Asset Management and Retired Households: Savers, Dissavers and Alternators

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Using Social Security Administration's Retirement History Survey data, this paper explores patterns of saving and dissaving among retirement aged households. Five patterns are identified and the characteristics of households with each of these patterns are explored. Determinants of the saving/dissaving pattern are estimated. Implications for public policy and educational programs are discussed.
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Increasing proportions of persons 65 and over, declining labor force participation rates of persons 55 and over, and increasing life expectancies all portend strains on both public and private resources supporting retirees. Of the major sources of retirement income, Social Security and earnings generally change with changing price levels. The fixed nature of most current pension benefits implies that their purchasing power can diminish considerably over time. Assets, if managed carefully, can generate income which can keep pace with inflation; alternatively, households can draw down their assets to help meet income needs.

Financial educators and advisers know the importance of careful asset management to the economic well-being of retired households. Assets, and the income they generate, are essential to retirees' abilities to buffer retirement incomes against the effects of inflation. Although on average, assets generate about one-fifth of the income retirees receive, this percentage varies greatly by income class. Income from assets ranges from zero percent for the lowest income retirees to about 30% of income for the highest income retirees (Grad, 1989).

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The life cycle hypothesis posits that households will save during peak earning years and then dissave during retirement years. It follows that households would annuitize assets at retirement and draw down their assets in proportion to their life expectancy. Dissaving in retirement does not necessarily represent "bad" financial management. However, dissaving at rates which cannot support the household for its expected lifetime is a dangerous practice.

Because savings and dissavings during retirement affect asset levels, they affect potential income from those assets. However, as dissavings has not been regarded as "income" in most data sets, its importance in the "income portfolio" is unknown. While a good deal of popular literature is available, there is a relatively small research base on which to build financial education and financial advising and planning programs for older persons. It would be helpful to know how retirees use their financial resources throughout retirement, through continued savings as well as dissavings. Furthermore, if financial educators and advisers knew the particular characteristics of different types of saver and dissaver households, they could better target their educational and financial planning programs.

The primary purpose of this research is to explore patterns of savings and dissavings among retirement-aged households and the determinants of those patterns. In the process, characteristics of savers and dissavers will be identified.

Previous Work

Research on assets in retirement falls into two basic categories: descriptions of asset levels at retirement and/or during retirement, and life cycle analysis of savings.

Assets
Descriptive studies by Social Security Administration and Census researchers have provided a picture of assets prior to and during retirement. The Census Bureau's 1984 study of wealth and asset ownership revealed that the average net worth portfolio consisted of liquid financial assets (25%), other financial assets (17%), equity value of house (39%), and other equity (19%). Median net worth for these households was $60,266; median net worth excluding home equity was $18,790 (U.S. Census, 1986).

The vast majority of retirees (93%) have some sort of financial assets (Sherman, 1985); 92% have a checking or savings account and over half (52%) report holdings in money markets or CDs. Smaller proportions hold securities (30%) and IRA/Keogh accounts (16%). Relatively few retirees (25%) hold any real assets beyond an owned home; 87% of retired couples are homeowners, with one-third of these still paying a mortgage.

The asset portfolio of older households changes with age; as households grow older, they seem to grow more conservative, shifting funds to low risk, highly liquid holdings (Hogarth, 1987). There is some evidence that households contemporaneously consider their entire portfolio as they liquidate, dissave and re-arrange assets. In this study, however, there was no way to spot movement within categories of assets. For example, retirees could have moved money out of passbook savings accounts and into certificates of deposit. There was no way to determine if the proceeds from life insurance were re-invested or used for consumption, although a decline in life insurance was associated with an increase in savings. Similarly, there was no way to determine to what degree retirees adjusted their stock/securities portfolio to provide for desired levels of risk, income, and growth.

Using cross-section data from the Survey of Income and Program Participation (SIPP), Radner (1989) reported that net worth holdings of persons 55 and over shifted from other assets (primarily real estate, income properties, and owned businesses) to home equity and financial assets. Data from the Longitudinal Retirement History Survey reveal that over time within the same household, larger proportions of financial assets were held in savings accounts with decreases in nearly all other financial asset holdings (Hogarth, 1987).

Life Cycle Studies
The life cycle hypothesis of savings specifies a profile in which persons borrow in early stages of their lives, save in middle stages and dissave in later stages. Empirical evidence shows some support for this dissaving-at-retirement hypothesis, however the dissaving occurs at lower than expected rates. Davies (1981) found persons aged 65 to 85 dissaved at a rate of 2.9 to 3.7% per year, a rate significantly lower than the rate of 7 to 9% predicted by the life cycle hypothesis. He indicated that uncertainty about life expectancy was a major factor in the difference between the expected and actual dissaving rates. However, his findings were based on cross-sectional data and it may not be appropriate to infer the behavior of one cohort from the behavior of another.

Similarly, Mirer (1980) found a median dissavings rate of 1.2%, using the saving/wealth ratio as the dependent variable and cross sectional data. He also found that households with lower levels of wealth and income had greater dissavings than those with higher wealth and income. Mirer did not include present values of Social Security and pension benefits in his wealth measures, thus his estimates may have an upward bias.

Some of the limitations of the Davies and Mirer studies have been addressed by Bernheim (1987). Using Longitudinal Retirement History Study (LRHS) data and focusing on bequeathable wealth (real and financial assets), he determined that bequeathable wealth declined rapidly (3 to 4% per year) for single individuals. Among couples, wealth of early retirees declined slightly (1 to 2% per year) or remained fairly constant over retirement. He also found that a fairly stable proportion of wealth was held as owner-occupied housing. He concluded that retirement aged individuals and couples did not dissave any significant fraction of their total resources. However, households may manage their "bequeathable wealth" differently than their financial assets. Thus, separating out financial assets from other (e.g., real property) assets may reveal different patterns of dissavings. Also, during the time of data collection for the LRHS (1969-79), real estate values escalated and thus low rates of wealth decline, in part, reflect higher real housing values.

Also using the LRHS data, Hogarth (1988) studied the determinants of households who continued to save into retirement as well as those who dissaved at disproportionately high rates based on life expectancy. She found that nearly half the sample (46%) had higher financial asset holdings 8 years into retirement. Although over half the sample had some dissavings, nearly one-fifth (18.5%) dissaved at rates faster than predicted by actuarial life expectancies. Factors associated with faster-than-expected dissavings were income, initial value of financial assets, marital status at the onset of retirement, living in an urban area, and level of education.

In a study of the economic vulnerability of the elderly, Burkhauser (1989) focuses on "life events" in the life cycle and the effects of these events on economic security. Key life events among older persons are the onset of retirement and widowhood. While policy changes have reduced the drop in income at retirement (U.S. Census, 1989), changes have been less successful in ameliorating the economic impacts of the loss of a spouse.

In summary, empirical results provide somewhat weak support with regard to life cycle effects and existing models provide limited information on patterns of asset deccumulation. While the life cycle hypothesis indicates that dissaving should occur during retirement, rather low levels of dissaving have been found in empirical studies. These studies suggest that income and asset portfolios and levels, family/household characteristics, and life events, are likely determinants of savings and dissavings behaviors. However, few of the studies provide any information on patterns of saving and dissaving during retirement and/or information on determinants of such patterns.

Methodology

Data for this study come from all six waves (1969 to 1979) of the Social Security Administration's Longitudinal Retirement History Survey (LRHS). The LRHS surveyed nearly 10,000 households with heads aged 58 to 63 in 1969 and every other year over the next 10 years. Males were the respondent in married couple households; if the male respondent died during the survey years, the surviving spouse became the respondent. Women were included as respondents only if they were not married (single, divorced, or widowed) at the onset of the survey (in 1969), or if they were the surviving spouse of a respondent. If a female respondent married during the survey, she was retained in the sample, but her husband became the respondent.

While these data are between 12 and 22 years old at the time of writing, they are the best available for studying the question of savings and dissavings patterns. It is likely that cohort effects exist, both with respect to the values and attitudes held by the respondents and with respect to the regulatory, policy and economic environment. Results must be interpreted with caution, but can provide some insight to the asset management practices of older households.

The design of this study requires that households be in the study for at least three waves (1969, 1971, and 1973) so that savings and dissavings patterns can be followed. Therefore, the first step in sample selection was to identify households in the 1973 survey and work backward (to 1971 and 1969) as well as forward (to 1975, 1977 and 1979), matching identification numbers. Thus, results of this study are based only on households which survived to and remained in the 1973 wave.

Although the LRHS is a rich data set, it does pose several challenges. Specific to this study is the problem of missing data due to non-response and attrition. There are a number of methods to impute values for missing data when appropriate (see, for example, Johnson, Cohen and Monheit, 1989, and Avery and Kennickell, 1988). The technique for estimating imputed values proposed by Heckman (1977) and Maddala (1983) was used in this study (for details, see Hogarth, 1990).

In this study, attrition due to death is expected and may represent the logical end to a savings pattern. Information on respondents who died between 1969 and 1979 was incorporated into the data set used for this research. Analysis of attrition due to death (decedents) versus simple attrition (attriters) revealed that there were no statistical differences between simple attriters and those remaining in the survey, while there were differences between those dying during the survey years and those remaining alive. By incorporating the probability of surviving from one survey to the next, some control for the selection bias created by the decedents can be obtained (again, see Hogarth 1990 for details).

To identify the determinants of the various savings patterns, the model posited is:

Saving Pattern = f(LCE, Z, Mar, S) where
LCE = a vector of life cycle and/or critical events in the life of the household
Z = a vector of socio-economic and demographic characteristics of the household
Mar = market factors which affect portfolio value apart from savings practices
S = a vector of survivor/Mills ratios associated with the probability of surviving from one period to the next and
Saving Pattern = survey to survey changes in real amounts of financial assets.

Variables

Constructing the Savings Patterns

Of interest in this study are the amount of total financial assets in each survey year and the survey-to-survey changes in that amount. From these survey-to-survey changes, the saving and dissaving patterns can be determined.

Asset holdings were calculated by summing respondent and spousal asset holdings from the following: market value of business less outstanding debts of business; market value of other property less outstanding debts/mortgages on other property; value of U.S. savings bonds held; value of stocks and bonds held; balances in checking and savings accounts; value of annuities; value of loans and mortgages held; value of life insurance. The sum of these holdings was defined as the total financial asset variable (A). The difference between survey year t and $t+1$ was the gross measure of savings/dissavings.

$$\text{Save/Dissave} = (A_{t+1} - A_t).$$

If a household sold its home, the proceeds would show up as a significant increase in financial assets and would throw off the savings pattern measure. The gross measure was refined by netting out the proceeds from the sale of owned housing as needed. It was necessary to: (1) note if a respondent had changed residence between the surveys (i.e., did they sell their house?); (2) note if they were owners or renters in each of the years in which a move occurred (i.e., do they continue to own or are they renting?); and (3) note the difference between the market value of housing in year t and $t+n$ if they continue to own (i.e., did they use the entire proceeds for the new house?) or the market value of housing in year t if they rent. This procedure allows the household to dissave out of housing assets and to maintain (or build) financial assets.

$$\text{Save/Dissave} = (A_{t+1} - A_t) - \text{House(if sold)}$$

It is important to note that only 7% of homeowners in the RHS actually liquidated their housing assets (sold their homes and became renters) between 1971 and 1979.

Survey-to-survey change was measured as the difference in real values of total financial assets from one survey to the next (i.e., from 1969 to 1971, 1971 to 1973, and so forth). The reference year for real dollar values was 1969; the CPI was used to adjust to real terms. Any change under $100 was be deemed to be

no change. This procedure allows the tracking of real changes in financial assets. It is also possible to track the nominal changes in financial assets. This would be of interest if households operated under "money illusion," but the real value of assets in terms of preservation of purchasing power is perhaps more relevant to retirees.

The patterns of survey-to-survey changes (increases, decreases, or level periods) were used to crate a set of mutually exclusive savings pattern categories. The characteristics of the households in these categories then became the focus for this study.

Independent Variables
Variables in the life cycle and/or critical events vector are onset of retirement, change in marital status (including death of a spouse), death of respondent during the survey period (the spouse remained in the survey), and migration as measured by change in home ownership.

Variables in the vector of socio-economic and demographic variables are household size and number of children at various points in the surveys, education of respondent and spouse, health, sex, and real income in various years. The combination of age, sex, and health variables acted as proxies for life expectancy. Health was measured subjectively as self rating of health compared to others.

Household income was measured as the sum of money received from social security benefits (retirement, disability, survivor, black lung, and SSI), pensions (including railroad retirement and military), workman's compensation, unemployment benefits, public assistance, earnings, rental property income, interest and dividends, and business and/or farm income. Previous experience with this set of variables indicates that some missing and non-response values could be appropriately coded as zeros, while others were estimated using a set of predictor variables in a two-stage Heckman procedure.

Market-related variables were included to control for changes in portfolio values not due to savings practices. Year of retirement and net real values of assets in various years proxied some of the macro-economic events which could have affected savings/dissavings patterns.

A vector of survivor variables was added to the model. The probability of remaining in the survey from one period to the next was estimated and these

probabilities were included in the model to control for sample attrition (see Hogarth, 1990 for details of these survivorship models).

Results

Five different patterns of savings and dissavings behaviors emerged from the data. Nearly all households (95%) had some periods of saving during the survey period; over half (56%) had some periods of dissaving during the survey. No households had patterns of continuous saving, continuous dissaving or completely level asset holdings across the surveys.

Means and proportions of various household characteristics by savings pattern are presented in Table 1. Results of t-tests of differences between means and Chi square analysis are also presented. Life cycle or critical events in the life of the household, household characteristics, market factors and remaining in the survey (surviving) were related to these different patterns.

One out of twelve households (8.5% of the sample) had a pattern of <u>alternating periods of saving and dissaving</u> (Figure 1). There were no level periods included in this pattern.

Households with this pattern had the highest real incomes across all years and the highest real net assets in the middle and later years of the survey (1973, 1977, 1979). This pattern had the highest proportion of homeowners and the highest proportions of male respondents, retired persons, persons in good health, persons remaining in the survey, and persons not moving during the survey. This pattern may reflect household efforts to fine tune incomes by saving in some years and dissaving in other years, changing savings behaviors to meet changing circumstances and household needs.

The <u>local maximum pattern</u> is one in which households save for some consecutive periods and then maintain asset levels or dissave for the remaining periods (Figure 1). One-fourth (26.9%) of the households in the survey had this pattern.

Households with this pattern had the youngest respondents, the lowest real net assets in 1969 and 1975 and the largest household sizes. This pattern had the Figure 1. Patterns of Savings and Dissavings During Retirement.

1. Alternating Savings and Dissavings. 8.5% of sample.
  Highest real income across all years.
  Highest real net assets in 1973, 1977, and 1979.
  Highest proportion of male respondents.
  Highest proportion of retired persons.
  Highest proportion of homeowners.
  Highest proportion of non-movers.
  Highest proportion in good health.
  Highest proportion remaining in survey.

2. Local Maximum. 26.9% of sample.
  Largest household size.
  Lowest real net assets in 1969 and 1975.
  Highest proportion of married, spouse present households.

3. Local Minimum. 17.0% of sample.
  Oldest respondents.
  Highest proportion of female respondents.
  Lowest levels of education.
  Highest proportion of persons not retired.
  Highest proportion of widowed persons.

4. Some Savings, Some Level Periods. 43.5% of sample.
  Youngest spouses.
  Lowest real income across all years.
  Lowest real net assets in 1971, 1973, 1977.
  Highest proportion of movers.
  High proportion of persons not retired.

5. Some Dissaving, Some Level Periods. 4.2% if sample.
  Highest level of education.
  Smallest household size.
  Highest real net assets in 1969, 1971.
  Lowest real net assets in 1979.
  Lowest proportion of persons remaining in survey.
  Highest proportion of attriters and decedents.

Table 1
Means & Proportions of Household Characteristics

	Alternating (1)	Maximum (2)	Minimum (3)	Saving (4)	Dissaving (5)
N	571	1819	1147	2936	282
Life Cycle Variables					
Respondent Age	60.46	60.37[c]	60.59[h]	60.45	60.48
Spouse Age	56.18[d]	56.50[f,g]	56.46[h]	55.84[j]	57.18
Proportion retired in					
1969	.05	.05	.07	.04	.08
1971	.16	.15	.12	.12	.16
1973	.21	.24	.19	.18	.21
1975	.19	.17	.17	.17	.14
1977	.11	.09	.08	.09	.07
1979	.04	.05	.04	.06	.03
Proportion not retired in 1979					
	.21[c,d]	.23[c,g]	.31[h,i]	.30[j]	.27
Proportion married in					
1969	.76*	.82	.49	.48	.71
1971	.73*	.80	.43	.45	.66
1973	.70*	.76	.41	.41	.63
1975	.47*	.38	.26	.26	.30
1977	.44*	.34	.24	.24	.27
1979	.40*	.30	.18	.18	.19
Proportion widowed in					
1969	.16	.10	.31	.27	.18
1971	.04	.03	.05	.04	.05
1973	.04	.04	.03	.05	.05
1975	.19	.29	.18	.20	.26
1977	.04	.56	.02	.03	.01
1979	.04	.04	.03	.03	.06
Proportion not widowed by 1979					
	.45[a,b,c]	.42[f,g]	.33[h,i]	.35[j]	.37
Year widowed	1973.14[a,b,c]	1974.05[e,f,g]	1971.93[h,i]	1972.33[j]	1973.21
Proportion Home Owner in					
1969	.85*	.89	.78	.75	.84
1971	.92*	.86	.59	.35	.79
1973	.96*	.84	.60	.35	.76
1975	1.00*	.57	.49	.27	.61
1977	.76*	.57	.48	.38	.40
1979	.60*	.46	.43	.33	.34
Proportion not moving					
1969-71	.83*	.80	.59	.44	.73
1971-73	.88*	.83	.81	.77	.84
1973-75	.09*	.09	.12	.17	.12
	(1)	(2)	(3)	(4)	(5)

	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5
1975-77	.04*	.06	.09	.13	.11
1977-79	.33*	.40	.39	.52	.45
Socio-Economic Variables					
Number in household					
1969	2.44[b,d]	2.49[e,g]	2.23[h]	2.53[j]	2.21
1973	2.14[b,d]	2.22[e,g]	1.98[h]	2.17[j]	1.96
1975	2.00[b]	1.99[c]	1.83[h]	1.96	1.92
1977	1.91	1.91	1.83	1.88	1.79
1979	1.84[d]	1.83[e,g]	1.74	1.82[f]	1.60
No. of Children	2.45[a,b,c]	2.62[e,f,g]	2.55[h,i]	2.45[j]	2.12
Respondent Education					
	11.02[a,b,c,d]	11.61[e,f,g]	9.57[h,i]	8.34[j]	12.97
Spouse Education	11.83[b,c]	11.49[e,f,g]	10.29[h,i]	8.91[j]	12.38
Proportion good health					
1975	.71*	.69	.65	.65	.71
1977	.71*	.61	.58	.58	.53
1979	.57	.51	.53	.54	.51
Sex (1=male)	.79[a,b,c]	.76[e,f,g]	.58[i]	.60[j]	.77
(Real) Income (1969 $)					
1969	6008.29[a,b,c]	5333.48[f]	5192.46[h]	3977.03[j]	5739.62
1971	4092.61[a,b,c,d]	3292.34[e,f]	2491.74	2021.41	2758.13
1973	6785.17[b,c]	6498.80[e,f]	4973.98[i]	4656.21[j]	6342.04
1975	4981.04[a,b,c]	4482.59[e,f]	4242.87[h]	3765.47[j]	4621.82
1977	4399.60[a,b,c]	4053.05[f]	3887.48[h]	3342.61[j]	4044.29
1979	3928.65[a,b,c,d]	3159.03[f]	3387.34[h]	2855.07[j]	3304.11
Market-related Variables					
Year retired	1973.66[c,d]	1973.61[f,g]	1973.63[h,i]	1973.96[j]	1973.19
Net Real Assets (1969 $)					
1969	40342.69[a,b,c,d]	29466.21[e,f,g]	32342.45[h,i]	4845.42[j]	100034.09
1971	51875.73[b,c,d]	54859.13[e,f,g]	17517.50[h,i]	9812.79[j]	67830.82
1973	37164.43[a,b,c,d]	34162.25[f]	34399.77[h]	32482.50	32736.36
1975	31039.31[a,b,c,d]	20319.84[e,f]	49409.99[h,i]	62405.50[j]	20709.65
1977	37792.12[a,b,c,d]	24868.54[e,f]	20680.91[h]	9358.25[j]	23139.01
1979	37807.92[a,c,d]	23148.49[e]	33957.62[h]	22647.36	18097.55
Survivorship					
Remain in sample	.60*	.54	.55	.56	.50
Deceased 69-79	.31*	.32	.33	.32	.35
Attrition not due to death					
	.09*	.14	.12	.11	.15

a = significant difference between pattern 1 & 2 at $\geq$ .10
b = significant difference between pattern 1 & 3 at $\geq$ .10
c = significant difference between pattern 1 & 4 at $\geq$ .10
d = significant difference between pattern 1 & 5 at $\geq$ .10
e = significant difference between pattern 2 & 3 at $\geq$ .10
f = significant difference between pattern 2 & 4 at $\geq$ .10
g = significant difference between pattern 2 & 5 at $\geq$ .10
h = significant difference between pattern 3 & 4 at $\geq$ .10
i = significant difference between pattern 3 & 5 at $\geq$ .10
j = significant difference between pattern 4 & 5 at $\geq$ .10

*Chi square significant at .05 or better

highest proportion of married, spouse present households. This pattern is also consistent with continuing to save in the early years of retirement (as reflected by the age of the respondent) in order to be able to have a reserve to draw upon or spend down in later years.

In some sense, the local minimum pattern is the opposite of the local maximum pattern. For the local minimum pattern, households dissave over some consecutive surveys and then level off or begin to save over the remaining periods (Figure 1). One out of six households (17% of the sample) had this pattern.

Households with this pattern had the oldest respondents in the survey and the lowest levels of education for both respondent and spouse. This pattern had the highest proportions of female respondents, widowed persons, and persons still in the labor force. It is possible that some households implement a dissaving plan early on, but then realize that they cannot continue dissaving at current rates and expect their assets to sustain them throughout their expected lifetimes. Thus, these households shift from a dissavings to a maintenance or increased savings plan. There may be an element of "trial and error" rather than an explicit plan with this pattern, reflecting the low educational levels of the respondents and their inability to construct an effective plan.

The fourth pattern, some saving, some level is characterized by some periods (not necessarily consecutive) of savings and some periods of no changes in assets (see Figure 1). Of note here are that there are no periods of dissavings for these households (contrary to the life cycle hypothesis which supposes that people spend down in retirement) and that the majority of the respondents, two-fifths of the households (43.5%), fall into this pattern.

Households with this pattern have the youngest spouses, the lowest real incomes across all years, and the lowest net real assets in some of the middle years of the survey (1971, 1973, 1977). The continued savings in this pattern may reflect precautionary moves on the part of these households to cover the likely income needs of the surviving younger spouse. This pattern has the highest proportion of households who moved over the survey and the lowest proportion of homeowners.

The last pattern is characterized by some periods of dissavings and some periods of no changes in assets (Figure 1). Of note here are that there are no periods representing any savings in this model (contrary to the previous pattern) and that the smallest proportion of the respondents, only one out of twenty-four households (4.2%), fall into this pattern.

Households with this pattern have the highest levels of education for both respondent and spouse, the highest net real assets early in the survey (1969 and

1971) and the lowest net real assets at the end of the survey (1979). This pattern has the smallest household size and the lowest proportion of persons remaining in the survey (i.e., the highest proportion of attriters and decedents).

This pattern of dissaving and level periods is consistent with the spend down period of the life cycle hypothesis. Persons with higher educational levels and higher asset levels may be better equipped to assess probabilities, do the actuarial calculations, and to design a plan which allows them to dissave in retirement.

Results of Multivariate Analysis

The original research design was to use multinomial logit as the tool for analyzing the determinants of the five savings patterns identified above. However, the data did not converge using this maximum likelihood technique. Various efforts were made to refine the model and scale the variables, all to no avail. Consequently, ordinary least squares regression was used to determine the set of factors affecting the probability of households having each of the five savings patterns. Each pattern was modeled separately with a 0-1 dependent variable, which can be roughly interpreted as the probability of having each pattern.

Linear probability models are subject to a loss of efficiency, due to the presence of heteroscedasticity; however, the parameter estimates are unbiased and consistent (Pindyck & Rubinfeld, 1976). Since "small-sample studies suggest that the signs (and frequently the magnitudes) of the estimated parameters from the linear probability models and the maximum-likelihood logit estimators are usually the same," an OLS specification was chosen over probit or logit specifications for ease in interpreting the coefficients (Pindyck & Rubinfeld, 1976, p. 251). Further support for linear probability models as compared to maximum-likelihood specifications can be found in Hanna & Lindamood (1985), and Altman et al. (1981).

The objective of this project was to explore the set of determinants for each pattern of saving/dissaving. Although measures of various household characteristics across all survey years were included in the original models, variables from the early survey years (1969 through 1975) proved to be the best performing. This is likely to be a vestige of the sample construction, since attrition became an issue in following the households.

In general, life cycle, socio-economic, market-related and survivorship variables all were determinants of the savings patterns exhibited by households (see Table 2), although different sets of determinants emerged among the different patterns.

Alternating Periods of Saving and Dissaving
Among the life cycle variables, persons who experienced a change in marital status were more likely to have this pattern, which makes some sense. Becoming widowed may mean that insurance policies are paid out and savings may increase or that some sources of income are lost (e.g. pensions) and savings must be tapped to replace some income. Divorce also changes asset holdings, depending on the division of the estate. Persons who owned their home in 1973 were less likely to have this pattern. This may be reflective of the shifting of assets from real assets to financial assets with the sale of the house. However, there was no support for the home-ownership variables in other years.

Households with this pattern had the highest real incomes across all years and the highest real net assets in the middle and later years of the survey (1973, 1977, and 1979). The probability of having this pattern was affected by having higher incomes in 1971 and higher net real asset holdings in 1971, representing socio-economic and market-related variables.

Households may use alternative saving and dissaving to respond to macroeconomic variables, such as inflation rates, changes in Social Security policies, rising energy prices, and the like. Rising energy prices led to double digit inflation in 1974 (11.4%) and again in 1979 (11.5%). These periods of high inflation may have resulted in persons needing to dip into savings to maintain their level of living. In the future, it would be of interest to know if the periods of saving and dissaving lag or lead macroeconomic changes and how they relate to people's expectations about the immediate past and foreseeable future.

Table 2
OLS Regression Coefficients on Savings Patterns
(t values in parens)

	Alternating (1)	Maximum (2)	Minimum (3)	Saving (4)	Dissaving (5)

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	(1)	(2)	(3)	(4)	(5)
Intercept	10.231	37.772	5.940	-.227	2.909
	(1.38)	(3.31)	(1.10)	(.03)	(.71)
Life Cycle Variables					
Retirement Age	.003	-.022***	-.003	.001	-.002
	(.65)	(2.65)	(.84)	(.34)	(.90)
Change in Marital Status 1969-71	.013	-.084	.081***	.061*	.000
	(.36)	(1.47)	(3.03)	(1.84)	(.01)
Change in Marital Status 1971-73	.060*	-.007	.002	.048*	.002
	(1.85)	(.14)	(.10)	(1.67)	(.16)
Death (during survey period, 1969-1979)	.037	.014	-.013	.005	.017
	(1.52)	(.37)	(.72)	(.23)	(1.26)
Own home, 1969	.055	-.115	.055	-.049	-.019
	(.74)	(1.00)	(1.01)	(.74)	(.47)
Own home, 1973	-.108*	.155*	-.099**	.066	.031
	(1.75)	(1.62)	(2.20)	(1.20)	(.92)
Socio Economic Variables					
Household size, 1969	.000	-.016	.011*	.020**	.004
	(.04)	(1.14)	(1.65)	(2.42)	(.81)
Household size, 1973	.001	.000	.001	.001	-.008
	(.13)	(.01)	(.14)	(.08)	(1.35)
Number of children, 1969	-.004	.025**	-.003	-.004	-.002
	(.62)	(2.12)	(.63)	(.63)	(.67)
Number of children, 1973	.005	-.016*	.002	-.002	.001
	(.87)	(1.67)	(.48)	(.41)	(.55)
Respondent Education	-.000	.007	.001	-.004	.002
	(.22)	(1.40)	(.05)	(1.46)	(1.35)
	(1)	(2)	(3)	(4)	(5)
Spouse Educ.	.004	-.009	.002	.004	-.002
	(1.22)	(1.58)	(.72)	(1.19)	(1.18)
Health in 1969 (compared to others)	.015	-.027	.005	-.008	.009
	(.67)	(.79)	(.34)	(.44)	(.76)
Respondents Sex (1=male)	-.008	.006	.001	-.040**	.000
	(.34)	(.18)	(.06)	(1.80)	(.02)
Income, 1969	-.001	.012	.016	-.000	.016

(10,000s)	(.39)	(.42)	(1.23)	(.04)	(1.59)
Income, 1971	.031*	-.036	-.000	-.000	-.025**
(real, 10,000)	(1.69)	(1.28)	(.23)	(.25)	(2.52)
Income 1973	-.020	.025	-.011	.011	.000
(real, 10,000)	(1.48)	(1.19)	(1.19)	(.95)	(.06)

Market-related Variables
Year of retirement

	-.005	-.018***	-.002	.000	-.001
	(1.43)	(3.19)	(1.07)	(.01)	(.68)

Net real assets, 1969

(10000)	-.000	-.026***	.016***	-.000	.022***
	(.15)	(5.58)	(7.55)	(1.39)	(13.12)

Net Real Assets, 1971

(10000)	.005*	.015***	-.011***	-.000	-.012***
	(1.95)	(3.47)	(5.50)	(1.36)	(7.42)

Net Real Assets, 1973

(10000)	-.002	-.018*	.000	.022***	-.000
	(.29)	(1.80)	(.46)	(3.88)	(1.31)

Survivorship
Prob. Alive in 1975

	.002	.046	.046***	.045**	.024**
	(.10)	(1.36)	(2.93)	(2.34)	(2.06)
R^2	.03	.06	.08	.06	.17
F value	1.62	3.33	4.28	3.00	9.73
Prob (F)	.03	.00	.00	.00	.00

*   significant at .10 or better
**   significant at .05 or better
*** significant at .01 or better

Local Maximum
Retiring at an older age was associated with a reduced probability of having the local maximum pattern. This is as expected, since persons retiring later may save more during their working years and begin spending down sooner. Owning a home in 1973 increased the probability of having a local maximum pattern. This might be expected if the sale of the home were associated with an inflection point.

A larger number of children in 1969 was associated with an increased probability of having a local maximum pattern, while a larger number of children in 1973 was associated with a lower probability of having a local maximum pattern. Larger households may have more opportunities for children to call on parents for loans or subsidies, which could be associated with dissaving.

Retiring later over the 10-year survey period was associated with a decreased probability of having a local maximum pattern. As with the alternating pattern discussed above, this may be due, in part, to the cumulative effects of inflation over the period from 1969 to 1979, where the purchasing power of the dollar decreased by nearly one-half (using 1969 as 100, the CPI in 1979 would be 198).

Higher real values of assets in 1969 and 1973 were associated with a decreased probability of having a local maximum pattern, while higher levels of assets in 1971 were associated with an increased probability of having a local maximum. Again, market factors may be at work here, resulting in people shifting from a savings to a dissavings mode in the face of higher-than-planned-for rates of inflation.

Local Minimum
Experiencing a change in marital status between 1969 and 1971 was associated with an increased probability of having a local minimum pattern. As indicated in the discussion of the alternating savings and dissavings pattern, in the case of widowhood, this change in marital status may mean that medical bills must be paid and/or some sources of income are lost (e.g. pensions) and savings must be tapped to replace some income before insurance policies are paid out and savings increases. Owning a home in 1973 is associated with a reduced probability of having a local minimum. This seems somewhat counter intuitive, since the longer one holds on to a non-earning asset, the more one

would have to draw down other financial assets, thus increasing the probability of having a local minimum.

Larger household sizes in 1969 were associated with increased probabilities of having a local minimum. This is somewhat as expected, since larger households require higher levels of resources to keep them running, which in turn may indicate a need to draw down assets early in retirement.

Higher levels of net real assets in 1969 were associated with an increased probability of having a local minimum pattern, while higher levels of assets in 1971 were associated with a decreased probability of having the same pattern.

Some Saving and Some Level Periods
A change in marital status between 1969 and 1971 or between 1971 and 1973 was associated with an increased probability of having this pattern. In part, this may be a reflection of access to insurance resources available to widowed persons.

The larger the household size in 1969, the greater the probability of having this pattern. It may be that larger households have more workers and thus more earners and/or more retirement benefits resulting in higher incomes and less need to dissave. Also, there may be some economies of scale in larger households which permit lower per capita expenditures and reduced need to dissave. Being a female respondent reduced the probability of having this pattern. Since the only female respondents were either not married in 1969 or the widows of male respondents, this finding is as expected. Older females tend to have lower levels of income and assets and thus may be more likely to have a pattern with some periods of dissaving.

Higher net real assets in 1973 were associated with an increased probability of having this pattern. Higher levels of resources mid-way through the survey may be a reflection of careful asset management (especially in the face of inflation) and thus consistent with some saving and some level periods.

Increased probability of surviving to 1975 was associated with an increased probability of having this pattern. In part, it may be that surviving to 1975 is a reflection of good health and lower health care costs (with no need for dissaving). It may also be that persons who "made it" to 1975 also re-assess their life expectancies and adopt a set of savings and expenditure behaviors

consistent with longer life expectancies; that is, they continue to save as a precaution against longevity and future health care costs.

Some Dissaving and Some Level Periods
An increase in income in 1971 was associated with a decreased probability of having this pattern. This is as expected, since higher income levels might mean less need to dissave or draw down assets.

Higher levels of assets in 1969 were associated with an increased probability of having this pattern, while higher levels of assets in 1971 were associated with a decreased probability of having this pattern. The finding with respect to 1969 assets is consistent with the life cycle hypothesis; that is, households save up during working years in order to spend down in retirement. Thus, one might expect households with higher levels of assets to be able to afford to draw down assets and have some periods of dissaving during retirement. The result with respect to 1971 assets may be more a result of precautionary moves of households as they consider inflation, employment rates, and other market factors.

Increased probability of surviving to 1975 was associated with an increased probability of having this pattern. In part, this may be a reflection of living long enough to have time to spend down some assets.

Summary
In the bi-variate analysis of savings behaviors, significant effects and differences were found for respondent and spouse's ages and educations, sex of respondent, number in household, year of retirement and year of widowhood, income level, asset values, owning a home, health status, and marital status. In the multi-variate analysis of the determinants of savings patterns, significant effects were found for age at retirement, changes in marital status, owning a home, household size, number of children, sex of respondent, income level, year in which retirement occurred, asset levels and survivorship in the sample.

There is evidence that households' savings behaviors are responsive to their micro and macro situations. At the micro level, for example, changes brought about through retirement and changes in marital status, and the resultant changes in access to different kinds and amounts of resources result in different savings behaviors. At the macro level, households' savings behaviors respond to economic conditions (e.g., inflation, changes in social security policies, changes in relative prices).

The data present some mixed messages about households' savings behaviors. For example, in some cases household size seems to be associated with economies of scale and higher levels of resources (i.e., more persons bringing income to the household), but also a need for higher levels of resources to maintain their level of living. Also, while nearly three-fifths of the households exhibited some behaviors in support the life cycle hypothesis of dissaving during retirement, most households also saved during some periods, perhaps as a precaution against longevity and future health care costs or desires to leave a bequest.

Conclusions and Implications

Public Policy

Since household savings behavior seems to respond to the macro and micro environment, it is clear that policies could be adopted which would influence household behavior. The question is, "What are the preferred sets of behaviors relative to saving and dissaving in retirement?" The ideal may be self-reliant households who accumulate retirement benefits, assets and risk management tools (e.g. health and nursing home insurance) and then spend these down at an appropriate rate with minimal or no reliance on public sector resources. But what policies will encourage this and at the same time provide income security for households unable to be self-reliant?

First, given the apparent responsiveness of households to inflation and price levels, macroeconomic policies which control or restrain inflation will benefit retired households. If prices double every 10 years, as they did during these survey years, and if life expectancies remain in the eighties, then retired households will need nearly four times the nominal income at the end of their retirement as they had at its beginning.

Second, the timing and onset of retirement is closely associated with household saving behaviors. It may be desirable to provide incentives to maintain an attachment to the labor force, through the availability of part-time work, phased retirement, and the variety and format of benefits available to retirement aged workers. As part of the incentive structure, federal legislators should examine the advisability of the continuation of earnings limits for Social Security benefits, and provision of actuarially fair bonuses for retirement past age 65.

Third, the effects of a change in marital status, primarily becoming widowed, may have been mitigated somewhat by the 1984 Retirement Equity Act, providing for survivors' benefits from most pensions. However, it may be desirable to extend the requirement of the provision of survivors benefits to all retirement plans and systems, including state-run pension funds.

Fourth, access to income was a determinant of savings behaviors, although this study did not examine how different sources of income affected savings behaviors. However, it is likely that access to pension income, in particular, is important and will become more important to future cohorts of retirees. Therefore, exploring some scheme for portability of pension benefits across a variety of jobs/employers is desirable. The Consolidated Omnibus Budget Reconciliation Act of 1986 provides for vesting in pensions after five years (versus 10 years in previous legislation), and is a step in this direction. However, a truly portable pension system should be explored to provide the economic security needed by retired households.

Fifth, some consideration needs to be given to how owner-occupied houses can be used as an income-generating asset. Households in this study had limited access to home equity conversion programs; and given the values held by this cohort, it is unlikely that they would have taken advantage of such programs. Policies which facilitate the availability of reverse annuity mortgages (such as the current Housing and Urban Development pilot projects) should be developed. Similarly, an increase in the limited capital gains exclusion for households aged 55 and over may be worthwhile, given current real estate values in some sections of the country.

Finally, it is important to note that the study presented here dealt with the "young-old" -- persons under 75. For example, health variables were not significant in this study, consistent with the expectation that the "younger-old" are healthier. We need to learn more about older retirees to determine if changes in Medicare/Medicaid and other health policies are warranted. It is also the case that these data covered up to the first 10 years of retirement; we still know little about financial management problems and practices of older retirees.

Educational Programs
Through adult education and other informal education programs, efforts should be made to help households understand subjective probabilities, realistically

estimate longevity, and plan their retirement savings program accordingly. Personnel departments, consumer education organizations and financial planners should increase efforts to offer retirement planning education programs.

The results point to targeting older and less educated retirees to help them replace "trial and error" management with a sound financial plan. These efforts may involve community education programs, perhaps linked with senior meal site programs. Involving volunteers in peer counseling financial management programs is another option to be explored.

Furthermore, efforts to help retired households plan an appropriate dissavings program are needed. The households in this study appear to need help in annuitizing assets in a way that allows for cost of living increases as well as adjustments in longevity. Financial counselors and planners should continue to work with clients to review their situations and update and adjust financial plans as needed.

There are numerous financial management financial service delivery issues related to the "older-old" (persons 85 and over) population, which happens to be the fastest growing age segment in the U.S. For example, although homebound older persons can "bank by mail," use direct deposit, and pay bills through the mail, there is no system for them to gain access to cash, short of going to the bank. Checking account statements are often difficult for persons with impaired vision to read. We need to continue to consider ways for financial institutions to help older persons to gain access to the services they need.

Similarly, we need to develop models of social service-based programs which could be implemented to help older persons improve their financial management skills. Some areas already have programs which deliver basic financial management education and/or counseling services through senior centers. Home-based programs which are complements to home health assistants and assistance to help visually impaired elders and which empower older persons to manage their finances effectively should be explored.

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