

Spending and Saving Behavior of Public-Sector Defined Contribution Plan Participants

By Craig Copeland, Employee Benefit Research Institute; Kelly Hahn, J.P. Morgan Asset Management; and Matt Petersen, National Association of Government Defined Contribution Administrators

AT A GLANCE

Public-sector workers have traditionally been covered by defined benefit (DB) plans that pay annuities or guaranteed streams of income in retirement. However, since the recession of 2008–2009, states have made many reforms to the pension plans they offer their employees. In fact, in just 2010 and 2011, 18 and 27 states, respectively, enacted major pension reforms. For the most part, public-sector employers have retained their DB plan offerings along with a supplemental DC plan. In rare cases, the DC plan has become the primary plan offered by the public-sector employer, and in other cases, public-sector employers have offered hybrid plans (combination plans that offer features of both DB and DC aspects). As a result of these structural changes, newly hired public-sector employees' benefits will often be different (lower in most cases when different) than their longer-tenured colleagues'.

This research is part of a joint effort between the Public Retirement Research Lab (PRRL) — a collaborative partnership between the Employee Benefit Research Institute (EBRI) and the National Association of Government Defined Contribution Administrators (NAGDCA) to provide an enhanced understanding of the design and utilization of public-sector defined contribution retirement plans — and JPMorgan Asset Management to deliver data-driven research to further the retirement success of Americans, with a commitment to providing unique fact-based insights to policymakers, plan sponsors, and plan providers to help build a stronger retirement system. This study examines public-sector DC plan participants' spending and saving behaviors to see if cohorts of workers who have different primary plans (DB vs. non-DB) or different generosity of DB plan benefits have differences in these behaviors.

Key Findings:

- Households with public-sector DC plan participants who have a primary DB plan feel more comfortable spending than those without a primary DB plan. This comfort level may be short-sighted for the households with newly hired public-sector DC plan participants, as the benefits from the primary plan are likely to be less than those of longer-tenured or retired cohorts. As a result, the households with new hires may not be as prepared for retirement as they expect.
- Public-sector households are, at the median, spending at or above their net income.
- Savings rates in DC plans are correlated with the type of primary employer-sponsored plan (e.g., defined benefit, defined contribution, or hybrid).
- Households with employees with a primary employer-sponsored DB plan are less likely to contribute to a DC plan.
- The presence or absence of Social Security coverage appears not to have an impact on spending behavior.

Public-sector employees, and in particular newly hired employees, could benefit from more education about their retirement plan offerings and finances overall to better understand their plan benefit structure, how that can impact spending both currently and in the future, and the potential need to save more. Given many states having tight budgets, employees' use of their DC plans could make the difference in how comfortable their retirements are financially.

Craig Copeland is Director of Wealth Benefits Research at the Employee Benefit Research Institute (EBRI). Kelly Hahn is Executive Director at J.P. Morgan Asset Management. Matt Petersen is Executive Director of the National Association of Government Defined Contribution Administrators. This *Issue Brief* was written with assistance from the Institute’s research and editorial staff. Any views expressed in this report are those of the authors, and should not be ascribed to the officers, trustees, or other sponsors of EBRI, EBRI-ERF, or their staff. Neither EBRI nor EBRI-ERF lobbies or takes positions on specific policy proposals. EBRI invites comment on this research.

Special thanks to Bridget Bearden, Mike Cross, Michael Gropper, Alexandra Nobile, and Je Oh for their contributions to this paper.

Suggested citation: 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).

Copyright Information: This report is copyrighted by the Employee Benefit Research Institute (EBRI). You may copy, print, or download this report solely for personal and noncommercial use, provided that all hard copies retain any and all copyright and other applicable notices contained therein, and you may cite or quote small portions of the report provided that you do so verbatim and with proper citation. Any use beyond the scope of the foregoing requires EBRI’s prior express permission. For permissions, please contact EBRI at permissions@ebri.org.

Report availability: This report is available on the internet at www.ebri.org

Table of Contents

Introduction	4
Household Profiles	7
DC Plan Contributions	11
Spending and Primary Plan Type	12
Spending and Social Security Coverage	14
Distribution of Total Spending by Spending Category	15
Conclusion	17
Endnotes	21

Figures

Figure 1, Number of States Enacting Major Pension Reforms, 2007–2021	4
Figure 2, Examples of Percentage Change in Annual Benefits as Result of Pension Reforms	5
Figure 3, Summary Statistics of Households With Defined Contribution (DC) Plan Participants in Various Plan Structures	8
Figure 4, Median Net Income, by Age and Primary Defined Benefit (DB) Status	9
Figure 5, Median Total Spending, by Age and Primary Defined Benefit (DB) Status	9
Figure 6, Median Tenure in Years With Employer, by Income and Primary Defined Benefit (DB) Status	10
Figure 7, Median Tenure in Years With Employer, by Age and Primary Defined Benefit (DB) Status	10
Figure 8, Distribution of Contributions as Percentage of Income, by Primary Defined Benefit (DB) Type	11
Figure 9, Distribution of Contributions as Percentage of Income, by Tenure (Primary Defined Benefit (DB) Plan)	12

Figure 10, Spending-to-Net-Income Ratio, by Income and Primary Defined Benefit (DB) Status	13
Figure 11, Spending-to-Net-Income Ratio, by Income, Primary Defined Benefit (DB) Status, and Tenure	13
Figure 12, Spending-to-Net-Income Ratio, by Age, Primary Defined Benefit (DB) Status, and Tenure.....	14
Figure 13, Spending-to-Net-Income Ratio, by Income and Social Security Coverage	15
Figure 14, Distribution of Total Spending, by Primary Plan Type.....	16
Figure 15, Distribution of Total Spending, by Primary Plan Type and Income Quartile.....	16
Figure 16, Distribution of Total Spending, by Social Security Coverage and Income Quartile.....	17
Appendix Figure 1, SAS Output for OLS Regression for Low-Tenure Effect	19
Appendix Figure 2, SAS Output for OLS Regression for Social-Security-Coverage Effect	20

Spending and Saving Behavior of Public-Sector Defined Contribution Plan Participants

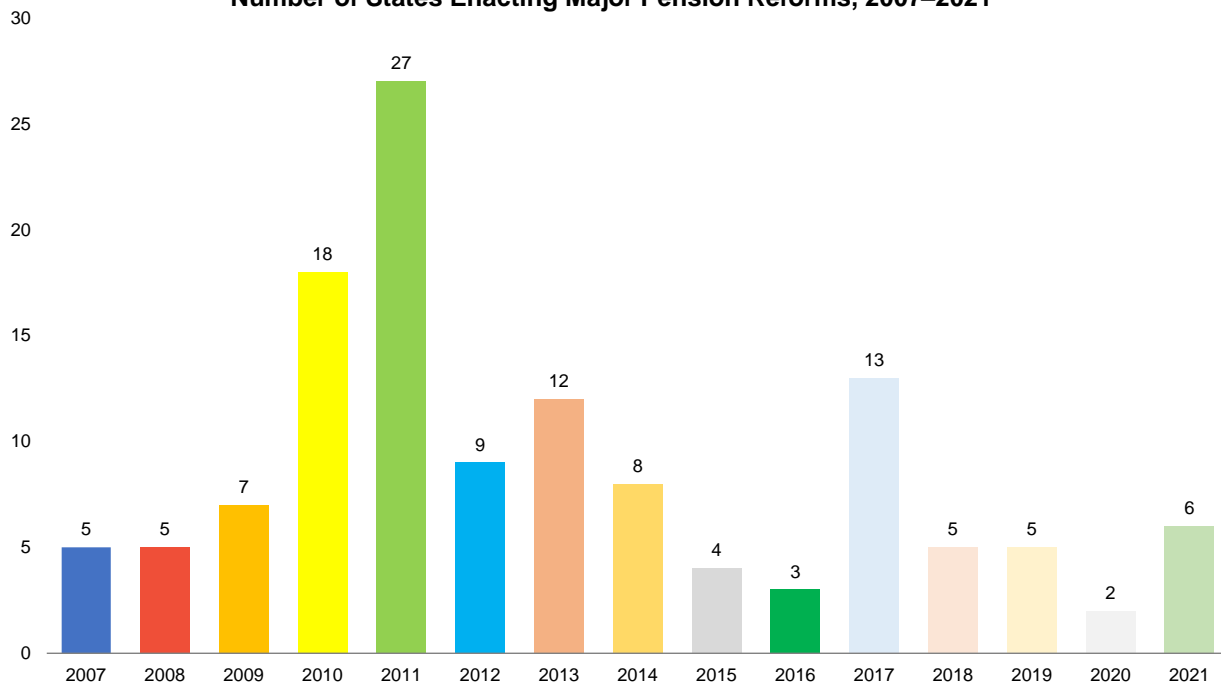
By Craig Copeland, Employee Benefit Research Institute; Kelly Hahn, J.P. Morgan Asset Management; and Matt Petersen, National Association of Government Defined Contribution Administrators

Introduction

Public-sector workers have traditionally been covered by defined benefit (DB) plans that pay annuities or guaranteed streams of income in retirement. While *private*-sector employers have predominately switched to offering only defined contribution (DC) plans, public-sector employers, for the most part, have retained their DB plan offerings along with a supplemental DC plan. In rare cases, the DC plan has become the primary plan offered by the public-sector employer, and in other cases, public-sector employers have offered hybrid plans (a combination plan that offers features of both DB and DC aspects).

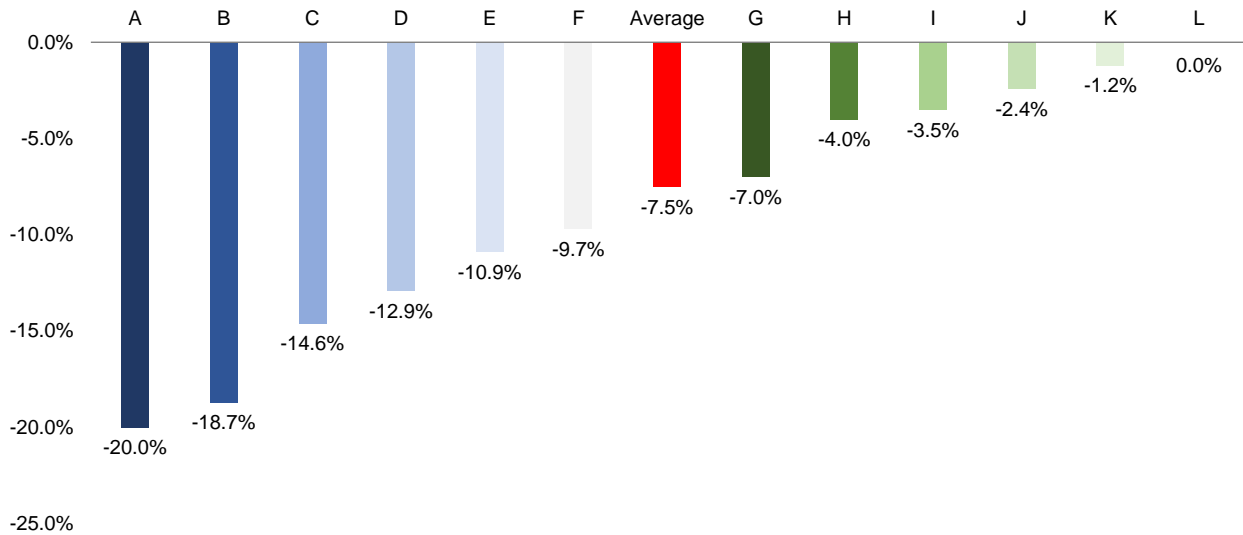
Since the recession of 2008–2009, states have made many reforms to the pension plans they offer their employees. In fact, in just 2010 and 2011, 18 and 27 states, respectively, enacted major pension reforms (Figure 1).¹ One study estimated that newly hired workers who end up having 30 years of tenure would have an average reduction in benefits of 7.5 percent relative to those hired before the changes, with benefit reductions as high as 20 percent and as low as no change (Figure 2).²

Figure 1
Number of States Enacting Major Pension Reforms, 2007–2021



Source: National Association of State Retirement Administrators (NASRA), [NASRA](#).

Figure 2
Examples of Percentage Change in Annual Benefits as Result of Pension Reforms
 (Employees With 30 Years of Tenure)



Source: Center for State & Local Government Excellence and National Association of State Retirement Administrators (NASRA), Effects of Pension Plan Changes on Retirement Security.
 Note: The letters on the axis represent different states and were assigned by order of the size of the benefit change.

As a result of these structural changes, newly hired public-sector employees’ benefits will often be different (lower in most cases when different) than their longer-tenured colleagues’. In addition, the presence of DC plans allows these employees to save on a tax-preferred basis to supplement their DB plan. Therefore, it would be expected that public-sector employees under newly reformed retirement plan regimes would have spending and saving behaviors that differ from those of public-sector employees under the older and, typically, more generous benefit regimes.

This study is part of a joint effort between the Public Retirement Research Lab (PRRL) — a collaborative partnership between the Employee Benefit Research Institute (EBRI) and the National Association of Government Defined Contribution Administrators (NAGDCA) to provide an enhanced understanding of the design and utilization of public-sector defined contribution retirement plans — and JPMorgan Asset Management to deliver data-driven research to further the retirement success of Americans, with a commitment to providing unique fact-based insights to policymakers, plan sponsors, and plan providers to help build a stronger retirement system.

Specifically, public-sector DC plan participants’ spending and saving behaviors are examined to see if cohorts of workers who have different primary plans (DB vs. non-DB) or different generosity of DB plan benefits have differences in these behaviors. First, the characteristics of the households with participants in the various plan structures are presented. Second, the contribution behavior to the DC plan is compared between the different primary plans. Next, comparisons of total spending by the households in the various plan structures are conducted. Lastly, an examination of the distribution of spending by expense category is shown.

Data Sources

The Public Retirement Research Lab (PRRL) Database — The first-ever repository of public-sector defined contribution (DC) plan- and participant-level data. The year-end 2019 data contain nearly 200 457(b), 401(a), 403(b), 401(k), and other defined contribution plans; nearly 2.3 million state, county, city, and subdivision government employees; and \$113 billion in assets. It is important to note that many state plans serve as the primary DC vehicle for lower-level governments within their respective states. The state plans in the PRRL Database represent as many as 1,800 participating employers, even though they are counted as a single plan.³ See [PUBLIC RETIREMENT RESEARCH LAB - Home \(prrl.org\)](https://prrl.org) for more information.

Select Chase Data — JPMorgan Chase Bank, N.A. (Chase) serves nearly half of America’s households with a broad range of financial services including checking, savings, investments, credit cards, and loans. Chase’s scale and wide reach allow for a comprehensive view of household finances. In this analysis, the Select Chase Data sample is restricted to around 22 million households in 2019 who used Chase as their primary banking institution, and their total household spending through various 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. are analyzed. For more information about Chase, visit <https://www.chase.com/digital/resources/about-chase>.

Data Privacy Protections — No personally identifiable information is used or analyzed and all spending and saving attributes included in this research are kept anonymous.⁴

Sample Construction

In this study, spending and saving behaviors from January 1 – December 31, 2019, are examined at the household level. In order to create this household view, the following steps were taken to merge the spending data from Chase and saving data from the Public Retirement Research Lab (PRRL) to create the full data sample:

- 1) Using the unique participant/customer identifier (not personally identifiable information) in each data set, 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.⁵
- 2) In order to ensure that the data sample only includes households where the Select Chase Data has all or the majority of their spending, filters are applied to the households to meet the full (majority) spending criterion. 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.

This results in 55,000 households. For the public-sector defined contribution (DC) plan participants in these households, complete account balance and contribution data are established from the PRRL Database. Furthermore, the household participant must be ages 25–64, and the household must be receiving income from salaries/wages. This allows for the focus to be on those who are still working and accumulating benefits. After these further checks, the sample includes 36,690 households.⁶

Data Definitions

The unit of observation in this study is the household, as the Chase spending and income data are at the household level. 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. Sixty-three percent of the households in this sample are one-person households, and the remaining 37 percent of households have more than one person. The one-person households, obviously, contain the public-sector defined contribution (DC) plan participant.⁷ The more-than-one-person households could contain more than one public-sector DC plan participant, but this is rare, as only 7 percent of the more-than-one-person households have more than one public DC plan participant. For those few households, the contributions are summed to the household level, and the plan design categorizations are based on the maximum spender as defined later. Otherwise, all the DC plan and primary retirement plan information is based on the sole participant in the household. This household unit observation necessitates the defining of specific data variables.

Maximum Spender — This is the anonymized person in the household who conducts the most activity in the household's accounts. This person's data are used for those households with more than one participant for the household specific categories, i.e. the household's age.

Age of the Household — This is the age of the DC plan participant or of the maximum spender for the households with more than one participant.

Income — Since all the spending data are at the household level, the income used in this study is at the household level. The Select Chase Data include available income sources, but the amount observed for salaries and wages would be the net of any taxes and deductions taken out before the paycheck is deposited. Thus, the income used is the net (after tax and deductions) income. In some of the analysis, the households are placed into income quartiles. Those with the lowest 25 percent of household net incomes when ranked from lowest to highest are in the lowest or first income quartile. Those with the next highest incomes are in the second income quartile, etc., until the highest 25 percent of incomes are in the fourth (highest) income quartile. The specific household net income thresholds to determine the income quartiles are \$35,549, \$51,774, and \$81,408.

DC Plan Contributions —The PRRL Database has the total 2019 *employee* contributions to the DC plans. The contributions, in this study, are specified as a percentage of income. This is calculated by taking the total 2019 *employee* contributions from PRRL and dividing them by the total (net) income from the Select Chase Data. Some of the DC plan participants did not make an employee contribution in 2019, but the share of public-sector employees who are eligible to participate in a DC plan but do not make an employee contribution is much higher than what is shown in this study, as only those who have contributed to the plan at some point or received an employer contribution to the DC plan are included in the PRRL Database. The percentage eligible to contribute who do *not* contribute, particularly to supplemental plans, is often over 50 percent. The contribution levels are placed into four categories for some of the analysis. The cutoff values for the contribution levels are based on the overall distribution of contributions found among the study households, and they are 1) zero contributions, 2) greater than zero contributions to 2 percent, 3) greater than 2 percent to 5 percent, and 4) greater than 5 percent.

Primary Plan — For the primary retirement plan, two categories are created — a primary traditional defined benefit (DB) plan and primary plans other than a traditional DB (hybrid or DC primary) plan. This is based on the plan-specific information in the PRRL Database. The DC plan with a primary DB plan would be a supplemental plan, whereas in the non-DB primary plan, the DC plan would be part of a hybrid plan or be the primary plan (very rare in the public sector). Seventy-nine percent of the sample could be placed into these two categories.

Tenure — This is the number of years that the DC plan participant of the household has been with their current employer. The tenure of the maximum spender is used for the few households with two DC plan participants.

Low and High Tenure — For the households with a DC plan participant having a primary DB plan, the tenure of the participant with their current employer from the PRRL Database is compared with the most recent implementation of a new tier of benefits in their retirement plan structure to determine the low- and high-tenure categories. This is unique to the primary DB plans. For example, if the DB plan had a new tier go into effect for new hires in 2014, any household with a participant in that DB plan with five years of tenure or less would be in the low-tenure group, since the data used are from 2019, while those with participants with more than five years of tenure would be in the high-tenure group. If the newest tier was implemented in 2012, the cutoff would be seven years, etc.

Social Security Coverage — For Social Security coverage, households with participants who are in plans with 100 percent Social Security coverage or no coverage are placed in covered and not covered groups. Eighty-seven percent of the sample could be categorized in the two groups.

Household Profiles

In Figure 3, averages and medians of key variables are presented. The median age of these households is 41.0 years, and the average age is 42.2 years. The median tenure is 7.0, while the average tenure is 9.7 years.⁸ The median household net income (as defined in the definitions box) is \$51,575, and the median total spending is \$54,038.

When looking at the ratio of total spending to income, the median is 99.0 percent, and the average is 105.0 percent. This means that roughly half of the participants spent all their income in the year, with those above 100 percent likely taking on debt.

Figure 3

Summary Statistics of Households With Defined Contribution (DC) Plan Participants in Various Plan Structures
(Households With Workers Ages 25–64)

	All		Primary Defined Benefit (DB)		Primary Non-DB		Primary DB — Low Tenure		Primary DB — High Tenure		Social Security Coverage — Yes		Social Security Coverage — No	
	Average	Median	Average	Median	Average	Median	Average	Median	Average	Median	Average	Median	Average	Median
Age	42.2	41.0	43.7	43.0	40.9	39.0	37.8	36.0	47.1	48.0	41.8	40.0	44.0	44.0
Tenure	9.7	7.0	11.2	8.0	8.5	6.0	4.3	5.0	15.3	13.0	9.1	7.0	12.5	11.0
Net Income	\$63,863	\$51,575	\$75,166	\$64,895	\$57,552	\$45,308	\$69,567	\$59,692	\$78,435	\$68,076	\$62,970	\$50,330	\$67,895	\$56,724
Total Spending	\$63,624	\$54,038	\$75,765	\$67,356	\$56,825	\$47,742	\$70,726	\$62,310	\$78,707	\$70,844	\$62,804	\$53,187	\$67,976	\$58,217
Spending-to-Net-Income Ratio	105.0%	99.0%	106.2%	99.5%	104.4%	98.8%	107.3%	100.4%	105.6%	99.0%	105.3%	99.3%	104.7%	98.3%
Employee Contributions	\$1,764	\$1,000	\$1,936	\$500	\$1,539	\$1,228	\$1,593	\$349	\$2,137	\$600	\$1,861	\$1,215	\$1,441	\$500
Employee Contribution Rate	2.97%	1.65%	2.52%	0.74%	3.06%	2.29%	2.20%	0.56%	2.71%	0.81%	3.24%	2.10%	2.13%	0.89%

Source: PRRL Database and Select Chase Data. For more information, see the Data Sources box in the text.

For annual employee contributions, the median amount contributed as a percentage of household income is 1.65 percent or \$1,000. The average contribution is \$1,764 or 2.97 percent of income. These values include those with zero *employee* contributions in 2019, but an *employer* contribution may have been made to the plan, or the participant may have made employee contributions in a prior year, so those DC plans could have a positive balance.

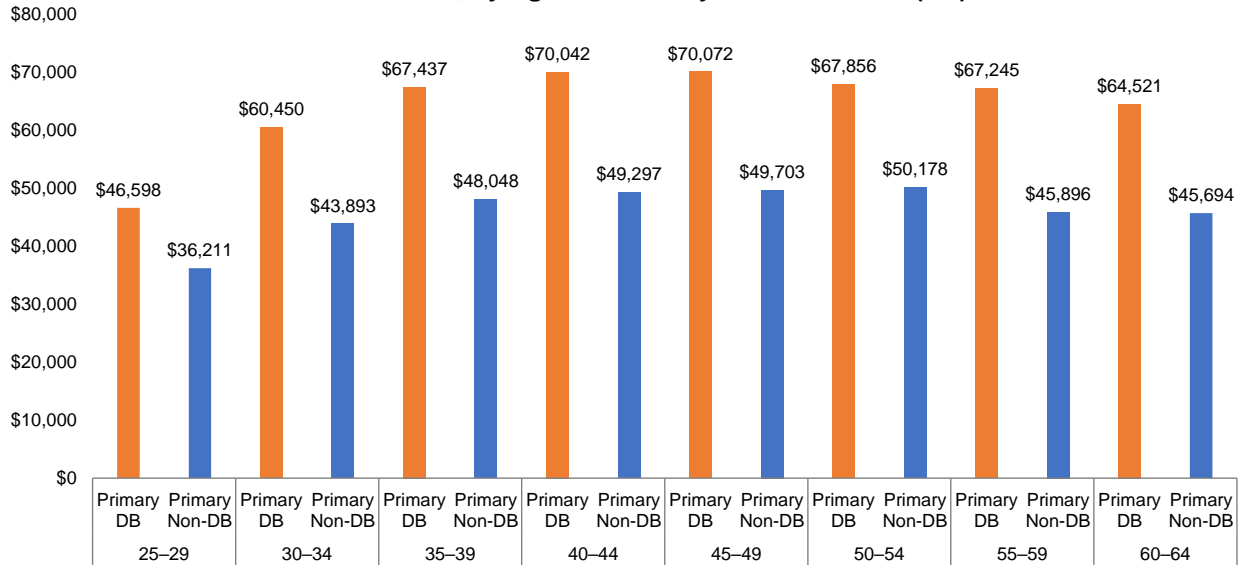
Looking at the households divided by type of primary retirement plan, those with a primary DB plan are older, have longer tenures, have higher salaries, and have higher spending-to-net-income ratios, on average, than those who do not have a primary DB plan. However, those without a primary DB plan have higher employee contributions to the DC plan, on average, as employee contributions are often required when the primary plan is a hybrid or DC plan. The higher incomes and spending for those with a primary DB plan are driven by the area where they live, not the presence of the DB plan, as households with participants having a primary DB plan in this study are concentrated in high-cost-of-living areas.

Unsurprisingly, the high-tenure primary DB plan participants have longer tenures, on average. They also have higher salaries, spending, and annual contributions, on average. In contrast, the low-tenure participants have higher total spending-to-net-income ratios, on average.⁹

The participants covered by Social Security have shorter tenures and lower net incomes and total spending, on average. The participants without Social Security coverage have lower employee contributions and spending-to-income ratios and are older, on average.

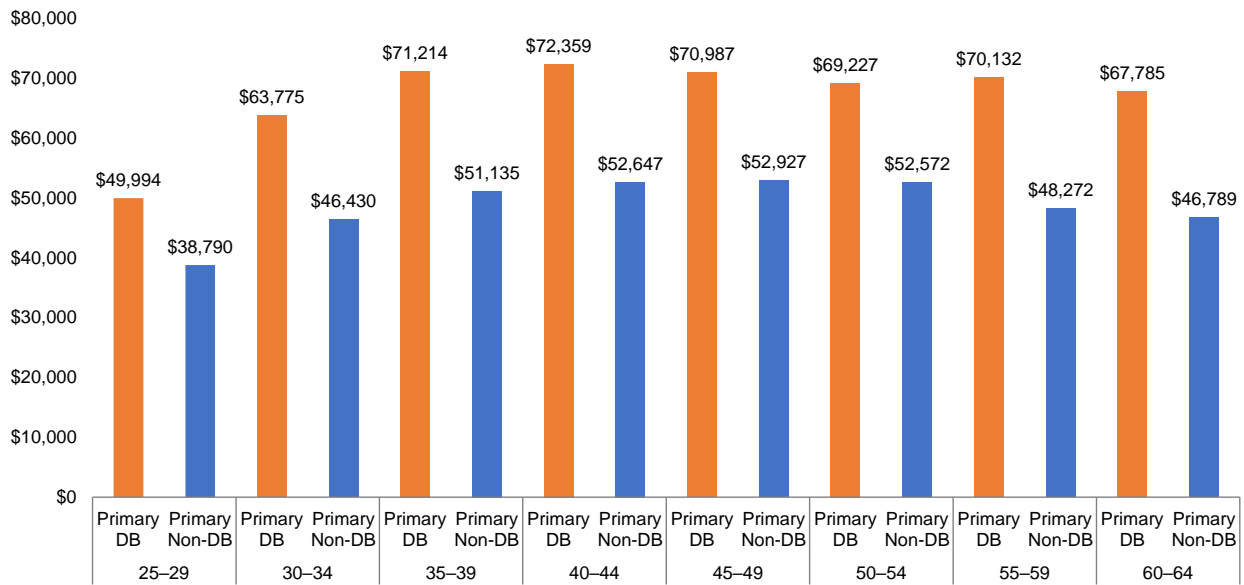
Looking more closely at the participants with and without a primary DB plan, those participants with a primary DB plan have higher median incomes and spending at each age (Figures 4 and 5). Again, this is driven by the households with a primary DB plan in this study generally living in high-cost areas. The median tenure of those with a primary DB plan is longer in each income quartile (Figure 6). In each age group, the participants with a primary DB plan have at least as long median tenures as those without a primary DB plan (Figure 7). Thus, having a primary DB plan is positively correlated with more retention of employees compared with those who do not have a primary DB.

Figure 4
Median Net Income, by Age and Primary Defined Benefit (DB) Status



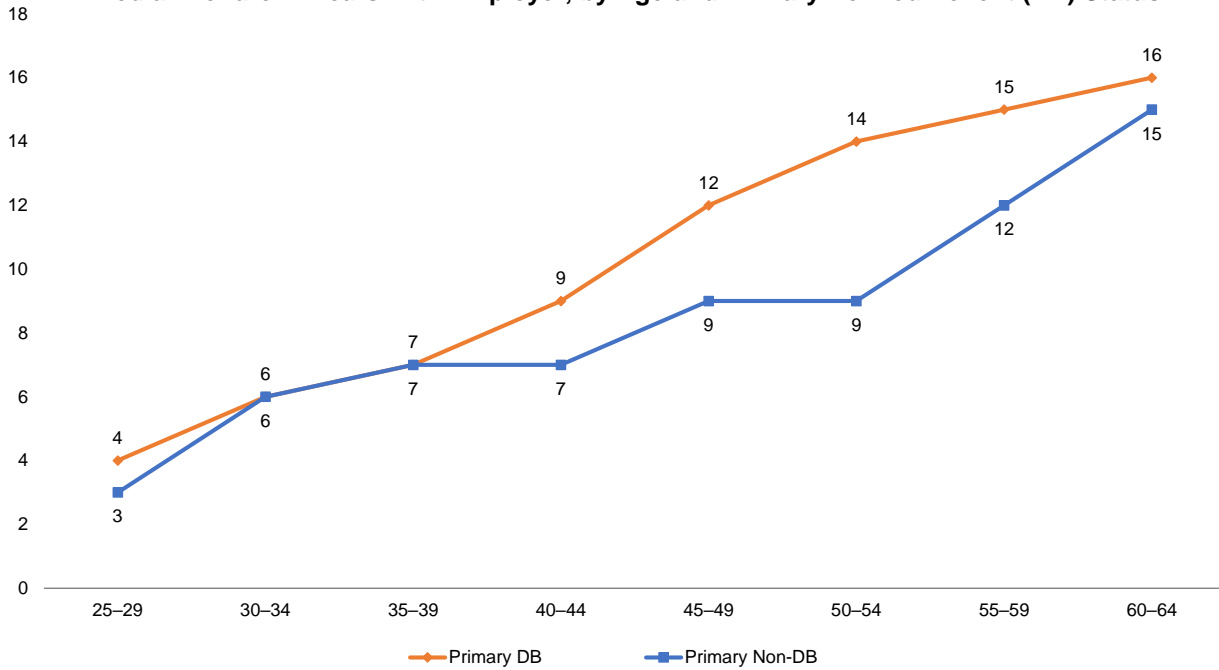
Source: PRRL Database and Select Chase Data. For more information, see the Data Sources box in the text.

Figure 5
Median Total Spending, by Age and Primary Defined Benefit (DB) Status



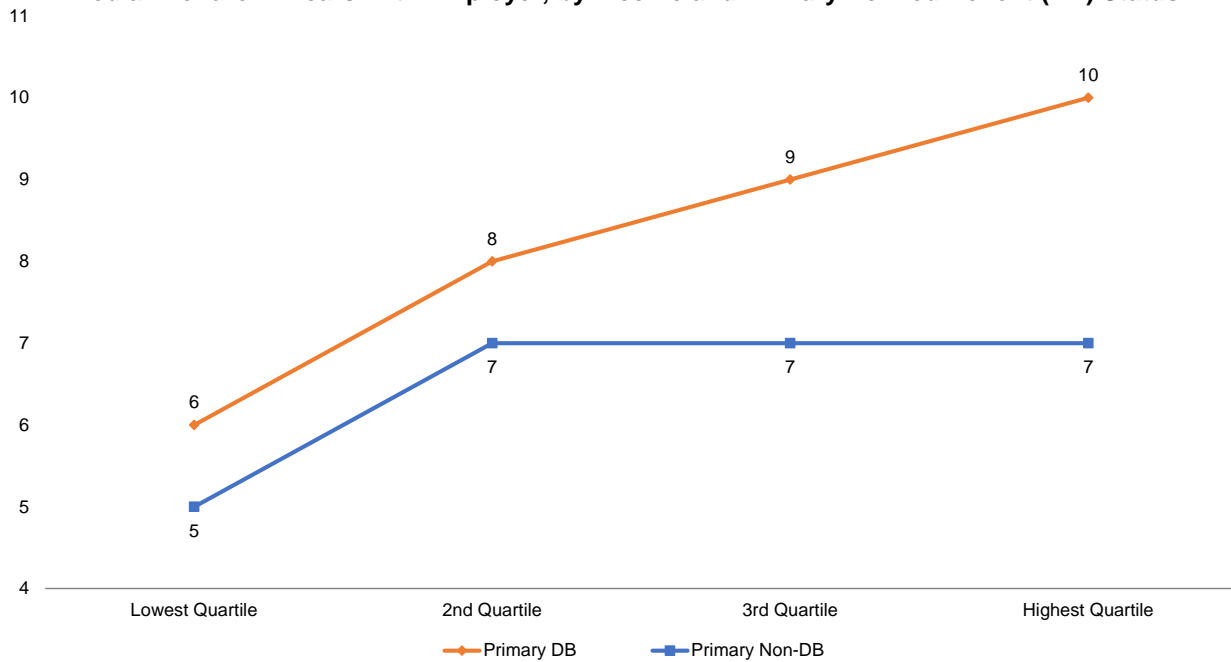
Source: PRRL Database and Select Chase Data. For more information, see the Data Sources box in the text.

Figure 7
Median Tenure in Years With Employer, by Age and Primary Defined Benefit (DB) Status



Source: PRRL Database and Select Chase Data. For more information, see the Data Sources box in the text.

Figure 6
Median Tenure in Years With Employer, by Income and Primary Defined Benefit (DB) Status



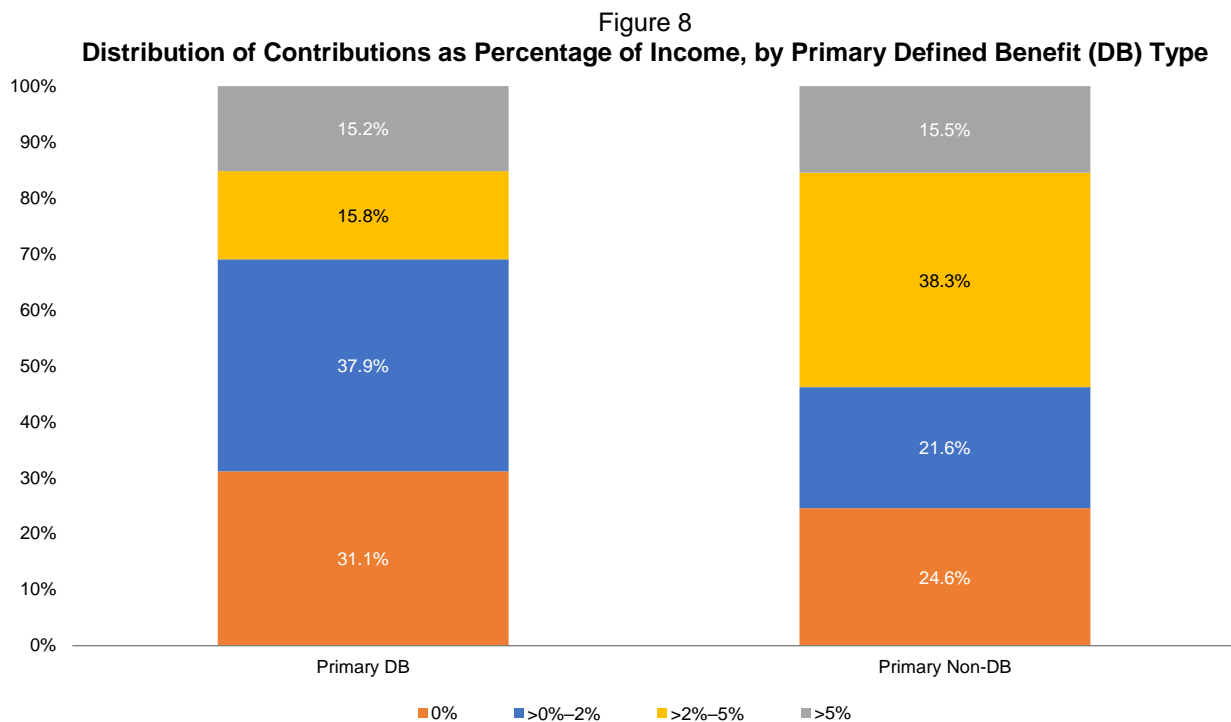
Source: PRRL Database and Select Chase Data. For more information, see the Data Sources box in the text.

DC Plan Contributions

Overall, one-quarter of the households in this study did not contribute to their DC plan in 2019. Of those who did contribute, the median contribution rate as a percentage of income was 3 percent, and the 75th percentile of contributions was 5 percent.¹⁰ An important note to reinforce about the population of the PRRL Database is that they must have a DC plan balance to be in the database, so at some point, they or their employer must have contributed to the plan. Thus, those employees who are eligible for the plan but have never contributed and their employer has never contributed are *not* included in this study. The percentage of those eligible to contribute to a public-sector DC plan but who do not contribute, in many cases, can often be over 50 percent.

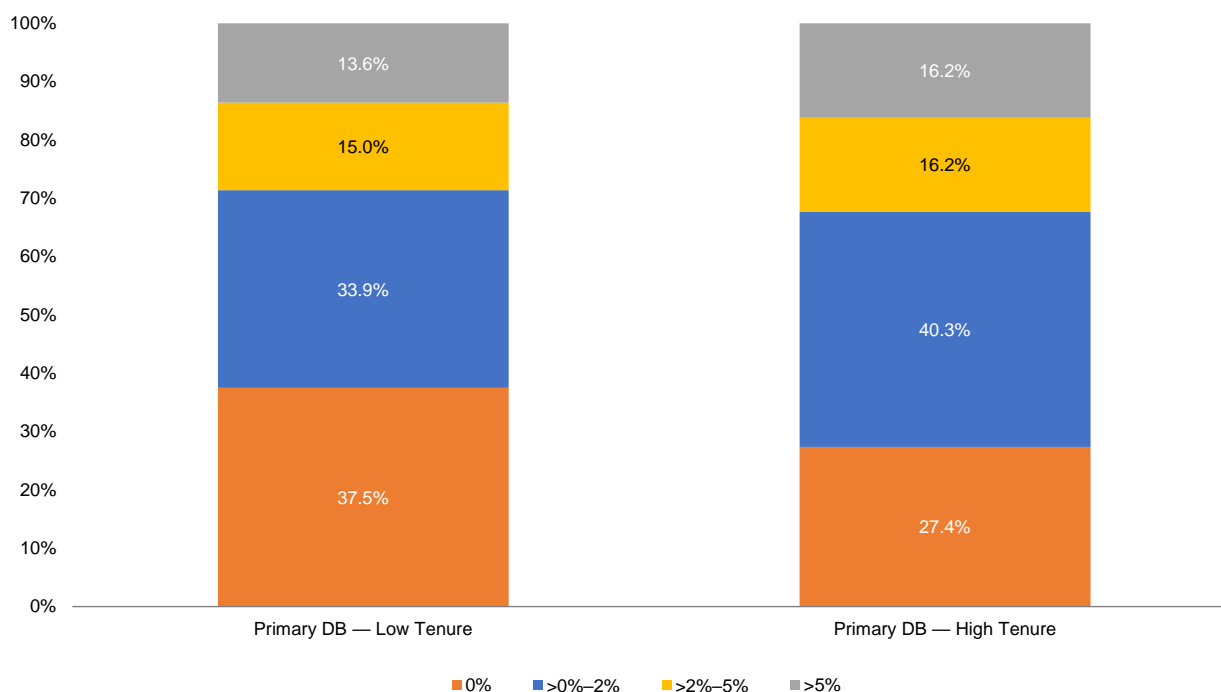
Given the supplemental nature of the public-sector DC plans with a primary DB plan, the level of contributions for those with these plans would be expected to be less than for those with a hybrid or primary DC plan, in which many require contributions. In fact, the percentage of households with participants who have a primary DB plan making no contributions is larger than for those without a primary DB plan — 31.1 percent vs. 24.6 percent (Figure 8). Furthermore, 53.8 percent of those without a primary DB contributed more than 2 percent of their income compared with 31.0 percent of those with a primary DB, despite the percentage contributing more than 5 percent of their income being virtually identical between the two groups.

Going a step further among those with a primary DB plan, the contributions of those falling into the low-tenure group (those households with participants who had been hired since the most recent benefit tier was implemented) might be different from those in the high-tenure group because their resulting primary plan benefits are not likely be the same, potentially being significantly lower. The contributions are different, but those in the *low*-tenure group are *less* likely to have contributed than those in the high-tenure group — 37.5 percent vs. 27.4 percent (Figure 9). There is not a sizable difference between the two groups among those making contributions of more than 2 percent of their net income. Most of the difference in the contribution levels between the tenure groups came from those making the smallest contributions (more than 0 percent to 2 percent).



Source: PRRL Database and Select Chase Data. For more information, see the Data Sources box in the text.

Figure 9
Distribution of Contributions as Percentage of Income, by Tenure (Primary Defined Benefit (DB) Plan)



Source: PRRL Database and Select Chase Data. For more information, see the Data Sources box in the text.

Spending and Primary Plan Type

In addition to the impact that the primary plan type (DB vs. hybrid or DC) can have on DC plan contributions, it can also impact spending. Since it was shown in Figures 4 and 5 that households with primary DB plan participants (who are concentrated in high-cost areas) have higher incomes and spending levels at the median for each age group, the comparisons of spending by primary plan type are done by looking at the spending-to-income ratios as a means of controlling for the income differences. Two results from Figure 10 are immediately revealed — how high spending is relative to income at the median in each income quartile and the disparity in the spending ratios between the households with participants with different primary plan types.

Focusing on the households with participants with a primary DB plan, in the lowest income quartile, the median spending-to-income ratio is 117.3 percent, meaning that well over half of these households are spending more than their incomes and are likely taking on debt to finance the spending. This occurs in each income quartile except the highest. Thus, many of these households are already spending at their potential maximum levels.

The other finding that stands out is that those with a primary DB plan have median spending-to-income ratios larger than those without a primary DB plan in each income quartile. The smallest difference is 3 percentage points in the third quartile, with 7 or more percentage point differences in the other three income quartiles. Thus, those households with participants who have plan structures such that their pension benefits will be mostly based on a formula instead of based more or all on market returns (and contributions) spend more relative to their income. This is an important result, as these households who are expecting a certain benefit appear to be more comfortable spending near what would seem like a maximum relative to their income than those with a lower expectation of guaranteed retirement benefits.

In Figure 11, those with primary DB plans are split into the low-tenure and high-tenure groups. These two groups are expected to have different benefits, as the groups are constructed so that the households are under different benefit

formula regimes — low-tenure having the least generous benefits compared with more generous benefits of those in the high-tenure group. As opposed to the clear significant differences between the households by primary plan type, the spending ratios between the low- and high-tenure groups of households are not shown to be significantly different.

Looking at these primary DB plan low- and high-tenure groups by age, the ratios again show no significant differences (Figure 12). If any divergences exist, for all ages except for the youngest and oldest, the spending relative to income is higher for the low-tenure households.¹¹ Thus, the expectation of certain benefits, despite the actual benefits to be received likely being lower, results in the same spending relative to income. These low-tenure households are on track for lower retirement income security than their longer-tenured counterparts, while still spending like they do in the meantime. This indicates these households could run into financial issues they are not preparing for given their current spending and saving behaviors.

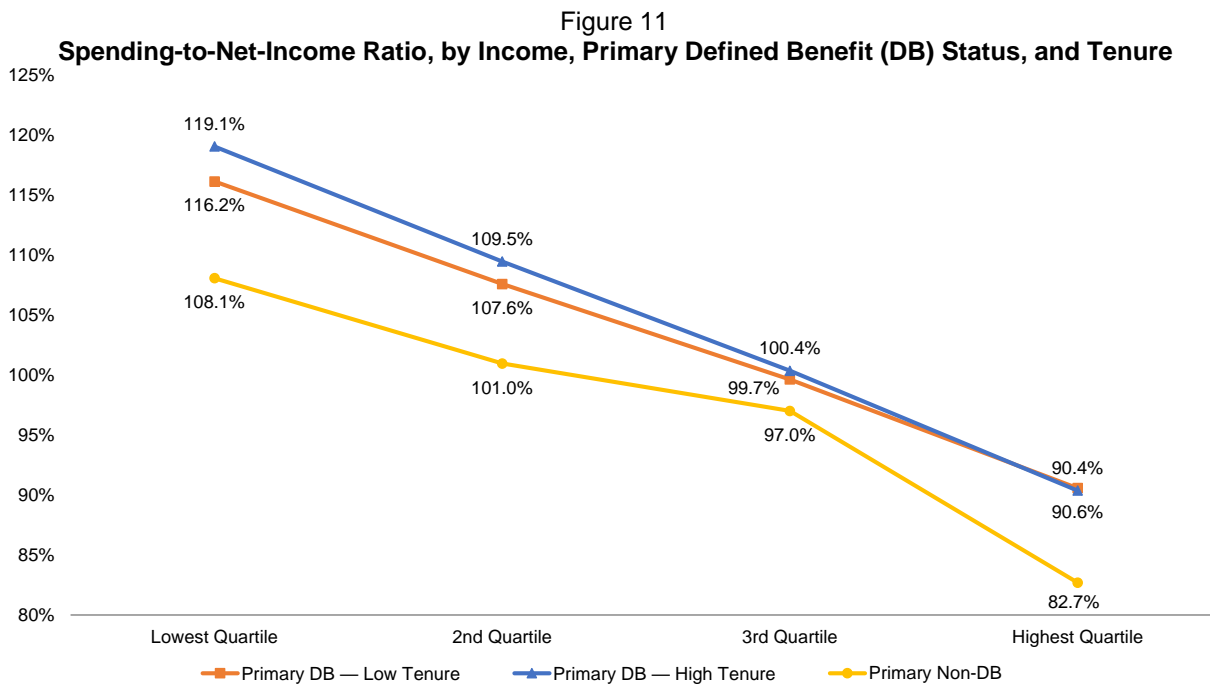
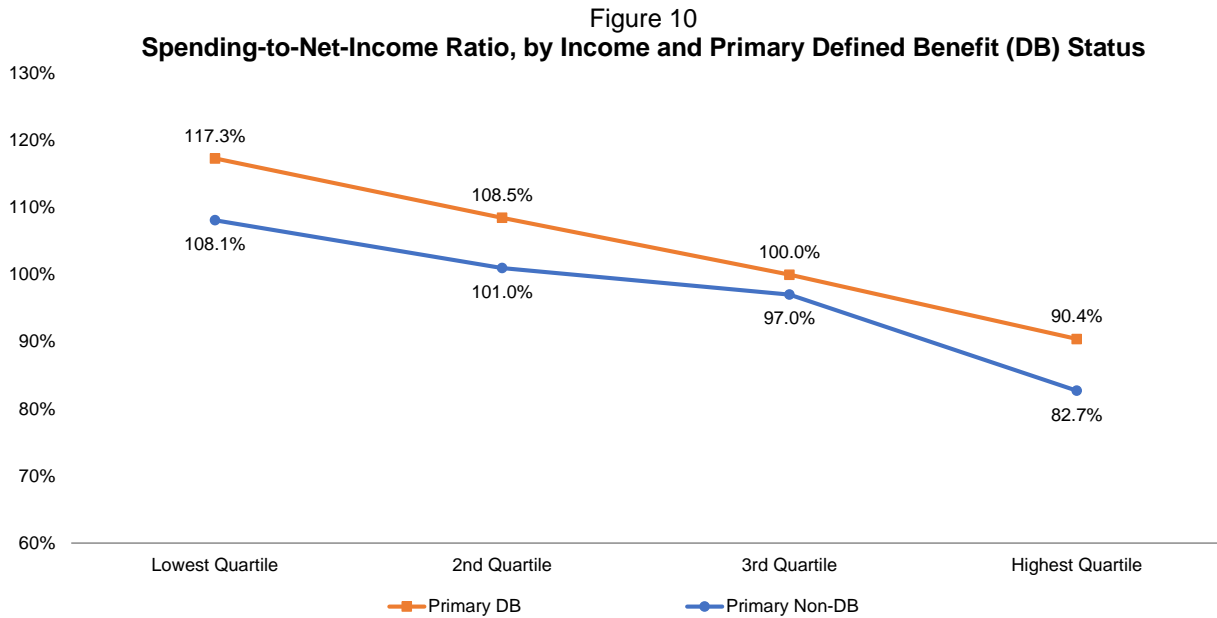
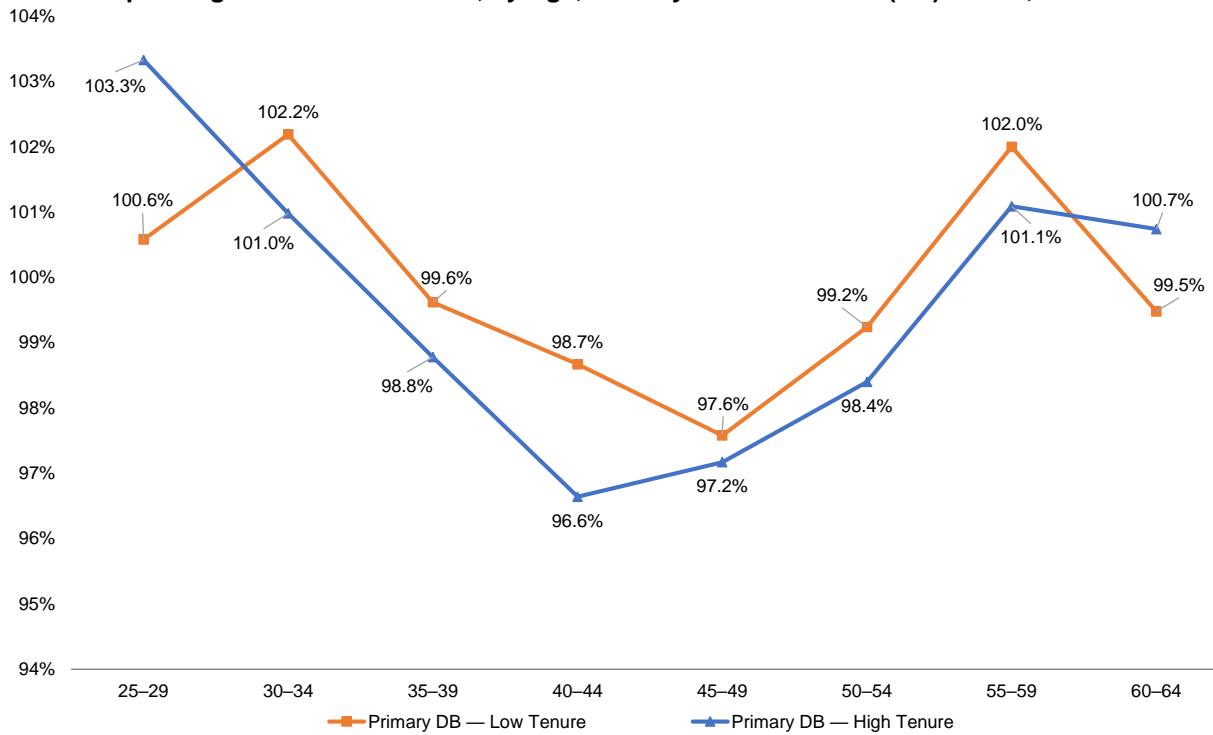


Figure 12
Spending-to-Net-Income Ratio, by Age, Primary Defined Benefit (DB) Status, and Tenure



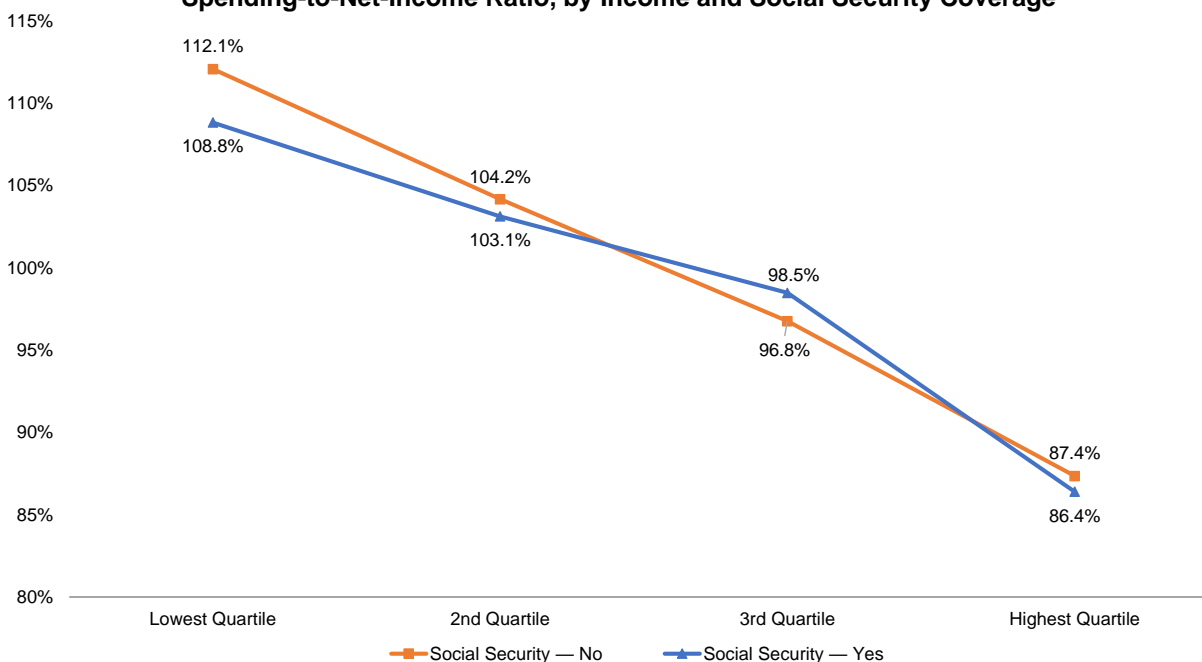
Source: PRRL Database and Select Chase Data. For more information, see the Data Sources box in the text.

Spending and Social Security Coverage

Another important retirement plan feature that affects public-sector workers is whether they are covered by Social Security. Certain states and localities are exempt from contributing to Social Security for their employees. These government entities are supposed to provide a retirement plan at least as generous as Social Security to gain this exemption.¹²

Using only the households with DC plan participants where Social Security coverage could be determined, the total spending-to-income ratios are compared by income quartile in Figure 13 to see if Social Security coverage potentially has an impact on spending behavior. The results again show the median spending-to-income ratios being above 100 percent in the lower two income quartiles and declining as income increases. Furthermore, no significant differences arise between the households with the DC plan participants covered and those with DC plan participants not covered by Social Security in each income quartile. The largest difference (3.3 percentage points) in the spending-to-income ratios is in the lowest income quartile, while the other three income quartiles had differences of less than 2 percentage points.¹³ Thus, the presence of Social Security vs. its absence in the retirement plan structure appears to not be correlated with the spending behavior of the households with public-sector DC plan participants.

Figure 13
Spending-to-Net-Income Ratio, by Income and Social Security Coverage



Source: PRRL Database and Select Chase Data. For more information, see the Data Sources box in the text.

Distribution of Total Spending by Spending Category

The Select Chase Data break spending down into specific categories of expenses: apparel and services, charitable contributions, education, entertainment, food and beverage, health care, housing, transportation, travel, and other. The data also include expenditures made by cash and checks that are not specifically identified into the spending categories. In Figure 14, the distribution of the spending is presented, where housing at 20.9 percent is the largest share of spending. Other large shares of spending are food and beverage at 16.6 percent and transportation at 11.0 percent. Expenses paid by cash and check amount to just over 13 percent each.

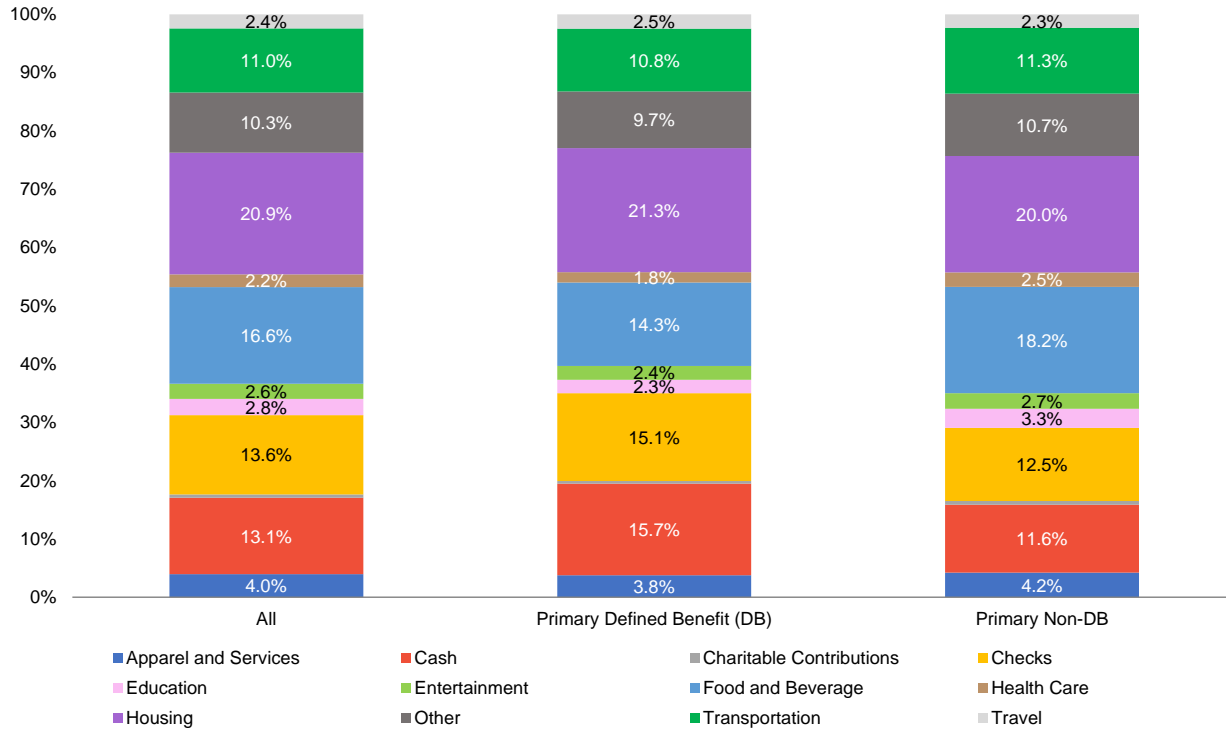
Comparing the spending distributions of those with and without a primary DB plan, the only specific spending category showing any sizable difference is food and beverage, where those without a primary DB plan spend a larger share of their total spending on it — 18.2 percent vs. 14.3 percent for those with a primary DB plan.¹⁴ In addition, those with a primary DB plan use cash and checks for more of their spending than those without a primary DB plan. Overall, despite the differences in spending relative to income between those with and without a primary DB plan, how the income is spent does not show clear spending differences between the two groups. However, the differences in the shares of spending done using cash and checks complicate this comparison, as the underlying details of cash and check spending is unknown.

By income quartile, the spending distributions by primary plan type are again similar between the two groups, with the differences in cash and food and beverage spending persisting (Figure 15).¹⁵ The participants with a primary DB plan spend a larger share on cash purchases, while those without a primary DB plan spend a larger share on food and beverages. One difference emerges when looking at these distributions by income quartile that does not appear at the overall level, which is that participants without a primary DB plan in the first income quartile spend a larger share of their spending on housing. In contrast, participants with a primary DB plan in the highest income quartile spend a larger relative amount on housing. Again, the relative cost of living between the two groups is likely to have an important effect on the spending that is not related to the presence of a primary DB plan.

The differences between those with and without Social Security coverage are even smaller than the differences by primary plan type (Figure 16). Only check purchases in the upper three income quartiles and housing in the third income quartile have differences surpassing 2 percentage points in the share of spending. Those with Social Security

coverage are more likely to use checks for purchases, while those without Social Security in the third income quartile have a larger share of spending on housing.

Figure 14
Distribution of Total Spending, by Primary Plan Type



Source: PRRL Database and Select Chase Data. For more information, see the Data Sources box in the text.

Figure 15
Distribution of Total Spending, by Primary Plan Type and Income Quartile

Spending Category	Lowest Quartile		2nd Quartile		3rd Quartile		Highest Quartile	
	Defined Benefit	Primary Non-DB	Primary DB	Primary Non-DB	Primary DB	Primary Non-DB	Primary DB	Primary Non-DB
Apparel and Services	4.4%	4.6%	4.3%	4.4%	3.7%	4.1%	3.6%	4.1%
Cash	20.2%	15.4%	17.8%	12.9%	16.6%	11.0%	14.2%	9.3%
Charitable Contributions	0.4%	0.5%	0.4%	0.6%	0.4%	0.7%	0.5%	0.7%
Checks	10.1%	8.6%	11.7%	10.3%	14.3%	12.3%	16.9%	16.3%
Education	1.8%	2.9%	1.9%	2.9%	2.3%	3.3%	2.5%	3.7%
Entertainment	2.4%	2.5%	2.4%	2.6%	2.3%	2.7%	2.4%	2.9%
Food and Beverage	16.4%	19.4%	15.3%	18.7%	14.4%	18.4%	13.7%	17.2%
Health Care	2.1%	2.5%	1.9%	2.5%	1.8%	2.5%	1.7%	2.5%
Housing	15.1%	17.8%	19.2%	20.1%	21.1%	21.0%	22.6%	20.2%
Other	11.6%	11.5%	10.5%	11.2%	9.7%	10.4%	9.3%	10.1%
Transportation	13.3%	12.6%	11.9%	11.6%	10.9%	11.5%	10.1%	10.3%
Travel	2.3%	1.8%	2.5%	2.2%	2.4%	2.3%	2.5%	2.7%

Source: PRRL Database and Select Chase Data. For more information, see the Data Sources box in the text.

Figure 16
Distribution of Total Spending, by Social Security Coverage and Income Quartile

Spending Category	Lowest Quartile		2nd Quartile		3rd Quartile		Highest Quartile	
	Social Security	Social Security	Social Security	Social Security	Social Security	Social Security	Social Security	Social Security
Apparel and Services	4.3%	4.5%	4.5%	4.2%	4.0%	3.9%	3.8%	3.8%
Cash	18.1%	16.1%	15.5%	14.2%	14.9%	13.1%	12.4%	11.7%
Charitable Contributions	0.5%	0.5%	0.5%	0.5%	0.7%	0.6%	0.7%	0.6%
Checks	7.7%	9.1%	9.0%	11.1%	11.1%	13.7%	14.1%	17.0%
Education	1.8%	2.6%	2.4%	2.6%	2.7%	2.8%	3.6%	2.9%
Entertainment	2.3%	2.5%	2.7%	2.6%	2.5%	2.5%	2.7%	2.7%
Food and Beverage	17.0%	18.9%	16.3%	17.8%	15.1%	16.9%	14.6%	15.5%
Health Care	2.2%	2.3%	2.3%	2.3%	2.2%	2.2%	2.3%	2.0%
Housing	18.8%	17.5%	21.2%	19.9%	23.2%	20.8%	23.2%	21.4%
Other	12.0%	11.4%	11.5%	10.9%	10.4%	10.1%	10.3%	9.6%
Transportation	13.0%	12.7%	11.4%	11.7%	10.3%	11.3%	9.1%	10.3%
Travel	2.2%	1.9%	2.6%	2.2%	2.8%	2.3%	3.1%	2.5%

Source: PRRL Database and Select Chase Data. For more information, see the Data Sources box in the text.

Conclusion

State and local governments have been active in reforming the pension plans offered to public-sector employees, which in many cases has resulted in significant changes in the benefits offered, generally reducing guaranteed benefits for those newly hired. As this research shows, when households have a primary plan that is a traditional DB plan, the households are found to spend more relative to their income than those who have a primary DC or hybrid plan. Furthermore, those with a primary DB plan contribute less as a percentage of income to their DC plan, on average. This is likely the result of the requirement to contribute in most primary DC and hybrid plans vs. the supplemental nature of the DC plan for those with a primary DB plan. However, it cannot explain the differences in spending relative to income.

Thus, it appears that households with public-sector DC plan participants who have a primary DB plan feel more comfortable spending than those without a primary DB plan. This comfort level may be short-sighted for the households with newly hired public-sector DC plan participants, as the benefits from the primary plan are likely to be less than those of longer-tenured or retired cohorts. As a result, the households with new hires may not be as prepared for retirement as they expect.

The absence of Social Security coverage does not correlate with reduced spending relative to income the way that the absence of a primary DB plan does. Yet, if the household's DC plan participant is not covered by Social Security and has lower expected guaranteed retirement benefits, the household may need to rely on more savings to generate higher potential retirement incomes without the additional guaranteed benefits of Social Security.

Despite the differences in spending and contributions among those with and without a primary DB plan, how and where incomes are spent between the two groups does not appear to have any significant differences, outside of cash and check spending. Thus, it is the total that is spent, not *where* it is spent, that is affected by the underlying retirement benefit plan structure.

When the primary plan is something other than a traditional DB plan, households with DC plan participants are found to have spending and saving behaviors that could lead to better retirement preparation — higher savings and lower spending relative to income. However, for those who have a DB plan but likely with a less generous benefit (those with new hires), the spending and saving behaviors are not found to be different than for the households with longer-tenured primary DB plan participants. Thus, what the DB plan will actually provide in retirement may not be well understood, just that the guaranteed benefit exists — especially by individuals who are far from retirement. This can potentially have significant ramifications for these households at retirement when the benefits are not as generous as expected.

Consequently, public-sector employees, and in particular newly hired employees, could benefit from more education about their retirement plan offerings and finances overall through financial wellness or similar programs to better understand their plan benefit structure, how that can impact spending both currently and in the future, and the potential need to save more. Given many states having tight budgets, employees' use of their DC plan could make the difference in how comfortable their retirement is financially.

DATA PRIVACY: J.P. Morgan Chase has a number of security protocols in place, which are designed to ensure all customer data are 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 are safe, secure, and anonymous: (1) Before J.P. Morgan Asset Management (JPMAM) receives the data, all selected data are 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 for its researchers in place. 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 are 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 accountholders' private information.

This research paper was produced through a collaboration between the Employee Benefit Research Institute (EBRI), the National Association of Government Defined Contribution Administrators (NAGDCA), and J.P. Morgan Asset Management. J.P. Morgan Asset Management is the brand for the asset management business of JPMorgan Chase & Co. and its affiliates worldwide.

EBRI and NAGDCA are not affiliated with JPMorgan Chase & Co. or any of its affiliates or subsidiaries.

Appendix Figure 1
SAS Output for OLS Regression for Low-Tenure Effect

Dependent Variable: SPDINCN (spending-to-income ratio)
 Number of Observations Used 28872 (primary plan type known)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	9	274.45720	30.49524	354.81	<.0001
Error	28862	2480.61296	0.08595		
Corrected Total	28871	2755.07015			

Root MSE	0.29317	R-Square	0.0996
Dependent Mean	1.05146	Adj R-Sq	0.0993
Coeff Var	27.88207		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	1.13808	0.01010	112.66	<.0001
eectc2	1	-0.01048	0.00459	-2.28	0.0225
eectc3	1	-0.02448	0.00489	-5.00	<.0001
eectc4	1	-0.00332	0.00638	-0.52	0.6028
NetInc	1	-0.00000261	4.957614E-8	-52.70	<.0001
Age_HH	1	0.00122	0.00018195	6.72	<.0001
TTAST	1	1.594053E-7	3.688304E-8	4.32	<.0001
primdb1	1	0.05775	0.00464	12.43	<.0001
tenempc1	1	0.02120	0.00455	4.66	<.0001
lowten	1	-0.00327	0.00646	-0.51	0.6124

eectc2–eectc4 — Employee contribution level (dummy variables), 2nd, 3rd, and 4th level as defined in text of study =1 if NetInc — Net household income in dollars.

Age_HH — Age of the household (participant) in years.

TTAST — The defined contribution (DC) plan balance in dollars.

primdb1-primary defined benefit (DB) plan indicator =1 if primary plan is DB (dummy variable) (hybrid and DC primary plans omitted category).

tenempc1 — Tenure with current employer in years.

lowten — The primary DB participants with low tenure indicator =1 if low tenure as described in text (dummy variable) (omitted category variable primary DB participants with high tenure).

A variable with a Pr > t of greater than 0.0500 is considered to not have a significant effect.

Appendix Figure 2
SAS Output for OLS Regression for Social-Security-Coverage Effect

Dependent Variable: SPDINCN (spending-to-income ratio)
 Number of Observations Used 32003 (Social Security coverage known)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	274.90822	34.36353	393.91	<.0001
Error	31994	2791.06688	0.08724		
Corrected Total	32002	3065.97510			

Root MSE	0.29536	R-Square	0.0897
Dependent Mean	1.05220	Adj R-Sq	0.0894
Coeff Var	28.07060		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	1.16346	0.01031	112.86	<.0001
eectc2	1	-0.01573	0.00451	-3.49	0.0005
eectc3	1	-0.04450	0.00467	-9.53	<.0001
eectc4	1	-0.02251	0.00584	-3.85	0.0001
NetInc	1	-0.00000249	4.721138E-8	-52.83	<.0001
Age_HH	1	0.00123	0.00017351	7.07	<.0001
TTAST	1	2.250199E-7	3.466658E-8	6.49	<.0001
tenempc1	1	0.01947	0.00415	4.69	<.0001
SS1	1	-0.00295	0.00475	-0.62	0.5337

eectc2–eectc4 — Employee contribution level (dummy variables), 2nd, 3rd, and 4th level as defined in text of study =1 if contributions in respective level (1st level or zero contributions category omitted).

NetInc — Net household income in dollars.

Age_HH — Age of the household (participant) in years.

TTAST — The defined contribution (DC) plan balance in dollars.

tenempc1 — Tenure with current employer in years.

SS1 — Social Security coverage indicator =1 if covered (dummy variable) (omitted variable those not covered by Social Security).

A variable with a Pr > t of greater than 0.0500 is considered to not have a significant effect.

Endnotes

¹ See National Association of State Retirement Administrators (NASRA), [NASRA](#).

² Center for State & Local Government Excellence and NASRA, "Effects of Pension Plan Changes on Retirement Security," April 2014, available at [Effects of Pension Plans on Retirement Income.pdf \(membershipsoftware.org\)](#).

³ For more information on the PRRL Database and the findings from the database, see Petersen, Matt, and Jack VanDerhei, "The State of Public Sector DC Plans: A First Look at the PRRL Database," *PRRL Research Study* no. 2, February 25, 2021, and VanDerhei, Jack, "A Deeper Look at Asset Allocation: Plan Structure and Demography the Key to Effective Plan Design," *PRRL Research Study* no. 3, May 20, 2021.

⁴ 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 [The 3% difference: What leads to higher retirement savings rates? | J.P. Morgan Asset Management \(jpmorgan.com\)](#), 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.

⁵ The data privacy of participants and the contractual relationships between EBRI and the recordkeepers they work with have been carefully protected, and no data was transferred to JPMorgan Asset Management. EBRI and NAGDCA, singularly or through PRRL, have no access to personally identifiable information.

⁶ 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 Select Chase Data with data from an EBRI database is determined.

⁷ Participants in the large plans specifically for fire and safety workers are not included in this study due to the nature of the differences in their benefit structures. However, a few participants who are in the general larger plans due to the arrangements with local governments may be included in the sample.

⁸ This closely matches the median tenure found in 2018 of 7.0 years for local government employees and 6.0 years for state employees. See Copeland, Craig, "Trends in Public-Sector Employee Tenure," *PRRL Research Study*, no. 1 (Public Retirement Research Lab, May 7, 2020).

⁹ The later section of the study shows that this appears to be tied to the ages of those in the respective groups. When the spending ratios are compared by age, the ratios are similar.

¹⁰ These contribution rates are not directly comparable to what you would see in the private sector. First, except in the few cases where the DC plan is the primary plan, the DC plan would be a supplemental plan as opposed to the only plan that most in the private sector have. Next, the income is at the household level and net of taxes, so these could be offsetting effects depending on the participant's non-salary income and the incomes of others in the household (additions to salary) vs. the amount of taxes and other deductions paid out of salary (subtractions). The data do not provide sufficient information to measure the impact of these two aspects.

¹¹ See Appendix Figure 1, where ordinary least squares regression results show that the indicator (dummy variable) for low tenure has an insignificant result on the spending-to-income ratios.

¹² See Aubry, Jean-Pierre, Siyan Liu, Alicia H. Munnell, Laura D. Quinby, and Glenn Springstead, "What Share of Noncovered Public Employees Will Earn Benefits That Fall Short of Social Security?" Center for Retirement Research at Boston College CRR WP 2022-4 April 2022, available at [What Share of Noncovered Public Employees Will Earn Benefits that Fall Short of Social Security? \(bc.edu\)](#) for discussion of if public-sector employers' benefit generosity meet the standard for being exempt from Social Security. Also, see Government Accountability Office, "Social Security Administration: Management Oversight Needed to Ensure Accurate Treatment of State and Local Government Employees." GAO-10-938, September 2010 available at [GAO-10-938 Social Security Administration: Management Oversight Needed to Ensure Accurate Treatment of State and Local Government Employees](#), for a comprehensive list of the share of public-sector workers in each state covered by Social Security.

¹³ See Appendix 2, where ordinary least squares regression results show that the indicator (dummy variable) for Social Security coverage has an insignificant result on the spending-to-income ratios.

¹⁴ Only those categories that have a larger than 2 percentage point difference between those with and without a primary DB plan are considered noteworthy.

¹⁵ The categories that are highlighted in yellow in the figure are those with a larger than 2 percentage point difference between the two groups.

EBRI Issue Brief is registered in the U.S. Patent and Trademark Office. ISSN: 0887-137X/90 0887-137X/90 \$.50+.50

© 2022, Employee Benefit Research Institute–Education and Research Fund. All rights reserved.