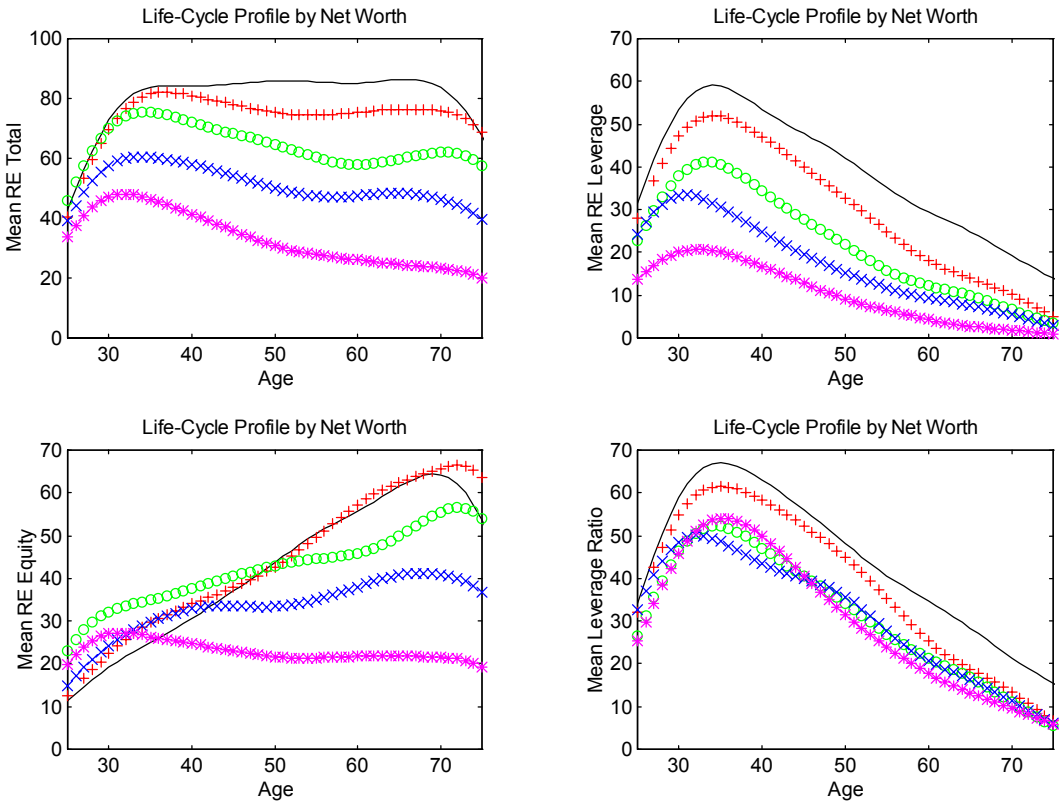
All values are the mean/median ratio of the row entry relative to total assets, computed using the weights in the public dataset. All households with positive reported net worth are included. See Table 2 for definitions of real estate variables. There are 93.0 M imputed households in the full 1989 sample, 95.9 M in the full 1992 sample, 99.0 M in the full 1995 sample, 102.5M in the full 1998 sample and 106.5M in the full 2001 sample

Table 7: Real Estate Regressions with Year Fixed Effects

	RE Total (1)	RE Equity (2)	RE Leverage (3)	Lev. Ratio (4)
Intercept	134.9	74.09	60.82	73.31
	(97.60)	(47.33)	(53.62)	(27.86)
1989	1.60	6.30	-4.70	-5.37
	(2.58)	(9.02)	(9.27)	(4.61)
1992	1.41	3.00	-1.58	-2.37
	(2.29)	(4.29)	(3.13)	(2.03)
1995	0.76	1.19	-0.42	-1.78
	(1.26)	(1.72)	(0.84)	(1.53)
1998	-1.82	-1.47	-0.34	1.56
	(2.98)	(2.12)	(0.69)	(1.35)
Age	-0.82	0.41	-0.49	-0.92
	(5.14)	(22.63)	(37.52)	(30.54)
Log Income	-10.32	-1.32	-9.00	-6.32
	(63.35)	(7.17)	(67.36)	(20.51)
Log Net Worth	-4.80	-12.58	7.79	10.32
	(18.08)	(41.87)	(35.78)	(20.55)
R^2	0.41	0.27	0.46	0.19

The regressions use the weights in the public dataset. T-statistics are in parentheses. All households with positive reported net worth and RE Total are included. See Table 2 for definitions of real estate variables. There are 93.0 M imputed households in the full 1989 sample, 95.9 M in the full 1992 sample, 99.0 M in the full 1995 sample, 102.5M in the full 1998 sample and 106.5M in the full 2001 sample. Income and assets are reported in 2001 dollars.

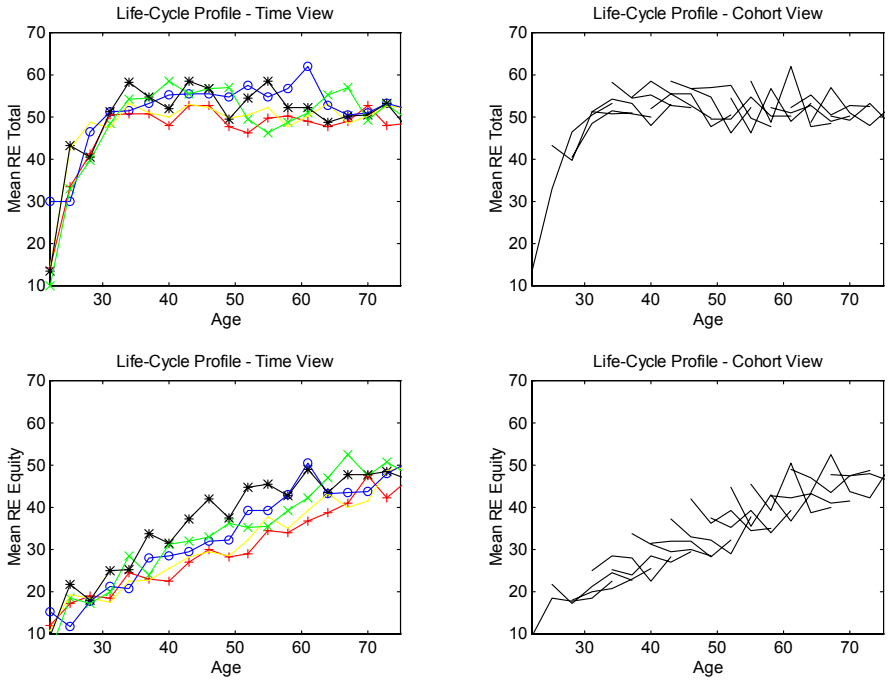
Figure 1: Life Cycle Profile of Real Estate Assets by Net Worth



Key: - =Net Worth in lowest Quintile, + = 2nd Quintile, o = 3rd Quintile, x = 4th Quintile, * = top Quintile

All data is from the 2001 SCF. All households with positive net worth and real estate are included. The weights in the public dataset are used to compute means. See Table 2 for definitions of real estate variables. Means for each age are smoothed using a normal kernel with a standard deviation of 5.

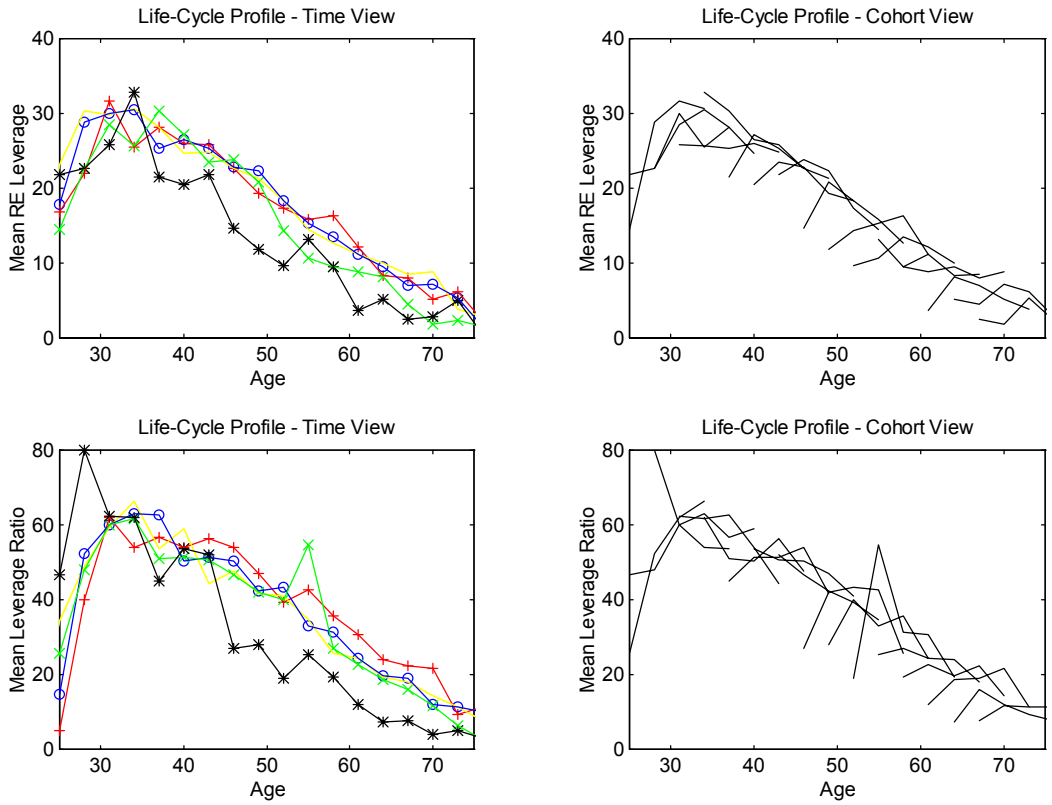
Figure 2: Life Cycle Profiles of RE Total and RE Equity in the Last 5 SCF's



Key: . = 2001, + = 1998, o = 1995, x = 1992, * = 1989

There are 93.0 M imputed households in the full 1989 sample, 95.9 M in the full 1992 sample, 99.0 M in the full 1995 sample and 102.5M in the full 1998 sample. All households with positive net worth and real estate are included. The weights in the public dataset are used to compute means. See Table 2 for definitions of real estate variables. Means for each age are smoothed using a normal kernel with a standard deviation of 1.

Figure 3: Life Cycle Profiles of RE Leverage and Leverage Ratio in the Last 5 SCF's



Key: . = 2001, + = 1998, o = 1995, x = 1992, * = 1989

There are 93.0 M imputed households in the full 1989 sample, 95.9 M in the full 1992 sample, 99.0 M in the full 1995 sample and 102.5M in the full 1998 sample. All households with positive net worth and real estate are included. The weights in the public dataset are used to compute means. See Table 2 for definitions of real estate variables. Means for each age are smoothed using a normal kernel with a standard deviation of 1.