Saving for Retirement: A Look at Small Business Owners

A Working Paper by

Jules H. Lichtenstein
Office of Advocacy
U.S. Small Business Administration

Office of Advocacy
www.sba.gov/advo

Release Date: March 2010

Saving for Retirement: A Look at Small Business Owners

A Working Paper by

Jules H. Lichtenstein
Office of Advocacy
U.S. Small Business Administration

Release Date: March 2010

Contents

Tables

Charts

Executive Summary

This paper identifies and fills several gaps in our understanding of the retirement savings behavior of business owners and the self-employed. It deals with the retirement savings behavior of business owners; most existing research has examined the retirement savings behavior of workers and families. It analyzes the relative importance of business owner characteristics and characteristics of businesses in determining how business owners and the self-employed save for retirement. The paper utilizes data from the U.S. Bureau of the Census's Survey of Income and Program Participation (SIPP), 2004 Panel, Wave 7. The reference period for the data is the four-month period January 2006 to April 2006.

Two basic methods are used in the survey data analysis. First, a descriptive analysis of business owner characteristics by business size was performed. These socio-demographic and business characteristics were also analyzed with respect to retirement plan options (i.e., Individual Retirement Account (IRA) ownership, Keogh ownership, IRA or Keogh ownership, IRA contributions, and 401(k)/Thrift plan participation). Next, multivariate logit models were used to isolate the effect of specific socio-economic or business characteristics on a business owner's retirement plan decisions.

The research divides business owners into two distinct ownership groups based on the number of employees that work at a business: micro-business owners who employ fewer than 10 workers and owners of larger businesses who employ 10 or more workers. Over 91 percent of the 4,922 business owners in the nationally representative sample owned a business with less than 10 employees. Conventional wisdom holds that owners of larger businesses are more successful and more likely to have and contribute to retirement saving accounts than micro-business owners.

The key results of this study suggest some cause for concern about the retirement savings plan behavior of business owners. Retirement account ownership, contribution, and participation rates for all business owners are low. Individual-based (outside work) retirement account ownership, contribution activity and employment-based participation (at work) among business owners are low. The IRA ownership rate for business owners is only about 36 percent, and only one-third of business owners with an IRA contributed for the 2005 tax year. Less than 2 percent of business owners own a Keogh plan. Only about 18 percent of business owners participate in a 401(k)/Thrift plan.

Both business owner characteristics and the characteristics of businesses have a significant impact on an owner's retirement savings decisions. In addition, asset accumulation significantly affects owners' retirement savings behavior. Business owners are more likely to own an IRA and participate in a 401(k)/Thrift plan if they own a home and participate in other retirement savings accounts. Participation in retirement account plans (e.g., an IRA) does not appear to preclude or substitute for owners participating in other types of retirement account plans (e.g., 401(k)/Thrift plans).

In addition, business owners are more likely to own or contribute to retirement accounts if they are older, non-minority, educated, and have more established business(es) (e.g., larger, older, profitable), and own more than one business. Business size is related to 401(k)/Thrift plan participation but not to IRA or Keogh ownership or IRA contributions.

Having a micro-business with fewer than 10 employees reduces the probability of an owner having a 401(k)/Thrift plan from 17.4 percent to 10 percent, all else equal. Sole proprietors and those owners with home-based businesses are less likely to own IRAs or participate in 401(k)/Thrift plans

Being a male business owner reduces the probability of IRA ownership from 35.6 percent to 31.2 percent, all else equal. However, being male increases the probability of a business owner owning a Keogh account and participating in a 401(k)/Thrift plan. Hispanic origin significantly reduces the probability of a business owner having an IRA, all else equal (from 35.6 percent to 17.6 percent); however, it is not a significant factor in determining 401(k)/Thrift plan participation. Being white increases the probability of owning an IRA but does not have a significant effect on 401(k)/Thrift plan participation.

Policy implications of the study's findings include developing ways that help the owners of the smallest businesses, especially home-based businesses and sole proprietorships, increase their retirement savings. Developing ways to help minority, especially Hispanic, business owners increase their retirement savings is also a policy goal suggested by this study's results. In addition, there is a need to better coordinate employer-based retirement accounts with individual-based accounts like IRAs and make plans less complex and burdensome, especially for owners of micro-businesses. Future research could include analyzing the effect of default provisions on behavior in both individual- and employment-based retirement account plan options.

Introduction

Many observers report that Americans do not save enough and that retirement savings are especially inadequate. This is said to be the case for households and workers, as well as business owners[1] and the self-employed. This paper identifies and fills several research gaps in our understanding of the retirement savings behavior of business owners and the self-employed. The paper will analyze the relative importance of business owner characteristics and characteristics of businesses in determining how business owners and the self-employed save for retirement.

This paper utilizes the U.S. Bureau of the Census's Survey of Income and Program Participation (SIPP) 2004 Panel, Wave 7, which includes special topical modules measuring annual income and retirement account status as well as retirement expectations and pension plan coverage of workers and business owners. This survey asked a wide range of retirement savings questions to a nationally representative sample of the U.S. population, including 4,922 business owners, in 2006.[2] This paper deals only with the retirement savings behavior of business owners; most existing research has examined the retirement savings behavior of workers and families.[3]

---

[1] The term "business owner" is used interchangeably with the term "self-employed."
[2] SIPP 2004 Panel is a longitudinal survey where each sampled household is re-interviewed at four-month intervals over a period of roughly four years. One cycle of four interview months covering the same sample, using the same questionnaire, is called a "wave." The sample in each wave consists of four rotation groups (one-quarter of sample and each random subsample), each interviewed in a different month. The four Wave 7 interview months were from February 2006 to May 2006. The reference period for the questions is the four-month period preceding the interview month. This study uses the fourth interview month (May 2006); therefore the reference period for the questions is January 2006 to April 2006. Certain data pertain to 2005 and will be noted as such.
[3] For example see the extensive literature available from the Employee Benefit Research Institute (EBRI) and the Boston College Center for Retirement Research.

This research further divides business owners into two distinct ownership groups based on the number of employees that work at a business: micro-business owners who employ fewer than 10 workers and larger business owners who employ 10 or more workers. Conventional wisdom holds that owners of larger businesses are more successful and more likely to have and contributed to retirement saving accounts than are micro-business owners.

Previewing the findings, the results suggest some cause for concern. Retirement account ownership, contribution, and participation rates for business owners are low. The Individual Retirement Account (IRA)[4] ownership rate for business owners is only about 36 percent, and only one-third of business owners with an IRA contributed to one.[5] Less than 2 percent own a Keogh plan.[6] In addition, only about 18 percent participate in a 401(k)/Thrift plan.[7] Overall asset accumulation affects owners' retirement savings behavior. For example, business owners are more likely to own an IRA and participate in a 401(k)/Thrift plan if they own a home and participate in other retirement savings accounts.

---

[4] An IRA is the most basic sort of retirement arrangement. IRAs are individual-based retirement plans. However, an employer can help its employees set up and fund their IRAs. There are four types of IRA-based plans—Payroll Deduction IRA (which can include a Traditional IRA or a Roth IRA), a SARSEP (Salary Reduction Simplified Employee Pension) plan, a SEP (Simplified Employee Pension) plan, and a SIMPLE (Savings Incentive Match Plan for Employees) IRA. See http://www.irs.gov/retirement/sponsor/article/0,,id=155347,00.html for additional information.

[5] These were tax-deductible IRA contributions during the reference months that applied to their 2005 tax return. This is a low estimate since non-deductible IRA contributions could have been made as well.

[6] Keogh accounts are a tax-preferred account for the self-employed that allow these workers to save money for retirement comparable to what can be saved in employment-based retirement plans offered to salaried workers (Copeland 2006).

[7] A 401(k) plan is an employment-based qualified plan in which an employee can elect to have the employer contribute a portion of the employee's cash wages to the plan on a pre-tax basis. There are several types of 401(k) plans available to employers—traditional 401(k) plans, safe harbor 401(k) plans, and SIMPLE 401(k) plans. SIMPLE plans were created so that small businesses could have an effective, cost efficient way to offer retirement benefits to their employees and is not subject to annual discrimination tests. See http://www.irs.gov/retirement/sponsor/article/0,,id=151800,00.html for additional information. A Thrift plan is a type of employee savings plan under which an employee may contribute up to a specified percentage of salary on a pre-tax basis and the employer matches the employee's contribution up to a specified percentage.

Business owners are more likely to own tax-deferred IRAs if they are older, female, white, non-Hispanic, better educated, and married. Women are more likely than men to own an IRA, while men are more likely to own Keogh accounts and participate in 401(k)/Thrift plans.

Business characteristics significantly affect a business owner's retirement savings decisions. For example, business size does not significantly affect an owner's individual-based (outside work) retirement savings behavior (i.e., IRA or Keogh), but has a significant effect on an owner's employment-based (at work) savings choices.[8] Specifically, having a business with fewer than 10 employees reduces the probability of an owner having a 401(k)/Thrift plan from 17.4 percent to 10.0 percent, all else equal. Sole proprietors and home-based businesses are less likely to own IRAs or participate in 401(k)/Thrift plans.

This paper is organized as follows. First, it discusses some of the relevant research on business owners and retirement savings behavior. Both workers and business owners have low rates of retirement plan participation, and policymakers are concerned workers and owners may have inadequate resources to maintain their pre-retirement standard of living in retirement. The next section will highlight various patterns within the SIPP data set. These will permit a better understanding of the data and help generate hypotheses for a model. Next, a series of multivariate logit regressions will determine the model that best explains the determinants of retirement plan savings behavior of business

[8] An IRA, which is an individual-based plan, allows a person whether covered by an employer-sponsored retirement plan or not to save for retirement on a tax-deferred basis. Employer-based (sponsored) plans require that employees also be offered participation in the plan. Specifically, ERISA requires a 401(k) plan be made available to all and not just highly paid employees. In addition, other types of retirement plans, e.g., SIMPLE and Keogh plans, require that employees be allowed to participate in the plan.

owners and the self-employed in terms of the ownership of individual-based retirement plans (e.g., IRA and Keogh accounts), and employer-based retirement plans (e.g., 401(k)/Thrift plans). The model will also examine key determinants of IRA contributions by business owners. The final section will tie together the analytic findings and discuss how these findings might be useful, particularly to those grappling with ways to increase the retirement income security of business owners and the self-employed.

Literature Review

Before discussing retirement savings accounts and plans themselves, it is useful to have a sense of our nation's retirement income system. This system can be thought of as a three-legged stool (Munnell and Sunden 2006).[9] The foundation is Social Security, which provides almost three-quarters of the retirement income for the typical household. But Social Security for several reasons will replace a lower percentage of pre-retirement earnings in the future than it does today.[10] A second leg is private savings accumulated in a variety of forms (e.g., bank accounts, mutual funds, retirement savings accounts) (Butrica et al. 2003/2004). A third leg is employer-sponsored pension plans. Research shows that only half the work force is covered by an employer-sponsored pension plan and that this percent has not changed for almost three decades. Seventy-one percent of firms with fewer than 25 workers do not sponsor a retirement plan (GAO 2009). A large proportion of the uncovered are employed in small businesses and they are also the self-

[9] Some would add a fourth leg – earnings.

[10] A key reason is that the normal retirement age at which a worker is entitled to full benefits is rising. At the same time researchers estimate Social Security will pay higher real benefits over the next three decades which reflects the much higher earnings history of post-depression birth cohorts compared to those born in the 1920-1940 period (Butrica et al. 2003/2004).

employed. Only 19.5 percent of workers in small private firms with fewer than 100 workers report participating in a retirement plan (Kobe 2010). According to Copeland (2009), there are over 9 million self-employed individuals without retirement plan coverage.

De Vaney and Chiremba (2005), using data from the 2001 Survey of Consumer Finances (SCF), find that the self-employed were less likely to hold a retirement account than those who were wage-and-salary workers. They postulate that self-employed people are less likely to save for retirement in a tax-deferred retirement savings option because they prefer to have access to their assets for their business. Some owners intend to sell their business in order to retire (De Vaney et al. 1998).

In a study comparing retirement plan participation of the self-employed and wage-and-salary workers De Vaney and Chien (2001) found that both self-employed and wage-and-salary workers who were white, with higher income, and had a graduate degree, were more likely to participate in a formal retirement plan than their counterparts who were nonwhite, with less income and education.

Older self-employed individuals are much less likely than wage-and-salary workers to have pensions or retirement plans on their current job. According to Zissimopoulos and Karoly (2007), older self-employed workers are much less likely to hold pension assets than their wage-and-salary counterparts. Data from the Health and Retirement Study (HRS) indicate that 60.8 percent of wage-and-salary workers aged 51 and above had a pension on their current job compared with 9.9 percent of the self-employed. The proportion of the self-employed with defined contribution (DC) plans was significantly higher than that of wage-and-salary workers.

When an individual becomes a business owner or self-employed can significantly affect retirement plan ownership and contributions. Examining self-employment after age 50, Karoly and Zissimopoulos (2004) found that workers who became self-employed at age 50 or after had lower income and wealth than those who became self-employed prior to age 50. One exception was that the group who entered self-employment before age 50 had higher wealth in IRA and Keogh accounts as a result of rollovers of prior DC accounts.

Researchers and policymakers have used various approaches ranging from psychological theory to tax and regulatory analysis to explain variation in retirement savings behavior among workers, business owners, firms, and families. According to some, the absence of pension plans in firms, especially small businesses, reflects many factors, especially the complexity of pension tax law—the overwhelming number of rules and regulations applying to pension and savings plans (Orszag and Greenstein 2001). Findings from the EBRI 2003 Small Business Employer Survey indicate a range of reasons why many firms do not offer pensions. Forty-one percent of employers listed business-related reasons (uncertain revenues—27 percent; business too new/too small—14 percent); 27 percent cited employee-related reasons (workers not interested—12 percent; too much goes to short-term workers—12 percent; and workers prefer cash wages—3 percent). Twenty-five percent indicated cost/administrative reasons (costs too much to set up and administer or administration is too burdensome—19 percent; required company contributions are too expensive—6 percent). Six percent cited other reasons (not interested/no need—4 percent; employees benefit through spouse's work—2 percent). Employers indicated the main reason for sponsoring a plan would be an increase in business profits (EBRI 2003). A small business employer survey from 2000 included other owner-related reasons including that the benefits for the owner are too small (3 percent), and the owner has his/her own deferred compensation arrangement (2 percent) (EBRI 2000). Therefore, it would appear that owner-related issues are relatively minor deterrents to the creation of retirement plans in small businesses.

Another factor affecting future pension coverage is the increasing contribution limits to IRAs. With these limits, the small business owner may not see the need for a company pension plan and may drop such as plan (or decide not to establish one in the first place) (Orzsag and Greenstein 2001). Under current law in 2010, a small business owner and his or her spouse can deposit a total of $10,000 into their IRAs this year, (plus $2,000 if they are over age 50) (Table 1).

The lack of pension coverage for a significant portion of the workforce has been recognized as a serious problem for a long time. The designers of the Employee Retirement income Security Act of 1974 (ERISA) sought to partially address this issue by establishing IRA accounts outside the employer-based system. There is a current debate about whether IRAs have actually expanded pension coverage (Munnell and Sunden 2001).

In addition, there are many theories of savings behavior. One major theory frequently used to explain why people save is the "life cycle model." Under this model, people would be expected to save during their working careers, and then deplete their assets in retirement (Korczyck 1998). The model can be used to explain why less educated people save less than those with more education.

Other models are based on psychological theories which focus on behavior patterns rather than assuming the individual is trying to achieve an optimal pattern of lifetime consumption (Korcyzck 1998). One perspective in this vein is that individuals have different "tastes for saving." Those with higher "tastes" are more likely to save and accumulate assets in numerous different ways—homeownership, retirement plans, business investment, etc. In addition, an individual's response to retirement savings options may be affected by the type of retirement plan available (e.g., defined benefit versus defined contribution plans (Smith 1998). Another relevant psychological factor is the relative "spendability" of various types of income. This theory holds that the easier a person finds it to access certain types of income, the more likely the income is to be spent (Korczyck 1998). Psychological and behavioral models are also the basis of current efforts to make retirement contributions "opt-out," i.e., the default, through automatic IRAs and 401(k)s (GAO 2009).[11]

Further analysis of the issues raised in the literature is needed in order to more fully understand retirement savings behavior of business owners and develop approaches to help increase retirement income security owners of small and large companies and their workers. This is particularly important for micro-businesses given that they create a significant share of net new jobs in the U.S. economy.

The Data

We use the Survey of Income and Program Participation (SIPP) 2004 Panel to analyze the retirement plan behavior of business owners and the self-employed. The SIPP is a

[11] The auto-IRA would be set up as a default retirement plan in which a percentage of salary is deducted by an employer and automatically invested unless an employee chooses to opt out.

national survey of approximately 45,000 households (including almost 93,000 individuals) conducted by the Census Bureau. SIPP is a longitudinal survey where each sampled household is re-interviewed at four-month intervals over a period of roughly four years. One cycle of four interview months covering the same sample, using the same questionnaire, is called a "wave."

The sample in each wave consists of four nearly equal random subsamples, called rotation groups, each interviewed in a different month. SIPP includes a core survey as well as topical modules that focus on areas of special interest. Data analyzed here are from the core and two topical modules—the Annual Income and Retirement Account Topical Module and the Retirement Expectations and Pension Plan Coverage Topical Module included in Wave 7. Core questions are repeated at each interview over the life of the panel. Topical module questions are asked only in certain waves.[12] The reference period for the questions is the four-month period preceding the interview month. The four Wave 7 interview months were from February 2006 to May 2006. This study uses the fourth interview month (May 2006); therefore the reference period for the questions is January 2006 through April 2006. Certain data pertain to 2005 and will be noted as such.

SIPP's Annual Income and Retirement Account Topical Module includes questions IRA and Keogh ownership and contributions. In addition to basic socio-demographic and business characteristics information, the core survey includes questions on whether the business owner had an IRA or Keogh plan and whether the owner participated in a 401(k)/Thrift plan (Appendix Table 1).[13] As noted earlier there are

[12] There are 12 waves in the SIPP 2004 Panel.

[13] The retirement account variables (IRA, Keogh, and 401(k)/Thrift plan) in the SIPP have not been edited and contain various non-responses including "not answered," "don't know," and "refused." Only those owners who answered the question "yes" or "no" were included in this analysis.

several types of IRAs, and that the IRA contribution data reported here include only tax-deductible contributions to traditional IRAs.[14] The same is true for Keogh plans. IRA contributions pertain to those applied to an owner's 2005 tax return.

This study therefore analyzes the factors influencing IRA ownership and contributions.[15] SIPP also contains information on the size of businesses owned by individuals, provided they owned it during the reference period.

This section will discuss observed patterns in the SIPP data that will assist us in developing a model for predicting a business owner's decision to own and contribute to a retirement savings plan. Tables 3 through 6 compare characteristics of business owners by business size to identify significant differences. From these patterns it is possible to identify important factors associated with retirement savings plan behavior of business owners using a multivariate logit model. Results from those models will be presented in the next section.

Note that there are 4,922 observations for business owners in the sample (Table 2). Over 91 percent of these owners could be classified as "micro-business" because their firms have fewer than 10 employees. Weighted, this sample represents almost 16.1 million owners.[16]

---

[14] The SIPP data only deals with DC tax-deferred Keogh plans. Likewise, SIPP only asks about tax-deferred traditional IRAs, not Roth IRAs. For example, the data reported here on IRA contributions does not include nondeductible contributions to Roth (tax-free on withdrawal) IRAs.

[15] Census's DataFerrett system was used to extract and analyze the SIPP data. See Appendix Table 1.

[16] This analysis only deals with an owner's main business. Business owners may own multiple businesses. The Census Bureau top-coded the firm size variable for business owners in the public use SIPP database at 50 or more workers. Further, it is not possible to identify non-employer firms, i.e., firms with no employees other than the owner.

Descriptive Analysis of Business Owner Characteristics by Business Size

Socio-Demographic Characteristics

Age, Sex, Race, Origin and Marital Status

Overall, business owners tend to be older, male, white, and married. Compared to the owners of larger businesses, micro-business owners, defined as those owning businesses with fewer than 10 employees, tend to be younger, i.e., under age 35, female, Hispanic, and non-married (Table 3). Owners of larger businesses, i.e., with 10 or more employees, are more likely than owners of micro-businesses to be male, 35 to 49 years old (i.e., in their prime working years), and married. Owners of larger businesses are slightly more likely to be white than micro-business owners.

The fact that women represent a higher proportion of micro-business owners than men may reflect the fact the self-employment rate for women shows a proportional increase over the last 35 years compared with men's self-employment (Gurley-Calvez et al. 2009) and the number of women-owned businesses has been growing at a faster rate than the number of U.S. businesses overall (SBA 2006).

Educational Attainment

Micro-business owners have significantly lower education levels than owners of larger businesses (Table 3). One-third of micro-business owners have only a high school education or less compared with about 23 percent of owners of larger businesses. Over 42 percent of owners of larger business have a bachelor's degree or higher compared to less than one-third of micro-business owners.

This difference in education level supports the notion that self-employment provides an avenue for entrepreneurs who might drop out of school to pursue a business interest. This may reflect the fact that some younger business owners are running their businesses part-time even while they are going to school. Likewise, owners of larger businesses with more education are likely to develop businesses requiring high levels of technologies, specialized knowledge, and professional skills.

Veteran and Citizen Status

Micro-business owners appear more likely to have veteran status than owners of larger businesses. This result conforms to Census data from the 2002 Survey of Business Owners which shows a higher proportion of respondent firms with veteran owners having fewer than 10 employees than is the case in all firms (SBA 2007). The fact that veteran-owned businesses are more likely to be micro-businesses may reflect the fact that veterans tend to be older, and owners age 50 and older represent a slightly higher proportion of micro-business owners than owners of larger businesses.

There appears to be little difference in citizenship status between micro-business owners and larger business owners. This is unexpected given that immigrants are highly likely to start very small businesses because they can have significant difficulty entering the wage-and-salary part of the labor market.

Homeownership

Homeownership can be a significant factor affecting business startup as well as retirement planning and savings behavior. Homeownership is often viewed as a proxy for wealth and is the single most important family asset, but also accounts for the single largest share of debt. In the retirement saving context, owning a home can also be an owner's major retirement asset and may affect retirement savings behavior. Indeed many new and existing business owners utilize equity in their homes to start new ventures or for cash flow to their businesses. It is also possible that business owners view their business rather than their home as their main retirement asset. Businesses sold at the owner's retirement are subject to taxation at the capital gains rate. Because this rate may be lower than the owner's income tax rate in the years prior to the business's sale, investing in a business rather than a retirement plan could allow an owner to reduce the impact of taxation while still accumulating a retirement fund (De Vaney et al. 1998)

Owners of larger businesses with 10 or more workers are much more likely to be homeowners than owners of micro-businesses (Table 3). This may reflect the greater success of a larger business which can generate income for home purchases. It may also reflect age differences by business size. The fact that almost 88 percent of larger business owners are over age 35 compared to only 84 percent of micro-business owners probably has an effect on the differential homeownership rate.

Korczyk (1998) points out an important link between saving behavior, homeownership and net worth—homeowners appear to save more than renters even after the asset value of the home is considered.

Metropolitan Location

Owners of larger business are more likely to live in metropolitan areas than micro-business owners. This may reflect the fact that metropolitan areas present greater opportunities for business growth than non-metropolitan areas do, such as easier access to capital and a larger market for goods and services. In addition, there is probably more business competition in metropolitan areas, forcing business owners to either expand their business or risk failure and bankruptcy.

Business Characteristics[17]

Legal Form

As expected, micro-business owners are less likely to own their business as either a corporation or a partnership than are owners of larger businesses. Over 36 percent of larger business owners have an incorporated venture compared to only about 15 percent of micro-business owners (Table 4). Almost 72 percent of micro-businesses are sole proprietorships compared to about 42 percent of larger businesses. Legal form of business can have implications for the type of retirement plan that a business can participate in and also affects the type and availability of retirement plans for an owner's employees.[18]

Business Size[19]

The size of a firm owned by a business owner has implications for the retirement plan behavior of the owner. The smaller the business the more likely the owner is to own an individual account retirement plan on his or her own and the less likely the owner is to

[17] The business characteristics refer to the business an owner designates as the main business; other businesses are not analyzed here.
[18] For example, Keogh plans are intended for unincorporated businesses.
[19] As noted earlier, the Census Bureau top-coded the firm size variable for business owners in the public use database at 50 or more workers.

establish an employer-based plan. Self-employed owners without employees are likely to set up a Keogh plan (which allowed deferral of up to $49,000 in 2009).

Home-based

Micro-business owners are significantly more likely to have home-based operations than are owners of larger businesses. Over 64 percent of micro-business owners have a business that is home-based compared to only about 21 percent of larger business owners. Having a home-based business can also be a significant benefit to homeowners who deduct office expenses from their mortgage payments; they can also receive other benefits from operating out of the house, including reduced transportation and commuting costs. However, the home office tax deductions that are taken may eventually reduce the equity value of the home which in turn can reduce the value of home assets and therefore wealth for retirement.

Industry Sector

A higher proportion of micro-business owners have businesses in the goods-producing sector than large business owners (Table 4). This is an unexpected finding and may reflect the impact of including the agricultural sector as a goods-producing industry.[20]

Business Age

As expected, large business owners operate enterprises that are older than those of micro-business owners. Over 80 percent of larger businesses are over three years old

[20] A goods-producing industry is defined here as agriculture, mining, manufacturing and construction.

compared to about 70 percent of micro-business owners (Table 4). Data indicate that seven out of 10 new employer firms last for at least two years, and about half survive five years (U.S. Department of Commerce, Bureau of the Census, 1977-2005).

An older business probably signifies that the business is viable and may produce sufficient revenues and profits so that the business owner has more of an opportunity to invest in retirement savings as well as in the business. In addition, a more stable business can also employ workers with longer tenure who eventually expect better employee benefits including retirement savings plans. An owner will probably need to provide these benefits in order to retain productive workers. Business owners use benefits to help hire and retain productive high-quality workers which can lead to additional job creation.

Number of Businesses Owned

There is very little difference between micro-business owners and larger business owners in terms of the total number of businesses owned by an owner. About 92 percent of both categories of owners owned only one business (Table 4).

Multiple business ownership would probably signify increased success of a business owner and could indicate an owner's desire to diversify business activities. This could help reduce exposure to fluctuating and volatile markets. Multiple business ownership could also signify that the business owner is using resources aggressively to invest in other businesses rather than to invest in retirement savings accounts. Also, the total size of all businesses owned may affect a business owner's retirement plan behavior since benefit decisions may be made on the basis of the characteristics of the total businesses owned.

Balance Sheet Indicators

There are several ways to examine the health of the business's balance sheet and therefore the financial wherewithal of the business owner. Several different business activity and health measures are included in the analysis. They are: total business expenses, monthly income earned from the business, and whether the business owner experienced a net profit or loss.[21]

As expected, a higher proportion of owners of larger businesses reported total expenses of $10,000 or more than did micro-business owners. Over 81 percent of owners of larger businesses reported expenditures at this level compared to only about 69 percent of micro-business owners (Table 4).

Owners of larger businesses are also likely to have much higher monthly earned income from their business than micro-business owners—over 38 percent of the former reported monthly earnings of $6,000 or more compared to only about 17 percent of micro-business owners.

Owners of larger businesses are much less likely to report that they had a net profit compared to owners of micro-businesses. Almost 43 percent of micro-business owners reported a net profit in their owner's share compared to only about 23 percent of larger business owners. Profitability is an important determinant of a business owner's decision to own an individual-based retirement savings account and as well as the

[21] Total business expenses are for 2005. Note that the SIPP question was "what was the owner's share of net profit or loss"? Net profit or loss is the difference between gross receipts and expenses during the reference period. Prior to the 2004 Panel, the variable referred to the entire net profit or loss of the business, while for 2004, it refers to the person's share of the net profit or loss of the business.

business's ability to offer an employer-based retirement plan to its owner(s) and worker(s).

Ownership Tenure and Part-time Status

The length of time a business owner has operated his or her business is a fundamental indicator of the stability and success of the business as well as a possible factor in determining an owner's proclivity and ability to invest in retirement savings accounts. High ownership tenure would give a business owner a better idea of the future prospects of a business and allow for longer range business planning as well as personal financial planning. This could lead to establishing retirement accounts and contributions to these accounts. Larger business owners are more likely than micro-business owners to have worked in the business from 10 to 25 years—48 percent compared to 43 percent, respectively (Table 4).[22] Micro-business owners are much more likely than owners of larger businesses to have worked in the business for less than 10 years—57 percent versus 52 percent, respectively.

As expected, owners of larger businesses are much more likely than micro-business owners to work at the business full-time, i.e., 35 hours per week or more (Table 4). Over 84 percent of larger business owners work at their business full-time, compared to only about 69 percent of micro-business owners.

[22] The tenure question is defined in years or months. We discuss this variable in terms of years.

Retirement Plan Options

IRA Ownership

Business owners who own an IRA in their own name appear more likely to be older, white, non-Hispanic and married (Table 5). IRA owners are likely to have significantly higher education levels than non-owners. Almost 54 percent of those owners with at least a bachelor's degree own an IRA; less than 19 percent of those with a high school education or less own one. Owners who are veterans are more likely to have an IRA than owner non-veterans—37.6 percent versus 34.2 percent, respectively. As expected, business owners who are also homeowners are significantly more likely to own an IRA than non-homeowners—39.3 versus 12.2 percent, respectively (although there is little difference in IRA contribution behavior between homeowners and non-homeowners with IRAs). In addition, owners living in metropolitan areas are more likely to own an IRA than those owners living elsewhere.

In terms of business characteristics outlined in Table 6, IRA owners are more likely to own corporations than sole proprietorships and partnerships. They are also much more likely to own larger businesses than micro-businesses—48.3 percent versus 33.1 percent. They are more likely not to be home-based and to own businesses in the services sector than the goods-producing sector and they are more likely to have owned their business for three years or more. Owners of two or more businesses are more likely to own an IRA than an owner of a single business—43.9 versus 33.5 percent, respectively. They are also more likely to have a net loss and higher total business expenses. Those with high total business expenses tended to own IRAs—almost 48 percent of those owners with expenses of $10,000 or more per month had an IRA compared to only 24.2 percent with expenses of less than $5,000. Also owners with high monthly income earned from the business owned an IRA—almost 57 percent of those owners earning $6,000 or more per month had a IRA compared to only 29.1 percent earning less than $3,000 monthly from the business. Owners who have been with the business for over 10 years are more likely to have IRAs than owners with shorter tenure. Likewise, owners who are full-time are more likely to have an IRA than part-time owners.

Keogh Ownership

The Keogh ownership rate compared to the IRA ownership rate is relatively low—less than 2 percent (Table 5). Even with this low overall rate, a consistent demographic pattern of Keogh ownership a (very similar to the pattern for IRA ownership) among business owners emerges. Keogh owners tend to be older, male, non-Hispanic, and married. Owners with higher education are more likely to have Keogh plans. Also, homeowners and business owners with a metropolitan residence own Keogh plans.

In terms of business characteristics, there is little difference in Keogh ownership by legal form of business (Table 6). Keogh owners are less likely to have a home-based business and be in the goods-producing sector. They are more likely to own a larger, older business and have had a net loss during the reference period. In addition, they are more likely to have longer tenure with their business and work full-time in the company.

IRA or Keogh Ownership

The patterns for IRA or Keogh ownership are similar to those for IRA ownership given the low rate of Keogh ownership. Owners of larger business appear to be much more likely than owners of micro-businesses to own an IRA or Keogh plan—57.2 percent versus 37.6 percent.

IRA Contributions

Business owners with an IRA who made tax-deductible contributions to their IRA (that were applied to their 2005 tax return) are likely to be over 35 years old and nonwhite (Table 5). They are also likely to be married. Owners with a bachelor's degree and higher are more likely to have contributed to their IRA account for tax year 2005 than those with a lower education level. Veteran owners appear to be less likely to contribute. Unlike the pattern for IRA ownership, there is little difference in IRA contribution behavior between those business owners having and not having a home. Those owners living in metropolitan areas are more likely to make an IRA contribution than those living outside a metropolitan area.

In terms of business characteristics (Table 6), business owners who establish corporations are more likely to make tax-deductible contributions to an IRA than owners who are sole proprietors and partners—39.3 percent (of business owners with IRAs) versus 31.9 percent and 33.9 percent, respectively. Likewise, owners of larger businesses are much more likely than micro-business owners to make an IRA contribution—40.0 percent (of business owners with IRAs) versus 33.0 percent. Those owners with a home-based business are less likely to be an IRA contributor, while those with a business in the service sector are more likely to contribute. Owners of older businesses are likely to contribute as are owners of more than one business. Those with monthly earned income of $6,000 or more from the business are more likely to contribute than those earning less than $3,000 per month, as are those owners with total business expenses of $10,000 or more. In addition, those with long business tenure—10 years or more—are more likely to make an IRA contribution than owners who have been with their business less than 10 years. Full-time owners are more likely to make an IRA contribution than part-time owners.

401(k)/Thrift Plan Participation

The previous discussion has dealt with business owner retirement savings behavior in individual-based retirement plans—IRA and Keogh accounts. The following discussion focuses on business owner retirement savings behavior in employer-based plans, specifically, 401(k)/Thrift plans.[23]

Many of the patterns in business owner retirement savings behavior for individual-based and employer-based retirement plans are similar. There are a few differences, for instance, male owners are more likely to participate in a 401(k)/Thrift plan than women owners—19.4 versus 15.5 percent, respectively (Table 5). This was not the pattern evident with respect to individual-based plans. On the whole, with respect to other socio-demographic variables, the pattern between individual-based plan behavior and employer-based plan behavior is very similar. In terms of business characteristics, the patterns are also very similar for individual- and employer-based plans, except with

[23] As noted earlier, employer-based retirement plans are legally required to offer participation to employees of a business. Also, certain non-discrimination rules must be met so that plan benefits are equitably distributed among highly- and non-highly compensated individuals.

respect to the business tenure variable, where an owner's tenure in a business makes little difference in terms of the owner participating in a 401(k)/Thrift plan. Again, owners of larger businesses are much more likely than micro-business owners to participate in a 401(k)/Thrift plan—38.5 percent versus 16.1 percent.

The Multivariate Logit Models

Descriptive tabulations are not able to isolate the effect of specific socio-demographic or business characteristics (e.g., firm size) on a business owner's retirement plan decisions. To measure the effect of each characteristic while holding other characteristics constant we estimated a binary (meaning two outcomes) logistic model. The model is estimated for individual-based retirement plans (IRAs and Keogh plans) and employer-based retirement plans (401(k)/Thrift plans). The purpose of the model is to assess how the initial probability of a retirement plan decision would change with a specific characteristic, holding all other characteristics constant. The model is used to predict the expected probabilities of a retirement plan decision by an individual business owner, holding all other characteristics constant.

This approach will estimate five separate distinct retirement plan models: 1) owning an IRA, 2) owning a Keogh plan, 3) owning an IRA or a Keogh plan, 4) contributing to an IRA, and 5) participating in a 401(k) or Thrift plan. The purpose of constructing different models for different types of tax-deferred retirement accounts is to measure the effect of a specific owner characteristic, business characteristic, and other retirement savings options on the participation in different types of tax-deferred retirement accounts. Business size is included as an independent dummy variable in the set of business characteristics to measure the effect of size holding all other characteristics constant.

It is assumed that retirement plan behavior of a business owner or self-employed person can be estimated using the following function. A set of logistic regressions is defined in the following terms:

$$R_i = \alpha_i + \beta_1 D_i + \beta B_i + \beta A_i + \varepsilon_i$$

Where R = ownership, participation, or contribution to a specific tax-deferred retirement plan *i* (IRA, Keogh, IRA or Keogh, 401(k)/Thrift plan) under consideration

D = a vector of several socio-demographic characteristics for each business owner

B = a vector of business and work characteristics related to each owner's business

A = a vector of related tax-deferred retirement plan options for business owners (IRA, Keogh, IRA or Keogh, 401(k)/Thrift plan) not included as the dependent variable[24]

ε_i = the model error term.

[24] The following retirement variables are included as independent variables with each tax-deferred retirement plan option dependent variable (see Table 7): dependent variable—IRA ownership (independent variables: Keogh ownership and 401(k)/Thrift plan participation); dependent variable—Keogh ownership (independent variables: IRA ownership and 401(k)/Thrift plan participation); dependent variable—IRA or Keogh ownership (independent variable: 401(k)/Thrift plan participation); dependent variable—IRA contribution (independent variables: Keogh ownership and 401(k)/Thrift plan participation); dependent variable—401(k)/Thrift plan participation (independent variable: IRA or Keogh ownership).

The dependent variable for each model is ownership of a tax-deferred retirement account plan, and is coded as a dummy (See Table 7).[25] The dependent and independent variables in each model are listed in Table 7. The SIPP 2004 Panel variable names, datasets, and topics selected from the public use files available in DataFerrett are outlined in Appendix Table 1.

Hypotheses

We expect the regression outcomes to partially reflect results predicted by savings models (e.g., "life-cycle") especially with respect to the socio-demographic characteristics of owners, such as age and education, but also to reflect the characteristics of the businesses owned, and the involvement of owners in other retirement savings plan options. There is also the possibility that business owners' psychological behavior, e.g., their "taste for saving" could be a factor. This might be surmised indirectly by examining the extent and diversity of asset accumulation. The expected finding based on the previous descriptive analysis of the data is that business owners are more likely to invest in a retirement savings plan if they are older, have more assets and higher earnings and if their business is older, larger, and more established. It is also hypothesized that participation in an individual-based retirement plan (e.g., an IRA) does not necessarily preclude, and does not substitute for, business owners participating in other types of retirement plans—especially employment-based plans.

[25] STATA/SE was used to produce the logit regressions. The STATA/SE logit regression procedure automatically drops variables because of collinearity. The odds ratios (i.e., Exp(β) defined as the exponential of coefficients) generated by STATA/SE were converted into expected probabilities using the following method: Expected Probability = Exp(β)*Initial Odds/(1+ Exp(β)*Initial Odds), where Initial Odds = Initial Probability/(1-Initial Probability). (Verma 2004).

Results

Charts 1 through 5 show the results from the logistic models. The proportion of all business owners with a specific type of retirement plan (IRA, Keogh, 401(k)/Thrift) is the initial proportion, or initial probability. This is the expected probability of participating in or contributing to a plan (i.e., prior to estimating the logistic model) if someone had no knowledge of the business owner's or the business's characteristics. The model's results indicate that individual-based retirement account ownership, contribution activity, as well as employment-based account participation among business owners are low. The initial probability of a business owner having an IRA is 35.6 percent, owning a Keogh is 1.8 percent, owning either an IRA or a Keogh is 40.9 percent. The initial probability of a business owner with an IRA making a tax-deductible IRA contribution (applied to their 2005 tax return) is 33.5 percent, and having a 401(k)/Thrift plan is 17.4 percent.[26]

For the most part the results support the earlier tables and the general thrust of this paper. Only the "best fit" models are presented here, with only the significant explanatory variables shown (each variable is significant at either the 95 or 90 percent level). The following trends can be ascertained from Charts 1 through 5:

- **Overall asset accumulation, i.e., homeownership and participation in other retirement savings accounts, is the most significant factor affecting IRA**

[26] These initial probabilities presented in Charts 1 through 5 may differ from those percentages presented in Tables 5 and 6 due to elimination of records with missing values by the STATA/SE statistical package in the analysis. The tables were produced using DataFerrett.

account ownership and 401(k)/Thrift plan participation. Home ownership increases the probability of owning an IRA from 35.6 percent to 63 percent, all else equal. 401(k)/Thrift plan participation and Keogh ownership appears positively and strongly correlated with IRA behavior, increasing the probability of IRA ownership to over 60 percent. In addition, owning an IRA or Keogh account increases an owner's probability of participating in a 401(k)/Thrift plan from 17.4 percent to 50.3 percent. Therefore, participation in one type of retirement plan (e.g., an IRA) does not appear to preclude or substitute for owners participating in other types of retirement plans (e.g., 401(k)/Thrift plans).

It is difficult from the data to measure how much of this effect is the result of prior defined contribution plan rollovers into the business owner's IRA account or 401(k)/Thrift plan. However, this result is consistent with other findings that workers with pensions are more likely to have IRAs (Smith 1998). As observed earlier, one possible explanation is that workers with a defined contribution plan (i.e., a 401(k)/Thrift plan or Keogh plan) are more likely to own an IRA, if they have a higher taste for saving in account-type plans, due to a learned appreciation of account plans. Such business owners have experience controlling their business finances and therefore prefer to control their retirement finances by managing their own individual-based retirement account plans.

- **Socio-demographic characteristics are significant factors affecting an owner's IRA ownership.** Being an owner who is older, non-minority, a citizen, and highly educated significantly increases the probability of IRA ownership, all else equal. For example, being a citizen increases the probability of ownership from 36.5 percent to 58.7 percent, all else equal. Citizenship is likely to confer a whole set of incentives for saving for retirement that are not prevalent for non-citizens. Having an education beyond a bachelor's degree increases the probability of IRA ownership from 35.6 percent to 58.9 percent.

- **Business characteristics also play a major role in a business owner's decision to own and contribute to an IRA.** Business owners who have more established business(es), e.g., those who own larger, older, profitable, and more than one business, are more likely to own and contribute to an IRA. For example, monthly earnings of $3,000 to $5,000 increased the probability of IRA ownership from 35.6 percent to 48.7 percent, all else equal. If an owner had a business at least three years old, the probability that they made a contribution to their IRA increased from 33.5 percent to 44.1 percent. In addition, if a business owner earned more than $6,000 per month and owned a business that showed a profit, the probability of making an IRA contribution increased to around 40 percent. Unfortunately it was not possible from the data to determine whether business owners contributed to an IRA up to the statutory limit ($4,000 in 2005).
- **Business size does not affect whether a business owner has an IRA or Keogh plan or contributes to an IRA, but it affects 401(k)/Thrift plan participation.** Regression analysis isolated the impact of business size on a business owner's retirement plan savings behavior. Having a business with less

than 10 employees reduces the probability of an owner participating in a 401(k)/Thrift plan from 17.4 percent to 10.0 percent, all else equal. Since we are only examining the differences between micro-businesses with less than 10 workers and larger businesses with 10 or more workers, this may not truly capture the effects of business owner behavior for much larger businesses. Unfortunately the small sample sizes in SIPP did not permit a more detailed analysis of business size. However, the fact that a business owner only owns one business reduces the probability of owning an IRA from 35.6 percent to 28.1 percent. This means that owning several businesses increases the probability of IRA ownership. Perhaps a better measure of size would be total size (or number of employees) for all the businesses owned by a business owner.

- **There were also some additional findings of note.** These include**:**
    - Women business owners were more likely to own an IRA than male owners, all else equal. Being male reduces the probability of ownership from 35.6 percent to 31.2 percent, all else equal. Men, on the other hand, are more likely than women to own a Keogh plan and participate in a 401(k)/Thrift plan. This may be due to the fact that male owners have more successful businesses and can more readily establish employment-based plans or take advantage of the Keogh contribution limits which are much higher than the IRA limits.
    - Racial and ethnic origin variables also had a significant impact on IRA ownership but not on 401(k)/Thrift plan participation. White business

owners were significantly more likely to own an IRA than non-white owners; being white increased the probability of ownership from 35.6 percent to 52.1 percent, all else equal. Race is not a significant factor affecting 401(k)/Thrift plan participation. Hispanics were much less likely to own an IRA than non-Hispanics. Being Hispanic reduced the probability of IRA ownership from 35.6 percent to 17.6 percent, all else equal. Hispanic origin, however, is not a significant factor in determining 401(k)/Thrift plan participation.

- Owners who are sole proprietors or have home-based businesses are less likely to own an IRA and participate in a 401(k)/Thrift plan, all else equal. For example, being a sole proprietor or a home-based business reduces IRA ownership from 35.6 percent to 32.0 and 28.0 percent, respectively. 401(k)/Thrift plan participation is reduced from 17.4 percent to 13.4 percent for both types of plans. This is probably an indication of the success of the business and the level of assets available for savings.
- Business owners residing in metropolitan areas were more likely to own an IRA than those living in non-metropolitan areas. This may be related to the availability of information and financial services, as well as the probability of more successful businesses in metropolitan areas because of larger markets for goods and services.
- Several business factors appear to have no real influence on ownership of an IRA. Industry sector (goods vs. services industry) does not have an

impact on a business owner owning an IRA. Neither does business size, as indicated earlier. In addition to race and Hispanic status, a number of factors appear to have no significant effect on 401(k)/Thrift plan participation; these include such socio-demographic factors as veteran status and metropolitan location, and such business characteristics as industry, number of businesses owned, profitability, business expenses, business tenure, and hours worked.

Finally, it is worth noting that the pseudo R^2 measures for each of these models range from 3.5 percent to about 23 percent, suggesting that much of the decision to own an IRA or Keogh plan, contribute to an IRA (Keogh plan), as well as participate in a 401(k)/Thrift plan is unexplained, even in these models. That is not surprising, given that "tastes for retirement savings" probably differ substantially in the population as well as among business owners. Yet, these models do explain enough of the decision to own individual-based retirement plans and employer-based plans to provide interesting and, hopefully, usable results.

Conclusion

This paper identifies and fills several research gaps in our understanding of retirement plan savings behavior of business owners and the self-employed. The paper analyzes the relative importance of personal business owner characteristics,

characteristics of their businesses, and retirement savings options in determining how owners and the self-employed save for retirement.

Individual-based retirement account ownership, contribution activity as well as employment-based retirement account participation among business owners is low. Only about one-third of business owners own an IRA and only one-third of these owners contributed to their IRA for the 2005 tax year. Keogh plan ownership is extremely low (less than 2 percent) and only about 18 percent of owners participate in a 401(k)/Thrift plan.

Owners' overall asset accumulation behavior affects their retirement savings behavior. Homeownership and/or involvement in other retirement savings accounts are the most important factors affecting IRA or Keogh ownership and 401(k)/Thrift plan participation. Therefore, participation in one type of retirement plan does not appear to preclude or substitute for owners participating in other types of retirement plans.

Business owners are more likely to own tax-deferred individually based IRAs if they are older, female, white, non-Hispanic, citizens, better educated, and married.

It is not surprising to find that a business owner's decision to own an IRA is correlated with the success of his or her business. IRA or Keogh ownership is more likely if a business owner has higher monthly earned income. In addition, business owners are likely to own multiple retirement accounts indicating that many of them have a high taste for saving, as well as owning and investing in their own business. However, it is surprising, given the descriptive results that business size significantly affects an owner's decision to participate in a 401(k)/Thrift plan and not the decision to own an IRA or Keogh plan.

Some other unexpected findings are related to the socio-demographic variables. For example, women business owners are more likely to own an IRA than male business owners, all else equal. On the other hand, there is no indication that women business owners are more likely to contribute to their IRAs than male owners are. Other research tends to suggest women have significantly lower IRA accumulations than men do.[27]

There are many policy implications of the study's findings. These include developing ways that help the owners of the smallest businesses, especially home-based sole proprietorships, increase their retirement savings. Efforts to help minority, especially Hispanic, business owners increase their retirement savings is also a policy goal suggested by this study's results. Perhaps more bilingual information about retirement programs is needed. In addition, there is a need to better coordinate employer-based retirement accounts with individual-based accounts like IRAs and make plans less complex and burdensome on business owners, especially for owners of micro-businesses. There is also a need to help employers provide retirement savings options to their employees in a fair and equitable way by expanding "safe harbor" provisions which reduce frequent non-discrimination testing when there are changes in a very small pool of retirement plan participants.

Future research should continue to examine the retirement saving behavior of both business owners and workers. This includes analyzing the effect of default provisions on behavior in both individual- and employment-based retirement account plan options. Also research should examine how business owners manage their retirement account funds. Do they continue to save and invest their assets within retirement accounts or are they likely to withdraw or borrow funds from their accounts? Analysis of

[27] See Munnell and Sunden (2001)

the uses of cash-outs or loans is important to determine whether and to what extent retirement account assets are being used for business financing, i.e., for startup businesses or for maintaining or growing existing enterprises.

References

Andrews, Emily S. *Pension Policy and Small Employers: At What Price Coverage?* Employee Benefit Research Institute, 1989, xix.

Butrica, Barbara A., Howard M. Iams, and Karen E. Smith, "The Changing Impact of Social Security on Retirement Income," *Social Security Bulletin*, Vol. 65, No. 3, 2003/2004.

Chen, Zhan and Sharon A. De Vaney, "What Factors Affect the Household Net Worth of Employees and Business Owners?" *Financial Planning Review*, Vol. 11, No. 4, 2002, pp. 381-91.

Copeland, Craig, "Employment-Based Retirement Plan Participation: Geographic Differences and Trends, 2008," Employment Benefit Research Institute, *Issue Brief* No. 336 (November 2009).

Copeland, Craig "Individual Account Retirement Plans: Analysis of the 2007 Survey of Consumer Finances, With Market Adjustments to June 2009," EBRI, *Issue Brief* No. 333 (August 2009), p. 6.

Copeland, Craig "IRA and Keogh Assets and Contributions," EBRI, *Notes*, Vol. 27, No. 1 (January 2006), p. 2.

De Vaney, Sharon A., Deanna L. Sharpe, Constance Y, Kratzer, and Ya-ping Su, "Retirement Preparation of the Nonfarm Self-Employed," *Financial Counseling and Planning*, Vol. 10, No. 1, (1998), pp. 53-59.

De Vaney, Sharon A. and Sophia T. Chiremba, "Comparing the Retirement Savings of Baby Boomers and Other Cohorts" (January 2005). http://www.bls.gov/opub/cwc/cm20050114ar01p1.htm (accessed February 16, 2010.)

De Vaney, Sharon A., and Yi-Wen Chien "A Model of Savings Behavior and the Amount Saved in Retirement Accounts," *Journal of Financial Service Professionals* (2001).

EBRI. "The 2003 Small Employer Retirement Survey: Fact Sheet – Small Employers Without Plans," available at http://www.ebri.org/pdf/surveys/sers/2003/03sersf1.pdf (accessed February 16, 2010.)

EBRI. "The 2000 Small Employer Retirement Survey: Fact Sheet—Small Employers Without Plans," available at http://www.ebri.org/pdf/surveys/sers/2000/sersfact_noplans.pdf (accessed February 16, 2010).

Fairlie, Robert W., *Estimating the Contribution of Immigrant Business Owners to the U.S. Economy*. Report prepared for the U.S. Small Business Administration, Office of Advocacy (November 2008).

GAO, "Retirement Savings: Automatic Enrollment Shows Promises for Some Workers, But Proposals to Broaden Retirement Savings for Other Workers Could Fact Challenges." GAO-10-31, (October 2009).

Gurley-Calvez, Tami, Katherine Harper, and Amelia Biehl, *Self-Employed Women and Time Use*. Report prepared for the U.S. Small Business Administration, Office of Advocacy (February 2009).

IRS website which provides "An Easy Retirement Plan Guide for Small Employers" at http://www.retirementplans.irs.gov/choose-a-plan/. (accessed February 16, 2010.) This site describes five basic categories of plans: 1) plans with IRAs, 2) 401(k) and profit-sharing plans, 3) defined benefit plans, 4) tax-exempt plans, and 5) plans with IRAs.

IRS website which provides "A 401(k) Resource Guide" at http://www.irs.gov/retirement/sponsor/article/0,,id=151800,00.html (Accessed February 17, 2010.)

IRS website which provides "Types of Retirement Plans" at http://www.irs.gov/retirement/sponsor/article/0,,id=155347,00.html (Accessed February 17, 2010.)

Karoly, Lynn A. and Julie Zissimopoulos (RAND), *Self-Employment and the 50+ Population*, AARP Public Policy Institute, *Issue Paper* #2004-03 (March 2004).

Kobe, Kathryn (Economic Consulting Services, LLC), *Retirement Plan Availability and Participation by Firm Size.* Report prepared for the U.S. Small Business Administration, Office of Advocacy (February 2010).

Korczyk, Sophie H. *How Americans Save*, AARP Public Policy Institute, Issue Paper #9806 (July 1998).

Munnell, Alicia H. "A Primer on IRAs," *Just the Facts on Retirement Issues*, No. 7, Boston College Center for Retirement Research, (March 2003).

Munnell, Alicia H. and Annika Sunden, "401(k) Plans are Still Coming Up Short," Issue Brief, No. 43, Boston College Center for Retirement Research, (March 2006).

Munnell, Alicia H. and Annika Sunden, "Private Pensions: Coverage and Benefits Trends," Paper prepared for symposium "Conversation on Coverage" Washington, D.C., July 24-25, 2001.

Munnell, Alicia H. and Pamela Perun, *Update on Private Pensions, Issue in Brief*, Center for Retirement Research at Boston College, Number 50, August 2006, p. 4.

Norman, Jan / National Association for the Self-Employed, "The ABCs of IRAs, SEPs, and Other Retirement Plans," Press release, http://www.nase.org/About/PressReleases/09-07-29/The_ABCs_of_IRAs_SEPs_And_Other_Retirement_Plans.aspx (accessed February 16, 2010.)

Orszag, Peter and Robert Greenstein, "Toward Progressive Pensions: A Summary of the U.S. Pension System and Proposals for Reform," Background paper for symposium "Conversation on Coverage" Pension Rights Center, Washington, D.C., July 24-25, 2001.

Smith, Paul A. "Pension Participation and IRA Coverage Among Workers in the CPS and SCF," paper presented at the Allied Social Science Meetings, January 1999.

U.S. Department of Commerce, Bureau of the Census, Business Dynamics Statistics, 1977-2005.

U.S. Small Business Administration, Office of Advocacy, "Frequently Asked Questions" (September 2009).

U.S. Small Business Administration, Office of Advocacy, *The Small Business Economy* (December 2007).

U.S. Small Business Administration, Office of Advocacy, *Women in Business: A Demographic Review of Women's Business Ownership.* (August 2006).

Verma, Satyendra, "A Note on Discrete Choice and Limited Dependent Models (Logit, Multinomial Logit, Probit, and Tobit Models)," Unpublished paper, AARP Public Policy Institute (2004).

Zissimopoulos, Julie and Lynn A. Karoly (RAND), *Work and Well-Being Among the Self-Employed at Older Ages*, AARP Public Policy Institute, Issue Paper #2007-04 (February 2007).

Tables

Table 1 Maximum IRA Contributions and Deduction Phase-out Ranges by Year, 1975 - 2010

Years	Maximum Contribution (Dollars)			Maximum Catch-up Contribution[b] (Dollars)	Deduction Phase-out Range ($000s)			
	Worker		Non-Working Spouse		Unmarried	Married Filing Jointly		Married Filing Separately
	Covered[a]	Not Covered[a]				Spouse Covered[a]	Spouse Not Covered[a]	
1975 to 1981	0	1,500	0	0	n.a.	n.a.	n.a.	n.a.
1982 to 1986	2,000	2,000	250	0	n.a.	n.a.	n.a.	n.a.
1987 to 1996	2,000	2,000	250	0	25 to 35	40 to 50	40 to 50	0 to 10
1997	2,000	2,000	2,000	0	25 to 35	40 to 50	40 to 50	0 to 10
1998	2,000	2,000	2,000	0	30 to 40	50 to 60	150 to 160	0 to 10
1999	2,000	2,000	2,000	0	31 to 41	51 to 61	150 to 160	0 to 10
2000	2,000	2,000	2,000	0	32 to 42	52 to 62	150 to 160	0 to 10
2001	2,000	2,000	2,000	0	33 to 43	53 to 63	150 to 160	0 to 10
2002	3,000	3,000	3,000	500	34 to 44	54 to 64	150 to 160	0 to 10
2003	3,000	3,000	3,000	500	40 to 50	60 to 70	150 to 160	0 to 10
2004	3,000	3,000	3,000	500	45 to 55	65 to 75	150 to 160	0 to 10
2005	4,000	4,000	4,000	500	50 to 60	70 to 80	150 to 160	0 to 10
2006	4,000	4,000	4,000	1,000	50 to 60	75 to 85	150 to 160	0 to 10
2007	4,000	4,000	4,000	1,000	52 to 62	83 to 103	156 to 166	0 to 10
2008	5,000	5,000	5,000	1,000	53 to 63	85 to 105	159 to 169	0 to 10
2009	5,000	5,000	5,000	1,000	55 to 65	89 to 109	166 to 176	0 to 10
2010	5,000	5,000	5,000	1,000	56 to 66	89 to 109	167 to 177	0 to 10

Source: Congressional Budget Office, 2006. Updated U.S. Small Business Administration, Office of Advocacy.
Note: n.a. = not applicable.
[a]Covered by a workplace retirement plan.
[b]Applies to people age 50 and older.

Table 2 - Business Owners by Size of Business,* 2006

	Total	Employment Size of Business				
		Less than10	10 or more	10-24	25-49	50+
Sample	4,922	4,499	423	253	74	96
Weighted Sample	16,088,876	14,708,703	1,380,172	804,811	241,794	333,567
Percent (Sample)	100.0%	91.4%	8.6%	5.1%	1.5%	2.0%

Source: Bureau of Census, SIPP 2004 Panel, Wave 7. The reference period for the data is the for four-month period January 2006 to April 2006.
*Pertains only to an owner's main business.

Table 3 - Socio-Demographic Characteristics of Business Owners by Business Size, 2006 (Percent)

Owner Characteristics	Total, All Businesses	Employment Size of Business	
		Fewer than 10 workers	10 or more workers
Age			
Under 35	15.5	15.9	12.1
35 to 49	39.0	38.7	43.0
50 or older	45.4	45.5	44.9
Sex			
Male	63.4	62.9	68.1
Female	36.6	37.1	31.9
Race			
White	88.1	88.0	89.4
Nonwhite	11.9	12.0	10.6
Origin			
Hispanic	6.0	6.2	4.3
NonHispanic	94.0	93.8	95.7
Marital Status			
Married	69.8	68.9	80.1
Not married	30.2	31.1	19.9
Education			
High school or less	32.2	33.0	23.2
Some College	35.1	35.1	34.8
College Degree (4 yr.)+	32.7	31.9	42.1
Veteran			
Yes	13.0	13.2	10.6
No	87.0	86.8	89.4
Citizen			
Yes	94.1	94.1	94.8
No	5.9	5.9	5.2
Homeowner			
Yes	82.2	81.5	89.8
No	17.8	18.5	10.2
Metropolitan Location			
Yes	76.8	76.5	80.5
No	23.2	23.5	19.5

Source: U.S. Department of Commerce: Bureau of the Census, SIPP 2004 Panel, Wave 7. The reference period for the data is the four-month period January 2006 to April 2006.
Note: Maximum sample size: 4,922 total business owners (4,499 business owners with firms fewer than 10 workers and 423 owners with firms of 10 or more workers).

Table 4 - Characteristics of the Business Owned by Employment Size of Business, 2006 (Percent)

Business Characteristics	Total, All Business Owners	Employment Size of Business	
		Fewer than 10 workers	10 or more workers
Form of Business			
Sole proprietorship	69.0	71.6	41.7
Partnership	14.3	13.6	22.0
Corporation	16.7	14.8	36.3
Home-based			
Yes	60.5	64.3	21.2
No	39.5	35.7	78.8
Industry Sector			
Goods	27.2	27.5	23.9
Services	72.8	72.5	76.1
Age of Business			
Less than 3 years old	29.4	30.3	19.4
3 years or more	70.6	69.7	80.6
No. of Businesses Owned			
One	92.1	92.0	92.6
Two or more	7.9	8.0	7.4
Profit/Loss			
Profit	41.0	42.7	22.9
Loss	59.0	57.3	77.1
Total Business Expenses			
Less than $5,000	21.3	21.7	14.9
$5,000 to $9,999	8.7	9.1	3.7
$10,000 or more	70.0	69.1	81.3
Monthly Business Income			
Less than $3,000	55.1	58.3	33.3
$3,000 to $5,999	25.2	24.8	28.3
$6,000 or more	19.7	16.9	38.4
No. of Yrs or Months Worked in Business			
1 to 9	56.6	57.0	52.0
10 to 19	22.4	22.1	25.1
20 to 25	21.0	20.9	22.9
Hours Worked/Week			
35 or more	70.4	69.1	84.2
Less than 35	29.6	30.9	15.8

Source: U.S. Department of Commerce: Bureau of the Census, SIPP 2004 Panel, Wave 7. The reference period for the data is the four-month period January 2006 to April 2006.
Note: Maximum sample size: 4,922 total business owners (4,499 business owners with firms fewer than 10 workers and 423 owners with firms of 10 or more workers).

Table 5 – Socio-Demographic Characteristics of Business Owners by Retirement Plan Status, 2006 (Percent)					
Owner Characteristics	IRA	Keogh	IRA or Keogh	IRA Contributions (Percent of IRA Owners)[1]	401(k)/ Thrift Plan
Age, Total	34.4	1.7	39.3	33.8	18.0
Under 35	16.6	0.1*	18.4	29.9	8.5
35 to 49	33.6	1.5*	38.0	34.1	20.1
50 or older	41.1	2.4	47.6	34.2	19.5
Sex, Total	34.4	1.7	39.3	33.8	18.0
Male	34.7	2.1	39.8	34.8	19.4
Female	33.9	1.1*	38.5	32.3	15.5
Race, Total	34.4	1.7	39.3	33.8	18.0
White	36.3	1.7	41.7	33.3	18.8
Nonwhite	20.2	1.7*	21.8	41.5	12.3
Origin, Total	34.4	1.7	39.3	33.8	18.0
Hispanic	9.4*	0.7	11.1	26.1*	4.7*
NonHispanic	36.0	1.7	41.1	34.0	18.8
Marital Status, Total	34.4	1.7	39.3	33.8	18.0
Married	38.5	1.8	44.2	34.9	20.7
Not married	25.0	1.3	28.0	30.1	11.7
Education, Total	34.4	1.7	39.3	33.8	18.0
High school or less	18.7	0.6*	21.9	29.9	8.0
Some College	31.0	0.8*	35.0	31.6	14.2
College Degree (4 yr+)	53.5	3.7	61.1	36.7	31.9
Veteran, Total	34.7	1.7	39.6	33.8	18.2
Yes	37.6	1.4*	42.7	27.6	17.4
No	34.2	1.7	39.2	34.9	18.3
Citizen, Total	34.4	1.7	39.3	33.8	18.0
Yes	35.9	1.7	41.1	33.8	18.9
No	9.6*	1.1*	11.1	36.4*	3.8*
Homeowner, Total	34.4	1.7	39.3	33.8	18.0
Yes	39.3	1.9	44.5	33.8	20.3
No	12.2	0.6*	15.3	34.1	7.4
Metropolitan Location, Total	33.9	1.7	39.0	34.0	17.9
Yes	36.6	1.9	40.9	35.1	19.2
No	25.6	1.2*	32.7	28.5	13.6

Source: U.S. Department of Commerce: Bureau of the Census, 2004 SIPP, Wave 7. The reference period for the data is the four-month period January 2006 to April 2006.

[1]IRA contributions are those that applied to an owner's 2005 tax return.

Note: Maximum sample size: 4,922 total business owners (4,499 business owners with firms fewer than 10 workers and 423 owners with firms of 10 or more workers). Following sample sizes answering "yes" for retirement variables: IRA ownership (1,531), Keogh ownership (75), IRA or Keogh ownership (1,935), IRA contributions (482), and 401(k)/Thrift Plan (886).

* Less than 30 observations in the cell.

Table 6 – Characteristics of Businesses Owned by Retirement Plan Status, 2006 (Percent)

Business Characteristics	IRA Owned	Keogh Owned	IRA or Keogh Owned	IRA Contributions (Percent of IRA Owners)[1]	401(k)/ Thrift Plan Participation
Form of Business	35.6	1.8	40.9	34.0	18.1
Sole proprietorship	31.2	1.8	35.2	31.9	14.0
Partnership	36.4	1.9*	45.7	33.9	21.0
Corporation	53.3	1.9*	60.1	39.0	32.5
Business Size	34.4	1.7	39.3	33.8	18.0
<10 workers	33.1	1.5	37.6	33.0	16.1
10+ workers	48.3	3.9*	57.2	40.0	38.5
Home-based	35.5	1.8	40.7	34.0	18.0
Yes	30.6	1.3	34.8	30.2	12.6
No	43.1	2.5	49.9	38.4	26.2
Industry Sector	34.4	1.7	39.3	33.9	18.0
Goods	28.7	0.7*	33.6	31.4	13.9
Services	36.5	2.1	41.5	34.6	19.5
Age of Business	34.4	1.7	39.3	33.8	18.0
Less than 3 years old	26.8	0.6*	28.7	25.2	16.1
3 years or more	37.6	2.1	43.7	36.5	18.8
No. of Businesses Owned	34.4	1.7	39.3	33.8	18.0
One	33.5	1.7	38.4	33.5	17.6
Two or more	43.9	1.7	49.4	36.6	22.4
Profit/Loss	34.4	1.7	39.3	33.8	18.0
Profit	31.0	1.5	34.6	33.9	13.1
Loss	36.9	1.8	42.6	33.8	21.4
Total Business Expenses	41.2	1.8	45.8	34.7	18.8
Less than $5,000	24.2	0.3*	27.3	32.6	12.6
$5,000 to $9,999	41.1	0.0*	44.2	19.4*	16.0*
$10,000 or more	47.8	2.6*	53.2	37.2	21.7
Monthly Income From Business	39.9	2.1*	45.5	37.5	24.4
Less than $3,000	29.1	1.3*	34.9	33.7	16.3
$3,000 to $5,999	50.2	2.9*	53.1	37.4	24.7
$6,000 or more	56.9	3.6*	65.2	43.4	46.5
No. of Yrs/Months Worked in Business	34.4	1.7	39.3	33.8	18.0
1 to 9	30.3	1.1*	34.2	30.7	17.6
10 to 19	39.7	1.8*	45.0	37.2	18.9
20 to 25	39.7	3.2	46.9	36.5	18.1
Hours Worked/Week	34.5	1.7	39.6	33.8	17.9
35 or more	36.1	1.9	41.6	36.7	19.9
Less than 35	30.7	1.2*	34.8	26.1	13.2

Source: U.S. Department of Commerce: Bureau of the Census, SIPP 2004 Panel, Wave 7. The reference period for the data is the four-month period January 2006 to April 2006.
Note: Maximum sample size: 4,922 total business owners (4,499 business owners with firms fewer than 10 workers and 423 owners with firms of 10 or more workers). Following total sample sizes for retirement variables: IRA ownership (4,452), Keogh ownership (4,452), IRA or Keogh ownership (4,922), IRA contributions (1,424), and 401(k)/Thrift Plan (4,922).
* Less than 30 observations in the cell.
[1]Includes only those respondents who answered the question. Does not include those who refused to answer, didn't know, or not answered.

Table 7 - Coding of Variables in SIPP 2004 Panel, Wave 7			
Variables		Coding	Variable Name
Dependent Variables			
Owns an Individual Retirement Account (IRA)		1 if yes; 0 if otherwise	ira
Owns a Keogh		1 if yes; 0 if otherwise	keogh
Owns an IRA or Keogh Account		1 if yes; 0 if otherwise	iraorkeogh
Contributes to an IRA[1]		1 if yes; 0 if otherwise	iracontr
Participates in a 401(k) or Thrift Plan		1 if yes; 0 if otherwise	401(k)
Independent Variables			
Socio-Demographic Characteristics			
Age:	Less than 35 years old	1 if yes; 0 if otherwise	age<35
	35 to 49	1 if yes; 0 if otherwise	age35-49
	50 and older	1 if yes; 0 if otherwise	age50+
Sex:	Male	1 if yes; 0 if otherwise	male
Race:	White	1 if yes; 0 if otherwise	white
Origin:	Hispanic	1 if yes; 0 if otherwise	hispanic
Marital Status:	Married	1 if yes; 0 if otherwise	marriedl
Education:	High School or less	1 if yes; 0 if otherwise	highschool
	Some College	1 if yes; 0 if otherwise	somecoll
	Bachelor’s degree or higher	1 if yes; 0 if otherwise	bachdeg+
Veteran’s Status	Veteran	1 if yes; 0 if otherwise	veteran
Citizenship Status	Citizen	1 if yes; 0 if otherwise	citizen
Homeownership	Homeowner	1 if yes; 0 if otherwise	ownhome
Metropolitan residence	Metro	1 if yes; 0 if otherwise	metro
Business Characteristics			
Form of Business	Sole Proprietorship	1 if yes; 0 if otherwise	soleprop
	Partnership	1 if yes; 0 if otherwise	partner
	Corporation	1 if yes; 0 if otherwise	corp
Business Size	Fewer than 10 workers	1 if yes; 0 if otherwise	microbus
Business Location	Home-based	1 if yes; 0 if otherwise	homebase
Industry Sector	Goods	1 if yes; 0 if otherwise	goods
Age of Business	More than 3 years old	1 if yes; 0 if otherwise	busage3+
No. Businesses Owned	One	1 if yes; 0 if otherwise	onebus
Net Profit/Loss	Profit	1 if yes; 0 if otherwise	profit
Total Business Expenses	Less than $5,000	1 if yes; 0 if otherwise	TBE<$5k
	$5,000-$9,999	1 if yes; 0 if otherwise	TBE$5-9k
	$10,000 or more	1 if yes; 0 if otherwise	TBE$10k+
Monthly Earned Income	Less than $3,000	1 if yes; 0 if otherwise	MEI<$3k
(Business)	$3,000-$5,999	1 if yes; 0 if otherwise	MEI$3-5k
	$6,000 or more	1 if yes; 0 if otherwise	MEI$6k+
No. Yrs/ Months Worked	1 to 9	1 if yes; 0 if otherwise	tenure1-9
	10 to 19	1 if yes; 0 if otherwise	tenure10-19
	20 to 25	1 if yes; 0 if otherwise	tenure20-25
Hrs. Worked/Wk	35 or more	1 if yes; 0 if otherwise	full-time

Table 7 - Coding of Variables SIPP 2004 Panel, Wave 7 (continued)		
Variables	Coding	Variable Name
Independent Variables		
Other Retirement Variables		
If Dependent Variable = IRA, then added independent variables are:		
Owns a Keogh	1 if yes; 0 if otherwise	Keogh
Participates in a 401(k) or Thrift Plan	1 if yes; 0 if otherwise	401(k)
If Dependent Variable = Keogh		
Owns an IRA	1 if yes; 0 if otherwise	IRA
Participates in a 401(k) or Thrift Plan	1 if yes; 0 if otherwise	401(k)
If Dependent Variable = IRA or Keogh Account		
Participates in a 401(k) or Thrift Plan	1 if yes; 0 if otherwise	401(k)
If Dependent Variable = Contributes to an IRA[1]		
Owns a Keogh	1 if yes; 0 if otherwise	Keogh
Participates in a 401(k) or Thrift Plan	1 if yes; 0 if otherwise	401(k)
If Dependent Variable = Participates in a 401(k) or Thrift Plan		
Owns an IRA or Keogh Account	1 if yes; 0 if otherwise	IRAorKeogh

[1] IRA contributions are those that applied to an owner's 2005 tax return.

Charts

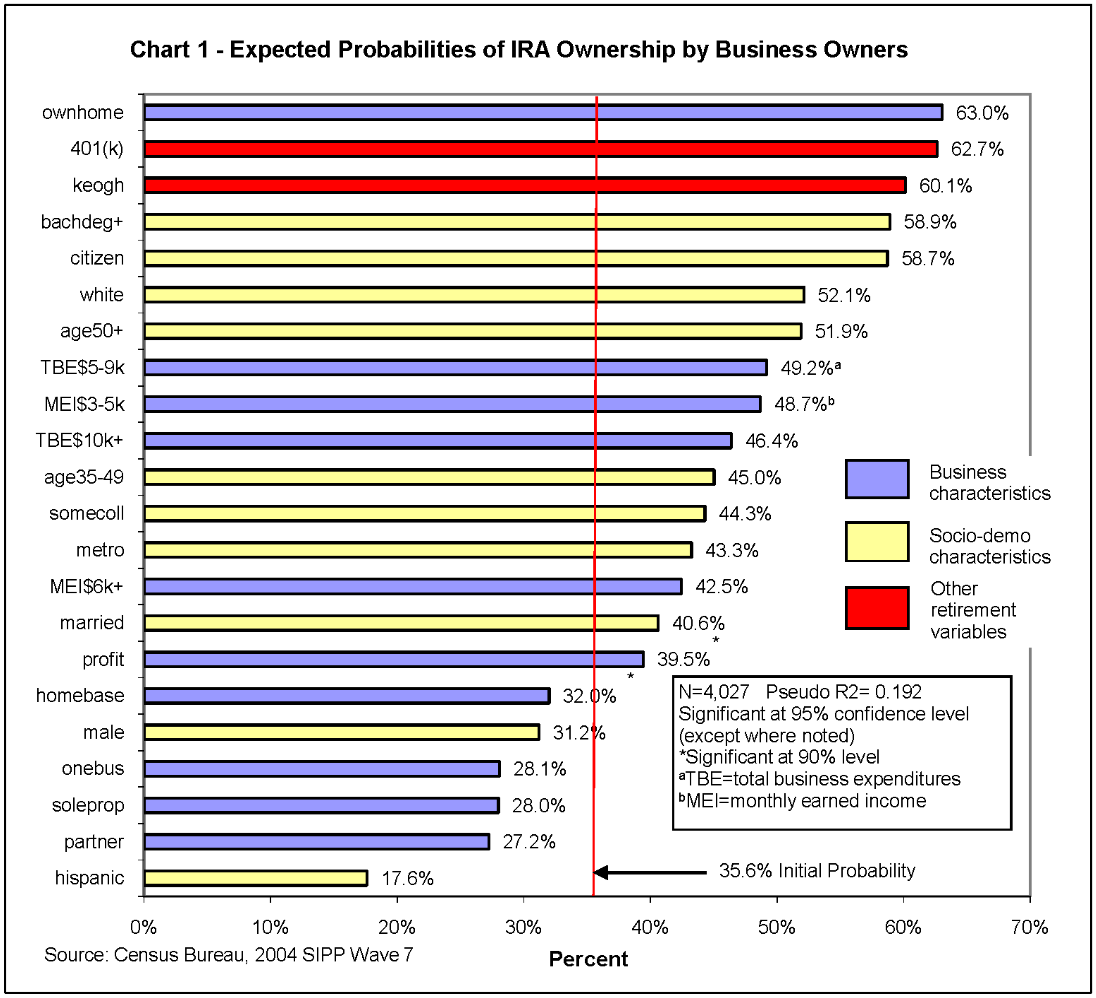

Chart 1 - Expected Probabilities of IRA Ownership by Business Owners
ownhome
401(k)
keogh
bachdeg+
citizen
white
age50+
TBE$5-9k
MEI$3-5k
TBE$10k+
age35-49
somecoll
metro
MEI$6k+
married
profit
homebase
male
onebus
soleprop
partner
hispanic
63.0%
62.7%
60.1%
58.9%
58.7%
52.1%
51.9%
49.2%a
48.7%b
46.4%
45.0%
44.3%
43.3%
42.5%
40.6%*
39.5%*
32.0%
31.2%
28.1%
28.0%
27.2%
17.6%
Business characteristics
Socio-demo characteristics
Other retirement variables
N=4,027 Pseudo R2= 0.192
Significant at 95% confidence level
(except where noted)
*Significant at 90% level
aTBE=total business expenditures
bMEI=monthly earned income
35.6% Initial Probability
0%
10%
20%
30%
40%
50%
60%
70%
Source: Census Bureau, 2004 SIPP Wave 7
Percent

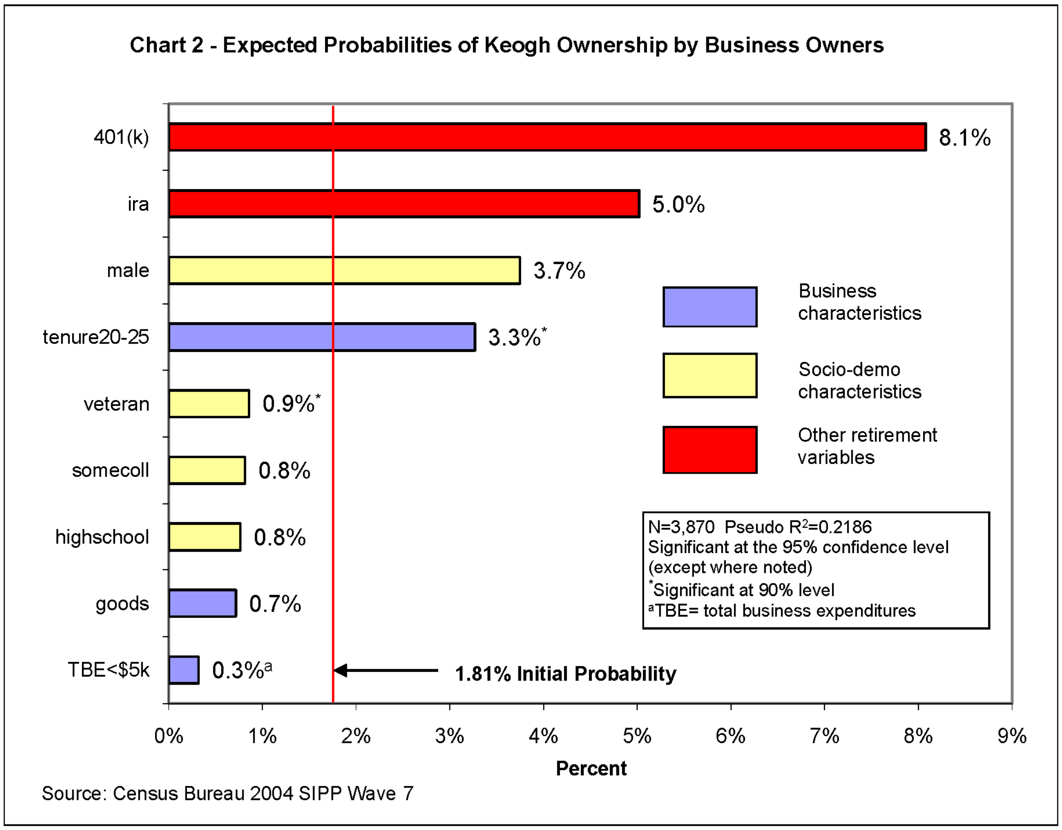
Chart 2 - Expected Probabilities of Keogh Ownership by Business Owners
401(k)
ira
male
tenure20-25
veteran
somecoll
highschool
goods
TBE<$5k
8.1%
5.0%
3.7%
3.3%*
0.9%*
0.8%
0.8%
0.7%
0.3%a
Business characteristics
Socio-demo characteristics
Other retirement variables
N=3,870 Pseudo R2=0.2186
Significant at the 95% confidence level (except where noted)
*Significant at 90% level
aTBE= total business expenditures
1.81% Initial Probability
0% 1% 2% 3% 4% 5% 6% 7% 8% 9%
Percent
Source: Census Bureau 2004 SIPP Wave 7

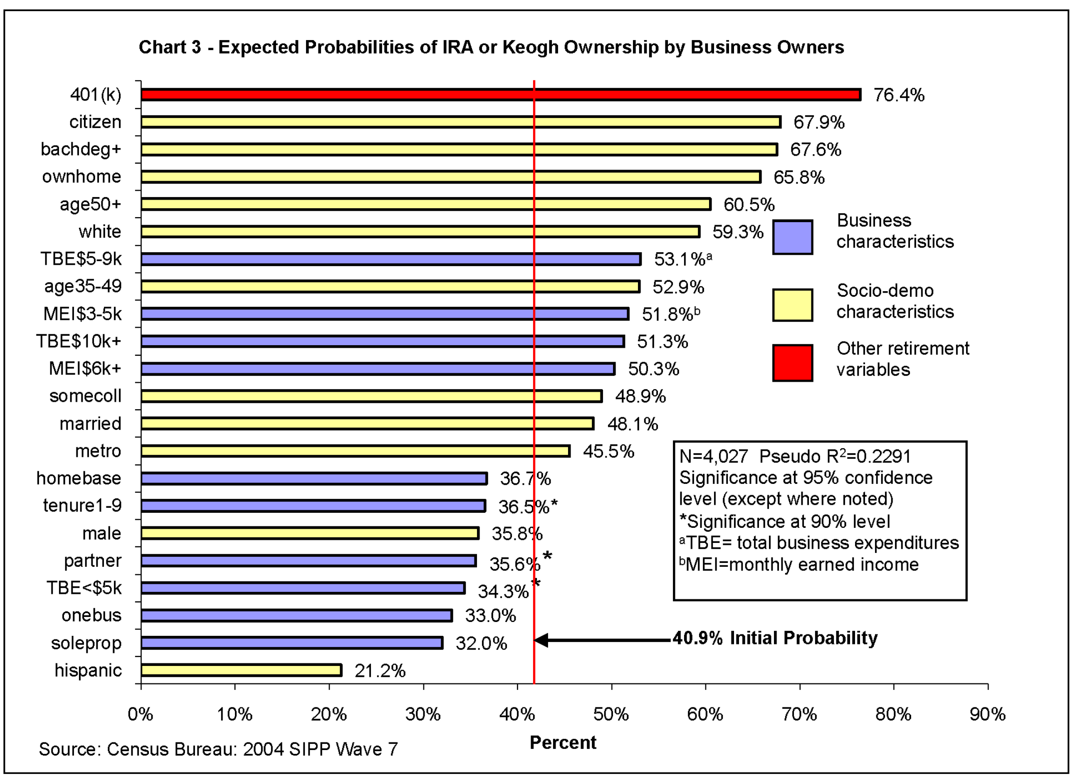
Chart 3 - Expected Probabilities of IRA or Keogh Ownership by Business Owners
401(k) 76.4%
citizen 67.9%
bachdeg+ 67.6%
ownhome 65.8%
age50+ 60.5%
white 59.3%
TBE$5-9k 53.1%a
age35-49 52.9%
MEI$3-5k 51.8%b
TBE$10k+ 51.3%
MEI$6k+ 50.3%
somecoll 48.9%
married 48.1%
metro 45.5%
homebase 36.7%
tenure1-9 36.5%*
male 35.8%
partner 35.6%*
TBE<$5k 34.3%*
onebus 33.0%
soleprop 32.0%
hispanic 21.2%
Business characteristics
Socio-demo characteristics
Other retirement variables
N=4,027 Pseudo R2=0.2291
Significance at 95% confidence level (except where noted)
*Significance at 90% level
aTBE= total business expenditures
bMEI=monthly earned income
40.9% Initial Probability
0% 10% 20% 30% 40% 50% 60% 70% 80% 90%
Percent
Source: Census Bureau: 2004 SIPP Wave 7

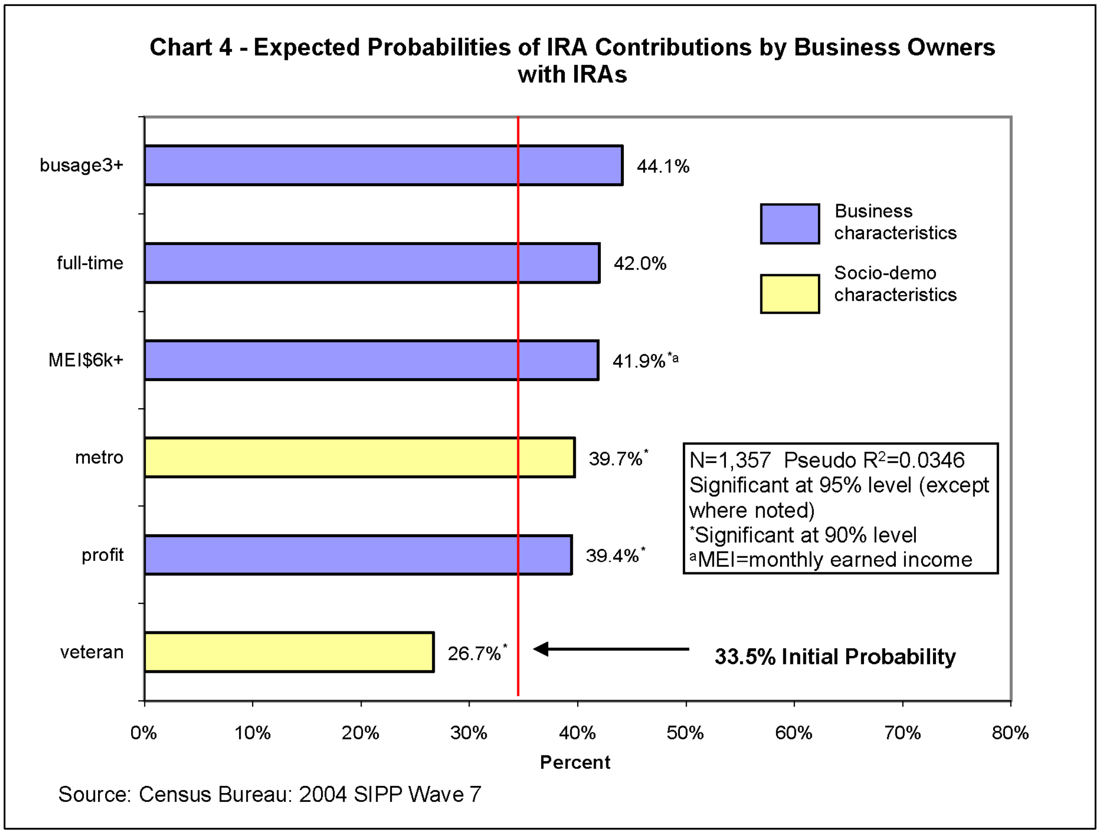
Chart 4 - Expected Probabilities of IRA Contributions by Business Owners with IRAs
busage3+
full-time
MEI$6k+
metro
profit
veteran
44.1%
42.0%
41.9%*a
39.7%*
39.4%*
26.7%*
Business characteristics
Socio-demo characteristics
N=1,357 Pseudo R2=0.0346
Significant at 95% level (except where noted)
*Significant at 90% level
aMEI=monthly earned income
33.5% Initial Probability
0% 10% 20% 30% 40% 50% 60% 70% 80%
Percent
Source: Census Bureau: 2004 SIPP Wave 7

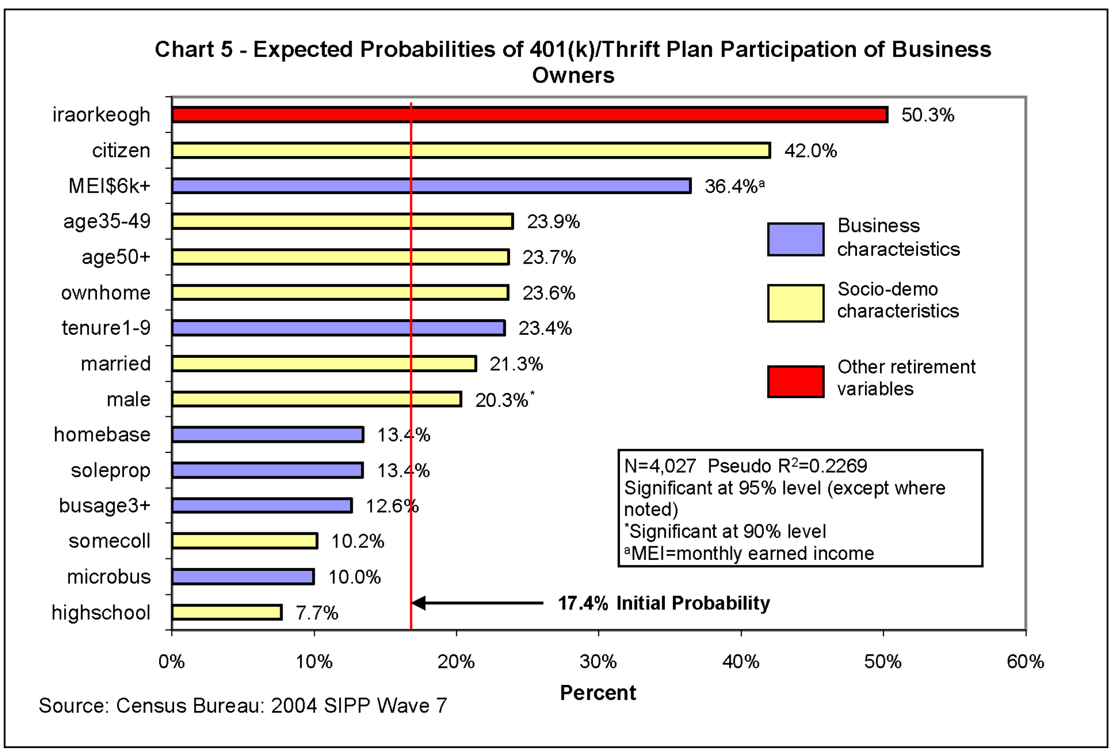
Chart 5 - Expected Probabilities of 401(k)/Thrift Plan Participation of Business Owners
iraorkeogh 50.3%
citizen 42.0%
MEI$6k+ 36.4%a
age35-49 23.9%
age50+ 23.7%
ownhome 23.6%
tenure1-9 23.4%
married 21.3%
male 20.3%*
homebase 13.4%
soleprop 13.4%
busage3+ 12.6%
somecoll 10.2%
microbus 10.0%
highschool 7.7%
Business characteistics
Socio-demo characteristics
Other retirement variables
N=4,027 Pseudo R2=0.2269
Significant at 95% level (except where noted)
*Significant at 90% level
aMEI=monthly earned income
17.4% Initial Probability
0% 10% 20% 30% 40% 50% 60%
Percent
Source: Census Bureau: 2004 SIPP Wave 7

Appendix: Variable Names, Datasets and Topics

Appendix Table 1 – SIPP 2004 Panel Variable Names, Datasets and Topics[1]		
Variables for Regression Analysis	SIPP Variable Name	Dataset/Topic (Topical Module) Variables
Retirement Account Variables[2]		
IRA ownership	IIRAYN	Annual Income and Retirement Account (TM[3])
Keogh ownership	IKEOGHYN	Annual Income and Retirement Account (TM)
IRA or Keogh ownership	EAST1B	Core[4]/Assets Variables
IRA contribution (if owned)[5]	IIRACONT	Annual Income and Retirement Account (TM)
401(k)/Thrift plan participation	EAST1C	Core/Assets Variables
Socio-Demographic Characteristics		
Sex	ESEX	Core/Demographic Variables
Age	TAGE	Core/Demographic Variables
Race	ERACE	Core/Demographic Variables
Hispanic	EORIGIN	Core/Demographic Variables
Marital Status	EMS	Core/Demographic Variables
Education	EEDUCATE	Core/Education Variables
Veteran	EAFEVER	Core/Armed Forces Variables
Citizen Status	ECITIZEN	Core/Demographic Variables
Homeownership	ETENURE	Core/Household Variables
Metropolitan Location	TMETRO	Core/Household Variables
Business Characteristics		
Form of Business	IBSFORM1	Annual Income and Retirement Account (TM)
Firm Size	TBUSTOTL	Retirement Expectations & Pension Plan Coverage (TM)
Business Location	IBSLOCT1	Annual Income and Retirement Account (TM)
Industry Sector	TBSIND1	Core/Business Variables
Firm Age	TSBDATE1	Core/Business Variables
Number of Businesses Owned	EBUSCNTR	Core/Labor Force Variables
Net Profit/Loss	TPRTB1	Core/Business Variables
Total Business Expenses	TTOTEXP1	Annual Income and Retirement Account (TM)
Monthly Earned Income (Business)	TBSUM1	Core/Business Variables
Years/Months Worked	TNUMLEN	Retirement Expectations & Pension Plan Coverage (TM)
Usual Hours Worked/Week	RMHRSWK	Core/Labor Force Variables

[1]All data are for the January 2006-April 2006 period unless otherwise noted.
[2]Topical Module variables in Wave 7.
[3]Tax deductible IRA contributions which applied to the 2005 tax return.
[4]Core questions are repeated at each interview over the life of the panel.
[5]These variables have not been edited. Observations with non-responses which included “not answered,” “don’t know,” and “refused” were excluded in the analysis.