

NBER WORKING PAPER SERIES

EMPLOYER-BASED SHORT-TERM SAVINGS ACCOUNTS

Sarah Holmes Berk  
John Beshears  
Jay Garg  
James J. Choi  
David Laibson

Working Paper 32074  
<http://www.nber.org/papers/w32074>

NATIONAL BUREAU OF ECONOMIC RESEARCH  
1050 Massachusetts Avenue  
Cambridge, MA 02138  
January 2024, Revised August 2024

Contributions: conceptualized paper (SB, JB, JC, DL), wrote paper (SB, JB), edited paper (JC, DL), implemented empirical analysis (SB, JG), project leadership (SB, JB). The research reported herein was convened by Nest Insight, a public-benefit research and innovation center which is part of Nest Corporation, a UK public corporation. This research was reviewed by the Harvard Institutional Review Board and determined to be exempt human subjects research. The findings and conclusions expressed are solely those of the authors and do not represent the views of Harvard, Yale, NBER, Nest, the participating employers, or the implementing partners. The authors gratefully acknowledge Annick Kuipers, Emma Stockdale, and Bradley Bain for tireless project management and for sharing data; Jo Phillips for project leadership; the entire Nest Insight team for convening the trial; Shreenidhi Subramanian for sharing data; Santiago Medina Pizarro, Adrian Baxter, and Peter Smith for helpful comments and support; Jessica Brooks for excellent research assistance; the BlackRock Foundation and the Money and Pensions Service (UK) for their support of the Nest Insight program, which provided the funding for our research; and the Pershing Square Fund for Research on the Foundations of Human Behavior at Harvard University for financial support. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

At least one co-author has disclosed additional relationships of potential relevance for this research. Further information is available online at <http://www.nber.org/papers/w32074>

NBER working papers are circulated for discussion and comment purposes. They have not been peer-reviewed or been subject to the review by the NBER Board of Directors that accompanies official NBER publications.

© 2024 by Sarah Holmes Berk, John Beshears, Jay Garg, James J. Choi, and David Laibson. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Employer-Based Short-Term Savings Accounts

Sarah Holmes Berk, John Beshears, Jay Garg, James J. Choi, and David Laibson

NBER Working Paper No. 32074

January 2024, Revised August 2024

JEL No. D14, G51

**ABSTRACT**

We study the introduction of a choice architecture design intended to increase short-term savings among employees at five U.K. firms. Employees were offered the opportunity to opt into a payroll deduction program that auto-deposits funds from each paycheck into a short-term savings account from which withdrawals are possible at any time. We find that employees who opted into the program kept using it. Among employees whose accounts were created early enough to be observed over the first 12 months after their account activation and who did not separate from employment during this period, 96% still had a balance greater than £1 and 87% received an automatic payroll contribution in month 12. However, product take-up was very low: no more than 0.7% of eligible employees ever activated an account. Opt-in access to short-term savings programs does not elicit widespread participation.

Sarah Holmes Berk

NBER

sholmes@nber.org

John Beshears

Harvard Business School

Baker Library 439

Soldiers Field

Boston, MA 02163

and NBER

jbeshears@hbs.edu

Jay Garg

Harvard University

jgarg@college.harvard.edu

James J. Choi

Yale School of Management

165 Whitney Avenue

P.O. Box 208200

New Haven, CT 06520-8200

and NBER

james.choi@yale.edu

David Laibson

Department of Economics

Littauer M-12

Harvard University

Cambridge, MA 02138

and NBER

dlaibson@gmail.com

People occasionally experience negative financial shocks, such as adverse income realizations (e.g., an unexpected spell of unemployment), depreciation of durables (e.g., a car that breaks down), or health expenses. Classical economic models predict that households understand the likelihood of such shocks and optimally prepare for them. Sometimes, they purchase insurance to offset the negative shock.<sup>1</sup> In many cases, however, insurance is unavailable or poorly priced due to adverse selection, moral hazard, or transaction costs. Households may alternatively be able to borrow to meet their spending needs. But given the high interest rates that households are charged for loans (especially those that are uncollateralized), economic theory predicts that households will at least partially self-insure by accumulating a savings buffer that can be drawn down in an emergency (Deaton, 1991; Carroll, 1992; Laibson et al., 2023).

In contrast to this prediction, many households have small or non-existent savings buffers. Thirty-seven percent of respondents in the 2019 U.S. Survey of Household Economics and Decisionmaking report that they would not be able to pay for a \$400 emergency expense using only cash, savings, or a credit card that they pay in full each month (Canilang et al., 2020). Fifty-two percent of respondents in the Survey of Consumer Finances report that in their most recent billing cycle, they rolled over credit card debt at an interest rate that strictly exceeds 5% (Lee and Maxted, 2023).<sup>2</sup> Programs that encourage increased accumulation of a savings buffer may improve financial well-being by helping households weather negative financial shocks and reduce reliance on expensive debt. By offering such programs to employees, employers might play an important role in contributing to long-term consumer welfare, a key goal of sustainable development efforts all over the world.

This chapter analyzes data from a program created to help individuals accumulate larger savings buffers by offering employer-based short-term (completely liquid) savings accounts. Employees of five organizations in the United Kingdom had the opportunity to direct part of each paycheck into a dedicated savings account at a building society, which is a member-owned deposit-taking financial institution similar to a U.S. credit union. Once an employee had opted into the short-term savings program, the same payroll deduction automatically repeated for future pay cycles until the employee turned off the contributions, chose a different contribution amount, or

---

<sup>1</sup> Households might also have access to social insurance programs, such as unemployment insurance, that reduce the impact of negative shocks.

<sup>2</sup> This analysis includes the cross-sectional surveys from 2013, 2016, and 2019.

separated from their employer. Automatic continuation promotes savings by simplifying saving and/or by leveraging employee inertia (Madrian and Shea, 2001; Choi et al., 2002; Choi et al., 2004; Beshears et al., 2008).

An employee could make withdrawals from their short-term savings account at any time, but because the short-term savings account was separate from the employee's regular transaction account, the balances in the short-term savings account were potentially earmarked as belonging to a distinct "mental account," helping employees avoid using the funds for everyday spending (Thaler, 1985; Soman and Cheema, 2011). Note that the savings account program did not fundamentally alter the savings opportunities available to employees because they could always save in liquid accounts outside the program. However, the program was designed to alter the choice architecture—the elements of the environment that potentially influence decisions without changing the available options themselves (Thaler and Sunstein, 2008)—associated with savings decisions.<sup>3</sup>

We find that over the first three years after the short-term savings program was introduced, take-up of the program was low: less than 0.7% of eligible employees ever had an active account. This is a high estimate, originating from the 542 accounts that ever had a balance greater than £1 divided by the estimated total eligible workforce at a single point in time of 79,500. It does not factor in turnover, which increases the number of ever-eligible employees. (We do not observe data on eligible employees, only on program users.) We consider an account active when it has a balance greater than £1 and its owner is still employed by the firm; a balance below this threshold requires the user to close their account.<sup>4</sup> However, most employees who signed up for an account continued to use their account. Among employees whose accounts were created early enough to be observed over the first 12 months after their account activation and who did not separate from employment during this period, 87% made an automatic payroll contribution in month 12.

Many employees took withdrawals from their accounts. Twelve months after account creation, 63% of accounts created early enough to be observed over the first 12 months after their account activation and who did not separate from employment during this period had made at least

---

<sup>3</sup> For further discussion of the design of employer-based short-term savings accounts, see Beshears et al. (2020).

<sup>4</sup> Employees were allowed to keep their account open upon separation from the participating employer, although continued payroll contributions would be impossible unless they were rehired at another participating employer. We lose sight of separated employees in our data, and therefore do not consider them "active" after their separation date. Of our sample employees, 6.4% separate during our sample period.

one withdrawal; 22% of these accounts experienced a withdrawal in month 12 itself. Employees are heterogeneous in how they used their short-term savings accounts. Some employees made ad hoc (not from payroll) contributions; others did not. Some employees saved only small amounts in their accounts before initiating partial or full withdrawals, whereas other employees accumulated balances of £1,000 or more before initiating withdrawals.

In Section I of this chapter, we review empirical evidence documenting that many households in the United States and in the United Kingdom have small savings buffers. Section II presents the empirical analysis of take-up and utilization of the short-term savings account program. Section III concludes and offers suggestions for future research.

## **I. Evidence on Small Savings Buffers**

Classical economic models predict that households should build savings buffers to insure themselves at least partially against negative shocks (Deaton, 1991; Carroll, 1992). However, many households in the U.S. and U.K. have small or non-existent buffers. We first summarize evidence from the U.S. before proceeding to discuss evidence from the U.K.

### *I.A. Evidence from the United States*

Every three years, the Board of Governors of the Federal Reserve System conducts the Survey of Consumer Finances (SCF), which compiles a detailed view of the balance sheets of a representative sample of U.S. households.<sup>5</sup> Table 1 contains results from the 2019 SCF on the distribution of household net worth. Our methodology replicates the methodology used by Beshears et al. (2018) to study the 2016 SCF. See the Appendix of Beshears et al. (2018) for a detailed description of the methodology.

For a series of age groups, Table 1 shows the 25th, 50th, and 75th percentiles of three different measures of net worth. NW1 is a narrow measure of net worth that includes only liquid assets and liabilities. It is defined as financial assets excluding retirement accounts and whole life insurance minus debt excluding student loans and collateralized loans. NW2 is a broader measure of net worth, defined as financial assets excluding whole life insurance minus debt excluding collateralized loans. NW3 is our broadest measure of net worth, defined as all assets measured by

---

<sup>5</sup> Obtaining a representative view of U.S. households requires adjusting for the SCF sample weights. We perform this adjustment in our analyses.

the SCF minus all debt measured by the SCF.<sup>6</sup> It is challenging to make tight linkages between theoretical constructs and empirical measures in this setting, but one might think of NW1 and NW2 as related to the theoretical construct of a savings buffer, whereas NW3 provides additional information about total net worth.<sup>7</sup>

NW1, our first measure of net worth, includes only highly liquid assets that are well suited for handling small and moderate-sized negative liquidity shocks. Liquid assets include financial holdings such as cash, checking and savings account balances at banks and credit unions, and brokerage account balances. These holdings can be accessed for immediate spending with little or no advance notice and at minimal or zero financial cost. If a household must cover the cost of repairs to a car, for example, liquid assets are likely the first resource that would be utilized.

NW1 subtracts liquid liabilities from liquid assets. Liquid liabilities include uncollateralized debts such as credit card borrowing and personal loans. It is easy to draw on these lines of credit on short notice in an emergency. To the extent a household is already borrowing on these accounts, its ability to cover the costs of a negative shock is hindered by reduced borrowing capacity. Furthermore, standard economic theory predicts that households wish to build up savings buffers so that they can reduce their reliance on high-interest debt after a negative shock.

Table 1 reports percentiles for NW1. For all age groups, the 25th percentile of NW1 is negative, meaning that liquid liabilities exceed liquid assets. Households at the 50th percentile of the NW1 distribution do have savings buffers, but these buffers are small. The 50th percentile is \$1,427 for the 21-30 age group and \$956 for the 31-40 age group, and then it rises steadily to \$4,977 for the 61-70 age group. These amounts are sufficient for covering the costs of a small shock, such as a car breaking down and needing minor repairs, but insufficient for fully covering the costs of a medium-sized shock, such as an unemployment spell for the household's primary earner. Households at the 75th percentile of the NW1 distribution have substantially larger savings buffers, ranging from \$10,182 for the 21-30 age group to \$78,360 for the 61-70 age group.

Relative to NW1, NW2 expands the set of assets and liabilities that are included in the calculation. To the list of assets, NW2 adds retirement account balances, which are not as liquid as bank account balances but are nonetheless partially liquid in the U.S. When an individual holds

---

<sup>6</sup> The SCF does not measure future labor income, future pension benefits, or future Social Security benefits.

<sup>7</sup> Appendix Table 1 summarizes the distribution of the asset side of NW1, NW2, and NW3 for each age group. Appendix Table 2 provides the analogous summary for the liability side.

a balance in the defined contribution plan of their current employer (e.g., a 401(k) plan), they often have the option of borrowing against their own balance. The individual might also have the option of withdrawing their plan balance, but such withdrawals sometimes require certification of a financial hardship and often incur a 10% tax penalty before age 59½. An individual who leaves their employer can withdraw the entire balance of their employer-sponsored retirement account for any reason, although these withdrawals usually incur a 10% tax penalty before age 59½. Individual retirement account (IRA) balances are also always withdrawable, albeit often with a 10% tax penalty before age 59½.

On the liability side, NW2 differs from NW1 in that NW2 also subtracts student loans in the calculation of net worth.

Table 1 shows that the 25th percentile of NW2 is -\$12,764 for the 21-30 age group and smaller in magnitude but still negative for the 31-40 and 41-50 age groups. For the older age groups, the 25th percentile is positive but very small: \$50 for 51-60 age group and \$218 for the 61-70 age group. In contrast to NW1, NW2 suggests that the 50th percentile of savings buffers increases substantially with age, from \$376 for the 21-30 age group to \$32,361 for the 61-70 age group. The median older household has a retirement account balance that it can use to cover the costs of a negative shock. The 75th percentile of NW2 increases even more sharply in absolute dollars with age, rising from \$12,131 for the 21-30 age group to \$329,908 for the 61-70 age group.

NW3 expands the calculation of net worth to include all assets and liabilities measured by the SCF. Relative to NW2, NW3 adds whole life insurance and non-financial assets to the asset side of the calculation. These assets are not well suited for covering the costs of small and medium-sized negative shocks. Whole life insurance policies are complex financial contracts that bundle insurance against early death with a savings product. Individuals can borrow against balances that they have accumulated in a whole life insurance policy or withdraw those balances, but those transactions involve delays and can also be costly, for example because they risk forfeiture of the component of the policy insuring against early death. Non-financial assets, such as homes and vehicles, are even more illiquid. The process of finding a buyer for such an asset often involves substantial transaction costs (e.g., broker fees), and the time that elapses between the initiation of the process and its conclusion lasts days, weeks, or even months.<sup>8</sup> Furthermore, selling these assets is generally inconvenient; a household that sells its home must find an alternative place to live,

---

<sup>8</sup> A seller who attempts to speed up the process must often accept a lower price.

and a household that sells its car must find an alternative means of transportation. Thus, selling non-financial assets to cover a negative shock is costly, and a household will be reluctant to pursue this path unless it has exhausted other options.

Relative to NW2, NW3 adds collateralized loans (i.e., mortgages and auto loans) to the liability side of the net worth calculation.

Table 1 reveals that household total net worth, as measured by NW3, follows a different pattern over the lifecycle than NW1 or NW2. At the 25th percentile of the distribution, no age group has a large value of NW1 or NW2. In contrast, the 25th percentile of the NW3 distribution is -\$2,272 for the 21-30 age group and then grows steadily with age to reach \$46,304 for the 61-70 age group. The 50th and 75th percentiles of the NW3 distribution also grow steadily with age. The 50th percentile is \$9,010 for the 21-30 age group and \$250,623 for the 61-70 age group. The 75th percentile is \$60,107 for the 21-30 age group and \$785,462 for the 61-70 age group.

To summarize the evidence from the 2019 SCF, the 75th percentiles of NW1, NW2, and NW3 increase substantially with age. However, savings buffers are non-existent for all ages at the 25th percentile under both NW1 and NW2 measures, and modest for all ages at the 50th percentile under the NW1 measure, whereas the 25th and 50th percentiles of total net worth (NW3) increase substantially with age.

One psychological explanation for these patterns is present bias (Laibson, 1997). Present-biased households' preferences feature high short-run discount rates but low long-run discount rates. Households with these preferences are highly impatient in the short run and therefore spend most of their liquid assets on immediate consumption and possibly go into debt using, for example, credit cards. At the same time, the long-run patience of these households means that they still wish to save for the future, and they do so using illiquid assets, which are not drawn down to fund immediate consumption because it is costly or impossible to spend them for this purpose (Laibson, Repetto, and Tobacman, 2003; Laibson et al., 2023; Lee and Maxted, 2023). Beyond present bias, other possible mechanisms behind low levels of liquid wealth accumulation include overoptimism about one's financial situation in the near future (Bhargava and Conell-Price, 2022), a failure to appreciate the frequency of major expenses (Sussman and Alter, 2012), and mental accounting heuristics that earmark current income for current spending (Shefrin and Thaler, 1988).

The evidence on savings buffers from the 2019 SCF aligns with data from other U.S. sources. The annual Survey of Household Economics and Decisionmaking, which is also



conducted by the Board of Governors of the Federal Reserve System to obtain a representative view of U.S. households, asks respondents what resources they would use to cover an unexpected \$400 expense. In the 2019 edition of the survey, 37% of respondents indicated that they would not cover the expense using only cash, savings, or a credit card that they pay in full each month. Instead, they would use approaches such as paying with a credit card and carrying a balance on that card (15% of respondents); borrowing from family or friends (10%); selling possessions (7%); using a bank loan or line of credit (3%); or using a payday loan, deposit advance, or overdraft (2%).<sup>9</sup> Twelve percent of respondents indicated that they would be unable to cover the \$400 expense. When asked about their ability to pay their monthly bills, 16% of respondents said that they did not expect to pay all of their bills in that month, and an additional 12% said that an unanticipated \$400 expense would prevent them from paying all of their bills in that month. Black respondents and Hispanic respondents more frequently reported difficulties paying their monthly bills.<sup>10</sup> Lee and Maxted (2023) report that 52% of households carry high-cost credit card debt (defined as having an interest rate exceeding 5%).

### *I.B. Evidence from the United Kingdom*

Like households in the United States, many households in the United Kingdom report that they would find it difficult to handle a small- or medium-sized emergency expense. Nest Insight<sup>11</sup> conducted a series of surveys between May 2019 and May 2021 to understand the financial situations of U.K. workers. It invited two groups to participate in the web-based survey: employees of the five organizations that introduced employer-based short-term savings accounts, and individuals who had retirement savings plans administered by Nest Corporation. Email invitations were sent to approximately 79,000 employees from the first group, of whom 2,916 completed the survey for a response rate of 3.7%, and to approximately 1.5 million individuals from the second group, of whom 43,074 completed the survey for a response rate of 2.9%. Of this latter set of responses, 38,045 (88%) were from individuals who reported that they worked full-time or part-time. In our subsequent analyses, we pool these employed and self-employed individuals with the

---

<sup>9</sup> Respondents could choose more than one of these options.

<sup>10</sup> The statistics in this paragraph are reported by Canilang et al. (2020). The results are similar in the 2021 edition of the Survey of Household Economics and Decisionmaking, although respondents were somewhat better able to handle a \$400 expense and their monthly bills in 2021 than in 2019 (Lloro et al., 2022).

<sup>11</sup> Nest Insight is a public-benefit research and innovation center within Nest Corporation, which is a U.K. public corporation that was established to administer employer-based defined contribution pension plans.

employees of the five organizations that introduced employer-based short-term savings accounts, and drop responses from retired and unemployed respondents. The responses that we analyze cannot be taken to be representative of the U.K. population because of the selection bias in survey response.<sup>12</sup>

Table 2 shows the distribution of non-pension savings amounts, as measured by responses to a pair of prompts: “Does your household have any money set aside that you consider savings? (Please exclude any money saved in a pension.)” and “Please approximate your total level of savings. (Please exclude any money saved in a pension.)” Of the workers who answered these questions, 28% of respondents reported £50 or less in non-pension savings; 6% reported £51–£250; 10% reported £251–£999; 37% reported £1,000 or more; and 19% indicated that they preferred not to say or were unsure. Non-pension savings were lower for women; lower for young and middle-aged respondents; lower for less educated respondents; lower for single, not co-habiting, divorced, separated, and widowed respondents than for respondents who are married, in a civil union, or co-habiting; lower for respondents with dependent children; lower for lower-income respondents; and lower for respondents whose income varies somewhat or a lot from month to month than for those whose income is about the same each month. Non-White respondents and respondents of multiple ethnicities had lower non-pension savings than White respondents.

Table 3 summarizes answers to a question asking respondents how they would handle an unexpected £300 expense.<sup>13</sup> Fifty-six percent of respondents indicated that they would cover the expense using their current income or their savings, and 17% indicated that they would cover the expense by cutting back spending on essentials without using savings. Together, these two groups constitute 73% of the sample, which is comparable to the 63% of respondents in the 2019 U.S. Survey of Household Economics and Decisionmaking who reported that they would cover an unexpected \$400 expense using only cash, savings, or a credit card that they pay in full each month (Canilang et al., 2020).<sup>14</sup> Of the remaining 27% of the U.K. survey sample, the most popular source

---

<sup>12</sup> Some individuals were recontacted and asked to respond to additional surveys. We report only responses to the baseline survey.

<sup>13</sup> At the average exchange rate prevailing in 2019, £300 was approximately equivalent to \$383, similar to the size of the hypothetical unexpected expense in the Survey of Household Economics and Decisionmaking. <https://www.macrotrends.net/2549/pound-dollar-exchange-rate-historical-chart>, accessed January 1, 2023.

<sup>14</sup> In the 2021 Survey of Household Economics and Decisionmaking, the percentage rose from 63% to 68% (Lloro et al., 2022).

of funds for handling the unexpected £300 expense was credit (13% of the overall sample), followed by family or friends (5%) and proceeds from the sale of items (1%). A small percentage (5%) of respondents said that they would not be able to handle the expense, and a smaller percentage (3%) indicated that they preferred not to say or didn't know. The pattern of responses to this question across different sociodemographic groups is generally consistent with the pattern for the questions regarding non-pension savings. The percentage of respondents saying that they would cover an unexpected £300 expense using their current income or savings was lower among women; lower among younger and middle-aged respondents; lower among Blacks and respondents of multiple ethnicities than among Whites and Asians; lower among less educated respondents;<sup>15</sup> lower among single, not co-habiting, divorced, separated, and widowed respondents than among respondents who are married, in a civil union, or co-habiting; lower among respondents with dependent children; lower among lower-income respondents; and lower among respondents with income that varies somewhat or a lot from month to month than among those with income that is about the same each month.<sup>16</sup>

Overall, U.K. workers that responded are roughly similar to SCF-surveyed U.S. households in that a substantial minority (perhaps 44%) have small savings buffers and would face challenges covering a minor emergency expense. The evidence from the U.S. and U.K. motivates the creation of employer-based short-term savings accounts that are designed to help workers build savings buffers.

## **II. Initial Evidence on Employer-Based Short-Term Savings Accounts**

This section presents data on the short-term savings program offered to employees of five organizations in the U.K. Employees were invited via email, paper materials, and/or an online employee dashboard to sign up online to have some of their paycheck deducted into a savings account on a recurring basis. The sign-up process and paycheck deductions were facilitated by

---

<sup>15</sup> The exception is respondents with no formal qualifications, who were more likely to use their current income or savings than respondents with a G.C.S.E. level education and respondents with a technical or professional qualification.

<sup>16</sup> Of the 7,454 respondents who answered "Prefer Not to Say" or "Unsure" when prompted to estimate their level of non-pension savings and also answered the question about unexpected expenses, 60% would cover an unexpected £300 bill with current income or savings, 18% by cutting back on essentials, 8% by utilizing credit, 3% by getting money from family or friends, and 0.4% by selling items. The percentage who would be unable to pay the expense was 2%, and 9% preferred not to answer or didn't know how they would cover the expense. This group thus seems to have somewhat greater non-pension savings than the group who provided an estimate of their non-pension savings.

Salary Finance, a company that provides employee benefits related to payroll. After completing the sign-up process, employees were transferred to the website of a U.K. building society to finish creating the short-term savings account into which payroll deductions would be deposited. The entire process of signing up and creating an account took an employee approximately 15 minutes.<sup>17</sup>

During the sign-up process, employees elected a savings goal and a contribution amount, both of which could be changed at any time.<sup>18</sup> After the employee completed the sign-up process and the account creation process, payroll contributions flowed to the short-term savings account housed at the building society. If an employee reached their savings goal, payroll contributions were redirected to the employee's account in their employer's retirement savings program. If the employee was already contributing to this pension account, the redirected payroll contributions represented incremental additional savings. If the employee then withdrew funds from their short-term savings account, causing the balance to drop below their goal, contributions once again flowed to the short-term account. At all companies, employees were also able to make ad hoc (one-off) contributions to their short-term account by transferring funds from a different financial account.<sup>19</sup> The building society paid interest on short-term account balances, with annual rates ranging from 0.20% to 1.10% during the study period.<sup>20</sup>

Employees were permitted to withdraw short-term account balances at any time. Funds could be transferred to a different account (either within the building society or at a different financial institution) using the building society's website or app, by calling the building society,

---

<sup>17</sup> The benefits provider and the building society performed additional checks, including know-your-customer and anti-money-laundering checks, in the subsequent weeks.

<sup>18</sup> Some employees were shown a randomly assigned default savings goal or contribution amount. At all employers, these default savings goals were £1,000 or £1,500. At Employers A, B, and D, these default contribution amounts were £20 or £60 per monthly paycheck. At Employers C and E, these default contribution amounts were £40 or £120 per monthly paycheck. Due to technical constraints, some (non-randomly assigned) employees were shown defaults of £0 for both the savings goal and the contribution amount. In all cases, employees were free to deviate from the defaults. Because of small sample sizes, we do not evaluate the effects of the defaults.

<sup>19</sup> Employees were not blocked from making ad hoc contributions that caused them to exceed their savings targets. As a result, balances sometimes exceeded targets.

<sup>20</sup> We study administrative data collected between July 2019 and August 2022. When the savings program was launched in July 2019, the building society allowed savers to choose to receive interest on a monthly or annual basis. The building society informed us that most savers chose annual interest, but we do not observe this choice in our data. Beginning in July 2021, the monthly option was not offered to new accounts. Customers were also given the option to have interest from their account paid into another account.

or by visiting a local branch. Through 2021, accountholders who chose to receive an automated teller machine (ATM) card could also withdraw funds at an ATM.<sup>21</sup>

As shown in Table 4, the five employers that introduced the savings program varied significantly in the size of the employee population eligible for the program. At one end of the range, employers B and D had eligible workforces of approximately 1,500 each.<sup>22</sup> At the other end, employer C had a workforce of approximately 67,000. The employers also represented several different sectors: retail, education, telecommunications, charity, and media. In addition, responses to the survey described in Section I.B suggested that the characteristics of the employee populations varied widely across the employers.<sup>23</sup> The employer with the highest percentage of survey respondents who were female was employer B, at 72%. The employer with the lowest percentage was employer C, at 13%. Employer B had the youngest sample of survey respondents, with 53% under the age of 34 and 18% over the age of 50. Employer C had the oldest sample of survey respondents, with 32% under the age of 34 and 26% over the age of 50. The samples of respondents at employers A and B had relatively low incomes, with 89% and 93%, respectively, having annual gross income below £30,000. Employer D's sample also had low incomes, with 73% of respondents having annual gross income below £30,000. At employers C and E, only 28% and 16% of respondents, respectively, had annual gross incomes below £30,000.

To study short-term savings program participation, contributions, withdrawals, and balances, we use individual-level administrative data for July 2019–August 2022 from the benefits provider Salary Finance. We observe the date and amount of every payroll deduction that was part of the savings program, as well as whether the deduction was directed to the short-term savings account or the pension account. For every time the balance in a short-term savings account changed, we observe the date and the new balance.<sup>24</sup> The combination of payroll deductions and

---

<sup>21</sup> In August 2021, the building society stopped offering ATM cards with new savings accounts. In January 2022, the building society stopped offering ATM functionality on all savings accounts. The building society reports that 15% of the withdrawals they observe in their data were made via ATM. We do not observe the withdrawal channel in our data.

<sup>22</sup> At employer B, eligibility for the savings program was limited to custodial workers, so the size of the total employee population was larger.

<sup>23</sup> Recall that the survey samples were not representative of the employee populations at the five employers. The responses may nonetheless be informative.

<sup>24</sup> In general, payroll deductions into a short-term savings account are only reflected as a recorded balance change after a delay of a few days, and in these cases, we code the balance increase as having taken place on the date of the deduction. For dates on which we do not observe a balance change or payroll deduction, we infer that the balance remained constant. In addition, we observe 175 instances across 82 accounts where there was a payroll deduction

balance changes allows us to infer withdrawals and ad hoc contributions. Based on guidance from the building society, negative balance changes are considered withdrawals if the magnitude of the change exceeds £5. Other negative balance changes are considered administrative account adjustments (e.g., to correct accounting errors or to transfer interest earnings as described in footnote 20).

We do not have enough information to precisely distinguish between ad hoc contributions and interest earnings, but we use the following procedure to approximately identify ad hoc contributions. First, we identify all positive balance changes that are associated with payroll deductions, and we drop these balance changes from consideration. For each remaining positive balance change, we calculate the account's rolling average balance over the prior year and multiply it by the annual interest rate in effect at that time. This is the amount of interest that the employee would earn if they received an annual interest payment. This is also an upper bound on the amount of interest that the employee would earn if they received a monthly interest payment. If the positive balance change is above this threshold and above £10 (a cutoff suggested by the building society), it is considered an ad hoc contribution. The other positive balance changes are considered interest earnings or administrative account adjustments.

### II.A. Participation in the Short-Term Savings Program

For each of the five employers, Figure 1 shows the percentage of eligible employees who had an active short-term savings account in each calendar month. We consider an account active in a given month if it had a balance above £1 at any time during that month and had not yet been marked as inactive due to separation from the employer<sup>25</sup> or the employee's decision to close the account.<sup>26</sup> The number of eligible employees is an estimate provided by Nest Insight, based on

---

greater than £1 but the next directly observed balance was less than or equal to £1. We interpret these to be situations where the individual canceled or withdrew the deduction before it was fully processed.

<sup>25</sup> Employees were allowed to keep their account open upon separation from the participating employer, although continued payroll contributions would be impossible unless they were rehired at another participating employer. We lose sight of separated employees in our data and therefore remove them from our sample.

<sup>26</sup> For 38 accounts that were marked as inactive due to separation from the employer or the employee's decision to close the account, the last directly observed balance is greater than £1. We consider these accounts inactive starting on the date they were marked as such. Out of these 38 accounts, 27 were marked as inactive due to separation from the employer. These accounts drop out from our data set after separation, but they may have retained balances greater than £1 beyond this point. The benefits provider informed us that a backend error caused many accounts to be erroneously closed on a specific date in the fall of 2021. These accounts were immediately restored upon discovery of the error. We ignore data indicating that an account became inactive on this date.

conversations with the employers. The data series for each employer is plotted starting in the month when the employer first made the savings program available to employees. The path of the participation rate over time since program introduction is similar across the five employers. By the end of the sample period (August 2022), which is 15–38 months after program introduction, all employers had between 0.53% and 1.14% of eligible employees participating in the program. Across the entire sample of employers, no more than 0.7% of eligible employees ever activated an account. As noted above, this is a high estimate because it reflects the number of activated accounts (542) divided by the number of eligible employees at a single point in time (79,500). It does not account for turnover, which would increase the number of employees ever eligible.

There are many potential explanations for why take-up of the short-term savings program was low. First, a substantial fraction of employees already had the ability to handle small, unexpected expenses. Table 3 suggests that 56% of the employees had the capacity to cover an unexpected £300 expense using their current income or savings without cutting back on essentials.<sup>27</sup> However, Table 3 also suggests that 44% of employees would face challenges covering an unexpected £300 expense (for example, because they would cut back on essential spending or would incur debt), and a savings program participation rate of only 0.6%–1.3% suggests that many employees who might benefit from the program are not participating in it.

A second possible explanation for low program take-up is low awareness of the program. However, this explanation is unlikely to be a primary reason for low take-up. Employer C undertook a major communications campaign advertising the program to employees during the fourth quarter of 2020, and the participation rate only rose from 0.07% in September 2020 to 0.31% in January 2021. Additionally, in subsequent surveys conducted by Nest Insight, roughly half of surveyed employees reported they were aware of the savings program (Kuipers et al., 2023).

A third possible explanation for low program take-up is present bias. Present-biased employees might procrastinate in program enrollment (Carroll et al., 2009). A related explanation is that employees might feel financially constrained and therefore unable to increase their savings buffers starting immediately, while planning to increase their savings buffers in the near future

---

<sup>27</sup> Recall that the sample used for this calculation is not representative of the employee populations at the five employers. The calculation is nonetheless helpful for obtaining an approximate estimate of the percentage of employees with a savings buffer.

(Bhargava and Conell-Price, 2022; Laibson et al., 2023; Lee and Maxted, 2023). We will discuss choice architecture techniques that might increase savings program participation in Section III.

Figure 2 shows the number of accounts with balances greater than £1 that we observe at each account age, separately by employer. This count shrinks with account age, in large part because accounts that are opened later in calendar time are observed for a shorter amount of time before our sample period ends in August 2022. Employer C has by far the largest eligible employee population, so its employees dominate the pooled sample. The number of accounts with a balance greater than £1 at employer C drops precipitously after 20 months of account age because most accounts at employer C were created in December 2020 (see Figure 1)—after the “full launch” of the program at the company in October 2020 that followed the “soft launch” in March 2020—and therefore reached 20 months of account age in August 2022, the last month of our sample period. In our [Internet Appendix](#) figures, we truncate the horizontal axis at 20 months of account age because the number of accounts with balances above £1 drops by nearly half at that point, with employer C accounting for almost the entire decrease. The sharp change in the composition of the sample of accounts with balances exceeding £1 might produce misleading results if we were to track outcomes beyond 20 months of account age.

Figure 3 shows four sample sizes observed at each account age, pooling across the five employers. Our main analyses in this chapter focus on the subsample of 356 “ever active” employees whose accounts were created early enough to be observed over the first 12 months after their account activation and who did not separate from employment during this period. (In other words, we exclude from our subsample accounts created less than a year before data collection ended in August 2022, as well as accounts owned by employees who separated from employment within 12 months of creating their account.) In month 12, 96% of our subsample accounts had a balance greater than £1 and therefore were considered active. Our Internet Appendix figures plot outcomes for all currently active accounts (i.e., those owned by still-employed individuals and with a balance greater than £1) created early enough to be observed at a given account age in the range 0-20 months.

### *II.B. Contributions to the Short-Term Savings Program*

We now turn to an analysis of employee contribution decisions. First, we examine the frequency of contributions via payroll deduction and the frequency of ad hoc contributions among



employees whose accounts were created early enough to be observed over the first 12 months after their account activation and who did not separate from employment during this period. Figure 4 shows that in the pooled sample of five employers, the percentage of accounts that received a payroll contribution during the month was above 83% in each of months 0–12 of account age and above 90% in each of months 1–6.<sup>28</sup> Recall that employees who reached their short-term savings target had their payroll contributions automatically redirected to their retirement savings accounts. Figure 4 reveals that also including redirected payroll contributions to retirement accounts slightly increases the percentage of accounts that received payroll contributions; 87% of accounts received a non-redirected or redirected payroll contribution in month 12. Finally, Figure 4 shows that in month 0 of account age, 15% of accounts received an ad hoc contribution, while in each of months 1–12 of account age, less than 8% of accounts received an ad hoc contribution.<sup>29</sup> Figure 4 indicates that a large fraction of unseparated employees who activated a short-term savings account continued to contribute to it on a regular basis over the following 12 months.

Figure 5 displays the distribution of the size of payroll contributions to the short-term savings account, conditional on having such a contribution, by account age. At 0 months of account age, the 10th percentile of contribution size is £25; the 25th percentile is £50; the 50th percentile is £60; the 75th percentile is £100; and the 90th percentile is £200. The 10th, 25th, and 90th percentiles remain approximately constant for the next 12 months of account age, while the 50th and 75th percentiles increase in later months. At 12 months of account age, the 10th, 25th, 50th, 75th, and 90th percentiles are £20, £50, £75, £150, and £200, respectively. Thus, Figure 5 reveals that almost all employees who consistently contributed to their short-term savings account would have enough contributions in the first year after account activation to reach £300 in cumulative contributions, which is the size of the minor emergency spending need that was used in the survey of U.K. workers (see Section I.B). Many employees contributed much more.

Figure 6 shows that the size of ad hoc contributions varied substantially. For comparability with the size of contributions via payroll deduction, which occurred on a monthly basis, we examine the sum of all ad hoc contributions that an employee made within a month. Conditional

---

<sup>28</sup> All five employers paid employees on a monthly basis. At employer E, there were two pairs of consecutive months during which employees participating in the savings program had two payroll contributions occurring during the first month within a pair and no payroll contributions occurring during the second month within a pair. We recode the data so that each month within a pair has one payroll contribution.

<sup>29</sup> During the account creation process, the building society prompted new savers to fund their new account by transferring in funds. We believe this explains the high number of ad hoc contributions in month 0.

on having an ad hoc contribution in a given month, the 10th, 25th, and 50th percentiles of monthly ad hoc contributions were generally in the ranges £10-£50, £30-£130, and £100-£200, respectively. The 75th percentile frequently exceeded £500. The 90th percentile frequently exceeded £1,000 and sometimes exceeded £2,000. There is not an easily discernible trend as account age increases.

Figure 7 shows that payroll deductions were generally the largest source of inflows to the short-term savings accounts. At the 10th and 25th percentiles, payroll deductions account for 65% and 97% of total account inflows, respectively, cumulated over months 0-12. By the 50th percentile, payroll deductions account for 100% of total account inflows. The combination of Figures 4, 6, and 7 indicates that ad hoc contributions were a non-existent or minor source of short-term savings for the vast majority of employees.

### II.C. Withdrawals from Short-Term Savings Accounts

Short-term savings accounts are designed to allow individuals to easily access their balances when spending needs arise. Figure 8 shows the percentage of accounts that had a withdrawal in a given month, by account age. Again, our sample includes employees whose accounts were created early enough to be observed over the first 12 months after their account activation and who did not separate from employment during this period. At 0 months of account age, 9% of these accounts had a withdrawal. This percentage rose over the first few months of account age and then stabilized in the 19%–26% range through 12 months of account age. Because examining withdrawals by account age might mask seasonal patterns, Figure 9 shows the percentage of these accounts that had a withdrawal in each month of the calendar year. The data do not exhibit clear seasonality.<sup>30</sup>

Figure 10 shows the percentage of accounts that, as of a given account age, had experienced at least  $X$  withdrawals, where  $X$  is 1, 2, or 3. For this calculation, we take the perspective that multiple withdrawals by an employee within the same month might all be related to the same reason for withdrawing, so we treat an employee who made multiple withdrawals within the same month as having made a single withdrawal in that month. By 8 months of account age, half of accounts had experienced at least one withdrawal, and by 12 months of account age, 63% of accounts had experienced at least one withdrawal. Half of accounts had experienced at least two

---

<sup>30</sup> Our data on account balance changes, from which we deduce withdrawals, are incomplete for some employers in December 2021 and April 2022, somewhat limiting our ability to draw conclusions about seasonality.

withdrawals by 12 months of account age, and 41% had experienced at least three withdrawals by 12 months of account age. Overall, withdrawals are a common occurrence, although roughly one-third of accounts had never experienced a withdrawal by month 12.

Turning to an analysis of the size of withdrawals, we again take the perspective that multiple withdrawals by an employee within the same month might all be related to the same reason for withdrawing, so we examine the sum of an employee's withdrawals within a given month. Figure 11 shows that across the first 12 months of account age, the 10th, 25th, and 50th percentiles of monthly withdrawal size, conditional on having a withdrawal, are generally in the £25–£50 range, the £50–£90 range, and the £100–£200 range, respectively. The 75th percentile is £150 at month 0 of account age and then steadily rises over the next several months until it stabilizes in the £300–£500 range. The 90th percentile rises over several months to the £500–£1,000 range. The distribution of monthly withdrawal size is consistent with the short-term savings accounts being used to cover small to medium-sized unexpected expenses, but it is important to note that the size of a withdrawal can be driven by the available balance in the account.

To shed light on the extent to which account balances constrain the size of withdrawals, Figure 12 shows, for accounts at ages of 0–12 months, the distribution of monthly withdrawal size as a fraction of account balances, conditional on having a withdrawal. After the first few months of account age, the 10th percentile of the distribution ranges between 14% and 25%; the 25th percentile ranges between 33% and 50%; the 50th percentile ranges between 54% and 75%; and the 75th and 90th percentiles are close to 100%. Thus, for approximately a quarter of employees making a withdrawal, the account balance seems to constrain the withdrawal amount. Interestingly, employees who make these withdrawals often continue using the short-term savings account; only 4% of our subsample accounts have balances at or below £1 in month 12.

#### *II.D. Balances in Short-Term Savings Accounts*

Finally, we examine the accumulation of balances in short-term savings accounts. Figure 13 shows the distribution of account balances by account age among employees whose accounts were created early enough to be observed over the first 12 months after their account activation and who did not separate from employment during this period. Over 0–12 months of account age, the 10th and 25th percentiles of account balances are in the £18–£45 range and in the £33–£101 range, respectively. The 50th, 75th, and 90th percentiles grow steadily over the first year, reaching

£343, £945, and £1,926 in month 12, respectively. Thus, some employees build small short-term savings balances, perhaps with the intention of using those balances as a buffer against small emergency spending needs. Other employees build significantly larger balances capable of handling moderate-sized emergency spending needs.

### **III. Conclusion and Open Questions**

This chapter summarized evidence that many households do not have significant liquid savings buffers and hence have difficulty paying for small and medium-sized emergency expenses. Employers might be in a powerful position to improve long-term consumer welfare and thereby contribute to sustainable development efforts by adopting programs that encourage employees to accumulate savings buffers. We presented data on the experience of five organizations that offered employer-based short-term savings accounts to employees with this objective in mind.

Employees who signed up for these accounts frequently continued using them. Among employees whose accounts were created early enough to be observed over the first 12 months after their account activation and who did not separate from employment during this period, 96% still had a balance greater than £1 and 87% received an automatic payroll contribution in month 12 (a small fraction of which was redirected to the pension account because the short-term account's savings goal had been reached). The accounts were not used purely for accumulation, as 63% of accounts had taken at least one withdrawal by month 12. Over the first 12 months after account activation, the 25th percentile of account balances hovered around £100 or less, whereas the 75th percentile of balances grew to exceed £900. However, no more than 1.2% of any employer's eligible employees had a short-term savings account with a balance greater than £1 in a given month, and we estimate that no more than 0.7% of all eligible employees ever activated an account. This is a high estimate, because we do not observe data on eligible employees, only on participants. After accounting for employee turnover, the take-up rate among all ever-eligible employees is likely much lower.

An important open question is whether alternative choice architecture designs would generate greater savings account take-up. One technique that might increase take-up is a requirement that each employee make an active choice between enrolling and not enrolling in a short-term savings program, rather than being able to stay passively unenrolled. When individuals are not allowed to postpone making an affirmative positive or negative enrollment decision, many

who would have passively stayed unenrolled instead decide to enroll (Carroll et al., 2009; Beshears et al., 2021). Another choice architecture design for increasing take-up is automatic enrollment. Prior research has shown that automatic enrollment in retirement savings plans causes large increases in plan participation rates (Madrian and Shea, 2001; Choi et al., 2002; Choi et al., 2004; Beshears et al., 2008), and early evidence from one U.K. employer suggests that automatic enrollment of new employees into a short-term savings program generated a 50 percentage point increase in the take-up rate at four months of tenure relative to an opt-in system (Berk et al., 2024). Additional evidence on automatic enrollment in short-term savings programs will eventually be available from the U.S., as the SECURE 2.0 Act of 2022 permits employers to automatically enroll employees in short-term savings accounts established within the legal structure that was originally created for retirement savings plans (i.e., the Employee Retirement Income Security Act of 1974).

In addition to studying the impact of a variety of choice architecture designs on short-term savings account take-up, it would be valuable for future research to examine other design features of short-term savings programs. For example, when employees opt into a savings program, the employer can suggest an amount of money for the employee to deduct from their future paychecks and direct to the short-term account. Higher suggested amounts might increase account contributions, but on the other hand might discourage account enrollment. A similar issue arises if employees are automatically enrolled in the savings program: does a higher default contribution amount increase average account contributions or prompt employees to opt out of the program entirely? Future research should also analyze withdrawal features of short-term accounts. The accounts studied in this chapter permitted withdrawals at any time and for any reason. How much would small frictions in the withdrawal process, such as a delay of two days from the time a withdrawal request is made to the time the withdrawn funds are available, successfully curb impulsive, ill-advised withdrawals, and how much would such frictions deter enrollment and prevent employees who do enroll from using their short-term account balances to cover the costs of true emergency expenses?

Finally, future research should investigate whether employer-based short-term savings accounts help households cope with negative financial shocks. Beyond measuring whether the accounts increase the likelihood that households handle unexpected emergency expenses using savings balances, it would be valuable to study whether the accounts decrease household debt, increase household net worth, mitigate financial stress, and even enhance workplace productivity.

## References

- Berk, S. H., Choi, J. J., Garg, J., Beshears, J., & Laibson, D. (2024). Automating short-term payroll savings: Initial evidence from two large U.K. experiments. NBER Working Paper No. 32581. <https://doi.org/10.3386/w32581>
- Beshears, J., Choi, J. J., Iwry, J. M., John, D. C., Laibson, D., & Madrian, B. C. (2020). Building emergency savings through employer-sponsored rainy-day savings accounts. *Tax Policy and the Economy*, *34*, 43–90. <https://doi.org/10.1086/708170>
- Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. (2008). The importance of default options for retirement saving outcomes: Evidence from the United States. In S. J. Kay & T. Sinha (Eds.), *Lessons from pension reform in the Americas* (pp. 59–87). Oxford University Press.
- Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. (2018). Behavioral household finance. In B. D. Bernheim, S. DellaVigna, & D. Laibson (Eds.), *Handbook of behavioral economics: Foundations and applications 1* (pp. 177–276). Elsevier. [https://doi.org/10.1016/S2352-2399\(18\)30012-5](https://doi.org/10.1016/S2352-2399(18)30012-5)
- Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. (2021). Active choice, implicit defaults, and the incentive to choose. *Organizational Behavior and Human Decision Processes*, *163*, 6–16. <https://doi.org/10.1016/j.obhdp.2019.02.001>
- Bhargava, S., & Conell-Price, L. (2022). Serenity now, save later? Evidence on retirement savings puzzles from a 401(k) field experiment. Working paper.
- Canilang, S., Duchan, C., Kreiss, K., Larrimore, J., Merry, E., Troland, E., & Zabek, M. (2020). *Report on the economic well-being of U.S. households in 2019, featuring supplemental data from April 2020*. Board of Governors of the Federal Reserve System.
- Carroll, C. D. (1992). The buffer-stock theory of saving: Some macroeconomic evidence. *Brookings Papers on Economic Activity*, *1992*(2), 61–156.
- Carroll, G. D., Choi, J. J., Laibson, D., Madrian, B. C., & Metrick, A. (2009). Optimal defaults and active decisions. *Quarterly Journal of Economics*, *124*(4), 1639–1674. <https://doi.org/10.1162/qjec.2009.124.4.1639>
- Choi, J. J., Laibson, D., Madrian, B. C., & Metrick, A. (2002). Defined contribution pensions: Plan rules, participant choices, and the path of least resistance. *Tax Policy and the Economy*, *16*, 67–113. <https://doi.org/10.1086/654750>
- Choi, J. J., Laibson, D., Madrian, B. C., & Metrick, A. (2004). For better or for worse: Default effects and 401(k) savings behavior. In D. A. Wise (Ed.), *Perspectives on the economics of aging* (pp. 81–121). University of Chicago Press.

- Deaton, A. (1991). Saving and liquidity constraints. *Econometrica*, 59(5), 1221–1248. <https://doi.org/10.2307/2938366>
- Kuipers, A., Phillips, J., Sandbrook, W., & Stockdale, E. (2023). *Workplace sidecar saving in action*. Nest Insight.
- Laibson, D. (1997). Golden eggs and hyperbolic discounting. *Quarterly Journal of Economics*, 112(2), 443–478. <https://doi.org/10.1162/003355397555253>
- Laibson, D., Lee, S. C., Maxted, P., Repetto, A., & Tobacman, J. (2023). Estimating discount functions with consumption choices over the lifecycle. NBER Working Paper No. 13314. <https://doi.org/10.3386/w13314>
- Laibson, D., Repetto, A., & Tobacman J. (2003). A debt puzzle. In P. Aghion, R. Frydman, J. Stiglitz, & M. Woodford (Eds.), *Knowledge, information, and expectations in modern macroeconomics: In honor of Edmund Phelps* (pp. 228–266). Princeton University Press.
- Lee, S. C., & Maxted, P. (2023). Household borrowing and MPCs in heterogeneous-agent models. Working paper.
- Lloro, A., Merry, E., Brevoort, K., Jones, K., Larrimore, J., Lockwood, J., Tranfaglia, A., Troland, E., Webber, D., & Zabek M. (2022). *Economic well-being of U.S. households in 2021*. Board of Governors of the Federal Reserve System.
- Madrian, B. C., & Shea, D. F. (2001). The power of suggestion: Inertia in 401(k) participation and savings behavior. *Quarterly Journal of Economics*, 116(4), 1149–1187. <https://doi.org/10.1162/003355301753265543>
- Shefrin, H. M., & Thaler, R. H. (1988). The behavioral life-cycle hypothesis. *Economic Inquiry*, 26(4), 609–643. <https://doi.org/10.1111/j.1465-7295.1988.tb01520.x>
- Soman, D., & Cheema, A. (2011). Earmarking and partitioning: Increasing saving by low-income households. *Journal of Marketing Research*, 48(Special Issue), S14–S22. <https://doi.org/10.1509/jmkr.48.SPL.S14>
- Sussman, A. B., & Alter, A. L. (2012). The exception is the rule: Underestimating and overspending on exceptional expenses. *Journal of Consumer Research*, 39(4), 800–814. <https://doi.org/10.1086/665833>
- Thaler, R. (1985). Mental accounting and consumer choice. *Marketing Science*, 4(3), 199–214. <https://doi.org/10.1287/mksc.4.3.199>
- Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: Improving decisions about health, wealth, and happiness*. Penguin Books.

## **List of Figures**

Figure 1. Percentage of Eligible Employees with an Active Short-Term Savings Account

Figure 2. Number of Active Short-Term Savings Accounts Observed at Each Account Age

Figure 3. Sample Sizes Observed at Each Account Age

Figure 4. Percentage of Accounts Receiving a Payroll or Ad Hoc Contribution at Each Account Age

Figure 5. Distribution of Payroll Contributions to Short-Term Saving at Each Account Age, Conditional on Having Such a Contribution

Figure 6. Distribution of Ad Hoc Contributions at Each Account Age, Conditional on Having Such a Contribution

Figure 7. Distribution of Payroll Deduction Contributions as a Percentage of Total Short-Term Savings Account Contributions

Figure 8. Percentage of Accounts with a Withdrawal at Each Account Age

Figure 9. Percentage of Accounts with a Withdrawal in Each Month of the Calendar Year, First Year of Account Life

Figure 10. Cumulative Withdrawal Distribution by Account Age

Figure 11. Distribution of Withdrawal Amounts at Each Account Age, Conditional on Having a Withdrawal

Figure 12. Distribution of Withdrawals as a Share of Balances at Each Account Age, Conditional on Having a Withdrawal

Figure 13. Distribution of Account Balances at Each Account Age



## **List of Tables**

Table 1. U.S. Household Net Worth by Age, Using Different Measures of Net Worth That Include or Exclude Illiquid Components

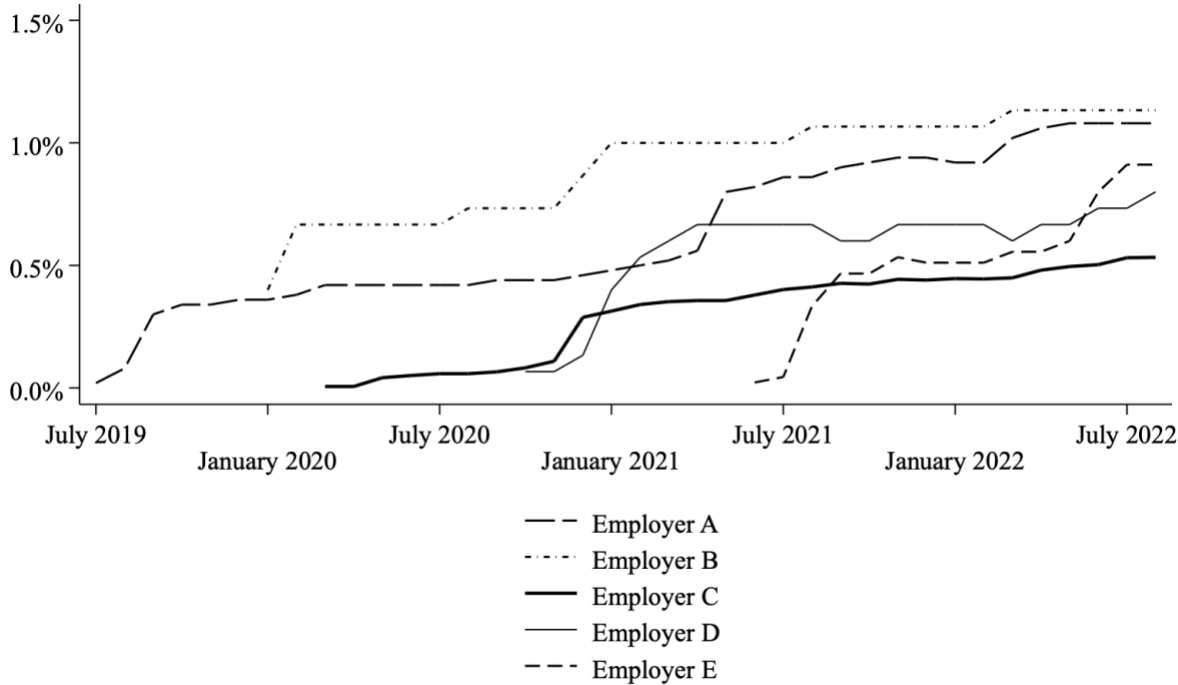
Table 2. U.K. Workers' Self-Reported Non-Pension Savings Balances

Table 3. U.K. Workers' Responses to an Unexpected £300 Bill

Table 4. Characteristics of the Five Organizations That Introduced the Short-Term Savings Program

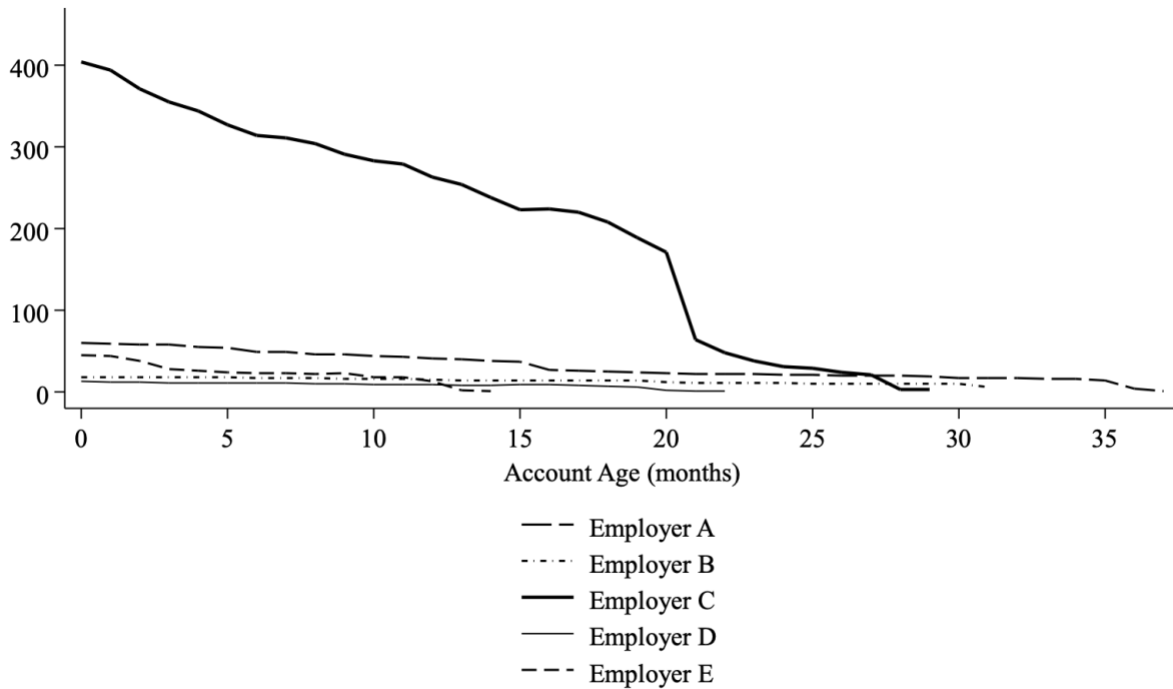
**Figure 1. Percentage of Eligible Employees with an Active Short-Term Savings Account**

For each employer and in each month, we divide the number of short-term savings accounts with balances greater than £1 by the estimated number of eligible employees. We exclude from the numerator accounts that have been marked as permanently inactive due to separation from the employer or the employee’s decision to close the account. The estimated numbers of eligible employees were provided by Nest Insight.



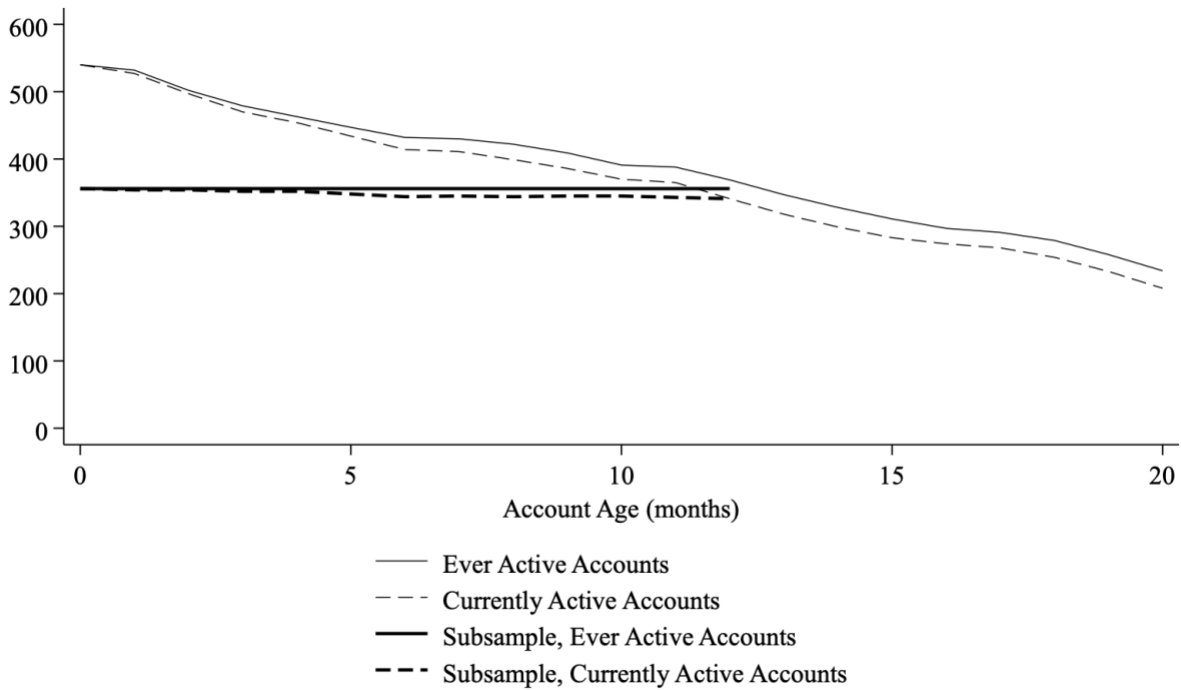
**Figure 2. Number of Active Short-Term Savings Accounts Observed at Each Account Age**

An account is considered active at a given account age if the employee has an account balance greater than £1 at some point during that month and the account has not been marked as inactive due to separation from the employer or the employee's decision to close the account. We define month 0 as the first instance of account activity.



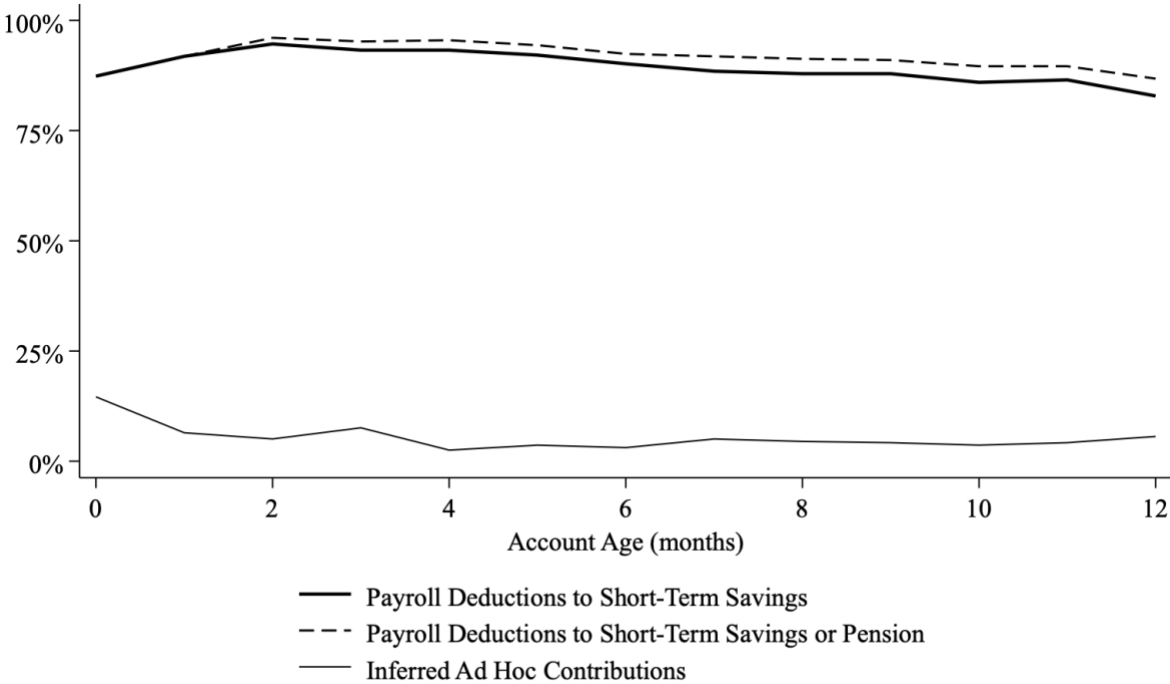
### Figure 3. Sample Sizes Observed at Each Account Age

An account is considered active if the employee has an account balance greater than £1 at some point during that month and the account has not been marked as inactive due to separation from the employer or the employee's decision to close the account. We define month 0 as the first instance of account activity. An account is considered "ever active" at a given account age if it was created early enough to be observed at this horizon. Our subsample includes all employees whose accounts were created early enough to be observed over the first 12 months after their account activation and who did not separate from employment during this period. Figures 4-13 report various outcomes for the subsample of ever active accounts; Appendix Figures 1-10 use the full set of currently active accounts.



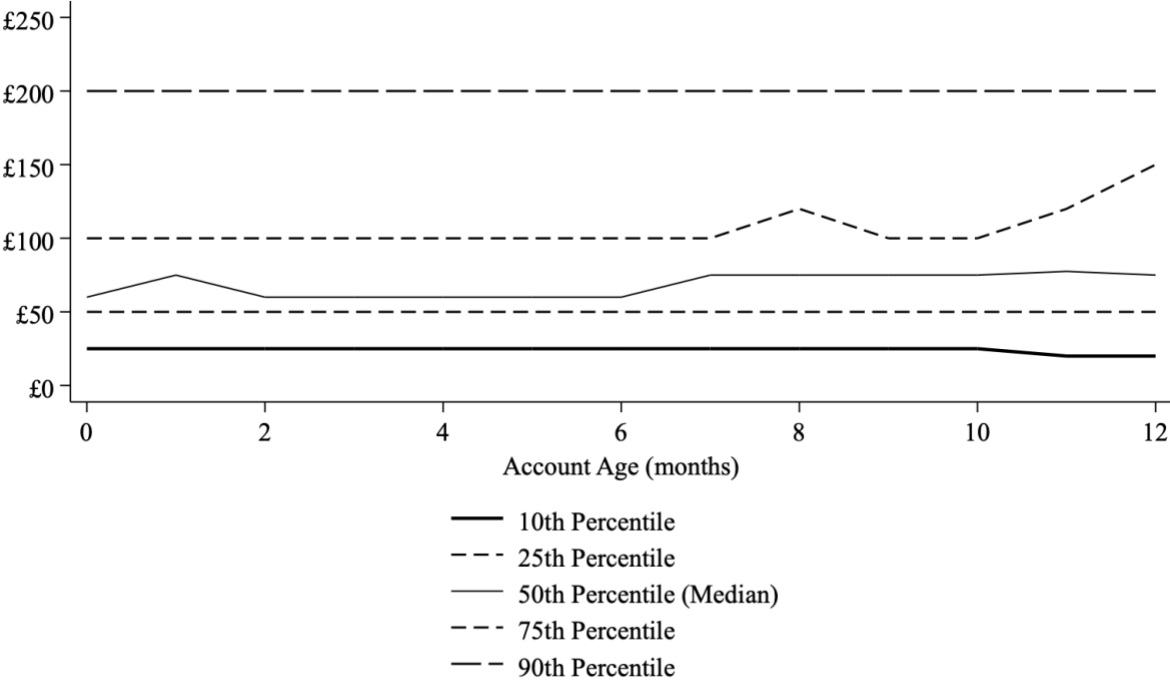
**Figure 4. Percentage of Accounts Receiving a Payroll or Ad Hoc Contribution at Each Account Age**

We include employees who created their account early enough to be observed over months 0-12 after account activation and who did not separate from employment during this period. We define month 0 as the first instance of an account balance greater than £1.



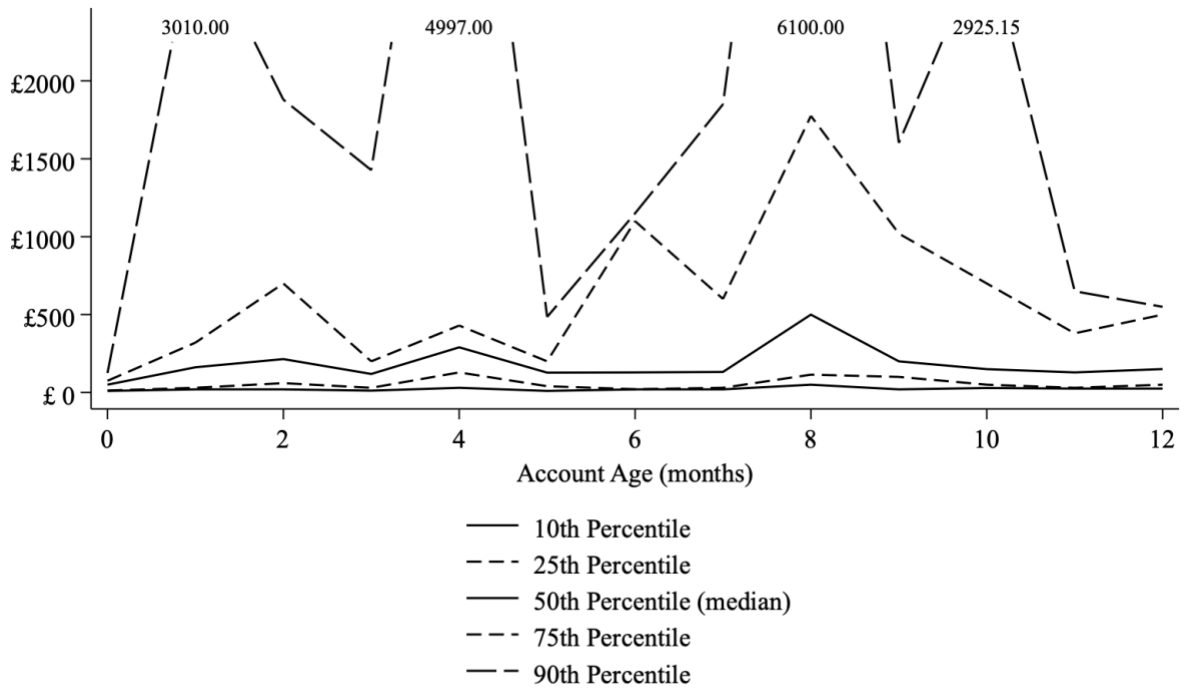
**Figure 5. Distribution of Payroll Contributions to Short-Term Saving at Each Account Age, Conditional on Having Such a Contribution**

We include employees who created their account early enough to be observed over months 0-12 after account activation and who did not separate from employment during this period. We define month 0 as the first instance of an account balance greater than £1. This figure shows percentiles of payroll contribution amounts to short-term savings, conditional on having such a contribution.



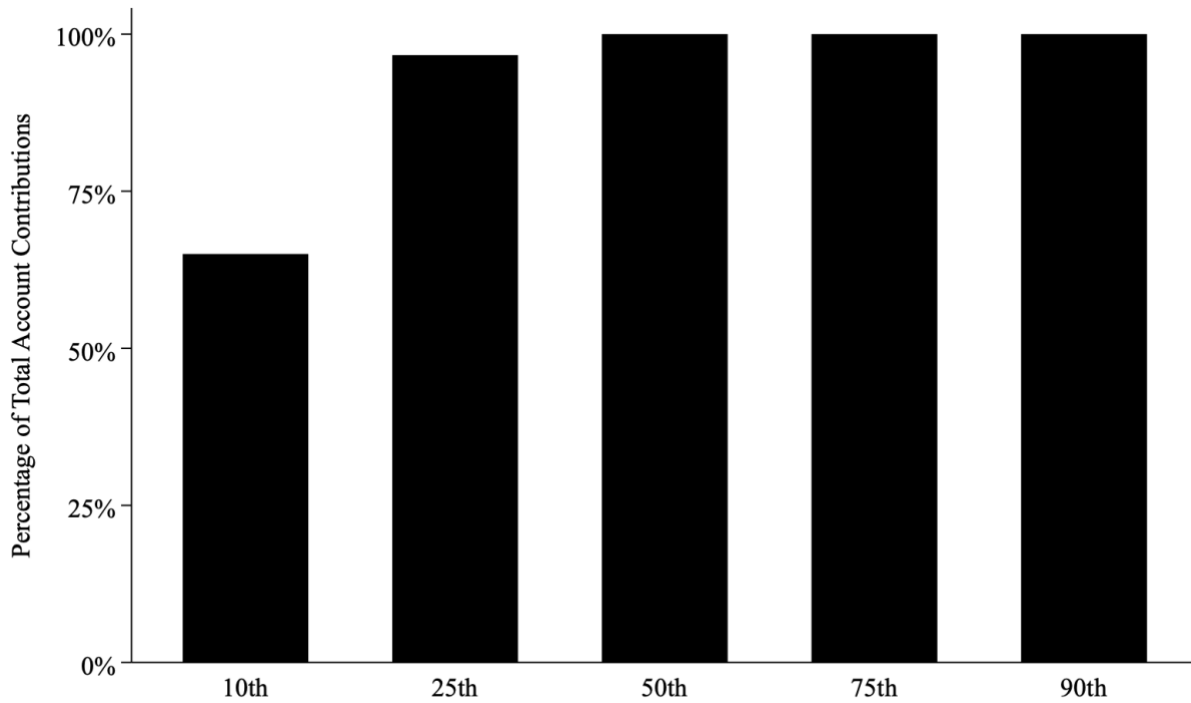
**Figure 6. Distribution of Ad Hoc Contributions at Each Account Age, Conditional on Having Such a Contribution**

We include employees who created their account early enough to be observed over months 0-12 after account activation and who did not separate from employment during this period. We define month 0 as the first instance of an account balance greater than £1. This figure shows percentiles of ad hoc contribution amounts to short-term savings within each month, conditional on having such a contribution in that month.



**Figure 7. Distribution of Payroll Deduction Contributions as a Percentage of Total Short-Term Savings Account Contributions**

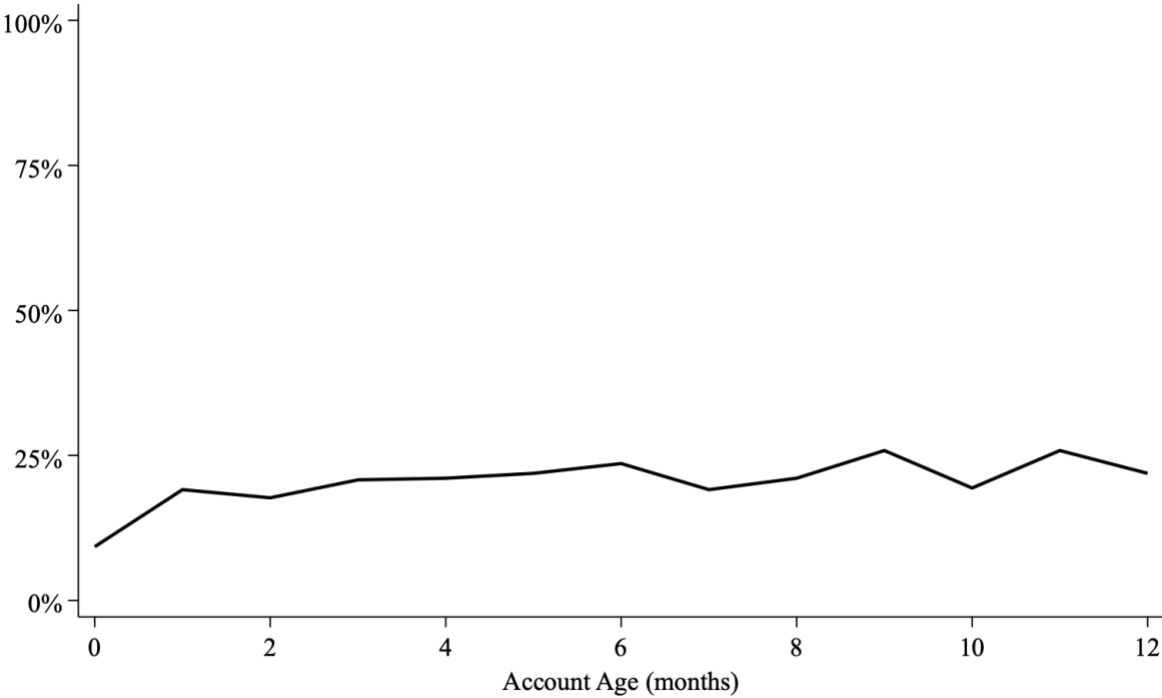
This figure shows percentiles of payroll deduction contributions summed over months 0-12 for a short-term savings account as a percentage of total contributions summed over months 0-12 for the same account. An account is included if it was created early enough to be observed over months 0-12 after account activation and the employee did not separate from employment during this period.





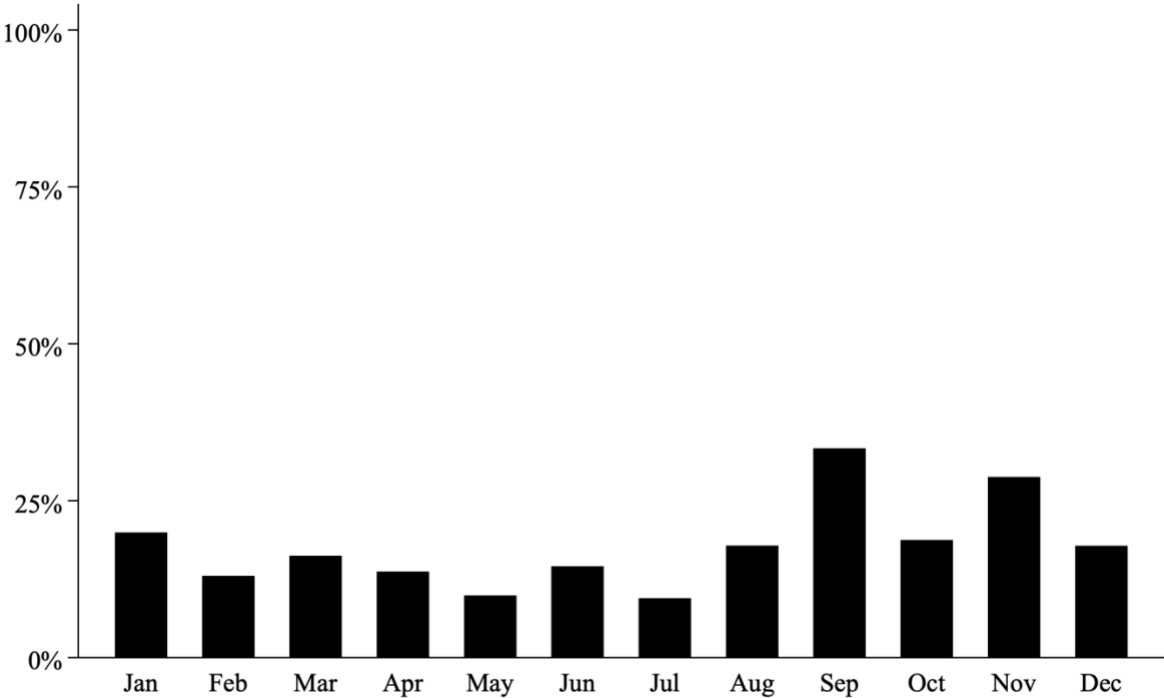
**Figure 8. Percentage of Accounts with a Withdrawal at Each Account Age**

We include employees who created their account early enough to be observed over months 0-12 after account activation and who did not separate from employment during this period. We define month 0 as the first instance of an account balance greater than £1.



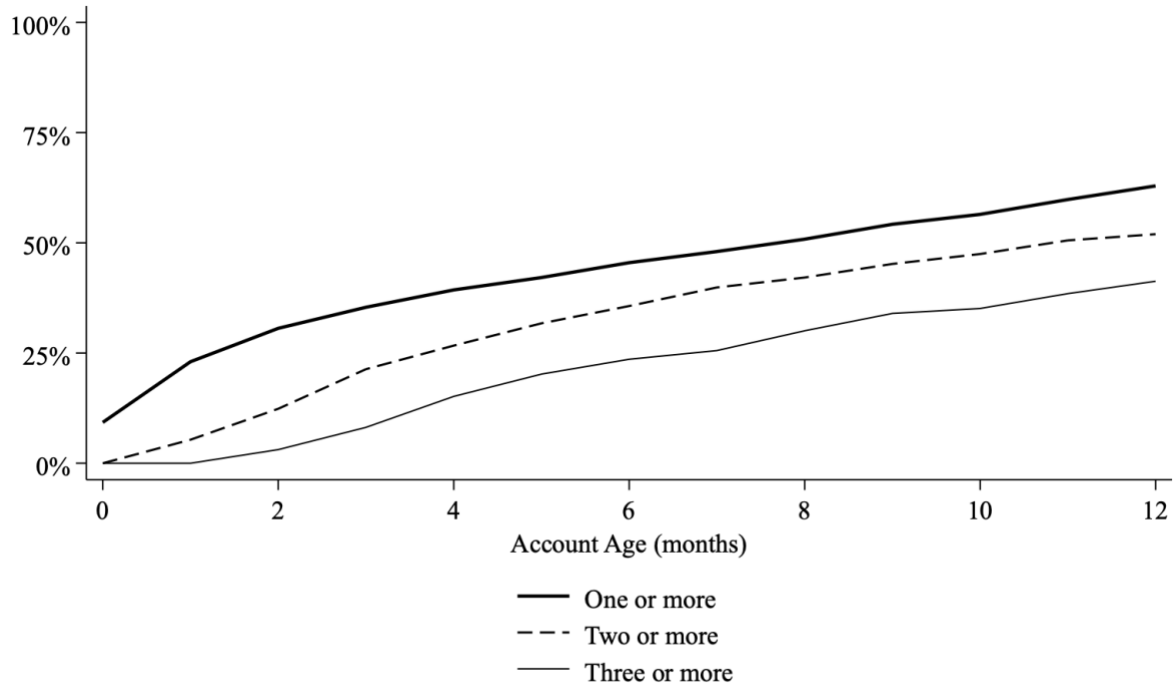
**Figure 9. Percentage of Accounts with a Withdrawal in Each Month of the Calendar Year, First Year of Account Life**

We include employees who created their account early enough to be observed over months 0-12 after account activation and who did not separate from employment during this period. We define month 0 as the first instance of an account balance greater than £1. For each calendar month, we calculate the percentage of active accounts taking a withdrawal. This figure shows the mean of this percentage by month of the year (e.g., the equal-weighted mean of the percentage for September 2019, September 2020, and September 2021). Note that we have incomplete balance data for December 2021 and April 2022, which could cause us to undercount withdrawals.



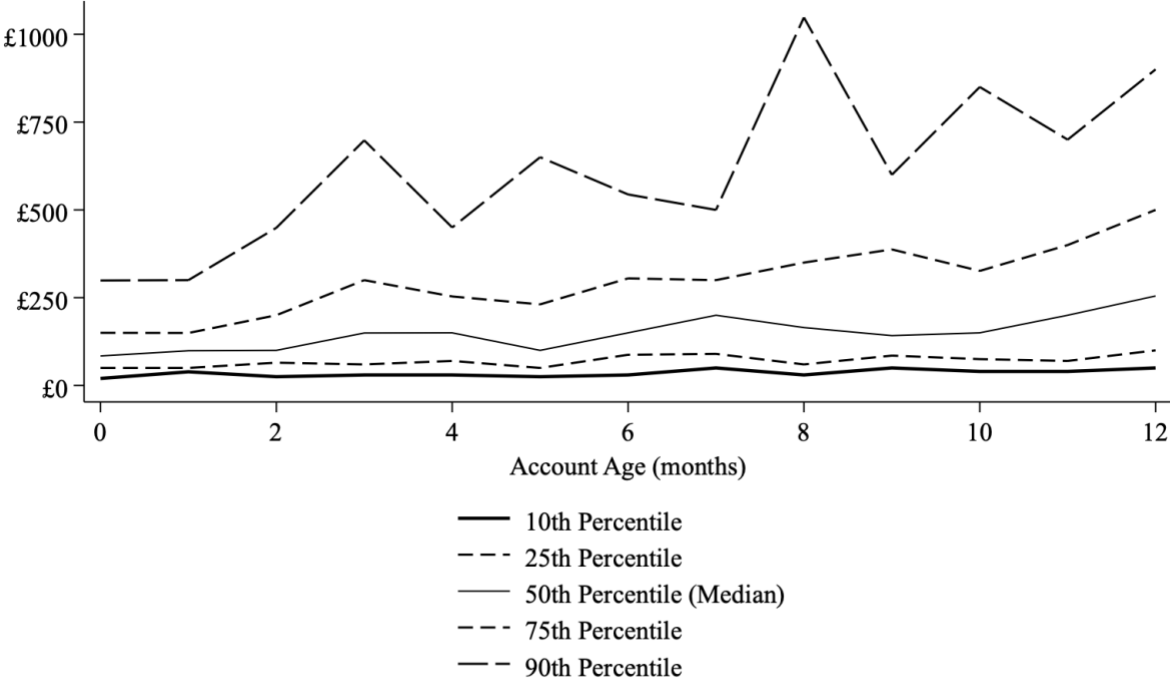
**Figure 10. Cumulative Withdrawal Distribution by Account Age**

We include employees who created their account early enough to be observed over months 0-12 after account activation and who did not separate from employment during this period. We define month 0 as the first instance of an account balance greater than £1. This figure shows the share of accounts with one or more withdrawals to date, two or more withdrawals to date, and three or more withdrawals to date. Withdrawals are aggregated at the monthly level, so that multiple withdrawals taken by the same individual in a single month count as one withdrawal.



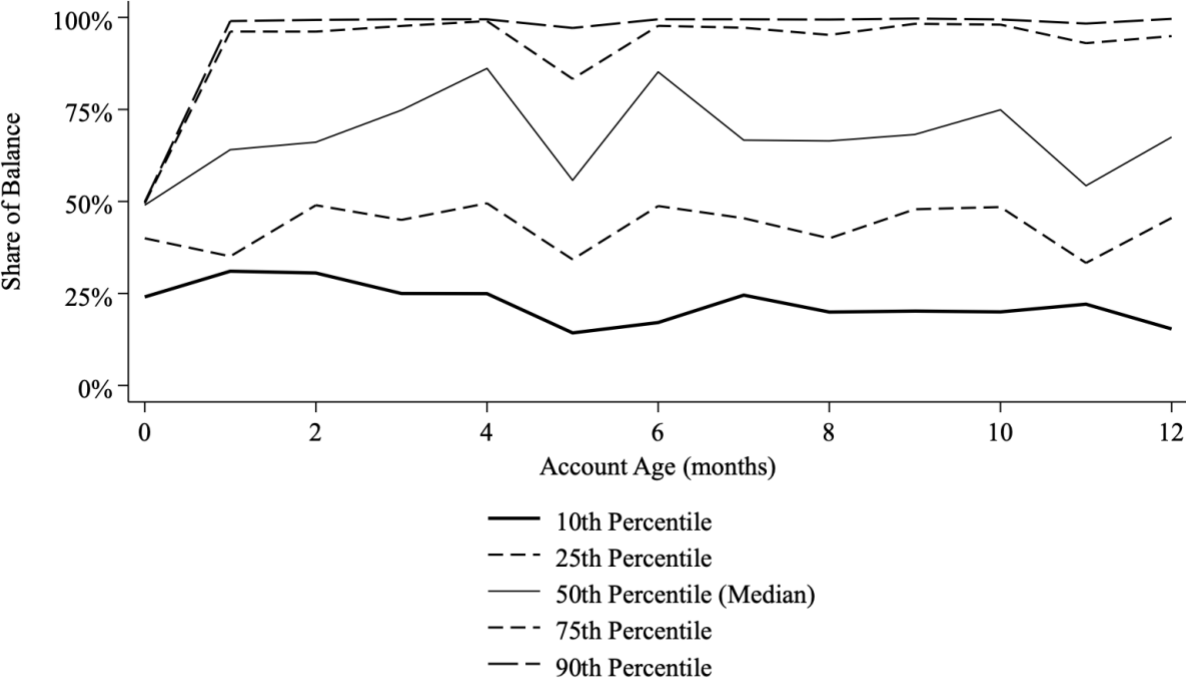
**Figure 11. Distribution of Withdrawal Amounts at Each Account Age, Conditional on Having a Withdrawal**

We include employees who created their account early enough to be observed over months 0-12 after account activation and who did not separate from employment during this period. We define month 0 as the first instance of an account balance greater than £1. This figure shows percentiles of withdrawal amounts at each account age, conditional on having a withdrawal in the month. Withdrawals are aggregated at the monthly level, so that multiple withdrawals taken by the same individual in a single month count as one withdrawal.



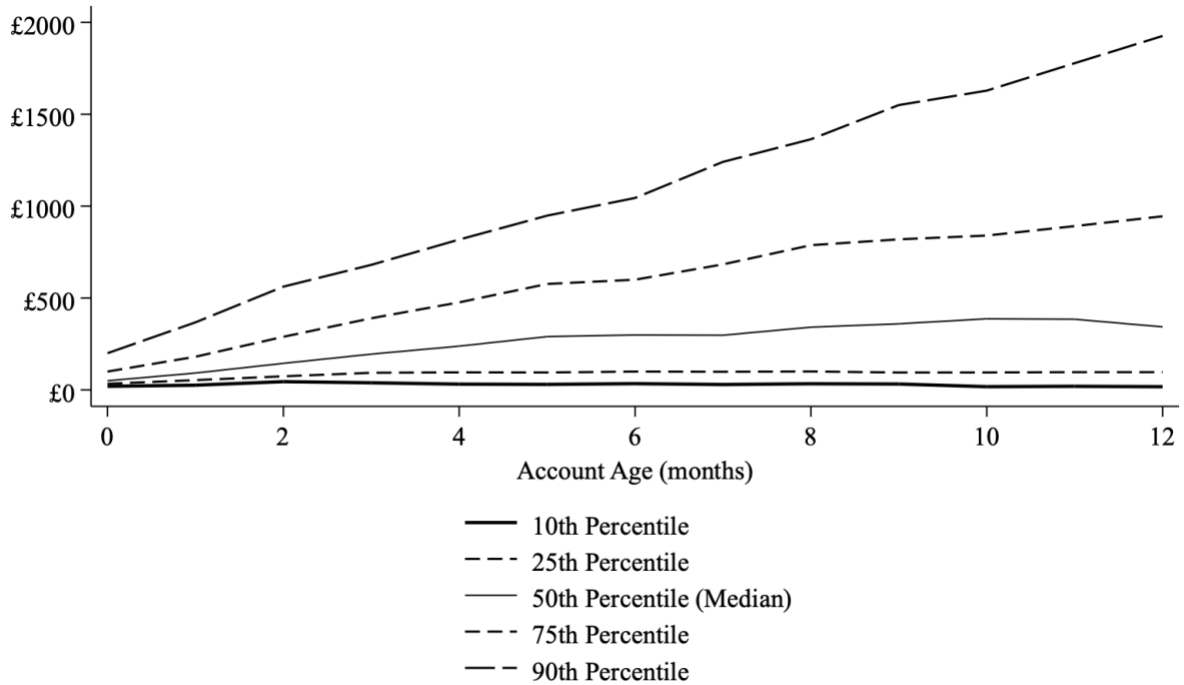
**Figure 12. Distribution of Withdrawals as a Share of Balances at Each Account Age, Conditional on Having a Withdrawal**

We include employees who created their account early enough to be observed over months 0-12 after account activation and who did not separate from employment during this period. We define month 0 as the first instance of an account balance greater than £1. This figure shows percentiles of withdrawals as a share of balances at each account age, conditional on having a withdrawal.



**Figure 13. Distribution of Account Balances at Each Account Age**

This figure shows percentiles of short-term savings account balances at each account age. We include employees who created their account early enough to be observed over months 0-12 after account activation and who did not separate from employment during this period. We define month 0 as the first instance of an account balance greater than £1.



**Table 1. U.S. Household Net Worth by Age, Using Different Measures of Net Worth That Include or Exclude Illiquid Components**

This table reports the 25th, 50th, and 75th percentiles, by age group of the household head, of three different measures of U.S. household net worth in the 2019 Survey of Consumer Finances (SCF). NW1 is financial assets excluding retirement accounts and whole life insurance minus debt excluding student loans and collateralized loans. NW2 is financial assets excluding whole life insurance minus debt excluding collateralized loans. NW3 is all assets measured by the SCF minus all debt measured by the SCF. The brackets contain bootstrapped 95% confidence intervals. Units are 2019 U.S. dollars. See Beshears et al. (2018) for details of the methodology.

Age Group	Net Worth Measure	Percentile		
		25th	50th	75th
Ages 21–30	NW1	-398 [-909; 113]	1,427 [1,057; 1,798]	10,182 [8,212; 12,153]
	NW2	-12,764 [-15,044; -10,485]	376 [20; 732]	12,131 [9,399; 14,863]
	NW3	-2,272 [-4,753; 209]	9,010 [6,927; 11,093]	60,107 [52,250; 67,964]
Ages 31–40	NW1	-2,666 [-3,405; -1,927]	956 [656; 1,257]	15,053 [11,451; 18,655]
	NW2	-8,526 [-11,547; -5,505]	1,703 [583; 2,823]	47,905 [37,833; 57,977]
	NW3	3,332 [1,608; 5,056]	48,978 [38,343; 59,612]	177,019 [157,389; 196,648]
Ages 41–50	NW1	-1,876 [-2,454; -1,298]	1,758 [955; 2,561]	27,906 [20,285; 35,528]
	NW2	-173 [-613; 267]	14,230 [9,480; 18,980]	148,621 [127,005; 170,238]
	NW3	21,541 [14,550; 28,532]	142,373 [120,206; 164,540]	392,232 [344,468; 439,995]
Ages 51–60	NW1	-1,039 [-1,692; -386]	2,935 [1,645; 4,224]	49,127 [31,427; 66,827]
	NW2	50 [-82; 182]	21,899 [14,876; 28,922]	250,692 [209,908; 291,476]
	NW3	38,615 [27,203; 50,027]	188,104 [167,494; 208,715]	606,383 [520,078; 692,689]
Ages 61–70	NW1	-163 [-431; 104]	4,977 [2,961; 6,992]	78,360 [59,833; 96,886]
	NW2	218 [37; 399]	32,361 [24,749; 39,973]	329,908 [276,295; 383,522]
	NW3	46,304 [33,029; 59,578]	250,623 [222,810; 278,436]	785,462 [679,902; 891,023]

**Table 2. U.K. Workers' Self-Reported Non-Pension Savings Balances**

This table reports the distribution of non-pension savings balances as measured by survey responses to two prompts: “Does your household have any money set aside that you consider savings? (Please exclude any money saved in a pension.)” and “Please approximate your total level of savings. (Please exclude any money saved in a pension.)” Some response categories are combined for the purposes of this table. In a version of the survey that was shown to some respondents, the first prompt was omitted. In the version of the survey that included both prompts, a very small number of respondents who answered “No” or “Prefer Not to Say” to the initial prompt gave contradictory answers to the second prompt. We categorize respondents as having “£50 or less” in non-pension savings if they answered “No” to the initial prompt. We categorize respondents as “Prefer not to say / Unsure” if they answered “Prefer Not to Say” to the initial prompt. We categorize respondents’ gender as “Other” if their answer could not be readily classified as “Female,” “Male,” or an indication that they preferred not to answer.

	Sample size	Non-pension savings				Prefer not to say / Unsure
		£50 or less	£51–£250	£251–£999	£1,000 or more	
Overall	40,950	28.46%	5.86%	9.92%	37.06%	18.70%
Gender						
Female	21,759	28.76%	6.14%	10.53%	35.99%	18.58%
Male	18,666	28.40%	5.55%	9.24%	38.60%	18.20%
Other	101	25.74%	4.95%	16.83%	36.63%	15.84%
Age (years)						
≤ 34	15,758	29.22%	6.54%	11.87%	36.67%	15.70%
35–49	13,047	33.20%	5.73%	9.63%	32.46%	18.99%
≥ 50	12,094	22.42%	5.09%	7.69%	42.55%	22.24%
Ethnicity						
White	33,196	28.92%	5.22%	9.58%	39.52%	16.76%
Multiple	747	33.33%	5.22%	8.97%	36.55%	15.93%
Asian	1,726	29.78%	7.01%	9.44%	32.50%	21.26%
Black	1,029	40.14%	9.04%	11.08%	21.28%	18.46%
Other	358	36.59%	7.26%	11.45%	23.18%	21.51%
Education						
Degree level	16,883	20.84%	4.99%	9.94%	47.88%	16.35%
A-level	6,813	28.43%	6.36%	10.22%	37.66%	17.33%
G.C.S.E. level	6,956	36.76%	6.57%	9.75%	27.95%	18.98%
Other tech./prof.	7,426	35.17%	6.09%	10.22%	28.75%	19.77%
No formal qual.	1,509	42.21%	7.09%	9.21%	18.75%	22.73%
Marital status						
Single/not co-habiting	12,520	33.08%	6.38%	10.33%	32.96%	17.25%
Married/civil/co-habiting	24,594	25.53%	5.57%	9.80%	40.51%	18.59%
Divorced/separated/widowed	3,078	34.99%	5.98%	9.88%	31.48%	17.67%
Dependent children						
Yes	10,310	39.00%	4.10%	8.47%	31.03%	17.40%
No	30,634	24.91%	6.45%	10.42%	39.09%	19.13%



**Table 2. U.K. Workers' Self-Reported Non-Pension Savings Balances, continued**

	Sample size	Non-pension savings				Prefer not to say / Unsure
		£50 or less	£51–£250	£251–£999	£1,000 or more	
Gross household income (£)						
< 10,000	2,408	51.83%	8.26%	9.26%	15.32%	15.32%
10,000–19,999	6,371	42.30%	9.46%	11.18%	20.66%	16.40%
20,000–29,999	7,785	34.53%	7.13%	12.14%	30.47%	15.74%
30,000–49,999	11,345	25.51%	6.23%	11.21%	41.78%	15.27%
≥ 50,000	9,591	14.09%	3.36%	8.55%	61.27%	12.74%
Monthly income variability						
About the same each month	28,928	27.14%	5.96%	10.25%	39.76%	16.89%
Varies somewhat	9,219	32.49%	6.15%	10.38%	33.96%	17.02%
Varies a lot	1,240	38.15%	6.29%	8.15%	32.50%	14.92%

**Table 3. U.K. Workers' Responses to an Unexpected £300 Bill**

This table reports the distribution of survey responses to the following question: "Thinking about an unexpected bill of £300 that you have to pay within seven days from today, which of the following would you do? If you think you would do more than one, please select the main thing you would do, that is the one you would get the most money from. Choose one only." The column "Use current income or savings" includes the responses "I would pay it with my own money, without dipping into savings or cutting back on essentials" and "I would have to dip into savings." The column "Cut back on essentials" includes the response "I would pay it with my own money, without dipping into savings, but I would have to cut back on essentials." The column "Use credit" includes the responses "I would use a form of credit (e.g., credit card, take out a loan, or make use of an authorized overdraft facility)" and "I would go overdrawn without authorization." The column "Get money from family / friends" includes the response "I would get the money from friends or family as a gift or loan." The column "Sell items" includes the response "I would have to sell personal/household item(s) to get the money." The column "Would not be able to pay" includes the response "I would not be able to pay this expense." The column "Prefer not to say / Don't know" includes the responses "Prefer not to say" and "Don't know." We categorize respondents' gender as "Other" if their answer could not be readily classified as "Female," "Male," or an indication that they preferred not to answer.

	Source of Funds for Paying an Unexpected £300 Bill							
	Sample size	Use current income or savings	Cut back on essentials	Use credit	Get money from family / friends	Sell items	Would not be able to pay	Prefer not to say / Don't know
Overall	40,216	55.61%	17.10%	13.03%	5.48%	1.16%	5.12%	2.51%
Gender								
Female	21,431	53.53%	18.05%	13.24%	6.18%	1.10%	5.80%	2.10%
Male	18,283	58.19%	16.04%	12.86%	4.74%	1.23%	4.33%	2.60%
Other	100	53.00%	14.00%	16.00%	4.00%	2.00%	7.00%	4.00%
Age (years)								
≤ 34	15,478	53.33%	18.05%	12.63%	7.06%	1.34%	5.70%	1.89%
35–49	12,764	50.96%	17.41%	15.23%	6.02%	1.36%	6.12%	2.90%
≥ 50	11,926	63.55%	15.51%	11.21%	2.88%	0.70%	3.28%	2.87%
Ethnicity								
White	32,700	56.16%	16.76%	13.29%	5.56%	1.20%	5.26%	1.77%
Multiple	736	52.17%	18.61%	13.32%	6.66%	1.36%	6.25%	1.63%
Asian	1,679	59.62%	19.48%	11.14%	4.17%	0.95%	1.91%	2.74%
Black	1,006	41.65%	22.76%	16.40%	6.76%	1.29%	8.65%	2.49%
Other	348	49.71%	16.95%	14.37%	6.90%	0.57%	5.17%	6.32%

**Table 3. U.K. Workers' Responses to an Unexpected £300 Bill, continued**

	Source of Funds for Paying an Unexpected £300 Bill							Prefer not to say / Don't know
	Sample size	Use current income or savings	Cut back on essentials	Use credit	Get money from family / friends	Sell items	Would not be able to pay	
<b>Education</b>								
Degree level	16,720	62.42%	17.18%	12.34%	3.67%	0.61%	2.31%	1.47%
A-level	6,703	55.02%	16.66%	14.16%	6.30%	1.31%	4.97%	1.58%
G.C.S.E. level	6,803	48.99%	16.49%	13.44%	7.76%	1.68%	9.01%	2.63%
Other tech./prof.	7,271	49.17%	18.46%	14.40%	6.85%	1.62%	7.03%	2.48%
No formal qual.	1,450	51.31%	15.03%	11.59%	6.14%	2.14%	10.14%	3.66%
<b>Marital status</b>								
Single	12,284	52.20%	17.33%	12.40%	7.46%	1.41%	7.08%	2.12%
Married/civil/co-habiting	24,209	58.24%	16.97%	13.25%	4.47%	1.01%	3.80%	2.26%
Divorced/separated/widowed	3,011	50.65%	17.50%	14.31%	5.78%	1.46%	7.87%	2.42%
<b>Dependent children</b>								
Yes	8,484	46.72%	17.31%	17.40%	7.05%	1.60%	7.46%	2.45%
No	18,962	56.88%	17.31%	12.49%	4.90%	1.07%	4.48%	2.87%
<b>Gross household income (£)</b>								
< 10,000	2,277	44.01%	18.23%	11.42%	7.55%	2.64%	11.55%	4.61%
10,000–19,999	6,174	45.53%	17.02%	12.24%	8.21%	2.33%	11.47%	3.19%
20,000–29,999	7,639	50.39%	17.10%	15.07%	7.42%	1.64%	6.69%	1.70%
30,000–49,999	11,235	56.93%	17.57%	15.15%	5.15%	0.77%	3.33%	1.09%
≥ 50,000	9,548	68.43%	16.46%	11.05%	2.27%	0.23%	0.95%	0.60%
<b>Monthly income variability</b>								
About the same each month	28,504	57.63%	17.03%	13.18%	5.06%	1.00%	4.47%	1.65%
Varies somewhat	9,040	51.71%	17.99%	13.29%	6.73%	1.60%	6.85%	1.84%
Varies a lot	1,205	50.62%	15.27%	14.19%	6.89%	1.99%	8.55%	2.49%

**Table 4. Characteristics of the Five Organizations That Introduced the Short-Term Savings Program**

This table summarizes the characteristics of the five organizations that introduced the short-term savings program. The number of eligible employees is an estimate provided by Nest Insight, based on conversations with the organizations. Data on gender, age, and annual personal gross income are from the survey described in Section I.B. The survey at employer C allowed respondents to skip the age question, which is why its age percentages add up to less than 100%. The response rate to the survey invitation among employees of the five organizations was approximately 3.7%, and the samples are not representative of the employee populations at each organization. Nonetheless, this information is reported to give a sense of the characteristics of the employees.

	Employer				
	A	B	C	D	E
Savings program launch	Jul 2019	Dec 2019	Mar 2020*	Oct 2020	Jun 2021
Eligible employees (approximate)	5,000	1,500**	67,000	1,500	4,500
Sector	retail	education**	telecom	charity	media
Female	49%	72%	13%	63%	60%
Age					
34 or under	41%	53%	32%	40%	34%
35–49	33%	29%	39%	39%	48%
50 or over	26%	18%	26%	21%	18%
Annual personal gross income					
Under £30,000	89%	93%	28%	73%	16%
£30,000 or more	11%	3%	72%	24%	78%

\* In March 2020, a “soft launch” opened the program to employees but did not publicize it heavily. A “full launch” with significant employee outreach took place in October 2020.

\*\* Within this organization, only custodial workers were eligible for the savings program.