Fatalism, Locus of Control, and Retirement Saving

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Abstract

We analyze the responses to 81 questions about saving and saving attitudes that we collected in the June 2008 University of Michigan Survey of Consumers. Using factor analysis on the responses to 10 questions about saving behavior, we develop an index to measure a respondent's propensity to save. The 401(k) contribution rate the respondent would choose in a new job that had a 401(k) accounts for most of the variance of this first factor in the factor analysis. We then correlate this propensity to save with the responses to a number of questions about attitudes toward saving and consuming. We find that questions that identify a locus of control issue, or an attitude that saving and consumption decisions, and the future in general, are out of a respondent's control, are powerful predictors of the propensity to save. Questions about self-control, budgeting skill, institutional trust and the propensity to plan are other significant categories of attitudes that matter for savings. Several other categories of variables do not seem significantly related to savings, such as the attitude that either someone else or the government will take care of the respondent or negative attitudes about worrying about money too much. Overall, our results point to several promising new directions for studying the effects on saving of psychological attitudes that are largely missing from standard economic models.

Introduction

Leo Tolstoy famously began *Anna Karenina* by observing that "Happy families are all alike; every unhappy family is unhappy in its own way." Just so, Neoclassical economic actors all optimize in the same way, but it could be that every economic actor who is confused or conflicted is suboptimal in his or her own way. For one thing, as Kimball and Robert Willis (2009) put it: "There is only one way to do things right, but many ways to do things wrong." We take the view that the best way to narrow down the many possible "Behavioral" theories of economic actions to those that economic theorizing should focus on is to actively collect detailed data directed at exactly that goal.

This paper has the goal of providing some guidance on research priorities for understanding the Behavioral determinants of retirement saving–which we define broadly as any determinant of retirement saving not included in a standard Neoclassical model. In our view, a definitive understanding of the determinants of retirement saving is quite a ways down the road. We hope to find some clues about where to look for such an understanding.

Our aim of trying to understand non-Neoclassical determinants of retirement saving is inspired by the work of three groups of coauthors: **(1)** Angeletos, Laibson, Repetto, Tobacman and Weinberg (2001), Beshears, Choi, Laibson, and Madrian (2005, 2008, forthcoming), Beshears, Choi, Laibson, Madrian and Weller (2006), Carroll, Choi, Laibson, Madrian and Metrick (2008), Chabris, Laibson, Morris, Schuldt, and Taubinsky (forthcoming), Choi, Laibson and Madrian (2004, orthcoming a,b), Choi, Laibson, Madrian and Metrick (2002, 2003, 2004, 2005, 2006, forthcoming), Gabaix and Laibson (2000), Harris and Laibson (2001), Laibson (1997, 1998, 2001), and Laibson, Rebetto and Tobacman (1998); **(2)** Alessie, Lusardi and van Rooij (2009), Curto, Lusardi and Mitchell (2009), Hurst (2009), Hurst and Lusardi (2004), Keller and Lusardi (2006), Keller, Keller and Lusardi (2008), Lusardi (2002, 2004a,b, 2007, 2008, forthcoming), Lusardi and Mitchell (2007a,b, 2008, 2009), Lusardi and Tufano (2009); and **(3)** Ameriks, Caplin and Leahy (2003, 2007), Ameriks, Caplin, Leahy and Tyler (forthcoming), Ameriks, Caplin, Laufer and van Nieuwerburgh. The emphasis of the first group has been on hyperbolic discounting, self-control, and the influence of defaults or automaticity. The emphasis of the second group has been on self-control, planning and financial literacy. The emphasis of the third group has been self-control and planning. Collectively, we find the work of these three groups persuasive that non-Neoclassical influences are consequential determinants of retirement saving and related decisions.

The fact that there are non-Neoclassical determinants of retirement saving is important since– as noted by Lusardi (2004) and Ameriks, Caplin and Leahy (2003)–the Neoclassical determinants explain so little of the variance across households. Pounder (2006) provides a good measure of the extent to which saving remains unexplained by a Neoclassical model. Pounder takes advantage of the strenuous efforts of the Health and Retirement Survey (HRS) personnel to collect all of the elements needed to study Modigliani's life-cycle model to construct the ratio of consumption to the present discounted value of lifetime resources–which she calls the "consumption to full wealth ratio." The mean value of the consumption to full wealth ratio is about 7.5 % per year. In the absence of binding liquidity constraints (which is not an unreasonable assumption for the HRS sample which is selected to be over 50) standard Neoclassical theory predicts that the consumption to full wealth ratio should depend only on the utility discount rate, risk aversion, the elasticity of intertemporal substitution, expected return distributions, mortality probabilities and the strength of bequest motives. Because of the strong theoretical relationship of the consumption to full wealth ratio to the utility discount rate, it provides an excellent measure of whether a household is a high saver or a low saver. After trimming the top and bottom 1% of observations and using HRS data to control for all of these other than the utility discount rate and the elasticity of intertemporal

substitution, plus basic demographic variables, Pounder (2006) finds that the standard deviation of the unexplained part of the logarithm of the consumption to full wealth ratio is .56. (If the level of the consumption to full wealth ratio is used rather than its logarithm, the standard error of estimate for the regression is .048 per year compared to the mean of .075 per year.) The R-squared of the regression is .27, despite the inclusion of basic demographic variables. Thus, there is a great deal of unexplained variation.

Survey Design

The Reuters/University of Michigan Surveys of Consumers are monthly telephone surveys that collects the data for the well-known measure of Consumer Sentiment, along with basic demographic variables. Given funding, the Surveys of Consumers is very open to including additional questions as riders on the survey. In order to provide additional evidence on self-control and planning (interpreted broadly), and to identify other non-Neoclassical determinants of saving, we designed a rider to the June 2008 University of Michigan Survey of Consumers. In this we had the help of the Survey of Consumers staff, Robert Willis, Jim Lepkowski and Jim Lepkowski's Survey Practicum class–which consisted of Sociology graduate students and one Economics graduate student. This class has the purpose of giving training in designing and conducting surveys. To make this hands-on training in designing and conducting surveys possible for the students, the University of Michigan Survey Research Center paid for the 15 minutes of survey time we were allotted beyond the core questions in the Survey of Consumers. We were chosen as the scientific clients for the Survey Practicum class through a competition within the Survey Research Center, where we have joint appointments. Robert Willis participated in that competitive process and in the design of the survey as the principal investigator of NIA grant # 2-P01-AG10179, which paid for our time in analyzing this data.

Given our budget constraint of 15 minutes, we needed to set priorities. As noted above, our top priority was to use the assistance of a class of Sociology graduate students to generate survey questions to provide evidence on a wide variety of different possible Behavioral determinants of retirement saving–particularly those on which economists might have a blind spot. One procedure that helped considerably in this aim were the discussions by two focus groups conducted by the class, which we observed (with consent) through one-way glass. In the end, we came up with many of the questions on the survey ourselves, and along with Robert Willis, we determined the final wording and choices for most of the questions in the survey, but in some cases negotiation with the class participants and the staff of the Survey of Consumers was involved, so the final result was not always what we would have chosen.

In addition to evidence for newly identified potential determinants of retirement saving, we also wanted to provide additional evidence relevant to self-control and planning effects on retirement saving. We did not try to get evidence on financial literacy, since we (along with a large team) were collecting other data on both the Cognitive Economics Survey and the HRS on financial literacy that should allow us to study the effects on retirement saving.[1]

In order to provide useful evidence about how promising various survey questions are for understanding retirement saving, some of our survey time had to be devoted to getting a measure of whether an individual is a high saver or a low saver. Ideally, we would have liked to use the consumption to full wealth ratio as our measure of whether an individual was a high saver or low

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[1]We collected data on financial literacy on an earlier wave of the Survey of Consumers to look at its relationship to portfolio choice. Kimball and Shumway (2008a) reports the results of that investigation. There was no overlap between the respondents to that wave of the Survey of Consumers and this one.

saver, but this would have far exceeded the full 15 minutes of survey time we had to work with. As a compromise, we designed a set of questions that we felt would give a reasonably good indication of whether an individual is a high saver or a low saver and formed two composite saving propensity indices from the answers to these questions. We discuss these questions and the construction of the two saving indices in the next section.

Sample: The Survey of Consumers sample is selected from adults in the United States by random-digit-dialing, with adjustment for the number of phones in a household and random choice among adjust members of a household. About 500 adults are interviewed each month (about 200 of whom were first interviewed six months earlier). Because we were interested in retirement saving, we economized on survey time (expanding the number of questions we could ask) by directing our rider only to respondents under the age of 65. Item response rates were quite high, so that our effective sample for each analysis hovers around 320. Of work that is most closely comparable to ours, the sample size is close to the effective sample size in Ameriks, Caplin and Leahy (2003) and Ameriks, Caplin, Leahy and Tyler (forthcoming), but only a fraction the sample size Lusardi (2003) and Lusardi and Mitchell (2007) were able to get on the HRS.

Developing Saving Indices

Table 1 reports the construction of our two indices for whether someone appears to be a high saver or a low saver. The "full savings index" is the first factor in a principle components factor analysis of ten questions.[2] Over 80% of the variance of this first factor is accounted for by the answers to the two hypothetical contribution rate questions (at 1 for 1 match rate and at a 25 cents on a dollar match rate) and their associated topcode dummies. Since, among the questions in Table 1, the meaning of these hypothetical 401(k) questions is especially easy to interpret, we thought it would be useful to have a second savings index constructed only from these questions. The 401(k) savings index differs from the full savings index by setting the the loadings of the other six questions 5–10 to zero, and then rescaling to get back to a variance of one.

In addition to the details of the construction of the two savings indices, Table 1 and Table 2 show the response frequencies for these ten questions, with Table 2 giving a more complete breakdown for the hypothetical 401(k) contribution questions. In Table 1, an interesting fact is that 35.6% of this representative sample of under-65 adults say they would vote for a forced saving program that required all workers to put 10% of their pre-tax income (beyond current Social Security taxes) into a personal retirement account. In Table 2, one can see that the mode at getting a full match by contributing 10% is joined by a second mode at contributing 5%. Both Panel A and Panel B of Table 2 show that the size of the match makes a significant difference to the chosen contribution rate, in the expected direction.

As detailed in Table 3, we looked at six other questions that seemed as if they might be related to the tendency to save. Four of them were significantly related to our full savings index: actual participation in a defined benefit or defined contribution pension when there was a choice, cash-out refinancing, frequency of paying off a credit card each month, and belief that a credit card has been a curse. Several of these are attractive questions; the biggest problem with them is that there are many missing values: people who are not offered the choice of signing up for a pension, people who have not refinanced and so have not directly faced the choice of whether to take cash out, and people who do not have credit cards. We include the results in Table 3, Panel B to validate the

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[2]Eigenvalues indicate that the first factor is much more important than the second factor, which is reassuring–the commonality that we chose all ten questions for the likely relation to saving propensity seems to be the dominant commonality among these ten questions.

savings index we use, based on questions that have values for most respondents. As the note at the top of Table 3 mentions, two questions that seemed as if they might be related to a tendency to save were not correlated in a statistically significant way with the full savings index: credit card balances divided by income and not maxing out a 401(k). Nevertheless, on the whole, given the small sample sizes we are working with, we view Table 3 as an encouraging if modest extra validation of our savings index.

Results

Our central results are in Tables 4 and 5. Our basic approach in this paper is to look for correlations between a measure of whether a survey respondent is a high or low saver and a wide variety of individual attitudes and characteristics in order to provide guidance on research priorities among Behavioral theories of saving. We do not pretend to provide definitive evidence on any of these theories. We argue instead that developing mathematical theory and effective causal tests for potential Behavioral determinants of retirement saving is resource-intensive enough that it makes sense to gather hints about which lines of research are likely to be most promising. To inform presumptively Bayesian decision-making among various possible lines of research, we will focus on the p-values for the test of whether there is a zero correlation between a given survey question and our measure of saving. Table 4 shows all the details of a regression for one of the attitudes: "Thinking about money stresses me out." Table 5 omits the estimates for the control variables. Of the controls, the only two that are even close to statistically significant in this sample of 325 respondents are income (unsurprisingly) and being in the Western region of the United States, which at a p-value of 5.4% seems associated with a higher propensity to save.

Table 5 gives the raw distributions of answers and relationship with the two saving indices for each of the 34 questions that we use to measure various attitudes and traits of individuals. We have put these attitudes and characteristics into thematic groups.

Of the eight questions in the "Self-Control and Self-Management group, the only one with a significant relationship with either saving index at even the 10% level is the set of responses to "I often make impulse purchases." Note, however, that we did not have the relatively lengthy self-control measure in Ameriks, Caplin, Leahy and Tyler (forthcoming). The failure to find a significant relationship for so many items related to self-control and self-management was a surprise to us. Despite the level of emphasis in the literature on self-control and self-management, our data were not shouting out the importance of this area. To date, the only self-control and self-management measures we know of that seem significantly related to saving in the cross section are those of Ameriks, Caplin, Leahy and Tyler (forthcoming) and agreement with "I often make impulse purchases." Some of this failure might be related to the surprising finding of Ameriks, Caplin, Leahy and Tyler (forthcoming) that self-control problems can show up as much in underconsumption as in overconsumption. However, this cannot explain all the failures, since agreement with "I am very thrifty," "Before I buy something I ask myself if I am really going to use it" and "Before I buy something I think twice to make sure it is something I really need" seem to have a clear positive direction in which they should be related to our saving indices.

For all of the attitudes and traits we measure, statistical significance is associated with substantive significance as well. According to the point estimate, moving up one point on the five-point scale of agreement/disagreement to "I often make impulse purchases" lowers the value of the full saving index by almost one tenth of a standard deviation. One can see that the distribution of the answers to this question is bimodal, and the difference between the primary and secondary mode is two points; almost everyone either agrees or disagrees with this statement.

Many of the five attitudes and traits in the "Planning, Thinking and Budgeting" group are statistically significant. The relationship of the answers to "How much have you thought about retirement?" with our saving index confirms a result of Lusardi (2003). The statement "I enjoy planning for activities like vacations well in advance" is not exactly the same as the Ameriks, Caplin and Leahy (2007) question "Before I go on vacation, I spend a great deal of time examining where I would most like to go and what I would like to do," which they used as an instrument for planning, but it barely misses statistical significance at the 10% level. The significant results for "Thinking about money stresses me out" tend to confirm the discussion in Lusardi (2003) about the effects of the cognitive and emotional costs of planning, while the results for "I often wonder 'Where did all my money go"' tend to confirm the emphasis in Ameriks, Caplin and Leahy (2007) and .... on budgeting. We find ourselves feeling sympathy for the 40.4% of people who agree with "I often wonder, 'Where did all my money go?" It is interesting that not knowing seems negatively related to saving propensity as measured by the full saving index, but not to the measure based only on hypothetical 401(k) contributions, which represent a means of saving even for those unable to keep track of a budget.

The second page of Table 5 goes on to find more novel relationships of attitudes and traits and saving propensities, beginning with "Institutional Trust and Reliance on Others." Trusting others could affect saving in either direction. On one hand, saving requires trusting someone else with one's money and in general trusting the system to work. On the other hand, if one trusts others to fully take care of one's consumption needs in old age, it could reduce saving. There is a sense in which these effects are all Neoclassical, since they have to do with expected rates of return and expected income streams, but in any case we found them interesting. Trust in financial institutions, as measured by agreement with "If I try to save through financial institutions, someone is likely to figure out a way to cheat me out of the money," significantly predicts a higher saving propensity. (The raw distribution of the answers to this question are likely to be much different now than they were back in June 2008.) Agreement with "Whether for political or other reasons, the US government will always make sure that senior citizens have basic food, shelter, clothing and medical care," which we included to test whether people felt they didn't need to save because the government would take care of them–a notion that would predict a negative relationship with each saving index–instead has a positive relationship with both saving indices, and significantly so with the full saving index. We speculate that trust in government is highly enough correlated with trust in financial institutions that this question is related as much to expected returns as it is to expected future income flows. [CHECK THE CORRELATION BETWEEN THESE TWO ATTITUDES.] By contrast, the next question, question 16 "Even in the worst case, I will be OK financially when I am old because I will have government programs to fall back on" has much less agreement in the raw responses and no significant relationship with either saving index. One thing we take from the difference in levels of raw agreement between question 15 and question 16 is that being "OK financially" requires more than "basic food, shelter, clothing and medical care." The one question that has the right sign for the predicted effect of future income is agreement with "My children will make sure that I am OK financially when I am old," but the relationship is weak and insignificant in our relatively small sample.

The group labeled "Attitudes Toward Being Careful with Money" arose from our experience watching the two focus groups. For an economist, the idea that careful budgeting and saving are a good thing is so natural, it was important for us to be reminded that some people feel that "thinking about money all the time, even when you have enough is a terrible way to live." Personally, we both feel it is a fine way of life to be economists and think about money much of the time even though we are relatively well off, but we are clearly in the minority. This particular question had no significant relationship with saving, but agreement with "It is nice to have money saved up,

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but you have to live" has a significant negative relationship with the full saving index. Answers to this question are subject more than most of our questions to self-justifying bias, as people who do not save much try to explain their behavior, so we are not sure how much should be made of this correlation.

Agreement with "Money doesn't buy happiness" actually has a positive estimated relationship with our full saving index at the 9.5% level, hinting perhaps (and here we apologize for overinterpreting a weak result) that the 7.9% of people who disagree and think money does buy happiness are sometime eager to buy that happiness right away.

The next group, general "Attitudes Toward Saving" such as "Most American save too little," "Most Americans borrow too much" and "I really respect people who have managed to save a lot of money" and has no significant relationship with either of our saving indexes. We also strike out in the "Social Pressure" group about parental example and encouragement of saving and social stigma for bankruptcy and being careless with money. The lack of any statistically significant results for the seven variables in these two groups was a surprise to us. On the other side, agreement with "I would hate to have someone think that I am stingy with money," which we put in the "Attitudes Toward Being Careful with Money" group, has no stronger a relationship than agreement with "I would hate to have people think I am careless with money" (although agreement with the "stingy" question at least has the predicted sign).

Very similar to these groups is the next group of two questions, which we label "Strong Judgments." We wrote them to sound as judgmental as possible: "People who don't save for retirement are being irresponsible" and "Using a credit card without paying off the balance every month is really stupid." These two questions both have strong relationships with both saving indices. (Note that we excluded questions about credit cards from our saving indices.) Despite the strength of these statements, large majorities of our sample agree with them. Those who do disagree with these strong judgments seem to have lower saving propensities. The message we take from these results in comparison with the lack of significant results for our general "Attitudes Toward Saving" and "Social Pressure" groups is that implied stigma must be strong to motivate even hypothetical deferred gratification.

The final four questions, in the "Fatalism" and "Locus of Control" groups provide our headline results. The last three all have strong correlations with both saving indices that are very unlikely to have happened by chance. The other, "If you don't let yourself get too worried, everything tends to work out in the end has correlation significant at the 8.9% level with the full saving index, but no significant correlation with the 401(k) saving index. All of these questions express doubts that one's own actions matter.

The two "Fatalism" questions illustrate a particular instance of "folk economics"–that is a theory of economics that almost no professional economist would countenance. Here, the implicit theory is that one's retirement will look pretty much the same whether one saves or not. "If you don't let yourself get too worried, everything tends to work out in the end," and "No one can predict the future, so trying to save doesn't do much good." The view that a household's level of saving will not affect the experience in old age is not one that many economists would endorse. Yet it is possible for someone to view the future as fated, regardless of saving rate. If one really believed that saving would make no difference to what happened in one's old age, because one's old age experience was fated, then it would be rational *conditional on that faulty belief* to save very little.

The two "Locus of Control" questions give respondents a chance to blame other things and people for their financial difficulties and difficulties saving: "It is difficult to stay ahead financially because of the things my family members want to buy" and "Many of the things that keep me from saving more money are out of my control." Ameriks, Caplin, Leahy and Tyler (forthcoming)

theorize that of the "Big Five" traits studied by psychologists, conscientiousness should contribute to self-control. They write "According to personality psychologists, there are many reasons for a possible link between conscientiousness and self-control. First, those high on conscientiousness feel capable and effective, so they feel that they can effectively manage issues in life." They then go on to discuss other reasons conscientiousness should be related to self-control and to represent conscientiousness empirically use "Sometimes I am not as dependable or reliable as I should be," "I never seem to be able to get organized," "I often feel that I speak or act too quickly, without thinking about the consequences," and "I am often late for appointments." Our two "Locus of Control" questions focus on this aspect of whether an individual feels efficacious in his or her own life. If one truly believes one will be effectively thwarted in what one attempts to do financially, then *conditional on that belief*, it might be rational not to try.

We find the correlation of the two "Locus of Control" questions with the 401(k) saving index particularly telling. Here are people who are willing to agree with a complaint that their family members make it hard to stay ahead financially and that many of the things that keep them from saving money are out of their control. Then, we give them a hypothetical opportunity to choose the contribution rate in a 401(k). This is one aspect of saving that they *can* control, and since it would be their job, they can do it even over family members' objections. Yet those who complain most about not having control are the least likely to say they would seize control of their saving rate if they had this golden opportunity.

Conclusion: Directions for Future Research

Given our goals of providing guidance for research priorities, the important conclusions are about directions for future research. Here is our read on the suggestive evidence that we have found.

Our most important finding is the seeming importance of self-efficacy, as expressed in our "Fatalism" and "Locus of Control" questions. This is the area we plan to pursue most vigorously.

Second, except to the extent that they overlap with self-efficancy, self-control issues are more difficult to identify than might be expected. Our measure of impulse purchases seemed to have some predictive value for our full saving index. Otherwise, for those interested in self-control, we recommend building on the approach of Ameriks, Caplin, Leahy and Tyler in which they identify ideal and likely levels of spending separately. It does not seem easy to identify self-control issues "on the cheap."

Third, we have added to the weight of evidence attesting to the likely importance of planning and budgeting. Most strikingly, moving one point on a five-point scale of agreement with "Thinking about money stresses me out" lowers the full saving index by a full quarter of a standard deviation.

Fourth, given recent events that could lower trust in financial institutions–and perhaps in the government, the seeming importance of institutional trust on saving is a matter for concern and future research.

Finally, we find the contrast between the strong correlations of strong judgments about saving and credit cards and the weak correlations of milder attitudes toward saving and social pressure telling. For many people, saving is not an easy thing to do, and mild admonitions may not be enough. Avoiding one's own self-criticism may be one of the most powerful motivations in existence. Obviously, there is a direct utility cost to self-criticism and to being criticized by others, so there is a tradeoff here. But the threat of strong judgments may have its place if in a particular situation there is no better way of getting the job done. The minority of people unwilling to condemn not saving or unwilling to condemn running a credit card balance seem to have more trouble saving.

Of course, in the case of strong judgments as elsewhere, the possibility of reverse causality is

important to consider. Do people who condemn running a credit card balance avoid it, or are people unwilling to condemn something they do themselves? In this paper, we do not pretend to have any proof of the direction of causality. But we believe that each strong correlation here deserves further investigation.

We hope that we have freed up some resources for investigation of the strong correlations here by our identification of some weak correlations. In many ways, what we did not find is just as important as what we did. We would not have included a measure of an attitude or trait if we had not though, *a priori* that it had a good chance of have a strong correlation with saving. So when one of the measures–or a whole group of them–had very little relationship with saving, it was a surprise to us, and information we take seriously.

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Table 1 - Savings Index Construction

Table 1 reports the questions and variables used to make the savings indices analyzed in the rest of the paper. The text of each of the questions used is lilsted in the table, and the frequency of the possible responses is listed for most of the questions. The frequencies of responses for questions 1 and 3 are listed in Table 2. The indices are constructed by applying factor analysis to the data, and the first factor coefficient assigned to each question is listed in the last column of the table. The eigenvalue for the first factor coefficient is 3.48, while those of the second and third factors are 1.62 and 1.15. All other eigenvalues are less than one.

Question/ Variable		Response Frequency	Dummy Code	Factor Coeff
1	Suppose you got a (new) job that has a 401(k) retirement savings plan. You can contribute up to ten percent of your pay. For every dollar you put in, your new employer will put in a dollar. What percentage of your pay would you choose to contribute?	(in Table 2)	n.a.	0.849
2	*topcode dummy – response equal to 10*	74.1%	1/0	0.835
3	Consider the same situation, except that your new employer will contribute twenty-five cents for every dollar you contribute to the 401(k) retirement plan. With this lower match rate, what percentage of your pay would you choose to contribute?	(in Table 2)	n.a.	0.841
4	*topcode dummy – response equal to 10*	59.6%	1/0	0.809
5	Compared to people who are similar to you in age, income, and family size, do you think you have			0.411
	more retirement savings	26.4%	2	
	about the same amount of retirement savings	34.8%	0	
	or less retirement savings?	35.3%	-2	
6	Suppose that the government decided that in addition to current Social Security taxes, everyone under sixty-five who is working would be required to put an additional ten percent of their pre-tax income into a personal retirement account. How hard would it be for you to adjust to your (and your spouse/partner's) lower take-home pay – would you say it would be			0.475
	extremely hard,	12.9%	-2	
	quite hard,	11.9%	-1	
	somewhat hard,	34.0%	0	
	not so hard,	20.2%	1	
	or not hard at all?	16.4%	2	
7	Would you vote for such a program?			0.237
	Yes	35.6%	1	
	No	60.2%	0	
8	If you unexpectedly received one thousand dollars, would you			0.242
	save it,	33.4%	1	
	pay off debt with it,	19.7%	1	
	pay bills with it,	30.5%	1	
	or have fun with it?	12.1%	0	
9	Other than employer retirement plans from current or past employers, do you have anything saved for retirement?			0.326
	Yes	55.3%	1	
	No	41.2%	0	
10	*Residual of total savings/income regressed on age, age^2*		n.a.	0.285

Table 2 - Hypothetical 401(k) Responses

Table 2 reports the frequencies of responses to the two hypothetical 401(k) questions that form part of the savings indices described in Table 1. The question for the responses in the column labeled "One Dollar Match" is question number 1 in Table 1, and the question for the responses in the "Twenty-five Cent Match" column is question 3 in Table 1. Only values between zero and ten are accepted for these questions. Percentages will not generally sum to one hundred because some people decline to respond to these questions.

Panel A: Simple Frequencies

Percent Contribution	One Dollar Match	Twenty-five Cent Match
0	0.81	3.77
1	0.27	1.35
2	1.62	2.70
3	2.70	5.93
4	0.27	2.16
5	10.51	14.02
6	1.89	3.23
7	2.43	2.16
8	1.62	2.16
9	0.00	0.27
10	74.12	59.57

Panel B: Cross Tabulations

Dollar Match	Twenty-five Cent Match				
	0	1-4	5	6-9	10
0	0.6	0.0	0.0	0.0	0.3
1-4	0.6	3.9	0.3	0.0	0.3
5	0.6	3.4	5.9	0.3	0.8
6-9	0.0	0.8	0.6	3.6	1.1
10	1.4	4.5	7.6	4.2	59.4

Table 3 - Savings Behavior Regressions

Table 3 report the results of several regressions of reported savings behaviors on our (full) savings index and a number of control variables. The first panel lists the questions we used to define the dependent variables and indicates how we coded the responses. Home owner is omitted from the refinance question because the question is only asked of homeowners. We also tried to construct two other dependent variables by (1) dividing total reported credit card balances by reported income and (2) creating an indicator variable that is one for respondents that could contribute more to their defined contribution plans and still receive some employer match. Neither of these two variables was significantly related to our savings index in regressions analogous to those below, so we omit those results for brevity.

Panel A: Questions and Responses

	Question/ Variable	Response Frequency	Variable Code
1	Does your employer offer a retirement plan where the money is yours and you can take it with you, such as a 401(k) or another defined contribution plan?	yes = 70.5%	
	(if yes) Do you participate?	yes = 85.6%	
	(if yes) Could you have chosen not to participate?	yes = 80.8%	1
	(if no) Could you have chosen to participate?	yes = 71.4%	0
	Does your employer offer a pension plan, also referred to as a defined benefit plan, that works like social security – that is, there is a set of rules that determine how much you will get per month after you retire?	yes = 30.9%	
	(if yes) Do you participate?	yes = 85.2%	
	(if yes) Could you have chosen not to participate?	yes = 25.3%	1
	(if no) Could you have chosen to participate?	yes = 33.3%	0
2	The last time you refinanced your mortgage, did you take away money from the closing that you could use for whatever you wanted to use it for?	yes = 45.5%	yes = 0 no = 1
3	How often do you pay the total balance on your monthly credit card bills?		
	Would you say always?	38.0%	6
	Almost always?	13.8%	5
	Most of the time?	12.8%	4
	Some of the time?	16.1%	3
	Rarely?	11.8%	2
	Never?	7.2%	1
4	Do you think you would have been better off if you had never gotten a credit card?	yes = 27.2%	yes = 0 no = 1

Table 3 - Savings Behavior Regressions

Panel B: Regression Results

Independent Variable	Participate in pension plan Coeff	p-value	Take money from refinance Coeff	p-value	Pay off credit card balance Coeff	p-value	Better off w/o credit card Coeff	p-value
Savings index	0.080	0.0046	0.120	0.0347	0.503	0.0001	0.050	0.0986
Log of income	0.014	0.7946	-0.076	0.3522	0.121	0.4944	0.083	0.0820
West region	0.026	0.7083	0.053	0.6766	-0.423	0.1361	0.149	0.0507
Midwest region	0.029	0.6434	-0.092	0.4271	-0.258	0.3292	0.064	0.3638
Northeast region	-0.013	0.8454	-0.144	0.2661	-0.415	0.1495	0.128	0.0986
Years of education	0.015	0.2238	0.005	0.8247	0.049	0.3089	0.036	0.0056
Male	-0.020	0.6869	0.055	0.5512	0.047	0.8178	-0.014	0.8012
Married	-0.103	0.0972	0.014	0.9015	0.010	0.9650	-0.029	0.6522
Black	0.086	0.3850	-0.118	0.5782	-0.591	0.1386	-0.042	0.6956
Hispanic	-0.082	0.4563	-0.282	0.5879	-0.422	0.3937	-0.030	0.8211
Native American	0.430	0.1608	-0.295	0.5861	-1.748	0.1438	-0.090	0.7783
Asian	0.008	0.9574	0.420	0.1089	0.616	0.3039	0.066	0.6827
Home Owner	0.128	0.1325	n.a.	n.a.	0.032	0.9303	0.108	0.2713
Age	0.019	0.2693	-0.004	0.9057	-0.059	0.1629	-0.012	0.3020
Age^2	-0.000	0.2282	0.000	0.7515	0.001	0.0818	0.000	0.2288
Intercept	0.117	0.8558	1.203	0.3448	3.320	0.1124	-0.698	0.2133
Observations	149		129		275		275	
Adjusted R^2	0.0675		0.0460		0.1130		0.0784	
401(k) savings index (from similar regression)	0.061	0.0282	0.111	0.0470	0.256	0.0174	0.030	0.2918

4

Table 4 - Example Savings Attitude Regression: "Thinking about money stresses me out"

Table 4 gives an example savings attitude regression for responses to the statement "Thinking about money stresses me out," which is attitude variable 12 in Table 5. The dependent variable in this regression is the savings index described in Table 1.

Dependent Variable: Savings Index

Variable	Coeff	StdErr	T-stat	P-value
"Thinking about money stresses me out"	0.250	0.051	4.90	0.0001
Log of income	0.318	0.084	3.77	0.0002
West region	0.284	0.147	1.93	0.0540
Midwest region	-0.089	0.132	-0.68	0.4982
Northeast region	-0.167	0.149	-1.12	0.2639
Years of Education	0.023	0.024	0.97	0.3317
Male	0.094	0.103	0.91	0.3628
Married	0.045	0.123	0.37	0.7121
Black	-0.105	0.192	-0.55	0.5837
Hispanic	0.069	0.260	0.26	0.7924
Native American	0.395	0.533	0.74	0.4595
Asian	0.015	0.331	0.05	0.9626
Home owner	0.164	0.155	1.06	0.2901
Age	0.019	0.022	0.83	0.4051
Age^2	-0.000	0.000	-0.30	0.7643
Intercept	-4.856	0.983	-4.94	0.0001

325 observations, adjusted r-squared = 19.3%

Coding: strongly agree = 2, agree = 1 neither agree nor disagree = 0, disagree = -1, strongly disagree = -2

Table 5 - Savings Attitude Regressions (part 1)

Table 5 reports response frequencies and savings index regression coefficients for 34 questions about savings attitudes. The text of each question is listed in the table, and the response categories for each question (except for number 9) include strongly agree, agree, neigher agree nor disagree, disagree, and strongly disagree. The percentage of respondents giving each response appears in columns two through six. The reported percentages generally do not sum to 100 percent because some respondents do not answer each question. The last four columns report savings index regression coefficients and p-values for the test that each coefficient is equal to zero. Each of the savings index regressions includes all of the variables in the regression reported in Table 4, but only the coefficient for the attitudinal variable is reported for brevity. The regressions are run with both the fulll savings index described in Table 1 and with an index created with just the four hypothetical 401(k) questions. Both indices are normalized to have a variance of one. In the regressions, responses of strongly disagree are given a value of -2, responses of strongly agree are given a value of 2, and all other responses are given corrresponding values between -2 and 2. Most of the regressions have about 320 data points.

No	Question	Response Categories					Full Factor		401(k) Factor	
		SA	A	N	D	SD	Coeff	p-value	Coeff	p-value
	Group A: Self-Control and Self-Management									
1	I have problems with self control.	0.5	10.2	6.5	68.7	11.3	-0.062	0.3604	-0.013	0.8529
2	I often make impulse purchases.	2.7	25.1	7.3	50.7	11.1	-0.097	0.0534	-0.061	0.2243
3	Breaking a rule gives me a feeling of freedom.	10.0	8.1	65.5	13.5	0.3	-0.022	0.7393	-0.022	0.7501
4	I can stick with a task until it is done, even if it is unpleasant.	16.4	70.6	4.0	5.1	0.8	0.100	0.1801	0.091	0.2328
5	I am very thrifty.	7.8	48.5	14.0	24.5	1.6	0.017	0.7525	-0.010	0.8612
6	Before I buy something, I ask myself if I am really going to use it.	20.2	62.0	4.6	10.2	0.3	0.062	0.3311	0.032	0.6187
7	Before I buy something, I think twice to make sure it is something I really need.	16.4	65.0	4.0	11.9	0.0	0.013	0.8427	-0.001	0.9847
8	Pretending to yourself that you have less money than you really do is a good idea.	3.0	39.4	11.9	37.5	5.4	-0.044	0.3750	-0.031	0.5380
	Group B: Planning, Thinking and Budgeting									
9	How much have you thought about retirement?*	37.7	27.2	15.1	13.5	n.a.*	0.121	0.0193	0.090	0.0803
10	I enjoy planning for activities like vacations well in advance.	30.2	45.3	8.6	10.2	2.7	0.084	0.1090	0.010	0.8442
11	I am good at seeing the big picture.	11.9	71.7	6.5	6.5	0.5	0.055	0.4730	-0.044	0.5663
12	Thinking about money stresses me out.	3.0	25.9	7.6	54.7	6.2	-0.250	0.0001	-0.165	0.0018
13	I often wonder, "Where did all my money go?"	5.4	35.0	7.0	42.9	7.0	-0.100	0.0383	-0.054	0.2662

* response categories for this question are "a lot, some, a little, and hardly at all."

Table 5 - Savings Attitude Regressions (part 2)

No	Question	Response Categories					Full Factor		401(k) Factor	
		SA	A	N	D	SD	Coeff	p-value	Coeff	p-value
	Group C: Institutional Trust and Reliance on Others									
14	If I try to save through financial institutions, someone is likely to figure out a way to cheat me out of the money.	4.3	9.4	14.3	48.3	20.2	-0.117	0.0347	-0.124	0.0247
15	Whether for political or other reasons, the US government will always make sure that senior citizens have basic food, shelter, clothing, and medical care.	5.7	37.5	12.1	32.6	9.4	0.090	0.0491	0.059	0.2036
16	Even in the worst case, I will be okay financially when I am old because I will have government programs to fall back on.	1.9	11.9	11.1	55.5	16.7	0.067	0.2522	0.035	0.5570
17	My children will make sure I am okay financially when I am old.	11.8	43.6	17.5	23.2	3.2	-0.048	0.3891	-0.053	0.3587
	Group D: Attitudes Toward Being Careful with Money									
18	Money doesn't buy happiness.	33.7	49.6	5.7	6.5	1.4	0.100	0.0949	0.089	0.1387
19	Thinking about money all the time, even when you have enough, is a terrible way to live.	15.1	65.2	4.0	10.8	2.2	0.026	0.6734	0.045	0.4601
20	It is nice to have money saved up, but you have to live.	9.7	73.1	7.0	7.3	0.3	-0.168	0.0229	-0.130	0.0873
21	I would hate to have someone think that I am stingy with my money.	3.8	40.2	14.0	35.9	3.5	-0.033	0.5206	-0.053	0.3103
	Group E: Attitudes Toward Saving									
22	Most Americans save too little.	20.0	68.2	4.9	3.8	0.5	0.119	0.1542	0.060	0.4695
23	Most Americans borrow too much.	25.9	64.4	3.8	2.7	0.3	0.122	0.1424	0.083	0.3260
24	I really respect people who have managed to save a lot of money.	21.0	64.7	7.3	3.8	0.3	-0.047	0.5370	-0.059	0.4484
	Group F: Social Pressure									
25	My parents or guardians encouraged me to save.	21.3	53.9	5.4	13.5	2.7	-0.040	0.4479	-0.049	0.3566
26	When I was growing up, my parents were good at saving their money.	12.9	46.4	5.9	25.9	5.7	-0.050	0.2748	-0.048	0.2947
27	I would hate to have people think I am careless with money.	13.5	54.5	14.6	11.3	3.2	-0.035	0.5271	-0.039	0.4857
28	I would feel guilty about going bankrupt, even if I had to.	30.2	47.4	5.7	12.1	1.9	0.033	0.5459	0.047	0.3854
	Group G: Strong Judgements									
29	People who dont save for retirement are being irresponsible.	24.5	51.2	5.4	15.4	0.8	0.198	0.0004	0.146	0.0089
30	Using a credit card without paying off the balance every month is really stupid.	21.3	47.2	8.1	19.4	1.1	0.103	0.0423	0.082	0.1090
	Group H: Fatalism									
31	If you don't let yourself get too worried, everything tends to work out in the end.	6.7	45.0	10.5	32.6	2.4	-0.084	0.0889	-0.045	0.3733
32	No one can predict the future, so trying to save doesn't do much good.	0.8	4.9	2.2	61.7	27.8	-0.365	0.0001	-0.293	0.0001
	Group I: Locus of Control									
33	It is difficult to stay ahead financially because of the things my family members want to buy.	1.1	23.7	10.8	52.8	8.1	-0.176	0.0010	-0.129	0.0179
34	Many of the things that keep me from saving more money are out of my control.	6.7	42.6	5.1	38.5	4.3	-0.175	0.0002	-0.126	0.0088