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Where Are Households Spending Their Defined Contribution Plan Loans: An Examination of Private-Sector Participants

By Craig Copeland, Michael Conrath, and Sharon Carson

AT A GLANCE

Workers' finances can face many challenges over their careers, potentially leading them to have to take on debt or find other sources of financing to cover the various financial challenges. This study builds on prior work done by the Employee Benefit Research Institute (EBRI) and J.P. Morgan Asset Management focused on defined contribution (DC) plan participants' behavior when faced with one specific financial challenge—irregular expenses. Specifically, changes in credit card utilization, DC plan contributions, and/or DC plan loan use were examined after these participants experienced a significant spending "spike." This analysis goes the next step to examine where participants who took a DC plan loan are spending that money. Key findings from this study include:

- In this sample of private-sector 401(k) plan participants where a loan option is available, 9.7 percent took a loan during the year of interest. The likelihood of a participant taking a plan loan increased with age through the 40s then declined. Household income did not appear to have an impact on the likelihood of a plan loan being taken, as the percentage taking a loan in each income group was in the 9–10 percent range, and once the account balance reached $10,000, the likelihood of taking a loan was similar through balances of $100,000 or more. The percentage who took a loan increased substantially with credit card utilization, as 6.9 percent of participants in households with no outstanding credit card balances took a loan compared with 19.8 percent of those who had outstanding credit card balances equivalent to 80–100 percent of their credit card limits.

- DC plan participants in households with higher credit card usage had lower average contribution rates across all ages. For example, for participants in their 50s, those from households with higher credit card utilization had an average contribution rate of 6.5 percent, compared with 7.6 percent for those with lower credit card utilization. As a result, participants in households with high credit card utilization had lower average account balances.

- Among those with a new 401(k) plan loan, health care spending was the most likely to have increased, as 47.6 percent of households where a participant took a loan saw their spending on health care increase by more than 10 percent in the year they took the loan. This was followed by travel (21.7 percent), entertainment (20.2 percent), and non-specified cash spending (20.0 percent). Comparing the spending increases by categories with those who did not take a loan, only health care spending showed a higher likelihood of having increased by more than 10 percent among those taking loans. Otherwise, spending changes were very similar between households with or without a plan loan.

- Loan usage increased among those with higher credit card utilization, which would be an indicator of households being more likely to be financially stressed. Spending increases on health care were more prevalent among the financially stressed households whose plan participants were ages 50 or older, as 58.7 percent of the households where a loan was taken had this increase compared with 52.5 percent of the households where a loan was not taken.

- In an alternative test, the share of total spending that each category represented was compared between the year prior to the loan incidence and the loan year to see if any category spending share increased by more than 5 percentage points. The spending categories most likely to have seen an increase in their share of total spending of this size were unspecified cash spending (22.8 percent of the households), housing (21.0 percent), and health care (19.7 percent).

- Only housing spending and unspecified cash spending had higher likelihoods of share increases for those taking a loan vs. those who did not. Otherwise, the likelihoods of the changes in the shares of spending in each of the other categories were either similar between the households or less for the households with a participant taking a plan loan.

- Households who started mortgage payments in the year of the loan incidence analysis were more likely to have taken a plan loan than those who did not start mortgage payments in that year — 12.5 percent vs. 9.6 percent. This was true for households with plan participants of all ages. Looking at this correlation in the opposite direction, the percentage of those having a new mortgage given that they had taken a plan loan was 5.9 percent, compared with 4.4 percent starting a new mortgage when they had not taken a plan loan. Again, a higher likelihood of starting a new mortgage for those who had taken a plan loan was found across all ages. Regardless of whether the household took a plan loan, when a new mortgage was started, the probability of having an increase in housing spending of more than 10 percent was significantly higher. For example, 45.3 percent of those who took a plan loan and started a new mortgage had a housing spending increase compared with just 6.6 percent of those without a new mortgage but having a new plan loan.

This research, like prior J.P. Morgan/EBRI studies, found that higher debt can have a long-lasting impact on retirement security, since higher credit card utilization is correlated with lower 401(k) plan contributions and account balances. Thus, the availability of emergency savings to help cover expenses can be a critical factor in preventing or stalling a cycle of increasing debt that can significantly impact retirement readiness. Furthermore, the finding that many participants have spending increases on health care when taking a plan loan suggests that examining the health insurance available to DC plan participants could also help improve finances, showing the intersection of health and wealth. While not an emergency expense, another common reason for taking a plan loan is buying a home, which is typically a household's largest investment. A plan loan can help reduce the borrowing costs of a home purchase or even make the home purchase possible.

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Where Are Households Spending Their Defined Contribution Plan Loans: An Examination of Private-Sector Participants

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Introduction

Workers' finances can face many challenges over their careers including irregular expenses, buying a new home, or financing higher education. All of these events can lead workers to have to take on debt or find other sources of financing for them. In some cases, workers' only source of significant savings is an employment-based retirement savings plan, typically a 401(k) plan or other defined contribution (DC) plans. Thus, some DC plan participants could take a loan from their plan, while others could access credit outside of a plan or use some combination of the two. Balancing these decisions is a key component of participants' financial wellbeing.

This study builds on prior work done by the Employee Benefit Research Institute (EBRI) and J.P. Morgan Asset Management focused on DC plan participants' behavior when faced with irregular expenses.[1] Specifically, changes in credit card utilization, DC plan contributions, and/or DC plan loan use were examined after these participants experienced a significant spending "spike." This analysis goes the next step by examining where participants who took a DC plan loan are spending that money.

Although DC plan loans can be a source of leakage from retirement savings if they are not paid back in full when a participant leaves their employer, they do provide flexibility that can lead to higher participation and contributions.[2] As a result, plan loans are an option in many private-sector DC plans. Results from the EBRI/ICI 401(k) Database cross sectional studies show the incidence of loans and the loan amounts across specific participant demographic factors but not in regard to the participants' overall finances or potential reasons for taking the loans.[3]

The analysis presented here, which links private-sector DC plan data and banking data, builds on the cross-sectional 401(k) plan results and the evaluation of the impact of financial factors outside of the DC plan, such as debt accumulation, on behavior inside the plan to see where the funds from the DC loans are spent.[4] In this analysis, changes in spending amounts and the share of total spending on a specific spending category are calculated to see if any specific spending categories such as housing, health care, travel, or transportation increase when a loan is taken vs. prior to taking the loan.[5]

This study is part of a joint effort between the Employee Benefit Research Institute (EBRI) and J.P. Morgan Asset Management to deliver data-driven research to better understand how the financial factors faced by defined contribution plan participants outside of these plans impact their retirement preparations. Thus, the aim is to provide unique, fact-based insights to help policymakers, plan sponsors, and plan providers build a stronger retirement system.

Specifically, private-sector 401(k) plan participants who had taken a new plan loan are compared with those who did not take a new plan loan to see which spending categories experienced increases among those who took a plan loan that are different from those who did not take a loan. First, the sample of households is described, and the likelihood of 401(k) plan loan incidence across various demographic characteristics is shown. For the households where the 401(k) plan participant has taken a plan loan, any significant increases in spending in each of 12 categories or increases in the share of total spending that these categories represent are determined, including for certain demographic characteristics. The spending category increases are then compared with those of households whose 401(k) plan participant did not take a plan loan to see where the households with 401(k) plan loans differ. Finally, the effects of starting a new mortgage on 401(k) plan loans and changes in housing spending are investigated.

Data Sources

EBRI/ICI 401(k) Database — This is a participant-level database constructed from the administrative records of 401(k) plans at the end of each year, representing a large cross section of 401(k) plans. The database represents a broad range of participants — including those who are young or old, and those who are new to their jobs or have been with their current employer for many years.[6]

Chase Data — JPMorgan Chase Bank, N.A. (Chase) serves 66 million U.S. households with a broad range of financial services including checking, savings, investments, credit cards, and loans. Chase's scale and wide reach allows for a comprehensive view of household finances. In this analysis, the Chase data sample is restricted to the households in 2021–2022 who use Chase as their primary banking institution, and their total household spending through all payment mechanisms (select credit and debit card transactions, electronic payment transactions, check and cash payments) and sources of income including wage income, Social Security, annuity, pensions, etc. can be linked to the EBRI/ICI 401(k) Database. For more information about Chase, visit the following website: https://www.chase.com/digital/resources/about-chase.

Data privacy is fully protected. No personally identifiable information is contained within the data and all spending and saving attributes analyzed in this research are kept completely anonymous.[7]

Longitudinal Sample Construction

In this study, spending and private-sector 401(k) plan data from 2021–2022 at the household level are examined. In order to create this household view, the following steps were taken to merge the spending data from Chase and the private-sector 401(k) plan data from the EBRI/ICI 401(k) Database to create the full data sample:

1) Using the unique participant/customer identifier (not personally identifiable information) in each dataset, the individuals in both sets of data are established. These individuals with both the spending and the saving data are then grouped into households using Chase's method for determining members of a household.[8] The unit of observation in this study is the household. The number of people in these households may not truly reflect the exact household size, as the household size can only be approximated based on the number of unique individuals who have Chase accounts. As an example, if only one spouse has a Chase account, this will be considered a one-person household. This household unit observation necessitates the defining of specific data variables.

2) In order to ensure that the data sample only includes households where the Chase data have all or the majority of their spending, filters are applied to the households to meet the full (majority) spending criteria. These filters include but are not limited to: all 12 months of spending data, households with spending more than 50 percent of their estimated gross income, and households with credit card spending outside of Chase of less than 30 percent of their overall spending.[9]

3) Once these households are identified, at least one of the individuals in the household must also be a private-sector 401(k) plan participant where a loan is available in their plan. The demographic and financial characteristics of the person identified as the 401(k) plan participant in the household are those used in the analysis.

4) Since the status of many of the variables must be known at the beginning and the end of the study year, these households must have two contiguous years in the sample to be included. Thus, each household having complete 401(k) plan and credit card data in 2021 and 2022 is an observation for this analysis. This results in 81,786 household observations.

Data Definitions

Spending — Total spending is the annual sum of the monthly spending captured through credit and debit cards, electronic payment transactions, Chase checks, and cash across 10 specific spending categories: apparel & services, education, entertainment, food & beverage, health care, housing, transportation, travel, charitable contributions, and other. For cash and check spending that cannot be categorized, two additional categories are created: unspecified cash and check spending.

Income — Since all the spending data are at the household level, the income used in this study is also at the household level. There are two income values used in this study from the Chase data:

> **Net Income** — This is the observed deposited amount from the Chase data for salaries and wages that is net of any taxes and deductions taken out before the paycheck is deposited. This income source is used for calculating the spending ratios.
>
> **Gross Income** — This is an estimate based on net income described above with the addition of estimated federal income and Federal Insurance Contributions Act (FICA) taxes for the household.

Credit Card Utilization — This is measured by the ratio of the revolving credit card balances in the last month of the year to the credit limit on those cards. A ratio of 0 percent means that the household has no revolving credit card debt, while 100 percent means that the household has used the full allowable credit on their credit card(s). The ratio used will be that of the end of the year prior to the year of the incidence of any loan.

New Plan Loan or New Loan — Plan loan data are only available at year end, so any participant who has no outstanding loan balance at the end of the prior year one but has a balance at the end of study year is considered to have a new loan in the study year. In addition, any participant who has a higher outstanding loan balance at the end of the study year than they had at the end of the prior year is also considered to have taken a new loan in study year. Any use of plan loan in the text refers to a new plan loan, not one outstanding from a prior year.

Contribution Rates — The contribution rates in this study are calculated by taking the dollar amount of the 401(k) plan contribution from the 401(k) plan data in the year of the loan incidence and dividing it by the gross household income from the banking data plus the 401(k) plan contribution amount.

Account Balances — The account balance is the end-of-year total amount that the 401(k) plan participant has in their private-sector 401(k) plan in the year of the loan incidence.

Spending Ratio — This is the ratio of total annual spending to annual net income of the year of the loan incidence.

Household Demographics

The household participants were widely distributed across ages and incomes (Figure 1). For example, 11.3 percent of the households had a 401(k) plan participant younger than age 30, 24.2 percent ages 40–49, and 13.4 percent ages 60 or older. The bulk of the sample were Millennials (44.0 percent) and Gen Xers (35.7 percent). For gross household incomes, 3.9 percent of the households had incomes of $20,000–$29,999 and 32.2 percent had incomes of $100,000 or more.

As far as financial factors, 6.2 percent of the household participants had 401(k) plan account balances of less than $2,000 and 8.0 percent had balances of $2,000–$4,999, while 19.8 percent had balances of $100,000 or more (Figure 2). Over two-fifths (44.0 percent) of these households had no revolving credit card debt at the beginning of the year, while 15.5 percent were using 80–100 percent of their credit card limit. Nearly one-half (48.5 percent) of the households had spending ratios of 1.05 or more, while two-fifths (39.6 percent) had ratios of less than 0.95.

Figure 1
Demographic Characteristics of the Sample

Age	Percentage
<30	11.3%
30–39	30.2%
40–49	24.2%
50–59	20.9%
60+	13.4%
Generations	
Gen Z	3.0%
Millennials	44.0%
Gen X	35.7%
Boomers	17.4%
Gross Income	
$20,000–$29,999	3.9%
$30,000–$49,999	19.8%
$50,000–$74,999	27.1%
$75,000–$99,999	17.1%
$100,000 or more	32.2%

Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 2
Financial Characteristics of the Sample

Account Balance	Percentage
Less than $2,000	6.2%
$2,000–$4,999	8.0%
$5,000–$9,999	12.0%
$10,000–$14,999	9.0%
$15,000–$19,999	6.9%
$20,000–$49,999	23.3%
$50,000–$99,999	14.8%
$100,000 or more	19.8%
Credit Card Debt/Limit Ratio-Beginning of the Year	
0%	44.0%
>0%–19%	15.6%
20%–59%	18.3%
60%–79%	6.7%
80%–100%	15.5%
Spending-to-Income Ratio	
<0.80	20.3%
0.80–0.94	19.3%
0.95–1.04	11.9%
1.05–1.49	29.3%
1.50–1.99	10.0%
2.00 or more	9.2%

Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

Loan Incidence

To determine where plan loans were spent, the participants who took a loan must first be identified. In this sample of private-sector 401(k) plan participants where a loan option was available, 9.7 percent took a loan during the year of interest (Figure 3).[10] The likelihood of a participant taking a plan loan increased with age through the 40s then declined. Household income did not appear to have an impact on the likelihood of a plan loan being taken, as the percentage taking a loan in each income group was in the 9–10 percent range. Participants with the smallest account balances had the lowest likelihood of taking a loan, but once the account balance reached $10,000, the likelihood of taking a loan was similar through balances of $100,000 or more, landing in the 10–11 percent range. The percentage who took a loan increased substantially with credit card utilization, as 5.8 percent of participants in households with outstanding-credit-card-balance-to-credit-card-limit ratios of 0 percent took a loan compared with 11.5 percent of those with ratios of 20–59 percent and 18.6 percent of those with ratios of 80–100 percent.

In all age groups except for the 60s, participants with household incomes at the median or below were more likely to have taken a loan than participants from households with incomes above the median (Figure 4).[11] For example, among those ages 40–49, 13.2 percent of participants in households with incomes at or below the median took a loan, compared with 11.7 percent of the participants in households with incomes above the median. The likelihoods among participants in their 60s saw 6.3 percent of participants in households with incomes at or below the median taking a loan and 6.5 percent of participants in households with incomes above the median.

The average overall outstanding loan balance at the end of the year when the loan was taken was $10,030 (Figure 3). For incomes above $30,000 and for all account balances, the average outstanding loan balance increased as they increased. The average outstanding loan balance increased with age through the 50s before declining for those ages 60 or older. The average outstanding loan balance decreased as credit card utilization increased, going from $11,254 among those in households with ratios of 0 percent to $8,760 for those in households with ratios of 80–100 percent.

Figure 3

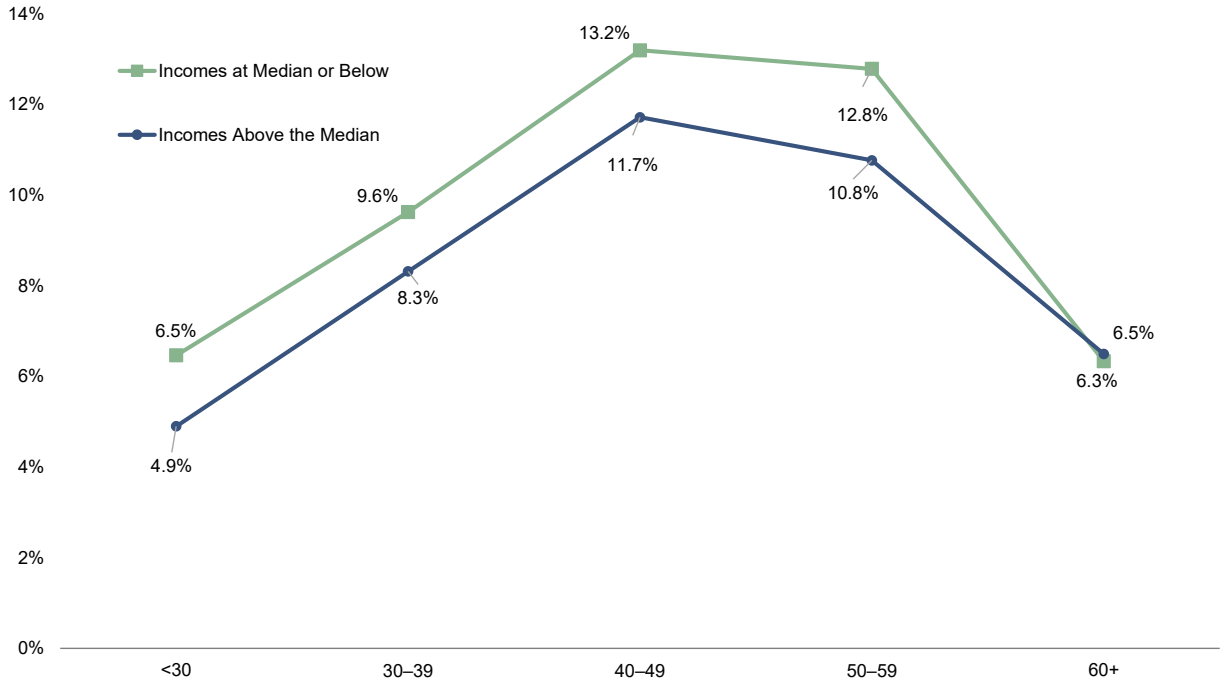
Percentage of Participants Taking a New Loan in a Year and the Average Balance of the Loans at Year End, by Various Demographic Characteristics

	Percentage Taking Loan	Average Amount		Percentage Taking Loan	Average Amount
All	9.7%	$10,030	**Account Balance**		
			Less than $2,000	1.0%	$1,092
Age			$2,000–$4,999	6.0%	$1,799
<30	5.9%	$5,502	$5,000–$9,999	8.4%	$3,453
30–39	9.0%	$8,500	$10,000–$14,999	11.4%	$5,036
40–49	12.4%	$10,978	$15,000–$19,999	11.5%	$6,484
50–59	11.7%	$11,703	$20,000–$49,999	11.4%	$9,677
60+	6.4%	$10,264	$50,000–$99,999	11.1%	$13,716
			$100,000 or more	10.3%	$16,942
Generations			**Credit Card Debt/Limit Ratio — Beginning of the Year**		
Gen Z	4.4%	$3,963	0%	5.8%	$11,254
Millennials	8.8%	$8,365	>0%–19%	7.9%	$10,552
Gen X	12.3%	$11,462	20%–59%	11.5%	$10,124
Boomers	7.6%	$10,798	60%–79%	14.0%	$9,681
			80%–100%	18.6%	$8,760
Gross Income					
$20,000–$29,999	10.1%	$8,895			
$30,000–$49,999	10.2%	$7,509			
$50,000–$74,999	10.0%	$8,991			
$75,000–$99,999	9.9%	$9,557			
$100,000 or more	8.9%	$13,213			

Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 4

Percentage of Participants Taking a Loan in a Year, by Income and Age

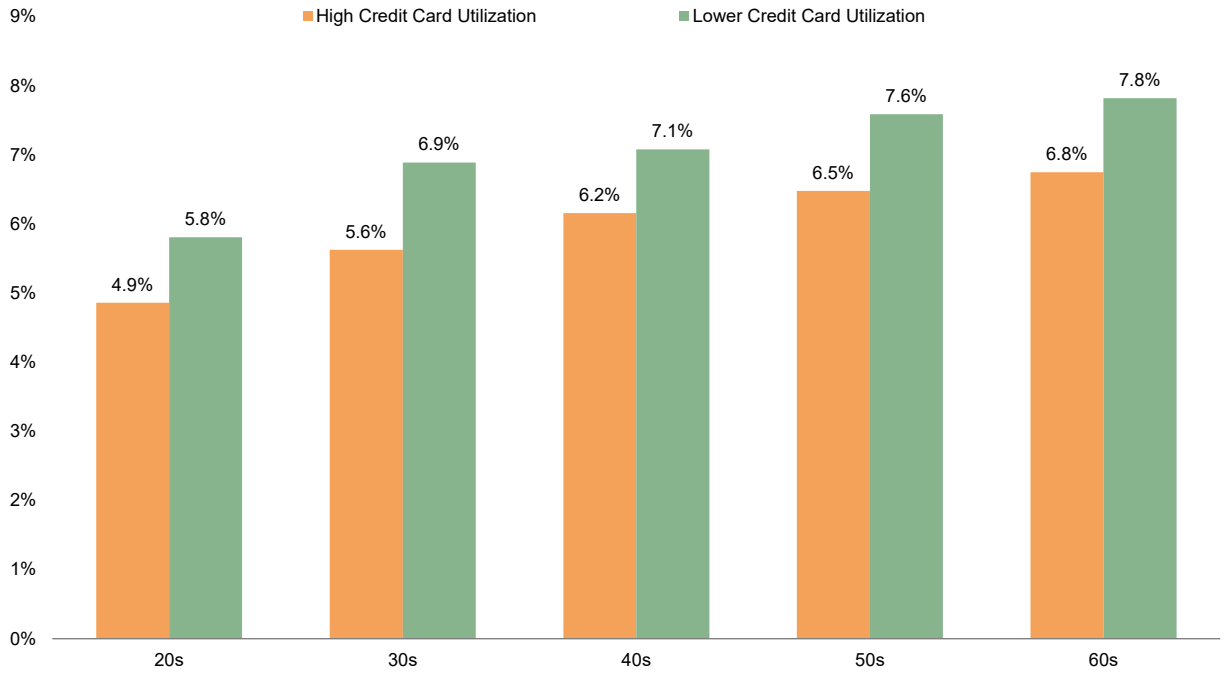


Note: The median gross household income of the sample was $74,275.
Source: Estimates from the EBRI/ICI 401(k) Database and select Chase data. For more information, see the Data Sources box in the text.

It is not surprising that the average loan balance is lower for those in households with higher credit card ratios, as participants in households with higher credit card utilization were more likely to have less in their plans available to take as a loan. Participants in households with higher credit card usage had lower average contribution rates (the percentage of total gross household income that contributions to the 401(k) plan represent) across all ages and generations (Figures 5 and 6).[12] For example, for participants in their 50s, those from higher-credit-card-utilization households had an average contribution rate of 6.5 percent, compared with 7.6 percent for those with lower credit card utilization. This, in fact, leads to lower average balances among those with high credit card utilization across all age groups and generations (Figures 7 and 8). Looking at participants in their 50s again, for example, the average account balance was $135,513 for those from lower-credit-card-utilization households, compared with $83,674 for those in high-credit-card-utilization households.

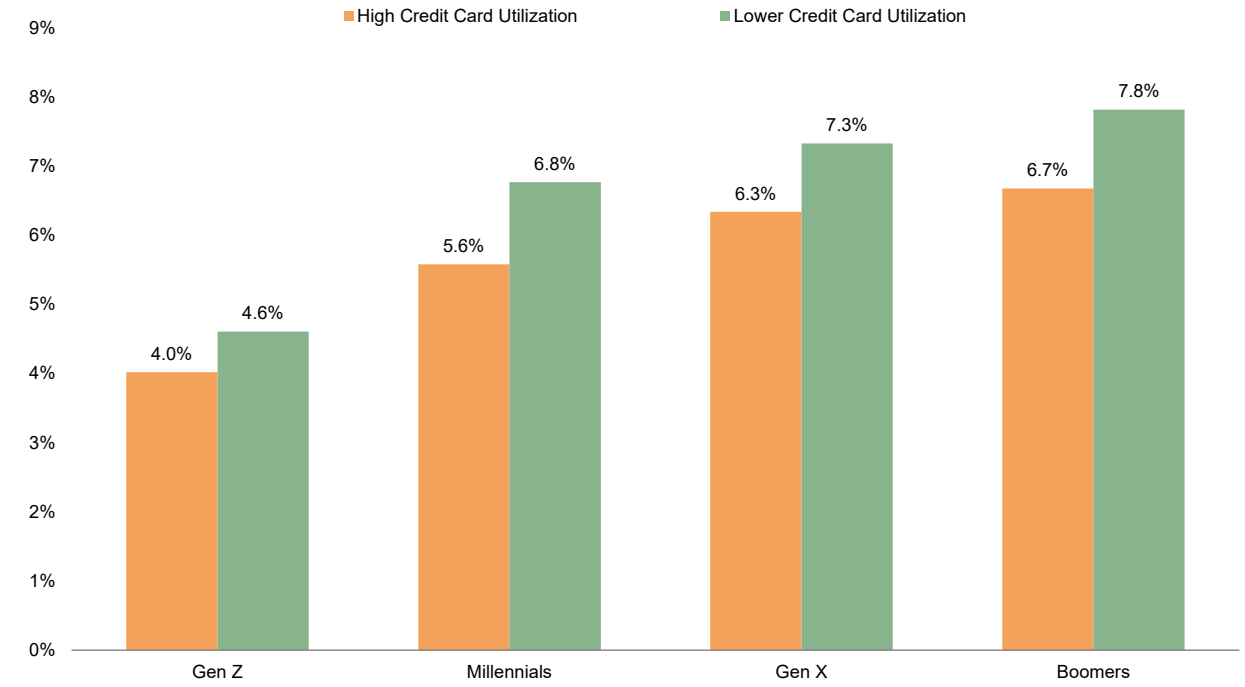
The link between credit card usage, plan loans, and plan outcomes is critical to understanding the connection between overall finances and retirement plan accumulations. Prior research in this collaboration as well as this research reinforce the importance of this relationship. In contrast, going the next step to find out what the plan loans appear to be used for has not been as well established with administrative data.[13] An investigation into where the plan loan funds are being spent is developed in the next section.

Figure 5
Average Contribution Rates, by Credit Card Usage and Age



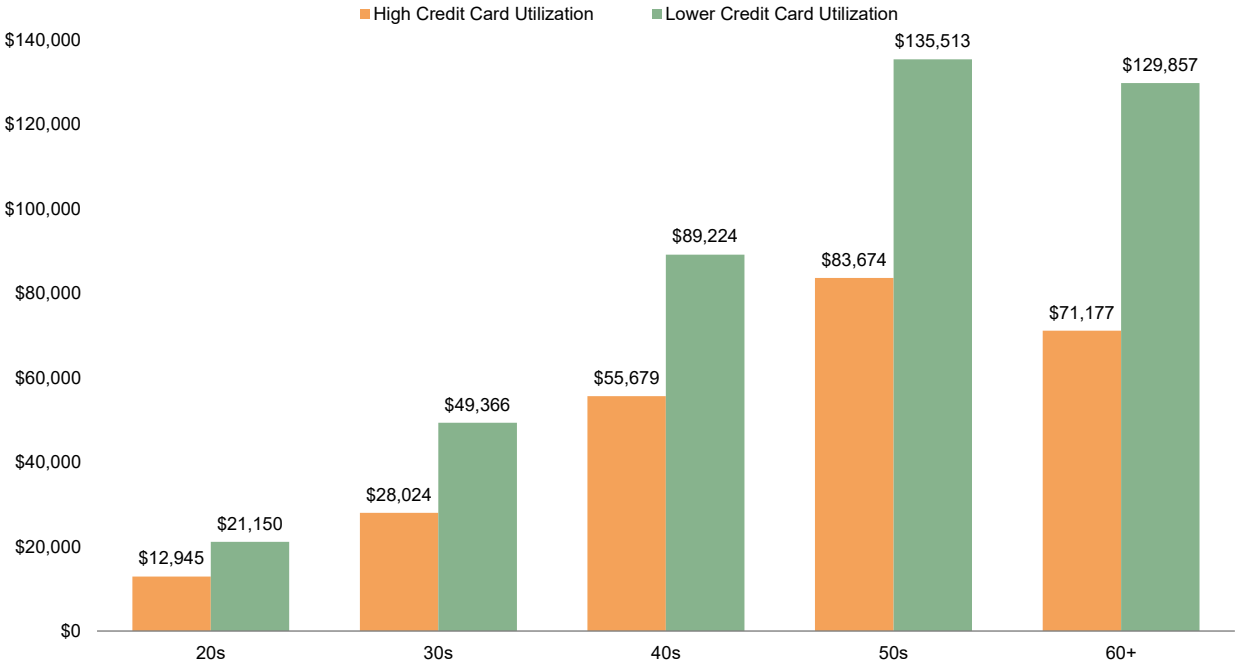
Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.
Note: The high-credit-card-utilization category includes participants with households having outstanding credit card balances of more than 50 percent of their credit card limits, while the lower-credit-card-utilization category includes participants in households having outstanding credit card balances of 50 percent or less of their credit card limits.

Figure 6
Average Contribution Rates, by Credit Card Usage and Generation



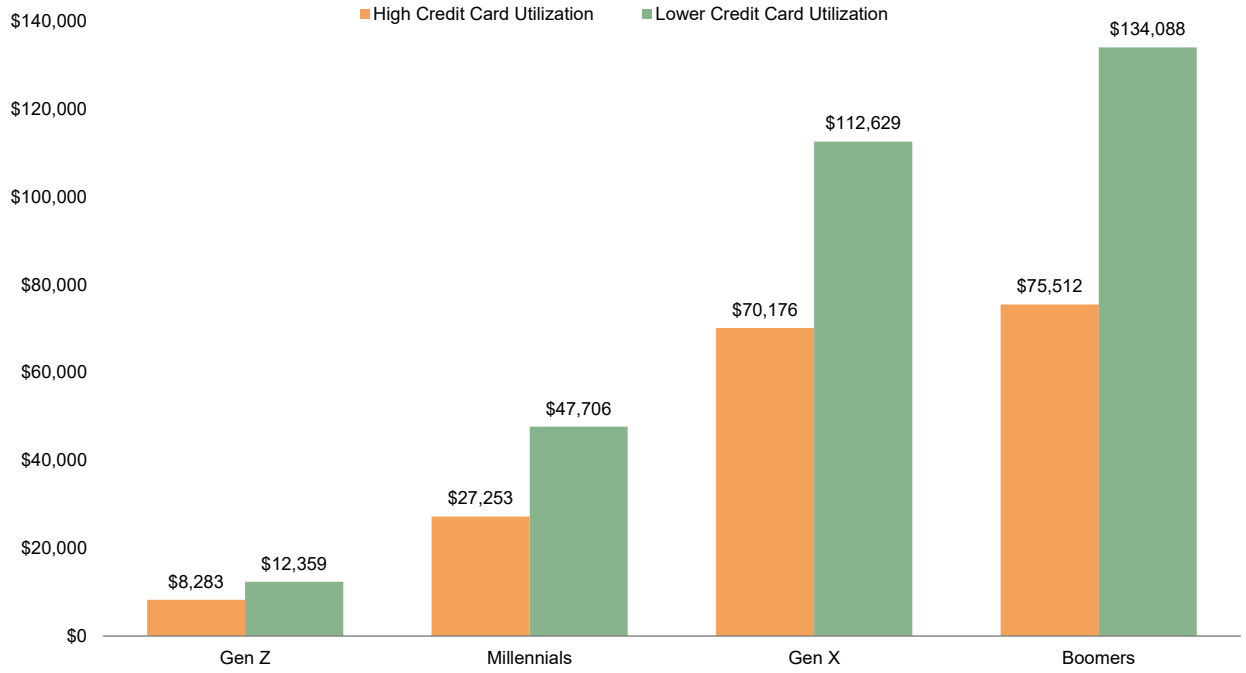
Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.
Note: The high-credit-card-utilization category includes participants with households having outstanding credit card balances of more than 50 percent of their credit card limits, while the lower-credit-card-utilization category includes participants in households having outstanding credit card balances of 50 percent or less of their credit card limits.

Figure 7
Average Account Balances, by Credit Card Usage and Age



Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.
Note: The high-credit-card-utilization category includes participants with households having outstanding credit card balances of more than 50 percent of their credit card limits, while the lower-credit-card-utilization category includes participants in households having outstanding credit card balances of 50 percent or less of their credit card limits.

Figure 8
Average Account Balances, by Credit Card Usage and Generation



Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.
Note: The high-credit-card-utilization category includes participants with households having outstanding credit card balances of more than 50 percent of their credit card limits, while the lower-credit-card-utilization category includes participants in households having outstanding credit card balances of 50 percent or less of their credit card limits.

Loan Incidence and Changes in Spending

To see where those who took plan loans spent their funds, each loan-taking participant's spending is compared in 12 specific categories between the year before the loan incidence was examined and the year that the loan was taken. The first test was to see if spending in any of the 12 categories increased by more than 10 percent.[14, 15] Amo ng those with a new DC plan loan, health care spending was the most likely to have increased, as 51.0 percent of households where a participant took a loan saw their spending on health care increase by more than 10 percent in the year they took the loan (Figure 9). This was followed by travel (21.0 percent), entertainment (19.2 percent), and non-specified cash spending (18.5 percent). However, these expenses could have increased generally and were not necessarily specific to the loan. Therefore, the likelihoods of spending increases of this magnitude were compared with those who did not take a loan. The same categories among those who did not take a loan were the most likely to have had increases, in the same order. The one category that showed a higher likelihood of having increased among those taking loans was health care spending, with 51.0 percent vs. 47.8 percent among those who did not take a loan. Otherwise, spending changes were very similar between households with or without a plan loan.

There were age, generation, and income differences in taking loans shown previously that may have impacted the spending change results. When looking at the age of the household participant, each age group showed a higher percentage with a greater than 10 percent increase in health care spending among those who took a loan

Figure 9
Percentage of Participant Households With an Increase of More Than 10 Percent in Various Spending Categories, by New Loan Plan Status

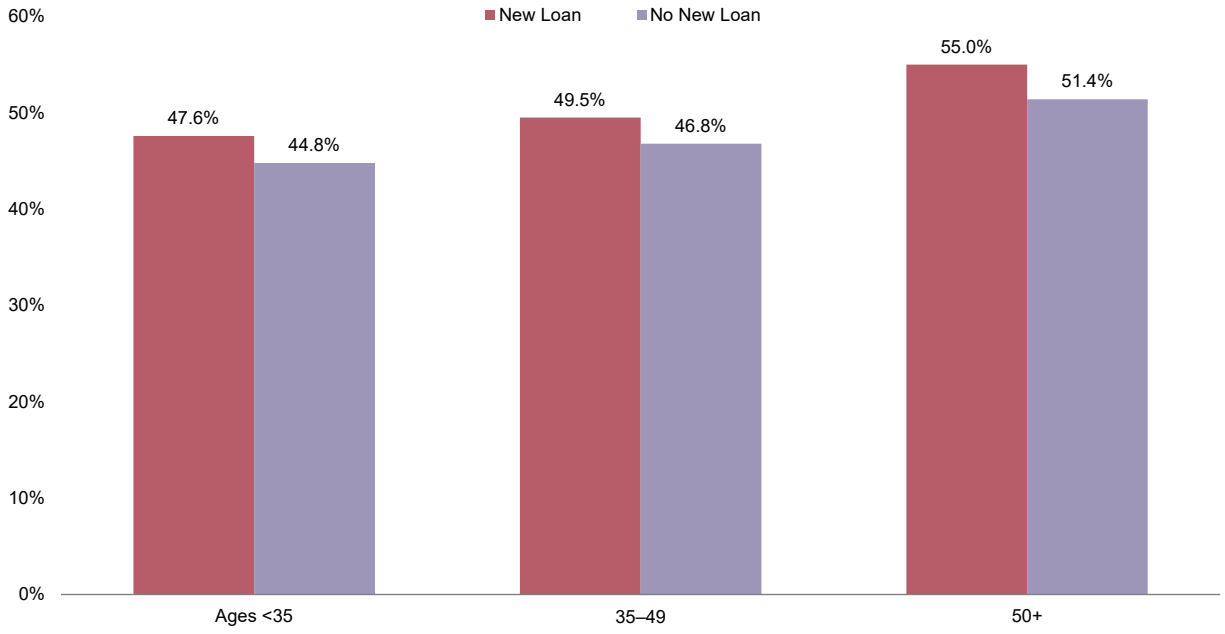
Spending Category	New Loan	No New Loan
Apparel Services	11.0%	11.2%
Cash	18.5%	18.4%
Charitable	11.9%	13.5%
Checks	10.8%	11.6%
Education	12.2%	11.7%
Entertainment	19.2%	20.2%
Food/Beverages	3.4%	3.3%
Health Care	51.0%	47.8%
Housing	8.9%	8.2%
Other	5.0%	5.0%
Transportation	9.1%	10.6%
Travel	21.0%	23.0%

Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

compared with those who did not take a loan (Figure 10). For example, among participants ages 50 or older, 55.0 percent of households with participants these ages who took a loan had their health care spending increase by this amount, compared with 51.4 percent of the households without a participant who took a loan. The same results held for the three older generations, but for Gen Zers, the difference between those who did and did not take a loan was insignificant (Figure 11).

Figure 10

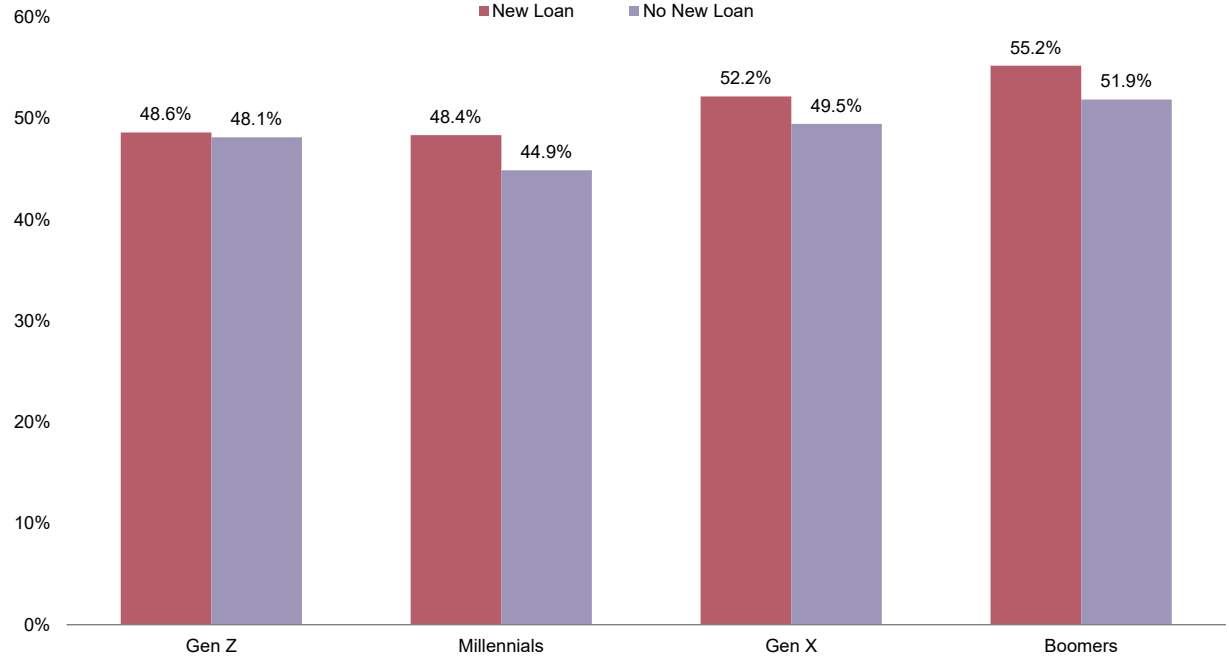
Percentage of Participant Households With an Increase of More Than 10 Percent in Health Care Spending, by New Loan Plan Status and Age of the Participant



Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 11

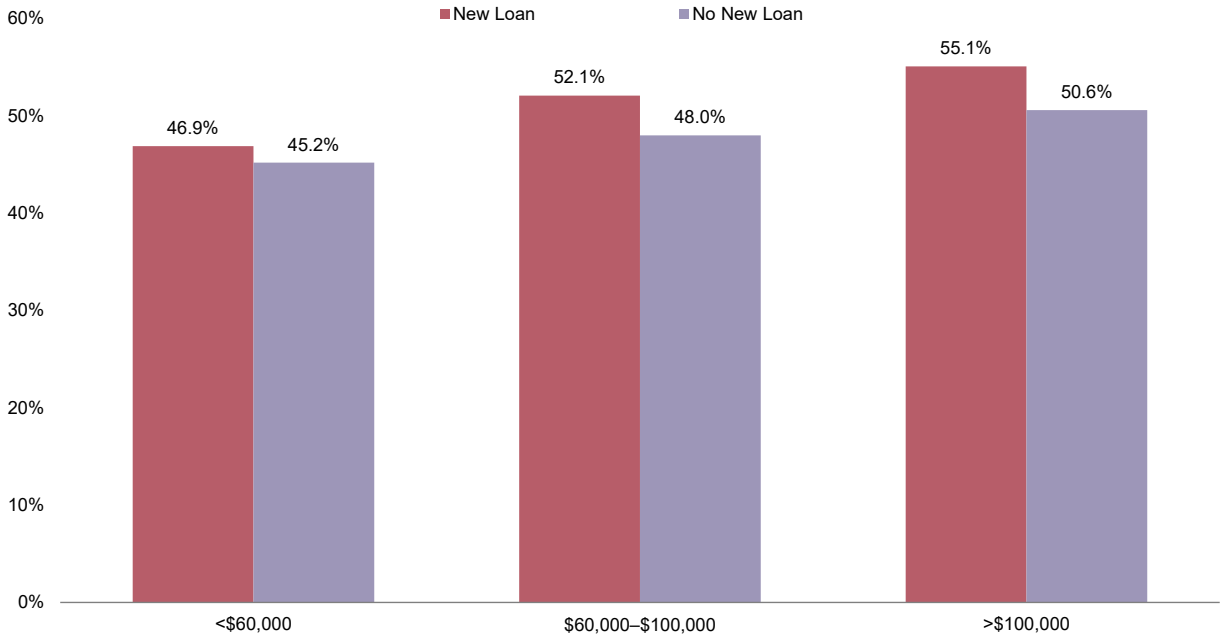
Percentage of Participant Households With an Increase of More Than 10 Percent in Health Care Spending, by New Loan Plan Status and Generation of the Participant



Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

Higher likelihoods of increases in health care spending among those households with a participant who took a plan loan resulted across each income group (Figure 12). Those with incomes in the higher two groups showed significant differences in the percentages who had an increase in health care spending of over 4 percentage points.

Figure 12
Percentage of Participant Households With an Increase of More Than 10 Percent in Health Care Spending, by New Loan Plan Status and Household Income



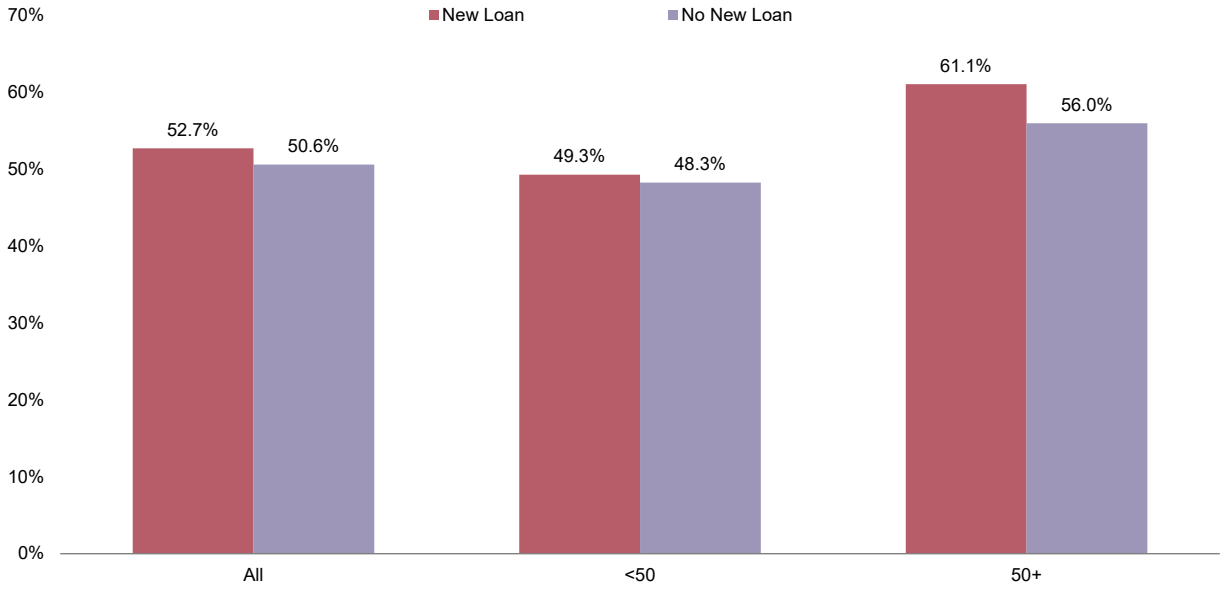
Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

Loan usage increases among those with higher credit card utilization, which would be an indicator of households being more likely to be financially stressed. Therefore, households that are likely to be financially stressed were identified to see if health care is still a category of spending that is more likely to have an increase in spending among those who took plan loans vs. those who did not. A financially stressed household is defined as having outstanding credit card balances larger than 75 percent of their credit card limits and having spent more than 110 percent of their net income. Among these financially stressed households, those who also took a plan loan were more likely to have had a spending increase of more than 10 percent than those who did not take a plan loan (Figure 13). Spending increases on health care were more prevalent among the financially stressed households whose plan participants were ages 50 or older, as 61.1 percent of the households where a plan loan was taken had this increase compared with 56.0 percent of the households where a loan was not taken. By generation, a larger likelihood of a more than 10 percent increase in health care spending for those taking a plan loan only resulted for the households with participants in the older two generations (Baby Boom and Gen X), whereas the likelihoods for those with participants in the younger two generations were virtually identical (Figure 14).

A spending increase may not have surpassed the 10 percent threshold, but it may have altered the composition of spending among the households. To determine the second test of spending changes, the composition of total spending that each category represented was compared between the year prior to the loan incidence and the loan year to see if any spending category's share increased by more than 5 percentage points. The spending categories most likely to have seen an increase in their share of total spending of this size were unspecified cash spending (22.8 percent of the households), housing (21.0 percent), and health care (19.7 percent) (Figure 15). Given their larger likelihoods of share increases, housing and cash were examined together to determine if there was a relationship between these categories such as for the possibility of one decreasing while the other increased, and together they were more likely to have a combined share increase of more than 5 percentage points at 28.8 percent, more than in either of the categories individually.

Figure 13

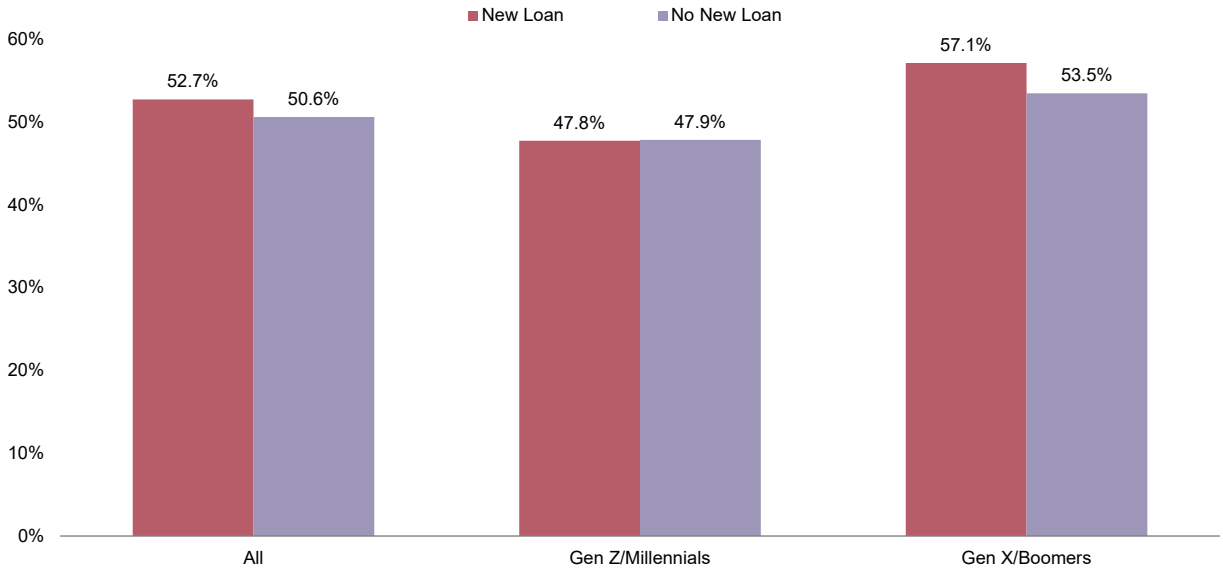
Percentage of Participant Households Who Are Financially Stressed* With an Increase of More Than 10 Percent in Health Care Spending, by New Loan Plan Status and Age of Participant



Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.
*A financially stressed household is defined as having outstanding credit card balances larger than 75 percent of their credit card limits and having spent more than 110 percent of their net income.

Figure 14

Percentage of Participant Households Who Are Financially Stressed* With an Increase of More Than 10 Percent in Health Care Spending, by New Loan Plan Status and Generation of the Participant



Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.
*A financially stressed household is defined as having outstanding credit card balances larger than 75 percent of their credit card limits and having spent more than 110 percent of their net income.

Figure 15

Percentage of Participant Households With an Increase of More Than 5 Percentage Points in the Share That Various Spending Categories Represent, by New Loan Plan Status

Spending Category	New Loan	No New Loan
Apparel Services	3.4%	3.8%
Cash	22.8%	17.2%
Charitable	0.4%	0.4%
Checks	11.5%	13.8%
Education	1.8%	2.4%
Entertainment	2.3%	3.0%
Food/Beverages	15.9%	18.6%
Health Care	19.7%	20.3%
Housing	21.0%	18.8%
Other	7.8%	7.7%
Transportation	15.6%	15.0%
Travel	5.4%	8.2%
Housing+Cash	28.8%	24.9%

Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

Again, the likelihoods of the share increases were compared with those who did not take a loan. For the households without a participant who took a plan loan, health care spending was the most likely to have seen its portion of total spending increase by more than 5 percentage points at 20.3 percent. This was followed by housing (18.8 percent) and food/beverages (18.6 percent). Only housing spending and unspecified cash spending had higher likelihoods of share increases for those who took a loan vs. those who did not. Otherwise, the likelihoods of the changes in the shares of spending in each of the other categories were either similar between the households or less for the households with a participant who took a plan loan.

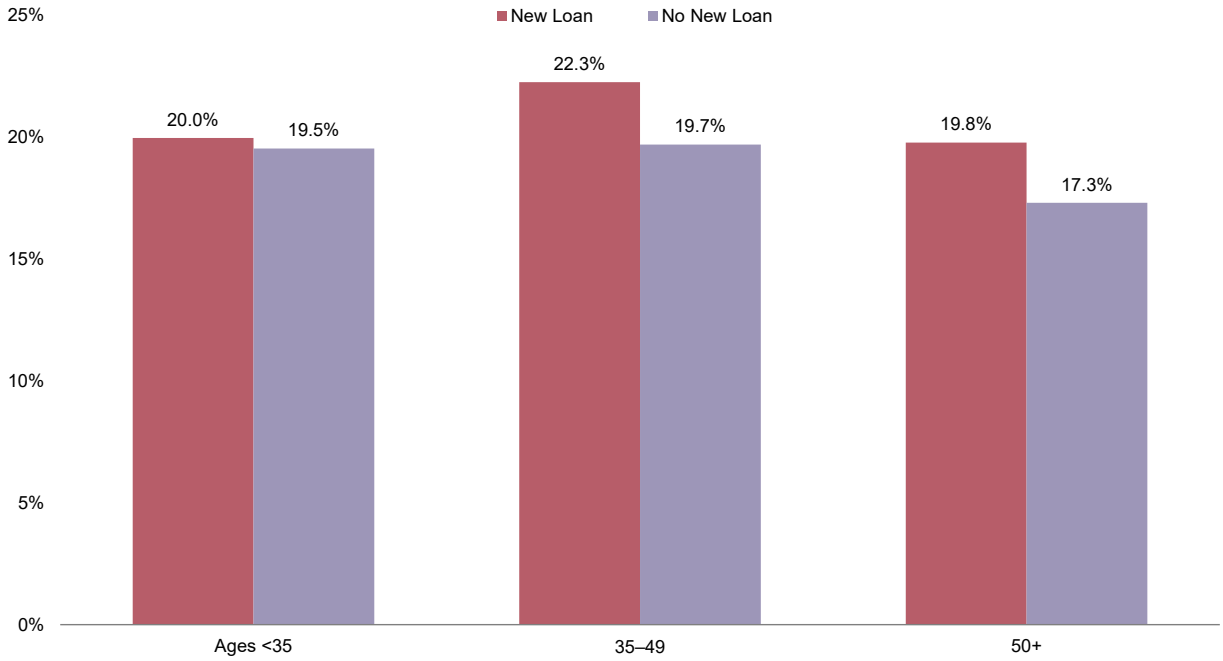
Potential age, generation, and income differences are again examined between those who did and did not take plan loans. The percentage of households with a larger than 5 percentage point increase in the portion of their total spending going to housing being higher for the households with participants who took a loan was more pronounced among households with participants older than age 35 (Figure 16). For example, among households with participants ages 35–49 who took a loan, 22.3 percent had a greater than 5 percentage point housing share increase compared with 19.7 percent for those who had not taken a loan. In contrast, households with participants younger than 35 saw no significant differences in the likelihood of having a greater than 5 percentage point increase in housing share by loan status. Furthermore, the differences in the likelihoods of a greater than 5 percentage-point housing share increase by loan status grew as the generation became older, where the older generations were more likely to have an increase in the housing share if they had taken a loan (Figure 17).

By household income, the households with the lower incomes (less than $100,000) who had taken a loan were more likely to have had an increased share relative to the households who had not taken a plan loan (Figure 18). The difference did not carry over to the households with incomes of more than $100,000.

When the housing and cash categories are combined, the likelihood of a combined share increase being higher among the households with a plan loan was seen across each age group, with the largest differences among the households with the youngest and oldest participants (Figure 19). This difference in the likelihood of a share increase was also found for each of the three older generations but not in Generation Z (Figure 20).

Figure 16

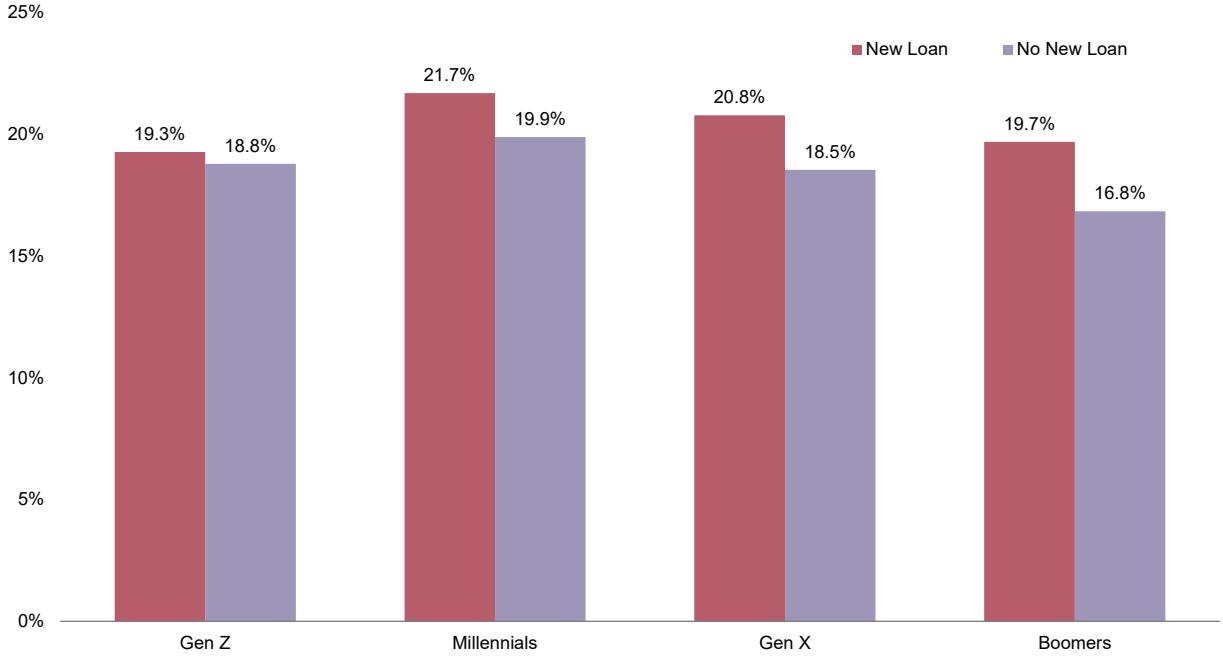
Percentage of Participant Households With an Increase of More Than 5 Percentage Points in Housing Share of Total Spending, by New Loan Plan Status and Age of the Participant



Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 17

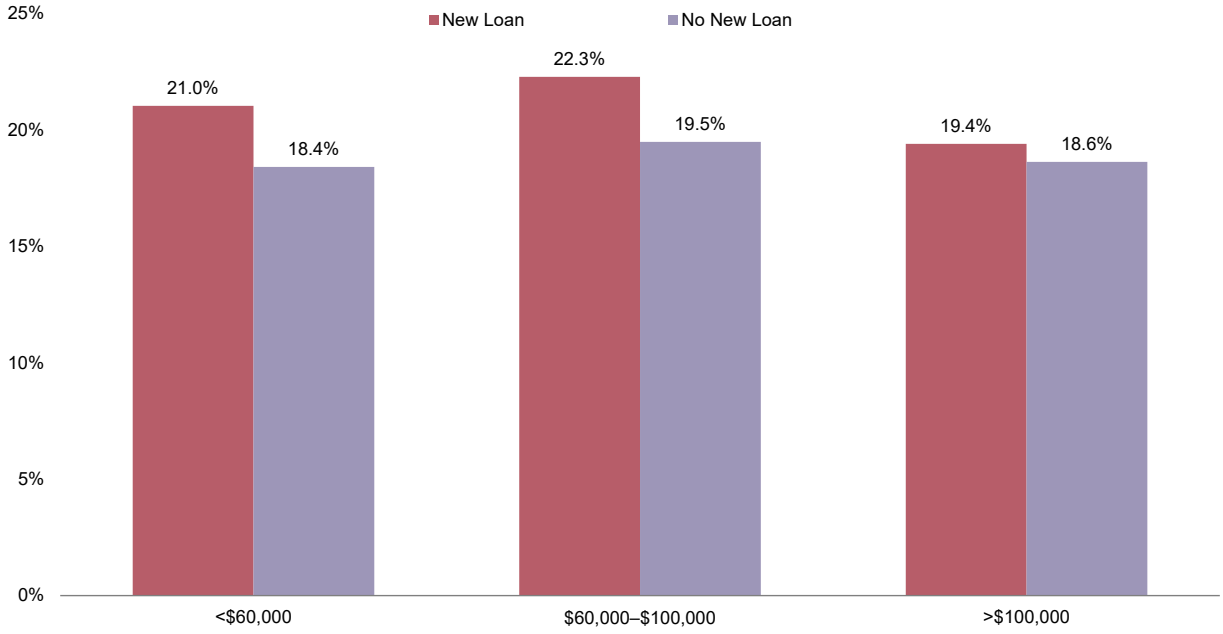
Percentage of Participant Households With an Increase of More Than 5 Percentage Points in Housing Share of Total Spending, by New Loan Plan Status and Generation of the Participant



Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 18

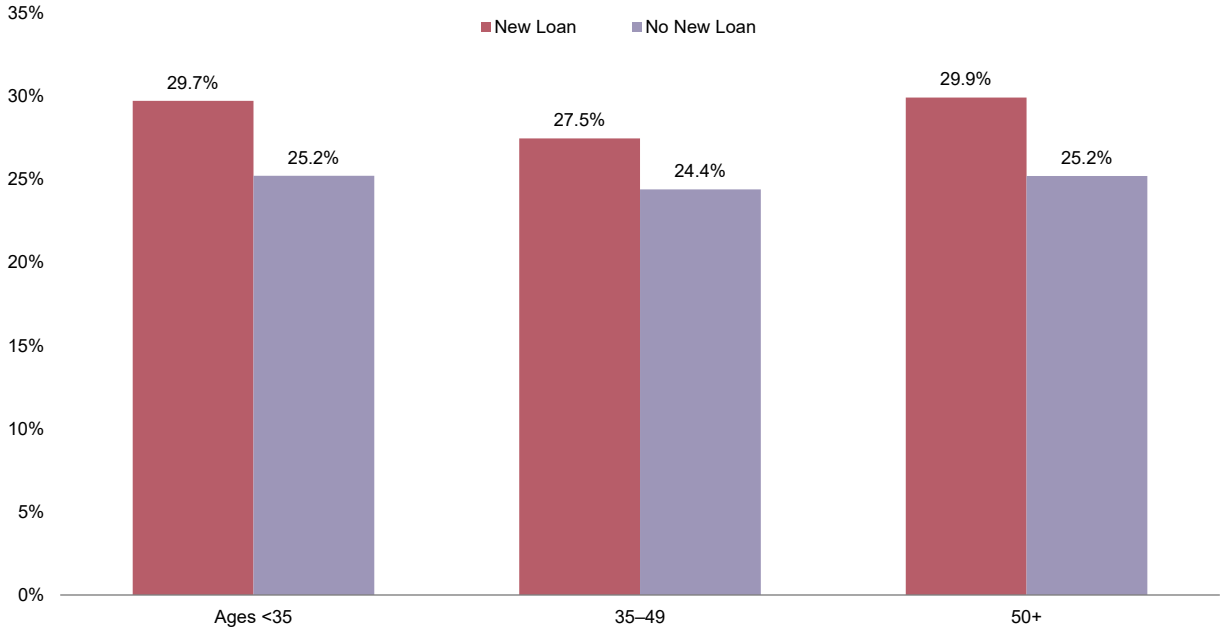
Percentage of Participant Households With an Increase of More Than 5 Percentage Points in Housing Share of Total Spending, by New Loan Plan Status and Household Income



Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

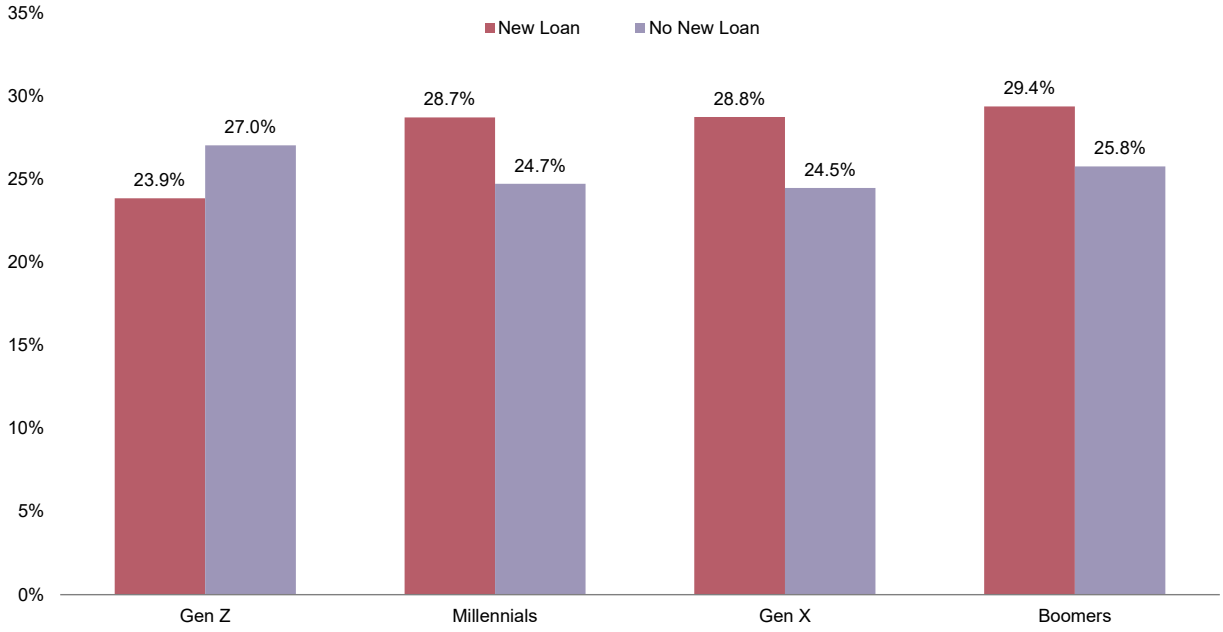
Figure 19

Percentage of Participant Households With an Increase of More Than 5 Percentage Points in Housing+Cash Share of Total Spending, by New Loan Plan Status and Age of the Participant



Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 20
Percentage of Participant Households With an Increase of More Than 5 Percentage Points in Housing+Cash Share of Total Spending, by New Loan Plan Status and Generation of the Participant



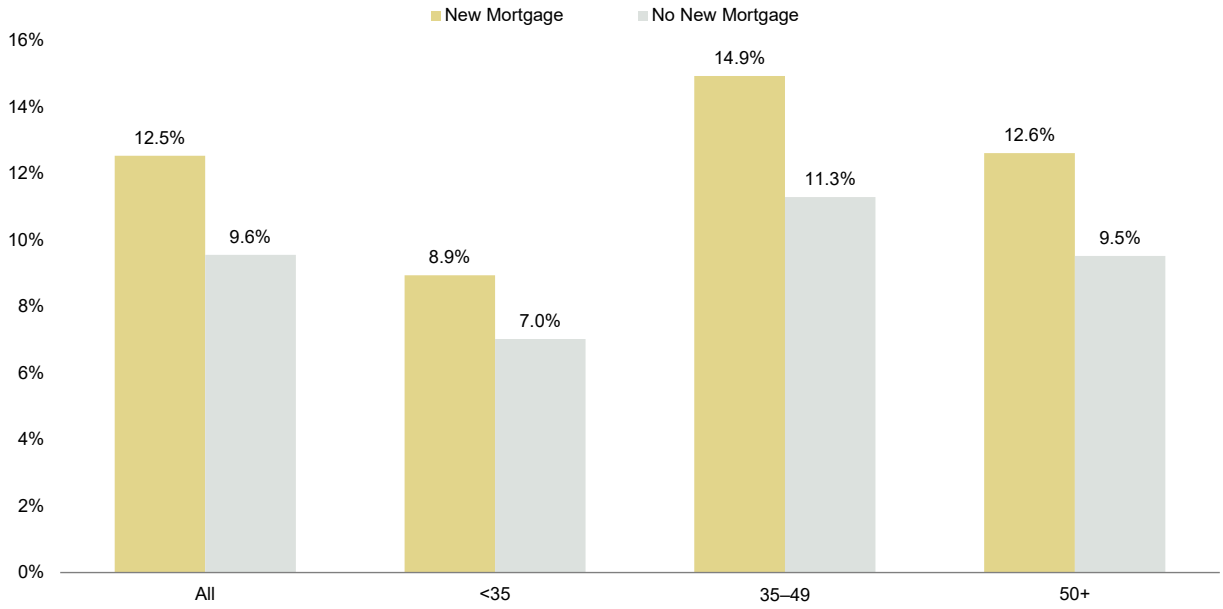
Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.

New Mortgages

An important component of housing expenses is mortgage payments; as a result, starting a mortgage is likely to have a significant impact on housing expenses. A possible source of funds for a down payment when purchasing a house is a DC plan loan. In fact, households who started mortgage payments in the year of the loan incidence analysis were more likely to have taken a plan loan than those who did not start mortgage payments in that year — 12.5 percent vs. 9.6 percent (Figure 21).[16] This was true for households with plan participants of all ages as well as by generation (Figures 21 and 22). Looking at this correlation in the opposite direction, the percentage of those having a new mortgage given that they had taken a plan loan was 5.9 percent compared with 4.4 percent starting a new mortgage when they had not taken a plan loan (Figure 23). Again, a higher likelihood of starting a new mortgage for those who had taken a plan loan was found across all ages as well as for each generation (Figures 23 and 24).

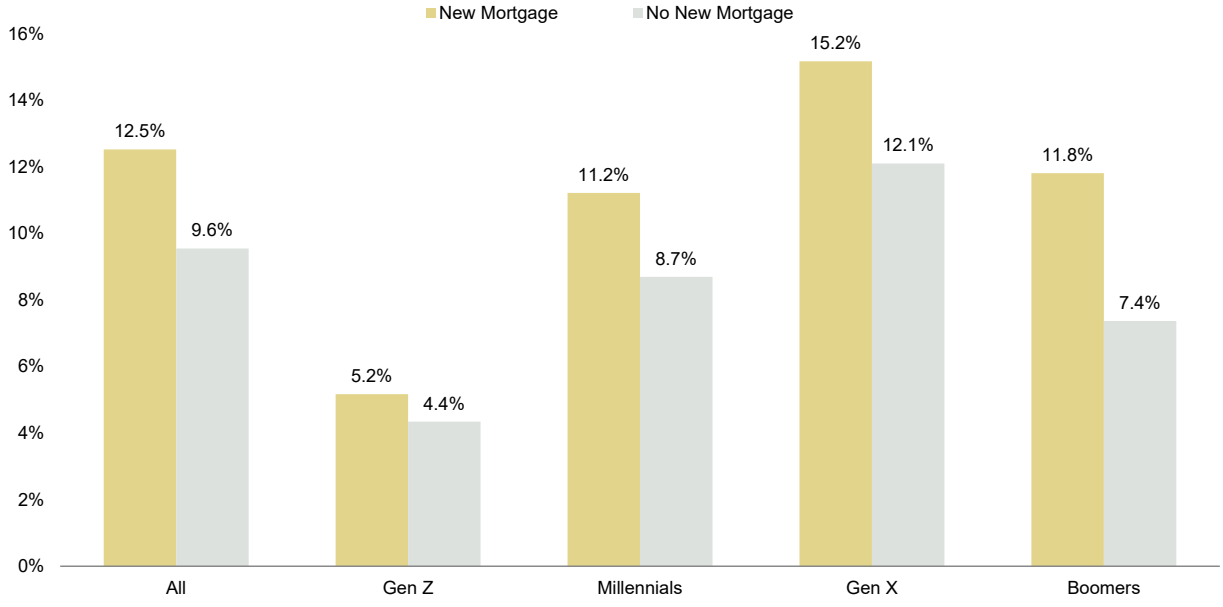
Regardless of whether the household took a plan loan, when a new mortgage was started, the probability of having an increase in housing spending of more than 10 percent was significantly higher (Figure 25). For example, 45.3 percent of those who took a plan and started a new mortgage had a housing spending increase compared with just 6.6 percent of those without a new mortgage but having a new plan loan.

Figure 21
Percentage of Participant Households Who Took a Plan Loan, by New Mortgage Status and Age of the Participant



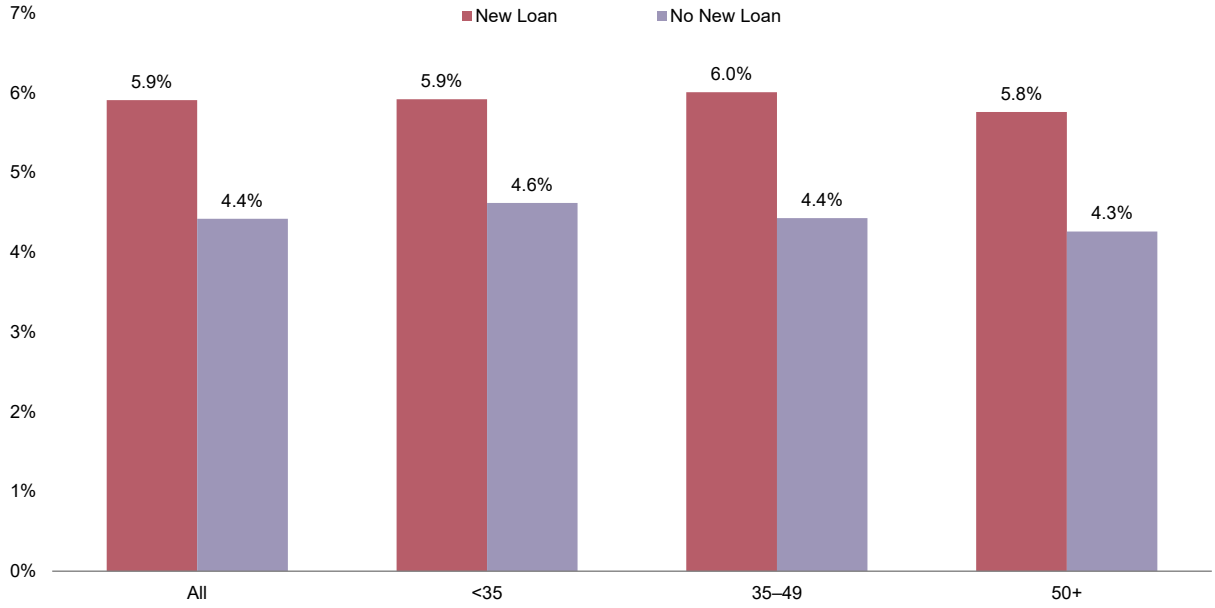
Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.
Note: The households who were identified as starting new mortgages were determined by finding those making mortgage payments in the loan incidence analysis who hadn't been making these payments in the year prior. In other words, any household who was found to not be making them in the prior year but making them in the analysis year were identified as having a new mortgage.

Figure 22
Percentage of Participant Households Who Took a Plan Loan, by New Mortgage Status and Generation of the Participant



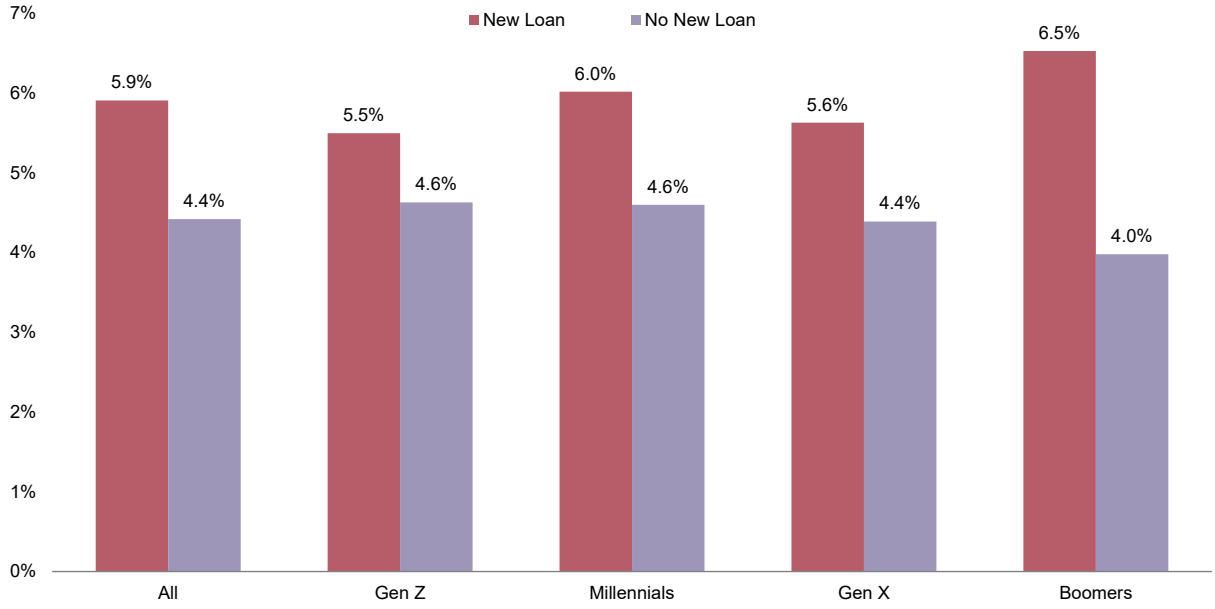
Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.
Note: The households who were identified as starting new mortgages were determined by finding those making mortgage payments in the loan incidence analysis who hadn't been making these payments in the year prior. In other words, any household who was found to not be making them in the prior year but making them in the analysis year were identified as having a new mortgage.

Figure 23
Percentage of Participant Households Who Had a New Mortgage, by New Plan Loan Status and Age of the Participant



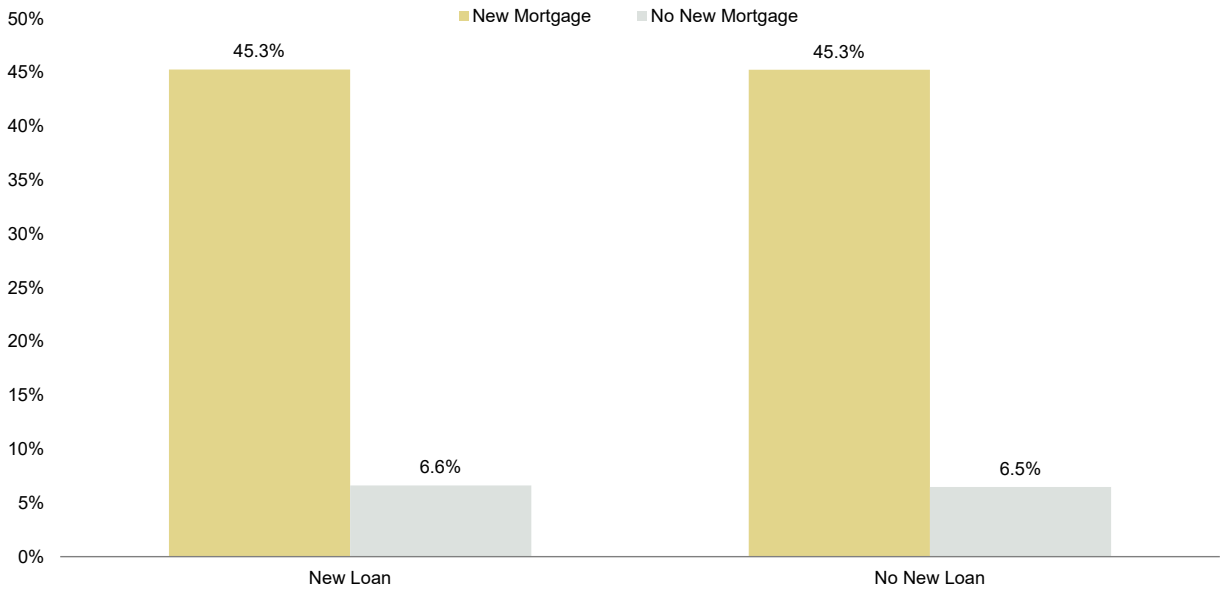
Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.
Note: The households who were identified as starting new mortgages were determined by finding those making mortgage payments in the loan incidence analysis who hadn't been making these payments in the year prior. In other words, any household who was found to not be making them in the prior year but making them in the analysis year were identified as having a new mortgage.

Figure 24
Percentage of Participant Households Who Had a New Mortgage, by New Plan Loan Status and Generation of the Participant



Source: Estimates from the EBRI/ICI 401(k) Plan Database and select Chase data. For more information, see the Data Sources box in the text.
Note: The households who were identified as starting new mortgages were determined by finding those making mortgage payments in the loan incidence analysis who hadn't been making these payments in the year prior. In other words, any household who was found to not be making them in the prior year but making them in the analysis year were identified as having a new mortgage.

Figure 25
Percentage of Participant Households With an Increase of More Than 10 Percent in Housing Spending, by New Loan Plan Status and New Mortgage Status



Source: Estimates from the EBRI/ICI 401(k) Plam Database and select Chase data. For more information, see the Data Sources box in the text.
Note: The households who were identified as starting new mortgages were determined by finding those making mortgage payments in the loan incidence analysis year who hadn't been making these payments in the year prior. In other words, any household who was found to not be making them in the prior year but making them in the analysis year were identified as having a new mortgage.

Conclusion

This study builds on prior J.P. Morgan/EBRI studies that looked at the link between spending, credit card debt, and DC plan loans. These links between spending and debt suggest that retirement planning is not wholly different by place of employment, even where benefits availability may be dissimilar, but part of a broader, holistic financial planning journey where all factors need to be incorporated. In fact, participating in a budget webinar has been found to be associated with higher DC plan contributions.[17] Programs to help with workers' overall finances — for example, financial wellness benefits — could be indispensable. The decision to take a plan loan is not an isolated decision but, instead, is based on the total financial profile of the participant.

However, the prior studies did not identify what specific expenses were linked to the plan loans. In this study, spending increases among households with participants taking a plan loan showed that spending changes were across many spending categories, depending on the households' circumstances. Yet, health care and housing spending, particularly among the households starting a new mortgage, stood out as places where spending increases differed from the households where a DC plan loan was not taken. Thus, the loan usage does not appear to be tied to spending on luxury items but, rather, to expenses involving their health care or investment in a home. This supports the idea that prohibiting plan loans would not necessarily improve participants' retirement security, as the loan usage is more likely to help with expenses that impact retirement — health and homes. Without the option of taking a plan loan, participants would seek loans outside the plan to fill these spending gaps, and those loans may have terms less favorable than those of a plan loan.

This research, like prior J.P. Morgan/EBRI studies, found that higher debt can have a long-lasting impact on retirement security, since higher credit card utilization is correlated with lower DC plan contributions and account balances. Thus, the availability of emergency savings to help cover expenses can be a critical factor in preventing or stalling a cycle of increasing debt that can significantly impact retirement readiness. Other liquid accounts, such as health savings accounts (HSAs) that can provide funds for health care, could also help limit DC plan participants' need to tap their retirement savings accounts when faced with health events. This is particularly important due to the finding that many participants have spending increases on health care when taking a plan loan; as a result, examining the health insurance available to DC plan participants could also help improve finances, showing the intersection of health and wealth.

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Appendix

Logistic regressions can be used to see the impact of various factors simultaneously on the probability of a household having spending increases of more than 10 percent or the share of a spending category increasing by more than 5 percentage points. This technique allows for other factors that potentially impact an increase to be controlled for to see which ones have a statistically significant association. A standard logistic regression only has two options for the dependent variable: in this case, have a more than 10 percent increase in spending or not (have a more than 5 percentage point increase in the share of a spending category or not). The probability of having the spending increase is assumed to be a function of the 401(k) plan account balance (a series of dummy variables for various balance thresholds), the age of the participant (a series of dummy variables for various age thresholds), gross household income (a series of dummy variables for various income thresholds), the tenure of the participant with their current employer (a series of dummy variables for various tenure thresholds), and the spending ratio of the household (a series of dummy variables for various spending ratio thresholds). A variable for whether the 401(k) plan participant in the household took a plan loan or not is also assumed to be a factor in the likelihood of a spending increase. The variable descriptions and the variable averages are in Appendix Figure 1.[18]

Appendix Figure 1
Variable Descriptions and Averages for the Regression Analysis
Dependent Variables

Healthdf10 =1 if health care spending increased by more than 10%, =0 otherwise

Travdf10 =1 if travel spending increased by more than 10%, =0 otherwise
Housed =1 if the share of spending on housing increased by more than 5 percentage points, =0 otherwise
Travd =1 if the share of spending on travel increased by more than 5 percentage points, =0 otherwise

Independent Variables

newln =1 if a new plan loan was taken in the year, =0 otherwise
agec2a =1 if the participant age was less than 30, =0 otherwise
agec2c =1 if the participant age was less than 40–49, =0 otherwise
agec2d =1 if the participant age was less than 50–59, =0 otherwise
agec2e =1 if the participant age was 60 or older, =0 otherwise

Omitted ages were 30–39
tenc2 =1 if tenure with current employer is 2–4 years, =0 otherwise
tenc3 =1 if tenure with current employer is 5–9 years, =0 otherwise
tenc4 =1 if tenure with current employer is 10–19 years, =0 otherwise
tenc5 =1 if tenure with current employer is 20 or more years, =0 otherwise
Omitted tenures are for those with less than 2 years
salc2a =1 if gross household income is less than $30,000, =0 otherwise
salc2c =1 if gross household income is $50,000–$74,999, =0 otherwise
salc2d =1 if gross household income is $75,000–$99,999, =0 otherwise
salc2e =1 if gross household income is $100,000 or more, =0 otherwise
Omitted incomes are for those with $30,000–$49,999

balc3 =1 if account balance is $5,000–$9,999, =0 otherwise
balc5 =1 if account balance is $10,000–$19,999, =0 otherwise
balc6 =1 if account balance is $20,000–$49,999, =0 otherwise
balc7 =1 if account balance is $50,000–$99,999, =0 otherwise
balc8 =1 if account balance is $100,000 or more, =0 otherwise
Omitted account balances are less than $5,000
spdc2 =1 if spending ratio is 0.80–0.94, =0 otherwise
spdc3 =1 if spending to income ratio is 0.95–1.04, =0 otherwise
spdc4 =1 if spending to income ratio is 1.05–1.49, =0 otherwise
spdc5 =1 if spending to income ratio is 1.50–1.99, =0 otherwise
spdc6 =1 if spending ratio to income is 2.00 or higher, =0 otherwise
omitted spending to income ratios are less than 0.80

Average or Percentage of Each Variable of Interest

Variable	Average	Variable	Percentage
Age	44.2	New Loan	9.8%
Tenure	9.0	Health Care Spending Increase	48.0%
Income	$96,418	Travel Spending Increase	22.8%
Account Balance	$76,662	Housing Spending Share Increase	19.1%
Spending Ratio	1.20	Travel Spending Share Increase	8.0%

Four logistic regressions were run to support the cross-tabulation results. The first was the likelihood of a spending increase of more than 10 percent in health care. Taking a plan loan was statistically significant and associated with 11 percent higher odds in having this spending increase than not taking a plan loan (Appendix Figure 2). Being older, having longer tenure, having a higher income, having a higher spending ratio, and having a lower account balance were also associated with higher odds of having a spending increase of more than 10 percent in health care.

Appendix Figure 2
Probability of Having a Greater Than 10 Percent Increase in Health Care Spending

The LOGISTIC Procedure
Analysis of Maximum Likelihood Estimates

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.4751	0.0355	178.8566	<.0001
newln	1	0.1076	0.0244	19.4027	<.0001
agec2a	1	0.0479	0.0259	3.4181	0.0645
agec2c	1	0.1203	0.0200	36.2359	<.0001
agec2d	1	0.2439	0.0214	130.1378	<.0001
agec2e	1	0.2924	0.0248	139.3250	<.0001
tenc2	1	-0.0201	0.0261	0.5954	0.4404
tenc3	1	0.0324	0.0269	1.4459	0.2292
tenc4	1	0.0808	0.0290	7.7359	0.0054
tenc5	1	0.1275	0.0345	13.6279	0.0002
salc2a	1	-0.1238	0.0418	8.7778	0.0030
salc2c	1	0.1384	0.0216	41.0038	<.0001
salc2d	1	0.2400	0.0244	96.7886	<.0001
salc2e	1	0.3372	0.0222	231.6179	<.0001
balc3	1	-0.0667	0.0287	5.3964	0.0202
balc5	1	-0.0323	0.0269	1.4432	0.2296
balc6	1	-0.0857	0.0256	11.1880	0.0008
balc7	1	-0.1224	0.0288	18.0216	<.0001
balc8	1	-0.1749	0.0289	36.6177	<.0001
spdc2	1	0.1070	0.0228	22.0695	<.0001
spdc3	1	0.1006	0.0263	14.6718	0.0001
spdc4	1	0.1286	0.0210	37.4484	<.0001
spdc5	1	0.2663	0.0282	89.1724	<.0001
spdc6	1	0.3528	0.0308	131.4097	<.0001

Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
newln	1.114	1.062	1.168
agec2a	1.049	0.997	1.104
agec2c	1.128	1.084	1.173
agec2d	1.276	1.224	1.331
agec2e	1.340	1.276	1.406
tenc2	0.980	0.931	1.031
tenc3	1.033	0.980	1.089
tenc4	1.084	1.024	1.148
tenc5	1.136	1.062	1.216
salc2a	0.884	0.814	0.959
salc2c	1.148	1.101	1.198
salc2d	1.271	1.212	1.333
salc2e	1.401	1.341	1.463
balc3	0.935	0.884	0.990
balc5	0.968	0.918	1.021
balc6	0.918	0.873	0.965
balc7	0.885	0.836	0.936
balc8	0.840	0.793	0.888
spdc2	1.113	1.064	1.164
spdc3	1.106	1.050	1.164
spdc4	1.137	1.091	1.185
spdc5	1.305	1.235	1.379
spdc6	1.423	1.340	1.512

Source: Estimates from the EBRI/ICI 401(k) Database and select Chase data. For more information, see the Data Sources box in the text.

An example of a spending category that was not associated with an increased likelihood of a spending increase of more than 10 percent when taking a plan loan in the cross-tabulation results was travel. In the second logistic regression, taking a plan loan was found to be associated with lower odds of having a large increase in travel spending compared with those who did not take a plan loan (Appendix Figure 3).

Appendix Figure 3
Probability of Having a Greater Than 10 Percent Increase in Travel Spending

The LOGISTIC Procedure
Analysis of Maximum Likelihood Estimates

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-1.8661	0.0444	1768.5671	<.0001
newln	1	-0.1086	0.0301	12.9910	0.0003
agec2a	1	0.0845	0.0304	7.7469	0.0054
agec2c	1	-0.1389	0.0237	34.4186	<.0001
agec2d	1	-0.2371	0.0259	83.9628	<.0001
agec2e	1	-0.2886	0.0308	88.0113	<.0001
tenc2	1	-0.0715	0.0306	5.4399	0.0197
tenc3	1	-0.1343	0.0318	17.8422	<.0001
tenc4	1	-0.2330	0.0346	45.3576	<.0001
tenc5	1	-0.3367	0.0420	64.3583	<.0001
salc2a	1	-0.2641	0.0603	19.1532	<.0001
salc2c	1	0.3706	0.0285	169.2106	<.0001
salc2d	1	0.5625	0.0311	327.4671	<.0001
salc2e	1	0.9198	0.0282	1064.1437	<.0001
balc3	1	0.0400	0.0361	1.2286	0.2677
balc5	1	0.1339	0.0334	16.0505	<.0001
balc6	1	0.1523	0.0318	22.9595	<.0001
balc7	1	0.2258	0.0353	40.9646	<.0001
balc8	1	0.3117	0.0352	78.2660	<.0001
spdc2	1	0.1414	0.0276	26.2162	<.0001
spdc3	1	0.1492	0.0320	21.6742	<.0001
spdc4	1	0.2877	0.0255	127.2057	<.0001
spdc5	1	0.4311	0.0339	162.1675	<.0001
spdc6	1	0.6289	0.0364	297.8775	<.0001

Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
newln	0.897	0.846	0.952
agec2a	1.088	1.025	1.155
agec2c	0.870	0.831	0.912
agec2d	0.789	0.750	0.830
agec2e	0.749	0.705	0.796
tenc2	0.931	0.877	0.989
tenc3	0.874	0.822	0.931
tenc4	0.792	0.740	0.848
tenc5	0.714	0.658	0.775
salc2a	0.768	0.682	0.864
salc2c	1.449	1.370	1.532
salc2d	1.755	1.651	1.865
salc2e	2.509	2.374	2.651
balc3	1.041	0.970	1.117
balc5	1.143	1.071	1.221
balc6	1.164	1.094	1.239
balc7	1.253	1.170	1.343
balc8	1.366	1.275	1.463
spdc2	1.152	1.091	1.216
spdc3	1.161	1.090	1.236
spdc4	1.333	1.268	1.402
spdc5	1.539	1.440	1.645
spdc6	1.876	1.746	2.014

Source: Estimates from the EBRI/ICI 401(k) Database and select Chase data. For more information, see the Data Sources box in the text.

In the third regression, the probability of the share of housing spending increasing by more than 5 percentage points was examined using the same factors as the larger than 10 percent increase in health care spending. In this analysis, having taken a plan loan had 12 percent higher odds of having an increase in the housing share compared with those who did not take a plan loan (Appendix Figure 4). Being older, having the longest tenure, having a higher income, and having a lower account balance are associated with lower odds of having an increase of this size in the share of housing spending. There is not a clear pattern in the odds of the housing share from the spending ratio.

Appendix Figure 4
Probability of Having a Greater Than 5 Percentage Point Increase in the Share of Spending From Housing

The LOGISTIC Procedure
Analysis of Maximum Likelihood Estimates

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-1.4071	0.0448	987.4698	<.0001
newln	1	0.1157	0.0301	14.8073	0.0001
agec2a	1	-0.0858	0.0327	6.8689	0.0088
agec2c	1	-0.0597	0.0249	5.7431	0.0166
agec2d	1	-0.1519	0.0271	31.3327	<.0001
agec2e	1	-0.2304	0.0322	51.2257	<.0001
tenc2	1	-0.1017	0.0327	9.6789	0.0019
tenc3	1	-0.0903	0.0337	7.1691	0.0074
tenc4	1	-0.0937	0.0364	6.6155	0.0101
tenc5	1	-0.1548	0.0441	12.3447	0.0004
salc2a	1	0.1202	0.0520	5.3366	0.0209
salc2c	1	0.0503	0.0275	3.3429	0.0675
salc2d	1	0.0716	0.0308	5.3939	0.0202
salc2e	1	0.00166	0.0283	0.0034	0.9532
balc3	1	-0.0316	0.0371	0.7258	0.3943
balc5	1	0.0505	0.0344	2.1503	0.1425
balc6	1	0.0982	0.0327	9.0174	0.0027
balc7	1	0.1244	0.0367	11.4889	0.0007
balc8	1	0.1276	0.0370	11.8969	0.0006
spdc2	1	-0.0227	0.0291	0.6076	0.4357
spdc3	1	0.0118	0.0334	0.1252	0.7235
spdc4	1	0.0612	0.0266	5.2962	0.0214
spdc5	1	0.1070	0.0352	9.2229	0.0024
spdc6	1	-0.0330	0.0395	0.7007	0.4026

Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
newln	1.123	1.058	1.191
agec2a	0.918	0.861	0.979
agec2c	0.942	0.897	0.989
agec2d	0.859	0.815	0.906
agec2e	0.794	0.746	0.846
tenc2	0.903	0.847	0.963
tenc3	0.914	0.855	0.976
tenc4	0.911	0.848	0.978
tenc5	0.857	0.786	0.934
salc2a	1.128	1.018	1.249
salc2c	1.052	0.996	1.110
salc2d	1.074	1.011	1.141
salc2e	1.002	0.948	1.059
balc3	0.969	0.901	1.042
balc5	1.052	0.983	1.125
balc6	1.103	1.035	1.176
balc7	1.132	1.054	1.217
balc8	1.136	1.057	1.222
spdc2	0.978	0.923	1.035
spdc3	1.012	0.948	1.080
spdc4	1.063	1.009	1.120
spdc5	1.113	1.039	1.193
spdc6	0.968	0.895	1.045
spdc6	1.876	1.746	2.014

Source: Estimates from the EBRI/ICI 401(k) Database and select Chase data. For more information, see the Data Sources box in the text.

The final regression looks at the travel spending share of total spending, as taking a plan loan was again not associated with a higher likelihood of a greater than 5-percentage point increase from the year before the loan was taken in the share of spending from travel vs. those who did not take a plan loan in the cross tabulations. From this estimation, having taken a plan loan is associated with lower odds of having an increase in the share that travel represents of total spending compared with those who did not take a plan loan (Appendix Figure 5).

Appendix Figure 5

Probability of Having a Greater Than 5 Percentage Point Increase in the Share of Spending From Travel

The LOGISTIC Procedure

Analysis of Maximum Likelihood Estimates

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-2.3771	0.0662	1288.3429	<.0001
newln	1	-0.4204	0.0529	63.1207	<.0001
agec2a	1	0.0219	0.0449	0.2391	0.6249
agec2c	1	-0.1924	0.0354	29.5770	<.0001
agec2d	1	-0.4438	0.0406	119.4042	<.0001
agec2e	1	-0.5592	0.0501	124.5174	<.0001
tenc2	1	-0.1259	0.0458	7.5454	0.0060
tenc3	1	-0.3022	0.0480	39.6187	<.0001
tenc4	1	-0.4880	0.0530	84.6859	<.0001
tenc5	1	-0.6959	0.0673	106.8259	<.0001
salc2a	1	0.2703	0.0791	11.6719	0.0006
salc2c	1	0.0921	0.0421	4.7901	0.0286
salc2d	1	0.0353	0.0470	0.5652	0.4522
salc2e	1	0.0898	0.0425	4.4691	0.0345
balc3	1	0.0838	0.0592	2.0075	0.1565
balc5	1	0.2974	0.0542	30.0747	<.0001
balc6	1	0.5018	0.0513	95.5539	<.0001
balc7	1	0.7012	0.0563	155.0158	<.0001
balc8	1	0.9650	0.0567	289.9416	<.0001
spdc2	1	-0.0466	0.0399	1.3637	0.2429
spdc3	1	-0.1235	0.0474	6.7925	0.0092
spdc4	1	-0.1428	0.0377	14.3613	0.0002
spdc5	1	-0.2463	0.0536	21.0861	<.0001
spdc6	1	-0.2562	0.0586	19.0821	<.0001

Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
newln	0.657	0.592	0.729
agec2a	1.022	0.936	1.116
agec2c	0.825	0.770	0.884
agec2d	0.642	0.593	0.695
agec2e	0.572	0.518	0.631
tenc2	0.882	0.806	0.965
tenc3	0.739	0.673	0.812
tenc4	0.614	0.553	0.681
tenc5	0.499	0.437	0.569
salc2a	1.310	1.122	1.530
salc2c	1.096	1.010	1.191
salc2d	1.036	0.945	1.136
salc2e	1.094	1.007	1.189
balc3	1.087	0.968	1.221
balc5	1.346	1.211	1.497
balc6	1.652	1.494	1.827
balc7	2.016	1.805	2.251
balc8	2.625	2.349	2.933
spdc2	0.955	0.883	1.032
spdc3	0.884	0.805	0.970
spdc4	0.867	0.805	0.933
spdc5	0.782	0.704	0.868
spdc6	0.774	0.690	0.868
spdc6	0.968	0.895	1.045
spdc6	1.876	1.746	2.014

Source: Estimates from the EBRI/ICI 401(k) Database and select Chase data. For more information, see the Data Sources box in the text.

Endnotes

[1] See Copeland, Craig, Michael Conrath, Sharon Carson, Alex Nobile, and Matt Petersen, "How Financial Factors Outside of a Defined Contribution Plan Can Impact Retirement Readiness: An Examination of Public-Sector Participants," *EBRI Issue Brief*, no. 618 (September 5, 2024) and Copeland, Craig, Michael Conrath, and Sharon Carson, "How Financial Factors Outside of a 401(k) Plan Can Impact Retirement Readiness," *EBRI Issue Brief*, no. 591 (Employee Benefit Research Institute, September 7, 2023).

[2] For example, see Holden, Sarah, and Jack VanDerhei, "Contribution Behavior of 401(k) Plan Participants," *EBRI Issue Brief no. 238* (October 2001). Available at https://www.ebri.org/publications/research-publications/issue-briefs/content/full/contribution-behavior-of-401(k)-plan-participants-154; Munnell, Alicia H., Annika Sundén, and Catherine Taylor, "What Determines 401(k) Participation and Contributions?" CRR Working Paper, no. 2000-12. Chestnut Hill, MA: Center for Retirement Research at Boston College, December 2000. Available at https://crr.bc.edu/wp-content/uploads/2000/12/wp_2000-12.pdf; and US General Accounting Office, "401(k) Pension Plans: Loan Provisions Enhance Participation but May Affect Income Security for Some." *Letter Report*, GAO/HEHS-98-5 (October 1997). Washington, DC: US General Accounting Office. Available at www.gao.gov/assets/hehs-98-5.pdf.

[3] For the most recent cross-sectional results, see Holden, Sarah, Steven Bass, and Craig Copeland, "401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2022," *EBRI Issue Brief*, no. 606, and ICI Research Perspective, vol. 30, no. 3 (April 2024).

[4] See Copeland, Conrath, Carson, Nobile, and Petersen, (September 5, 2024) (see endnote 1).

[5] A similar study was conducted for public-sector DC plan participants; see Copeland, Craig, Michael Conrath, and Sharon Carson, "Where Are Households Spending Their Defined Contribution Plan Loans: An Examination of Public-Sector Participants," *EBRI Issue Brief*, no. 645 (Employee Benefit Research Institute, October 16, 2025).

[6] For more information on the EBRI/ICI 401(k) Database and the findings from the database, see Holden, Sarah, Steven Bass, and Craig Copeland, "What Does Consistent Participation in 401(k) Plans Generate? Changes in 401(k) Plan Account Balances and Asset Allocations, 2019–2023," *EBRI Issue Brief*, no. 641, and *ICI Research Perspective*, vol. 31, no. 6 (August 2025).

[7] See Lucas, Lori, Jack VanDerhei, Kelly Hahn, Je Oh, and Livia Salonen, "The 3% Difference: What Leads to Higher Retirement Spending?" Employee Benefit Research Institute & J.P. Morgan Asset Management Research Collaboration available at https://am.jpmorgan.com/us/en/asset-management/mod/insights/retirement-insights/the-3-difference-what-leads-to-higher-retirement-savings-rates/ and VanDerhei, Jack, and Kelly Hahn, "In Data There Is Truth: Understanding How Households Actually Support Spending in Retirement," *EBRI Issue Brief*, no. 531 (Employee Benefit Research Institute, June 24, 2021) for more information about the EBRI/JPMorgan Asset Management research collaboration.

[8] Data privacy of customers and contractual relationships with recordkeepers have been carefully protected, and no data were transferred to JPMorgan Asset Management. EBRI has no access to personally identifiable information.

[9] See the appendix in VanDerhei, Jack, and Kelly Hahn, "In Data There Is Truth: Understanding How Households Actually Support Spending in Retirement," *EBRI Issue Brief*, no. 531 (Employee Benefit Research Institute, June 24, 2021) for an example schematic of how the overlap of the Chase data with data from an EBRI database is determined.

[10] This number is lower than the percentage who had a loan outstanding, as a loan outstanding could have been taken in a different year but has still not been paid off. Thus, some loans are in the repayment stage but not taken in that year in any given year.

[11] The median household income used for these categories was a gross household income of $74,275. The income includes income from all individuals in the household, not just the participant's income.

[12] The high-credit-card-utilization category includes participants with households having outstanding credit card balances of more than 50 percent of their credit card limits, while the lower-credit-card-utilization category includes participants in households having outstanding credit card balances of 50 percent or less of their credit card limits. The contribution rates are calculated using the contribution amounts from the EBRI/ICI 401(k) Database divided by the gross household income from the Chase dataset plus the contribution amount.

[13] There have been survey data on what participants report as the reasons for taking plan loans or withdrawals. For example, the EBRI/Greenwald Retirement Confidence Survey found that 35 percent of those saying they took a loan or withdrawal from their retirement savings plan bought a home, car, or other large purchase. Another 27 percent used them to pay off credit card debt, 22 percent to cover day-to-day expenses, 23 percent to pay for home or car repairs, and 21 percent to cover medical expenses.

[14] Only two percent of the sample had an overall spending increase of more than 10 percent, so a 10 percent threshold for any given category means that it is not a result of just overall spending increases by the households but unique to that category. There was not a difference in the percentage between those who took a loan and those who did not take one having overall spending increases of more than 10 percent, as the percentage was 2 percent for both groups.

[15] The period of the study (2021–2022) was when Americans were coming out of the pandemic and spending was increasing overall, but as mentioned above, the share of households with spending increases of more than 10 percent was very small (2 percent). Thus, this suggests that the large spending increases were isolated to different categories across the households, not spread across all the spending categories.

[16] The households who were identified as starting new mortgages were determined by finding those making mortgage payments in the loan incidence analysis who hadn't been making these payments in the year prior. In other words, any household who was found to not be making them in the prior year but making them in the analysis year were identified as having a new mortgage.

[17] See "Field of Dreams? Measuring the Impact of Financial Wellbeing Initiatives on 401(k) Plan Utilization," *EBRI Issue Brief*, no. 554 (Employee Benefit Research Institute, March 10, 2022).

[18] The sample size for the regressions is somewhat smaller than for the cross tabulations, as not all of the 401(k) plan participants in the households had valid tenure data. The sample size for the regressions was 78,329.