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DECISION-MAKING APPROACHES AND THE PROPENSITY TO DEFAULT: EVIDENCE AND IMPLICATIONS

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ABSTRACT

This paper examines heterogeneity in the responsiveness to default options in a large state retirement plan, focusing on individuals' decision-making approaches as well as their economic and demographic characteristics. Using a survey of plan participants, we find that procrastination and the need for cognitive closure are important determinants of the likelihood of default. We also explore an important implication of defaulting – individuals who default are significantly more likely to subsequently express a desire to enroll in a different plan. The desire to change plans is also correlated with numerous economic and decision-making characteristics, including procrastination.

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I. Introduction

One of the most influential contributions of behavioral economics to business practice and public policy over the past decade has been to demonstrate the substantial power of default options in influencing human behavior. Nowhere is this influence more apparent than in the area of retirement plan design and policy. Compelling evidence that changing the default option dramatically increases participation and savings in 401(k) plans (e.g., Madrian and Shea 2001; Choi et al. 2002, 2004a) prompted the U.S. government to codify automatic enrollment in defined contribution retirement plans in the 2006 Pension Protection Act. In recent years, we have seen dramatic increases in the use of automatic enrollment, automatic escalation of contributions, and automatic portfolio allocation and rebalancing both in the U.S. and abroad.[1] There have also been calls to extend the logic of defaults to the post-retirement payout phase of retirement plans by encouraging automatic annuitization (Gale et al. 2008).

Although countless studies have documented profound effects of defaults on behavior, we are still limited in our understanding of why defaults have such large effects overall, and, equally importantly, why there is heterogeneity in the responsiveness to defaults. In this paper, we empirically examine the determinants of a default decision in a large public plan that offers an irrevocable choice among three retirement plans: a traditional defined benefit plan, a portable defined benefit plan, and a defined contribution plan. In addition to examining the full range of economic and demographic factors, we also study the role of several relevant individual decision-making approaches identified in the judgment and decision-making literature.[2] These include approaches in the presence of decision conflict, or uncertainty about which course of

[1] The Plan Sponsor Council of America's *55th Annual Survey* finds that 46% of surveyed defined contribution plans have an automatic enrollment feature in 2011, while Munnell and Sundén (2004) report that report that 7% of plans sponsors offered automatic enrollment in 1999.

[2] Our use of the term "decision approaches" encompasses both decision style and decision approach constructs identified by Appelt et al. (2011) that are relevant to our setting.

action to take (Mann et al. 1997); indecision (Frost and Shows 1993); the propensity to regret (Schwartz et al. 2002), and the need for cognitive closure, or the desire to come to an answer (Roets and Van Hiel 2011). We capture measures of our economic, demographic, and decision approach factors using a broad survey conducted among participants in the State Universities Retirement System (SURS) of Illinois. In all, we collected survey responses from over 6,000 public university employees in the State of Illinois during Fall 2012.

We first study whether individuals made an active retirement plan choice or were defaulted into the traditional defined benefit plan (individuals are defaulted six months after joining the system unless they make an active election prior to that date). In our data, approximately 27% of respondents defaulted whereas the remainder actively chose among the three plans. We find numerous demographic and economic variables influence the propensity to default. For example, higher income and higher net worth individuals are significantly less likely to default, as are women, those with higher self-assessed investment skills, those with greater knowledge of the retirement system, and a higher education level.

With regard to decision-making approaches, we find that a tendency toward procrastination is significantly positively correlated with the likelihood of default. Numerous authors have speculated that procrastination is a plausible reason for default, although this has not been shown empirically. This finding is quite intuitive: those with a tendency to procrastinate are less likely to make an active decision before the default deadline. It is also consistent with a body of economic theory that portrays procrastination as an outcome of present-biased preferences (Akerloff 1991; O'Donoghue and Rabin 1999). In this view, people with present-biased preferences tend to systematically overweight the cost of making a decision today without fully incorporating the fact that they will do the same tomorrow, a tendency that manifests itself

as procrastination.

We also find that individuals with a strong need for cognitive closure are *less* likely to default. Kruglanski (1990) defines need for closure as a desire for ‘‘an answer on a given topic, *any answer*...compared to confusion and ambiguity” (p. 337, emphasis added).[3] A need for closure is therefore a natural factor to explore that can potentially mitigate default behavior.

Having established that individual decision-making approaches are important determinants of default propensities, we then turn to understanding how individuals evaluate the suitability of their retirement plan *ex post*. We do this by asking respondents, “*If you could go back in time and re-do your original pension choice (assuming the rules when you joined SURS are still in place), which plan would you choose?*”, and by asking them to rate the strength of their desire to choose a different plan. We find that respondents who defaulted into the traditional defined benefit plan are 21 percentage points less likely to want to select the same plan if given a chance to re-do their choice. This is true even relative to those who actively chose the same plan into which others were defaulted, suggesting that it is the default behavior rather than the plan itself that is driving this desire to switch to a different plan. We also find that the proportion of those who would “strongly desire” to switch plans is significantly greater among defaulters than among active choosers.

We relate the desire to change plans against the same set of economic, demographic, and decision-making characteristics from above. We again find that procrastination is important: individuals who procrastinated their way into the default are significantly more likely to desire to be in a different plan. We also find that buck-passers – those that are content to leave decisions to others – are significantly less likely to express a desire to switch plans.

[3] The full Need for Closure Scale was developed by Webster & Kruglanski (1994). We use the shorter, 15-question version from Roets and Van Hiel (2011).

These results are informative to the broader use of default options in public and private retirement plans in practice. In particular, the findings that procrastination leads to defaults and that procrastinators are more likely to subsequently express a desire to be in a different plan are important for assessing the welfare consequences of defaults. The use of defaults is often portrayed as a Pareto improvement because a well-designed default can guide individuals into making potentially welfare-improving decisions while still providing the freedom to choose. But if individuals end up dissatisfied with the results of the default, especially in settings like ours where the default is irreversible, this suggests caution in relying heavily on default options as opposed to other alternatives such as forced choice.

This paper adds to the small but growing body of research suggesting that defaults can have potential downsides. Other researchers have shown that poorly designed defaults can reduce welfare if employees fail to later adjust the defaults to suit their needs (Choi et al. 2002, 2004a, 2004b; Beshears et al. 2008, 2010a) and that optimal defaults can vary depending upon participant characteristics (Carroll et al. 2009; Carlin, Gervais, and Manso 2010; Goda and Manchester 2010). Our results also suggest reasons to be cautious in relying solely on defaults to influence behavior. They further raise the question of whether a plan sponsor can take steps to decrease the tendency of procrastinators to default.

This paper proceeds as follows. In Section II we summarize prior literature on defaults. In Section III we briefly describe prior literature related to individual judgment and decision making approaches in complex settings. Section IV provides background on the SURS retirement system, and in Section V we describe our survey design. Section VI presents results of analyses of factors associated with the likelihood of default and with the desire to subsequently make a different choice. We summarize and conclude in Section VII.

II. Prior Literature on Defaults

The earliest work on defaults in the retirement space showed that changing the 401(k) enrollment procedure to one in which a participant must actively opt *out* of a plan rather than actively opt *in* dramatically increases plan participation (Madrian and Shea 2001). Additional research has shown that changing the default savings rate and default investment allocations increase participant savings (Choi et al. 2002, 2004a). This early work, as well as industry experience, propelled policy conversations that led to the U.S. government paving the way for more widespread use of automatic enrollment in defined contribution retirement plans via the 2006 Pension Protection Act (PPA).[4] The PPA and subsequent regulatory actions have also encouraged the widespread use of "Qualified Default Investment Alternatives" (QDIAs) as default portfolio allocations, as well as the use of automatic escalation of contributions. Many financial services firms also now offer automatic rebalancing of portfolios. There have also been policy proposals to enact automatic annuitization as a default distribution strategy after retirement (Gale et al. 2008; Brown 2009).

The idea that governments and organizations can influence behavior through the use of defaults and other forms of non-binding approaches is often referred to in academic and popular literature as "soft paternalism" or "libertarian paternalism" (Sunstein and Thaler 2003; Thaler and Sunstein 2003, 2008). Some proponents of libertarian paternalism suggest that careful design of policies and defaults can do more to increase welfare than can providing information to increase individuals' knowledge about their choices (Sunstein and Thaler 2003; Benartzi and Thaler 2007). While retirement plan design has been a very visible and important application of this concept, the effect of defaults on individual choice has been recognized in other domains as well, including e-mail marketing (Johnson, Bellman, and Lohse 2002), health care (Halpern,

[4] Similar legislation was passed in New Zealand in 2006 and the United Kingdom in 2007 (Beshears et al. 2010b).

Ubel, and Asch 2007), health club memberships (DellaVigna and Malmendier 2006), insurance (Johnson et al. 1993), and organ donation (Johnson and Goldstein 2003; Abadie and Gay 2006).

While libertarian paternalism is often portrayed as an ideological "win-win" by guiding behavior while preserving individual choice, literature has begun to raise potentially negative consequences. For example, Glaeser (2006) points out that there is a danger of leading individuals to sub-optimal outcomes because those who design policies and choose default options likely bring their own incentives and biases to that task.[5] Some studies have shown that poorly designed defaults, such as those with low default savings rates or excessively conservative asset allocations, can reduce welfare if employees fail to later adjust the defaults to suit their needs (Choi et al. 2002, 2004a, 2004b; Beshears et al. 2008). At another extreme, Beshears et al. (2010a) examine a setting in which the default savings rate for a defined contribution retirement plan is extremely high, and find that the rate is suboptimal for all employees.

Other research has explored conditions under which defaults are more or less likely to improve social welfare. Carroll et al. (2009) contrast forced active choice, automatic enrollment defaults, and non-automatic enrollment defaults in savings plans and find that forced choice is optimal when participants may procrastinate or have heterogeneous preferences, while automatic enrollment is optimal when participants are financially illiterate. Similarly, Carlin, Gervais, and Manso (2010) model conditions under which providing default options for financial decisions may be optimal; they find that even well-thought-out defaults can be detrimental to welfare when

[5] Glaeser (2006) also discusses a number of other criticisms and negative consequences of over-reliance on libertarian paternalism as a guide to policy, including: (i) soft paternalism can pave the way towards stricter forms of paternalism that reduce welfare by reducing individual choice; (ii) soft paternalism may rely on stigmatizing behaviors, which can then lead to negative consequences for those who choose to engage in those behaviors; (iii) relative to governments and organizations that design paternalistic policies, individuals face stronger incentives to make choices that improve their own welfare; and, (iv) paternalism often relies on persuasion and governments and organizations have an incentive to abuse persuasion-based systems to enhance their own power.

participants have heterogeneous attributes (and less is known about them) and when the economic stakes of the decision are large. Goda and Manchester (2010) examine the welfare effects of age-based defaults and find that varying the default option by age groups can result in welfare gains relative to a single default for all age groups.

Although prior literature provides insights into when defaults may or may not be optimal, the empirical evidence regarding who defaults and why is more limited. Beshears et al. (2008) propose three reasons that individuals may default, including the complexity of the decision, the belief that the default is a signal or endorsement of the best choice, or that procrastinators never get around to making a decision. Understanding why people default is crucial for evaluating the welfare consequences of relying on defaults as opposed to other interventions.

This paper begins to address the empirical gap by exploring economic, demographic, and individual decision-making determinants of default behavior in a high-stakes setting. Although our setting does not allow us to examine the welfare effects of default, we inform this question by examining individuals' post-decision subjective satisfaction with the plan in which they are enrolled. This subjective satisfaction is also important for employers who design defaults. After all, employers have an incentive to ensure that the significant sums they spend to provide retirement benefits are valued by employees at least as much as a comparable sum spent on wages (Gustman, Mitchell, and Steinmeier 1994; Gustman and Steinmeier 2005).

III. Prior Research on Decision-Making Approaches

Standard economic models of rational consumers assume that individuals make decisions by maximizing expected utility. Indeed, even with the insights of behavioral economics, most economic models of decision-making are still based upon an assumption of optimization, albeit

occasionally with non-standard preferences (e.g., loss aversion or hyperbolic discounting). One of the reasons that economists have found default behavior interesting is that it is difficult to reconcile the powerful effect of default options with many such models.

There is growing acceptance in economics that not all individuals approach decision-making in the same manner, and thus their decisions themselves can diverge from an economics-based definition of optimality. For example, Choi et al. (2014) conducted an experiment to test the quality of decisions as measured by their consistency with Generalized Axioms of Revealed Preference (GARP) and find evidence of substantial heterogeneity in decision quality. Lusardi and Mitchell (2014) summarize a large literature that documents substantial heterogeneity in financial literacy and its implications for retirement well-being (among other outcomes).

A long history of research has shown that, when faced with complex decisions, individuals frequently adopt simplifying decision strategies (Wood 1986; Campbell 1988; Payne et al. 1993; Sethi-Iyengar, Huberman, and Jiang 2004; Benartzi and Thaler 2007; Bonner 2008). For example, an individual may only consider a subset of information, and the information chosen may not necessarily reflect the relevance of the information to the choice. Individuals may also speed up information processing in response to time pressure, which can introduce error into the choice process. Alternately, they may adopt a simpler processing strategy, which at the extreme can be avoiding choice all together by accepting a default (Payne et al. 1993; Sethi-Iyengar, Huberman, and Jiang 2004; Benartzi and Thaler 2007; Beshears et al. 2008).

In drawing on this rich judgment and decision-making literature, our research focuses on what has been called "decision-coping."[6] In particular, we draw on prior literature on decision conflict, which assumes that "stress engendered by decisional conflict is a major determinant of failure to achieve high quality decision making" (Mann et al. 1997, p. 2). In brief, when faced

[6] The discussion of decision coping draws directly from Mann et al. (1997).

with a difficult decision, not all individuals respond in the same way. A subset will respond in a manner that would be consistent with economic models of optimizing behavior, i.e., by collecting and analyzing relevant information and choosing the outcome that maximizes utility. However, other individuals will ignore information and continue the present course of action; some will adopt whichever course is most strongly recommended; some will procrastinate or shift responsibility for the choice; and some will "impulsively seize upon hastily contrived solutions that seem to promise immediate relief" (Mann et al. 1997, p. 2).

As we describe more fully in Section V, we include in our survey questions that capture decision approaches identified in prior literature that are likely to manifest in our decision context – a complex, high-stakes, and irrevocable financial choice. We include the Melbourne decision-making questionnaire, which captures four decision approaches to coping with decision conflict. We also include scales from the judgment and decision-making literature that measure regret, indecisiveness, and the need for cognitive closure (defined as "a desire for ''an answer on a given topic, *any answer* ... compared to confusion and ambiguity"; Kruglanski 1990, p. 337, emphasis added).[7]

IV. Background on the SURS Retirement System

Our decision context is the State Universities Retirement System (SURS) for the State of Illinois.[8] Employees in the system have a one-time irrevocable choice among three different retirement plans which have very different features (described below). Individuals who fail to

[7] The full Need for Closure Scale was developed by Webster & Kruglanski (1994). We use the shorter, 15-question version from Roets and Van Hiel (2011).

[8] The discussion of institutional details updates a prior discussion of SURS in Brown and Weisbenner (2009), where a more detailed description of the SURS retirement plan options can be found. We note that the reduction in the number of employers covered by SURS in the two papers reflects the combining of several campuses. Most of the factual information about SURS is drawn from the SURS website (www.surs.org, last accessed 12/11/2012).

make a choice within six months of joining the system are defaulted into a defined benefit plan and have no subsequent opportunities to alter that choice. Given that SURS-covered employment is not covered by Social Security, the retirement plan provided by SURS is meant to replace both Social Security and an employer pension. As such, in addition to being very complex, this decision is enormously consequential.

As background, SURS covers over 200,000 current and former employees of over 65 Illinois universities, community colleges, and state agencies. Participants include university and college administrators, faculty members, clerical and support staff, campus police, and others. SURS withholds eight percent of a participant's salary as a contribution to his/her retirement plan. Social Security taxes are not withheld and participants do not earn credit toward Social Security benefits based on their earnings from a SURS-covered employer. The state/employer contribution for an employee varies by retirement plan type, and because all SURS participants are employees of the State of Illinois, these employer contributions are a general state obligation.

From its inception in 1941 until 1997, all participants in SURS were covered by a traditional defined benefit plan. In 1997, the Illinois Legislature passed a law allowing SURS-covered employers to offer participants a choice from among three plans, and virtually all did so by 1999. The choice now offered by SURS employers is extremely complex due to the myriad ways in which the three plans differ.

The defined benefit plan, called the "Traditional Plan," remains one of the three plan options and is the default option for participants who do not make an active choice within six months of the date that SURS receives certification of their employment. Participants contribute eight percent of salary for the Traditional Plan, an amount that is meant to cover the employee's share of the normal retirement benefit, automatic annual increases in retirement benefits, and

survivor benefits. The state's share of the normal cost of maintaining the plan has varied over time, but the Illinois legislature has a long history of under-funding the plan and thus the state contributions are rarely made in full. Benefits are paid as joint and survivor life annuities; single participants can take one-eighth of their contributions plus interest as a lump-sum at retirement in lieu of the survivor benefits. There are two formulas for calculating the annuity – a standard defined benefit formula and a money purchase calculation – and a participant receives the larger of the two amounts (State Universities Retirement System of Illinois 2009).[9] While the Traditional Plan is fairly generous for those who retire from the system, it is less so for those who leave early.

The second plan option, the "Portable Plan," is similar to the Traditional Plan but has a few key differences. First, if a participant leaves the SURS system before retirement and takes a refund (i.e., "cashes" out his/her pension), s/he receives a much higher refund than under the Traditional Plan. Second, those who refund from the Portable Plan receive a dollar-for-dollar matching contribution from the employer, whereas those who refund from the Traditional Plan receive only employee, and not employer, contributions. Third, the effective interest rate for the Portable Plan is determined annually by the SURS Board of Trustees and is typically higher than the rate provided by the Traditional Plan.[10] Fourth, if a participant retires from the SURS system, the Portable benefit is paid as a single life annuity, and married participants must accept an actuarial reduction to convert it to a joint and survivor annuity. Thus, for participants who leave SURS service and take refunds, the Portable Plan is more generous than the Traditional Plan, but for those who retire from the SURS system the benefits from the Portable Plan are not as generous as those from the Traditional Plan.

[9] The money purchase formula was eliminated for new participants in 2005.
[10] The Traditional Plan provides an interest rate on contributions of 4.5 percent, whereas the interest rate applied on Portable Plan funds has averaged 8.8 percent over the period from September 1989 through June 2010.

The third plan option, the "Self-Managed Plan," is a participant-directed defined contribution plan that invests 14.6 to 15.1 percent of salary (eight percent from the employee and between 6.6 and 7.1 percent from the employer[11]) into a participant's account. Participants are able to choose from a variety of mutual funds and annuity contracts from Fidelity and TIAA-CREF. Upon full vesting after five years of service, a participant who leaves SURS service is entitled to a full refund of both employer and employee contributions plus investment gains/losses. Upon retirement, the participant can choose from a wide range of annuities or a lump-sum distribution.

Participants must make their choice of retirement plan within six months of the date on which SURS receives certification of employment from the employer (which is essentially the date of hire). If they do not do so, they are automatically enrolled in the default option, which is the Traditional Plan. Importantly, plan choice, including enrollment in the Traditional Plan by default, is permanent and irrevocable.

A complete comparison of the three plans is extremely complex and involves consideration of multiple information items, some of which are not immediately evident in the basic enrollment materials. For example, a participant who leaves SURS service may take a lump-sum refund, but the difference in the refund between the Portable and Self-Managed Plans is small prior to being vested (which is less than five years for most participants in our sample) but is much larger after vesting. For participants who retire from SURS, the expected value of the Traditional or Portable Plans is higher than that of the Self-Managed Plan due to factors such as differing match rates, differing interest rate assumptions, and more generous annuitization rates in the Traditional and Portable Plans than are available in the private sector. There are also

[11] The 6.6 percent rate was in effect from the plan's inception until the past few years. More recently, the rate has risen as SURS has determined that the cost of providing disability benefits to Self-Managed Plan participants was not as high as previously calculated.

countless other complexities that make it very difficult to make an optimal plan choice.

In light of the complexity and importance of this decision, it is a natural setting in which to understand decision-making heterogeneity and its impact on default behavior.

V. Survey Design and Sample Statistics

V.1 Survey Methods

In cooperation with administrators at SURS, we administered a web-based survey of SURS participants. The target population was participants with an active e-mail address on file who joined the system in or after 1999, to ensure that the participants made their SURS plan choice as new employees. SURS sent these participants an e-mail in August 2012 inviting them to participate in the survey, with a link to the on-line survey if they wished to do so. Participants received two subsequent reminder invitations in approximately two-week intervals. In total, out of 60,625 valid emails, we received 6,065 usable responses, for a ten percent response rate.

SURS sent four separate invitations, one each for active choosers of each of the three plans and one for those who defaulted into the Traditional Plan.[12] Thus, we know the actual plan choice of each respondent as listed in SURS administrative records, as well as whether the plan choice was active or by default. The four surveys differed in only minor ways as noted below.

The survey questions were designed to capture three broad categories of data. First, we included questions that captured respondents' basic demographic and economic information such as gender, marital status, age, employment, education, income, and net worth. We also included several questions to capture risk preferences, investment skills, and financial literacy.

Second, questions captured respondents' experiences with and recollections of SURS plans, the enrollment process, and their desire to switch plans if they could. These questions are

[12] All surveys were approved by the Institutional Review Boards at the authors' institutions.

the only ones that varied across the four surveys. Also, after being asked their recollections of their plan enrollment status, all respondents' actual enrollment status per SURS records was revealed to them; this revelation differed across the four surveys.

Third, we included four validated scales from prior judgment and decision-making literature to capture respondents' decision-making approaches relevant to our context. These scales have been extensively used in prior research, including work on consumer behavior, the effects of decision-making on well-being, cross-cultural differences, and choice in specific contexts (e.g., health, health care, career, and other lifestyle choices). Given the number of questions required to construct these scales, we interspersed these throughout other questions on the survey to minimize participant fatigue.

The first decision-approach scale we use is the Melbourne decision-making questionnaire (Mann et al. 1997), a 22-item scale to assess an individual's approach to decision making in the presence of decision conflict because of uncertainty. Four sub-scales are constructed from the Melbourne questions.

- Procrastination (five questions): Delaying decisions, which we hypothesize will positively predict default.
- Vigilance (six questions): A thorough analysis of alternatives, which is consistent with an economist's definition of optimizing behavior; we hypothesize this will negatively predict default.
- Hypervigilance (five questions): An anxious process of hastily settling on an answer, which we hypothesize will negatively predict default.
- Buck-passing (six questions): Leaving decisions to others, which we hypothesize will be positively predict default.

The decision making approaches measured by the Melbourne scale are quite relevant to our context – a complex, multi-alternative, irrevocable, and time-constrained choice before default. Indeed, as Mann et al. (1997) note, the assumption underlying the Melbourne scale is one in which three conditions influence the choice of decision approach, each of which is satisfied by our setting.[13]

We also include a 15-item scale to measure compulsive indecisiveness (Frost and Shows 1993). Indecisiveness is the tendency of an individual to avoid making decisions, which in our setting could lead one to default.

To measure the propensity for regret, we include a five-item scale from Schwartz et al. (2002). Our decision context is one in which the alternatives are permanently foregone after one chooses or is defaulted and thus the potential for regret may be especially salient.

Finally, we include Roets and Van Hiel's (2011) 15-item questionnaire to measure an individual's need for cognitive closure, defined as a "desire for an answer on a given topic, any answer … compared to confusion and ambiguity" (Webster and Kruglanski 1994, p. 1049). We hypothesize that people with a need for cognitive closure are more likely to make an active decision rather than default.

V.2 Sample and Summary Statistics

Table 1 shows that of our 6,065 respondents, 27 percent defaulted into the Traditional Plan, 19 percent actively chose the Traditional Plan, 34 percent chose the Portable Plan and 20

[13] The authors note "Janis and Mann's (1977) conflict model is essentially a social psychological theory of decision making in which the presence or absence of three antecedent conditions are held to determine reliance on a particular coping pattern. The three conditions are: (1) awareness of serious risks about preferred alternatives, (2) hope of finding a better alternative, and (3) belief that there is adequate time to search and deliberate before a decision is required." (p. 2).

percent chose the Self-Managed Plan.[14] Although we rely on SURS administrative data rather than self-reported responses of plan enrollment, we note that respondents in our sample are knowledgeable about their plan selection – 92 percent of respondents correctly identified the plan in which they are actually enrolled in the survey (with high knowledge rates regardless of plan enrollment). These rates of correct plan reporting are substantially higher than the 77 percent found in Gustman and Steinmeier (2005, Table 2), suggesting that SURS participants are more knowledgeable about their retirement plans than the general U.S. population.

Table 1 also indicates that although the sample is not nationally representative, it is nonetheless diverse in terms of demographics, occupation, and economic background. Not surprisingly, given that this system covers higher education, respondents are highly educated, with 62 percent holding a Master's degree, professional degree, or Ph.D. Among the remaining respondents, 10 percent have no post-secondary degree, another six percent have an Associate's degree, and just over 20 percent have a Bachelor's degree. Respondents also come from a range of occupations, with about 13 percent employed as tenured or tenure-track faculty, and 25 percent non-tenure-track faculty. The remaining occupations are spread amongst academic professionals, executives, support staff, and maintenance and public safety personnel. We also have substantial variation in income and household net worth.

Table 2 summarizes the distribution of responses for the decision-making approaches that we examine. Recall that every question is asked (or reverse-coded) on a five point scale, with 1 being "strongly disagree" and 5 being "strongly agree." Each decision approach measure is computed as the average of the five-point response for each of the questions associated with that

[14] Relative to the full universe of SURS participants who have joined the system since 1999, our sample population under-represents defaulters and over-represents active choosers. This is primarily because those who default into the system are substantially less likely to have an e-mail address on file with SURS, and thus were less likely to be solicited by the survey. Relative to the population of SURS participants who joined the system since 1999 and who had an email address on file, our sample proportions are much closer.

approach, and thus can range from 1.0 to 5.0. Interestingly, the average respondent in our sample views themselves as being vigilant (that is, a careful optimizer), with an average score of 4.1. The average person disagrees with the characterization of being a procrastinator, with an average score of 1.9. Perhaps more important for our purposes, however, is that the standard deviation of responses is between 0.5 and 0.7, which is useful to keep in mind when evaluating the magnitude of the coefficients below.

VI. Results

VI.1. Factors Associated with the Likelihood of Default

VI.1.1 Decision-Making Approaches as Determinants of Default

Table 3 provides the result of a linear probability model (OLS) with the dependent variable set to 1 if respondents defaulted into the Traditional Plan and 0 if they made an active choice of plan (i.e., picked any of the three plans before the six-month deadline). We rescaled the coefficients by multiplying them by 100 so that they represent percentage points. We also run all specifications using a non-linear probit model, and the marginal effects are nearly identical to those reported.[15]

Two decision-making approaches are significant predictors of default. Individuals who are prone to procrastinate are significantly more likely to default (coefficient = 3.9). While one-fifth of respondents answered "strongly disagree" to all five procrastination questions (i.e., a score of 1.0 out of 5.0), one-ninth of respondents averaged at least a 3.0 on this scale (indicating at least some agreement with having a tendency to procrastinate). Such a difference in

[15] Since respondents occasionally skipped or chose not to respond to a question in the survey, we created dummy variables for non-responses for the various explanatory variables. This way, an observation is not lost because of a non-response for a particular variable. These dummy variables are included in the regressions reported in Tables 3-5 (though the coefficients are not reported for sake of brevity).

procrastination is associated with a 7.8 percentage point higher likelihood of defaulting into the Traditional Plan (3.9 * 2). Another way to assess the economic importance of procrastination is to measure the effect of a one-standard deviation change in this variable on defaults. Recall that the standard deviation on this variable is 0.7 (on a five-point scale). Thus, a one-standard deviation increase in this measure of procrastination is associated with a 2.7 percentage point (3.9 * 0.7) increase in the likelihood of default, or a 10 percent increase relative to the baseline default rate of 27%.

The simplest interpretation is that those who procrastinate are less likely to choose a plan, and thus are more likely to find themselves defaulted. Economists tend to view procrastination as being a manifestation of present-biased preferences. Present-biased individuals put too little weight on time-distant outcomes (in this case, retirement preparedness) relative to the near-term cost of making an active decision.[16] It is worth noting that there are other reasons besides present bias that an individual may procrastinate. For example, procrastination may simply result from being busy or not having enough time. Thus, as a simple control, we include a separate question to measure the extent to which one is too busy or in too much of a hurry. The coefficient on this "busy" measure is not significant, nor does it alter the magnitude of the coefficient on procrastination.

Consistent with our hypothesis, we also find that individuals with a stronger need for cognitive closure are less likely to default. Individuals who have a need for closure are believed to be uncomfortable with ambiguity and strongly desire to arrive at "an answer" (although not necessarily the "right answer"). The coefficient on the need for closure is -4.5. Thus, a one standard deviation (0.5 units on the five-point scale as reported in Table 2) leads to a -2.3

[16] For more evidence on how procrastination resulting from present-biased preferences affects a range of retirement-planning activities, see Brown and Previtero (2014).

percentage point reduction in the likelihood of defaulting, or more than an eight percent reduction relative to baseline default rates.

Interestingly, the coefficient on vigilance – the one approach that is most closely associated with the economic view of rational decision making – is not significantly different from zero. Likewise, the other measures of decision-making that we included in the survey are not significant predictors of default behavior.

VI.1.2 Economic and Demographic Determinants of Default

Continuing with Table 3, we find that risk preferences and self-assessed investment skills are significantly correlated with default probabilities. We include two questions to assess risk preferences. The first is modeled on a question used in the Survey of Consumer Finances (SCF) that asks individuals whether they would prefer to take above (below)-average risk for above (below)-average returns. We find a pattern of significant coefficients indicating that less risk-averse individuals are less likely to default. This could reflect that respondents who are comfortable taking financial risks may be more likely to prefer the defined contribution plan option, which would require an active choice. However, we also ask a second question based upon the risk aversion questions in the Health and Retirement Survey asking respondents to choose between their current income or a 50/50 gamble between doubling their salary or seeing it cut by a third. Here, we find those most willing to take the gamble are *more* likely to default. Reconciling this offsetting pattern of coefficients in these two questions is admittedly puzzling; we do note, though, that the economic and statistical significance is much larger for the response to the SCF question (i.e., that less-risk averse respondents are less likely to default).

Respondents with more confidence in their own investing skills are less likely to default.

This could reflect a general level of comfort making financial decisions. It could also again reflect the fact that these respondents may be more interested in participating in the defined contribution plan option.

Respondents who report that it is very or extremely likely they will remain in SURS-covered employment for the rest of their career are more likely to default. At first blush, this seems like a counterintuitive finding because those with longer career horizons with a SURS employer should view this as an even more consequential decision. However, those with shorter horizons likely find the Portable or Self-Managed Plans more attractive options than the Traditional Plan because of the more favorable cash-out terms offered by the two former plans once SURS-covered employment ends, thus explaining the positive coefficient on expected job tenure in Table 3.

At the top of the right hand column, we report the coefficient on a question that was intended to control for perceptions of political risk. The poor funding status of public pensions in Illinois is widely known; nearly three quarters of respondents stated that they were "not at all confident" in the Illinois state legislature, and thus one might think that greater concern about funding would make one less likely to default into the poorly-funded defined benefit plan. However, active choice does not necessarily protect one from this risk: only the Self-Managed Plan avoids it because both the Traditional and Portable Plans are supported by the same funds. Thus, while the coefficient on lacking confidence in Illinois government is negative, it is insignificantly different from zero.

Respondents with more education are less likely to default. Specifically, those with a Master's or Professional degree are 4.6 percent less likely to default, and those with a Ph.D. are 8.3 percent less likely to default. Conditional on education, we do not find that measures of

financial literacy[17] or having degrees or work experience in finance or business explain default behavior. The exception is that respondents who are able to correctly answer two basic questions about the SURS system (the approximate share of salary employees contribute to the plan, and whether they pay Social Security tax on SURS income) are less likely to default.[18] However, we caution against drawing a causal inference because it may be that respondents who chose the Self-Managed Plan have learned more about these issues during the process of making an active choice or even after the fact.

We also find that women are less likely to default, whereas those with children are more likely to do so. Turning to the continuation of Table 3 on the next page, we also see differences in default rates based on occupation, income, and net worth. Specifically, we find that higher income and higher net worth individuals are significantly less likely to default.

In sum, the data in Table 3 indicates that the probability of default is inversely related to financial sophistication and wealth. More highly-educated participants, those with more confidence in their investment skills, those with more plan-specific knowledge, and those with higher income and net worth are all significantly less likely to default. Even after conditioning on these and other factors, however, we find that individual decision-making approaches like procrastination matter in explaining default behavior.

[17] We define a respondent as having basic financial literacy if s/he answered two questions correctly. One component to our financial literacy measure is being able to identify that a savings account of $200 earning 10% per year will grow in two years to "more than $240" (as opposed to "less than $240" or "exactly $240"). The second component is answering that the stock of an individual company is at least as risky as a mutual fund of U.S. stocks, which is at least as risky as a mutual fund of U.S. government bonds, which is at least as risky as a money market fund (as revealed by individual risk rankings of the various investments). Just over two-fifths of the sample answered both questions correctly.

[18] Specifically, we code respondents as having "basic SURS knowledge" if they know both that they do not pay Social Security taxes on income from their SURS employment and that they contribute in the range of six to ten percent of salary as an employee contribution (the actual number is eight percent). Three-fifths of the sample answered both basic-SURS-knowledge questions correctly.

VI.2. An Implication of Defaults: The Subsequent Desire to Switch Plans

VI.2.1 Average Differences by Plan in Desire to Switch

Whether the reliance on default options enhances or detracts from social welfare depends largely on how the default affects the utility of individuals who accept the default relative to whatever action they would have taken otherwise. We are not aware of any research that has attempted to address this difficult question, nor do we address it directly here because we are unable to vary the default or measure the utility consequences of the various plan choices.

Nonetheless, our research can inform this issue. In our survey, we ask participants, "*If you could go back in time and re-do your original pension choice (assuming the rules when you joined SURS are still in place), which plan would you choose?"* This allows us to measure whether the respondent views his or her plan as the best choice as of the time of the survey, or whether s/he now prefers a different plan. We recognize that this does not measure *ex ante* expected utility at the time of the decision, nor is it an *ex post* measure of derived utility by the end of life. It does, however, measure the preferences of respondents at the time of the survey, and as such, it is relevant for assessing overall satisfaction with the plans.

Of course, even if respondents reported that they would choose to enroll in a different plan, the reasons behind this response are important. For example, if personal circumstances changed (e.g., changes in tenure, marital, or health status), then a desire to be in a different plan does not necessarily mean that the original choice was *ex ante* sub-optimal given the uncertainty at the time. In contrast, if respondents learned something about their plans that they should have known at the time of their decisions, or did not select pension plans "best" for them because they did not get around to making a decision before the deadline, then there is concern that the default guided at least some participants into sub-optimal decisions. We analyze these and other factors

in more detail later, but we begin with simple tabulations.

In Figure 1, we report the fraction of respondents who would choose the same versus different retirement plans than the ones in which they are enrolled if they were allowed to switch. Across the horizontal axis, we divide the sample into defaulters and active choosers, followed by the active choosers divided by each of the three plans (Traditional DB, Portable DB, and Self-Managed DC). For each group, we show the fraction who would and who would not choose the same plan (either through selecting a different plan or choosing "don't know").

Strikingly, three out of five defaulters would not choose the same plan today, which is 21 percentage points higher than that for all active choosers. Of course, such a comparison does not allow us to determine whether it is the act of defaulting or the plan itself that leads to differences in the desire to switch plans, and absent the ability to default different people into different plans, this is difficult to disentangle. Nevertheless, we can address this concern by holding enrollment in the Traditional Plan constant, and compare those who defaulted into the Traditional Plan to those who *actively chose* the same plan. Even with the same plan, the difference in the desire to switch plans is still 16 percentage points.

Figure 1 is based on a broad definition of wanting to change plans; it includes those who responded "don't know" when asked which plan they would choose today, and it does not capture the intensity with which a respondent wishes to switch plans. Figure 2 refines the measure by including only respondents who stated a different plan choice, and that their desire to switch is strong or extremely strong. With this measure, 17 percent of defaulters have a strong desire to change plans, compared to only 7 percent of active choosers. When we again hold the Traditional Plan constant by comparing those who defaulted into the Traditional Plan and those who actively chose it, we find a similar pattern: 17 percent of defaulters versus 8 percent of

active choosers strongly desire to change plans.

VI.2.2 Correlates of Desire of Defaulters to Switch Plans

Having established that defaulters are more likely to wish to switch plans than active choosers, we now turn to an analysis of decision approach, economic, and demographic characteristics that are associated with the desire of defaulters to switch plans. The linear probability models in Tables 4 and 5 contain the same explanatory variables and are conducted on the sample of respondents who defaulted into the Traditional Plan; the only difference is the dependent variable. Specifically, Table 4 uses the broad measure of the desire to switch plans used in Figure 1 (equal to 1 if the respondent would choose a different plan or does not know which plan they would pick and 0 otherwise), while Table 5 uses the refined measure used in Figure 2 (equal to 1 if the respondent has a strong or extremely strong desire to choose a different plan and 0 otherwise). As before, we rescaled the coefficients by multiplying them by 100 so they represent percentage points. Since the results are comparable across the two tables and the Table 5 analysis focuses only on respondents who strongly desire to re-choose a specific plan, we focus our discussion on Table 5 and note any important differences across the two analyses.

First, we examine the effects of decision-making approaches. Recall that in Table 3, procrastination was correlated with the probability of defaulting. In Table 5, we find that procrastinators who default are significantly more likely to express a strong desire to switch plans. A one unit increase on the five-point procrastination scale is associated with a 4.2 percentage point increase in defaulters having a strong desire to switch plans. Given that the standard deviation on the procrastination measure is 0.7, a one-standard deviation increase in

procrastination is associated with a 2.9 percentage point (4.2 * 0.7) increase in the likelihood of strongly wanting to switch plans – a 17 percent increase relative to the baseline desire to strongly change plans of 17%. An interpretation of these findings is that procrastinators defaulted not because the Traditional Plan was the right one for them, but because they never got around to making a choice. As such, they are more likely to subsequently wish they had made an active choice, and that choice would have been one of the other two plans.

Vigilance, which we believe is most closely associated with an approach that economists would label as an optimizing approach, is not correlated with a desire to switch plans. We find that hypervigilance, which is described in prior literature as an impulsive or contrived decision, is positively associated with a desire to switch plans. However, as we will discuss below, the coefficient on hypervigilance becomes insignificant and falls in magnitude by 2/3 when we include additional controls to measure changes in the circumstances of respondents since they joined SURS, so this is not a robust result.

We find that "buck-passing" is negatively associated with a desire to switch plans. Buck-passing is the tendency to leave decision-making to others. We expect that "buck passers" are content having the decision made for them, and thus are unlikely to make an active decision to change the plan in which they are already enrolled. The significant coefficient on buck-passing is -5.6. Thus, a one standard deviation (0.7 units on the five-point scale as reported in Table 2) leads to a -3.9 percentage point reduction in the likelihood of strongly desiring to switch plans, or a 23 percent reduction relative to the baseline desire to switch.[19]

We also find in Table 5 that several demographic and economic measures are associated

[19] The coefficients on procrastination, hypervigilance, and buck-passing are similar across Tables 4 and 5, both in magnitude and statistical significance. One difference across Tables 4 and 5 is the coefficient on a need for cognitive closure. While a need for cognitive closure is not associated with a strong desire of defaulters to change plans (Table 5), it is negatively associated with the broader measure of the desire to change plans that includes 'don't know' responses (Table 4). This negative effect is consistent with a respondent not wanting to revisit a prior decision.

with a strong desire of defaulters to switch plans. The probability of wanting to switch plans is significantly higher for those who are more tolerant of risk, have higher self-assessed investment skills, are less likely to stay in SURS for their entire career, are younger, and have a higher share of family income accounted for by their SURS employment. Interestingly, although political risk did not affect the likelihood of default in Table 3, it has a strong effect on the desire to switch plans: those who are not at all confident in the Illinois legislature are 8.0 percentage points more likely to strongly want to switch plans. We also find that having a higher share of family income accounted for by SURS is positively associated with a strong desire to switch.

Our survey included 22 questions about changes that the respondent experienced between the dates s/he joined SURS and our survey. These included changes to marital status and family structure, unexpected changes to income or expenditures, changes to health, expectations about length of employment, confidence in the State's ability to honor pension commitments, market expectations, and discovery of what retirement plan peers had selected. We run an extension of the analysis in Table 5 that includes all 22 of these additional questions. Although some are significant in their own right, the decision to include or exclude these variables has little effect on the coefficients on the decision-making approach variables, with the exception of the coefficient on hypervigilance, which falls substantially in magnitude and is no longer significant.[20] Thus, we are confident that the role of decision-making approaches like procrastination in explaining the desire to strongly change plans is not spuriously picking up unobserved changes in other life circumstances or expectations. Rather, these decision-making

[20] Specifically, with the addition of the 22 controls for change in circumstance, the coefficients on procrastination (4.3 with a standard error of 1.7) and buck-passing (-5.2 with a standard error of 1.7) are virtually identical to those in Table 5, while the coefficient on hypervigilance falls to 2.2 (SE = 2.3). As before, the probability of strongly wanting to switch plans is significantly higher for those who are more tolerant of risk, have higher self-assessed investment skills, are less likely to stay in SURS for their entire career, are not at all confident in the Illinois legislature, are younger, and have a higher share of family income accounted for by their SURS employment.

approaches are exerting a direct influence on the desire to switch plans that is largely orthogonal to changing circumstances.[21]

VII. Discussion and Conclusion

We document significant heterogeneity across the population with regard to sensitivity to defaults. In addition to being influenced by economic and demographic factors such as income, wealth, knowledge, and investment skills, we find heterogeneity in the likelihood of defaulting based on measures of different decision approaches. We find an especially robust relation between individuals' tendency toward procrastination and the likelihood of default, as well as procrastinators' subsequent desire to be in different retirement plans than the one into which they were defaulted. We also find significant effects of other decision-making approaches. For example, those with a strong need for cognitive closure are less likely to default, while buck-passing is negatively associated with the desire of defaulters to subsequently switch plans.

The finding that decision-making approaches such as procrastination are associated with defaulting and the later desire to switch plans is important for assessing the welfare consequences of defaults. If individuals are subsequently dissatisfied with the default option, especially in settings where the default is irreversible, this suggests caution in relying heavily on default options as opposed to alternatives such as forced choice or a need to develop institutional mechanisms to mitigate procrastination.

[21] We also estimated an extension of Table 4 that includes the additional 22 controls to capture changing circumstances since the respondent joined SURS. The coefficients on procrastination (4.6), buck-passing (-3.7), and a need for cognitive closure (-5.2) change little from Table 4 (although the coefficient on buck-passing switches from marginally significant to marginally insignificant). The coefficient on hypervigilance falls in magnitude and is no longer significant (3.2 with a standard error of 3.0).

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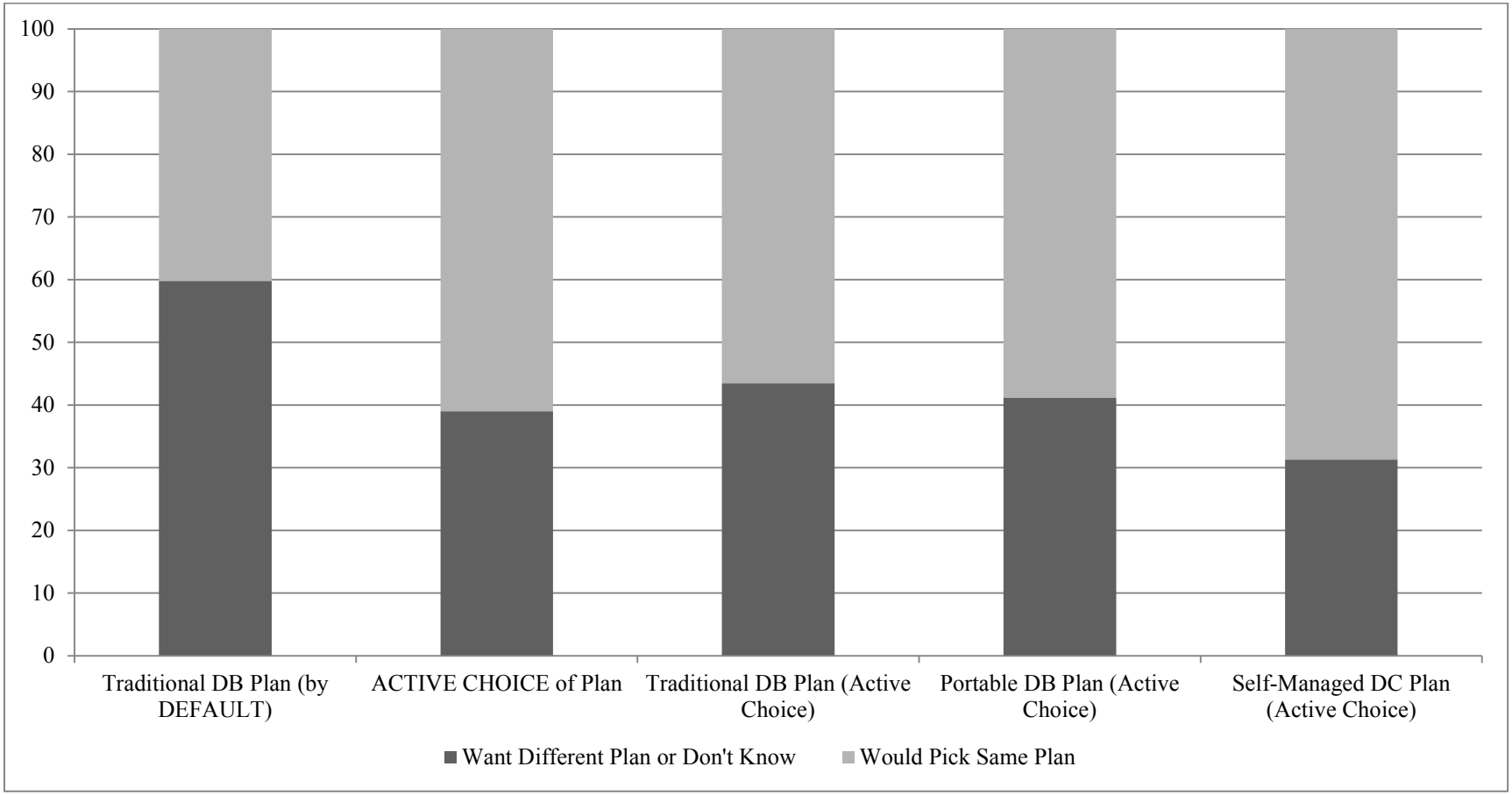
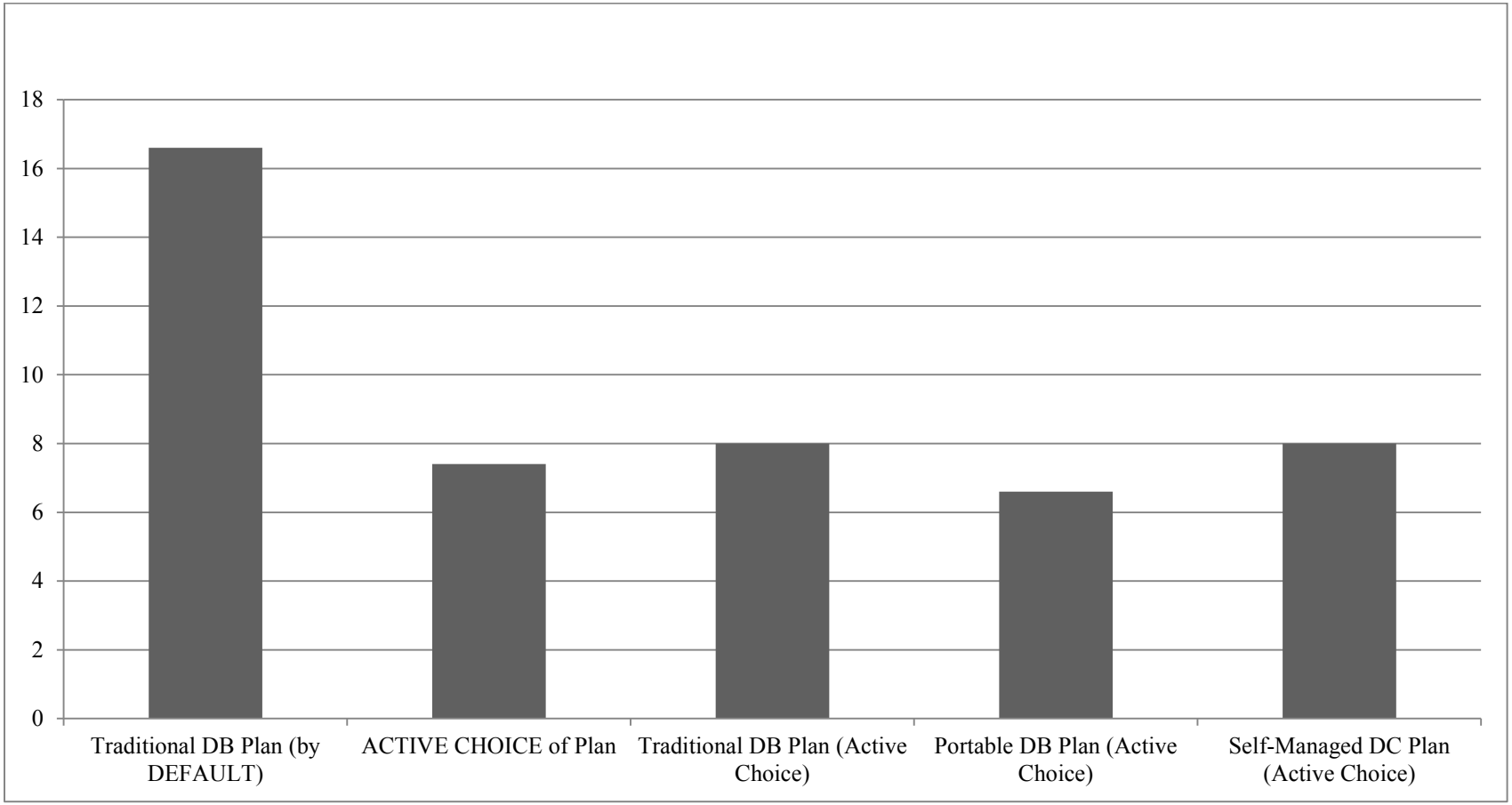
Figure 1: Percent of Respondents Who Would Choose the Same vs. a Different Retirement Plan



Survey respondents were asked, "*If you could go back in time and re-do your original pension choice (assuming the rules when you joined SURS are still in place), which plan would you choose?*" This figure displays the fraction of respondents who would either choose a different retirement plan (or don't know which plan they would pick), or would pick the same plan as their original choice. These tabs are calculated separately for those who defaulted and by plan enrollment for those who made an active decision.

Figure 2: Percent of Respondents Who Would Strongly Desire a Different Retirement Plan



Survey respondents were asked, "*If you could go back in time and re-do your original pension choice (assuming the rules when you joined SURS are still in place), which plan would you choose?*" This figure displays the fraction of respondents who would pick a different pension plan and who further indicate a strong or extremely strong desire to re-do the choice. These tabs are calculated separately for those who defaulted and by plan enrollment for those who made an active decision.

Table 1: Summary Statistics for Sample, Percent of Respondents Reported

ACTUAL PLAN ENROLLMENT		**DEMOGRAPHIC CHARCTERISTICS**	
Traditional (defined benefit), by DEFAULT	26.9%	Age (when joined SURS, in years) – mean	48
Active Choice of:		Age (when joined SURS, in years) – 25th %	35
Traditional Plan (defined benefit)	19.0%	Age (when joined SURS, in years) – 75th %	60
Portable Plan (hybrid)	33.6%	Female?	56.8%
Self-Managed Plan (defined contribution)	20.5%	Married?	72.2%
CORRECTLY IDENTIFIED PLAN IN SURVEY		Have children?	67.7%
Full Sample	91.9%	Ranking of health relative to others	
Traditional (defined benefit), by DEFAULT	96.4%	Very poor or poor	2.9%
Active Choice of:		Average	21.4%
Traditional Plan (defined benefit)	97.8%	Good	46.4%
Portable Plan (hybrid)	84.6%	Excellent	29.3%
Self-Managed Plan (defined contribution)	92.8%	**ECONOMIC CHARACTERISTICS**	
RISK PREFERENCE & INVEST SKILL		Occupation	
Risk-Return Tradeoff Preference		Support Staff (secretary)	17.7%
Below average risk and return	15.1%	Executive	1.9%
Average risk and return	65.4%	Academic professional	23.3%
Above average risk and return	19.5%	Faculty (tenured)	3.5%
Take Gamble (50/50, 100% ↑ or 33% ↓)?		Faculty (tenure-track, not tenured)	9.5%
No	62.1%	Faculty (non-tenure track)	25.0%
Yes	18.8%	Police, fire, and public safety personnel	1.5%
Don't know	19.1%	Maintenance and facilities personnel	3.6%
Self-assessment of investment skill		Other	14.1%
Much or slightly worse than others	31.7%	SURS-covered job income	
Same as others	38.5%	Less than $20,000	18.3%
Slightly or much better than others	29.8%	$20,000 to $39,999	23.0%
BELIEF OF HOW LONG STAY IN SURS		$40,000 to $59,999	25.1%
Expected to stay rest of career when joined		$60,000 to $79,999	17.8%
Not at all or slightly likely	50.7%	$80,000 to $99,999	6.8%
Moderately likely	12.5%	$100,000 to $119,999	3.9%
Very or extremely likely	36.8%	$120,000 or more	5.0%
BELIEF OF POLITICAL RISK		Share of family income in SURS-covered job	
Not at all confident in Illinois legislature	71.8%	0-24%	21.5%
Slight or more confidence in Illinois	28.2%	25-49%	20.5%
GENERAL KNOWLEDGE		50-74%	21.7%
Basic financial literacy:		75-100%	36.3%
Correctly answered both questions	43.2%	Household net worth	
Education		Less than $20,000	13.7%
Less than Associate's degree	10.2%	$20,000 to $49,999	11.5%
Associate's degree	6.2%	$50,000 to $99,999	19.9%
Bachelor's degree	21.3%	$100,000 to $249,999	25.3%
Master's or professional degree	42.6%	$250,000 to $499,999	14.1%
Ph.D.	19.7%	$500,000 or more	15.4%
College degree in finance or business?	18.5%	**FOR SAMPLE OF DEFAULTERS: Pick a Different Plan if Can Re-do Today?**	
Work experience in finance?	35.8%	Would stay with Traditional Plan (DB)?	40.2%
SURS-SPECIFIC KNOWLEDGE		Would switch to a diff. plan or don't know?	59.8%
Basic SURS knowledge:		Have a strong desire to switch plans?	16.6%
Correctly answered both questions	59.6%		
		Sample Size of All Respondents	*6,065*
		Sample Size of Defaulters	*1,630*

Table 2: Summary Statistics for Decision-Making Approaches and Being in a Hurry

	Mean	S.D.	10th %	25th %	50th %	75th %	90th %
Decision-Making Approaches:							
Procrastination	1.9	0.7	1.0	1.2	2.0	2.4	3.0
Vigilance	4.1	0.5	3.5	3.8	4.0	4.3	4.8
Hypervigilance	2.4	0.7	1.6	2.0	2.4	2.8	3.4
Buck-Passing	2.0	0.7	1.0	1.3	2.0	2.3	3.0
Tendency to Regret	2.7	0.7	1.8	2.2	2.6	3.2	3.6
Indecisiveness	2.4	0.5	1.8	2.1	2.4	2.7	3.1
Need for Cognitive Closure	3.1	0.5	2.5	2.9	3.1	3.5	3.7
Busy/Hurry:							
Often do not have time to fully consider options because always in a hurry	2.8	1.1	1.0	2.0	3.0	4.0	4.0

The various measures of decision-making approaches are based upon the responses to questions for each approach, with each individual response scored from1 (strongly disagree) to 5 (strongly agree). The decision-making approach score is then the average of responses for the questions pertaining to that approach and thus can vary from 1.0 to 5.0. Specifically, measures of procrastination (5-question index), vigilance (6-question index), hypervigilance (5-question index), and buck-passing (6-question index) are from Mann et al. (1997), i.e., the Melbourne Decision Making Questionnaire. The tendency to regret (5-question index) is from Schwartz et al. (2002). Indecisiveness (15-question index) is from Frost and Shows (1993). The need for cognitive closure (15-question index) is from Roots and Van Hiel (2011). Finally, our measure for being busy is based on the response to a single question "To what extent do you disagree or agree with the following statement: "I often do not have time to fully consider all of my options because I am always in a hurry", with the response scored from1 (strongly disagree) to 5 (strongly agree).

Table 3: Regression of Whether Defaulted into Retirement Plan Choice, Coefficients from OLS Regression Reported

DECISION-MAKING APPROACHES		**BELIEF OF POLITICAL RISK**	
Procrastination	3.9*** (1.2)	Not at all confident in Illinois legislature	-1.9 (1.4)
Vigilance	0.9 (1.4)	**GENERAL KNOWLEDGE**	
Hypervigilance	-0.9 (1.4)	Basic financial literacy: Correctly answered both questions	-0.0 (1.2)
Buck-Passing	-0.5 (1.1)	Education	
Tendency to Regret	0.4 (1.0)	Associate's degree	-4.6 (3.0)
Indecisiveness	-0.5 (1.8)	Bachelor's degree	-3.4 (2.5)
Need for Cognitive Closure	-4.5*** (1.5)	Master's or professional degree	-4.6* (2.6)
BUSY/HURRY		Ph.D.	-8.3*** (2.9)
Often do not have time to fully consider options because always in a hurry	-0.6 (0.6)	College degree in finance or business?	-2.0 (1.7)
RISK PREFERENCE & INVEST SKILL		Work experience in finance?	1.9 (1.4)
Risk-Return Tradeoff Preference		**SURS-SPECIFIC KNOWLEDGE**	
Average risk and return	-5.0*** (1.8)	Basic SURS knowledge: Correctly answered both questions	-4.5*** (1.3)
Above average risk and return	-9.5*** (2.1)	**DEMOGRAPHIC CHARCTERISTICS**	
Take Gamble (50/50, 100% ↑ or 33% ↓)?		Age (when joined SURS, in years)	-0.10 (0.06)
Yes	3.3** (1.6)	Female?	-2.8** (1.2)
Don't know	-0.3 (1.6)	Married?	-0.6 (1.5)
Self-assessment of investment skill		Have children?	2.7** (1.3)
Same as others	-4.0*** (1.5)	Ranking of health relative to others	
Slightly or much better than others	-5.7*** (1.7)	Average	3.5 (3.6)
BELIEF OF HOW LONG STAY IN SURS		Good	-0.5 (3.5)
Expected to stay rest of career when joined		Excellent	-0.9 (3.5)
Moderately likely	0.2 (1.8)		
Very or extremely likely	6.3*** (1.4)		

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Table 3 (continued from prior page)

ECONOMIC CHARACTERISTICS		Share of family income in SURS-covered job	
Occupation		25-49%	-3.3 (2.5)
Executive	-0.0 (4.4)	50-74%	-1.3 (2.6)
Academic professional	-2.4 (2.1)	75-100%	-0.5 (2.6)
Faculty (tenured)	0.5 (3.8)	Household net worth	
Faculty (tenure-track, not tenured)	-5.6** (2.8)	$20,000 to $49,999	-0.9 (2.6)
Faculty (non-tenure track)	5.0** (2.4)	$50,000 to $99,999	-2.6 (2.3)
Police, fire, and public safety personnel	-4.1 (4.9)	$100,000 to $249,999	-5.3** (2.3)
Maintenance and facilities personnel	2.7 (3.6)	$250,000 to $499,999	-9.1*** (2.6)
Other	-0.9 (2.1)	$500,000 or more	-11.1*** (2.6)
SURS-covered job income			
$20,000 to $39,999	-2.3 (2.6)		
$40,000 to $59,999	-2.5 (2.7)		
$60,000 to $79,999	-1.6 (2.9)	*Fixed effects for year of enrollment?*	*Yes*
$80,000 to $99,999	-3.0 (3.5)	*Fixed effects for employer?*	*Yes*
$100,000 to $119,999	-8.0** (3.7)	*Adjusted R-Squared of Regression*	*0.100*
$120,000 or more	-7.3* (3.8)	*Sample Size*	*6,065*

The specification is a linear probability model (OLS) in which the binary dependent variable is equal to 1 if respondents defaulted into the Traditional Plan and 0 if they made an active choice of plan. We have rescaled the coefficients by multiplying them by 100 so that they are expressed in percentage points.

Standard errors, shown in parentheses, allow for heteroskedasticity.

***, **, * indicates significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 4: Regression of Whether Those Defaulted into Traditional Plan Would NOT Pick Same Plan Today, Coefficients from OLS Regression Reported

DECISION-MAKING APPROACHES		**BELIEF OF POLITICAL RISK**	
Procrastination	4.7* (2.5)	Not at all confident in Illinois legislature	11.5*** (3.0)
Vigilance	1.2 (2.8)	**GENERAL KNOWLEDGE**	
Hypervigilance	6.3** (3.0)	Basic financial literacy: Correctly answered both questions	-0.1 (3.0)
Buck-Passing	-4.1* (2.5)	Education	
Tendency to Regret	3.2 (2.1)	Associate's degree	4.3 (6.1)
Indecisiveness	2.0 (3.8)	Bachelor's degree	6.7 (5.0)
Need for Cognitive Closure	-5.6* (3.0)	Master's or professional degree	0.3 (5.2)
BUSY/HURRY		Ph.D.	0.6 (6.3)
Often do not have time to fully consider options because always in a hurry	1.2 (1.4)	College degree in finance or business?	-4.7 (4.3)
RISK PREFERENCE & INVEST SKILL		Work experience in finance?	1.0 (3.3)
Risk-Return Tradeoff Preference		**SURS-SPECIFIC KNOWLEDGE**	
Average risk and return	1.4 (3.2)	Basic SURS knowledge: Correctly answered both questions	-6.2** (3.0)
Above average risk and return	10.7** (4.7)	**DEMOGRAPHIC CHARCTERISTICS**	
Take Gamble (50/50, 100% ↑ or 33% ↓)?		Age (when joined SURS, in years)	-0.83*** (0.13)
Yes	3.2 (3.5)	Female?	11.3*** (3.0)
Don't know	3.2 (3.6)	Married?	-4.3 (3.1)
Self-assessment of investment skill		Have children?	2.8 (3.1)
Same as others	-4.2 (3.2)	Ranking of health relative to others	
Slightly or much better than others	-2.5 (3.9)	Average	-7.6 (7.2)
BELIEF OF HOW LONG STAY IN SURS		Good	-12.4* (7.1)
Expected to stay rest of career when joined		Excellent	-8.9 (7.3)
Moderately likely	-5.9 (4.4)		
Very or extremely likely	-13.0*** (3.1)		

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Table 4 (continued from prior page)

ECONOMIC CHARACTERISTICS		Share of family income in SURS-covered job	
Occupation		25-49%	8.3 (5.1)
Executive	-2.3 (12.0)	50-74%	5.0 (5.0)
Academic professional	-6.4 (5.2)	75-100%	3.9 (4.9)
Faculty (tenured)	7.3 (9.0)	Household net worth	
Faculty (tenure-track, not tenured)	6.4 (7.0)	$20,000 to $49,999	-10.8** (5.0)
Faculty (non-tenure track)	3.3 (5.1)	$50,000 to $99,999	-2.7 (4.6)
Police, fire, and public safety personnel	-12.5 (9.1)	$100,000 to $249,999	-5.2 (4.8)
Maintenance and facilities personnel	4.2 (7.5)	$250,000 to $499,999	-6.4 (5.7)
Other	4.8 (4.8)	$500,000 or more	-15.9*** (6.2)
SURS-covered job income			
$20,000 to $39,999	-3.1 (4.8)		
$40,000 to $59,999	-1.2 (5.3)		
$60,000 to $79,999	-0.1 (5.7)	*Fixed effects for year of enrollment?*	*Yes*
$80,000 to $99,999	-2.9 (7.4)	*Fixed effects for employer?*	*Yes*
$100,000 to $119,999	-4.0 (9.4)	*Adjusted R-Squared of Regression*	*0.144*
$120,000 or more	-26.0*** (10.0)	*Sample Size*	*1,402*

The specification is a linear probability model (OLS) in which the binary dependent variable is equal to 1 if the respondent would not pick the same plan today (either by picking a different pension plan or answering "don't know" to the would you re-do your original pension choice question) and 0 otherwise. We have rescaled the coefficients by multiplying them by 100 so that they are expressed in percentage points.

The sample is all respondents that were defaulted into the Traditional Plan.

Standard errors, shown in parentheses, allow for heteroskedasticity.

***, **, * indicates significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 5: Regression of Whether Those Defaulted into Traditional Plan Would Strongly Desire to Switch Pension Plans Today, Coefficients from OLS Regression Reported

DECISION-MAKING APPROACHES		**BELIEF OF POLITICAL RISK**	
Procrastination	4.2** (2.0)	Not at all confident in Illinois legislature	8.0*** (2.2)
Vigilance	2.1 (2.4)	**GENERAL KNOWLEDGE**	
Hypervigilance	6.2** (2.5)	Basic financial literacy: Correctly answered both questions	-1.0 (2.3)
Buck-Passing	-5.6*** (1.9)	Education	
Tendency to Regret	-2.7 (1.7)	Associate's degree	0.7 (4.2)
Indecisiveness	-3.9 (3.0)	Bachelor's degree	6.2 (3.8)
Need for Cognitive Closure	-0.3 (2.5)	Master's or professional degree	-0.6 (3.7)
BUSY/HURRY		Ph.D.	3.4 (4.6)
Often do not have time to fully consider options because always in a hurry	0.4 (1.1)	College degree in finance or business?	4.7 (3.3)
RISK PREFERENCE & INVEST SKILL		Work experience in finance?	-2.4 (2.3)
Risk-Return Tradeoff Preference		**SURS-SPECIFIC KNOWLEDGE**	
Average risk and return	3.5 (2.5)	Basic SURS knowledge: Correctly answered both questions	2.6 (2.3)
Above average risk and return	15.9*** (3.8)	**DEMOGRAPHIC CHARCTERISTICS**	
Take Gamble (50/50, 100% ↑ or 33% ↓)?		Age (when joined SURS, in years)	-0.51*** (0.10)
Yes	4.1 (2.9)	Female?	2.9 (2.3)
Don't know	-2.7 (2.8)	Married?	1.0 (2.4)
Self-assessment of investment skill		Have children?	1.7 (2.4)
Same as others	5.3** (2.5)	Ranking of health relative to others	
Slightly or much better than others	5.3* (3.2)	Average	5.5 (5.2)
BELIEF OF HOW LONG STAY IN SURS		Good	2.3 (5.0)
Expected to stay rest of career when joined		Excellent	7.2 (5.2)
Moderately likely	-2.5 (3.6)		
Very or extremely likely	-7.7*** (2.4)		

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Table 5 (continued from prior page)

ECONOMIC CHARACTERISTICS		Share of family income in SURS-covered job	
Occupation		25-49%	10.1*** (3.8)
Executive	-3.0 (7.3)	50-74%	9.2** (3.8)
Academic professional	-3.0 (4.0)	75-100%	11.4*** (3.7)
Faculty (tenured)	4.3 (7.2)	Household net worth	
Faculty (tenure-track, not tenured)	-3.6 (5.4)	$20,000 to $49,999	-1.7 (4.4)
Faculty (non-tenure track)	-0.4 (3.8)	$50,000 to $99,999	-5.0 (3.9)
Police, fire, and public safety personnel	7.2 (8.2)	$100,000 to $249,999	-4.4 (4.0)
Maintenance and facilities personnel	9.8* (5.7)	$250,000 to $499,999	-4.3 (4.6)
Other	3.5 (3.9)	$500,000 or more	-8.9* (4.6)
SURS-covered job income			
$20,000 to $39,999	-1.7 (3.5)		
$40,000 to $59,999	-0.2 (3.9)		
$60,000 to $79,999	2.0 (4.6)	*Fixed effects for year of enrollment?*	*Yes*
$80,000 to $99,999	-0.7 (6.1)	*Fixed effects for employer?*	*Yes*
$100,000 to $119,999	1.0 (8.3)	*Adjusted R-Squared of Regression*	*0.116*
$120,000 or more	-7.9 (7.4)	*Sample Size*	*1,402*

The specification is a linear probability model (OLS) in which the binary dependent variable is equal to 1 if the respondent had a strong or extremely strong desire to switch to a different pension plan and 0 otherwise. We have rescaled the coefficients by multiplying them by 100 so that they are expressed in percentage points.

The sample is all respondents that were defaulted into the Traditional Plan.

Standard errors, shown in parentheses, allow for heteroskedasticity.

***, **, * indicates significance at the 1 percent, 5 percent, and 10 percent levels, respectively.