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The savings and investment decisions of planners: a cross-sectional study of college employees

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Abstract

We report the results of a survey of college employees who are eligible for their institution's 403(b) plan. We evaluate each employee's "propensity to plan," which is found to be driven by a single psychological factor. Pension contributions are positively correlated with the propensity to plan. Other demographic attributes such as gender, marital status, age, and salary also matter. Surprisingly, men saved less than women did. We also created a subjective risk-tolerance score for each participant, and conclude that those with a higher propensity to plan are more risk tolerant. Risk taking is positively associated with income, and (surprisingly) negatively associated with age. © 2007 Academy of Financial Services. All rights reserved.

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1. Introduction

As the world is moving from defined benefit (DB) to defined contribution (DC) pension plans, the burden of making judicious savings and investment decisions has now shifted from employers to employees (Mitchell & Utkus, 2004). In DB plans, employers promise a fixed monthly benefit amount to their employees according to a formula. In so doing, the employer assumes the risk of poor investment returns. In DC plans, on the other hand, employees

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decide where and how much to invest. In most DC plans, the employer contributes some or all of the funds into the plan. In the United States, the move towards DCs is evidenced by the fact that more than 25 million employees are now enrolled in 401(k) plans, with the total invested exceeding $1 trillion (Agnew, Balduzzi & Sunden, 2003).[1] In short, we are moving toward a society of employee investors.

The ability to successfully invest in DC retirement plans requires that individuals understand and follow rational consumption and savings programs. The life-cycle model of savings proposed by Modigliani and Brumberg (1954) assumes that individuals make rational choices, and plan their consumption and savings by considering their needs at different ages. Because research has demonstrated that retirement investment decisions are influenced by the tendency to procrastinate and lack of self-control (Laibson, 1997; O'Donoghue & Rabin, 1999), the unfortunate result is insufficient saving.

Although most observers would agree that investing for retirement, given its long-term nature, cries out for some exposure to equity investments despite the risk, the reality is that many people have problems deciding how much risk to assume in their portfolios. In a survey of University of California employees, when respondents were told to hypothetically allocate their money among several funds, Benartzi and Thaler (2001) found that the typical resultant equity exposure was positively correlated with the percentage of funds that were stock-based. Although actual, rather than hypothetical, behavior may be somewhat better (Huberman & Jiang, 2006), the obvious inference is that confused respondents allowed the menu of options to impact their asset allocation decisions.

Not all employee investors are having problems in equal measure. Salient demographic differences can sometimes be explanatory. For example, researchers have found that plan participation and contribution rates increase with age and income (Bassett, Fleming & Rodrigues, 1998; Holden & VanDerhei, 2001). The same two variables are associated with a comfort for bearing risk, with younger, higher-earning individuals taking on more risk (Agnew et al., 2003). Still, Hubbard and Skinner (1996) stress that there exists a wide variation in behavior among people who are of similar age and income. That is, certain demographic characteristics, while associated with financial sophistication, are not perfect predictors of it.

Researchers are starting to accord attention to personality and psychology in an attempt to understand the forces driving savings and investment decisions. For example, Statman and Wood (2004) stress the advantage of investigating investment temperament for a better understanding of financial "goals, hopes, and fears," and recommend the Keirsey Temperament Sorter for this purpose.[2] Marconi and Utkus (2002) employ cluster analysis to attitudinally segment retirement plan members into five groups based on their "money attitudes." These groups can easily be put on a planning-avoidance continuum. At one endpoint are consummate "planners," who are motivated and at ease with their investment decisions. "Avoiders," on the other hand, feel uncomfortable in making financial decisions, which often results in procrastination and avoidance in facing these decisions.

If planners actively consider their financial future and the adequacy of their current state of preparedness, they are likely to take steps when any deficiency is detected. Indeed, Ameriks, Caplin and Leahy (2003) document that those with a planner mindset, which, in their usage, is tantamount to a high propensity to plan (hereafter PP), tend to be much better

at wealth accumulation. Yet little is known about their ongoing savings and investment decisions. How much do planners and avoiders save? Is one group more comfortable than the other in incorporating risk in their retirement portfolios? What characteristics do planners exhibit? These are the important questions we explore.

In this paper, we report the results of an exploratory study based on a survey of college employees eligible to participate in a 403(b) retirement savings program. In Section 2, we describe the survey instrument and show that a series of questions designed to investigate PP is driven by a single planning factor. Section 3 explores the demographic determinants of the propensity to plan. Section 4 provides evidence that planners save more and assume more risk. Finally, Section 5 offers some conclusions.

2. Survey instrument and the propensity to plan

Early in 2006, we conducted a survey of faculty and staff at an American college that provides a 403(b) defined contribution plan as its only pension alternative. Demographic data pertaining to age, gender, marital status, employee status (faculty vs. staff), salary, and pension contributions were obtained from the college's human resource department for all 479 employees. The survey was completed by 236 employees, yielding a response rate of 49%.[3] As an incentive to participate in the survey, participants were given a chance to win cash through a random lottery.[4] The survey, reproduced in full in the Appendix, consisted of 19 questions. Aside from various questions relating to additional demographic attributes, pension history, investment behavior, and risk tolerance, six questions were specifically designed to explore the propensity to plan. The latter questions dealt with such characteristics as perceived knowledge and skill, overall interest in personal finance, and the tendency to procrastinate.

A cursory examination of the demographic data both from the population and from the sample in the survey (as presented in Appendix Table 1) indicates that those responding to the survey were in large part representative of the population, thereby minimizing the concern for self-selection bias. For example, the mean population/sample age and contribution rates were 49/49 years and 9%/10%, respectively. Men, however, were slightly less likely to participate (41% in the sample vs. 46% in the population).

Appendix Table 2 shows that the vast majority of employees invested some money in the college-sponsored 403(b) plan. Indeed, out of 236 respondents, only 28 people (11.9%) indicated that they did not take full advantage of matching contributions from the college. People who did not participate were asked why and were given alternatives from which to choose. Appendix Table 3A shows that "can't afford it" was cited as the most common reason. Beyond the matching-contribution threshold, however, there was wide variation in savings rates.[5] Few respondents were vested in a DB plan from a prior employer (18%); less than half had a DC plan from another employer (24%); and a solid majority expected their employment pension plan to provide the largest proportion of their retirement income (78%). The average 403(b) account balance of survey participants was $69,000. The majority of participants indicated that they make additional investments outside their 403(b) accounts (52%).

Like several prior studies, we calculated a score designed to estimate risk tolerance (RT) based on survey responses. The responses to three different questions were assigned points and an RT score calculated as the sum of all points. Based on the resultant score, individuals were mapped on a risk spectrum ranging from conservative to aggressive (see Davey, 2004). It should be noted that the resulting RT metric is a *subjective* form of the construct, because it is based on individuals' attitudes and beliefs towards risk, whereas *objective* risk tolerance is derived from *actual* investment decisions, as reflected in the percentage of risky assets in overall portfolios (Hallahan, Faff & McKenzie, 2004).[6] Although some argue that actual decisions are preferable to stated preferences, in reality neither is perfect. For asset allocations to accurately reflect investor risk attitudes requires that investors be knowledgeable about such things as the historical variance of various asset classes, portfolio theory, and the use of systematic risk as a risk measure. Additionally, the use of asset allocations to indicate risk preferences assumes that investors can accurately operationalize the aforementioned knowledge. Finally, as suggested by the University of California survey referred to earlier (Benartzi & Thaler, 2001), asset allocations have been shown to reflect other factors in addition to risk tolerance. Because of the difficulty in accepting the assumptions of objective risk assessment, we believe that the subjective measurement of risk is equally valid to use in risk assessment.

The conflict theory of decision-making argues that individuals deal with difficult decisions using various strategies (Mann, Burnett, Radford & Ford 1997). The strategy of "vigilance," where objectives are clarified, alternatives considered, information gathered and careful choices made, is preferable. However, certainly classes of suboptimal strategies, namely "hypervigilance" (i.e., irrational, even panicky, search for solutions), procrastination, buck-passing, and rationalization are sometimes used by decision makers. Planners are more likely to adopt vigilance as a decision-making strategy, thus deciding on appropriate savings levels and investment choices. Four of the six questions in the planning section were designed to probe suboptimal behavior: two for procrastination, one for hypervigilance, and one for buck-passing. Two other questions probed for the level of confidence of respondents in their knowledge and skill in the investment domain, suggesting a vigilant strategy of information acquisition.[7]

For these questions we used a seven-point Likert scale with '7' indicating strong agreement and '1' indicating strong disagreement. High scores on four of the six questions in the planning area (and low scores on the remaining two) indicate planner temperament, whereas the opposite indicates an avoider mindset. If these questions are probing a single planning construct, to simplify the analysis it is naturally preferable to work with a single planning variable. As shown in Panel A of Table 1, pairwise correlations of the six planning or avoidance survey questions suggested the appropriateness of following a variable reduction method principal factor analysis.[8]

To operationalize the variable reduction, Panel B of Table 1 shows the eigenvalues and factor loadings of the six planning items. The Kaiser criterion (Kaiser, 1960), which is one of the most commonly used criteria for deciding on the number of factors, suggests that any component with an eigenvalue greater than unity should be retained. On this basis, it becomes clear that only one factor is required. This was also confirmed by the scree test (Cattell, 1966), whereby the eigenvalues associated with each factor are plotted to look for breaks between factors with relatively large eigenvalues and those with relatively small eigenvalues (results not shown here). The factors that appear before the break are assumed

Table 1 Data analysis of planner-avoider questions
Panel A: Pairwise correlations of the planner-avoider questions

	Knowledge	Skills	Inertia	Enjoyment	Involvement	Delay
Knowledge	1					
Skills	0.771***	1				
Inertia	−0.034	−0.031	1			
Enjoyment	0.494***	0.536***	−0.033	1		
Involvement	0.590***	0.542***	−0.128**	0.541**	1	
Delay	−0.361***	−0.405***	0.162***	−0.401***	−0.401***	1

Note: "Knowledge" corresponds to question 14; "Skills" corresponds to question 15; "Skills" corresponds to question 15; "Inertia" corresponds to question 16; "Enjoyment" corresponds to question 17; "Involvement" corresponds to question 18; and "Delay" corresponds to question 19. *** and ** indicate correlations that are significant at the 1% and 5% levels, respectively.

Panel B: Eigenvalues and factor loadings of the planner-avoider attributes

Factor	Eigenvalue
1	2.559
2	0.222
3	0.024
4	−0.046
5	−0.152
6	−0.190
Variable	Factor loadings
Knowledge	0.815
Skills	0.822
Inertia	−0.086
Enjoyment	0.661
Involvement	0.715
Delay	−0.513

to be meaningful and are retained. It is also evident from Table 1, Panel B that almost all factor loadings (except the one we called *inertia*) are significant in the retained factor. Stevens (1986) states that a loading is significant (or large) if its absolute value exceeds 0.40. He also provides a guideline that at least three variables (items) must have significant loadings on the retained factor. In fact, five out of the six items have significant loadings on the first factor. Because we have only one factor retained, we do not need to rotate it for interpretability. Based on this analysis, we construct a new variable, which we denote as the propensity to plan (PP), from these six questions.[9] It is continuous with high values suggesting a high propensity to plan.

3. Characteristics of planners

In this section we attempt to identify the characteristics planners tend to have in common. One could view the propensity to plan dichotomously or in terms of a continuum. In the former case, one is either unequivocally a planner or an avoider. In the latter case, the perspective is that we all have the propensity to plan to some degree. To operationalize the

Table 2 Regression results: propensity to plan (PP) as the dependent variable

Variables	Binary PP (Probit)		Continuous PP (OLS)	
	All independent variables	Only variables significant at 10% level	All independent variables	Only variables significant at 10% level
Constant	0.5840 (0.1920)	0.4975 (0.2520)	−0.1375 (0.6400)	−0.0991 (0.7290)
Gender (male = 1)	0.3633 (0.0770)	0.3146 (0.0990)	0.2811 (0.0380)	0.3282 (0.0090)
Marital (yes = 1)	0.0095 (0.9670)		0.1833 (0.2220)	
Age (years)	−0.0337 (0.0010)	−0.0342 (0.0000)	−0.0153 (0.0140)	−0.0163 (0.0080)
Faculty (yes = 1)	0.0544 (0.8040)		0.0494 (0.7310)	
Salary ($000)	0.0000 (0.3830)		0.0000 (0.7030)	
Own home (yes = 1)	0.7933 (0.0220)	0.7941 (0.0110)	0.4279 (0.0500)	0.5604 (0.0050)
Sole earner (yes = 1)	−0.1020 (0.6280)		−0.0564 (0.6830)	
Amount in plan ($000)	0.0000 (0.0080)	0.0000 (0.0050)	0.0000 (0.1260)	0.0000 (0.0180)
Adjusted R^2	9%	8%	9%	10%
Global test p-value		0.0001		0.0000

Note: Values in parentheses are p-values.

latter, we continue to use the continuous variable already constructed. For the former, we construct a binary variable: all respondents whose propensities to plan are above the sample mean are designated as planners and assigned a value of one, and the rest are viewed as avoiders and are assigned a value of zero. Viewing planning in this binary sense, planners exhibit different investment behavior than avoiders. As can be seen in Appendix Tables 2 and 3, they are more likely to invest outside the college retirement plan (69% vs. 42%), take full advantage of matching contributions (93% vs. 82%), and access more information sources (2.4 vs. 1.5) than avoiders. These sources include seminars or individual counseling provided by someone other than the 403(b) providers (44% vs. 24%); newspapers and magazines (51% vs. 30%); books about investments (33% vs. 12%); and academic courses (13% vs. 4%).

To investigate the demographic profile of planners, we perform regression analysis. Previous research provides a few hints of what might be expected. As mentioned earlier, Ameriks et al. (2003) document that planners have more wealth, which suggests a positive relationship between the amounts in participant pension plans and the propensity to plan. Therefore, we expect high levels of wealth (here proxied by the amount in the college DC plan) to be associated with PP. Additionally, older people and higher earners are likely to have a higher propensity to plan (Devaney & Su, 1997; Grable & Lytton, 1997). Because planning is viewed by some as being in the male domain, we expect males to have higher PP (Simmons & Betschild, 2001). Education is likely to inculcate planning, and because faculty members normally have higher education levels than staff, the faculty indicator is likely to be positively correlated with PP. Further, it is natural to anticipate that variables suggesting responsibility (being married, being the sole earner, and owning a house) are also likely to be positively associated with PP.

Ordinary least-squares regression analysis is appropriate for the continuous distribution version of PP, and probit regression is appropriate when the binary version is used as a dependent variable. Table 2 presents the results of two regressions for each form of dependent variable. The second and fourth columns show the results using all demographic

variables as independent variables and the third and fifth columns show the results obtained after variables have been dropped one by one using a sequential variable reduction procedure that only retains variables when they pass a 10% significance cut.

Because it turns out that both regressions tell the same story about the characteristics of planners, we will focus our discussion on the continuous form of the variable. The following variables had no discernable impact on PP: salary, employment status, marital status, and whether one was a sole earner. However, as expected, males, homeowners, and those with larger amounts in the pension plan tended to have higher PP. Surprisingly, the negative sign for age indicates that younger participants showed a higher PP than older participants did. One possible explanation is that the recent trend toward introducing financial education into the curriculum as early as high school may be fostering the ability to develop the capacity to plan in the realm of personal finance (Bernheim, Garrett & Maki, 2001). Also surprising is the low adjusted R^2, indicating there are many other factors not reflected in the regression that explain the bulk of PP. Clearly, there is more behind being a planner than the obvious demographic characteristics.

4. Does PP influence pension contributions and risk tolerance?

In this section, we investigate the impact of PP on pension contributions (as a percentage of income) and risk-taking, after controlling for demographic variables. In line with the prior discussion, we expect participants with higher PP to make larger contributions to their pension plans. We also expect some of the demographic variables to be explanatory. One reason is that, if we recognize that the PP variable is a noisy indicator of a planning mindset, some of these demographic variables may be capturing missing elements. Therefore, based on our previous discussion, we expect males, high earners, faculty members, and wealthy individuals to be bigger pension contributors. Based on previous results, age appears to be ambiguous. Moreover, variables suggesting responsibility (being married, being the sole earner, and owning a house) are likely to have conflicting influences on the size of contributions. Although variables indicating responsibility are associated with the need to invest, they can also suggest a drain on financial resources that may prevent making large contributions into the DC plan. RT is included as an additional explanatory variable in the pension contributions regressions. We also believe there are potentially conflicting influences of RT on the size of contributions. On the one hand, holding all else equal (including retirement income goals), those less averse to risk-taking over time should earn higher returns, leading to a larger accumulation of investment assets, which could result in less *need* to save more money. Conversely, those with higher levels of financial sophistication (many of whom are planners) are likely to be less nervous about risk-taking in the context of long-term investing, leading to higher contributions to a DC plan. Whether one effect dominate the other may be revealed in the regression analysis.

The first two columns of Table 3 tell the story.[10] As before, we show an initial regression where all demographic variables and PP are included as independent variables, and, additionally, another regression arrived at using the variable reduction procedure described earlier. As expected, PP significantly and directly influences the size of pension contributions. The greater the tendency to have a planning mindset, holding all demographics

Table 3 Regression results: pension contributions and risk tolerance as dependent variables

Variables	Pension contributions (percent of salary)		Risk tolerance (score calculated from survey questions)	
	All independent variables	Only variables significant at 10% level	All independent variables	Only variables significant at 10% level
Constant	−0.0529 (0.1580)	−0.0550 (0.0700)	0.5866 (0.0000)	0.5608 (0.0000)
Gender (male = 1)	−0.0346 (0.0140)	−0.0332 (0.0150)	−0.0093 (0.7460)	
Marital (yes = 1)	0.0294 (0.0590)	0.0341 (0.0090)	0.0149 (0.6400)	
Age (years)	0.0023 (0.0010)	0.0019 (0.0040)	−0.0061 (0.0000)	−0.0055 (0.0000)
Faculty (yes = 1)	0.0143 (0.3310)		0.0117 (0.6990)	
Salary ($000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0150)	0.0000 (0.0000)
Own home (yes = 1)	−0.0260 (0.2670)		−0.0020 (0.9660)	
Sole earner (yes = 1)	−0.0205 (0.1520)		−0.0343 (0.2430)	
Amount in plan ($000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.2420)	
PP (index)	0.0295 (0.0270)	0.0305 (0.0170)	0.0965 (0.0000)	0.1045 (0.0000)
RT (score)	0.0249 (0.4670)		N/A	N/A
Adjusted R^2	33%	33%	20%	21%
Global test p-value		0.0000		0.0000

Note: Values in parentheses are *p*-values.

constant, the greater is the regular investment. Some demographic variables matter as well. Older married participants, as well as those with higher income and wealth, tend to make larger pension contributions. The one surprise is that, holding all other factors constant, men save less. One could conjecture that, holding PP constant, men have lower levels of self-control. Home-ownership, being the sole earner, risk tolerance, and employment status do not significantly influence the size of pension contributions.

Turning to RT as the dependent variable, the literature provides us with some guidance about the likely relationship between RT and certain demographic variables. For example, Weber, Blais and Betz (2002) find that females are more risk-averse than men are. Corroborating this, Bajtelsmit and Bernasek (1996) find that women often receive low returns on their investments because of excessive risk aversion. Because older individuals approaching retirement are less able to withstand adverse markets, we expect to find RT decreasing with age (Grable & Lytton, 1998). Marriage is also believed to provide a sense of security and confidence to individuals, leading married people to exhibit higher RT than those who are single (Grable & Lytton, 2003). Home ownership has been found in the past to exert a negative impact on risk-taking capacity (Yao & Zhang, 2005). Theory suggests that individuals who own their houses are less inclined to take further risk by increasing their investments in stocks because property ownership already entails some risk because of uncertainty in prices and maintenance costs (Donkers & Van Soest, 1999).

In what way might PP influence risk-taking? Finke and Huston (2003) show that a lack of financial knowledge often deters people from assuming risk in their investments. We conjecture that planners are more financially sophisticated and, thus, are more likely to have learned that some risk-taking is appropriate in a pre-retirement portfolio. Conversely, some

avoiders may view any risk with trepidation, not realizing that the risk of having insufficient funds at retirement is often the dominant form of risk, and the latter can be mitigated by appropriate equity exposure. Logically, variables correlated with PP, given that PP is a noisy indicator of a planning mindset, might be expected to be explanatory. These include education (i.e., employment status), income, wealth, and being the sole earner.

The last two columns of Table 3 display regression results that bear out our conjecture about the impact of PP. Those with a more developed planning mindset tend to take on more risk. Additionally, some of the demographic variables have a meaningful influence on pension contributions, and, in all cases, the sign is as expected: those who are younger and who those have higher salaries have higher RT. We found no support for marital status, gender, education level, homeownership, amount in plan, or being the sole earner as explanatory variables.

5. Conclusions

The focus of the present study was to investigate the impact of the propensity to plan on savings and investment decisions. Planners are careful individuals who seek to understand the investment environment. This encourages them to acquire knowledge and become more sophisticated. Although most of the 236 survey respondents took full advantage of the employer's matching contributions, our study found that the depth of participation (pension contributions as a percentage of salary) was positively influenced by a planning mindset. Additionally, such demographic attributes as gender, marital status, age, and salary mattered as well, with the one surprise being that men saved less. The propensity to plan also was shown to be positively correlated with risk tolerance, arguably because planners are more financially sophisticated and understanding of the fact that some risk-taking is appropriate in a pre-retirement portfolio. Risk taking was also shown to be positively associated with income and, somewhat surprisingly, negatively associated with age.

Overall, our findings suggest that employers should encourage employees to contribute to DC plans by offering education and training programs that address the need and practical aspects of saving and investing. One objective of such education and training programs should be to help employees increase their propensity to plan. While to a certain extent the propensity to plan may be hard wired, there is some evidence that planning can be taught. Mann, Beswick, Allouache and Ivey (1989) find that participants in a workshop designed to improve decision-making skills showed a significant reduction in attitudinal measures associated with being an avoider three months afterwards. Bernheim et al. (2001) provide evidence that education can enhance the tendency to plan. In addition, Dolvin and Templeton (2006) show that attendance at retirement planning seminars leads to increased portfolio diversification and improved risk management. Additional research into how to optimize these efforts and how to measure their efficacy is a needed next step.

Notes

1. It is well known that the 401(k) is the most popular DC pension vehicle in the U.S. See Munnell and Sunden (2004) for a comprehensive treatment.
2. The Keirsey Temperament Sorter (Keirsey, 1998), which divides people into four basic groups (artisans, guardians, rationals, idealists), may be useful in identifying an

individual's tendency for biases. For example, artisans and guardians exhibit greater familiarity bias than rationals and idealists (Statman & Wood, 2004).

3. The employee database for this survey was made available by the college's Human Resource Department. In addition, they facilitated the dissemination of the survey and ensured that employees in the population matched those in the sample. We thank them for their cooperation and assistance.
4. A representative of the college's HR department randomly chose three people from all participants. The following amounts were awarded to the first, second and third participants selected: $500, $300, and $200.
5. The employer automatically contributes 7% of each eligible employee's base salary into the employee's DC plan. Each eligible employee has the option of contributing 1%, 2%, or 3% of their own base salary into the DC plan, which will then be matched by the employer. Thus, to take full advantage of matching contributions, an employee must contribute 3% of their base salary into their DC plan.
6. Regardless of the type of risk tolerance that is being assessed, there remains controversy on the fundamental nature of human risk-taking behavior. For example, Hanna and Chen (1997) consider an individual's risk tolerance as a stable personality trait, whereas others view it as dynamic and underscore the potential influences of such factors as experience, knowledge and social interaction in changing its level (e.g., Baker & Nofsinger, 2002).
7. Questions 16 and 19 probed for procrastination; 17 for hypervigilance; and 18 for buck-passing. Questions 14 and 15 explored the level of confidence in knowledge and skill in the investment domain.
8. Principal factor analysis was chosen because it is reasonable to assume that there is an underlying causal structure (an individual's planning predisposition) that is influencing the subjects' responses to these survey questions. When such an assumption is not made, principal component analysis is followed. Nevertheless, the results did not differ appreciably with either approach.
9. After performing principal factor analysis on the six planning variables, we used the "score" command in STATA to create the optimized variable "PP," which, in effect, captures all variations inherent in the six underlying variables. The descriptive statistics for PP are: mean = 0; standard deviation = 0.92; min = −2.30; max = 1.86. Higher values of PP signify a higher propensity to plan.
10. Because it was always the case that heteroscedasticity could not be rejected, standard errors and p-values are based on White's heteroscedasticity-consistent errors.

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APPENDIX A: The SURVEY

Note: *Defined contribution pension plans provide an individual account for each participant and the benefits are based on the amount contributed and the return earned on the contributions. In defined benefit pension plans, the employer contributes to a pension plan that pays employees a specific monthly benefit after retirement. Benefits may be based on salary while employed and length of service.*

For each of the next seven questions, please circle the answer that is appropriate for you.

1. Do you own or rent your home? Own Rent
2. Are you the sole income earner in your household? Yes No
3. Are you vested in a defined benefit pension plan from a previous employer? Yes No
4. Do you have a defined contribution benefit plan from a previous employer? Yes No
   If yes, what is the approximate value (in $) currently in the benefit account?_____
5. Do you regularly (and currently) invest toward retirement outside of XYZ College retirement plans (investment accounts, saving plans, annuities, permanent life insurance, etc.)? Yes No
   If "Yes," approximately how much do you save/invest per year? _____
6. Do you expect your employment pensions plan to provide the largest proportion of your retirement income? Yes No
7. XYZ College matches the contribution you make into its defined contribution pension plan, up to a certain amount. Do you take full advantage of these matching contributions? Yes No
8. If you answered "No" to question 7, which of the following best describes the reason. (Check all that apply.)
   - ☐ Can't afford it.
   - ☐ Don't understand how the XYZ College plan works.
   - ☐ Too young to be saving for the retirement.
   - ☐ Not comfortable investing money in the stock market.
   - ☐ My spouse saves for retirement.
   - ☐ Other (please briefly explain):_____
9. What sources of information do you use now (and have you used in the past) to help you make decisions about your investments? Check all that apply.
   - ☐ Seminars or individual counselling provided by Fidelity and/or TIAA-CREF who are XYZ College plan providers
   - ☐ Seminars or individual counselling from someone other than Fidelity or TIAA-CREF
   - ☐ Newspaper and magazines
   - ☐ Books about investments
   - ☐ Academic courses
   - ☐ Other (briefly explain): _____

10. Approximately how much money is currently in your XYZ College retirement plan?
    - ☐ $0 to $25,000
    - ☐ $25,000 to $50,000
    - ☐ $50,000 to $75,000
    - ☐ $75,000 to $100,000
    - ☐ More than $100,000
    - ☐ I don't know.

11. I would characterize myself as:
    - ☐ a *very aggressive* investor (willing to assume very substantial risk in pursuit of higher returns)
    - ☐ a *moderately aggressive* investor (willing to assume substantial risk in pursuit of higher returns)
    - ☐ a *growth-oriented* investor (willing to assume considerable risk in pursuit of higher returns)
    - ☐ a *capital preservation-oriented* investor (willing to assume moderate risk in pursuit of higher returns)
    - ☐ a *moderately conservative* investor (willing to assume little risk in pursuit of higher returns)
    - ☐ a *very conservative investor* (willing to assume no risk in pursuit of higher returns)

12. Which of the following statements best describes your reaction if the value of your retirement account declined by 10% during a year? I would
    - ☐ be very concerned about such a large drop in the value of my account.
    - ☐ be somewhat concerned about changes in the value of my account of this size.
    - ☐ have only minimal concern with such a change in the value of my account.
    - ☐ not be at all bothered by such a change in the value of my account.

13. What is your main consideration when you are investing?
    - ☐ Avoiding losing money.
    - ☐ Mostly to avoid losing money, but I also consider potential gains.
    - ☐ I am equally concerned with losses and gains.
    - ☐ Mostly the potential for gain, with some consideration for avoiding losses.
    - ☐ The potential for gain.

For each of the following six statements, please indicate your level of agreement or disagreement by circling the appropriate number.

	Strongly agree			**Neutral**			**Strongly disagree**
14. I have a good understanding of the financial aspects of retirement planning.	7	6	5	4	3	2	1
15. I believe I have good investment skills	7	6	5	4	3	2	1
16. It is too early to begin planning for retirement.	7	6	5	4	3	2	1
17. I enjoy dealing with personal finances.	7	6	5	4	3	2	1
18. I am actively involved in all my financial decisions and retirement planning.	7	6	5	4	3	2	1
19. I tend to put off making financial decisions.	7	6	5	4	3	2	1

THANK YOU

Appendix Table 1 Snapshot of data obtained directly from HR

Characteristics of Survey Participants					
	Variable name	Type	Description	Values	
Dep. var.	Contrib.	Percentage (of salary)	Employee pension contribution as percentage of salary	Population	Mean: 9%
				Sample	Mean: 10%
				Planners	Mean: 11.3%
				Avoiders	Mean: 7.8% (p = 0.0106)
Demographic data	Age	Numerical (in years)	Age	Population	Mean: 49 years
				Sample	Mean: 49 years
				Planners	Mean: 48 years
				Avoiders	Mean: 49.5 years (p = 0.3197)
	Gender	Indicator (male = 1)	Gender	Population	Male: 46%
				Sample	Male: 41%
				Planners	Male: 47%
				Avoiders	Male: 35% (p = 0.0658)
	marital	Indicator (married = 1)	Marital status	Population	Married: 65%
				Sample	Married: 65%
				Planners	Married: 70%
				Avoiders	Married: 60% (p = 0.1093)
	Faculty	Indicator (faculty = 1)	Faculty vs. staff	Population	Faculty: 34%
				Sample	Faculty: 31%
				Planners	Faculty: 35%
				Avoiders	Faculty: 26% (p = 0.1406)
	Salary	Numerical (in dollars)	Salary [applicable to 403(b)]	Population	Mean: $44,382
				Sample	Mean: $45,394
				Planners	Mean: $47,893
				Avoiders	Mean: $42,440 ($p$ = 0.0998)

Note: Reported p-value reflects the significance of the difference between responses of planners vs. avoiders. Individuals belonging to "widow" and "divorced" category were designated "single."

Appendix Table 2 Snapshot of survey data (Single choice answers)

	Variable name	Type	Description	Values	
Demographic	ownhome	Indicator (yes = 1)	House ownership?	All: Planners: Avoiders:	88.26% 94% 82% (p = 0.0101)
	soleearner	Indicator (yes = 1)	Sole income earner in the household?	All: Planners: Avoiders:	39.41% 36% 44% (p = 0.1867)
	amountinplan	Numerical (in dollars)	Current amount in college retirement plan	All: Planners: Avoiders:	$68,800 $74,500 $60,651 ($p$ = 0.0172)
Pension history	previousdb	Indicator (yes = 1)	Vested in a DB plan from a previous employer?	All: Planners: Avoiders:	18.3% 17% 20% (p = 0.5215)
	previousdc	Indicator (yes = 1)	Have a DC plan from a previous employer?	All: Planners: Avoiders:	23.77% 26% 21% (p = 0.4263)
Investment behavior	investoutside	Indicator (yes = 1)	Regularly invest outside of College retirement plans?	All: Planners: Avoiders:	51.71% 69% 42% (p = 0.0102)
	expectlarge	Indicator (yes = 1)	Expect employment pension plans to provide the largest proportion of retirement income?	All: Planners: Avoiders:	78% 76% 79% (p = 0.6049)
	takeadv	Indicator (yes = 1)	Take full advantage of matching contributions from College?	All: Planners: Avoiders:	88.14% 93% 82% (p = 0.0116)
	Source	Numerical	Number of investment information sources	All: Planners: Avoiders:	1.98 2.4 1.5 (p = 0.0000)

Note: Reported p-value reflects the significance of the difference between responses of planners vs. avoiders. To indicate their current investment amount in their College retirement plan, participants were asked to indicate a range such as $0 to $25,000; $25,000 to $50,000 and so forth. The interval variables were converted into numerical variables by taking the midpoints when both ends (lower and upper values) were different from zero. When the choices were "$0 to $25,000" and "More than $100,000," numerical values of $20,000 and $120,000 were used, respectively. Approximately 5.5% of participants did not respond to this question.

Appendix Table 3 Snapshot of survey data (multiple answers possible)
Panel A: Reasons for not taking full advantage of matching contributions

Reasons	Percentage (out of 28 people)
Can't afford it	96%
Don't understand how the plan works	36%
Too young to be saving for the retirement	0%
Not comfortable investing money in the stock market	0%
My spouse saves for retirement	4%
Other	0%

Note: Not surprisingly, few planners (8) needed to answer this question. All of them cited the first reason. Reasons in the "Other" category that were provided by respondents included "not knowing whether they were taking full advantage or not." The observations from this category were combined with the second reason, "Don't understand how the College plan works."

Panel B: Sources of information used to make decisions about pension-plan investments

Information sources	Used by (in %)
Seminars or individual counseling provided by Fidelity and/or TIAA-CREF who are plan providers	All: 60% Planners: 64% Avoiders: 56% ($p = 0.2305$)
Seminars or individual counseling from someone other than Fidelity and/or TIAA-CREF	All: 35% Planners: 44% Avoiders: 24% ($p = 0.0011$)
Newspaper and magazines	All: 42% Planners: 51% Avoiders: 30% ($p = 0.0008$)
Books about investments	All: 24% Planners: 33% Avoiders: 12% ($p = 0.0001$)
Academic courses	All: 9% Planners: 13% Avoiders: 4% ($p = 0.009$)
Other	All: 28% Planners: 33% Avoiders: 23% ($p = 0.0825$)

Note: Other sources of information cited included accountants, family and friends, TV, internet, brokers, Wall Street Journal, financial advisors, workshops, etc.

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