Automating Short-Term Payroll Savings: Initial Evidence from Two Large U.K. Experiments*

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Abstract. Automatic enrollment is often used to increase retirement plan savings. Can it also be used to increase savings for short-term needs? We evaluate preliminary data from two large U.K. experiments. In the first experiment, after years of offering opt-in short-term savings accounts funded by payroll deduction to its employees, an employer changed enrollment in these accounts to opt-out for new hires only. In tenure month 4, scheme participation was 46 percentage points higher under automatic enrollment, and average balances were £55 higher. The second experiment randomly assigned opt-in, opt-out, or active choice enrollment into short-term savings accounts at two employers. Four months after randomization, scheme participation was 54 percentage points higher under automatic enrollment than opt-in enrollment, and average balances were £56 higher. Active choice enrollment yields results similar to those under opt-in enrollment.

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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 remain at 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.[1] Thus, in 2019, 40% of U.S. private industry workers and 28% of U.S. state and local government workers participating in a savings and thrift plan did so in one with automatic enrollment (Zook, 2023). Multiple other countries, including the U.K., require employers to automatically enroll eligible employees into a workplace pension scheme.[2]

Can automatic enrollment also be used to encourage short-term savings? Many households in the U.S. and other countries lack funds to weather short-term negative financial shocks. Thirty-two percent of American adults say that they would not be able to cover an unanticipated $400 expense using cash, savings, or a credit card paid off at the next statement (Board of Governors 2022). Many of these individuals turn to costly solutions, such as payday loans, overdraft, or revolving credit card debt; others will simply be unable to cover the expense at all. 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 short-term savings accounts funded by payroll

[1] The Pension Protection Act of 2006 encouraged employers to use automatic enrollment in defined contribution savings plans. The SECURE 2.0 Act of 2022 requires most 401(k) and 403(b) plans established in 2025 and later to automatically enroll new employees at a default contribution rate between 3% and 10% of income, and to subsequently auto-escalate their contribution rate by 1% of income per year up to at least 10% and no more than 15% of income.
[2] For the relevant U.K. legislation, see the Pensions Act 2008.

deduction. We document and evaluate two large experiments. Section II describes and analyzes the first experiment, conducted by a large U.K. employer and a credit union, in which new hires are automatically enrolled into a payroll savings scheme. Data quality issues, which are discussed in Section II.B, currently constrain our ability to draw conclusions from these data. Section III describes and analyzes the second experiment, conducted by a large U.K. fintech company in conjunction with two client employers. In this experiment, new members to the fintech company were randomly assigned to one of three arms: a control arm, in which payroll savings is available on an opt-in basis; an active choice arm, in which new members are prompted to choose whether or not to save; and an automatic enrollment arm. Section IV concludes.

II. Experiment 1: Introduction of automatic enrollment for new hires

A. Experiment description

The first experiment was created by a large multinational employer's decision to begin automatically enrolling its new U.K. 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 an employee contribution rate of £40 per month if they did not opt out. 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. The initial contribution was set to £40 per month; in subsequent pay cycles, automatically enrolled

workers were able to change their contribution amount.[3,4] The payroll savings accounts are housed at TransaveUK, a large U.K. credit union, and are fully liquid (available without penalties or fees within 1-2 business days from the withdrawal request). Savers withdraw funds and perform other account-related tasks by using the TransaveUK website or mobile app or by contacting customer service. Participation in the scheme gives the saver other benefits from the credit union. These include an annual dividend paid to members, a modest bereavement benefit, and access to unsecured personal loans.[5] 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.[6] 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 insured (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.

[3] 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.
[4] Savers must contribute at least £5 per month.
[5] 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.
[6] For an overview of the U.K. regulatory environment, see Cooper et al. (2021).

However, the employer tells us that the majority of new hires completed the consent step during their onboarding journey, making automatic enrollment near-universal for the target population.[7,8]

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 employee started work. During this period, new hires wishing to opt out could do 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 because the packet reminded them of the account.

There were no other changes to the payroll savings scheme in the year preceding or following the implementation of automatic enrollment. However, four 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 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;[9] continued to be eligible for voluntary payroll deductions,

[7] In February 2022, the employer modified the consent step to ensure that new hires were fully aware that they could choose to withhold their consent.
[8] 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.
[9] While on furlough, 80% of wages were paid by the U.K. government as part of the Coronavirus Job Retention Scheme. The employer voluntarily paid the remaining 20%.

including savings; and eventually returned to work. Third, much of the experiment has taken place during a period of significant macroeconomic turmoil, which created significant negative shocks to individuals and their households. We intend to investigate these macro effects further in future drafts of this paper. Finally, we have incomplete data on employees in our study. We elaborate on this issue in Section II.B, below, but emphasize that these results could be affected by data quality issues.

B. Data description

We use a merged dataset containing data collected by three sources: the employer, the credit union, and Nest Insight.

The employer provided monthly snapshots of individual-level administrative data on employees hired between November 1, 2020, and May 31, 2023.[10] 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. 421 employees (more than 10% of our current sample) disappear from the employer-provided data but have no employment termination date, making it impossible to reliably discern whether they have separated from employment. In this draft's analyses, we consider an employee to remain employed in the absence of a termination date. Our current sample is therefore imperfectly defined, which could introduce errors into our results. We aim to resolve these data quality issues in a subsequent draft of this paper.

[10] 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.

The credit union provided administrative data collected between December 1, 2021, and May 31, 2023. 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. These data include joining date, current membership status and the date the current membership status became effective. We also observe details about the member's utilization of the payroll savings scheme, including monthly contributions, monthly short-term savings balances, transaction-level withdrawals (date- and time-stamped) from short-term savings, and additional (i.e., not via payroll deduction) deposits to short-term savings. 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.[11]

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.A. We drop 136 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).[12] We also drop 18 individuals who were rehired one or more times during the study period.

[11] Nest Insight collected, and will continue to collect, survey data on SUEZ employees' financial well-being and attitudes. Where possible, these survey data have been merged with the administrative data from SUEZ and TransaveUK.

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

C. 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 hired from November 1, 2021 (when AE was introduced), to May 31, 2023 (the last date for which we currently have data).

In total, we have 1,164 individuals in the pre-AE cohort and 1,978 individuals in the post-AE cohort. The number of individuals we observe in the post-AE cohort drops off sharply as tenure at the company increases, which is a result of the current lack of data after May 2023. For example, the only post-AE individuals who can be observed at tenure month 18 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 are slightly more likely to be female and are slightly more likely to be aged 31-50; these differences are not statistically significant. Workers in the pre-AE cohort are slightly more likely to work in a manual position, have higher annualized starting pay, and have higher annualized pay in the AE period (November 1, 2021 through May 31, 2023); these differences are statistically significant. When we adjust starting salaries for inflation using the Consumer Prices Index including owner occupiers' housing costs (CPIH), the difference is no longer statistically significant.

D. Participation, balance accumulation, contributions, and withdrawals

In this draft, we report preliminary findings on plan participation, balance accumulation, payroll contribution amounts, and withdrawals. More analyses will be performed after we receive additional data. All analyses in this section drop individuals who leave the firm from the sample after their separation month.

Figure 1 shows participation by tenure month for the pre- and post-AE cohorts. We define participation in a given month as having a non-zero account balance and/or a non-zero contribution amount at any time in that month. In tenure month 4, 1.3% of the pre-AE cohort is saving, compared to 47.3% of the post-AE cohort. In tenure month 10, 1.5% of the pre-AE cohort is saving, compared to 51.2% of the post-AE cohort. We will reevaluate participation rates in the future when more data are available.

Figures 2-5 show participation by tenure month for subgroups of the post-AE cohort. Workers follow a similar participation pattern regardless of age, gender, and starting pay. Workers in non-manual roles participate at lower rates than those in manual roles at higher tenure levels, but per Table 1, about 80% of workers are in manual roles. We will reevaluate when more data are available.

Figure 6 shows mean and median balances (including those with zero balance) 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 £55 in the post-AE cohort. By tenure month 10, the mean balance in the pre-AE cohort remains below £1, while that in the post-AE cohort has risen to £113. 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 £19, compared to £116 in the post-AE cohort. By tenure month 10, these figures have risen to £32 and £214, respectively.

Figure 8 shows median and mean contribution amounts by tenure month for employees in the pre- and post-AE cohorts who made a positive contribution in that month. In the post-AE cohort, the median contribution rate is consistently equal to the £40 default; the mean contribution rate is consistently slightly higher.

Figures 9 and 10 show preliminary information about withdrawal behavior. Figure 9 displays the share of savers in each cohort taking any withdrawal in each tenure month, although the small sample size of the pre-AE cohort affects interpretation. About 40% of the post-AE cohort savers makes a withdrawal in any given month, while the corresponding proportion for the pre-AE cohort is about 20%. Figure 10 displays information about the average positive withdrawal amounts taken by the post-AE cohort. Conditional on withdrawing, participants withdraw about 80% of their balance on average.

Finally, Figure 11 displays pension participation rates for the pre- and post-AE cohorts. We drop July 2022 data due to data quality concerns. These preliminary results suggest a moderate decrease in pension participation in the post-AE cohort. However, we do not currently conclude from Figure 11 that automatic enrollment into short-term savings is negatively affecting pension participation or wealth accumulation. Additionally, we note that this experiment has been conducted during a period of intense macroeconomic upheaval. Annual inflation in the U.K. reached 11.1% in October 2022 and was consistently 8.7% or higher between March 2022 and February 2023.[13] The trial design means that we are measuring the pension saving behaviors of those who experienced automatic enrollment into short-term savings in a more economically

[13] https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/consumerpriceinflation

stressed environment that those of the pre-trial cohort. In future iterations of this paper, we will investigate the relationship between these macro trends, pension participation, and total levels of saving.

III. Experiment 2: Randomized controlled trial of automatic enrollment and active choice

A. Experiment description

We study a randomized controlled trial (RCT) implemented by Wagestream, a U.K. fintech company that is in the business of providing employee benefits, in conjunction with two of its client employers. The fintech company works with client employers to offer a mobile app to employees. This app allows employees to track their shifts and earnings information, divert pay to a Wagestream savings account ("savings pot"), and receive earned wage access (i.e., salary advances).[14] Savers can also elect a savings goal for the savings pot.[15] Wagestream additionally offers financial coaching, micro-savings,[16] and monthly incentives to encourage financial wellbeing. Savings pots are fully liquid; their balances can be withdrawn at any time with no penalties, fees, or delays. Savings pots have maximum balances of £1,000.

On October 24, 2022, Wagestream began randomly assigning new members from Bupa Care Services ("Bupa," referred to as "Employer A" hereafter) to one of three arms: (1) a control arm, in which new members experienced the business-as-usual joining process; (2) an active choice arm, in which new members were prompted during their sign-up journey to choose whether

[14] Member employees can access up to 50% of their wages in advance of their payday for a fee, with no impact of the employer's payroll processes. The employers studied in this paper have set the wage advance limit at 40% of the next paycheck.

[15] Savers can elect a per-paycheck contribution amount to the savings pot. They can also choose to enter a savings goal and date to achieve it, and the app will calculate a contribution amount (e.g., a goal of £1,000 with an achievement date one year in the future will yield a monthly contribution amount of £83.33).

[16] This feature allows members to round the pay for each shift they work down to the nearest pound and divert the remainder to the savings pot.

or not to save automatically from their paychecks; and (3) an automatic enrollment arm, in which new members were automatically enrolled to save £40 from their paycheck. Bupa Care Services, a division of Bupa UK, employs approximately 10,500 workers in the aged care home sector. The Co-operative Group Ltd. ("the Co-op," referred to as "Employer B" hereafter) began participating on November 21, 2022. The Co-op employs 58,000 workers in the food retail, funeral, insurance, and legal services sectors.

Wagestream updated its terms and conditions before the trial commenced, allowing it to automatically create savings pots and begin payroll deductions for members in the automatic enrollment arm. Members in all arms are free to adjust their savings settings at any time, including to cease saving altogether. Members assigned to the automatic enrollment arm were reminded of their status multiple times before their initial deduction, giving them an opportunity to opt out or adjust their deduction amount away from the £40 default. Wagestream is not a depository institution and does not hold funds. It partners with e-money providers[17] to facilitate saving for its members.

Four items should be noted regarding the experiment. First, as we described in Section II.B, this experiment is running during a period of unusual macroeconomic instability. Second, the fintech company changed the name for its savings product. At the beginning of the trial, the product was called "Save." In response to a request from one of its e-money provider partners, the company renamed the product to "Build." This change was implemented on January 4, 2023, but some users may have first seen the change in later weeks depending on when they updated the app on their device. Third, the company restructured its app so that information about the savings product ("Build") was moved from the main navigation bar to a hub page. This change was implemented

[17] https://www.fca.org.uk/firms/electronic-money-payment-institutions

on February 6, 2023, but, again, some users may have first seen the change weeks later. Finally, the company temporarily tested a Know-Your-Customer (KYC) check process for new members in the research trial. This process required new members to supply extra personal details (date of birth, home address) and personal identification documents. This change was in effect from February 27, 2023, through March 21, 2023. Additionally, members already in our study at the time of the KYC introduction were prompted within the app to complete a KYC check; 796 members saw this prompt and only four completed the check.

B. Data description

We use a dataset provided by the fintech company. We currently have individual-level data on members who were randomized between October 24, 2022, and July 10, 2023. For each individual, we receive data on their employer, current Wagestream membership status, treatment assignment, randomization date, employment start date, employment termination date (if applicable), paycheck amounts and dates, savings amounts and dates, savings deduction elections and dates, savings goal elections and dates, micro-savings settings and dates, and (for Employer A only) shifts worked. We drop 779 members who were assigned to an experimental arm during the period February 27 – March 21, 2023, when the KYC check was in effect for new members.

C. Comparison of experiment arms

To estimate the impact of automatic enrollment and active choice, we compare the behavior of the three RCT arms. In total, we have 1,944 individuals in the opt-in (control) arm, 1,962 individuals in the active choice arm, and 1,973 individuals in the automatic enrollment arm. We define month 0 as the month the individual joined Wagestream and was randomized into a study

arm.[18] Because our sample period ends on July 10, 2023, sample sizes are highest in month 0 and decline steadily over the subsequent months.

Table 2 compares the characteristics of the three arms. There are no statistically significant differences in the average first-observed hourly wage or the share of individuals from Employer A across experimental conditions. We note that Employer A—but not Employer B—allows employees to view their shift information in the app. This likely affects employees' motivations for joining Wagestream and downloading the app. Additionally, Employer B employees receive a 5% "boost" to their savings (similar to interest earnings). Individuals from Employer B may be more likely to join with the intention to save. It is possible that other variations in the employers' relationships with Wagestream could also affect enrollment and app utilization rates.

D. Participation, balance accumulation, contributions, and withdrawals

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

Figure 12 shows the Wagestream participation rate in each of the three study arms from the point of randomization. We define participation in a given month as having a non-zero account balance and/or a non-zero contribution amount in that month. The denominator for all participation rates is the number of individuals randomized to the respective experimental arm who are Wagestream members in that month. Wagestream is only available to active employees. Employees lose access to the app when they separate from their employer or give notice, and any

[18] Employees may join Wagestream at any time in their tenure. The decision to join the company and download the app is most salient at hire, and over 60% of individuals in our study joined within the first 30 days of their employment. However, 10% of individuals joined more than three years into their employment.

accrued savings are paid out when their app access is terminated. As shown in Table 2, sample sizes decline over time. In month 4, 70.5% of the opt-out (automatic enrollment) arm is participating, compared to 15.9% of the active choice arm and 16.1% of the opt-in (control) arm. We will reevaluate participation rates in the future when more data is available.

Figures 13 and 14 show participation separately by employer and—for Employer A only—by initial hourly wage. The patterns are similar across employers and wage terciles. Participation rates are higher in the opt-in and active choice arms at Employer B than at Employer A, and all Employer B arms' participation rates are trending upwards over the study period, whereas participation is flat or trending downward at Employer A. These variations are perhaps driven by differences in the employee characteristics and incentives across the two companies (see Section III.C).

Figure 15 shows mean balances by month for individuals who are Wagestream members in that month. In month 4, the mean balance in the opt-out arm is £73, compared to £17 in the active choice and opt-in arms. In Figure 16, we restrict our analysis to individuals who have ever saved through the app and remain members in the given month. In month 4, the conditional mean balance in the opt-out arm is £104, compared to £107 in the active choice arm and £106 in the opt-in arm.

Figure 17 shows median and mean non-zero contribution amounts by month. In the opt-out cohort, the median contribution amount is consistently equal to the £40 default; the mean contribution amount is consistently slightly higher after month 0.

Figure 18 displays the share of savers in each arm taking any withdrawal in each month. Withdrawal rates are consistently higher in the opt-out arm, but never exceed 22%. Withdrawal rates in the other two arms are close to zero. Figure 19 displays information about the average

positive withdrawal amounts taken by the opt-out arm. Conditional on withdrawing, participants withdraw about 80% of their balance on average.

Figure 20 shows preliminary data on the use of Wagestream's wage advance benefit. The share of members taking a wage advance is similar across the study arms in all observed months. Figures 21 and 22 display the average size of the advances taken in GBP and as a share of the next paycheck, respectively, conditional on taking an advance. Multiple advances taken in a single month are aggregated before computing these averages. The average size of the advances is similar across all study arms in all observed months. These early findings indicate that opt-out payroll savings, despite building up a liquidity buffer, does not change use of wage drawdown.

IV. Conclusion

Automatic enrollment can be used to increase participation and balances in short-term payroll savings schemes. We first study an experiment created by a large employer's decision to automatically enroll its new hires into a payroll savings scheme. At tenure month 4, we find that participation is 46 percentage points higher and mean balances £55 higher in the automatic enrollment regime than in the opt-in regime. These effects are more pronounced at later tenure months, although sample size and data quality considerations limit our ability to draw long-term conclusions. We additionally study a randomized controlled trial implemented by a fintech company in conjunction with two of its client employers. Four months after randomization, we find that participation is 54 percentage points higher and mean balances £56 higher under automatic enrollment than under opt-in enrollment. Additional high-quality data is needed to fully understand the effects of automatic enrollment in later months. We will conduct further analyses when more data is available.

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

	Pre-AE (Nov 2020 – Oct 2021 hires)	Post-AE (Nov 2021 – May 2023 hires)	Difference	*p*-value of difference
Mean nominal starting pay (annualized)[19,20]	£23,992	£25,722	£1,730	0.000
Mean inflation-adjusted starting pay (annualized)[21]	£23,603	£23,227	-£376	0.132
Mean pay, Nov 2021 – May 2023 (annualized)[19,20]	£25,635	£26,286	£650	0.024
Female	13.8%	14.3%	0.5%	0.708
Age[22]				
30 or under	34.0%	33.3%	-0.7%	0.672
31-50	33.6%	34.8%	1.2%	0.491
51 +	32.4%	31.9%	-0.5%	0.785
Manual position[23]	82.4%	79.4%	-3.0%	0.041
Total employees	1,164	1,978		
Employees observed in				
Tenure month 0	0	1,866		
Tenure month 1	0	1,974		
Tenure month 2	92	1,818		
Tenure month 3	227	1,637		
Tenure month 4	314	1,459		
Tenure month 5	395	1,297		
Tenure month 6	464	1,177		

[19] We observe annual pay for some workers and hourly pay for others. We also observe scheduled hours per week for most workers. We calculate annualized pay for hourly workers with observed schedules by computing their hourly rate × scheduled hours per week × 52. When calculating annualized pay, we drop hourly workers with zero or unobserved scheduled hours per week.

[20] Our pay data are right-censored; 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. As a result, the means reported here (which are computed assigning £50,271 to right-censored employees) are lower than the true means.

[21] Values are adjusted to January 2021 GBP using the CPIH.

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

[23] 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.

Tenure month 7	507	1,038
Tenure month 8	536	911
Tenure month 9	579	782
Tenure month 10	601	682
Tenure month 11	627	590
Tenure month 12	641	514
Tenure month 13	680	409
Tenure month 14	669	332
Tenure month 15	657	251
Tenure month 16	644	170
Tenure month 17	636	108
Tenure month 18	633	65
Tenure month 19	629	0
Tenure month 20	571	0
Tenure month 21	469	0
Tenure month 22	403	0
Tenure month 23	333	0
Tenure month 24	270	0
Tenure month 25	214	0
Tenure month 26	175	0
Tenure month 27	136	0
Tenure month 28	97	0
Tenure month 29	66	0
Tenure month 30	44	0

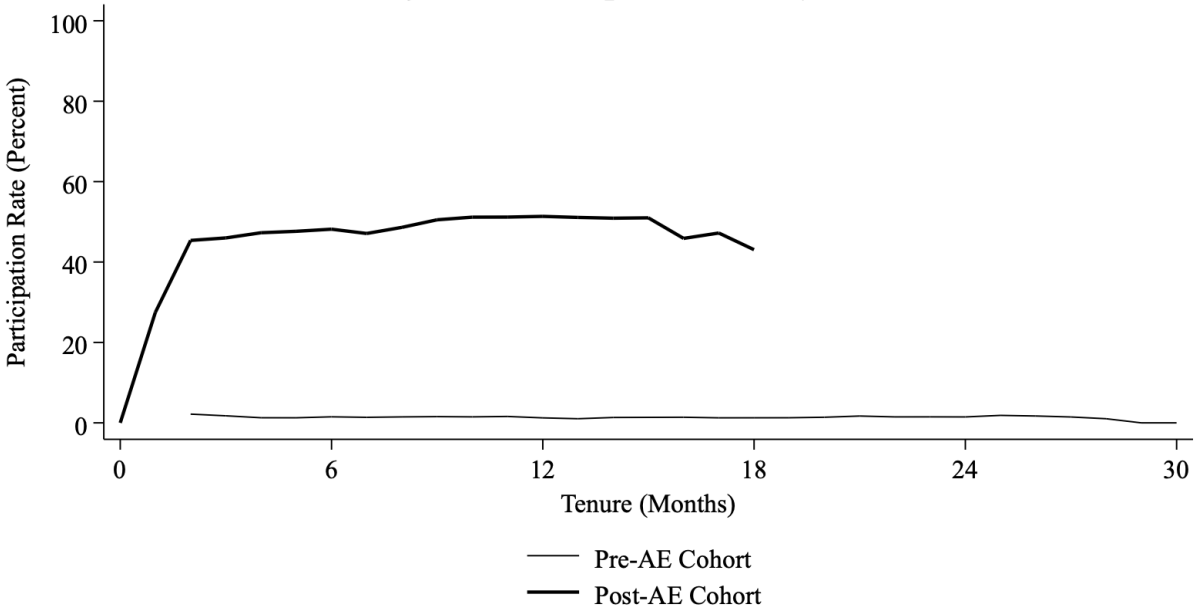
Source: Authors' calculations.

Table 2. Comparison of the three arms in Experiment 2[24]

	Opt-in (Control)	Active Choice	Opt-out	F-test of joint equality (p-value)
Mean first-observed hourly rate[25]	£12.08 (0.122)	£12.44 (0.138)	£12.16 (0.123)	0.116
Employer B	63.2% (0.011)	64.0% (0.011)	64.3% (0.011)	0.761
Sample size				
Month 0	1,944	1,962	1,973	
Month 1	1,811	1,831	1,861	
Month 2	1,413	1,432	1,478	
Month 3	1,120	1,144	1,161	
Month 4	802	813	807	
Month 5	652	680	650	
Month 6	425	471	458	
Month 7	194	221	205	
Month 8	112	134	118	
Month 9	18	18	20	

[24] Standard errors are shown in parentheses.
[25] Where applicable. We are currently missing shift/wage data for many employees, including all Employer B employees.

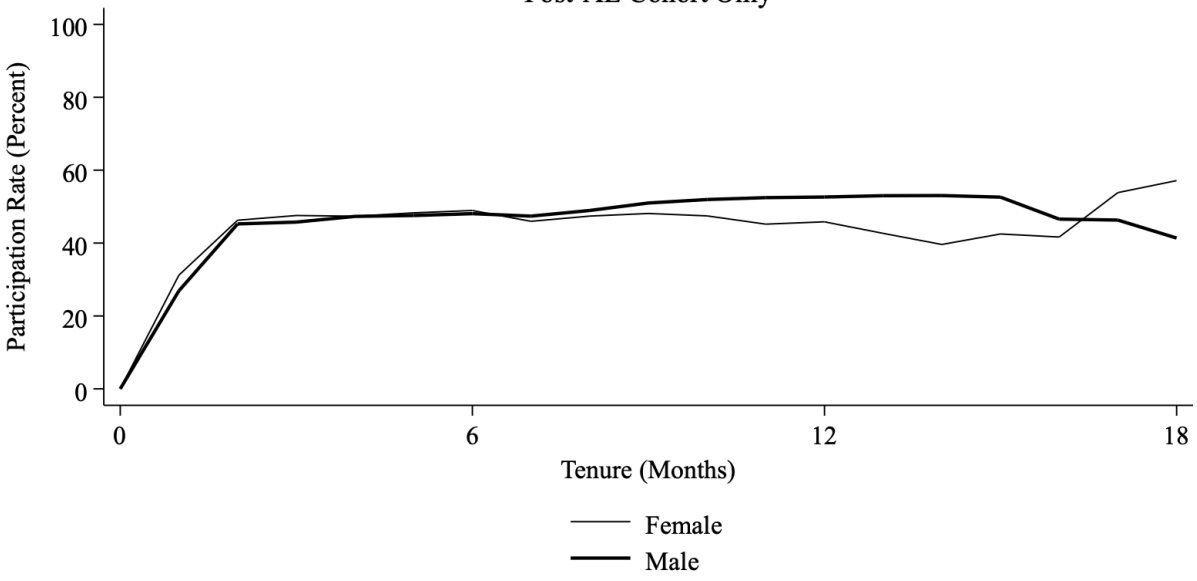
Figure 1. Participation Rate by Tenure



Source: Authors' calculations.

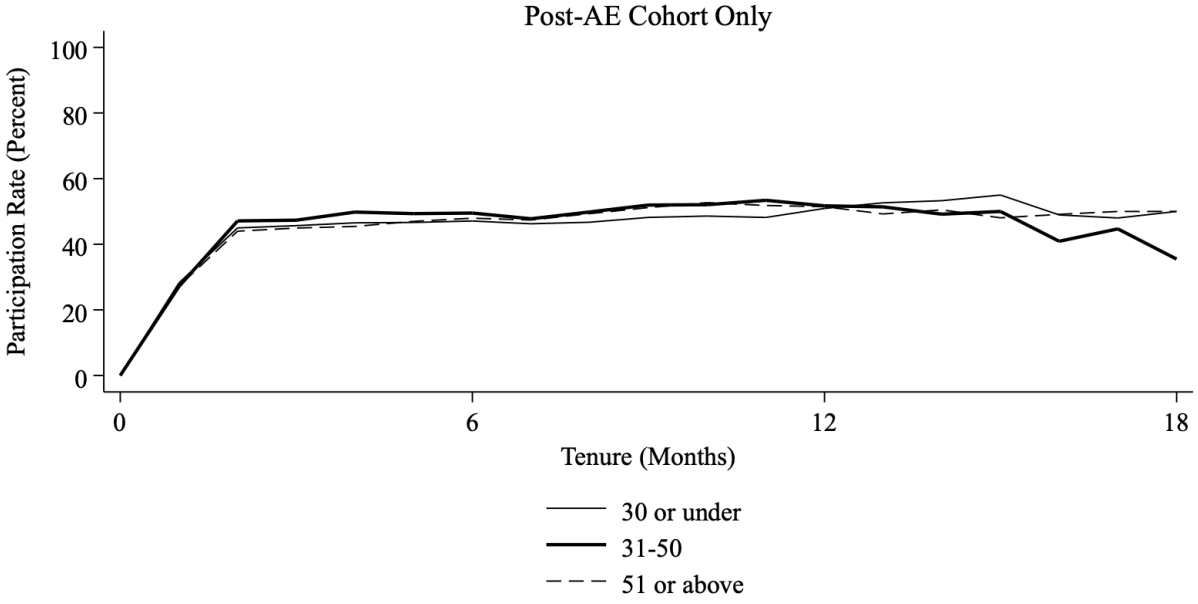
Figure 2. Participation Rate by Gender and Tenure

Post-AE Cohort Only



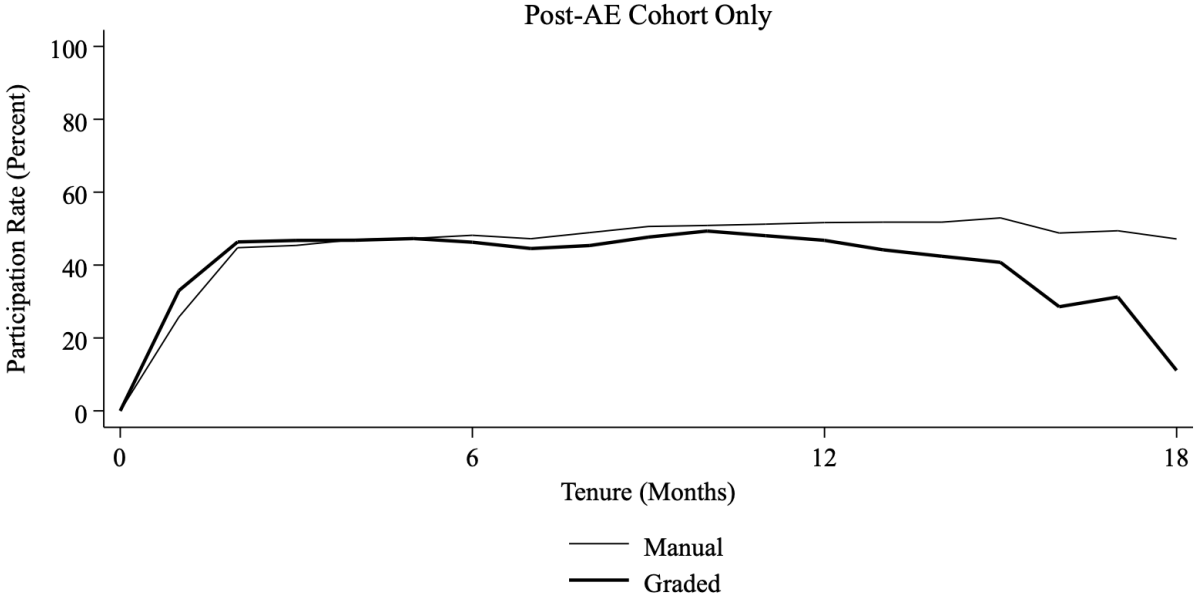
Source: Authors' calculations.

Figure 3. Participation Rate by Age and Tenure



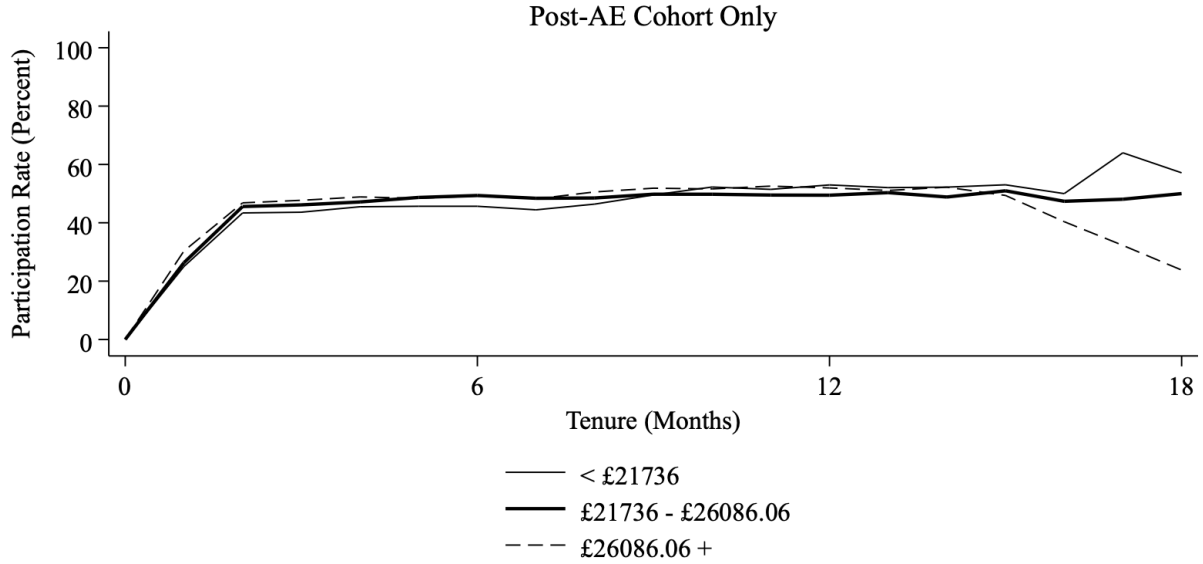
Source: Authors' calculations.

Figure 4. Participation Rate by Role and Tenure



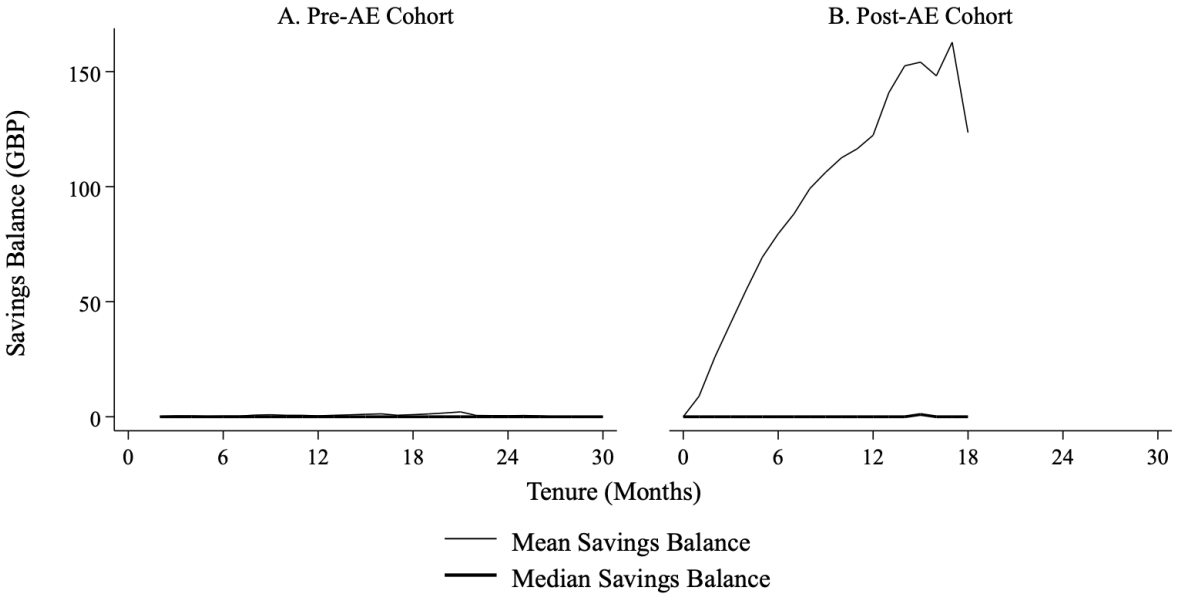
Source: Authors' calculations.

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



Source: Authors' calculations.

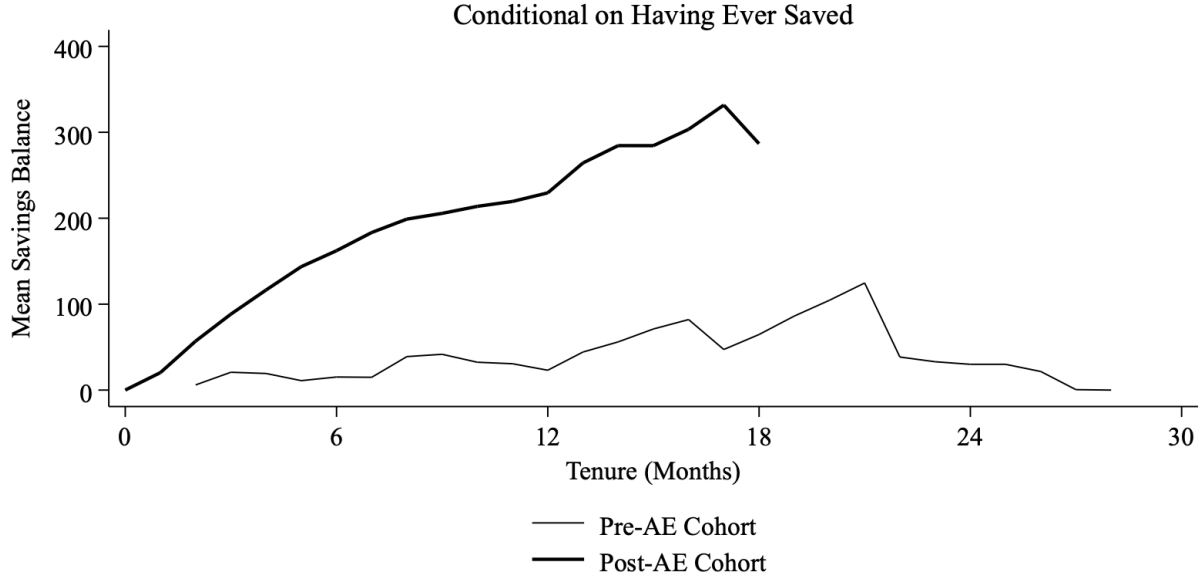
Figure 6. Savings Balances by Tenure



Source: Authors' calculations.

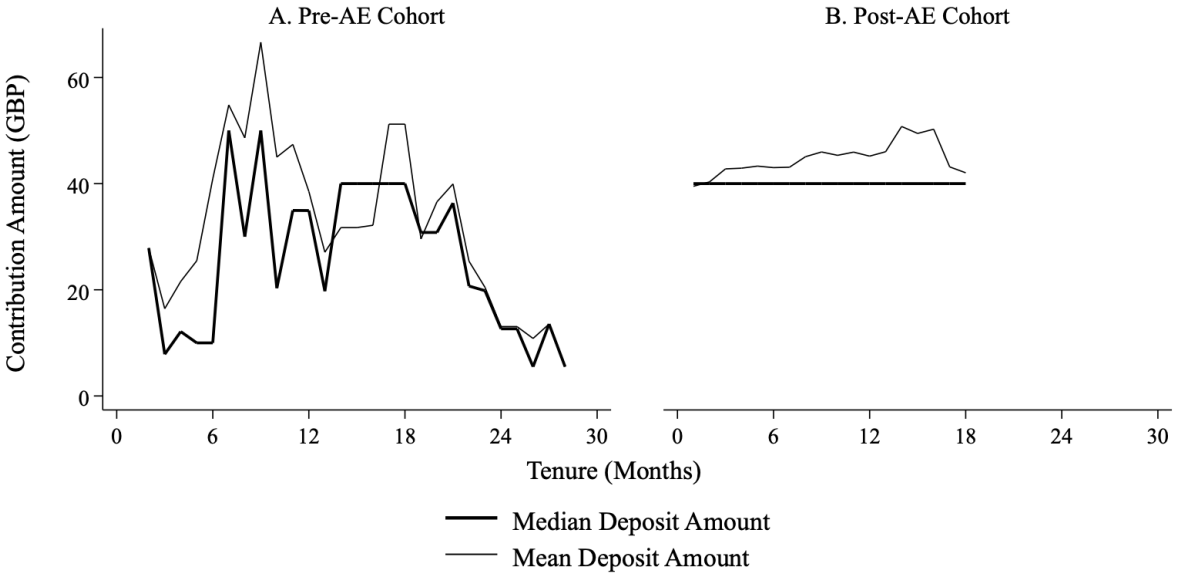
Figure 7. Balances by Cohort

Conditional on Having Ever Saved



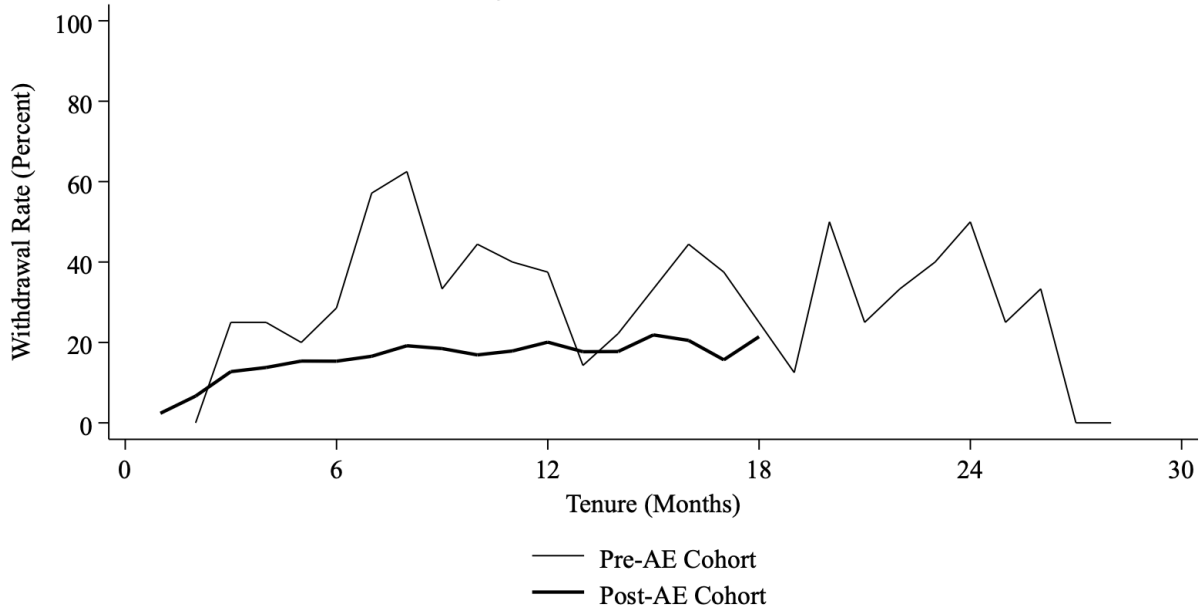
Source: Authors' calculations.
Note: Only individuals with a positive balance in at least one month are included in these calculations.

Figure 8. Contribution Behavior by Cohort



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

Figure 9. Withdrawal Rate



Source: Authors' calculations.

Figure 10. Withdrawal Behavior

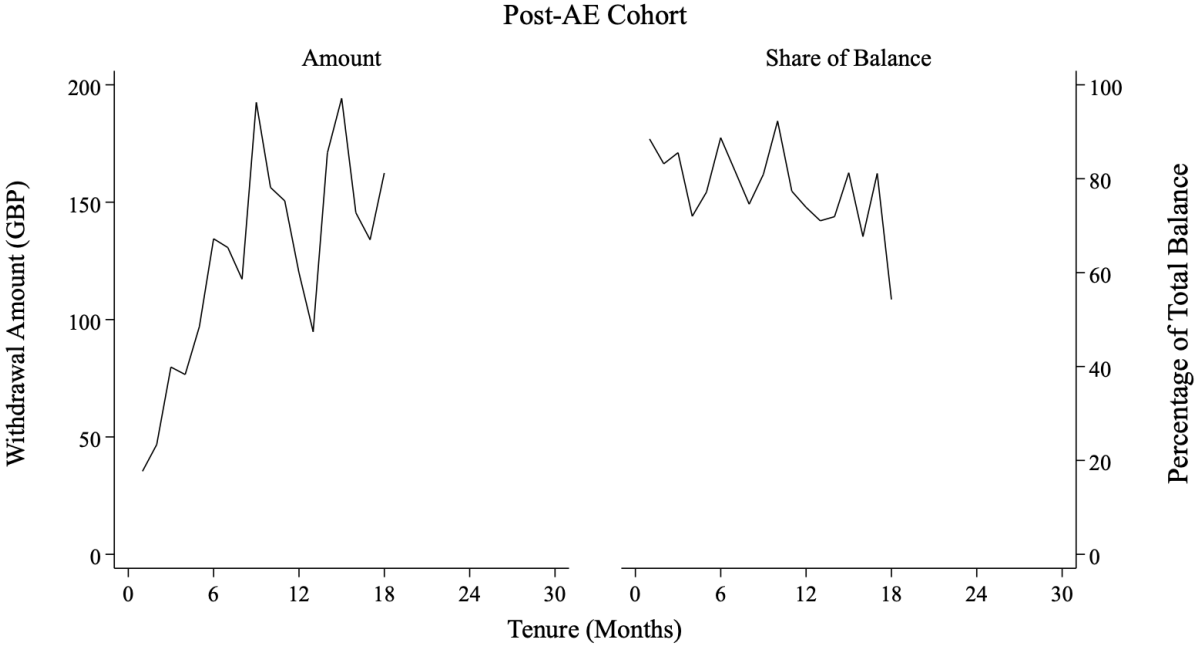
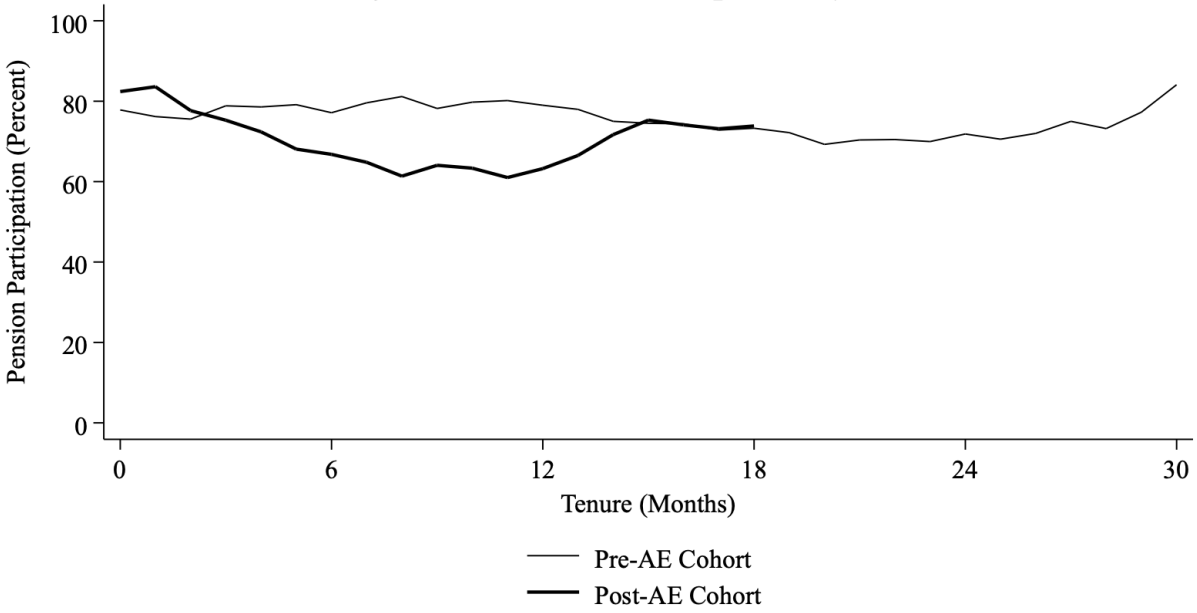
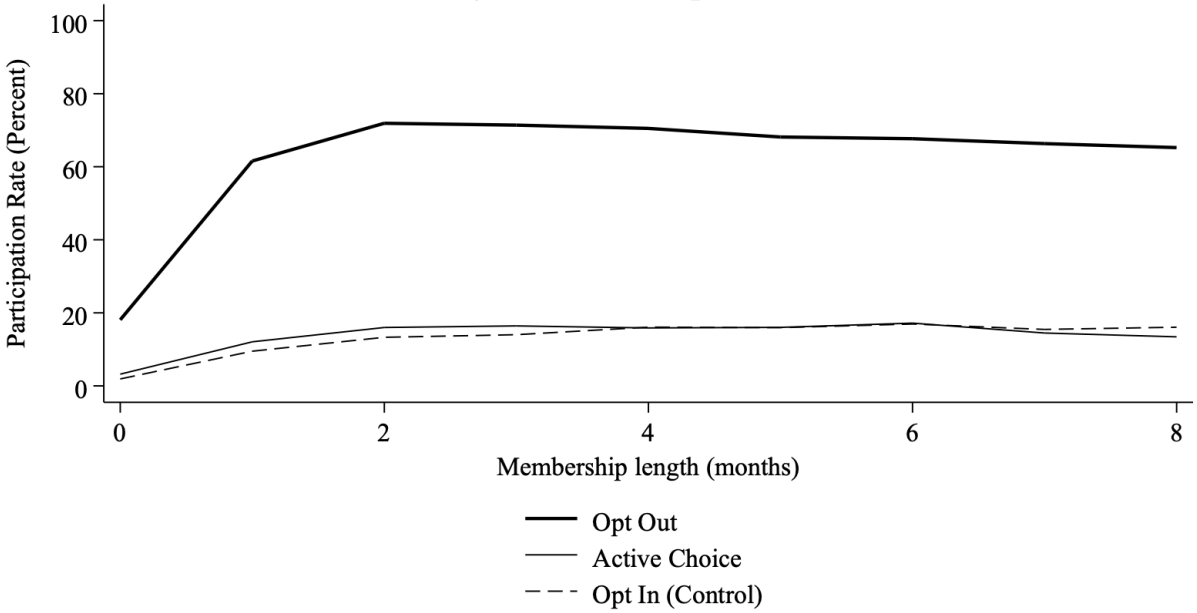


Figure 11. Pension Participation by Tenure



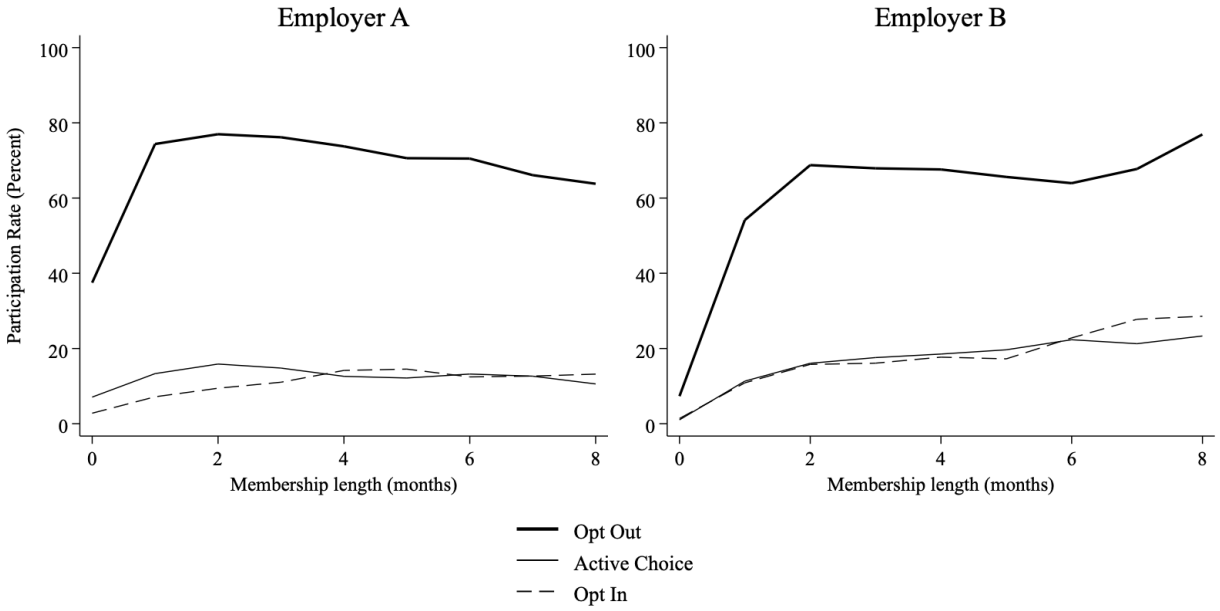
Source: Authors' calculations. July 2022 data are dropped due to data quality concerns.

Figure 12. Participation Rate



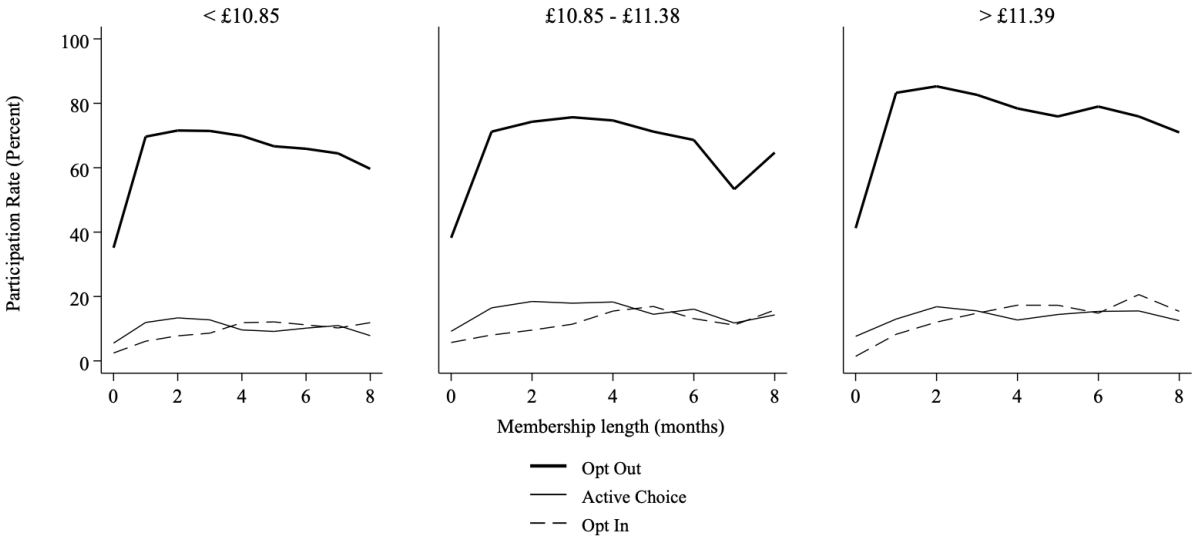
Source: Authors' calculations.

Figure 13. Participation Rate by Employer



Source: Authors' calculations.

Figure 14. Participation Rate by First Observed Hourly Wage (terciles)



Source: Authors' calculations.
Note: Currently includes only Employer A employees.

Figure 15. Mean Savings Balances by Arm

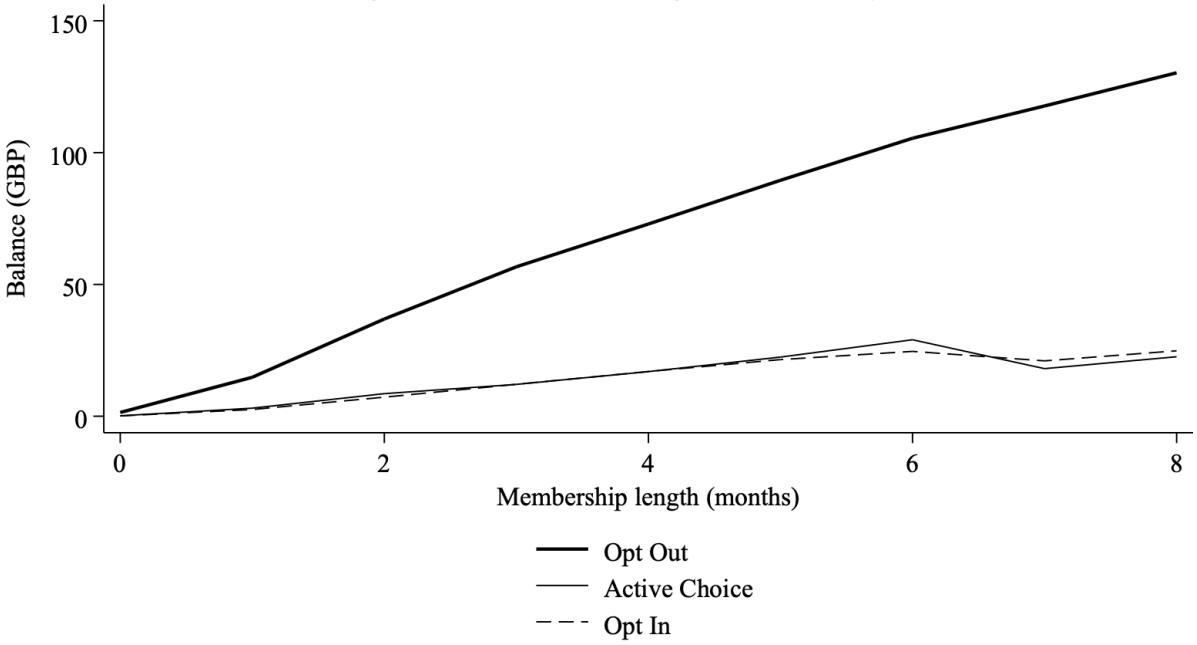


Figure 16. Mean Savings Balances by Arm

Conditional on Having Ever Saved

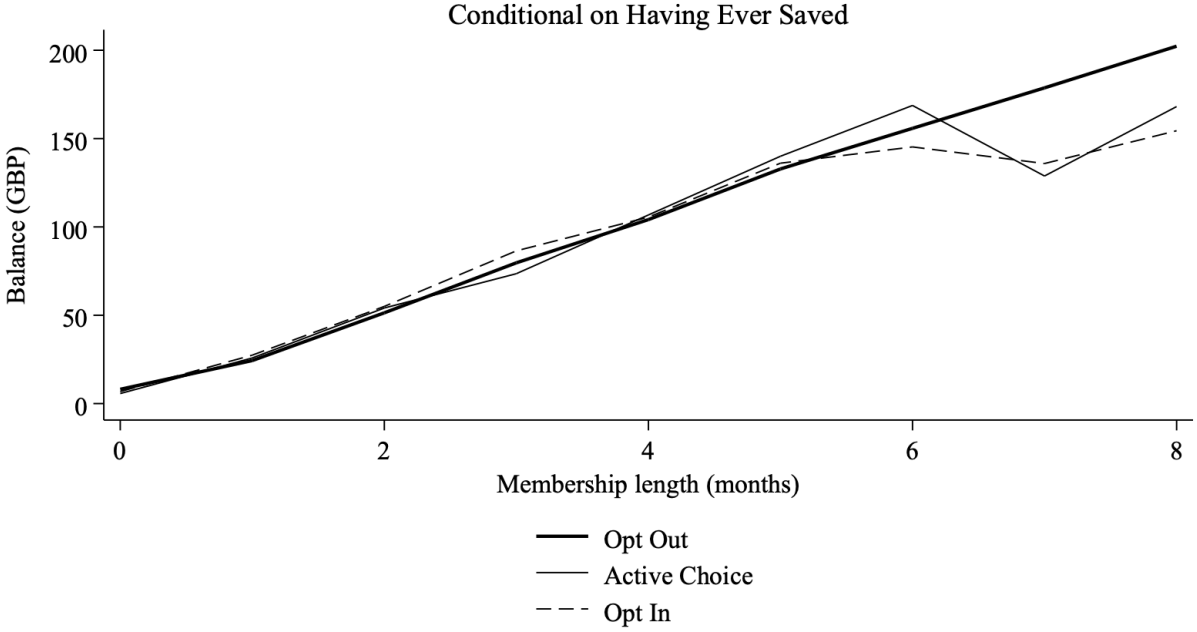
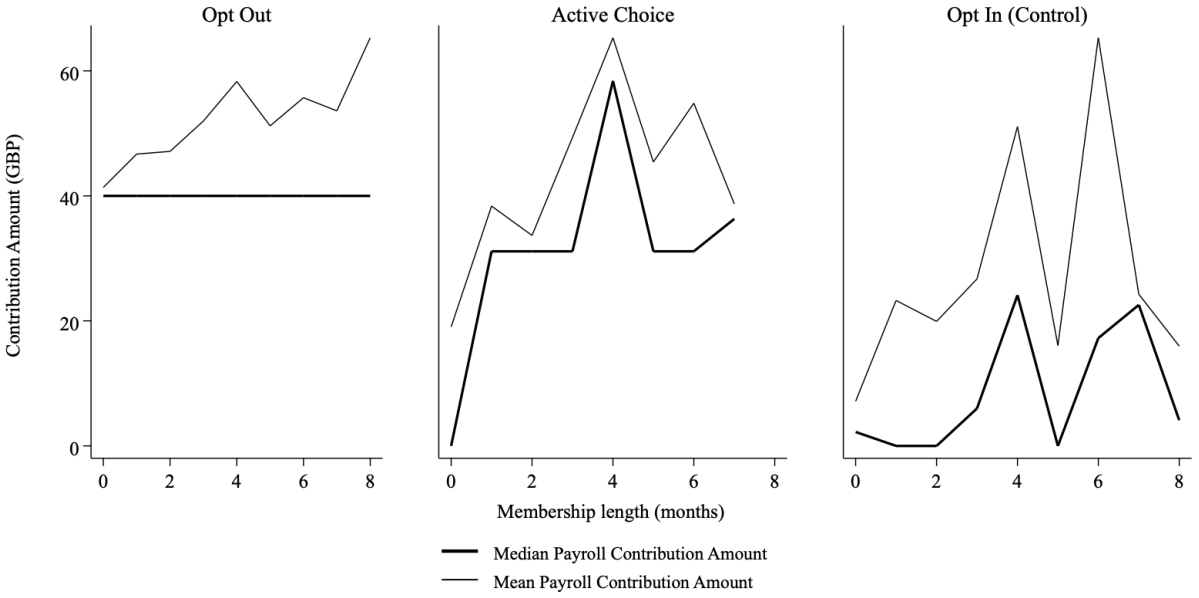
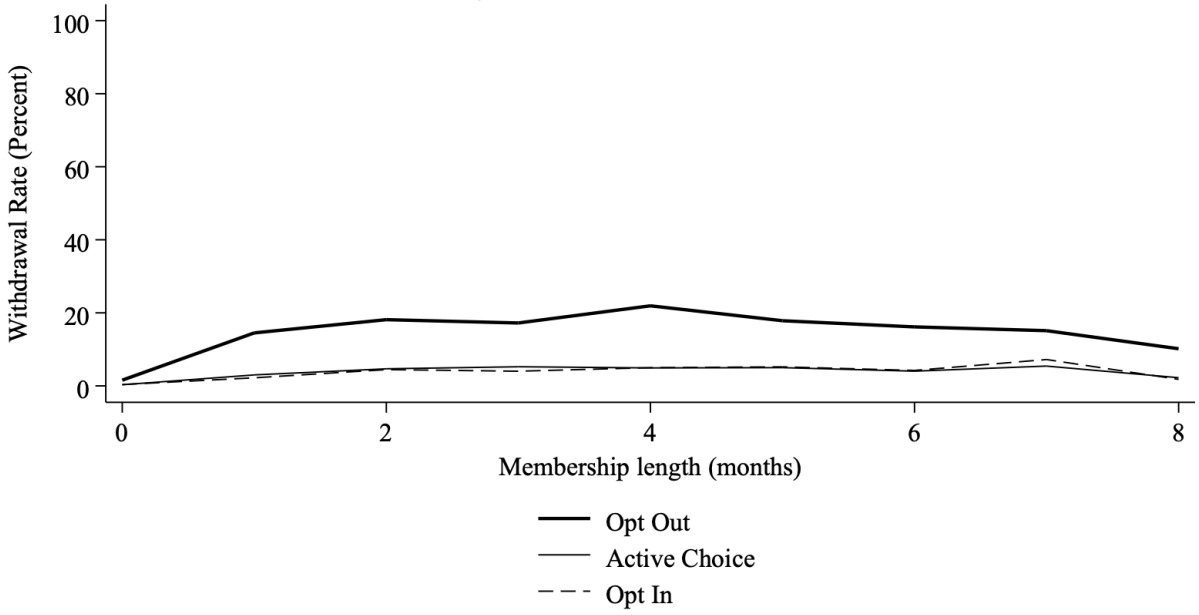


Figure 17. Contribution Behavior by Arm



Source: Authors' calculations.

Figure 18. Withdrawal Rates



Source: Authors' calculations.

Figure 19. Withdrawal Behavior

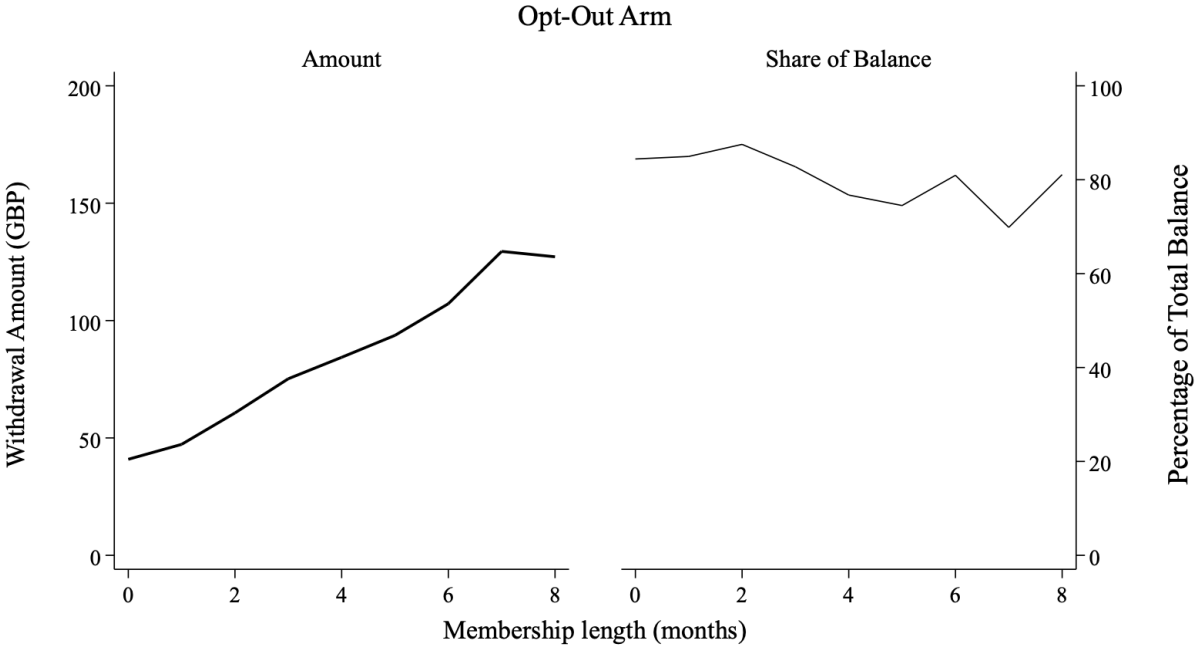


Figure 20. Wage Advance Utilization

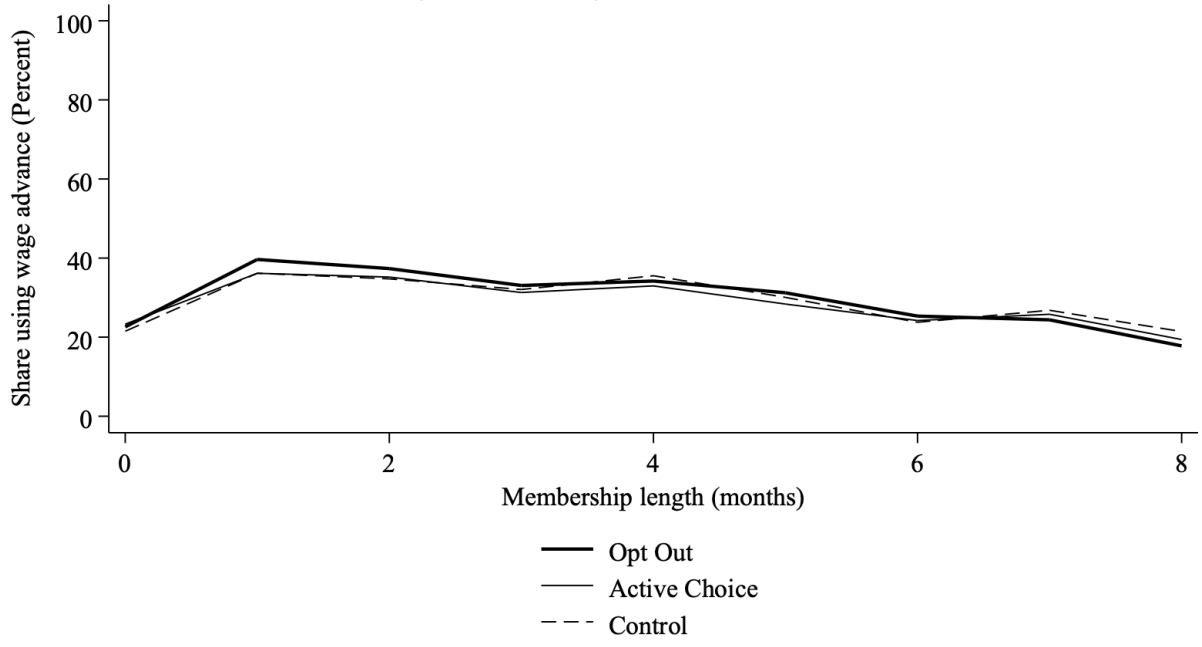


Figure 21. Wage Advance Amount

Conditional on Using Wage Advance

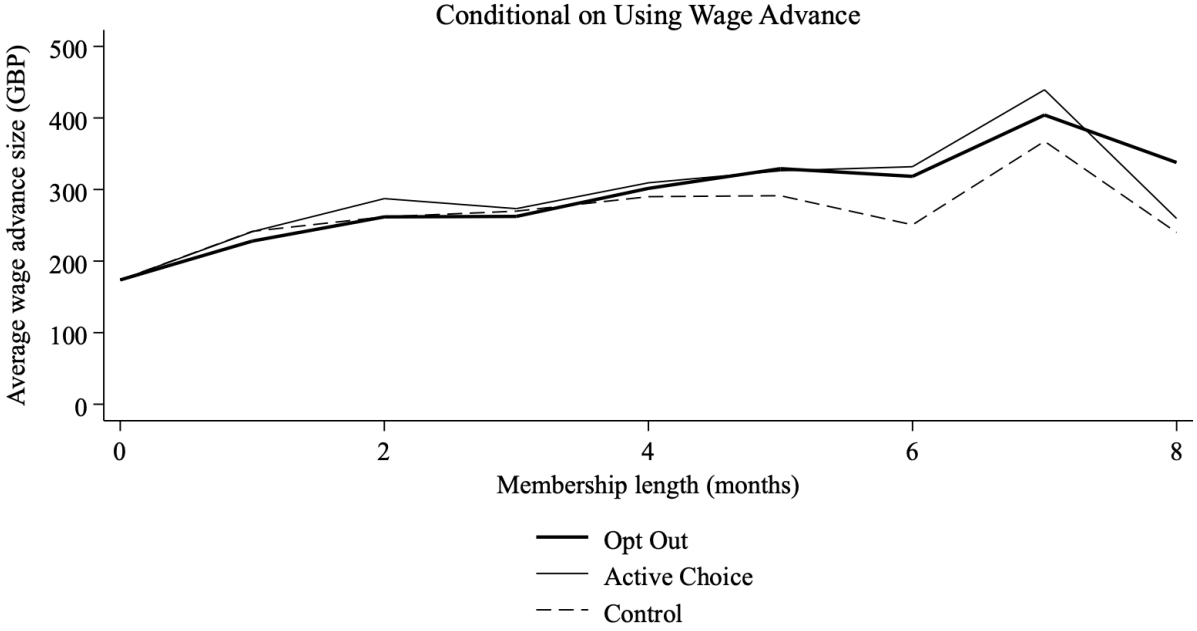


Figure 22. Wage Advance as a Share of Next Paycheck

Conditional on Using Wage Advance