

The Future of Public Employee Retirement Systems

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Chapter 13

Defined Contribution Pension Plans in the Public Sector: A Benchmark Analysis

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In this chapter we provide a perspective on best practice benchmarks for the design of defined contribution (DC) plans in cases where such plans are the primary, or core, employment-based retirement benefit sponsored by a public sector employer, as opposed to a supplemental benefit. These benchmarks are based on the assumption that providing an adequate and secure retirement income for participants is the primary objective for the plan.

We first discuss plan design principles that support an effective core DC plan and from these principles, we derive design best practices. Our discussion of best practices for primary DC plans in the public sector is not intended to define an 'ideal' plan design. No single plan design is best for all situations. Rather, the purpose of highlighting best practices is to provide a basis for identifying strengths and weaknesses of design that may affect the ability of a plan to provide an adequate and secure level of retirement income. We conclude the chapter with an analysis of existing public sector core DC plans relative to these best practice standards.

The public sector pension environment

The primary vehicle for providing core retirement benefits in the public sector has long been the defined benefit (DB) pension plan. DB plans specify how much monthly benefit a participant will receive once he or she retires. In the private sector, a DB participant is generally not required to make contributions to the plan, but most public sector DB plans require employee contributions. DB plans do not require the participant to make investment decisions. Typically, the risks of funding the promised benefits lie with the plan sponsor who is responsible for adequate funding of the program and management of money invested to support the plan. Over 90 percent of full-time public sector employees participate in DB pension plans for the major source of employer-provided retirement benefits (McDonnell 2002).

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By comparison, about 14 percent of full-time public employees participate in DC retirement plans for their primary employer-provided retirement benefit (McDonnell 2002). DC plans define how much the sponsor and participant can or must contribute to an individual account created for each participant. When the participant retires, retirement benefits are based on the total amount contributed plus investment gains, minus expenses and losses. Typically, the participant decides how the money is invested and takes the risk of poor investment performance if his or her choices do not perform well. Some examples of public sector DC plans include 401(a) money purchase plans, 401(k) plans, 403(b) tax-deferred annuity plans, and 457(b) deferred compensation plans. The 14 percent figure cited earlier translates into over two-million public-sector employees who rely in whole or in part on DC arrangements for their employer based core retirement benefit.

The design and funding of core DC plans in the public sector is far too important to be left unexamined even though far fewer public employees participate in them compared to DB plans. In the same fashion as the DB plans that cover most public employees, core DC plans are vital to the economic security of thousands of existing retirees and beneficiaries and are an important component of the compensation structure of state and local governments that offer them.

Plan objectives in the public sector

Public employers are faced with a range of competing objectives in their capacity as a retirement plan sponsor. They will certainly want their retirement plans to promote effective and efficient workforce management by helping to attract and retain quality employees and to subsequently facilitate the orderly and timely movement of employees out of the workforce.

Public sector entities, however, do not necessarily view the retirement plans they sponsor strictly through the lens of an employer. A principal function of government is to ensure the general welfare of society. This makes the public sector uniquely concerned with the adequacy and security of public employee retirement benefits. If the core DC retirement plans they sponsor fail in this regard, a consequence may be an increased burden on the social welfare programs that they also sponsor. As stewards of taxpayer dollars, all considerations are to be carefully balanced.

We assume that the primary objective of the public employer as a DC plan sponsor is to provide adequate and secure retirement income throughout retirement for its employees. Other objectives, such as workforce management considerations or additional employee financial security considerations (e.g., providing death and disability benefits) are appropriate

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components of a comprehensive retirement benefit policy, but we consider them secondary for purposes of this chapter. As such, they do not directly influence our best practice benchmarks, but certainly would impact the ‘ideal’ plan design in any specific instance.

Several implications for best practice core DC plan design in the public sector flow from this primary objective. First, plans should be designed with participation and vesting requirements that maximize accumulations. Plans should provide a total contribution level and investment structure that together are expected to accumulate sufficient assets to fund an adequate retirement income for each participant. Finally, plans should have a payout design that provides an adequate and secure level of income throughout retirement.

In a DC framework, retirement income adequacy and security is a shared responsibility between employer and employee. So plan design should also provide participant access to independent, expert, and personalized education, planning, and advice services during both the accumulation phase and through retirement. Active employer engagement and oversight helps ensure alignment between plan design and plan administration. It also helps ensure that investment, administrative, and other professional service providers are meeting performance and service standards and that their fees are reasonable and competitive.

Best practice implications

Our recommendations for best practice design of core DC plans in the public sector result from specifying plan feature benchmarks that operationalize the abstract implications discussed earlier. Again, these are the implications of an assumed primary plan objective to provide adequate and secure retirement income. Table 13-3 summarizes these benchmarks.

Eligibility and Participation. Certain eligibility and participation design features contribute to greater participant accumulations and are therefore considered best practices: mandatory enrollment, low or no age restrictions on participation, and waiting periods of no more than one year before participation begins.

We are not prepared to endorse mandatory enrollment of part-time employees as a best practice. While it can be argued that is desirable under an objective of providing adequate and secure retirement income for public sector employees, the workforce needs of and financial implications for public plan sponsors are still evolving around this proposition. Voluntary participation opportunities should be considered as an alternative for these employees, however.

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TABLE 13-1 Retirement income targets

<i>Pre-Retirement Salary (\$)</i>	<i>Gross Retirement Income Target (as % of Pre-Retirement Salary)</i>
20,000	89
30,000	84
40,000	80
50,000	77
60,000	75
70,000	76 ^a
80,000	77 ^a
90,000	78 ^a

^a Increasing target replacement rates at higher salaries are the result of higher marginal income tax rates for these salary levels.

Source: Georgia State University/Aon Consulting (2004).

Contribution Levels. Best practice contribution design must result in an adequate retirement income. This implies non-elective, that is mandatory, contributions by the employer and/or employee. However, assuming typical investment returns, what is the appropriate contribution level? This in turn depends upon the level of retirement income that should be considered 'adequate.'

Retirement income adequacy is typically considered in terms of the percentage of a participant's salary immediately prior to retirement that is replaced during retirement (Aon Consulting 2004). This 'replacement ratio' is measured at the time of retirement and then throughout retirement to determine if it has been affected by inflation.

Public policy makers need to set retirement income replacement objectives for employees at the designated normal retirement date. Wage replacement objectives can vary by class of employee (e.g., regular employee versus public safety) and may reflect differences in pay levels and Social Security benefits. Table 13-1 presents target replacement ratios designed to maintain pre-retirement standards of living into retirement from the Georgia State University/Aon Consulting RETIRE Project (2004).

These replacement targets are higher than the traditional 70 percent target often used as conventional wisdom. The 75 to 89 percent figures reflect, in part, the higher costs of retiree health care that current and future retirees are likely to experience.

What Contribution Rate is Needed? If a 75 to 89 percent wage replacement target is adopted, what contribution rate (assuming reasonable investment returns) is required to achieve that objective?

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Table 13-2 provide illustrations of wage replacement outcomes assuming various contribution rates at various salary levels compared to the Georgia State University/Aon replacement targets for given salary levels. These calculations assume an individual is hired at age 30 and retires at 65, salary increases at 4.5 percent annually, the pre-retirement investment rate of return is 7 percent per year, the annual growth rate in average national wages for Social Security indexing purposes is 3.5 percent, a single life annuity is purchased at retirement, and the payout rate is based upon 5 percent interest and the Annuity 2000 mortality table (with ages set back 2.5 years). In Table 13-2, the DC plan benefits replace the same percentage of pre-retirement income at all salary levels. Social Security provides a decreasing level of replacement income for higher salary levels because of its progressive nature.

Based on this analysis, in order to maintain pre-retirement standards of living, best practice calls for a core DC total contribution rate of at least 12 percent of pay if covered by Social Security and 18 to 20 percent of pay if not. Public safety employees would need to have significantly higher contribution rates in order to support earlier retirement ages common to those job classifications. It should be noted that all projections of income replacement rates are very sensitive to changes in the underlying economic assumptions, including salary growth rate, pre-retirement investment return, and assumed annuity payout rate.

We make no best practice recommendation regarding employer versus employee share of this total contribution. The objective of adequacy does not imply an implication regarding who funds the benefit. However, if retirement income security is considered a shared employer and employee responsibility, it could be argued that the appropriate benchmark would be a 50/50 split. Any employee contributions should be mandated and paid pre-tax.

Vesting. We have adopted the view that best practice regarding vesting for retirement benefits should be independent of when participation begins under the plan. A participant should earn a non-forfeitable right to all employer contributions, that is, be 100 percent vested, with one-year of employment service. This provides a reasonable hurdle for participants to earn non-forfeitable retirement benefits, while plan sponsors are not funding benefits for very short-term employees.

Therefore, if immediate participation is adopted by a plan sponsor, best practice allows for the imposition of a vesting period of up to one year. If participation is delayed for one year, best practice calls for immediate vesting in employer contributions. Graded vesting schedules are often confusing and more difficult to administer and, while acceptable, are not considered a best practice.

TABLE 13-2 Retirement income replacement projections under a defined contribution plan

<i>Initial Salary</i>	<i>Replacement from DC Plan (as % of final salary)^a</i>	<i>Replacement from Social Security (as % of final salary)</i>	<i>Combined (as % of final salary)</i>	<i>Income Replacement Target^b</i>	<i>(Gap)/Surplus</i>
10% of Pay Total Contribution Rate					
\$30,000	41.8%	33.8%	75.6%	84.0%	(8.4%)
\$50,000	41.8%	28.6%	70.4%	77.0%	(6.6%)
\$70,000	41.8%	23.5%	65.3%	76.0%	(10.7%)
12% of Pay Total Contribution Rate					
\$30,000	50.2%	33.8%	84.0%	84.0%	(0.0%)
\$50,000	50.2%	28.6%	78.8%	77.0%	1.8%
\$70,000	50.2%	23.5%	73.7%	76.0%	(2.3%)
14% of Pay Total Contribution Rate					
\$30,000	58.5%	33.8%	92.3%	84.0%	8.3%
\$50,000	58.5%	28.6%	87.1%	77.0%	10.1%
\$70,000	58.5%	23.5%	82.0%	76.0%	6.0%

^a Income replacement shown as a percentage of final pay. Calculations assume an individual is hired at age 30 and retires at 65, salary increases at 4.5 percent annually, the pre-retirement investment rate of return is 7 percent per year, the annual growth rate in average national wages for Social Security indexing purposes is 3.5 percent, a single life annuity is purchased at retirement and the payout rate is based upon 5 percent interest and the Annuity 2000 mortality table (with ages set back 2.5 years).

^b Derived from Georgia State University/Aon Consulting (2004).

Source: Authors' calculations.

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TABLE 13-3 Best practice recommendations for core defined contribution plan design in the public sector

<i>Plan Design Feature</i>	<i>Best Practice Benchmarks</i>
Eligibility and participation	<ul style="list-style-type: none"> • Mandatory enrollment • Low or no age restrictions on participation • Waiting periods of no more than one year for participation
Vesting Contributions (Employer and Employee)	<ul style="list-style-type: none"> • 100% vested after one year of employment • Non-elective contributions by employer and/or employee • Total at least 12 % of pay if covered by Social Security and 18 to 20 % of pay if not covered by Social Security
Investments	<ul style="list-style-type: none"> • Mandatory or default investment into lifecycle target-date funds • When participants are given choice, a limited menu of 15 to 20 options covering the major asset classes
Distributions	<p>Pre-retirement:</p> <ul style="list-style-type: none"> • No lump sum distributions at job change, other than small balance cash-outs • No hardship withdrawals • No plan loans <p>Retirement:</p> <ul style="list-style-type: none"> • Require minimum level of mandatory annuitization in vehicle providing inflation-protected income • Limited lump sum distribution availability
Administrative structure and fees	<ul style="list-style-type: none"> • Single vendor recordkeeping structure • Single point of contact for participants • Larger plans standard: total administrative and investment costs not to exceed 100 basis points
Other participant services	<ul style="list-style-type: none"> • Broad-based employee investment education • Individual-specific investment advice • Services delivered through multiple modes: call center, Internet, and in-person

Source: Authors' compilations.

Investments. If investment allocations are made with the objective of generating adequate retirement income, as opposed to, say, maximizing wealth, then best practice calls for mandatory or default investment into a lifecycle target-date fund. Lifecycle target-date funds ensure appropriate investment diversification, rebalance automatically, and regularly adjust

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investment allocations to limit risk based on the number of years until planned retirement. Such funds have the advantage of eliminating the need for investment decision-making by plan participants. They have the additional potential advantage of enhancing investment diversification by including asset classes (e.g., alternative investments and real estate) not typically found in traditional participant directed fund menus.

Lifecycle funds custom designed for a plan should be considered by the sponsor in certain cases because they can develop investment allocation strategies and glide paths that account for specialized employment and retirement patterns unique to a class of workers, such as public safety officers, for situations where workers do not participate in Social Security and for specific plan designs such as when the core DC plan is part of a combination DB/DC arrangement.

When participants are given choice, best practice calls for a limited non-overlapping menu of investment options (about 15 to 20 in number) covering the major asset classes. This will allow participants the opportunity to manage their own risk and return needs without overwhelming them with numerous and in many cases redundant options.

Pre-Retirement Distributions. Ensuring an adequate retirement income implies minimizing leakage from participants' accounts prior to retirement. Such leakage can occur at job change if individuals receive a lump sum distribution of their vested account balance and fail to preserve it for retirement via a rollover. Leakage can also occur through hardship distributions and plan loans. With a hardship distribution, the funds leave the retirement system. Plan loans are paid back with interest by the participant, however, there is the possibility of default by the participant, plus the interest payments on the loan may be less than what the borrowed funds would have otherwise earned had they remained invested in the plan.

Best practice plan design would not allow lump sums at job change; a limited exception could be made for small benefit accruals that do not exceed a threshold (e.g., \$5,000) established by the plan sponsor to control the cost of administering numerous small value accounts. Best practice design would also not allow hardship withdrawals and loans.

Retirement Distributions. Best practice plan design ensures a secure stream of income throughout retirement. Best practice therefore limits participant ability to withdraw funds as a lump sum at retirement and requires that a minimum amount of the account be annuitized through a vehicle providing inflation protection. Such vehicles include participating guaranteed annuities, a variable payout annuity, and specialized inflation-protection annuities.

Annuitization of an account balance is the only means for an individual to guarantee a steady stream of income in retirement for life (and the

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lifetime of a spouse.) In addition, the value of these annuitized payments should be protected (at least partially) against erosion by inflation overtime else payment levels that were adequate at the beginning of retirement may no longer be so after a number of years in retirement.

How much of a participant's account balance must be subject to mandatory annuitization? If the primary purpose of the plan is to provide adequate retirement income, then annuitization of a relatively high percentage of the account could be required. This would be consistent with the general practice among public sector DB plans which typically require accrued benefits to be taken as an annuity. Social Security benefits should be considered when determining the appropriate level of annuitization of core DC plan account balances.

Administrative Structure. High administration and investment fees reduce the ultimate level of retirement income for participants of DC plans. Multiple vendor structures and agent-broker delivery models are generally more expensive than single recordkeeper administrative platforms. While investment choices may be supplied by several fund companies, best practice calls for one point of contact for participants regarding all aspects of the plan.

Plan features, plan size (participants and assets), asset allocation levels, geographic service area, administrative, and participant service levels are just some of the variables affecting a plan's administration costs and fees making it difficult to establish a best practice standard. It is possible, however, to establish standards that would help public core DC plan sponsors evaluate whether their costs and fees bear further examination. Larger plans should be able to take advantage of available economies of scale to deliver plan services at lower cost; total costs (administrative and investment fees) for a quality, state-of-the-art core DC plan should be available for 100 basis points or less for larger plans.

Education and Advice. Best practice design provides broad-based retirement planning and investment education services to participants. A higher best practice hurdle is the provision of individual-specific investment advice where a participant is provided with specific recommendations regarding the investment allocation of their contributions and account balances across the options available in the plan. Such guidance will factor in participant age, planned retirement age, current retirement accumulations, saving rates, tolerance for risk, and other factors. The mode for delivering personalized retirement services will need to reflect the multiple ways that individuals access information, for example, by phone, through the Web, and in person. While technology can enable more effective communication, it will not replace the need for one-on-one consultation, particularly as individuals approach retirement.

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Public sector plans today

This section examines the ‘typical’ features of public sector core DC plans relative to our best practice benchmarks. While many features of a ‘best practice’ DC plan are met by many public sector plans, there is variance in this regard.

Two sets of plans are examined; those covering general public sector employees under ‘state’ plans and those covering public higher education employees. Plans in the state plan group include the Alaska Defined Contribution Retirement Plan, the Colorado Public Employees’ Retirement Association (PERA) Defined Contribution Plan, the District of Columbia Defined Contribution Plan, the Florida Retirement System Investment Plan, the Michigan 401(k) Plan, the Montana Public Employee Retirement System Defined Contribution Retirement Plan, the Nebraska Defined Contribution Plan (which closed to employees hired after 2002), the North Dakota Public Employee Retirement System (PERS) Defined Contribution Plan, the Ohio Public Employee Retirement System Member-Directed Plan, the South Carolina Optional Retirement Plan, and the West Virginia Teachers Defined Contribution Plan.

The public higher education plans examined are those of Indiana University, Michigan State University, Purdue University, the State University of New York, the University of Iowa, the University of Michigan, and the University of Washington.

This is not an exhaustive list of public DC plans. These plans were chosen to be illustrative of common practice in the public sector. Among our sample of public sector plans, there is a high degree of uniformity along certain dimensions, for example, the mandatory nature of participation and the presence of non-elective sponsor and participant contribution levels. On the other hand, there is notable variance in the levels of these contribution rates. A summary table of the plan comparisons is provided in the Appendix.

Participation. Mandatory participation is the best practice benchmark for a core DC plan and employee participation is mandatory in all state plans examined here. The only caveat is in the case of an optional retirement plan, as in Colorado, Florida, Montana, North Dakota, Ohio, and South Carolina. In these situations, participation in a retirement plan is mandatory, but the individual chooses whether to participate in the primary DB plan or the primary DC plan. In cases where the individual fails to make such an election, he or she is typically defaulted into the DB plan. In Montana and North Dakota, all new hires are automatically enrolled in the DB plan, but then have a limited period of time (one year in Montana and six months in North Dakota) to switch into the DC plan if they so choose.

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Participation is also mandatory in all of the public higher education plans examined. In the State University of New York and University of Iowa programs, the individual must choose between participation in the DB plan or the DC plan.

Another issue regarding participation is presence of a service requirement that must be fulfilled before the individual is eligible to participate in the plan. Best practice plan design not only involves mandatory participation, but also calls for eligibility within one year, if not immediately. Among the public plans examined here, not only is plan participation mandatory, but it is also typically immediate. The District of Columbia plan where individuals must be employed for one year before becoming eligible is an exception. Purdue also has a waiting period of up to three years for certain positions. At Michigan State University, the University of Michigan and the University of Washington, retirement plan participation is mandatory, but only after a two-year period of service, plus in the Michigan schools the service requirement is combined with an age requirement of 35. Individuals may participate in the plans prior to it becoming mandatory.

Contribution Levels. Best practice calls for non-elective contributions by the employer and/or employee that will result in an adequate retirement income assuming typical investment returns. This implies mandated contribution levels totaling at least 12 percent of pay if covered by Social Security and 18 to 20 percent of pay if not covered by Social Security. All of the public sector DC plans in our sample satisfy this benchmark to the extent that employers contribute to workers' accounts a specified percentage of pay and the employee's contribution rate is also specified by the plan.

In the state plans examined where workers are covered by Social Security, total contribution rates range from 4 percent to 12.3 percent; two of eight such plans meet or exceed the 12 percent best practice benchmark we set. Among state plans where workers are not covered by Social Security, total contribution rates range from 13 percent to 18.15 percent and two of four plans meet or exceed the 18 percent best practice rate.

In the higher education plans examined, combined employer and employee non-elective contribution rates were a minimum of 10 percent, typically in the range of 15 percent, and as high as 20 percent (for older participants at the University of Washington.) In all plans workers participated in Social Security and six of seven plans meet or exceed the 12 percent best practice benchmark. Non-elective contribution rates vary within some state and higher education plans based on position, salary, years of participation, or age.

Depending on the plan, there may or may not be the opportunity for additional discretionary contributions by the participants, which may or may not be matched by the plan sponsor. Michigan's public sector plan is a 401(k) and has employee elective contributions with an employer

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match. Among the higher education plans examined here, five of the seven allowed additional elective employee contributions and two of those matched employee contributions to a limit.

Projected Income Replacement Percentages. Table 13-4 shows projected income replacement rates at retirement for the plans examined here; replacement rates are presented based both on the DC benefit only and the DC benefit combined with Social Security.

If the contribution rate is a level percentage of pay (or one varying by age or years of service), the projected income replacement percentage arising from the DC plan will be independent of the individual's starting salary. A contribution schedule that varies depending on the level of annual salary (e.g., if integrated with Social Security) will result in replacement percentages that vary by the level of initial salary. Social Security replacement percentages will vary considerably by salary, with higher replacement percentages associated with lower-paid individuals.

As discussed previously, one study projects that an individual needs to retire with a total salary replacement percentage (including Social Security) in the range of 75 percent to 89 percent of final pay. While a 10 percent contribution rate may come close to achieving this goal for lower-paid individuals (due to relatively higher Social Security replacement ratios), a higher contribution rate of at least 12 percent of salary is more likely to achieve this goal for the majority of employees.

Vesting. Participants are always immediately fully vested in their contributions as well as the earnings on those contributions. Best practice calls for them to be immediately vested in employer contributions or to earn full vesting with no more than one year of employment. In our sample of state plans, the vesting norm is fulfilling a service requirement as a plan participant. The exception among the state plans examined here is that of South Carolina where individuals are immediately vested in employer contributions. The vesting schedule may be graded or cliff. The norm is graded vesting over a period of five years, though there is variation in the period of service required; full vesting occurs after one year in Florida, but takes 12 years in the West Virginia Teachers Plan.

Immediate vesting is the near universal norm in the public higher education plans examined here. The exception is the SUNY plan which has 100 percent cliff vesting after one year of service.

Investment Options. In every plan examined here the employee has complete control of how the account funds are invested across the options offered by the plan. In the case of such participant choice, best practice calls for a limited non-overlapping menu of about 15 to 20 investment options covering the major asset classes.

The number of options offered in the state plans examined here ranges from nine in Ohio to 70 in South Carolina. South Carolina has four

TABLE 13-4 Projected income replacement rates at retirement for selected public core DC plans

Plan	Total Contribution Rate	DC Retirement Plan ^a					DC Retirement Plan Plus Social Security Benefits ^a	
		\$30,000	\$50,000	\$70,000	\$30,000	\$50,000	\$70,000	\$70,000
		Initial Salary						
Alaska DC Retirement Plan PERS ^b	13.00%	54.3%	54.3%	54.3%	54.3%	54.3%	54.3%	54.3%
Alaska DC Retirement Plan TRS ^b	15.00	62.7	62.7	62.7	62.7	62.7	62.7	62.7
Colorado PERA DC Plan ^b	18.15	75.9	75.9	75.9	75.9	75.9	75.9	75.9
District of Columbia DC Plan	5.00	20.1	20.1	20.1	53.9	48.7	43.6	
Florida (FRS) Investment Plan	9.00	37.6	37.6	37.6	71.4	66.2	61.1	
Michigan 401(k) Plan	10.00	41.8	41.8	41.8	75.6	70.4	65.3	
Montana DC Plan	11.09	46.4	46.4	46.4	80.2	75.0	69.9	
Nebraska DC Plan	12.30	51.4	51.4	51.4	85.2	80.0	74.9	
North Dakota PERS DC Plan	8.14	34.0	34.0	34.0	67.8	62.6	57.5	
Ohio PERS Member-Directed Plan ^b	18.13	75.8	75.8	75.8	75.8	75.8	75.8	
South Carolina Optional Ret. Plan	11.50	48.1	48.1	48.1	81.9	76.7	71.6	
West Virginia Teachers DC Plan	12.00	50.2	50.2	50.2	84.0	78.8	73.7	
Indiana University—New Hire (after 1999)	10.00	41.8	41.8	41.8	75.6	70.4	65.3	
Indiana University—Old Hire	15.00	62.7	62.7	62.7	96.5	91.3	86.2	
Michigan State University	15.00	62.7	62.7	62.7	96.5	91.3	86.2	
University of Michigan	15.00	62.7	62.7	62.7	96.5	91.3	86.2	
Purdue University	11/15	59.9	61.0	61.5	93.7	89.6	85.0	
	on \$9k							

State University of New York	11 then 13 after 7 years	50.2	50.2	50.2	50.2	84.0	78.8	73.7
University of Iowa	15, except 10 for first 5 years under \$4800	62.2	62.4	62.5	96.0	91.0	86.0	
University of Washington	10 then 15 & 20 at ages 35 and 50	65.5	65.5	65.5	99.3	94.1	89.0	

^a Income replacement shown as a percentage of final pay. Calculations assume individual is hired at age 30 and retires at 65, salary increases at 4.5 percent annually, the pre-retirement investment rate of return is 7 percent per year; the annual growth rate in average national wages for Social Security indexing purposes is 3.5 percent, a single life annuity is purchased at retirement and the payout rate is based upon 5 percent interest and the Annuity 2000 mortality table (with ages set back 2.5 years).

^b Participants under this plan are generally not covered under Social Security.

Source: Authors' calculations; see text.

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providers offering between 15 and 22 options and, while participants may only have one provider at a time receiving contributions, they can keep assets with more than one of the providers. The number of investment options offered in public higher education is typically greater than the number offered elsewhere in the public sector. With the exception of the University of Washington, which offers 10 options, all other higher education plans examined here offer anywhere from 31 options to over 150 at the University of Michigan. The larger number of funds offered by these public universities is usually related to the existence of multiple service providers offering stand alone bundled arrangements.

Investment options that take specific asset allocation decisions out of the hands of the participant are a common offering in the state plans. Examples include a managed account in Alaska, target retirement date options in Colorado, North Dakota, and South Carolina, and life-cycle funds for Purdue University. All plans specify a default option for when a participant does not specify investment elections. In some cases, the default is a managed account or a target-date fund; in other cases, it is a relatively conservative investment, like a short term bond fund or a balanced investment fund. Best practice calls for default into a lifecycle target-date fund.

Pre-Retirement Distributions. Best practice would not allow lump sum distributions at job change when a participant's account balance exceeded a specified level set by the plan sponsor (e.g., \$5,000) to prevent account leakage. Controlling pension asset leakage in this way is not done in the state or public university segments. All public plans examined here provide full lump sum distributions at job change.

Leakage can also occur through hardship distributions and plan loans and best practice design would not allow such features. In the state plans examined here, hardship withdrawals and plan loans are generally not available (the Michigan 401(k) plan is an exception). Likewise in the public university plans, hardship withdrawals and loans are not available (the exception being the Michigan State University plan).

Retirement Distributions. As discussed initially, the purpose of a core DC plan is to generate adequate retirement income for the lifetime of an individual (and his or her spouse). Thus the best practice plan design regarding retirement distributions is to limit the ability to withdraw funds as a lump sum combined with a requirement that a minimum amount of the account be annuitized through a vehicle providing some degree of inflation protection.

In the state plans examined here, full lump sums are always a distribution option. On the other hand, most of the state plans have annuitization as a distribution option (Colorado, Michigan, and Montana do not), but none require any degree of annuitization by the participant. The Ohio PERS Plan offers a special form of distribution where individuals can select a partial

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life annuity and a partial lump sum payment. The Florida Retirement System Investment Plan, the Nebraska Defined Contribution Plan, and the South Carolina Optional Retirement Plan also provide an inflation-hedged annuitization option. Florida offers a life annuity with a 3 percent annual increase in benefit payments and Nebraska offers a life annuity with a 2.5 percent annual increase. South Carolina offers a variable life annuity as well as a fixed annuity with increasing benefits. While not a perfect hedge against inflation, such vehicles do provide a means to at least partially protect benefit payments that are guaranteed to last a lifetime. All other state plans examined here provide no inflation hedge other than the ability to invest in equities after retirement.

Among the DC plans in higher education examined here, all have an annuitization option providing features that at least partially address inflation risk, including the use of variable life annuities and fixed life annuities with a feature for annual benefit increases. These plans, however, also offer full lump sums as a distribution option and do not require any degree of annuitization at retirement.

Administrative Structure. Best practice is a single recordkeeper structure. This has the primary benefit of providing a single point of contact for participants and may also help to control plan costs by taking advantages of the resulting economies of scale. Among the state plans examined here, almost all use a single recordkeeper structure; the exception being the South Carolina Optional Retirement Plan. Among public university plans however, multiple recordkeeper structures are the norm; all plans examined here have multiple recordkeepers.

Education and Advice. All of the plans reviewed provide their participants with basic information regarding the plan, such as how it works, the benefits of participation, its features, and the options that participants have, as well as the decisions that they need to make. In addition, plans also provide basic education about saving for retirement, such as understanding the different types of investment vehicles in the plan and how to construct an appropriately diversified portfolio. Education services typically also cover such issues as the benefits of dollar cost averaging through regular contributions, the benefits of compounding, and the value of benefit preservation (i.e., rollovers) at job change.

A higher best practice hurdle is the provision of individual-specific investment advice. Among the state plans examined here, the Colorado PERA, the Ohio PERS, and the West Virginia Teachers Plan do not provide investment advice (we were not able to ascertain whether investment advice is provided in the North Dakota PERS Defined Contribution Plan). Participant investment advice is provided by all the public university plans examined here, with the exception of the University of Washington which will likely be offering it by year-end 2008.

222 Roderick B. Crane, Michael Heller, and Paul J. Yakoboski**Conclusion**

A DC plan with the primary objective of being the core source of retirement benefits needs to be designed with a focus on providing adequate and secure retirement income. From a plan design perspective, therefore, a core DC plan must incorporate features that increase the likelihood that this primary objective is met. In this chapter, we have proposed specific parameters for key plan features as best practice benchmarks in the public sector.

Typical core DC plans in the public sector today satisfy our best practice benchmarks in many instances. However, while many features of a 'best practice' DC plan are met by many public sector plans, there is variance in this regard.

Public sector employers and employees need and will be seeking better results and flexibility from their core DC retirement plans. While it is not expected that public employers will move away from their core DB plans as a primary method of delivering retirement benefits, interest in DC solutions will continue as public policy makers engage in the continuing efforts to make sure retirement benefits designs remain a good fit in an ever-changing employment environment.

TABLE 13-A1 Comparison of best practice benchmarks to major public sector core DC plans

	Plan Name		
	Alaska Defined Contribution Plan	Colorado PERA Defined Contribution Plan	District of Columbia Defined Contribution Plan
<i>Best Practice Benchmark</i>			Florida Retirement System Investment Plan
Eligibility and Participation			
Mandatory participation; no age restriction; no more than one year wait	Mandatory participation; no age restriction or waiting period	Mandatory participation; no age restriction or waiting period; optional to DB plan	Mandatory participation; no age restriction or waiting period; optional to DB plan
Vesting			
100% no later than after one year of service	Graded: 25% after 2 years, 50% after 3 years, 75% after 4 years, 100% after 5 years	50% immediate, graded to 100% over 5 years	Cliff: 100% after 1 year
Total Employer and Employee Contributions			
12%+ of pay if covered by Social Security; 18-20% of pay if not covered by Social Security	Non-Social Security Teachers ER: 7% EE: 8% PERS ER: 5% EE: 8%	Non-Social Security ER: 10.15% EE: 8% For state troopers ER: 12.85% EE: 10%	Social Security Covered Regular employees: ER: 9% EE: 0%. For Other employees: ER contribution ranges from 10.95-20% and EE: 0%

(cont.)

TABLE 13-A1 (Continued)

	<i>Plan Name</i>			
	<i>Alaska Defined Contribution Plan</i>	<i>Colorado PERA Defined Contribution Plan</i>	<i>District of Columbia Defined Contribution Plan</i>	<i>Florida Retirement System Investment Plan</i>
Investments				
Mandatory or default into target-date lifecycle funds.	Default to qualified managed account	Default to balanced fund	Default to target date fund	Default to moderate risk balanced fund
Limited array of 15–20 funds covering major asset classes.	12	13	13	20
Individual investment advice through one or more providers.	Yes	No	Yes	Yes
Pre-Retirement Distributions				
Small benefit distributions only before retirement age	Full lump sum available on termination	Full lump sum available on termination	Full lump sum available on termination	Full lump sum available on termination
No hardship or loan distributions	Not available	Not available	Not available	Not available

Retirement Distributions					
Minimum level of annuitization required	Full lump sum available	Only ability to invest in equities after retirement	Single recordkeeper	Annuity available, but not required	Full lump sum available
Limited lump sum distribution	Full lump sum available	Only ability to invest in equities after retirement	Single recordkeeper	Annuity available, but not required	Life annuity with a 3% annual increase in benefit payments
Provide inflation protected features	Full lump sum available	Only ability to invest in equities after retirement	Single recordkeeper	Annuity available, but not required	Life annuity with a 3% annual increase in benefit payments
Administrative Structure					
Avoid multiple vendor recordkeeping structures	Single recordkeeper	Single recordkeeper	Single recordkeeper	Single recordkeeper	Single recordkeeper
Other Participant Services					
Investment education, retirement, and financial planning services	Yes	Yes	Yes	Yes	Yes

(cont.)

TABLE 13-A1 (Continued)

	Plan Name				
<i>Best Practice Benchmark</i>	<i>Michigan 401(k) Plan</i>	<i>Montana PERS Defined Contribution Retirement Plan</i>	<i>Nebraska DC Plan (closed to employees hired on or after 1/1/2003)</i>	<i>North Dakota PERS Defined Contribution Plan</i>	<i>Ohio PERS Member-Directed Plan</i>
Eligibility and Participation	Mandatory participation; no age restriction; no more than one year wait	Mandatory participation; no age restriction or waiting period (automatically enrolled in DB plan, but have 1 year to switch to DC plan)	Mandatory participation; no age restriction or waiting period	Mandatory participation; no age restriction or waiting period (automatically enrolled in DB plan; have 6 months to switch to DC plan)	Mandatory participation; no age restriction or waiting period (worker must choose participation in the DB, DC plan or combined plan within 180 days of hire)
Vesting	100% after 1 year of service	Graded: 50% after 2 years, 75% after 3 years, 100% after 4 years	Cliff: 100% after 5 years	Graded: 50% after 2 years, 75% after 3 years, 100% after 4 years	Graded over 5 years at 20% per year

Total Employer and Employee Contributions

12%+ of pay if covered by Social Security; 18-20% of pay if not covered by Social Security	Social Security Covered ER: 4.0% EE: 0.0% (plus 100% ER match on elective EE contributions up to 3% of pay)	Social Security Covered ER: 4.19% EE: 6.9%	Social Security Covered ER: 7.5% EE: 4.8%	Social Security Covered ER: 4.12% EE: 4.0%	Non-Social Security ER: 8.73% for state employees, 8.65% for local employees, EE: 9.4%
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Investments

Mandatory or default into target-date lifecycle funds	Default to short term fund	Default to balanced fund	Default to moderate premixed fund for employer contributions and stable value fund for employee contributions	Default to target date fund	Default to moderate balanced fund (60% equity, 40% fixed-income)
Limited array of 15-20 funds covering major asset classes	21	15	13	28	9
Individual investment advice through 1+ providers	Yes	Yes	Yes	?	No

(cont.)

TABLE 13-A1 (Continued)

<i>Best Practice Benchmark</i>	<i>Plan Name</i>				
	<i>Michigan 401(k) Plan</i>	<i>Montana PERS Defined Contribution Retirement Plan</i>	<i>Nebraska DC Plan (closed to employees hired on or after 1/1/2003)</i>	<i>North Dakota PERS Defined Contribution Plan</i>	<i>Ohio PERS Member-Directed Plan</i>
Pre-Retirement Distributions					
Small benefit distributions only before normal retirement age	Full lump sum available on termination	Full lump sum available on termination	Full lump sum available on termination	Full lump sum available on termination	Full lump sum available on termination
No hardship or loan distributions	Both available	Not available	Not available	Not available	Not available
Retirement Distributions					
Minimum level of annuitization required	No annuitization option	No annuitization option	Annuitization option available; not required	Annuitization option available; not required	Annuitization option available; not required
Limited lump sum distribution	Full lump sum available	Full lump sum available	Full lump sum available	Full lump sum available	Full lump sum available
Provide inflation protected features	Only ability to invest in equities after retirement	Only ability to invest in equities after retirement	Life annuity with a 2.5% annual increase in benefit payments	Only ability to invest in equities after retirement	Only ability to invest in equities after retirement

<p>Administrative Structure Avoid multiple vendor recordkeeping structures</p>	<p>Single recordkeeper</p>	<p>Single recordkeeper</p>	<p>Single recordkeeper</p>	<p>Single recordkeeper</p>	<p>Single recordkeeper</p>
<p>Other Participant Services Investment education, retirement and financial planning services</p>	<p>Yes</p>	<p>Yes</p>	<p>Yes</p>	<p>Yes</p>	<p>Yes</p>
<p>Eligibility and Participation</p>	<p>Mandatory participation; no age restriction; no more than one year wait</p>	<p>Mandatory participation; no age restriction or waiting period (must choose participation in either the DB or DC plan within 30 days of hire; DB is the default)</p>	<p>Mandatory participation; no age restriction or waiting period</p>	<p>Mandatory participation; no age restriction or waiting period</p>	<p>Mandatory participation; eligibility varies from immediate to 3 years of service depending upon position</p>
	<p><i>South Carolina Optional Retirement Plan</i></p>	<p><i>West Virginia Teachers DC Plan</i></p>	<p><i>Indiana University Plan</i></p>	<p><i>Michigan State University Plan</i></p>	<p><i>Purdue University Plan</i></p>

(cont.)

TABLE 13-A1 (Continued)

	Plan Name				
Best Practice Benchmark	South Carolina Optional Retirement Plan	West Virginia Teachers DC Plan	Indiana University Plan	Michigan State University Plan	Purdue University Plan
Vesting					
100% after 1 year service	Immediate	Graded: 1/3 after 6 years 2/3 after 9 years 100% after 12 years	Immediate	Immediate	Immediate
Total Employer and Employee Contributions					
12%+ of pay if covered by Social Security; 18-20% of pay if not covered by Social Security	Social Security Covered ER: 5.0% EE: 6.5%	Social Security Covered ER: 7.5% EE: 4.5%	Social Security Covered ER: varies from 10-12% depending on position (varies from 11-15% for those hired before 1989) EE: 0%	Social Security Covered ER: 10% EE: 5%	Social Security Covered ER: 11% on first \$9,000 of pay and 15% thereafter EE: 0%
Investments					
Mandatory or default into target-date lifecycle funds	Default into DB if do not specify investment choices	Default to balanced fund	Default to age-based lifecycle funds	Default to money market fund	Default to age-based lifecycle funds

Limited array of 15–20 funds covering major asset classes	70	13	38	31	34
Individual investment advice through one or more providers	Yes	No	Yes	Yes	Yes
Pre-Retirement Distributions					
Small benefit distributions only before normal retirement age	Full lump sum available on termination	Full lump sum available on termination	Full lump sum available on termination	Full lump sum available on termination	Full lump sum available on termination
No hardship or loan distributions	Not available	Not available	Not available	Both available	Not available
Retirement Distributions					
Minimum level of annuitization required	Annuitization option available; not required	Annuitization option available; not required	Annuitization option available; not required	Annuitization option available; not required	Annuitization option available; not required
Limited lump sum distribution	Full lump sum available	Full lump sum available	Full lump sum available	Full lump sum available	Full lump sum available
Provide inflation protected features	Variable life annuity and fixed life annuity with increasing benefits both available	Nothing other than the ability to invest in equities after retirement	Variable life annuity and fixed life annuity with increasing benefits both available	Variable life annuity and fixed life annuity with increasing benefits both available	Variable life annuity and fixed life annuity with increasing benefits both available

(cont.)

TABLE 13-A1 (Continued)

<i>Best Practice Benchmark</i>	<i>Plan Name</i>			
	<i>South Carolina Optional Retirement Plan</i>	<i>West Virginia Teachers DC Plan</i>	<i>Indiana University Plan</i>	<i>Michigan State University Plan</i> <i>Purdue University Plan</i>
Administrative Structure				
Avoid multiple vendor recordkeeping structures	Multiple recordkeepers	Single recordkeeper	Multiple recordkeepers	Multiple recordkeepers
Other Participant Services				
Investment education, retirement and financial planning services	Yes	Yes	Yes	Yes

	State University of New York	University of Iowa	University of Michigan	University of Washington
Eligibility and Participation				
Mandatory participation; no age restriction; no more than one year wait	Mandatory participation; optional to DB plan	Mandatory participation; optional to DB plan	Immediate eligibility; mandatory participation after age 35 and two years of service	Immediate eligibility; mandatory participation after two years of service
Vesting				
100% after one year service	Cliff: one year	Immediate	Immediate	Immediate
Total Employer and Employee Contributions				
12%+ of pay if covered by Social Security; 18-20% of pay if not covered by Social Security	Social Security Covered ER: 8% during first 7 years of participation, 10% thereafter (Note: higher rates apply to members who joined plan prior to July, 1992) EE: 3%	Social Security Covered ER: First 5 years: 6.67% on first \$4,800 and 10% thereafter; 10% after 5 years EE: First 5 years: 3.33% on first \$4,800 and 5% thereafter; 5% after 5 years	Social Security Covered ER: 5% EE: 0% (100% ER match of EE elective contributions up to an additional 5%)	Social Security Covered Both ER and EE: 5% if under age 35; 7.5% between ages 35 and 50; 10% if age 50 and older
Investments				
Mandatory or default into target-date lifecycle funds	Default to money market fund	Default to age-based life-cycle fund	Default to age-based life-cycle fund	Default to money market fund
Limited array of 15-20 funds covering major asset classes	32	39	150+	10

(cont.)

TABLE 13-A1 (Continued)

	Plan Name			
	State University of New York	University of Iowa	University of Michigan	University of Washington
Individual investment advice through one or more providers	Yes	Yes	Yes	No (but likely in 2008)
Pre-Retirement Distributions				
Small benefit distributions only before normal retirement age	Full lump sum available on termination	Full lump sum available on termination	Full lump sum available on termination	Full lump sum available on termination
No hardship or loan distributions	Not available	Not available	Not available	Not available
Retirement Distributions				
Minimum level of annuitization required	Annuitization option available; not required	Annuitization option available; not required	Annuitization option available; not required	Annuitization option available; not required
Limited lump sum distribution	Full lump sum available	Full lump sum available	Full lump sum available	Full lump sum available
Provide inflation protected features	Variable life annuity and fixed life annuity with increasing benefits both available	Variable life annuity and fixed life annuity with increasing benefits both available	Variable life annuity and fixed life annuity with increasing benefits both available	Variable life annuity and fixed life annuity with increasing benefits both available

Administrative Structure					
Avoid multiple vendor recordkeeping structures	Multiple recordkeepers	Multiple recordkeepers	Multiple recordkeepers	Multiple recordkeepers	Multiple recordkeepers
Other Participant Services					
Investment education, retirement and financial planning services	Yes	Yes	Yes	Yes	Yes

Source: Authors' compilations; see text.

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