**Less Is *Not* More: 401(k) Plan Information and Retirement Planning Choices**

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**Abstract:**

This paper presents the results of a choice experiment that is designed to examine the effects of *how* plan information is presented on planned retirement-savings behavior. The hypothesis is that providing plan information in a more concise manner with helpful recommendations will improve retirement planning choices over providing lengthy and detailed information. The choice experiment is conducted on three different samples: (i) a Qualtrics panel of new employees, (ii) a Qualtrics panel of job seekers, and (iii) a sample of business-school students. Participants were first provided with either a *long* or *short* description of a hypothetical employer-sponsored 401(k) plan. Our results suggest that, controlling for demographic and other factors, our main hypothesis was not supported by the data in any of the samples. Thus, the data suggest that condensing the retirement-plan information presented to employees is unlikely to result in vastly different retirement-planning choices.

*Keywords:* Retirement Planning; 401(k); Information Complexity; Nudge; Choice Architecture

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**1 Introduction**

The majority of Americans does not save enough for retirement. According to Rhee (2013), about 45 percent of U.S. households lack sufficient retirement savings and, for working households about to retire, the median household’s retirement savings is just $12,000.[[1]](#footnote-1) Kirkham (2016) shows that about 33 percent of Americans do not have any retirement savings and, among those near retirement age, about 54 percent have retirement-savings amounts that fall below the recommended threshold. Thus, many of these individuals will rely on Social Security, a program that is widely viewed as becoming increasingly financially strained. Therefore, it is important to identify possible mechanisms that can help people save more and more effectively. This study investigates how changing the layout with which 401(k) plan information is presented impacts participation behavior.[[2]](#footnote-2) In particular, it examines whether presenting plan information in a more compact and tractable way increases participation, and how it impacts contribution level and investment decisions.

There are many reasons that Americans are not saving enough for retirement or are doing so (potentially) inefficiently (e.g., Agnew, 2006; Tang et al., 2010; Choi et al., 2011). One important potential explanation is the complexity of the decision-making process (Campbell, 2006), especially given the excessive paperwork and limited time typically available to make decisions regarding an employer-sponsored retirement plan (Madrian & Shea, 2001; Iyengar et al., 2004; Beshears et al., 2013). In addition, if employees are offered defined-contribution plans, which have become increasingly more likely as they now outnumber defined-benefit plans (see Campbell et al., 2011), they must decide how much to contribute and in what financial products to invest. This process can be quite challenging, which might cause individuals to procrastinate (Madrian & Shea, 2001; Carroll et al., 2009; Beshears et al., 2013), simply fail to enroll, or make inefficient planning decisions (Tang et al., 2010). Moreover, employees often will resort to using “rules of thumb” or rely on the choices or advice of others in making their retirement decisions (Benartzi & Thaler, 2007), and often will stick with default options (e.g., contribution rates and asset allocations) that are set by the employer, even if it is not optimal for the individual (Choi et al., 2006; Beshears et al., 2013; Goda & Manchester, 2013).

A possible avenue through which retirement-planning choices might be impacted is the manner in which information is provided (e.g., Tversky & Kahneman, 1981; Kahneman & Tversky, 2000). Specifically, simplifying the enrollment information provided to new employees, which typically is very involved, could impact enrollment decisions (Beshears et al., 2013; Clark et al., 2014; Bateman et al., 2016).[[3]](#footnote-3) This type of information intervention would fall broadly under the categorization of being a “nudge” (Thaler & Sunstein, 2008).[[4]](#footnote-4) In contrast to traditional economic levers such as taxes, subsidies, and regulation, nudges alter the choice setting in a way that can predictably impact behavior (e.g., changing the default options), while still preserving the choice set and underlying economic incentives (see Hummel & Maedche, 2019 for recent review of efficacy of nudges across multiple domains). The focus of this study is to consider the extent to which presenting plan information in a more compact and suggestive way impacts some of the critical retirement planning decisions – enrollment, salary contribution level, and portfolio allocation.[[5]](#footnote-5)

To do so, we conduct a choice experiment administered via survey. We consider three different samples: a representative Qualtrics Panel of recently hired employees, a representative Qualtrics Panel of full-time job seekers, and undergraduate business-school students.[[6]](#footnote-6) Respondents were provided with information about a hypothetical, but realistic, employer-sponsored 401(k) plan. We randomly varied whether respondents received plan information in the form of: (i) a convoluted, *long* description with all information written out in lengthy paragraphs, or (ii) a compact, *short* description with information presented in a concise table. Moreover, the condition receiving the short description received some of the information in the form of designated “useful guidelines” about retirement planning. Respondents were asked a series of questions related to their planned behavior, given the provided plan information.

The main hypotheses are that providing simplified information that included recommendations would result in choices that were more in-line with the recommendation; namely: (i) increased participation rates, (ii) increased contribution rates, and (iii) portfolio allocation that reflected the suggested age-based split between stock and bonds.

After controlling for demographic and other factors, these hypotheses were not supported by the data. No significant differences were found between the control group that received the long version and the treatment group that received the short version in terms of their: enrollment rates, confidence in their enrollment decision, contribution rates, and portfolio allocations. These results were robust across all three samples we considered. Additional data analysis related to the plan manipulation revealed that respondents, on average, spend more time viewing the long description, but tend to process the plan information with a similar degree of accuracy. Overall, we find essentially no effect of providing simplified information on retirement planning behaviors. Thus our results cast some doubt on the idea that providing plan information in a more concise and tractable way will significantly alter retirement planning behaviors. Rather, the one factor that consistently impacts choices in our experiment is financial literacy, suggesting that educational initiatives might more effective in promoting better retirement planning.

**2 Relevant Literature**

In this section, we first briefly discuss the prior literature related to how information presentation and complexity specifically impact 401(k) plan-participation behaviors.[[7]](#footnote-7) We then provide a more comprehensive review of the prior literature focusing on retirement-savings decisions and the factors that influence plan-participation behaviors.

**2.1 Information Presentation and Complexity on Retirement Planning Behaviors**

Most closely related to the focus of this study, there are a few papers that investigate how information presentation and complexity impact retirement-planning decisions. Beshears et al. (2013) argue that the complexity associated with plan-enrollment decisions can lead to procrastination and a failure to enroll. They examine the impact of a “Quick Enrollment” option that allows individuals to enroll with a pre-selected contribution rate and asset allocation. They find that reducing the complexity of the problem through quick enrollment increases plan participation by about 10-20 percentage points. Moreover, there is strong persistence of the pre-selected option with significantly more people contributing at the pre-specified level (either 2% or 4%) and maintaining the pre-specified asset allocation. However, these interventions reduce the choice set of individuals and the pre-selected contribution rate and asset allocation may not be optimal for all employees. While Beshears et al. (2013) consider a very extreme case of simplification, our study considers a subtler manipulation where the information people receive is simplified but they do not face a restricted choice environment.

Clark et al. (2014) also examine the impact of reducing the complexity associated with plan enrollment. In particular, they consider a manipulation where non-participating employees receive a simplified flyer with information about the benefits of participating in the plan and the importance of saving for retirement. They find that providing this simplified and encouraging information did increase participation, especially for males and younger, lower-income employees. Dolls et al. (2018) document a similar effect that providing information (by letter) about the expected returns in the German pension system increases private retirement savings. Our study examines how simplifying the presentation of the plan information, while holding constant the content of the information across conditions, impacts plan participation. In addition, we also examine other decisions, including the contribution percentage and the asset allocation.

Agnew and Szykman (2005) show that increased complexity can result in information overload, especially for those who are less financially literate, which can result in an increased propensity to stick with default options. Kaufmann and Weber (2013) examine the effect of aggregating investment returns on individual investors’ risk-taking behavior and find that more aggregation results in greater risk-taking, suggesting that providing investors with more aggregated information on returns results in more optimal investment choices. Tse et al. (2016) find that more complex advertised fee structures result in more decision errors and higher likelihood of sticking with the default in a stylized, portfolio-choice experiment. Thus, reducing complexity (and the choice set) appears to improve financial decision making. Relatedly, several papers have shown that the manner by which information is presented can impact retirement savings behaviors (e.g., Bernatzi & Thaler, 1999; Bateman et al., 2014; Bateman et al., 2015; Bateman et al. 2016a), as well as what specific information is included in plan disclosures (e.g., Bateman et al., 2016b). However, Beshears et al. (2017) provide robust evidence that providing information about returns does not impact portfolio allocations.

If suboptimal retirement savings behavior results, as least in part, to the complexity associated with the choice environment, then it is important to better understand how streamlining the decision process could possibility lead to improved retirement savings choices. With this aim in mind, our study focuses specifically on streamlining the way that 401(k) plan information is provided to potential participants. In this regard, our current study focuses on the question of *how* information is provided (holding constant the content of the information) – presenting information in a more concise manner – while much of the prior literature focuses on the questions of *what* information is provided.

**2.2 Factors Impacting Enrollment Decisions**

One important set of factors shown to influence 401(k) enrollment is employee characteristics. In particular, age is associated positively with participation rates (Bassett et al., 1998; Madrian & Shea, 2001; Munnell et al., 2001). This may be because younger individuals may not yet have access to jobs that offer 401(k) plans, still may be obtaining an education, or are just stepping onto the career ladder. A similar explanation may be used with respect to the level of education as greater education improves access to a 401(k) plan (Brown & Weisbenner, 2014). Another vital factor that also is associated with enrollment decisions in 401(k) plans is income (Bassett et al., 1998; Madrian & Shea, 2001; Brown & Weisbenner, 2014). People with low incomes, especially youth, may be overwhelmed with debt payments and other budgetary constraints such that they feel that they cannot participate in 401(k) plans (Clark et al, 2014). Longer job tenure also has been found to result in a higher enrollment in 401(k) plans (Bassett et al., 1998; Madrian & Shea, 2001; Clark et al., 2014). Individuals’ financial knowledge also correlates positively with enrollment in a 401(k) plan (Brown & Weisbenner, 2014; Lusardi & Mitchel, 2011).[[8]](#footnote-8) Finally, an individual’s planning horizon may be an important factor in explaining participation rates in 401(k) plans, with having a shorter planning horizon being associated with lower participation (Munnell et al., 2001).

Many factors related to specific plan attributes also have been shown to be important determinants in retirement-plan-enrollment decisions. Notably, employer-matching funds provide an incentive to enroll in 401(k) plans, and have been shown to stimulate enrollment (e.g., Papke & Poterba, 1995; Bassett et al., 1998; Hansen, 1999; Micthell et al., 2007; Huberman et al., 2007; Clark et al., 2014). However, after a certain level, participation rates increase at a decreasing rate as the employer match increases. Besides plan features, peer effects also are believed to influence enrollment decisions in 401(k) plans. Duflo and Saez (2002) find that employees are more likely to enroll in a retirement plan when their colleagues are enrolled. Thus, participation rates in 401(k) plans are likely to increase in environments where existing employees largely participate in 401(k) plans.

Prior research also suggests that automatic enrollment into a plan (as the default) is very effective at increasing enrollment. Madrain and Shea (2001) find that, when a 401(k) plan is set as the default option, enrollment numbers significantly increase in the plan by 86 percent, from a participation rate of 49 percent prior to its institution. Similarly, Choi et al. (2004) extend Madrian and Shea’s (2001) research and find that automatic enrollment increases participation by 85 percent. Relatedly, Carroll et al. (2009) show that the more subtle intervention of requiring new employees to make an “active” choice also results in a sizable increase in 401(k) plan participation.

**2.3 Factors Impacting Contribution Decisions**

Employees who enroll in 401(k) plans also are expected to choose their contribution rates. In addition to increasing participation rates, default options have been shown to affect contribution rates. Madrian and Shea (2001) and Choi et al. (2004) report that many new plan participants tend to maintain the default saving rates associated with automatic enrollment. For instance, Madrian and Shea find that 61 percent of automatically enrolled employees in their study continued to maintain the default rate, likely because some participants take the default rate to be investment advice. The authors explain that, because the default savings rates are low, this phenomenon tends to affect the retirement wealth of participants negatively, which can then result in insufficient retirement income (Benartzi & Thaler, 2007. Thaler and Benartzi (2004) propose a novel solution to this problem – the “Save More Tomorrow” program – which essentially defaults people into pre-committing to allocating a portion of future raises into their retirement plan. Importantly, the authors find that participation in the program successfully increases savings rates from 3.5% to 13.6% by the 4th pay raise, compared to a 6% rate for those who did not participate.

pThe availability of an employer match also is expected to motivate 401(k) plan participants to increase their saving rates. For example, Munnell et al. (2001) show that the availability of a match increases contribution rates by 0.7 percentage points. However, the effect of match size on contribution rates diminishes over time. In addition to the presence of an employer match, an employee’s saving in 401(k) plans may be influenced by the availability of borrowing opportunities. Munnell et al. (2001) show that the ability of participants to borrow from their 401(k) contributions, which is valuable particularly for liquidity-constrained employees, positively influences contribution rates by 2.6 percentage points.

In terms of employee characteristics, one factor that may influence the contribution rates of 401(k) participants is age. Clark et al. (2014), Huberman et al. (2007), and Stawski et al. (2007) all suggest that contribution rates increase with age. This may be because younger individuals have more debt and/or less goal clarity than older adults. Gender also is found to be a factor determining 401(k) contribution rates. The contribution rates for men exceed those of women (Madrian and Shea, 2001; Clark et al., 2014). Huberman et al. (2007) suggests that this could be because, on average, males earn higher incomes than females.

**2.4 Factors Impacting Asset-Allocation Decisions**

Participants in 401(k) plans typically face the additional decision of how to structure their portfolios. According to Brinson et al. (1995), asset allocation accounts for approximately 90 percent of the variation in security returns. Yet, participants spend very little time choosing their asset allocations. In an experiment involving University of Southern California’s staff employees, Benartzi and Thaler (1999) find that many respondents spend no more than one hour in making their asset-allocation decisions. In another experiment, Choi et al. (2011) find that people take, on average, 36 minutes to make their asset-allocation decisions.

Bernatzi and Thaler (2007) offer possible explanations as to why employees do not spend much time making their asset-allocation decisions, given their complexity and importance. One possibility is that somep 401(k) participants prefer instead to rely on the advice of their peers, friends, and family. Another is that some participants simply adopt the default investment option associated with automatic enrollment. Another is that people have a naïve view of diversification and thus choose to distribute their funds equally among the investment assets available in their company’s 401(k) plan. Relatedly, Iyengar and Kamenica (2010) show that the number of investment funds offered through a plan impacts asset allocation via the likelihood of contributing to equity funds and the percentage contributed to equity funds.

Automatic enrollment also may affect asset-allocation. Research by Agnew et al. (2003) shows the prevalence of inertia in asset-allocation decisions; namely, those who are automatically enrolled tend to invest less in equites because they are more likely to stick with conservative defaults. Madrian and Shea (2001) and Choi et al. (2004) provide further evidence to buttress this finding. Choi et al. (2004) also find that as job tenure increases, the number of participants choosing the default declines. Camilleri et al. (2019) also find that people are more likely to follow “smart” default allocations that progressively become more conservative in their investment mix as the time window until retirement gets smaller (i.e., the person is closer to retirement).

Lastly, employee attributes also have been shown to shape asset allocations. For example, men are more likely to have stocks in their retirement portfolios and also invest more in stocks compared to women (Agnew et al., 2003; Barber & Odean, 2001). Neelakantan (2010) find that men generally exhibit more risk tolerance than women in their retirement accounts. However, Heo et al. (2016) show that risk preferences mediate the relation between gender and investment behavior. According to Agnew et al (2003), married individuals also tend to allocate more funds to equities than single adults.[[9]](#footnote-9) Lastly, Choi et al. (2004) show that low-income participants are more likely to stick with a money-market-default allocation, while Agnew et al. (2003) find that participants in high-income brackets invest a greater proportion of their 401(k) wealth in equities.

**3 Experimental Design**

An online survey was conducted to identify how the presentation of information about a retirement-savings plan impacts planned savings choices. In the survey, respondents were presented with hypothetical, but realistic, retirement-savings-plan information. We systematically manipulated whether the plan information was presented in either a short, concise format or a long format.

**3.1 Survey Procedure**

Respondents first were asked a series of general demographic questions, followed by five general financial literacy questions (Lusardi & Mitchell, 2011). The respondents then were presented with the retirement-savings scenario, followed by some detailed hypothetical information about the plan (discussed in the next section). Respondents were then asked the following questions about their planned participation behavior given the plan information:

1. *Would you enroll in the plan?*
2. *How confident are you in your enrollment decision?*
3. *What percentage of your salary would you contribute to the plan (or stick with the default)?*
4. *How would you plan on investing their contribution (stick with the default allocation or choose their own allocation)?*
5. *What percentages of your contribution would you invest in stocks and in bonds?*

We then elicited self-reported information about the actual retirement-planning experience of respondents. This information includes: (i) the age they plan to retire; (ii) whether and what type of plan is offered by their current employer; (iii) whether they participate in their employer’s sponsored plan if one is offered; and (iv) how much they currently are saving for retirement.

**3.2 Manipulation of the Presentation of the Plan**

The goal of the experimental scenario was to provide plan information that reasonably could approximate both the content and the detail that employees might receive in real life. Respondents were given information relating to the following broad categories: overview of the plan, the enrollment process, investment options, level of employer matching, vesting, distributions from the plan, tax benefits, and a general disclaimer about risks and other things to consider. The main manipulation consisted of two conditions: (i) long version *(Long)* and (ii) short version *(Short)*. A full copy of each of these versions and the corresponding information that was provided about the plan is presented in the Supplemental Appendix.

In the long version, the plan information for each of the categories was written out in full paragraph form (roughly a paragraph of information for each category listed above). In total, the plan description in the long version contained 894 words, 5,343 total characters, and was 2 standard pages. Alternatively, in the short version, the information was presented in a much simpler and concise way; specifically, respondents were given a table highlighting the key information for each descriptive category of plan information. Importantly, the analogous information description in the short version contained 331 words, 1,989 total characters, and was less than 1 standard page. Moreover, in the short version, respondents were also presented with some key information in the form of “useful guidelines” that had suggested actions, which were intended to “help with their enrollment and contribution decisions.” Importantly, these statements were also provided in the long version, albeit “buried” within the written-out text. The following questions and answers were provided in the short version:

**Question: Should you enroll*?*** *Answer: Yes, it is generally regarded as a good idea to contribute to an employer-sponsored, 401(k) plan when there is matching.*

**Question: How much should you invest?***Answer: In order to take full advantage of the employer match, you should contribute 4%, but a general rule of thumb is that you should be saving at least 10% of your income toward retirement.*

**Question: How should you invest your contributions*?*** *Answer: A general rule of thumb is that the percentage invested in bonds should equal your age.*

**3.3 Sample Selection**

To ensure that the sample of respondents was representative of the type of person that likely would be making retirement-planning decisions, the following inclusion criteria were imposed: (i) they had to be currently employed, (ii) they had to have started their job within the last year, and (iii) they had to have an annual income over $50,000. The ex-post questionnaire revealed that approximately 87% of respondents reported that their employer offered a retirement savings plan, and 83% of respondents reported that they participated in their employer’s plan.[[10]](#footnote-10) Participants were recruited through Qualtrics Panels, which is a survey-recruitment platform that draws from a diverse pool of registered users. After completing the survey, the participants were compensated directly by Qualtrics. In total, the sample consists of 600 respondents. The average time to complete the survey was just over 6 minutes.

**4 Results**

Table 1 shows descriptive statistics on the socioeconomic variables for the entire sample of 600 new employees, for the subsamples who received the *Short* condition (N = 302) and the *Long* condition (N = 298). Importantly, there are no significant differences across the two conditions (at the 5% level), which is expected given randomization to condition, thus differences in observed behavior can be attributed causally to exposure to the experimental condition. One important thing to note is that a very high percentage, 90%, said that they would enroll in the hypothetical 401(k) plan. While this is higher than the unconditional average empirical enrollment rates in such plans, it is not much higher than the empirical averages reported for comparable individuals with relatively high levels of education and annual income levels over $50,000 per year - 78-85% (Brady & Bass, August 2019).

**4.1 Enrollment**

The first decision for participants was actively choosing whether they would: (i) enroll in the 401(k) plan, (ii) not enroll in the 401(k) plan, or (iii) wait to enroll at a later time. From Table 2 we see that 88% of respondents who received the short form indicated that they would enroll in the plan, while 92% of those who received the long form indicated that they would enroll. They are marginally statistically different (Chi-squared test: *p* = .084). However, the marginal effects of a probit model presented in the 1st column of Table 3 show that, after controlling for personal characteristics and other possible explanatory variables, there is no significant difference in the probability of choosing to enroll in the 401(k) plan across the *Short* and *Long* conditions.[[11]](#footnote-11)

As a follow-up to their enrollment decision, we also asked participants to rate their confidence in their decision (0% = not at all confident – 100% = completely confident). From Table 2 we see that participants were, on average, quite confident in their enrollment decision: 78.7% in the *Short* condition and 79.2% in the *Long* condition. This difference is not significant. The regression specification in Column 2 of Table 3 confirms this insignificant effect of the *Short* condition on the reported confidence in enrollment. Overall, providing brief information and recommendations via the short description of the plan had little impact on respondents’ hypothetical enrollment in the 401(k) plan or their confidence in their enrollment decision.[[12]](#footnote-12)

**4.2 Contribution Rate**

Those respondents who said that they would enroll in the hypothetical plan were then asked what percentage of their salary they would contribute. The two options were to: (i) stick with the default contribution level or (ii) write in their desired contribution percentage. The plan information stated that the default contribution level was 4 percent, the maximum amount that would be fully matched by the employer. It also included a statement that a general rule-of-thumb is to save 10 percent of your salary toward retirement.

Table 2 shows that the average contribution rate was 6.7% in the *Short* condition and 6.4% in the *Long* condition. These are not significantly different (t-test: *p* = .655). Column 3 of Table 3 shows the estimated coefficients from an OLS regression of the percentage of earnings contributed to the plan on an indicator for the *Short* condition and other control variables.[[13]](#footnote-13) The indicator for receiving the *Short* condition is insignificant. These results confirm that receiving the short form did not affect how much people who would enroll would contribute. We also performed some additional analyses on the specific contribution levels that were chosen: (i) the percentage of respondents who stuck with the *default* 4-percent contribution level, or (ii) the *suggested* 10-percent level. Those results show that 68% of respondents in the *Short* condition and 69% in the *Long* condition contributed at the 4-percemt level, which are not statistically different. Only 7.8% of enrollees in the *Short* condition and 6.5% in the *Long* condition contributed at the 10-percent level, which is also not statistically different. Overall, providing plan information in the shorter, more concise manner, including a highlighted 10-percent rule-of-thumb suggestion, seems to have had little impact on the amount contributed.

**4.3 Asset Allocation**

Conditional on choosing to enroll, respondents were asked how they would allocate their contributions between stocks and bonds. Specifically, they had the following two options: (i) stick with the default allocation (50% stocks and 50% bonds), or (ii) write in the percentages they would allocate toward stocks and bonds (with the total between the two being required to sum to 100%).

Table 2 shows that, of those choosing to enroll, 61% chose the default. Of the remaining 39% who didn’t choose the default, the average percentage allocated to stocks was 57.7% in the *Short* condition and 59.3% in the *Long* condition. These are not statistically different from each other (t-test: *p* = .548). Even though one of the recommendations provided in the *Short* form was that the percentage that should be invested in bonds is equal to a person’s age, very few respondents followed this recommendation, and this was not different across the *Short* and *Long* conditions.

Column 4 of Table 3 shows the marginal effects of a probit model of choosing the default allocation, if enrolled; the *Short* form condition has no meaningful effect on choosing the default. Column 5 of Table 3 shows the results of an OLS regression of the percent stock allocation, if enrolled and not choosing the default. Again, the *Short* condition has no effect on the percentage of funds allocated to stocks. However, higher financial literacy significantly reduces the likelihood of choosing the default, as well as increasing the increasing the percentage allocated to stocks, as we might expect. Overall, providing the specific recommendations described here seems to have had little impact on the percentages of contributions allocated to stocks and bonds.

**5 Replication using Two Alternative Samples**

After documenting that making the plan information more concise had little effect on the planning decisions of a representative Qualtrics panel of recently employed adults, concerns arose about the possibility that respondents’ prior enrollment choices acted as an anchor for their behavior in the survey; this could then crowd-out the possible influence of the manipulation of the presentation of the plan information. To ultimately draw more robust conclusions about the possible impact of the way plan information is presented on enrollment behavior, we replicated the experiment using two additional samples. The first was an additional Quatrics panel of job seekers who reported they were notemployed full-time and were either currently looking or planned to be looking for full-time employment – referred to as the *seeking-employment sample.* The second additional sample was business-school students – we refer to this sample as the *student sample.* The motivation for these additional samples was to capture populations that: (i) presumably were less likely to have been enrolled in an employer-sponsored retirement plan, and (ii) would likely be faced with the opportunity to participate in such an employer-sponsored plan in the near future. Thus, these samples represent the population of soon-to-be, full-time employees who will be making retirement-saving decisions regarding employer-sponsored 401(k) plans.

**5.1 Results from Seeking Employment Qualtrics Panel**

Participants were again recruited through Qualtrics Panels. Except for the different inclusion criteria, all other procedural parts of the study were the same. In total, the sample consists of 420 respondents (split between the two conditions: n = 215 for *Long* form and n = 205 for *Short* form). Importantly, only 14% of the sample reported that they were currently saving for retirement via an employer-sponsored plan. Table 4 shows the aggregate descriptive statistics for the seeking-employment sample. Importantly, there are no significant differences (at the 5% level) in any of the measured socioeconomic characteristics across the *Short* and *Long* conditions within this sample of job seekers, as expected; thus, our randomization into condition appears to be effective.

We again examine the 5 main planning outcomes of interest: *enrollment in 401(k) plan, confidence in enrollment decision, contribution rate, default allocation*, and *asset allocation if not the default.* Table 5 compares the averages of these five variables across the *Short* and *Long* conditions.[[14]](#footnote-14) Importantly, as with the employed sample, we find little difference in planned behavior across the *Short* and *Long* conditions for the seeking employment sample. Namely, Table 5 reveals that there are no significant differences at the 5% level in any of the 5 planning outcomes across the two conditions. Table 6 replicates the regression analysis from Table 3 using only the seeking-employment sample and, consistent with the unconditional means, reveals that the indicator for *Short* condition is not significant at the 5% level for any of the five models pertaining to the five planning measures. Overall, the data from the full-time job seekers reveal very little impact of receiving the *Short* from on retirement-plan choices.

**5.2 Results from the Student Sample**

Students in this sample were enrolled in the Rawls College of Business at Texas Tech University. In total, 233 participants from this student database completed the survey. Importantly, this sample of students is much different from the Qualtrics panel of new employees analyzed first. In particular, only 21% reported that they currently save for retirement. Moreover, only 19% reported that their current employer offers a retirement savings plan (401(k) or equivalent) and only 6% of the total sample actually participates in an employer-sponsored plan in real life. Table 7 shows the descriptive statistics for the sample of students. There are, again, no statistically significant differences in any of these measures (at the 10% level).

Table 8 presents descriptive statistics for the same five planning outcomes of interest. Importantly, the results from the student sample are generally consistent with the results from the two Qualtrics panels. In particular, we see no significant differences in any of the five outcome variables between the *Short* and *Long* conditions. Table 9 shows the effect of being in the *Short* condition while controlling for other possible explanatory variables on each of these five dependent variables. Consistent with the results from comparisons of the unconditional means reported in Table 8, there are no statistically significant effects of being in the *Short* condition on enrollment, confidence of enrollment, contribution rate, or self-selected asset-allocation.

Overall, the fact that we see little impact of the *Short* form on reported behavior in a representative sample of newly hired employees with salaries over $50K (who presumably have experience with retirement planning), a representative sample of those seeking employment, and a sample of business students (who presumably have no experience with retirement planning), provides a more robust conclusion about the plausibly limited impact of simplified plan information on enrollment behavior.

**6 Evaluation of Plan Information**

Based on the results reported, we provide robust evidence that the presentation manipulation of the 401(k) information has little impact on planned behavior. We collected additional data to gain further insights into possible differences in how the two plan-information manipulations were perceived. We solicited responses from an additional sample of 196 business school students from the same database that comprised the student sample. Of these, 100 were presented the *Short* form and 96 were presented with the *Long* form. Up through viewing the plan information, the procedure for this sample was identical to the previous samples. Directly after viewing the plan information (but unbeknownst at the time of viewing the plan info), we collected additional measures related to their comprehension of the plan features, as well as their subjective perceptions regarding the presentation of the plan information.

To measure comprehension, we asked respondents six multiple choice questions testing their knowledge of the plan features presented.[[15]](#footnote-15) The idea with these questions was to get an *objective* measure of how the presentation of the plan information impacts respondent’s knowledge regarding the important plan features. To measure subjective perceptions, we asked five additional Likert-scale questions; these questions related to how easy the plan information was to understand, how easy it was to find the information, how comprehensive the information was, how confident they were in making decisions, and whether the information could have been presented in a more simplified manner. Lastly, we also collected data on how long respondents spend viewing the plan information screen.[[16]](#footnote-16)

Regarding the objective comprehension of the plan features, the average number of correctly answered questions (out of a total of 6) was 3.59 for the *Long* form and 3.57 for the *Short* form; these are not significantly different from each other. Thus, across both conditions, respondents appeared to accumulate a similar level of knowledge about the plan. In terms of subjective perceptions, the only reported difference was that respondents viewing the *Long* form were more likely to agree with the statement “the plan information could have been presented in a more simplified way” compared to respondents viewing the *Short* form (*p* = .010). There were no differences in perceptions about ease of understanding the plan, ease of finding information about the plan, how comprehensive the plan information was, or how confident they would be making decisions based on the information.

Lastly, we measured how long each participant spent viewing the plan description. Respondents spent, on average, 56 seconds viewing the *Short* form and nearly three times that long – 152 seconds – viewing the *Long* form, which is significantly different (*p* = .017). Taken together, these data suggest that respondents in our study spent less time viewing the Short form and perceived it to have been presented in a more simplified manner, compared to the Long form. Yet, they were able to glean a similar level of information from both plan descriptions and, hence, make similar decisions about planned retirement-saving behavior given the plan information.

**7 Conclusion**

This paper describes the results of an experiment using a Qualtrics Panel of new employees, a Qualtrics Panel of full-time job seekers, and a sample of business-school students. Participants in all three samples were provided with either a *long* or *short* description of a 401(k) plan, and then asked questions about planned retirement savings behavior. The main hypothesis was that providing abbreviated information with clear recommendations would improve plan-participation choices over providing complete and detailed information. However, controlling for demographic and other factors, this hypothesis was not supported by the data. Namely, we found little difference in planned enrollment rates, contribution levels, and asset allocations between those who received the long description and those who received the compact shorter description. Importantly, this pattern holds in each of the three distinct populations surveyed.

Addition data collection revealed that responds did spend significantly less time viewing the simplified plan description. However, respondents demonstrated a similar (objectively measured) degree of comprehension of the plan information across both conditions. Moreover, they (subjectively) perceive the plan descriptions in a similar way, with the exception that respondents viewing the short description rated the description as being more simplified. This supports the idea that the long description was, indeed, more complex so they spend more time viewing it; but the long description didn’t result in inferior knowledge of the plan and, as a result, did not significantly impact their stated retirement planning decisions.

Overall, the data do not support the idea that presenting optional 401(k) plan information in a simpler, more compact way (without limiting their choices, as previous studies have done), will alter employees’ retirement-planning choices. Moreover, our study casts some doubt on the potential effectiveness of implementing policies that would mandate concise and more accessible information disclosures about optional, employee-sponsored retirement plans as a means of improving retirement-planning outcomes. One potential caveat is that we didn’t make the plan information simple *enough.* This is a valid criticism, but we would also argue that there are certainly bounds as to how simplified you can present information, while still providing employees with the requisite amount of information they need to make an informed decision.

More generally, our results suggest that subtle or passive manipulations – like changing the way information is presented – are unlikely to result in large behavior changes related to retirement planning. Rather, our results seem to reinforce prior findings that stronger policies – like defaulting opt-in (e.g., Madrian & Shea, 2001; Choi et al., 2004), changing the defaults (e.g., Carroll et al., 2009; Beshears et al., 2013) or creating “smart” defaults (e.g., Thaler & Benartzi, 2004; Camilleri et al., 2019) – are likely to be the most effective way to induce behavioral changes (see Hummel & Maedche, 2019 for further discussion on the effectiveness of defaults). Moreover, we did find that financial literacy was positively associated with better choices for both samples. This suggests that increasing financial literacy – possibly through educational programs (as suggested, among others, by Agnew & Szykman, 2005; and Tang et al., 2010) – would improve decision making regarding 401(k) plans. Given that so many people choose the default options, it may be most useful to focus on designing defaults in such a way as to improve individuals’ retirement planning outcomes.

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**Table 1: Descriptive Statistics by Condition (New Employee Sample)**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Socioeconomic Explanatory Variables*** | **Full Sample**  **(n = 600)** | ***Short* Condition**  **(n = 302)** | ***Long* Condition**  **(n = 298)** |
| *Financial Literacy* (# of questions answered correctly; ranges from 0 to 5) | 3.31 | 3.28 | 3.34 |
| *Part-time worker* (= 1 if yes) | 0.09 | 0.08 | 0.10 |
| *Age* | 34.11 | 33.88 | 34.34 |
| *Male* (= 1 if male) | 0.51 | 0.48 | 0.55 |
| *Married* (=1 if yes) | 0.62 | 0.62 | 0.61 |
| *Race/ethnicity* |  |  |  |
| Hispanic | 0.21 | 0.22 | 0.20 |
| Native American | 0.06 | 0.05 | 0.06 |
| Asian | 0.10 | 0.09 | 0.10 |
| Black | 0.14 | 0.14 | 0.14 |
| Hawaiian or Pacific Islander | 0.02 | 0.03 | 0.01 |
| White | 0.75 | 0.77 | 0.73 |
| *Income Level* |  |  |  |
| $60,001-$70,000 | 0.24 | 0.24 | 0.25 |
| $70,001-$80,000 | 0.14 | 0.16 | 0.13 |
| $80,001-$90,000 | 0.13 | 0.12 | 0.14 |
| $90,001-$100,000 | 0.08 | 0.09 | 0.08 |
| $100,001-$110,000 | 0.08 | 0.09 | 0.07 |
| $110,001 and over | 0.21 | 0.21 | 0.21 |
| **Notes:** Respondents were allowed to choose any combination of these race and ethnicity categories. No respondents had income of less than $50,000 by survey design. $50,001-$60,000 is the omitted income category in the regressions. For brevity we do not report p-values on the comparison between the Short and Long conditions. However, for all socioeconomic variables, there are no significant differences in any reported variable at the conventional 5% level. | | | |

**Table 2: Comparison of Enrollment Behavior across Conditions (New Employee Sample)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Dependent Variables*** | **Full Sample**  **(n = 600)** | ***Short* Condition**  **(n = 302)** | ***Long* Condition**  **(n = 298)** | ***p*-value** |
| *Enrollment in 401(k) Plan* (= 1 if yes) | 0.90  (0.30) | 0.88  (0.32) | 0.92  (0.27) | *p* = .084 |
| *Confidence in the Enrollment Decision* | 78.98  (20.44) | 78.76  (21.13) | 79.19  (19.75) | *p* = .958 |
| *Contribution Rate* (% of salary contributed if enrolled) | 6.56  (7.70) | 6.69  (8.50) | 6.44  (6.85) | *p* = .863 |
| *Default Allocation* (fraction choosing default of 50% stocks and 50% bonds) | 0.61  (0.49) | 0.61  (0.49) | 0.61  (0.49) | *p* = .980 |
| *Asset Allocation* (% of contribution allocated to stocks if *not* default) | 58.57  (20.02) | 57.73  (21.12) | 59.39  (18.95) | *p* = .613 |

**Table 3: Estimated Marginal Effects on Enrollment Behavior (New Employee Sample)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Dependent Variable** | | | | |
| ***Explanatory Variables*** | ***Enrollment in 401(K) Plan*** | ***Confidence of Enrollment Decision*** | ***Contribution Rate***  ***(if enrolled)*** | ***Default Allocation***  ***(if enrolled)*** | ***% Stocks Chosen (if Not the Default)*** |
| *Short Form* (= 1 if yes) | -0.037  (0.023) | -0.210  (1.598) | 0.175  (0.669) | 0.003  (0.039) | -1.300  (2.825) |
| *Financial Literacy* (# of questions correct; ranges from 0 to 5) | 0.005  (0.010) | 3.136\*\*\* (0.707) | -0.019  (0.297) | -0.087\*\*\*  (0.016) | 3.421\*\*  (1.452) |
| *Part-time worker* (= 1 if yes) | -0.143\*\*  (0.065) | -6.953\*\* (2.970) | 1.368  (1.336) | 0.171\*\*  (0.076) | -9.846  (8.619) |
| *Age* | 0.003\*  (0.001) | 0.300\*\*\* (0.091) | 0.049  (0.039) | -0.009\*\*\*  (0.002) | -0.224  (0.145) |
| *Male* (= 1 if male) | 0.015  (0.024) | -1.085  (1.627) | -0.316  (0.684) | 0.073\*  (0.040) | -2.547  (2.897) |
| *Married* (=1 if yes) | 0.062\*\*  (0.028) | 3.658\*\*  (1.724) | -0.875  (0.725) | 0.055  (0.042) | 1.181  (3.116) |
| *Race/ethnicity* |  |  |  |  |  |
| Hispanic | 0.089\*\*\*  (0.022) | 4.107\*  (2.137) | 0.039  (0.885) | 0.011  (0.052) | 2.300  (3.942) |
| Native American | -0.039  (0.076) | -6.470\*  (3.857) | -1.307  (1.674) | 0.035  (0.108) | -6.317  (8.818) |
| Asian | -0.002  (0.054) | -3.003  (3.644) | -1.529  (1.655) | 0.200\*\*  (0.094) | 16.120  (11.185) |
| Black | -0.046  (0.059) | -2.883  (3.386) | 0.510  (1.550) | 0.074  (0.103) | 9.662  (10.647) |
| Hawaiian or Pacific Islander | -0.098  (0.123) | -5.361  (5.773) | -0.427  (2.555) | -0.041  (0.176) | 6.984  (14.171) |
| White | -0.055  (0.034) | -6.217\*  (3.167) | 0.654  (1.478) | 0.047  (0.106) | 5.486  (10.184) |
| *Income* |  |  |  |  |  |
| $60,001-$70,000 | -0.084  (0.054) | 0.224  (2.659) | 0.016  (1.124) | -0.047  (0.067) | 1.036  (4.789) |
| $70,001-$80,000 | -0.088  (0.057) | 0.399  (2.773) | -1.414  (1.178) | -0.029  (0.069) | 3.300  (5.200) |
| $80,001-$90,000 | -0.058  (0.067) | 1.028  (3.203) | 0.982  (1.331) | 0.046  (0.075) | 5.086  (5.904) |
| $90,001-$100,000 | -0.121  (0.076) | 1.542  (3.297) | 1.995  (1.405) | -0.003  (0.082) | 2.334  (6.095) |
| $100,001-$110,000 | -0.033  (0.055) | 1.987  (2.944) | 1.129  (1.229) | -0.075  (0.074) | 7.909  (4.994) |
| $110,001 and over | -0.054  (0.047) | 7.325\*\*\* (2.432) | 1.138  (1.011) | -0.019  (0.060) | -1.331  (4.561) |
| N | 600 | 600 | 541 | 541 | 209 |
| Pseudo R2 | 0.12 | 0.13 | 0.03 | 0.11 | 0.09 |
| **Notes:** Column 1 reports the marginal effects of a probit regression of the choice to enroll (enroll =1) in the plan. Column 2 reports the results of an OLS regression of confidence in enrollment decision (measured on a scale from 0-100). Column 3 reports the result of an OLS regression of the contribution rate (as a percentage of annual salary) conditional on enrollment = 1. Column 4 reports the marginal effect of a probit regression of the binary choice of staying with the default asset allocation conditional on enrollment = 1. Column 5 presents the results of an OLS regression of the % of contribution allocated toward stocks if the default is not chosen (measured from 0 to 100). In all models, the constant term is included but not shown and standard errors are in parentheses. No respondents had income of less than $50,000 by survey design. $50,001-$60,000 is the omitted income category in the regressions. \*\*\*Significance at the 1% level, \*\*Significance at the 5% level, \*Significance at the 10% level. | | | | | |

**Table 4: Descriptive Statistics by Condition (Seeking-Employment Sample)**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Socioeconomic Explanatory Variables*** | **Full Sample**  **(n = 420)** | ***Short* Condition**  **(n = 205)** | ***Long* Condition**  **(n = 215)** |
| *Financial Literacy* (# of questions correct; ranges from 0 to 5) | 2.92 | 2.98 | 2.86 |
| *Part-time worker* (= 1 if yes) | 0.29 | 0.35 | 0.24 |
| *Looking for work now (= 1* if yes*)* | 0.65 | 0.64 | 0.66 |
| *Age* | 38.46 | 38.14 | 38.76 |
| *Male* (= 1 if male) | 0.25 | 0.28 | 0.22 |
| *Married* (=1 if yes) | 0.27 | 0.26 | 0.28 |
| *Race/ethnicity2* |  |  |  |
| Hispanic | 0.11 | 0.10 | 0.13 |
| Native American | 0.04 | 0.04 | 0.05 |
| Asian | 0.07 | 0.07 | 0.07 |
| Black | 0.22 | 0.20 | 0.23 |
| Hawaiian or Pacific Islander | 0.02 | 0.02 | 0.02 |
| White | 0.71 | .071 | .071 |
| Income level |  |  |  |
| $0-$10,000 | 0.45 | 0.42 | 0.48 |
| $10,001-$20,000 | 0.18 | 0.19 | 0.18 |
| $20,001-$30,000 | 0.14 | 0.16 | 0.12 |
| $30,001-$40,000 | 0.06 | 0.07 | 0.06 |
| $40,001-$50,000 | 0.05 | 0.04 | 0.05 |
| $50,001 + | 0.12 | 0.12 | 0.11 |
| **Notes:** Respondents were allowed to choose any combination of these race and ethnicity categories. For brevity we do not report p-values on the comparison between the Short and Long conditions. However, for all socioeconomic variables, there are no significant differences in any reported variable at the conventional 5% level. | | | |

**Table 5: Comparison of Enrollment Behavior across Conditions (Seeking-Employment Sample)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Dependent Variables*** | **Full Sample**  **(n = 420)** | ***Short* Condition**  **(n = 205)** | ***Long* Condition**  **(n = 215)** | ***p*-value** |
| *Enrollment in 401(k) Plan* (= 1 if yes) | 0.68  (0.47) | 0.70  (0.46) | 0.67  (0.46) | *p =* .476 |
| *Confidence in the Enrollment Decision* | 66.21  (28.53) | 68.72  (27.39) | 64.62  (29.50) | *p =* .266 |
| *Contribution Rate* (% of salary contributed if enrolled) | 7.80  (11.10) | 8.23  (11.30) | 7.37  (10.93) | *p =* .091 |
| *Default Allocation* (fraction choosing default of 50% stocks and 50% bonds) | 0.64  (0.48) | 0.65  (0.48) | 0.64  (0.48) | *p =* .805 |
| *Asset Allocation* (% of contribution allocated to stocks if *not* default) | 52.66  (19.45) | 54.54  (19.00) | 50.85  (19.90) | *p =* .182 |

**Table 6: Estimated Marginal Effects on Enrollment Behavior (Seeking-Employment Sample)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Dependent Variable** | | | | |
| ***Explanatory Variables*** | ***Enrollment in 401(K) Plan*** | ***Confidence of Enrollment Decision*** | ***Contribution Rate***  ***(if enrolled)*** | ***Default Allocation***  ***(if enrolled)*** | ***Percent Stocks Chosen (if Not the Default)*** |
| *Short Form* (= 1 if yes) | 0.016  (0.044) | 4.017  (2.705) | 0.896 (1.349) | 0.013 (0.055) | 4.293  (4.257) |
| *Financial Literacy* (# of questions answered correctly; ranges from 0 to 5) | 0.069\*\*\* (0.019) | 2.526\*\* (1.179) | -0.005 (0.582) | -0.045\* (0.024) | -0.597  (1.866) |
| *Part-time worker* (= 1 if yes) | 0.010  (0.055) | -1.883  (3.298) | 0.124 (1.626) | 0.016 (0.066) | -1.574  (5.109) |
| *Looking for work now* | 0.031  (0.051) | 2.884  (3.080) | 0.511 (1.523) | 0.024 (0.062) | 0.851  (4.699) |
| *Age* | 0.002  (0.002) | 0.387\*\*\* (0.108) | 0.106\* (0.053) | -0.007\*\*\* (0.002) | -0.112  (0.168) |
| *Male* (= 1 if male) | -0.027  (0.052) | -4.462  (3.181) | 1.210 (1.600) | 0.086 (0.064) | -2.149  (5.278) |
| *Married* (=1 if yes) | 0.074  (0.051) | 5.009  (3.172) | 1.006 (1.523) | -0.074 (0.064) | 0.744  (4.641) |
| *Race/ethnicity* |  |  |  |  |  |
| Hispanic | -0.081  (0.073) | -3.828  (4.284) | 2.583 (2.285) | 0.016 (0.095) | 0.154  (7.559) |
| Black | -0.063  (0.055) | -1.344  (3.337) | 1.391 (1.773) | -0.086 (0.075) | -1.869  (5.515) |
| *Income* |  |  |  |  |  |
| $0-$10,000 | -0.125\*\* (0.005) | -7.758  (3.157) | -0.851 (1.570) | 0.013 (0.064) | 1.772  (5.210) |
| $10,001-$20,000 | -0.093  (0.067) | -3.450  (3.874) | -3.294\* (1.903) | -0.005 (0.079) | -0.952  (5.761) |
| N | 420 | 420 | 286 | 286 | 102 |
| Pseudo R2 | 0.072 | 0.109 | 0.040 | 0.063 | 0.026 |
| **Notes:** Column 1 reports the marginal effects of a probit regression of the choice to enroll (enroll =1) in the plan. Column 2 reports the results of an OLS regression of confidence in enrollment decision (measured on a scale from 0-100). Column 3 reports the result of an OLS regression of the contribution rate (as a percentage of annual salary) conditional on enrollment = 1. Column 4 reports the marginal effect of a probit regression of the binary choice of staying with the default asset allocation conditional on enrollment = 1. Column 5 presents the results of an OLS regression of the % of contribution allocated toward stocks if the default is not chosen (measured from 0 to 100). In all models, the constant term is included but not shown and standard errors are in parentheses. The omitted income category in the regressions is $20,000+.  \*\*\*Significance at the 1% level, \*\*Significance at the 5% level, \*Significance at the 10% level. | | | | | |

**Table 7: Descriptive Statistics by Condition (Student Sample)**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Socioeconomic Explanatory Variables*** | **Full Sample**  **(n = 233)** | ***Short* Condition**  **(n = 116)** | ***Long* Condition**  **(n = 117)** |
| *Financial Literacy* (# of questions answered correctly; ranges from 0 to 5) | 3.87 | 3.96 | 3.79 |
| *Not employed* (=1 if yes) | 0.47 | 0.42 | 0.52 |
| *Age* | 22.18 | 22.16 | 22.19 |
| *Male* (= 1 if male) | 0.45 | 0.50 | 0.40 |
| *Married* (=1 if yes) | 0.07 | 0.06 | 0.08 |
| *Race/ethnicity2* |  |  |  |
| Hispanic | 0.17 | 0.16 | 0.18 |
| Native American | 0.04 | 0.03 | 0.04 |
| Asian | 0.05 | 0.06 | 0.04 |
| Black | 0.04 | 0.04 | 0.04 |
| White | 0.88 | 0.88 | 0.88 |
| **Notes:** Respondents were allowed to choose any combination of these race and ethnicity categories. For brevity we do not report p-values on the comparison between the Short and Long conditions. However, for all socioeconomic variables, there are no significant differences in any reported variable at the conventional 5% level. | | | |

**Table 8: Comparison of Enrollment Behavior across Conditions (Student Sample)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Dependent Variables*** | **Full Sample**  **(n = 233)** | ***Short* Condition**  **(n = 116)** | ***Long* Condition**  **(n = 117)** | ***p*-value** |
| *Enrollment in 401(k) Plan* (= 1 if yes) | 0.94  (0.25) | 0.92  (0.27) | 0.95  (0.22) | *p =* .413 |
| *Confidence in the Enrollment Decision* | 75.42  (20.71) | 76.81  (19.78) | 74.05  (21.59) | *p =* .414 |
| *Contribution Rate* (% of salary contributed if enrolled) | 6.60  (5.68) | 6.86  (6.18) | 6.35  (5.16) | *p =* .584 |
| *Default Allocation* (fraction choosing default of 50% stocks and 50% bonds) | 0.50  (0.50) | 0.55  (0.50) | 0.45  (0.50) | *p =* .136 |
| *Asset Allocation* (% of contribution allocated to stocks if *not* default) | 61.16  (18.35) | 61.77  (18.43) | 60.67  (18.42) | *p =* .752 |

**Table 9: Estimated Marginal Effects on Enrollment Behavior (Student Sample)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Dependent Variable** | | | | |
| ***Explanatory Variables*** | ***Enrollment in 401(K) Plan*** | ***Confidence of Enrollment Decision*** | ***Contribution Rate (if enrolled)*** | ***Default Allocation (if enrolled)*** | ***% Stocks Chosen (if Not the Default)*** |
| *Short Form* (= 1 if yes) | -0.022  (0.032) | 1.784  (2.613) | 0.473  (0.785) | 0.121\*  (0.066) | 0.496  (3.618) |
| *Financial Literacy* (# of questions correct; ranges from 0 to 5) | 0.008  (0.016) | 3.950\*\*\* (1.361) | 0.728\*  (0.408) | -0.022  (0.034) | 5.155\*\*\*  (1.871) |
| *Not employed* (=1 if yes) | -0.014  (0.032) | -2.246  (2.607) | -0.361  (0.783) | 0.088  (0.066) | -0.080  (3.601) |
| *Age* | 0.005  (0.007) | 0.990\*\*\* (0.334) | 0.041  (0.098) | -0.009  (0.009) | -0.458  (0.352) |
| *Male* (= 1 if male) | -0.033  (0.033) | 3.095  (2.670) | -0.389  (0.803) | -0.107  (0.067) | 3.899  (3.570) |
| *Race/ethnicity* |  |  |  |  |  |
| Hispanic | -0.033  (0.052) | -3.594  (3.723) | 1.771  (1.123) | 0.126  (0.094) | -2.184  (5.615) |
| Native American | -0.293  (0.292) | -13.233 (12.642) | -2.753  (4.318) | -0.112  (0.380) | 11.745  (18.538) |
| Asian | -0.388  (0.306) | -22.882\* (12.563) | -1.365  (4.354) | 0.122  (0.387) | 32.374  (26.408) |
| Black | -0.168  (0.236) | -14.903 (12.644) | -1.740  (4.799) | -0.361  (0.271) | 19.117  (23.977) |
| White | -0.049  (0.059) | -10.163 (12.075) | -1.143  (4.365) | -0.170  (0.365) | 17.745  (22.840) |
| N | 233 | 233 | 218 | 218 | 109 |
| Pseudo R2 | 0.106 | 0.14 | 0.033 | 0.060 | 0.022 |
| **Notes:** Column 1 reports the marginal effects of a probit regression of the choice to enroll (enroll =1) in the plan. Column 2 reports the results of an OLS regression of confidence in enrollment decision (measured on a scale from 0-100). Column 3 reports the result of an OLS regression of the contribution rate (as a percentage of annual salary) conditional on enrollment = 1. Column 4 reports the marginal effect of a probit regression of the binary choice of staying with the default asset allocation conditional on enrollment = 1. Column 5 presents the results of an OLS regression of the % of contribution allocated toward stocks if the default is not chosen (measured from 0 to 100). In all models, the constant term is included but not shown and standard errors are in parentheses.  \*\*\*Significance at the 1% level, \*\*Significance at the 5% level, \*Significance at the 10% level. | | | | | |

1. Weiner and Doescher (2008), Benartzi and Thaler (2013), Siedle (2013), Miller et al. (2015), Vernon (2015), and Kirkham (2016) show similar numbers. [↑](#footnote-ref-1)
2. A 401(k) plan is a tax deferred, defined contribution, retirement savings account. These plans are setup by employers and offered to employees as a means to encourage retirement savings. Employees who opt-in, make contribution via payroll withholdings, pre-tax, and these contributions can be matched (partially) by the employer. The employee then pays income tax when they withdraw money from this account, typically during retirement. This type of plan is named after a section of IRS code, and is prevalent in the private sector in the U.S. [↑](#footnote-ref-2)
3. Similarly, Bhargava and Manoli (2015) find that reducing information complexity can increase the proportion of eligible people who claim EITC benefits. [↑](#footnote-ref-3)
4. As a way to improve retirement-planning decisions, both academic researchers and policy makers have supported the use of nudges. Moreover, the growing research interest aimed at examining how, and the degree to which, non-price nudges can impact behavior spans well beyond retirement planning to a host of other domains including: financial planning, education, health care, risky behaviors, consumption, and energy conservation. See Johnson et al. (2012), Madrian (2014), Benartzi et al. (2017), Loewenstein and Chater (2017), and Loewenstein et al., (2017) for discussions and reviews of this literature. [↑](#footnote-ref-4)
5. Some might consider this manipulation to fall under what has been referred to in the literature as a “signpost” or a “boost”. We refer readers to Camilleri et al. (2019) for a discussion of their proposed distinction between nudges and signposts. We are less concerned about the specific nomenclature of this type of manipulation. [↑](#footnote-ref-5)
6. Qualtrics is an independent, 3rd-party survey company. Via their Panels service, Qualtrics solicits a representative sample of responses to the survey from within the U.S., conditional on the inclusion criteria set forth by the survey administrators (e.g., the researchers conducting the survey). Qualtrics charges a flat-rate per completed survey, and respondents are then compensated directly by Qualtrics. [↑](#footnote-ref-6)
7. Because this study focuses on planning decisions with regard to 401(k) plans, attention is restricted to the prior literature that examines enrollment, contribution, and investment choices related to 401(k) plans or equivalent defined-contribution plans. [↑](#footnote-ref-7)
8. As Bassett et al. (1998) and Benartzi and Thaler (2007) point out, participating in a 401(k) plan shifts the responsibility of saving and investing for retirement to the employee and, as the cost of making financial mistakes can be enormous (Campbell, 2006), individuals with low financial knowledge may prefer to stay away from participating in 401(k) plans (Brown & Weisbenner, 2014, Campbell, 2006). [↑](#footnote-ref-8)
9. The authors attribute this to the fact that married individuals, unlike single adults, have access to more than one source of employment income, making them potentially aggressive in their 401(k) allocations. Another possible reason is that being married is more closely aligned with intergenerational wealth transfers and hence a stronger desire to invest in long-term assets. [↑](#footnote-ref-9)
10. Importantly, this 83% self-reported participation rate is consistent with the aggregate participation rates reported in a recent ICI Research Perspective (Brady & Bass, August 2019). Specifically, based on 2016 IRS fillings, 78% of individuals with annual incomes between $50,000-$100,000 participate in a retirement plan, while 85% of individuals with annual income over $100,000 participate. Hence our sample appears to exhibit similar plan participation rates compared to the national average of high income individuals. [↑](#footnote-ref-10)
11. We also examined the enrollment decision via a probit model that included a dummy variable indicating whether the participant participated in an employer-sponsored plan in real life as an additional regressor. This did not change the result that the treatment had no effect on enrollment. [↑](#footnote-ref-11)
12. We acknowledge that the high level of reported planned participation does make it more difficult to identify possible increases in participation resulting from the Short condition. That said, the point estimates are actually higher for the Long condition compared to the Short condition, which is opposite our hypothesized direction; thus the fact that we don’t observe significantly more participation in the Short condition is likely not a power problem. Moreover, by way of foreshadowing future results, we show in Section 4 the same general result for a subsample of respondents with much lower reported planned participation. [↑](#footnote-ref-12)
13. We also examined an alternative model that included the percentage of salary the experimental participant contributed in an employer-sponsored plan in real life as an additional regressor. This did not change the result that the treatment had no effect on enrollment. [↑](#footnote-ref-13)
14. Interestingly, we see lower planned enrollment in the 401(k) plan among the seeking employment sample (68%) compared to the employed sample (90%); however, this is likely attributed to the fact that a much lower fraction of the seeking employment sample had answered affirmatively to having ever participated in an employer-sponsored plan (54% compared to 83%). Hence, we expect much less anchoring from actual experience, which is the intended purpose of this additional sample. But, conditional on enrollment, the remaining choices exhibit a similar pattern to that of the employed sample. [↑](#footnote-ref-14)
15. These six questions were the following: (1) How many days do you have to enroll in the plan?, (2) Up to what % of your salary will the employer match?, (3) what is the general rule of thumb for what percentage you should be contributing?, (4) what is the general rule of thumb about what percentage of your portfolio be invested in bonds?, (5) If you choose to enroll, but don’t make a contribution decision, what happens?, (6) If you enroll and select an contribution level, but don’t make any investment decisions, what happens? [↑](#footnote-ref-15)
16. For the sake of maintaining a consistent procedure across all samples, we also asked respondents from this sample the same questions about planned retirement savings behavior and actual retirement savings behavior after the manipulation evaluations questions. However, given the potential for the manipulation evaluation questions to influence subsequent planning decisions, we exclude this data from the analysis. [↑](#footnote-ref-16)