

# Household Debt and IRAs: Evidence from the Survey of Consumer Finances

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*This study analyzes the relationship between household debt and the incidence of Individual Retirement Account (IRA) ownership using data from the Survey of Consumer Finances. In general, households who depend on credit card debt or consumer loans are less likely to establish an IRA than households who borrow in order to purchase real estate. For many households, establishing IRA savings appears to be a lower financial priority than other financial objectives such as credit card debt reduction or mortgage refinancing. Tradeoffs between IRA ownership and other financial objectives can reduce the effectiveness of the tax advantage of IRAs in stimulating retirement savings.*

Keywords: *Saving, Low income households*

## Introduction

The primary source of retirement income has changed dramatically over the last twenty years from the once prevalent defined benefit plan to the 401(k) plan. Substantial empirical research (e.g., Andrews, 1992; General Accounting Office, 1997; Bassett, Fleming, & Rodrigues, 1998; Kusko, Poterba & Wilcox, 1998; Madrian & Shea 2000; Munnell, Sunden, & Taylor, 2001; Joulfaïn & Richardson 2001; Cunningham & Englehardt, 2002) indicates that 401(k) plans have been highly successful in helping individuals prepare for retirement for two reasons. First, many employers match employee contributions to 401(k) plans. Second, employees once enrolled in a 401(k) plan tend to stay enrolled and maintain contributions. More recently, changes to the tax code documented by Gale and Orszag (2003) and changes in firm pension policy documented by Munnell and Sunden (2003) portend that Individual Retirement Accounts (IRAs) will play an expanded role in motivating households to save for retirement. The likelihood that IRAs will become a larger source of retirement savings for future workers suggests a need for additional research on the determinants of IRA ownership.

There has been relatively little empirical work on the factors that determine whether a household will establish an IRA. Instead, most empirical work related to IRAs (e.g., Gale & Scholz, 1994; Venti & Wise, 1986, 1990; Hubbard 1984) asks whether contributions to IRAs stimulate savings at the national level. It is likely that IRAs are less effective

at facilitating saving for retirement than employer-sponsored 401(k) plans. First, IRAs do not include an employer match. Second, contributions to IRAs tend to be sporadic rather than habitual for many households. Third, as noted by Burman, Coe, and Gale (2002) workers who switch jobs often fail to rollover funds into an IRA.

Results of this study suggest that returns on IRAs are likely to be lower than returns on several competing non-retirement financial objectives such as reduction of credit card debt, restructuring consumer and real estate debt, and eliminating mortgage insurance. The relationship between IRAs and household debt is more complex than implied by previous research. Gale and Scholz (1994) found a positive relationship between household debt and IRA balances, suggesting that household borrowing financed some IRA purchases. These results suggest that some real estate debt might be positively associated with IRA ownership, but credit card debt and consumer loans probably reduce the likelihood that a household will possess an IRA.

Consumers always have multiple uses for their funds. A simple rate of return calculation could persuade many households to delay saving for retirement, to avoid establishing an IRA, and instead use funds to pay off their credit card debt. However, the strategy of delaying saving for retirement cannot continue indefinitely without adverse consequences for families and for the economy at large.

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## Background

### *Trends pertaining to IRAs and 401(k) plans*

IRAs were created in 1974 to help workers without access to pension plans to save for retirement. The relative importance of IRAs as a source of retirement savings has evolved with changes in tax and pension laws. In 1981 eligibility for IRAs was expanded to all workers, including workers with pension plans. Roth IRAs, created by the 1997 tax law, do not allow deductions for contributions but do allow tax free savings for retirement. The 2001 tax law phased in higher contribution limits for both conventional and Roth IRAs. Contribution limits for both Roth and conventional IRAs are scheduled to rise to \$5,000 by 2008. The additional catch-up contribution limit for investors 50 years old or over is also scheduled to rise from its current level of \$500 to \$1,000 in 2006. The income limit for contributions to Roth IRAs is \$160,000 for married couples. The increase in both allowable contributions and income limits for allowable contributions suggests IRAs may become a more important source of retirement savings.

There are now three types of IRAs; (1) conventional fully deductible or partially deductible IRAs, (2) conventional non-deductible IRAs, and (3) Roth IRAs. Deductible IRAs provide two tax advantages; an immediate tax deduction and deferral of tax until after age 59 ½. Non-deductible IRAs do not provide a tax deduction but allow tax deferral. Qualification for the tax deductible IRA depends on the following factors: whether the individual or the individual's spouse is covered by a qualified pension plan at work, the adjusted gross income (AGI) on the individual's tax return, and an AGI cutoff based on filing status. Roth IRAs do not provide a tax deduction, but do provide a tax exemption. The contribution from Roth IRAs is fully taxed when earned but earnings from Roth IRAs are not taxed when disbursed. The choice between a Roth IRA and a deductible IRA will depend in large measure on the individual's tax rate during working years and during retirement. Roth IRAs will dominate the non-deductible IRA because the tax exemption and deferral features of the Roth IRA are preferable to the tax deferral feature of the conventional non-deductible IRA.

IRAs, despite these generous tax advantages, are less attractive than many 401(k) pension plans. Data from the Profit Sharing/401(k) Council of America (2002) reveal that over 90% of plans partially match employee contributions. The matching contributions provide a strong incentive for employees to contribute to their 401(k) plan because a one-year return on 401(k) contributions with a modest

employer match is almost always higher than returns from other uses of funds. Kusko, Poterba, and Wilcox (1998) and Madrian and Shea (2002) find that individuals who participate in 401(k) plans one year tend to continue participating the next year. Madrian and Shea find that it is useful for employers to automatically enroll eligible workers in 401(k) plans because workers who enroll in a plan tend to stay enrolled. The high persistence in 401(k) contributions could also in part be related to matching contributions from employers.

Several large corporations, including Charles Schwab, Ford, General Motors, Goodyear, and Prudential Securities, recently made headlines by cutting or suspending their 401(k) matching contributions. Munnell and Sunden (2003) list 15 major companies that suspended or cut their 401(k) plans between 2001 and 2003. They further report that company contributions to 401(k) plans as a percent of company payroll fell from 3.2% in 1997 to 2.5% in 2002. This change in pension policy is probably related to the business cycle and does not represent a permanent trend. However, a couple of decades ago, when defined benefit pension plans were prevalent, the business cycle did not have a similar impact on retirement savings for individuals who retained their position.

The suspension or elimination of 401(k) matches has potentially important implications for retirement savings. The change in rules reduces potential returns from 401(k) contributions. For many households, returns from other financial objectives, especially credit card debt reduction, would exceed returns from 401(k) contributions. IRAs may play a larger role in the new financial environment.

### *Trade-offs between IRAs and other financial goals*

Contributions to 401(k) plans are not the only use of funds likely to provide a higher return than investments in IRAs. Several features of credit card debt could make reduction of credit card debt a higher financial priority than establishing an IRA. Manning (2000) observed that the spread between credit card interest rates and the federal funds rate charged at the Federal Reserve was at least ten percentage points in every year during the 1990s. Ausubel (1991) observed that credit card rates are not sensitive to the cost of funds because of an adverse selection problem. When interest rates fall, households that plan to borrow on credit cards actively try to take advantage of lower interest rates. Households that plan to quickly pay off their credit card bill do not actively take advantage of lower rates. Decreased interest rates therefore lead to less

revenue and a riskier pool of borrowers. Bayot (2003) reports that credit card companies routinely add a stipulation in credit card agreements allowing resetting interest rates if the size and status of other debt changes. These negative features of credit card debt could persuade many households that elimination of credit card debt is a more important priority than establishing an IRA.

Some research (e.g., Canner, Kennickell & Lueckert 1995; Kennickell, Starr-McCluer & Sunden, 1997; Yoo, 1997, 1998) documents that credit card debt is a relatively small portion of total debt and that much of the growth in credit card debt occurred at the upper end of the economic spectrum. However, statistics in Table 1 indicate credit card debt is a substantial factor for households that do not own their own home. Even though credit card debt is a relatively small share of aggregate debt in the economy, credit card debt has a substantial impact on households that borrow from credit cards instead of other less expensive sources.

**Table 1**  
Credit Card Debt and Total Debt

	Credit card debt in trillions \$	Total debt in trillions \$	Credit card debt as % of total debt
Household head under 40 years old			
Non-homeowners	31.1	182.4	17.1%
Homeowners	45.6	1870.4	2.4%
All	76.7	2052.8	3.7%
Household head over 40 years old			
Non-homeowners	20.8	116.9	17.8%
Homeowners	98.8	3596.1	2.7%
All	119.6	3713.0	3.2%
All households			
Non-homeowners	51.9	299.3	17.3%
Homeowners	144.4	5466.5	2.6%
All	196.3	5765.8	3.4%

Source: 2001 Survey of Consumer Finances

Reduction of credit card debt is not the only financial objective that might take precedence over establishing an IRA. Consumer loans are not tax deductible and households might obtain larger financial benefits by paying off consumer loans and obtaining tax deductible mortgage debt rather than investing in IRAs. Homeowners might be able to reduce borrowing costs by reducing the loan-to-value (LTV) ratio on their mortgage; thereby, eliminating mortgage insurance. Mortgage insurance on a fixed rate 95% LTV is typically around 0.75% of the loan value. The elimination of mortgage insurance on a \$250,000 mortgage results in an annual savings of \$1,875. This savings is substantially larger than the annual tax savings from establishing an IRA.

The use of funds to reduce and restructure debt in order to improve credit scores could also result in a larger return than the return from establishing an IRA. Fair Isaac Corporation uses statistics on five factors; payment history, debt totals, length of credit history, new credit, and mix of credit, to create a credit score. The FICO score has a substantial impact on credit ratings and the cost of credit. For instance, it is entirely plausible for a 100 point improvement in FICO scores to be consistent with a decrease in mortgage interest rates from 8.0% to 6.0%. The yearly interest savings associated with the lower mortgage interest rate, around \$3,000, exceeds the potential savings from establishing an IRA. Similar cost differentials have been identified in articles by Black (2002), Chatzky (2003), and Jackson (2002).

Households are faced with scarce funds and conflicting financial objectives. Evidence on how the trade-off between financial objectives affects retirement savings can be obtained from the literature on lump sum distributions received by employees who switch jobs. Burman, Coe, and Gale (2002) find, despite tax penalties, lump sum distributions that are not rolled over into other pension plans have grown in recent years. Households with high levels of credit card debt or non-deductible consumer loans may be inclined to place a higher priority on paying off debt, improving credit scores, getting rid of mortgage insurance, and realizing lower interest costs instead of saving for retirement. The process of delaying saving for retirement also expands the amount of funds available for current consumption. Potential savings from debt reduction will not be realized if the household expands current consumption.

### Empirical Analysis

#### *Incidence of IRA Ownership*

This statistical analysis utilizes data from the 2001 Survey of Consumer Finances, a database created by the Federal Reserve Board. The Survey of Consumer Finances is a comprehensive survey of U.S. households including questions about household assets, debt, and pensions. The survey was administered to 4,442 households. Some households did not provide answers to all questions. Values for missing questions were imputed. The Survey of Consumer Finance database contains five replicates of the survey. Each replicate contains reported data and imputed data for items that were missing. The Survey of Consumer Finances database has information on 4,442 households in each of five data sets. Some researchers recommend using all available data in order to minimize problems caused by the use of imputed data. The results presented here are based on a single replicate of the survey.

However, a sensitivity analysis was conducted to analyze the impact of the choice of replicate on results.

The initial statistical analysis is based on respondents with a household head between the ages of 25 and 59. There were 3,028 households covered by the survey in this age group. The sample is not representative of the entire U.S. populations because this survey over samples high-income households. Weights are used to obtain unbiased estimates for the entire U.S. population.

Estimates in Table 2 reveal that of the 71.9 million households represented in the study, one third had IRAs. Most of the results presented here are consistent with the previous literature on IRAs and savings. Households with IRAs are older, more educated, more likely to be covered by private pensions, more likely to have high levels of liquid assets, and have higher debt levels than households without IRAs.

Households with IRAs are more likely to be included under a pension plan even though IRA contribution rules favor households without pension coverage. These statistics indicate that around 50 percent of households without IRAs are included in a pension plan at work. The preference for 401(k) plans over IRAs may reflect the incentive from employer matching contributions.

The numbers in Table 2 suggest that IRA owners are likely to have debt. In fact, 87.6% of IRA owners have debt compared to 82.4% of households without IRAs. Average debt for households with IRAs is more than two times higher than the average debt level for households without IRAs. Median debt levels are more than three times higher for households with IRAs than households without IRAs. Most of the higher total debt levels for households with IRAs can be attributed to real estate debt; however, households with IRAs also have higher credit card and consumer debt.

Lower consumer debt levels for households without IRAs could reflect the inability of some low-income households without savings to qualify for loans. When households cannot qualify for loans, the absence of debt is consistent with financial problems. In other instances, the presence of debt can be an indicator of financial problems.

The more notable difference between households with IRAs and households without IRAs involves the composition of debt. Statistics on debt composition,

**Table 2**  
Characteristics of Households with and without IRAs

	Households without IRAs	Households with IRAs
Millions of households	48.5	23.4
% of households	67.5	32.5
Age (mean)	40.8	44.4
Age (median)	41	45
Some College	57.1	86.7
Income (Mean \$)	49,800	131,400
Income (Median \$)	37,000	77,000
Income less than \$25,000 (%)	33.4	8.0
Narrow liquidity (mean \$) <sup>a</sup>	6,900	44,000
Narrow liquidity (median \$) <sup>a</sup>	1,500	8,900
Broad liquidity (mean \$) <sup>b</sup>	19,422	193,800
Broad liquidity (median \$) <sup>b</sup>	2,100	29,500
Have credit card debt (%)	54.1	44.5
Credit card balances (mean)	2,181	2,251
Credit card balances (median)	150	0
Have consumer debt (%)	71.7	63.3
Consumer debt (mean)	9,046	10,700
Consumer debt (median)	3,330	2,800
Have real estate debt %	48.6	72.2
Real estate debt (mean \$)	39,200	96,700
Real estate debt (median \$)	0	65,000
Have debt (%)	82.4	87.6
Total debt (mean \$)	49,000	110,600
Total debt (median \$)	21,000	77,300
Pension coverage at current position (%)	50.0	67.1

Source: 2001 Survey of Consumer Finances. Includes all households with head between the age of 25 and 59.

<sup>a</sup>Narrow definition of liquidity includes checking accounts, saving accounts, money market accounts and call accounts at brokerage firms.

<sup>b</sup>Broad definition of liquidity includes the components of the narrow definition plus certificates of deposit, non money market mutual funds, stocks, bonds and savings bonds.

which can only be measured for households with debt, are presented in Table 3. The mean proportion of credit card debt and consumer debt is substantially higher for households without an IRA than for households with an IRA. The median proportion of debt on credit cards is low for both groups, suggesting most households pay off credit card balances. The median proportion of real estate debt is over 90% for households with IRAs, compared to 66% for households without IRAs. These results are consistent with the view that households delay opening an IRA until they purchase a house and that reducing credit card debt and other forms of non-deductible consumer loans is often a higher financial priority than the establishment of an IRA.

**Table 3**  
Debt Composition for Households with Debt

	Households without IRAs		Household with IRAs	
	Mean	Median	Mean	Median
Households (millions)	40.0		20.4	
Percent of households	66.2%		33.8%	
Credit card debt as percent of total debt	18.4%	1.9%	8.9%	0.0%
Consumer debt as percent of total debt	47.0%	27.8%	25.5%	7.9%
Real estate debt as percent of total debt	49.4%	66.0%	73.0%	90.4%

Source: 2001 Survey of Consumer Finances, includes only households with head age 25 to 59.

Not all households with real estate debt are equally positioned to establish an IRA. Homeowners with a high LTV ratio may face financial constraints not faced by homeowners with substantial household equity. Table 4 presents a comparison of LTVs for homeowners with IRAs to homeowners without IRAs. The table only pertains to homeowners because households that do not own a home are not relevant to this comparison. Two results stand out from this table. Of homeowners without an IRA, 11.2% had an LTV ratio over 90% compared with 4.7% of homeowners with an IRA. Similarly, 56.4% of homeowners with IRAs have LTVs lower than 50% compared to 45.0% of homeowners without IRAs. Even though households with IRAs are more likely to have substantial real estate debt, IRA ownership is associated with lower LTV ratios.

**Table 4**  
Percentage Distribution of Households with and without IRAs by Loan-to-Value Ratio

	Without IRAs %	With IRAs %
Loan > 90% of value	11.2	4.7
Loan > 80% and ≤ to 90% of value	10.7	7.5
Loan > 50% and ≤ to 80% of value	33.1	31.4
Loan ≤ 50% of value	45.0	56.4
Total	100.0	100.0

Source: 2001 Survey of Consumer Finances.  
Includes only households with head age 25 to 59.

Debt composition and home equity variables only pertain to a subset of households in the population. It is especially difficult to compare households without debt to households with debt because households without debt are disparate. Some households without debt are unable to qualify for loans. Other households are affluent and have no need or desire to borrow. These differences imply that the results of an analysis of the entire population may differ from an analysis of subsets of the populations with debt and with real estate debt. Previous empirical work by Gale and Scholz (1994) found that increased debt is positively associated with IRA balances. However, some households with too much debt or the wrong type of debt might be deterred from establishing an IRA.

#### *Econometric analysis*

The more formal statistical analysis involves logit models to predict household IRA ownership. The basic logit equation can be written in the following form:

$$\log(p/(1-p)) = b_0 + b_1X_i$$

In the above,  $p/(1-p)$  is the odds that a household has established an IRA and  $X_i$  is a vector of explanatory variables describing the household.

The basic models were estimated with data from households with a head between the age of 25 and 59. Most households in this age group are working and could be preparing for retirement. The coding of variables included in these models as presented in Table 5 are:

Age	age of household head.
Income greater than \$25,000	1 if income was greater than \$25,000 per year; 0 otherwise
Some college	1 if adults in household had some college; 0 otherwise.
Other pension coverage:	1 if household has other pension coverage; 0 otherwise
Marital status	1 if household head is divorced or separated; 0 otherwise
Liquidity greater than \$25,000	1 if household has > \$25,000 in liquidity (narrowly defined); 0 otherwise.
Credit card debt greater than liquidity	1 if credit card balances are greater than liquidity; 0 otherwise.
Consumer debt greater than liquidity	1 if consumer loan balances are greater than liquidity; 0 otherwise.
Real estate debt	Real estate loan balances

**Table 5**  
Logit Models for IRA Ownership

	All households (n=3028)		Homeowners with debt (n=1850)	
	Model I	Model II	Model I	Model II
Intercept	-3 ***	-2.8 ***	-3.1 ***	-2.9 ***
Age	.045 ***	.042 ***	.039 ***	.037 ***
Income less than \$25,000	-1 ***	-1.1 ***	-0.74 **	-0.76 ***
Some college	1.2 ***	1.2 ***	1.1 ***	1.1 ***
Other pension coverage	-0.015	0.037	-0.120	-0.09
Marital status	-0.47 ***	-0.51 ***	-0.52 **	-0.53 **
Liquidity greater than \$25,000	1.2 ***	1.1 ***	0.92 ***	0.88 ***
Credit card debt greater than liquidity	-0.88 ***		-0.74 ***	
Consumer debt greater than liquidity		-0.64 ***		-0.45 ***
Real estate debt	0	0		
Real estate debt as % of total debt			0.65 ***	0.56 **
Loan-to-value ratio greater than 80%			-0.36 *	-0.35 *
Loan-to-value ratio less than 50%			0.33 **	0.33 **
Log likelihood	1040	1023	483	470

Source: Equations estimated from the 2001 Survey of Consumer Finances. Model explains log of the odds that a household has an IRA.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Two versions of the basic logit model are presented in the first two columns of Table 5. The first representing credit card balances greater than liquidity (Model I); the other representing consumer loan balances greater than liquidity (Model II). The basic logit model indicates that age, income, some college education, and high liquidity levels were positively associated with IRA ownership. The marital status variable was strongly negatively associated with IRA ownership.

The impact of other pension coverage on IRA ownership was difficult to anticipate. On the one hand, IRA eligibility rules are more lenient for households without other pensions and households without pensions have a greater need to establish IRAs. However, households with pensions have demonstrated a propensity to save, which should also facilitate IRA ownership. The basic logit coefficient estimates presented in the first two columns of Table 5 indicate the other pension coverage variable is not statistically related to IRA ownership.

The basic logit models in the first two columns of Table 5 indicate that the type of household debt impacts whether a household establishes an IRA. The variables comparing credit card debt and consumer loans to liquidity are negatively associated with IRA ownership; however, real estate debt is not related to IRA ownership. Apparently, large levels of consumer debt and credit card debt can deter IRA ownership, but larger overall debt levels including real estate debt do not have a similar impact.

An analysis of factors affecting household IRA ownership based on a broad cross-section of the

population can provide potentially misleading results. The segment of the population without debt contains both affluent households who don't need to borrow and indigent households who cannot qualify for loans. A comparison of a group of households with debt to this disparate group of households without debt may obscure the potential role of excessive debt on household IRA ownership. Households with excessive debt are more likely to have an IRA than are households that cannot qualify for loans. However, households with excessive debt are less likely to have an IRA than households that do not need to borrow.

The alternative IRA ownership models considered in the last two columns of Table 5, which pertain only to homeowners with debt, allow for an assessment of the impact of debt type on IRA ownership. The models include both a variable measuring the proportion of total debt composed of real estate debt and variables measuring loan-to-value ratios.

The age, income, education, other pension, divorce, liquidity, credit card debt compared to liquidity, and consumer debt compared to liquidity variables for the alternative models have the same sign as these variables in the basic models. The real estate debt variable as a percent of total debt is significant and positively related to IRA ownership. The high-LTV variable is not related to IRA ownership, at conventional significance levels. The low-LTV variable is positively and significantly related to IRA ownership.

The impact of particular variables on the probability that a household has established an IRA can be

calculated by transforming the logit function. The probability of IRA ownership can be written as:

$$p = \exp(\text{logit}(p)) / (1 + \exp(\text{logit}(p)))$$

where  $\text{logit } p$  is defined by a particular vector of  $X$ . Greene (1997, p. 874) explains how to transform logit values to probability estimates.

For illustrative purposes, this formula was used to compare the probability of IRA ownership for two different households based on the last model in Table 5. Both households had a household head who was 40 years old, earned more than \$25,000 per year, had some college education, was not divorced or separated, and had more than \$25,000 in liquidity. Based on these characteristics, both households should be motivated and well positioned to own an IRA. The households differ with regard to their debt composition. The first household with 90% of total debt tied to real estate, an LTV less than 50%, and consumer debt less than liquid assets, had a more favorable debt structure than the second household with 50% of debt tied to real estate, a high LTV, and consumer debt greater than liquid assets. Based on this logit model, the estimated probability of IRA ownership is slightly over 80% for the first household compared to slightly over 50% for the second household. These calculations suggest that debt composition can have a large impact on the incidence of IRA ownership and, by extension, retirement income.

There is always a concern that reported results are sensitive to small changes to the model specification. Alternative models were considered with different versions of the demographic, financial, and economic variables in order to assess the sensitivity of the reported results. One potential concern involves the choice of the income variable. It is potentially possible that models with more comprehensive information about household income would differ from the model reported here. Alternative models with a continuous income variable and a more comprehensive set of income dummy variables were estimated. For all specifications considered, the credit card compared to liquidity variable is negative and strongly related to a lower probability of IRA ownership and the real estate debt proportion variable was positive and significantly related to IRA ownership. Alternative specifications, with different measures of household education and marital status, were also considered. All specifications supported the hypothesis that credit card debt was negatively related to IRA ownership as well as the hypothesis

that debt composition, not total debt, impacted the incidence of IRA ownership.

The basic logit model presented in Table 5 included an age variable; however, this model did not allow for possible interaction effects between age and other variables. In order to determine the influence of age on the relationship of demographic, financial, and economic variables on IRA ownership, the sample is divided into two groups based on whether the household head was over 40 years old. The logit coefficients presented in Table 6 reveal that the impact of the explanatory variables on the incidence of IRA ownership does vary for the two groups. Income and age are more important determinants for younger households. Results reveal a significant, but weak, interaction between age and education, divorce and some financial variables.

Model I for homeowners with debt, the model presented in the third column of Table 5, was compared to an unrestricted version of this model with the unrestricted model including age/variable interaction variables for all ten variables in the original restricted model. The Chi-square statistic for the null hypothesis that all ten interaction variables were zero was rejected at a significance level of 0.05. Some of the particular parameters, for instance, the coefficient on age and the coefficient on income that are presented in Table 6 do appear to differ sharply across age groups. There were only 554 households in the younger age group. Inter-group differences should be further explored in future research with larger samples.

**Table 6**  
IRA Ownership Logit Models by Age Group

	Age of household head	
	40 or less	over 40
Sample Size	554	1296
Intercept	-3.5***	-2.5***
Age	0.0520*	0.0286*
Income less than \$25,000	-1.4**	-0.4395
Some College	0.9***	1.2***
Other pension coverage	0.04	-0.1975
Marital status	-0.4277	-0.5808**
Liquidity greater than \$25,000	0.793**	0.9812***
Credit card debt greater than liquidity	-0.7503**	-0.7787***
Real estate debt as % of total debt	0.5868	0.6414**
Loan-to-value ratio greater than 80%	-0.0214	-0.6503**
Loan-to-value ratio less than 50%	0.4673	0.2595
Log likelihood	106.9	314.4

\* $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Source: Equations estimated with data from the 2001 Survey of Consumer Finances. Model explains log of the odds that a household has an IRA.

As noted previously, the 2001 Survey of Consumer Finances database contains both collected and imputed data. Five separate versions of the Survey of Consumer Finances, each with different imputed variables are released. The released database contains information on over 22,210 households even though only 4,442 households were actually contacted. The purpose of the additional versions of the Survey of Consumer Finances is to correct for uncertainty arising from the data imputation process. Montalto and Sung (1996) recommend estimating models with multiple replicates of the data. This repeated-imputation inference (RII) technique is a weighted average of model estimates from all five versions of the Survey of Consumer Finances. Many logit models estimated with the Survey of Consumer Finances use a single imputation from the data sets. Others report results from a single imputation but test for robustness with all five imputation data sets.

In the applications considered in this paper, there is relatively little uncertainty regarding either the dependent variable or many of the explanatory variables. Even if credit card debt is not precisely known there may be relatively little error in a variable that compares credit card debt to liquid assets. The results presented in this paper do not appear to be sensitive to the choice of the Survey of Consumer Finances replicate used to estimate the logit model. Potential sensitivity to the imputation process was assessed by estimating the model on each of the five imputation sets separately and comparing the sets of coefficients. The first model in Table 5 was estimated for each of the five imputed databases. The six significant coefficient parameters are significant for all five imputations of the database. One of the insignificant variables, representing pension coverage, is insignificant for all five of the estimated regressions. The second insignificant variable, real estate debt, is insignificant for four of the five model estimations. The repeated-imputation inference (RII) technique, a weighted average of the five versions of the model, should, in these circumstances, be compatible with results from a single version of the survey.

### Conclusions and Recommendations

The question of whether U.S. households are adequately preparing for retirement and what if anything should be done to facilitate greater retirement preparedness is a major policy concern as evidenced by the CBO (2003) assessment of 17 separate studies on the adequacy of retirement savings. Three of these studies Montalto (2001), Warshawsky and Ameriks (2000), Yuh, Montalto, and Hanna (1998) suggest that approximately one

half of American households are adequately preparing for retirement. In addition, Engen, Gale, and Uccello (1999, 2002) find inadequate savings among the bottom quartile of the income and wealth distributions.

Thaler (1994) suggests that many households have trouble adequately preparing for retirement because they have trouble exercising self control over consumption and the lack of opportunity to learn from mistakes. The empirical results presented here confirm that there is a substantial disparity in the types of households that own an IRA. Not surprisingly, households with a substantial propensity to consume, measured in part by the consumer debt or credit card debt composition variables, are less likely to establish an IRA. Also, not surprisingly, divorce reduces the likelihood that a household owns an IRA. Given these disparities among households, what type of policies would most effectively encourage households to start preparing for retirement?

There is no one approach that will help all households. Potential rule changes involve strengthening 401(k) plans, altering IRAs, changing IRA contribution rules, and perhaps implementing an additional mandatory private account. The empirical literature indicates that 401(k) plans with employer matches are highly effective at facilitating retirement savings. However, as noted by Bernstein (2002) small firms often have limited fringe benefits and often do not offer a 401(k) plan or a plan with an employer match. The recent increase in IRA contributions and the development of Roth IRAs may be especially important for employees of smaller firms.

The results reported in Table 6 suggest that low income is more likely to deter IRA ownership by young households than old households. Low-income deters younger households from owning an IRA even though IRA deductibility is directly linked to adjusted gross income. The lower participation rate for low-income households can in part be explained by the lower marginal tax rate for this group; however, low-income households are also eligible for a retirement savings contribution credit on IRS form 1040. This tax credit, which is not as highly publicized as other tax advantages of IRAs, directly reduces taxes owed. Despite this additional tax credit, IRAs do not appear to be effective at stimulating retirement savings for younger low-income households.



The Roth IRA is more attractive for high-income households; however, current rules do not allow contributions above an income threshold of \$160,000 per year. Results from the papers by Engen, Gale and Ucello (1999 and 2002) suggest that adequacy of retirement income is a more substantial problem for lower income groups. However, household income can fluctuate substantially for a wide variety of reasons including divorce and departures from the workforce in order to raise a family. The restriction on IRA contributions for high-income households could reduce retirement incomes for households that experience income fluctuations. The relative advantages and disadvantages of income limits on IRA contributions can only be addressed with data from a survey that tracks household finances over time.

As discussed in the literature on 401(k) participation, there is considerable inertia regarding the decision to contribute to 401(k) plans. Participation rates are higher in plans with automatic enrollment options because some new employees simply follow the default option. Moreover, employees once enrolled in a 401(k) plan tend to remain enrolled. Financial institutions could similarly motivate IRA contributions by encouraging savings through automatic deposits. Also, procedures could be adopted at the time the employee enrolls in the 401(k) plan for automatic roll over into an IRA once the employee leaves the firm. Such procedures could substantially reduce the number of employees who take lump-sum withdrawals.

It is very easy for some households with limited financial means and high credit card debt to justify the decision to delay saving for retirement. For some households, the best use of funds could always involve reducing high-interest credit card debt. The trade-off between opening an IRA and using funds for other priorities will have a substantial impact on retirement savings of future workers.

#### References

- Andrews, E. S. (1992). The growth and distribution of 401(k) plans. In J. A. Turner & D. J. Beller (Eds.), *Trends in Pensions* (pp. 149-176). Washington, DC: U.S. Department of Labor.
- Ausubel, L. M. (1991). The failure of competition in the credit card industry. *American Economic Review*, 81(1), 50-81.
- Basett, W. F., Fleming, M. J., & Rodriques, A. P. (1998). How workers use 401(k) plans: The participation, contribution and withdrawal decisions. *National Tax Journal*, 51, 263-81.
- Bayot, J., (2003, May 29). Surprise jump in credit rates brings scrutiny. *The New York Times*, p. A1.
- Bernstein, D. (2002). Fringe benefits and small businesses: evidence from the Federal Reserve Board Small Business Survey. *Applied Economics*, 34, 2063-67.
- Black, J. (2002, April) How fair is fair Isaac? *Business Week Online*. Retrieved June 12, 2004, from [http://www.businessweek.com/bw50/content/apr2002/bf2002044\\_4533.htm](http://www.businessweek.com/bw50/content/apr2002/bf2002044_4533.htm)
- Burman, L. E., Coe, N., & Gale, W. G. (1999). What happens when you show them the money? Lump sum distributions, retirement income security, and public policy. Retrieved June 12, 2004, from, [http://www.urban.org/UploadedPDF/LSD\\_Final.pdf](http://www.urban.org/UploadedPDF/LSD_Final.pdf).
- Canner, G. B., Kennickell, A. B., & Lueckett, C. A. (1995). Household sector borrowing and the burden of debt. *Federal Reserve Bulletin*, 81, 322-38.
- Chatzky, J. (2003, March). Keeping score. *Money*, 142.
- Congressional Budget Office. (2003). Baby boomers' retirement prospects: An overview. Retrieved June 12, 2004, from, <ftp://ftp.cbo.gov/48xx/doc4863/11-26-BabyBoomers.pdf>
- Cunningham, C. R. & Englehardt G. V. (2002). Federal tax policy, employer matching and 401(k) saving: Evidence from HRS W-2 records. *National Tax Journal*, 55, 617-645.
- Diamond, P. A. & Hausman, J. A. (1984). Individuals retirement and savings behavior. *Journal of Public Economics*, 23, 81-114.
- Engen, E. M., Gale, W. G., & Ucello, C. E. (2000). The adequacy of retirement saving. In W. C. Brainard & G. L. Perry (Eds.), *Brookings Papers on Economic Activity*, 2, (pp. 65-165). Washington, DC: Brookings Press.
- Engen, E. M., Gale, W.G., & Ucello, C.E. (2004) Effects of stock market fluctuations on the adequacy of retirement wealth accumulations (Working Paper No. 2004-16). Boston College Center for Retirement Research.
- Gale, W. G., & Scholz J. K. (1994). IRAs and household savings. *The American Economic Review*, 84, 1233-1260.
- Gale, W. G. & Orszag, P. R. (2003). Whither pensions? A brief analysis of Portman-Cardin III. *Tax Notes*, 573-578.
- General Accounting Office (1997). 401(k) pension plans loan provisions enhance participation but may affect income security for some. (Health, Education, and Human Services Rep. No. B-277050). Retrieved June 12, 2004 from, <http://www.gao.gov/>
- Greene, W. H. (1997). *Econometric Analysis* (3<sup>rd</sup> ed.). Upper Saddle River NJ: Prentice Hall.
- Hogarth, J. M. & O'Donnell, K. H. (2000). If you build it, will they come? A simulation of financial product holdings among low to moderate income households. *Journal of Consumer Policies*, 23, 409-444.
- Hubbard, G. (1984). Do IRAs and Keoghs increase savings? *National Tax Journal*, 37 43-54.
- Jackson, M. (2002, June). Borrowing. *Money*, 174.
- Joulfaian, D. & Richardson, D. (2001). Who takes advantage of tax-deferred savings programs? Evidence from federal income tax data. *National Tax Journal*, 54, 3, 669-88.

- Kennickell, A. B. & Starr-McCluer, M. (1994). Changes in family finances from 1989 to 1992: Evidence from the Survey of Consumer Finances. *Federal Reserve Bulletin*, 80, 861-882.
- Kennickell, A. B., Starr-McCluer, M. & Sunden, A. (1997). Family finance in the United States: Recent evidence from the Survey of Consumer Finances. *Federal Reserve Bulletin*. 83, 1-24.
- Kusko, A., Poterba, J. M. & Wilcox, D. (1998). Employee decisions with respect to 401(k) plans. In O. S. Mitchell & S. Schieber (Eds.), *Living with Defined Contribution Pensions: Remaking Responsibility for Retirement* (pp.98-112). Philadelphia: University of Pennsylvania Press.
- Madrian, B. & Shea, D. (2002). The power of suggestion: Inertia in 401(k) Participation and savings behavior. *Quarterly Journal of Economics*, 116, 1149-1187.
- Manning, R. D. (2000). *Credit card nation: The consequences of America's addiction to credit*. NY: Basic Books.
- Montalto, C. P. (2001). Retirement wealth and its adequacy: Assessing the impact of changes in the age eligibility for full Social Security benefits. (Working Paper 2001-07). Boston College Center for Retirement Research.
- Munnell, A. & Sunden, A. (2003). Suspending the employer 401(k) match. (Issue Brief No. 12). Boston College Center for Retirement Research.
- Munnell, A. & Sunden, A., Taylor, C. (2000). What determines 401(k) participation and contributions? (Working Paper No. 2000-12). Center for Retirement Research at Boston College.
- Thaler, R. (1994). Psychology and savings policies. *American Economic Review Papers and Proceedings*, 84, 186-192.
- Venti, S. F. & Wise, D. A. (1986). Tax deferred accounts, constrained choice and estimation of individual saving. *Review of Economic Studies*, 53, 579-601.
- Venti, S. & Wise, D. A. (1990, August). Have IRAs increased U.S. saving? Evidence from Consumer Expenditure Surveys. *Quarterly Journal of Economics* 105, 661-698.
- Warshawsky, M. J. & Ameriks, J. (2000). How prepared are Americans for retirement? In O. S. Mitchell, P. B. Hammond, & A. M. Rappaport (Eds.), *Forecasting Retirement Needs and Retirement Wealth* (pp. 33-67). Philadelphia: University of Pennsylvania Press.
- Yoo, P. S. (1997). Charging up a mountain of debt: Accounting for the growth of credit card debt. *Economic Review*, 79(2), 3-13. Federal Reserve Bank of St. Louis.
- Yoo, P. S. (1998). Still charging: The growth of credit card debt between 1992 and 1995. *Economic Review*, 80, 19-27. Federal Reserve Bank of St. Louis.
- Yuh, Y., Montalto, C. P. & Hanna, S. (1998). Are Americans prepared for retirement? *Financial Counseling and Planning*, 9(1), 1-13.