SAVING AND PERMANENT INCOME: EVIDENCE FROM THE 1992 SCF

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Abstract

This paper looks at household saving primarily using a three-level indicator originally developed for the 1992 Survey of Consumer Finances . The paper examines this saving variable in light of other indicators of saving behavior observed in the survey, and uses the variable to model saving behavior. This model contains, among other variables, an indicator of typical saving practices as a control for individual heterogeneity. The model provides interesting results on the role of transitory income, age, expectations, and other factors on saving. These results suggest that indicator variables may provide sufficient information for modeling without severely burdening survey respondents.

This paper provides evidence on the saving behavior of U.S. households using data from the 1992 Survey of Consumer Finances (SCF). The principal novelty of this paper is in its analysis of a new set of survey questions relating to saving behavior. The dataset contains a series of questions about families' current and typical saving behavior, and information on income variability that allows one to account for transitory variations in income. The exploration of these variables is important for reasons beyond the obvious interest in saving behavior.

The analysis highlights the value of using relatively simple indicators to model saving in a way that avoids some strong criticisms of the use of cross-section data. To study saving one might want to use a panel dataset, both to compute a measure of saving as a first difference of wealth (or as income less consumption) and to model idiosyncratic effects. However, panels are very expensive, burdensome on respondents (particularly for wealthy respondents who are essential for the study of saving), and are usually more difficult to analyze properly if account is taken of the sample design and panel attrition, patterns of missing data, and the complexities of reporting errors (see Avery and Kennickell [1991]). In addition, changes in family structure introduce other conceptual difficulties in choosing even the unit of analysis in panels (Cochrane [1991]).

In contrast, asking for information on saving in a single cross-section survey reduces, but does not eliminate these logistical problems. Possibly the greatest advantages of cross-section data over panel data are that it is not as burdensome on respondents and it is relatively simple to process and less expensive to conduct. Consequently, one might expect data to be more readily available. However, it is also generally believed that individual fixed effects are very important, and consequently, results from a single observation of behavior might well be a biased representation of longer-run behavior. To explore the possibility of using the SCF for some types of dynamic analysis, the 1992 SCF also included a simple question about recent saving behavior as well as an indication of typical saving behavior. Thus, in principle we are able to model saving behavior while controlling for households that have an unusually high or low propensity to save.

The organization of the paper is as follows. First, there is a brief overview of motivations for saving as a background for the data and econometric analysis presented later. The next section describes the SCF and presents some descriptive data on saving behavior. The following section reports the results of an ordered probit model using a three-level indicator variable to describe saving behavior. Finally, there is a summary of the results and directions for further research.

I. Motives for Saving

Most current economic analysis of saving assumes, at least implicitly, that households solve an intertemporal maximization problem to determine their consumption given some state variables. These variables typically include terms such as current income and wealth, and a set of expectations over income, other transfers, life expectancy, etc. Psychological factors may also influence both perceptions of state variables and decision-making (see Thaler [1994]). There is an excellent overview of current saving research in Browning and Lusardi [1994]. However, because the major focus of this paper is exploratory, it is useful to outline briefly some of the structures that one might expect to influence the results.

Because saving, by definition, augments the stock of wealth, it is important to consider first the purposes for holding wealth. Obviously, wealth represents a potential claim on future consumption. In a world without uncertainty, a household would decide the pattern of its lifetime spending and the amount of wealth it wished to give to others at the death of all household members. With no constraints on planning, people would accumulate wealth to move consumption from one period to another to smooth variations in current period income. One such model could be the "hump-shaped" pattern of saving in the simple life-cycle model. If credit markets are not perfect, then households may face borrowing constraints that would limit their ability to allocate consumption, and because these households are at a corner solution, they may respond differently to changes in circumstances than other households.

In the presence of uncertainty, expected behavior becomes much less clear, if only because the dimensions of uncertainty are potentially so numerous.[1] Generally, one would expect that a sufficiently large stock of wealth would reduce uncertainty at least about future economic constraints—that is wealth can also be a form of insurance. Among important uncertainties are unanticipated variations in income, "consumption shocks" such as health expenses, and length of agents' lifetimes.

Underlying the analysis presented in this paper is the presumption that we can model saving as follows:

$$S_t = \Phi(W_t, PY, \in_t, \eta_t, T, D_t, R_t, O_t) + \xi_t \ .$$

Where S_t is period t saving, and Φ is a function. W_t is a vector of period t wealth components. PY is permanent income, and ε_t is an income transient in period t, η_t is a period t consumption shock (or deviations from the long-run average, including lumpy expenditure), and T is a desired level of long-run transfers or bequests, D_t is a vector of individual characteristics including demographics), R_t reflects risk preferences and situational risk, and O_t measures other individual characteristics including measures of taste and income variability). The term ξ_t may be taken to reflect modeling error or any residual uncertainty.

II. The Data

Much research on saving using microdata is based on samples that may be missing some important information on the determinants of saving. Earlier work by Avery and Kennickell [1991] suggests that the distribution of saving is nearly as skewed as that of wealth. However most surveys are based on relatively simple designs that tend to yield samples with small numbers of households that are high savers, who are generally also wealthy households. If a small part of the population has

[1]Deaton [1989] and Carroll [1993] discuss income risk, Skinner [1988] and Engen [1992] discuss life expectancy risk. Clearly there are a vast number of other dimension of uncertain (risk of divorce, risk of natural disasters, the chance of having triplets, etc.).

a disproportionately large effect in determining aggregate saving and that population is not well represented in the data, the information available on saving may be weaker than the t-tests in standard regression suggest—that is, sampling error may be important. The inferential problem is usually further complicated by the failure of some families in a sample to respond to the survey. Kennickell and McManus [1994] have provided strong evidence that nonresponse is highly correlated with wealth. Thus, failure to account for this selection may yield biased estimates of key wealth statistics. In panel surveys—the natural source to think of to measure saving as changes in wealth—selection problems may be even more serious since a household must remain relatively stable to stay in a panel, although it is possible for a family to split up and still have a part of the original case remain. In addition, measurement error in panels is a severe limitation on the ability to study saving (see Avery and Kennickell [1991], and Alessie, Lusardi and Aldfershof [1994]). Missing information on individual questions (item nonresponse) often complicates the analysis of wealth data, and the patterns of missingness are also likely to be nonrandom (see Kennickell and McManus [1994]).

This paper uses previously unanalyzed saving data from the 1992 Survey of Consumer Finances.[2] The saving variables are described in detail in the next section. The SCF is designed primarily as an instrument for the study of assets and liabilities. To this end, the questions in the survey are written to provide a clear framework for reporting wealth data. In addition, the survey addresses the important sampling and selection problems noted above. The sample for the survey employs a standard multistage area-probability sample to provide good coverage of the general population, and a list sample selected from tax data to over-represent families that tend to be wealthy. To deal with selection biases, the survey undertakes intensive nonresponse analysis in constructing the analysis weights.[3] Missing data in the SCF were imputed using draws from an estimate of the conditional distribution of the data (Kennickell [1991]).

III. Descriptive Results

The 1992 SCF asked a series of questions to obtain an indicator of families' saving out of current income. All respondents were asked the following question:

> Over the past year, would you say that (your/your family's) spending exceeded (your/your family's) income, that it was about the same as your income, or that you spent less than your income?

Respondents who reported that their spending exceeded their income were asked a series of follow-up questions designed to determine whether this spending included spending for investments or durables. If such expenditures were included, the respondent was asked the question again explicitly excluding such spending.

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[2]See Kennickell and Starr-McCluer [1994] for an overview of the data.

[3]See Kennickell, McManus and Woodburn [1995] for a description of the sample design and weight estimation.

Undoubtedly, there is some classification error in respondents' answers to these questions. Some people may not have the same concept of income and spending that was intended in the design of the questions. However, the systematic effects of such an error are not clear. Almost certainly, most families do not include the repayment of loan principal as saving. However, it is equally unlikely that families would think to include depreciation on their physical capital as dissaving. Because of the difficulty of answering the question precisely, respondents are likely to include only notable deviations from equality of spending and income. Consequently, one would expect too many families to report equal spending and income. Although the question may seem logically simple, providing an accurate response may be cognitively difficult for sample families.[4] Some respondents may simply guess the answer based on a rule of thumb based on experience over a longer period.

If we assume that the principal included in payments for mortgages and other loans is relatively small (or at least will not seriously distort the measurement), then we can use the resulting information to roughly distinguish savers, dissavers, and those who neither saved nor dissaved. By this *indirect measure*, about 57 percent of households reported that they saved, 28 percent spent about the same as their income, and the remaining 15 percent spent more than their income in the past year (table 1, last row).[5]

With rising age, households are less likely to save, according to the indirect measure. However, until the oldest age group, households are also less likely to dissave. At age 65 there is a shift up in the proportion of households that neither save nor dissave. Although one can present reasons why older people do not dissave (small assets relative to precautionary needs, lumpy dissaving that would be unlikely to show up in just one period, bequest motives, etc.), it is remarkable what a small proportion of older households actually report dissaving. Looking at the simple variation with income, saving increases strongly with income, as both the fraction spending more than income and the fraction spending as much as income decline.

Very likely, some of the income effect is due to transitory variations in income. To gauge the effects of such variation, the 1992 SCF asked the following question after asking about total income:

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[4]However, the nonresponse rate for this question was quite low: only 0.7 percent of families did not answer the question. Missing values were imputed using the procedure noted in the discussion of the data above.

[5] Without the adjustment for durables and investments, 44 percent reported that they saved, 37 percent spend about as much as their income, and 18 percent reported that they spend more than their income. Thus, it is mainly people who initially reported that their spending an income were about equal who were reclassified as savers by the adjustment.

The proportion of households that is saving may seem low. Several factors may be important here. First, for the reasons noted above, the equality of income and consumption is probably overstated. Second in 1990, 10.7 percent of families in 1990 were below the official poverty line and, thus, unlikely to be saving. Third, families that may tend to save in normal times may not save in a given year because of income or consumption shocks (e.g., 22.5 percent of families reported having unusually low income). The 1986 SCF provides information on a similar measure of saving. That survey asked "Considering all of your saving and reserve funds, in the past three years, did you put more in overall or take more money out?" In that survey, 34.5 percent of families headed by persons aged 25 or older reported that they put more money in, 13.6 percent said they stayed about the same, 41.0 reported taking more out, 9.5 percent reported having no savings at all, and 1.4 percent were unable to provide an answer.

Is this income [total family income just reported] unusually high or low compared to what you would expect in a "normal" year, or is it normal?

Perhaps unsurprisingly, families with unusually high income are more likely to save than the other groups. Although families with unusually low income are also likely to save (45.3 percent of families in this group were savers), this group is more likely than the other groups dissave. Thus, the data show some evidence consistent with income smoothing. However, families with unusually low income were more likely to equate consumption and income, suggesting that liquidity constraints may be important for this group.

By wealth groups, the proportion of households saving doubles from the bottom group to the top group, and the proportion equating income and consumption falls from 40 percent in the lowest wealth group to only 4 percent in the wealthiest group.[6] Interestingly, the proportion actually dissaving is fairly flat across the wealth groups.

Table 1: Indirect Measure of Saving by Age of Head of Household. and by Household Income, Percent Distribution

Item	Reported spending		
	Spending more than income	Spending same as income	Spending less than income
Age of head of HH			
Under 35	15.5	25.2	59.3
35 to 44	17.2	25.9	56.8
45 to 54	15.7	25.8	58.5
55 to 64	12.7	27.3	60.0
65 to 74	10.9	34.6	54.5
75 and over	16.3	36.8	46.9
Household Income			
Under $25,000	19.2	38.1	42.7
$25,000-$49,999	14.2	21.1	64.7
$50,000-$99,999	9.6	19.6	70.8
$100,000-$199,999	6.5	14.4	79.1
$200,000 or more	5.1	7.1	87.8
Income unusually low	21.8	32.8	45.3
Income about normal	13.1	27.0	59.8
Income unusually high	12.3	23.7	64.0
Household net worth			
Under $10,000	18.6	41.2	40.2
$10,000-$49,000	16.2	29.1	54.7
$50,000-$99,999	9.5	26.7	63.8
$100,000-$499,999	8.8	18.6	72.7
$500,000-$999,999	9.6	14.7	75.7
$1,000,000 or more	12.2	4.0	83.8
All HH	15.0	28.0	56.9

The SCF also includes some other information on families' typical saving behavior. Just

[6]As noted later in this paper in the discussion of the estimated saving model, the wealth data should be as of the time of the survey, but the saving question refers to the past year. Thus, the level of wealth should be affected to some degree by the act of saving or dissaving. However, it would be surprising if a substantial fraction of households would be misclassified as a result of only one year of saving.

before the question sequence underlying the indirect saving measure, respondents were asked to choose which of the following categories best describes their saving habits:

Don't save, usually spend more than income
Don't save, usually spend about as much as income
Save whatever is left over at the end of the month
Save regular income of one family member, spend the other
Spend regular income, save other income
Save regularly by putting aside money each month

Households that report saving regularly in some way account for 35.9 percent of the population (table 2). Other households with a type of regular plan account for 5.9 percent of the population. In addition to these "habitual" savers, another 32.3 percent report that they save what remains after their expenses. Thus, it appears that families with a definite saving program are more likely actually to save in any given period. Among groups that do not typically save, 19.2 percent spend about as much as their income, and only 6.7 percent report that they usually spend more than their income. The agreement between the *usual measure* and the indirect measure is fairly strong, suggesting substantial persistence in behavior. Households with a regular saving plan comprise 55.3 percent of the group of savers as determined by the indirect measure. Another 32.2 percent of

Table 2: Usual Saving Method by Reported Saving, Percent Distribution

Usual saving method	Reported Saving Spending more than income	Spending same as income	Spending less than income	All HH
Don't save/spend more than income				
% all HH	3.9	1.8	1.0	6.7
% row	58.6	26.1	15.4	100.0
% column	26.2	6.3	1.8	6.7
Don't save/spend about as much as income				
% all HH	3.6	10.7	5.0	19.2
% row	18.9	55.6	25.5	100.0
% column	24.0	38.0	8.6	19.2
Save left over/no plan				
% all HH	3.7	9.3	19.4	32.3
% row	11.6	28.6	59.8	100.0
% column	24.9	33.0	34.0	32.3
Save one income and spend other				
% all HH	0.2	0.3	1.2	1.6
% row	5.3	21.6	73.0	100.0
% column	0.6	1.2	2.2	1.6
Spend regular income and save other				
% all HH	0.7	0.9	2.7	4.3
% row	15.8	20.2	63.9	100.0
% column	4.5	3.1	4.8	4.3
Save regularly				
% all HH	3.0	5.2	27.9	35.9
% row	8.3	14.4	77.3	100.0
% column	19.8	18.4	48.8	35.9
All HH	15.0	28.0	56.9	100.0

the saver group is accounted for by households that claim to have no saving plan, but save whatever is "left over."

Unsurprisingly, there is also a fair amount of difference in the two saving measures. Part of the difference is explainable by the different treatment of durables and investments. Unlike the questions underlying the indirect measure, in the direct question respondents were not specifically told to include investments and durables purchases as saving. If most households counted these items as consumption, this would cause households that claim not to save to appear as savers by the indirect measure. However, the same general pattern emerges if the first measure is not adjusted for durables and investments. A more powerful explanation is the difference in the time frame of each question. The questions that underlie the indirect measure refer to the past year, while the direct question refers to typical practices. Thus, a substantial part of the difference is likely attributable to short-run variations in behavior.[7]

Table 3: Usual Saving Method by Age of Head of Household, Household Income, Percent Distribution

Item	Usual saving method: Spend more than income	Spend as much as income	Save left over	Some type of plan*
Age of head of HH				
Under 35	6.7	19.1	33.9	40.3
35 to 44	7.2	18.6	27.9	46.3
45 to 54	7.6	17.8	26.3	48.3
55 to 64	5.7	15.7	30.9	47.6
65 to 74	6.1	20.6	41.4	31.9
75 and over	6.4	26.0	39.2	28.4
Household income				
Under $25,000	10.3	27.9	34.9	27.0
$25,000-49,999	4.6	15.7	32.9	46.8
$50,000-$99,999	2.6	7.7	28.3	61.4
$100,000-$199,999	1.9	5.5	24.0	68.5
$200,000 or more	5.0	8.5	24.6	61.9
Income unusually low	9.5	24.0	32.6	34.0
Income about normal	6.2	18.5	31.7	43.7
Income unusually high	3.9	12.1	37.2	46.8
Household net worth				
Under $10,000	12.9	30.7	31.5	24.9
$10,000-$49,000	7.4	21.4	36.0	35.2
$50,000-$99,999	3.4	17.5	32.0	47.1
$100,000-$499,999	2.8	10.8	30.6	55.8
$500,000-$999,999	2.2	8.0	28.7	61.1
$1,000,000 or more	5.0	3.8	34.6	56.6
All HH	6.7	19.2	32.3	41.8

* "Some type of plan" includes the responses "Save one income and spend other," "Spend regular income and save other," and "Save regularly."

[7]Social expectations may influence how respondents answer questions about their long-term behavior: since saving is often assumed to be desirable, more people might say that they usually save. Although some people may tend to be overly influenced by their recent behavior, the sequencing of the questions should clarify the distinction between typical and recent behavior.

Some important demographic relationships found with the indirect measure still hold (table 3). The proportion of households who typically save tends to drop off with age—though there is a notable rise in the proportion who save what is "left over"— and to rise with income. Families with high transitory income appear to be more likely either to have a saving plan or to save. By wealth groups, the proportion reporting having a regular saving plan more than doubles from the lowest wealth group to the highest, while the proportion reporting spending an amount greater than or equal to their income declines sharply. Interestingly, the proportion reporting that they save what is "left over" is fairly flat over wealth groups.

The SCF also asks all respondent about their reasons for saving. Respondents who report that they do not save are encouraged to provide a reason that they would save, or at least not draw down existing assets. The question that is asked is the following:

> Now I'd like to ask a few questions about your (family's) savings. People have different reasons for saving. What are your (family's) most important reasons for saving?

If we separate the reasons for saving into groups using the indirect saving indicator, the data may give a sense of the motivations of the families who are actually saving, as well as suggesting what other families feel would be appropriate reasons to save (table 4). Probably because the indirect saving measure refers to the previous year while the reasons for saving question has an ambiguous time frame, 5.3 percent of those who reported that they spent less than their income (i.e., savers) also reported that they cannot save.[8] In contrast, more than 20 percent of those who reported that they either spent more than their income or spent about the same, also reported that they cannot save. The savers, according to the indirect measure, are much more likely than the other groups to report saving for retirement and for liquidity.

Table 4: Reasons for Saving, Percent of Indirectly-Measured Saving Groups Reporting Each Reason

Reason for saving	Spending more than income	Spending same as income	Spending less than income	All families
Education	14.7	12.6	15.2	14.4
Family	3.6	3.9	4.9	4.4
House	5.4	4.9	6.0	5.6
Other purchases	7.3	9.7	11.4	10.3
Retirement	21.3	18.3	31.7	26.4
Liquidity	39.8	37.4	44.7	41.9
Investments	8.3	10.0	10.4	10.0
Other reasons	8.4	9.5	7.9	8.4
Memo item				
Cannot save	23.6	20.5	5.3	12.3

In this and the following table, the columns sum to more than 100 because some families reported more than one reason. Here the responses are restricted to a maximum of the first two reasons given by the respondent.

[8] Again, the order of the saving questions may be important. The reasons for saving question is asked before either of the other two saving sequences examined here.

However, leaving aside the "cannot save" response, the relative importance of the saving reasons is about the same for all the groups.[9]

The saving motivations show some interesting variation by age groups (table 5). As has been widely noted in past surveys, liquidity (or "precautionary") motives are the dominant reason reported for saving.[10] The fraction of the age groups reporting liquidity reasons decreases with the age of the head until the 45 to 54 age group, and then rises to a peak in the group with heads aged 75 years or more. Perhaps the age pattern of liquidity motivations reflects the fact that younger families are more likely to have large unexpected expenses connected with setting up a house and raising children, middle-aged families are at the peak of their earning power and have more predictable expenses, and older people have sharply reduced income but may have large unexpected expenses (particularly for health care not covered by Medicare). Not surprisingly, the importance of education, home purchase, and investments declines with age, and the fraction of people reporting that they can't or don't save is higher in the oldest two groups. Retirement reasons are most important for families with heads aged between 45 and 64. "Other" reasons—largely saving for "ordinary living expenses"—are relatively important for older families.

With rising income or net worth, respondents are more likely to report retirement as an important reason for saving and they are less likely to report saving for a house or for other purchases. There are some interesting differences in patters over income groups and wealth groups. The importance of education and investments rises strongly with income, but shows a less consistent pattern over wealth groups, though there is a substantial fraction of the highest wealth group reporting these reasons. Not surprisingly, liquidity reasons become less important with rising income, but over wealth groups the percent reporting this reason rises until the group with $50,000 to $100,000 of net worth and then declines.[11] One might expect these proportions to look different for people who have more stable income. However, as indicated by comparing the figures in the last column of the second panel of the table with the first column, restricting the sample to families that had "normal" income in the past year makes little difference in the reported reasons for saving.

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[9]Restricting the analysis to families that reported that their income in the previous year was about normal should tend to reveal longer-run saving motives. However, the proportions are largely unchanged when this restriction is imposed. The only notable changes are a 3.7 percentage point decrease in the proportion of families that spent more than their income who reported the "liquidity" reason, and a 2.3 percentage point increase in the proportion of families that spend less than their income who reported the "retirement" reason.

[10]The liquidity response is dominated by the group reporting simply that they save for "emergencies," but unemployment reasons are relatively important for younger families and health expenses are relatively important for older families. Some evidence from taped interviews for the 1989 SCF suggest that the "precautionary" response may be another term for "don't know." The cognitive foundations of this response deserve further investigation.

[11]Comparing the entire group with net worth between $50,000 and $100,000 with the part that reported liquidity as a reason for saving reveals few differences. Mean and median financial assets, home equity and debt are virtually the same.

Table 5: Reasons for Saving, Percent of Age Groups Reporting Each Reason

Reason for saving	Age of the householder						
	All	<35	35-44	45-54	55-64	65-74	>=75
Education	14.4	19.2	23.6	18.1	6.1	1.0	2.2
Family	4.4	6.3	4.1	2.6	1.9	5.0	6.1
House	5.6	13.1	6.5	2.4	1.8	0.7	0.0
Other purchases	10.3	13.7	8.3	11.2	10.2	9.4	5.8
Retirement	26.4	12.5	26.4	36.0	43.2	25.6	24.9
Liquidity	41.9	42.0	40.2	37.5	41.9	46.9	47.1
Investments	10.0	13.2	11.1	9.4	6.0	9.8	5.5
Other reasons	8.4	6.1	7.4	5.8	6.8	14.6	15.8
Can't save	12.4	10.9	12.3	12.1	11.2	14.2	16.0

Reason for saving	Household income						
	All	<$25K	$25K-$50K	$50K-$100K	$100K-$200K	>=$200K	*Income normal*
Education	14.4	10.2	14.5	20.6	27.2	19.4	14.1
Family	4.4	5.6	3.8	2.8	3.2	5.2	4.2
House	5.6	5.3	7.6	4.9	1.8	0.2	5.4
Other purchases	10.3	9.9	12.6	9.5	6.5	5.7	10.5
Retirement	26.4	16.2	29.8	39.1	47.2	41.7	27.4
Liquidity	41.9	40.2	44.6	43.5	39.3	36.6	41.4
Investments	10.0	9.9	9.7	10.2	10.4	13.3	9.9
Other reasons	8.4	10.0	7.9	7.1	4.3	2.0	9.2
Can't save	12.4	20.6	6.6	4.1	3.9	2.7	11.8

Reason for saving	Household net worth						
	All	<$10K	$10K-$50K	$50K-$100K	$100K-$500K	$500K-$1M	>=$1M
Education	14.4	14.1	13.6	15.7	14.5	12.9	18.3
Family	4.4	6.5	3.4	3.7	3.2	8.0	3.2
House	5.6	10.8	7.0	4.7	1.2	0.6	0.5
Other purchases	10.3	11.3	10.9	11.7	10.0	5.1	4.3
Retirement	26.4	10.6	21.4	28.5	40.2	43.2	39.4
Liquidity	41.9	35.2	44.6	48.5	44.2	38.2	38.4
Investments	10.0	10.8	8.3	7.7	11.4	7.5	16.6
Other reasons	8.4	9.0	8.9	7.8	7.0	8.5	13.0
Can't save	12.4	22.6	13.6	8.1	5.7	7.0	2.6

We can also use information on families' planning horizons to look at variations in the saving reasons reported (not shown in table).[12] There are two particularly interesting results of this comparison. First, retirement reasons are much more likely for families with longer horizons (about 42 percent with horizons longer than 10 years report retirement reasons, as compared with only about 9 percent of those whose horizon is only the next few months, and the rise is monotonic between those extremes). This result is not particularly surprising. Somewhat more surprising is the fact that the proportion reporting liquidity reasons is nearly flat across the various horizons.

Notes to Tables 4 and 5

Education: Children's education/education of grandchildren (10.9); own education/spouse's education/NA for whom (3.7).
Family: "For the children/family"--NFS/"to help the kids out" (4.4).
House: Buying own house (code summer cottage separately) (5.6).
Other purchases: Purchase of cottage or second home for own use (0.3); buy a car (1.0); home improvements/repairs (1.4); to travel/take vacations (5.3); buy durable household goods, appliances, home furnishings; hobby item/ for other purchases not codeable above or not further specified/"buy things when we need/want them"/ moving/special occasions (2.6).
Retirement: Burial/ funeral expenses (1.3); retirement; old age (25.1).
Liquidity: Reserves in case of unemployment (1.7); in case of illness; medical/dental expenses (6.0); emergencies/"rainy days"/ other unexpected needs/for "security"/independence (33.4); liquidity/ to have cash available/on hand (2.4).
Investments: Buying (investing in) own business/farm/equipment for business/farm (0.5); investment reasons (to get interest, to be diversified, to buy other forms of assets) (1.0); "to get ahead"/ for the future/to advance standard of living (8.7).
Other reasons: Charitable or religious contributions (0.2); to meet contractual commitments (debt repayment, insurance, taxes, etc.)/to pay off house (1.3); ordinary living expenses/bills (4.9); had extra income/saved because had the money left over--no other purpose specified (0.9); wise/prudent thing to do/good discipline to save (1.1).
Can't save (response volunteered by the respondent): Don't/can't save; "have no money" (12.2).

The figures in parentheses are the percent of families giving each detailed response category as a reason for saving. These percentages sum to greater than 100 percent because some families gave more than one reason. The sum of the detailed categories may also exceed the aggregate categories because some families reported more than one of the detailed categories within a given aggregate.

IV. Estimation of Saving Model

To gain an understanding of the interaction of various economic and demographic factors on saving behavior, this section presents estimates of models of the indirect saving measure based on the specification given in Section I above. The categories of the indirect measure form a natural ordering, from those who spent more than their income (dissavers), to those who spent the same as their income (neither savers nor dissavers), to those who spent less than their income (savers). These responses may be taken as an indicator for a latent variable which is the amount of saving or dissaving. In modeling these responses econometrically, at least one type of classification error is convenient. If the middle category included only households for whom income and expenditures were exactly equal, we would need to model a latent variable with two continuous pieces (positive and negative ranges) and a separate mass at exactly zero. However, if we are willing to assume that respondents only reported dissaving or saving if the amount was over a threshold amount—and as

[12]The survey asks "In deciding how much of their (family) income to spend or save, people are likely to think ab out different financial planning periods. In planning your (family's) saving and spending, which of the time periods listed on this page is most important to you (and your [husband/wife/partner])?" The possible responses are "next few months," "next year," "next few years," "next 5-10 years," and "longer than 10 years." This question was originally written for the 1989 SCF and has been a regular part of data collection since that time.

noted earlier, this seems likely—it is appropriate to apply an ordered probit model.

Several such models are presented in table 6. The first model contains variables that raise few questions of endogeneity. The second model adds current period wealth variables, which contain information from a period that is, in principle, subsequent to that for the saving measure. Three factors tend to mitigate the potential endogeneity problem: First, the dependent variable is only an indicator; second, it is likely that respondents weight the indirect saving response more closely to the present than the question specifies; and third, because wealth is typically a slow-moving stock that is unlikely to be strongly affected by only one partially overlapping period of saving, the endogeneity bias induced is likely to be small in any case. The third model adds variables to describe households' reasons for saving. The final model adds measures of usual saving behavior to model implicitly deviations of recent saving from the typical pattern—that is to allow for individual heterogeneity not captured by the other covariates. In general, the significance and sign of most variables hold across these models, suggesting that the results are robust to these variations.

The models provide support for the importance of both permanent income and current income in explaining saving. According to the estimates, saving tends to move in the same direction as transitory income flows: households that have unusually high (low) income also tend to save (dissave), other things being equal. The tendency to save also rises with actual income.[13] Frequently in models using cross-sectional data, it is assumed that the flaws in the available proxies for permanent income induce bias in the estimates of other model effects. Although we do not have direct responses from households about their permanent income (likely an unaskable question), the combination of the question about current income and its deviation from normal should provide a good approximation. Curiously, past income trend, expected future income, and even uncertainty about future income appear to have no significant effect on the likelihood of saving.[14] Certainly, many models would have predicted that on average people should be responding to at least expected future income unless liquidity constraints are a very large factor. Other economic expectations—expected future movement of the aggregate economy and expected changes in interest rates—which might be expected to alter future household income, at least in expectation—show no influence.

According to the simplest life-cycle model, one should see a hump-shaped pattern of saving with age. Except for the first model excluding the wealth variables, the data do show a significant decline in our saving measure with the log of age. One might argue that there is important nonlinearity that is being ignored by only a log-linear term. However, in other models not presented

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[13] Other versions of the model reported here contained interactions of reported income and the indicator of the deviation of income from "normal," but this factor was not significant.

[14] Several measurement factors may explain this lack of influence. It may be that it is the distribution of uncertainty that is important (e.g., see Japelli [1990]), rather than the single summary indicator provided by the underlying question. Alternatively, it may be because these questions were asked at the very beginning of the interview, respondents did not yet have a sufficient engagement with the process to take the questions sufficiently seriously.

here, other higher-order terms in age intended to capture any such nonlinearity were not separately significant, and sometimes obscured the direct effect of age.

Life-cycle models with intergenerational altruism (e.g., see Blinder [1976]) suggest that one should see that interest in leaving an inheritance tends to raise saving. The estimates here offer mixed evidence on this point. The reported importance of leaving an inheritance has no significant effect on the saving measure. In some of the models presented here, the expectation of leaving an inheritance actually has a slight *depressing* effect on saving, suggesting that the expected bequest sometimes may be involuntary. Because date of death is uncertain, and wealth may also have significance as an access to power or control for some people, people might expect to die with positive wealth holdings even though they might have no interest in leaving a bequest. However, households that reported that helping their family in various ways (presumably mainly as transfers of some type) was an important reason for saving were more likely to be savers.

Without liquidity constraints, the simple life-cycle model also suggests that households incorporate the present value of expected future transfers (perhaps discounted for the uncertainty of receiving those transfers) in their current saving decisions. However, the expectation of receiving a moderate-to-large size inheritance in the future appears to have no effect on saving. Social effects may operate to keep households from acting as if they had already received the expected value of a bequest. For example, the person expected to leave the bequest might be deterred from leaving it if the intended recipient appears to be "spoiled."[15] If people do discount future inheritances very heavily, one should see that people who have already received an inheritance are much less likely to save. However, the data provide only a weak indication of a depressing effect on saving from past receipt of an inheritance, outside of what is already captured by the wealth variables. Some additional investigation of the *size* of the inheritance (probably in real terms as well) may prove useful here.[16]

If families plan over many periods, expected future expenses might reasonably be expected to affect the likelihood of saving. The results of the models here are puzzling.[17] Expected future health expenses have no significant effect, perhaps reflecting the large proportion of such expenses that are typically covered by insurance. Expected future education expenses have a significant *negative* effect on the likelihood of saving, perhaps because such households may be more likely to be constrained by high current expenses of child rearing. Alternatively, such households may also be playing a game with college aid rules by keeping their assets low enough to qualify for higher levels of scholarship in the future. Feldstein [1995] has argued that college aid rules should tend to act as a tax on saving and, thus, depress saving. Both expected future house purchases and miscellaneous expected future expenditures also have a puzzling negative effect on saving that merits further

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[15] See Rosenfeld [1979 and 1993] and Baker [1992] for a discussion of disinheritance.

[16] About a 20 percent of the families are estimated to have received an inheritance at some past time, and many of the inheritances reported were not small. In current dollars, the 25th percentile of the amount of inheritance received was $5,000, the median was $20,000 and the 75th percentile amount was $60,000.

[17] The underlying question asks about substantial expenses that the respondent (and family) expect to have to pay directly, but people may well have reported expenses for which they would be reimbursed.

investigation. One possible explanation may be that those who are under the greatest current economic pressure may find future expenses most salient, and thus be more likely to report them. It is noteworthy that these results are not affected by whether the model includes terms derived from the reasons households report as motivations for saving, which include these events as possible reasons for saving.

The effects of reported saving motivations on saving are mainly weak. The positive effect on saving of the altruistic motivation mentioned above is the only strongly significant variable from this class. The indicator of precautionary saving has no significant independent effect in the model. This result may indicate some support to the observation based on recordings of actual interviews that respondents appear to treat this response as a near-proxy for "don't know." Alternatively, it may be that other factors in the model already capture sufficiently well the related uncertainty that might drive saving. Saving for investments also has no significant effect in the model, suggesting that the saving behavior of at least one class of investors (those who save for future investments, rather than investing continuously) does not differ from that of other households *ceteris paribus*.[18] Retirement reasons show a significant positive effect only in the model without the fixed effect proxy, suggesting that once a family begins to save for retirement saving behavior may be more regular.

Some other retirement saving indicators appear more strongly to increase the likelihood of saving. Curiously, households with pensions and Social Security benefits that they expect to be adequate (or that *are* adequate, in the case of retired households) for their retirement are more likely to be savers. This result reinforces the old goal-gradient theory that having a good pension makes people more conscious of the value of saving (see Katona [1965]). In addition, ownership of an IRA and having an employer-sponsored defined-contribution or 401(k)-type pension plan both appear to have a positive relationship with saving. This result still holds when the typical saving behavior variables are entered, countering the criticism of Gale and Scholtz [1994] that the effects of IRAs on saving in some models may only reflect the tendency of some groups to be savers.[19] However, ownership of Keogh accounts, a very common saving vehicle for families with self-employment income, shows no significant effect. Earlier research has provided mixed evidence on the effect of having an employer-provided defined-benefit pension account on saving behavior (e.g., see Samwick [1994]).

Subject to the caveats noted earlier about the use of wealth values in the model, the data show a strong positive effect of financial assets on saving, but no strong independent effect for net worth

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[18]It may also be that investors do relatively more of their saving through unrealized capital gains, which would not be picked by the income-minus-consumption measure modeled here. See Kennickell and Wilcox [1992] and Starr-McCluer [1994] for information on the role of unrealized capital gains.

[19]Gale [1995] has given several reasons why models might show false significance for employer-sponsored saving plans. Among these reasons, an interesting possibility is that the reason that ownership of such assets appear to increase saving is that there is often an employer contribution to such plans is usually not included as a part of income. The SCF provides information on contributions, but including such amounts as a part of family income make no difference in the reported result.

or house value. It may be that the estimated coefficients on the wealth variables simply reflect endogeneity bias. Alternatively, this may reflect two other factors: non-financial wealth is often known with much more noise than financial wealth, and most saving appears to be done by people who already have substantial assets (see Avery and Kennickell [1991]). Having debt is associated with positive saving, but the likelihood of saving decreases with the amount of debt outstanding. The strong negative effect of a household's having been turned down for credit in the past five years (or not applying for credit because the thought they might be turned down) suggests that liquidity constraints may be an important factor for some households in actually discouraging saving (see Giuso, Japelli and Terlizzese [1994]). However, about 46 percent of households that reported that they were constrained in this way also reported that they spent less than their income (compared with about 60 percent of the unconstrained group).

Indicators of financial planning have a mixed effect. The likelihood of saving increases with families' planning horizons, suggesting that saving is generally most strongly associated with longer-run behavior. When the indicators of typical saving behavior are added to the model, the significance of the effect of horizon falls, but only to a 6 percent level of significance. Higher risk aversion appears to have only a very weak negative effect on saving. Families that are more careful in their shopping for the best returns on saving and the lowest rates on borrowing are not significantly unlike other households given the other controls in the models.

In the model shown in the last column of the table, terms are included to describe the usual saving behavior of households. Dummy terms are used for families who usually spend more than their income, those who spend about as much as their income, and those who report that they save whatever is left over. The omitted category is households that have some type of saving plan. The data indicate strongly that households that do not have a saving plan are less likely to be savers. Not surprisingly, the absolute magnitude of the negative effect is largest for those who typically spend more than their income and smallest for those who save what is left over. Curiously, the inclusion of these variables does not alter very much the set of variables that we have noted as significant, though there are large changes in the values of a few coefficients. The interpretation of the model here is a description of families' deviations from normal behavior. The results suggest that the same factors explain both long-term and short-term variations in saving behavior.

Terms that proxy for the underlying sample design are included to ensure that estimates are not unduly influenced by the selection at that stage (see Nathan and Smith. [1989]). Some design terms--the dummy term for respondents who live in the largest cities and a few of the wealth stratum indicators for the list sample--are significant, but their presence or absence in the model does not appear to have much influence on the estimates of other coefficients.[20]

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[20] It may also be important to control for response probabilities given the sample design (i.e., selection bias may be a problem). To test this possibility in a simple way, the log of the nonresponse-adjusted weight was included as a variable in the model. The coefficient on the variable was negative and significant. However, the net effect of this addition on the other variables was to only eliminate the significance of the simple design terms.

Table 6: Ordered Probit Estimation of Saving Model

Dependent variable=SAVED				
INTERCEPT	-1.543#	-0.290	-0.321	0.273
	0.432	0.467	0.472	0.483
INTER.2	0.874	0.897	0.901	0.963
	0.027	0.027	0.028	0.030
AGE	-0.087	-0.344#	-0.353#	-0.256*
	0.089	0.098	0.099	0.101
EDUC	0.153*	-0.012	-0.020	-0.033
	0.077	0.081	0.081	0.082
RACE	-0.136*	-0.081	-0.087	-0.117*
	0.056	0.057	0.057	0.058
MARRIED	0.084	0.014	0.012	0.011
	0.061	0.062	0.062	0.063
HHSIZE	0.039	0.070	0.065	0.087
	0.069	0.071	0.071	0.072
DKIDS	-0.068	0.005	0.020	0.018
	0.071	0.072	0.072	0.073
RHEALTH	-0.071*	-0.044	-0.040	-0.021
	0.028	0.029	0.029	0.029
INCOME	0.107#	0.074#	0.074#	0.058#
	0.019	0.019	0.019	0.020
HIINC	0.175#	0.164#	0.168#	0.156#
	0.039	0.040	0.040	0.040
INCCERT	0.119	0.075	0.073	0.080
	0.066	0.067	0.067	0.068
FINCINF	0.013	0.009	0.008	0.013
	0.016	0.016	0.016	0.016
FINCCERT	-0.013	-0.010	-0.010	-0.020
	0.019	0.020	0.020	0.020
PINCINF	0.003	0.006	0.006	-0.006
	0.010	0.010	0.010	0.010
HRETIRE	-0.055	-0.072	-0.061	-0.056
	0.071	0.077	0.077	0.079
NW2	.	0.009	0.010	-0.000
	.	0.009	0.009	0.009
FIN	.	0.058#	0.055#	0.032#
	.	0.009	0.010	0.010
DHOUSE	.	0.445	0.445	0.266
	.	0.364	0.365	0.372
VHOUSE	.	-0.027	-0.028	-0.010
	.	0.033	0.033	0.034
DHDEBT	.	0.974#	0.980#	1.091#
	.	0.320	0.321	0.329
HDEBT	.	-0.121#	-0.121#	-0.128#
	.	0.030	0.030	0.031
DIRA	.	0.138*	0.125*	0.125*
	.	0.057	0.058	0.059
DKEOGH	.	0.203	0.205	0.191
	.	0.110	0.110	0.111
DPENDB	.	0.107	0.101	0.079
	.	0.059	0.059	0.060
DPENDC	.	0.149*	0.144*	0.081
	.	0.058	0.058	0.060
CREDTD	-0.262#	-0.218#	-0.215#	-0.169#
	0.054	0.055	0.055	0.056
MHORIZ	0.080#	0.061#	0.057#	0.032
	0.016	0.017	0.017	0.017
RISK	-0.052	-0.044	-0.045	-0.039
	0.028	0.028	0.028	0.028
DHINSUR	0.164*	0.061	0.066	0.049
	0.074	0.076	0.077	0.078
ADEQPEN	0.113#	0.104#	0.102#	0.079#
	0.018	0.018	0.018	0.019
SHOP	0.021	0.010	0.009	-0.006
	0.014	0.015	0.015	0.015
ECUP	0.001	-0.000	0.000	0.005
	0.009	0.009	0.010	0.010
FRATES	0.000	-0.000	0.000	0.002
	0.010	0.010	0.010	0.011
PASTINH	-0.031	-0.107*	-0.106*	-0.124*
	0.053	0.054	0.054	0.055
FUTINH	0.012	-0.014	-0.010	0.015
	0.063	0.063	0.063	0.065
IMPLVINH	0.018	0.017	0.020	0.026
	0.015	0.015	0.015	0.016
LVINH	-0.050#	-0.034*	-0.032*	-0.029
	0.015	0.015	0.015	0.015
SAVEP1	.	.	0.349#	0.285#
	.	.	0.109	0.110
SAVEP2	.	.	0.119	0.079
	.	.	0.071	0.073
SAVEP3	.	.	0.130*	0.035
	.	.	0.058	0.059
SAVEP4	.	.	0.088	0.003
	.	.	0.046	0.048
DSCGYSAT	.	.	.	-1.451#
	.	.	.	0.096
DSCEYAT	.	.	.	-0.716#
	.	.	.	0.065
LEFTAT	.	.	.	-0.261#
	.	.	.	0.052
OBLEDUC	-0.192#	-0.207#	-0.209#	-0.225#
	0.055	0.056	0.056	0.057
OBLHEAL	0.020	0.014	-0.002	0.020
	0.054	0.055	0.055	0.056
OBLHOME	-0.159	-0.184*	-0.175*	-0.179*
	0.087	0.087	0.087	0.089
OBLOTHE	-0.269*	-0.256*	-0.258*	-0.194
	0.108	0.109	0.109	0.112
Design variables				
REG1	0.038	0.003	0.014	0.042
	0.065	0.066	0.066	0.067
REG2	0.093	0.030	0.029	0.038
	0.064	0.066	0.066	0.067
REG3	0.040	-0.003	0.003	0.045
	0.058	0.060	0.060	0.061
MSA	0.083	0.085	0.088	0.080
	0.057	0.058	0.058	0.059
SRPSU	-0.139#	-0.155#	-0.153#	-0.146#
	0.051	0.052	0.052	0.053
DSTR1	0.014	0.003	0.017	-0.030
	0.114	0.115	0.115	0.116
DSTR2	0.017	0.038	0.024	0.055
	0.111	0.112	0.112	0.114
DSTR3	0.280*	0.295*	0.298*	0.349#
	0.116	0.120	0.121	0.123
DSTR4	0.134	0.115	0.121	0.173
	0.099	0.105	0.105	0.107
DSTR5	0.386#	0.431#	0.428#	0.487#
	0.109	0.120	0.121	0.123
DSTR6	0.482#	0.487#	0.506#	0.595#
	0.116	0.131	0.132	0.134
DSTR7	0.599	0.440	0.455	0.633
	0.309	0.324	0.323	0.338

Coefficient/standard error
= P-value <=1%
* = P-value 1-5%

Variable Definitions for Ordered Probit Model in Table 6

SAVED: 1=spending exceeded income; 2=spending equaled income; 3=spending less than income
INTERCEPT: model intercept #1
INTER.2: model intercept #2
AGE: natural logarithm of the age of the head of the household
EDUC: natural logarithm of the number of years of education of the head of the household.
RACE: =1 if head of the household is Hispanic or nonwhite; =0 otherwise
MARRIED: =1 if respondent is married; =0 otherwise
HHSIZE: natural logarithm of the number of people in the household
RHEALTH: health status of head of household: 1=excellent...4=poor
INCOME: natural logarithm of total household income for the preceding year, or zero if the level is zero or negative
HIINC: =1 if income is unusually low; =2 if income is normal; =3 if income is unusually high
INCCERT: =1 if the respondent has a good idea of next year's income; =0 otherwise
FINCINF: =1 if respondent expects income up less than prices next 5 years; =2 if respondent expects change to be same as prices; =3 if respondent expects income up more than prices
FINCCERT: interaction of FINCINF and INCCERT
PINCINF: =1 if household income went up less than prices last 5 years; =2 if household income went up same as prices; =3 if household income up more than prices
HRETIRE: =1 of head retired or out of labor force and over age 62; =0 otherwise
NW2: natural logarithm of household net worth including assets in 401(k)-type accounts, or zero if the level is zero or negative
FIN: natural logarithm of household financial assets, or zero if the level is zero
DHOUSE: =1 if household owns its own home; =0 otherwise
VHOUSE: natural logarithm of the value of a principal residence, or zero if the level is zero
DHDEBT: =1 if household has a mortgage on its residence; =0 otherwise
HDEBT: natural logarithm of mortgage on principal residence, or zero if the level is zero
DIRA: =1 if anyone in the household has an IRA; =0 otherwise
DKEOGH: =1 if anyone in the household has a Keogh account; =0 otherwise
DPENDB: =1 if the respondent or the respondent's spouse has a defined-benefit pension from a current job; =0 otherwise
DPENDC: =1 if the respondent or the respondent's spouse has a defined-contribution pension or 401(k)-type plan from a current job; =0 otherwise
CREDTD: =1 if in the last 5 years the household was turned down for a loan or did not get the amount requested, and the household did not subsequently obtain the amount by applying to a different institution; =0 otherwise
MHORIZ: household's most important period for financial planning: 1=next few months... 5=longer than 10 years
RISK: willingness of household to take financial risks: 1=substantial risk/substantial return... 4=not willing to take risk
DHINSUR: =1 if anyone in the household has public or private health insurance coverage; =0 otherwise
ADEQPEN: adequacy of pensions: expected for those not yet receiving and actual for those receiving: 1=pension totally inadequate...5=very satisfactory
SHOP: how much household shops around for prices/terms/rates on saving and borrowing: 1= almost no shopping... 5=great deal of shopping
ECUP: general economic expectations of household: 1=economy worse off over next 5 years, 2=same, 3=better off
FRATES: household expectations of future interest rates: 1=interest rates lower in 5 years, 2=same, 3=higher
PASTINH: =1 if household has received an inheritance in the past; =0 otherwise
FUTINH: =1 if household expects a "moderate" or "large" inheritance in the future; =0 otherwise
IMPLVINH: importance of leaving and inheritance: 1=very important, 2=important, 3= R & S differ, 4=somewhat important, 5=not important
LVINH: household expectation of leaving a "sizable" estate: 1=leave sizeable estate, 3=possibly, 5=no
SAVEP1: household's reasons for saving (asked even if not saving): =1 if reason is to help family/children; =0 otherwise
SAVEP2: household's reasons for saving (asked even if not saving): =1 if reasons are to investments or to get ahead; =0 otherwise
SAVEP3: household's reasons for saving (asked even if not saving): =1 if reasons are retirement or old age;=0 otherwise
SAVEP4: household's reasons for saving (asked even if not saving): =1 if reasons are emergencies, reserves, or liquidity; =0 otherwise
DSCGYSAT: Typical saving: respondent reported "don't save, usually spend more than income," =1; =0 otherwise
DSCEYAT: Typical saving: respondent reported "don't save, usually spend about same as income," =1; =0 otherwise
LEFTAT: Typical saving: respondent reported "save whatever is left over at the end of the month" than income," =1; =0 otherwise
OBLEDUC: =1 if the household anticipates a major obligation in the future for education expenses; =0 otherwise
OBLHEAL: =1 if the household anticipates a major obligation in the future for health care; =0 otherwise
OBLHOME: =1 if the household anticipates a major obligation in the future for home purchase, durables, vacations, weddings, etc.; =0 otherwise
OBLOTHE: =1 if the household anticipates other major obligations in the future for support of others, burial, taxes, and other purposes; =0 otherwise

Sample Design Variables
REG1: =1 if household lives in the Northeast region; =0 otherwise
REG2: =1 if household lives in the North Central region; =0 otherwise
REG3: =1 if household lives in the Southern region; =0 otherwise
MSA: =1 if household lives in an MSA; =0 otherwise
SRPSU: =1 if household lives in a self-representing PSU; =0 otherwise
DSTR1: =1 if the household is drawn form list sample stratum 1;=0 otherwise
DSTR2: =1 if the household is drawn form list sample stratum 2; =0 otherwise
DSTR3: =1 if the household is drawn form list sample stratum 3; =0 otherwise
DSTR4: =1 if the household is drawn form list sample stratum 4; =0 otherwise
DSTR5: =1 if the household is drawn form list sample stratum 5; =0 otherwise
DSTR6: =1 if the household is drawn form list sample stratum 6; =0 otherwise
DSTR7: =1 if the household is drawn form list sample stratum 7; =0 otherwise

Other terms have only a weak effect in the model. Starr-McCluer [1994] has found that having health private insurance is associated with higher levels of wealth. The model reported here includes a dummy term for coverage by either public or private insurance and that variable has no significant effect on saving[21]. Marital status and household size appear to have no independent effect on the likelihood of saving. The health of the head of the household and race are not important factors once wealth variables are introduced into the model. Curiously, education has a significant effect on saving only in the first model. In this model, it seems that education serves as a proxy for wealth measures.

V. Summary and Future Research

The data presented here suggest that credible information on dynamic behavior can be obtained using indicator questions in cross-section surveys. There are several areas in this direction that should be explored. First, a more thorough examination of the cognitive bases of the indicator questions presented in this paper should be undertaken and refinements made. Second, the development of reliable indicator questions may actually make possible repeated interviews with difficult populations like the SCF sample. The average SCF interview takes about 90 minutes, but some interviews with wealthy respondents can take several hours. Consequently, it is unrealistic to think that a substantial fraction of respondents in one wave of the survey would be willing to subject themselves to another full wave of the survey. SCF interviewers report that they are very commonly asked "you won't contact me again, will you?" However, it may be that a large enough number of families would be willing to be recontacted for a very short interview—say five or ten minutes at most—if a case can be made for the value of the additional information. One possibility being considered is recontacting respondents to the 1995 wave of the SCF by telephone for a five-minute interview in 1996 and in 1997.[22] The burden then falls on us as analysts to devise efficient, but informative, measures that will allow us to study dynamics. For example, it may be reasonable to reask the questions underlying the indirect saving measure and model the implied transition matrix (in lieu of taking first differences of continuous wealth variables).

A very interesting result of the models presented in the preceding section of the paper is that inclusion of variables to distinguish people who tend to be savers has only a modest effect on the model coefficients, and there is no significant reversal of sign—that is, a simple fixed effect in saving does not appear to be as important as a priori reasoning might suggest. The data also provide strong evidence for the core propositions that families smooth their consumption in response to income changes, and that saving declines with age. Families that have longer horizons also tend to be more likely to save, though a substantial part of this effect appears to be captured by the measure of typical saving behavior.

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[21]Starr-McCluer's paper, her model considers the effects of private insurance alone. If the dummy term here is split into one for public coverage and one for private coverage, the result is unchanged.

[22]One problem in recontacting respondents is that many people resist giving even their first name and telephone number for routine survey validation. The quality of such information may excessively limit the representativeness of the panel that could be reinterviewed.

The model suggests that there are some wealth effects on saving. Families with higher levels of financial assets, and those with either 401(k) plans or IRAs are more likely to save. Families that anticipate adequate retirement saving are also more likely to save. In addition, households with pensions that they expect to be adequate for their retirement are more likely to be savers.

One would expect that expected future transfers should increase current saving. However, only the expectation of leaving a bequest has a strong effect, and that is *negative*—suggesting unintended bequests. However, there is some evidence that saving for other transfers increases saving. Past inheritances seem to have little effect outside of that already reflected in the measure of wealth. Anticipated future expenses have puzzling effects, particularly in the case of future education expenses which actually depresses current saving.

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