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Public Plans Database Snapshot

as of November 2022

The latest public pension data release shows 2021 funding stability, even as the first impacts of the current wave of inflation became felt late in the year.

The Public Plans Database collects pension data from the largest state and local plans, representing more than 95% of public pension membership and assets nationwide. Currently, that includes 219 defined benefit plans – with more than $4 billion in assets and serving more than 13 million active participants – and 102 defined contribution plans serving more than 4 million active participants.

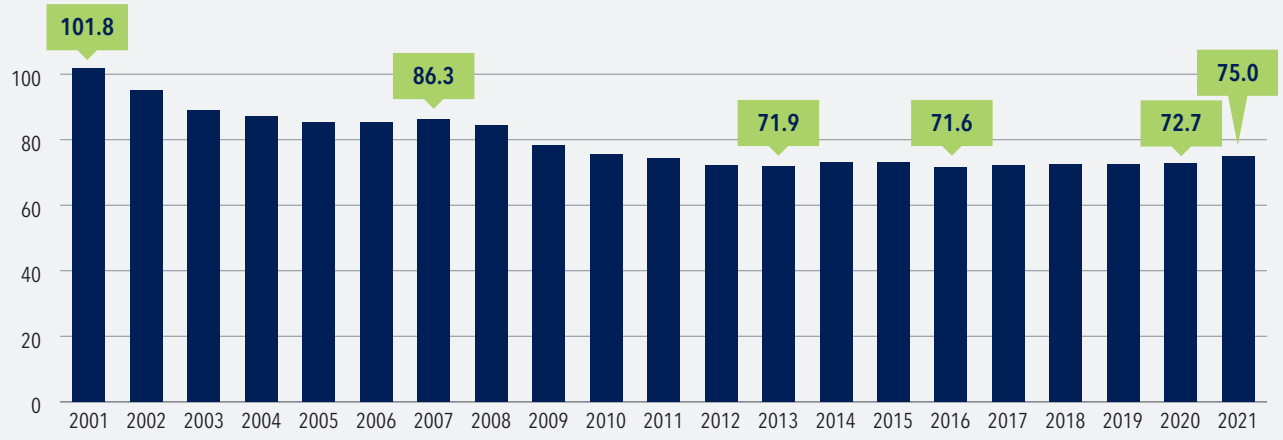
The database is administered through a partnership between the Center for Retirement Research at Boston College (CRR), MissionSquare Research Institute, the National Association of State Retirement Administrators (NASRA), and the Government Finance Officers Association (GFOA).

This latest snapshot reflects data available through financial reports released through June 2022, generally covering fiscal year 2021. While there has been considerable volatility in fiscal year 2022, this snapshot will enable year-to-year comparisons.

Funded ratio

From a top-line perspective, the funded ratio indicates the share of actuarial-determined liabilities that are backed by actuarial-determined assets. While plans can follow various paths to meeting their pension obligations, which may depend on the age of their workforce and ratio of active participants to retirees, funded ratios are typically driven by a plan's practices regarding full funding of each year's contributions and accuracy of assumptions over time regarding rate-of-return on investments and inflation, among other considerations.

Figure 1 **Funded Ratio**



National averages are weighted by plan size. Source: Public Plans Database

The Great Recession was followed by a significant drop in funded ratios, driven by investment losses, lower than expected returns, and/or decisions to contribute less than the full amount of actuarially determined contributions. Funding levels stabilized thereafter, hovering between 71-73%, and rising to 75% in 2021.

Investment returns vs investment assumptions

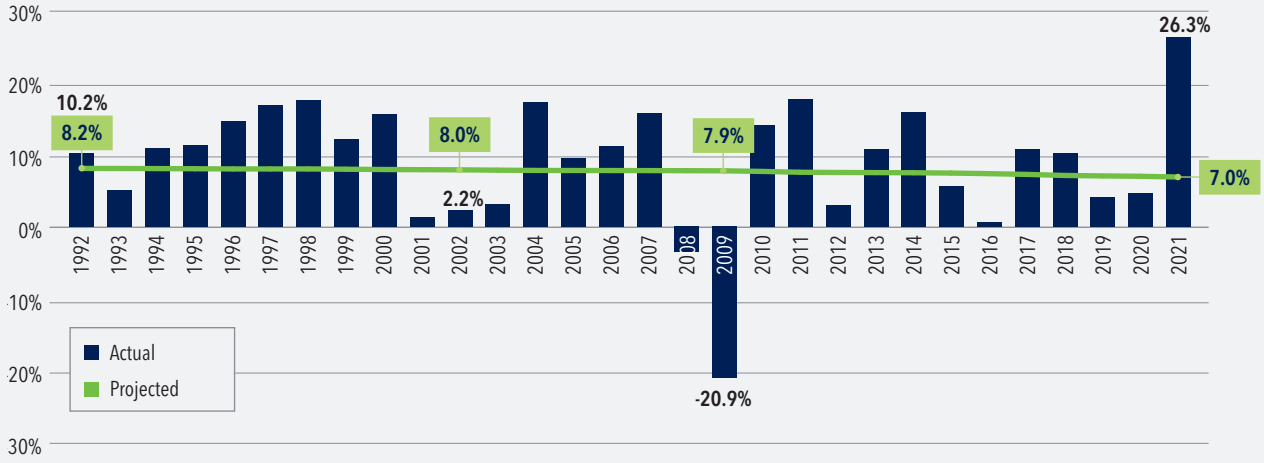
Actual investment returns have exceeded assumptions in 19 of the preceding 30 years. However, where the actual return (or loss) was far below the assumption, the shortfall in anticipated net assets leads to a lower funded ratio and to higher actuarially determined contributions in subsequent years.

Assumed and actual return information is shown in Figure 2. Actual returns have lagged over the past several years, future forecasts have also trended lower – decreasing from 8.2% in 1992 to 7% in 2021. These adjustments help mitigate the potential impact of down years on overall funded levels.

While investment data is available back to 1992, data for actuarial assets is available since 2001.

Figure 3 shows the cumulative impact of each year's surpluses or shortfalls, starting with the average actuarial assets for plans in the database as of the end of 2001. Based on this amount of $10.4 billion, an assumed return in 2002 of 8%, and an actual return of 2.2%, there was an

Figure 2 **Assumed vs. Actual Investment Returns**

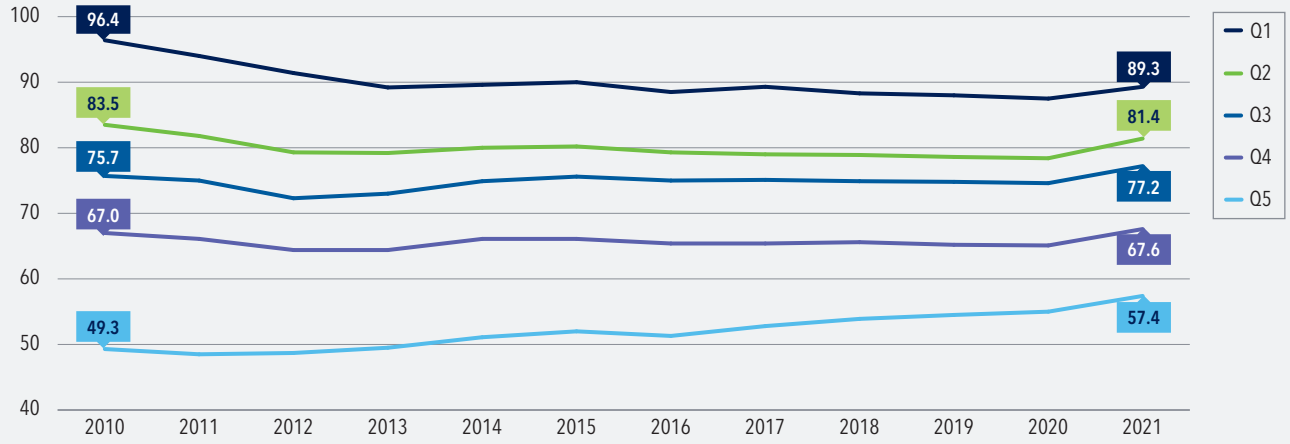


Source: Public Plans Database

Figure 3 **Average Cumulative Surplus or Shortfall (Assumed vs Actual Returns)**

Source: MissionSquare Research Institute calculations based on PPD data. Assumes a plan with the average actuarial assets each year (based on prior year's returns and contributions), and the assumed and actual returns as shown in Figure 2, in order to illustrate the long-term impacts of multiple years of surpluses or shortfalls. Results for individual plans will vary.

Figure 4 **Funded Ratio: Quintiles by 2010 Funded Ratio**



Source: MissionSquare Research Institute analysis of Public Plans Data. Of the 218 plans with funded ratio data available in 2010, 205 are represented in the 2021 data. Figures shown are average values for each quintile based on 2010 funded ratios.

average shortfall of $604 million that year. A $498 million shortfall followed in 2003, pushing the cumulative total to $1.1 billion, but this was followed by a return to relative equilibrium in 2004-2005, and a net surplus in 2006-2007. Such fluctuations are to be expected to a certain extent, but the depth of the shortfall in 2009 (a 7.9% assumption, but a -20.9% actual) meant that even with surpluses in many of the years that followed, the cumulative impact was a shortfall until market gains resulted in a $1.5 billion cumulative surplus in 2021.

Although market losses have followed so far in 2022, the 2021 surplus and the trend toward lower investment return assumptions will temper the net impact.

Funded ratios among lower-funded plans

Dividing the full complement of plans in the database by their funded ratios in 2010, there is a clear difference between the status of the highest-funded plans (quintile 1: 96.4% funded) and the lowest-funded plans (quintile 5: 49.3% funded; see Figure 4). In the years that followed, the funded ratios of those plans in the middle quintiles have not changed significantly. However, the top quintile plans have decreased to 89.3% funded, while the lowest quintile plans have increased to 57.4% funded.

Two factors examined for potential contribution to this improved funding among those in the lowest quintile do not seem to reflect an appreciable difference from what was experienced by other funds. Neither investment returns nor assumed returns appear significantly different from one quintile to another, with all quintiles experiencing roughly the same actual returns, and all adjusting assumed returns down by a similar percentage (see Table 1). The impact of changes in the amount of contributions received is discussed below.

Table 1 **Investment performance: Quintiles by 2010 Funded Ratio**

	Q1	Q2	Q3	Q4	Q5
10-Year investment return (Actual)	8.8%	8.1%	8.6%	8.9%	8.5%
Change in assumed investment return, 2011-2021	-0.80%	-0.73%	-0.62%	-0.77%	-0.77%

Source: MissionSquare Research Institute analysis of Public Plans Data. Figures shown are average values for each quintile based on 2010 funded ratios.

Actuarially Determined Employer Contributions (ADEC)

The amount to be contributed by employers each year — after accounting for other sources of revenue, namely employee contributions and expected investment earnings — is called the actuarially determined employer contribution. While this is often referred to as a required contribution, it would more appropriately be understood as the amount that, if consistently contributed and assuming accurate actuarial assumptions, would lead to the projected coverage of all plan benefits over a period of time identified as part of the plan's amortization policy.

As with investment returns, there may be some fluctuation year to year. For example, during the depth of the Great Recession, some contributions may have been for less than the actuarially determined amounts, whether based on adopted formulas or policy decisions. The timeframe for meeting all plan liabilities and the application of ADEC calculations to actual contributions derive from each plan's funding policies, which may be set by a combination of legislative and administrative action.[1]

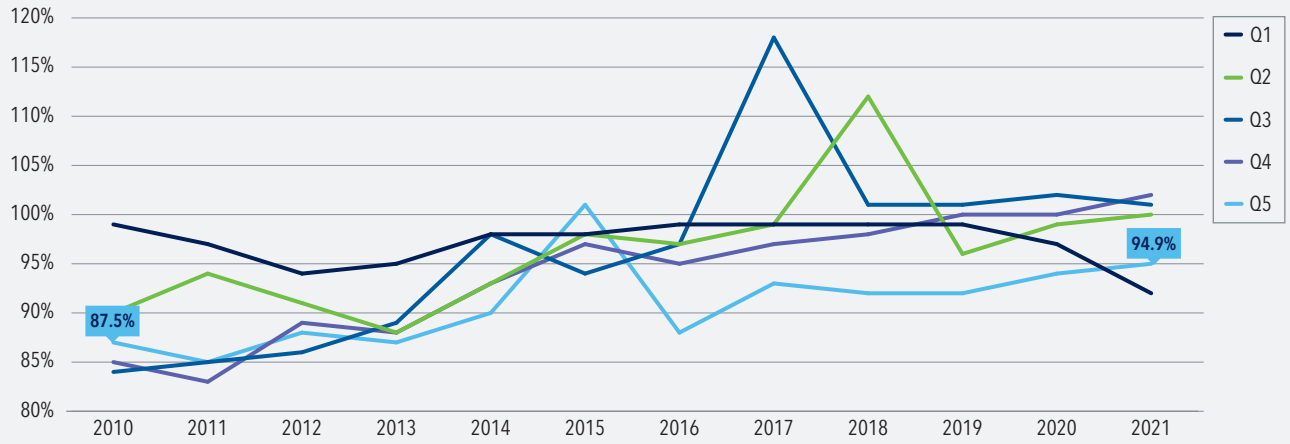
Considering plans according to the same quintiles shown in Figure 4, Figure 5 shows that all five groupings received at least 92% of ADEC paid from 2010 to 2021, with all but the top quintile increasing their percentage paid over that time. Indeed, the lowest funded quintile increased the percentage of ADEC received from 87.5% to 94.9%.

The ADEC itself also increased for all quintiles. So, not only did those in the lowest funded quintile receive 94.9% of the ADEC, but they were doing so on a base that was 9.4 percentage points higher than it had been in 2010, with an accompanying 0.8 percentage point increase in the designated employee contribution.

Where there are spikes in the percentage of ADEC received, this may reflect the influence of substantial one-time contributions, such as the proceeds of pension obligation bonds, or policy decisions to increase funded ratios using available budget surpluses.

Changes in employee required contributions are a result of legislative, board, or plan design changes requiring employees to contribute more or may also reflect the

Figure 5 **Percentage of ADEC Received: Quintiles by 2010 funded ratio**



Source: MissionSquare Research Institute analysis of Public Plans data. Figures shown are average values for each quintile based on 2010 funded ratios.

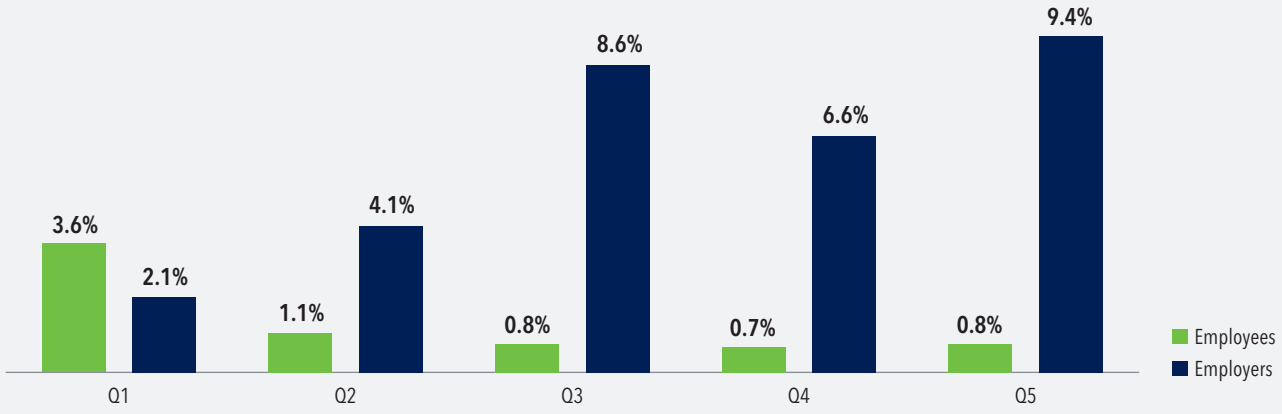
impacts of variable contribution formulas driven by then-current plan conditions or investment earnings.

Asset allocation

Investment activity in all quintiles led to an increasing allocation to alternative investments since 2011. This trend actually goes back further, with overall investment in alternatives rising from 6.8% in 2005 to 22.4% in 2021. This increase may relate to the development of new investment derivative investment instruments , as well as the evaluation of how then-prevailing low interest rates and investment risk should be considered in setting investment policy.

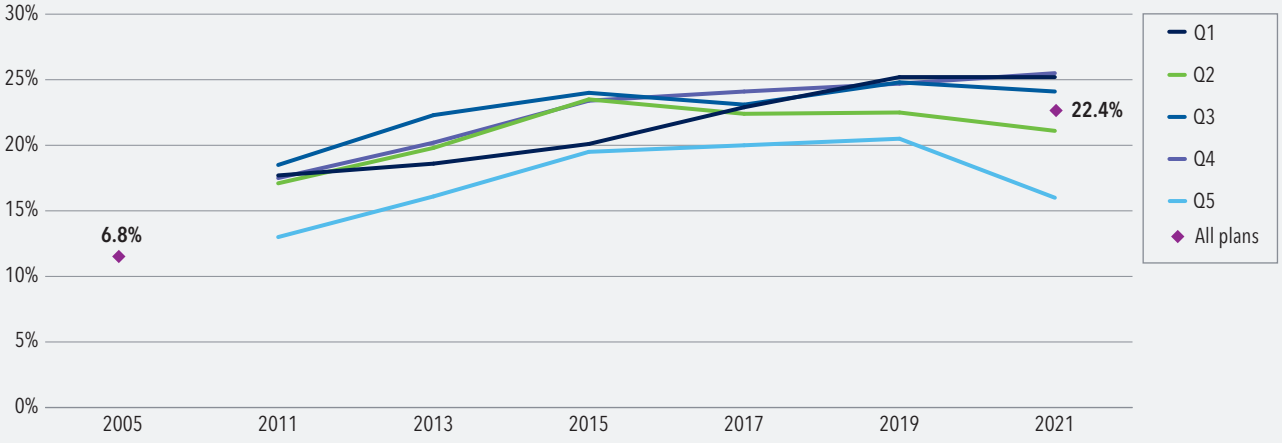
The risks associated with alternatives may lead to favorable returns under some market conditions but may also result in more volatility. As market volatility has increased in 2022, the performance of these alternative investments as well as that of more traditional equity, fixed income, and other instruments will be assessed to determine the impact on overall investment performance.

Figure 6 **Changes in the Employee and Employer Required Contributions, 2010-2020, Quintiles by Funded Ratio**



Source: MissionSquare Research Institute analysis of Public Plans data, based on average basis point changes in employer and employee normal costs rates.

Figure 7 **Allocations to Alternative Investments, Quintiles by Funded Ratio (2010)**



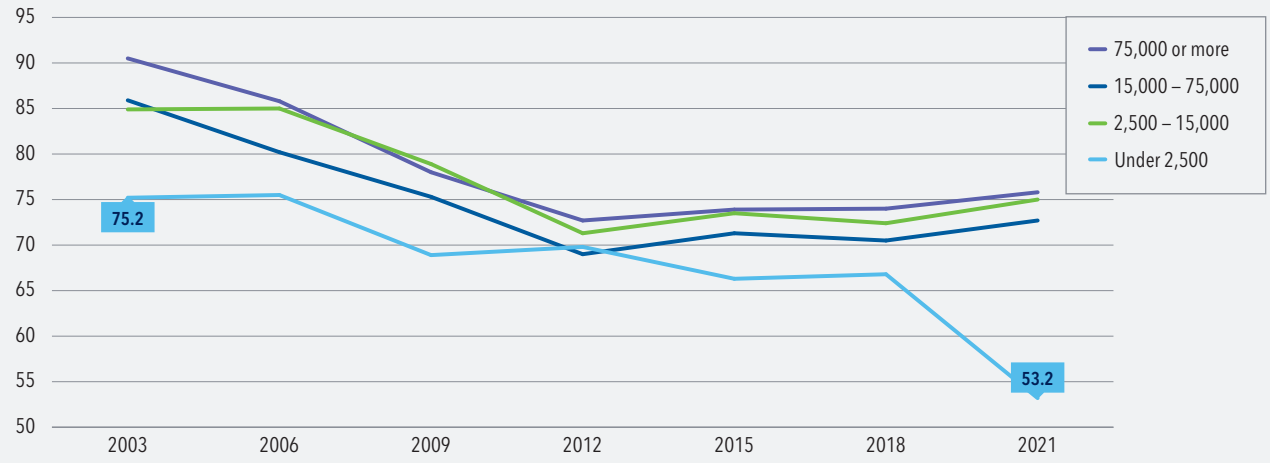
Source: MissionSquare Research Institute analysis of Public Plans Data. Figures shown are average values for each quintile based on 2010 funded ratios.

Active participants

For most plans, regardless of the number of active participants, the funded ratios track very closely. However, for those plans with the smallest number of active participants, the funded ratio has often been significantly lower (see Figure 8).

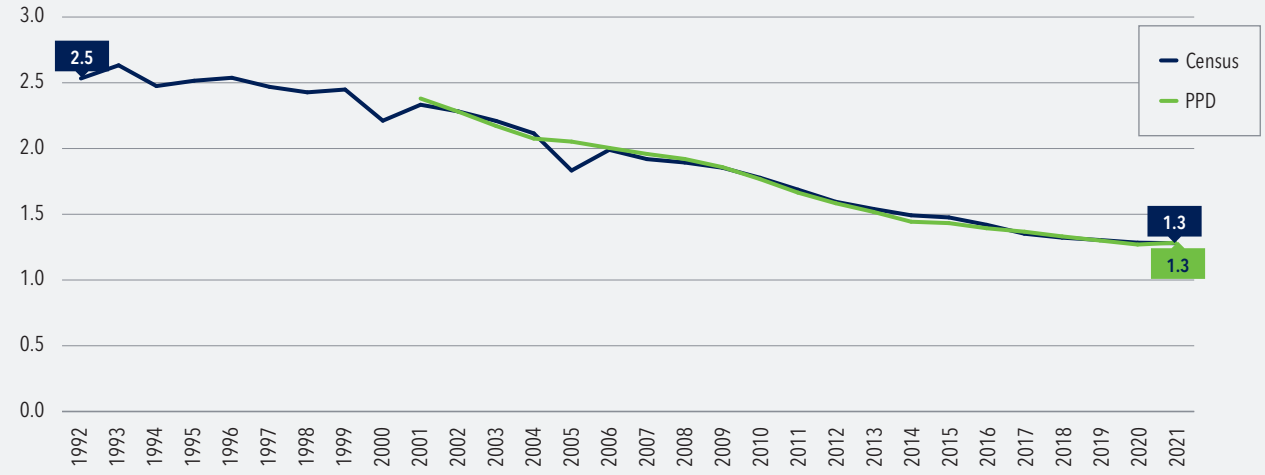
The lower funded ratio for the plans with under 2,500 active participants may relate to the overall size of the plan or to a larger number of beneficiaries than active employees. Figure 9 shows data from both the Public Plans Database and the U.S. Census Bureau of pension plans having fewer and fewer active participants per annuitant, with the 2021 total almost half of what it was in 1992. Plans with the lowest ratios of actives to annuitants may include those that were established many years before and thus have a high number at or past retirement age. They may also be plans that are closed to new entrants or for which employees now have a choice between defined benefit, defined

Figure 8 **Funded Ratio by Active Participants**



Source: MissionSquare Research Institute analysis of Public Plans Data. Figures shown are average values by plan size.

Figure 9 **Number of Active Participants Per Annuitant**

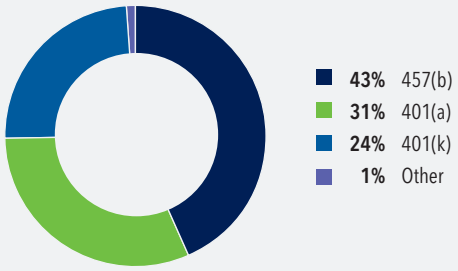


Source: U.S. Census Bureau; Public Plans Database

contribution, or hybrid structures. In fact, among the plans for which data is available in 2021, there are 95 that have fewer than 15,000 active participants – 85 of which are open to newly hired workers, and 10 of which are closed. Of these, the plans that are still open have an average funded ratio of 75.8%, while those that are closed have a funded ratio of 70.6%. Plans started before 1970 have a ratio of actives to annuitants of 1.1, while those started in 1970 or after have a ratio of actives to annuitants of 1.5.

The declining number of active participants per annuitant also relates to the demographics of the public sector workforce, with both a higher median age than the private sector and a large percentage of employees reaching retirement eligibility.[2]

Figure 10 **Defined Contribution Plans by Type**



Source: Public Plans Database

Defined contribution plans

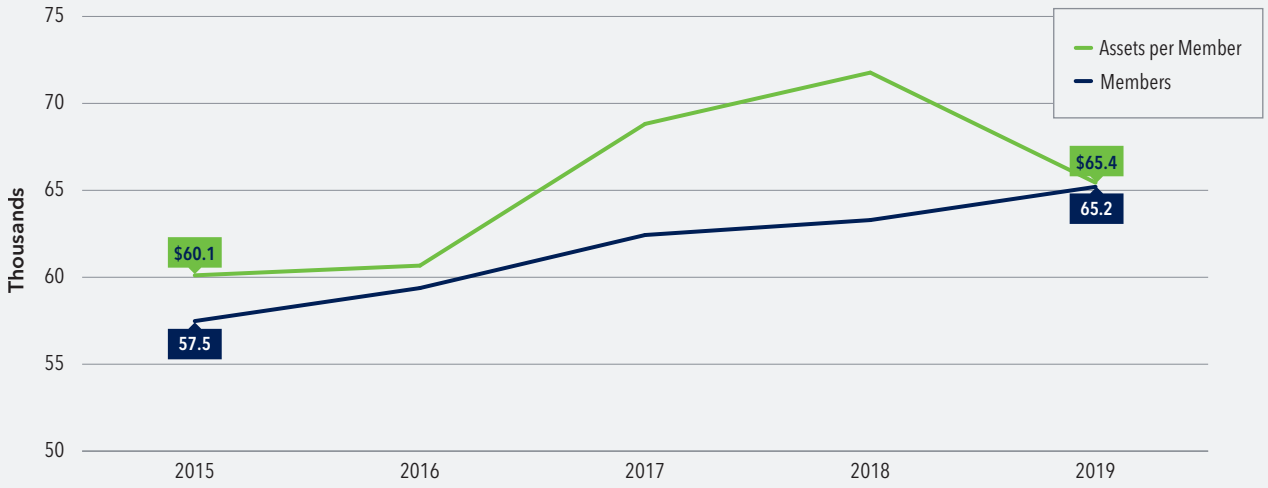
Data from the 102 defined contribution plans in the Public Plans Database are most complete for 2015-2019, with data also available for about half of those plans for 2020.[3]

Forty-eight percent of all plans serve as the primary benefit, with plan types of 457(b) (43%), 401(a) (31%), and 401(k) (24%; see Figure 10).

As shown in Figure 11, the average number of members in defined contribution plans has increased from 2015 by 13%, with the average assets per member in those plans having increased by 9%.

These asset balances represent a combination of member contributions (averaging 4.4% of compensation), employer contributions (averaging 4.9% of compensation in fixed-rate contributions, plus varying levels of matching contributions), plus the earnings on those balances based on the participants' investment choices.

Figure 11 **Defined Contribution Plans: Average Participants and Assets Per Participant**



Source: MissionSquare Research Institute analysis of Public Plans data.

Additional Resources

The Public Plans Database contains both national summary data as presented here as well as state-specific and plan-specific data. Related databases are also posted to the site detailing police and fire pension funds, detailed information on plan investments, fees, top stock and bond holdings, post-retirement re-employment provisions, with or without suspension of pension benefits, as well as related documentation.

New data is added to the database every quarter, with the next tranche in January 2023 to reflect the first financial reports with data from fiscal year 2022.

Data is available at no charge for both download in raw form and for embedding graphs directly onto the websites of plan sponsors or other interested parties.

To access the database directly, go to **publicplansdata.org**.

Acknowledgements

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1. For more background, see: **Funding Policies (National Association of State Retirement Administrators)**.

2. Data on employee age distribution and the graying of the public sector workforce can be found in this 2017 **State and Local Workforce** infographic, with more current data on retirement trends discussed in the **2022 State and Local Government Workforce Survey**.

3. Click here for a **full list of state administered defined contribution plans**, which includes some plans not yet included in the PPD.

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