

CHARACTERISTICS OF LARGE PUBLIC EDUCATION PENSION PLANS

2022 UPDATE

The National Education Association is the nation's largest professional employee organization, representing more than 3 million elementary and secondary teachers, higher education faculty, education support professionals, school administrators, retired educators, students preparing to become teachers, healthcare workers, and public employees.

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INTRODUCTION

Retirement benefits that provide education employees with post-employment income security are critical to the growth and maintenance of a well-trained and stable public education workforce, which is a key component of quality education. To support this objective, the National Education Association (NEA) regularly examines the benefits, structure, and finances of large public education pension plans. This detailed study, entitled *Characteristics of Large Public Education Pension Plans*, provides information that NEA staff, leaders, and members can use to understand, defend, and strengthen the quality and level of retirement benefits of public education employees.

An essential function of *Characteristics* is to provide a rich, factual underpinning for discussions, analyses, and evaluations of public pensions. The findings in this publication dispel many of the myths and misrepresentations put forth by opponents of public retirement systems.

The 2022 edition builds on past studies by updating information in the areas of plan membership, assets and liabilities, benefit design, Social Security coverage, retirement eligibility, vesting, purchase of service credit, cost-of-living adjustments, state taxation of benefits, contribution rates, benefits formulas, actuarial methods and assumptions, funding levels, and board membership. While four new primary plans were added, significantly more subplans (such as new “tiers” of benefits within plans) have been added to the detailed tables. Over the last six years, the plans themselves have made significant changes. These can include new accrual and contribution rates, modified retirement eligibility rules, and changes to actuarial assumptions.

In addition, the methodology for data collection has changed since the previous versions of the report. Notably, in earlier editions of *Characteristics*, plans themselves were first surveyed and asked to provide the data directly. These surveys were then supplemented with additional, publicly available data. In the 2022 edition, the information comes directly from publicly available data sources without the initial survey. (For more information on the methodology, see Appendix I.)

Finally, it is important to remember that the specifics in this report represent a snapshot of each plan. For example, the data extracted from plans’ actuarial valuations (which contain both forward-looking and historical information) span a range of several years. The oldest valuation report is from June 2018, and the newest is dated July 2021.

As a result, the data presented here is not strictly comparable to those in earlier editions.

This report covers two major types of retirement plans: defined benefit (DB) plans and defined contribution (DC) plans. In their basic form, DB plans provide a fixed, lifetime annuity to participants, with the benefits based on a formula that considers years of service and an average final salary over a specified number of years. The basic DC plan provides a benefit that is derived from the accumulated contributions and earnings in an individual participant’s account; typically, both employer and employee contributions are mandatory and are set at some predetermined level. For more on the differences between DB and DC plans, see Appendix II.

This report provides a wide range of data on 118 retirement plans, four more than in the 2016 edition.

SUMMARY OF FINDINGS

In 2022, as compared to the 2016 report, we find that several trends have emerged. First, while there are four new plans, it is much more common for plans to create new “tiers” among existing plans. These tiers typically serve to decrease benefits in some way and usually only affect newly hired employees. The reforms have taken the form of more stringent early or normal retirement eligibility requirements. They can also include reduced benefit multipliers, lower cost of living adjustments, or higher vesting periods. These changes help reduce plans’ long-term liability costs, but they can be to the detriment of plan participants, who will see a reduced retirement benefit in some way compared to their peers in the older tiers. Indeed, research has found that state and local governments have been impacted tremendously by the “Great Resignation” of the past two years and are having trouble recruiting the next generation of employees. Relatively

generous retirement benefits have historically¹ been one way that the public sector can recruit and retain a high-quality workforce—especially among educators—despite offering lower salaries than the private sector for equally skilled jobs. So, it remains to be seen whether adding new tiers that decrease retirement benefits will ultimately make recruiting² and retaining a high quality teaching workforce more difficult for states and municipalities.

Another prevailing trend in the 2022 report is that nearly all plans studied have made conservative adjustments to one or more of their actuarial assumptions since 2016. These changes speak to the notion that retirement boards and actuaries are attempting to be more cautious in their assumptions to ensure the plans’ long-term financial health.

A move to more conservative assumptions will instantly make a plan look less well funded, even if the dollar amount of assets and liabilities and the level of benefits promised to employees, have not changed at all. Despite this fact, the funded status of plans is approximately where it was in 2016, in the aggregate, with some evidence of a slight uptick. Taken together, this means that plans appear to be more financially healthy than they have been in the past.

A final trend in *2022 Characteristics* is that, in aggregate, employer contribution rates are increasing. Fewer plans have fixed statutory rates, and there appears to be more of a push to fund the Actuarially Determined Employer Contribution. This trend shows the plans’ increasing commitment to achieving full funding and long-term financial health.

The chart below describes these and other trends in more detail.

Snapshot of Changes since the 2016 Characteristics Report		
Section	Type	Change
Overview	Plan type	Only four completely new plans. Many plans have added additional “tiers” for newly hired employees, which usually means changes to eligibility requirements or benefit formulas.
Assets-membership	Actuarial accrued liability (AAL)	The AAL has increased for nearly all plans. This is expected, as promised benefits tend to increase with time.
Assets-membership	Active members / Annuitants	All plans have more annuitants, which is expected with the retirement of the Baby Boomer generation. But in addition, many plans have a smaller increase in active participants; some plans even have fewer active participants than they did in 2016. Therefore, the retiree to active ratio has increased for nearly all plans.
Eligibility	Normal/early retirement	Among plans that have created new tiers, eligibility—for early retirement, normal retirement, or both—seems to be affected as much or more than the benefit formula.
Post Retirement	COLA provision	Most plans had already capped COLAs by 2016; some have limited the COLA even further since then.
Post Retirement	State taxation	Only a few states have changed the tax treatment of retirement benefits. Many states have income thresholds for deductions and credits that are automatically linked to inflation.
Contributions	Employer contributions	Many states have increased employer contributions. Fewer have fixed statutory rates, and there appears to be more of a push to fund the actuarially determined employer contribution.
Benefits	Benefit formula	Among plans that have created new tiers, benefit formulas do not appear to be the major source of changes. Normal or early retirement eligibility requirements were more often impacted.
Funding	Salary growth, discount rate, inflation rate assumptions	Almost all plans have lowered at least one of these assumptions; many have lowered two or three.
Funding	Funded level, Unfunded actuarial accrued liability (UAAL) as a percentage of payroll	The overall funded level and UAAL as a percentage of payroll fluctuate from plan to plan but were overall steady. Given the more conservative assumptions being adopted by plans, we would expect funded ratios to decline. The fact that they have not speaks to the increasing financial strength of the plans overall.

1 <https://slge.org/wp-content/uploads/2022/03/public-workforce-and-covid-march2022.pdf>

2 www.nirsonline.org/reports/revisiting-the-three-rs-of-teacher-retirement-systems-recruitment-retention-and-retirement

I. OVERVIEW OF PLANS

Type of Plans

Figure 1 categorizes the 118 primary plans contained in this report, with four added since the 2016 edition of *Characteristics*. Eighty-four plans in the report (71 percent) are pure defined benefit (DB). Such a design provides a definite future pension related to employee service and compensation. A calculation is performed to determine the level of the ultimate benefit. This calculation usually reflects a formula under which an employee receives a benefit equal to a percentage of the final average salary for each year of participation in the plan. Consequently, active participants can anticipate, well in advance, the benefits they will receive upon retirement, and retirees can rely on a stable pension check for the rest of their lives (and that of their spouses, assuming they have opted for a survivor benefit).

Five plans in the report—two in Alaska, one in West Virginia, one in the District of Columbia, and one in Florida—are purely defined contribution (DC). Such a design provides for specified contributions into participant accounts with a benefit derived from the sum in the member's account balance at retirement. The amount in the account will be affected by investment gains and losses on contributions received. The West Virginia Teachers' Defined Contribution Plan covers teachers and education support professionals (ESPs) hired on or after July 1, 1991 and before July 1, 2005. It is now closed to newly hired employees who participate in the state's DB plan for teachers and ESPs. In the District of Columbia, ESPs and other employees hired after Sept. 30, 1987 are in the District of Columbia 401(a) Defined Contribution Pension Plan (DCPP). Those employed before then are in the now closed Federal Civil Service Retirement System. Teachers, police officers, firefighters, and several other categories of employees in the District of Columbia are in DB plans. When Alaska closed its two DB plans to employees hired after June 30, 2006, those employees became members of new DC plans. In Florida, the State University System Optional Retirement Program (SUSORP) became mandatory for employees in the College of Medicine and renewed members filling SUSORP eligible positions as of July 1, 2017. The plan remains an optional primary DC plan for all eligible employees.

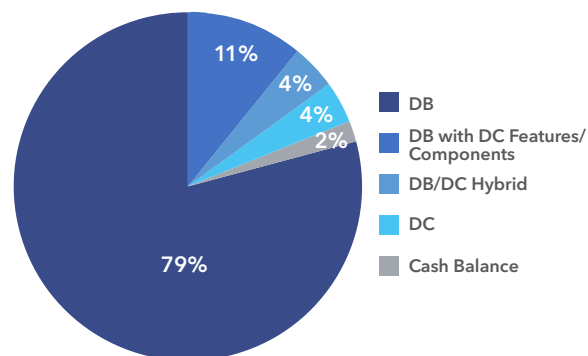
For more on the differences between DB and DC plans, see **Appendix II**.

Twelve plans (10 percent) offer a range of designs that combine predominantly DB features with some DC features or components, while four more (3 percent) are more of a true hybrid between a DB and a DC. Twelve plans offer a DC plan as an alternative to the existing DB plan. Typically, newly hired employees may choose between the two plans. Historically, public employees overwhelmingly choose the DB plan when given a choice between a DB plan or a DC plan.³ By participating in the DB option, employees can receive a guaranteed benefit.

Finally, two plans in the report (2 percent) are cash balance plans. See **Figure 1**.

There is considerable variation in retirement plans for qualifying employees at public colleges and universities. Both DB and DC plans are offered at many higher education institutions. Some institutions have DB plans, some have DC plans, and others offer a choice between either option or a combination of the two types of plans. Typically, where a DC plan is the primary retirement vehicle, participation is mandatory, and employee and employer contributions are set at predetermined levels.

Figure 1. Types of Public Education Retirement Plans



³ www.nirsonline.org/reports/decisions-decisions-an-update-on-retirement-plan-choices-for-public-employees-and-employers

As we've seen in all prior iterations of *Characteristics*, DB plans remain the overwhelming norm for public sector employees. As can be seen in **Chart 1**, pure DB plans account for roughly 87 percent of public education-related retirement plan assets, while DB plans with some DC features and DB/DC hybrids have an additional 10 percent. Likewise, over 83 percent of all active participants are in pure DB plans, while an additional 11 percent are in DB plans with some DC features or hybrid plans. Pure DC and Cash Balance active members account for just 0.5 percent combined.

Chart 1

Plan Type	Total Actuarial* Value of Assets (\$ Billions)	Total Assets %	Total Active Members	Active Members %	Total Annuitants
DB	\$3,019.2	87.4%	10,694,656	86.3%	8,068,449
DB with DC Features/Components	\$110.7	3.2%	443,391	3.6%	373,579
DB/DC Hybrid	\$236.4	6.8%	869,786	7.0%	728,196
Cash Balance	\$0.0	0.0%	37,996	0.3%	13
Primary Optional DC	\$87.5	2.5%	313,210	2.5%	59,308
DC	\$2.6	0.1%	30,026	0.2%	455
Grand Total	\$3,456.3	100.0%	12,389,065	100.0%	9,230,000

* Several plans report only the Fiduciary Net Position rather than the Actuarial Value of Assets. See Notes for **Table 1**.

**Value of assets for several DC plans and Cash Balance plans not available.

Administration of Plans and Investment of Assets

State and local government retirement systems provide various benefits. DB plans can include disability benefits for active employees, pension benefits for retired employees, and death and survivor benefits for beneficiaries of deceased active or retired employees. In some states, the retirement systems also provide other benefits, such as health benefits. The state and local government retirement systems may cover education employees, public safety workers, and general employees. Some states and localities have more than one retirement system. In these states, membership in a system usually depends on an employee's job classification, employer, or both.

Most retirement systems have two major functions: administration of benefits and investment of assets used to pay benefits. Administration of benefits includes such activities as calculating benefits, paying them out, and determining the amount of funding needed to pay for them.

Figure 2. Administration of Retirement Plans

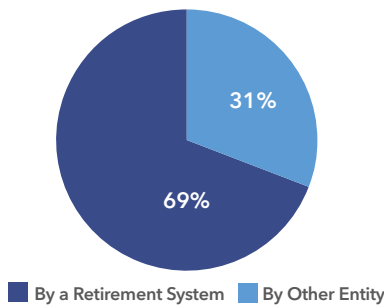
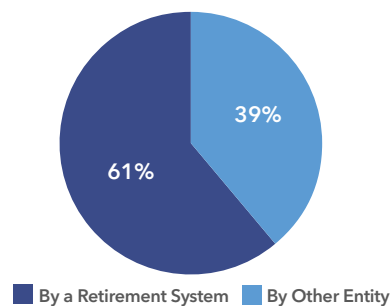


Figure 3. Investment of Retirement Plans



A retirement system most commonly administers the plans in this report. As shown in **Figure 2**, a retirement system administers 82 of the plans (69 percent); in 30 cases (31 percent), another entity does so, such as a division of the state treasurer's office.

Fewer retirement systems invest assets than administer plans. As shown in **Figure 3**, the assets of 72 retirement plans in this report (61 percent) are invested by a retirement system. In comparison, another entity invests 39 percent (46 plans). Total retirement system assets in this report total about \$3.5 trillion.

Table 1, which follows, provides information on the type of plan and respective employees covered, the entities administering the plan, and the plan assets.

Employee groups: Teachers (T), Education support professionals (ESPs), Higher education support professionals (HESPs), Higher education faculty (HEF)

Table 1

State/Plan	Plan Type	Covered Employees	Administering Entity	Investing Entity
Alabama/TRS	DB	T, ESPs, HEF, HESPs	Retirement Systems of Alabama	Retirement Systems of Alabama
Alaska/PERS-DB plan	DB	ESPs, HESPs	Division of Retirement and Benefits, Department of Administration	Alaska Retirement Management Board
Alaska/PERS-DC plan	DC	ESPs, HESPs	Division of Retirement and Benefits, Department of Administration	Alaska Retirement Management Board offers a list of investments from which participants may choose
Alaska/TRS-DB plan	DB	T, HEF	Division of Retirement and Benefits, Department of Administration	Alaska Retirement Management Board
Alaska/TRS-DC plan	DC	T, HEF	Division of Retirement and Benefits, Department of Administration	Alaska Retirement Management Board offers a list of investments from which participants may choose
Arizona/ASRS	DB	T, ESPs, HEF, HESPs	ASRS	ASRS
Arkansas/ATRS	DB	T, ESPs, HEF, HESPs	ATRS	ATRS
California/PERS	DB	ESPs, HEF, HESPs	PERS	PERS
California/STRS	DB	T, ESPs, HEF, HESPs	STRS	STRS
California/UCRP	DB	HEF, HESPs	UC	UC
California/UCRP-DC Plan*	Optional Primary DC	HEF, HESPs	UC	UC
Colorado/PERA-DB plan	DB with alternate money purchase calculation	T, ESPs, HEF, HESPs	PERA	PERA
Colorado/PERA-DC plan	Optional Primary DC	HEF, HESPs including certain community college employees hired after J1/1/2008 and college/university employees hired after 1/1/2019	PERA	PERA
Connecticut/CMERS	DB	ESPs	State Retirement Commission	State Treasurer
Connecticut/TRS	DB	T, HEF	Connecticut Teachers' Retirement Board	State Treasurer
Delaware/SEPP	DB	T, ESPs, HEF, HESPs	State Pension Office	State Board of Pension Trustees
District of Columbia/DCPP	DC	ESPs	District of Columbia Department of Human Resources and Office of Finance and Treasury	District of Columbia Department of Human Resources and Office of Finance and Treasury offers a list of investment options from which participants may
District of Columbia/TRF	DB	T	District of Columbia Retirement Board	District of Columbia Retirement Board
Florida/FRS-DB plan	DB	T, ESPs, HEF, HESPs	Department of Management Services, Division of Retirement	State Board of Administration
Florida/FRS-DC plan "FRS Investment Plan"	Optional Primary DC	T, ESPs, HEF, HESPs	State Board of Administration	The FRS Investment Plan offers a list of investment options from which participants may choose
Florida/FRS-DC Plan "SUSORP"	Optional/Mandatory Primary DC	HEF, HESPs. Mandatory for employees in College of Medicine and renewed members filling SUSORP eligible positions as of 7/1/2017	State Board of Administration	5 different investment provider companies are contracted with SUSORP

State/Plan	Plan Type	Covered Employees	Administrating Entity	Investing Entity
Georgia/PSERS	DB	ESPs	Employees' Retirement System of Georgia	Employees' Retirement System of Georgia
Georgia/TRS	DB	T, ESPs, HEF, HESPs	TRS	TRS
Hawaii/ERS	DB	T, ESPs, HEF, HESPs	ERS	ERS
Idaho/PERS	DB	T, ESPs, HESPs	PERSI	PERSI
Illinois/IMRF	DB	ESPs	IMRF	IMRF
Illinois/SURS	DB with a DC component	ESPs, HEF, HESPs	SURS	SURS
Illinois/TRS	DB	T	TRS	TRS
Illinois/Chicago/MEA&BF	DB. Passed a Tier III hybrid in 2017, but not yet implemented	ESPs	MEA&BF	MEA&BF
Illinois/Chicago/CTPF	DB	T	CTPF	CTPF
Indiana/PERF	DB with some DC features	ESPs, HESPs	INPRS	INPRS
Indiana/PERF-ASA Only	Optional Primary DC	ESPs, HESPs	INPRS	INPRS
Indiana/TRF	DB with DC component	T, HEF	INPRS	INPRS
Indiana/TRF DC	Optional DC only for new hires as of 7/1/2019	T, HEF	INPRS	INPRS
Iowa/PERS	DB	T, ESPs, HEF, HESPs	Iowa/PERS	Iowa/PERS
Kansas/PERS	DB, Cash balance for post 1/1/2015 Hires	T, ESPs, HESPs	PERS	PERS
Kansas/PERS 3 (Cash balance plan)	Cash Balance	T, ESPs, HESPs	PERS	PERS
Kentucky/CERS	DB	ESPs, HESPs	Kentucky Public Pensions Authority	CERS Board
Kentucky/CERS Hybrid Cash Balance plan	Cash Balance	ESPs, HESPs	Kentucky Public Pensions Authority	CERS Board
Kentucky/TRS	DB	T, ESPs, HEF, HESPs	TRS	TRS
Louisiana/SERS	DB	ESPs	LSERS	LSERS
Louisiana/TRS	DB	T, ESPs, HEF	TRS	TRS
Maine/PERS	DB	T, ESPs, HEF, HESPs	MainePERS	MainePERS
Maryland/ERPS	DB	ESPs, HESPs	Maryland State Retirement and Pension System	Maryland State Retirement and Pension System
Maryland/TRPS	DB	T, HEF	Maryland State Retirement and Pension System	Maryland State Retirement and Pension System
Massachusetts/SERS	DB	HEF, HESPs	Massachusetts State Retirement Board	Massachusetts Pension Reserves Investment Management Board
Massachusetts/TRS	DB	T	Massachusetts Teachers' Retirement Board	Massachusetts Pension Reserves Investment Management Board
Massachusetts/Boston/SBRS	DB	T, ESPs	Boston Retirement Board	Boston Retirement Board
Michigan/MPERS-DB plan	DB	T, ESPs, HEF, HESPs	Department of Management and Budget, Office of Retirement Services	State Treasurer
Michigan/MPERS-Pension Plus plan	DB with some DC features	T, ESPs, HEF, HESPs	Department of Management and Budget, Office of Retirement Services	State Treasurer
Michigan/MPERS-DC plan	Optional Primary DC	T, ESPs, HEF, HESPs	Voya Financial LLC	State Street (SSgA)
Minnesota/GERP	DB	HESPs	Minnesota State Retirement System	Minnesota State Board of Investment
Minnesota/PERA	DB	ESPs, HESPs	PERA	Minnesota State Board of Investment
Minnesota/TRA	DB	T, HEF	TRA	Minnesota State Board of Investment
Minnesota/St. Paul/SPTRFA	DB	T	SPTRFA	SPTRFA

State/Plan	Plan Type	Covered Employees	Administrating Entity	Investing Entity
Mississippi/PERS	DB	T, ESPs, HEF, HESPs	PERS	PERS
Missouri/MOSERS	DB	HESPs	MOSERS	MOSERS
Missouri/PEERS	DB	ESPs, HESPs	PEERS	PSRS/PEERS
Missouri/PSRS	DB	T, HEF	PSRS	PSRS/PEERS
Missouri/Kansas City/PSRS	DB	T, ESPs	PSRS	PSRS
Missouri/St. Louis/PSRS	DB	T, ESPs	PSRS	PSRS
Montana/PERS-DBRP	DB	ESPs, HESPs	Montana Public Employee Retirement Administration (MPERA)	Montana Board of Investments
Montana/PERS-DCRP	Optional Primary DC	ESPs, HESPs	Montana Public Employee Retirement Administration (MPERA)	Montana Board of Investments
Montana/TRS	DB	T, ESPs, HEF, HESPs	TRS	Montana Board of Investments
Nebraska/SERS	DB	T, ESPs	Nebraska Public Employees' Retirement Systems	State Investment Officer and Investment Council
Nebraska/Omaha/OSERS	DB	T, ESPs	Board of Education	Board of Education/OSERS
Nevada/PERS	DB	T, ESPs, HEF, HESPs	PERS	PERS
New Hampshire/NHRS	DB	T, ESPs, HEF, HESPs	NHRS	NHRS
New Jersey/PERS	DB	ESPs, HEF, HESPs	New Jersey Division of Pensions and Benefits, Department of the Treasury	New Jersey Division of Investment and State Investment Council
New Jersey/TPAF	DB	T	New Jersey Division of Pensions and Benefits, Department of the Treasury	New Jersey Division of Investment and State Investment Council
New Mexico/ERB	DB	T, ESPs, HEF, HESPs	ERB	ERB
New York/ERS	DB	ESPs, HEF, HESPs	ERS	State Comptroller is the sole trustee of the Common Retirement Fund
New York/STRS	DB	T, HEF	NYSTRS	NYSTRS
New York/New York City/BERS	DB	ESPs, HESPs	BERS	BERS
New York/New York City/TRS	DB	T, HEF	TRS	TRS
North Carolina/TSERS	DB	T, ESPs, HEF, HESPs	Retirement Systems Division within Department of State Treasurer	Investment Management Division within Department of State Treasurer
North Dakota/PERS	DB with optional DC plan	ESPs, HESPs	PERS	North Dakota State Investment Board
North Dakota/TFFR	DB	T	Retirement and Investment Office	North Dakota State Investment Board
Ohio/PERS-DB plan	DB	ESPs, HESPs	PERS	PERS
Ohio/PERS-DC plan	Optional Primary DC	ESPs, HESPs	PERS	PERS offers a list of investment options from which participants may choose
Ohio/PERS-Combined plan	DB with some DC features	ESPs, HESPs	PERS	PERS
Ohio/SERS	DB	ESPs, HESPs	SERS	SERS
Ohio/STRS-DB plan	DB	T, HEF	STRS	STRS
Ohio/STRS-DC plan	Optional Primary DC	T, HEF	STRS	STRS
Ohio/STRS-Combined plan	DB with some DC features	T, HEF	STRS	STRS
Oklahoma/TRS	DB	T, ESPs, HEF, HESPs	OTRS	OTRS
Oregon/PERS	DB/DC Hybrid	T, ESPs, HEF, HESPs	PERS	Oregon Investment Council
Pennsylvania/PSERS - DB	DB	T, ESPs, HEF, HESPs	PSERS	PSERS
Pennsylvania/PSERS - Hybrid DB/DC	DB/DC Hybrid	T, ESPs, HEF, HESPs	PSERS	PSERS
Pennsylvania/SERS	DB	HEF, HESPs	SERS	SERS

State/Plan	Plan Type	Covered Employees	Administrating Entity	Investing Entity
Rhode Island/ERS	DB/DC Hybrid	T, HEF, HESPs	ERSRI	Rhode Island State Investment Commission
Rhode Island/MERS	DB with some DC features	ESPs	ERSRI	Rhode Island State Investment Commission
South Carolina/SCRS	DB with optional DC plan	T, ESPs, HEF, HESPs	South Carolina Public Employee Benefit Authority	Retirement System Investment Commission
South Dakota/SDRS	DB	T, ESPs, HEF, HESPs	SDRS	South Dakota Investment Council
Tennessee/CRS	DB	T, ESPs, HEF, HESPs	CRS	CRS
Tennessee/CRS- Hybrid plan	DB/DC Hybrid	T, ESPs, HEF, HESPs	DB portion: CRS DC portion: Great West Financial	DB portion: CRS DC portion: Great West Financial
Texas/TRS	DB	T, ESPs, HEF, HESPs	TRS	TRS
Utah/URS-Tier 1	DB	T, ESPs, HESPs	URS	URS
Utah/URS-Tier 2-Hybrid plan	DB with some DC features	T, ESPs, HESPs	URS	URS
Utah/URS-Tier 2 DC plan	Optional Primary DC	T, ESPs, HESPs	URS	URS
Vermont/MERS-DB plan	DB	ESPs	MERS	Vermont Pension Investment Committee
Vermont/MERS-DC plan	Optional Primary DC	ESPs	MERS Board of Trustees	Fidelity
Vermont/STRS	DB	T	STRS Board of Trustees	Vermont Pension Investment Committee
Virginia/VRS (legacy plan)	DB	T, ESPs, HEF, HESPs	VRS	VRS
Virginia/VRS-Hybrid plan	DB with some DC features	T, ESPs, HEF, HESPs	VRS	VRS
Virginia/Fairfax/ERFC	DB (designed as supplement to VRS, which members also participate in)	T, ESPs	ERFC	ERFC
Washington/PERS-Plan 1	DB	ESPs, HESPs	Department of Retirement Systems	Washington State Investment Board
Washington/PERS-Plan 2	DB	HESPs	Department of Retirement Systems	Washington State Investment Board
Washington/PERS-Plan 3	DB with a DC component	HESPs	Department of Retirement Systems	Washington State Investment Board
Washington/SERS-Plan 2	DB	ESPs	Department of Retirement Systems	Washington State Investment Board
Washington/SERS-Plan 3	DB with a DC component	ESPs	Department of Retirement Systems	Washington State Investment Board
Washington/TRS-Plan 1	DB	T, ESPs, HEF	Department of Retirement Systems	Washington State Investment Board
Washington/TRS-Plan 2	DB	T, ESPs, HEF	Department of Retirement Systems	Washington State Investment Board
Washington/TRS-Plan 3	DB with a DC component	T, ESPs, HEF	Department of Retirement Systems	Washington State Investment Board
West Virginia/TRS	DB	T, ESPs	Consolidated Public Retirement Board	West Virginia Investment Management Board
West Virginia/TDCP	DC	T, ESPs	Consolidated Public Retirement Board	West Virginia Teachers' Defined Contribution Office offers a list of investments from which participants may choose
Wisconsin/WRS	DB with alternate money-purchase calculation	T, ESPs, HEF, HESPs	Wisconsin Department of Employee Trust Funds	Wisconsin Investment Board
Wyoming/WRS - Public Employees Pension Plan	DB	T, ESPs, HEF, HESPs	WRS	WRS

See Appendix III for detailed notes on each system.

II. ASSETS, MEMBERSHIP, AND SOCIAL SECURITY COVERAGE

MEMBERSHIP

Most full-time employees of state and local governments participate in retirement plans—usually defined benefit plans that carry an obligation to provide a specified level of benefits at retirement according to formulas based on salaries and years of service.

Included in this report are plans for:

- Teachers (T)
- Education support professionals (ESPs)
- Higher education support professionals (HESPs)
- Higher education faculty (HEF)

Figure 4 displays the various types of employees covered by the plans in the report. Most commonly, teachers are in plans that primarily serve teachers and higher education faculty, along with certain ESPs and HESPs. ESPs and HESPs are just as likely to be in plans that cover various employees.

*Note: Since most plans have more than one group of employees, **Figure 4** is not additive.*

A total of 12,389,065 active members are covered by the plans reviewed in this report. The median active membership is 50,179, while the average active membership is 104,110. These plans range in size from the 918,545 active members of the Teacher Retirement System of Texas to the 239 active members of the Vermont Municipal Employees' Retirement System DC plan. The plans reviewed in this report cover 9,230,000 annuitants. The median annuitant membership is 51,153, and the average is 84,679. Summary Chart 2 offers a brief overview of the plans covered by this report in terms of active member plan size and annuitant population.

Figure 4. Distribution of Education Employee Groups Among the 118 Plans



Assets

The gross value of assets held in the plans in this report varies widely. The California Public Employees' Retirement System has the highest level of assets (\$372.8 billion). In comparison, the Kansas City Public School Retirement System has the lowest level among the pure DB plans in the study (\$663 million). It should be noted that due to the recent volatility in investment markets due to the COVID-19 pandemic - and the fact that different plans have different reporting periods, valuation, and Annual Comprehensive Financial Report (ACFR) release dates - It may not be prudent to compare total assets and investment returns across plans. Of course, the market smoothing techniques utilized by most of these plans help to reduce very severe fluctuations. (For more on market smoothing, see the discussion in **Section 7**).

Social Security Coverage

Unlike employees in the private sector, state and local government employees are not universally covered by Social Security. Government employers may opt out of Social Security coverage for their employees if they are already covered by a state or local retirement system. Generally,

employees without Social Security coverage receive higher benefit formulas in their pension plan to make up for the lack of Social Security benefits.⁴

As shown in **Figure 5**, 87 of the 121 plans in the report (72 percent) report that all, nearly all, or most participants also are covered by the Social Security system. In some instances, some members in a retirement plan have Social Security coverage, while others do not.

Figure 5. Social Security Coverage of Education Employees by Plan

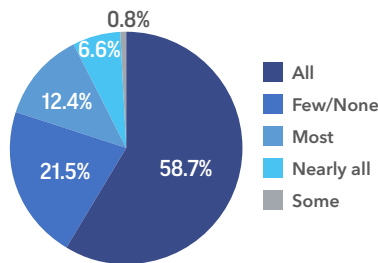


Figure 6. Assets per Active and Annuitant, by Social Security Coverage

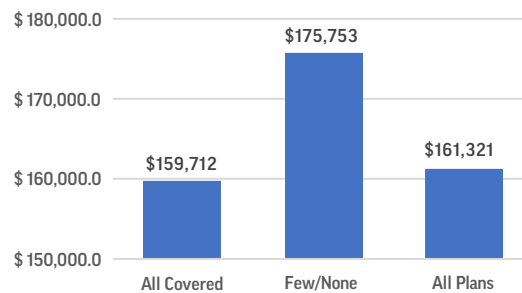


Figure 6 compares the average assets per active and retired members of education-related pension plans, based on Social Security coverage. Not surprisingly, for plans with few or no participants covered by Social Security, the average assets per active and retiree are higher; assets per active and retiree members are 10 percent higher than plans that cover all actives and retirees.

Table 2, which follows, provides detailed information on the total net assets, type of employees covered, active and retiree membership, and the status of Social Security coverage.

Table 2

State/Plan	CAFR Date	Actuarial Value of Assets (billions)*	Actuarial Accrued Liability*	Active Members	Annuitants	Covered by Social Security
Alabama/TRS	30-Sep-20	25.82	37.22	136,325	98,539	All
Alaska/PERS-DB plan	30-Jun-20	9.5	15.4	11,162	36,140	Some
Alaska/PERS-DC plan	30-Jun-20	1.4	NA	21,243	NA	Some
Alaska/TRS-DB plan	30-Jun-20	5.4	7.5	3,812	13,053	Few/None
Alaska/TRS-DC plan	30-Jun-20	0.588	NA	5,569	NA	Few/None
Arizona/ASRS	30-Jun-20	40.6	56.13	214,810	163,069	All
Arkansas/ATRS	7-Apr-21	16.9	22.6	66,900	53,772	All
California/PERS	30-Jun-20	372.8	531.2	879,841	735,123	Most
California/STRS	30-Jun-20	205.02	310.72	448,419	314,518	Few/None
California/UCRP	30-Jun-20	70.9	92.6	134,953	80,745	Most
California/UCRP-DC Primary Plan (Savings Choice)*	30-Jun-20	NA	NA	NA	NA	All
Colorado/PERA-DB plan	31-Dec-20	52.34	83.32	200,858	125,363	Few/None
Colorado/PERA-DC plan	31-Dec-20	0.3239	NA	7,264	NA	Few/None
Connecticut/CMERS	30-Jun-20	2.95	3.86	9,459	7,933	Some

⁴ Public employees not covered by Social Security may well have earned benefits while working in other employment covered by Social Security. However, because of the Government Pension Offset and the Windfall Elimination Provision, a retiree who receives a public pension will lose a significant portion of any Social Security retirement or survivor benefits they would otherwise expect to collect. NEA supports the repeal of these unfair reductions.

State/Plan	CAFR Date	Actuarial Value of Assets (billions)*	Actuarial Accrued Liability*	Active Members	Annuity-tants	Covered by Social Security
Connecticut/TRS	30-Jun-20	19.06	37.13	50,951	38,540	Few/None
Delaware/SEPP	30-Jun-20	9.64	11.04	37,724	28,470	All
District of Columbia/DCPP	30-Sep-20	"1.2 in 401(a) plan; .953 in 457 plan"	NA	"21,198 in 401(a); 19,386 in 457 "	NA	All
District of Columbia/TRF	30-Sep-20	2.41	2.64	5,531	4,071	Few/None
Florida/FRS-DB plan	30-Jun-20	161.57	204.91	479,043	465,851	Nearly all
Florida/FRS-DC plan "FRS Investment Plan"	30-Jun-20	NA	NA	165,295	NA	All
Florida/FRS-DC Plan "SUSORP"	30-Jun-20	NA	NA	22,008	NA	All
Georgia/PSERS	30-Jun-20	0.961	1.16	34,736	19,161	Some
Georgia/TRS	30-Jun-21	81.63	107.19	227,953	139,813	Most
Hawaii/ERS	30-Jun-20	18.08	32.69	66,750	51,153	Most
Idaho/PERS	30-Jun-20	17.39	19.71	73,657	49,573	All
Illinois/IMRF	31-Dec-20	46.0	48.92	170,735	142,329	All
Illinois/SURS	30-Jun-20	20.09	47.58	76,335	69,172	Few/None
Illinois/TRS	30-Jun-20	54.9	135.6	163,115	125,927	Few/None
Illinois/Chicago/MEA&BF	31-Dec-20	3.98	17.81	31,327	25,471	Few/None
Illinois/Chicago/CTPF	30-Jun-20	11.2	24.1	30,091	28,015	Few/None
Indiana/PERF	30-Jun-20	13.56	16.28	125,780	92,436	All
Indiana/PERF-ASA Only	30-Jun-20	NA	NA	4,166	-	All
Indiana/TRF pre-96 DB (pay as you go)	30-Jun-20	3.71	13.97	9,338	53,415	All
Indiana/TRF 96 DB (prefunded)	30-Jun-20	6.46	6.4	58,450	7,596	All
Indiana/TRF Optional DC	30-Jun-20	NA	NA	703	-	All
Iowa/PERS	30-Jun-20	34.49	41.07	170,380	126,600	All
Kansas/PERS	30-Jun-20	20.98	29.98	156,568	106,058	All
Kentucky/CERS	30-Jun-20	7.22	14.61	45,462	60,864	Most
Kentucky/CERS Hybrid Cash Balance plan	30-Jun-20	NA	NA	37,996	13	All
Kentucky/TRS	30-Jun-20	20.8	35.6	73,151	56,629	Few/None
Louisiana/SERS	30-Jun-21	2.2	2.7	11,700	13,699	Few/None
Louisiana/TRS	30-Jun-20	22	32.3	86,860	80,536	Some
Maine/PERS	30-Jun-20	12	14.9	40,395	37,151	Some
Maryland/ERPS	30-Jun-20	18.8	27.3	81,791	82,094	All
Maryland/TRPS	30-Jun-20	34.2	44.4	109,597	80,439	All
Massachusetts/SERS	30-Jun-20	27.1	42.6	87,969	64,758	Few/None
Massachusetts/TRS	30-Jun-20	27.9	53.9	93,156	68,528	Few/None
Massachusetts/Boston/SBRS	31-Dec-20	8.3	12.3	20,856	14,559	Few/None
Michigan/MPSERS	30-Sep-20	51.4	85.2	168,202	221,478	All
Michigan/MPSERS-DC plan	30-Sep-20	NA	NA	72,000	NA	All
Minnesota/GERP	30-Jun-20	14	15.2	51,742	43,919	All
Minnesota/PERA	30-Jun-20	22.8	28.6	153,741	108,492	All
Minnesota/TRA	30-Jun-20	22.9	30.1	83,149	68,154	Most
Minnesota/St. Paul/SPTRFA	30-Jun-20	1.1	1.7	3,445	4,102	Most
Mississippi/PERS	30-Jun-20	28	46	149,855	188,528	All
Missouri/MOSERS	30-Jun-21	8.9	15.1	42,849	52,223	All
Missouri/PEERS	30-Jun-20	5.3	6.1	50,179	33,232	All

State/Plan	CAFR Date	Actuarial Value of Assets (billions)*	Actuarial Accrued Liability*	Active Members	Annuity-tants	Covered by Social Security
Missouri/PSRS	30-Jun-20	41.7	49.6	78,848	64,595	Few/None
Missouri/Kansas City/PSRS	31-Dec-20	0.663	0.998	4,074	4,145	All
Missouri/St. Louis/PSRS	31-Dec-20	0.889	1.1	5,108	4,477	All
Montana/PERS-DBRP	30-Jun-20	6.1	8.2	29,039	23,856	Most
Montana/PERS-DCRP	30-Jun-20	NA	NA	3,100	116	Most
Montana/TRS	30-Jun-20	4.3	6.3	19,751	16,605	Most
Nebraska/SERS	1-Jul-20	13.9	14.3	43,423	26,894	All
Nebraska/Omaha/OSERS	1-Jan-21	1.47	2.38	7,182	5,089	All
Nevada/PERS	30-Jun-20	46.17	60.66	98,228	63,376	Few/None
New Hampshire/NHRS	30-Jun-20	9.48	15.49	48,479	39,612	Most
New Jersey/PERS	30-Jun-20	31.95	61.19	249,597	185,734	All
New Jersey/TPAF	30-Jun-20	26.38	65.47	157,915	108,949	All
New Mexico/ERB	30-Jun-20	13.7	22.7	61,091	51,397	All
New York/ERS	31-Mar-21	181.51	195.73	469,968	458,261	All
New York/STRS	30-Jun-21	122.4	123.8	249,355	175,790	All
New York/New York City/BERS	30-Jun-20	3.91	5.1	29,792	19,194	All
New York/New York City/TRS	30-Jun-20	50	72.2	123,336	88,507	All
North Carolina/TSERS	31-Dec-20	77.92	89.81	302,771	239,161	All
North Dakota/PERS	30-Jun-20	3.26	4.72	24,489	12,945	Most
North Dakota/TFFR	30-Jun-20	2.75	4.18	11,347	9,036	Most
Ohio/PERS-DB plan	31-Dec-20	65.27	84.35	272,243	219,501	Few/None
Ohio/PERS-DC plan	31-Dec-20	0.372	0.372	9,950	5,777	Few/None
Ohio/PERS-Combined plan	31-Dec-20	0.752	0.502	7,242	2,891	Few/None
Ohio/SERS	30-Jun-20	14.8	20.6	156,579	80,851	Few/None
Ohio/STRS-DB plan	30-Jun-20	76.38	98.67	161,095	156,907	Few/None
Ohio/STRS-DC plan	30-Jun-20	76.38	98.67	10,205	NA	Few/None
Ohio/STRS-Combined plan	30-Jun-20	NA	NA	6,743	159,907	Few/None
Oklahoma/TRS	30-Jun-20	19.33	27.03	89,945	67,016	Most
Oregon/PERS-DB	30-Jun-20	70.31	89.45	42,762	134,515	All
Oregon/PERS-OPSRP-Hired after 8/29/2003	30-Jun-20	70.31	89.45	120,095	6,570	All
Pennsylvania/PSERS	30-Jun-21	63.8	107.83	248,091	242,839	All
Pennsylvania/PSERS-DC Plan	30-Jun-21	NA	NA	27,787	NA	All
Pennsylvania/SERS	31-Dec-19	29.93	52.97	102,850	132,731	All
Pennsylvania/SERS-DC Plan	31-Dec-19	NA	NA	6,938	NA	All
Rhode Island/ERS	30-Jun-20	3.91	6.96	13,474	11,274	Some
Rhode Island/MERS	30-Jun-20	1.07	1.29	5,936	4,880	Some
South Carolina/SCRS	30-Jun-21	28.17	52.06	201,144	146,131	All
South Dakota/SDRS	30-Jun-20	12.35	12.34	413,257	30,212	All
Tennessee/CRS-Teachers Legacy Plan	30-Jun-20	24.43	24.01	222,682	166,499	All
Tennessee/CRS-Hybrid plan-Teachers Retirement Plan	30-Jun-20	0.245	0.244	222,682	166,499	All
Tennessee/CRS-Hybrid plan-State Employees Plan	30-Jun-20	27.8	26.1	222,682	166,499	All
Texas/TRS	21-Aug-21	167.43	218.04	918,545	458,133	Few/None

State/Plan	CAFR Date	Actuarial Value of Assets (billions)*	Actuarial Accrued Liability*	Active Members	Annuity-tants	Covered by Social Security
Utah/URS-Tier 1-Noncontributory	31-Dec-20	28.64	31.76	51,161	61,026	All
Utah/URS-Tier 1-Contributory	31-Dec-20	1.25	1.27	379	3,679	All
Utah/URS-Tier 2-Hybrid plan	31-Dec-20	0.791	0.847	35,895	193	All
Utah/URS-Tier 2 DC plan	31-Dec-20	6.64	NA	8,942	NA	All
Vermont/MERS-DB plan	30-Jun-21	0.837	1.074	7,879	3,938	All
Vermont/MERS-DC plan	30-Jun-20	0.025	NA	239	-	All
Vermont/STRS	30-Jun-21	2.19	4.12	9,955	10,106	All
Virginia/VRS	30-Jun-20	76.24	99.13	348,826	219,113	All
Virginia/VRS-Hybrid plan	30-Jun-20	-	-	-	-	All
Virginia/Fairfax/ERFC	31-Dec-20	2.79	3.64	22,360	12,842	All
Washington/PERS-Plan 1	30-Jun-21	7.69	11.16	875	42,886	All
Washington/PERS-Plan 2	30-Jun-21	44.5	45.56	124,786	63,769	All
Washington/PERS-Plan 3	30-Jun-21	44.5	45.56	38,067	7,193	All
Washington/SERS-Plan 2	30-Jun-21	6.49	6.99	28,835	12,235	All
Washington/SERS-Plan 3	30-Jun-21	6.49	6.99	33,615	12,348	All
Washington/TRS-Plan 1	30-Jun-21	5.72	8.11	162	30,762	All
Washington/TRS-Plan 2	30-Jun-21	16.97	18.27	24,269	6,594	All
Washington/TRS-Plan 3	30-Jun-21	16.97	18.27	55,328	16,963	All
West Virginia/TRS	30-Jun-20	7.79	10.95	34,753	36,797	All
West Virginia/TDCP	30-Jun-20	0.584	NA	3,214	455	All
Wisconsin/WRS	31-Dec-20	114.26	114.27	259,249	221,019	Most
Wyoming/WRS-Public Employees Pension Plan	31-Dec-20	7.83	10.47	35,110	29,407	All

*Where the Actuarial Values are not disclosed, we use the Net Position and Total Pension Liability data. See "Notes on Table 2" for more information. See Appendix III for detailed notes on each system.

III. ELIGIBILITY FOR RETIREMENT

Most plans in this report provide for some combination of years of service and age to qualify for a normal, full retirement benefit or a reduced early retirement benefit. Minimum eligibility for a nonforfeitable right to a retirement benefit, in the future, is usually stated in the form of vesting requirements. Service credits for retirement purposes may increase by purchasing service credits for prior service outside of the plan. Each of these elements of service-related retirement eligibility is examined here.

Normal Retirement

A member of a retirement plan is eligible for normal retirement if they can retire on an immediate, unreduced benefit. However, the actual benefit amount depends on the number of years of service the participant has earned. (The final average salary will also have a significant effect on the benefit amount.) The normal retirement age and service requirements for the plans covered by this report are examined in detail in **Table 3**.

While normal full retirement from active public employment is available at age 60 or 62 in most the plans studied, employees are usually offered more than one combination of age and service requirements for normal retirement eligibility. Most plans studied permit normal full retirement at age 65 or earlier with sufficient service credit. However, a few plans have raised the normal retirement age above the traditional age of 65. For example, Pennsylvania State Employees

Retirement System, Pennsylvania Public School Employees Retirement System, and New Mexico Educational Retirement Board created a new tier for new hires starting in 2019 to raise the normal retirement age to 67.

Among plans with alternative age and/or service provisions, about 30 percent of the plans permit normal retirement at any age for employees who have accumulated a specific number of years of service credit—most commonly 30 years. In this report, the earliest age and/or service combination for normal retirement was any age with 20 years of service.

Early Retirement

A member is eligible for reduced early retirement benefits upon meeting age and/or service requirements that are lower than those imposed for normal full retirement. Almost all plans in the report have some provision for early retirement. Age 55 is the most common early retirement age among the plans in this report.

When a member retires early, their monthly benefit amount is usually reduced because they are expected to collect benefits over a longer time than someone retiring at the normal retirement age. The reduction is usually either a specified annual percentage or an actuarial reduction applied based on the number of years earlier than the normal age of the plan that the person retires. For example, if a plan’s normal retirement age is 62 and the reduction percentage is 6 percent per year, then a person retiring at age 60 would receive 88 percent of the normal retirement benefit amount (2 years x 6 percent reduction per year = 12 percent total reduction).

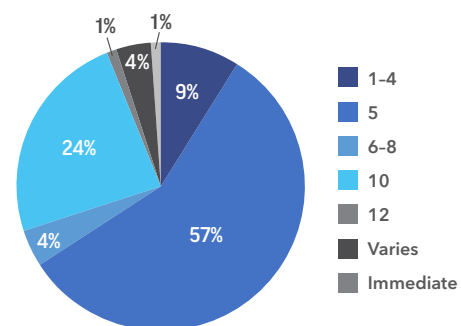
In the last few years, many states and municipalities have created new “tiers” of benefits for new hires, which increase age and/or service provisions to retire—and in many cases, change requirements for both normal and early retirement. Since the last iteration of *Characteristics* in 2016, 14 plans have made such adjustments in this regard. (And many plans made such changes prior to 2016.)

Table 3 lists the age and service requirements for normal and early retirement for each plan and tier within that plan, along with the applied early retirement reduction factors.

Vesting

A retirement plan’s full vesting provisions determine when employees acquire an irrevocable right to their full accrued benefits under the plan, even if they leave employment before eligibility for an immediate retirement benefit. In the plans studied, as **Figure 7** shows, full vesting most often occurs after five years—that is the case in about 57 percent of the plans/tiers reviewed. Twenty-four percent of the plans reviewed maintain a 10-year vesting period. Several plans also provide that all employees automatically vest at normal retirement age, regardless of service credit.

Figure 7. Full Vesting Requirements



While changes to vesting requirements are less common than changes to early and normal retirement provisions, it does happen. Since the last iteration of *Characteristics*, Oklahoma TRS increased its vesting requirement from 5 to 7 years for employees hired after Oct. 31, 2017. Meanwhile, the Missouri State Employees’ Retirement System reduced its vesting requirement from 10 to 5 years as of Jan. 1, 2018.

Table 3 provides information on vesting requirements by plan and tier.

Note: Percentages include all varying vesting requirements for tiers within plans, as applicable. Primary DC plans are included because while employee contributions are always 100 percent vested immediately, DC plans can require the vesting of employer contributions.

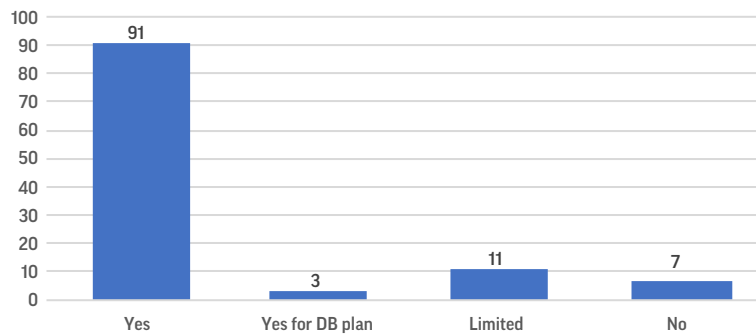
Purchase of Service Credits

In many state plans, participants who change employers (such as school systems within the state) continue to accrue service in the same plan. Other states and local jurisdictions do not have such arrangements. When education employees accept employment in other states, they are not always eligible to transfer their service credits to their new employers. Often, however, plans offer provisions that permit employees to purchase (or otherwise receive credit for) service credits that reflect their previous employment in the public sector.

In the absence of complete portability of benefits, the opportunity to purchase service credits for past service as a public employee is an essential feature of a defined benefit plan. Without purchase-of-service credit arrangements, a person could work under several retirement plans during their career without becoming vested and, therefore, never become eligible for retirement benefits.

Purchase of service credit provisions are prevalent among the plans in this report. As can be seen in **Figure 8**, most plans provide some arrangement for purchasing service credits. However, while many teacher plans provide for the purchase of service credits for past public school teaching in another state, purchase of service credit arrangements can differ as to the types of prior service that qualify, the amount that must be paid for the purchase, the maximum amount of service credits that can be purchased, and the payment options available.

Figure 8. Purchase of Service Credit Offered



Note: Primary DC plans are excluded, as the purchase of service credit is an irrelevant characteristic for this type of plan.

Table 3, which follows, provides information about purchase-of-service-credit provisions.

Table 3

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
Alabama/TRS-Tier I-Hired before 1/1/2013		12/31/12	60/10; A/25	None	N/A	10	Yes
Alabama/TRS-Tier II-Hired on or after 1/1/2013	1/1/13	Present	62/10	None	N/A	10	Yes
Alaska/PERS-DB plan		6/31/2006	60/5; A/30	55/5	AR	5	Yes
Alaska/PERS-DC plan	7/1/06	Present	NA	NA	NA	Graded, 100% at 5 years	N/A
Alaska/TRS-DB plan		6/31/2006	60/8; A/20	55/8	AR	8	Yes

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
Alaska/TRS-DC plan	7/1/06	Present	NA	NA	NA	Graded, 100% at 5 years	N/A
Arizona/ASRS			"Hired before 7/1/2011: 65/A; 62/10; R-80	66,900	53,772	All	
Hired on or after 7/1/2011: 65/A; 62/10; 60/25; 55/30"	50/5	3%; 5%	Initial membership after 7/1/2011: No vesting. Initial membership before 7/1/2011: Graded from 5-10 years of service.	Yes	735,123	Most	
Arkansas/ATRS			60/5; A/28	A/25	1% x months until 28 YOS or age 60	5	Yes
California/PERS-Hired before 1/1/2013-Classic Members		12/31/12	55/5	50/5	Varies between 9-14%, based on multiplier	5	Yes
California/PERS-Hired on or after 1/1/2013-New Members	1/1/13	Present	"62/5	NA	NA	All	
"	52/5	Varies between 5-9%, based on multiplier	5	Limited	125,363	Few/None	
California/STRS-Hired before 1/1/2013		12/31/12	60/5	55/5; 50/30	6%; 3%	5	Yes
California/STRS-Hired on or after 1/1/2013	1/1/13	Present	62/5	55/5	6%	5	Yes
California/UCRP-1976 Tier		6/31/1976	50/5	None	Varies between 5.6-11.3%, based on multiplier	5	Limited
California/UCRP-2013 Tier	7/1/13	Present	55/5; 50/5 for AFSCME, CNA and UPTE	None	Varies between 5.6-11.3%, based on multiplier	5	Limited
California/UCRP-2016 Tier (Pension Choice)	7/1/16	Present	55/5; 50/5 for AFSCME, CNA and UPTE	None	Varies between 5.6-11.3%, based on multiplier	1	Limited
Colorado/PERA-DB plan			"Hired before 7/1/2005: 65/5; 60/20; 50/30; 55/R-80	5,531	4,071	Few/None	
Hired after 7/1/2005 and before 1/1/2007: A/35; 65/5; 60/20; 55/R-80 Hired between 1/1/2007 and 1/1/2011: A/35; 65/5; 60/25; 55/R-85; 55/30 Hired between 1/1/2011 and 1/1/2017: A/35; 65/5; 60/28; 58/30; 58/R-88 Hired on or after 1/1/2020: A/35; 64/30; 65/5; 64/R-94"	"Hired before 1/1/2020: 60/5; 55/20; 50/25 Hired on or after 1/1/2020: 55/25; 60/5 "	4%; 3%; 6% for members eligible to retire prior to 1/1/2011; actuarial equivalent for members not eligible to retire 1/1/2011	5	Yes	465,851	Nearly all	
Colorado/PERA-DC plan						Employer contributions vested at 50% immediately, additional 10% per year over 5 years	N/A

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
Connecticut/CMERS			55/5; A/25; A/15 years of active aggregate service	A/5	AR	5 years of continuous service or 15 aggregate	Yes
Connecticut/TRS			60/20; A/35 with at least 25 in state of CT	55/20 with 15 years in CT; A/25 with 20 years in CT	6% for first 5; 4% for next 5. 3% for those with 30+ YOS.	10	Yes
Delaware/SEPP-Hired before 1/1/2012		12/31/11	62/5; 60/15; A/30	55/15; A/25	0.024	5	Yes
Delaware/SEPP-Hired on or after 1/1/2012	1/1/12	Present	65/10; 60/20; A/30	55/15; A/25	0.048	10	Yes
District of Columbia/DCCP			A/5	N/A	N/A	5 year cliff for pre-12/8/2009 hires; 5 year graded for post-12/8/2009	No
District of Columbia/TRF			"Hired before 11/1/96: 62/5; 60/20; 55/30 Hired on or after 11/1/96: A/30 ; 60/20; 62/5"	A/25; 50/20	0.02	5	Yes
Florida/FRS-DB plan-Hired before 7/1/2011		6/31/2011	62/6; A/30	A/6	0.05	6	Yes
Florida/FRS-DB plan-Hired on or after 7/1/2011	7/1/11	Present	65/8; A/33	A/8	0.05	8	Yes
Florida/FRS-DC plan "FRS Investment Plan"	7/1/11	Present	A/1	None	NA	1	No
Florida/FRS-DC Plan "SUSORP"	7/1/17	Present	Enrolled before 7/1/2011: Age 62; Enrolled after 7/1/2011: Age 65	Can take distribution at any time; however, if taken after normal ages, can receive up to 10% of account balance at once	NA	None	No
Georgia/PSERS			65/10	60/10	0.06	10	Limited
Georgia/TRS			60/10; A/30	A/25	0.07	10	Yes
Hawaii/ERS-Contributory		6/31/2012	55/5	A/25	5% under age 55 and 4% under age 50	5	yes
Hawaii/ERS-Non-Contributory		6/31/2012	62/10; 55/30	55/20	6% under age 62	10	yes
Hawaii/ERS-Hybrid-Hired before 7/1/2012		6/31/2012	62/5; 55/30	55/20	5% under age 62	5	yes
Hawaii/ERS-Hybrid-Hired on or after 7/1/2012	7/1/12	Present	65/10; 60/30	55/20	5%	10	yes
Idaho/PERS			65/5; R-90	55/5	3% first 5; 5.75% next 5	5	yes
Illinois/IMRF-Tier I-Hired before 1/1/2011		12/31/10	60/8; 55/35	55/8	0.03	8	Yes

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
Illinois/IMRF-Tier II-Hired on or after 1/1/2011	1/1/11	Present	62/35; 67/10	62/10	0.06	10	Yes
Illinois/SURS-Tier I-Hired before 1/1/2011		12/31/10	60/8; 62/5; A/30	55/8	Reduction of 0.5% for each month under age 60 at retirement may apply	5	Yes
Illinois/SURS-Tier II-Hired on or after 1/1/2011	1/1/11	Present	67/10	62/10	Reduction of 0.5% for each month under age 67 at retirement may apply	10	Yes
Illinois/TRS-Tier I-Hired before 1/1/2011		12/31/10	62/5; 60/10; 55/35	55/20	0.06	5	Yes
Illinois/TRS-Tier II-Hired on or after 1/1/2011	1/1/11	Present	67/10	62/10	0.06	10	Yes
Illinois/TRS-Tier III-Enacted July 2017, but not yet implemented			67/10	NA	NA	NA	NA
Illinois/Chicago/MEA&BF-Tier I-Hired before 1/1/2011		12/31/10	60/10; 55/20; 50/30	60/A	1/4 of 1% each month under 60 if less than 25 YOS	10	Yes
Illinois/Chicago/MEA&BF-Tier II-Hired on or after 1/1/2011	1/1/11	12/31/11	67/10	62/10	1/2% for each month under 67	10	Yes
Illinois/Chicago/MEA&BF-Tier III-Hired on or after 7/6/2017, or Tier 2 member who opted in	7/6/17	Present	65/10	60/10	1/2% for each month under 65	10	Yes
Illinois/Chicago/CTPF-Tier I-Hired before 1/1/2011		12/31/10	62/5; 60/20; 55/34	55/20	0.06 under age 65	5	Yes
Illinois/Chicago/CTPF-Tier II-Hired on or after 1/1/2011	1/1/11	Present	67/10	62/10	0.06	10	Yes
Indiana/PERF			65/10; 60/15; R-85@55	50/15	11% at age 59 plus 5%/year earlier	10	Yes
Indiana/PERF-ASA Only	3/1/13	Present	NA	NA	NA	Immediate	N/A
Indiana/TRF		Present	65/10; 60/15; R-85@55	50/15	11% at age 59 plus 5%/year earlier	10	Yes
Indiana/TRF DC	7/1/19	Present	NA	NA	NA	Graded, 100% at 5 years	Yes
Iowa/PERS			65/A; 62/20; R-88	55/7	0.06 for service after 7/1/2012, 0.03 for service before 7/1/2012	7 or age 65 and making contributions	Yes
Kansas/PERS 1		6/31/2009	65/1; 62/10; R-85	55/10	2.4%; 7.2%	5	Yes
Kansas/PERS 2	7/1/09	12/31/14	65/5; 60/30	55/10	AR, half of AR with 30 years of service	5	Yes
Kansas/PERS 3 (Cash Balance plan) - New hires as of 1/1/2015	1/1/15	Present	65/5; 60/30	55/10	Annuity based on age	5	Yes
Kentucky/CERS-Tier 1-Hired before 9/1/2008		8/31/08	65/4; A/27	55/5; A/25	6.50%	5 under age 65, 4 at 65 or older	Yes

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
Kentucky/CERS-Tier 2-Hired on or after 9/1/2008 and before 1/1/2014	9/1/08	12/31/13	65/5; R-87 at age 57	60/10	6.50%	5 under age 65, 4 at 65 or older	Yes
Kentucky/CERS Hybrid Cash Balance plan - Hired after 1/1/2014	1/1/14	Present	65/5; R-87 at age 57	NA	NA	5 years	Yes
Kentucky/TRS - Hired before 7/1/2008		6/31/2008	60/5; A/27	55/5	5% for the lesser of each year under age 60 or 27 years of service	5 Years	Yes
Kentucky/TRS - Hired 7/1/2008 - 12/31/2021	7/1/08	12/31/21	60/5; A/27	55/10	6% for the lesser of each year under age 60 or 27 years of service	5 Years	Yes
Kentucky/TRS - Hired after 12/31/2021	1/1/22	Present	57/30; 60/10; 65/5	57/10	6% per year under age 60 or 30 years of service (lesser of), up to 18%	5 Years	Yes
Louisiana/SERS			"Hired before 7/1/2010: 60/10; 55/25; A/30	43,423	26,894	All	
Hired on or after 7/1/2010: 60/5 Hired on or after 7/1/2015: 62/5"	A/20	AR	Hired before 7/1/2010: 10 years; Hired on or after 7/1/2010: 5 years	Yes	5,089	All	
Louisiana/TRS-Regular plan, hired before 7/1/99		6/31/1999	65/20, 55/25, A30	60/5, A20	5%	5	Yes
Louisiana/TRS-Regular plan, hired 7/1/99 - 12/31/10	7/1/99	12/31/10	60/5, 55/25, A30	A20	AR	5	Yes
Louisiana/TRS-Regular plan, hired 1/1/11 - 6/30/15	1/1/11	6/30/15	60/5	A20	AR	5	Yes
Louisiana/TRS-Regular plan, hired after 7/1/15	7/1/15	Present	62/5	A20	AR	5	Yes
Louisiana/TRS-Plan A	Closed	Closed	60/5; 55/25; A/30	None	N/A	5	Yes
Louisiana/TRS-Plan B, hired before 7/1/2015		6/31/2015	60/5, 55/30	None	N/A	5	Yes
Louisiana/TRS-Plan B, hired after 7/1/2015	7/1/15	Present	62/5	A30	AR	5	Yes
Maine/PERS - at least 10 YOS on 7/1/93	at least 10 YOS on 7/1/93		60/25	A/25	29.3% at age 45 graded to 2.8% at age 59	5	Yes
Maine/PERS - less than 10 YOS on 7/1/93	less than 10 YOS on 7/1/93		62/25	A/25	6%	5	Yes
Maine/PERS - less than 5 YOS on 7/1/2011	less than 5 YOS on 7/1/2011	Present	65/25	A/25	6%	5	Yes
Maryland/ERS			60; A/30	A/25	0.06	5	Yes
Maryland/EP			"NCPS, ECPS, & ACPS: A/30; 62/5; 63/4; 64/3; 65+2	11,347	9,036	Most	
RCPB: 65/10; R=90"	"NCPS, ECPS, & ACPS: 55/15	65.27	84.35	272,243	219,501	Few/None	

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
RCPB: 60/15"	0.06	"NCPS, ECPS, and ACPS: 5 RCPB: 10"	Yes	9,950	5,777	Few/None	
Maryland/TRS			60; A/30	A/25	0.06	5	Yes
Maryland/TPS			"ACPS: A/30; 62/5; 63/4; 64/3; 65/2"	156,579	80,851	Few/None	
RCPB: 65/10; R-90"	"ACPS: 55/15	76.38	98.67	161,095	156,907	Few/None	
RCPB: 60/15"	0.06	"ACPS: 5 RCPB: 10"	Yes	10,205	NA	Few/None	
Massachusetts/SERS		4/1/12	"Hired before 4/2/2012: 65/10; A/20"	6,743	159,907	Few/None	
On or after 4/2/2012: 67/10"	"Hired before 4/2/2012: 55/10"	19.33	27.03	89,945	67,016	Most	
On or after 4/2/2012: 60/10"	"Hired before 4/2/2012: multiplier reduced 0.1%/year under age 65"	70.31	89.45	42,762	134,515	All	
On or after 4/2/2012: Multiplier reduced 0.15%/year under age 67"	10	Yes	89.45	120,095	6,570	All	
Massachusetts/TRS-Tier 1		2/1/12	"65/10"	248,091	242,839	All	
"	55/10	Multiplier reduced 0.1%/year	10	Yes	NA	All	
Massachusetts/TRS - Tier 2	2/2/12	Present	67/10	60/10	Multiplier reduced 0.125%/year	10	Yes
Massachusetts/Boston/SBRS			"Tier 1: 65/10"	6,938	NA	All	
Tier 2: 67/10"	"Tier 1: 55/10; A/20"	3.91	6.96	13,474	11,274	Some	
Tier 2: 60/10"	"Tier 1: multiplier reduced 0.1%/year under age 65"	1.07	1.29	5,936	4,880	Some	
Tier 2: multiplier reduced 0.15%/year under age 67"	10	Limited	52.06	201,144	146,131	All	
Michigan/MPSERS-DB plan		7/3/12	"MIP: 46/30; 60/10; 60/5 Basic:55/30; 60/10"	55/15	0.06	10	Limited
Michigan/MPSERS-Pension Plus plan	7/4/12	1/31/18	60/10	NA	NA	10	Limited
Michigan/MPSERS-Pension Plus 2 plan	2/1/18	Present	60/10. Retirement age could increase based on plan's funded status.	NA	10	10	Limited
Michigan/MPSERS-DC plan	7/4/12	Present	NA	NA	NA	4 years graded	N/A

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
Minnesota/GERP			66; Hired before 7/1/1989: 65; R-90; 62/30	55	AR	Hired before 7/1/2010: 3; Hired on or after 7/1/2010: 5	Limited
Minnesota/PERA			"Method 1: 65/1; R-90. Only for members hired before 7/1/1989 Method 2: SSA age (66 maximum), or 65 if hired before 7/1/1989"	"Method 1: 55/3; A/30 Method 2: 55/3, or 55/5 years if hired after 7/1/2010."	"Hired before 7/1/2010: Method 1: 3%/year	All	
Method 2: AR"	Hired before 7/1/2010: 3; Hired on or after 7/1/2010: 5	Yes	1.27	379	3,679	All	
Minnesota/TRA-Tier 1		6/31/1989	65/3; 62/30; R-90	55/3; A/30	0.03	3	Limited
Minnesota/TRA-Tier 2	7/1/89	Present	66/3	55/3	Graded up to 65% reduction as of 7/1/2024, per 2018 legislation	3	Limited
Minnesota/St. Paul/SPTRFA-Basic plan, Tier 1		6/30/89	60/25; 65/5; R-90	55/5; 55/25	0.03	5	Yes
Minnesota/St. Paul/SPTRFA-Basic plan, Tier 2	7/1/89	Present	65/5	55/5	AR	5	Yes
Minnesota/St. Paul/SPTRFA-Coordinated plan, Tier 1		6/30/89	62/30; 65/3; R-90	A/30; 55/3	0.03	3	Yes
Minnesota/St. Paul/SPTRFA-Coordinated plan, Tier 2	7/1/89	Present	65/3 hired before 7/1/1989; 66/3 hired after 7/1/1989	55/3; A-30	AR	3	Yes
Mississippi/PERS-Tiers 1-3 (hired before 7/1/2011)		6/31/2011	60/8; A/25	None		8; 4 for those hired before 7/1/2007	Yes
Mississippi/PERS-Tier 4 (hired after 7/1/2011)	7/1/11	Present	60/8; A/30	None	AR for each year below 30 YOS or age 65, whichever is less	8	Yes
Missouri/MOSERS-MSEP (closed plan)		6/31/2000	65/5; 60/15; R-80 at age 48+	55/10	0.06	5	Limited
Missouri/MOSERS-MSEP 2000	7/1/00	12/31/11	62/5; R-80 at age 48+	57/5	0.06	5	Limited
Missouri/MOSERS-MSEP 2011	1/1/12	Present	67/5; R-90 at age 55+	62/5	0.06	5 (reduced from 10 as of 1/1/2018)	Limited
Missouri/PEERS			60/5; A/30; R-80	55/5; A/25	"AR; Under age 55 with 25-29.9 years: modified benefit factor ranging from 1.51% to 1.59% with no age-reduction factor applied."	5	Yes

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
Missouri/PSRS			60/5; A/30; R-80	55/5; A/25	"AR; Under age 55 with 25-29.9 years: modified benefit factor ranging from 2.2% to 2.4% with no age-reduction factor applied."	5	Yes
Missouri/Kansas City/PSRS-Plan B		12/31/13	60/5; R-75	55/5	AR	5	Yes
Missouri/Kansas City/PSRS-Plan C	1/1/14	Present	62/5; R-80	55/5	AR	5	Yes
Missouri/St. Louis/PSRS			65/A; R-85; R-80 if terminated before 8/28/2017	60/5	0.0667	5	Yes
Montana/PERS-DBRP-Hired before 7/1/2011		6/31/2011	65/A; 60/5; A/30	50/5; A/25	AR	5	Yes
Montana/PERS-DBRP-Hired on or after 7/1/2011	7/1/11	Present	70/A; 60/5	55/5	AR	5	Yes
Montana/PERS-DCRP			NA	NA	NA	5	No
Montana/TRS-Tier 1-Member before 7/1/2013		6/31/2013	60/5; A/25	50/5	AR	5	Yes
Montana/TRS-Tier 2-Member on or after 7/1/2013	7/1/13	Present	60/5; 55/30	55/5	AR	5	Yes
Nebraska/SERS			65/5; R-85 at ages 55-64 for Tiers 1-3, R-85 at age 60-64 for Tier 4	60/5; A/35; 55/R-85 Tiers 1-3; 60/R-85 Tier 4	60/5: 3% for each year under age 65; A/35: actuarially reduced on the basis of age 65 for Tiers 1-3. For Tier 4, AR	5 years, or 1/2 year if working at a participating employer up to age 65 if hired before 7/1/2016	Yes
Nebraska/Omaha/OSERS Tier 1		6/31/2013	65/5; 62/10; R-85 at ages 55-61, A-35	55/10, 62	0.03 per year; reduction limited to 3%, 6%, 9% total, respectively, if reached R-84, R-83, and R-82, respectively	5	Yes
Nebraska/Omaha/OSERS Tier 2	7/1/13	6/31/2016	65/5; 62/10; R-85 at ages 55-61, A-35	55/10, 62	0.03	5	Yes
Nebraska/Omaha/OSERS Tier 3	7/1/16	6/31/2018	65/5; R-85 at ages 55-61	55	0.03	5	Yes
Nebraska/Omaha/OSERS Tier 4	7/1/18	Present	65/5; R-85 at ages 61-64	60	0.03	5	Yes
Nevada/PERS-Hired before 1/1/2010		12/31/09	65/5; 60/10; A/30	A/5	4%	5	Yes
Nevada/PERS-Hired 1/1/2010 - 1/1/2015	1/1/10	12/31/14	65/5; 62/10; A/30	A/5	6%	5	Yes
Nevada/PERS-Hired after 1/1/2015	1/1/15	Present	65/5; 62/10; 55/30, A-33.33	A/5	6%	5	Yes
New Hampshire/NHRS-Group 1			"60/A - for members hired prior to 7/1/2011				

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
65/A - for members hired on or after 7/1/2011"	"50/20; R-70 - for members hired prior to 7/1/2011 60/30 - for members hired on or after 7/1/2011"	1.5-6.67%	10	Yes			
New Jersey/PERS-Tier 1 - Hired before 7/1/2007		6/31/2007	60/A, 55/25	A/25	3%	10	Yes
New Jersey/PERS-Tier 2 - Hired 7/1/2007 - 11/2/2008	7/1/07	11/1/08	60/A	A/25	1%; 3%	10	Yes
New Jersey/PERS-Tier 3 - Hired 11/2/2008 - 5/22/2010	11/2/08	5/21/10	62/A	A/25	1%; 3%	10	Yes
New Jersey/PERS-Tier 4 - Hired 5/22/2010 - 6/28/2011	5/22/10	6/27/11	62/A	A/25	1%; 3%	10	Yes
New Jersey/PERS-Tier 5 - Hired after 6/28/2011	6/28/11	Present	65/A	A/30	3%	10	Yes
New Jersey/TPAF-Tier 1 - Hired before 7/1/2007		6/31/2007	60/A	A/25	3%	10	Yes
New Jersey/TPAF-Tier 2 - Hired 7/1/2007 - 11/2/2008	7/1/07	11/1/08	60/A	A/25	1%; 3%	10	Yes
New Jersey/TPAF-Tier 3 - Hired 11/2/2008 - 5/22/2010	11/2/08	5/21/10	62/A	A/25	1%; 3%	10	Yes
New Jersey/TPAF-Tier 4 - Hired 5/22/2010 - 6/28/2011	5/22/10	6/27/11	62/A	A/25	1%; 3%	10	Yes
New Jersey/TPAF-Tier 5 - Hired after 6/28/2011	6/28/11	Present	65/A	A/30	3%	10	Yes
New Mexico/ERB-Tier 1 - Hired before 7/1/2010		6/31/2010	65/5; 25/A; R-75 reduced if age less than 60 with less than 25 years	R-75 with age less than 60 with less than 25 years	2.4%/year between ages 55-60; 7.2% for years under age 55	5	Yes
New Mexico/ERB-Tier 2 - Hired 7/1/2010 - 7/1/2013	7/1/10	6/31/2013	67/5; 30/A; R-80 reduced if age less than 65 with less than 30 years	R-80 with age less than 60 with less than 25 years	2.4%/year between ages 55-65; 7.2% for years under age 55	5	Yes
New Mexico/ERB-Tier 3 - Hired 7/1/2013 - 7/1/2019	7/1/13	6/31/2019	67/5; 30/A reduced if age less than 55; R-80 reduced if age less than 65 with less than 30 years	R-80 with age less than 60 with less than 25 years	Under 30 & out: actuarial reduction equal to value at age 55; R-80: 2.4%/year between ages 55-65	5	Yes
New Mexico/ERB-Tier 4 - Hired after 7/1/2019	7/1/19	Present	67/5; 30/A reduced if age less than 55; R-80 reduced if age less than 65 with less than 30 years	Under age 58 with 30 years	AR if retire under age 58 with 30 years; Otherwise 2.4%/year between ages 55-65; 7.2% for years under age 55	5	Yes
New York/ERS-Tier 3 - Hired 7/27/1976 - 9/1/1983	7/27/76	8/31/83	62, 55/30	55/5	6%; 3%	5	Yes

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
New York/ERS-Tier 4 - Hired 9/1/1983 - 1/1/2010	9/1/83	12/31/09	62, 55/30	55/5	6%, 3%	5	Yes
New York/ERS-Tier 5 - Hired 1/1/2010 - 4/1/2012	1/1/10	3/31/12	62	55/10	6.67%	10	Yes
New York/ERS-Tier 6 - Hired after 4/1/2012	4/1/12	Present	63	55/10	6.50%	10	Yes
New York/STRS-Tier 3 - Hired 7/27/1976 - 9/1/1983	7/27/76	8/31/83	55/30; 62/30	55/5	6.6%, 3.3%	5	Yes
New York/STRS-Tier 4 - Hired 9/1/1983 - 1/1/2010	9/1/83	12/31/09	55/30; 62/30	55/5	6%, 3%	5	Yes
New York/STRS-Tier 5 - Hired 1/1/2010 - 4/1/2012	1/1/10	3/31/12	62/30	55/10	6.7%, 5%	10	Yes
New York/STRS-Tier 6 - - Hired after 4/1/2012	4/1/12	Present	63/10	55/10	6.50%	10	Yes
New York/New York City/BERS-Tier 4 - Hired 9/1/1983 - 4/1/2012	9/1/83	3/31/12	62/5; 55/25 for certain positions; 50/25 for certain positions; 57/5 for certain positions	55/5	6%, 3%	5, or 10 for certain positions under 55/27 plan	Limited
New York/New York City/BERS-Tier 6 - Hired after 4/1/2012	4/1/12	Present	"63/10"	55/10	6.5%/year	10	Limited
New York/New York City/TRS-Tier 3 - Hired 7/27/1976 - 9/1/1983	7/27/76	8/31/83	62/5 ;55/30	A) 55/5 B) after 2/2008 55/25 and no discount	6%; 3%	5	Yes
New York/New York City/TRS-Tier 4 - Hired 9/1/1983 - 4/1/2012	9/1/83	3/31/12	62/5 (or 55/30)	A) 55/5 B) 55/25, 55/27	6%; 3%	5; 10 for UFT members hired after 12/10/2009 joining 55/27 plan	Yes
New York/New York City/TRS-Tier 6 - Hired after 4/1/2012	4/1/12	Present	63/10	55/10	6.50%	10	Yes
North Carolina/TSERS			"65/5; 60/25; A/30"	60/5; 50/20	3% between ages 60 and 64; between ages 50 and 59, lesser of 5% or 5x difference between 30 years at retirement	5	Yes
North Dakota/PERS - Hired before 1/1/2016		12/31/16	65/A; R-85	55/3	6%	3	Yes
North Dakota/PERS - Hired after 1/1/2016	1/1/16	Present	65/A; R-90 at age 60	55/3	8%	3	Yes
North Dakota/TFFR-Tier 1 - Hired before 7/1/2008 - Grandfathered		6/31/2008	65/3 or R-85	55/3	6%	3	Yes
North Dakota/TFFR-Tier 1- Hired before 7/1/2008 - Non-Grandfathered		6/31/2008	65/3 or R-90, with age 60 minimum	55/3	8%	3	Yes
North Dakota/TFFR-Tier 2 - Hired after 7/1/2008	7/1/08	Present	65/5; R-90 with minimum age 60	55/5	8%	5	Yes
Ohio/PERS-DC plan	1/1/03	Present	A/55	None	None	5 (20% per year)	Yes
Ohio/PERS-DB plan-Group A	Eligible to retire no later than 5 years from 1/7/2013		"65/5; A/30"				

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
"	"55/25; 60/5						
"	AR	5	Yes				
Ohio/PERS-DB plan-Group B	20 YOS or eligible to retire no later than 1/7/2013		"66/5; A/32; 52/31				
"	"55/25; 60/5						
"	AR	5	Yes				
Ohio/PERS-DB plan-Group C	1/7/13	Present	67/5; 55/32	57/25; 62/5	AR	5	Yes
Ohio/PERS-Combined plan-Group A	Eligible to retire no later than 5 years from 1/7/2013		65/5; A/30	55/25; 60/5	AR	5	Yes
Ohio/PERS-Combined plan-Group B	20 YOS or eligible to retire no later than 1/7/2013		66/5; A/32; 52/31	55/25; 60/5	AR	5	Yes
Ohio/PERS-Combined plan-Group C	1/7/13	Present	67/5; 55/32	57/25; 62/5	AR	5	Yes
Ohio/SERS - Retired before 8/1/2017		Retired before 8/1/2017	A-30	60/5; 55/25	AR	10 years vesting not applicable if disabled	Yes
Ohio/SERS - Retired after 8/1/2017	Retired after 8/1/2017	Present	67/10; 57/30	62/10 or 60/25	AR	10 years vesting not applicable if disabled	Yes
Ohio/STRS-DB plan - Retired before 7/1/2015			65/5; A/30	55/25; 60/5	AR	5	Yes
Ohio/STRS-DB plan - Retired after 7/1/2015			"8/1/2015 - 7/1/2017: A/31; 65/5 Graduated increases every 2-3 years through 8/1/2026, when it will be: 60/35; 65/5"	"8/1/2015 - 7/1/2017: A/30; 55/26; 60/5 Graduated increases every 2-3 years through 8/1/2023, when it will be: A/30; 60/5"	AR	5	Yes
Ohio/STRS-DC plan			50/A	Before age 50		1; 20% per year	N/A
Ohio/STRS-Combined plan			60/5	50/5	AR	5	N/A
Oklahoma/TRS			Hired before 7/1/92: 62/5, R-80; Hired after 6/30/92: 62/5, R-90; Hired after 10/31/11: 65/5, R-90 with minimum age 60; Hired after 10/31/2017: 7+ years of service credit	"Hired before 11/1/11: 55/5; A/30 Hired after 10/31/11: 60/5 Hired after 10/31/2017: 7+ years of service credit"	"AR for those hired before 11/1/2011 6-8% for those hired after 10/31/2011"	5 for those hired before 10/31/2017; 7 for those hired after	Yes

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
Oregon/PERS-Tier 1-Hired before 1/1/1996		12/31/95	58/5; A/30	55/5	AR	5 years or age 50	Yes
Oregon/PERS-Tier 2-Hired after 1/1/1996	1/1/96	8/28/03	60/5; A/30	55/5	AR	5 years or age 50	Yes
Oregon/PERS OPSRP - Hired after 8/29/2003	8/29/03	Present	"65/5; 58/30"	55/5	AR	5 years or age 65	No
Pennsylvania/PSERS-Class T-C		6/31/2001	Age 62; 60/30; or A/35	5 years of service; special early retirement available at 55/25	AR; special early retirement reduced 0.25%/month preceeding superannuation age	5	Yes
Pennsylvania/PSERS-Class T-D	7/1/01	6/31/0211	Age 62; 60/30; or A/35	5 years of service; special early retirement available at 55/25	AR; special early retirement reduced 0.25%/month preceeding superannuation age	5	Yes
Pennsylvania/PSERS-Class T-E - Hired after 7/1/2011	7/1/11	6/31/2019	65/3; R-92 with minimum service of 35 years	10 years of service; special early retirement available at 55/25	AR; special early retirement reduced 0.25%/month preceeding superannuation age	10	Yes
Pennsylvania/PSERS-Class T-F - Hired after 7/1/2011	7/1/11	6/31/2019	65/3; R-92 with minimum service of 35 years	10 years of service; special early retirement available at 55/25	AR; special early retirement reduced 0.25%/month preceeding superannuation age	10	Yes
Pennsylvania/PSERS-Class T-G - Hired after 7/1/2019	7/1/19	Present	67/3; R-97 with minimum 35 years of service	10 years of service; special early retirement available at 57/25	AR; special early retirement reduced 0.25%/month preceeding superannuation age	10	Yes
Pennsylvania/PSERS-Class T-H - Hired after 7/1/2019	7/1/19	Present	67/3	10 years of service; special early retirement available at 57/25	AR; special early retirement reduced 0.25%/month preceeding superannuation age	10	Yes
Pennsylvania/SERS-Class A1 and A2		6/30/01	60/3; A/35	Vested	AR	5	Yes
Pennsylvania/SERS-Class A3 and A4	1/1/11	12/31/18	65; R-92 with minimum service of 35 years	Vested	AR	10	Yes
Pennsylvania/SERS-Class A5 - Hired after 1/1/2019	1/1/19	Present	67/3; R-97 with minimum 35 years of service	Vested	AR	10	Yes
Pennsylvania/SERS-Class A6 - Hired after 1/1/2019	1/1/19	Present	67/3; R-97 with minimum 35 years of service	Vested	AR	10	Yes

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
Rhode Island/ERS-Schedule A		10+ YOS by 7/1/2005	65/30; 64/31; 63/32; 62/33; Less than 5 years on 6/30/2012: Social Security normal retirement age; 5 or more 5 years on 6/30/2012: Individually determined age	Within 5 years of retirement with 20 years of service	9% for year 1, 8% for year 2, 7% thereafter	10	Yes
Rhode Island/ERS-Schedule B		< YOS by 7/1/2005	65/30; 64/31; 63/32; 62/33; Less than 5 years on 6/30/2012: Social Security normal retirement age; 5 or more 5 years on 6/30/2012: Individually determined age	Within 5 years of retirement with 20 years of service	9% for year 1, 8% for year 2, 7% thereafter	5	Yes
Rhode Island/MERS			65/30; 64/31; 63/32; 62/33; Less than 5 years on 6/30/2012: Social Security normal retirement age;	59; Within 5 years of retirement with 20 years of service	AR	5	Yes
South Carolina/SCRS-Class II		6/30/12	65/5; A/28	60/5; 55/25	5%; 4%	5 years; immediate for DC plan	Yes for DB plan
South Carolina/SCRS-Class III	7/1/12	Present	65/A; R-90	60/8	5%	8 years; immediate for DC plan	Yes for DB plan
South Dakota/SDRS - Class A Foundational Members - Hired before 7/1/2017		6/31/2017	65/3; R-85 at age 55	55/3	3%	3	Yes
South Dakota/SDRS - Class A Generational - Hired after 7/1/2017	7/1/17	Present	67/3	57/3	5%	3	Yes
Tennessee/CRS - Teacher Legacy Plan - Hired before 7/1/2014		6/31/2014	60/5; A/30	55/5; A/25	4.8%; AR	5	Yes
Tennessee/CRS-Hybrid plan - Teacher Retirement Plan - Hired after 7/1/2014	7/1/14	Present	65/5; R-90	60/5; R-80	AR	5 years; immediate for DC plan	Yes for DB plan
Texas/TRS-Tiers 1 & 2			65/5; R-80 (with 5 years)	55/5; A/30; but less than R-80	AR; better than AR if grandfathered	5	Yes
Texas/TRS-Tiers 3 & 4			65/5; R-80 (with 5 years and at least age 60)	55/5; less than age 60/30; R-80 and be less than age 60	AR; better than AR if grandfathered	5	Yes
Texas/TRS-Tier 5 & 6			65/5; R-80 (with 5 and at least 62)	55/5 but less than R-80; 30 years with less than R-80 and under age 62; R-80 and less than age 62	AR; better than AR if grandfathered	5	Yes
Utah/URS-Tier 1 - Noncontributory		6/31/2011	A/30; 65/4	62/10; 60/20; A/25	3% for ages 60-65; 7%/year under age 60	4	Yes
Utah/URS-Tier 1 - Contributory		6/31/2011	A/30; 65/4	62/10; 60/20	3% for ages 60-65	4	Yes

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
Utah/URS-Tier 2-Hybrid plan	7/1/11	Present	65/4; A/35	62/10; 60/20	7% for ages 60-63; 9%/year ages 64-65	4	Yes for DB plan
Utah/URS-Tier 2-DC plan	7/1/11	Present	NA	NA	NA	4	N/A
Vermont/MERS-Group A			65/5; 55/35	55/5	0.06	5	Yes
Vermont/MERS-Group B			62/5; 55/30	55/5	0.06	5	Yes
Vermont/MERS-Group C			55/5	None	NA	5	Yes
Vermont/MERS-Group D			55/5	50/20	No discount	5	Yes
Vermont/MERS-DC plan			NA	NA	NA	1	N/A
Vermont/STRS-Group A		6/31/1981	60/5; A/30	55	AR	5	Yes
Vermont/STRS-Group C1 ("grandfathered")	7/1/81	> age 57 and >25 years on 6/30/2010	62/5; A/30	55/5	6% from age 62	5	Yes
Vermont/STRS-Group C2	7/1/81	< age 57 and <25 years on 6/30/2010	65 or R-90	55/5	AR	5	Yes
Virginia/VRS-Plan 1		6/30/10	65/5; 50/30	55/5; 50/10	6% per year for first 5 years; 3% for next 5 years; additional 0.60% per month pre age 55	5	Yes
Virginia/VRS-Plan 2	7/1/10	12/31/13	Normal Social Security retirement age/5; R-90	60/5	AR	5	Yes
Virginia/VRS-Hybrid plan	1/1/14	Present	Normal Social Security retirement age/5; R-90	60/5	AR	DB-5 years; DC-4 years	Yes
Virginia/Fairfax/ERFC Legacy plan	7/1/73	6/30/01	55/25; 65/5	45/25; 55/5	AR	5	Yes
Virginia/Fairfax/ERFC 2001 Tier 1	7/1/01	6/31/2017	A/30; 60/5	None	NA	5	No
Virginia/Fairfax/ERFC Tier 2 (Hired after 7/1/2017)	7/1/17	Present	Full SS age/5; R-90	None	NA	5	No
Washington/PERS-Plan 1		9/30/77	A/30; 60/5; 55/25	None	NA	5	Yes
Washington/PERS-Plan 2	10/1/76	Present	65/5; 62/30	55/20; 55/30	"AR; choice of 3% or smaller ERF with stricter return-to-work rules Hired on or after 5/1/2013: 5%"	5	Yes
Washington/PERS-Plan 3	10/1/76	Present	65/10 or vested	55/10; 55/30 (different reductions)	"Hired before 5/1/2013: AR; choice of 3% or smaller ERF with stricter return-to-work rules"		
Hired on or after 5/1/2013: 5%"	10; 5 with 12 months of service after age 44	Yes					
Washington/SERS-Plan 2			65/5	55/10; 55/30 (different reductions)	"AR; choice of 3% or smaller ERF with stricter return-to-work rules Hired on or after 5/1/2013: 5%"	5	Yes

State/Plan	Tier Start	Tier End	"Normal Retirement: Age/Years of Service"	"Early Retirement: Age/Years of Service"	Early Retirement Annual Discount	Vesting Period	Purchase of Service Credits
Washington/SERS-Plan 3			65/10 or vested	55/10; 55/30 (different reductions)	"Hired before 5/1/2013: AR; choice of 3% or smaller ERF with stricter return-to-work rules"		
Hired on or after 5/1/2013: 5%"	10, 5 with 12 months service after age 44	Yes					
Washington/TRS-Plan 1		9/30/77	A/30; 60/5; 55/25	None	NA	5	Yes
Washington/TRS-Plan 2	10/1/76	Present	65/5; 62/30	55/20; 55/30	"Hired before 5/1/2013: AR; choice of 3% or smaller ERF with stricter return-to-work rules"		
Hired on or after 5/1/2013: 5%"	5	Yes					
Washington/TRS-Plan 3	10/1/76	Present	65/10; 62/30	55/10; 55/30	"Hired before 5/1/2013: AR; choice of 3% per year or smaller ERF with stricter return-to-work rules"		
Hired on or after 5/1/2013: 5%"	10; 5 with 12 months of service after age 44	Yes					
West Virginia/TRS - Tier 1		6/31/2015	60/5; 55/30; A/35	A/30	AR	5	Yes
West Virginia/TRS - Tier 2 (Hired after 7/1/2015)	7/1/15	Present	62/10	60/10; 57/20; 55/30	AR	10	Yes
West Virginia/TDCP	7/1/91	6/31/2015	55/12	NA	NA	12	No
Wisconsin/WRS			"65/A; 57/30"	55/A	3%	"0 years if hired before 1/1/1990 or active from 4/24/1998; 5 years if entered 1/1/1990 - 4/23/1998 or after 7/1/2011"	Yes
Wyoming/WRS-Tier 1		8/31/12	60/4; R-85	50/4; A/25	5% for each year before age 60	48 months do not have to be consecutive	Yes
Wyoming/WRS-Tier 2	9/1/12	Present	65/4; R-85	55/4; A/25	5%/year before age 65	48 months do not have to be consecutive	Yes

*Where the Actuarial Values are not disclosed, we use the Net Position and Total Pension Liability data. See "Notes on Table 2" for more information. See Appendix III for detailed notes on each system.

IV. POST-RETIREMENT CONSIDERATIONS

The real value of retirement benefits to individuals is derived from their purchasing power during retirement years, which can be impacted both by post-retirement inflation protection and by how benefits are treated for tax purposes. Taking Social Security benefits as an example, these are indexed to changes in the Consumer Price Index (CPI) to protect against the erosion of their value over time. These benefits are at least partially exempt from federal and state income taxes.

Similarly, the retirement benefits provided by several plans in this report have some inflation protections built into the plan's design. Also, they may be partially or, in some cases, exempt from state income taxes. As shown in **Table 4**, the method of retirement income inflation protection afforded by each plan, and the tax treatment of retirement benefits for state income tax purposes, vary widely among plans and taxing jurisdictions.

Cost-of-Living-Adjustments

Cost-of-living adjustments (COLAs) help maintain the purchasing power of pensions over time. COLAs provide an essential financial benefit in retirement, especially for retirees who live longer. For this reason—and because some public sector retirees do not have Social Security and therefore do not have Social Security's inflation protection—most plans in this report offer COLAs. Nearly all of the plans have limits on COLAs, and many (27 percent of plans studied) have lowered the COLA provisions for newer tiers of employees.

In 22 percent of the plans reviewed, COLAs are discretionary, granted from time to time by state legislatures. Often, these ad hoc COLAs apply to retirees equally across the board. Still, at times, larger adjustments may be directed to long-time retirees whose purchasing power has declined by the greatest amount. For example, a 1.5 percent benefit adjustment might be adopted for those who have retired within the past two years, while a 2 percent adjustment may be applied to those who have been retired for longer than two years.

While many plans have some form of automatic COLA, nearly all automatic COLAs based on the CPI have limits or caps and rarely provide complete inflation protection. A typical automatic CPI-based COLA would protect up to a specific percent CPI increase. In contrast, others only apply after the CPI has risen a certain percentage, limiting the COLA to a higher percent. Still, others provide only a percentage of the total CPI.

Summary **Chart 3** shows the number of plans with each type of COLA, broken out by plan size.

It should be noted that this chart does not capture the rich diversity of COLA approaches adopted by the plans studied. For example, some plans employ an automatic adjustment on the low end of the typical range, but add a discretionary excess investment provision as a supplement or tie the COLA to the investment performance of the prior year or the plan's funded status. Still, others limit the COLA up to a certain salary level.

Chart 3

Summary Chart 3. COLAs by Plan Size*		
COLA Type	Number of Plans with less than 100,000 Active Members	Number of Plans with more than 100,000 Active Members
Ad hoc	16	7
Automatic, based on CPI**	16	13
Automatic fixed percentage	5	5
Variable by plan funding	4	2
Variable by tier	12	8
Variable by tier and plan funding	6	1
Suspended	0	3
None	2	2

*Excludes Defined Contribution and Cash Balance plans, which do not provide COLAs.

**Nearly all of these COLA provisions are capped or limited.

Table 4, at the end of this section, provides additional details on these variations in COLA approaches.

Special COLA Features

Several states have devised additional COLA-type features. For example, California Public Employees' Retirement System, California State Teachers' Retirement System, and Tier 1 of Nebraska State Employees' Retirement System offer purchasing power protection. This protection guarantees that the value of a retiree's benefit can never be lower than some percentage of its value when their retirement first began. Those retired longest likely have lost the most purchasing power and would be in greatest need of the adjustments provided by COLA provisions.

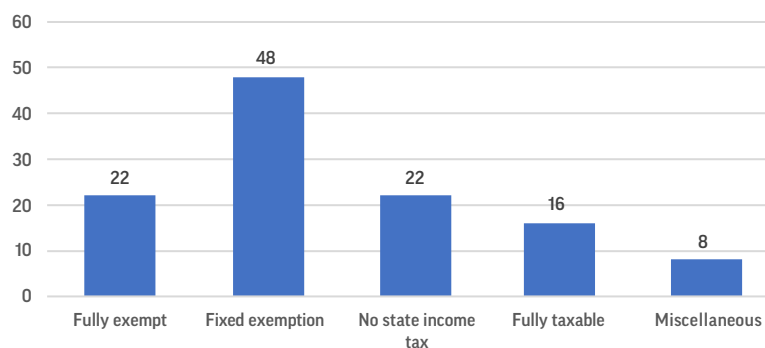
Other plans—three in Illinois, two in Indiana, and one in Missouri—have “13th checks.” Under this concept, retirees receive an additional payment if investment returns exceed a specified threshold. If the plan has experienced high returns and/or has a high funded status, one additional monthly pension check is paid (as there are normally 12 monthly pension checks per year, hence the term “13th check”). When investment gains are low or nonexistent, the check is not paid. Issuing a 13th check rather than a more traditional COLA can help ensure that the plan's long-term liabilities do not increase because of the increase in benefit, since it is a one-time lump sum and not guaranteed to be granted year to year.

These special COLA features can help retired education employees preserve the value of their retirement benefits against inflation. Different plans offer a range of ideas for affiliates and retiree associations looking for ways to enhance COLAs.

State Income Tax Liability

The value of retirement benefits also can be affected by how they are treated under varying state income tax laws. This report covers plans in 50 states plus the District of Columbia, for a total of 51 governmental entities. **Figure 9** gives the income tax treatment of public plans for each entity.

Figure 9. State Income Tax Treatment



Eight states tax benefits fully (affecting participants in 16 percent of the plans). Benefits in 9 states are wholly exempt from state income taxes (affecting 22 plans). Nine states—Alaska, Florida, Nevada, New Hampshire, South Dakota, Tennessee, Texas, Washington, and Wyoming—impose no state income tax (affecting 22 plans).

Twenty-one governments offer some form of limited exemption, deduction, or tax credit (affecting 48 plans). While the exemptions, deductions, and exclusions vary widely, they are designed to serve a dual public policy function: alleviating some or all of the tax burden for residents who are no longer in the workforce and serving as a tool to attract retirees to either remain in their home state or move in from other states.

For plans with employee contributions (roughly 95 percent), the part of the benefit attributable to the employee contribution is not taxable (since it was contributed on a post-tax basis). However, the portion of the benefit attributable to the investment earnings on the employee contribution can be taxed.

Table 4, which follows, provides information about COLAs, special COLA features, and the state tax rules for retirement benefits.

Table 4

State/Plan	COLA Provision	Special Feature	State Taxation*
Alabama/TRS	Ad hoc as approved by the legislature		Exempt
Alaska/PERS-DB plan	If 65, smaller of 3/4 CPI increase or 9%; if 60, smaller of 1/2 CPI increase or 6%. For first hired before 7/1/1990, greater of this COLA or ad-hoc up to 4% if funded ratio >=105%.	Alaska COLA: greater of 10% of base benefit or \$50, if you reside in state.	No state income tax
Alaska/PERS-DC plan	None	NA	No state income tax
Alaska/TRS-DB plan	If 65, smaller of 9% or 3/4 CPI; if 60, smaller of 6% or 1/2 CPI. For first hired before 7/1/1990, greater of this COLA or ad-hoc up to 4% if funded ratio >=105%	Alaska COLA: 10% of base benefit, if you reside in state.	No state income tax
Alaska/TRS-DC plan	None	NA	No state income tax
Arizona/ASRS	Hired before 9/13/2013: up to 4%, paid from a reserve of "excess investment earnings;" hired on or after 9/13/2013: no COLA mechanism	Enhanced permanent benefit increase for those with 10 YOS, retired at least 5 years, and hired before 9/13/2013	Exempt to \$2,500
Arkansas/ATRS	Annual 3% of base benefit		Exempt to \$6,000
California/PERS	CPI up to 2%	Purchasing power protection	Taxable
California/STRS	Annual 2%, not compounded	Purchasing power protection	Taxable
California/UCRP	CPI up to 2%, plus 75% of the CPI increase over 4%, capped at 6%	CPI used is average of CPIs for Los Angeles and San Francisco	Taxable
Colorado/PERA-DB plan	Hired before 1/1/2007: COLA Cap (currently 1.25%), compounded; hired on or after 1/1/2007: non-guaranteed COLA, lesser of the COLA Cap (currently 1.25%) or average of CPI-W	Automatic Adjustment Provision can raise or lower the COLA cap by 0.25%. If PERA's funded status exceeds 103%, COLA cap can be increased by 0.25% (separate from AAP)	65+, \$24,000; 55-64, \$20,000
Colorado/PERA-DC plan	None		65+, \$24,000; 55-64, \$20,000
Connecticut/CMERS	Retired prior to 1/1/2002: 2.5%; retired on or after 1/1/2002: 60% of the increase in CPI up to 6%, plus 75% of the increase in CPI in excess of 6%, with a floor of 2.5% and a cap of 6%		42% of pension income is exempt for joint filers < \$100,000 and single <\$75,000 AGI. Exemption increases 14% each year until it reaches 100% for tax years 2025+.
Connecticut/TRS	Amount varies from 0% to 6% depending on the date of retirement, the CPI, Social Security benefit COLA, and the fund's prior year investment performance		42% of pension income is exempt for joint filers < \$100,000 and single <\$75,000 AGI. Exemption increases 14% each year until it reaches 100% for tax years 2025+.
Delaware/SEPP	Ad hoc		60+, \$12,500; under 60, \$2,000
District of Columbia/DCCP	None		Taxable
District of Columbia/TRF	CPI; capped at 3% if hired on or after 11/1/1996		Taxable
Florida/FRS-DB plan-Hired before 7/1/2011	Retirements prior to 7/1/2011: annual 3%; retirements on or after 7/1/2011: total years before 7/1/2011 divided by total years at retirement multiplied by 3% to get annual COLA		No state income tax
Florida/FRS-DB plan-Hired on or after 7/1/2011	None		No state income tax
Florida/FRS-DC plan "FRS Investment Plan"	None		No state income tax

State/Plan	COLA Provision	Special Feature	State Taxation*
Florida/FRS-DC Plan "SUSORP"	None		No state income tax
Georgia/PSERS	Ad hoc		"Exempt to \$35,000, 62 to 64 Exempt to \$65,000, 65+ Retired teachers can deduct contributions made between 7/1/1987, and 12/31/1989, to GA TRS that were taxed"
Georgia/TRS	1.5% semi-annual based on CPI, July 1 & January 1	Current average CPI must be equal to or greater than average CPI at date of retirement	"Exempt to \$35,000, 62 to 64 Exempt to \$65,000, 65+ Retired teachers can deduct contributions made between 7/1/1987, and 12/31/1989, to GA TRS that were taxed"
Hawaii/ERS	2.5% if hired before 7/1/2012, 1.5% if after 7/1/2012	Not compounded	Exempt
Idaho/PERS	CPI up to 1% mandatory; lesser of CPI or 6% discretionary maximum	Discretionary and retroactive COLAs and gain-sharing	Taxable
Illinois/IMRF-Tier I-Hired before 1/1/2011	Annual 3%, not compounded	13th check, decreases in amount annually due to increasing number of retirees and decreasing pool of available money	Exempt
Illinois/IMRF-Tier II-Hired on or after 1/1/2011	Annual 3% or 1/2 CPI, whichever is less	13th check, decreases in amount annually due to increasing number of retirees and decreasing pool of available money	Exempt
Illinois/SURS-Tier I-Hired before 1/1/2011	Annual 3%		Exempt
Illinois/SURS-Tier II-Hired on or after 1/1/2011	Calculated using the lesser of 3% or 1/2 of the change in CPI, not compounded.		Exempt
Illinois/TRS-Tier I-Hired before 1/1/2011	Annual 3% compounded		Exempt
Illinois/TRS-Tier II-Hired on or after 1/1/2011	Annual 3% or 1/2 CPI, whichever is less		Exempt
Illinois/TRS-Tier III-Enacted July 2017, but not yet implemented	Annual 3% or 1/2 CPI, whichever is less		Exempt
Illinois/Chicago/MEA&BF-Tier I-Hired before 1/1/2011	3% compounded		Exempt
Illinois/Chicago/MEA&BF-Tier II-Hired on or after 1/1/2011	Lesser of 3% or 1/2 the increase in the CPI, not compounded		Exempt
Illinois/Chicago/MEA&BF-Tier III-Hired on or after 7/6/2017, or Tier 2 member who opted in	Lesser of 3% or 1/2 the increase in the CPI, not compounded		Exempt
Illinois/Chicago/CTPF-Tier I-Hired before 1/1/2011	Annual 3% compounded	Provided 1 year after retirement or age 61, whichever comes later	Exempt
Illinois/Chicago/CTPF-Tier II-Hired on or after 1/1/2011	3% or 1/2 the increase in the CPI, whichever is lower, not compounded	Provided January 1 following 67th birthday, or first anniversary of retirement, whichever is later	Exempt
Indiana/PERF	Ad hoc	13th check	Taxable
Indiana/PERF-ASA Only	N/A	NA	Taxable

State/Plan	COLA Provision	Special Feature	State Taxation*
Indiana/TRF	Ad hoc	13th Check	Taxable
Indiana/TRF DC	N/A	NA	Taxable
Iowa/PERS	CPI up to 3% for pre-July 1990 retirees only		\$6,000 single, \$12,000 joint
Kansas/PERS 1	Ad hoc		Exempt
Kansas/PERS 2	Ad hoc, except a small, closed group with 2% annual COLAs		Exempt
Kansas/PERS 3 (Cash Balance plan)	Member-funded optional form available		Exempt
Kentucky/CERS	Ad hoc. COLA limited to 1.5%. No COLA has been granted since 1/1/2011		All service prior to 1/1/1998 is exempt; income for service after is exempted up to \$31,110
Kentucky/CERS Hybrid Cash Balance plan	N/A		All service prior to 1/1/1998 is exempt; income for service after is exempted up to \$31,110
Kentucky/TRS	Annual fixed 1.5% COLA, plus an ad hoc COLA if funding is available		All service prior to 1/1/1998 is exempt; income for service after is exempted up to \$31,110
Louisiana/SERS	Ad hoc		Exempt
Louisiana/TRS	Ad hoc		Exempt
Maine/PERS	CPI-U up to 3% on the first \$22,810.25 (as of 2020)		Exempt to \$10,000, minus SS and RRB
Maryland/ERS	Annual CPI unlimited for selection A; up to 5% for selection B; up to 3% for selection C. All compounded		Age 65+ can exclude up to \$33,100 in 2020
Maryland/EPS	Based upon CPI, capped at 3% for service prior to 7/1/2011, and 2.5% or 1% depending on fund earnings for service after 7/1/2011		Age 65+ can exclude up to \$33,100 in 2020
Maryland/TRS	Annual CPI unlimited for selection A; up to 5% for selection B; up to 3% for selection C. All compounded		Age 65+ can exclude up to \$33,100 in 2020
Maryland/TPS	Based upon CPI, capped at 3% for service prior to 7/1/2011, and 2.5% or 1% depending on fund earnings for service after 7/1/2011		Age 65+ can exclude up to \$33,100 in 2020
Massachusetts/SERS	Ad hoc with 3% maximum on first \$13,000		Exempt
Massachusetts/TRS	Ad hoc with 3% maximum on first \$13,000		Exempt
Massachusetts/Boston/SBRS	Ad hoc with 3% maximum on first \$13,000		Exempt
Michigan/MPSERS-DB plan	MIP: Annual 3%, noncompounded		"Born before 1946: Fully exempt Born 1946-1952: Up to \$20,000 single / \$40,000 joint (\$35,000 / \$55,000 if non-SS) exempt up to age 67, then replaced by standard deduction Born after 1952: up to age 67, only deductible up to above limits for non-SS; after age 67, standard deduction"
Michigan/MPSERS-Pension Plus plan	None		"Born before 1946: Fully exempt Born 1946-1952: Up to \$20,000 single / \$40,000 joint (\$35,000 / \$55,000 if non-SS) exempt up to age 67, then replaced by standard deduction Born after 1952: up to age 67, only deductible up to above limits for non-SS; after age 67, standard deduction"

State/Plan	COLA Provision	Special Feature	State Taxation*
Michigan/MPSERS-Pension Plus 2 plan	None		"Born before 1946: Fully exempt Born 1946-1952: Up to \$20,000 single / \$40,000 joint (\$35,000 / \$55,000 if non-SS) exempt up to age 67, then replaced by standard deduction Born after 1952: up to age 67, only deductible up to above limits for non-SS; after age 67, standard deduction"
Michigan/MPSERS-DC plan	None		"Born before 1946: Fully exempt Born 1946-1952: Up to \$20,000 single / \$40,000 joint (\$35,000 / \$55,000 if non-SS) exempt up to age 67, then replaced by standard deduction Born after 1952: up to age 67, only deductible up to above limits for non-SS; after age 67, standard deduction"
Minnesota/GERP	Annual 1% increases on January 1; increasing to 1.5% per year in 2024.		Age 65+ can deduct up to \$9,600 / \$12,000; phased out over \$14,500 / \$18,000. No deduction over \$33,700 / \$42,000
Minnesota/PERA	50% of the CPI increase used by SSA, with 1% minimum and 1.5% maximum		Age 65+ can deduct up to \$9,600 / \$12,000; phased out over \$14,500 / \$18,000. No deduction over \$33,700 / \$42,000
Minnesota/TRA	Fixed 1% through 2023, then increasing in 0.1% increments per year for 5 years, until it reaches 1.5%, where it will remain		Age 65+ can deduct up to \$9,600 / \$12,000; phased out over \$14,500 / \$18,000. No deduction over \$33,700 / \$42,000
Minnesota/St. Paul/SPTRFA	1% increase annually until the fund achieves 80% funding, at which point, additional 1% increase granted		Age 65+ can deduct up to \$9,600 / \$12,000; phased out over \$14,500 / \$18,000. No deduction over \$33,700 / \$42,000
Mississippi/PERS-Tiers 1-3 (hired before 7/1/2011)	3% simple interest to age 55, 3% compounded thereafter		Exempt
Mississippi/PERS-Tier 4 (hired after 7/1/2011)	3% simple interest to age 60, 3% compounded thereafter		Exempt
Missouri/MOSERS	"Hired under MSEP before 8/28/1997: COLA of at least 4% each year, up to 5%, until the cumulative amount of COLAs equals 65% of the original benefit. Thereafter, the 4% minimum rate is eliminated. All others: 80% of average CPI up to 5%"		Up to \$39,014 (in 2020) is exempt for AGI up to \$85,000 single / \$100,000 joint
Missouri/PEERS	Annual CPI up to 5%; lifetime COLAs limited to 80% of original benefit	<ul style="list-style-type: none"> • If June to June change is <2% for consecutive one-year periods, 2% is granted when the cumulative increase is =>2%. • If the June to June change between 2% and 5%, COLA is 2%. • If the June to June change is >=5%, COLA is 5%." 	Up to \$39,014 (in 2020) is exempt for AGI up to \$85,000 single / \$100,000 joint
Missouri/PSRS	Annual CPI up to 5%, Lifetime COLAs limited to 80% of original benefit	<ul style="list-style-type: none"> • If June to June change is <2% for consecutive one-year periods, 2% is granted when the cumulative increase is =>2%. • If the June to June change between 2% and 5%, COLA is 2%. • If the June to June change is >=5%, COLA is 5%." 	Up to \$39,014 (in 2020) is exempt for AGI up to \$85,000 single / \$100,000 joint

State/Plan	COLA Provision	Special Feature	State Taxation*
Missouri/Kansas City/PSRS	Ad hoc CPI up to 3%	13th check	Up to \$39,014 (in 2020) is exempt for AGI up to \$85,000 single / \$100,000 joint
Missouri/St. Louis/PSRS	Ad hoc		Up to \$39,014 (in 2020) is exempt for AGI up to \$85,000 single / \$100,000 joint
Montana/PERS-DBRP	Hired before 7/1/2007: 3%; hired 7/1/2007 to 6/30/2013: 1.5%; hired after 7/1/2013: up to 1.5% based on plan's funded level		Exempt to \$4,370 for AGI less than \$38,605 single / \$40,790 joint in 2020
Montana/PERS-DCRP	NA		Exempt to \$4,370 for AGI less than \$38,605 single / \$40,790 joint in 2020
Montana/TRS	Tier 1: annual 1.5% after 3 years; tier 2: annual 0.5% to 1.5% after 3 years, based on plan's funding level		Exempt to \$4,370 for AGI less than \$38,605 single / \$40,790 joint in 2020
Nebraska/SERS-Tier 1	CPI up to 2.5%	75% purchasing power guarantee	Taxable
Nebraska/SERS-Tier 2, 3, and 4	CPI up to 1.0%	No purchasing power guarantee	Taxable
Nebraska/Omaha/OSERS-Hired before 7/1/2013	CPI up to 1.5% plus ad hoc	Medical COLA	Taxable
Nebraska/Omaha/OSERS-Tiers 2-4	CPI up to 1.0% plus ad hoc	Medical COLA - only for Tier 2	Taxable
Nevada/PERS-Hired before 1/1/2010	Lesser of CPI or 2% after 3 years, 3% after 6 years, 3.5% after 9 years, 4% after 12 years, and 5% after 14 years	Benefit must be increased by scaled percentages if the benefit hasn't increased greater than or equal to CPI since retirement	No state income tax
Nevada/PERS-Hired 1/1/2010 - 1/1/2015	Same as Tier 1, but capped at 4% per year		No state income tax
Nevada/PERS-Hired after 1/1/2015	2% after 3 years, 2.5% after 6 years, lesser of 3% or CPI after 9 years		No state income tax
New Hampshire/NHRS	Ad hoc	One time 1.5% COLA granted on 7/1/2020	No state income tax; no federal tax on job-related disability benefits; retirement income exempt from interest/dividend tax
New Jersey/PERS	COLA suspended	Pension Plan Committee has authority to reactivate COLA, if the funded ratio does not drop below the Target Funded Ratio in an year over a 30-year projection.	"Age 62+ exclusions based on income: \$100,000 or less: max exclusion is \$100,000 joint / \$75,000 single / \$50,000 married filing separate \$100,001 to \$125,000: 50% of retirement income for joint / 37.5% single / 25% for married filing separately \$125,001 to \$150,000: 25% joint / 18.75% single / 12.5% married filing separately"
New Jersey/TPAF	COLA suspended	Pension Plan Committee has authority to reactivate COLA, if the funded ratio does not drop below the Target Funded Ratio in an year over a 30-year projection.	"Age 62+ exclusions based on income: \$100,000 or less: max exclusion is \$100,000 joint / \$75,000 single / \$50,000 married filing separate \$100,001 to \$125,000: 50% of retirement income for joint / 37.5% single / 25% for married filing separately \$125,001 to \$150,000: 25% joint / 18.75% single / 12.5% married filing separately"

State/Plan	COLA Provision	Special Feature	State Taxation*
New Mexico/ERB	CPI up to 2%, plus 1/2 of change in CPI above 2%, but not more than 4%	"As of July 1, 2013, for current and future retirees the COLA is immediately reduced until the Plan is 100% funded. The COLA reduction is based on the median retirement benefit of all retirees excluding disability retirements. Retirees with benefits at or below the median and with 25 or more years of service credit will have a 10% COLA reduction; their average COLA will be 1.5%. Once the funding is greater than 90%, the COLA reductions will decrease. The retirees with benefits at or below the median and with 25 or more years of service credit will have a 5% COLA reduction; their average COLA will be 1.7%."	Exempt up to \$8,000 for age 65+; income limits are AGI of \$28,500 for single / \$51,000 for joint / \$25,500 for married filing separately
New York/ERS	50% of change in CPI up to 3%, but at least 1%, computed on base benefit maximum of \$18,000	Must have been retired for 5 years at age 62 or 10 years at age 55. Eligible spouses receive 50% of full amount.	Exempt for NY pensions; age 59.5 exempt up to \$20,000 for out of state plans
New York/STRS	50% of change in CPI up to 3%, but at least 1%, computed on base benefit maximum of \$18,000	Must have been retired for 5 years at age 62.	Exempt for NY pensions; age 59.5 exempt up to \$20,000 for out of state plans
New York/New York City/BERS	50% of change in CPI up to 3%, but at least 1%, computed on base benefit maximum of \$18,000	Must have been retired for 5 years at age 62 or 10 years at age 55.	Exempt for NY pensions; age 59.5 exempt up to \$20,000 for out of state plans
New York/New York City/TRS	50% of change in CPI up to 3%, but at least 1%, computed on base benefit maximum of \$18,000	Must have been retired for 5 years at age 62 or 10 years at age 55. Eligible spouses receive 50% of full amount.	Exempt for NY pensions; age 59.5 exempt up to \$20,000 for out of state plans
North Carolina/TSERS	Ad hoc		Exempt if retiree had 5 or more years of service credit as of 8/12/1989 (ie "Bailey Class members")
North Dakota/PERS	Ad hoc		Taxable
North Dakota/TFFR	Ad hoc		Taxable
Ohio/PERS-DB plan	3% for those who retired before 1/7/2013; otherwise, average percentage change in CPI up to 3%	Not compounded	Tax credit for those with income of \$100,000 or less, worth \$25 to \$100 depending on income level
Ohio/PERS-DC plan	None		Tax credit for those with income of \$100,000 or less, worth \$25 to \$100 depending on income level
Ohio/PERS-Combined plan	Percentage change in CPI up to 3% (on DB portion)	Not compounded	Tax credit for those with income of \$100,000 or less, worth \$25 to \$100 depending on income level
Ohio/SERS	COLA suspended for years 2018, 2019, and 2020. Upon resumption, it will be CPI-W with 2.5% cap, 0% floor	Beginning 4/1/2018, new benefit recipients must wait until the fourth anniversary of their benefit for COLA eligibility.	Tax credit for those with income of \$100,000 or less, worth \$25 to \$100 depending on income level
Ohio/STRS-DB plan	Reduced to 0% in April 2017		Tax credit for those with income of \$100,000 or less, worth \$25 to \$100 depending on income level
Ohio/STRS-DC plan	None		Tax credit for those with income of \$100,000 or less, worth \$25 to \$100 depending on income level
Ohio/STRS-Combined plan	None		Tax credit for those with income of \$100,000 or less, worth \$25 to \$100 depending on income level
Oklahoma/TRS	Ad hoc.		Exempt to \$10,000

State/Plan	COLA Provision	Special Feature	State Taxation*
Oregon/PERS-Tiers 1, and 2	Blended: CPI up to 2%; 1.25% on first \$60,000 and 0.15% above \$60,000		Age 62+, tax credit equal to the lesser of OR tax liability or 9% of taxable retirement income, depending on the amount of income
Oregon/PERS-OPSRP	Blended: CPI up to 2%; 1.25% on first \$60,000 and 0.15% above \$60,000		Age 62+, tax credit equal to the lesser of OR tax liability or 9% of taxable retirement income, depending on the amount of income
Pennsylvania/PSERS	Ad hoc		Exempt
Pennsylvania/SERS	Ad hoc		Exempt
Rhode Island/ERS	Based on investment rate of return and CPI-U, capped at 3.5%. Currently suspended until funding level reaches 80%, but interim COLA may be granted in four-year intervals while the COLA is suspended		Can exclude up to \$15,000 at full retirement age, AGI limit of \$105,850 joint & qualifying widow(er)s / \$84,700 for other taxpayers (2020).
Rhode Island/MERS	Based on investment rate of return and CPI-U, capped at 3.5%. Currently suspended until funding level reaches 80%, but interim COLA may be granted in four-year intervals while the COLA is suspended		Can exclude up to \$15,000 at full retirement age, AGI limit of \$105,850 joint & qualifying widow(er)s / \$84,700 for other taxpayers (2020).
South Carolina/SCRS	The lesser of 1% or \$500 annually		"Age 65+ can exclude up to \$10,000; \$3,000 for those under age 65. Joint filers can each claim the exemption. Age 65+ can also deduct \$15,000 single / \$30,000 joint from all taxable income."
South Dakota/SDRS	COLA based on CPI and funded status. If fair value of assets is \geq AAL, COLA is CPI-W between 0.5% and 3%. If fair value $<$ AAL, COLA is CPI-W between 0.5% and that maximum that would make fair value = AAL (currently 2.25%)	COLA based on CPI and funded status	No state income tax
Tennessee/CRS	CPI up to 3%	1% COLA is granted if CPI is between 0.5% and 1%	No state income tax
Tennessee/CRS-Hybrid plan	CPI up to 3%	1% COLA is granted if CPI is between 0.5% and 1%	No state income tax
Texas/TRS	Ad hoc		No state income tax
Utah/URS-Tier 1	CPI up to 4%		Retirees born before 1/1/1953 can claim nonrefundable tax credit up to \$450 single / \$900 joint. Phased out for those above MAGI of \$43,000 single / joint or HH \$50,000 / married filing separately \$34,000.
Utah/URS-Tier 2-Hybrid plan	CPI up to 2.5% (on DB portion only)		Retirees born before 1/1/1953 can claim nonrefundable tax credit up to \$450 single / \$900 joint. Phased out for those above MAGI of \$43,000 single / joint or HH \$50,000 / married filing separately \$34,000.
Utah/URS-Tier 2-DC plan	None		Retirees born before 1/1/1953 can claim nonrefundable tax credit up to \$450 single / \$900 joint. Phased out for those above MAGI of \$43,000 single / joint or HH \$50,000 / married filing separately \$34,000.
Vermont/MERS-Group A	1/2 CPI up to 2%		Taxable
Vermont/MERS-Groups B, C, and D	1/2 CPI up to 3%		Taxable
Vermont/MERS-DC plan	None		Taxable

State/Plan	COLA Provision	Special Feature	State Taxation*
Vermont/STRS-Group A	Full CPI, if greater than 1%, up to maximum 5%		Taxable
Vermont/STRS-Group C1	1/2 CPI up to 5%; minimum 1%		Taxable
Vermont/STRS-Group C2	1/2 CPI up to 5%		Taxable
Virginia/VRS-Plan 1	CPI up to 3% + 1/2 CPI between 3% and 7% up to total of 5% maximum		65+: exempt to \$12,000. If born after 1/1/1939, phased out If MAGI is over \$62,000 single / \$87,000 married
Virginia/VRS-Plan 2	CPI up to 2% + 1/2 CPI between 2% and 4% up to total of 3% maximum		65+: exempt to \$12,000. If born after 1/1/1939, phased out If MAGI is over \$62,000 single / \$87,000 married
Virginia/VRS-Hybrid plan	CPI up to 2% + 1/2 CPI between 2% and 4% up to total of 3% maximum		65+: exempt to \$12,000. If born after 1/1/1939, phased out If MAGI is over \$62,000 single / \$87,000 married
Virginia/Fairfax/ERFC Legacy plan	Minimum 3%		65+: exempt to \$12,000. If born after 1/1/1939, phased out If MAGI is over \$62,000 single / \$87,000 married
Virginia/Fairfax/ERFC 2001 plan	Minimum 3%		65+: exempt to \$12,000. If born after 1/1/1939, phased out If MAGI is over \$62,000 single / \$87,000 married
Virginia/Fairfax/ERFC Tier 2 (Hired after 7/1/2017)	CPI-U up to 4%		65+: exempt to \$12,000. If born after 1/1/1939, phased out If MAGI is over \$62,000 single / \$87,000 married
Washington/PERS-Plan 1	CPI up to 3%	Additional optional COLA (for purchase); minimum monthly benefit	No state income tax
Washington/PERS-Plan 2	CPI up to 3%		No state income tax
Washington/PERS-Plan 3	CPI up to 3%		No state income tax
Washington/SERS-Plan 2	CPI up to 3%		No state income tax
Washington/SERS-Plan 3	CPI up to 3%		No state income tax
Washington/TRS-Plan 1	CPI up to 3%	Additional optional COLA (for purchase); minimum monthly benefit	No state income tax
Washington/TRS-Plan 2	CPI up to 3%		No state income tax
Washington/TRS-Plan 3	CPI up to 3%		No state income tax
West Virginia/TRS - Tier 1	Ad hoc		Exempt to \$2,000 for WV plans, Age 65+: can deduct up to \$8,000 of other income (each spouse can claim if married).
West Virginia/TRS - Tier 2 (Hired after 7/1/2015)	Ad hoc		Exempt to \$2,000 for WV plans, Age 65+: can deduct up to \$8,000 of other income (each spouse can claim if married).
West Virginia/TDCP	None		Exempt to \$2,000 for WV plans, Age 65+: can deduct up to \$8,000 of other income (each spouse can claim if married).
Wisconsin/WRS	Depends on investment performance and other indicators		"If a WI plan participant before 1964, exempt. Age 65+ with AGI \$15,000 single / \$30,000 joint can deduct up to \$5,000"
Wyoming/WRS	Granted by legislature, contingent upon plan being 100% funded		No state income tax

* Sources: <https://www.aarp.org/money/taxes/info-2020/states-that-dont-tax-retirement-distributions.html>
<https://www.kiplinger.com/kiplinger-tools/retirement/t055-s001-state-by-state-guide-to-taxes-on-retirees/index.php>
See Appendix III for detailed notes on each system.

V. EMPLOYEE AND EMPLOYER CONTRIBUTIONS

The funding sources for retirement plans are (1) contributions for active employees while they are working and (2) the earnings generated by the plan's investment of this money.

Public employees generally contribute a fixed percentage of their salary into the fund. The rest of the plan's funding comes from employers' contributions and investment income. Sometimes, employers may "pick up" the employee's contributions. Some plans also offer, as an alternative, a noncontributory plan with lesser benefits.

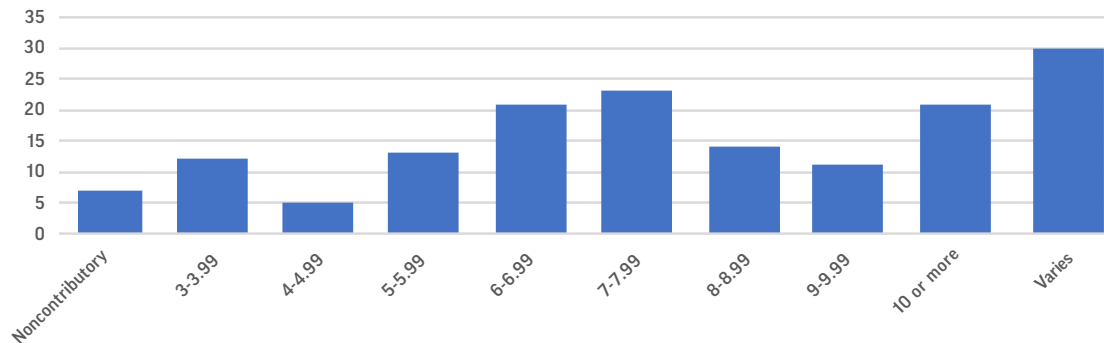
Four of the plans that are reviewed—the District of Columbia 401(a) Defined Contribution Pension Plan, the West Virginia Teachers' Defined Contribution Plan, the Alaska Public Employees' Retirement System Defined Contribution Retirement Pension Trust Plan, and the Alaska Teachers' Retirement System Defined Contribution Retirement Trust Fund—are defined contribution plans with specified employee and employer contributions that are not related to meeting a predetermined benefit amount. Similarly, the optional DC plans offered by other retirement systems have no predetermined benefit amount.

Employee Contribution Rates

Among plans in this report with contributory features, the median contribution rate by the employee is 7.0 percent of their salary—a slight increase from the median of 6.8 percent in the 2016 report. The employees in these plans contribute from 3.0 to 15.5 percent of salary.

Figure 10 classifies the plans reviewed according to the employee contribution rate.

Figure 10. Employee Contribution Rate



Note: Some plans require different contribution amounts from different job classifications. In this chart, we include only the rates for school employees.

Employer Contribution Rates

Different systems have different funding policies by which they base their contribution rates. Some plans set their rates to the actuarially determined levels, based on calculations of the normal cost (which consists of the cost of benefits and administration accrued during the current year), plus a portion of the plan's unfunded liability.

Some plans' employer contribution rates are set by legislatures without regard to the actual funding requirements of the plans. In contrast, others have similarly set rates by statute, but with corridors and room for variability based on the plan's funding. Unfortunately, some state legislatures have in the past diverted required employer contributions to other purposes, such as balancing a budget or funding other projects. Other plans have encountered unnecessary funding difficulties because they were overfunded for some time. As a result, the employers then took a partial or full "funding holiday"—sometimes with the actuaries' blessing. Other employers (as instructed by state or local legislative bodies) have ignored the recommendations of plan trustees and actuaries and set contribution rates below the actuarially required level.

As recent history has demonstrated, even when the plan’s actuary approves employer contributions below the normal cost level, contribution levels must be maintained at least at the regular cost level. Not only will this provide the plan with something of a cushion, but it will also ensure that the employer is paying the costs of maintaining the retirement system.

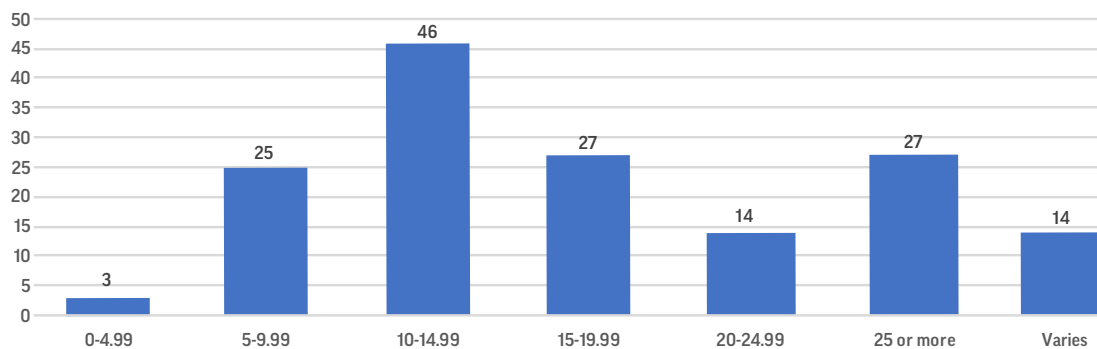
The good news is that the trend seems to be higher contribution rates among public pension plans. The Mission Square Research Institute finds that in 2021, among the 201 largest state and local pension plans, nearly all contributed between 97 and 106 percent of the Actuarially Determined Employer Contribution.⁵

We find a similar trend in this report. For the most current fiscal year reported (which varies by plan), employers contributed a percent of covered payroll ranging from 3 to 44.7 percent. The median employer contribution is 14.6 percent, and the average is 17.4 percent—both a slight increase from the 2016 report.

These contributions can come from multiple sources, such as school districts and the states.

Figure 11 shows these rates, per the most recent ACFRs for each plan. It should be noted that these rates can fluctuate from year to year, based on the funding policy of each plan, the plan’s investment performance, changes in plan design, or other factors.

Figure 11. Employer Contribution Rate



Note: When reported separately by the system, rates are aggregated to include the school district, locality, and/or state contributions.

We also find that some states will be taking specific measures to increase employer contributions even further to maintain better long-term financial health. For example:

- Oklahoma TRS will increase its contribution from state government by 0.25 percent in 2023 - 2027.
- South Carolina SCRS will increase its employer contribution rate by 1 percent per year from 2022 - 2024.
- Texas TRS will increase employee and state contributions to 8.25 percent by 2025.
- Vermont VRS will increase employer contribution rates by 0.5 percent each year for four years beginning on July 1, 2022.

Even more recently, in February 2022 (too recent to be included in the Tables in this report), the New Mexico Legislature passed a bill to increase employer contributions to the New Mexico Educational Retirement Board by 2 percent in 2023, and an additional 1 percent the following year. This should help the plan to achieve full funding much faster—an estimated 33 years, down from 42.⁶

⁵ <https://slge.org/wp-content/uploads/2022/02/publicplanssnapshot02112022.pdf>

⁶ As of February 17, 2022, the bill was still awaiting signature from the governor, <https://www.pionline.com/legislation/new-mexico-passes-bill-increase-pension-contributions>

In addition, Mission Square Research Institute finds that many of the historically least-well funded public pension plans have increased both employee and employer contributions recently to make greater progress toward healthy funded levels.⁷

It seems that these efforts to increase contribution rates may already be starting to succeed, as will be discussed further in **Section 7**.

Social Security Coverage and Contributions

As can be seen in **Summary Chart 4**, employers and employees contribute, on average, much more to their retirement plans when few or no members participate in Social Security. On average, employers contribute more than 4 percentage points of pay more for participants who do not participate in Social Security. Plan participants not participating in Social Security contribute almost twice as much as employees who Social Security covers.

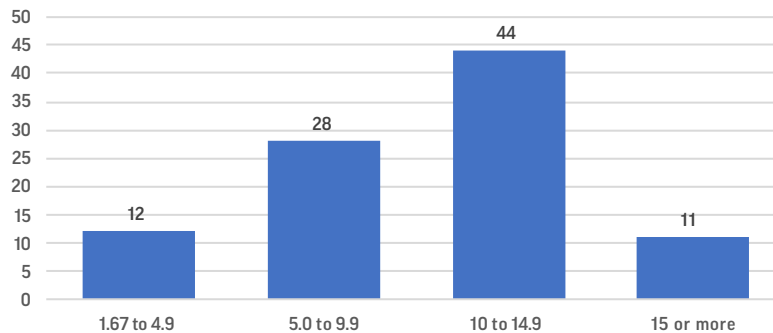
Summary Chart 4

Average Employee and Employer Contributions by Social Security Coverage		
	All	Few/None
Average Employer Rate	16.4%	20.4%
Average Employee Rate	5.7%	10.7%
Average Combined Rate	22.1%	31.1%

Normal Cost

The “normal cost” of a pension benefit simply refers to the cost of a pension benefit that is accrued in a single year. Generally, the more generous the retirement benefit, the higher the normal cost. Many plans do not explicitly report the normal cost rate in their ACFRs or actuarial valuations. Of the plans in this survey, 95 plans/tiers cite a specific normal cost. The normal cost rates among these plans/tiers are shown in **Figure 12**.

Figure 12. Normal Cost Rates



Note: Total normal cost rates among plans that report them. When differentiated by job classifications, these normal cost rates represent those for school employees.

As shown in **Figure 12**, a little less than half of the plans report a normal cost rate of between 10 and 14.9 percent of payroll. An additional 42 percent of plans in the report have a normal cost rate below 10 percent, and 11 percent of plans report a normal cost above 15 percent.

As mentioned previously, many of these plans have several pension tiers. The more recent tiers will almost always have a lower normal cost rate since the new tiers almost always mean a reduction in benefits and cost accruals. Indeed, cost reduction is often cited as the reason to move to the new tier of benefits. Unfortunately, hardly any of the plans in this report disclose the normal cost rates by different tiers.

Summary Chart 4-1

Average, Low, and High Normal Cost Rates by Disclosure Type				
	Total plans/ tiers	Average Normal Cost	Lowest Normal Cost	Highest Normal Cost
All	157			
Plans/tiers that do not report Normal Cost at all	62			
Total plans/tiers reporting a Normal Cost	95	10.7	1.67	31.6
Plans/tiers that report their Normal Cost rates aggregated for all plans (61 plans)	83	10.6	1.67	31.6
Tiers within plans report their Normal Cost separately by tier (5 plans)	12	11.3	5.15	19.2

Participants pay a large proportion of the normal cost directly from their paychecks. Additionally, some of these participants do not participate in Social Security—which means that employers are not contributing 6.2 percent of pay into FICA taxes on their behalf.

Table 5 provides additional details on employee and employer contribution rates and the normal cost.

Table 5

State/Plan	Employee Rate	Employer Rate	Normal Cost*
Alabama/TRS-Tier 1-Hired before 1/1/2013	7.5	12.43	NA
Alabama/TRS-Tier 2-Hired on or after 1/1/2013	6	11.32	NA
Alaska/PERS-DB plan	6.75 for general members / 9.60 for some school district employees	22	5.7
Alaska/PERS-DC plan	8	5	NA
Alaska/TRS-DB plan	8.65	12.56	5.38
Alaska/TRS-DC plan	8	7	NA
Arizona/ASRS	12.11	12.11	13.8
Arkansas/ATRS	6.25 (contributory)	14.25	12.41
California/PERS	7.0 for school employees	19.72% for school employees	NA
California/STRS-Hired before 1/1/2013	10.25	28.7%, including state contributions	NA
California/STRS-Hired on or after 1/1/2013	10.205	28.7%, including state contributions	NA
California/UCRP-1976 Tier	8.00	14	NA
California/UCRP-2013 & 2016 Tiers	7 or 9	14	NA
California/UCRP-2016 Tier (Savings Choice)	7	8	NA
Colorado/PERA-DB plan (School Division)	10.5 in 2021; 11.0 as of July 1, 2022	19.33	14.7
Colorado/PERA-DC plan	10.0 for State Division Employees	10.15 for State Division Employees	NA
Connecticut/CMERS	3.75 with SS; 6.5 without SS	16.44 with SS; 19.02 without SS	7.05 with SS; 6.88 without SS
Connecticut/TRS	7	31.58	12.65
Delaware/SEPP-Hired before 1/1/2012	3% of earnings over \$6,000	11.83	NA
Delaware/SEPP-Hired on or after 1/1/2012	5% of earnings over \$6,000	11.83	NA
District of Columbia/DCPP	Employees may not contribute to the 401(a) Plan. They may contribute to the 457 Plan. As of 7/7/2019, employees are automatically enrolled in the 457 at 5% of salary.	5	NA

State/Plan	Employee Rate	Employer Rate	Normal Cost*
District of Columbia/TRF-Hired prior to 11/1/1996	7	12	12
District of Columbia/TRF-Hired on or after 11/1/1996	8	12	12
Florida/FRS-DB plan	3	6.75	
Florida/FRS-DC plan "FRS Investment Plan"	3	6.75	NA
Florida/FRS-DC Plan "SUSORP"	3% mandatory, additional deferrals up to 5.14% allowed	5.15 for employees, plus 3.56 to pay FRS UAL	NA
Georgia/PSERS	Hired before 7/1/2012: \$4.00 per month; hired on or after 7/1/2012: \$10.00 per month	Actuarially determined annually; \$926.09 per year per active member in FY2020	\$370.50 per active member
Georgia/TRS	6	19.06	7.25
Hawaii/ERS-Contributory	7.8	24	12.44
Hawaii/ERS-Non-Contributory	0	24	12.44
Hawaii/ERS-Hybrid-Hired before 7/1/2012	6	24	12.44
Hawaii/ERS-Hybrid-Hired on or after 7/1/2012	8	24	12.44
Idaho/PERS	7.19	11.94	NA
Illinois/IMRF	4.5	10.67	5.98
Illinois/SURS	8	42.94	20.33 (total); 12.32 (employer)
Illinois/TRS	9% for Tier I and II, plus additional 1.24% for retiree health care; full normal cost capped at 6.2% to DB plus minimum 4% to DC for Tier III	44.73	10.41
Illinois/Chicago/MEA&BF	8.5% for Tier I and II; 11.5% for Tier III	26.8	13.27
Illinois/Chicago/CTPF	9	37.78	8.63
Indiana/PERF	0	11.2 for DB, or 8.0 for DC's portion of UAAL	
Indiana/PERF-ASA Only	3	3	
Indiana/TRF	0	5.5 for post-1996	
Indiana/TRF DC	3	3% plus supplemental 5.3%	
Iowa/PERS	6.29	9.44	10.5
Kansas/PERS	6	13.39	7.9
Kentucky/CERS	5% for Tier 1 and 2, plus 1% health care contribution for Tier 2	19.3	6.46
Kentucky/CERS Hybrid Cash Balance plan	5 plus 1% for health care	19.3	6.46
Kentucky/TRS	"12.855 for non-university; 8.815 for university members (10.4% reduced by 2.215% per statute) Tier 4: 14.75% non-university; 9.775% university. Employees may voluntarily contribute more toward a supplemental benefit."	13.105 for Tier 1; 14.105 for Tier 2; 13.75% (non-university) and 9.775% (university) for Tier 4	10.57 (Tier 1 uni), 14.82 (non-uni)
Louisiana/SERS-Hired before 7/1/2010	7.5	28.7	
Louisiana/SERS-Hired on or after 7/1/2010	8	28.7	
Louisiana/TRS-Regular plan	8	22.2	3.3595% for k-12 and 2.6418% for higher ed
Louisiana/TRS-Plan A (food service non-SS)	9.1	22.2	3.3595%
Louisiana/TRS-Plan B (food service with SS)	5	22.2	3.3595%
Maine/PERS	7.65	4.16% for employer and 14.33% for non-employer entity	4.16%
Maryland/ERS	7% for Plan A, 5% for Plans B and C	19.56	9.97
Maryland/EPS	RCPB & ACPS: 7%; NCPS: 5% of compensation over Social Security wage base; ECPS: 2%	19.56	9.97

State/Plan	Employee Rate	Employer Rate	Normal Cost*
Maryland/TRS	7% for Plan A, 5% for Plans B and C	15.59	11.17
Maryland/TPS	7.00	15.59	11.17
Massachusetts/SERS	5% to 9% depending on hire date, plus additional 2% of compensation over \$30,000 for members joining after 1/1/1979, reduced to 6% after 30 years of service	NA	NA
Massachusetts/TRS	5% to 11% depending on hire date, , reduced to 6% after 30 years of service	NA	3.86
Massachusetts/Boston/SBRS	5% to 11% depending on hire date, plus additional 2% of compensation over \$30,000 for members joining after 1/1/1979	29.86	NA
Michigan/MPERS-DB plan	Basic: 0% to 4%; MIP: 3% to 7%	Basic/MIP: 13.39% to 19.41%	NA
Michigan/MPERS-Pension Plus plan	3% to 6.4%	13.39% to 19.41%	NA
Michigan/MPERS-Pension Plus 2 plan	50% of total calculated contribution rate; 6.2% in 2020	19.59%	NA
Michigan/MPERS-DC plan	0%	13.39%	NA
Minnesota/GERP	6	6.25	NA
Minnesota/PERA	6.5	7.5	5.41
Minnesota/TRA	7.5; increasing to 7.75 on 7/1/2023	8.13; increasing to 8.75 by 7/1/2023	9.23
Minnesota/St. Paul/SPTRFA	7.5	17.66	5.45
Mississippi/PERS	9	17.4	NA
Missouri/MOSERS-MSEP and MSEP 2000	0	22.88	NA
Missouri/MOSERS-MSEP 2011	4	22.88	NA
Missouri/PEERS	6.86	6.86	10.47
Missouri/PSRS	"14.5 The few under SS contribute 2/3 of this amount"	"14.5 For the few under SS, employer rate is 2/3 of this amount"	17.47
Missouri/Kansas City/PSRS	9	12	NA
Missouri/St. Louis/PSRS	6.5% for Tier 1, 9.0% for Tier 2	15.5% for St. Louis Public Schools; 15.0% for all other employers	8.18
Montana/PERS-DBRP	7.9	"State & Universities: 8.77% Local Government: 8.67% plus 0.1% state contribution School Districts: 8.4% plus 0.37% state contribution"	NA
Montana/PERS-DCRP	7.9	"State & Universities: 8.77% Local Government: 8.67% plus 0.1% state contribution School Districts: 8.4% plus 0.37% state contribution"	NA
Montana/TRS	8.15	"School districts and community colleges: 9.17% employers plus 2.49% general fund State agencies and university system: 11.55% employers plus 0.11% general fund"	9.75
Nebraska/SERS	9.78	9.88; state contributes additional 2%	12.93
Nebraska/Omaha/OSERS	9.78	9.88; state contributes additional 2%	12.76
Nevada/PERS-EPC	14.625	14.625	NA
Nevada/PERS-EECP	15.25	15.25	NA
New Hampshire/NHRS-Group 1	7	15.99 for teachers; 10.88 for other employees	NA
New Jersey/PERS	7.5	17.98	NA
New Jersey/TPAF	7.5	20.53	NA

State/Plan	Employee Rate	Employer Rate	Normal Cost*
New Mexico/ERB	10.7% for wages over \$24K; 7.9% for wages under \$24K	14.15	14.22
New York/ERS-Tier 3 & Tier 4	3.00 for first 10 years	14.6	NA
New York/ERS-Tier 5	3	14.6	NA
New York/ERS-Tier 6	3.00 to 6.00 depending on salary	14.6	NA
New York/STRS-Tier 3 & Tier 4	3.00 for first 10 years	9.53	NA
New York/STRS-Tier 5	3.5	9.53	NA
New York/STRS-Tier 6	3.00 to 6.00 depending on salary	9.53	NA
New York/New York City/BERS-Tier 4	"3.00 for first 10 years Those in 55/27 retirement program make additional contributions of 1.85% of pay; 55/25 pay additional 1.85% of pay."	201	NA
New York/New York City/BERS-Tier 6	3.00 to 6.00 depending on salary	20.1	NA
New York/New York City/ TRS-Tier 3	"3.00 for first 10 years Those in 55/27 retirement program make additional contributions of 1.85% of pay; New UFT members as of 12/10/2009 pay 4.85% for first 27 years and 1.85% thereafter."	34.6	NA
New York/New York City/ TRS-Tier 4	"3.00 for first 10 years Those in 55/27 retirement program make additional contributions of 1.85% of pay; New UFT members as of 12/10/2009 pay 4.85% for first 27 years and 1.85% thereafter."	34.6	NA
New York/New York City/ TRS-Tier 6	3.00 to 6.00 depending on salary	34.6	NA
North Carolina/TSERS	6	14.87	6.39
North Dakota/PERS	7	7.12 for members hires before 1/1/2020; 8.26% for those hired after 1/1/2020	NA
North Dakota/TFFR	11.75	12.75	12.28
Ohio/PERS-DB plan	10	14	3.9% state; 3.73% local
Ohio/PERS-DC plan	10	14	6.44%
Ohio/PERS-Combined plan	10	14	7.13% state; 7.27% local
Ohio/SERS	10	14	NA
Ohio/STRS-DB plan	14	14	10.86
Ohio/STRS-DC plan	9.53	14%; 9.53 is allocated to DC account; remainder is to pay DB UAL	NA
Ohio/STRS-Combined plan	14%; 12% into DC account and remainder to pay for DB	14	NA
Oklahoma/TRS	7	"Employers in EESIP: 9.5% Regional universities: 8.55% Federal/grant salaries: 7.9%10.54 State: 5% of certain tax revenues"	10.54
Oregon/PERS-Tiers 1 and 2	6%; as of 7/1/2020, 2.5% will go into EPSA	20.34 for state agencies; 26.26 for local government; 30.52 for school pool	15.71 for state agencies; 15.83 for local government; 13.79 for school pool
Oregon/PERS-OPSRP	6%; as of 7/1/2020, 0.75% will go into EPSA	9.85	8.4
Pennsylvania/PSERS-Class T-C	5.25 or 6.25	34.51	14.76
Pennsylvania/PSERS-Class T-D	6.50 or 7.50	34.51	14.76
Pennsylvania/PSERS-Class T-E	7.50 base rate with shared risk provision	34.51	14.76
Pennsylvania/PSERS-Class T-F	10.3% base rate with shared risk provision	34.51	14.76
Pennsylvania/PSERS-Class T-G	5.5% base rate with shared risk provision, plus 2.75% into DC plan	34.51	14.76

State/Plan	Employee Rate	Employer Rate	Normal Cost*
Pennsylvania/PSERS-Class T-H	4.5% base rate with shared risk provision, plus 3% into DC plan	34.51	14.76
Pennsylvania/SERS-Class A1	5	33.59	1.67
Pennsylvania/SERS-Class A2	6.25	33.59	1.67
Pennsylvania/SERS-Class A3	6.25	33.59	1.67
Pennsylvania/SERS-Class A4	9.3	33.59	1.67
Pennsylvania/SERS-Class A5	5	33.59	1.67
Pennsylvania/SERS-Class A6	4	33.59	1.67
Rhode Island/ERS	3.75 for teachers, , or those with 20 years of service as of 6/30/2012 contribute 11% as of 7/1/2015	26.16% for teachers; split 11.12% for state and 15.04% for local	7.55
Rhode Island/MERS	1% or 2% (1.9% average), or those with 20 years of service as of 6/30/2012 contribute 8.25% as of 7/1/2015	DB rates vary by employer; 12.68% average rate	6.28% ENC average
South Carolina/SCRS	9	15.56	NA
South Dakota/SDRS	6	6	11.07
Tennessee/CRS	5 for teachers; 0 for other public employees	10.93% for LEAs; 19.66% for state employees	NA
Tennessee/CRS-Hybrid plan	5	Greater of ADC or 4%. In 2020, ADC was 2.03% for LEAs, 1.73% for state employees	NA
Texas/TRS	7.7	7.5% employers; 7.5% state	11.76
Utah/URS-Tier 1 - Noncontributory	0	18.47 (local government); 22.19 (state and school)	NA
Utah/URS-Tier 1 - Contributory	6	14.46 (local government); 17.70 (state and school)	NA
Utah/URS-Tier 2-Hybrid plan	0	15.8 (local government); 19.13 (state and school)	NA
Utah/URS-Tier 2-DC plan	Contributions are voluntary	10	NA
Vermont/MERS-Group A	3.25	4.75	7.687
Vermont/MERS-Group B	5.625	6.25	11.754
Vermont/MERS-Group C	10.75	8	17.05
Vermont/MERS-Group D	12.1	10.6	19.196
Vermont/MERS-DC plan	5%; 0% after 20 years of service	5	NA
Vermont/STRS-Group A	5.5	19.86	11.01
Vermont/STRS-Groups C1 & C2	5; Members with less than 5 years of service as of 6/30/2014 contribute 6%	19.86	11.01
Virginia/VRS	5	15.68 for teachers; 13.52% for state employees	NA
Virginia/VRS-Hybrid plan	4.00 DB; 1.00 DC mandatory. Employees may contribute additional 4%, which is matched by 0.5 - 2.5% by the employer	Additional 0.79% for state workers and 0.56% for teachers to pay for DC component	NA
Virginia/Fairfax/ERFC	3	6.7	5.76
Washington/PERS-Plan 1	6	12.97	NA
Washington/PERS-Plan 2	6.36	12.97	NA
Washington/PERS-Plan 3	5.00 to 15.00	12.97	NA
Washington/SERS-Plan 2	7.76	13.3	NA
Washington/SERS-Plan 3	5.00 to 15.00	13.3	NA
Washington/TRS-Plan 1	6	15.74	NA
Washington/TRS-Plan 2	8.05	15.74	NA
Washington/TRS-Plan 3	5.00 to 15.00	15.74	NA
West Virginia/TRS	6	7.50 or 15.00 for those hired before 7/1/1991	NA

State/Plan	Employee Rate	Employer Rate	Normal Cost*
West Virginia/TDCP	4.5	7.5	NA
Wisconsin/WRS	6.75	6.79	NA
Wyoming/WRS	9.25	9.12	10.85

*Normal cost rate is only reported for those systems that disclose this in the CAFR or Actuarial Valuation. See Appendix III for detailed notes on each system.

VI. CALCULATION OF BENEFITS

The nature of a “defined benefit” (DB) plan is that an employee is guaranteed a certain benefit amount, usually based on years of service, salary, and a multiplying factor. For example, if a plan has a three-year final average salary provision and a 2 percent multiplier, that means that the employee would receive an annual pension benefit equal to 2 percent of the salary that they averaged over the last three years of active employment, multiplied by the number of years of service rendered. While this type of final pay plan predominates among the plans studied, other approaches can be used. For instance, the Georgia Public School Employees Retirement System calculates benefits using a flat amount per-year-of-service formula.

Final Average Salary

For most of the plans reviewed, one factor in the benefit calculation is the “final average salary” for each year the employee participated in the plan. The definition of final average salary (sometimes referred to as final average earnings or average final compensation) is essential in determining retirement benefits. The most used final average salary definitions in this report include:

- The average salary for the three highest years of service earnings,
- The average salary for the highest three consecutive years of service earnings,
- The average salary for the highest five years of service earnings, and
- The average salary for the highest five consecutive years of service earnings.

Generally, if fewer years of service are considered in the average, the dollar amount of the average will be higher because earnings tend to be highest in the final years of employment.

Summary Chart 5 shows the variety of final average salary definitions found among the DB plans reviewed in this report. While the most common average periods are three or five years, some plans place limitations on the rate of pay increase that can occur, and the amount of earnings that result for any single year counted as part of the average.

Summary Chart 5

Definitions of Final Average Salary*	
Highest Year	2
Highest 2 years total	4
Highest 2 consecutive	4
Highest 3 years total	99
Highest 3	51
Highest 3 consecutive	41
Highest 3 out of the last 10 years	2
Highest 3 consecutive out of the last 10 years	3
Highest 3 out of 15	1
Highest 3 consecutive out of the last 15 years	1
Highest 3.5 years total	1
Highest 3.5 consecutive	1

Definitions of Final Average Salary*	
Highest 4 years total	11
Highest 4	2
Highest 4 out of the last 10 years	2
Highest 4 consecutive	5
Highest 4 consecutive out of the last 10 years	2
Highest 5 years	96
Highest 5	46
Highest 5 consecutive	41
Highest 5 out of the last 10 years	5
Highest 5 consecutive out of the last 10 years	1
Highest 5 out of the last 15 years	3
Highest 8 years total	7
Highest 8 years total	1
Highest 8 out of the last 10 years	1
Highest 8 consecutive	1
Highest 8 consecutive out of the last 10 years	4
Other	3

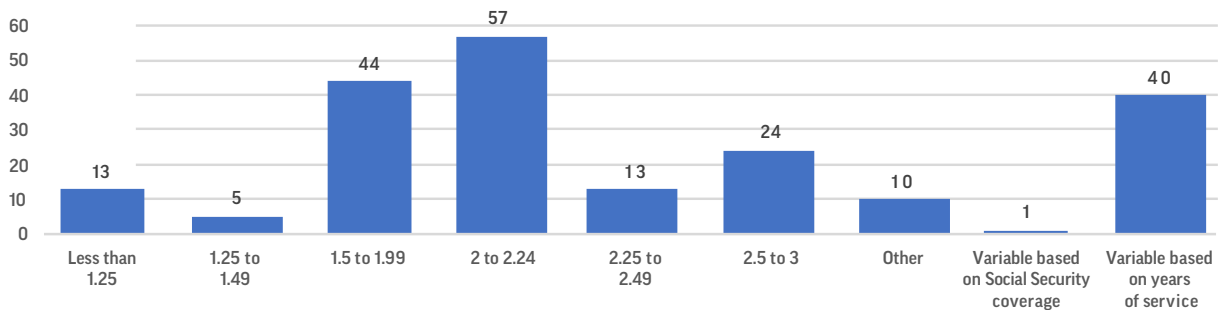
* Includes plans with multiple definitions and plans with various eligibility tiers within the plan. Does not include defined contribution plans.

Formula Percentage Factor

Typically, the formula percentage factor or formula multiplier in a DB plan is stated as a single factor or, in more complex approaches, as two or more factors, with each factor applicable to a different portion of the final average salary. Some plans provide a benefit whereby part of the benefit is calculated by a formula, with the balance of the benefit derived from an annuity purchased from the employee’s contributions to an annuity savings account plus earnings. Formulas within a single plan may vary based on hire date or participation (or nonparticipation) in Social Security.

As illustrated in **Figure 13**, of the 207 plans and tiers within plans, some 24 plans provide a benefit based on a percentage factor of 2.5 percent or more, 70 plans provide a benefit based on a percentage factor between 2 percent and 2.49 percent, 44 plans provide a benefit based on a percentage factor between 1.5 percent and 1.99 percent, and 18 plans provide a benefit based on a percentage factor under 1.5 percent. Forty plans have varied factors based on an employee’s start date and/or the number of years of service, and one plan—Connecticut Municipal Employees Retirement System—has varied factors for those covered by Social Security versus those who are not.

Figure 13. Benefit Formulas



Note: For some plans with variable rates based on years of service, in which the tier ended long ago, the benefit formula is given for the current tier.

While interpreting this information, it should be kept in mind that, in many cases, the amount of a member's actual benefit will differ from the stated formulaic amount. For example, if a member retires before normal retirement age, the annual retirement benefit will likely be reduced by an actuarial or another early retirement factor. Or, if the member chooses an option that guarantees their spouse or other survivors will continue to receive some percentage of the retirement benefit upon their death, the annual amount paid out will be reduced by some predetermined amount.

Formula Limitations

Sixty-seven percent of the plans/tiers in the report place some limit on the total retirement benefit paid to an employee (or some subset of employees). These limits are usually expressed as a maximum percentage of final average salary, as a maximum number of creditable years of service, as a limitation on pensionable salary, or as a limitation on salary increases. Thirty-five percent of the plans/tiers place no limit on total retirement benefits paid to an employee (or some subset of employees).

Table 6, which follows, presents a review of the final average salary periods, benefit formulas, and plan-specific limits.

Table 6

State/Plan	Tier Start	Tier End	FAS Period	Benefit Formula	Limitations
Alabama/TRS-Tier 1-Hired before 1/1/2013		12/31/12	3H/10	2.0125% x years x FAS	None
Alabama/TRS-Tier 2-Hired on or after 1/1/2013	1/1/13	Present	5H/10	1.65% x years x FAS	80% of FAS
Alaska/PERS-DB plan		6/31/2006	3HC/5HC	[(2% x 1st 10 years) + (2.25% x 2nd 10 years) + (2.5% x 20+ years on or after 7/1/1986, all service before that date is 2%)] x FAS	None
Alaska/PERS-DC plan	7/1/06	Present	N/A	Vested account balance	None
Alaska/TRS-DB plan		6/31/2006	3H	[(2% x 1st 20 years) + (2.5% x 20+ years)] x FAS. Service prior to 7/1/1990 = 2%.	None
Alaska/TRS-DC plan	7/1/06	Present	N/A	Vested account balance	None
Arizona/ASRS			3HC/10 or 5HC/10	[(2.1% x years less than 20) + (2.15% x 20 years up to 24.99) + (2.2% x 25 years up to 29.99) + (2.3% x 30+ years)] x FAS	None
Arkansas/ATRS - Contributory			5H; active members as of 6/30/2018 use benchmark 3-year minimum	>10 YOS: 2.15% X FAS; Contributory >10 YOS: 2.15% for service through 6/30/2018 + 1.75% x service after	No salary shall exceed 110% of previous highest salary unless differential is less than \$5,000
Arkansas/ATRS - Non-Contributory			5H; active members as of 6/30/2018 use benchmark 3-year minimum	>10 YOS: 1.39% for service through 6/30/2019 + 1.25% for service after X FAS; <10 YOS: 1.39% for service through 6/30/2018 + 1.0% x service after	No salary shall exceed 110% of previous highest salary unless differential is less than \$5,000
California/PERS-Hired before 1/1/2013-Classic Members		12/31/12	1H or 3H	2% x years x FAS @ 55	None
California/PERS-Hired on or after 1/1/2013-New Members	1/1/13	Present	3H	2% x years x FAS @ 62	Pensionable pay limited
California/STRS-Hired before 1/1/2013		12/31/12	3HC or 1HC	2% x years x FAS	None
California/STRS-Hired on or after 1/1/2013	1/1/13	Present	3HC	2% x years x FAS	Pensionable pay limited to \$148,423 in 2019, adjusted annually for inflation

State/Plan	Tier Start	Tier End	FAS Period	Benefit Formula	Limitations
California/UCRP-1976 Tier		6/31/1976	3HC	At age 60: 2.5% x years x (FAS minus \$133)	100% FAS
California/UCRP-2013 & 2016 Tiers		Present	3HC	"At age 65: (2.5% x years) x (FAS minus \$133); at age 60 for members represented by AFSCME, CNA and UPTE	Varies between 5.6-11.3%, based on multiplier
"	100% FAS; Pensionable pay limited by PEPPRA for hires after 2012 (\$128,059 for SS members and \$153,671 for non-SS members)	Present	55/5; 50/5 for AFSCME, CNA and UPTE	None	Varies between 5.6-11.3%, based on multiplier
California/UCRP-2016 Tier (Savings Choice)	7/1/16	Present	N/A	Vested Account Balance	None
Colorado/PERA-DB plan			3H or 5H	2.5% x years x FAS	Year-to-year FAS limit of 15% for those eligible to retire 1/1/2011 and hired before 1/1/2007; 8% limit for all others
Colorado/PERA-DC plan			N/A	Vested account balance	None
Connecticut/CMERS			3H	2% x years x FAS for members not covered by Social Security; 1.5% x years x FAS for members covered by Social Security	100% FAS
Connecticut/TRS			3H	2% x years x FAS	75% FAS
Delaware/SEPP			3H	(2% x years x FAS, for service prior to 1/1/1997) + (1.85% x years x FAS, for service after 12/31/1996)	Post-2011 hires may not include overtime in pension compensation
District of Columbia/DCCP			N/A	Vested account balance	None
District of Columbia/TRF			3HC	Hired before 11/1/1996: [(1.5% x years up to 5) + (1.75% x years 6-10) + (2% x years over 10)] x FAS; hired on or after 11/1/1996: 2% x years x FAS	None
Florida/FRS-DB plan-Hired before 7/1/2011		6/31/2011	5H	[(1.60% for age 62 or A/30) or (1.63% for age 63 or A/31) or (1.65% for age 64 or A/32) or (1.68% for age 65 or A/33)] x years x FAS	None
Florida/FRS-DB plan-Hired on or after 7/1/2011	7/1/11	Present	8H	[(1.60% for age 65 or A/33) or (1.63% for age 66 or A/34) or (1.65% for age 67 or A/35) or (1.68% for age 68 or A/36)] x years x FAS	None
Florida/FRS-DC plan "FRS Investment Plan"	7/1/11	Present	N/A	Vested account balance	None
Florida/FRS-DC Plan "SUSORP"	7/1/11	Present	N/A	Vested account balance	None
Georgia/PSERS			N/A	"\$15 per month x years for those retiring on or before 8/1/2012; \$15.50 x years for those retiring after 8/1/2012. For those retiring prior to 7/1/2013, one time 1.75% increase was made at retirement. Effective 7/1/2021, rates will increase to \$15.50 & \$15.75."	None
Georgia/TRS			2HC	2% x years x FAS	40 years of service

State/Plan	Tier Start	Tier End	FAS Period	Benefit Formula	Limitations
Hawaii/ERS-Contributory		6/31/2012	3H	2% x years x FAS	FAS excludes salary paid in lieu of vacation
Hawaii/ERS-Non-Contributory		6/31/2012	3H	1.25% x years x FAS	FAS excludes salary paid in lieu of vacation
Hawaii/ERS-Hybrid-Hired before 7/1/2012		6/31/2012	3H	2% x years x FAS, split formula for unconverted noncontributory at 1.25%	FAS excludes salary paid in lieu of vacation
Hawaii/ERS-Hybrid-Hired on or after 7/1/2012	7/1/12	Present	5H	1.75% x years x FAS	FAS excludes salary paid in lieu of vacation
Idaho/PERS			3.5 HC	2% x years x FAS	
Illinois/IMRF-Tier I-Hired before 1/1/2011		12/31/10	4HC	[(1.66% x 1st 15 years) + (2% x years over 15)] x FAS	75% FAS
Illinois/IMRF-Tier II-Hired on or after 1/1/2011	1/1/11	Present	8HC/10	[(1.66% x 1st 15 years) + (2% over 15 years)] x FAS	75% FAS, plus pensionable earnings cap that increases each year. \$116,740.42 in 2021.
Illinois/SURS-Tier I-Hired before 1/1/2011		12/31/10	4HC	"2.2% x years x FAS Can alternatively opt for Money Purchase Formula, if hired before 7/1/2005: 8% employee contribution plus \$1.40 employer match per each employee dollar, accumulated with interest."	80% FAS
Illinois/SURS-Tier II-Hired on or after 1/1/2011	1/1/11	Present	8HC	2.2% x years x FAS	80% FAS; pay cap that increases every year with CPI-U. \$115,928.92 in 2020.
Illinois/TRS-Tier I-Hired before 1/1/2011		12/31/10	4HC/10	2.2% x years x FAS	75% FAS
Illinois/TRS-Tier II-Hired on or after 1/1/2011	1/1/11	Present	8HC/10	2.2% x years x FAS	75% FAS
Illinois/TRS-Tier III-Enacted July 2017, but not yet implemented			10H	1.25% x years x FAS, plus DC accrual	75% FAS; creditable earnings limited to SSWB
Illinois/Chicago/MEA&BF-Tier I-Hired before 1/1/2011		12/31/10	4HC/10	2.4% x years x FAS	80% FAS
Illinois/Chicago/MEA&BF-Tier II-Hired on or after 1/1/2011	1/1/11	7/5/17	8HC/10	2.4% x years x FAS	Pensionable pay limited to \$115,929 in 2020
Illinois/Chicago/MEA&BF-Tier III-Hired on or after 7/6/2017, or Tier 2 member who opted in	7/6/17	Present	8HC/10	2.4% x years x FAS	Pensionable pay limited to \$115,929 in 2020
Illinois/Chicago/CTPF-Tier I-Hired before 1/1/2011		12/31/10	4H/10	"For service earned before 7/1/1998: 1.67% for first 10 years, 1.9% for next 10, 2.1% for next 10, and 2.3% for each year above 30 x FAS. Members with these benefits may be upgraded to 2.2% with additional employee contributions. Service earned after 7/1/1998: 2.2% x years x FAS "	Greater of 75% FAS or \$1,500/month
Illinois/Chicago/CTPF-Tier II-Hired on or after 1/1/2011	1/1/11	Present	8H/10	2.2% x years x FAS	Pensionable pay limited to \$115,929 in 2020

State/Plan	Tier Start	Tier End	FAS Period	Benefit Formula	Limitations
Indiana/PERF			5H	1.1% x years x FAS + optional employee annuity purchase	None
Indiana/PERF-ASA Only	3/1/13	Present	N/A	Vested account balance	N/A
Indiana/TRF		Present	5H	1.1% x years x FAS + optional employee annuity purchase	None
Indiana/TRF Optional DC for new hires as of 7/1/2019	7/1/19	Present	N/A	Vested account balance	N/A
Iowa/PERS			5H	[(2% x years up to 30) + (1% for each year 31 through 35)] x FAS	65% FAS
Kansas/PERS 1		6/31/2009	Higher of 3H without add-ons or 4H with add-ons for pre-1/1/1993 hires; 3H without add-ons for post-1/1/1993 hires	"1.75% x years x FAS for all service in calendar years prior to 2014; 1.85% x years x FAS for all service on and after calendar year 2014"	None
Kansas/PERS 2	7/1/09	12/31/14	5H without add-ons	1.85% x years x FAS	None
Kansas/PERS 3 (Cash Balance plan)	1/1/15	Present	N/A	Notional account balance with annuity the default option. Retirement credits of 3% for 0-4 years, 4% 5-11, 5% 12-23, and 6% 24+. Interest credit of 4%/year, with ad hoc additional "dividend" interest based on investment returns.	None
Kentucky/CERS-Tier 1-Hired before 9/1/2008		8/31/08	5H	Member prior to 8/1/2004: 2.2% x years x FAS; member on or after 8/1/2004: 2.0% x years x FAS	Salary increase of more than 10% after 1/1/2017 exempt from creditable compensation
Kentucky/CERS-Tier 2-Hired on or after 9/1/2008 and before 1/1/2014	9/1/2018	12/31/13	Last 5 years	(Multiplier ranges from 1.1% to 2.0% based upon service) x years x FAS	Salary increase of more than 10% after 1/1/2017 exempt from creditable compensation, if it results in a benefit of more than \$25 more
Kentucky/CERS Hybrid Cash Balance plan - Hired after 1/1/2014	1/1/14	Present	N/A	Notional account balance with annuity the default option. Employee pay credit of 4% and interest credit of 4%.	None
Kentucky/TRS - Hired before 7/1/2008		6/31/2008	5H or 3H if 27/55	"Non-university members: [(2% x years up to 30 for service to 7/1/83) + (2.5% x years up to 30 for service after 6/30/83) + (3% x years 30+) x FAS] New members after 7/1/2002 with less than 10 YOS: 2.0% x years x FAS; New members after 7/1/2002 with more than 10 YOS: 2.5% x YOS x FAS University members: 2% x years x FAS	6.50%
"		Present	65/5; R-87 at age 57	NA	NA
Kentucky/TRS - Hired between 7/1/2008 and 12/31/2021	7/1/08	12/31/21	5H or 3H if 27/55	"Non-university members: (1.7% x FAS x years if 10 or less at retirement); (2% x FAS x years if 10+ to 20 years); (2.3% x FAS x years if 20+ to 26 years); (2.5% x FAS x years if 27+ to 30 years) + (3% x FAS x years 30+) University members: (1.5% x FAS x years if 10 or less at retirement); (1.7% x FAS x years if 10+ to 20); (1.85% x FAS x years if 20+ to 27); (2% x FAS x years if 27 or more)"	

State/Plan	Tier Start	Tier End	FAS Period	Benefit Formula	Limitations
Kentucky/TRS - Hired after 12/31/2021	1/1/22	Present	5H	"Career factor is 0.25% from 20 to 29.99 years of service or 0.5% at 30 +. For non-university, age factor is 1.7% from age 57 to 60 and then increases monthly to 1.9% at age 65. The maximum non-university multiplier is 2.4%. For university, age factor is 0.7% from age 57 to 60 and then increases monthly to 0.9% at age 65. The maximum university multiplier is 1.4%. Employees may contribute more toward a supplemental benefit, which also includes an annual interest credit based on the account balance."	FAS limited to the highest percentage increase generally available to the district or agency's TRS-covered employees.
Louisiana/SERS			"3HC hired before 7/1/2006 5HC hired after 7/1/2006"	"(3 1/3% x years x FAS) + (\$2/month x years) hired before 7/1/2006 2.5% x years x FAS hired after 7/1/2006"	"100% FAS 10% salary limitation if hired before 7/1/2006 15% salary limitation if hired after 7/1/2006"
Louisiana/TRS-Regular plan, hired before 7/1/99		6/31/1999	3HC	2.5% x years x FAS	
Louisiana/TRS-Regular plan, hired 7/1/99 - 12/31/10	7/1/99	12/31/10	5H	2.5% x years x FAS	
Louisiana/TRS-Regular plan, hired 1/1/11 - 6/30/15	1/1/11	6/30/15	5H	2.5% x years x FAS	
Louisiana/TRS-Regular plan, hired after 7/1/15	7/1/15	Present	5H	2.5% x years x FAS	
Louisiana/TRS-Plan A	Closed	Closed	3HC	3% x years x FAS	
Louisiana/TRS-Plan B - Hired before 1/1/2011		12/31/10	3HC	2% x years x FAS	
Louisiana/TRS-Plan B - Hired after 1/1/2011	1/1/11	Present	5HC	2% x years x FAS	
Maine/PERS - at least 10 YOS on 7/1/93		At least 10 YOS on 7/1/1993	3H	2% x years (capped at 25) x FAS	Limit on salary increases before retirement
Maine/PERS - less than 10 YOS on 7/1/93	Less than 10 YOS on 7/1/1993		3H	2% x years (capped at 25) x FAS	Limit on salary increases before retirement
Maine/PERS - less than 5 YOS on 7/1/2011	Less than 5 YOS on 7/1/2011	Present	3H	2% x years (capped at 25) x FAS	Limit on salary increases before retirement
Maryland/ERS			3H	1.818% x years x FAS	None
Maryland/EP			5HC	"NCPS: ((0.8% x FAS up to SSIL for 3H) + [FAS over SSIL x years x 1.5%]) ECPS: Greater of: ((1.2% x FAS x years prior to 7/1/1998) + [0.8% x FAS up to SSIL x 1.5% x years after 7/1/1998]) OR [1.4% x FAS x years after 7/1/1998] ACPS: Greater of: ((1.2% x FAS x years prior to 7/1/1998) + [0.8% x FAS up to SSIL x 1.5% x years after 7/1/1998]) OR [1.8% x FAS x years after 7/1/1998] RCPB: 1.5% x FAS x years "	None
Maryland/TRS			3H	1.818% x years x FAS	None

State/Plan	Tier Start	Tier End	FAS Period	Benefit Formula	Limitations
Maryland/TPS			5HC	"ACPS, Hired before 7/1/2011: Greater of: ([1.2% x FAS x years prior to 7/1/1998] + [0.8% x FAS up to SSIL x 1.5% x years after 7/1/1998]) OR [1.8% x FAS x years after 7/1/1998] RCPB, Hired after 7/1/2011: 1.5% x FAS x years "	None
Massachusetts/SERS-Hired before 4/2/2012		4/1/12	3HC	2.5% x years x FAS at age 65	80% FAS
Massachusetts/SERS-Hired on or after 4/2/2012	4/2/12	Present	5HC	2.5% x FAS x years at age 67	80% FAS
Massachusetts/TRS-Tier 1		2/1/12	3HC	"Tier 1: if age 65, then 2.5% x creditable service (plus Retirement Plus enhancement, if applicable) x salary average "	80% of salary average
Massachusetts/TRS-Tier 2	2/2/12	Present	5HC	Tier 2: if age 67, then 2.5% x creditable service (plus Retirement Plus enhancement, if applicable) x salary average	80% of salary average
Massachusetts/Boston/SBRS-Hired before 4/2/2012		4/1/12	3H	2.5% x years x FAS at age 65	80% FAS
Massachusetts/Boston/SBRS-Hired on or after 4/2/2012	4/2/12	Present	5HC	2.5% x years x FAS at age 67	80% FAS
Michigan/MPSERS-DB plan		7/3/12	3HC	1.5% x years x FAS	None
Michigan/MPSERS-Pension Plus plan	7/4/12	1/31/18	5HC	1.5% x Years x FAS	None
Michigan/MPSERS-Pension Plus 2 plan	2/1/18	Present	5HC	1.5% x Years x FAS	None
Michigan/MPSERS-DC plan	7/4/12	Present	N/A	Vested account balance	None
Minnesota/GERP			5HC	"1.7% x years x FAS For members hired before 7/1/1989: Greater of above or 1.2% x first 10 + 1.7 x highest 5 for subsequent years"	Salary includes wages or other periodic compensation, but excludes lump sum payments at separation, employer contributions to deferred compensation and tax sheltered annuity plans, and benevolent vacation and sick leave donation programs.
Minnesota/PERA			5HC	"Method 1: [(1.2% x years up to 10) + (1.7% for years 11 and beyond)] x FAS (5HC)	NA
Method 2: 1.7% x years x FAS (5HC)"		Present	67/10	60/10	Multiplier reduced 0.125%/year
Minnesota/TRA-Tier 1		6/31/1989	5HC	"Hired before 7/1/1989: Higher of (1) 1.2% of avg salary for first 10 years + 1.7% for subsequent years prior to 7/1/2006 + 1.9% for years thereafter, or (2) 1.7% x avg salary for years prior to 7/1/2006 + 1.9% for years thereafter "	For second calculation, actuarial reduction if member is under full SS benefits age, but not to exceed 65.

State/Plan	Tier Start	Tier End	FAS Period	Benefit Formula	Limitations
Minnesota/TRA-Tier 2	7/1/89	Present	5HC	Hired after 7/1/1989: 1.7% x years x FAS (for service prior to 7/1/2006) + 1.9% x years x FAS (for service after 6/30/2006)	
Minnesota/St. Paul/SPTRFA-Basic plan-Tier 1		6/30/89	5H/10	2% x years x FAS	None
Minnesota/St. Paul/SPTRFA-Basic plan-Tier 2	7/1/89	Present	5H/10	2.5% x years x FAS	None
Minnesota/St. Paul/SPTRFA-Coordinated plan-Tier 1		6/30/89	5HC	"Service prior to 7/1/2015: 1.2% first 10 years + 1.7% subsequent Service effective 7/1/2015: 1.4% first 10 years + 1.9% subsequent"	None
Minnesota/St. Paul/SPTRFA-Coordinated plan-Tier 2	7/1/89	Present	5HC	"Service prior to 7/1/2015: 1.7% x years x FAS Service after 7/1/2015: 1.9% x years x FAS"	None
Mississippi/PERS-Tiers 1-3 (hired before 7/1/2011)		6/31/2011	4H	(2% x years 25 and under x FAS) + (2.5% x years after 25 x FAS)	\$280,000 maximum earnings
Mississippi/PERS-Tier 4 (hired after 7/1/2011)	7/1/11	Present	4H	(2% x years 30 and under x FAS) + (2.5% x years after 30 x FAS)	\$280,000 maximum earnings
Missouri/MOSERS-MSEP		6/31/2000	3HC	1.6% x years x FAS	None
Missouri/MOSERS-MSEP 2000	7/1/00	12/31/11	3HC	"1.7% x years x FAS Retiring under R-80 receive additional [0.8% x FAS x years] until age 62"	None
Missouri/MOSERS-MSEP 2011	1/1/12	Present	3HC	"1.7% x years x FAS Retiring under R-90 receive additional [0.8% x FAS x years] until age 62"	None
Missouri/PEERS			3HC	"1.61% x years x FAS Retiring under R-80 or A-30 receive additional [0.8% x FAS x years] until age 62"	FAS increase limited to 20% per year
Missouri/PSRS			3HC	2.5% x years x FAS	FAS increase limited to 10-20% per year, depending on service year
Missouri/Kansas City/PSRS-Plan B		12/31/13	4HC	"2% x years x FAS 1.75% x years x FAS if retired prior to 6/30/1999"	60% FAS
Missouri/Kansas City/PSRS-Plan C	1/1/14	Present	4HC	1.75% x years x FAS	60% FAS
Missouri/St. Louis/PSRS Tier 1 - Hired before 1/1/2018		12/31/17	3HC/10	2% x years x FAS	60% FAS
Missouri/St. Louis/PSRS Tier 2 - Hired on or after 1/1/2018	1/1/18	Present	3HC/10	1.75% x years x FAS	60% FAS
Montana/PERS-DBRP-Hired before 7/1/2011		6/31/2011	3HC	1.78571% x years x HAC if less than 25 years of service; 2% x years x HAC if greater than 25 years of service	None
Montana/PERS-DBRP-Hired on or after 7/1/2011	7/1/11	Present	5HC	1.5% x years x HAC if less than 10 years of service; 1.78571% x years x HAC if between 10 and 30 years of service; 2% x years x HAC if over 30 years of service	110% cap on FAS if hired after 7/1/2013
Montana/PERS-DCRP			N/A	Vested account balance	None
Montana/TRS-Tier 1-Member before 7/1/2013		6/31/2013	3HC	1.67% x years x FAS	None

State/Plan	Tier Start	Tier End	FAS Period	Benefit Formula	Limitations
Montana/TRS-Tier 2-Member on or after 7/1/2013	7/1/13	Present	5HC	1.67% x years x FAS; if age 60 with 30 or more years of service, 1.85% x years x FAS	None
Nebraska/SERS-Tier 1 - Hired before 7/1/2013		6/31/2013	3H	2% x years x FAS	Earnings maximum per IRS limit (\$290,000 in 2021)
Nebraska/SERS-Tier 2 - Hired 7/1/2013 - 7/1/2017	7/1/13	6/31/2017	5H	2% x years x FAS	None
Nebraska/SERS-Tier 3 - Hired 7/1/2017 - 7/1/2018	7/1/17	6/31/2018	5H	2% x years x FAS	None
Nebraska/SERS-Tier 4 - Hired after 7/1/2018	7/1/18	Present	5H	2% x years x FAS	None
Nebraska/Omaha/OSERS-Tier 1 - Hired before 7/1/2013		6/31/2013	3H	2% x years x FAS	None
Nebraska/Omaha/OSERS-Tier 2 - Hired 7/1/2013 - 7/1/2016	7/1/13	6/31/2016	5H	2% x years x FAS	None
Nebraska/Omaha/OSERS-Tier 3 - Hired 7/1/2016 - 7/1/2018	7/1/16	6/31/2018	5H	2% x years x FAS	None
Nebraska/Omaha/OSERS-Tier 4 - Hired after 7/1/2018	7/1/18	Present	5H	2% x years x FAS	None
Nevada/PERS-Hired before 1/1/2010		12/31/09	3HC	2.5% x years x FAS for service prior to 7/1/01 + 2.67% x years x FAS for service on or after 7/1/01	90% FAS if hired before 7/1/1985, otherwise 75% FAS
Nevada/PERS-Hired 1/1/2010 - 1/1/2015	1/1/10	12/31/14	3HC	2.5% x years x FAS	90% FAS
Nevada/PERS-Hired after 1/1/2015	1/1/15	Present	3HC	2.25% x years x FAS	90% FAS
New Hampshire/NHRS-Group 1			3H if hired before 7/1/2011, 5H if hired after	Age 60-64: 1.67% x years x FAS; age 65 and above: 1.515% x years x FAS	150% of FAS for preceding 12 months or the higher FAS for any year excluding the final 12 months
New Jersey/PERS-Tier 1 - Hired before 7/1/2007		6/31/2007	3H	1.8% x years x FAS	Earnings maximum per IRS limit (\$290,000 in 2021)
New Jersey/PERS-Tier 2 - Hired 7/1/2007 - 11/2/2008	7/1/07	11/1/08	3H	1.8% x years x FAS	Earnings maximum per IRS limit (\$290,000 in 2021)
New Jersey/PERS-Tier 3 - Hired 11/2/2008 - 5/22/2010	11/2/08	5/21/10	3H	1.8% x years x FAS	Earnings maximum per IRS limit (\$290,000 in 2021)
New Jersey/PERS-Tier 4 - Hired 5/22/2010 - 6/28/2011	5/22/10	6/27/11	5H	1.67% x years x FAS	Earnings maximum per IRS limit (\$290,000 in 2021)
New Jersey/PERS-Tier 5 - Hired after 6/28/2011	6/28/11	Present	5H	1.67% x years x FAS	Earnings maximum per IRS limit (\$290,000 in 2021)
New Jersey/TPAF-Tier 1 - Hired before 7/1/2007		6/31/2007	3H	1.8% x years x FAS	Earnings maximum per IRS limit (\$290,000 in 2021)
New Jersey/TPAF-Tier 2 - Hired 7/1/2007 - 11/2/2008	7/1/07	11/1/08	3H	1.8% x years x FAS	Earnings maximum per IRS limit (\$290,000 in 2021)
New Jersey/TPAF-Tier 3 - Hired 11/2/2008 - 5/22/2010	11/2/08	5/21/10	3H	1.8% x years x FAS	Earnings maximum per IRS limit (\$290,000 in 2021)
New Jersey/TPAF-Tier 4 - Hired 5/22/2010 - 6/28/2011	5/22/10	6/27/11	5H	1.67% x years x FAS	Earnings maximum per IRS limit (\$290,000 in 2021)
New Jersey/TPAF-Tier 5 - Hired after 6/28/2011	6/28/11	Present	5H	1.67% x years x FAS	Earnings maximum per IRS limit (\$290,000 in 2021)
New Mexico/ERB-Tier 1 - Hired before 7/1/2010		6/31/2010	5HC	2.35% x years x FAS	None
New Mexico/ERB-Tier 2 - Hired 7/1/2010 - 7/1/2013	7/1/10	6/31/2013	5HC	2.35% x years x FAS	None
New Mexico/ERB-Tier 3 - Hired 7/1/2013 - 7/1/2019	7/1/13	6/31/2019	5HC	2.35% x years x FAS	None

State/Plan	Tier Start	Tier End	FAS Period	Benefit Formula	Limitations
New Mexico/ERB-Tier 4 - Hired after 7/1/2019	7/1/19	Present	5HC	$((1.35\% \times \text{first 10 years}) + [2.35\% \times \text{years 11-20}] + [3.35\% \times \text{years 21-30}] \times [2.4\% \times \text{years after 30}]) \times \text{FAS}$	None
New York/ERS-Tier 3, Tier 4, & Tier 5			3HC	1.67% x FAS x years if years are less than 20; 2% x FAS x years for 20-30 years; for each year of service beyond 30 years, the benefit increases by 1.5% of FAS.	FAS limit salary increase to 10% higher than average of previous 2 years
New York/ERS-Tier 6	4/1/12	Present	5HC	1.67% x FAS x years if years are less than 20; 1.75% x FAS x years if 20 years; for each year of service beyond 20 years, the benefit increases by 2.0% of FAS.	FAS limits salary increase to 10% higher than average of previous 4 years
New York/STRS-Tier 3 - Hired 7/27/1976 - 9/1/1983	7/27/76	8/31/83	3HC	1.67% x FAS x years if years are less than 20; 2% x FAS x years for 20-30 years; for each year of service beyond 30 years, the benefit increases by 1.5% of FAS.	FAS limit salary increase to 10% higher than average of previous 2 years
New York/STRS-Tier 4 - Hired 9/1/1983 - 1/1/2010	9/1/83	12/31/09	3HC	1.67% x FAS x years if years are less than 20; 2% x FAS x years for 20-30 years; for each year of service beyond 30 years, the benefit increases by 1.5% of FAS.	FAS limit salary increase to 10% higher than average of previous 2 years
New York/STRS-Tier 5 - Hired 1/1/2010 - 4/1/2012	1/1/10	3/31/12	3HC	1.67% x FAS x years if years are less than 25; 2% x FAS x years for 25-30 years; 60% FAS x 1.5% for each year of service beyond 30 years.	FAS limit salary increase to 10% higher than average of previous 2 years
New York/STRS-Tier 6 - - Hired after 4/1/2012	4/1/12	Present	5HC	1.67% x FAS x years if years are less than 20; 2% x FAS x years for 20-30 years; 35% FAS x 2% for each year of service beyond 30 years	FAS limits salary increase to 10% higher than average of previous 4 years
New York/New York City/ BERS-Tier 4 - Hired 9/1/1983 - 4/1/2012	9/1/83	3/31/12	3HC	More than 20 years of service: (2% x years up to 30 x FAS) + (1.5% x years over 30 X FAS); Less than 20 years of service: 1.67% x FAS x years	Those in 55/27 retirement program make additional contributions of 1.85% of pay; 55/25 pay additional 1.85% of pay.
New York/New York City/ BERS-Tier 6 - Hired after 4/1/2012	4/1/12	Present	5HC	$(1.67\% \times \text{FAS} \times \text{years up to 20}) + (2\% \times \text{years} \times \text{FAS for years after 20})$	Cap on maximum FAS
New York/New York City/ TRS-Tier 3 - Hired 7/27/1976 - 9/1/1983	7/27/76	9/1/83	3H	Less than 20 years: 1.667% x FAS x years; More than 20 years: (2% x FAS x years) + (60% x FAS for years above 30)	FAS limit salary increase to 10% higher than average of previous 2 years
New York/New York City/ TRS-Tier 4 - Hired 9/1/1983 - 4/1/2012	9/1/83	3/31/12	3H	Less than 20 years: 1.667% x FAS x years; More than 20 years: (2% x FAS x years) + (1.5% x FAS x years above 30)	FAS limit salary increase to 10% higher than average of previous 2 years
New York/New York City/TRS-Tier 6 - Hired after 4/1/2012	4/1/12	Present	5H	Less than 20 years: 1.667% x FAS x years; More than 20 years: (35% FAS for the first 20 years) + (2% x FAS x years above 20)	FAS limits salary increase to 10% higher than average of previous 4 years
North Carolina/TSERS			4HC	1.82% x years of service x FAS	None
North Dakota/PERS - Hired before 1/1/2020		12/31/19	3H/15	2% x years x FAS	None
North Dakota/PERS - Hired after 1/1/2020	1/1/20	Present	3HC/15	1.75% x years x FAS	None
North Dakota/TFFR-Tier 1		6/31/2008	3H	2% x years x FAS	IRC Section 415
North Dakota/TFFR-Tier 2	7/1/08	Present	5H	2% x years x FAS	IRC Section 415
Ohio/PERS-DB plan - Groups A and B			3H	$(2.2\% \times \text{FAS} \times \text{years up to 30}) + (2.5\% \times \text{FAS} \times \text{years 30 and after})$	Limit on salary increases
Ohio/PERS-DC plan			N/A	Vested account balance	N/A
Ohio/PERS-DB plan- Group C			5H	$(2.2\% \times \text{FAS} \times \text{years up to 35}) + (2.5\% \times \text{FAS} \times \text{years 35 and after})$	Limit on salary increases
Ohio/PERS-Combined plan - Groups A and B			3H	$(1\% \times \text{FAS} \times \text{years up to 30}) + (1.25\% \times \text{FAS} \times \text{years 30 and after}) + \text{DC accumulation}$	Limit on salary increases
Ohio/PERS-Combined plan- Group C			5H	$(1\% \times \text{FAS} \times \text{years up to 35}) + (1.25\% \times \text{FAS} \times \text{years 35 and after}) + \text{DC accumulation}$	Limit on salary increases

State/Plan	Tier Start	Tier End	FAS Period	Benefit Formula	Limitations
Ohio/SERS - Retired before 8/1/2017		Retired before 8/1/2017	3H	(2.2% x years up to 30 x FAS) + (2.5% x years 30 and after x FAS)	100% FAS
Ohio/SERS - Retired after 8/1/2017	Retired after 8/1/2017		3H	(2.2% x years up to 30 x FAS) + (2.5% x years 30 and after x FAS)	100% FAS
Ohio/STRS-DB plan - Before 7/1/2015		7/1/15	3H	2.2% x FAS x years up to 30; varying rates after 30	Limit on salary increases
Ohio/STRS-DB plan - Effective 8/1/2015	8/1/15	Present	5H	2.2% x FAS x years	Limit on salary increases
Ohio/STRS-DC plan	7/1/01	Present	N/A	Vested account balance	N/A
Ohio/STRS-Combined plan - before 8/1/2015		7/31/15	3H	1% x years x FAS	100% FAS with limitations
Ohio/STRS-Combined plan - after 8/1/2015	8/1/15	Present	5H	1% x years x FAS	100% FAS with limitations
Oklahoma/TRS			3H if hired before 7/1/1992; otherwise 5HC	2% x years x FAS	Service prior to 7/1/1995, salary max of \$40,000 or \$25,000; higher caps for those in EESIP
Oregon/PERS-Tiers 1 and 2	"Tier 1: Pre 1/1/1996 Tier 2: 1/1/1996"	"Tier 1: 12/31/1995 Tier 2: 8/28/2003"	Greater of 3H or last 36 months	1.67% x years x FAS	\$195,000 salary limit starting in 2020
Oregon/PERS-OPSRP	8/29/03	Present	Greater of 3HC or last 36 months	1.5% x years x FAS	\$195,000 salary limit starting in 2020
Pennsylvania/PSERS-Class T-C		6/31/2001	3H	2% x years x FAS	100% FAS
Pennsylvania/PSERS-Class T-D	7/1/01	6/31/0211	3H	(2.5% x years x FAS) + (2% x years of credited non-school service x FAS)	100% FAS
Pennsylvania/PSERS-Class T-E	7/1/11	6/31/2019	3H	2% x years x FAS	100% FAS
Pennsylvania/PSERS-Class T-F	7/1/11	6/31/2019	3H	2.5% x years X FAS	100% FAS
Pennsylvania/PSERS-Class T-G	7/1/19	Present	5H	1.25% x years X FAS	100% FAS
Pennsylvania/PSERS-Class T-H	7/1/19	Present	5H	1.0% x years X FAS	100% FAS
Pennsylvania/SERS-Class A1		6/30/01	3H	2.0% x years x FAS	100% FAS
Pennsylvania/SERS-Class A2	7/1/01	12/31/10	3H	2.5% x years x FAS	100% FAS
Pennsylvania/SERS-Class A3	1/1/11	12/31/18	3H	2.0% x years x FAS	100% FAS
Pennsylvania/SERS-Class A4	1/1/11	12/31/18	3H	2.5% x years x FAS	100% FAS
Pennsylvania/SERS-Class A5 - Hired after 1/1/2019	1/1/19	Present	5H	1.25% x years x FAS	100% FAS
Pennsylvania/SERS-Class A6 - Hired after 1/1/2019	1/1/19	Present	5H	1.0% x years x FAS	100% FAS
Rhode Island/ERS-Schedule A		10+ YOS by 7/1/2005	3HC	[(1.7% x years 1-10) + (1.9% x years 11-20) + 3% x years 21-34) + (2% x years 35+) x FAS as of 6/30/12] for service before 7/1/12 + [(1% x years x FAS) for service on or after 7/1/12] + DC account balance; for members with 20 years as of 6/30/12: prior accumulation + (2% x FAS x years on and after 7/1/15)	80% FAS
Rhode Island/ERS-Schedule B		< YOS by 7/1/2005	5HC	[(1.6% x years 1-10) + (1.8% x years 11-20) + (2% x years 21-25) + (2.25% x years 26-30) + (2.5% x years 31-37) + (2.25% x years 38+) x FAS as of 6/30/12] + (1% x years x FAS) for service after 7/1/12] + DC account balance; for members with 20 years as of 6/30/12: prior accumulation + (2% x FAS x years on or after 7/1/2015)	75% FAS
Rhode Island/MERS			3HC at 6/30/2012 or 5HC	[(2% x years) for service prior to 7/1/12 + (1% x years) for service after 7/1/12] x FAS as of 6/30/12] + DC account balance; for members with 20 years as of 6/30/12: prior accumulation + (2% x FAS x years on or after 7/1/15)	75% FAS

State/Plan	Tier Start	Tier End	FAS Period	Benefit Formula	Limitations
South Carolina/SCRS-Class II		6/30/12	3HC	1.82% x years x FAS	New members after 1/1/1996, IRC limitation.
South Carolina/SCRS-Class III	7/1/12	Present	5HC	1.82% x years x FAS	New members after 1/1/1996, IRC limitation.
South Dakota/SDRS - Class A Foundational Members - Hired before 7/1/2017		6/31/2017	"Service ends before 7/1/2021: 3HC/10 Service ends 7/1/2021 - 7/1/2022: 4HC/10 Service ends after 7/1/2022: 5HC/10"	"Greater of: (1.7% x years before 7/1/2008 x FAS) + (1.55% x years after 7/1/2008 x FAS) or (2.4% x years before 7/1/2008 x FAS) + (2.25% x years after 7/1/2008 x FAS) - 80% base Social Security benefit"	Limit salary increases before retirement
South Dakota/SDRS - Class A Generational - Hired after 7/1/2017	7/1/17	Present	5HC/10	1.8% x years x FAS, plus variable retirement account, currently funded with 1.5% employer contribution	Limit salary increases before retirement
Tennessee/CRS-up to SS integration level		6/31/2014	5HC	1.5% x years x FAS	94.5% FAS
Tennessee/CRS-over the SS integration level		6/31/2014	5HC	1.75% x years x FAS	94.5% FAS
Tennessee/CRS-Hybrid plan	7/1/14	Present	5H	(1.0% x years x FAS) + DC accumulation	Lower of 90% FAS or dollar cap
Texas/TRS-Tier 1			3H	2.3% x years x FAS	Limited salary increase and converted service
Texas/TRS-Tier 2			5H	2.3% x years x FAS	Limited salary increase and converted service
Texas/TRS-Tier 3			5H	2.3% x years X FAS	Limited salary increase and converted service
Texas/TRS-Tier 4			3H	2.3% x years x FAS	Limited salary increase and converted service
Texas/TRS-Tier 5			5H	2.3% x years x FAS	Limited salary increase and converted service
Texas/TRS-Tier 6			3H	2.3% x years x FAS	Limited salary increase and converted service
Utah/URS-Tier 1 - Noncontributory		6/31/2011	3H	2% x years x FAS	Salary increase limited to 10% plus COLA
Utah/URS-Tier 1 - Contributory		6/31/2011	5H	[1.25% x years x FAS through 6/1975] + [2.0% x years x FAS after 6/1975]	Salary increase limited to 10% plus COLA
Utah/URS-Tier 2-Hybrid plan + DC Account"	7/1/11	Present	5H	"1.5% x years x FAS	AR
Utah/URS-Tier 2-DC plan	7/1/11	Present	N/A	Vested account balance	
Vermont/MERS-Group A			5HC	1.4% x years x FAS	60% FAS
Vermont/MERS-Group B			3HC	(1.7% x years x FAS) + (1.4% x Group A previous service x FAS)	60% FAS
Vermont/MERS-Group C			3HC	(2.5% x years x FAS) + (1.4% x Group A previous service x FAS) + (1.7% x Group B previous service x FAS)	50% FAS
Vermont/MERS-Group D			2HC	(2.5% x years x FAS) + (1.4% x Group A previous service x FAS) + (1.7% x Group B previous service x FAS) + (2.5% x Group C previous service x FAS)	50% FAS
Vermont/MERS-DC plan			N/A	Vested account balance	None
Vermont/STRS-Group A		6/31/1981	3HC	1.67% x years x FAS	100% FAS
Vermont/STRS-Group C1 ("grandfathered")	7/1/81	> age 57 and >25 years on 6/30/2010	3HC	(1.25% x years before 7/1/90 x FAS) + (1.67% x years after 6/30/90 x FAS)	53.34% FAS
Vermont/STRS-Group C2	7/1/81	< age 57 and <25 years on 6/30/2010	3HC	(1.25% x years before 7/1/90 x FAS) + (1.67% x years after 6/30/90 x FAS); 2.0% after attaining 20 years	60% FAS

State/Plan	Tier Start	Tier End	FAS Period	Benefit Formula	Limitations
Virginia/VRS-Plan 1		6/30/10	3HC	1.7% x years x FAS	None
Virginia/VRS-Plan 2	7/1/10	12/31/13	5HC	(1.65 x years of service after 1/1/2013 x FAS) + (1.7 x years of service before 1/1/2013 x FAS)	None
Virginia/VRS-Hybrid plan	1/1/14	Present	5HC	(1.0% x years x FAS) + DC accumulation	None
Virginia/Fairfax/ERFC Legacy plan	7/1/73	6/30/01	3HC	"1.85% x years x FAS minus VRS adjustment: 1.65% x years x (FAS - 1200) plus additional 3% benefit adjustment."	Additional Temporary Benefit of 1% x years x FAS that is paid until full SS age
Virginia/Fairfax/EFRC 2001 Tier 1	7/1/01	6/31/2017	3HC	0.8% x years x FAS	None
Virginia/Fairfax/EFRC Tier 2 (Hired after 7/1/2017)	7/1/17	Present	5HC	0.8% x years x FAS	None
Washington/PERS-Plan 1		9/30/77	2HC	2% x years x FAS	60% FAS
Washington/PERS-Plan 2	10/1/76	Present	5HC	2% x years x FAS	None
Washington/PERS-Plan 3	10/1/76	Present	5HC	(1% x years x FAS) + DC accumulation	None
Washington/SERS-Plan 2			5HC	2% x years x FAS	None
Washington/SERS-Plan 3			5HC	(1% x years x FAS) + DC accumulation	None
Washington/TRS-Plan 1		9/30/77	2HC	2% x years x FAS	60% FAS
Washington/TRS-Plan 2	10/1/76	Present	5HC	2% x years x FAS	None
Washington/TRS-Plan 3	10/1/76	Present	5HC	(1% x years x FAS) + DC accumulation	None
West Virginia/TRS - Tier 1		6/31/2015	5H/15	2% x years x FAS	None
West Virginia/TRS - Tier 2 (Hired after 7/1/2015)	7/1/15	Present	5H/15	2% x years x FAS	None
West Virginia/TDCP	7/1/91	6/31/2015	N/A	Vested account balance	N/A
Wisconsin/WRS			3H	(1.6% x years x FAS for service after 1999) + (1.765% x years x FAS for service prior to 2000)	70% FAS
Wyoming/WRS-Tier 1 (Hired before 9/1/2012)		8/31/12	3HC	(2.125% x years up to 15 x FAS) + (2.25% x years after 15 x FAS)	None
Wyoming/WRS-Tier 2 (Hired after 9/1/2012)	9/1/12	Present	5HC	2% x FAS x years	None

See Appendix III for detailed notes on each system.

VII. ACTUARIAL METHODS AND FUNDING

Defined benefit (DB) plans have legal obligations to plan participants to pay the benefits promised. To this end, plans hire professional actuaries to calculate the amount of money that should be contributed to meet these long-term obligations. The report given by actuaries is called the "actuarial valuation," and it delineates the pension cost and plan funded status in any given year.

How well any retirement plan is funded—that is, whether it has sufficient assets to meet its obligations—can vary significantly depending on the actuarial cost method used by the plan, the actuarial assumptions employed in the actuarial calculation, and the asset valuation method used by the plan.

(Because DC plans, by their nature, do not have these obligations, this section applies only to DB plans.)

Actuarial Cost Methods

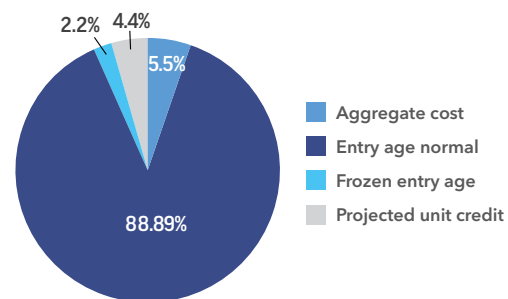
Actuarial cost methods may be described as either accrued-benefit cost methods or projected benefit-cost methods. Each actuarial method calculates a normal and past service liability cost.

Normal cost represents the cost accrued each year by the active employees in the plan, based on their level of promised benefits. Past service liability cost refers to the amount of money that should be paid to pay down any existing unfunded liabilities in the plan.

Different cost methods can lead to very different calculations of aggregate liabilities and therefore, the plan's funded status. Even when examining plans using the same actuarial cost method, varying assumptions or different asset valuation methods can make funding comparisons difficult across the full range of public plans.

As **Figure 14** shows, the overwhelming majority of the DB plans—about 89 percent—use an entry-age normal actuarial cost method. About 9 percent of the plans use either a projected unit-credit or an aggregate-cost actuarial method.

Figure 14. Actuarial Method Used by Plans



As part of calculating normal cost and past service liability, actuaries must make assumptions about the anticipated experience of the plan, such as mortality rates for active and retired participants, retirement rates, rates of investment returns on plan assets expressed as an interest rate, the rate of inflation, and the rate of salary increases.

Interest rate assumptions in this study ranged from 6.25 to 7.75 percent (a decrease from 6.5 to 8.5 percent in the 2016 report). The median and average interest rate assumptions were 7.2 percent and 7.14 percent, respectively (also a decrease from 2016's 7.8 percent and 7.7 percent).

These findings corroborate research from the Mission Square Research Institute, which finds that the interest rate assumption among the 201 largest public pension plans has decreased by an average of 0.7 percent overall since 2010 (from 7.8 percent to 7.1 percent).⁸

The rate of general inflation assumed in the plans ranged from 2.0 to 3.5 percent (a decrease from 2.5 to 4.0 percent in 2016). The median and average general inflation rate assumptions were 2.5 and 2.53 percent (a decrease from both being 3.0 percent in 2016). The difference between the average interest rate assumption and general inflation rate assumption was about 4.6 percent.

Regarding salary growth, the minimum ranged from 0 to 5.6 percent, while the maximum ranged from 3.25 to 20 percent. The average minimum and maximums were 3.26 and 9.2 percent, and the medians were similar (3.25 and 9.0 percent).

It should be noted that, since the 2016 iteration of this report, nearly all of the plans in this report have lowered at least one of these assumptions. Again, changing assumptions will instantly affect the plan's current funded status. Using a more conservative (lower) interest rate assumption, for example, immediately makes the plan seem less funded than a higher discount rate would, even though neither the total assets nor total liabilities have changed.

Asset Valuation Methods

A retirement plan's full investment return may or may not be recognized for actuarial purposes in the year it occurs. Assets may be valued at fair market value (fair value or market) or book value (cost). Alternatively, assets may be valued by some averaging method (smoothing) over a particular time to recognize the effect of any unusual investment return experience more gradually. The resulting value of assets is often referred to as the "actuarial value of assets" (AVA).

The asset valuation method employed in the actuarial valuation can affect a plan's funded status. The funded status of two plans using the same actuarial cost method and the same assumptions may not be comparable because of differences in the asset valuation method. No plan reviewed in this report valued assets at cost for actuarial purposes. Instead, plans used a market value

⁸ <https://slge.org/wp-content/uploads/2022/02/publicplannssnapshot02112022.pdf>

approach, typically a five-year smoothed actuarial asset valuation. The method employed by each plan is described in detail in **Table 7**.

As can be seen in **Summary Chart 6**, most plans value their assets using a four- or five-year smoothing method. Asset smoothing, the actuarial practice of gradually recognizing gains and losses, is designed to reduce volatility in funding methods. A plan employing five-year smoothing will recognize 20 percent of each year’s gains or losses each year for five years.

Summary Chart 6

Asset Valuation Method	
AVA with 5-year smoothing	1
Fair value	3
Market	2
Market, 10-year smoothing	5
Market, 3-year smoothing	2
Market, 4-year smoothing	10
Market, 4-year smoothing with corridor	4
Market, 5-year smoothing	45
Market, 5-year smoothing with corridor	19
Market, 6-year smoothing	2
8 year graded smoothed fair value	5
Modified market	1

The practical result of asset smoothing is that investment results from very good and bad years are only gradually being recognized (and thus counted as actuarial assets). This smoothing process helps to stabilize contribution rates over time.

Funding Measures

Public employee retirement plans typically present information on funding progress in their actuarial valuation reports and their audited annual comprehensive financial reports (ACFRs). There are two broad issues to consider when evaluating the ability of pension funds to keep their promises: the pension fund’s financial metrics and the overall health and stability of the employer.

For a quick assessment of the plan’s financial health, many people look to the plan’s “funded ratio,” which refers to the plan’s actuarial value of assets as a percentage of the actuarial accrued liability (The funded ratio of each plan is presented in **Table 7** at the end of this section). However, as noted previously, these measures may not be comparable across plans because of differences in actuarial cost methods, actuarial assumptions, amortization periods, and asset valuation methods.

This report shows a wide range of funding ratios among plans, as seen in **Summary Chart 7**. Nineteen plans (19.4 percent) with identifiable funding ratios report being 90 percent or more funded, while 38 plans (38.8 percent) have funded ratios of less than 70 percent. The median funding ratio for the plans was 72.8 percent, and the average funding ratio was 73.7 percent. This is slightly higher than our 2016 report, in which the median was 72.5 percent, and the average was 73.0 percent.

Summary Chart 7

Range of Funding Ratios	
100 or more	5
90 to 99.99	14
80 to 89.99	11
70 to 79.99	30
60 to 69.99	20
50 to 59.99	11
Less than 50	7

However, looking at just the dollar amounts of unfunded liabilities can be misleading. In an inflationary environment, employee pay, retirement benefits, and unfunded liabilities may increase in dollar amount, even though the real value of one or all of these items may be shrinking. Thus, when evaluating a pension fund's financial picture, it is also helpful to look at the ratio of unfunded actuarial accrued liability (UAAL) to annual covered payroll.

The UAAL as a percentage of covered payroll provides a quick measure of the plan's ability to pay its unfunded actuarial liability over time because it provides an index adjusted for the effect of inflation. Analysis of this ratio over time may indicate whether the plan is becoming financially stronger. A smaller percentage may indicate a stronger retirement plan. **Table 7** presents data on UAAL as a percentage of covered payroll for the defined benefit plans reviewed. We find that the average is 203.1 percent, while the median is 159.9 percent. Again, this is slightly lower than the 2016 report, in which the average was 208.1 and the median was 156.5 percent.

Because nearly all plans have lowered one or more of their actuarial assumptions—and that lowering assumptions instantly makes the plan look less well-funded, as noted earlier—it seems safe to assume that the plans, in aggregate, are healthier than they were in the 2016 report.

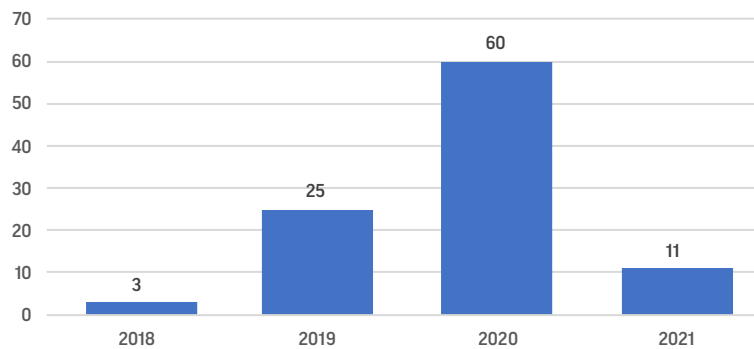
Indeed, a December 2021 report by Mission Square Research Institute found that the funded levels for 210 of the largest state and local plan funded levels have increased since 2016, especially for the plans that were least well-funded at the time.⁹

Of course, when evaluating a plan's relative funding status, it is essential to understand several vital variables to fully grasp the status of the plan. These include:

- Recent market experience;
- Practices regarding recognition of investment gains and losses (the asset valuation method);
- Practices regarding recognition of other actuarial gains and losses;
- Funding history;
- The degree to which the plan has been used as a budgetary or management tool by employers in ways that have a fiscal effect on the plan;
- Material changes in key assumptions (interest, demographics, retirement behavior, and so forth);
- Benefit improvement history and its temporary influence on funding status; and
- Legislative restrictions—or requirements—governing investment practices.

⁹ <https://slge.org/wp-content/uploads/2022/02/publicplanssnapshot02112022.pdf>

Figure 15. Valuation Dates for Reported Plan Data



Please note that research for this publication, gathered between September and December 2021, represents only a snapshot of each plan. As shown in **Figure 15**, the data extracted from plans' actuarial valuations (which contain both forward-looking and historical data) span a range of several years. The oldest valuation report is dated June 2018, and the newest is dated July 2021. Most plans had valuation dates in 2020. Considering that the COVID-19 pandemic, and resulting economic downturn and large fluctuations have occurred during this timeframe, again, caution should be taken in comparing different plans.

Table 7

State/Plan	Valuation Date	Actuarial Method	Funded Ratio %	UAAL as % of Covered Payroll*	Assumed Inflation %	Salary Growth Minimum	Salary Growth Maximum	Assumed Interest Rate %	Asset Valuation Method	Amortization Period (in years)
Alabama/TRS	9/30/19	Entry age normal	69.40	158.4	2.75	3.25	5	7.70	Market, 5-year smoothing	Closed; 28.8 years remaining
Alaska/PERS-DB plan	6/30/19	Entry age normal	61.61	587.49	2.5	2.75	6.75	7.38	Market, 5-year smoothing	Layered over closed 25 year periods
Alaska/TRS-DB plan	6/30/19	Entry age normal	72.81	555.44	2.5	2.75	6.75	7.38	Market, 5-year smoothing	Layered over closed 25 year periods
Arizona/ASRS	6/30/19	Entry age normal	72.3	150.5	2.3	2.7	7.2	7.5	Market, 10-year smoothing	25
Arkansas/ATRS	6/30/20	Entry age normal	74.91	183.94	2.5	2.75	7.75	7.5	Market, 4-year smoothing	30
California/PERS	6/30/19	Entry age normal	70.2	280.9	2.5	varies based on entry age and service	varies based on entry age and service	7.25	Market	20 years
California/STRS	6/30/19	Entry age normal	66	313.9	2.75	3.5	3.5	7.0	Market, 3-year smoothing	30
California/UCRP	6/30/19	Entry age normal	76.6	166	2.5	3.65	5.95	6.75	Market, 5-year smoothing	18.7
Colorado/PERA-DB plan	12/31/20	Entry age normal	62.8	317.4	2.3	3.40	11.00	7.25	Market, 4-year smoothing	State 33, Schools 43, Local 29
Connecticut/CMERS	6/30/20	Entry age normal	76.4	NA	2.5	3.5	10	7	Market, 5-year smoothing	19
Connecticut/TRS	6/30/20	Entry age normal	51.32	407.2	2.5	3	6.5	6.9	Market, 4-year smoothing	25
Delaware/SEPP	6/30/19	Entry age normal	87.3	65.2	2.5	0	9	7	Market, 5-year smoothing	20 year closed
District of Columbia/TRF	9/30/20	Entry age normal	91.3	46.75	3.5	5.5	8.63	6.5	Market, 5-year smoothing	11-20, closed
Florida/FRS-DB plan	7/1/20	Entry age normal	78.85	117.46	2.4	3.25	3.25	6.8	Market, 5-year smoothing	30; new bases 25 (as of 7/1/2020)
Georgia/PSERS	6/30/20	Entry age normal	83.1	NA	2.75	NA	NA	7	Market, 5-year smoothing	19.1 remaining
Georgia/TRS	6/30/21	Entry age normal	76.2	200.6	2.5	3	8.75	7.25	Market, 5-year smoothing	25.6 remaining

State/Plan	Valuation Date	Actuarial Method	Funded Ratio %	UAAL as % of Covered Payroll*	Assumed Inflation %	Salary Growth Minimum	Salary Growth Maximum	Assumed Interest Rate %	Asset Valuation Method	Amortization Period (in years)
Hawaii/ERS	6/30/20	Entry age normal	55.3	315.5	2.5	3.5	6.5	7	Market, 4-year smoothing	26
Idaho/PERS	6/30/20	Entry age normal	88.22	65.49	3	3.75	3.75	7.05	Market	20.5 remaining
Illinois/IMRF	12/31/20	Entry age normal	94.1	38.4	2.25	2.89	13.75	7.25	Market, 5-year smoothing w/ corridor	23 year closed
Illinois/SURS	6/30/20	Projected unit credit	42.23	754.64	2.25	3.25	12.25	6.75	Market, 5-year smoothing	30 year open
Illinois/TRS	6/30/20	Entry age normal	40.5	745.4	2.5	4	9.5	7	AVA with 5-year smoothing	20
Illinois/Chicago/MEA&BF	12/31/20	Entry age normal	22.3	743.21	2.5	3.5	7.75	7	Market, 5-year smoothing	30 year open
Illinois/Chicago/CTPF	6/30/20	Projected unit credit	46.7	567.33	2.25	2.75	12.6	6.75	Market, 4-year smoothing	23 remaining on 30 year closed
Indiana/PERF	6/30/20	Entry age normal	83.3	50.6	2.25	2.75	8.75	6.75	Market, 5-year smoothing w/ corridor	24 remaining
Indiana/TRF pre-96 DB (pay as you go)	6/30/19	Entry age normal	26.5	1478.6	2.25	2.75	12	6.75	Market, 5-year smoothing w/ corridor	24 remaining
Indiana/TRF 96 DB (prefunded)	6/30/19	Entry age normal	100.9	-1.6	2.25	2.75	12	6.75	Market, 5-year smoothing w/ corridor	24 remaining
Iowa/PERS	6/30/20	Entry age normal	83.96	78.49	2.6	3.25	16.25	7	Modified market	30 year closed
Kansas/PERS	6/30/20	Entry age normal	70	123	2.75	3.25	11.75	7.5	Market, 5-year smoothing	Layered bases 13-25 years
Kentucky/CERS	6/30/20	Entry age normal	49.4	311.44	2.3	3.3	11.55	6.25	Market, 5-year smoothing	30 year closed
Kentucky/CERS Hybrid Cash Balance plan	6/30/20	Entry age normal	N/A	N/A	2.3	3.3	11.55	6.25	Market, 5-year smoothing	30 year closed
Kentucky/TRS	6/30/20	Entry age normal	58.4	397.1	3	3.5	7.3	7.5	Market, 5-year smoothing	27.4
Louisiana/SERS	6/30/21	Entry age normal	82.51	153.61	2.5	3.5	3.5	6.9	Market, 5-year smoothing w/ corridor	30
Louisiana/TRS	6/30/20	Entry age normal	67.9	245.2	2.3	3.1	4.6	7.45	Market, 5-year smoothing w/ corridor	30
Maine/PERS	6/30/20	Entry age normal	83.9	140.81	2.75	2.75	14.5	6.75	Market, 3-year smoothing	8 years remaining on 31 year closed
Maryland/ERPS	6/30/20	Entry age normal	68.69	184	2.6	3.1	11.6	7.4	Market, 5-year smoothing with 20% corridor	18 years remaining on 25 year closed
Maryland/TRPS	6/30/20	Entry age normal	76.99	137	2.6	3.1	11.6	7.4	Market, 5-year smoothing with 20% corridor	18 years remaining on 25 year closed
Massachusetts/SERS	1/1/19	Entry age normal	63.7	NA	3	4	7	7.25	Market, 5-year smoothing with 10% corridor	Through FY 2035
Massachusetts/TRS	1/1/19	Entry age normal	51.7	367.63	3	4	7.5	7.25	Market, 5-year smoothing with 10% corridor	Through FY 2035
Massachusetts/Boston/SBRS	12/31/20	Entry age normal	67.64	231.04	3.25	4	7.5	7.05 / 7.15	Market, 5-year smoothing w/ corridor	7 / 18 years remaining
Michigan/MPSERS	9/30/19	Entry age normal	60.4	388.7	2.75	2.5	11.55	6.8; 6.0 for pension plus 2	Market, 5-year smoothing with 20% corridor	19

State/Plan	Valuation Date	Actuarial Method	Funded Ratio %	UAAL as % of Covered Payroll*	Assumed Inflation %	Salary Growth Minimum	Salary Growth Maximum	Assumed Interest Rate %	Asset Valuation Method	Amortization Period (in years)
Minnesota/GERP	6/30/20	Entry age normal	91.9	37.27	2.25	3.25	13.75	7.5	Market, 5-year smoothing	29
Minnesota/PERA	6/30/20	Entry age normal	79.6	87.7	2.25	3	10.25	7.5	Market, 5-year smoothing	29
Minnesota/TRA	7/1/20	Entry age normal	76.1	139.2	2.5	2.85	9.25	7.5	Market, 5-year smoothing	30 / 29 remaining
Minnesota/St. Paul/SPTRFA	7/1/20	Entry age normal	64.46	NA	2.5	3	9	7.5	Market, 5-year smoothing	Closed, ending 6/30/2048
Mississippi/PERS	6/30/20	Entry age normal	60.9	292.6	2.75	3	18.25	7.75	Market, 5-year smoothing	30.9
Missouri/MOSERS	6/30/21	Entry age normal	59	316.1	2.25	2.75	10	6.95	Market, 5-year smoothing	25 years, closed
Missouri/PEERS	6/30/20	Entry age normal	86.3	48	2.25	4	11	7.5	Market, 5-year smoothing	22 left on closed 30 year
Missouri/PSRS	6/30/20	Entry age normal	84	161.3	2.25	3	9.5	7.5	Market, 5-year smoothing	21.7 left on closed 30 year
Missouri/Kansas City/PSRS	1/1/21	Entry age normal	66.5	146.6	2.25	3.85	9.5	7.25	Market, 5-year smoothing	Closed, 27 years remaining
Missouri/St. Louis/PSRS	1/1/20	Frozen entry age	78.6	89	2.75	3.5	5	7.5	Market, 5-year smoothing	30
Montana/PERS-DBRP	6/30/20	Entry age normal	74.1	166.7	2.4	3.5	8.3	7.34	Market, 4-year smoothing	Open 30
Montana/TRS	7/1/20	Entry age normal	68.8	223.2	2.4	3.25	7.76	7.34	Market, 4-year smoothing	Open, 29 years remaining
Nebraska/SERS	7/1/21	Entry age normal	97.4	16.5	2.65	3.15	13.15	7.3	Market, 5-year smoothing	25
Nebraska/Omaha/OSERS	1/1/21	Entry age normal	61.64	250.75	2.75	3.75	6.25	7.5	Market, 4-year smoothing w/ corridor	Closed 30 years
Nevada/PERS	6/30/20	Entry age normal	76.1	230.9	2.75	4.25	9.15	7.5	Market, 5-year smoothing w/ corridor	Open 20 years
New Hampshire/NHRS	6/30/19	Entry age normal	61	208.7	2	5.6	5.6	6.75	Market, 5-year smoothing w/ corridor	20 years beginning 7/1/2019; 30 years beginning 7/1/2009
New Jersey/PERS	6/30/19	Projected unit credit	51.21	248.38	2.75	2	7	7	Market, 5-year smoothing	30 year open
New Jersey/TPAF	6/30/19	Projected unit credit	40.29	353.43	2.75	1.55	5.65	7	Market, 5-year smoothing	30 year open
New Mexico/ERB	6/30/20	Entry age normal	60.4	305	2.3	3	10	7	Market, 5-year smoothing	Closed, 29 years left on 30
New York/ERS	4/1/21	Aggregate cost	92.7	0.36	2.7	4.4	4.4	6.8	Market, 5-year smoothing	N/A
New York/STRS	6/30/20	Aggregate cost	98.9	8.3	2.4	1.9	5.18	6.95	Market, 5-year smoothing	N/A
New York/New York City/BERS	6/30/18	Entry age normal	76.6	93.3	2.5	4	9	7	Market, 6-year smoothing	20 years closed
New York/New York City/TRS	6/30/19	Entry age normal	69.3	213.3	2.5	4	13	7	Market, 6-year smoothing	14 years closed
North Carolina/TSERS	12/31/20	Entry age normal	86.8	NA	2.5	3.25	8.05	6.5	Market, 5-year smoothing w/ corridor	12 year closed
North Dakota/PERS	7/1/20	Entry age normal	69.1	124.8	2.25	4	20	7	Market, 5-year smoothing	20 years open
North Dakota/TFFR	7/1/20	Entry age normal	65.7	202	2.3	3.8	14.8	7.25	Market, 5-year smoothing	23 years, closed
Ohio/PERS-DB plan	12/31/20	Entry age normal	77.4	157	2.5	3.25	10.75	7.2	Market, 4-year smoothing w/ corridor	18

State/Plan	Valuation Date	Actuarial Method	Funded Ratio %	UAAL as % of Covered Payroll*	Assumed Inflation %	Salary Growth Minimum	Salary Growth Maximum	Assumed Interest Rate %	Asset Valuation Method	Amortization Period (in years)
Ohio/PERS-Combined plan	12/31/20	Entry age normal	149.8	0	2.5	3.25	8.25	7.2	Market, 4-year smoothing	0
Ohio/SERS	6/30/20	Entry age normal	71.49	NA	3	3.5	18.2	7.5	Market, 4-year smoothing	24
Ohio/STRS-DB plan	6/30/20	Entry age normal	77.4	191	2.5	2.5	12.5	7.45	Market, 4-year smoothing w/ corridor	30 year closed starting in 2015
Ohio/STRS-Combined plan	6/30/20	Entry age normal	77.4	191	2.5	2.5	12.5	7.45	Market, 4-year smoothing w/ corridor	30 year closed starting in 2015
Oklahoma/TRS	6/30/21	Entry age normal	71.5	180	2.25	2.25	13.25	7	Market, 5-year smoothing	20
Oregon/PERS-Tiers 1 and 2	6/30/18	Entry age normal	78.6	165.9	2.5	3.5	3.5	7.2	Fair value	Reamortized to new 22 year period starting 12/31/2019
Oregon/PERS-OPSRP	6/30/18	Entry age normal	78.6	165.9	2.5	3.5	3.5	7.2	Fair value	Reamortized to new 22 year period starting 12/31/2019
Pennsylvania/PSERS	6/30/20	Entry age normal	59.2	315.1	2.5	3.25	10.25	7	Market, 10-year smoothing	24
Pennsylvania/SERS	12/31/19	Entry age normal	56.5	364	2.6	3.7	8.9	7.125	Market, 5-year smoothing	10 years and 30 years with level payments over closed periods
Rhode Island/ERS	6/30/20	Entry age normal	56.2	275	2.5	3	13	7	Market, 5-year smoothing	Closed, 18 years remaining
Rhode Island/MERS	6/30/20	Entry age normal	82.5	86.8	2.5	3.25	7.25	7	Market, 5-year smoothing	Closed, 16 years remaining
South Carolina/SCRS	7/1/19	Entry age normal	54.1	244.1	2.25	3	11	7	Market, 5-year smoothing	28 years closed
South Dakota/SDRS	6/30/20	Entry age normal	100.1	0	2.25	3	6.5	6.5	NA, AVA = FVA	0
Tennessee/CRS	6/30/19	Entry age normal	101.75	-12.97	2.5	3.46	8.72	7.25	Market, 10-year smoothing	3.08
Tennessee/CRS- Hybrid plan - Teachers Retirement Plan	6/30/19	Entry age normal	99.6	0.1	2.5	3.46	8.72	7.25	Market, 10-year smoothing	N/A
Tennessee/CRS- Hybrid plan - State Employees Plan	6/30/19	Entry age normal	93.8	28.26	2.5	3.46	8.72	7.25	Market, 10-year smoothing	N/A
Texas/TRS	8/31/20	Entry age normal	76.8	101.2	2.3	3.05	9.05	7.25	Market, 5-year smoothing	27
Utah/URS-Tier 1 - Noncontributory	1/1/20	Entry age normal	90.2	94.6	2.5	3.25	9.25	6.95	Market, 5-year smoothing w/ corridor	20 year open
Utah/URS-Tier 1 - Contributory	1/1/20	Entry age normal	98.3	69.1	2.5	3.25	9.25	6.95	Market, 5-year smoothing w/ corridor	20 year open
Utah/URS-Tier 2 Hybrid plan	1/1/20	Entry age normal	93.4	3.5	2.5	3.25	9.25	6.95	Market, 5-year smoothing w/ corridor	20 year open
Vermont/MERS-DB plan	6/30/21	Entry age normal	77.9	NA	2.3	4.5	7	7	Market, 5-year smoothing	17 remaining
Vermont/STRS	6/30/21	Entry age normal	52.9	NA	2.3	3.55	10.5	7	Market, 5-year smoothing	17 remaining
Virginia/VRS	6/30/19	Entry age normal	76.9	125.5	2.5	3.5	5.35	6.75	Market, 5-year smoothing	30 year closed starting in 2015
Virginia/Fairfax/ERFC	12/31/20	Entry age normal	76.6	52	2.75	2.75	7.25	7.25	Market, 5-year smoothing w/ corridor	18 remaining on 30 year closed

State/Plan	Valuation Date	Actuarial Method	Funded Ratio %	UAAL as % of Covered Payroll*	Assumed Inflation %	Salary Growth Minimum	Salary Growth Maximum	Assumed Interest Rate %	Asset Valuation Method	Amortization Period (in years)
Washington/PERS-Plan 1	6/30/20	Entry age normal	69	23	2.75	3.5	9.5	7.5	8 year graded smoothed fair value	10 year rolling
Washington/PERS-Plan 2, PERS-Plan 3	6/30/20	Aggregate cost	98	9	2.75	3.5	9.5	7.5	8 year graded smoothed fair value	N/A
Washington/SERS-Plan 2, SERS-Plan 3	6/30/20	Aggregate cost	93	19	2.75	3.5	11.5	7.5	8 year graded smoothed fair value	N/A
Washington/TRS-Plan 1	6/30/20	Entry age normal	71	33	2.75	3.5	9	7.5	8 year graded smoothed fair value	10 year rolling
Washington/TRS-Plan 2, TRS-Plan 3	6/30/20	Aggregate cost	93	18	2.75	3.5	9	7.5	8 year graded smoothed fair value	N/A
West Virginia/TRS	7/1/19	Entry age normal	71.1	209.7	3	3	6.75	7.5	Market, 4-year smoothing	Fixed through 2034
Wisconsin/WRS	12/31/19	Frozen entry age	100	0	2.5	3.1	8.6	7	Market, 5-year smoothing	30 year closed
Wyoming/WRS - Public Employees Pension Plan	1/1/21	Entry age normal	74.76	141.6	2.25	2.5	6.5	7	Market, 5-year smoothing	27 remaining

*Where the Actuarial Values are not disclosed, we use the Net Pension Liability as a Percentage of Covered Payroll data. See notes on tables in Appendix III for more details on which plans are affected. Also note that the UAAL-to-covered-payroll ratio may take on a negative or positive value. When a plan is more than fully funded, a negative number will appear in the numerator of the UAAL to covered payroll ratio, making the value of the ratio as a whole negative.

VIII. RETIREMENT PLAN GOVERNANCE

Public sector retirement plans are generally overseen by boards of trustees. These boards act as fiduciaries who are subject to a strict set of duties set by legislatures, courts, and the boards themselves. The composition of boards varies widely. Most require at least one board member to be an active teacher, while many also require that at least one member be a retiree. Others require a greater range of education employees, including ESPs, HESPs, or administrators.

Boards of trustees for the plans reviewed by this report ranged in size from one member (New York State and Local Employees' Retirement System) to 20 members (Tennessee Consolidated Retirement System). Some plans, such as the Florida Retirement System and the District of Columbia 401(a) Defined Contribution Pension Plan, are administered without boards of trustees, with the governing authority vested in a senior official of the sponsoring agency. **Table 8** shows the wide variance in the number of plan trustees and the proportion of trustees who are active or retired members of the plan. Thirty-nine of the 82 plan governing bodies with trustees that were reviewed (48 percent) had half or more of their governing bodies composed of active and/or retired participants.

Table 8

State/Plan	Total Members	Active Employees - Elected	Active Employees - Appointed	Retirees (Ex-Employees) - Elected	Retirees (Ex-Employees) - Appointed	Elected - non-Member	Appointed - Non-Member	Ex Officio*
Alabama/TRS	15	10	0	2	0	0	0	3
Alaska/PERS and TRS	9	0	1	0	3	0	3	2
Arizona/ASRS	9	0	4	0	1	0	4	0
Arkansas/ATRS	15	8	0	3	0	0	0	4
California/PERS	13	5	0	1	0	0	3	4
California/STRS	12	3	1	0	1	0	3	4

State/Plan	Total Members	Active Employees - Elected	Active Employees - Appointed	Retirees (Ex-Employees) - Elected	Retirees (Ex-Employees) - Appointed	Elected - non-Member	Appointed - Non-Member	Ex Officio*
California/UCRP	11	2	3	0	2	0	3	1
Colorado/PERA	16	9	0	2	0	0	3	2
Connecticut/CMERS	15	6	0	0	0	0	9	0
Connecticut/TRS	12	5	0	0	0	0	5	2
Delaware/SEPP	7	0	0	0	0	0	5	2
District of Columbia/DCPP	0	0	0	0	0	0	0	0
District of Columbia/TRF	13	3	0	3	0	0	6	1
Florida/FRS	3	0	0	0	0	0	0	3
Georgia/PSERS	9	0	0	0	2	0	4	3
Georgia/TRS	10	0	5	0	1	0	2	2
Hawaii/ERS	8	3	0	1	0	0	3	1
Idaho/PERS	5	0	2	0	0	0	3	0
Illinois/IMRF	8	3	4	1	0	0	0	0
Illinois/SURS	11	4	0	2	0	0	5	0
Illinois/TRS	15	5	0	2	0	0	7	1
Illinois/Chicago/MEA&BF	5	3	0	0	0	0	0	2
Illinois/Chicago/CTPF	12	7	0	3	0	0	2	0
Indiana/PERF and TRF	9	0	3	0	1	0	4	1
Iowa/PERS	11	0	2	0	1	0	3	5
Kansas/PERS	9	1	0	1	0	0	6	1
Kentucky/CERS	9	1	0	2	0	0	6	0
Kentucky/TRS	11	4	0	1	0	2	2	2
Louisiana/SERS	12	4	0	2	0	0	0	6
Louisiana/TRS	17	10	0	2	0	0	1	4
Maine/PERS	8	2	0	2	0	0	3	1
Maryland/ERPS and TRPS	15	2	2	3	0	0	5	3
Massachusetts/SERS	5	1	0	1	0	0	2	1
Massachusetts/TRS	7	0	0	2	1	0	1	3
Massachusetts/Boston/SBRS	5	1	0	1	0	0	2	1
Michigan/MPERS	12	0	6	0	2	0	3	1
Minnesota/GERP	11	6	0	1	0	0	4	0
Minnesota/PERA	11	5	4	0	1	0	0	1
Minnesota/TRA	8	4	0	1	0	0	0	3
Minnesota/St. Paul/SPTRFA	10	8	0	1	0	0	0	1
Mississippi/PERS	10	6	1	2	0	0	0	1
Missouri/MOSERS	11	2	0	1	0	0	6	2
Missouri/PEERS and PSRS	7	4	0	0	1	0	2	0
Missouri/Kansas City/PSRS	12	4	0	2	0	0	5	1
Missouri/St. Louis/PSRS	11	5	0	2	0	0	4	0
Montana/PERS	7	0	3	0	1	0	3	0
Montana/TRS	6	0	3	0	1	0	2	0
Nebraska/SERS	9	0	6	0	0	0	2	1
Nebraska/Omaha/OSERS	7	3	0	1	0	0	2	1
Nevada/PERS	6	0	4	0	1	0	1	0
New Hampshire/NHRS	13	0	4	0	0	0	8	1
New Jersey/PERS	9	6	0	0	0	0	3	0
New Jersey/TPAF	7	2	0	2	0	0	3	0
New Mexico/ERB	7	2	0	1	0	0	2	2
New York/ERS	1	0	0	0	0	0	0	1
New York/STRS	10	3	2	1	0	0	3	1

State/Plan	Total Members	Active Employees - Elected	Active Employees - Appointed	Retirees (Ex-Employees) - Elected	Retirees (Ex-Employees) - Appointed	Elected - non-Member	Appointed - Non-Member	Ex Officio*
New York/New York City/BERS	15	2	0	0	0	0	12	1
New York/New York City/TRS	7	3	0	0	0	0	2	2
North Carolina/TSERS	13	0	4	0	2	0	4	3
North Dakota/PERS	9	3	0	1	0	0	3	2
North Dakota/TFFR	7	0	3	0	2	0	0	2
Ohio/PERS	11	5	0	2	0	0	3	1
Ohio/SERS	11	4	0	4	0	0	3	0
Ohio/STRS	11	5	0	2	0	0	3	1
Oklahoma/TRS	15	0	4	0	3	0	4	4
Oregon/PERS	5	0	1	0	1	0	3	0
Pennsylvania/PSERS	15	4	0	1	0	0	6	4
Pennsylvania/SERS	11	0	4	0	1	0	4	2
Rhode Island/ERS and MERS	15	5	0	2	0	0	5	3
South Carolina/SCRS	11	0	3	0	1	0	7	0
South Dakota/SDRS	17	13	0	1	0	0	2	1
Tennessee/CRS	20	2	5	0	1	0	3	9
Texas/TRS	9	0	2	0	1	0	6	0
Utah/URS	7	0	2	0	0	0	4	1
Vermont/MERS-DB plan	5	2	0	0	0	1	1	1
Vermont/STRS	6	2	0	1	0	0	0	3
Virginia/VRS	9	0	2	0	2	0	5	0
Virginia/Fairfax/ERFC	7	3	0	0	0	0	4	0
Washington/PERS, SERS, and TRS	0	0	0	0	0	0	0	0
West Virginia/TDCP and TRS	18	0	5	0	5	0	4	4
Wisconsin/WRS (ETF Board)	13	1	6	1	0	0	3	2
Wyoming/WRS	11	0	4	0	1	0	5	1

*Ex-Officio is defined as a Board Member who serves as a result of the position they currently hold. It can be a voting or non-voting position, depending on the state rules. See Appendix III for detailed notes on each system.

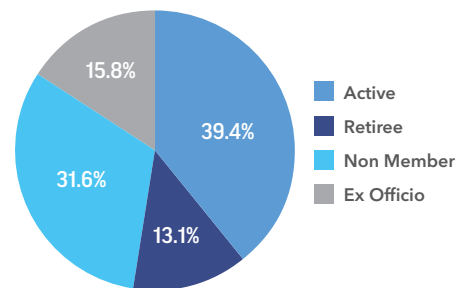
As shown in **Figure 16**, active employees comprise about 39 percent of the total board members, and retired members account for 13 percent.

The method of selecting members for the boards of trustees is shown in **Summary Chart 8**. The median size of these boards was 10 total members, while the average board size was 9.9 members.

Summary Chart 8

Selection Methods for Boards of Trustees	
Total number of governing boards reviewed	82
Number of Boards with:	
Active Employees - Elected	52
Active Employees - Appointed	32
Retired Members - Elected	40
Retired Members - Appointed	26
Nonmembers - Elected	2
Nonmembers - Appointed	67
Ex Officio	59

Figure 16. Composition of Boards of Trustees



APPENDIX I: METHODOLOGY AND REFERENCES

Characteristics of Large Public Education Pension Plans 2022 does not include all plans in which pre-K-12 or higher education employees participate. Instead, it contains the largest plans covering such employees, plus a range of other plans representing public education retirement systems. Included in this report are plans for teachers, education support professionals (ESPs), higher education faculty (HEF), and higher education support professionals (HESPs). In states or cities, the composition of education employees' plans falls into one of three categories: (1) plans that are maintained exclusively for education

employees; (2) plans that include education employees as well as other types of public employees, such as state and municipal employees; or (3) plans that are maintained exclusively for teachers, while, for instance, ESPs are then grouped with state, city, and county employees. This report contains the plans that cover education employees only plus those that include a broader group of employees, if education employees also are covered by that plan. This edition's plans must include teachers, ESPs, higher education faculty, or HESPs.

Unless otherwise noted, all the data and information in these sheets comes from the following official sources:

- The plan's most recent Annual Comprehensive Financial Report (ACFR);
- The plan's most recent Actuarial Valuation;
- The plan's Member Handbook(s) and newsletters;
- The plan's official website;
- The state or locality's statutory language (generally for information regarding governance or recent legislative changes);
- The departments of human resources' guidelines for electing trustees; and
- The state legislators' and governors' websites containing information on legislative changes, and state or local statutes.

For the summary Charts and Figures in the main text, some data points have been aggregated, eliminated, or combined to be able to summarize in a clean format. These tweaks are made purely for illustrative purposes. For each plan's detailed provisions, see the Tables in each Section and the accompanying Notes in **Appendix III**.

Report researchers also conducted statutory research for the state taxation of retirement benefits and board information. The data collection and research for this edition were conducted from September through December 2021; thus, the details presented in this report provide the latest information available as of that time.

Charts and figures expressing percentages of a whole may not add to 100 due to rounding.

State taxation information from Kiplinger's "State-by-State Guide to Taxes on Retirees," compiled Dec. 9, 2020, and accessed Dec. 10 - 13, 2021.

[kiplinger.com/kiplinger-tools/retirement/t055-s001-state-by-state-guide-to-taxes-on-retirees/index.php](https://www.kiplinger.com/kiplinger-tools/retirement/t055-s001-state-by-state-guide-to-taxes-on-retirees/index.php)

The tax information reported is for state and local government plans only unless otherwise noted.

Overview information, Social Security coverage information, and Service Credit Purchase information are largely unchanged from the 2016 Purple Book.

APPENDIX II: DIFFERENCES BETWEEN DB AND DC PLANS

Defined benefit (DB) and defined contribution (DC) plans work differently. At base, DB plans are pooled, collective investment trusts meant to pay out promised benefits to all participants after they retire. Actuaries calculate contribution rates to determine how much money should be set aside during the employees' career to pay out a specific, promised benefit. Once retired, the employee receives the money as a guaranteed monthly check that cannot be outlived.

DC plans, on the other hand, are individual accounts in which employees themselves own the account, but also must make crucial decisions on their own—how much money to contribute to finance a full retirement, where and how to invest their money, and then how to draw down their money in retirement. There is no guarantee of a promised benefit, nor that the money will not be outlived.

Because participants in DC plans bear the entire risk of investment performance, they are vulnerable to market losses, such as what happened during the financial crisis of 2007 and 2008.

Of course, DB plans are also invested in equity markets, and are therefore not immune to poor investment performance; these plans saw significant financial losses during the financial crisis. However, studies comparing the relative performance of DB and DC plans continue to demonstrate that DB plans have superior returns. For example, a 2015 study by the Boston College Center for Retirement Research found that over an extremely long time horizon—1990 to 2012—DB plans outperformed DC plans consistently, by an average of 0.7 percent per year, even after controlling for plan size and asset allocation. The authors attribute much of this to the higher investment fees charged by DC plans. In addition, they find that when 401(k) plan participants roll their balances over into an IRA (upon changing jobs, for example), they tend to be charged even higher fees, which diminishes their nest egg even more.¹⁰ study by the Boston College Center for Retirement Research found that over an extremely long time horizon—1990 to 2012—DB plans outperformed DC plans consistently, by an average of 0.7 percent per year, even after controlling for plan size and asset allocation.

Critically, a 1 percent greater annual return throughout a 30-year career can result in about a one-third boost in assets available to pay benefits.

In addition, because they are group plans designed to pay benefits for many decades into the future, DB plans are much better positioned to weather challenging economic periods while continuing to pay promised benefits to retirees. In effect, they shield participants from what could be called the timing risk associated with retirement. In DC plans, a participant has no control over the prevailing economic and market conditions at the time of retirement and thus has no way of predicting what level of income they will receive upon retirement.

Another advantage of DB plans is that most provide a disability retirement benefit as well. This provision stipulates that if a member becomes unable to continue working, a monthly benefit is paid for the rest of their life. Most DB plans also provide survivor benefits. Both benefits, typically payable regardless of the participant's age, are valuable forms of insurance that DC plans do not provide.

When it comes to public employee retirement plans, the research is clear: DB plans work better for employees, providing much greater financial security in retirement. Unfortunately, DC plan participants tend to save less than they need for retirement, misunderstand their investment options, and make poor or inappropriate allocation decisions. Too often, the long-term effect of this is that DC plan participants have inadequate savings once they retire. Then, once retired, they have the challenging decision to make regarding how best to draw down their money. If they decide to purchase an annuity upon retirement, the fees they pay can eat into their retirement savings. Worse, if they do not purchase an annuity and instead take their benefit in a lump sum, they have a significant risk of outliving their savings.

On the other hand, the pooled trust of the DB plan provides several advantages. The investment

¹⁰ <https://crr.bc.edu/briefs/investment-returns-defined-benefit-vs-defined-contribution-plans/>

trust has diversified, balanced portfolios that are professionally managed and produce higher returns with lower fees. In addition, the pooled nature of the plan means that an annuity can be provided to all participants at the lowest possible cost. According to an extensive analysis by the National Institute on Retirement Security, a typical DB plan provides equivalent retirement benefits at about half the cost of a typical DC plan and 27 percent lower cost than an ideal DC plan. This is because DB plans have “advantages based on longevity risk pooling, asset allocation, low fees, and professional management,” resulting in “a 49 percent cost advantage compared to a typical individually directed DC plan.” which in turn results in “a 49 percent cost advantage compared to a typical individually directed DC plan.”¹¹

Public officials, and public employees alike, understand the benefits inherent to DB plans. While there were large pushes in the early 2000s to move public employees from DB to DC plans, these efforts were largely fruitless. Public officials and the general public eventually came to realize that DB plans remain in employees’ best interest, while also providing a quality benefit at a lower cost than a DC plan.

A good example of this is the case of West Virginia. In 1991, the state froze new employees out of the DB plan and put them all in a DC plan instead. After a few years, numerous education employees complained of insufficient money in their investment accounts to support anything close to an adequate retirement. Finally, in 2005, a coalition of education employees convinced the West Virginia state legislature to reopen the closed DB plan to new hires and allow members of the state’s DC plan to switch to the reopened DB plan. An overwhelming 78 percent of these teachers opted to move back to the DB plan.¹²

Another good example of employees understanding the value of DB plans is looking to those states that provide a choice between a DB and a DC plan. In each of these states, public employees overwhelmingly choose the DB plan.¹³

¹¹ <https://www.nirsonline.org/wp-content/uploads/2022/01/Better-Bang-for-the-Buck-3.0-F11.pdf>

¹² https://www.nirsonline.org/wp-content/uploads/2017/11/west_virginia.pdf

¹³ <https://www.nirsonline.org/reports/decisions-decisions-an-update-on-retirement-plan-choices-for-public-employees-and-employers/>

APPENDIX III: NOTES TO TABLES

Notes on Table 2

Alaska/PERS-DB plan

Total Pension Liability and Fiduciary Net Position disclosed, rather than Actuarial Valuation of Assets (AVA) and Actuarial Accrued Liability (AAL)

Alaska/TRS-DB plan

Total Pension Liability and Fiduciary Net Position disclosed, rather than AVA and AAL

Arkansas/ATRS

Total Pension Liability and Fiduciary Net Position disclosed, rather than AVA and AAL

California/PERS

Funding numbers for Public Employees Retirement Fund (PERF)

California/STRS

Funding numbers for DB program only

California/UCRP

Total Pension Liability and Fiduciary Net Position disclosed, rather than AVA and AAL

Delaware/SEPP

Total Pension Liability and Fiduciary Net Position disclosed, rather than AVA and AAL, Active members and annuitants count is for State Employees only.

District of Columbia/TRF

Total Pension Liability and Fiduciary Net Position disclosed, rather than AVA and AAL. Active members and annuitants count is for State Employees only.

Florida/FRS-DB plan

Total Pension Liability and Fiduciary Net Position disclosed, rather than AVA and AAL. Active members include all Vested and Non-Vested in all Classes; it does not include DROP participants or FRS Investment Plan members. DROP is counted as annuitants.

Florida/FRS-DC plan "FRS Investment Plan"

Assets aggregated with FRS

Florida/FRS-DC Plan "SUSORP"

Assets aggregated with FRS

Idaho/PERS

Total Pension Liability and Fiduciary Net Position disclosed, rather than AVA and AAL.

Illinois/SURS

Active members include traditional, portable, and SMP members.

Kentucky/CERS

Non-hazardous membership only. AVA and AAL for CERS Non-Hazardous, including Cash Balance plan.

Kentucky/CERS Hybrid Cash Balance plan

Non-hazardous membership only.

Maine/PERS

Membership of State Employee and Teacher Plan only. Total pension Liability and Plan Fiduciary Net Position reported (not AVA or AAL)

Massachusetts/Boston/SBRS

Total Pension Liability and Fiduciary Net Position disclosed, rather than AVA and AAL

Michigan/MPERS-DC plan

The approximate number of active participants

Minnesota/PERA

Values and membership are for General Plan participants only.

Minnesota/St. Paul/SPTRFA

Active members include 92 on leave of absence.

Missouri/MOSERS
Membership in the MSEP plan only

Nevada/PERS
Membership does not include Police/Fire

Ohio/PERS-DB plan
Combined Plan members receiving a defined formula benefit may also be receiving a distribution of their defined contribution account, therefore may be counted more than once

Ohio/PERS-DC plan
Combined Plan members receiving a defined formula benefit may also be receiving a distribution of their defined contribution account, therefore may be counted more than once

Ohio/PERS-Combined plan
Combined Plan members receiving a defined formula benefit may also be receiving a distribution of their defined contribution account, therefore may be counted more than once

Ohio/STRS-DB plan
DB and Combined Plan financial and annuitant information are reported together. UAAL as a percentage of Covered payroll is NPL as a Percentage of Covered Payroll

Ohio/STRS-DC plan
DB and Combined Plan financial and annuitant information are reported together. UAAL as a percentage of Covered payroll is NPL as a Percentage of Covered Payroll

Oregon/PERS - DB
Membership does not include police and fire

Pennsylvania/SERS
Certain employees may be included in the DB and DC membership figures.

Pennsylvania/SERS - DC Plan
Certain employees may be included in the DB and DC membership figures.

Rhode Island/ERS
Teachers only

Rhode Island/MERS
Does not include police and fire

Tennessee/CRS - Teachers Legacy Plan
Membership numbers are not broken out

Tennessee/CRS- Hybrid plan - Teachers Retirement Plan
Membership numbers are not broken out

Tennessee/CRS- Hybrid plan - State Employees Plan
Membership numbers are not broken out

Utah/URS-Tier 2 DC plan
The value of assets is "plan net position."

Virginia/VRS-Hybrid plan
Not disclosed separately from the VRS DB plan

Washington/PERS-Plan 2
Plans 2 and 3 are reported together.

Washington/PERS-Plan 3
Plans 2 and 3 are reported together.

Washington/SERS-Plan 2
Plans 2 and 3 are reported together.

Washington/SERS-Plan 3
Plans 2 and 3 are reported together.

Washington/TRS-Plan 2
Plans 2 and 3 are reported together.

Washington/TRS-Plan 3

Plans 2 and 3 are reported together.
Wyoming/WRS - Public Employees' Pension Plan
Membership numbers are for public employees only

Notes on Table 3

Delaware/SEPP-Hired before Jan. 1, 2012
open.omb.delaware.gov/pensionPlans/StateEmp/early-retirement.shtml

Delaware/SEPP-Hired on or after Jan. 1, 2012
delcode.delaware.gov/title29/c055/sc02/index.html

Florida/FRS-DB plan-Hired before July 1, 2011
Benefits for Regular Class members only

Florida/FRS-DB plan-Hired on or after July 1, 2011
Benefits for Regular Class members only

Florida/FRS-DC Plan "SUSORP"
New plan

Illinois/IMRF-Tier II-Hired on or after Jan. 1, 2011
New tier not yet implemented www.trsil.org/news-and-events/Tier_3

Illinois/TRS-Tier I-Hired before Jan. 1, 2011
New tier

Kentucky Teachers / Hired after Dec. 31, 2021
New tier information at <https://trs.ky.gov/active-members/trs-4-member-information/>

Louisiana/TRS-Regular plan, hired July 1, 1999 - Dec. 31, 2010
New tier

Louisiana/TRS-Regular plan, hired before July 1, 1999
New tier

Michigan/MPERS-Pension Plus 2 plan
New tier

Missouri/MOSERS-MSEP 2000

Montana/PERS-DCRP
mpera.mt.gov/docs/Plan Documents/DCPlanDocument2020.pdf

Nebraska/Omaha/OSERS Tier 3
New tier

Nebraska/Omaha/OSERS Tier 4
New tier

Nebraska/SERS
New tier

Nevada/PERS-Hired before Jan. 1, 2010
New tier

New Mexico/ERB-Tier 4 - Hired after July 1, 2019
New tier

New York/ERS-Tier 3 - Hired July 27, 1976 - Sept. 1, 1983
www.osc.state.ny.us/retirement/members/about-benefit-reductions

New York/ERS-Tier 4 - Hired Sept. 1, 1983 - Jan. 1, 2010
www.osc.state.ny.us/retirement/members/about-benefit-reductions

New York/ERS-Tier 5 - Hired Jan. 1, 2010 - April 1, 2012
www.osc.state.ny.us/retirement/members/about-benefit-reductions

New York/ERS-Tier 6 - Hired after April 1, 2012
www.osc.state.ny.us/retirement/members/about-benefit-reductions

North Dakota/PERS - Hired before Jan. 1, 2016
New tier

Ohio/SERS - Retired before Aug. 1, 2017
New tier

Ohio/STRS-DB plan - Retired after July 1, 2015
New tier

Pennsylvania/PSERS-Class T-G - Hired after July 1, 2019
New tier

Pennsylvania/PSERS-Class T-H - Hired after July 1, 2019
New tier

Pennsylvania/SERS-Class A5 - Hired after Jan. 1, 2019
New tier

Pennsylvania/SERS-Class A6 - Hired after Jan. 1, 2019
New tier

South Dakota/SDRS - Class A Generational - Hired after July 1, 2017
New tier

Virginia/VRS-Plan 2
New tier

West Virginia/TRS - Tier 1
New tier

Notes on Table 4

Montana/PERS-DCRP
<https://sptrfa.org/about-sptrfa/>

Vermont/MERS
COLA granted in 2020: 2 percent for those retired two to five years; 4 percent if retired more than five years.

Notes on Table 5

Alaska/TRS-DB plan
Normal cost is reported as reported in ACFR

Arizona/ASRS
Normal cost is calculated as the dollar amount of the normal cost for 2019 divided by the covered payroll in that year

Arkansas/ATRS
Total Normal Cost for teachers and support staff

California/UCRP-1976 Tier
The employer rate does not include state contributions (\$4.9 million in 2019)

California/UCRP-2013 and 2016 Tiers
The employer rate does not include state contributions (\$4.9 million in 2019)

District of Columbia/DCPP
cfo.dc.gov/service/dc-government-retirement-plans

Florida/FRS-DB plan
Regular class rates only

Florida/FRS-DC plan "FRS Investment Plan"
Regular class rates only

Florida/FRS-DC Plan "SUSORP"
dms.myflorida.com/workforce_operations/retirement/optional_retirement_programs/state_university_system_optional_retirement_program/susorp_how_to_enroll

Hawaii/ERS-Contributory

Normal cost (NC) includes employer (ER) and employee (EE) contributions; includes all EEs except police and firefighters

Hawaii/ERS-Non-Contributory

NC includes ER and EE contributions; includes all EEs except police and firefighters

Hawaii/ERS-Hybrid-Hired before July 1, 2012

NC includes ER and EE contributions; includes all EEs except police and firefighters

Hawaii/ERS-Hybrid-Hired on or after July 1, 2012

NC includes ER and EE contributions; includes all EEs except police and firefighters

Idaho/PERS

Rates are for general employees only

Illinois/IMRF

Employee rate is for Regular Members only

Illinois/Chicago/MEA&BF

Total Normal Cost. Employer normal cost is 5.2 percent

Illinois/Chicago/MEA&BF

Total Normal Cost. Employer normal cost is 5.2 percent

Illinois/Chicago/CTPF

Employer pick up of 7 percent out of the 9 percent employee contribution for employees hired before Jan. 1, 2017. Normal cost is for employer only.

Kansas/PERS

State/school rates only

Kentucky/TRS

Contribution rates include OPEB contributions

Kentucky/TRS

Contribution rates include OPEB contributions

Maine/PERS

Teacher rates only

Massachusetts/TRS

Net normal cost to employer

Minnesota/GERP

Employee contributions are "picked up" according to IRS provisions.

Missouri/PEERS

Members and employers share funding equally.

Missouri/PSRS

Members and employers share funding equally.

Missouri/Kansas City/PSRS

Beginning July 1, 2021, the employer rate will be the greater of the actuarial required contribution rate less the employee rate or 12 percent until the plan is fully funded. Employee rate is 9 percent if less than 100 percent funded; otherwise, lesser of half actuarial required contribution rate or 9 percent.

Missouri/St. Louis/PSRS

Tier 1 employee rate will increase each year by 0.5 percent until it reaches 9.0 percent. Employer contribution rates will decrease by 0.5 percent per year until they reach 9.0 percent.

Montana/TRS

Employer contribution rate will increase 0.10 percent per year through 2024.

Nebraska/Omaha/OSERS

Normal cost rate is 13.18 for Tier 1, 12.72 for Tier 2, 12.31 for Tier 3, and 11.67 for Tier 4. School Districts contribute greater of employee contribution rate, or actuarially determined amount to maintain solvency.

Nevada/PERS-EPC

Under EPC, contributions are paid on the employee's behalf by their public employer. However, the employee shares equally in the cost of the contribution rate either through salary reduction or in lieu of a promised pay increase. EPC contributions are not deposited to the individual member's account and are not available for refund upon termination of employment.

New Hampshire/NHRS-Group 1

Rates do not include police and fire

New Jersey/PERS

Funding policy to increase employer contribution to the pension trust funds by 10 percent of the actuarially recommended contribution each fiscal year. The contribution for 2020 was 70 percent of the full actuarially recommended contribution.

New Jersey/TPAF

Funding policy to increase employer contribution to the pension trust funds by 10 percent of the actuarially recommended contribution each fiscal year. The contribution for 2020 was 70 percent of the full actuarially recommended contribution.

New York/ERS-Tier 3 and Tier 4

Employers required to contribute at the actuarially determined rate.

New York/ERS-Tier 5

Employers required to contribute at the actuarially determined rate.

New York/ERS-Tier 6

Employers required to contribute at the actuarially determined rate.

North Carolina/TSERS

Employer rate is for 2018. ADC for 2020 is 15.13 percent. Funding policy is to pay ADC plus 0.35 percent of payroll greater than prior year's contribution.

North Dakota/PERS

Members returning to the DB Plan as a result of Senate Bill 2015 pay 9 percent

North Dakota/TFFR

Contribution rates set by statute; once plan achieves 100 percent funding, rates will revert to 7.75 percent.

Ohio/SERS

Of the 14 percent employer contribution, 0.81 percent allocated to the Medicare B Fund, and 0.04 percent to the Death Benefit Fund.

Ohio/STRS-DB plan

Normal Cost reported as "employer normal cost" rate of -3.14 percent for 2020. Normal Cost calculated by subtracting employee contribution rate from this amount.

Oklahoma/TRS

State contribution scheduled to increase to 5.25 percent in 2023 - 2027. Normal cost rate includes 0.10 percent for administrative expenses.

Oregon/PERS-Tiers 1 and 2

Normal cost is employer normal cost

Oregon/PERS-OPSRP

Normal cost is employer normal cost

Pennsylvania/PSERS-Class T-C

Average overall employee rate of 7.61 percent. The state reimburses 50 percent of employer contribution.

Pennsylvania/PSERS-Class T-D

Average overall employee rate of 7.61 percent. The state reimburses 50 percent of employer contribution.

Pennsylvania/PSERS-Class T-E

Average overall employee rate of 7.61 percent. The state reimburses 50 percent of employer contribution.

Pennsylvania/PSERS-Class T-F

Average overall employee rate of 7.61 percent. The state reimburses 50 percent of employer contribution.

Pennsylvania/PSERS-Class T-G

Average overall employee rate of 7.61 percent. The state reimburses 50 percent of employer contribution.

Pennsylvania/PSERS-Class T-H

Average overall employee rate of 7.61 percent. The state reimburses 50 percent of employer contribution.

Pennsylvania/SERS-Class A1

Normal Cost Rate is reported as average employer normal cost for 2019.

Pennsylvania/SERS-Class A2

Normal Cost Rate is reported as average employer normal cost for 2019.

Pennsylvania/SERS-Class A3

Normal Cost Rate is reported as average employer normal cost for 2019.

Pennsylvania/SERS-Class A4

Normal Cost Rate is reported as average employer normal cost for 2019.

Pennsylvania/SERS-Class A5

Normal Cost Rate is reported as average employer normal cost for 2019.

Pennsylvania/SERS-Class A6

Normal Cost Rate is reported as average employer normal cost for 2019.

South Carolina/SCRS

Employer contribution rate scheduled to increase by 1 percent per year for the next three years.

South Dakota/SDRS

Normal cost includes the cost of administrative expenses.

Texas/TRS

State and member contributions will both increase to 8.25 percent by 2025. There is also a surcharge for retirees who return to work.

Vermont/MERS-Group A

Employer contribution rates will increase 0.50 percent each year for four years, beginning July 1, 2022.

Vermont/MERS-Group B

Employer contribution rates will increase 0.50% each year for four years, beginning July 1, 2022.

Vermont/MERS-Group C

Employer contribution rates will increase 0.50% each year for four years, beginning July 1, 2022.

Vermont/MERS-Group D

Employer contribution rates will increase 0.50 percent each year for four years, beginning July 1, 2022.

Vermont/STRS-Group A

Employer contribution rate is average of all Groups

Vermont/STRS-Groups C1 and C2

Employer contribution rate is average of all Groups

Virginia/VRS-Hybrid plan

Employer match in hybrid component offsets their costs in DB component.

Wyoming/WRS

retirement.wyo.gov/About/Reports?Label=Actuarial+Valuations&Sort=Most+Recent&Page=2
(January 2021 Actuarial Summary All Plans)

Notes on Table 6

Arkansas/ATRS - Contributory
artrs.gov/multiplier

Florida/FRS-DB plan-Hired before July 1, 2011
Benefit formula for Regular Class members only.

Florida/FRS-DB plan-Hired on or after July 1, 2011
Benefit formula for Regular Class members only.

Georgia/PSERS
ers.ga.gov/post/psers-benefit-multiplier-increase-0

Illinois/TRS-Tier III-Enacted July 2017, but not yet implemented
New tier: trs.il.gov/news-and-events/Tier_3

Illinois/Chicago/MEA&BF-Tier III-Hired on or after July 6, 2017, or Tier 2 member who opted in
New tier.

Indiana/TRF Optional DC for new hires as of July 1, 2019
New optional plan.

Kentucky/CERS-Tier 1-Hired before Sept. 1, 2008
kyret.ky.gov/Members/Tier-1/Pages/default.aspx

Kentucky/CERS-Tier 2-Hired on or after Sept. 1, 2008 and before Jan. 1, 2014
kyret.ky.gov/Members/Tier-2/Pages/default.aspx

Kentucky Teachers / Hired after Dec. 31, 2021
New tier information at: trs.ky.gov/active-members/trs-4-member-information/

Texas/TRS-Tier 1
Tier dates are complex. Refer to pages 31 - 34 of the Member Handbook for eligibility requirements: https://www.trs.texas.gov/TRS%20Documents/benefits_handbook.pdf

Texas/TRS-Tier 2
Tier dates are complex. Refer to pages 31 - 34 of the Member Handbook for eligibility requirements: www.trs.texas.gov/TRS Documents/benefits_handbook.pdf

Texas/TRS-Tier 3
Tier dates are complex. Refer to pages 31 - 34 of the Member Handbook for eligibility requirements: www.trs.texas.gov/TRS Documents/benefits_handbook.pdf

Texas/TRS-Tier 4
Tier dates are complex. Refer to pages 31 - 34 of the Member Handbook for eligibility requirements: www.trs.texas.gov/TRS Documents/benefits_handbook.pdf

Texas/TRS-Tier 5
Tier dates are complex. Refer to pages 31 - 34 of the Member Handbook for eligibility requirements: www.trs.texas.gov/TRS Documents/benefits_handbook.pdf

Texas/TRS-Tier 6
Tier dates are complex. Refer to pages 31 - 34 of the Member Handbook for eligibility requirements: www.trs.texas.gov/TRS Documents/benefits_handbook.pdf

Vermont/MERS-Group A
Groups are based on employer's benefit choice, not a hiring tier

Vermont/MERS-Group B
Groups are based on employer's benefit choice, not a hiring tier

Vermont/MERS-Group C
Groups are based on employer's benefit choice, not a hiring tier

Vermont/MERS-Group D
Groups are based on employer's benefit choice, not a hiring tier

Vermont/STRS-Group C1 ("grandfathered")
Plan B, in place from July 1, 1981, was subsequently replaced by Plan C

Vermont/STRS-Group C2
Plan B, in place from July 1, 1981, was subsequently replaced by Plan C

Virginia/Fairfax/EFRC Tier 2 (Hired after July 1, 2017)
New tier.

West Virginia/TRS - Tier 2 (Hired after July 1, 2015)
New tier.

West Virginia/TDCP
These members were given the opportunity to opt into the DB plan once it was reopened.

Notes on Table 7

Alaska/PERS-DB plan
NPL as percentage of covered payroll, not UAAL.

Alaska/TRS-DB plan
NPL as percentage of covered payroll, not UAAL.

Arkansas/ATRS
NPL as percentage of covered payroll, not UAAL.

California/UCRP
NPL as percentage of covered payroll, not UAAL.

Delaware/SEPP
NPL as percentage of covered payroll, not UAAL.

District of Columbia/TRF
NPL as percentage of covered payroll, not UAAL.

Florida/FRS-DB plan
NPL as percentage of covered payroll, not UAAL. For employer contribution calculations, 7.00 percent investment return assumption is used.

Hawaii/ERS
Salary rates do not include police and fire.

Idaho/PERS
NPL as percentage of covered payroll, not UAAL. Unfunded liability calculated using 7.00 percent investment return assumption. Funding numbers are for PERSI Base Plan only.

Illinois/TRS
Differences in assumptions for funding per state statute include: projected unit credit and 25 year closed amortization.

Kentucky/CERS
Funded ratio for CERS non-Hazardous Plan only. Net Pension Liability (not UAAL) as a Percentage of Covered Payroll reported.

Maine/PERS
NPL as percentage of covered payroll, not UAAL. Salary growth rates for teachers only.

Massachusetts/Boston/SBRS
Funded ratio is Fiduciary Net Position / Total Pension Liability. UAAL as percentage Covered Payroll is NPL as percentage Covered Payroll.

Missouri/MOSERS
Asset information for MSEP plan only.

New Hampshire/NHRS
Salary growth reported as an average.

New Jersey/TPAF
Discount rate = 5.4 percent.

New York/ERS
Discount rate = 5.9 percent. UAAL as percentage of covered payroll is actually Net Pension Liability as percentage of covered payroll.

North Dakota/PERS
Discount rate = 4.64 percent.

Ohio/STRS-DB plan
DB and Combined Plan information reported together. UAAL as percentage of Covered payroll is actually NPL as Percentage of Covered Payroll.

Ohio/STRS-Combined plan
DB and Combined Plan information reported together. UAAL as percentage of Covered payroll is actually NPL as Percentage of Covered Payroll.

Oklahoma/TRS
UAAL as percentage of covered payroll for June 30, 2020.

Rhode Island/ERS
Teachers only.

Wisconsin/WRS
Net discount rate is 5.4 percent.

Notes on Table 8

Alaska/PERS and TRS
Two Board members must be members of PERS and two must be members of TRS.

Arizona/ASRS
All are appointed by the Governor and confirmed by the state Senate.

California/UCRP
Advisory Board

Connecticut/CMERS
www.osc.ct.gov/retirement/commission.html

Connecticut/TRS
Retirees considered same as active employees.

Florida/FRS
Page 14.

Georgia/PSERS
One nonmember Board Member must be elected by other Trustee; must have at least 10 years experience in investments. Appointed retirees are actually elected by other Trustees.

Hawaii/ERS
ers.ehawaii.gov/resources/board-of-trustees/ers-board-of-trustees

Illinois/Chicago/CTPF
Active Appointed are actually elected by participating employers.

Indiana/PERF and TRF
in.gov/inprs/files/BoardGovernanceManualINPRS.pdf

Iowa/PERS
ipers.org/investment/investment-board

Kentucky/CERS
New governance structure. The three elected members can be either active or retired. kyret.ky.gov/About/Boards/Pages/CERS-Board.aspx

Kentucky/TRS
Two elected trustees must be outside the teaching profession.

Nebraska/Omaha/OSERS
State Investment Officer is non-voting Ex Officio.

Nebraska/SERS
<https://nebraskalegislature.gov/laws/statutes.php?statute=s7909080000>

Nevada/PERS

Seven member board with one vacancy; all are appointed by the governor.

New Hampshire/NHRS

"Other Appointed" are four public members and four employer representatives.

New York/New York City/BERS

Two of the "appointed nonmember" are actually elected by the board of regents.

Ohio/SERS

Three appointees are investment experts. One appointed by governor, one by state treasurer, and third by speaker of the House and president of Senate.

Oklahoma/TRS

oklahoma.gov/content/dam/ok/en/trs/documents/manuals/2022-July.1-Board%20of%20Trustees%20Policy%20Manual.pdf

Pennsylvania/PSERS

"Appointed - nonmembers" include one elected by the school board; Two House members appointed by Speaker; and Two Senate members appointed by President Pro Tempore.

South Dakota/SDRS

Ex-Officio is a nonvoting representative of the state investment council.

Texas/TRS

One "other" appointed position is "at-large," and active employees and retirees may run for its nomination. Two "other" appointments are from a list nominated by the State Board of Education.

Vermont/MERS-DB plan

"Other Elected" is an employer representative, elected by participating employers. "Other Appointed" is an employer representative selected by the governor.

Vermont/STRS

Retiree is elected by the board of the Association of Retired Teachers of Vermont.

Virginia/VRS

Three "Other Appointed" are appointed by the School Board; one is recommended by the rest of the Board and approved by the School Board.

Washington/PERS, SERS, and TRS

No overall board of trustees. Various oversight and advisory responsibilities are handled by: DRS Advisory Committee, Pension Funding Council, Office of Financial Management, Select Committee on Pension Policy, and others.

West Virginia/TDCP and TRS

Appointment of Active Employees/Retirees are combined. <https://www.wvlegislature.gov/wvcode/code.cfm?chap=5&art=10D>

Wisconsin/WRS (ETF Board)

There is also a Teacher Retirement Board that advises the ETF Board on issues related to public school teachers. The TRB is composed of eight active employees who are elected; one retiree who is elected; three active employees who are appointed; and one other appointee. Several TRB members serve on ETF Board as well. <https://etf.wi.gov/boards/etf/boardrosteretf/download?inline>

