

Effects of Family Income and Life Cycle Stages On Financial Asset Ownership

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This study investigated the effects of income and life cycle variables on the ownership of eleven household held financial assets, using the 1989 Survey of Consumer Finance. Logistic regression indicated that life cycle variables, such as household head's age, marital status, employment status, and child's presence, influenced ownership of 11 financial assets. The results can be used to construct various family life cycle scenarios to improve educational and business programs in financial planning and counseling.

KEY WORDS: *saving, individual investors, family life cycle, financial assets*

Over its life cycle, a family will face many financial tasks, problems, and challenges (Garman & Forgue, 1994). Families use a variety of financial assets for various goals. Some financial assets, such as checking accounts, are held by most families whereas other assets, such as stocks, are held by a minority of families (Kennickell & Shack-Marquez, 1992). Consumers have diverse saving patterns (Hogarth, 1991) and asset portfolios (Weagley & Gannon, 1991). This research examines the impact of family life cycle stage and income on the ownership rates of 11 financial assets.

This study first uses a procedure proposed by Derrick and Lehfeld (1980) to estimate the effects of family life cycle and income on household financial asset ownership. It then applies a simulation approach to create life cycle scenarios to illustrate factors related to financial asset ownership. The unique research design of the study allows practitioners and educators to understand how family life cycle stages and financial resources affect the ownership rate of financial assets.

Literature Review

Studies on Consumer Saving and Asset Allocation

Conceptually, saving and asset allocation are two different concepts. In this study, the two concepts are assumed to be related in the following way. Assume that consumer saving and asset allocation are two sequential steps in a decision making process. Consumers first decide whether or not they should save. If they decide to save, they would then consider how to save (asset

allocation). Since the focus of this study is to investigate the behavioral patterns of financial asset ownership, the literature review concentrates on empirical studies of consumer saving and asset allocation.

To research consumer saving behavior, many studies used a single saving variable that did not distinguish differences among various financial assets. In these studies, income was found to be an important factor positively associated with consumer savings (Avery & Kennickell, 1991; Chang, 1994; Hefferan, 1982). However, a negative effect of income was found for net worth change when families moved from beginning to expanding life cycle stages (Fitzsimmons & Leach, 1994). Family savings were also associated with life cycle variables, such as age and number of children, number of employment (Hefferan, 1982), and household size (Davis & Schumm, 1987; Hogarth, 1991). Householder's education also influenced family savings (Davis & Schumm, 1987; Hefferan, 1982).

Some studies divided household financial assets into groups and identified characteristics of the different groups of assets in several ways. Smythe (1968) divided families into four groups based on the head's age and found that the compositions of assets (including investment, liquid, and other assets) were different in terms of amounts and percentages. Johnson and Widdows (1985) constructed three nested groups of family emergency funds, and each group included a different number of financial asset types, and found that

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age and income were closely associated with the levels of emergency funds. Weagley and Gannon (1991) divided household assets into four groups: savings, housing, financial securities, and retirement investments, and assumed that the risks involved in different groups of assets were different. They found that age and total assets were the major determinants on the family portfolio behavior. Xiao (1992) and Xiao and Olson (1993) divided household financial asset into three groups, and assumed that the different groups of assets represented different levels of financial needs. They found that age, education, and employment status, and income were factors associated with the savings in the three groups of assets.

Several studies have investigated factors associated with savings in specific financial assets. Ramaswami, Srivastava and McInish (1992) studied the relationship between consumer saving objectives and holdings of nine financial assets. They found that income, education, and life cycle variables influenced some of the financial holdings. Hira (1987) examined ten household assets by family demographic variables, and the chi-square tests indicated that income was a major factor, and age, education, employment status, household size, marital status, and several other variables influenced the ownership of some of the assets. Xiao (1995) investigated the determinants of ownership of nine financial assets, and found that income, education, race, and life cycle related variables (household size, marital status, and employment status) were major factors^a.

Family Life Cycles as Independent Variables

The notion of Family Life Cycle (FLC) was first used by Rowntree (1903) as a method to study poverty patterns in England. Currently, researchers in sociology, psychology, marketing, and consumer economics use the concept to investigate a variety of consumer and family issues. O'Rand and Kreckler (1990) provided a detailed discussion about the concept of the life cycle on its history, meanings, and uses in social science.

The FLC concept has been developing along with two dimensions in consumer economics and marketing. Its ability to assign large proportions of the population into family life cycle stages, and its power to distinguish meaningful family categories among the consumption behavior of American consumers results in its explanatory ability as an independent variable (Wilkie, 1986). Researchers from different fields with different beliefs or theoretical considerations create different divisions of FLC stages, generally by considering head's

age, marital status, retirement status, and child's presence and age (Gilly & Enis, 1982; Murphy & Staples, 1979; Rodgers, 1962; Schaninger & Danko, 1993; Wells & Gubar, 1966).

FLC has usually been used by consumer and marketing researchers as an independent variable to explain consumer economic behavior, especially expenditure behavior. Lansing and Morgan (1955) explored the relationship of the life cycle variable and family financial variables, and concluded that family financial variables showed certain patterns when the life cycle variable had been taken into account. Lansing and Kish (1957) compared explaining power between FLC and age with respect to six family economic variables. They found that FLC discriminated better than age in all six cases, and life cycle analysis provided some useful information that analysis by age group tended to conceal. Barton (1955) studied the purchasing behavior of nondurable goods and drew the same conclusion. Wells and Gubar (1966) also found that FLC as an independent variable was sometimes superior to an age variable.

Wagner and Hanna (1983) made a comparison between Wells and Gubar's model, Murphy and Staples's model, and a family composition model, and concluded that in models that controlled for socio-economic variables, the effects of FLC variables were significant, but small compared to income. They drew the conclusions from their study of clothing expenditure. However, no studies were found to address whether the conclusions are valid in other consumer goods expenditures or consumer saving and investing behavior.

Derrick and Lehfled (1980) proposed an alternative specification of FLC as independent variables. Instead of dividing family life cycle stages with assignment of head's age, marital status, and child's age, they used the variables separately as indicators of family life cycle. They found the alternative approach had better explanatory power than that of traditionally defined life cycle stage variables. They observed three advantages of the alternative specification over the traditional one: (1) it does not require that the researcher determine what the proper stages should be; (2) it does not require readjustment of the stages as changes occur; and (3) it is possible to estimate within a stage, instead of being limited to differences from one stage to another (Derrick & Lehfled, 1980). In fact, this specification does not set fixed life cycle stages and gives the researchers flexibility to construct different life cycle stages depending on their research purposes. This feature is

very useful when the findings are used to create various life cycle scenarios to indicate changes in the financial asset ownership by changes in family characteristics.

Previous studies indicated that family life cycle variables had better discriminatory power than age variables, but smaller effects than income in explaining consumer economic behavior (Lansing & Kish, 1957; Wagner & Hanna, 1983). Based on the literature review, this study investigates the effects of family income and life cycle on household financial asset ownership using a FLC specification proposed by Derrick and Lehfeld (1980). Based on the behavioral life cycle hypothesis (Shefrin & Thaler, 1988), consumers mentally divide their assets into different accounts for different specific purposes. The saving propensities would be different when consumers are in different family life cycle stages and have different levels of financial resources. Therefore, attention was paid to identifying the behavioral patterns of financial asset ownership when family life cycle, income, and other demographic variables change.

Methodology

Data

This study used data from the 1989 Survey of Consumer Finances. The survey was sponsored by the Federal Reserve Board and several other federal agencies, and collected by the Survey Research Center of the University of Michigan. The data set has 3,143 observations, of which 2,277 were selected by standard multistage area-probability sampling methods from the 48 contiguous states, and the remaining 866 households in the survey were selected using tax data to oversample wealthier households (Kennickell, 1992). All observations were included in the analysis. A multiple imputation technique was used to create the 1989 data file, which included five sets of data (Kennickell, 1991). In this study, each of the five sets of data was used for the analyses separately. Because the results from the five sets of data were similar, only findings from the first set of data are presented here, but the results from other sets of data are available from the author. Weighted samples were used to produce descriptive statistics and conduct multivariate analyses.

Dependent Variables

The dependent variables included ownership of eleven financial assets: checking accounts, savings accounts, certificates of deposits (CD), money market accounts (MMA), savings bonds, retirement accounts (IRAs and Keogh plans), savings plans (employer-sponsored profit sharing, thrift and other savings plans), life insurance

with cash values, bonds, stocks, and trusts. These variables were treated as dummy variables. For example, if a family reported having checking accounts in 1989, the ownership of checking accounts would be coded as 1, otherwise 0. Table 4 in the appendix presents detailed definitions of all variables.

Independent Variables

Independent variables included three sets of variables: life cycle related, income, and control variables. Conventionally, life cycle stage variables are formed by assigning attributes of head's age, marital status, employment status, and child's presence and age into different categories (Lansing & Kish, 1957; Murphy & Staples, 1979; Wagner & Hanna, 1983; Wells & Gubar, 1966). In this study, an alternative specification proposed by Derrick and Lehfeld (1980) was used which employed life cycle related variables instead of life cycle stage variables. Four life cycle related variables, head's age, marital status, employment, and child's presence in different age groups were included. Marital status and employment were dummy variables, married was coded as 1, so was employed, otherwise 0. Similar to Wagner and Hanna (1983), age was divided into three groups: young (<35), mature (35-64), and older adult (>64). Child's presence in age groups had five categories: no young child at home (including no child or no child under 18 at home^b), with child aged 0-2, 3-5, 6-11, 12-17. For example, if a family has at least one child at age 0-2, "Child aged 0-2" was coded as 1, otherwise 0.

Income was divided into two groups: earned income (wage and salaries), and unearned income (all other income^c). The two income variables were continuous variables.

Control variables included racial/ethnic group, education, and risk taking. There were four racial/ethnic group categories: white, non-Hispanic; Hispanic; Black, non-Hispanic; and other^e (Asian, native American, and other). Education had four categories: under the 12th grade, high school (12th grade), college (13-16 years in school), and post college (more than 16 years in school). Risk taking was a dummy variable: if a household head was willing to take at least average risk, the household was coded as 1, or 0 if he/she was willing to take no risk.

Most independent variables were categorical ones, even for some that were originally continuous variables, such as age and education. The reason for using categorical independent variables was to offer simplicity and

flexibility when the findings were used to construct different family life cycle scenarios later on.

Analyses

Logistic regression models were used to identify factors associated with financial asset ownership. The dependent dummy variables indicated ownership of financial assets, and were assumed to represent the propensities of owning these assets. Logistic regression is more appropriate than linear probability models for the purpose of the study (Maddala, 1992, p.327). The SAS Logistic procedure was used to estimate the parameters. The estimated parameters indicate the directions, instead of magnitudes, of marginal effects of independent variables. The marginal effects can be calculated using the estimated parameters, given certain assumptions. Some of the marginal effects are demonstrated in the simulation section in this article. Following Maddala (1992, p.334), a pseudo R² was calculated to measure the goodness of fit of the logistic models, which is:^f

$$\text{pseudo } R^2 = \frac{L_{ur}^{2/n} - L_r^{2/n}}{(1 - L_r^{2/n}) L_{ur}^{2/n}}$$

where, n = sample size, L_{ur} = the maximum of the likelihood function when maximized with respect to all the parameters, and L_r = the maximum of the likelihood function when estimated only with the intercept.

Findings and Discussion

Descriptive Statistics

Table 1 presents descriptive statistics. Among the weighted sample, 81% owned checking accounts, 44% owned savings accounts, and 34% owned life insurance with cash values. The percentages of households owning CDs, savings bonds, retirement accounts, savings plans, and stocks were between 19% to 24%. Only 13% owned money market accounts, and few owned bonds (7%) and trusts (4%).

A majority of households were headed by whites (75%), and others headed by Hispanics (8%), Blacks (13%), or other (4%). About a half of the household heads indicated that they were willing to take at least average risk.

Logit Results: Effects of Life Cycle Variables

Table 2 presents the results of logistic regression models. The most common pattern of age effects implied a positive relationship between age and propensity to own financial assets. Compared with the middle age group, younger families were less likely to own checking accounts, CD's, IRA/Keogh accounts, employer-saving plans, life insurance, bonds, and stocks. Older families were more likely to own checking accounts, CD's,

IRA/Keogh accounts, employer-saving plans, savings bonds, life insurance, bonds, stocks, and trust accounts. The positive age effects in terms of asset ownership are similar to consumer behavior in cases of emergency fund savings (Johnson & Widdows, 1985) and asset allocation (Weagley & Gannon, 1991).

Table 1
Descriptive Statistics

Ownership of asset	(%)
Checking account	81.1
Savings account	43.6
CD	19.7
Money market account	12.6
Life insurance	34.5
Savings bond	23.8
IRA or Keogh	24.5
Savings plan	21.8
Bond	7.0
Stock	19.0
Trust	3.5
White, non-Hispanic	75.3
Hispanic	7.7
Black, non-Hispanic	12.8
Other	4.2
Risk Taking	49.8
Employed	62.1
Married	55.1
No child at home	62.7
Child's age 0-2	10.6
Child's age 3-5	16.5
Child's age 6-11	15.7
Child's age 12-17	15.4
Under 12th grade	26.8
High school	30.0
College	31.6
Post college	11.6
<35	25.7
35-64	52.0
>64	22.3
Family Earned Income	\$24890
Family Unearned Income	\$12683

1989 Survey of Consumer Finance. N=3,143. Weighted results from Imputation 1.

Marriage significantly increased the chance of owning eight out of eleven assets. The results are different from a previous study of financial asset ownership (Hira, 1987), in which no association was found between marital status and the ownership of six types of financial assets investigated.

The effects of employment status were mixed, as employment increased the chance of owning checking and savings accounts, savings plans, savings bonds, and cash value life insurance, but decreased the likelihood of owning bonds.

Effects of Family Income and Life Cycle Stages on Financial Asset Ownership

Presence of a child significantly increased the chance of owning savings bonds and trusts, but decreased the chance of owning IRAs and Keogh plans and stocks. In other cases, child presence indicated weak (only one out of four variables was significant) positive effects on savings account ownership and negative effects on checking account, CD, MMA, and bond ownership. The

effects of child presence on savings plans tended to be positive and on life insurance tended to be mixed (positive and negative), but both were not significant.

Logit Results: Effects of Income and Control Variables
Most previous studies documented positive income effects on consumer savings (Avery & Kennickell, 1991; Chang, 1994; Hefferan, 1982). One exception was a small study in which income was found to have negative effects on net worth changes for families going from beginning to expanding life cycle stages (Fitzsimmons & Leach, 1994). Different income sources may result in different propensities to spend for consumers (Shefrin & Thaler, 1988). In this study, two income variables were used and their effects indicated positive effects on the ownership of the majority of financial assets with several exceptions. Unearned income showed negative effects on savings plans and insignificant effects on savings accounts, savings bonds, and cash value life insurance.

Table 2.
Logit results: Factors Associated with Family Financial Asset Ownership.

	checking	saving	CD	IRA or Keogh	saving plan	saving bond	life insurance	money market account	bond	stock	trust
Intercept	1.0777*	-0.6495*	-1.2987*	-1.6175*	-3.2906*	-1.8279*	-1.2593*	-1.9928*	-2.6543*	-1.9573*	-4.0633*
Asian & other	-0.046	-0.602*	-0.2646	-1.2271*	-0.4295	-0.5489*	-0.754*	-0.4235	-0.564	-1.019*	-0.9717
Hispanic	-1.3572*	-0.5699*	-2.5949*	-1.4531*	-0.7683*	-1.0157*	-0.8889*	-3.253*	-2.0546*	-1.4287*	-2.3999
Black	-1.5152*	-0.1127	-1.5473*	-0.9886*	-0.2267	-0.7234*	-0.2889*	-1.147*	-1.3084*	-1.41*	-0.5445
Earned income	4.0e-05*	1.95e-07	5.53e-07	1.5e-05*	1.6e-05*	2.67e-06*	4.13e-06*	6.03E-6*	8.07e-06*	1.3e-05*	3.6e-06*
Unearned income	7.0e-05*	-1.37e-06	2.22e-08	1.39e-06	-3.0-06*	-1.06e-06	-9.98e-09	1.31e-06	2.72e-06*	4.68e-06*	8.38e-08
Employed	0.4557*	0.5752*	-0.0878	0.1713	2.0674*	0.5487*	0.2945*	-0.0742	-0.754*	0.0712	-0.0268
Married	0.5782*	0.3794*	0.477*	0.7662*	0.1807	0.7524*	0.9813*	0.278*	0.1221	0.3668*	0.3706
Child 0-2	-0.2379	-0.0791	-0.0984	0.2273	0.1033	0.6809*	-0.2602	-0.4132	-0.3684	-0.0793	0.6956*
Child 3-5	-0.072	0.3327*	-0.348	-0.8685*	0.1032	0.4514*	0.2199	-0.3339	0.027	-0.3153	-0.6844
Child 6-11	-0.4518*	-0.1016	-0.6896*	-0.4776*	0.1045	-0.1159	0.1381	0.1926	-0.6187*	-0.5871*	0.9576*
Child 12-17	-0.305	0.0907	0.2507	-0.4361*	0.0533	0.3572*	-0.1405	-0.6059*	-0.4421	-0.4959*	-0.3994
Age<35	-0.3193*	0.0169	-0.7086*	-0.985*	-0.2834*	-0.2072	-0.6994*	-0.2907	-1.41*	-0.7105*	-0.1739
Age>64	1.2291*	0.3536*	0.9515*	0.0031	-1.8702*	0.3441*	0.3152*	0.8069*	0.9561*	0.6659*	1.424*
<12th grade	-1.5735*	-0.732*	-0.6361*	-1.0967*	-0.7046*	-1.1803*	-0.4092*	-1.1923*	-1.8177*	-1.2536*	-1.6094*
High school	-0.9184*	-0.1443	-0.4856*	-0.1573	-0.2654*	-0.3887*	-0.2548*	-0.8346*	-0.7919*	-0.703*	-0.2841
Post college	1.9089*	0.1158	-0.1476	0.9126*	-0.0396	-0.2966*	-0.1595	0.5017*	0.4611*	0.1568	-0.3437
Taking risk	0.2001	-0.0195	0.2935*	0.3984*	0.3139*	0.1465	0.2618*	0.4576*	1.1976*	1.0116*	0.773*
Pseudo R ²	0.46	0.09	0.19	0.32	0.36	0.19	0.17	0.20	0.29	0.30	0.13
Concordant	91.0%	60.1%	70.7%	83.5%	80.3%	67.6%	60.7%	80.4%	87.4%	85.0%	73.1%

*p<0.05. 1989 Survey of Consumer Finance. N=3,143.

Note: Reference categories are: white, not employed, not married, no child at home, age 35-64, bachelors degree, and not taking risk.

The effects of education on the ownership of financial assets had two patterns. Households with less than a college education were significantly less likely than otherwise similar households with a bachelor's degrees to own all types of assets other than trusts. The positive education effects are consistent with previous studies of saving behavior (Davis & Schumm, 1987; Hefferan, 1982). Compared with Xiao (1995) in which education was measured as a continuous variable, the results were similar but the differences between households which heads had four year college education and those with higher educational level (post college) were identified in this study because of a different specification of the education variable.

Households in which the head indicated willingness to take at least average risks were more likely than their less risk tolerant counterparts to own most types of assets. Consumer risk tolerance is related to household size, education, occupation, race, number of earners, and marital status (Lee & Hanna, 1995). The findings in this study indicated that willingness to take risk played an important role in owning financial assets for investment purposes.

Simulation

The findings can be used to predict the probability of households with specific characteristics of owning one of the eleven financial assets and to create life cycle scenarios to display the changes of asset ownership probabilities when focused household characteristics change. The simulations will show marginal effects and interactive effects between selected family life cycle variables on financial asset ownership that are not evident from the regression results. Thus, simulations will provide further understanding of consumer behavior in owning different financial assets. The following will demonstrate two types of simulations, a table and a chart method. One caveat of using the findings in such a way is that when the estimated parameter is statistically insignificant, the estimated probability could be invalid.⁸

Table 3 presents the predicted probabilities of owning eleven financial assets by age groups. In this table, the probabilities are calculated assuming that the households have average earned and unearned income, and are without children at home, and that the heads are white, married, employed, four year college educated, and not willing to take risk. Given these assumptions, age is positively related to the ownership of all financial assets except for savings plans. The exception is understandable since savings plans are closely related to

employment status and people usually retire after 64 years old. The second notable pattern is the difference between the oldest group and other groups. The oldest group has a substantially lower chance of owning savings plans, but much higher chances to own other assets, such as CDs, MMAs, savings bonds, bonds, stocks and trusts, compared to other age groups. The youngest group has the lowest probability of owning IRAs or Keogh plans of all age groups, for two possible reasons: young people are less interested in retirement savings, and/or IRAs or Keogh plans are less attractive to them than to their older counterparts. The fourth pattern from Table 3 is variations of probabilities of owning financial assets by age groups. The variations of chances owning certain types of asset ownership, such as checking accounts, across age groups are small. The chances of owning checking accounts across three age groups are from 98% to 100%. However, the chances of owning other types of assets like stocks show greater variations across age groups. The chance of owning stocks for the youngest group (<35) is only 14%, but for the oldest group (>64) it is as high as 39%.

Table 3
Predicted Probabilities(%) of Ownership of Financial Assets by Age Group.

	age<35	35-64	age>64	all
Checking acct	98	98	100	81
Savings acct	58	57	66	44
CD	17	29	51	20
IRA/Keogh	22	43	42	25
Savings plan	28	34	7	22
Savings bond	34	38	47	24
Life insurance	36	53	61	35
MMA	13	17	31	13
Bonds	1	5	11	7
Stocks	14	24	39	19
Trust	2	3	10	4

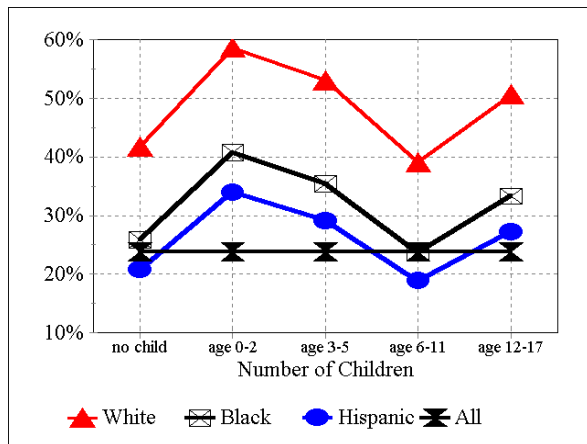
Note: the households are assumed to have average earned and unearned income and without children at home, and the heads are white, married, employed, four year of college, and not willing to take risk.

Another method of simulation is using charts. Figures 1-5 illustrate five cases to demonstrate how chances of owning a particular asset increase or decrease when household characteristics change, holding other variables constant.

Case 1 Figure 1 displays the probabilities of owning savings bonds by racial/ethnic group and child presence.

The chance of a household headed by a white owning savings bonds are from 39% to 59% depending on the status of child presence. The chance of an otherwise similar household headed by a Black owning savings bonds are close to the overall average, but for Hispanic headed households the chances of owning savings bonds are below the average when there is no child at home, or with child aged 6-11 at home. The effects of child presence with different age groups are also displayed. For example, the households with young children aged 0-2 are most likely to own savings bonds across all racial/ethnic groups, when other conditions are the same.

Figure 1
Predicted Probability of Owning Savings Bonds by Number of Children and Ethnic/Racial Status.

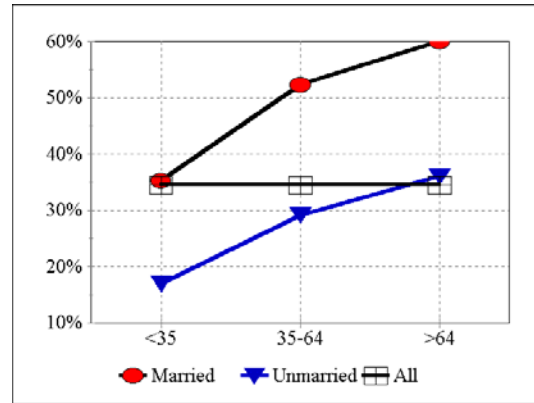


Married households headed by college graduate, willing to take average risk, age 35-64.

Case 2 Figure 2 indicates the effects of marital status and age on the chances of owning cash value life insurance based on the above assumptions. Both marital status and age have positive effects on the chances of owning life insurance.

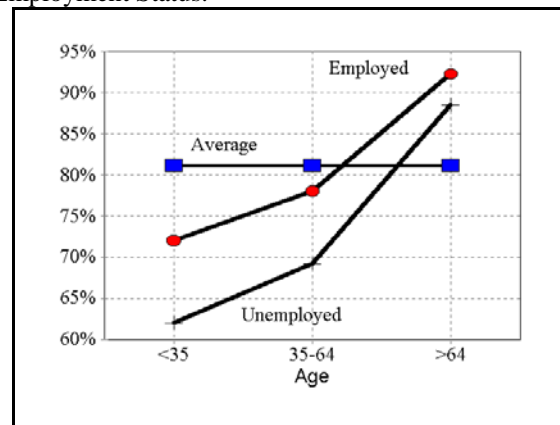
Case 3 Figure 3 shows the effects of employment status and age on the chances of owning checking accounts. Both employment and age are positively related to the probabilities of owning checking accounts, but only households with heads aged 65 or older have higher than average chances of owning checking accounts, regardless of employment status.

Figure 2
Predicted Probability of Owning Cash Value Life Insurance, by Age and Marital Status.



Married households headed by Black, college educated, willing to take average risk, employed.

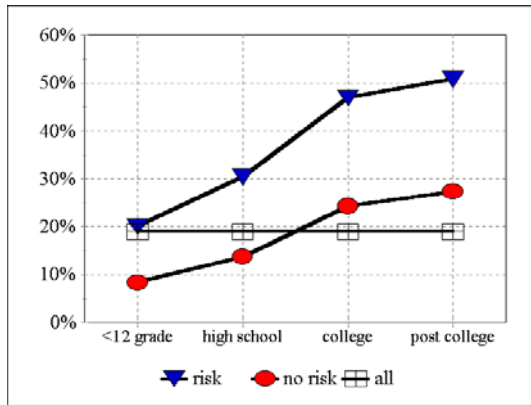
Figure 3
Probability of Owning a Checking Account by Age and Employment Status.



Married households headed by Hispanic, high school education, willing to take average risk

Case 4 Figure 4 indicates the effects of risk taking and education on the chances owning stocks. Both risk taking and education have positive effects on the chances of owning stocks.

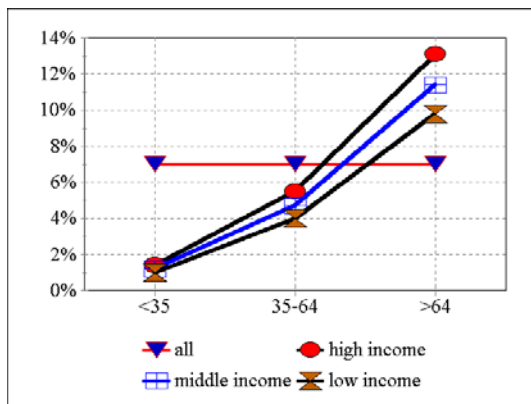
Figure 4
 Predicted Probability of Owning Cash Value Life Insurance, by Age and Employment Status.



Married Households Headed by Hispanic, High School Education, Willing to Take Average Risk

Case 5 Figure 5 illustrates the probability of owning a cash value life insurance policy increases with earned income and age .

Figure 5
 Predicted Probability of Owning Cash Value Life Insurance, by Age and Employment Status.



Married Households Headed by Hispanic, High School Education, Willing to Take Average Risk

The above simulations indicate that given household characteristics, the findings can be used to predict the chances of owning a particular type of financial asset. Family life scenarios can be created to display the change in the asset ownership when household characteristics change. A variety of tables and charts like these can be created based on findings to serve various educational and marketing purposes.⁸

Conclusion and Implications

Conclusion

This study investigated effects of life cycle variables, income, education, racial/ethnic group, and willingness to take risk on the ownership of household financial assets. Using data from the 1989 Survey of Consumer Finances, the logit results suggest that effects of life cycle variables, such as household head's age, marital status, employment status, and child's presence, are significant in predicting the ownership of many financial assets. Earned income usually has positive effects on all financial asset ownership, so does unearned income with a few exceptions. Having a college degree is positively related to owning a number of assets, including stocks. Whites are more likely than the other racial/ethnic groups to own most financial assets. Households with heads who are risk takers are more likely to most financial assets.

Implications for Practitioners and Educators

The findings of this study indicated empirical patterns of consumer behavior in holding financial assets, but the patterns cannot be viewed as the normative behavior other consumers should follow. Purchasing financial products is a complex process, involving the interactions between consumers, their families, financial service professionals, and other concerned parties. Individual consumers and their financial advisers may have different views in terms of their financial needs and actions needed. However, the findings of this study can be used by financial counseling and planning practitioners and educators in following ways. First, the findings indicate that both income and life cycle variables are important factors to explain the ownership of some financial products, but their relative importance may be different. For example, income effects are not significant in predicting the ownership of CDs. In this case, life cycle variables, such as age and marital status may be more important. The implication for practitioners is that when they recommend their clients to start saving or investing in a new category of financial instrument, they should consider both income and life cycle characteristics of their clients that may encourage or discourage the acceptance of the product. Second, the findings could be used to calculate the predicted likelihood of owning eleven financial assets among families with different characteristics. Using information about client's age, marital status, employment status, child's presence and age, racial/ethnic group, education level, earned and unearned income, and willingness to take risk, the predicted chance of owning a specific asset can be easily computed. If the predicted probability is much lower or

higher than the overall average (which can be found in Table 1), the practitioners may use different strategies to persuade their clients to accept or give up certain types of financial products for saving and investing purposes. The third way of using the findings of this study is to develop family life scenarios like Table 3 and Figures 1 to 5. These tables and charts can be used as educational tools for educators or references for practitioners in designing effective marketing programs in financial counseling and planing services.

Limitations of the Study

The first limitation of the study is that the asset allocation process is assumed as an independent process. In reality, the decision to own a financial asset may occur simultaneously with the decision to own another asset. For example, when consumers invest, they may put a certain amount of money into bonds and stocks at the same time. The second limitation is treating income and family life cycle variables as two sets of exogenous variables. The income and family life cycle variables may be related in some way. More sophisticated statistical techniques and more explicit structural models should be used to address these issues in future research.

Endnotes

- a. Xiao (1992) investigated the effects of family demographic variables on savings in three groups of financial assets, in which the dependent variables were different from ones used in this study. In Xiao (1995), the dependent variables were similar with ones in this study, but the emphases of the two studies are different. Xiao (1995) focused on the effect of owning one asset on another asset, or the interaction between financial asset ownerships. This study is to explore the effects of life cycle variables on financial ownership and compare the effects of life cycle variables with those of income variables.
- b. Ramaswami, Srivastava, and McInish (1992) used three life cycle variables. They were Life Cycle I (single, married with no kids and under 45), Life Cycle II (married with kids), and Life Cycle III (empty nest, married with no kids and over 45).
- c. As a reviewer pointed out, families having older children away from home would have different financial needs compared to families without children in the whole life cycle. An ideal way of doing analysis is to use two variables to indicate the two types of families. Because the information needed was not available from the original data set, only one variable was used in the study.
- d. Earned income included wage and salaries. Unearned income included business and farm, investment, interest, dividend, stock and real estate, unemployment, child support, AFDC/welfare, social security and pension, and other income.
- e. The "other" racial/ethnic category was confusing since it included at least two very different groups, Asians and native Americans. Even though the SCF collected more detailed racial/ethnic information, the public use tape combined the categories to preserve confidentiality.
- f. Pseudo R² was calculated with a program developed by Sherman Hanna. The program can be retrieved through FTP from, <http://www.hec.ohio-state.edu/hanna/sh/index.htm>

- g. The predicted probability of owning a financial asset, P_i, is calculated in the following (Aldrich & Nelson, 1984, p.32):

$$P_i = 1 / (1 + \exp(-Z_i))$$
 in which, $Z_i = \sum b_k X_{ik}$, where X_{ik} are independent variables, and b_k are estimated parameters.
- h. The author would like to help readers to create various tables and charts to serve educational or business purposes based on their needs. Interested readers may contact the author directly.

Appendix

Appendix Table 1

Dependent Variable	Definition
Checking acct.	1 if own checking accounts, otherwise 0
Savings account	1 if own savings accounts, otherwise 0
CD	1 if own certificates of deposits, otherwise 0
IRA/Keogh	1 if own IRAs or Keogh plans, otherwise 0
Savings plan	1 if own employer sponsored savings plans, otherwise 0
Savings bond	1 if own savings bonds, otherwise 0
Life insurance	1 if own cash value life insurance, otherwise 0
MMA	1 if own money market accounts, otherwise 0
Bond	1 if own bonds, otherwise 0
Stock	1 if own stocks, otherwise 0
Trust	1 if own trusts, otherwise 0
Independent Variables	Definition
race/ethnic group	Categories include white, non-Hispanic (reference category); Black non-Hispanic; Hispanic; and other (Asian or Native Americans)
Earned income	Total of wages and salaries
Unearned income	Total of other incomes, see Endnote d for details
Employment	1 if employed, otherwise 0
Marital status	1 if married, otherwise 0
Child presence	If a household has at least one child aged 0-2, then Child 0-2 is coded as 1, otherwise 0; Child 3-5, Child6-11, and Child 12-17 are coded similarly. No child at home is the reference category
Age	Categories include <35, 35-64 (reference category), and >64 years old
Education	Categories include <12th grade, high school, four year college (reference category), and post college
Taking Risk	1 if taking at least average risk, 0 if taking no risk

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