

Taste for Planning, Financial Planning and Wealth

PRELIMINARY AND INCOMPLETE– PLEASE DO NOT CITE

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1 Introduction

Research on retirement planning has uncovered a number of areas in which behavior does not match traditional economic models. In particular, many Americans may not save enough to maintain consumption levels after retirement (Moore and Mitchell 1997). As the Baby Boomers retire and the tax base for Social Security is stretched thin, policymakers need to know whether and how to promote increased private saving. Understanding how people make long-term saving decisions is a key first step in ensuring sufficient saving for retirement.

Several recent papers have found a link between financial literacy, financial planning behavior, and retirement wealth (Ameriks, Caplin and Leahy 2003, Lusardi 2003, Lusardi and Mitchell 2007). If financial literacy and financial planning increase retirement wealth, then people with low levels of both must not be saving enough, or not saving efficiently. However, establishing a causal relationship is complicated as wealth may affect both financial literacy and financial planning by increasing the amount of time spent managing investments. All three could result from low discount rates causing greater preference for saving and higher human capital investment.

Ameriks et al. (2003) introduced an instrumental variables approach exploiting some individuals' "propensity to plan," using vacation planning preferences and mathematical ability to identify a strong causal effect of financial planning on wealth. In this paper, I develop a "taste for planning" approach to identifying the effect of financial planning on wealth along similar lines to Ameriks et al's "propensity." I put particular emphasis on instrument exogeneity and accounting for pension and Social Security as well as financial wealth. I additionally compare different planning activities to investigate possible mechanisms for this effect.

I find that planning activities more likely to increase saving than interest rates contribute significantly to wealth accumulation. Implications for models of intertemporal choice and

retirement saving policy are explored in the conclusions. I do not attempt to estimate “optimal” wealth, as it is extraordinarily difficult to do well and beyond the scope of this research. See Scholz and Seshadri (2008) for a discussion of some of the difficulties attending this problem.

2 Relevant Literature

Researchers began to investigate the possibility that Baby Boomers might not be saving enough for retirement in the 1990s, with Laibson (1997) instigating attempts to explain a general lack of saving. Work by Moore and Mitchell (1997) focused on the diversity of saving patterns. While the median household did slightly under-save according to their measure, they found that some households saved more than the required amount while others fell far below it.

One explanation for undersaving is that some people lack financial knowledge. Eisenstein and Hoch (2007) find that people without financial training consistently underestimate interest compounding, which could lead them to save too little early in life. Meanwhile, Haider and Mel Stephens (2006) suggests that people don’t even know what they have. The authors found a strong correlation between expected savings and actual retirement wealth in panel data, but a large share of respondents significantly overestimated their wealth.

These results raise the question of whether greater financial education or emphasis on saving could improve saving rates. Two papers have looked for effects of employer-based financial education on planning and wealth (Bernheim and Garrett 1996, Bayer, Bernheim and Scholz 2008). Both find a positive correlation between employers offering retirement planning seminars and savings plan participation and contribution rates, but are unable to rule out self-selection as a cause.

Other researchers have investigated the effect of planning and financial literacy on retire-

ment saving using instrumental variables techniques to exclude the possibility that wealth increases financial planning and literacy. This is the method of Lusardi (2003), Ameriks et al. (2003), and (Lusardi and Mitchell 2007). All find strong effects of planning on wealth. However, there are important sources of potential bias in each study.

Lusardi (2003) used Health and Retirement Survey questions asking, for example, how much respondents had thought about retirement, to show that people differed in their retirement planning behavior and that planning predicted wealth. She also introduced the use of instrumental variables in teasing out the relationship between planning and wealth, positing that having older family members might cause one to start thinking about retirement at a younger age. Ameriks et al. (2003) argue that this instrument may be associated with expected wealth if parental bequests are split unevenly between their children or if younger siblings tend to provide care for their older siblings as they age.

Lusardi and Mitchell (2007) concentrate on the effect of financial literacy, which they find increases retirement planning. After reporting a strong correlation of planning with wealth, they attempt to exclude reverse causality by testing the effect of wealth on planning using regional house price changes as instruments representing exogenous changes in wealth. They find zero or negative effects of wealth on planning. However, changes in housing wealth, especially during periods of volatility, may not impact planning in the same way as financial wealth.

Ameriks et al. (2003) provides the basis for my empirical strategy. This paper contributed the concept of “propensity to plan,” defined as attitudes and skills related to financial planning, as an exogenous-to-wealth source of variation in planning. It tests inclusion of key elements of the classical model in the estimation equation, in particular the discount factor, bequest motive, risk aversion, and precautionary saving. The large, positive effect of planning on wealth is robust to these elements. Identification relies on the assumption that planning vacations ahead and mathematical ability are not otherwise associated with wealth.

However, there is room for doubt concerning the validity of the instruments as people are more likely to plan vacations ahead if they can afford activities and restaurants, and math skills may help people make better investments.

In summary, the existing literature finds large effects of financial planning and literacy and wealth, although with somewhat unconvincing identification. To my knowledge, no previous paper on this topic investigates effects of a variety of planning activities or mechanisms for the effect of planning.

3 Empirical Strategy

3.1 Theory of planning and wealth

For clarity, I precede the empirical model with a more general one defining the relationship between wealth, planning, and the taste for planning.

Assume two periods, work and retirement. Let the individual sum utility over those two periods

$$U = u(c_0, \alpha p, l_0) + \beta u(c_1, l_1)$$

where c is consumption, p planning, l leisure, and α taste for planning. Utility is subject to budget constraints on consumption

$$R(p)(Y + w_0 - c_0) \geq c_1$$

and time

$$T_0 = p + l_0, T_1 = l_1$$

where R is 1 plus the individual's rate of return on investments, Y income, and w_0 the individual's wealth endowment in the first period. T represents the individual's endowment

of free time. Note that the rate of return depends on planning. T , p , and l must all be positive. Taste for planning α may be positive or negative. The time available for leisure or planning, initial wealth, and income are exogenous, as I do not attempt to model employment decisions.

The individual maximizes utility with respect to consumption and planning. From the first order conditions, we get

$$u'_c(c_1, T_1) = \frac{u'_c(c_0, \alpha p, l_0)}{\beta R(p)} \quad (1)$$

and

$$u'_l(c_0, \alpha p, l_0) = \alpha u'_{\alpha p}(c_0, \alpha p, l_0) + R'_p \beta (Y + w_0 - c_0) u'_c(c_1, T_1) \quad (2)$$

My derivation is presented in the appendix.

Let the utility function be separable into consumption utility and time utility. Then we can define second-period consumption (which by Appendix Equation 11 is equivalent to wealth at retirement) as a function of planning and planning as a function of taste for planning.

$$u'_c(c_1) = \frac{u'_c(c_0)}{\beta R(p)} \quad (3)$$

$$u'_l(\alpha p, l_0) = \alpha u'_{\alpha p}(\alpha p, l_0) + R'_p \beta (Y + w_0 - c_0) u'_c(c_1) \quad (4)$$

Different types of planning might have different effects on the actual rate of return, informing the individual about investment options to different degrees. For example, talking to friends and family about the future might have low R'_p , whereas talking to a financial planner might have high R'_p . From Equation 4, we can expect the use of planning methods with high R'_p to respond more to income and wealth, while those with low R'_p might depend more on the individual's taste for planning.

If the utility function is not separable, high α would induce higher saving in Equation 1 because it increases total utility at a given level of planning in the first period, reducing the marginal utility of consumption. Realistically, consumption utility is likely to dwarf planning utility, making this effect negligible. Nevertheless, if utility is not separable then the instrument may be invalid to a small degree. Future versions of this paper will expand on how this model informs the empirical strategy.

3.1.1 Mechanisms

I have modeled financial planning as potentially increasing retirement wealth by increasing the interest rate. It may be more realistic to suppose that planning uncovers some information that leads the individual to increase saving, for example a better understanding of interest compounding or self-control problems. For the purposes of the identification strategy, these effects are functionally the same. They allow a path for planning to increase future wealth.

However, the question of how planning increases wealth is worth pursuing. The use of different planning activities provides some leverage in determining the mechanisms by which planning affects wealth. Meeting with financial experts and using worksheets might be expected to affect the interest rate attained, while it is difficult to imagine how creating a saving plan could make someone a better investor. Talking to family and friends about could conceivably affect interest rates via information about investing, but is more likely to uncover information concerning self-control problems or the importance of starting to save early, thereby increasing saving rates. This idea is addressed further in the context of the results.

3.2 Empirical Model

The empirical model follows from this concept of financial planning, taste for planning, and wealth. Wealth is a function of planning, but also influences the decision to plan. Taste for planning is used to identify the effect of planning on wealth.

The wealth equation is

$$w = \gamma_0 + \gamma_1' \mathbf{x} + \gamma_2 p + \epsilon_w \quad (5)$$

where w is log of wealth including the present value of expected retirement benefits, \mathbf{x} individual characteristics affecting wealth such as log income, education, and risk aversion, and p is financial planning activities. Planning is determined by

$$p = \beta_0 + \theta_1' \mathbf{x} + \theta_2 w + \theta_3' \mathbf{z} + \epsilon_p \quad (6)$$

with \mathbf{z} including measures of the taste for planning ahead.

3.3 Data

My primary data source will be the HRS (*Health and Retirement Study, public use dataset and restricted Social Security earnings 2009*)¹. The HRS is a panel survey following Americans over 50 years old. It asks detailed questions about health, income, and retirement and has been conducted every two years beginning in 1992, with 2008 being the most recent wave used in this paper. The 1992, 2000, and 2004 waves additionally surveyed sub-samples about financial literacy and retirement plans, while questions on expected living standards in retirement were included in the 1992 wave. This is the same data set used by Scholz, Se-shadri and Khitatrakun (2006), so that I will be able to replicate their measures of additional

¹The HRS is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan. Many of my variables come from the RAND HRS Data Version J, Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration. Santa Monica, CA (March 2010).

benefits etc.

My sample is essentially a cross-section using the 2000 interview wave, but with planning and taste for planning drawn from all the years in which relevant data are available. I believe this is justified because in order to impact wealth significantly, planning must have occurred in the distant past, in which case the year I measure it is irrelevant. Taste for planning is a stable personality trait, so as with planning, when I observe it should not matter.

The planning measures come from modules in the 1992, 2000, and 2004 interview waves. They include “did you try to figure out how much your household would need to save for retirement?” and various methods including “talked to family,” “talked to friends,” “consulted a financial planner or advisor,” and “developed a plan for retirement saving.”

I measure taste for planning using personality or world-view questions including “I enjoy making plans for the future,” “being organized is unimportant to me,” “I prefer not to wander aimlessly through life,” “it is smart to plan ahead,” and self-characterization as “organized,” “systematic,” or “negligent.” These measures also come from various waves.

3.3.1 Lifetime Income

Lifetime income, or permanent income, is the summed present value of year-by-year earnings for respondent and their spouse in the 2000 wave, assuming a 3% annual interest rate, drawn from Social Security earnings records. I obtained detailed earnings, which includes full W2 records for 15,029 consenting respondents in the HRS, CODA/War Baby, 2004, and 2006 permission sets for the years 1980-2006. For the years 1951-1980 I have summary earnings, which includes only Social Security earnings, for the same group.

Social Security earnings records provide the best measure available of lifetime earnings for Americans. However, there are some problems with these data. These include missing data for respondents who did not give permission, under-reported or missing income by the self-employed, government employees, and others not covered by Social Security, and

top-coding of income due to the existence of a maximum taxable amount in many years.

Missing income data is a problem for the external validity of my results to the extent that it correlates with wealth and the instruments or financial planning. Social Security earnings are unavailable for 23% of HRS respondents. The results will not represent government employees or most domestic workers, which is a potential issue for external validity but does not affect the identification strategy. More worrisome are the missing data for individuals who work in covered sectors but did not give permission to access their records. Fortunately, this group is relatively small.

The self-employed may understate or fail to report earnings to the Social Security Administration. Those who fail to report will not be represented in my results, affecting external but not internal validity. Self-employed who report low earnings will also have equivalently reduced Social Security wealth, but may have higher financial wealth than average for their reported income level and may be more likely to enjoy planning to the extent that planning is an important part of being self-employed. This would bias my result towards finding an effect of planning on saving. About 20% of HRS respondents report being self-employed in each wave. This may not correspond precisely with the group that is self-employed earlier in life. Nevertheless, I test dropping this group. The results are essentially unaffected.

To address top-coding, I estimate a Tobit model of earnings for each year on marital status, education, region, ethnicity, birth year, gender, and income decile in the previous 0 (in 1951) to 4 (1955 onward) years. I then substitute predicted income for actual income for top-coded records whenever the latter is higher. Top-coding affects a little under 8% of all earnings records, but nearly 16% of non-zero records.

3.3.2 Wealth measures

Wealth is derived from several sources. The principal ones are the RAND HRS measures of total household financial assets and net worth. These are survey responses, and thus prone

to error. However, the structure of the questions, which ask for the value of many types of wealth individually before summing the results into an overall estimate, should mitigate that error.

In my total net worth measure, I include estimates of the present value of pension wealth from the publicly available HRS Imputations for Pension Wealth dataset version 2.0, released in December 2006. This is derived from a combination of self-reported data and employer data for 41% of respondents. The rest are imputed separately by pension type based on self-report data using regression based nearest neighbor hot-decking. Simple hot-decking and replacement are used for some details with small samples.

Total net worth also includes estimated present value of Social Security wealth from the HRS Prospective Social Security Wealth Measures of Pre-retirees data version 1.0, released in 2009. These data estimate expected Social Security income at various retirement ages for respondents and spouses using the Social Security earnings records, and then calculate the present value of that future income stream. Missing data are imputed using regression based nearest neighbor hot-decking. I use the version assuming retirement at age 65.

I present results for financial assets, total net worth excluding real estate, and total net worth with real estate.

3.3.3 Risk Aversion and Discount Rate

Effectively controlling for risk aversion and discount rates is important because they may be correlated with the instruments I have selected, and should affect wealth accumulation. For this reason I describe my measures in detail.

I use the RAND HRS measure of risk aversion, which is derived from a series of hypothetical questions about taking a job with a risky income stream. A behavioral measure would be preferable, but there is evidence that low risk aversion by this measure predicts risky decisions such as smoking and holding stocks rather than treasury bills (Barsky, Kim-

ball, Juster and Shapiro 1997). This method divides respondents into four categories of risk aversion:

1. Would take a job with even chances of doubling income or cutting it by a half. (12% of sample)
2. Would take a job with even chances of doubling income or cutting it by a third. (11% of sample)
3. Would take a job with even chances of doubling income or cutting it by 20%. (12% of sample)
4. Would take or stay in the job that guaranteed current income given any of the above alternatives. (65% of sample)

For the discount rate, there is no universally applied question in the HRS. In the 1992 wave, a very small sub-sample of respondents were asked a series of hypothetical income stream questions. As a preliminary step, I used those questions to derive an approximate discount rate. I then predicted this discount rate using smoking habits in addition to my other control variables for those respondents who were not part of that sub-sample. Unfortunately my R^2 for the regression of discount rate on smoking and controls is just under 5%, meaning I achieve at best an extremely noisy measure. I plan to improve this in a later version of the paper by estimating the discount rate from lifetime earnings patterns.

4 Results

Table 1 shows the sample selection, which is complicated by the fact that the various measures of planning and taste for planning I use come from different waves and different parts of the survey. In several cases the sources are experimental modules administered to small sub-samples of the HRS population.

Table 1: Sample Selection

Individuals in 2000	19,578				
In age range for income data	12,533				
Non-missing income and wealth	15,832				
Non-missing planning and taste measures:					
	Tried to est.	Talked to	Used calc. or	Saw fin.	Created
	savings	people	worksheet	planner	plan
Enjoy planning	1,653	5,382	496	724	1,167
Organized	1,629	5,347	488	714	1,151
Doesn't value					
being organized	797	2,560	270	326	570
Total	2,091	7,280	586	925	1,453

The result of pulling measures from a variety of years and modules is that I can't form a single sample for all of my analysis. Instead, I define a base sample and then take a sub-sample with non-missing data for each planning measure. These sub-samples are further reduced to those with non-missing data for each instrument. The bottom part of Table 1 shows the number of observations available for each planning measure-instrument pair.

4.1 Sample

4.1.1 Descriptive Statistics

Table 2 shows basic demographics on the sub-sample for each planning measure. They are generally similar, although the "used calculator" group is slightly poorer than the others. The median respondent is female, in her early 60s, married, and has three or more children. She is educated only through high school and earns about \$30,000 a year if she works. Most of her wealth is in pensions and Social Security, followed by real estate.

The table also shows means for the planning and taste measures. The average individual does not participate in any of these financial planning activities. However, a large minority has tried to estimate their savings or created a saving plan. Talking to friends and family

Table 2: Descriptive Statistics for Planning Measure-Specific Samples

		Tried to est. savings	Talked to people	Used calc. or wksheet	Saw fin. planner	Created plan
N		2,091	7,280	586	1,544	1,453
Median age		61	62	61	60	60
Female		57%	58%	58%	56%	56%
Married		74%	76%	76%	73%	73%
Never married		3%	3%	3%	3%	3%
Children	One	9%	8%	9%	10%	10%
	Two	27%	24%	25%	28%	28%
	Three or more	59%	63%	61%	56%	56%
Education	< high school	18%	24%	19%	18%	18%
	HS or GED	38%	37%	37%	37%	37%
	Some college	21%	20%	23%	22%	22%
	College grad	23%	19%	21%	23%	23%
Occupation	Mngr or Prof'l	30%	27%	29%	30%	30%
	Sales	8%	8%	9%	8%	8%
	Clerical	17%	17%	16%	17%	17%
Retired		43%	46%	42%	42%	42%
DB plan		15%	12%	15%	17%	17%
Median wealth	Financial assets	\$35,200	\$30,900	\$27,000	\$42,650	\$31,650
	Non-hou. net worth	\$392,624	\$373,596	\$356,381	\$375,113	\$375,113
	Primary home value	\$94,000	\$90,000	\$90,000	\$90,000	\$90,000
Own home		86%	84%	86%	86%	86%
Median income if not retired		\$28,000	\$27,000	\$28,000	\$29,000	\$29,000
Planning	Tried to est. savings	37%	37%	36%	38%	38%
	Talked to people	32%	27%	26%	34%	35%
	Used calc. or wksheet	12%	10%	12%	12%	12%
	Saw fin. planner	21%	22%	13%	13%	21%
	Created plan	32%	33%	21%	32%	32%
Mean of planning taste measures where 0=strongly disagree, 1=strongly agree						
Enjoy planning		0.77	0.75	0.77	0.77	0.77
Organized		0.96	0.95	0.95	0.95	0.95
Doesn't value org.		0.28	0.28	0.28	0.27	0.27

about retirement was also popular. Fewer participants said they had used calculators or worksheets to estimate needed savings or talked to financial planners.

All the taste measures I use are ordinal. For ease of comparison, I have set the scale from zero to one for each measure, where zero represents strong disagreement and one represents strong agreement. Most people say they enjoy planning, are very organized, and value being organized, despite the lack of planning activity discussed above. These may be noisy measures of the taste for planning.

4.2 Main Results

I show results for two different measures of wealth. Financial assets are the dependent variable in Table 3, and net worth including real estate as well as pensions and Social Security in Table 4. The wealth measure matters for the magnitude of the effect of planning, though not for its sign.

4.2.1 OLS and IV Results

“Enjoy planning” is by far the most relevant instrument. I include results using “organized” as the second-most relevant instrument. Not shown here are results using “being organized is unimportant,” “prefer not to wander aimlessly through life,” and groups of instruments with samples that overlap to some extent.

Most of these instruments turned out to be weak predictors of most or all planning activities. This is most true for seeing a financial planner; for this planning measure, no instrument or group of instruments has a first-stage F-statistic of more than 5, and only one of the first-stage coefficients is significant at even the 10% level. For this reason I will generally exclude financial planning from the discussion. Using a calculator or worksheet are reasonably predicted (first stage coefficients significant at 5% level and F-statistic over

Table 3: OLS and IV regressions of total financial assets on planning measures

Dependent variable: financial assets		(I)	(II)	(III)	(IV)	(V)
Planning measure		Tried to est. savings	Talked to people	Used calc. or wksheet	Saw fin. planner	Created plan
OLS	Coefficient	0.723*** (0.142)	0.535*** (0.0881)	0.722** (0.318)	1.073*** (0.199)	0.950*** (0.185)
IV: Enjoy planning	Coefficient	8.077*** (2.526)	11.30*** (3.603)	12.80** (6.295)	21.13* (11.62)	8.611*** (3.308)
	1st stage coeff on inst't	0.193*** (0.048)	0.085*** (0.024)	0.141** (0.059)	0.072* (0.043)	0.176*** (0.055)
	1st stage F	16.90	12.98	7.59	3.73	10.57
IV: Organized	Coefficient	4.879* (2.889)	23.81 (28.93)	16.10 (14.17)	14.15 (8.985)	7.223* (4.268)
	1st stage coeff on inst't	0.163*** (0.057)	0.024 (0.029)	0.078 (0.068)	0.070 (0.048)	0.138** (0.063)
	1st stage F	11.67	0.72	3.55	4.97	7.46

Significance according to heteroscedasticity-robust standard errors

* $p < .01$ ** $p < .05$ *** $p < .01$. Standard errors in parentheses.

All specifications include controls for quadratic age plus a dummy for over 65, some college, nonwhite, married, female, no kids, two and three or more kids, retirement status and years retired, medium and low risk aversion, and predicted discount rate

7) by enjoying planning, and each of the other planning measures is well predicted (first stage coefficients significant at 5% level and F-statistic over 10) by enjoying planning. Being organized is most relevant for making a saving plan and attempting to estimate savings needed for retirement.

Clearly, financial planning activities increase wealth accumulation. The IV estimates are much higher than the OLS estimates, suggesting that increased wealth may decrease planning. The impact of planning is apparent in both financial assets and total net worth including real estate and Social Security and pension wealth.

Table 4: OLS and IV regressions of total net worth on planning measures

Dependent variable: total net worth, including real estate, pension and Social Security wealth		(I)	(II)	(III)	(IV)	(V)
Planning measure		Tried to est. savings	Talked to people	Used calc. or wksheet	Saw fin. planner	Created plan
OLS	Coefficient	0.576*** (0.122)	0.281*** (0.069)	0.627** (0.246)	0.845*** (0.137)	0.647*** (0.160)
IV: Enjoy planning	Coefficient	5.981*** (2.204)	11.87*** (3.744)	9.024 (5.598)	16.76* (10.01)	6.828** (3.173)
	1st stage coeff on inst't	0.193*** (0.048)	0.085*** (0.024)	0.141** (0.059)	0.072* (0.043)	0.176*** (0.055)
	1st stage F	16.90	12.98	7.59	3.73	10.57
IV: Organized	Coefficient	2.891 (2.519)	20.08 (24.17)	1.190 (8.807)	9.868 (7.484)	5.036 (3.667)
	1st stage coeff on inst't	0.163*** (0.057)	0.024 (0.029)	0.078 (0.068)	0.070 (0.048)	0.138** (0.062)
	1st stage F	11.67	0.72	3.55	4.97	7.46

Significance according to heteroscedasticity-robust standard errors

* $p < .01$ ** $p < .05$ *** $p < .01$. Standard errors in parentheses.

All specifications include controls for quadratic age plus a dummy for over 65, less than high school, some college, college graduate, nonwhite, married, female, no kids, two and three or more kids, retirement status and years retired, medium and low risk aversion, and predicted discount rate

5 Discussion

5.1 No cheap talk

The OLS coefficients for the different planning activities indicate a clear hierarchy in line with the model's predictions for planning methods with high versus low R'_p . The coefficients on planning measure the marginal effect of planning on wealth, and are proportional to R'_p . Seeing a financial planner is most effective, followed by creating a specific saving plan, and then attempting to create a saving plan or using a calculator or worksheet. Talking to family or friends about retirement is least effective.

The magnitudes of the IV results tell a very different story. In particular, talking to people about retirement does not appear to increase wealth less than the other planning methods. In fact, under all the instruments and wealth measures I used it increases total net worth more than making a saving plan or attempting to estimate savings.

This result raises questions about the point of financial planning. If talking to friends and family increases wealth about as much as making a specific plan or seeing a financial planner, why does anyone sit through the trouble of making a plan or pay for a financial planner? Are the methods useful in addressing different needs, or merely favored by different types of people? I am unable to answer all of these questions, but I will discuss them to the extent possible with these data. However, first it is necessary to establish that the estimates accurately depict the effects of different types of planning.

5.2 Correlations between planning measures

The similar measured effects of different planning methods could be explained by high correlations between methods. For example, if most people who talk to family and friends about retirement also make a saving plan and vice versa, then we would expect to see similar results

for the two. In fact, the planning measures are all significantly correlated with one another, with the exception that talking to family and friends is not correlated with using a calculator or worksheet.

I was unable to find an elegant test for whether these correlations were driving the results. The need to instrument separately for each planning measure combined with the shortage of good instruments and the fact that most come from separate, small experimental modules made a horse-race style test impossible. Furthermore, all the planning measures in the 2004 module mechanically predict estimating savings because of the way the questionnaire is structured. Identifying separate effects for those measures is infeasible.

However, I was able to treat making a specific saving plan, seeing a financial planner, and using a calculator or worksheet as control variables in regressions of wealth on talking to family and friends. That is, I regressed wealth on talking to family and friends, making a specific saving plan, seeing a financial planner, using a calculator or worksheet, and the full set of controls, with enjoying planning as the excluded instrument for talking to family and friends. If the other planning methods were driving the apparent effect of talking to family and friends on wealth then I would expect zero coefficients on talking to family and friends. In fact, I still found large, although very imprecise, effects of talking to family and friends. This result suggests that correlations between planning measures are not driving the large effect of talking to family and friends about retirement on wealth.

5.3 IV coefficients larger than OLS

The OLS coefficients imply planning increases total net worth by 28%-85%. The IV approach increases the measured effect of planning on total net worth a thousand-fold, with estimates using reasonably strong instruments ranging from nearly 300%-1200%. To put this in context, Ameriks et al. (2003), using a similar empirical setup including closely related

planning and control variables, find OLS planning effects of 16% and IV effects of 32% on net wealth. The sign of the OLS-IV difference is the same, but the magnitude of the difference is much larger in this paper. The much-larger magnitude in this paper could be due to the choice of instrument or to differences in the sampled population.

The sample used in Ameriks et al. (2003) has much higher average education and income than the HRS sample. As high-income and high-education individuals on average save more and get higher rates of return (Lusardi and Mitchell 2007), planning might simply have a smaller effect on their wealth accumulation.

Ameriks et al use tendency to plan vacations ahead of time to instrument for planning. This may be caused by higher wealth to the extent that higher wealth enables types of vacations that require more planning. If the Ameriks et al instrument is less valid than enjoying planning, and wealth decreases planning, then we might expect the Ameriks et al IV coefficient to be biased down. Alternatively, my instruments may indicate higher returns to planning (in terms of eventual wealth) as well as predicting retirement planning activity, which would create upward bias in the IV coefficients. This idea is addressed below in Section 5.4.

Despite differences between this paper and Ameriks et al. (2003), both find that instrumental variables estimates of the effect of financial planning on wealth are larger than OLS estimates. Downward bias in OLS could be driven by individuals with exogenously high wealth who don't need to think about saving, and therefore do not plan. I assessed this possibility by estimating models excluding the top 10% of wealthy individuals. The results are similar to Tables 3 through 4, suggesting that the IV-OLS difference is not driven by extremely high wealth leading people not to plan.

This leaves two possibilities. First, wealth may generally decrease rather than increase planning. Intuitively, the more wealth one has relative to income, the less need one might feel to plan savings. Second, personality-based instruments such as tending to plan vacations,

enjoying planning ahead, or being organized, may all be associated with higher returns to planning.

5.4 Planning personality, self control, and high returns to planning

If taste for planning also indicates ability at planning (such as through unusually high dedication to any planning method attempted), then the measured effect of planning on wealth in the IV specifications could represent a specific group of people who get extremely high wealth effects from any type of financial planning activity.

Alternatively, taste for planning could be related to high self control, and thereby correlated with high saving rates. In this case, taste for planning belongs in the main equation and is invalid as an instrument for planning. In a future version of this paper, I will test this possibility.

5.5 Mechanisms for the planning effect

Assuming the IV coefficients are broadly accurate, what can we say with respect to the mechanism by which planning affects wealth? One possibility is that planning may increase the rate of return on savings by providing information about returns associated with different investments. In order to address this, we need to know something about the relationship between planning methods and different investment types. Table 5 shows the results of some simple regressions of investment choices on planning. The dependent variable in each column is the asset's share of the household's total financial assets.

Stocks average higher rates of return than CDs, bonds, and T-bills. Checking and saving accounts typically have extremely low rates of return. I control for risk aversion to avoid omitted variable bias from any association between planning method and risk aversion. The

Table 5: OLS models of financial asset holdings on planning

Dependent variable: asset share of total financial assets				
		(I)	(II)	(III)
	N	Stocks	Checking and saving accounts	CDs, gov't saving bonds, T-bills
Tried to est. savings	2,075	-0.016 (0.013)	-0.015 (0.013)	-0.012 (0.008)
Talked to people	7,080	-0.015** (0.007)	-0.027*** (0.008)	0.007 (0.005)
Used calc. or wksheet	552	0.071** (0.035)	-0.011 (0.037)	-0.017 (0.025)
Saw fin. planner	928	0.023 (0.023)	-0.045** (0.023)	-0.031** (0.015)
Created plan	1,439	-0.003 (0.016)	-0.021 (0.016)	-0.007 (0.010)

Significance according to heteroscedasticity-robust standard errors

* $p < .01$ ** $p < .05$ *** $p < .01$. Standard errors in parentheses.

All specifications include controls for quadratic age plus a dummy for over 65, some college, nonwhite, married, female, no kids, two and three or more kids, retirement status and years retired, log of total financial assets and risk aversion

results for attempting or succeeding in creating a saving plan and talking to family or friends are mixed. Using a calculator or worksheet and seeing a financial planner both appear to increase investment in stocks relative to checking or saving accounts and CDs, bonds, and T-bills. This result suggest that using a calculator or seeing a financial planner might act by increasing interest rates, whereas saving plans and talking to people act through some other mechanism.

The importance in Tables 3 and 4 of talking to people or specific saving plan supports suggests that planning does not simply convey information about investments, but also has an effect on saving rates.

There are several ways that planning could increase wealth by increasing the saving rate. For example, the activities identified here as “planning” may be commitment mechanisms, designed to aid self-control and thereby save more. The fact that talking to people about

retirement is more effective at increasing wealth than making a saving plan provides support for this idea. Someone who has talked to his friends and family about his saving plans may feel more pressure to follow through than someone who has simply written down a plan. However, there is no way in these data to test the commitment value of different planning methods.

Planning could also increase saving if it is the process by which an individual refines their expected utility maximization. That is, someone who does not plan may choose a saving rate based on a rule of thumb while someone who does may be able to make a more individualized optimal choice. Again, however, other data would be required to find out which planning methods are best for refining expected utility.

5.6 Different plans for different folks?

Do circumstances or personality determine choice of planning method(s)? Different planning methods might address different needs. Someone with high financial knowledge might be comfortable making a plan themselves, while someone with low financial knowledge might seek information from friends and family or from a financial planner. Planning methods might also differ in terms of their monetary and time cost. Someone with a high value of time might choose to see a financial planner if that is an expensive but quick planning method. Talking to friends and family or making one's own saving plan might cost time but little or no money. Future versions of this paper will test these hypotheses by regressing planning choice on demographic variables including financial literacy and education to represent knowledge, and earnings and number of children to represent value of time.

6 Conclusions

This paper finds strong effects of financial planning activities on wealth accumulation. This result is not limited to planning methods that affect interest rates, but is large and significant for activities such as talking to family and friends about retirement or trying to estimate the savings needed to retire. The latter activities seem likely to lead to higher saving rates rather than higher returns. In terms of policy, these results raise the possibility that providing key information about saving could dramatically increase welfare.

The most obvious implication of these results is that people who think seriously about retirement save more. Existing research on decision-making behavior and financial knowledge provides a number of possible ways this could occur. Eisenstein and Hoch (2007) show that people without financial training consistently underestimate the value of compounding interest, which could lead them to save too little, too late. Various self-control models explore how myopia concerning one's own future tastes could cause undersaving. If people can learn something about the human tendency to procrastinate by talking to family and friends about retirement, it could explain the effect of talking to people on wealth accumulation. Lack of knowledge about the extent of benefits such as Social Security and company pension plans is rampant (Gustman, Steinmeier and Tabatabai 2010), and might also cause people to under-save if they tend to overestimate the income they will receive. Each of these possible faults is supported by evidence. More research is needed to determine the mechanisms by which planning increases saving.

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7 Mathematical Appendix

The individual's decision problem is

$$\max_{c_0, p_0} U = u(c_0, \alpha p, l_0) + \beta u(c_1, l_1) \quad (7)$$

where c is consumption, p planning, l leisure, and α taste for planning. Utility is subject to budget constraints on consumption

$$R(p)(Y + w_0 - c_0) \geq c_1$$

and time

$$T_0 = p + l_0, T_1 = l_1$$

$$T \geq 0, p \geq 0, l \geq 0$$

where R is 1 plus the interest rate, Y income, and w_0 the individual's wealth endowment in the first period. T represents the individual's endowment of free time.

Substituting in the time constraints, the Lagrangian for this problem is

$$L = u(c_0, \alpha p, T_0 - p) + \beta u(c_1, T_1) - \lambda (R(p)(Y + w_0 - c_0) - c_1) \quad (8)$$

The first order conditions are

$$c_0 : u'_c(c_0, \alpha p, l_0) + \beta c'_{1c_0} u'_c(c_1, T_1) = -\lambda (R(p) + c'_{1c_0}) \quad (9)$$

$$p_0 : \alpha u'_{\alpha p}(c_0, \alpha p, l_0) - u'_l(c_0, \alpha p, l_0) + \beta c'_{1p} u'_c(c_1, T_1) = \lambda (R'_p(Y + w_0 - c_0) - c'_{1p}) \quad (10)$$

$$\lambda : R(p)(Y + w_0 - c_0) = c_1 \quad (11)$$

From Equation 11 we can derive

$$c'_{1c_0} = -R(p)$$

$$c'_{1p} = R'_p(Y + w_0 - c_0)$$

Plugging these results into Equations 9 and 10 and rearranging terms gives

$$u'_c(c_0, \alpha p, l_0) = -\lambda (c'_{1c_0} - c'_{1c_0}) + \beta R(p) u'_c(c_1, T_1)$$

$$\alpha u'_{\alpha p}(c_0, \alpha p, l_0) - u'_l(c_0, \alpha p, l_0) + \beta R'_p(Y + w_0 - c_0) u'_c(c_1, T_1) = \lambda (c'_{1p} - c'_{1p})$$

which simplifies to

$$u'_c(c_0, \alpha p, l_0) = \beta R(p) u'_c(c_1, T_1) \tag{12}$$

$$\alpha u'_{\alpha p}(c_0, \alpha p, l_0) + \beta R'_p(Y + w_0 - c_0) u'_c(c_1, T_1) = u'_l(c_0, \alpha p, l_0) \tag{13}$$

These equations can be rearranged into Equations 1 and 2