

**Plan Design and Participant Behavior in
Defined Contribution Retirement Plans:
Past, Present, and Future**

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Abstract

This paper provides a state-of-the-art overview of defined contribution retirement plan design for academics, policy makers, and industry participants. I begin by considering the impact of basic plan design on participation rates, contribution rates, and portfolio choice, both overall and among employees with lower levels of financial literacy. Next, I consider the short-term and longer-term impacts of automatic enrollment and default investment options, including potential negative effects with respect to participant engagement. I also ask how the framing of plan features and plan communication can impact participant behavior. Finally, I examine recent plan changes including the integration of life annuities into retirement plans and target date funds (TDFs), managed accounts as alternatives to TDFs, emergency savings accounts, state-sponsored retirement plans, and national legislation like SECURE 2.0 that is intended to increase plan access and opportunities for employer matches.

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**Plan Design and Participant Behavior in
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Past, Present, and Future**

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Abstract

COMING SOON

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Introduction

There are ongoing debates about the extent to which US households, and particularly those with lower earnings, are saving enough for retirement.¹ Because private retirement savings in the US primarily accrue through employer-sponsored defined contribution (DC) retirement plans, such as 401(k) plans, there is renewed interest by policymakers, practitioners, and academics in improving plan design and expanding access.² In this article, I review the evidence on how employees have responded to changes in retirement plan design that were intended to increase participation rates, savings rates, and exposure to equity markets, I discuss the likely impact of recent regulation, and I highlight areas where additional research is needed.

DC retirement plans are the means to an end: retirement income above and beyond that available from other sources. When discussing plan design, it is helpful to think of them as the savings account in a classic lifecycle model (Gomes et al. 2021).³ If we make the (unrealistic) assumption that all employees are capable of determining their optimal savings rate and asset allocation each period, then a well-designed plan is one that allows participants to construct optimal portfolios based on their specific characteristics and preferences, at a reasonable cost.⁴ The only optimizing employees who will not choose to participate are those for whom the expected benefits of participating fall short of the costs in terms of forgone consumption or alternative savings (such as paying down student loans).

¹ On the one hand, many households that earn low wages are reliant upon Social Security benefits for retirement income. On the other hand, Social Security replacement rates are the highest for this group of workers (assuming steady employment histories). See, for example, Figure 8.3 in Investment Company Institute (2023).

² According to Investment Company Institute (2023), “assets earmarked for retirement amounted to \$33.6 trillion at year-end 2022” (p. 99).

³ Gomes et al. (2021)’s review of the literature on household finance links lifecycle model considerations to the literature on retirement savings and financial advice.

⁴ I assume that the fraction of plan costs covered by the employer and the generosity of the employer match (i.e., the size of the transfers from employers to plan participants) are determined by the competitiveness of the labor market.

Optimal plan design becomes more complicated when we acknowledge that many employees lack the financial literacy and investment experience required to determine their optimal savings rate and asset allocation (e.g., Lusardi and Mitchell 2023).⁵ In practice, households need to decide how much to save each period, whether to save through an employer-sponsored retirement plan or individual retirement plan, how to invest retirement contributions throughout the accumulation phase, when to retire, when to claim government-provided retirement benefits like Social Security, and how to manage assets during the decumulation phase, including the potential purchase of life annuities. The fact that these are difficult decisions to make does not change the fact that households are responsible for making them, but it does suggest that households with lower levels of financial literacy may be inclined to outsource some or all of their decision-making to others, or to avoid saving for retirement all together. The first challenge for plan design is designing a plan that moves unsophisticated employees closer to their optimal savings rates and asset allocations than if they were left to their own devices while simultaneously providing sophisticated employees with the investment options needed to pursue their optimal savings rates and asset allocations. This is where nudges like automatic enrollment and default investment options have come to play an important role. The second challenge for plan design is accommodating the (potentially) heterogeneous needs of less-sophisticated employees, which may call for more sophisticated defaults.

In this article, I review evidence on suboptimal investment behavior in the days before automatic enrollment and then consider the potential benefits of automatic enrollment (AE) and

⁵ Lusardi and Mitchell (2023) provide an up-to-date review on the literature on the benefits of financial literacy. For example, Clark, Lusardi, and Mitchell (2017) documents higher participation and savings rates within the Thrift Savings Plan for employees with higher levels of financial literacy. They also demonstrate that employees who complete a “Learning Module” about retirement planning are more likely to start contributing and less likely to stop contributing.

active choice relative to voluntary enrollment (VC), the intended and unintended consequences of replacing money market funds with target date funds as default investment options, attempts to expand access to DC retirement plans (and liquid savings) in the UK and US, how incremental savings under automatic escalation are being financed, potential conflicts of interest in plan design, and recent regulation intended to increase participation rates and savings in the US.

Evidence on Suboptimal Participant Behavior

Before describing how DC retirement plans have evolved, it is helpful to review the early evidence on how some DC plan participants (mis)managed their retirement portfolios. In their “1/N” paper, Benartzi and Thaler (2001) cast doubt on the idea that plan participants are constructing optimal portfolios. Instead, they find that plan participants rely upon “naïve diversification strategies” when constructing retirement plan portfolios. The greater the fraction of equity funds on the menu, the greater the average allocation to equity, even when there are no incremental benefits from diversification. Huberman and Jiang (2006) revisit Benartzi and Thaler’s finding using account-level data from 640 DC plans administered by Vanguard. While they find evidence of a 1/N effect in the sense that participants typically allocate contributions equally across a small number of funds, they do not replicate Benartzi and Thaler’s finding that allocation to equity increases with the fraction of equity funds in the menu.⁶ They conclude that “the absence of a relation between equity allocation and equity exposure suggests that *menu design is not important* and that the data fail to reject the null hypothesis of rationality in favor of

⁶ Consistent with Benartzi and Thaler (2001), Brown et al. (2007) find that within-plan, time-series variation in the fraction of equity funds on the investment menu is positively associated with time-series variation in participant holdings of equity funds. Morrin et al. (2012) find that when a single retirement plan increases its menu size from 10 funds to 19 funds, new employees are more likely to accept the default investment option, but new employees who construct their own portfolio invest in a larger number of funds when the fund is larger.

the alternative that plan menus influence participants' equity allocations" [*emphasis added by me*]. However, this was neither a particularly powerful test of investor rationality nor of the quality of DC investment menus. **Tang et al. (2010)** analyze account-level data from December 2004 for an even larger sample of DC plans managed by Vanguard. They find that approximately 94 percent of plans offer efficient investment menus, but that "most participants fail to construct an optimal portfolio from the menu offered to them by their plan sponsors." Their headline estimate is that inefficiently constructed portfolios reduce "potential retirement wealth by one-fifth."

Choi, Laibson, and Madrian (2009) exploit a 2003 change in how a single firm made 401(k) matching contributions to test for mental accounting. Before the change, a participant chose the asset allocation of their contribution and all matching took the form of company stock. After the change, a participant chose the asset allocation for both employee and employer contributions. Fully rational employees should set a lower allocation to company stock before the change, internalizing the fact that the employer match will be 100% company stock. Instead, consistent with mental accounting, participants appear to ignore the employer match when the employer decides how it is to be allocated. Namely, Choi et al. find that participants chose similar average allocations to company stock under both regimes, implying very different allocations to company stock after six months (58.7% versus 27.4%).

There are related questions about the extent to which some participants are willing and able to manage their portfolios over time. Acceptance of the status quo can give rise to excess inertia. **Samuelson and Zeckhauser (1998)** provide real-world evidence of status-quo bias in asset allocation decisions. They analyze how approximately 850,000 Teachers Insurance and Annuity Association (TIAA) participants chose to allocate their retirement contributions between a fixed-

income (TIAA) fund and a diversified common stock (CREF) fund, between 1981 and 1986. They find that “changes in allocations year by year are insignificant--despite large variations in TIAA and CREF rates of return” (p. 32). They also report that less than 2.5% of participants that have participated in the plan for at least 12 years make a change to their asset allocation in any given calendar year. What the paper does not discuss is whether participants transfer money between the two funds without adjusting their asset allocations, which is the more efficient way to rebalance portfolios, but which they were never prompted to do. [Agnew, Balduzzi, Sunden \(2003\)](#) study trading behavior within a single large 401(k) plan between April 1994 and August 1998. They find that extreme asset allocations are common, with 47.6% of participants allocating 0% to equity. On the other hand, changes in allocations are relatively uncommon, with 87.6% of accounts making zero trades in a given year. This paper is widely cited as evidence that DC plan participants fail to revisit their initial asset allocation choices.

Finally, as Benartzi (2001) and Poterba (2003) both emphasize, it is generally unwise for employees to hold concentrated positions in their employer’s stock. Using data disclosed in Form 11-K for fiscal year 1993, [Benartzi \(2001\)](#) finds that approximately 25% of discretionary contributions in 401(k) plans are invested in company stock. He also finds that allocations to company stock are higher when company stock returns have been higher, but that these higher allocations do not predict higher future returns. Among the 20 largest DC plans in September 2001, [Poterba \(2003\)](#) finds an average allocation to company stock of 44.3%. “The average standard deviation [of the company stock returns] is 35.7 percent, compared with 15.8 percent for the Standard and Poor’s 500 Index over this time period.” His simulations confirm that large allocations to company stock significantly reduce expected utility. Following the Pension Protection Act of 2006, which allowed employees to convert company stock holdings into other

investments, holdings of company stock have declined. According to Vanguard (2023), among plans offering company stock, the fraction of participants with a positive allocation to company stock declined from 53% in 2013 to 33% in 2020. Collectively, these papers imply that at least some participants would benefit from outsourcing their asset allocation decisions, as has become increasingly common.

Defaults Changed Everything

The ongoing transition from voluntary enrollment (VE) to automatic enrollment (AE) has had enormous implications for participant behavior. When a retirement plan begins automatically enrolling new employees in its retirement plan (i.e., giving them the option to opt out instead of requiring them to opt in), they will be enrolled at the default savings rate and their contributions will be invested in the default investment option. In their famous study, Madrian and Shea (2001) compare the choices of employees who joined after the introduction of AE to employees who joined under the previous VE regime. Their empirical setting is the 401(k) plan of a “large, publicly traded Fortune 500 company in the health care and insurance industry.” They have four main findings. First, switching from VE to AE increased participation rates from 49% to 86%. Second, there are heterogeneous treatment effects; the largest increases in participation are observed among younger employees, lower-income employees, and Black and Hispanic employees. Third, conditional on participating, average employee savings rates decrease. In particular, the modal savings rate decreases from 6% to 3% and the average savings rate decreases from 7.3% to 4.4%. While some of this difference is likely driven by acceptance of the 3% default rate by employees that would have not voluntarily enrolled, there are not enough new participants to rationalize all of the increased demand for the 3% rate. Fourth, the fraction of

participations that allocate 100% of their contributions to the (default) money market fund jumps from 6.4% to 80.0%.

The findings are broadly similar when Choi et al. (2004) extend this analysis to include two additional large firms, following participants for up to 48 months. Participation rates are significantly higher under AE and remain high. At the same time, “65-87% of new plan participants save at the default contribution rate and invest exclusively in the default fund. This percentage declines slowly over time, falling to 40-54% after two years of tenure, and to about 45% after three years of tenure (in the two companies for which data extends this far).” In other words, Choi et al. find that widespread acceptance of default options increases participation but decreases dispersion in participant outcomes relative to plans without defaults. The interesting implication is that some participants are being made better off relative to their counterfactual behavior—if we assume that higher retirement account balances increase participant welfare—but also that some participants are being made worse off by the same standard.

These papers are studying the impact of AE on a particular type of employer. Namely, employers offering 401(k) plans tend to pay higher wages and offer stable employment, and to offer employer matching contributions. According to Figure 1 of Vanguard (2023), the median participant income within 401(k) plans was \$82,000 in 2022 and 95% of 401(k) plans offered an employer match. It is also worth noting that the larger firms featured in these papers are seeking to increase plan participation, which raises questions about external validity. By now, however, 58% of Vanguard’s plans feature automatic enrollment and comparisons between plans with voluntary and automatic enrollment, in Figure 31 of Vanguard (2023), are broadly consistent with the original findings in Madrian and Shea (2001). For example, the largest differences in participation rates between the two types of plans are for young employees earning low wages,

with “0-1” years of tenure. Furthermore, the comprehensive literature review on automatic enrollment in Beshears et al. (2023) confirm that automatic enrollment has had similar effects in other DC retirement plans. Finally, the early finding that reliance on defaults reduces asset accumulation arises from the interaction between low default contribution rates and low-risk default investment options. This begs the question of how we should think about optimal defaults in a world with heterogeneous effects. At a minimum, as I discuss below, there has been movement towards higher contribution rates and riskier default investment options.

Voluntary Enrollment, Automatic Enrollment, or Active Choice?

The widespread acceptance of default contribution rates and investment options raises important questions about how to set optimal defaults. Choi et al. (2003) consider optimal defaults in the context of retirement savings rates when participants are hyperbolic discounters. Their model assumes that participants suffer flow welfare losses when they save too much or too little relative to their privately optimal savings rate, but that participants must incur a one-time, time-varying adjustment cost to move away the default savings rate. When the range of privately optimal savings rates is narrow, the optimal default rate is near the middle of the distribution. When the range is wide, on the other hand, such that many employees will be harmed by any particular default savings rate, the optimal default rate is close to the minimum or maximum of the distribution, because extreme defaults are the most likely to trigger active choices by employees.⁷ Relatedly, when Beshears et al. (2023) study a retirement plan with a default savings rate of 12% (and minimum required rate of 4%), they find that 73% of participants

⁷ In a calibration exercise involving four firms, Choi et al. (2003) estimate mean actual savings rates between 2.4% and 8.2% but mean optimal default savings rates between 0% and 15%, “where firms whose employees have a high motive to save turn out to have higher optimal defaults than firms whose employees have a low motive to save.”

choose a different savings rate within 12 months. They interpret that fact that lower-income employees are *less* likely to deviate from the default rate as evidence that they “face higher psychological barriers to active decision making.”

More generally, Carroll et al. (2009) derive conditions under which forcing employees to make active choices can dominate automatic enrollment. In their model, active choice is best when employees have heterogeneous preferences and a “strong propensity to procrastinate.” However, it is also important that employees are able to map these preferences into savings rates and choices over asset allocation. To the extent that employees suffer from low levels of financial literacy, it may be optimal to combine active choices over contribution rates with reliance on default investment options that allow participants to outsource portfolio management.

Target Date Funds as Default Investment Options

Before the Pension Protection Act of 2006, it was common for retirement plans that featured automatic enrollment to offer either a money market mutual fund or a stable value fund as the default investment option (as was true in the three plans studied by Choi et al (2001)). Beginning in 2007, plans were provided with a safe harbor when they defaulted participants into a target date mutual funds (TDFs), balanced fund, or managed accounts.⁸ Of the three qualified default investment alternatives (QDIAs), TDFs have proven the most popular. According to Figure 1 of Vanguard (2023), 98% of the retirement plans that designated a QDIA in 2022 selected a TDF.

Mitchell and Utkus (2021) study the introduce of TDFs in a large sample of Vanguard 401(k) plans. As they explain, “TDFs offer two unique advice-related features. First, each fund is

⁸ See <https://www.dol.gov/agencies/ebsa/about-ebsa/our-activities/resource-center/fact-sheets/default-investment-alternatives-under-participant-directed-individual-account-plans>, dated September 2006; accessed March 17, 2024.

identified with an anticipated retirement year, which serves as an implicit recommendation regarding which types of investors should hold each fund.... Second, target-date risk levels are automatically rebalanced over time by a fund manager who follows an ‘equity glide path’, reducing risk as participants near their target dates. Prior to the advent of TDFs, no investment fund provided age-related rebalancing in 401(k) plans.” When TDFs are introduced into plans with voluntary enrollment, 28.4% of existing employees and 10.2% of existing employees invested partially or entirely in TDFs. For plans with automatic enrollment, those statistics are 78.7% and 21.7%, respectively. They interpret the fact that approximately twice as many existing employees choose to invest in TDFs in plans featuring automatic enrollment as a “default-related endorsement effect.” With respect to portfolio characteristics, they find that transitioning into TDFs is associated with increased equity exposure and decreased idiosyncratic risk. They acknowledge, however, that the decreases in idiosyncratic risk may partly reflect the fact that Vanguard TDFs invest in index funds rather than actively manage funds.

Several other recent studies highlight the benefits of TDFs. **Keim and Mitchell (2018)** study participant responses to a change in the investment menu offered by a large nonprofit institution. In July 2012, the plan eliminated 39 funds, impacting approximately half of plan participants. Only 30% of the participants with funds slated for removal actively choose from among the remaining funds; the remaining 70% were mapped into an age-appropriate TDF. In both samples of participants, there were significant reductions in portfolio risk and expense ratios. **Chalmers and Reuter (2020)** study a retirement plan where TDFs are added for all participants but access to one-on-one advice from brokers is eliminated for new participants. They find that the same participant characteristics that predict demand for brokers also predict demand for TDFs. For participants with high predicted demand for advice, they find that TDF-

based portfolios held by new participants outperform broker-recommended portfolios held by existing participants. More generally, to the extent that less sophisticated investors are now outsourcing their portfolio management to TDFs rather than managing portfolios on their own, we plausibly should expect to see participants making fewer investment mistakes. For example, **Blanchett, Finke, and Reuter (2020)** find that participants invested in TDFs were much less likely than other participants to make any changes to their retirement portfolios during 2020Q1, when COVID-19 caused a large (temporary) drop in market indices and spikes in volatility.

Choukhmane and de Silva (2023) use changes in default investment options within 401(k) plans to estimate the investment preferences of plan participants. Their goal is to shed new light on whether stock market non-participation is driven by preferences or frictions. They find that very few of the participants defaulted into TDFs “make an active decision to opt-out of stock market participation” while a significant fraction of those defaulted into money market funds actively choose to invest in equity.⁹ They conclude, “[t]he fact that most investors move away from the default option when it is a safe asset but stay invested in the default when it’s equity suggests that, absent participation frictions, these investors prefer holding risky assets.” These findings confirm that money market funds were particularly poor choices for default investment options.

While retirement plan participants may be inclined to view TDFs from different asset management firms as perfect substitutes, two TDFs with the same target retirement date may pursue significantly different investment strategies. Using data for 1994 to 2012, **Balduzzi and Reuter (2019)** document significant differences in the investment strategies of TDFs offered by different mutual fund families. In particular, they find that the TDFs of families entering the

⁹ Choukhmane and de Silva (2023) estimate “a coefficient of relative risk aversion of approximately 2.03, an elasticity of intertemporal substitution of approximately 0.38, and a portfolio adjustment cost of \$201.”

market after the passage of the Pension Protection Act of 2006 exhibited higher levels of idiosyncratic risk, and they attribute these differences to strategic risk-taking with the goal of attracting flows. The fact that different TDFs exhibit different levels of systematic and idiosyncratic risk raises the possibility of matching between the riskiness of a TDF suite and the riskiness of the firm sponsoring the retirement plan. Using cross-sectional data on a large sample of retirement plan investment menus in 2010, however, they find little evidence of risk matching. Whether this has changed over the past 14 years is unknown.¹⁰

While TDFs allow participants to outsource portfolio management decisions to professionals, thereby reducing the likelihood of investment mistakes, reliance on TDFs may have unintended consequences. [Goda et al. \(2019\)](#) ask whether and how federal employee behavior within the Thrift Savings Plan changes when the default investment option for new hires is changed from a low-risk, low-return fund that invests in US Government bonds to a TDF. Their main finding is that employees are less likely to make an active choice about their contribution rate when the default investment option is a TDF. Because the default contribution rate is 3% and the minimum contribution rate required for an employer match is 5%, total contributions are lower, on average, for new hires. The broader concern is that reliance on TDFs may reduce engagement with the retirement plan because the most important function—portfolio management—has been outsourced. [Reuter and Richardson \(2022\)](#) study demand for advice within a sample of retirement plans administered by TIAA-CREF. They find that participants who invest solely through TDFs are significantly less likely to seek advice on asset allocation

¹⁰ Choi et al. (2003) emphasize that the choice of an optimal default savings rate requires knowledge of the underlying distribution of optimal savings rates, and that extreme defaults are more likely to spur active choice. The choice of an optimal TDF is more complicated. On the one hand, it is conceivable that there is greater dispersion in optimal asset allocations than in optimal savings rates, especially as employees get older. On the other hand, given low levels of financial literacy, it is unclear that active choice in the absence of financial advice is likely to improve participant welfare (Carroll et al. 2009) and it is unclear that those invested in TDFs will seek financial advice (Reuter and Richardson 2022).

and on retirement income levels. While it is not surprising that this would be true for younger employees, it remains true throughout the age distribution, suggesting that investors in TDFs are less likely to learn whether the default savings rate is the best one for them.

Customized Defaults?

Moving from voluntary enrollment to automatic enrollment increases participation rates, but replaces at least some active choice with one-size-fits-all defaults. Conceptually, it should be possible to reduce the gaps between employee's optimal choices and default choices by conditioning defaults on employee characteristics. And, in fact, TDFs already offer different portfolios to employees with different target retirement dates. **Goda and Manchester (2013)** demonstrate that there is scope for improvement with respect to other defaults. They use a regression discontinuity design empirical strategy to study the effect of defaults on the choice of retirement plan. Their empirical setting is a firm that closed its defined benefit (DB) retirement plan to new employees, but gave existing employees a one-time, irreversible choice between the two types of plans. For employees age 45 or older, the default was the DB plan; for younger employees, it was the DC plan. Goda and Manchester estimate that employees with ages just below 45 are "approximately 60 percentage points more likely to enroll in the DC plan relative to those just over age 45 at the time of plan transition." Next, they solve for the optimal age-based cutoff between the two types of plans as the one that maximizes aggregate pension wealth, controlling for the greater risk of DC retirement plans. Implicit in this exercise is the possibility that DC plans are optimal for participants who are sufficiently young, so long as they are not too risk averse. Indeed, when the coefficient of constant relative risk aversion is 2, they find that the optimal age below which to default employees into the DC plan is 47, which is close to the age

that was chosen by the firm. As the coefficient of constant relative risk aversion increases to 10, the optimal age below which to default employees into the DC plan falls all the way to 20, implying that all employees should be defaulted into the DB retirement plan. The authors conclude that defaults that ignore relevant employee characteristics are likely to result in smaller welfare gains than those that internalize one or more of these characteristics.

Gomes et al. (2021) emphasize, based their analysis of a classic lifecycle model, that “both the optimal saving rate and the optimal asset allocation depend on multiple demographic characteristics, including age.” It is conceivable that employers could, if granted permission by the DOL, condition default savings rates on age, income, industry, expected employment tenure, and other characteristics, including whether the employee is currently making student loan payments. When it comes to portfolio management, plans could replace TDFs with managed accounts that internalize employee preferences, savings needs, and the level of other financial assets (if any). Or, under the assumption that the value of customized advice on asset allocation and savings rates increase with age, plans could offer managed accounts as defaults for employees above a particular age. The question that employers would first need to answer is whether the expected benefits of customization outweigh any increase in fees, especially if meaningful customization requires detailed input from employees.

Automatic Escalation

Above, I highlighted that automatic enrollment is associated with decreased dispersion in employee contribution rates. In the earliest studies, the default contribution rate under AE was lower than under VE because the default rate was set quite low. According to Vanguard (2023), the average employee contribution rate was 7.4% in 2022, and the median was 6.4%. These

higher rates reflect some combination of higher default contribution rates and automatic escalation, which was encouraged by the Pension Protection Act of 2006. Under automatic escalation, plans could set a default contribution rate of 3% but then, if participants do not opt out of this feature, increase the contribution rate by one percentage point each year, up to a maximum rate of 10%. (Among plans administered by Vanguard, 58% featured AE in 2022, and 69% of those with AE also featured automatic escalation.)

Thaler and Benartzi (2004) provided the first real-world evidence that automatic escalation could be used to increase contribution rates—at least within firms that were actively seeking to increase contributions. They describe how behavioral biases, including a lack of self-control, procrastination, and loss-aversion, may lead some workers to save too little for retirement. Then, because their paper “is an attempt at good prescriptive savings advice,” they test a (trademarked) intervention named Save More Tomorrow (“SMarT”). Their product sets an initial contribution rate and then commits to increase the contribution rate by one or more percentage points following annual raises, with this timing chosen so that take-home pay is not reduced. In the article, they describe how the plan was implemented at three different firms. In the first implementation, which they follow over four pay cycles, average contribution rates for participants joining SMarT increase from 3.5% to 13.6%, and participation rates remain high. For the entire plan, the average contribution rate increases from 4.4% to 10.6%. These are enormous increases!

Their third implementation came closest to now-standard implementations of automatic escalation because it featured pre-determined contribution rate increases of one, two, or three percentage points on April 1 of each year. (In their data, 54% of participants choose one percentage point, 35% choose two percentage points, and 11% choose three percentage points.)

Take-up rates are higher for those earning less than \$50,000 (in 2004), but also for those with 4-5 years of tenure, suggesting that automatic escalation is most popular with employees with stable employment. Based on a simulation at the end of the paper, Thaler and Benartzi conclude that if employees are automatically enrolled in SMarT with a 5% baseline contribution rate and a 2 percentage-point annual increase (and allowing for attrition from the plan), “the average saving rate is projected to increase from 5.0 percent to 10.9 percent within five years” (p. S184).

The magnitude of the simulated increases begs the question of how well automatic escalation works when applied to a diverse range of plans. While financial services firms like Vanguard are in an excellent position to describe the evolution of contribution rates in plans that do and do not feature automatic escalation, separately by participant age and income bins, I am unaware of any such tabulations. In a soon-to-be-released study of the long-term effects of automatic enrollment and automatic escalation (described in more detail below), Choi, et al. (2024) estimate that automatic escalation increases contribution rates by 0.2% of income, with fewer than half of participants accepting automatic escalation on their first escalation date.¹¹

Expanding Access to Retirement Savings: The UK Experience

UK Pensions Act 2008 extended AE to most private sector employees, beginning in 2012. According to Cribb and Emmerson (2020), who provide an initial assessment of the regulation, only 36% of private sector employees were active participants in an employer-sponsored retirement plan in 2012. AE was rolled out in waves, between October 2012 and April 2017, beginning with the very largest employers.¹² The set of “targeted” employees includes

¹¹ Zhong (2021) uses participant reactions to automatic escalation in OregonSaves to estimate that the optimal contribution rate for that population is 7%.

¹² To prevent manipulation of enrollment dates, size was determined by the number of employees in April 2012

those of working age with annual earnings above a minimum threshold, set at £10,000 in April 2014. Until April 2018, the minimum employee contribution was 1% and the minimum employee plus employer contribution was 2%. The minimum contribution rate increased to 2% and 5%, respectively, in April 2018, and to 3% and 8%, respectively, in April 2019. Employees who opt out of the program forgo the employer contributions.

Exploiting a difference-in-difference empirical strategy, **Cribb and Emmerson (2020)** estimate that Pensions Act 2008 increased private sector participation rates by 36 percentage points (relative to a baseline of 49% for the large and medium-size employers being studied). Furthermore, they estimate much larger effects for the lowest quartile of earnings (54 percentage points) than for the highest quartile of earnings (16 percentage points). The combined employee plus employer contribution rate is estimated to increase by 1.05% of earnings (including the 0% contribution rates of those who opt out). Interestingly, they also find modest increases in participation by employees who are not targeted by the program (e.g., based on age or income) but nevertheless eligible to participate.

Cribb and Emmerson (2021) use randomization in the enrollment dates of employers with between 2 and 29 employees to study the short-term effect of AE on small employers, who had the lowest participation rates in 2012. As they highlight, there were several reasons to expect that automatic enrollment will be less successful at smaller employers. These firms pay lower wages and have higher turnover rates, and, because they disproportionately lack retirement benefits, may attract employees with higher discount rates. As a result, it is unclear whether smaller employers viewed the introduction of an automatic enrollment retirement plan as a positive development. Nevertheless, Cribb and Emmerson estimate that participation rates at small employers increase by 44 percentage points, resulting in an overall participation rate of 70%. The

largest effects are for those below the age of 40 (54% versus 36%) and with fewer than four years of tenure (49% versus 40%). Total contributions increase by 1.82% of earnings, which is a larger increase than for the larger firms studied in their earlier paper.

By expanding AE to most private-sector employers, the UK regulation allowed Cribb and Emmerson to both confirm the external validity of earlier studies and shed the first light on how AE effects vary across employer sizes. Cribb and Emmerson are not able to measure long-term effects on participation rates or retirement account balances, however, nor to test for crowd-out among different forms of savings.

Expanding Access to Retirement Savings: The US Experience

Many US employees still lack access to employer-sponsored retirement plans, and this is especially for lower-wage workers at smaller firms. According to the Bureau of Labor Statistics, 64% of private-sector workers in the US had access to an employer-sponsored DC retirement plan in March 2020. Access was higher for employees of larger employers (78% of those with 100+ employees versus 53% of those with 1-99 employees) and for employees earning higher wages (84% in the top quartile of wages versus 41% in the bottom quartile).¹³ Moreover, while employees who lack access to employer-based retirement plans can theoretically open and contribute to an individual retirement account (IRA), very few actually choose to do so (e.g., Chalmers et al. (2022)).

In response to low levels of retirement savings by lower-income households in the US, there have been legislative movements at the state and federal levels to greatly expand access to employer-based retirement plans. In 2017, Oregon introduced the first state-sponsored

¹³ See <https://www.bls.gov/opub/ted/2021/67-percent-of-private-industry-workers-had-access-to-retirement-plans-in-2020.htm>, viewed March 14, 2024.

automatic-enrollment retirement plan. Specifically, Oregon required employers that did not already offer a retirement plan to automatically enroll their employees in OregonSaves. As in the UK, the program was launched in waves, beginning with the largest employers. Following a brief enrollment period during which employees could opt out of the program, Oregon opens a (after-tax) Roth IRA on behalf of each eligible employee. The default contribution rate is 5% of before-tax income and, unless the employee opts out of the automatic escalation provision, increases by one percentage point per year to a maximum of 10%. There is no employer match, but because the employees invest in Roth IRAs, employees are able to withdrawal contributions without tax penalties, resulting in liquid retirement savings.¹⁴

According to Georgetown University's Center for Retirement Initiatives, by early 2024, 14 states had introduced automatic-enrollment IRA programs.¹⁵ As of January 31, 2024, there were \$1.23 billion invested in automatic IRAs in California, Colorado, Connecticut, Illinois, Maryland, and Oregon. In Oregon alone, there were \$245.5 million invested, across 123,747 funded accounts, for an average account balance of \$1,984.¹⁶ Consistent with the large number of funded accounts in Oregon, Dao (2023) finds that OregonSaves increased Roth IRA ownership by approximately 12%.

Quinby et al. (2020), Chalmers et al. (2022), and Chalmers et al. (2024) use administrative data ending in 2019 or 2020 to provide initial assessments of OregonSaves. All three papers emphasize that OregonSaves is targeting employees in low-wage jobs and industries

¹⁴ From 2017 to late 2021, the first \$1,000 in contributions were invested in a money market fund and all additional contributions were defaulted into an age-specific TDF. In other words, the program effectively combined liquid savings with retirement savings. The current approach is to transfer money market assets to TDF after a 90-day waiting period; while employees can still withdrawal their contribution without tax penalties, their balances are exposed to market risk.

¹⁵ See <https://cri.georgetown.edu/states/>, viewed March 14, 2024.

¹⁶ <https://www.oregon.gov/treasury/financial-empowerment/Documents/ors-board-meeting-minutes/2024/2024-01-Program-Report-OregonSaves-Monthly.pdf>, viewed March 15, 2024.

and that participation rates are much lower than we observe in 401(k) plans that feature automatic enrollment. For example, taking a calendar-time perspective, [Quinby et al. \(2020\)](#) find that, among those employees currently classified as actively employed, 43% had a positive contribution rate and positive balance. By way of comparison, for employees earning between \$15,000 and \$30,000, Vanguard (2023) reports participation rates of 39% under voluntary enrollment and 85% under automatic enrollment.

Taking an event-time perspective, [Chalmers et al. \(2024\)](#) find that after 12 months, 50% of participants have opted out, 37% have experience job turnover, and 69% have either opted out or experienced job turnover, but that there are meaningful differences across industries. High turnover rates pose serious challenges for employees seeking to save, but also those seeking to measure participation rates. [Chalmers et al. \(2024\)](#) find higher opt-out rates in industries with higher average incomes, but also that, within industry (or employer), those employees with lower incomes are more likely to quickly stop contributing. [Chalmers et al. \(2022\)](#) report that the number one reason that employees give for opting out of OregonSaves is a lack of income.

[Chalmers et al. \(2024\)](#) track the evolution of account balances in event time for the subset of contributors that they can follow for at least 12 months. Including the 10% of accounts that end the 12-month period with a \$0 balance—but ignoring the many employees that never contribute—the mean account balance is \$699, and the median is \$348. These amounts are small by the standards of retirement accounts, but large but the standards of liquid saving accounts. Because their administrative data end in April 2020, they are not able to track inflows or outflows during the pandemic, to learn whether participants tapped into the liquid savings. [Quinby et al. \(2020\)](#) find that 20% of the accounts with a positive balance in September 2018 experience at least one withdrawal over the next 12 months, and that the withdrawal rate is

highest for those that stop working for an employer participating in OregonSaves. Whether employees are treating OregonSaves accounts as a source of liquid savings, to smooth consumption between jobs, or simply closing their accounts because they do not anticipate contributing into OregonSaves again is unclear.

More generally, it will be interesting to see how participation rates and account balances in OregonSaves compare to those in CalSavers and the other state-sponsored automatic IRAs?¹⁷ One of the puzzling features of OregonSaves is the large number of employers who enroll employees without ever directing any contributions to Roth IRAs. For example, in January 2024, there were 27,411 employers that had uploaded employee data and only 7,586 that had submitted payroll during the past 90 days. Because OregonSaves has not yet imposed any fines on employers for non-compliance, it is unclear how many employers are waiting for penalties to come online before applying for an exemption. In California, employers can face penalties of up to \$500 per employee for non-compliance.¹⁸

How Do Households Finance Savings from Automatic Enrollment?

To the extent that automatic enrollment and automatic escalation are intended to move employees closer to their optimal saving rates, there is an implicit assumption that employees will adjust down consumption to accommodate the additional savings. Alternatively, there may be an offsetting decrease in other savings, or even an increase in debt. The worst-case scenario would be low-income employees effectively financing retirement savings through a series of payday loans. The empirical challenge is that data on the behavior of retirement plan participants

¹⁷ To my surprise, a search for “CalSavers” on SSRN.com returned four articles related to the legality of automatic IRAs and zero articles on participation rates and/or asset accumulation.

¹⁸ <https://www.calsavers.com/home/frequently-asked-questions.html>, accessed March 25, 2024.

can rarely be linked to data on checking accounts, liquid savings accounts, other retirement accounts (if any), credit card balances, and other forms of debt. There are three notable exceptions.

Beshears et al (2022) were the first to ask whether increased savings through automatic enrollment was financed through increased household debt, resulting in increased measures of financial distress. Beginning August 1, 2010, newly hired civilian employees of the US Army were automatically enrolled in the Thrift Savings Plan with a default contribution rate of 3%; those hired before August 2010 were still subject to voluntary enrollment. (They observe contributions to the TSP, but not withdrawals.) To measure changes in debt, they link employee payroll records to credit bureau reports. They find little evidence that credit scores or debt balances excluding auto loans and first mortgages (which are used to acquire assets) change in response to automatic enrollment, even when focusing on employees earning less than \$34,000.

Scenarios in which employees finance savings through borrowing seem most likely when focusing on expansions of retirement savings to jobs with lower wages and less stable employment. **Choukhmane and Palmer (2023)** exploit the increases in minimum contribution rates under UK Pensions Act 2008, which took place in April 2018 and April 2019 (described above). To determine how employees responded to the changes in both their contribution amount and the size of the employer match, they analyze “a new panel dataset from a large UK financial institution created by merging retail deposit and credit accounts with pension account data.” Their empirical strategy makes use of the fact that some employee and employer contributions need to be adjusted because of the regulation, while others (which are already above the required minimums) do not. It is not simply the case that employees reduce consumption: “We find that for every £1 decrease in monthly take-home pay induced by the policy change, consumers

respond by cutting their spending by £0.35 and financing the remaining with lower deposit account balances and with higher credit card balances. Overall, relatively discretionary non-durable spending, such as restaurants and leisure, are the most elastic to the decrease in income net of pension contributions.” Interestingly, they find that those households with the lowest pre-existing deposit balances and the highest pre-existing credit card balances reduce their consumption by the largest amount.

Beshears et al. (2024) also ask whether increases in retirement plan contributions in the UK are being offset on other margins. Like Cribb and Emmerson (2021), their empirical strategy is based on randomized enrollment dates for employers with between 2 and 29 employees, during the initial rollout, when the minimum combined contribution rate increased from 0% to 2%. Beshears et al. combine individual-level data from the National Employee Savings Trust (Nest) with individual-level credit bureau data from Experian and employer-level data on enrollment dates.¹⁹ Their (treatment-on-treated) estimates compare the pension contributions and outcomes of those enrolled earlier relative to those enrolled later, over a three-year period. Among contributors, they find that “an additional month of enrollment yields on average a £32 - £38 contribution to the pension, while causing a £7 increase in unsecured debt.” Across contributors, they find that the increase in unsecured debt is higher for those who are younger and earning lower incomes, but also those with higher credit scores. Their conclusion, which reflects the current state of the literature, is that “automatic enrollment has complex effects across different facets of the household balance sheet.”

What are the Long-Term Effects of Automatic Enrollment?

¹⁹ Nest was created as a public option, with a mandate to serve all eligible firms. It has private sector competitors.

In January 2020, David Laibson gave a presentation to members of the American Economic Association and American Finance Association titled “nudges are not enough,” in which he argued that the long-term effects of AE were likely smaller than the short-term effects. His insight was that while large welfare effects depend on cumulative effects over long horizons, the effects of nudges often can be undone, and that this is especially likely to occur when nudges are intended to overcome long-standing worker preferences or biases.²⁰ Indeed, two recent papers find that the short-run effects of automatic enrollment on retirement savings overstate the long-run effects.

Choukhmane (2023) analyzes data from the US and UK. When he analyzes data on 46 US 401(k) plans with a variety of default contribution rates, he finds that AE boosts contribution rates initially, but that, “after 3 years of tenure, the average cumulative contributions of non-auto-enrolled employees converge to those of auto-enrolled workers.” Convergence occurs because automatically enrolled workers are more likely to remain at the default contribution rate while voluntarily enrolled workers are more likely to increase their contribution rate over time. When he exploits the phased rollout of automatic enrollment by employer size in the UK (described above), Choukhmane finds that workers who were automatically enrolled at their prior employer are less likely to voluntarily enroll at their new (smaller) employer. In job markets where employees experiencing turnover are likely to end up at employers with VE retirement plans, this finding highlights a limitation of behavioral nudges. The practical implications of this finding in the UK are less clear, however, because he finds no difference in

²⁰ When Laibson considers the nudge literature more broadly, the only example he finds of a nudge with a large short-term effect and plausibly large welfare effect is **Bettinger et al. (2012)**'s finding that simplifying college financial aid applications increases applications to and enrollment in college. More generally, we should expect the largest welfare effects when nudges involve choices which are difficult to undone. See, for example, **Goda and Manchester (2013)**'s analysis of age-based defaults into DC or DB retirement plans, which is an irreversible choice.

the likelihood of opting out if the new employer also offers automatic enrollment, which is now the norm.

Choi et al. (2024) compare the behavior of new and existing employees at nine firms that make changes to the structure of their 401(k) plans that only impact new employees. There are three types of changes: the introduction of AE without default automatic escalation, the addition of default automatic escalation to plans that already feature AE, and the simultaneous introduction of AE and default automatic escalation. After accounting for plan withdrawals following job turnover and removing variation due to differences in investment returns, they estimate that AE increases annualized savings by 0.6% of income, automatic escalation increases annualized savings by 0.2% of income, and that the introduction of both features increases annualized savings by 0.8% of income. There are three reasons that these estimates, which are based on 60 months of data for each cohort, are lower than earlier estimates. First, as in **Choukhmane (2023)**, they find that existing employees are more likely to increase savings rates on their own. Second, while the likelihood that withdrawals are reinvested in another retirement plan are similar for new and existing employees, new employees are more likely to experience leakage because they are more likely to experience job turnover. Third, while employees may not initially opt out of automatic escalation, only 39% of employees subject to automatic escalation allow their savings rate to increase on the first escalation date. The conclusion is that nudges in 401(k) plans increase savings, but by less than policy makers might have hoped. It is important for future research to ask how these effects vary with employee characteristics, like income, and whether there are some employees for whom increases in savings are entirely offset by increases in debt.

Employer-Based Liquid Savings Accounts?

Although classic lifecycle models focus on a single portfolio, real-world savers need to decide how much to save in relatively illiquid retirement accounts versus in liquid savings accounts. In practice, many households fail to accumulate much in the way of liquid savings. According to survey evidence in [Canilang et al. \(2020\)](#), 16% of US households stated that they were unable to pay all of their monthly bills and another 12% of households stated that they would be unable to do so if confronted with an unexpected expense of \$400. Given this evidence of financial fragility, there has been growing interest in bundling liquid savings account with traditional employer-sponsored retirement accounts.

In their analysis of data from the 2019 Survey of Consumer Finances (SCF), [Berk, Beshears, Garg, Choi, Laibson \(2023a\)](#) confirm that “savings buffers are non-existent for all ages at the 25th percentile,” and point out that these patterns are consistent with present-biased preferences (Laibson 1997). They also establish that these broad patterns hold in the UK, where 34% of those surveyed report non-pension savings less than £250 (but where there is a strong positive correlation between income and the level of liquid savings). So, how do those in the UK respond to the introduction of employer-based liquid savings accounts, for which they need to sign up? Across five UK employers that began to offer these accounts, Berk et al. find “no more than 0.7% of eligible employees ever activated an account” (p. 14).

In contrast, when [Berk, Choi, Garg, Beshears, Laibson \(2023b\)](#) study the introduction of employer-based liquid savings accounts with automatic enrollment, they find much high participation rates. For example, SUEZ Recycling and Recovery UK LTD automatically enrolled new employees in a liquid savings plan with a default contribution rate of £40 per month. In a departure from automatic enrollment norms in the US and UK, SUEZ was required to receive

consent from each new hire to complete the automatic enrollment. Employees were also given multiple opportunities to opt out. By month 18, 44.5% of new employees were participating in the liquid savings account versus 1.3% of existing employees (who had to opt in). Notably, because they do not find that contributions to the retirement account decrease when contributions to the liquid savings plan begin, total net savings increases by approximately 1 percentage point for the new hires.

Distortions in Plan Design (and Provision)?

Employees described in lifecycle models are seeking to maximize their expected retirement account balances. It follows that, everything else equal, employees should prefer for their employer to offer a menu of low-cost investment options (conditional on investment style and quality), for their employer to pay all other plan expenses, and for their employer to provide a generous matching contribution. Of course, the generosity of the retirement plan—and whether one is offered at all—is determined by the competitiveness of the labor market.

From the employer's perspective, offering a traditional 401(k) plan is costly even if the employer shares plan expenses with employees and offers limited employer matches. The employer needs to hire a recordkeeper for the plan, oversee the creation of an investment menu, and periodically review the appropriateness of the investment options. In practice, firms that provide recordkeeping services tend to be asset management firms. Pool, Sialm, and Stefanescu (2016) test for a potential conflict of interest between employers and mutual fund families that serve as plan recordkeepers. Between 1988 and 2009, they document an increase in the fraction of plans with a “mutual fund trustee,” but also an increase in the number of mutual fund families represented on the typical investment menu. The movement towards open architecture plans (i.e.,

those that include mutual funds from numerous asset management firms) allows the authors to ask how different recordkeepers respond to the same historical performance of a given fund. Consistent with favoritism, they find that low-performing funds are less likely to be removed from the investment menus of affiliated recordkeepers than they are from the investment menus of other recordkeepers.

As mentioned above, the employer also needs to decide what fraction of plan fees should be paid by participants and whether to offer an employer match. When constructing investment menus, employers have the option of choosing funds that provide “revenue sharing” back to the plan. This revenue can be used to cover plan expenses or rebated back to participants. Pool, Sialm, and Stefanescu (2022) find that funds paying revenue sharing are more likely to be added and less likely to be deleted from retirement plans that receive indirect compensation from revenue sharing, and that “participants face higher all-in fees.”

Bhattacharya and Illanes (2022) “study how both market imperfections and misalignment in employers’ willingness to pay for quality can distort the menu of investment options made available to workers, or cause employers to not offer a plan at all.” On the one hand, offering higher-quality 401(k) plans should help with employee hiring and retention and greatly reduce litigation risk under the Employee Retirement Income Security Act of 1974 (ERISA). On the other hand, employees may not value the time and expense required to offer a high-quality plan (or any plan at all) and employers may face limited budgets with which to cover plan expenses. Analyzing data on all DC plans with at least 100 participants in 2016, Bhattacharya and Illanes find that “small employers value plans that have a S&P 500 tracker, target date funds, index funds in general, and lower expense ratios much less than large firms. This gap can come from several sources: different demands from workers, different competitive pressure from the labor

market, or different exposure to fiduciary duty litigation would generate this pattern.” They also find that, while both large and small firms prefer indirect compensation to direct compensation, small firm exhibit an even stronger preference for indirect compensation. The provocative implication is that “many small firms must be able to offer low-quality plans in order to provide them at all” (p. 37). Although there is no discussion of how employer willingness to pay varies across industries, it is presumably lowest in those industries (e.g., agriculture and food services) that currently provide the least access to employer sponsored retirement plans.

After discussing several possible regulatory interventions, the authors conclude that “regulation must directly target quality itself, either by constraining the design of plans or by subsidizing or penalizing certain plan features, if it is to be effective at improving quality.” The automatic IRA programs discussed above provide a standardized product at what is likely to be a much lower cost to employers. The relatively high opt-out rate in OregonSaves suggests that those employers that previously chose not to offer their own retirement plans were internalizing relatively low demand from their employees.

Everything else equal, participants benefit from lower fees. For example, participants benefit when plans switch to lower cost share classes of existing funds. The situation becomes more complicated when higher fees are associated with more or higher-quality services. **Loseto (2023)** and **Yang (2023)** both document significant across-plan dispersion in the level of fees paid by 401(k) participants but use different structural models to rationalize the dispersion.²¹ Loseto finds that “[employers] are only half as responsive to funds’ fees as investors and favor the inclusion of funds affiliated with the plan recordkeeper.” He concludes that fee dispersion is driven by markups and advocates for low-cost default investments. In contrast, Yang (2023)

²¹ Both papers use newly-available plan-level data from BrightScope Beacon.

concludes that markups explain only about one-quarter of the across-plan dispersion in fees, and that the remaining dispersion can be attributed to differences in the provision of costly services.

Research Opportunities Related to Federal Regulation

The US has passed two large major of legislation focused on retirement savings since the Pension Protection Act of 2006: SECURE Act 1.0 of 2019 and the SECURE Act 2.0 of 2022.²² Below, I highlight several interesting provisions from each act, what the existing research leads me to predict about the outcomes, and where additional research is needed.

- Section 102 of SECURE 1.0 increased the maximum possible contribution rate under automatic escalation from 10% to 15%, effective “plan years beginning after December 31, 2019.” I am not aware of any recent research on the ability of automatic escalation to increase contribution rates all the way to 10%. It is possible that employees will be accepting of rising contribution rates, especially if increases in contribution rates coincide with higher salaries (as in Thaler and Benartzi 2004), but it is also possible that rising contribution rates will trigger active choices about contribution rates (as in Beshears et al 2023) or increased opt out (as in Zhong 2021).
- Section 203 of SECURE 1.0 requires retirement plans “to include two lifetime income illustrations on participants’ pension benefit statement at least once every 12 months,” under a set of assumptions defined by the DOL on August 18, 2020. Specifically, the retirement plan needs to state the current account balance and then convert this balance into both single-life and joint-life annuity payments using the prevailing 10-year Treasury rate and assuming that the participant is age 67. I am unaware of whether this provision

²² SECURE is short for “Setting Every Community Up for Retirement Enhancement.”

has already taken effect, much less whether there is any research on how it has effects contribution rates. To the extent that the annuitized monthly incomes are lower than employees expect, they plausibly will result in increased contribution rates. Relatedly, **Goda, Manchester, Sojourner (2014)** run a field experiment at the University of Minnesota to study the effect of providing retirement income projections on employee contribution rates in supplemental retirement plans. They find that treatment groups are approximately 1 percentage point more likely to make any changes in contribution rates than the control group, and that “the intervention boosted annual contributions to employer retirement accounts by \$85, equivalent to 3.6% of the average contribution level or 0.15% of average salary, relative to those who received no intervention.” More provocatively, they find that changes in contribution amounts respond to the underlying assumptions in the income projections, which they randomized. I have not attempted to compare the assumptions in Goda et al.’s field experiment to the assumptions adopted by the DOL, but it would be interesting to do so.

Many of the provisions in SECURE 2.0 are intended to participation rates and savings.

- Section 101 of SECURE 2.0 requires all *new* 401(k) and 403(b) plans to feature automatic enrollment and automatic escalation, with an initial contribution rate of at least 3% and a maximum contribution rate of at least 10%. While this provision will eventually increase the set of retirement plans that offer automatic enrollment, the initial impact is likely to be small because existing plans are grandfathered.
- Section 110 of SECURE 2.0 allows (but does not require) employers to treat student loan payments as employee retirement contributions from the perspective of employer matching contributions, beginning in 2024. It will be interesting to see what fraction of

plans adopt this feature and how it impacts retirement savings for the large fraction of young employees with college debt. If we hold employee college debt repayment strategies constant, retirement savings will increase through new employer matches, which will increase the costs associated with offering the retirement plan, except insofar as this provision helps with recruiting and retention. Allowing for optimal responses, as modeled by Horneff et al (2024), it is likely that net employee retirement contributions by younger employees will actually decline (because they are no longer required to qualify for the employer match), resulting in increased consumption.

- Section 103 of SECURE 2.0 replaces a non-refundable “Saver’s Tax Credit” with “Saver’s Match,” but not beginning until 2027. The existing approach allows lower-income households to reduce their taxes by up to \$1000 (single) or \$2000 (married). The new approach will deposit up to 50% of the first \$2000 contributed to eligible retirement accounts directly into those accounts, although eligibility for the match still depends on household income. Ramnath (2013) finds evidence that households adjust their income to preserve the value of the Saver’s Tax Credit, but that “there is no statistically significant evidence that receiving a higher credit rate increased individual savings contributions for the marginal person.” It remains to be seen whether the “Saver’s Match” approach proves more effective in increasing retirement savings in traditional ESRPs, individual-opened IRAs, or state-sponsored automatic IRAs.
- Section 113 of SECURE 2.0 allows employers to offer small financial incentives for employees to participate in their retirement plans. It will be interesting to see whether these incentives are able to meaningful increase participation rates in plans featuring

voluntary enrollment. I imagine that academics with industry connections are busy proposing different incentive schemes to test.

- Section 121 of SECURE 2.0 allows employers to offer “starter 401(k) plans.” The plan may set a default employee contribution rate between 3% and 15% and need not offer any employer match. Unlike traditional 401(k) plans, the annual employee contribution limits are the same as for IRAs. My prediction, based on the estimates in [Bhattacharya and Illanes \(2022\)](#), is that take-up of these plans will be quite low, except to the extent that they allow employers to comply with automatic IRA mandates.

With respect to emergency savings:

- Section 115 of SECURE 2.0 allows plan participants to withdraw up to \$1,000 per year to cover “unforeseeable or immediate financial needs relating to personal or family emergency expenses.” It is unclear to me whether this option is intended to replace small 401(k) loans or to extend the possibility of small 401(k) loans to more plans.
- Section 127 of SECURE 2.0 goes further, allowing employers to offer the type of automatic-enrollment emergency savings accounts studied by Berk et al. (2023b) in the UK. Because the accounts must be structured like Roth IRAs, with a maximum contribution rate of 3%, and maximum employee contributions of \$2,500, however, it is an open question whether participation rates are as high as they were in the UK.

Conclusion

DC retirement plans have come a long way since the Employee Retirement Income Security Act of 1974, and they continue to evolve. Widespread acceptance of automatic enrollment, automatic escalation, and sensible default investment options allows workers to

outsource retirement plan participation decisions, savings rates, and asset allocation decisions to their employers, simultaneously increasing savings and (likely) decreasing the extent to which participants make common investment mistakes. The potential downside, as has been emphasized from the very beginning, is a reliance—at least initially—on one-size-fits-all solutions to complex optimization problems that depend on household characteristics and preferences. The optimal plan design is one that encourages active choice along those dimensions about which the employees are best able to make decisions but that relies on defaults otherwise (e.g., Carroll et al. 2009).

In the previous section, I highlighted several recent regulatory changes in the US that call for additional research. I conclude this review by listing several open research questions. **Goda and Manchester (2013)** emphasize that welfare gains when defaults condition on relevant employee characteristics. To what extent should default saving rates and asset allocation decisions condition on income, industry, job type, age, household structure, and part-time versus full-time employment status? For example, should efforts to expand access to automatic IRAs exempt certain industries or job types? Should they force active choices instead of relying on automatic enrollment? With respect to asset allocation, should retirement plans transition from TDFs to managed accounts, that condition portfolio choices on employee characteristics and (estimated) risk aversion? If so, when do the potential benefits of customization outweigh any additional fees?

As researchers continue to combine data on household assets and liabilities, we should gain an even deeper understanding of the various ways that households respond to automatic enrollment. This is particularly important when studying programs, like OregonSaves, that extend retirement savings to jobs that feature low wages and high turnover rates. Given the

potential concerns about crowd out, should automatic IRAs emphasize their dual role as retirement savings and liquid savings? More broadly, will the extension of automatic enrollment to liquid savings increase the fraction of households with meaningful buffer stocks? Finally, while the research that I have discussed focuses on asset accumulation, decisions focused on asset decumulation are at least as difficult as those focused on asset accumulation. TDFs structured to provide annuity income—such as those introduced by TIAA in 2023 and just announced by Blackrock—are one potentially valuable development in this area, but more research is needed.

Bullet Points:

- The transition from voluntary enrollment to automatic enrollment for 401(k) plans has been largely successful, with the strongest evidence of incremental savings by lower-income employees.
- Reliance on TDFs has reduced the scope for investment mistakes, especially by less sophisticated participants.
- Early evidence suggests that incremental savings under automatic enrollment are largely—but not entirely—being financed through a reduction in consumption. More research is needed, especially with the push to expand access to lower-income employees.
- Whether state-sponsored automatic IRAs in the US become meaningful sources of retirement savings remains to be seen. There is only so much that automatic enrollment can be expected to do when workers face low and volatile earnings.
- There are good reasons to expect that SECURE 2.0 will increase retirement savings, at least on the margins, and that it will also increase emergency savings.
- Two big open questions are the extent to which defaults can be customized and the extent to which retirement plans can be designed to help employees navigate retirement and asset decumulation.

Bullet Points:

- The transition from voluntary enrollment to automatic enrollment has significantly increased the fraction of workers saving for retirement. But the long-run effects of automatic enrollment are likely smaller than the (large) short-run effects, thanks to changes in future savings and withdrawals, and to increases in borrowing.
- Attempts to mandate access to retirement savings plans have met with mixed success. Realistically, there is only so much that nudges can do to increase savings by workers with low and volatile income.
- The widespread adoption of target date funds (TDFs) as default investment options has been a significant improvement over money market funds. TDFs simultaneously increase exposure to equity markets and eliminate the need for participants to manage their own accounts, which should result in fewer investment mistakes, but may also result in less customized portfolios.
- Allowing default options to depend on worker characteristics has potential to improve on the current one-size-fit-all approach to default options, but more research is needed on the cost and benefits of customized defaults.
- It remains to be seen how much the provisions in SECURE 2.0 manage to increase worker participation rates, retirement savings rates, and emergency savings.

Missing papers?

- Derby, Mackie, and Mortenson, 2023 (JPubE) – increased savings partially undone by subsequent withdrawals
- Benartzi, Peleg, and Thaler (2013) – initial acceptance of automatic escalation is high

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