



Contents lists available at SciVerse ScienceDirect

Journal of Public Economics

journal homepage: [www.elsevier.com/locate/jpube](http://www.elsevier.com/locate/jpube)

## Why do individuals choose defined contribution plans? Evidence from participants in a large public plan

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### ARTICLE INFO

#### Article history:

Received 16 October 2012

Received in revised form 15 May 2013

Accepted 28 May 2013

Available online xxxx

#### Keywords:

Retirement

Public pensions

Defined benefit

Defined contribution

Financial literacy

Political risk

### ABSTRACT

We examine individual choices between a defined contribution (DC) and a defined benefit (DB) retirement plan at a large public employer. We find sensible patterns with regard to standard economic and demographic factors: the probability of choosing the DC plan decreases with the relative financial generosity of the DB plans versus the DC plan and rises with education and income. Using a survey of participants, we find that the ability to control for beliefs, preferences, and other variables not easily obtainable from administrative or standard household surveys increases the explanatory power over seven-fold. Among the important factors in the DB/DC pension choice are respondent attitudes about risk/return tradeoffs, financial literacy, return expectations, and political risk. We also find that individuals make sensible choices based on what they believe to be true about the plans, but that these beliefs about plan parameters are often wrong, thus leading to possibly sub-optimal decisions. Finally, we provide evidence that individuals' preferences over plan *attributes* (e.g., the degree of control provided) are even more important determinants of the DB/DC decision than expected *outcomes* (e.g., the relative generosity of the plans).

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### 1. Introduction

Although much has been written about the dramatic shift in the U.S. private sector from defined benefit (DB) pension plans towards defined contribution (DC) pension plans over the past few decades,<sup>1</sup> less attention has been paid to the rise in the availability of individual-level choice between the two plan types in the public sector. About half of all states now provide a subset of their employees with such a choice, and this is especially common in higher education. As state and local governments grapple with the ongoing under-funding problems in their traditional DB plans, providing a voluntary DC option to partially or completely replace the DB plan is frequently suggested as part of reform efforts. Individuals in these public plans are often provided with a DB versus DC choice (as opposed to the more common private sector approach of freezing or closing the DB plan) because it is often the only way to make this shift in a setting where public DB pension plan participants have strong constitutional protections against involuntary changes to their pension plan.<sup>2</sup> Individual choice has also been provided in a number of international public pension reforms in recent years, and this

idea was also central to some of the proposals put forth as part of the U.S. Social Security system over the past decade.<sup>3</sup>

Relatively little is known about what types of employees choose a DC over a DB plan when given the option to do so, and even less is known about *why* individuals make these choices. The answers to these questions are of interest for numerous reasons. First, at a very practical level, understanding what types of individuals prefer DC plans is helpful to any public or private plan sponsor considering the provision of DB/DC choice. The extent to which a plan achieves nearly any goal of pension reform (e.g., financial, distributional, or human resource goals) will depend not only on the number of employees who select the DC plan option, but also on the characteristics of these workers. Second, an understanding of why individuals choose DC plans helps to shed light on whether frequent assertions about the underlying motivations for why workers might value the opportunity to shift from a DB to DC system (e.g., that individuals valued having more control over their

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<sup>1</sup> Examples of papers exploring the determinants of this shift include Gustman and Steinmeier (1992) and Ippolito (1995).

<sup>2</sup> Brown and Wilcox (2009) discuss the range of strong constitutional protections available to public employees participating in DB plans. These range from explicit "non-impairment" clauses that specifically protect retirement system benefits to protections provided under constitutional contract clauses.

<sup>3</sup> Over the past 25 years, over a dozen countries in Latin America and Europe have reformed their pension systems to switch workers from a defined benefit plan to a defined contribution plan, with many of these countries allowing workers at the time of the reform a choice in the matter – see Disney et al. (1999) for a review. Argentina, Columbia, Peru, and the United Kingdom enacted reforms allowing both existing and future workers to choose between a publicly-managed defined benefit plan and a privately-managed defined contribution plan. The idea of allowing individuals to replace part of their Social Security defined benefit with contributions to a personal retirement account was a central feature of the 2001 President's Commission to Strengthen Social Security and subsequent reform proposals from the administration of President George W. Bush.

retirement planning) have empirical support. Third, from a broader intellectual perspective, our results offer a number of insights into the growing literature on household financial decision-making, including the role of information and financial literacy.

We study the decisions of individuals in the State Universities Retirement System (SURS) of Illinois. Since the late 1990s, every person entering employment in public higher education in Illinois is given a one-time, irrevocable choice between participating in a DB or a DC plan. There are at least three features of the SURS plan that make it an attractive environment in which to learn more about the DB versus DC plan choice. First, SURS participants represent a broad cross-section of the population. Unlike many states that offer choice only to certain classes of employees, the SURS system covers all individuals in higher education, including a broad range of occupations (ranging from faculty to secretaries to maintenance workers) and a range of employers (ranging from a prestigious public research university to regional state institutions to community colleges).<sup>4</sup> Second, the DB/DC choice offered to SURS participants is a very consequential decision, ensuring that individuals take this choice seriously. Employment covered by SURS is not covered by Social Security, and thus the SURS system is designed to substitute for both Social Security and an employer-provided pension. This, and the fact that the combined employer/employee contribution to SURS is substantial (a minimum of 14.6% of salary), mean that this is a high-stakes decision for anyone planning to be in the system for more than a very short period of time. Of course, the downside of this particular strength is that our results may be less applicable to settings in which individuals are fully covered by Social Security and for whom a DB/DC plan decision may be less consequential because they already have a real annuity that provides a minimum guaranteed income floor. Third, the SURS administrative staff has been enormously supportive of academic research, and allowed our research team to field a detailed survey of SURS participants. This survey, which we fielded in 2007, allows us to probe participants for detailed information about a wide range of issues, including their understanding of plan parameters, preferences over financial decisions, financial literacy, and much more.

Our analysis, which is based on the 1441 survey respondents who made their initial pension-plan election in 2006 or 2007, yields several novel findings. First, we find sensible patterns with regard to economic and demographic factors: the probability of choosing the DC plan decreases with the relative financial generosity of the DB plans versus the DC plan<sup>5</sup> and rises with education and income. However, while the relative generosity of the plans does have a nontrivial effect on pension plan choice, it certainly is not a “sufficient statistic” in explaining that choice nor is it the most important determinant in terms of its economic magnitude. Second, we find that the ability to control for beliefs, preferences, financial skills, and plan knowledge – variables that are not available in standard administrative data sets – increases the amount of variation in plan choice that we are able to explain by approximately seven-fold, relative to using standard economic and demographic variables alone. Specifically, as measured by adjusted R-squared, economic and demographic characteristics such as gender, marital status, presence of children, education, income, net worth, occupation, and (self-reported) health can explain only 6.2% of the overall variation in the DB versus DC plan choice (adjusted R-squared = 0.062). When we expand our regression to include information about beliefs, preferences, financial skills, and plan knowledge, the adjusted R-squared rises to 0.471. Among the important factors in the DB/DC plan choice are respondent attitudes about risk/return trade-offs, financial literacy, beliefs about plan parameters, and attitudes about the importance of

various plan attributes. Third, we note that beliefs about plan parameters are important *even when these beliefs are incorrect*. In general, people seem to make sensible choices based on what they believe to be true about the plans, but they do not always have accurate beliefs (and thus may not be making optimal decisions). Finally, we provide evidence that preferences over the attributes of the retirement system (e.g., the degree of control provided) are also significant determinants of the DB/DC plan decision.

This paper proceeds as follows. In Section 2, we discuss the availability of DB/DC choices in public plans across the U.S. In Section 3, we provide more detailed information about the choice setting confronting participants in Illinois SURS. In Section 4, we discuss our survey procedures and methods. We present our empirical results in Section 5 and provide further discussion and conclusions in Section 6.

## 2. How common is DB/DC plan choice in the U.S. public sector?

In the private sector, it is uncommon to allow participants to have a choice between a DC and a DB plan. Although many employers sponsor both DC and DB plans, they are generally not structured so as to allow choice: instead, the plans are designed to cover different employees, or the DC plan is designed as a (sometimes mandatory, sometimes voluntary) supplement to the DB plan.

In contrast, an explicit DC or DB choice is fairly common in the U.S. public sector, especially in higher education. Many states have a core public DB plan, but then offer an “alternative” or “optional” DC plan as a substitute into which individuals can voluntarily opt to participate instead of the DB plan. Although we are unaware of any single data source that provides a definitive list of DB versus DC plan choice among public plans in the U.S., we believe that we have compiled a reasonably comprehensive list of plans through a variety of channels. First, for non-higher-education employees, we rely on the work of Clark and Hanson (2011), who reviewed 105 of the largest public retirement plans for general state employees and public school employees in each of the 50 states. Although they were interested in a different set of research questions, Table 2 from their paper provides the following break-down of plans that offer choice:

Choice between DB and DC	Choice between DC or combination plan	Choice between DB or DC or combination plan
CO PERA	UT PERS-tier 2	OH PERS
FL FRS	WA PERS	OH STRS
MT PERS	WA TRS	
ND PERS		
SC SCRS		

The Clark and Hanson data does not cover higher education plans, except for those in which the higher education employees are part of another plan (such as Ohio STRS). To examine this sector – where plan choice is more common – we began with a list of state plans that provide choice that was compiled by the government affairs office of a large financial services institution with a large market share in the higher education space. We independently verified the presence or absence of a DC versus DB plan choice by going to the websites of the state plan or the benefits website for a range of institutions in the state. As a general rule, we found that it was relatively straightforward to document the states that offer a choice, as the presence of such a choice was often prominent in the materials provided to new employees. In contrast, it is more difficult to definitively document the absence of such a choice and thus our list is a lower bound on the number of states providing choice.

Based on this analysis, our best estimate is that approximately half of all states offer at least a subset of higher education employees a choice between a DB and a DC plan. States for which we have been able to

<sup>4</sup> Clark and Pitts (1999) and Clark et al. (2006) analyze the DB/DC plan choice of new entrants in the University of North Carolina system, but their studies are restricted to faculty and they have only administrative records.

<sup>5</sup> As we will discuss below, the relative generosity of the plans varies with the age, gender, and marital status of the individual.

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