

Automatic Enrollment in Retirement Savings Vehicles

Evidence from the Health and Retirement Study

Jeremy Burke, Angela A. Hung, Jill E. Luoto

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Abstract

While there has been considerable research investigating the impact of automatic enrollment on participation and savings outcomes, less research has focused on characterizing individuals who actively choose to opt out of a DC plan in which they were automatically enrolled. In this study, we use data from the 2008 and 2010 waves of the HRS to examine how employers' automatic enrollment policies influence longer-run participation and contribution status among older Americans, with a focus on examining demographic, financial, and health differences between those who choose not to participate under automatic enrollment, those who choose not to participate under voluntary enrollment policies, and those who are actively participating.

We find large socioeconomic and health differences between individuals who are participating in their employer's DC plan and those who are not. Plan participants are significantly more likely to be white, married, college educated, enjoy higher incomes, be longer tenured at their current employers, in good health, and have higher wealth both within and outside of retirement accounts than individuals not participating in their plan. While there are large differences between individuals who are participating in their employer-sponsored DC plan and those who are not, we find relatively little differences in characteristics across enrollment regimes when we condition on participation decisions. In particular, those who have chosen to opt out of participating in a plan in which they were automatically enrolled appear fairly similar to those who have elected not to participate under voluntary enrollment and both groups appear to be largely financially unprepared for retirement.

Similar to previous analyses, we find that automatic enrollment is associated with a large increase in plan participation and is particularly effective at getting lower income, less educated, and minority individuals to participate. However, automatic enrollment is not positively associated with longer-run contribution status in our sample – those who opt-in are more likely to continue making contributions over time.

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1. Introduction

The past 30 years have witnessed a massive transition in how Americans save for retirement. As employers have increasingly shifted from defined benefit (DB) pension plans to defined contribution (DC) plans, American workers have become increasingly responsible for their own welfare in retirement. By the end of 2013, Americans held roughly \$5.9 trillion in DC plans, amounting to 26 percent of U.S. retirement assets and nearly twice as much as the assets held by private DB plans (Holden and Schrass, 2014).

This shift toward DC plans has placed the onus for retirement savings onto individuals—employees choose whether to participate, how much to contribute, and how to invest their contributions. Consequently, it is important for policymakers to understand how individuals and their families are making decisions about retirement savings and to discover ways to improve their savings outcomes. Although DC plans allow employees greater choice and control over their retirement savings relative to DB plans, individual employees often lack basic financial knowledge and fail to maximize their own welfare under DC savings plans (Beshears et al., 2008). Procrastination and inertia seem to have an outsized influence on employees' retirement investment choices (Butrica and Karamcheva, 2012). Small and seemingly insignificant changes in plan design can have disproportionately large impacts on rates of participation, contribution, and asset allocation decisions. In turn, this can lead to large impacts on the welfare of retirees and their households.

In light of these findings, the Pension Protection Act (PPA) of 2006 included many different pension reform provisions and tax law changes aimed at protecting retirement savings plan participants in both DB and DC plans (Butrica and Karamcheva, 2012). One of the most salient changes to the laws surrounding DC plans allowed employers to introduce automatic enrollment into their employer-sponsored retirement accounts—the ability to automatically enroll employees into their savings plan unless employees explicitly choose to opt out. Prior to the PPA, the legality of automatic enrollment and, in particular, the liability of employers for any investment losses in the default fund, was uncertain. As a result, the majority of DC savings plans had required employees to proactively enroll into the savings plan to participate (Beshears et al., 2008). Employees were allowed to enroll, but the onus was on them to do so, as well as to

choose a contribution rate and asset portfolio. Under automatic enrollment, employers assign employees a default contribution rate and portfolio allocation. Employees are allowed to change their contribution rates or investment allocations from this default, as well as to opt out of participation altogether, either before or after they begin making contributions. Thus, automatic enrollment did not change the total set of options available to any employees. Rather, in the absence of an employee making a proactive choice, it changed the default option from one of non-participation to one of participation.

Not only did the PPA clarify the legal and liability issues surrounding automatic enrollment, it also provided an incentive for employers to adopt it. Particularly, PPA provided a safe harbor from annual actual deferral percentage and actual contribution percentage (ADP/ACP) nondiscrimination testing requirements¹ if a plan employs automatic enrollment and sets default deferral percentages, employer contributions, and vesting schedules within approved ranges.² For those who choose not to set plan design features within the safe harbor ranges, automatic enrollment can still help employers meet nondiscrimination testing requirements by increasing participation among non-highly compensated employees. In fact, a 2010 study found that one-fifth of plan sponsors indicated that improving nondiscrimination test results was the primary reason for adopting automatic enrollment (Deloitte Development LLC, 2010). Thus, the PPA made automatic enrollment particularly attractive for firms with both lots of high-earning and low-earning employees. After the passage of the PPA, automatic enrollment to DC accounts has grown in popularity. A 2010 Hewitt survey of large U.S. firms found that 59 percent of employers that offer DC plans had automatic enrollment features for new employees, compared to 24 percent in 2006 prior to passage of the PPA; moreover, 27 percent of firms without automatic enrollment in 2010 reported they were likely to adopt it within a year (Butrica and Karamcheva, 2012; Hewitt Associates, 2010). Likewise, the Plan Sponsor Council of America (PSCA) reported that 46 percent of plans had an automatic enrollment feature in 2011, up from 24 percent in 2006 (PSCA 2012; Soto and Butrica, 2009; Butrica and Karamcheva, 2012).

The increased adoption of automatic enrollment features among employers has had positive implications for the retirement savings outcomes for many employees. A number of studies have

¹ ADP/ACP testing is designed to ensure that DC plans are not discriminating in favor of business owners or other highly compensated employees.

² <http://www.irs.gov/Retirement-Plans/Plan-Participant,-Employee/Retirement-Topics-Automatic-Enrollment>

shown that automatic enrollment has significantly increased employee participation in DC savings plans (Beshears et al., 2009; Choi et al., 2002, 2004; Madrian and Shea, 2001).

Opting out of participating in a retirement savings plan can be a costly decision. Those who choose to opt out of saving in a DC plan or an IRA lose both the tax incentives for such retirement savings, and any employer matching contributions. Yet there is relatively little known about this group, including why they opt out and what, if any, retirement savings they may accrue in other savings vehicles. Having a deeper understanding of employees' decisions to opt out and opt in to retirement savings plans offered by employers would give policymakers a better platform on which to design policies on retirement savings.

The key research question that we investigate in this project is:

How do those who opt out of automatic enrollment retirement plans differ from those who automatically enroll, those who actively opt in to voluntary enrollment plans, and those who fail to opt in?

For this Interim Report, we analyze data from the Health and Retirement Study (HRS) to examine how participation choices are correlated with demographic, financial, health and other personal characteristics contained in HRS.

The next section summarizes the previous literature on the impact of automatic enrollment policies on employee retirement savings behavior. Section 3 describes the HRS data used in our analysis, and Section 4 presents our empirical results. Section 5 concludes.

2. Previous work on automatic enrollment

Many studies have demonstrated large increases in employee participation rates for DC savings plans following introduction of automatic enrollment policies (Beshears et al., 2009; Choi et al., 2002, 2004; Madrian and Shea, 2001). For example, early evidence comes from Choi et al. (2004), who use administrative data from three large US corporations that adopted automatic enrollment policies during the late 1990s and find rates of 401(k) participation after six months' tenure among new employees increased on the order of 50–60 percentage points following this change – from participation rates of approximately 40 percent to over 90 percent. These differences diminish somewhat as employees gain tenure with their employers, largely

because many employees under voluntary enrollment eventually opt into their retirement savings plans. Yet by no means do these differences completely dissipate: by 48 months tenure, differences in participation rates are still around 30 percentage points.

Madrian and Shea (2001) also find large impacts on employee participation rates in a 401(k) savings plan following adoption of an automatic enrollment policy for all new employees. Moreover, they find automatic enrollment may increase participation among employees that had been least likely to participate in a retirement savings plan prior to automatic enrollment: younger, lower-paid, and minority employees. However, they also find strong evidence of a default bias: a majority of those automatically enrolled into a savings plan stick with the default investment portfolio and contribution rate one year later. This suggests a potentially negative impact from automatic enrollment policies if employers do not set these defaults to optimally benefit employees' retirement savings. Their analysis is based on employee-level data at a single Fortune 500 company in the health care and insurance industry that adopted an automatic enrollment feature in April 1998 (one of the same companies as those analyzed in Choi et al. (2004) above). Because their data only spans the period through June 1999, and because this new policy only affected new hires, their analysis is limited to short-term effects on the newly hired and they cannot speak to the long-run impacts of such a policy as employees gain tenure. Their focus on a single employer also leaves open the possibility that these results may not generalize to other contexts. For example, 78% of the employees in their data are female.

Vanguard (2001) also offers early evidence on the impacts of automatic enrollment policies on employee savings decisions. Compared to the two papers above that study impacts of such policies at one or a small handful of companies, Vanguard (2001) has the advantage of having data from 15 companies in its database that had adopted such policies by April 2001. Similar to other work, Vanguard (2001) also finds significant impacts of automatic enrollment on overall plan participation by employees. Of the 15 plans that had adopted such policies, 11 only applied this policy to new hires, and 7 of these had sufficient data to show a change in participation rates that increased from 75% to 84% among newly eligible participants. Increases were larger among the three companies that automatically enrolled all eligible participants upon introducing the policy, from 73% to 90% participation. (One company did not clarify this element of their policy.) These increases are smaller than those found in Madrian and Shea (2001) and Choi et al. (2004) above, but are not directly comparable since they are based on company-wide averages

(across all employees regardless of tenure, and most employees eventually will enroll on their own under voluntary enrollment) versus focused on those with similar tenures before and after the policy change. Vanguard (2001) notes that a significant majority of these employers (13 of the 15, or 86%) give their new hires less than one month to opt out of their savings plan, most commonly by requiring the employee to fill out a paper form. Again by analyzing the short-run outcomes of early adoptees of automatic enrollment policies, Vanguard (2001) cannot say anything about the long-term impacts such policies will have on savings outcomes. They do note, however, that a risk from adopting automatic enrollment features for employers is that as the number of participants increase with little or no assets in their accounts, the administrative fees to manage these accounts may increase.

Beshears et al. (2009) analyze much of the same data as in Madrian and Shea (2001) and Choi et al. (2004) and offer further evidence on the effects of automatic enrollment and again find large impacts on employee savings decisions. They also find that all of the default designs of these plans have outsized effects on employee savings behaviors. That is, employee investment decisions tend to be influenced not only by automatic enrollment policies but also by the default allocation and any default increases in contribution rates, presumably due to inertia. Because Beshears et al. (2009) use the same data as in Madrian and Shea (2001) and Choi et al. (2004), they are similarly limited in being able to look at the short-run effects from a small handful of companies.

Mitchell and Utkus (2012) offer more recent evidence of the power of automatic enrollment to increase savings and participation rates in 401(k) savings plans. They use longitudinal data from a major 401(k) plan provider covering millions of accounts and spanning 2003-2010 as automatic enrollment features gained prominence among employer plans. Their focus is on the growth in the use of target-date funds, or funds whose investment portfolios are chosen by a fund manager and aim to maximize savings over some preset time horizon (often timed to match an employee's planned retirement date). However, similar to the earlier studies, they find significant effects of automatic enrollment on selecting such funds: participants who are defaulted into target-date funds are 81 percent more likely to hold target-date funds than those who are not defaulted into target-date funds.

Clark, Utkus and Young (2015) also offer more recent evidence on automatic enrollment policies using administrative data from Vanguard that covers over 500,000 eligible newly hired

employees in 460 plans. Their sample consists of employees who were hired between 2010 and 2012 and were still employed by the plan sponsor as of June 30, 2013. They find that automatic enrollment policies increase participation rates among new hires from 42% under voluntary enrollment to 91% under automatic enrollment. They also find strong evidence that employees remain participants in plans in which they were automatically enrolled: after three years, participation rates are 89% at employers with automatic enrollment versus 51% at employers with voluntary enrollment. Similar to Madrian and Shea (2001), they again find that automatic enrollment policies can have particularly large effects among young and low-income workers. Finally, they find that the design of a given employer-sponsored plan, such as default contribution rates and any automatic increases therein, has strong effects on employee savings behaviors, and perhaps encouragingly, very little evidence that such design elements greatly impact the decision of employees to opt out. Roughly 10% of employees opt out of their automatic enrollment plans in their data, and this rate remains steady as employee tenure increases over the three years covered by their data.

Though the prevalence of automatic enrollment policies has increased tremendously in recent years, relatively little is known about those who actively choose to opt out of such policies, including why they opt out and what, if any, retirement savings they may accrue in other savings vehicles. One exception to this is Karamcheva and Sanzenbacher (2010), who examine the reasons why workers do not participate in employer-sponsored DC plans using data from the 2004 panel of the Survey of Income and Program Participation (SIPP). They find that low-income workers are more likely to decline participation in DC plans and are more likely to cite both monetary (e.g., “I cannot afford to contribute”) and non-monetary (e.g., “I didn’t think of it”) reasons for non-participation. However, the data do not allow the authors to distinguish between those employees who actively decline participation in a DC plan (i.e., those who opt out following automatic enrollment) and those who passively decline participation in a DC plan by failing to opt in. More generally, having a deeper understanding of employees’ decisions to opt out and opt in to retirement savings plans offered by employers would give policymakers a better platform on which to design policies on retirement savings.

In this study, we use data from the Health and Retirement Study (HRS) to characterize individuals who choose to opt out of a DC plan and compare them with both individuals who passively decline to participate as well as those who choose to participate in their plans. In

particular, we investigate which demographic, financial, and health characteristics are correlated with plan participation decisions under both automatic enrollment and voluntary enrollment, and investigate how automatic enrollment policies influence longer-run DC plan participation and contribution status.

3. Health and Retirement Study Data

The HRS is a longitudinal panel study that surveys a representative sample of approximately 20,000 Americans over the age of 50 every two years.³ The HRS explores how individuals and households are preparing for the labor, economic and health transitions of advancing age. HRS respondents provide a wealth of information about their demographic, financial, and health characteristics. Additionally, the HRS surveys respondents' spouses, allowing for a more holistic view of a household's retirement preparation and financial situation.

Critically, HRS also asks employed respondents whether their employer has automatic enrollment, allowing us to address our central research questions. Beginning in 2006, the HRS core module asked respondents variations of the following question:

When you became eligible to participate in this plan, were you given a choice of whether to participate, were you enrolled automatically, or what?

In the 2006 and 2012 waves of the study, this question was posed only to individuals who were participating in their employer-sponsored plan. However, in the 2008 and 2010 waves, a similar question was also asked of respondents who elected not to participate:

In some firms workers who want to participate in their pension plan have to sign up for the plan. In other firms workers are automatically enrolled and if they don't want to participate they have to withdraw from the plan. Which is it with your employer?

Since the focus of our study is on those who opted out of their employer's plan, we restrict attention to the 2008 and 2010 waves.

HRS respondents often have notable difficulty in answering questions about their pension

³ <http://hrsonline.isr.umich.edu/>

plan, particularly what type of plan it is that they own (Gustman, Steinmeier, and Tabatabai, 2010). To attain a sample of respondents who appear to have access to a DC plan through their employer, we only included individuals who selected a DC plan (e.g. 401k, 403b) when asked about plans available to them and, if participating, also provided a characterization of their plan that was consistent with a DC plan type (e.g. indicated that the plan is one in which “money is accumulated in an account for you”).⁴ Further, we also excluded individuals from our sample who were not participating in their employer’s DC plan because they self-reported that they were ineligible.

Additionally, if both spouses from a household survive the exclusion criteria above, we include only the financial respondent to avoid double counting household level variables.⁵ Finally, our sample is comprised entirely of employed respondents, as it is these individuals to whom the automatic enrollment questions are posed.

Our resulting final analysis sample includes 3,003 respondents from the 2008 and 2010 waves: 2,462 plan participants, of which 664 reported that they had been automatically enrolled into their DC plan and 541 plan non-participants, of which 72 reported that they had opted out of their DC plan.

Of our sample of 3,003 individuals, only 116 answered an automatic enrollment question in both the 2008 and the 2010 wave. Additionally, the vast majority of respondents who answered an automatic enrollment question in 2010 were new to the sample.⁶ Consequently, we treat the data below as repeated cross-sections.⁷

To measure pension wealth, we use data provided by Gustman, Steinmeier, and Tabatabai (2014). The authors create DC and DB pension wealth variables for HRS respondents and spouses that are “comprised of updated present discounted values of defined benefit plans from last and/or any previous jobs, . . . , prorated present discounted values of expected future benefits from current jobs, and updated current DC account balances from any previous, last, and/or

⁴ This restriction removed 575 respondents from our sample. We included individuals in the analysis who named a DC plan and subsequently indicated that the plan available to them had characteristics of both a DC and DB plan, categorizing them as individuals who have access to a DC plan. However, these individuals only constituted 3% of our sample and removing them doesn’t meaningfully impact our results.

⁵ Including both spouses from a household does not meaningfully impact our results.

⁶ A new cohort of 51-56 year olds (“Mid Boomers”) was added to the panel in 2010.

⁷ For the 116 individuals appearing both in 2008 and 2010, we take responses and financial and health characteristics from the 2010 wave. Results are qualitatively unchanged using data from the 2008 wave.

current jobs.”⁸ The authors impute for missing, don’t know, or refused responses for annual expected DB benefits and for missing DC plan balances.⁹ These data provide us with measures of DB and DC wealth for both current and previous jobs for both respondents and spouses. Further, we use RAND HRS for income and wealth variables outside of pension wealth. RAND HRS wealth and income variables are also imputed if missing.¹⁰

Whether, in what form, and how much an employer contributes to its employees’ DC plans may have an impact on individual’s participation decisions. While the HRS asks respondents whether their employer makes contributions to its employees’ accounts (or would do so if an employee contributed a sufficient amount), only approximately half the individuals in our sample not participating in their plan provide a response to this question.¹¹ Since the focus of the paper is on individuals who choose not to participate in their employers’ plan, we omit employer contribution status from the analysis presented below. However, including this variable does not qualitatively change the main results of our analysis.

Table 1 provides summary-level demographic and financial information on the final analysis sample. All tables and analyses presented below are unweighted.

⁸ Four respondents whose derived pension wealth exceeded \$100 million were removed prior to obtaining our analysis sample.

⁹ See Gustman, Steinmeier, and Tabatabai (2014) for more information.

¹⁰ See Moldoff (2014) for more information.

¹¹ Those participating in their employer’s plan are also asked how much their employer contributes and what their employer match rate is (if applicable). However, only 12% of plan participants in our sample provide information about their employer match rate.

Table 1: Sample Demographic and Financial Characteristics

Variable	Mean
White (share)	0.691
Age (years)	56.439
Male (share)	0.476
Married (share)	0.738
Household Income > \$80K (share)	0.454
College or more (share)	0.315
Fair or Poor Health (share)	0.158
Job Tenure (years at current employer)	13.260
Spouse Works (share)	0.457
Spouse Has Pension Current Job¹²	0.228
Household Non-Retirement Wealth	\$273,481
Household Medical Expenses Past 2 Years	\$4,630
Household DC Plan Wealth	\$127,506
Household DB Plan Wealth	\$80,732
Household Pension Wealth	\$208,238
Household IRA Wealth	\$54,951
Retirement Wealth	\$263,189
N	3003

Approximately 70% of our sample is white, with an average age of 56. Most respondents are married (74%) and approximately half have a spouse working outside the home. Sample median household income is approximately \$80,000 and 32% of respondents have attained a college degree or greater. Approximately 16% of our sample self-assessed their health as “Fair” or “Poor,” and average household level medical expenses in the two years prior to being surveyed is \$4,630. Notably, average tenure at current employer in our sample is 13 years. Consequently, most individuals in our sample made their initial decision of whether or not to participate in their employer’s DC plan many years ago.¹³ As a result, our analysis below measures the relationship between the structure of the plan participation decision and longer run outcomes.

Sample household non-retirement wealth (including net value of housing, vehicles, and assets outside retirement accounts) is approximately \$273,000 on average. Household retirement

¹² Whether a respondent’s spouse is participating in an employer’s pension plan is missing for 151 respondents.

¹³ For those not participating in their plan, we are unable to observe when they first became eligible to participate. However, job tenure is likely correlated with duration since the initial participation decision was made. See, for example, the Bureau of Labor Statistics 2009 National Compensation Survey which indicates that service requirements for savings and thrift plan eligibility are usually very short, typically 6 months or less. <http://www.bls.gov/ncs/ebs/detailedprovisions/2009/ownership/private/table58a.pdf>

wealth is \$263,000 on average, with approximately half the average wealth held in DC plans. However, as described in the following section, retirement wealth is highly right-skewed in our sample. Approximately 8% of our sample has nothing in tax advantaged retirement accounts and median retirement wealth is \$110,000.

4. Results

To examine how individuals who choose to opt out of their employer-sponsored defined contribution plan differ from those who participate or those who fail to opt in, we first compare groups based on demographic, financial, and health characteristics. Subsequently, among individuals in our sample who work for an employer with automatic enrollment, we examine which characteristics are predictive of choosing to opt out. Conversely, we also investigate which characteristics are predictive of failing to opt in for individuals in our sample who do not have automatic enrollment. Finally, we investigate the relationship between automatic enrollment and plan participation and contribution status in our sample.

Comparison of Plan Participants and Plan Non-Participants

We begin by comparing respondents who do not participate in an employer-sponsored DC plan with those who do, regardless of automatic enrollment features of the plan. Approximately 80% of our sample indicated that they are participating in at least one of their employer's DC plans, irrespective of whether their employer has automatic enrollment. As evidenced in Table 2 below, there are stark differences between individuals who choose to participate and those who do not.¹⁴

¹⁴ The appendix contains tables comparing those who participate in their employer's DC plan with those who do not for employers that (1) have automatic enrollment and (2) do not have automatic enrollment. As in the comparison presented in the main text, there are stark differences between participants and non-participants under both enrollment regimes.

Table 2: Non Participants vs. Participants: Demographics

Demographic Characteristics	Not Participating	Participating	Difference
White	0.647	0.701	-0.054**
Age	57.508	56.204	1.304***
Male	0.462	0.479	-0.017
Married	0.684	0.749	-0.065***
HHI > \$80K	0.248	0.500	-0.253***
College or more	0.205	0.340	-0.134***
Poor Health	0.226	0.143	0.083***
Job Tenure	7.266	14.577	-7.311***
Work Full-Time	0.799	0.896	-0.098***
Spouse Works	0.386	0.473	-0.087***
Spouse Has Pension Current Job	0.139	0.248	-0.109***
HH Non-Ret With (\$,000)	150.047	300.605	-150.558***
HH Med Exp Prv 2 Yrs (\$,000)	4.561	4.646	-0.084
N	541	2462	

Notes: ***p<0.01, **p<0.05, *p<0.10 denote statistical significance based on two-sample t-tests of means.

“Poor Health” is in indicator that a respondent self-identified their health as either “fair” or “poor.”

Individuals participating in their employer’s DC plan are significantly more likely to be white, married, and college educated than those who forgo participation. Those who are not participating are more likely to report that they are in fair or poor health, though there appears to be little difference in household medical expenditures in the previous two years between the two groups.

Strikingly, plan participants appear to have significantly higher incomes than non-participants. Approximately 50% of plan participants have household incomes above \$80,000 (the sample median) compared to only 25% of those not participating in their plan. Plan participants also have an average tenure at their current employer that is nearly twice that of non-participants. Additionally, plan participants are 10 percentage points more likely to be working full-time than those not participating in their plan. Perhaps more importantly, plan participants have an average household wealth outside of retirement accounts nearly double that of non-participants (\$301,000 vs. \$150,000).

The differences in demographic, income, and employment characteristics between those participating and those not participating in their plan suggest that individuals not participating in their plan are more likely to hold “bridge” jobs to transition into retirement (potentially due to low retirement savings) than those who are participating in their plan. Furthermore, liquidity

constraints may play a role. Those not participating earn considerably less, have less stable employment, work less regularly, and are in worse health than those who are participating. Non-participants are likely to have less disposable income, and it may be the rational choice for some of them not to save through an illiquid DC plan.

Similar to the differences in demographic characteristics, individuals participating in their employer-sponsored DC plans in our sample have accumulated significantly more retirement wealth compared to those who are not participating. Table 3 presents mean and median pension, IRA, and retirement wealth (pension wealth + IRA wealth) for the two groups. Unsurprisingly, individuals not participating in their plans have considerably lower household pension wealth relative to those who are participating. Troublingly, non-participants do not appear to be amassing more wealth in other retirement accounts outside their employer-sponsored ones. In fact, plan participants have larger IRA balances on average.

Table 3: Non-Participants vs. Participants: Retirement Wealth

Retirement Wealth	Not Participating		Participating	
	Mean	Median	Mean	Median
Household DC Plan Wealth	\$22,076	\$0	\$150,674	\$60,000
Household DB Plan Wealth	\$58,366	\$0	\$85,647	\$0
Household Pension Wealth	\$80,442	\$0	\$236,320	\$104,666
Household IRA Wealth	\$30,645	\$0	\$60,292	\$0
Total Retirement Wealth	\$111,087	\$0	\$296,612	\$144,000
N	541		2462	

Retirement wealth data (for both participants and non-participants) are highly right skewed. That is, many people save nothing or very little, but a few super-savers raise up the mean savings amounts for the group as a whole. Thus, rather than comparing means, we compare the fraction of each group with zero pension, IRA, and retirement wealth, as well as the log of retirement wealth conditional on having a positive amount in Table 4 below. Troublingly, half of individuals not participating in their employer's DC plan have no assets in any tax-advantaged retirement accounts, compared with 0% of individuals participating in their employer's plan. In fact, an individual with \$37,000 (\$100,000) in retirement wealth would be in the 25th (42nd) percentile of the retirement wealth distribution among plan participants, yet be in the 67th (78th) percentile of the retirement wealth distribution for non-participants. Furthermore, conditional on having some retirement assets, individuals not participating in their employer-sponsored DC plan

have amassed significantly less retirement wealth (median of \$85,000) than those who are participating (median of \$144,087). These results suggest that those employees who are not participating in an employer-sponsored retirement plan are oftentimes also failing to save for retirement in other savings vehicles.

Table 4: Non-Participants vs. Participants: Retirement Wealth Comparison

Retirement Wealth	Not Participating		Participating		Difference	
	%0	Mean ln(wlth)	%0	Mean ln(wlth)	%0	Mean ln(wlth)
Household DC Plan Wealth	77.4	10.39	0.5	10.72	76.9***	-0.322*
Household DB Plan Wealth	78.9	11.67	64.5	11.71	14.4***	-0.034
Household Pension Wealth	63.8	11.17	0.4	11.22	63.4***	-0.046
Household IRA Wealth	70.8	10.41	55.8	10.79	14.9***	-0.382***
Total Retirement Wealth	50.3	11.11	0.2	11.52	50.0***	-0.407***

Comparison of Contributors and Non-Contributors

An alternative way to conceptualize participation is to define participation as the act of currently contributing to an employer-sponsored DC plan. To operationalize this, we define “contributors” as individuals who indicated that they are currently making positive contributions and denote everyone else as “non-contributors” (including both individuals who don’t participate in their employer’s sponsored plan as well as those who participate but aren’t currently contributing).¹⁵ This yields 835 individuals in our sample not making contributions to an employer-sponsored DC plan and 2,168 individuals who are contributing.¹⁶

Similar to the comparison between participants and non-participants, there are stark differences between individuals who choose to contribute and those who do not. Contributors are significantly more likely to be white, college educated, and in good health, than those who choose not to contribute. Moreover, contributors are more likely to have household income

¹⁵ It is important to note that some participants in DC plans (for example, those in a stand-alone employee stock ownership plan) are not permitted to make contributions. While we lack detailed information on plan rules for our sample, the vast majority of respondents indicated that they have access to a 401k, 403b, supplemental retirement account, or a general “defined contribution plan.”

¹⁶ For the purposes of our analysis, we have restricted contribution behavior to a binary “contributing” or “not contributing.” Other studies have found that automatic enrollment is associated with lower contribution levels than voluntary enrollment conditional on participating, particularly when the default deferral percentage is low. See, for example, Madrian and Shea (2001).

above the sample median, have longer job tenure, more likely to be working full-time, and hold significantly more wealth outside of retirement accounts than those who are not making contributions.

Table 5: Non-Contributors vs. Contributors: Demographics

Demographic Characteristics	Not		Difference
	Contributing	Contributing	
White	0.637	0.712	-0.075***
Age	57.205	56.144	1.061***
Male	0.453	0.485	-0.033
Married	0.715	0.746	-0.031*
HHI > \$80K	0.290	0.518	-0.229***
College or more	0.220	0.352	-0.132***
Poor Health	0.210	0.138	0.072***
Job Tenure	8.993	14.903	-5.910***
Work Full-Time	0.813	0.904	-0.091***
Spouse Works	0.423	0.471	-0.047**
Spouse Has Pension Current Job	0.163	0.253	-0.091***
HH Non-Ret Wlth (\$,000)	169.937	313.361	-143.424***
HH Med Exp Prv 2 Yrs (\$,000)	4.359	4.735	-0.376
N	835	2168	

There are also large differences in retirement wealth between individuals who are currently contributing to an employer-sponsored retirement plan and those who are not. As shown in Table 6 below, contributors have considerably higher pension and retirement wealth than non-contributors: those who are contributing have median retirement wealth of \$155,303 compared to a median wealth of \$18,000 for those not contributing.

Table 6: Non-Contributors vs. Contributors: Retirement Wealth

Retirement Wealth	Non Contributors		Contributors	
	Mean	Median	Mean	Median
Household DC Plan Wealth	\$42,754	\$0	\$160,149	\$65,000
Household DB Plan Wealth	\$59,821	\$0	\$88,786	\$0
Household Pension Wealth	\$102,575	\$5,000	\$248,934	\$113,291
Household IRA Wealth	\$35,608	\$0	\$62,401	\$0
Total Retirement Wealth	\$138,183	\$18,000	\$311,335	\$155,303
N	835		2168	

Non-contributors are also significantly more likely to have zero retirement wealth: approximately 33% of individuals not contributing to their employer's DC plan have not accumulated any assets in tax-advantaged retirement accounts compared to 0% of individuals

who are contributing. Additionally, conditional on having positive retirement wealth, contributors have amassed significantly more for retirement than non-contributors. Median retirement wealth for contributors who have accumulated some retirement assets is \$155,674 compared to \$75,000 for non-contributors.

Table 7: Non-Contributors vs. Contributors: Retirement Wealth Comparison

Retirement Wealth	Non-Contributors		Contributors		Difference	
	%0	Mean ln(wlth)	%0	Mean ln(wlth)	%0	Mean ln(wlth)
Household DC Plan Wealth	50.9	10.0	0.3	10.8	50.6***	-0.777***
Household DB Plan Wealth	77.2	11.7	63.2	11.7	14.1***	0.012
Household Pension Wealth	41.8	10.7	0.3	11.3	41.5***	-0.580***
Household IRA Wealth	68.9	10.6	54.6	10.8	14.3***	-0.242**
Total Retirement Wealth	32.9	10.9	0.1	11.6	32.8***	-0.691***

Comparison of Opt-outs and Default-outs

The previous sections highlight large differences in demographic, financial, and health characteristics between individuals participating in (or contributing to) their employer-sponsored DC plans and those who are not participating (or not contributing). We now explore, among those not participating, if there are differences between individuals who actively opt out of participating and those who fail to opt in.¹⁷

Compared to the large differences observed between participants and non-participants, there is less of a divergence between individuals who choose to opt out of participating in their employer's DC plan and those who fail to opt in. Relative to those who fail to opt in, opt-outs have longer average tenure at their current employer (8.7 years vs. 7.0 years). Additionally, those who opt out are less likely to be male (38% vs. 48%) and in poor health (15% vs. 24%) relative to those who fail to opt in. While the difference in proportions for both characteristics is relatively large, neither is statistically significant due to the small sample sizes (only 72 individuals can be labeled opt-outs in the HRS data). Similarly, those who opt out of automatic enrollment have slightly higher wealth outside of retirement than those who are defaulted out (\$156,000 vs. \$149,000), but the difference again is not statistically significant.

¹⁷ The comparison between individuals who are not currently contributing to an employer's DC plan for the two different enrollment regimes yields similar results.

Table 8: Opt-outs vs. Default-outs: Demographics

Demographic Characteristics	Opt-outs		Difference
	(Automatic Enrollment)	(Voluntary Enrollment)	
White	0.667	0.644	0.023
Age	56.736	57.627	-0.891
Male	0.375	0.475	-0.100
Married	0.681	0.684	-0.004
HHI > \$80K	0.208	0.254	-0.045
College or more	0.222	0.203	0.020
Poor Health	0.153	0.237	-0.084
Job Tenure	8.739	7.039	1.699*
Work Full-Time	0.847	0.791	0.056
Spouse Works	0.366	0.389	-0.023
Spouse Has Pension Current Job	0.127	0.141	-0.014
HH Non-Ret With (\$,000)	155.787	149.165	6.621
HH Med Exp Prv 2 Yrs (\$,000)	5.034	4.489	0.545
N	72	469	

Individuals in our sample who have opted out have also amassed slightly higher levels of retirement wealth compared to those who failed to opt in. However, both groups appear to be woefully unprepared for retirement overall. Median wealth in tax advantaged retirement accounts for those who opted out is \$7,832 compared to a median retirement wealth of zero for those who failed to opt in.

Table 9: Opt-outs vs. Default-outs: Retirement Wealth

Retirement Wealth	Opt-outs		Default-outs	
	(Automatic Enrollment)	(Voluntary Enrollment)	(Automatic Enrollment)	(Voluntary Enrollment)
	Mean	Median	Mean	Median
Household DC Plan Wealth	\$47,327	\$0	\$18,200	\$0
Household DB Plan Wealth	\$75,218	\$0	\$55,779	\$0
Household Pension Wealth	\$122,545	\$0	\$73,978	\$0
Household IRA Wealth	\$39,893	\$0	\$29,225	\$0
Total Retirement Wealth	\$162,438	\$7,832	\$103,204	\$0
N	72		469	

Both groups have a similar proportion of individuals who have nothing saved in tax advantaged retirement accounts (46% vs. 51%). However, conditional on having some retirement savings, individuals who opted out have slightly higher retirement wealth (median of \$126,000 vs. \$79,988).

Table 10: Opt-outs vs. Default-outs: Retirement Wealth Comparison

Retirement Wealth	Opt-outs (Automatic Enrollment)		Default-outs (Voluntary Enrollment)		Difference	
	%0	Mean ln(wlth)	%0	Mean ln(wlth)	%0	Mean ln(wlth)
Household DC Plan Wealth	72.2	10.91	78.3	10.29	-6.0	0.621
Household DB Plan Wealth	73.6	11.93	79.7	11.62	-6.1	0.312
Household Pension Wealth	56.9	11.61	64.8	11.09	-7.9	0.517
Household IRA Wealth	66.7	10.92	71.4	10.32	-4.8	0.598
Total Retirement Wealth	45.8	11.67	51	11.02	-5.1	0.653**

Comparison of Active Opt-ins and Passive Default-ins

Similar to the comparison between individuals who don't participate under automatic enrollment and those who don't participate due to failing to opt in, there are few demographic differences between those who actively opt in and those who are defaulted in by an automatic enrollment policy. However, there are several notable exceptions. Individuals who are automatically enrolled into their plan are less likely to be white and high income relative to those who actively choose to opt in, consistent with results found in prior research (Madrian and Shea, 2001).¹⁸ Those who are defaulted in are also less likely to be highly educated, though the difference is not statistically significant. Interestingly, individuals who are automatically enrolled are more likely to be working-part time than individuals who participate under voluntary enrollment. Moreover, those who are defaulted in are more likely to self-assess their health as fair or poor compared with individuals who actively opted in.

¹⁸ It is worth noting that prior research typically focuses on recently made participation decisions. Our analysis provides suggestive evidence that differences in the composition of those automatically enrolled and those who opted-in may persist over time.

Table 11: Default-ins vs. Opt-ins: Demographics

Demographic Characteristics	Default-ins		Difference
	(Automatic Enrollment)	(Voluntary Enrollment)	
White	0.666	0.714	-0.048**
Age	56.370	56.142	0.228
Male	0.464	0.485	-0.021
Married	0.752	0.749	0.003
HHI > \$80K	0.465	0.513	-0.048**
College or more	0.324	0.345	-0.022
Poor Health	0.179	0.130	0.050***
Job Tenure	14.053	14.770	-0.717
Work Full-Time	0.863	0.909	-0.046***
Spouse Works	0.470	0.474	-0.004
Spouse Has Pension Current Job	0.245	0.249	-0.004
HH Non-Ret Wth (\$,000)	277.306	309.209	-31.902
HH Med Exp Prv 2 Yrs (\$,000)	4.381	4.743	-0.362
N	664	1798	

Compared to those who actively choose to opt in, individuals who participate by default under automatic enrollment tend to accumulate less wealth in DC plans and also have less wealth in DB plans, though both groups have a similar amount saved in IRAs. Cumulatively, median wealth in retirement accounts is \$153,267 for those who opted in and \$115,908 for those who defaulted in for our sample.

Table 12: Default-ins vs. Opt-ins: Retirement Wealth

Retirement Wealth	Default-ins		Opt-ins	
	(Automatic Enrollment)	(Voluntary Enrollment)	(Automatic Enrollment)	(Voluntary Enrollment)
	Mean	Median	Mean	Median
Household DC Plan Wealth	\$142,006	\$53,100	\$153,875	\$60,000
Household DB Plan Wealth	\$71,443	\$0	\$90,892	\$0
Household Pension Wealth	\$213,449	\$87,800	\$244,767	\$110,000
Household IRA Wealth	\$59,330	\$0	\$60,647	\$0
Total Retirement Wealth	\$272,779	\$115,908	\$305,414	\$153,267
N	664		1798	

Unsurprisingly, nearly everyone in both groups has accumulated some amount of retirement wealth. As depicted in Table 13 below, and suggested by Table 12, the difference in retirement wealth between those who opt in and those who are defaulted in is driven both by higher amounts saved in DC plans and higher pension wealth in DB plans. In particular, amongst those

that have saved a positive amount, median retirement savings for those automatically enrolled is \$116,810 and \$153,500 for those who opted-in.

Table 13: Default-ins vs. Opt-ins: Retirement Wealth Comparison

Retirement Wealth	Default-ins (Automatic Enrollment)		Opt-ins (Voluntary Enrollment)		Difference	
	%0	Mean ln(wlth)	%0	Mean ln(wlth)	%0	Mean ln(wlth)
Household DC Plan Wealth	0.6	10.58	0.5	10.76	0.1	-0.182**
Household DB Plan Wealth	70.3	11.66	62.3	11.72	8.0***	-0.066
Household Pension Wealth	0.5	11.07	0.4	11.27	0.1	-0.202**
Household IRA Wealth	59.3	10.71	54.6	10.82	4.8**	-0.112
Total Retirement Wealth	0.3	11.37	0.2	11.58	0.1	-0.204**

What characteristics are associated with not participating?

Our comparison across groups on demographic, financial and health characteristics revealed large differences between those who choose to participate and those who choose not to, but relatively muted differences across enrollment regimes conditional on participation decisions. So what characteristics are predictive of choosing not to participate or contribute (i.e., to actively opt out)? To address this question, we first examine which characteristics are correlated with non-participation under each enrollment regime separately, and then subsequently examine the impact of automatic enrollment on participation and contribution status.

To examine which characteristics are associated with non-participation and not contributing, we estimate linear probability models of the following form¹⁹:

$$Y_i = \alpha + X_i' \delta + \varepsilon_i \quad (1)$$

where Y_i represents non-participation (or not contributing, respectively) taking a value of 1 if individual i is not participating in (contributing to) his employer's DC plan, and X_i is a vector of demographic, financial, health characteristics, and ε_i is a mean-zero error term.

Regression analysis yields similar insights to the summary statistics comparison above. Under both automatic enrollment and voluntary enrollment policies, individuals with lower incomes and less education are less likely to be participating in or currently contributing to their

¹⁹ Results obtained from estimating probit models are qualitatively unchanged and available from the authors upon request.

employer sponsored DC plan (though the effect of education is not significant under automatic enrollment). Additionally, individuals who have accumulated large amounts of pension wealth from a previous employer are also less likely to participate or contribute. In particular, each additional \$100,000 in retirement wealth from one's previous jobs is associated with a 4.6 percentage point increase in opting-out of automatic enrollment and a 2.0 percentage point increase in failing to opt-in under voluntary enrollment. Interestingly, in our sample there appears to be no impact of a spouse's retirement wealth from previous employers on participation or contribution decisions. We also observe a sizeable wave effect for both enrollment regimes. Perhaps as a result of the aftermath of the financial crisis (though we cannot say for sure), respondents from the 2010 wave are 12 percentage points less likely to be participating under automatic enrollment and 16 percentage points less likely to be participating under voluntary enrollment relative to respondents from the 2008 wave.²⁰

Though many individual and household-level characteristics appear to influence participation and contribution status in similar ways for automatic enrollment and voluntary enrollment, there are a couple of notable differences. In particular, older respondents are significantly less likely to participate under voluntary enrollment while the same is not true under automatic enrollment.²¹ However, this impact is quite small (a one year increase in age is associated with a 0.1 percentage point reduction in participation) and only statistically significant due to the limited variation in age in our sample. More interestingly, individuals who report to be in fair or poor health are significantly less likely to opt in, yet there is no similar impact on the decision to opt out. Strikingly, individuals working part-time are 14 percentage points less likely to be participating in their plan under voluntary enrollment than those working full-time, while there is no (statistical) difference between these two groups under automatic enrollment, suggesting automatic enrollment is particularly effective in getting part-time employees to enroll in their employer's plan.

²⁰ This may also be influenced by decreasing employer contributions following the financial crisis. Brien and Panis (2013) find that median employer contributions reduced 13% from 2008 to 2009.

²¹ While older respondents are less likely to participate under automatic enrollment, the effect is not statistically significant.

Table 14: What Influences Participation?²²

VARIABLES	Automatic Enrollment		Voluntary Enrollment	
	Not Participate	Not Contribute	Not Participate	Not Contribute
White	0.036 (0.024)	0.009 (0.039)	-0.003 (0.020)	-0.024 (0.021)
Age	0.003 (0.002)	0.003 (0.003)	0.007*** (0.002)	0.008*** (0.002)
Male	-0.030 (0.021)	-0.017 (0.036)	0.001 (0.017)	-0.017 (0.018)
Married	0.010 (0.030)	0.068 (0.044)	0.013 (0.021)	0.041* (0.023)
HHI > \$80K	-0.095*** (0.026)	-0.113*** (0.040)	-0.135*** (0.018)	-0.167*** (0.020)
Full-Time	0.023 (0.031)	-0.071 (0.052)	-0.141*** (0.031)	-0.137*** (0.032)
College or more	-0.035 (0.023)	-0.058 (0.039)	-0.047*** (0.018)	-0.060*** (0.019)
Poor Health	-0.045 (0.030)	-0.021 (0.048)	0.076*** (0.027)	0.063** (0.028)
HH Med Exp > \$5K	-0.001 (0.023)	-0.008 (0.039)	0.027 (0.019)	0.027 (0.020)
Prv Job Pen Wlth (\$100K)	0.046*** (0.015)	0.044*** (0.016)	0.020** (0.008)	0.015* (0.009)
SP Prv Job Pen Wlth (\$100K)	0.005 (0.004)	0.003 (0.006)	-0.001 (0.002)	-0.002 (0.002)
Wave 10	0.124*** (0.024)	0.141*** (0.038)	0.163*** (0.018)	0.167*** (0.019)
Constant	-0.158 (0.142)	0.136 (0.217)	-0.119 (0.104)	-0.123 (0.111)
Observations	736	736	2,267	2,267

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Previous research has suggested that automatic enrollment can significantly increase retirement plan participation, particularly amongst lower income and less educated employees. We find similar evidence of the impact of automatic enrollment in our sample. Individuals working at employers with automatic enrollment policies are approximately 11 percentage points more likely to be participating in their plan than individuals working at an employer without automatic enrollment. Moreover, automatic enrollment is particularly effective at having lower

²² Reported coefficients represent the marginal effect of each covariate.

income, less educated, and minority individuals to participate, consistent with policy goals. As shown in Table 15 below, automatic enrollment increases the likelihood of participation by 7.9 percentage points more for those with household income less than the sample median (\$80,000), 6.1 percentage points more for those with less than a college education, and 6.3 percentage points more for minorities (non-whites).

Table 15: The Impact of Automatic enrollment on Participation

VARIABLES	Participate	Participate	Participate	Participate	Participate
Employer has AE	0.109*** (0.014)	0.144*** (0.021)	0.128*** (0.017)	0.152*** (0.025)	0.177*** (0.029)
HHI X AE		-0.079*** (0.026)			-0.061** (0.028)
College X AE			-0.061** (0.027)		-0.032 (0.029)
White X AE				-0.063** (0.030)	-0.045 (0.031)
White	-0.010 (0.016)	-0.009 (0.016)	-0.009 (0.016)	0.007 (0.019)	0.003 (0.020)
Age	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)
Male	0.006 (0.014)	0.007 (0.014)	0.006 (0.014)	0.006 (0.014)	0.006 (0.014)
Married	-0.012 (0.018)	-0.012 (0.018)	-0.013 (0.018)	-0.012 (0.018)	-0.012 (0.018)
HHI > \$80K	0.127*** (0.015)	0.146*** (0.018)	0.127*** (0.015)	0.127*** (0.015)	0.142*** (0.018)
Full-Time	0.092*** (0.024)	0.091*** (0.024)	0.092*** (0.024)	0.092*** (0.024)	0.092*** (0.024)
College or more	0.044*** (0.015)	0.043*** (0.015)	0.059*** (0.017)	0.044*** (0.015)	0.051*** (0.018)
Poor Health	-0.042* (0.022)	-0.043** (0.021)	-0.043** (0.022)	-0.042* (0.022)	-0.044** (0.021)
HH Med Exp > \$5K	-0.021 (0.015)	-0.022 (0.015)	-0.021 (0.015)	-0.021 (0.015)	-0.022 (0.015)
Prv Job Pen Wlth (\$100K)	-0.026*** (0.008)	-0.027*** (0.008)	-0.026*** (0.008)	-0.026*** (0.007)	-0.027*** (0.008)
SP Prv Job Pen Wlth (\$100K)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)
Wave 10	-0.155*** (0.015)	-0.154*** (0.015)	-0.154*** (0.015)	-0.155*** (0.015)	-0.154*** (0.015)
Constant	1.123*** (0.086)	1.111*** (0.086)	1.119*** (0.086)	1.113*** (0.086)	1.105*** (0.086)
Observations	3,003	3,003	3,003	3,003	3,003
R-squared	0.110	0.112	0.111	0.111	0.112

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

While automatic enrollment is associated with large positive gains in participation rates in our sample, those gains may not result in improvements to long run contribution rates. That is, for our sample automatic enrollment increases the rates of those who *ever* participate in their employer-sponsored retirement savings plan, but is negatively associated with the likelihood that those employees continue to actively make contributions over time. In fact, Table 16 shows that individuals who work at an employer with automatic enrollment are 6 percentage points less likely to be currently making contributions to their plans than those who work at an employer with voluntary enrollment policies. Moreover, of the set of people participating in their plan, those who were automatically enrolled are 17 percentage points less likely to be currently contributing.

Table 16: Impact of Automatic enrollment on Contribution Status

VARIABLES	Contributing	Contributing (Conditional on Participation)
Employer has AE	-0.058*** (0.019)	-0.172*** (0.018)
White	0.013 (0.019)	0.023 (0.015)
Age	-0.007*** (0.001)	-0.002 (0.001)
Male	0.017 (0.017)	0.016 (0.014)
Married	-0.048** (0.020)	-0.048*** (0.016)
HHI > \$80K	0.155*** (0.018)	0.052*** (0.015)
Work Full-Time	0.116*** (0.027)	0.043* (0.025)
College or more	0.059*** (0.018)	0.023* (0.014)
Poor Health	-0.039 (0.024)	0.002 (0.020)
HH Med Exp > \$5K	-0.017 (0.018)	0.004 (0.014)
Prv Job Pen Wlth (\$100K)	-0.021*** (0.008)	0.002 (0.005)
SP Prv Job Pen Wlth (\$100K)	0.000 (0.002)	0.001 (0.001)
Wave 10	-0.162*** (0.017)	-0.034** (0.015)
Constant	1.088*** (0.099)	1.009*** (0.089)
Observations	3,003	2,462
R-squared	0.095	0.078

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5. Discussion

While there has been considerable research investigating the impact of automatic enrollment on participation and savings outcomes, less research has focused on characterizing individuals who actively choose to opt out of a DC plan in which they were automatically enrolled. In this study, we use data from the 2008 and 2010 waves of the HRS to examine how employers' automatic enrollment policies influence longer-run participation and contribution status among older Americans, with a focus on examining demographic, financial, and health differences between those who choose not to participate under automatic enrollment, those who choose not to participate under voluntary enrollment policies, and those who are actively participating.

Using our sample, we find large socioeconomic and health differences between individuals who are participating in their employer's DC plan and those who are not. Plan participants are significantly more likely to be white, married, college educated, enjoy higher incomes, be longer tenured at their current employers, and in good health. Those participating have also accumulated significantly more wealth both within and outside of retirement accounts. Amongst those currently participating in their employer's DC plan, median household wealth in pension and IRAs is approximately \$144,000, relative to a median retirement wealth of \$0 for those not participating in their plan.

While there are large differences between individuals who are participating in their employer-sponsored DC plan and those who are not, we find relatively little differences in demographic, financial, and health characteristics across enrollment regimes when we condition on participation decisions. In particular, those who have chosen to opt out of participating in a plan in which they were automatically enrolled appear fairly similar to those who have elected not to participate under voluntary enrollment, though opt-outs appear to be longer tenured on average. Also, though differences are not statistically significant due to small sample sizes and thus we hesitate to ascribe too much meaning, opt-outs also appear more likely to be female and in good health and these differences are relatively large in magnitude. Additionally, those who opted out appear to have accumulated a little more wealth in retirement accounts (median household retirement wealth of approximately \$7,832) relative to those who are not participating

under voluntary enrollment (median household retirement wealth of approximately \$0), though both groups appear to be largely financially unprepared for retirement.

Similar factors appear to influence the decision not to participate under both automatic enrollment and voluntary enrollment. Particularly, low income individuals are significantly more likely to opt out or fail to opt in. Additionally, those who have accumulated a large amount of pension wealth at previous employers are less likely to participate in their current employer's DC plan. Interestingly, individuals in poor health are more likely to choose not to participate under voluntary enrollment than those in good health, yet we don't see a similar effect under automatic enrollment; this could be suggestive evidence that automatic enrollment may do a better job at encouraging participation among employees in poor health.

Similar to previous analyses, we find that automatic enrollment is associated with a large increase in plan participation when compared to participation in voluntary enrollment plans, approximately 11 percentage points in our sample. Moreover, although lower income and less educated individuals are less likely to participate in their employer's DC plan, automatic enrollment does mitigate some of this effect. Automatic enrollment is more effective at getting lower income, less educated, and minority individuals to participate over the longer term than higher income, higher educated, white individuals, respectively.

While automatic enrollment is associated with increased participation in our sample, it doesn't appear to be positively related to longer-run contribution status. Individuals who work at an employer with automatic enrollment are, in fact, less likely to be currently making contributions to their plans than those who work at an employer with voluntary enrollment. Additionally, conditional on participating, individuals who were automatically enrolled are 17 percentage points less likely to be currently making contributions to their plan. Thus, in our sample, while automatic enrollment increases participation, those who choose to opt-in are more likely to continue making contributions over time.

While this study yields interesting, yet intuitive, insights and is broadly consistent with previous research, it is important to note several limitations. First, given that our sample is small and comprised predominately with Americans aged 50 and above, our results may not be generalizable to other populations. Additionally, none of the results contained herein are causal. There may be important unobserved differences between individuals who work at employers with automatic enrollment and those who work at employers with voluntary enrollment. Finally,

given that our data are entirely self-reported, it is possible that plan type, the structure of the participation decision, participation, and contribution status are measured with, perhaps considerable, error. Given these limitations, our results should be interpreted as illustrative rather than determinative.

Appendix

The following tables compare demographic characteristics of plan participants with those of non-participants. The first table compares individuals who work at an employer with automatic enrollment while the second compares individuals who work at an employer that requires employees to opt-in to their retirement plan. While there are differences between those who opt-out and are defaulted-out (and differences between those who opt-in and are defaulted-in) as shown in the main text, these differences are dwarfed by differences between participants and non-participants.

Table 17: Opt-Outs vs. Default-Ins: Demographics

Demographic Characteristics	Opt-outs	Default-ins	Difference
White	0.667	0.666	0.001
Age	56.736	56.370	0.366
Male	0.375	0.464	-0.089
Married	0.681	0.752	-0.071
HHI > \$80K	0.208	0.465	-0.257***
College or more	0.222	0.324	-0.102*
Poor Health	0.153	0.179	-0.026
Job Tenure	8.739	14.053	-5.314***
Spouse Works	0.366	0.470	-0.104*
Spouse Has Pension Current Job	0.127	0.245	-0.118**
HH Non-Ret Wlth (\$,000)	155.787	277.306	-121.520*
HH Med Exp Prv 2 Yrs (\$,000)	5.034	4.381	0.652
N	72	664	

Table 18: Default-Outs vs. Opt-Ins: Demographics

Demographic Characteristics	Default-outs	Opt-ins	Difference
White	0.644	0.714	-0.070***
Age	57.627	56.142	1.484***
Male	0.475	0.485	-0.010
Married	0.684	0.749	-0.064***
HHI > \$80K	0.254	0.513	-0.260***
College or more	0.203	0.345	-0.143***
Poor Health	0.237	0.130	0.107***
Job Tenure	7.039	14.770	-7.731***
Spouse Works	0.389	0.474	-0.085***
Spouse Has Pension Current Job	0.141	0.249	-0.108***
HH Non-Ret Wlth (\$,000)	149.165	309.209	-160.043***
HH Med Exp Prv 2 Yrs (\$,000)	4.489	4.743	-0.254
N	469	1798	

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