

**How Automatic Enrollment Affects the Likelihood and Distribution of 401(k)  
Contributions: Evidence from a National Survey**

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**Abstract**

Automatic enrollment has been widely embraced for raising employee participation in 401(k) plans. However, the empirical evidence is based on a subsample of plan-sponsoring firms, and up until now data limitations have prevented researchers from extrapolating the effects of automatic enrollment to the broader population of workers. This study re-examines the determinants of 401(k) participation and contributions in the presence of automatic enrollment using nationally representative data from the Health and Retirement Study (HRS) for 2008 and 2010. Preliminary results confirm previous findings that automatic enrollment is associated with higher enrollment in the plan, however, its effect on employee contributions is ambiguous. On average workers who were automatically enrolled in a DC plan tend to be less likely to contribute positive amounts than those who opted-in. Among those workers who contribute, however, there are no significant differences in contribution amounts by automatic enrollment.

## **Introduction**

While defined contribution (DC) plans have grown in popularity, participation rates, particularly among low-income workers, have declined over the past three decades (Karamcheva and Sanzenbacher 2010). Using various data sources, including household surveys, employer-provided plan data, and administrative records of earnings and contributions, previous studies have established that tax-deferred retirement participation, contributions, and accumulations are concentrated predominantly among higher-income individuals (Bassett, Fleming and Rodrigues, 1998; Dworak-Fisher, 2011; Dushi, Iams and Tamborini 2011). This in turn has raised concerns about growing retirement income inequality and stimulated debate about the best ways of boosting DC plan participation and contributions.

Previous research has demonstrated that switching from opt-in to opt-out enrollment is associated with significant increases in 401(k) plan participation in some firms, and is particularly effective for workers who otherwise would not participate (Choi et al. 2004; Madrian and Shea 2001). Beshears et al. (2010) found that automatic enrollment raises participation even in the absence of more traditional plan features known to be effective, such as the employer match. However, empirical findings so far have been derived from three main sources, each having its disadvantages: 1) individual firm case studies that observe participants' behavior before and after automatic enrollment, but may not generalize to the larger population of workers (e.g. Madrian and Shea 2001; Beshears et al. 2010); 2) proprietary plan-level data from plan sponsors that cover a substantial number of predominantly larger plans but are not necessarily representative of all covered workers (e.g. Nessmith, Utkus and Young 2007; VanDerhei 2010; Vanguard 2012); and 3) firm-level data such as the Form 5500 series or the National Compensation Survey, which are nationally representative but lack important demographic and socioeconomic information necessary to analyze individual participants' behavior (e.g. Soto and Butrica 2009; Butrica and Karamcheva 2012).

This paper aims to fill the gap in the literature by reexamining the determinants of 401(k) participation and contributions in the presence of automatic enrollment using data from a nationally representative household survey.

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### **Data**

Our data come from the Health and Retirement Study (HRS), a large nationally representative survey of Americans age 51 and older that has been tracking households since 1992. The HRS provides valuable information on personal characteristics, employment, earnings, income, financial assets, and pensions. In 2006, the HRS began asking household respondents about automatic enrollment, making it the first nationally representative household survey to collect this information. Unfortunately, the skip pattern in the questions involving automatic enrollment changed between the 2006 and 2008 waves. In 2006, only respondents in a DC plan were asked about autoenrollment. After 2006, all respondents offered a DC plan were asked the question. For this reason, our analysis uses pooled data from only the 2008 and 2010 waves to analyze automatic enrollment in retirement plans. Our sample includes workers ages 55 to 69 who are not self-employed. We express all dollar amounts in constant 2010 dollars (indexed to changes in the Consumer Price Index).

We define workers as individuals who are working at the interview date and report positive wages and hours. Workers are offered a DC plan if they report being included in their employer's DC plan or if not included they report that their employer offers a DC plan for which they are eligible but choose not to participate. They participate in the plan if they report positive contributions. We look over all plans to determine whether workers are offered a DC plan, included in a DC plan, and participate in a DC plan. We sum contributions from all plans to create our measure of total contributions, and we divide this amount by total earnings from all jobs to create our measure of contribution rates. Information on automatic enrollment comes from a couple of questions in the HRS survey. First, workers who are included in a pension plan are asked whether they were given a choice to participate or were enrolled automatically when they became eligible to participate in the company's retirement/pension plan. Second, in 2008 the survey added a similar question for workers who are not included in a plan, but whose employer offers a plan for which they are eligible. These workers are asked whether their firm requires employees to sign up for this plan or whether they are automatically enrolled.

### **Methodology**

We begin our analyses by showing how DC offer rates, inclusion rates, participation rates, contribution levels, and contribution rates differ between workers with autoenrollment and

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those without, and the extent to which we observe the same differences by job tenure and earning level.

Then in our empirical specifications, we analyze the determinants of inclusion and participation with a binary response model which we estimate as a probit model. We also analyze the determinants of contribution rates and contribution levels with a censored regression model following Tobin (1958). Predictors in the models include age and its square (to capture nonlinear effects of age), sex, education, marital status, log of household income, log of financial assets, whether the respondent also has a defined benefit (DB) plan, whether the spouse makes contributions to his or her DC plan, and year dummies to capture changes in worker behavior over time. We also include an indicator of whether the worker is a new hire with 2 years or less of tenure on the current job and indicators of earnings quintiles. Finally, we include a dummy indicator of automatic enrollment—our main variable of interest.

### **Preliminary Results**

#### ***Prevalence of Automatic Enrollment***

Nearly 30 percent of workers ages 55 to 69 were offered a DC plan with automatic enrollment at some point between 2008 and 2010, with new hires and low earners being more likely than old hires and higher earners (figure 1).

#### ***Participation in DC Plans***

So how is a worker's retirement plan behavior plan influenced by automatic enrollment? Among older workers offered a DC plan, we find that those with autoenrollment are more likely to be included in a retirement plan than those without autoenrollment. For example, 92.2 percent of older workers with automatic enrollment are included in a DC plan, compared with only 86.8 percent of those without autoenrollment (table 1). Differences between workers with and without automatic enrollment in the likelihood of being included in a plan are largest for new hires and the lowest earners.

However, the relationship between DC participation—defined as contributing to a plan—and automatic enrollment is very different. Among older workers offered a DC plan, those with autoenrollment are less likely to participate in the plan than those without autoenrollment. For example, only 67.6 percent of older workers with autoenrollment participate in the plan

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compared with 79.9 percent of those not automatically enrolled. Although old hires and higher earners are also less likely to participate in their employer's retirement plan if they are automatically enrolled, new hires and the lowest earners are as or even more likely to participate with autoenrollment. Among new hires, for example, 62 percent of those automatically enrolled participate in the plan compared with 58.1 percent of those who opt-in. However, this difference is not statistically different from zero.

### ***Contribution Levels among Workers in DC Plans***

Among older workers offered a DC plan, the median contribution amount is significantly lower for those who are automatically enrolled than for those who are not—regardless of job tenure and earnings level (table 2). The typical worker contributes only \$1,800 per year if autoenrolled and \$3,371 per year if not—with the largest differences being for old hires and the highest earners.

Focusing on only workers who contribute to a DC plan significantly reduces the differences in median contribution amounts by automatic enrollment. The typical worker contributes \$3,794 if autoenrolled and \$3,816 if not. The only statistically significant difference in contribution amounts is among new hires—those with automatic enrollment contribute only \$1,550 and those without autoenrollment contribute \$2,836.

Another finding is that among workers without automatic enrollment, contribution amounts are fairly similar between those offered and those participating in DC plans. This is not the case among workers who are automatically enrolled. For this group of workers, contribution amounts are significantly lower among those offered DC plans than among those participating in DC plans. This result confirms what was reported in table 1—that automatically enrolled workers are less likely to contribute to their DC plan than are opt-in workers.

Looking at the distribution of contribution amounts tells the same story. Figure 2 includes histograms of employee contribution amounts for old and new hires by whether workers were automatically enrolled. Each bucket represents another \$1,000. Among old hires, for example, 40 percent of autoenrolled workers contributed \$1,000 or less (including nothing) to their retirement plans compared with only about 22 percent of workers without autoenrollment. The difference between automatically enrolled and opt-in workers is similar among new hires; however new hires are much more likely than old hires to contribute little if anything to their DC plans.

***Contribution Rates among Workers in DC Plans***

Table 3 examines the median contribution rates (contribution amount divided by total earnings) among older workers who are offered DC plans. The patterns are similar to those for contribution levels. Median contribution rates are significantly lower for workers who are automatically enrolled than for those who are not, regardless of job tenure or earnings. For example, the typical worker contributed only 5 percent to a DC plan if automatically enrolled, but 6.1 percent if not. Controlling for participation in a DC plan reduces the differences between workers who are autoenrolled and those who opt-in. For example, the typical DC participant contributed 7 percent to a plan if automatically enrolled and 7.4 percent if not automatically enrolled. Not only is the difference small, but it is no longer statistically significant.

The distribution of contribution rates tells the same story. Figure 3 includes histograms of employee contribution rates for old and new hires by whether workers were automatically enrolled. Each bucket represents another 2 percentage points. Among old hires, for example, about 35 percent of autoenrolled workers contributed 2 percent or less (including nothing) to their retirement plans compared with about 13 percent of workers without autoenrollment.

***Multivariate Analysis of Participation***

The descriptive analysis revealed some important differences by automatic enrollment with respect to the share of workers included and the share of workers contributing to their employer’s DC plan. In this section, we examine whether these relationships still exist after controlling for other factors.

We start by estimating latent variable models of the propensity to be included in a DC plan if offered and the propensity to participate (or contribute a positive amount) in a DC plan if offered. The propensities are modeled as functions of personal demographic and socio-economic characteristics  $X$  and the automatic enrollment provision  $Auto$ .

$$(1) \quad \begin{aligned} y_i^* &= X_i\beta + Auto_i\gamma + \varepsilon_i \\ y_i &= 1[y_i^* > 0] \end{aligned}$$

We assume normal distribution for the error term and estimate the equation via maximum likelihood as a probit.

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Table 4 presents estimated marginal effects of the independent variables on the probability of being included in an offered DC plan. Our variable of interest is automatic enrollment, which is a dummy variable that equals 1 if workers indicate being automatically enrolled when they became eligible in the DC plan they are included in or if they indicate that the DC plan their employer offers and they are eligible for is one in which employees are automatically enrolled. Because the information on automatic enrollment in offered plans is available starting in 2008, our main regressions use data only for 2008 and 2010. However, for comparison, we also estimate the relationship between the rest of the controls and our outcomes measures using earlier data. Columns 1 and 2 in tables 4 through 9 compare results using pooled data from 2004 through 2010 with those using pooled data from 2008 through 2010.

As the estimates in table 4 show, the probability of being included in an offered DC plan is positively related to being female, having a spouse that contributes to a DC plan, and having higher earnings. New hires are on average 8.8 percentage points less likely to be included in a DC plan than old hires who have at least 2 years of tenure. Workers in the bottom quintile of the earnings distribution are 21.5 percentage points and those in the second quintile are 9.6 percentage points less likely to be included compared with those in the middle of the distribution (column 3). Automatic enrollment itself is associated with a 6.9 percentage point higher probability of being included in a DC plan and is statistically significant with a 99 percent confidence level.

Columns 4 and 5 test for differences in the effect of automatic enrollment on new hires versus old hires and on workers in different quintiles of the earnings distribution. Automatic enrollment is positively associated with the propensity to be included in a DC plan for both new and old hires, but more strongly so with new hires. On average, automatic enrollment increases the chances of being included 5.6 percentage points for old hires and an additional 7.6 percentage points for new employees who were hired within the last two years. However, this result is only significant with a 90 percent confidence level. In terms of earnings quintiles, we find no evidence of significant heterogeneous effects of automatic enrollment.

Table 5 presents estimated marginal effects of the independent variables on the probability of participating in an offered DC plan. Similarly the propensity is positively correlated with having a spouse who contributes to a DC plan and with being a higher earner, and negatively associated with being a new hire (a 10.7 percentage point reduction). While the



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automatic enrollment provision reduces old hires' likelihood of participating 13 percentage points, it increases new hires' likelihood of participating by about 10 percentage points (column 4).<sup>1</sup> Being automatically enrolled is also associated with a 12 percentage point lower propensity to contribute among those in the middle of the earnings distribution (column 5). The estimated coefficients on the interaction terms between automatic enrollment and earnings quintiles are positive but only marginally significant for the bottom two quintiles and negative and insignificant for the top two quintiles. Linear combination tests suggest that automatic enrollment is negatively correlated with participation among those in the middle, fourth and top quintiles by 13, 15 and 10 percentage points respectively, but has no statistically significant effect on participation among those in the bottom and second quintiles.

***Multivariate Analysis of Contribution Amounts and Contribution Rates***

Because contribution rates and amounts are censored from below at 0 for those who do not participate, we analyze the relationship between automatic enrollment and contribution rates and amounts by estimating censored regression models on all workers and ordinary least squares models on workers who make positive contributions. To deal with the censoring, we apply a standard censored Tobit model (type 1 Tobit model). The structural equation in the model is given by:

$$(2) \quad y_i^* = X_i\beta + Auto_i\gamma + e_i$$

where  $e_i \sim N(0, \sigma^2)$ .  $y_i^*$  is a latent variable that is observed for values greater than 0 and censored otherwise.<sup>2</sup> The observed  $y$  is defined by the following measurement equation:

$$(3) \quad y = \begin{cases} y_i^* & \text{if } y_i^* > 0 \\ 0 & \text{if } y_i^* \leq 0 \end{cases}$$

We estimate the model via maximum likelihood.

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<sup>1</sup> This result was derived by conducting a linear combination test of the coefficients derived from a linear probability model—significant only at 90 percent confidence.

<sup>2</sup> The Tobit model can be generalized to take account of censoring both from below and above.

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Tables 6 and 7 show results from the Tobit and OLS models of contribution amounts among workers offered a DC plan. As expected, contribution amounts are positively associated with wealth, other income, and being a high earner. Interestingly, individuals who are in a coupled household contribute less on average than individuals who are not in a couple. With respect to automatic enrollment, we find that contributions by old hires are about \$2,100 lower for those who are autoenrolled than for those who opt-in. In contrast, contributions by new hires do not differ statistically by automatic enrollment (due to a positive and significant interaction term on new hired status and automatic enrollment). No statistically significant differences are observed between individuals belonging to different earnings quintiles.

The results from table 7 which estimates a linear regression model on individuals who make positive contributions show that although workers in the bottom quintile of the earnings distribution contribute less in level terms, automatic enrollment has no statistically significant association with contribution amounts among those who are participating.

Finally, tables 8 and 9 present findings from the Tobit and OLS regressions of contribution rates. The results confirm the earlier findings that higher wealth and earnings are associated with higher contribution rates. While our automatic enrollment indicator on average is associated with lower contribution rates in the Tobit model (column 3, table 8), there is no strong evidence of a statistically significant effect among the workers who are making positive contributions (column 3, table 9)—a finding that also confirms the descriptive results.<sup>3</sup>

### **Discussion**

Demographic trends and impending reforms suggest that Social Security will likely replace a smaller share of pre-retirement earnings than it does today, increasing the importance of employer-sponsored retirement plans in providing adequate income. Although ‘auto-pilot’ features in 401(k) plans have been linked to increased participation rates, relatively little is known about how such plan features may affect the distribution of tax-deferred contributions and wealth accumulation on a national scale. This project aims to fill some of that gap in the literature and to inform the policy debate on the evolution of retirement income security. We

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<sup>3</sup> As a robustness check, we estimated OLS models on contribution rates and contribution amounts in workers’ main DC plan using the automatic enrollment indicator relevant for that particular plan and restricting the sample to those who are making positive contributions. The results were very similar to those using contribution amounts summed over all DC plans that the worker is included in. Results are available upon request.

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analyze the relationship between automatic enrollment and workers' elective contributions to a DC plan using data from the first nationally-representative survey that asks respondents about autoenrollment. Preliminary results suggest that the relationship between automatic enrollment and DC contributions may be more ambiguous than policymakers expect. Our regression analyses, which control for a number of different factors, suggest that automatic enrollment increases the likelihood of being included in a DC plan for all workers, but increases the likelihood of participating and making contributions to a plan only for new hires and low earners.

Furthermore, autoenrollment has no effect on the contributions of new hires and is associated with a reduction in contributions among old hires. Among old hires, automatic enrollment is correlated with lower contribution rates—in part because a large share of autoenrolled workers does not contribute to their plans. Controlling for positive contributions, however, there is no statistically significant difference in contribution rates between workers who are automatically enrolled and those who opt-in.

### **Future Work**

In future work, we will analyze the restricted-use HRS file which matches HRS respondents with administrative data on lifetime earnings and actual 401(k) contributions reported on their W-2 forms. These data are considered to be more reliable than self-reports. The current restricted-use HRS file, however, includes administrative earnings records only through 2008 and therefore provides us with only one year of data for which we have both information on automatic enrollment among all workers offered a DC plan and their W-2 information on earnings and deferred contributions. Despite the small sample size, this analysis will be valuable as it will enable us to validate our results based on self-reported information.

We will also examine how automatic enrollment affects workers' likelihood of plan participation and their level of contributions, controlling for various life events (such as buying a house, experiencing a health or income shock, or becoming divorced or widowed), and plan characteristics (such as whether the employer contributes, or the availability of investment options). Given the heavily skewed distribution of employee contribution amounts and contribution rates, we plan to also estimate quintile regressions to examine whether the effect of automatic enrollment changes throughout the distribution. Finally, we will use the information on the employer contributions to derive a more complete measure of defined contribution

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savings and analyze the relationship between total worker and employer contributions and automatic enrollment.

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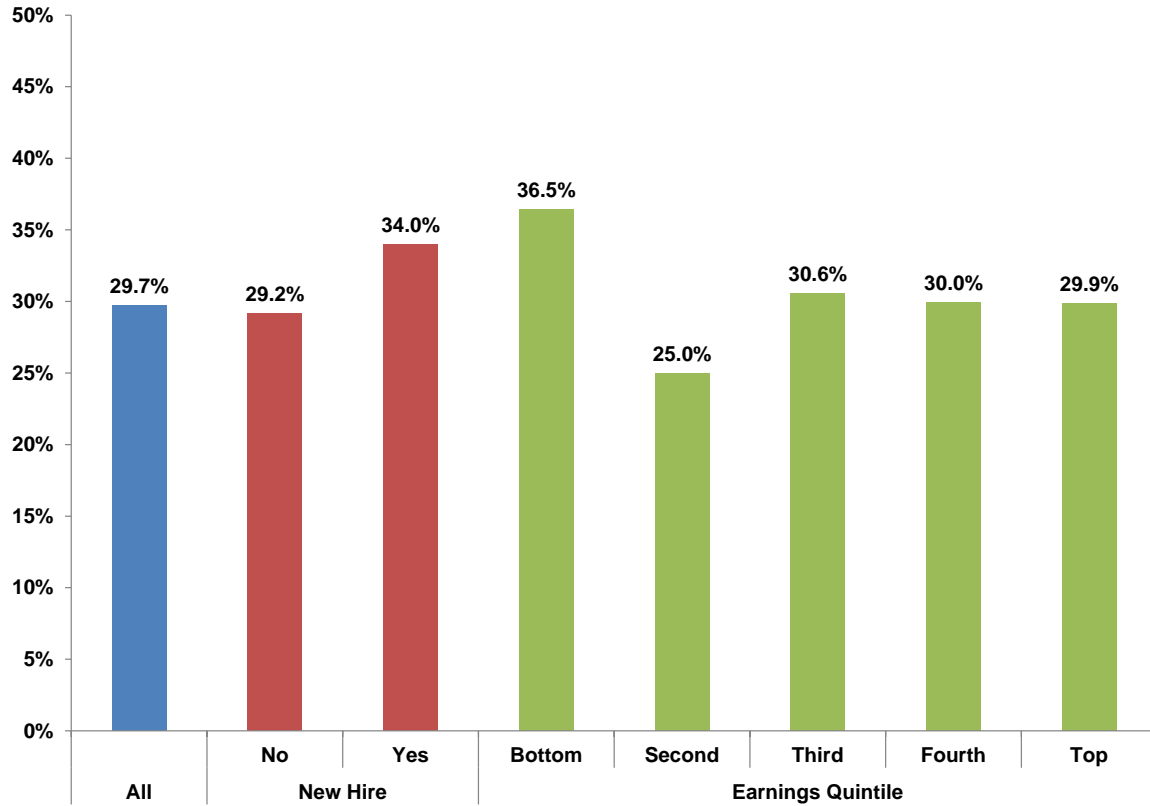
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Figure 1. *Share of Workers Ages 55 to 69 Offered a DC Plan with Autoenrollment, by Job Tenure and Earnings*

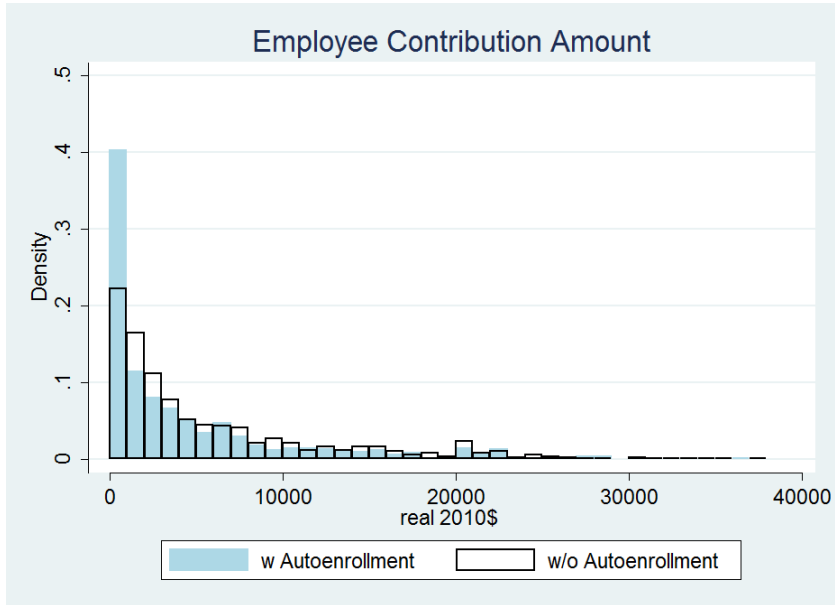


Source: Authors' calculations from the 2008-2010 waves of the Health and Retirement Study.

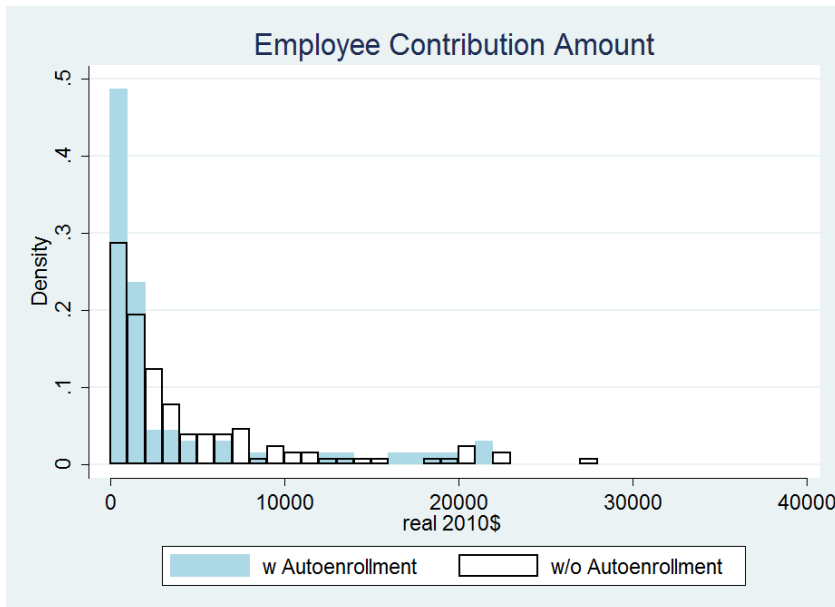
Notes: Sample includes workers ages 55 to 69 who are not self-employed and who report positive wages. New hires have 2 years or less of job tenure.

Figure 2. *Distribution of Contribution Amounts among Workers Ages 55 to 69 Offered a DC Plan, by Automatic Enrollment*

**Old Hires**



**New Hires**

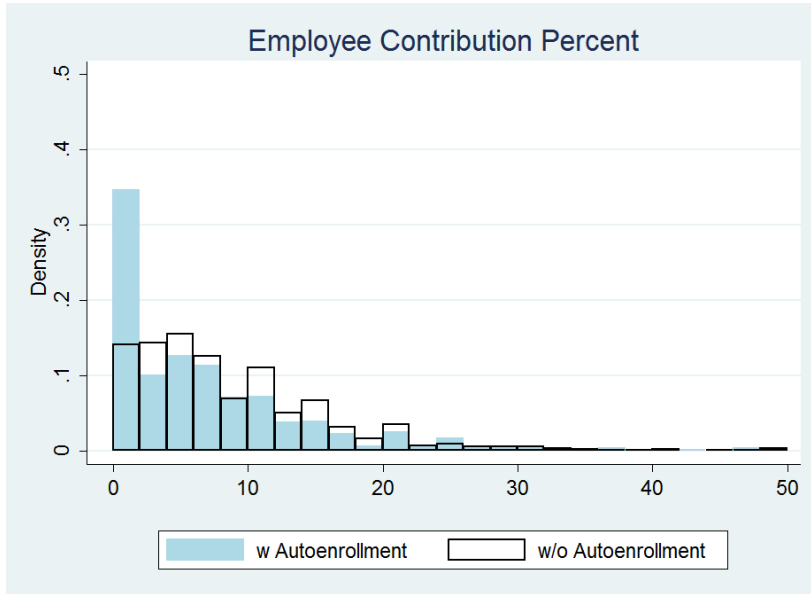


Source: Authors' calculations from the 2008-2010 waves of the Health and Retirement Study.

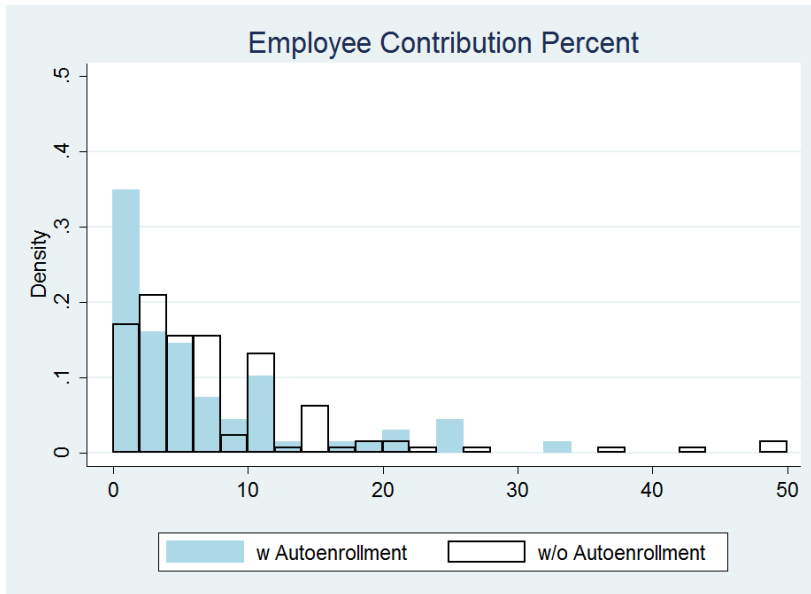
Notes: Sample includes workers ages 55 to 69 who are not self-employed and who report positive wages. New hires have 2 years or less of job tenure.

Figure 3. *Distribution of Contribution Rates among Workers Ages 55 to 69 Offered a DC Plan, by Automatic Enrollment*

**Old Hires**



**New Hires**



Source: Authors' calculations from the 2008-2010 waves of the Health and Retirement Study.  
Notes: Sample includes workers ages 55 to 69 who are not self-employed and who report positive wages. New hires have 2 years or less of job tenure.



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**Table 1. Share of Older Workers Included and Participating in a DC Plan, among Those Offered DC Plans**

	Included			Participating		
	Automatic Enrollment			Automatic Enrollment		
	With	Without	Diff.	With	Without	Diff.
<b>Overall</b>	92.2	86.8	***	67.6	79.9	***
<b><i>Job Tenure</i></b>						
<b>Old Hire</b>	93.5	89.3	***	68.5	82.6	***
<b>New Hire</b>	83.7	65.9	***	62.0	58.1	
<b><i>Earnings Quintile</i></b>						
<b>Lowest</b>	75.9	53.6	***	45.7	42.5	
<b>Second</b>	84.6	75.0	***	54.0	64.4	
<b>Third</b>	91.2	84.6	**	59.5	78.8	***
<b>Fourth</b>	96.7	96.4		76.1	89.4	***
<b>Highest</b>	99.1	96.9	**	82.0	93.3	***

Source: Authors' calculations from the 2008-2010 waves of the Health and Retirement Study.

Notes: Sample includes workers ages 55 to 69 who are not self-employed and who report positive wages. Inclusion indicates that respondents reported being in a DC plan. Participation indicates that respondents reported positive contributions to a DC plan. \* .05 < p < .10; \*\* .01 < p < .05; \*\*\* p < .01

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**Table 2. Median Contribution Amounts among Older Workers Offered DC Plans**

	<b>Among All Workers</b>			<b>Among Workers Participating</b>		
	<b>Automatic Enrollment</b>			<b>Automatic Enrollment</b>		
	<b>With</b>	<b>Without</b>	<b>Diff.</b>	<b>With</b>	<b>Without</b>	<b>Diff.</b>
<b>Overall</b>	\$1,800	\$3,371	***	\$3,794	\$3,816	
<b><i>Job Tenure</i></b>						
<b>Old Hire</b>	\$2,126	\$3,506	***	\$4,165	\$4,000	
<b>New Hire</b>	\$1,215	\$2,431	**	\$1,550	\$2,836	**
<b><i>Earnings Quintile</i></b>						
<b>Lowest</b>	\$146	\$608	***	\$702	\$807	
<b>Second</b>	\$243	\$1,000	***	\$930	\$1,201	
<b>Third</b>	\$1,215	\$2,096	***	\$1,892	\$2,221	
<b>Fourth</b>	\$3,397	\$3,970	*	\$4,393	\$4,480	
<b>Highest</b>	\$7,349	\$11,344	***	\$9,000	\$12,000	

Source: Authors' calculations from the 2008-2010 waves of the Health and Retirement Study.

Notes: Sample includes workers ages 55 to 69 who are not self-employed and who report positive wages. Participation indicates that respondents reported positive contributions to a DC plan. \* .05 < p < .10; \*\* .01 < p < .05; \*\*\* p < .01

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**Table 3. Median Contribution Rates among Older Workers Offered DC Plans**

	Among All Workers			Among Workers Participating		
	Automatic Enrollment			Automatic Enrollment		
	With	Without	Diff.	With	Without	Diff.
<b>Overall</b>	5.0	6.1	***	7.0	7.4	
<b><u>Job Tenure</u></b>						
<b>Old Hire</b>	5.0	6.9	***	7.0	8.0	
<b>New Hire</b>	4.0	5.0	*	6.0	6.0	
<b><u>Earnings Quintile</u></b>						
<b>Lowest</b>	2.0	5.0	**	5.0	5.5	
<b>Second</b>	1.0	4.0	**	4.2	5.0	
<b>Third</b>	3.0	5.2	***	5.0	6.0	*
<b>Fourth</b>	6.0	7.0	**	7.0	8.0	
<b>Highest</b>	8.0	10.0	***	9.8	10.0	

Source: Authors' calculations from the 2008-2010 waves of the Health and Retirement Study.  
 Notes: Sample includes workers ages 55 to 69 who are not self-employed and who report positive wages. Participation indicates that respondents reported positive contributions to a DC plan.  
 Significance: \* .05 < p < .10; \*\* .01 < p < .05; \*\*\* p < .01

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Table 4. *Marginal Effects of the Probability of Being Included in a DC plan among Older Workers Offered DC Plans*

Variable	Pr(included in DC plan=1 offered DC plan=1)				
	(1) 2004-2010 HRS	(2) 2008-2010 HRS	(3) 2008-2010 HRS	(4) 2008-2010 HRS	(5) 2008-2010 HRS
Age	0.005 (0.052)	-0.066 (0.064)	-0.059 (0.048)	-0.059 (0.048)	-0.058 (0.047)
Age squared	-0.000 (0.000)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Male	-0.075*** (0.016)	-0.047*** (0.018)	-0.054*** (0.013)	-0.055*** (0.013)	-0.053*** (0.013)
High school graduate	-0.019 (0.033)	-0.026 (0.042)	-0.027 (0.028)	-0.025 (0.028)	-0.025 (0.028)
Some College	-0.025 (0.034)	-0.050 (0.043)	-0.027 (0.028)	-0.026 (0.029)	-0.026 (0.028)
College	-0.081** (0.035)	-0.084* (0.044)	-0.014 (0.030)	-0.013 (0.030)	-0.013 (0.030)
Black	-0.055** (0.022)	-0.037 (0.024)	-0.006 (0.018)	-0.004 (0.018)	-0.006 (0.018)
Other	-0.083** (0.035)	-0.059 (0.037)	0.004 (0.029)	0.004 (0.029)	0.003 (0.030)
In a coupled household	-0.012 (0.021)	-0.019 (0.025)	0.015 (0.018)	0.016 (0.018)	0.015 (0.018)
Has DB	-0.110*** (0.015)	-0.028 (0.018)	0.028** (0.013)	0.028** (0.014)	0.028** (0.013)
Log other income	0.014** (0.006)	0.014* (0.008)	0.002 (0.006)	0.002 (0.006)	0.002 (0.006)
Log wealth	-0.002 (0.006)	-0.003 (0.007)	0.001 (0.005)	0.001 (0.005)	0.001 (0.005)
Spouse contributes to DC	0.066*** (0.019)	0.055** (0.024)	0.050*** (0.019)	0.052*** (0.019)	0.049*** (0.019)
New Hire (tenure<=2 years)	-0.107*** (0.020)	-0.099*** (0.025)	-0.088*** (0.017)	-0.107*** (0.020)	-0.088*** (0.017)
Bottom earnings quintile	-0.182*** (0.030)	-0.200*** (0.039)	-0.215*** (0.040)	-0.217*** (0.040)	-0.231*** (0.047)
Second earnings quintile	-0.068*** (0.022)	-0.081*** (0.029)	-0.096*** (0.026)	-0.098*** (0.026)	-0.104*** (0.030)
Fourth earnings quintile	0.019 (0.020)	0.063** (0.025)	0.062*** (0.019)	0.063*** (0.019)	0.062*** (0.021)
Top earnings quintile	0.087*** (0.020)	0.147*** (0.023)	0.090*** (0.017)	0.092*** (0.017)	0.086*** (0.019)
Year 2006	0.006 (0.015)				
Year 2008	0.153*** (0.017)				
Year 2010	0.113*** (0.017)	-0.025* (0.014)	-0.010 (0.011)	-0.010 (0.011)	-0.010 (0.011)
<b>Automatic Enrollment</b>			<b>0.069*** (0.015)</b>	<b>0.056*** (0.016)</b>	<b>0.055* (0.028)</b>
<b>Automatic Enrollment *New Hire</b>				<b>0.076* (0.039)</b>	
<b>Automatic Enrollment *Bottom quintile</b>					<b>0.028 (0.042)</b>
<b>Automatic Enrollment *Second quintile</b>					<b>0.024 (0.039)</b>
<b>Automatic Enrollment *Fourth quintile</b>					<b>-0.012 (0.045)</b>
<b>Automatic Enrollment *Fifth quintile</b>					<b>0.032 (0.065)</b>
Pseudo R2	0.065	0.078	0.194	0.196	0.195
Number of Observations	5232	2635	2178	2178	2178

Source: Authors' calculations based on 2004-2010 HRS.

Note: Sample includes working individuals between the ages of 55 and 69 who are not self-employed. Standard errors are in brackets and are clustered on individual level. Significance: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

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Table 5. *Marginal Effects of Participating in a DC Plan among Older Workers Offered DC Plans*

Variable	Pr(Contribute to DC plan=1 Offered DC plan=1)				
	(1) 2004-2010 HRS	(2) 2008-2010 HRS	(3) 2008-2010 HRS	(4) 2008-2010 HRS	(5) 2008-2010 HRS
Age	-0.002 (0.059)	-0.054 (0.079)	-0.059 (0.078)	-0.057 (0.078)	-0.051 (0.078)
Age squared	-0.000 (0.000)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)
Male	-0.077*** (0.018)	-0.067*** (0.022)	-0.087*** (0.022)	-0.088*** (0.022)	-0.086*** (0.022)
High school graduate	0.015 (0.039)	0.024 (0.050)	-0.017 (0.048)	-0.013 (0.048)	-0.005 (0.047)
Some College	-0.010 (0.040)	-0.007 (0.050)	-0.029 (0.049)	-0.027 (0.049)	-0.021 (0.048)
College	-0.072* (0.041)	-0.055 (0.052)	-0.030 (0.052)	-0.027 (0.052)	-0.023 (0.051)
Black	-0.042* (0.025)	-0.023 (0.030)	0.012 (0.031)	0.016 (0.031)	0.012 (0.031)
Other	-0.058 (0.041)	-0.036 (0.046)	0.008 (0.047)	0.006 (0.047)	0.004 (0.047)
In a coupled household	-0.016 (0.024)	-0.023 (0.030)	0.022 (0.029)	0.025 (0.029)	0.021 (0.029)
Has DB	-0.128*** (0.017)	-0.055** (0.022)	0.026 (0.022)	0.028 (0.022)	0.026 (0.022)
Log other income	0.014** (0.007)	0.018* (0.009)	0.006 (0.009)	0.006 (0.009)	0.007 (0.009)
Log wealth	0.005 (0.007)	0.008 (0.008)	0.013 (0.008)	0.011 (0.008)	0.012 (0.008)
Spouse contributes to DC	0.096*** (0.022)	0.083*** (0.028)	0.085*** (0.029)	0.088*** (0.029)	0.081*** (0.029)
New Hire (tenure<=2 years)	-0.090*** (0.024)	-0.100*** (0.033)	-0.107*** (0.031)	-0.179*** (0.035)	-0.109*** (0.031)
Bottom earnings quintile	-0.248*** (0.031)	-0.241*** (0.041)	-0.252*** (0.044)	-0.255*** (0.044)	-0.310*** (0.053)
Second earnings quintile	-0.105*** (0.024)	-0.104*** (0.033)	-0.132*** (0.034)	-0.135*** (0.034)	-0.160*** (0.040)
Fourth earnings quintile	0.029 (0.023)	0.082*** (0.029)	0.087*** (0.029)	0.088*** (0.029)	0.102*** (0.034)
Top earnings quintile	0.118*** (0.024)	0.208*** (0.029)	0.156*** (0.029)	0.159*** (0.028)	0.163*** (0.032)
Year 2006	0.022 (0.018)				
Year 2008	0.163*** (0.019)				
Year 2010	0.111*** (0.019)	-0.039** (0.017)	-0.024 (0.017)	-0.025 (0.017)	-0.025 (0.017)
<b>Automatic Enrollment</b>			<b>-0.104***</b> <b>(0.022)</b>	<b>-0.130***</b> <b>(0.023)</b>	<b>-0.120***</b> <b>(0.044)</b>
<b>Automatic Enrollment *New Hire</b>				<b>0.230***</b> <b>(0.066)</b>	
<b>Automatic Enrollment *Bottom quintile</b>					<b>0.123*</b> <b>(0.071)</b>
<b>Automatic Enrollment *Second quintile</b>					<b>0.084</b> <b>(0.063)</b>
<b>Automatic Enrollment *Fourth quintile</b>					<b>-0.051</b> <b>(0.063)</b>
<b>Automatic Enrollment *Fifth quintile</b>					<b>-0.036</b> <b>(0.068)</b>
Pseudo R2	0.066	0.080	0.122	0.127	0.126
Number of Observations	5096	2581	2145	2145	2145

Source: Authors' calculations based on 2004-2010 HRS.

Note: Sample includes working individuals between the ages of 55 and 69 who are not self-employed. Standard errors are in brackets and are clustered on individual level. Significance: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

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Table 6. *Tobit Regression of Employee Contribution Amounts among Workers Offered DC Plans*

Variable	(1) 2004-2010 HRS	(2) 2008-2010 HRS	(3) 2008-2010 HRS	(4) 2008-2010 HRS	(5) 2008-2010 HRS
Age	68.502 (830.183)	685.794 (1127.045)	681.865 (1151.632)	634.436 (1152.969)	688.967 (1151.736)
Age squared	-0.075 (6.808)	-4.976 (9.231)	-5.060 (9.423)	-4.641 (9.435)	-5.116 (9.424)
Male	-102.687 (254.562)	-116.885 (317.933)	-78.163 (327.847)	-70.045 (328.334)	-87.558 (328.416)
High school graduate	104.619 (402.991)	487.965 (505.651)	126.301 (534.213)	136.348 (533.149)	140.284 (540.163)
Some College	55.161 (422.550)	515.989 (523.260)	92.310 (555.558)	94.490 (554.074)	109.908 (557.291)
College	530.557 (469.478)	832.157 (581.893)	596.252 (607.832)	619.570 (605.943)	602.943 (610.511)
Black	-55.994 (330.104)	53.153 (400.542)	303.487 (428.579)	339.313 (430.771)	295.861 (430.807)
Other	282.013 (441.023)	-214.949 (550.077)	-392.518 (567.392)	-400.633 (566.633)	-369.190 (574.116)
In a coupled household	-761.574** (333.587)	-1107.401** (447.339)	-1068.932** (469.606)	-1040.268** (471.578)	-1064.574** (469.946)
Has DB	-145.764 (227.272)	-109.351 (301.996)	218.608 (321.225)	225.823 (321.462)	216.828 (321.524)
Log other income	233.351** (94.736)	303.162** (129.154)	347.973*** (132.988)	342.703** (133.170)	347.778*** (132.704)
Log wealth	765.337*** (86.250)	863.315*** (112.537)	874.170*** (116.609)	865.839*** (116.648)	877.002*** (116.605)
Spouse contributes to DC	883.132*** (305.216)	809.613** (391.054)	765.039* (398.614)	790.841** (399.378)	759.675* (398.558)
New Hire (tenure<=2 years)	-340.053 (322.232)	-491.752 (495.479)	-289.629 (510.180)	-1022.677 (627.218)	-314.159 (513.753)
Bottom earnings quintile	-3169.260*** (306.539)	-2991.005*** (412.284)	-2604.001*** (405.115)	-2667.200*** (404.759)	-2590.399*** (466.320)
Second earnings quintile	-1332.446*** (220.039)	-1090.849*** (309.104)	-1071.117*** (319.574)	-1075.558*** (320.230)	-1096.789*** (361.937)
Fourth earnings quintile	2207.163*** (268.135)	2312.883*** (345.537)	2413.197*** (359.444)	2419.404*** (360.344)	2385.215*** (404.159)
Top earnings quintile	6908.145*** (372.964)	8101.385*** (472.047)	7850.964*** (477.528)	7881.129*** (477.781)	8012.475*** (536.771)
Year 2006	48.609 (243.596)				
Year 2008	465.340* (244.022)				
Year 2010	995.435*** (272.369)	565.042** (240.588)	592.340** (250.734)	587.918** (249.920)	596.907** (250.498)
<b>Automatic Enrollment</b>			<b>-1923.362*** (354.438)</b>	<b>-2103.168*** (373.807)</b>	<b>-1802.989*** (497.444)</b>
<b>Automatic Enrollment *New Hire</b>				<b>2096.891** (1030.574)</b>	
<b>Automatic Enrollment *Bottom quintile</b>					<b>-63.624 (830.403)</b>
<b>Automatic Enrollment *Second quintile</b>					<b>127.679 (696.765)</b>
<b>Automatic Enrollment *Fourth quintile</b>					<b>100.901 (837.866)</b>
<b>Automatic Enrollment *Fifth quintile</b>					<b>-546.794 (1011.204)</b>
Pseudo R2	0.023	0.027	0.028	0.028	0.028
Number of Observations	3660	2030	1853	1853	1853

Source: Authors' calculations based on 2004-2010 HRS.

Note: Sample includes working individuals between the ages of 55 and 69 who are not self-employed. Standard errors are in brackets and are clustered on individual level. Significance: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

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Table 7. *OLS Regression of Employee Contribution Amounts among Older Workers Participating in DC Plans*

Variable	(1) 2004-2010 HRS	(2) 2008-2010 HRS	(3) 2008-2010 HRS	(4) 2008-2010 HRS	(5) 2008-2010 HRS
Age	111.256 (746.728)	643.796 (1053.533)	375.078 (1073.882)	321.384 (1074.279)	380.516 (1075.502)
Age squared	-0.081 (6.119)	-4.414 (8.618)	-2.367 (8.776)	-1.901 (8.779)	-2.414 (8.789)
Male	26.027 (231.945)	209.164 (298.626)	298.214 (310.261)	307.403 (310.997)	291.218 (312.488)
High school graduate	-173.472 (346.295)	-9.797 (398.412)	-143.064 (431.945)	-135.748 (428.912)	-166.952 (442.767)
Some College	44.596 (362.759)	250.280 (410.037)	113.301 (446.595)	113.241 (443.448)	103.727 (454.962)
College	719.519* (415.395)	704.974 (484.532)	687.009 (515.335)	702.851 (512.029)	671.867 (522.435)
Black	-160.546 (305.858)	-82.330 (370.459)	25.457 (392.464)	61.717 (394.470)	36.983 (395.339)
Other	31.467 (425.823)	-465.195 (515.289)	-556.136 (533.107)	-564.078 (532.395)	-504.832 (537.787)
In a coupled household	-900.875*** (305.554)	-1266.313*** (407.015)	-1331.468*** (432.449)	-1305.907*** (434.809)	-1319.943*** (434.249)
Has DB	201.732 (211.873)	212.557 (289.221)	279.037 (310.488)	277.615 (310.498)	280.734 (310.997)
Log other income	280.605*** (87.536)	329.639*** (119.954)	364.001*** (125.816)	359.737*** (126.176)	363.345*** (125.852)
Log wealth	765.023*** (78.566)	808.826*** (101.610)	846.891*** (105.245)	842.277*** (105.365)	850.334*** (105.508)
Spouse contributes to DC	433.416 (290.807)	434.432 (376.450)	397.272 (387.991)	419.967 (388.642)	393.901 (389.277)
New Hire (tenure<=2 years)	-363.731 (292.102)	-327.060 (451.219)	-283.408 (465.604)	-835.178 (600.961)	-283.873 (469.100)
Bottom earnings quintile	-2509.360*** (236.419)	-2476.801*** (307.946)	-2348.813*** (312.931)	-2409.370*** (311.269)	-2277.584*** (367.629)
Second earnings quintile	-1071.614*** (184.337)	-895.528*** (260.247)	-812.062*** (272.783)	-808.737*** (274.305)	-766.932*** (325.512)
Fourth earnings quintile	2334.516*** (245.447)	2329.766*** (313.571)	2398.487*** (327.856)	2411.858*** (328.796)	2284.066*** (383.389)
Top earnings quintile	7116.670*** (336.897)	7935.015*** (433.683)	7762.418*** (439.889)	7790.473*** (440.885)	7845.723*** (516.185)
Year 2006	37.197 (218.630)				
Year 2008	240.645 (220.142)				
Year 2010	964.786*** (251.573)	747.709*** (223.972)	715.968*** (235.375)	716.900*** (234.860)	712.829*** (235.129)
<b>Automatic Enrollment</b>			<b>-366.156</b> <b>(319.274)</b>	<b>-514.722</b> <b>(338.436)</b>	<b>-335.700</b> <b>(368.667)</b>
<b>Automatic Enrollment *New Hire</b>				<b>1699.559*</b> <b>(898.233)</b>	
<b>Automatic Enrollment *Bottom quintile</b>					<b>-198.076</b> <b>(605.282)</b>
<b>Automatic Enrollment *Second quintile</b>					<b>-204.415</b> <b>(491.291)</b>
<b>Automatic Enrollment *Fourth quintile</b>					<b>452.648</b> <b>(742.543)</b>
<b>Automatic Enrollment *Fifth quintile</b>					<b>-322.024</b> <b>(860.536)</b>
Adjusted R2	0.429	0.444	0.446	0.446	0.445
Number of Observations	3098	1729	1587	1587	1587

Source: Authors' calculations based on 2004-2010 HRS.

Note: Sample includes working individuals between the ages of 55 and 69 who are not self-employed. Standard errors are in brackets. Significance: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

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Table 8. *Tobit Regression of Employee Contribution Rates among Older Workers Offered DC Plans*

Variable	(1) 2004-2010 HRS	(2) 2008-2010 HRS	(3) 2008-2010 HRS	(4) 2008-2010 HRS	(5) 2008-2010 HRS
Age	0.742 (1.253)	0.504 (1.624)	0.479 (1.621)	0.465 (1.620)	0.449 (1.623)
Age squared	-0.005 (0.010)	-0.003 (0.013)	-0.003 (0.013)	-0.003 (0.013)	-0.003 (0.013)
Male	-0.928** (0.396)	-1.029** (0.469)	-0.994** (0.482)	-0.991** (0.483)	-0.995** (0.482)
High school graduate	0.833 (0.882)	0.980 (1.059)	0.225 (1.120)	0.228 (1.120)	0.078 (1.128)
Some College	0.672 (0.916)	1.364 (1.095)	0.698 (1.161)	0.698 (1.161)	0.579 (1.164)
College	0.622 (0.971)	0.855 (1.150)	0.254 (1.214)	0.262 (1.213)	0.145 (1.216)
Black	-0.331 (0.510)	-0.244 (0.617)	0.086 (0.635)	0.097 (0.636)	0.109 (0.631)
Other	1.290 (0.965)	0.441 (1.050)	0.201 (1.088)	0.199 (1.088)	0.165 (1.093)
In a coupled household	-0.948* (0.554)	-1.457** (0.647)	-1.298* (0.671)	-1.289* (0.672)	-1.290* (0.673)
Has DB	-0.333 (0.363)	-0.415 (0.458)	-0.016 (0.481)	-0.014 (0.482)	-0.003 (0.481)
Log other income	0.267* (0.148)	0.364* (0.193)	0.442** (0.197)	0.440** (0.197)	0.442** (0.197)
Log wealth	1.075*** (0.149)	1.151*** (0.182)	1.130*** (0.191)	1.127*** (0.192)	1.131*** (0.191)
Spouse contributes to DC	1.532*** (0.450)	1.378** (0.566)	1.260** (0.578)	1.268** (0.577)	1.278** (0.578)
New Hire (tenure<=2 years)	-0.278 (0.545)	-0.073 (0.827)	0.204 (0.838)	-0.026 (1.073)	0.287 (0.841)
Bottom earnings quintile	-3.454*** (0.714)	-3.035*** (0.887)	-2.230*** (0.858)	-2.249*** (0.853)	-1.741 (1.073)
Second earnings quintile	-1.223** (0.507)	-0.608 (0.673)	-0.428 (0.692)	-0.430 (0.692)	-0.303 (0.809)
Fourth earnings quintile	1.685*** (0.486)	2.185*** (0.609)	2.545*** (0.624)	2.547*** (0.624)	2.378*** (0.713)
Top earnings quintile	1.843*** (0.533)	3.347*** (0.648)	3.354*** (0.658)	3.364*** (0.661)	3.035*** (0.723)
Year 2006	-0.086 (0.390)				
Year 2008	0.398 (0.394)				
Year 2010	0.301 (0.416)	-0.085 (0.351)	-0.036 (0.361)	-0.037 (0.361)	-0.042 (0.360)
<b>Automatic Enrollment</b>			<b>-2.908***</b> <b>(0.503)</b>	<b>-2.964***</b> <b>(0.519)</b>	<b>-3.184***</b> <b>(0.897)</b>
<b>Automatic Enrollment *New Hire</b>				<b>0.657</b> <b>(1.702)</b>	
<b>Automatic Enrollment *Bottom quintile</b>					<b>-1.086</b> <b>(1.676)</b>
<b>Automatic Enrollment *Second quintile</b>					<b>-0.553</b> <b>(1.448)</b>
<b>Automatic Enrollment *Fourth quintile</b>					<b>0.574</b> <b>(1.420)</b>
<b>Automatic Enrollment *Fifth quintile</b>					<b>1.057</b> <b>(1.268)</b>
Adjusted R2	0.014	0.019	0.023	0.023	0.024
Number of Observations	3660	2031	1853	1853	1853

Source: Authors' calculations based on 2004-2010 HRS.

Note: Sample includes working individuals between the ages of 55 and 69 who are not self-employed. Standard errors are in brackets. Significance: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



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Table 9. *OLS Regression of Employee Contribution Rates among Older Workers Participating in DC Plans*

Variable	(1) 2004-2010 HRS	(2) 2008-2010 HRS	(3) 2008-2010 HRS	(4) 2008-2010 HRS	(5) 2008-2010 HRS
Age	0.795 (1.137)	0.570 (1.526)	0.063 (1.512)	0.076 (1.509)	0.057 (1.515)
Age squared	-0.005 (0.009)	-0.003 (0.013)	0.001 (0.012)	0.001 (0.012)	0.001 (0.012)
Male	-0.765** (0.365)	-0.635 (0.434)	-0.535 (0.452)	-0.538 (0.453)	-0.551 (0.453)
High school graduate	0.386 (0.855)	0.063 (0.968)	-0.297 (1.047)	-0.299 (1.048)	-0.479 (1.056)
Some College	0.654 (0.882)	0.754 (0.999)	0.606 (1.083)	0.606 (1.084)	0.470 (1.087)
College	0.880 (0.937)	0.489 (1.055)	0.271 (1.139)	0.268 (1.139)	0.133 (1.141)
Black	-0.576 (0.460)	-0.482 (0.556)	-0.398 (0.566)	-0.407 (0.568)	-0.368 (0.565)
Other	0.872 (0.890)	0.134 (0.967)	0.018 (1.022)	0.020 (1.022)	0.059 (1.031)
In a coupled household	-1.096** (0.527)	-1.650*** (0.591)	-1.679*** (0.625)	-1.685*** (0.625)	-1.661*** (0.628)
Has DB	0.238 (0.339)	0.031 (0.433)	0.010 (0.460)	0.011 (0.460)	0.024 (0.460)
Log other income	0.275** (0.137)	0.336* (0.176)	0.413** (0.185)	0.414** (0.185)	0.411** (0.186)
Log wealth	1.082*** (0.139)	1.085*** (0.167)	1.100*** (0.179)	1.101*** (0.179)	1.107*** (0.179)
Spouse contributes to DC	0.956** (0.426)	0.923* (0.537)	0.838 (0.555)	0.833 (0.554)	0.847 (0.557)
New Hire (tenure<=2 years)	-0.306 (0.502)	0.150 (0.786)	0.211 (0.807)	0.346 (1.054)	0.292 (0.811)
Bottom earnings quintile	-1.479** (0.646)	-1.533** (0.748)	-1.168 (0.742)	-1.154 (0.736)	-0.703 (0.952)
Second earnings quintile	-0.476 (0.478)	0.001 (0.645)	0.244 (0.671)	0.243 (0.671)	0.491 (0.797)
Fourth earnings quintile	1.616*** (0.459)	1.957*** (0.570)	2.310*** (0.583)	2.307*** (0.584)	2.117*** (0.685)
Top earnings quintile	1.199** (0.486)	2.277*** (0.600)	2.436*** (0.610)	2.429*** (0.613)	2.352*** (0.694)
Year 2006	-0.138 (0.355)				
Year 2008	0.070 (0.366)				
Year 2010	0.273 (0.385)	0.175 (0.322)	0.178 (0.335)	0.178 (0.335)	0.169 (0.334)
<b>Automatic Enrollment</b>			<b>-0.522</b> <b>(0.448)</b>	<b>-0.486</b> <b>(0.462)</b>	<b>-0.539</b> <b>(0.733)</b>
<b>Automatic Enrollment *New Hire</b>				<b>-0.414</b> <b>(1.599)</b>	
<b>Automatic Enrollment *Bottom quintile</b>					<b>-1.256</b> <b>(1.302)</b>
<b>Automatic Enrollment *Second quintile</b>					<b>-1.146</b> <b>(1.293)</b>
<b>Automatic Enrollment *Fourth quintile</b>					<b>0.764</b> <b>(1.306)</b>
<b>Automatic Enrollment *Fifth quintile</b>					<b>0.270</b> <b>(1.046)</b>
Adjusted R2	0.091	0.102	0.110	0.110	0.110
Number of Observations	3098	1730	1587	1587	1587

Source: Authors' calculations based on 2004-2010 HRS.

Note: Sample includes working individuals between the ages of 55 and 69 who are not self-employed. Standard errors are in brackets. Significance: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.