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# PENSION PARTICIPATION AND UNCOVERED WORKERS

BY NADIA KARAMCHEVA AND GEOFFREY SANZENBACHER\*

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## Introduction

In 2008, the Obama campaign proposed a “Plan to Strengthen Retirement Security.” This plan consisted of items ranging from increasing the threshold of the Social Security payroll tax to expanding the Saver’s Credit for families earning under \$75,000. One of the more far-reaching proposals would require employers with 10 or more employees to automatically enroll their employees in Individual Retirement Accounts (IRAs). As a default, 3 percent of each worker’s earnings would be invested in a low-risk portfolio, but workers could choose to change the defaults or opt out of the plan. Employers would not be required to make a matching contribution, but employees who participate would be eligible for the expanded Saver’s Credit.<sup>1</sup>

The purpose of the “Auto-IRA” is to increase the pension participation of all workers, but particularly low-income workers. Yet, it is unclear how many of these workers would participate. Our own research using the Survey of Income and Program Participation indicates that 60 percent of low-income workers currently eligible for voluntary 401(k) plans, similar to

IRAs, choose to participate in those plans. And other research suggests that when workers are automatically enrolled in a 401(k) plan, they are even more likely to participate.<sup>2</sup> However, these numbers are based on individuals who have a 401(k) available to them. It seems likely that these individuals may have sought out jobs offering such plans with an intention of participating. If so, workers who did not seek employment offering pensions may be less likely to participate in the IRA plan, limiting the program’s success in expanding pension participation.

This *brief* explores the participation issue and estimates how many workers would participate if 401(k)-type coverage were extended to those who currently lack it. The first section summarizes trends in pension coverage. The second section describes the data and methodology used for estimating participation, while the third discusses the results. The final section concludes that, while offering convenient savings options to low-income workers should help improve their retirement security, fewer individuals may take advantage of the opportunity than policymakers hope.

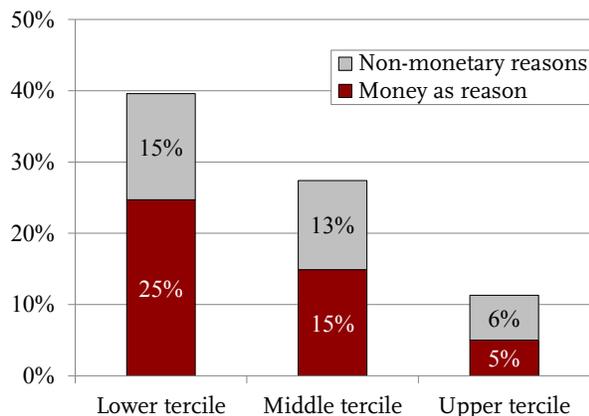
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\* The authors are both Ph.D. candidates in economics at Boston College and are graduate research assistants at the Center for Retirement Research at Boston College. This *brief* was adapted from a longer paper (Karamcheva and Sanzenbacher, 2010 forthcoming).

## Recent Trends in Pension Coverage

The motivation for the Auto-IRA plan is clear. Despite efforts to bolster pension coverage, only half of workers are covered by employer-provided plans, a number that has remained relatively unchanged over time.<sup>3</sup> Furthermore, the last thirty years have been marked by a 33-percent decrease in participation rates for low-income workers.<sup>4</sup> This trend seems to be associated with the shift from defined benefit plans, in which participation is required, to voluntary defined contribution plans (predominantly 401(k) plans). As shown in Figure 1, when given the option, low-income workers are more likely to decline participation, often for monetary reasons.

FIGURE 1. PERCENT OF PRIVATE SECTOR MALE WORKERS ELIGIBLE FOR A DC PLAN WHO DECLINE PARTICIPATION, AGES 25-64, 2007



Source: Authors' calculations from the U.S. Census Bureau, Survey of Income and Program Participation (SIPP), 2007.

The notion that expanding eligibility for pensions will expand coverage, especially when combined with auto-enrollment, seems right. The question is how big of an expansion to expect. Is it appropriate to base expectations about pension participation in an Auto-IRA plan solely on the behavior of people who currently have access to a 401(k) plan? One factor that could temper the optimism of Auto-IRA proponents would be any differences between those who are eligible for 401(k) plans and those who are not. Our analysis attempts to account for these unobservable differences to estimate participation rates if vol-

untary pensions were expanded to most workers. The exercise is not perfect in that the data do not allow us to control for the effect of auto-enrollment. Nevertheless, the results will provide a good lower bound on expected participation rates under an Auto-IRA type policy.

## Data and Methodology

We use data from the 1996, 2001, and 2004 panels of the Survey of Income and Program Participation (SIPP). In each panel, a topical module ("Retirement Expectations and Pension Plan Coverage") posed a series of questions on whether or not the individual's present employer provided a pension, the type of pension the individual was offered, whether or not the individual participated in that pension, the individual's contribution rate if the pension was a 401(k)-type plan and whether the employer provided a matching contribution. This information, combined with the core information on an individual's demographic characteristics and employer characteristics make the SIPP a good data set for modeling participation decisions.<sup>5</sup> Finally, we use plan-level data from the IRS Form 5500 to obtain information on the proportion across states of 401(k) versus defined benefit plans.<sup>6</sup>

The goal of our empirical analysis is to estimate the effect of income and other factors on 401(k) participation. The results will indicate what participation rates to expect as a result of policy changes extending coverage and how the policy effect will differ by income groups. To achieve these two goals, we control for the possible self-selection of workers into jobs offering 401(k) plans. Our empirical setup is a bivariate probit model with sample selection, the equivalent of a popular model in economics.<sup>7</sup>

The idea of this model is fairly simple. Imagine an individual who, based on observable characteristics, does not seem very likely to have a 401(k) plan. If, nevertheless, we observe that he does have a plan, it might be due to the fact that he looked extra hard for a job that offers one and as a result might be more likely to participate in the plan than the average individual with the same observable characteristics. Controlling for selection into 401(k) jobs is a way to capture how much "above and beyond" the individual had to go to get a plan and thus how much more likely he is to participate. Ignoring this effect could lead to overestimates of the number of uncovered workers who would participate if given the option.

## Results

Table 1 shows the effect of some of the most interesting variables on 401(k) plan participation. It compares estimates from a simple probit model with one that controls for selection. In both models we find that individuals who are older, married, well educated, have long tenure at their firm, and work at firms with an employer match are more likely to participate than others. Also consistent with expectations, individuals with high income and high net worth are also more likely to participate. These results are not surprising – previous literature has already documented similar (in terms of direction and significance) relationships between the independent variables and 401(k) plan participation.<sup>8</sup>

TABLE 1. EFFECT OF SELECTED FACTORS ON 401(k) PARTICIPATION, WITH/WITHOUT SELECTION CONTROLS

Variable	Probit	Probit with selection
Age	.120	.203
Married	.116	.112
Years education	.047	.048
Years tenure	.040	.036
DC plan provides match	.388	.363
Log income	.281	.349
Log net worth	.074	.075

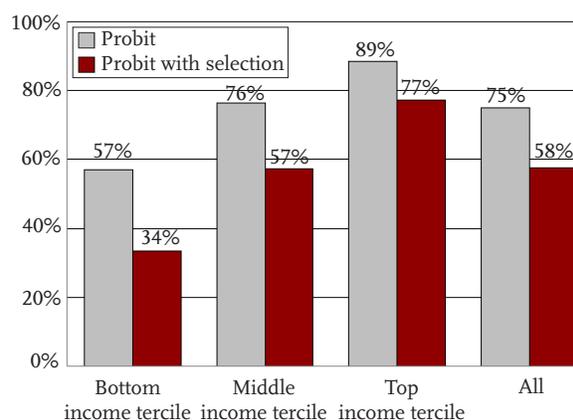
Notes: All results are statistically significant at the 1 percent level. Our Likelihood Ratio test allows us with 90 percent confidence to reject the hypothesis that there is no self-selection.

Source: Author's calculations, based on data from the 1996, 2001, and 2004 SIPP.

When we control for selection, the magnitude of some of the effects is different. For example, the effect of income is estimated to be larger in the selection model. This finding shows us that, in the population as a whole, low-income workers are much less likely than high-income workers to participate in a 401(k) plan. However, in the sample of low-income workers offered plans, this difference is mitigated because low-income workers offered a plan were much more predisposed to participate than other low-income individuals. Therefore, income had a smaller effect.

To illustrate the importance of controlling for selection when forming expectations about the effects of the Auto-IRA plan, we compare predicted participation rates when the selection effect is ignored and when it is taken into account.<sup>9</sup> Our estimates indicate that if predictions are made only using data on the workers who currently have access to a plan, the policy effects would be greatly overestimated.<sup>10</sup> Under the standard model, if matched 401(k)-type plans were provided to all full-time employees, 75 percent of individuals would participate (see Figure 2).<sup>11</sup> Not surprisingly, this result is quite similar to actual participation rates. Once controlling for selection, however, the predicted participation rate drops to 58 percent. This drop occurs because the group of people not already offered plans is substantially less likely to participate based on unobserved characteristics.

FIGURE 2. PREDICTED PARTICIPATION RATES FOR FULL-TIME WORKERS, WITH/WITHOUT SELECTION CONTROLS



Source: Authors' calculations.

If we examine the low-income group, the difference is even larger. Under the standard model, 57 percent of individuals in the lower tercile of the income distribution would participate if all were offered a 401(k)-type plan. Once controlling for selection, this figure drops to 34 percent, a decline of 23 percentage points. As a result, ignoring selection would make us expect a smaller gap in participation rates between low- and high-income groups.

## Conclusion

As 401(k) plans have expanded over the past three decades, pension participation for low-income individuals has fallen more than for any other group. This drop has been driven by the fact that, when given the choice to participate in a plan, low-income individuals are more likely to decline than their higher-income counterparts. Even given this tendency, though, 60 percent of low-income individuals do choose to participate in an offered plan. So, on the surface at least, it seems that expanding the opportunity to participate in a retirement savings plan through an Auto-IRA could be a very effective strategy. Our analysis, however, shows that this picture may be too optimistic.

Our intuition suggests, and our estimation confirms, that workers may select into 401(k) jobs based on some unobserved propensity to participate in the plan. The implication of this selection is that individuals not currently at jobs offering 401(k) plans may be especially unlikely to contribute to a tax-deferred savings plan. Our estimates lead to the prediction that only 33 percent of individuals in the lower income tercile are likely to participate in an offered plan. Nevertheless, some improvement in coverage is better than none at all, particularly given the low estimated cost of the Auto-IRA. And, given the success of auto-enrollment when applied to 401(k) plans, our estimates may represent a lower bound of the potential increase in participation.

## Endnotes

1 Information on the plan is from the Treasury Department's "General Explanations of the Administration's Fiscal Year 2011 Revenue Proposals" (2010) and from the Obama Campaign's fact sheet entitled "Barack Obama's Plan to Strengthen Retirement Security" (2008).

2 Madrian and Shea (2001) have written a comprehensive study on this topic. Currently, the majority of defined contribution pension plans have a default of non-participation. The default in the Obama IRA plan is participation.

3 For more information on constancy in pension coverage over time, see Sanzenbacher (2006).

4 Karamcheva and Sanzenbacher (2010 forthcoming).

5 For more information on how we classified pension recipients, see the Appendix section entitled "Determining Pension and Defined Contribution Match Status."

6 The Form 5500 is a tax form filled out by employers who offer a pension plan. Importantly, the form asks for characteristics of the plan that can be used to determine whether a plan was defined benefit or defined contribution. The form also asks how many workers are covered by the plan and how many individuals work at the offering firm. We use this information to determine the fraction of individuals offered a pension plan that was offered a defined contribution plan by state. This ratio differs by state and over time.

7 The popular model is known as the Heckman's selection model (see Heckman, 1979). See the Appendix section entitled "Empirical Specification" for more detail on our model.

8 See, for example, Munnell et al. (2009); and Bassett, Fleming and Rodrigues (1998).

9 Recall that this exercise is not a perfect replicate of the Auto-IRA plan as the workers in our sample are not automatically enrolled. Still, the exercise indicates that the selection effect can have a large effect on predicted participation rates and should be considered as the policy moves forward.

10 These estimates assume that all plans offer a match (employer and government) at the same rate as the average firm in our sample. While most current firms with 401(k) plans offer a match, some do not. Therefore, since offering a match is positively associated with participation, our results tend to overestimate participation for this reason.

11 The estimate is for full-time workers who are eligible for a DC plan.

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# APPENDIX

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## Appendix

This appendix contains more details on the determination of pension and defined contribution match status and on the empirical specification of our model.

### Determining Pension and Defined Contribution Match Status

For people offered a pension plan, we divide individuals into two categories: individuals offered a defined contribution plan and individuals offered a defined benefit plan. Our definition of being “offered a pension” requires that the worker is with an employer who sponsors a plan and is also eligible to participate in the plan. It should also be noted that we include only full-time workers in the estimation. For workers who participated in their plan, individuals who claimed their benefit was based on earnings or years on the job are classified as defined benefit workers while workers who claimed they had an individual account plan are classified as defined contribution workers. If a worker chose not to participate in his plan, a follow-up question asks if the plan he declined was a tax-deferred plan. If he answered “yes” to this question, then he is classified as having been offered a defined contribution plan. Otherwise, we assume he was simply ineligible for an available defined benefit plan.

An important determinant of pension participation is whether an individual’s employer provides a match to the worker’s contribution. In the 1996 panel, the “availability of employer match” question was not asked to non-participants in the defined contribution plan. Instead, we imputed the missing values of the variable by using observations from the 2004 and 2007 panel and STATA’s hotdeck routine. Hotdeck stochastically imputes observations by matching individuals on user-specified variables. The ones that we used included firm size, industry, union status, and the ratio of defined contribution to defined benefit plans in the worker’s state. More information about “hotdeck” can be found at: <http://ideas.repec.org/c/boc/bocode/s366901.html>.

### Empirical Specification

Our economic model is two equations; both the selection equation in the standard Heckman specification and the outcome equations are modeled as probits. This formulation was first presented by Van de Ven and Van Praag (1981) and, applied to our question of interest, has the following basic set up:

$$\begin{aligned} \Pr(\text{Offered DC plan}) &= \Phi(z\gamma) && \text{(selection equation)} && (1) \\ \Pr(\text{Choose to participate} \mid \text{Offered DC plan}) &= \Phi(x\beta) && \text{(outcome equation)} && (2) \end{aligned}$$

where

$$\begin{aligned} x &= \{\text{demographics, tenure at current job, annual income, wealth, ...}\} \\ z &= \{\text{demographics, annual income, wealth, union status, DC ratio by state, ...}\} \end{aligned}$$

The two probit equations (1) and (2) are estimated jointly. Union status and the proportion of defined contribution to defined benefit plans as offered by employers in the given state serve as exclusionary restrictions. They alter the probability that an individual is offered a defined contribution pension plan but not the probability that he participates in that plan.

If we were to ignore the possibility that workers self-select into jobs with defined contribution plans based on unobservable characteristics, estimating equation (2) separately would have been enough. If, however, there is indeed self-selection on the part of the workers, equation (2) by itself would give us biased estimates of the effect of income and other factors on voluntary participation. Hence, expectations about future policy effects would also be biased.

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