Automating Short-Term Payroll Savings: Initial Evidence from a Large U.K. Experiment[1]

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Preliminary

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Abstract. Automatic enrollment is often used to increase retirement plan participation. Can it be used to increase short-term savings as well? We evaluate preliminary data from an experiment at a large U.K. employer. After years of offering opt-in short-term payroll savings via a credit union, the employer introduced opt-out savings for new hires beginning in November 2021. We review initial data from the experiment. In tenure month 4, we find that scheme participation was roughly 50 percentage points higher when new hires were automatically enrolled, and balances were £68 higher.

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I. Introduction

Automatic enrollment has been studied extensively in the retirement savings context. Previous research has shown that automatic enrollment increases 401(k) plan participation and balance accumulation, and that many plan participants retain the default contribution rate when automatically enrolled (Madrian and Shea 2001; Choi et al. 2003, 2004; Beshears et al. 2009, 2022). The U.S. has encouraged employers to implement automatic enrollment in 401(k) and similar plans, and nearly two-thirds of U.S. employers use automatic enrollment to encourage retirement savings (Plan Sponsor Council of America 2021).[2] Multiple other countries, including the U.K., require employers to automatically enroll eligible employees into a workplace pension scheme.[3]

Can automatic enrollment also be used to encourage short-term savings? Many households in the U.S. and other countries lack the funds to weather negative financial shocks, such as job loss, income volatility, and unexpected expenses. Roughly 30% of American adults say that they would not be able to cover an unanticipated $400 expense using their own money. Many of these individuals turn to costly solutions, such as payday loans, unauthorized overdraft, or charging the expense to a credit card and paying it down over time; others will simply be unable to cover the expense at all (Board of Governors 2022). Similarly, roughly 25% of U.K. adults could not pay an unexpected £300 bill with their own money (Phillips et al. 2021).

In this paper, we provide preliminary evidence that automatic enrollment can successfully increase participation and balance accumulation in a short-term savings program. We document and evaluate an experiment conducted by a large U.K. employer and a credit union in which new

[2] The most notable U.S. legislation is the Pension Protection Act of 2006, which encourages employers to use automatic enrollment in defined contribution savings plans: https://www.govinfo.gov/content/pkg/PLAW-109publ280/pdf/PLAW-109publ280.pdf

[3] For the relevant U.K. legislation, see the 2008 Pensions Act: https://www.legislation.gov.uk/ukpga/2008/30/contents

hires are automatically enrolled into a payroll savings scheme. The remainder of the paper proceeds as follows. Section II describes the experiment. Section III describes our data. Section IV compares the two hire cohorts that are the focus of our analysis. Section V documents our preliminary empirical findings based on the data collected to date. Section VI concludes.

II. The experiment

We study an experiment created by a large multinational employer's decision to automatically enroll its new UK hires into a payroll savings scheme. This employer, SUEZ recycling and recovery UK, operates in the recycling and waste management sector and has over 5,000 employees across the U.K. working in both field and office positions. On November 1, 2021, SUEZ implemented a form of automatic enrollment for newly hired benefits-eligible employees who were onboarded using an online journey. Before this change, employees had to opt into the payroll savings plan to make contributions. After the change, new hires were automatically enrolled into the scheme at a default employee contribution rate of £40 per month if they did not opt out or change the savings amount. This is 1.9% of the mean affected worker's annual pay (see Table 1).

For administrative reasons, contributions began with a new hire's second or third pay cycle. Initial contributions were set to £40 per month; in subsequent pay cycles, automatically enrolled workers were able to adjust their contribution amount higher or lower.[4,5] The payroll savings accounts are housed at TransaveUK, a large U.K. credit union, and are fully liquid (available within 1-2 business days from withdrawal). Savers withdraw funds and perform other account-

[4] Due to variation in hire and enrollment dates, some savers were enrolled early enough to adjust their initial contribution amount. In our current data, only 2 automatically enrolled individuals adjusted their initial payroll deduction in this way. All others made an initial contribution of £40.
[5] Savers must contribute at least £5 per month.

related tasks by using the TransaveUK website or mobile app or by contacting customer service. Participation in the scheme affords the saver with other benefits from the credit union. These include an annual dividend paid to members, a modest bereavement benefit, and access to unsecured personal loans.[6] The credit union also offers other savings vehicles, including a prize-linked savings account and a goal-based savings pot. The former has a £200 maximum balance. However, these savings vehicles cannot be funded via payroll deduction.

Due to the regulatory landscape, automatic enrollment was implemented with some guardrails and differed from traditional models seen, for example, in the U.S. and U.K. retirement savings domains.[7] The most significant difference was the need for the employer to gather consent from new hires to automatically enroll them into the payroll savings scheme. During the online onboarding journey, new hires were asked to read the employer's Payroll Auto-Saving Policy and agree to its terms; consent to saving £40 per pay period; read and agree to the credit union's Account Terms and Conditions; acknowledge that savings held with the credit union are protected (up to £85,000) by the Financial Services Compensation Scheme; and agree to data sharing between the employer and the credit union. This consent step was not compulsory; any new hires who did not complete it were not automatically enrolled but retained the usual opt-in access. However, the employer advises that the majority of new hires completed the consent step during their onboarding journey, making automatic enrollment near-universal for the target population.[8,9]

[6] Small loans, up to £3,000, are available instantly to all credit union members. Larger personal loans, up to £20,000, are available to members who regularly save at least £5 per month or £1 per week.
[7] For an overview of the U.K. regulatory environment, see Cooper et al. (2021).
[8] In February 2022, the employer modified the consent step to ensure new hires were fully aware that they could choose to withhold their consent. We will exploit this change in future analyses to better understand the extent to which the consent step introduced selection bias.
[9] We are currently missing consent data and therefore have an incomplete understanding of how the consent step has affected savings plan participation. We expect to receive this data in the future and incorporate it into our analyses.

In addition, new hires received multiple communications from their employer about their automatic enrollment status before their first payroll deduction. Three reminders were sent in the weeks immediately after the hire started work. During this period, new hires wishing to opt out did so by contacting the SUEZ compensation and reward team via email. Savings accounts were not created for employees who opted out in this period. Additional reminders were sent after the account was created but before the first payroll deduction. After the account was created, employees wishing to opt out did so by contacting the credit union. Employees also received a member information packet from the credit union, which could have prompted them to opt out or adjust their contribution amount.

There were no other changes to the payroll savings scheme in the year preceding or following the implementation of automatic enrollment. However, two situations are potentially relevant. First, a planned acquisition of the employer by a competitor was announced in 2020 and remains in progress. To date the acquisition has not affected benefit offerings at the employer. Second, the entire experiment took place during the Covid-19 pandemic, which created employment, consumption, and income shocks to individuals and their households. However, all employees studied in our analysis were hired during the pandemic (in November 2020 or later). Although we do not have complete data on furloughs, we note that furloughed employees continued to receive 100% of their compensation;[10] continued to be eligible for voluntary payroll deductions, including savings; and eventually returned to work.

[10] While on furlough, 80% of wages were paid by the UK government as part of the Coronavirus Job Retention Scheme. The employer voluntarily paid the remaining 20%, "topping up" to 100%.

III. Data description

We use a merged dataset containing data collected by three sources: the employer, the credit union, and Nest Insight. The employer provided individual-level administrative data on employees hired between November 1, 2020 and June 30, 2022.[11] These data include gender, age, contracted hours of work per period, hire date, employment termination date (where applicable), current employment status, the date the current employment status became effective, gross pay amount, pay frequency, job category, pension membership, pension contribution amount/percentage, and salary advance utilization. The credit union provided administrative data collected between December 1, 2021 and June 30, 2022. We observe payroll savings scheme participation and behavior in individual-level administrative data collected by the credit union on all employees hired on or after November 1, 2020 who are or were also credit union members. These data include joining date, current membership status and the date the current membership status became effective, monthly contribution totals, monthly savings balances, transaction-level withdrawals (date- and time-stamped), and monthly additional deposit totals. The credit union also makes personal loans available to members, and we receive monthly data on loan principal, repayment history, and balances. The employer and credit union transferred the relevant administrative data to Nest Insight, including unique payroll reference numbers. Nest Insight staff used these payroll reference numbers to merge the two administrative datasets. A research dataset stripped of identifiers was then transferred to us for analysis.[12]

[11] The employer operates an anti-recidivism scheme that allows them to hire imprisoned individuals on release of temporary license (ROTL). Fewer than 10 imprisoned individuals were hired during the study period, all on or after November 1, 2021. Except for one individual who was automatically enrolled in the savings scheme, the ROTL employees have been excluded from our research data.

[12] Nest Insight collected, and will continue to collect, survey data on SUEZ employees' financial well-being and attitudes. Where possible, this survey data has been merged with the administrative data from SUEZ and TransaveUK. We will report on these survey data in future analyses.

We take several steps to clean the data. First, we drop individuals who did not go through the online onboarding journey, and therefore did not view the trial-related consent step described in Section II above. We drop 95 individuals from a U.K. region that does not participate in the online journey, and another 17 individuals hired under the Transfer of Undertakings (Protection of Employment) regulations (TUPE).[13] Over two-thirds of these dropped individuals were hired before the implementation of automatic enrollment. Second, we drop any individuals with missing hire dates, as we cannot measure their tenure with the employer.[14] We also drop 14 individuals who were rehired one or more times during the study period. Third, in the raw data, individuals who are not saving have missing credit union data. For months where the individual was employed and eligible to save, we recode these missing datapoints as zeroes. For example, if an individual is hired in January 2021 and does not save at any point in our data, we report their savings balance as £0 for January 2021 through June 2022. Datapoints after an employee's separation remain missing or are removed. For example, if an individual is hired in January 2021, never saves, and separates in March 2022, we report their savings balance as £0 only for January 2021 through March 2022, and missing thereafter.

IV. Comparison of Pre- and Post-Automatic Enrollment Hire Cohorts

To estimate the impact of automatic enrollment, we compare the behavior of two hire cohorts. The pre-automatic enrollment ("pre-AE") cohort consists of SUEZ employees hired in the year preceding the introduction of automatic enrollment—from November 1, 2020 through October 31, 2021. The post-automatic enrollment ("post-AE") cohort consists of SUEZ employees

[13] https://www.gov.uk/transfers-takeovers

[14] This largely includes responses to a survey run by Nest Insight where the responses could not be merged to an employee's existing administrative data because the respondent had asked not to be identified in the survey. These unmatched survey responses originally appeared as individual observations, which were dropped for these analyses.

hired between November 1, 2021 (when AE was introduced) and June 30, 2022 (the latest date for which we currently have data).

In total, we have 1,153 individuals in the pre-AE cohort and 904 individuals in the post-AE cohort. The number of individuals in the post-AE cohort drops off sharply as tenure increases, which is a result of the current lack of data after June 2022. Thus, for the post-AE cohort, the only individuals who can be observed at tenure month 7 are those who were hired in November 2021, the first month of data collection. By contrast, since credit union administrative data were only collected after December 2021, the number of observations in the pre-AE cohort first increases with tenure and then begins to decrease. We expect that the number of individuals observed in later tenure months will increase for both cohorts as we receive more data.

Table 1 compares the characteristics of the two cohorts. Workers in the post-AE cohort have slightly higher starting pay, are slightly more likely to be female, and are slightly more likely to be aged 31-50. Workers in the pre-AE cohort are slightly more likely to work in a manual position. With the exception of annualized starting pay, these differences are not statistically significant. When we compare annualized pay in the AE period (November 1, 2021 through June 30, 2022) or when we adjust the salaries for inflation using the Consumer Prices Index including Owner Occupiers' Housing Costs (CPIH), the difference is no longer statistically significant.

V. Participation, Balance Accumulation, and Contribution Amounts

In this draft, we document preliminary findings related to plan participation, balance accumulation, and payroll contribution amounts. More analyses will be performed after we receive additional data.

Figure 1 shows participation by tenure month for the pre- and post-AE cohorts. Here, we define participation in a given month as having a non-zero account balance and/or a non-zero contribution amount. The denominator for all participation rates is the number of individuals who, based on their hire and separation dates, are eligible to have saved that month. In tenure month 4, roughly 1.3% of the pre-AE cohort is saving, compared to 52.6% of the post-AE cohort. For the post-AE cohort, participation declines after tenure month 4. However, we note that data collection is ongoing and sample sizes decline as tenure month increases. When we restrict the post-AE cohort to the subset of individuals for whom we have 7 months of data, we see that participation in tenure month 4 is 45.6% with a meaningful drop-off occurring only in month 7. We will reevaluate participation rates in the future when more data is available.

Figures 2-5 show participation by tenure month for subgroups of the post-AE cohort. Workers appear to follow a similar participation pattern regardless of age, gender, and starting pay. Workers in non-manual roles appear to opt out at higher rates than those in manual roles, but per Table 1, most workers are in manual roles. We will reevaluate when more data is available.

Figure 6 shows mean and median balances by tenure month for the pre- and post-AE cohorts. In tenure month 4, the mean balance in the pre-AE cohort is less than £1, compared to over £68 in the post-AE cohort. In Figure 7, we plot mean balances by tenure month conditional on having ever saved in the payroll savings scheme. In tenure month 4, the mean balance among pre-AE cohort members who ever saved is £29.34, compared to £129.99 in the post-AE cohort.

Figure 8 shows mean contribution amounts by tenure month for savers in the pre- and post-AE cohorts. In the post-AE cohort, mean contributions remain at or near the £40 default, with 84% or more of savers contributing this amount each month.

Finally, Figure 9 displays pension participation rates for the pre- and post-AE cohorts. Based on our preliminary data, automatic enrollment into the short-term savings scheme does not appear to crowd out long-term retirement savings.

VI. Conclusion

Automatic enrollment can be used to increase participation and balances in a short-term payroll savings scheme administered by a credit union. Participation rises steeply in the first four tenure months, as new hires are swept into the program; it then declines while remaining meaningfully higher than under opt-in conditions. Participation appears to peak at tenure month 4, when just over half of the post-AE cohort is saving, compared to less than 2% of the pre-AE cohort. When we restrict the post-AE cohort to those individuals for whom we have 7 months of data, the peak participation rate is lower, and the fall is delayed. Also at tenure month 4, mean balances are over 100 times higher in the post-AE cohort than in the pre-AE cohort. Conditional on having ever participated in the program, mean balances are over 4 times higher in the post-AE cohort. Larger samples are needed to fully understand the effects of automatic enrollment in later tenure months. We will conduct more robust analyses when more data is available.

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Table 1. Comparison of pre- and post-automatic enrollment hire cohorts

	Pre-AE (Nov 2020 – Oct 2021 hires)	Post-AE (Nov 2021 – June 2022 hires)	Difference	*p*-value of difference
Mean Starting Pay (Annualized)[15,16]	£24,004.13	£24,828.70	£824.57	(0.009)
Inflation-Adjusted[17]	£23,613.54	£23,219.43	-£394.11	(0.196)
Mean Pay, Nov 2021 – June 2022 (Annualized)[9,10]	£25,050.86	£25,170.26	£119.40	(0.714)
Female	13.9%	14.3%	0.4%	(0.799)
Age[18]				
30 or under	34.2%	33.1%	-1.1%	(0.614)
31-50	33.5%	35.3%	1.8%	(0.381)
51 +	32.4%	31.6%	-0.8%	(0.704)
Manual Position[19]	82.6%	81.6%	-1.0%	(0.575)
n	1,153	904		
Month 0		791		
Month 1		804		
Month 2	92	614		
Month 3	226	474		
Month 4	312	340		
Month 5	394	224		
Month 6	462	139		
Month 7	505	82		
Month 8	534			
Month 9	510			

[15] We observe annual pay for some workers and hourly pay for others. We also observe scheduled hours per week for most workers. To calculate annualized pay for hourly workers with observed schedules, we multiply their hourly rate by their scheduled hours per week by 52. We drop hourly workers with zero scheduled hours per week when calculating annualized pay.

[16] We receive masked pay data for high-earning employees. Employees with observed pay at or above £50,271 are binned together by Nest Insight. Employees with calculated annualized pay at or above this threshold are grouped into the same bin. We assign 48 total employees an annualized pay of £50,271. As a result, the means reported here are lower than the true means.

[17] Here, values are adjusted for inflation using the CPIH. The amounts in this row represent the average annualized salary in January 2021 GBP.

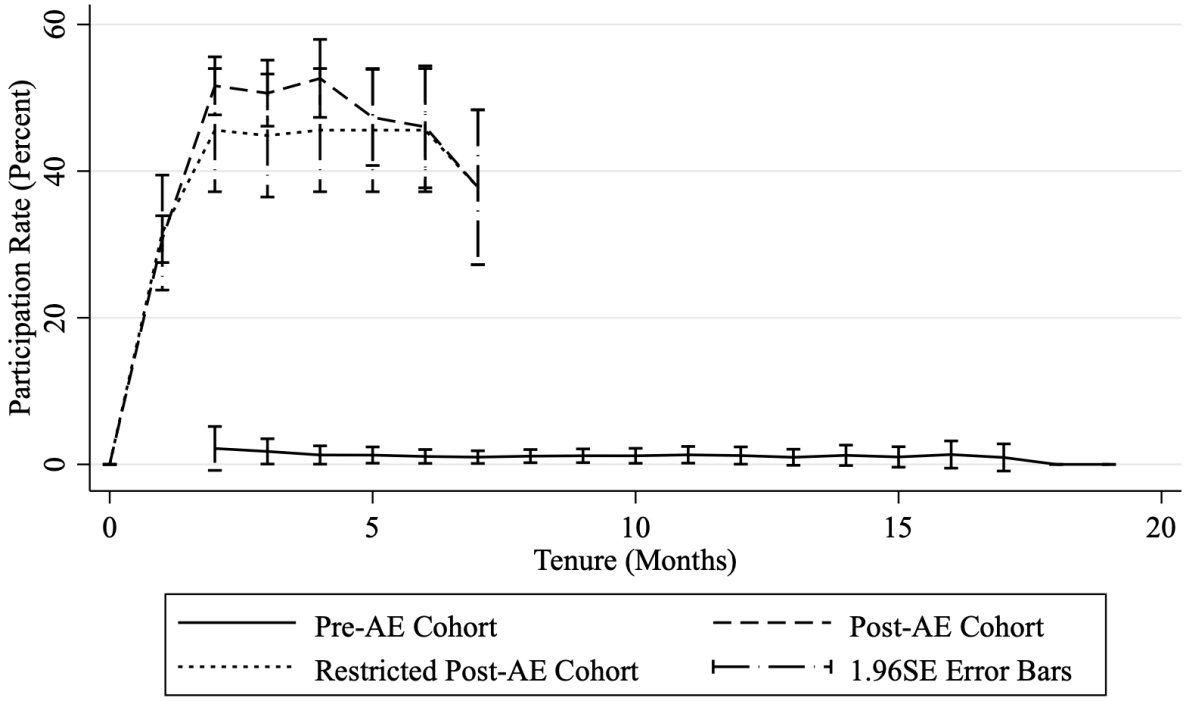
[18] We receive age as a categorical variable, so cannot calculate a mean.

[19] A small number of individuals appear to change between manual and non-manual positions. We drop these individuals when calculating the share in manual positions.

Month 10	427			
Month 11	383			
Month 12	332			
Month 13	309			
Month 14	243			
Month 15	198			
Month 16	149			
Month 17	106			
Month 18	72			
Month 19	47			

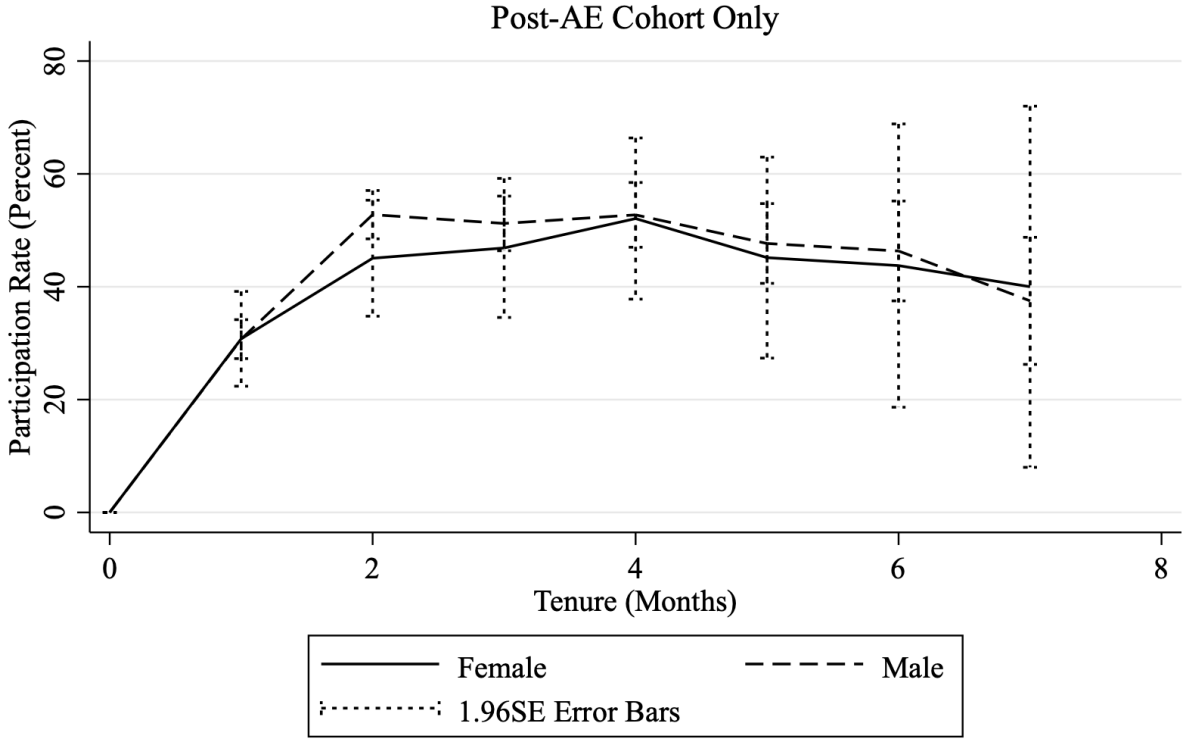
Source: Authors' calculations.

Figure 1. Participation Rate



Source: Authors' calculations.
Note: Restricted Post-AE Cohort represents members of the Post-AE Cohort who are present for all months of data collection.

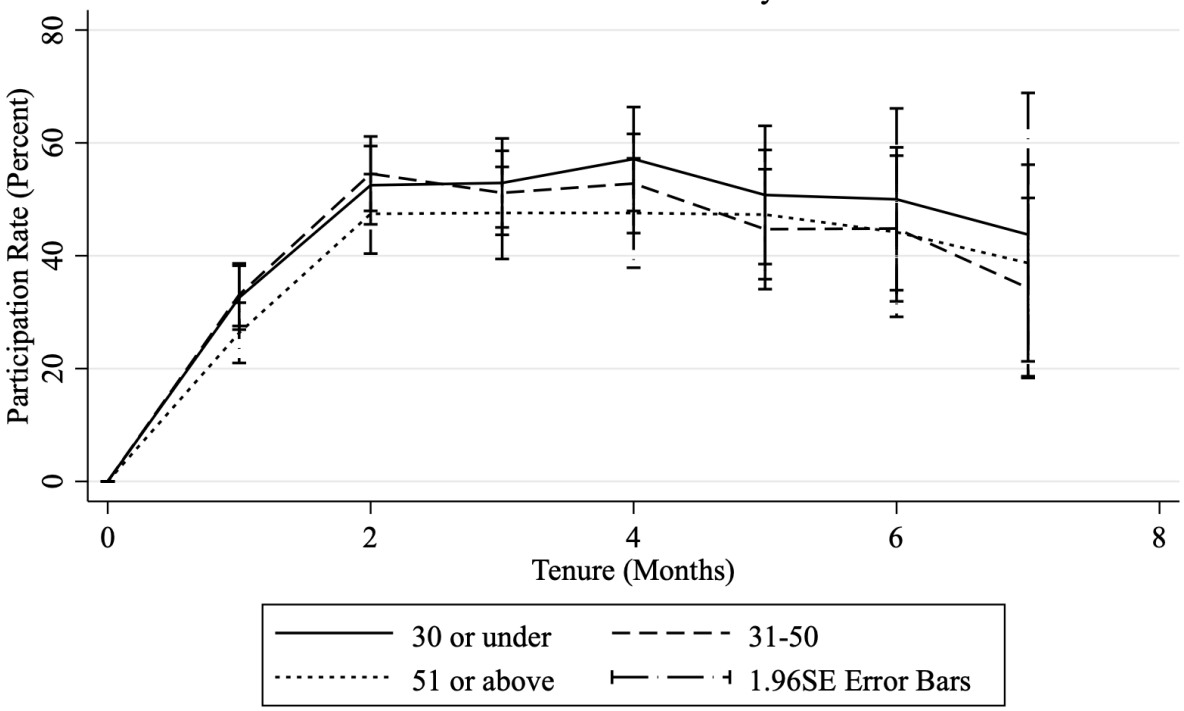
Figure 2. Participation Rate by Gender and Tenure



Source: Authors' calculations.

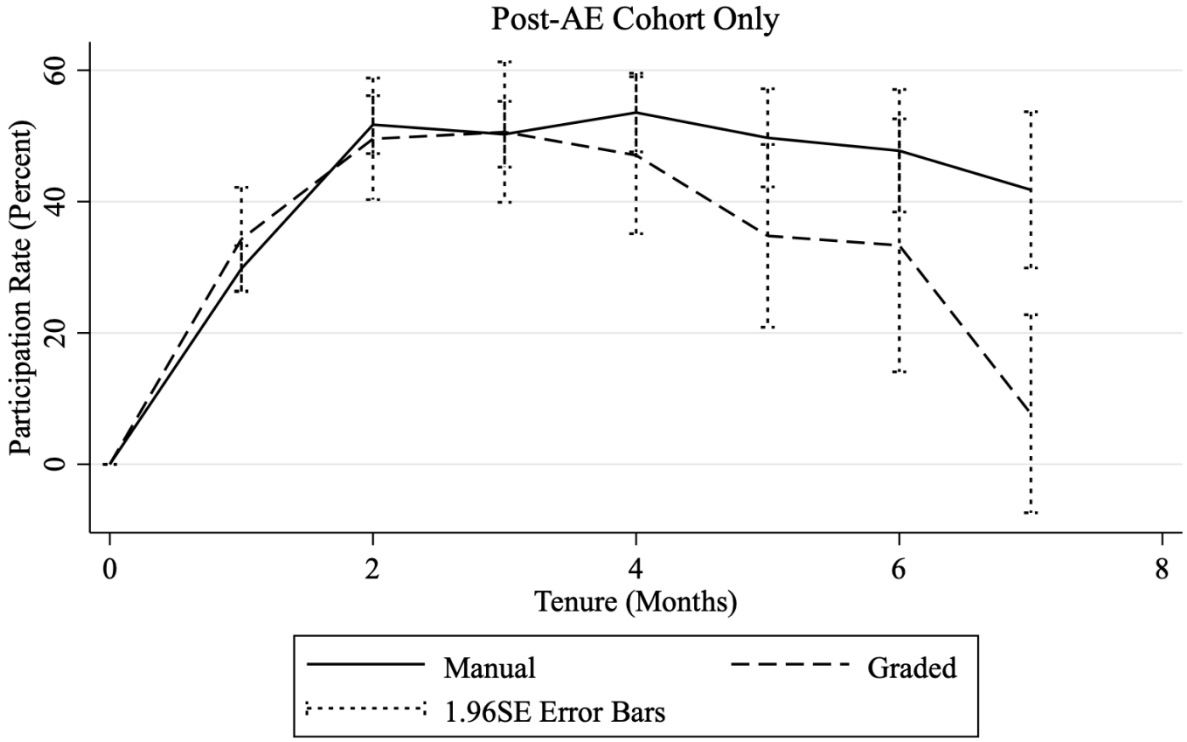
Figure 3. Participation Rate by Age and Tenure

Post-AE Cohort Only



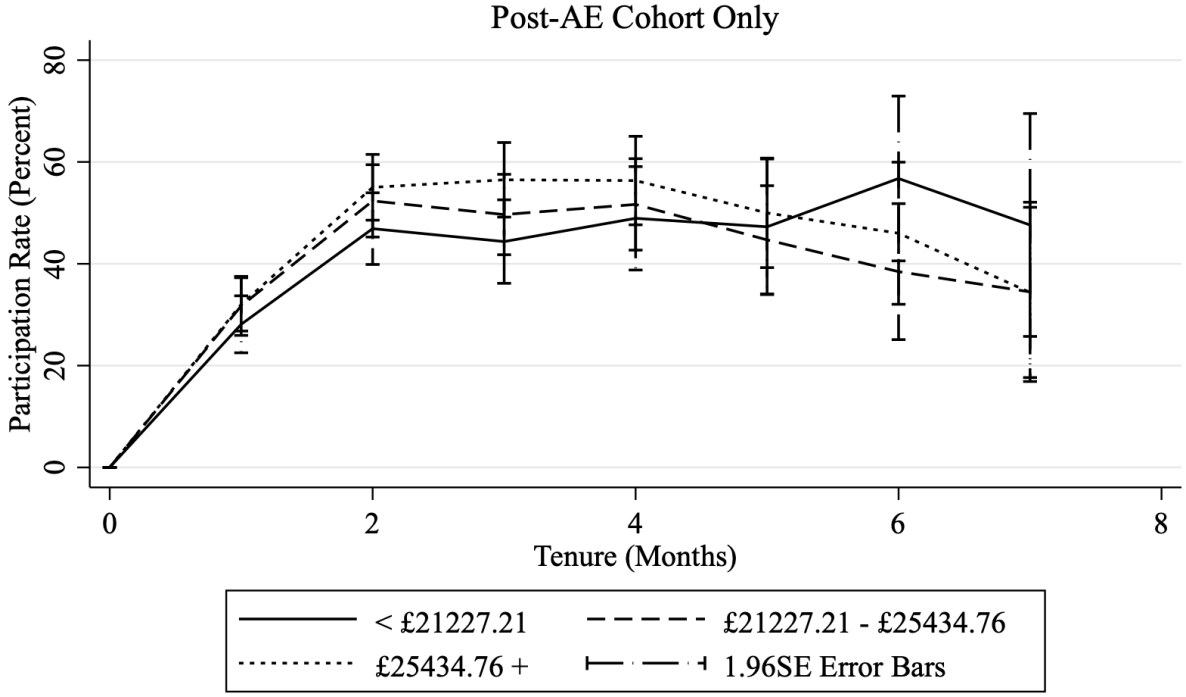
Source: Authors' calculations.

Figure 4. Participation Rate by Role and Tenure



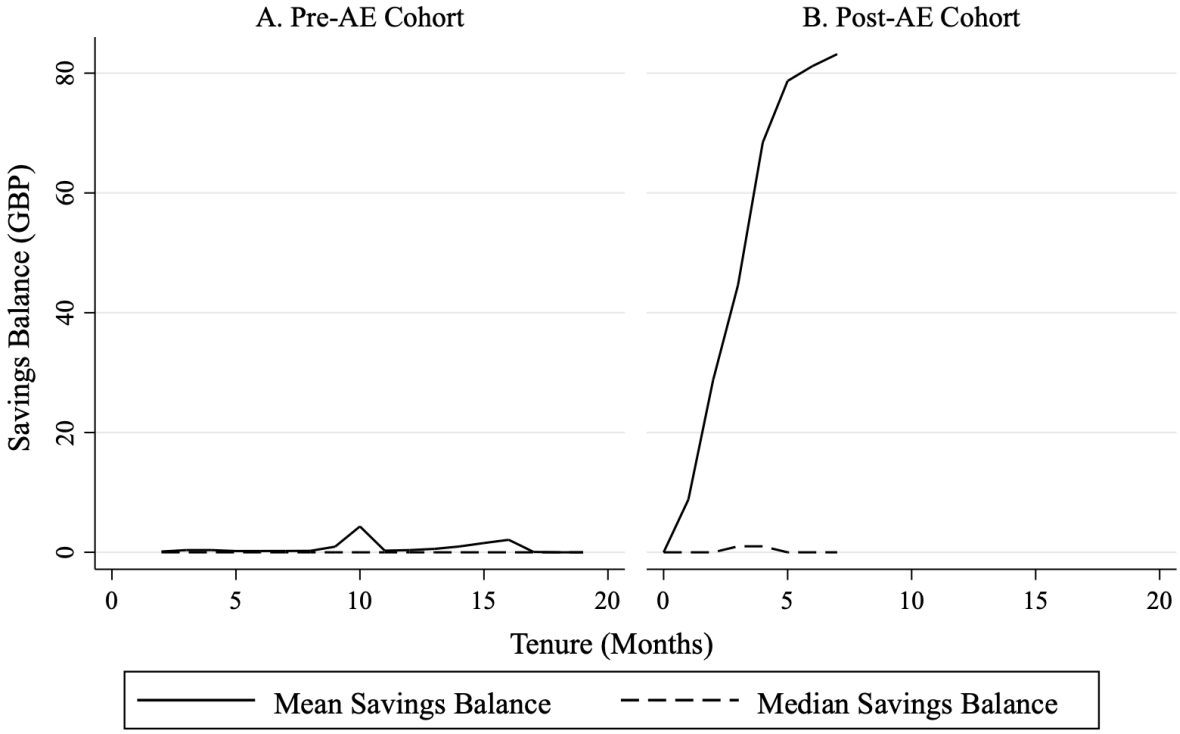
Source: Authors' calculations.

Figure 5. Participation Rate by Annualized Starting Pay (terciles) and Tenure



Source: Authors' calculations.

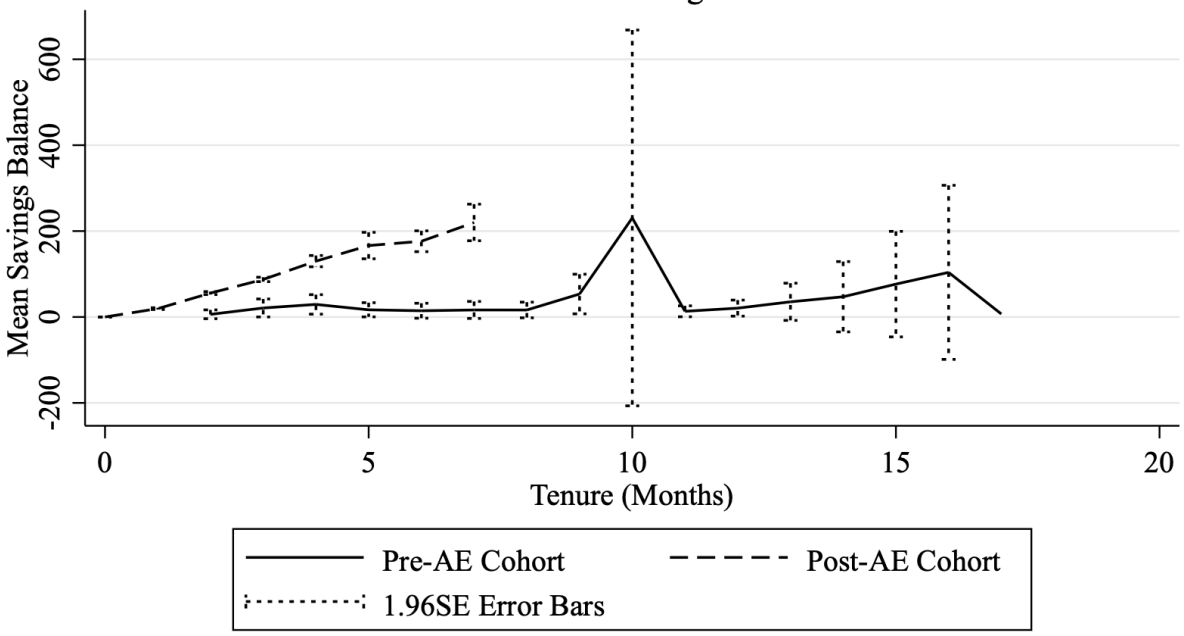
Figure 6. Savings Balances by Tenure



Source: Authors' calculations.

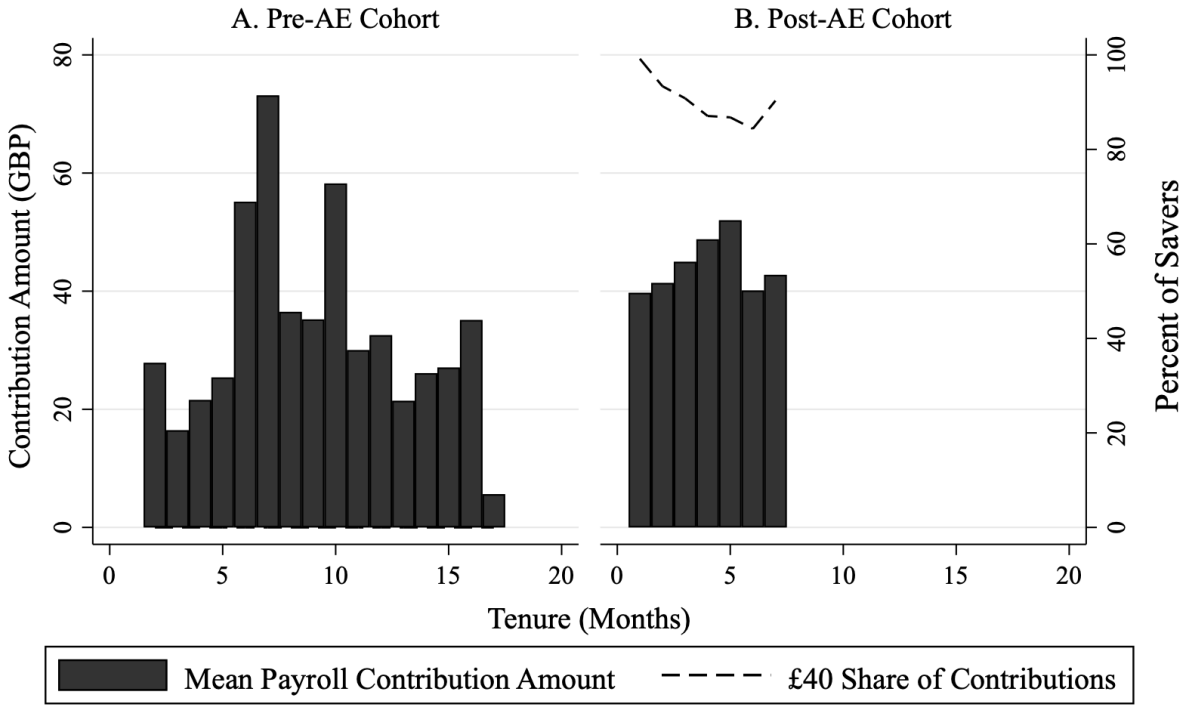
Figure 7. Balances by Cohort

Conditional on Having Ever Saved



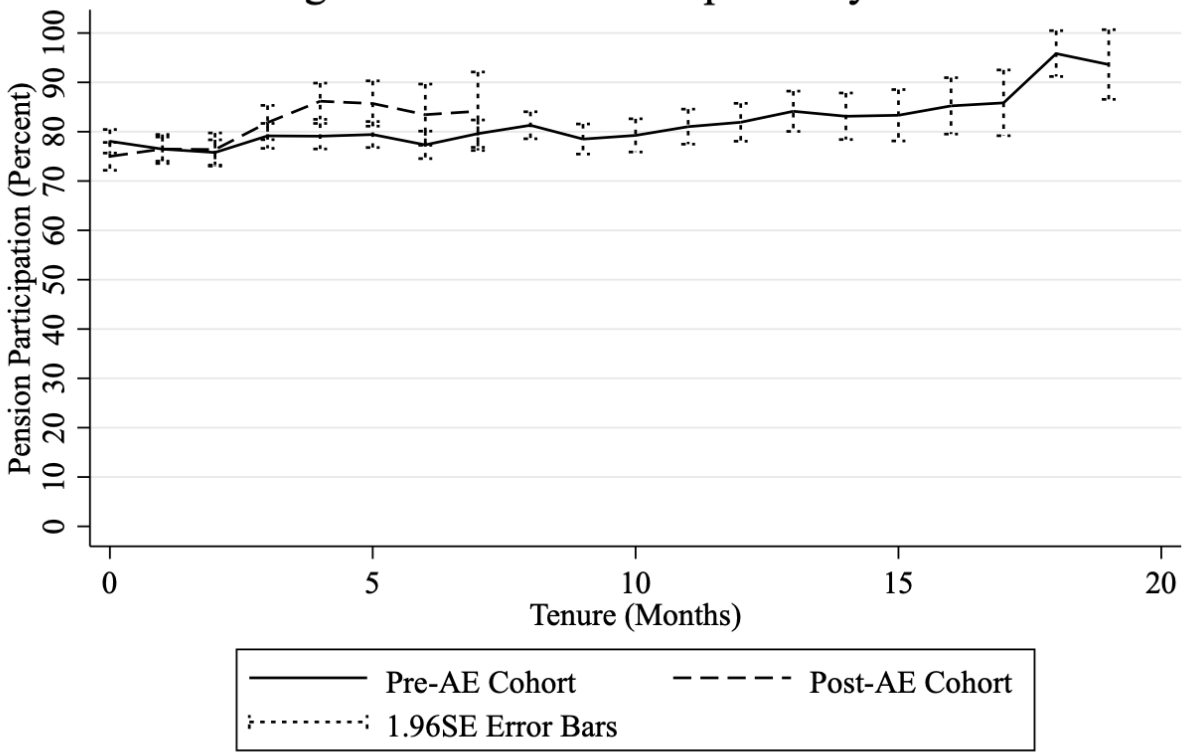
Source: Authors' calculations.
Note: Only individuals with a positive balance in at least one month are included in these calculations.
Note: In month 10, there were only 8 individuals with a positive account balance in the pre-AE group.
A massive increase in the account balance of one individual is responsible for the spike seen above.

Figure 8. Contribution Behavior by Cohort



Source: Authors' calculations.
Note: The graphs were produced using all non-zero contributions.

Figure 9. Pension Participation by Tenure



Source: Authors' calculations.