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How Financial Factors Outside of a Defined Contribution Plan Can Impact Retirement Readiness: An Examination of Public-Sector Participants

By Craig Copeland, Michael Conrath, Sharon Carson, Alex Nobile, and Matt Petersen

AT A GLANCE

Workers' finances can face many challenges over their careers, including irregular expenses, which are sometimes quite large. How workers deal with covering these expenses and how they affect other aspects of their financial goals are ripe areas of analysis, particularly with respect to retirement preparations. This study builds on prior work done by the Employee Benefit Research Institute (EBRI) and J.P. Morgan Asset Management focused on 401(k) plan participants' behavior when faced with irregular expenses. This analysis examines the behavior of public-sector defined contribution (DC) plan participants on the tradeoff between credit card debt and a plan loan. Key findings from the study:

- A monthly unfunded spending spike is defined as a spike at least 25 percent above the previous 12 months' median spending that cannot be funded by the household's income and available cash reserves in that month. In this study, 29 percent of the household observations were found to have had at least one month where an unfunded spending spike occurred.
- On a dollar basis, among those with incomes of $150,000 or less, 60 percent of the household observations had spikes not covered by income and cash reserves larger than $2,500 aggregated over the year, and 82 percent had spending not covered by income alone above this threshold.
- The likelihood of experiencing a spike increased with the spending ratio and beginning-of-the-year credit card utilization. In contrast, the likelihood of a spike decreased as gross income increased. However, nearly one-quarter of the households with incomes of $100,000 or more had a spike, so these spikes do not only occur among those with lower incomes.
- These spending spikes have a clear impact on the likelihood of public-sector DC plan participants taking a plan loan and increasing their credit card debt in the year of the spike. Of those with a spending spike in the analysis year, 7.0 percent took a new plan loan and 31.7 percent increased their credit card debt, compared with 2.7 percent and 25.9, respectively, of those without a spending spike in that same year.
- Households are more likely to take on additional credit card debt before taking the plan loan, as approximately 37–47 percent of those with credit card utilization of >0–79 percent increased their credit card debt, while less than 8 percent took a new plan loan with that level of credit card utilization. However, when credit card utilization reached 80 percent or more, the likelihood of increasing credit card debt decreased to 22.4 percent, while the increasing trend of taking a new plan loan went up by nearly twice the amount it had before the increase to 80–100 percent at 11.5 percent.

This research found that, like private-sector DC plan participants, public-sector DC plan participants who lack income and cash reserves to support a spending spike are likely to end up with more credit card debt. This 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, even when controlling for income. Thus, the availability of emergency savings to cover spending spikes can be a critical factor in preventing or stalling a cycle of increasing debt that can significantly impact retirement readiness, wherever the individual works.

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How Financial Factors Outside of a Defined Contribution Plan Can Impact Retirement Readiness: An Examination of Public-Sector Participants

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Introduction

Workers' finances can face many challenges over their careers, including irregular expenses, which are sometimes quite large. How workers deal with covering these expenses and how they affect other aspects of their financial goals are ripe areas of analysis, particularly with respect to retirement preparations. In many cases, workers' only source of significant savings is an employment-based retirement savings plan, typically a 401(k) plan or other defined contribution (DC) plan. Thus, some DC plan participants could take a loan from the plan or adjust their contributions to these plans, while others could access credit outside of a plan or use some combination of all three to cover unusually high expenses. Balancing these decisions is a key component of participants' financial well-being.

This study builds on prior work done by the Employee Benefit Research Institute (EBRI) and J.P. Morgan Asset Management focused on 401(k) plan participants' behavior when faced with irregular expenses.[1] In particular, changes in credit card utilization, 401(k) plan contributions, and/or 401(k) plan loan use were examined after these participants experience a significant spending "spike." This analysis examines the behavior of public-sector DC plan participants on the tradeoff between credit card debt and a plan loan.

Although DC plan loans are 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 some public-sector DC plans. Results from the Public Retirement Research Lab (PRRL) 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 public-sector DC plan data and banking data, builds on the cross-sectional PRRL results to evaluate the impact of financial factors outside of the plan, such as overall spending levels and debt accumulation, on behavior inside the plan.[4] It also follows the methodology of the prior EBRI and J.P. Morgan Asset Management study examining the impact of these same factors on behavior inside 401(k) plans.[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 that exist outside defined contribution plans that face DC plan participants impact their retirement preparations. Thus, the aim is to provide unique fact-based insights to help build a stronger retirement system by policymakers, plan sponsors, and plan providers.

Specifically, public-sector DC plan participants who experience spending spikes are compared with those who do not experience them in terms of their credit card utilization and DC plan loan use. First, the households with participants who have a spending spike are identified. Once identified, the impact of the spending spikes on credit card debt and plan loan usage are then assessed.

Data Sources

PRRL Database — The PRRL Database is an opt-in collaboration among public retirement plan sponsors, the Employee Benefit Research Institute (EBRI), and the National Association of Government Defined Contribution Administrators (NAGDCA). The database includes data from two hundred and sixty-seven 457(b), 401(a), 401(k), and 403(b) defined contribution (DC) plans; over 3.0 million retirement accounts across 2.5 million state, county, city, and subdivision government employees; and $170 billion in assets as of year-end 2021.[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 referenced herein is restricted to the households in 2019–2021 who use Chase as their primary banking institution, and their total household spending through all payment mechanisms (including 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 PRRL 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 public-sector DC plan data from 2019–2021 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 public-sector DC plan data from the PRRL 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 is also a DC plan participant where a loan is available in their plan. The demographic and financial characteristics of the person identified as the DC plan participant 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 instance of a household having two contiguous years of complete data during 2019–2021 is an observation for this analysis. This results in 5,755 observations from 3,709 unique households.

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.

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.

Unfunded Spending Spike — An unfunded spending spike is determined to occur when a household's monthly spending is at least 25 percent or more than the previous 12 months' median monthly spending, and this spending cannot be covered by the household's income and cash reserves (checking and savings accounts), i.e., it is not funded by immediate liquid assets. Year two is the test year of whether a spending spike occurs.

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).

New Plan Loan — Plan loan data are only available at year end, so any participant who has no outstanding loan balance at the end of year one but has a balance at the end of year two is considered to have a new loan in year two. In addition, any participant who has a higher outstanding loan balance at the end of year two than they had at the end of year one is also considered to have taken a new loan in year two.

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

Tenure — This is the number of years that the DC plan participant of the household has been with their current employer.

Household Demographics

As shown in Figure 1, the household participants were widely distributed across ages, incomes, and tenures with their current employer. For example, 11.2 percent were less than age 30, 24.2 percent were ages 40–49, and 13.6 percent were ages 60 or older. For incomes, 5.1 percent had incomes of $20,000–$29,999 and 27.7 percent had incomes of $100,000 or more. Just over one-fifth (21.1 percent) of the participants had tenures with their current employers of less than two years and 13.2 percent had 20 or more years.

As far as financial factors, 21.0 percent of the household participants had DC plan account balances of less than $2,000 and 6.5 percent had balances of $2,000–$4,999, while 17.2 percent had balances of $100,000 or more (Figure 2). Over two-fifths (43.7 percent) of these households had no revolving credit card debt at the end of year one, while 16.4 percent were using 80–100 percent of their credit card limit. Over two-fifths (43.2 percent) of the households had spending ratios of 1.05 or more, while one-third (33.4 percent) had ratios of less than 0.95.

Public-sector DC plan participants in most cases are also covered by a defined benefit plan, and the DC plan is considered a supplemental plan to the DB plan. On the other hand, for private-sector participants, the 401(k) plan, in many cases, would be the only retirement plan available through their workplace. Even with the supplemental nature of the public-sector DC plans, public-sector DC plan participants were less likely to take a loan from the plan when eligible than those in the private sector — 7 percent vs. 15 percent.[10] In this study, over 96 percent of the public-sector DC plan participants who were in a plan with a loan option available were in a 457 plan or a non-ERISA 401(k) plan.[11]

Figure 1
Demographic Characteristics of the Sample

Age	
<30	11.2%
30–39	31.6%
40–49	24.2%
50–59	19.4%
60+	13.6%
Gross Income	
$20,000–$29,999	5.1%
$30,000–$49,999	25.3%
$50,000–$74,999	26.7%
$75,000–$99,000	15.2%
$100,000 or more	27.7%
Tenure With Employer	
Less than 2 years	21.1%
2–4 years	21.0%
5–9 years	27.4%
10–19 years	17.2%
20 or more years	13.2%

Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 2
Financial Characteristics of the Sample

401(k) Account Balance	
Less than $2,000	21.0%
$2,000–$4,999	6.5%
$5,000–$9,999	7.8%
$10,000–$14,999	6.4%
$15,000–$19,999	6.0%
$20,000–$49,999	21.9%
$50,000–$99,999	13.3%
$100,000 or more	17.2%
Credit Card/Limit Ratio-Y1	
0%	43.7%
>0%–19%	14.7%
20%–59%	17.9%
60%–79%	7.3%
80%–100%	16.4%
Spending-to-Income Ratio	
<0.80	21.2%
0.80–0.94	12.2%
0.95–1.04	23.4%
1.05–1.49	23.1%
1.50–1.99	10.5%
2.00 or more	9.6%

Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

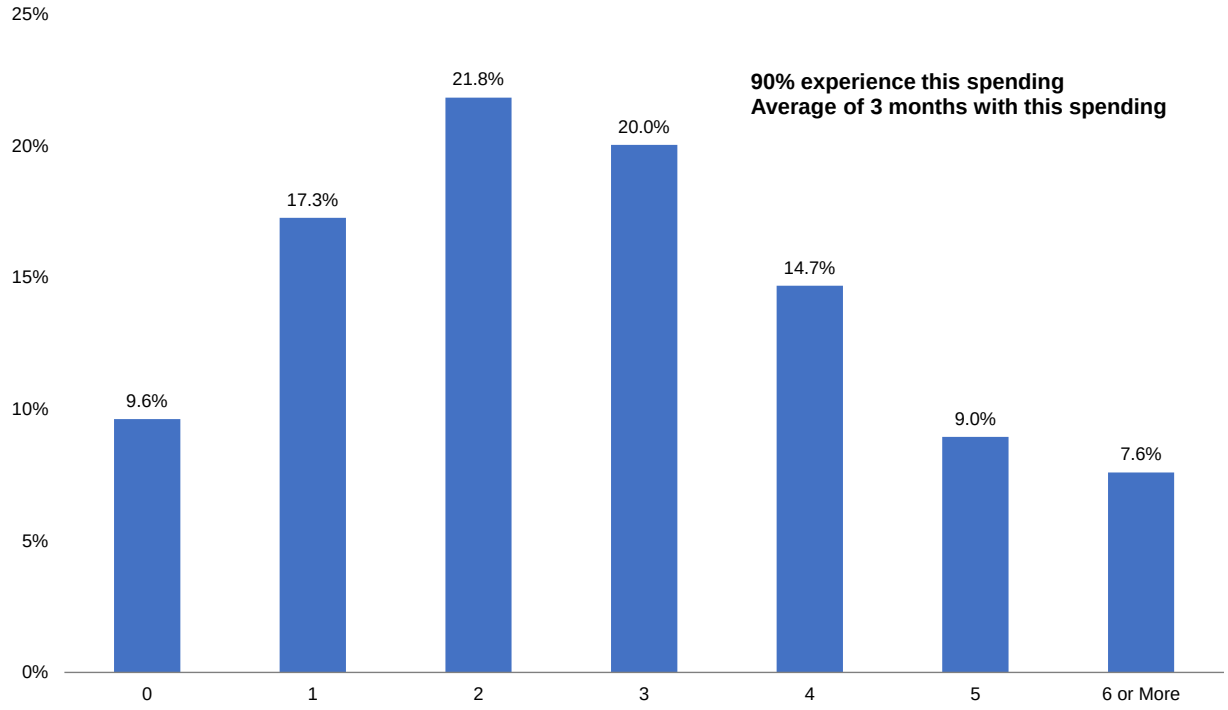
Spending Spikes

Spending surges can play havoc on a household's finances and possibly lead to the need to access more funds. Thus, a study of irregular spending spikes can provide insight into DC plan participants' financial decisions, including taking a plan loan and/or increasing credit card debt. A spending spike could be a result of an unexpected expense, e.g., a car repair, or an expected expense, such as a vacation.[12]

As noted, a monthly unfunded spending spike is defined as a spike at least 25 percent above the previous 12 months' median spending that cannot be funded by the household's income and available cash reserves in that month. Separately, spending that cannot be funded by the household's income alone is discussed.

By any measure, household monthly spending is generally highly variable. In fact, 90 percent of the household observations were found to have had at least one month where their spending was 25 percent or more of their median spending in the prior 12 months and was not covered by that month's income (Figure 3). Thirty-one percent of the households had four or more months where their spending was 25 percent or more of the median spending of the prior 12 months, with an average of three months for those having these spikes. Given that nearly all of the observations had this irregularly high spending, significant differences in participant behaviors based on this spending not covered by income alone were not found. However, this definition is an important measure to consider for policymakers and plan sponsors as they grapple with the appropriate size of emergency reserves for the working population, because what is held outside of the DC plan is not known by plan sponsors.

Figure 3
Percentage of Households With Monthly Spending 25 Percent or More Than the Median Spending of the Prior 12 Months Not Covered by Income



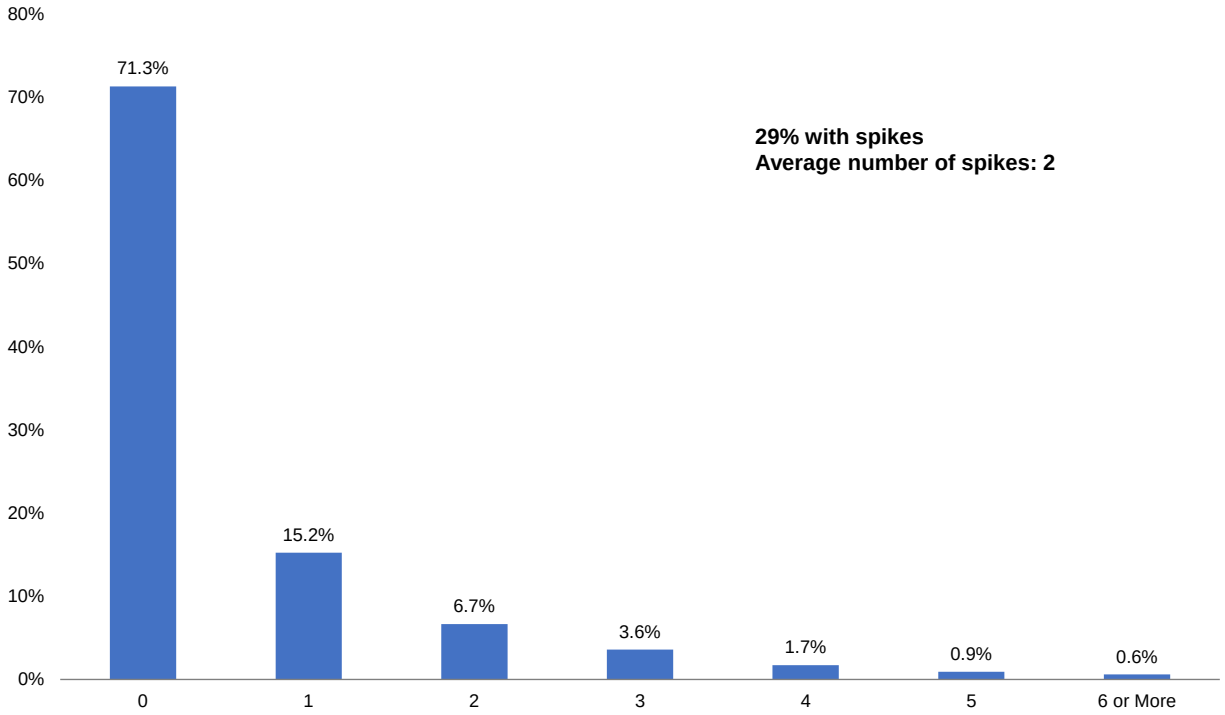
Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

For unfunded spending spikes (spending surges not covered by income and cash reserves), 29 percent of household observations were found to have had at least one month where an unfunded spending spike occurred. In addition, 7 percent of household observations had three or more months of these spikes (Figure 4). Overall, the average number of these spikes among those having them was two.

Spikes can be quite large relative to income. While 29 percent of the household observations had spikes of 25 percent or larger, 23 percent had spikes of 50 percent or larger and 19 percent had spikes of 75 percent or larger (Figure 5). On a dollar basis, 60 percent of the household observations had spikes not covered by income and cash reserves larger than $2,500 aggregated over the year, and 82 percent had spending not covered by income alone above this threshold among those with incomes of $150,000 or less (Figure 6).[13] Fifty-nine percent of those with spending not covered by income alone had totals larger than $7,500. For households with incomes of more than $150,000, 79 percent could not fund spending spikes over $2,500 with their income and cash reserves, and 93 percent could not do so with their income alone (Figure 7).[14]

Figure 4

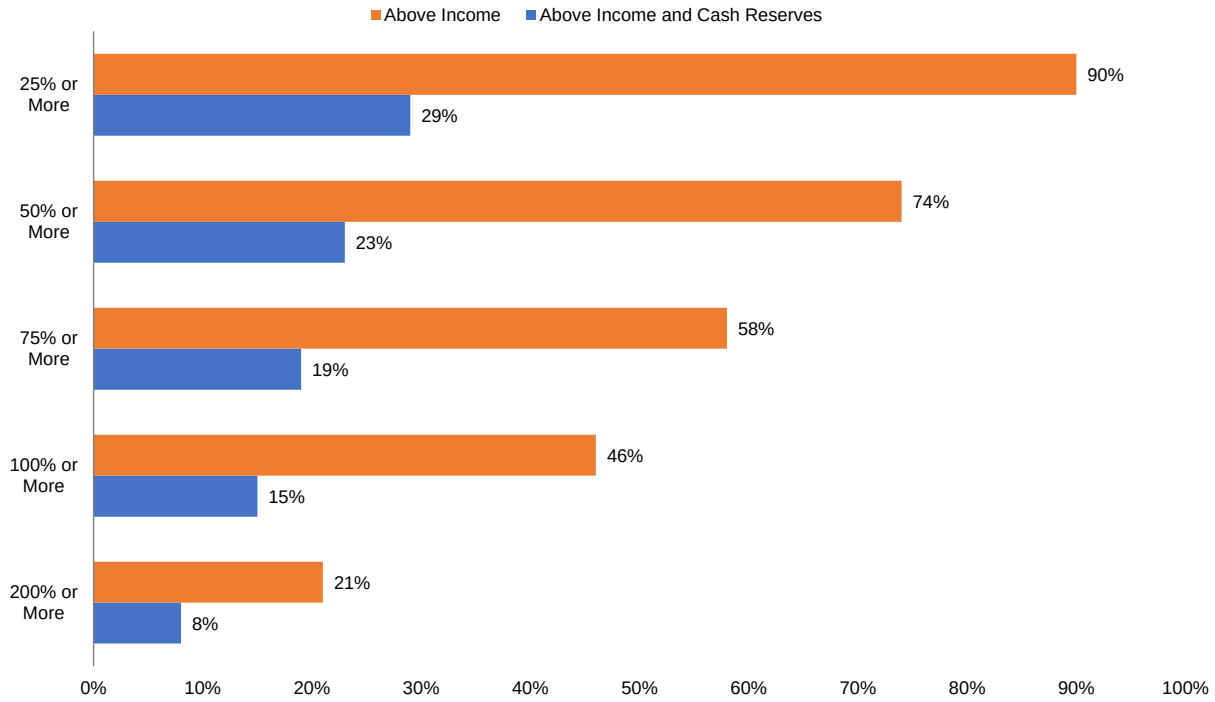
Percentage of Households With Spending Spikes of 25 Percent or More Than the Median Spending of the Prior 12 Months Not Covered by Income and Cash Reserves



Source: Estimates from PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

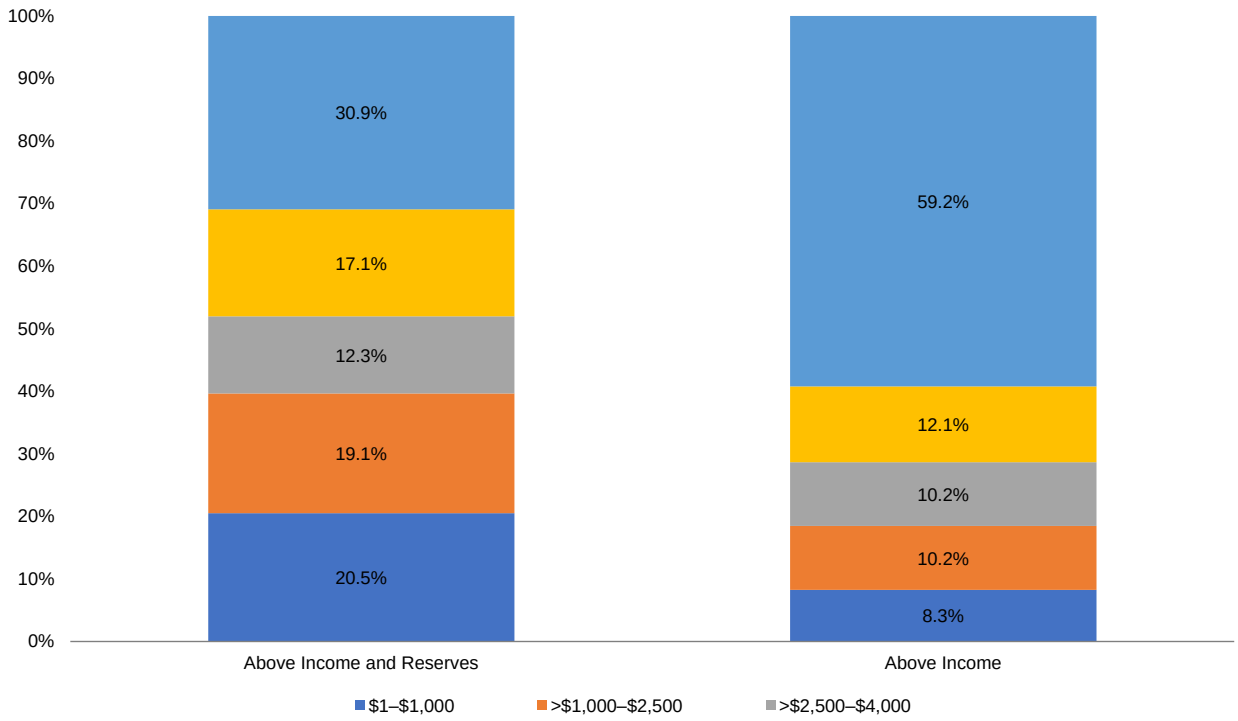
Figure 5

Spending Relative to the Median of the Prior 12 Months of Spending — Percentage Above Specific Thresholds of Median Monthly Spending



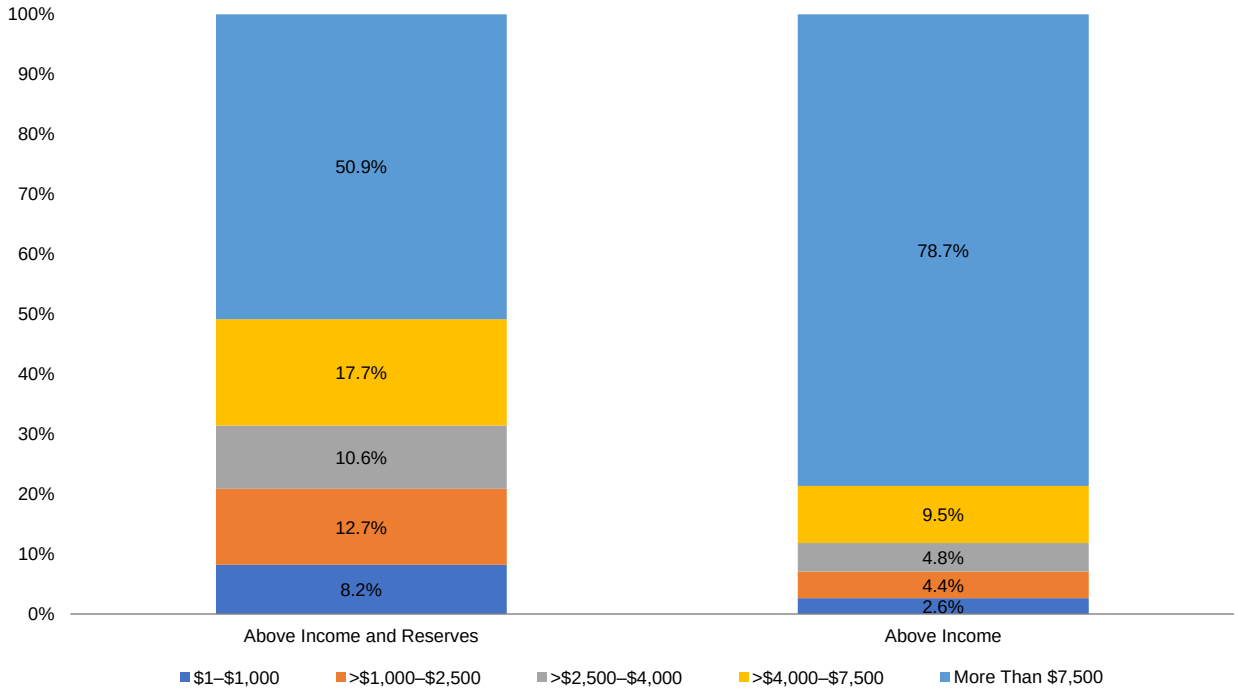
Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 6
Distribution of Annual Spending Amounts Above Income and Cash Reserves
(Households With Incomes of $150,000 or Less)



Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 7
Distribution of Annual Spending Amounts Above Income and Cash Reserves and Above Income
(Households With Incomes of More Than $150,000)



Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

Unfunded Spending Spikes' Impact on Financial Behavior

The households with spikes had lower incomes and higher spending ratios than households without spikes (Figure 8). Credit card utilization and revolving credit card balances were also both higher at the beginning and end of the year of the spike analysis, but age was not significantly different. Specifically, the median gross income of those with a spike was $59,917 vs. $69,702 for those without a spike. The median spending ratio was 0.97 for those without a spike, compared with 1.29 for those with a spike. The median credit card utilizations were particularly higher among those with a spike at the beginning of the spike year analysis at 27.2 percent vs. 1.9 percent for those without a spike.

Figure 8
Median Demographic and Financial Factors, by Unfunded Spending Spike Occurrence

Factor	Spike	No Spike
Age	42	43
Gross Wage Income	$59,917	$69,702
Spending Ratio	1.29	0.97
Credit Card Utilization Beginning of Year	27.2%	1.9%
Credit Card Utilization End of Year	17.7%	0.0%
Credit Card Revolving Balance Beginning of Year	$1,592	$196
Credit Card Revolving Balance End of Year	$1,357	$0

Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

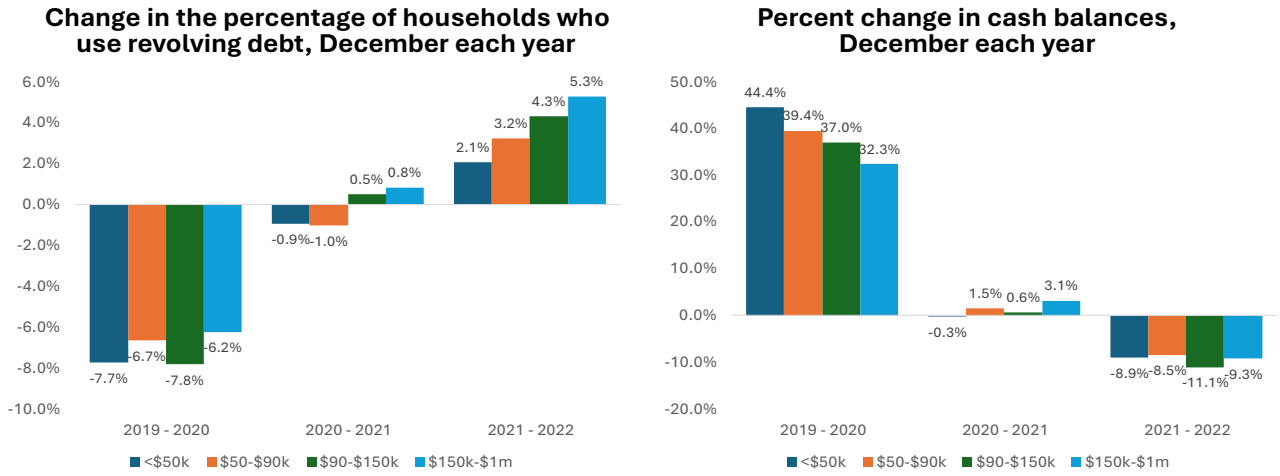
While the median revolving credit card balance at the end of the year was higher for those with a spike than for those without a spike, this median balance was lower than the median balance at the beginning of the year. This was not the result for the study focusing on 401(k) plans, where the median end-of-year balance was higher for those with spikes. However, this result is driven by the decrease in credit card debt during 2020, when the impact of the pandemic was the strongest. In fact, the Chase data showed a significant decline in revolving debt and a significant increase in cash balances from 2019 to 2020 that were considerably outside what was seen in the years directly after 2020 (Figure 9). Furthermore, overall revolving credit card debt in the economy decreased by 0.3 percent.[15] When the observation years were split between 2020 and 2021, the end-of-year credit card debt decreased in 2020 but increased in 2021 among those with spikes in the respective years. Thus, the pandemic closures and government support that was provided during 2020 appears to have offset some of the overall impact of the spike on credit card debt, but the larger credit card balances of those with a spike vs. those without one still held.

The likelihood of experiencing a spike increased with the spending ratio and beginning-of-the-year credit card utilization (Figures 10 and 11). In contrast, the likelihood of a spike decreased as gross income increased (Figure 12).

These spending spikes have a clear impact on the likelihood of DC plan participants taking a plan loan and increasing their credit card debt in the year of the spike. Of those with a spending spike in the analysis year, 7.0 percent took a new plan loan and 31.7 percent increased their credit card debt, compared with 2.7 percent and 25.9, respectively, of those without a spending spike in that same year (Figure 13).[16] This same relative result was found among the private-sector participants, but the percentages increasing debt and taking plan loans among the private-sector participants were larger.

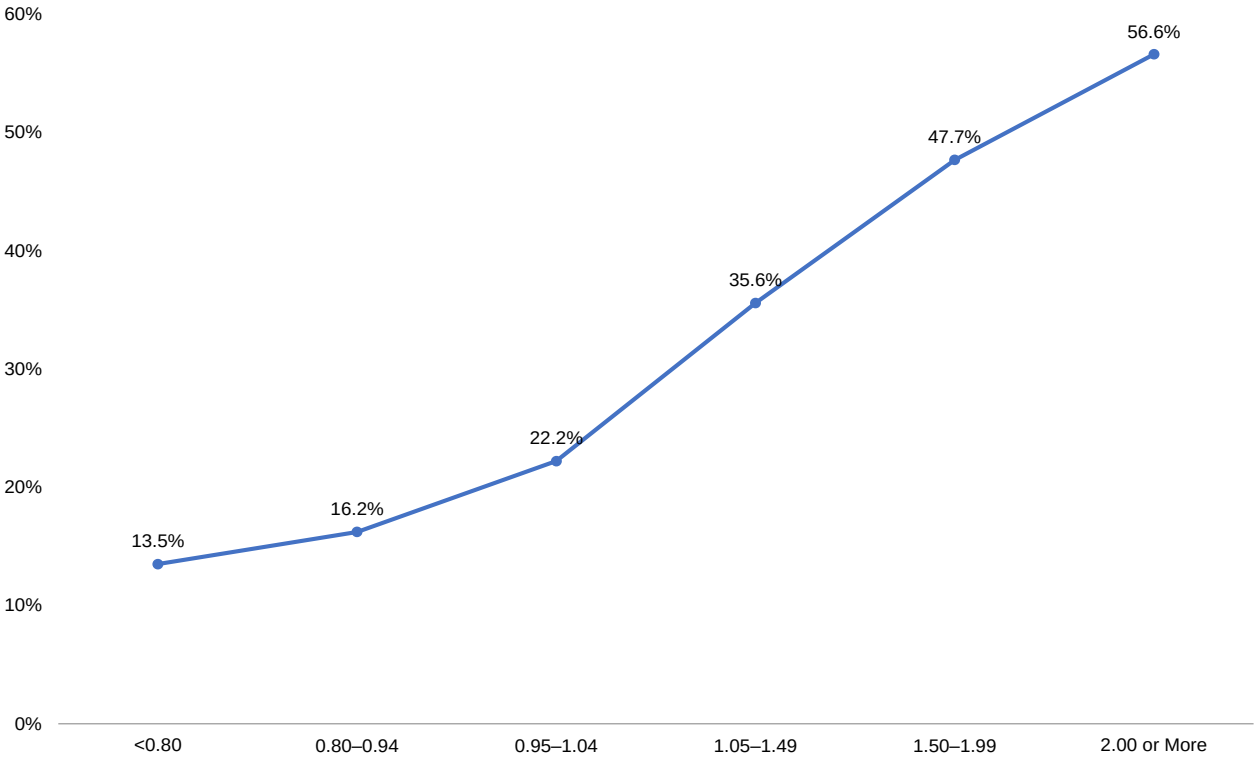
Those with a spending spike not only had greater likelihoods of taking a new plan loan and increasing credit card debt, but the average amount of the loan and the average increase in credit card debt were also larger than they were for those without a spending spike. Those with spikes had an average outstanding new balance, or additional balance for those having a loan increase from the prior year, of $14,015 vs. $10,994 for those without a spike (Figure 14). The average increase in credit card debt for those with a spike was $3,564 compared with $2,977 for those without a spike.

Figure 9
Changes in Revolving Credit Card Debt and Cash Balances of Consistently Employed Households During and After the Pandemic



Source: Chase data, J.P. Morgan Asset Management, based on internal select data from JPMorgan Chase Bank, N.A. and its affiliates (collectively "Chase") including select Chase checking and savings accounts data from January 1, 2019, to December 31, 2022. J.P. Morgan analysis. Information that would have allowed identification of specific customers was removed prior to the analysis.

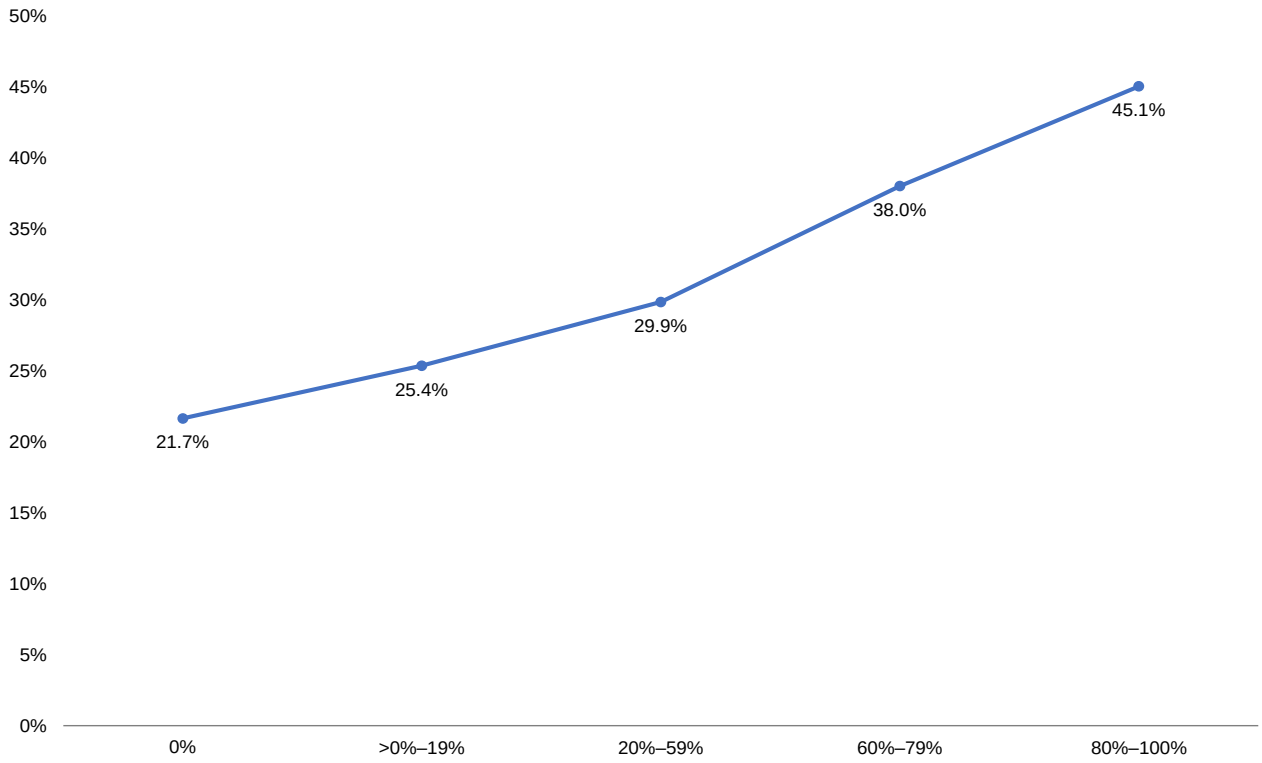
Figure 10
Incidence of an Unfunded Spending Spike, by Spending Ratio



Source: Estimates from PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 11

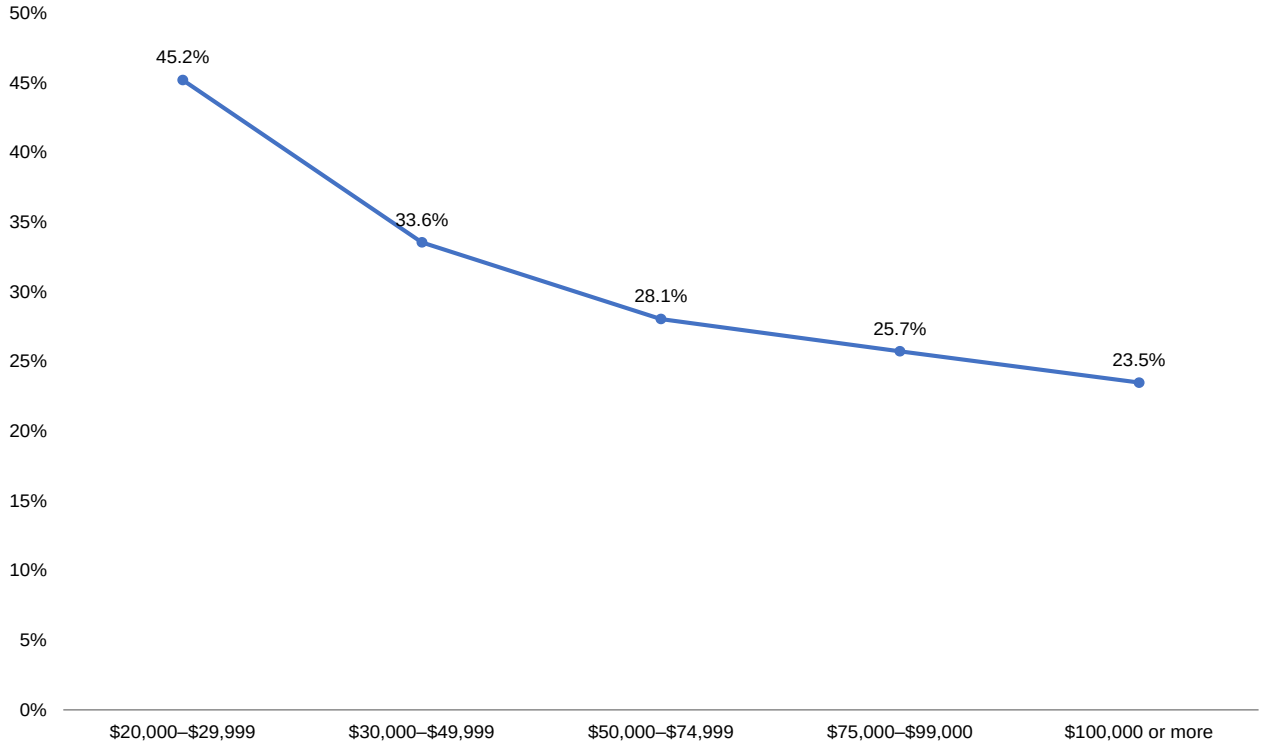
Incidence of an Unfunded Spending Spike, by Beginning of Year Credit Card Utilization



Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

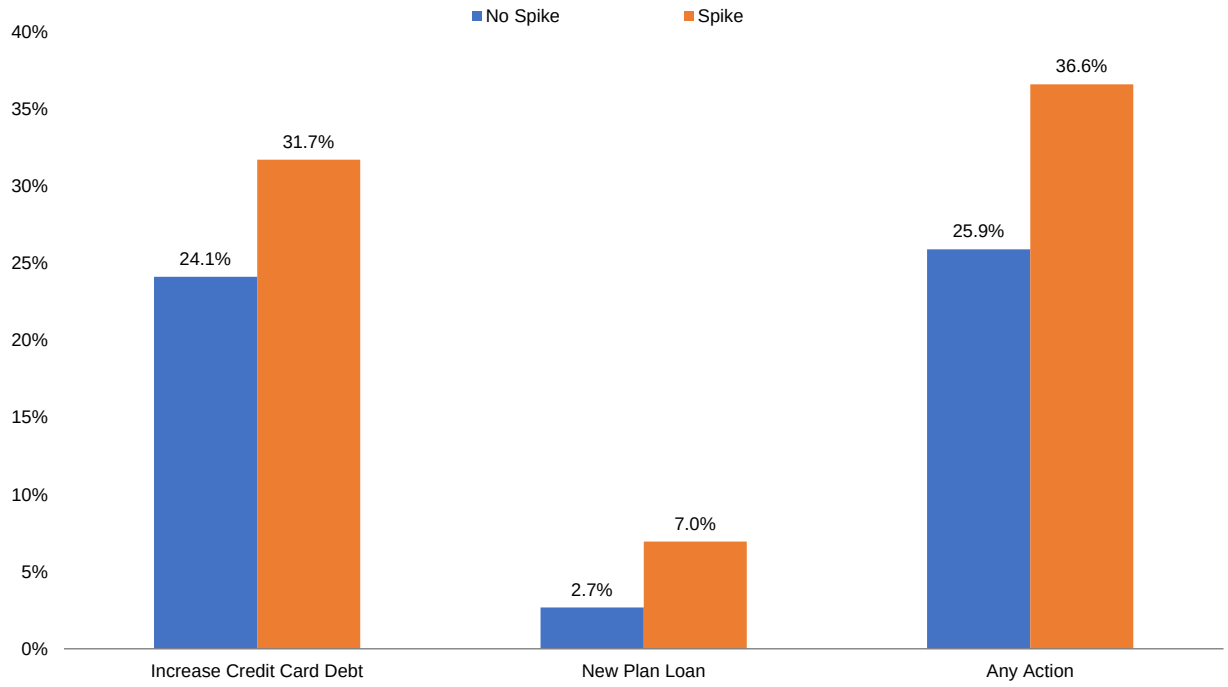
Figure 12

Incidence of an Unfunded Spending Spike, by Gross Income



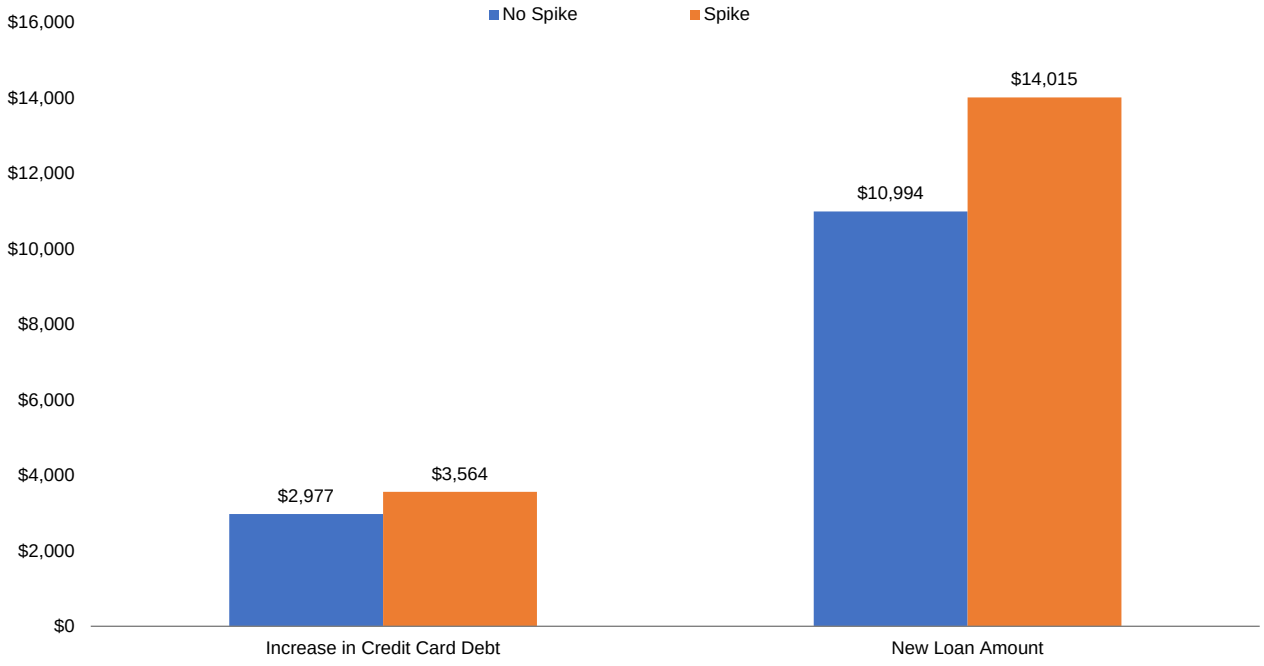
Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 13
Likelihood of Increasing Credit Card Debt and Taking a New Plan Loan, by Unfunded Spending Spike Occurrence



Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 14
Average Amount of New Plan Loans and Increases in Credit Card Debt, by Unfunded Spending Spike Occurence



Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

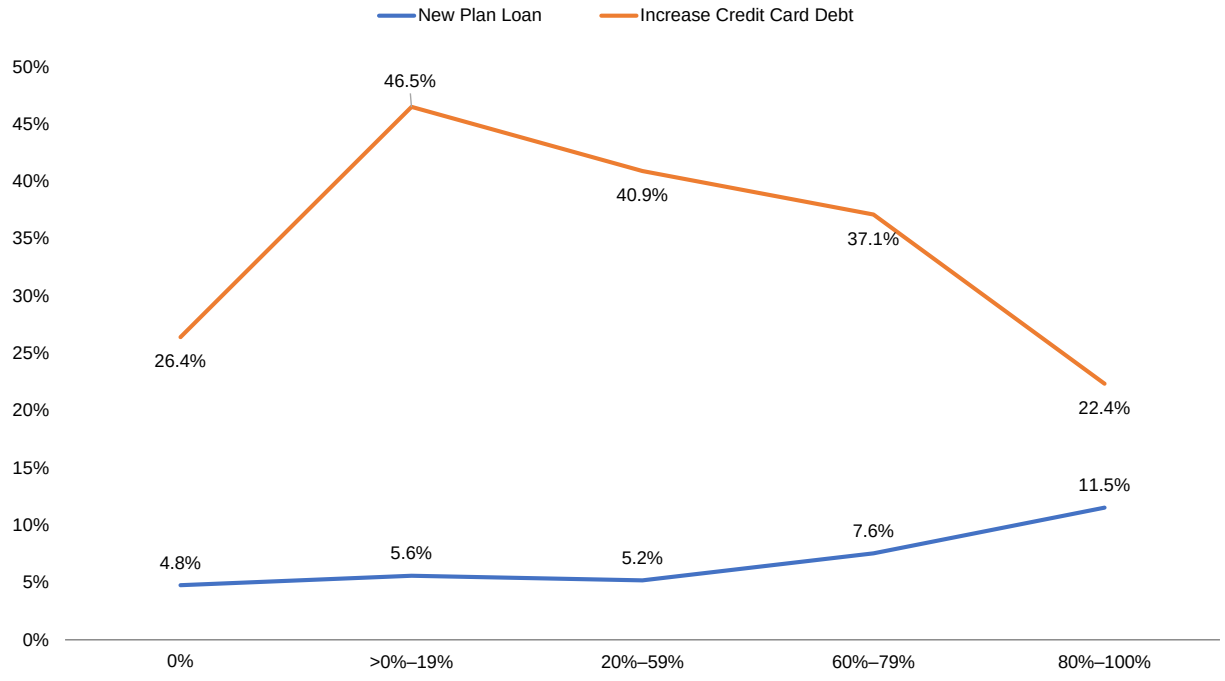
Credit Card Utilization and DC Plan Loans

Credit card utilization is another important factor in determining whether a DC plan participant takes a plan loan. As shown in Figure 2, 43.7 percent of the households had no revolving credit card balances at the beginning of the year, while 16.4 percent had credit card utilization of 80–100 percent. This credit card utilization plays an important role in the participant taking a plan loan, as less availability of credit card borrowing could force the participants to take a plan loan to pay expenses not covered by income or cash reserves. In fact, the median credit card utilization of those taking a plan loan was 66.6 percent compared with 25.5 percent for those who did not take a plan loan.

Also among the households with a spending spike, higher credit card utilization was correlated with a higher likelihood of taking a plan loan. Of the households with a spike having no revolving credit card debt at the beginning of the year, 4.8 percent took a plan loan, compared with 11.5 percent of those having a spike with credit card utilization of 80–100 percent (Figure 15). Interestingly, it appears that the households are more likely to take on additional credit card debt before taking the plan loan, as approximately 37–47 percent of those with credit card utilization of >0–79 percent increased their credit card debt, while less than 8 percent took a new plan loan with that level of credit card utilization.

However, when credit card utilization reached 80 percent, the likelihood of increasing credit card debt decreased to 22.4 percent, while the increasing trend of taking a new plan loan went up by nearly 4 percentage points (7.6 percent to 11.5 percent) from credit card utilization of 60–79 percent to credit card utilization of 80–100 percent. The likelihood of taking a plan loan did not increase by more than 2.5 percentage points in any other instance of increased credit card utilization.

Figure 15
Percentage of Those With Unfunded Spending Spikes Who Took a New Plan Loan or Increased Credit Card Debt, by Initial Credit Card Utilization

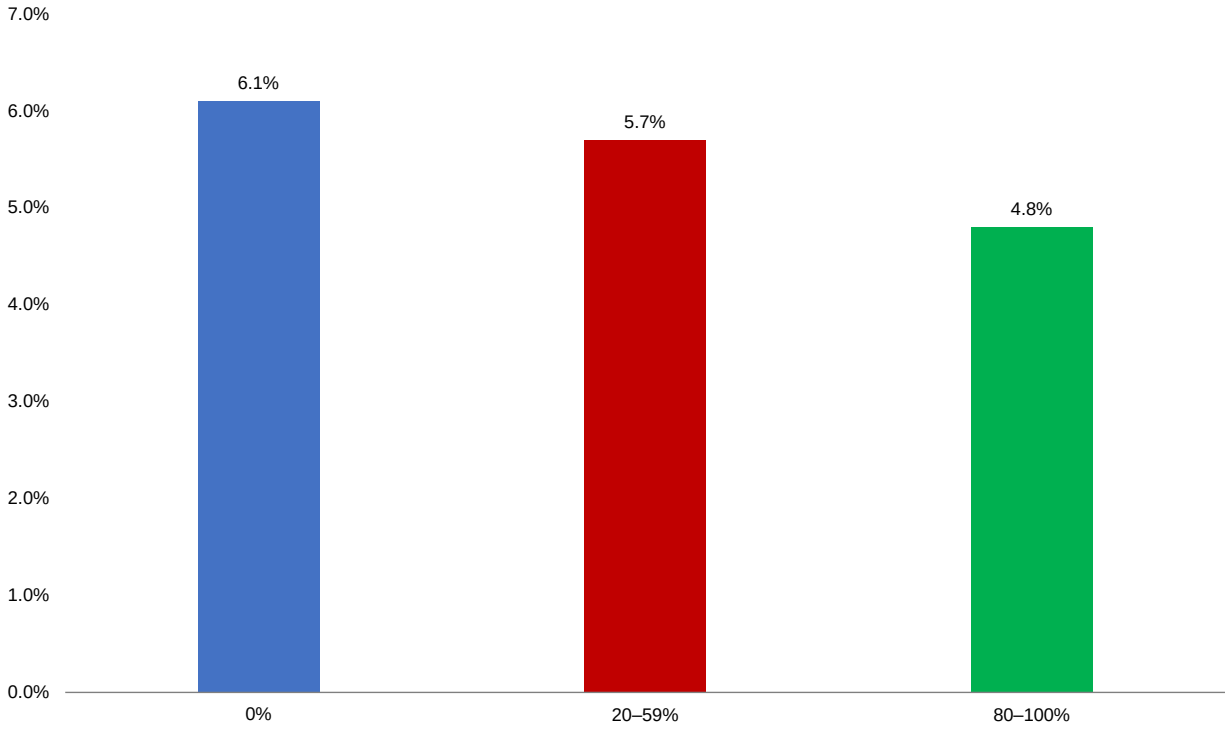


Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

In looking at the potentially long-lasting impact of credit card debt, higher credit card utilization is associated with lower contribution rates. Specifically, the average contribution rate of those with no credit card utilization was 6.1 percent, compared with 5.7 percent for those with 20–59 percent utilization and 4.8 percent for those with 80–100 percent utilization (Figure 16). Correspondingly, the median account balance decreased from $26,084 for those with credit card utilization of 0 percent to $15,423 for those with credit card utilization of 80–100 percent (Figure 17). Furthermore, 20.7 percent of these participants with no revolving credit card debt had a balance of $100,000 or more, compared with 11.1 percent of those with credit card utilization of 80–100 percent.

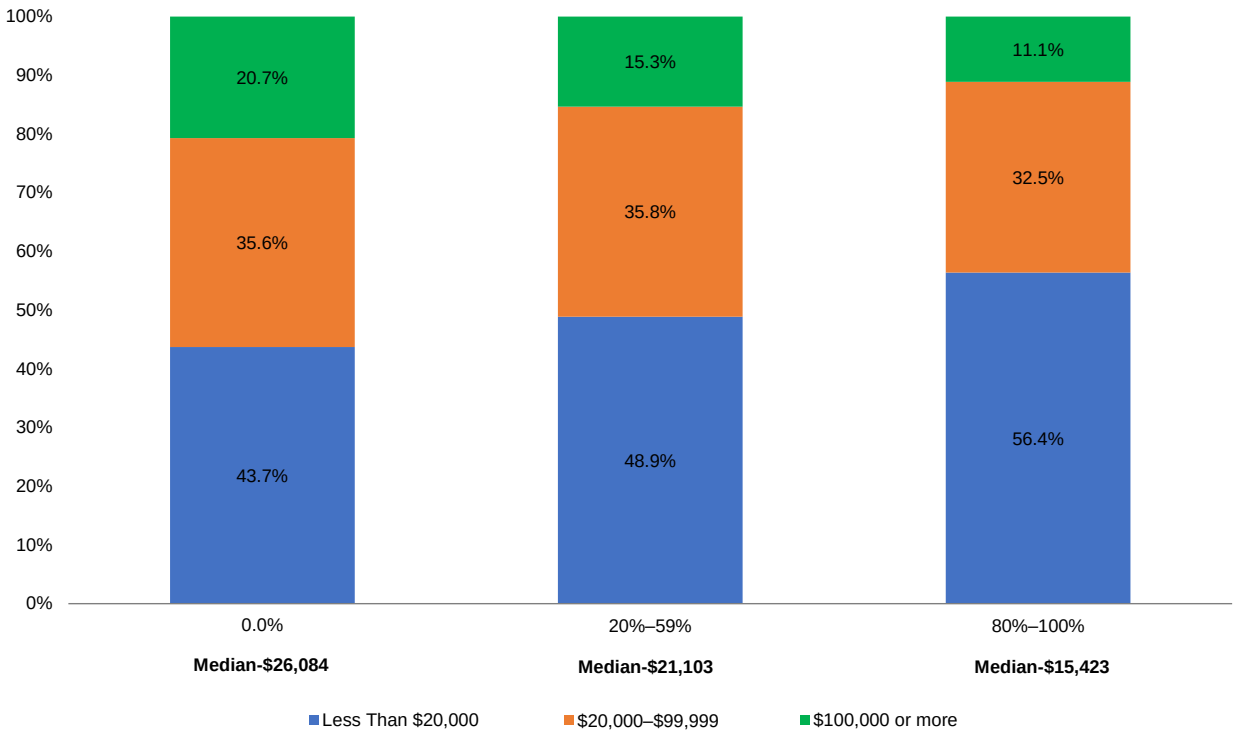
The same trends hold when looking at different income levels. For example, among those making $100,000 or more, the median balance decreased from $36,261 for those with no credit card utilization to $18,746 for those with 80–100 percent utilization (Figure 18). Furthermore, the percentage with balances *less than* $20,000 increased from those with no utilization (37.7 percent) to those with 80–100 percent utilization (52.2 percent).

Figure 16
Mean Contribution Rates, by Initial Credit Card Utilization



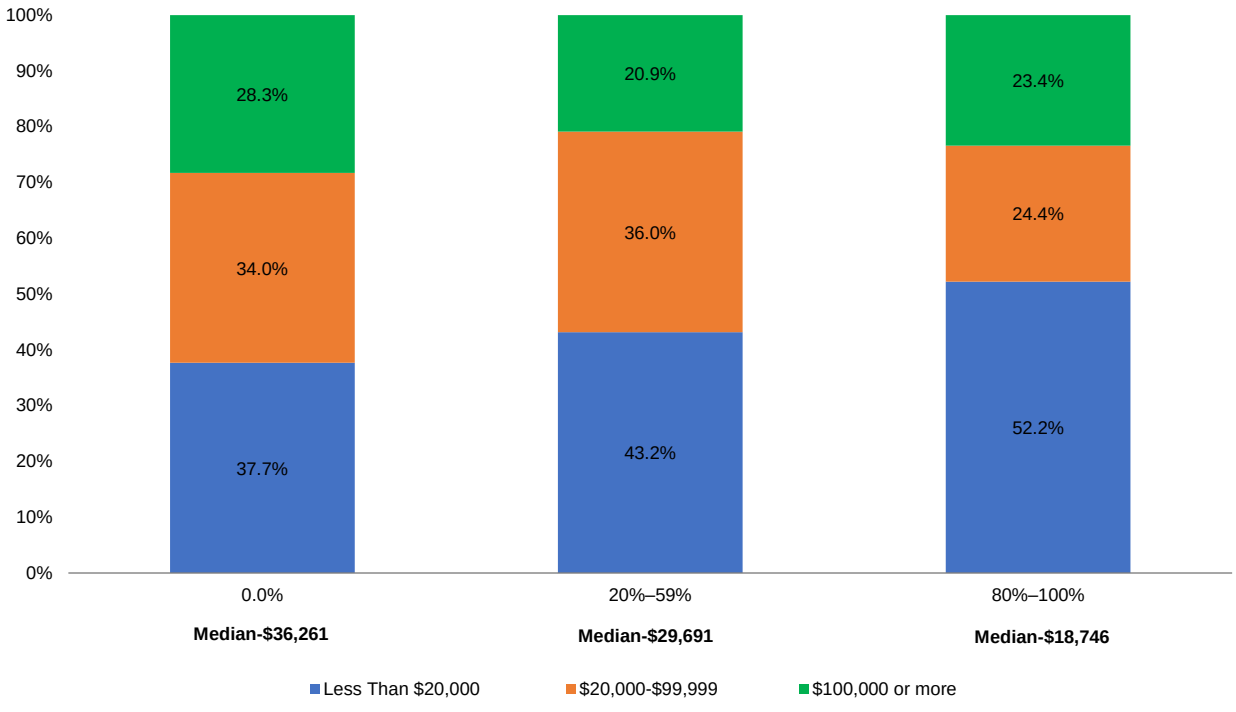
Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 17
Distribution of Account Balances, by Initial Credit Card Utilization



Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

Figure 18
Distribution of Account Balances for Those With Incomes of $100,000 or More, by Initial Credit Card Utilization



Source: Estimates from the PRRL Database and select Chase data. For more information, see the Data Sources box in the text.

Probit Results on Factors Affecting the Probability of Taking a Plan Loan

In addition to a cross-sectional analysis, a probit regression can be used to see the impact of various factors on the probability of a participant taking a plan loan. This allows for all factors examined to be controlled for to see which ones have a statistically significant impact. Probit only allows for two options for the dependent variable, in this case taking a loan or not taking a loan. The probability of taking a new plan loan is assumed to be a function of specific parameters within the DC plan, such as the 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 income, and the tenure of the participant with their current employer (a series of dummy variables for various tenure thresholds). Also, this analysis allows for the unique variables outside of the DC plan to be tested as well, including the credit card utilization at the beginning of the year, the change in the revolving credit card balance from the beginning of the year to the end of the year, mortgage payments started during the year (=1 if a new mortgage), the spending ratio, and spike occurrence (=1 if the a spike occurred). (See Appendix Figures 1 and 2 for summary statistics, complete variable definitions, and probit results.)

The unique financial factors outside of the plan that had a highly statistically significant impact on a DC plan participant taking a plan loan included credit card utilization and the occurrence of a spike. The higher the credit card utilization, the more likely a new plan loan was taken. In addition, the occurrence of a spending spike was positively associated with an increased likelihood of taking a plan loan.[17] Consequently, the financial factors outside of what is known within the plan are important, if not the most important, considerations in DC plan participants' decisions to take a plan loan.

Only a few of the demographic factors show a statistically significant impact on taking a new plan loan. Those with account balances of less than $5,000 were less likely to have taken a loan than those with balances of $5,000–$19,999, while those with balances of $50,000–$99,999 were more likely to have taken a loan than the $5,000–$19,999 balance group. In addition, those with tenures with their current employer of 10–19 years were more likely to take loans than those with 2-4 years of tenure, while an increase in gross income was correlated with a higher likelihood of taking a plan loan.[18]

Conclusion

Revolving consumer credit grew by an average rate of 3.3 percent per year during the study period from 2019–2021.[19] However, it grew by 5.7 percent in 2021 and by 7.6 percent in 2022. In the 2024 Retirement Confidence Survey (RCS), 60 percent of workers said that their debt is a problem, and nearly half of workers said debt is negatively impacting their ability to save for retirement.[20] Thus, it is clear that debt is an issue for many Americans. This study builds on the prior J.P. Morgan/EBRI study that looked at the link between spending, credit card debt, and 401(k) plan loans among private-sector DC plan participants to determine if the same links are found among public-sector DC plan participants and found that the same relationships exist among these workers as well. 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.[21] Programs to help with workers' overall finances — for example, financial wellness benefits — could be indispensable. The decision to a take a plan loan is dependent not just on what happens in the plan but on the total financial profile of the participant.

Given the impact of participants' overall finances on the need for a plan loan, it appears clear that prohibiting plan loans would not necessarily improve participants' retirement security. Without the option of taking a plan loan, participants would seek loans outside the plan to fill spending gaps, and those loans may have terms more expensive than those of a plan loan.

This research found that, like private-sector DC plan participants, public-sector DC plan participants who lack income and cash reserves to support a spending spike are likely to end up with more credit card debt. This 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, even when controlling for income. Thus, the availability of emergency savings to

cover spending spikes can be a critical factor in preventing or stalling a cycle of increasing debt that can significantly impact retirement readiness, wherever the individual works.

DATA PRIVACY: JPMorgan Chase has a number of security protocols in place which are designed to ensure all customer data is kept confidential and secure. Reasonable physical, electronic and procedural safeguards are used that are designed to comply with federal standards to protect and limit access to personal information. There are several key controls and policies in place which are designed to ensure customer data is safe, secure, and anonymous: (1) Before J.P. Morgan Asset Management (JPMAM) receives the data, all selected data is highly aggregated and all unique identifiable information, including names, account numbers, addresses, dates of birth and Social Security numbers, is removed. (2) JPMAM has put privacy protocols in place for its researchers. Researchers are obligated to use the data solely for approved research and are obligated not to re-identify any individual represented in the data. (3) JPMAM does not allow the publication of any information about an individual or entity. Any data point included in any publication based on customer data may only reflect aggregate information. (4) The data is stored on a secure server and can be accessed only under strict security procedures. Researchers are not permitted to export the data outside of J.P. Morgan Chase's (JPMC) systems. The system complies with all JPMC Information Technology Risk Management requirements for the monitoring and security of data. (5) JPMAM provides valuable insights to policymakers, businesses, and financial professionals, but these insights cannot come at the expense of consumer privacy. We take every precaution to ensure the confidence and security of our account holders' private information.

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Appendix Figure 1

Model Results and Variable Descriptions

Model: P(new plan loan)=f(credit card utilization, spending spike, new mortgage, increase in credit card debt, demographics)

The Probit Procedure
(n=5,755)

Analysis of Maximum Likelihood Parameter Estimates

Parameter	DF	Estimate	Standard Error	95% Confidence Limits		Chi-Square	Pr > ChiSq
Intercept	1	-2.2984	0.1248	-2.543	-2.0538	339.09	<.0001
tbal5	1	-0.4359	0.1161	-0.6636	-0.2083	14.09	0.0002
tbal20	1	0.0495	0.0961	-0.1388	0.2378	0.27	0.6063
tbal50	1	0.239	0.1039	0.0352	0.4427	5.29	0.0215
tbal100	1	0.0735	0.1085	-0.1392	0.2861	0.46	0.4984
Adgrinc	1	0.0135	0.0052	0.0033	0.0237	6.7	0.0097
age20	1	-0.0135	0.1289	-0.266	0.2391	0.01	0.9166
age40	1	0.1197	0.0876	-0.052	0.2913	1.87	0.1718
age50	1	0.0613	0.098	-0.1308	0.2535	0.39	0.5316
age60	1	-0.0549	0.1195	-0.2891	0.1794	0.21	0.6462
ten2	1	0.0117	0.1216	-0.2267	0.25	0.01	0.9237
ten5	1	-0.0937	0.102	-0.2936	0.1063	0.84	0.3587
ten10	1	0.2324	0.1076	0.0216	0.4433	4.67	0.0307
ten20	1	0.0438	0.1283	-0.2076	0.2952	0.12	0.7328
Ccutb	1	0.4589	0.0865	0.2894	0.6283	28.16	<.0001
incrd2	1	0.1158	0.0695	-0.0204	0.252	2.78	0.0957
NEWMTG	1	0.2178	0.1226	-0.0226	0.4582	3.15	0.0758
Spk	1	0.4132	0.0664	0.2831	0.5433	38.74	<.0001

Variable Definitions

tbal5=1 if account balance is less $5,000
tbal20=1 if account balance is $20,000-$49,999
tbal50=1 if account balance is $50,000-$99,999
tbal100=1 if account balance is $100,000 or more
(omitted variable account balances $5,000-$19,999)
Adgrinc-gross income in $10,000s
age20=1 if age is less than 30
age40=1 if age is 40-49
age50=1 if age is 50-59
age60=1 if age is 60 or older
(omitted variable ages 30-39)
ten2=1 if tenure with current employer is less than 2 years
ten5=1 if tenure is 5-9 years
ten10=1 if tenure is 10-19 years
ten20=1 if tenure is 20 or more years
(omitted variable tenures of 2-4 years)
ccutb-credit card utilization at the beginning of the study (revolving balance/limit)
incrd2=1 if revolving credit card debt increased by more than $100 during the study year
newmtg=1 if mortgage payments started during the study year
spk=1 if a spending spike occurred during the study year

Source: Estimates from the PRRL Database and select Chase data.
For more information, see the Data Sources box in the text.

Appendix Figure 2
Summary Statistics of Probit Variables

Variable	Average
Gross Income ($10,000)	$8.5
Account Balance	$64,631
Age	44.1
Tenure	8.6
ccutb	28.6%
Variable	**Incidence**
tbal5	27.5%
tbal20	21.9%
tbal50	13.3%
tbal100	17.2%
age20	11.2%
age40	24.2%
age50	19.4%
age60	13.6%
ten2	21.1%
ten5	27.4%
ten10	17.2%
ten20	13.2%
incrd2	26.3%
newmtg	5.5%
Spk	28.7%
New Plan Loan	3.9%

Source: Estimates from the PRRL Database and select Chase data.
For more information, see the Data Sources box in the text.

Endnotes

[1] 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 results, see Gropper, Michael, "The State of Public Sector DC Plans: 2021" PRRL Research Study, (PRRL September 28, 2023) and Thephasit, Samita and Michael Gropper, "A Longitudinal Analysis of Consistent Participants in the Public Retirement Research Lab Database, 2019-2021," PRRL Research Study, (PRRL August 8, 2024).

[4] In a prior study using the PRRL Database and Chase banking data, spending ratios of the public-sector DC plan participants who also had a DB plan were compared with those who only had a DC plan. Also, the spending ratios were compared among those with DB plans by their level of tenure. DC-plan-only participants were found to spend less relative their income, on average, than those with a DB plan, while the tenure of the DB plan participants did not appear to have an impact on the amount spent relative to income. See Copeland, Craig, Kelly Hahn, and Matt Petersen, "Spending and Saving Behavior of Public-Sector Defined Contribution Plan Participants," *EBRI Issue Brief*, no. 570 (September 19, 2022).

[5] See Copeland, Conrath, and Carson (2023).

[6] For more information on the PRRL Database and the findings from the database, see Gropper, Michael, "The State of Public Sector DC Plans: 2021," *PRRL Research Study* (PRRL September 28, 2023).

[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 was 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] See Gropper, Michael, "The State of Public Sector DC Plans: 2021," *PRRL Research Study* (PRRL September 28, 2023) for the public-sector number and 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) for the 401(k) plan loan number.

[11] Certain public-sector plan sponsors have a 401(k) plan that was established before they were no longer allowed in the public sector. These plans were grandfathered to be continued to be offered, but they follow the Internal Revenue Service (IRS) code on these plans, not the rules exclusively in the Employee Retirement Income Security Act (ERISA).

[12] In future research, the cause of the spike will be examined to see if the effects are different depending on the cause of the spike.

[13] As a point of reference, the $150,000 income threshold is the limit set for participants to partake in the tax-preferred, in-plan emergency savings vehicle under SECURE 2.0, and $2,500 is the maximum they can have saved in the account.

[14] This would be expected since the threshold for the spikes was 25 percent, so meeting that requirement for higher-income households would result in much higher spike amounts than for those with lower incomes.

[15] Board of Governors of the Federal Reserve System, *Consumer Credit G.19*, https://www.federalreserve.gov/releases/g19/current/default.htm.

[16] These participants were not likely to both increase credit card debt and take a new plan loan in the analysis year, as only 2.1 percent of those with spikes and 0.9 percent of those without spikes did both.

[17] In a different specification using a simple ordinary least squares (OLS) regression of the same variables, a spike occurrence and higher beginning-of-the-year credit card utilization are also strongly associated with increases in the likelihood of taking a loan.

[18] Similar findings for the demographic factors were found in the OLS regression as well.

[19] See Board of Governors of the Federal Reserve System**,** *Consumer Credit G.19*, https://www.federalreserve.gov/releases/g19/current/default.htm.

[20] Employee Benefit Research Institute and Greenwald Research, *Retirement Confidence*, 2024 RCS Fact Sheet #1 (Employee Benefit Research Institute, April 29, 2024).

[21] "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).