



Kansas Public Employees Retirement System

KPERS Long-Term Funding: Defined Contribution Options

Joint Committee on Pensions, Investments and Benefits ▪ *November 17, 2009*

Defined Contribution Introduction

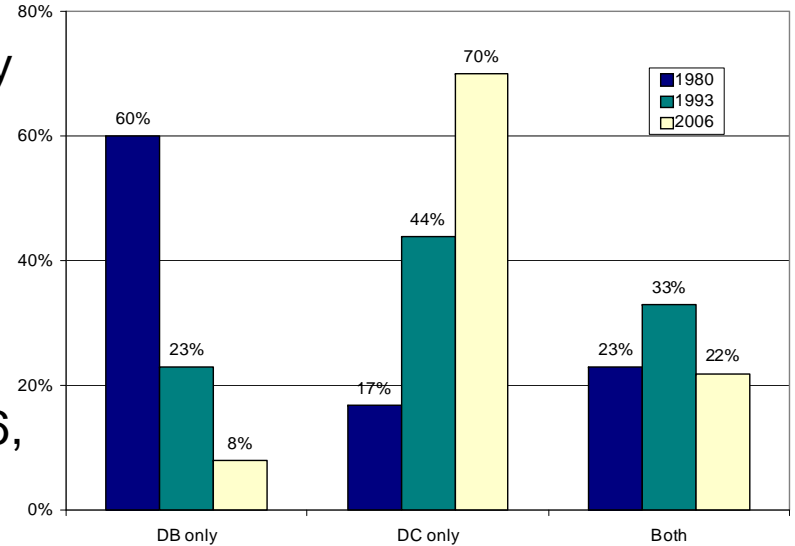
The Joint Committee on Pensions, Investments and Benefits and the House Appropriations Committee requested that KPERs provide additional information on a mandatory defined contribution plan option for future employees to address the long-term funding problem.

Types of Retirement Plans:

- **Defined Benefit (DB) Plans**—DB plans specify the benefit employees will receive when they retire based on a formula set out in the legal plan document. The basic formula is:
$$\text{Final Average Salary} \times \text{Years of Service} \times \text{Multiplier} = \text{Annual Benefit}$$
- **Defined Contribution (DC) Plans**—DC plans specify the contribution rate the employer and employee pay into the plan each year. The employee usually directs the investment of the contributions in a range of investment options. The amount employees get at retirement depends on the value of the account at retirement.
- **Hybrid Plans**—Hybrid plans combine both DB and DC elements. For example, a plan might have a base DB plan with a low multiplier (e.g. 1%) and a supplemental DC account. Another example is a cash balance plan in which the employer promises both the contribution to an account (e.g. 5% of pay) and a guaranteed investment return (e.g. 6%).

Private Sector Trend To DC Plans

- Since the 1980's, pension coverage in the private sector has been shifting significantly from Defined Benefit (DB) to Defined Contribution (DC) plans.
- As the graphs to the right show, of private sector employees with pension coverage, the percent of employees with only a DB plan fell from 60% to 8% from 1980 to 2006, while those with only DC rose from 17% to 70%.



- In recent years, there has been a significant trend for large companies to freeze DB plans and shift to DC plans. This shift has been driven by a number of factors including: increased regulation of DB plans, financial distress in certain industries, global competitive financial pressures, and shifting risk to employees.
- In 2009, 42% of the companies in the Fortune 1000 sponsored active DB plans compared to 59% in 2004.

Other States' Defined Contribution Plans

- The DB plan is the primary retirement plan for most state, local and school employees who are covered by a state-sponsored retirement plan. In the last 10 to 15 years, there have been about a dozen states who have adopted DC plans as either a mandatory plan, voluntary option, or hybrid plan.
- **Mandatory DC Plans**
 - **Michigan**—Adopted a mandatory DC plan for new state employees in 1997. School and local employees are still covered by a DB plan.
 - **Alaska**—Adopted mandatory DC plan for new state, local and school employees in 2005.
- **Optional DC Plans**—States with optional DC plans include: Florida, Colorado, Montana, North Dakota, Ohio, and South Carolina.
- **Hybrid Plans**—States with features combining both DB and DC elements include: Florida, Georgia, Indiana, Nebraska, Ohio, Oregon, and Washington.

Other States Defined Contribution Plans

- **States Switching from DC to DB or Hybrid**
 - **Nebraska**—Primary plan was DC from 1967 to 2002. Closed to new employees in 2003 and replaced with cash balance plan.
 - **West Virginia**—DB plan for teachers was closed to new members in 1991, and a DC plan was created. In 2005, DC plan was closed to new enrollment. In 2006, DC members voted to merge with DB plan. After legal challenges, legislation passed in 2008 to allow DC members to transfer to DB plan.

Kansas Defined Contribution Plans

In addition to the three state DB plans (KPERs, KP&F and Judges), there are three types of DC plans for certain State of Kansas employees. Also, Kansas school and local governments sponsor voluntary, supplemental DC plans for their employees.

- **Regents Retirement Plan**—Established in 1961 for unclassified faculty and administrators. Mandatory employer contribution of 8.5% and employee contribution of 5.5%. Members become vested immediately in all employee and employer contributions and self-direct investments. Currently, two service providers offer a wide range of investment options—TIAA-CREF and ING. Regents also offer a voluntary plan to which an employee can make additional contributions.
- **Voluntary Deferred Compensation Plan (457 Plan)**—Established in 1976 for state employees. In 1982, local governments were allowed to adopt the state plan. Employees can make voluntary pre-tax contributions to a deferred compensation account and self-direct investments. Current service provider is ING, and the plan was transferred under the administration of KPERs in 2008.

Kansas Defined Contribution Plans (Continued)

- **Deferred Compensation Plan for State Officials**—Established in 1988 for certain state officials, legislative session employees, and legislative leadership staff. Most members are offered one-time option of joining KPERS or this plan. Employer contribution is 8%, and there is no mandatory employee contribution. These accounts are managed as part of the State’s voluntary 457 plan.
- **School District and Local Government Voluntary DC Plans**—Nearly all the school districts in the State have for many years provided a voluntary supplemental “403(b)” DC plan to their employees. Employees make voluntary pre-tax contributions. Most cities and counties that do not adopt the State Deferred Compensation Plan have a separate voluntary deferred compensation plan (457 Plan).

DB Vs. DC Comparison Chart

DEFINED BENEFIT PLAN		DEFINED CONTRIBUTION PLAN
Risk Attributes		
Investment Risk	Employer	Employee
Liability Estimate Risk	Employer	Employee
Inflation Risk (After Retirement)	Employer, if an indexed COLA is provided Employee, if COLA inadequate	Employee
Longevity Risk (Risk of Outliving Assets)	Employer	Employee
Investment Attributes		
Asset Allocation and Investment Management	Professional management and expertise.	Dependent on individual expertise, judgment, and attention to active monitoring and managing of the account.
Investment Opportunities	Access to wide range of asset classes and strategies, including private equity and real estate.	Generally access only to equity and fixed income investment through mutual funds.
Time Horizon	Consistent, long-term, pooled horizon for all participants	Shifts depending on individual participant's age.
Investment Fees	Lower institutional fees	Higher fees depending on size of DC plan and mutual fund options provided.
Plan Management Attributes		
Employer Contribution Volatility	Potential for significant increases in employer contribution rates depending on investment and demographic experience and consistency in paying the full actuarial rate.	None
Portability (Member leaves employment prior to retirement)	If non-vested, member can only withdraw or roll over employee contributions, plus interest. If vested, must wait until retirement eligibility to receive benefit earned to that point or must forfeit the earned benefit to withdraw or roll over employee contributions plus interest.	Can withdraw or roll over employee contributions and all vested employer contributions, plus investment earnings.

DB Vs. DC Comparison Chart

DEFINED BENEFIT PLAN		DEFINED CONTRIBUTION PLAN
Plan Management Attributes		
Employer Administrative Complexity	Extensive statutory provisions on eligibility, vesting, final average salary, multiplier, working after retirement, and other elements affecting retirement benefit amounts. Employer responsible for developing and maintaining infrastructure for administering these provisions.	Minimal number of terms and conditions to administer, such as percent of employer and employee contributions, vesting of employer contributions, and options for distribution. Much of the infrastructure for day-to-day account management typically contracted out to third-party service provider.
Employee Retirement Planning and Management	Minimal ongoing responsibility for active planning, particularly early in career. Complex rules not readily understood by all members. No responsibility for managing account.	Continuous responsibility for understanding, planning, monitoring, and actively managing retirement account.
Workforce Impacts		
Attraction/recruitment	Tends to be preferred by older employees or employees seeking a long-term career.	Tends to be preferred by younger employees and employees who are more mobile.
Retention	Tends to encourage retention of employees with greater length of service (career employees)	Only provides a retention incentive to the extent the employer contribution is higher than provided by employers competing for the same workers.
Relationship Between Plan and Other Conditions of Employment	Other terms and conditions of employment and personnel actions can directly impact both benefits and employer contribution obligations, including pay raises and promotions, overtime, and early retirement incentives in or outside of the plan. This is particularly true for changes in conditions of employment during the years leading up to retirement.	Other terms and conditions of employment and personnel actions have a direct impact on employer contributions only to the extent that the payroll base rises.

Plan Design Evaluation Factors

In evaluating various DB and DC plan options, the key factors that should be considered are the following:

- **Financial Soundness/Cost**—Does it ensure the financial soundness of the System over the long-term? Are the short-term and long-term costs to employers and employees affordable and sustainable?
- **Retirement Benefit Adequacy**—Does it provide benefits that, when combined with Social Security and personal savings, will sustain the retiree's standard of living in retirement?
- **Workforce Incentives**—Does it provide sufficient incentives to attract and retain high quality employees?

Impact on UAL From DC Options

- The calculation of the employer contribution rate for the current DB plan is based on two types of costs:
 - **Normal Cost**—The cost of new benefits earned that year.
 - **UAL Amortization Payment**—The annual payment on the cost of funding the difference between actuarial value of assets and the actuarial value of the liabilities for benefits already earned.
- An example of the employer contribution rate calculation for the State/School Group for FY 2012 is shown below:

Employer Normal Cost	4.53%
Amortization of UAL	<u>9.56%</u>
Actuarial Contribution Rate*	14.09%
Statutory Employer Contribution Rate*	8.77%

* Assumes the current .6% cap on employer contribution increases remained in place.

- Because of the statutory cap, the State is paying the normal cost of 4.53%, but only paying 4.24% of the 9.56% UAL amortization payment.

Impact on UAL From DC Options (Continued)

- If a mandatory defined contribution plan was provided to all future employees, those employees hired after the plan's effective date would constitute a new tier of members.
 - For those hired before the new plan takes effect (Tiers 1 and 2), the employers' annual contributions would pay for the normal cost and a portion of the UAL amortization payment.
 - For those hired after the new plan takes effect (Tier 3), no unfunded actuarial liability exists, and the employer pays only the contribution provided by the defined contribution plan.
- Employer contributions for Tier 3 would go solely to the participants' accounts. Therefore, employer contributions toward Tiers 1 and 2 would be paid on a shrinking payroll base as new employees join Tier 3.
- The UAL is a set dollar amount. Therefore, employers would need to either:
 - Pay a higher UAL amortization payment on the Tier 1 and Tier 2 payrolls.
 - Make a UAL payment on the total payroll, including the pay of Tier 3 members. This is the recommended approach.

Developing a DC Employer Contribution Rate

- To develop a total employer contribution rate for the Tier 3 payroll, a UAL payment must be added to the employer DC contribution rate for Tier 3 participants.
- Three options are shown below for calculating this total employer contribution rate using the FY 2012 ARC and statutory rate. DC Options A and B are based on the 8.5% employer contribution rate used in the Regents DC plan, and DC Option C is a basic 401(k) DC plan with a 3% employer contribution and 6% employee contribution.

	DC Option A*	DC Option B*	DC Option C*
Employer Contribution to DC Account	8.50%	8.50%	3.00%
UAL Payment to DB Plan	.27%	4.24%	5.77%
Total	8.77%	12.74%	8.77%

*Assumes a .6% cap on employer contribution increases and a level 8% annual investment return.

DC Options Summary

KPERS' actuary has modeled the impact of these three DC options on the long-term funding status of KPERS Tiers 1 & 2 and compared them to the baseline DB Plan for the combined State/School Group. The assumptions used for the Baseline DB and for the three DC options are summarized below. All projections assume a level 8% annual investment return.

Baseline DB Plan

- Employer Contribution Rate: Cap remains at 0.6%.
- Employee Contribution Rate: No change.

DC Option A

- Employer Contribution Rate: 8.5%
- Employee Contribution Rate: 5.5%
- Additional contribution rate credited to DB UAL is equal to difference between statutory DB rate minus 8.5% DC employer rate.

DC Options Summary (Continued)

DC Option B

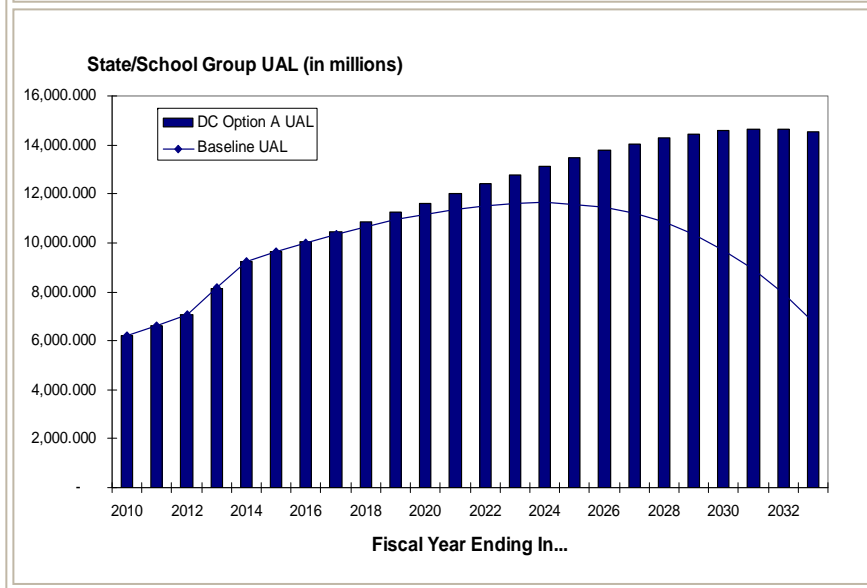
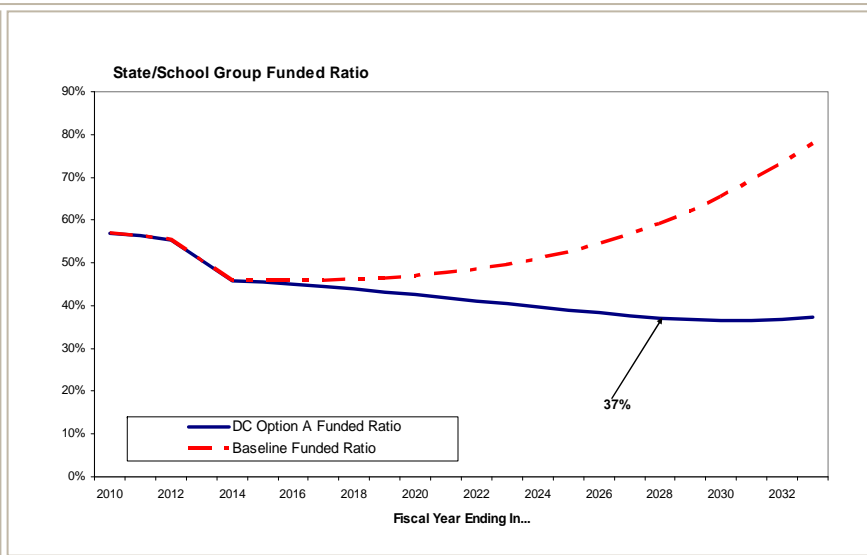
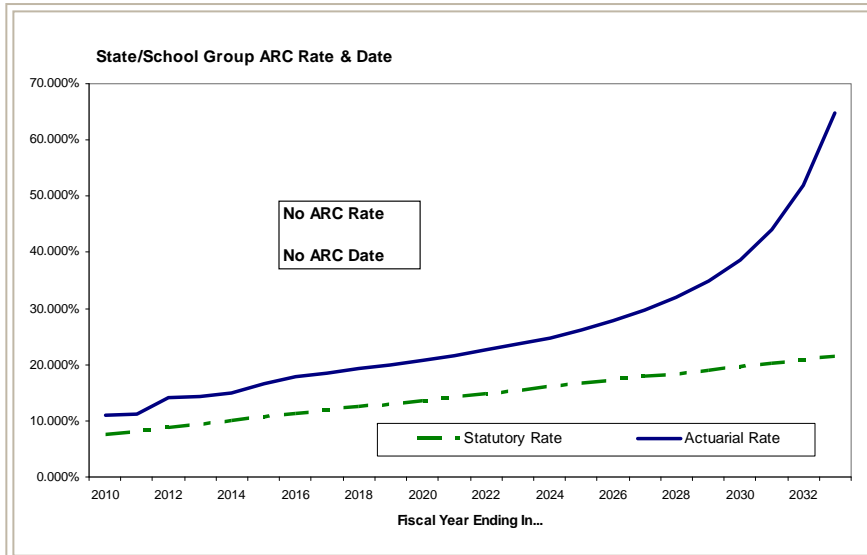
- Employer Contribution Rate: 8.5%
- Employee Contribution Rate: 5.5%
- Additional contribution to DB UAL equal to statutory DB rate minus the blended normal cost for Tier 1 and 2.

DC Option C

- Employer Contribution Rate: 3.0%
- Employee Contribution Rate: 6.0%
- Additional contribution rate credited to DB UAL equal to statutory DB rate minus 3.0% DC employer rate.

State/School Combined Group: Defined Contribution Option A

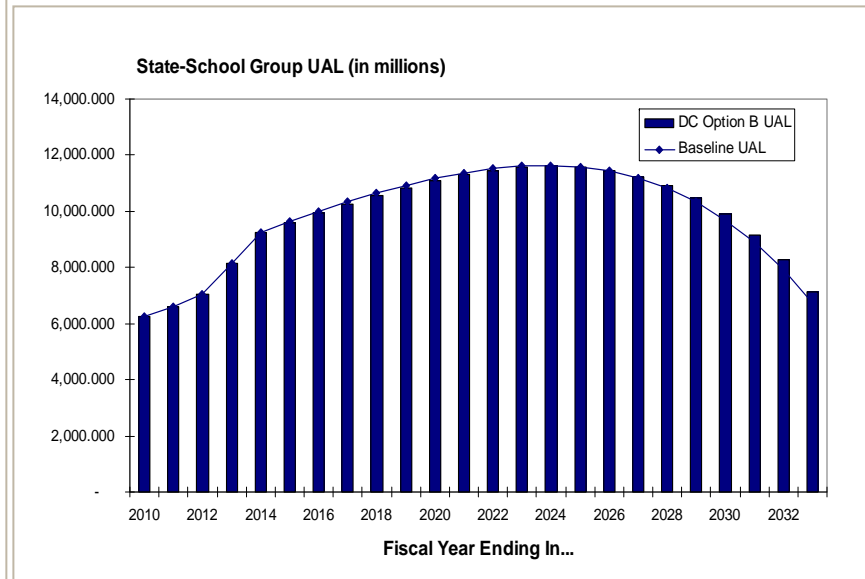
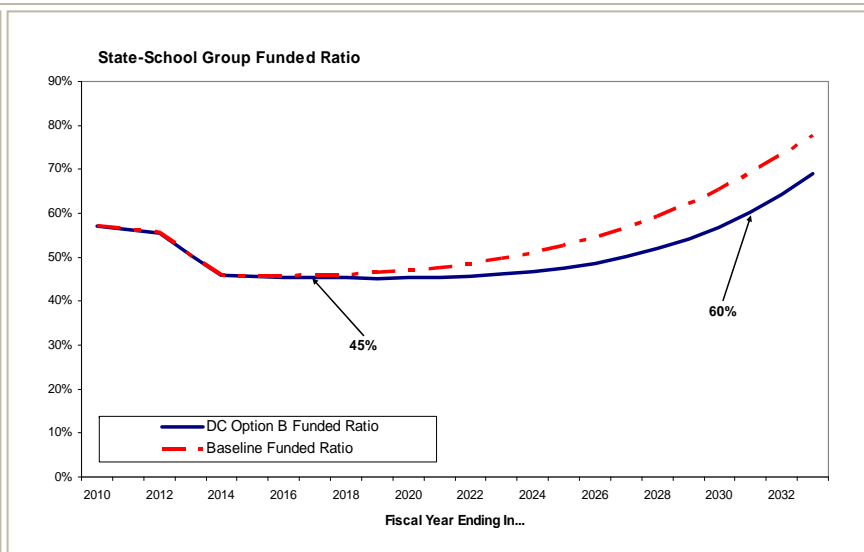
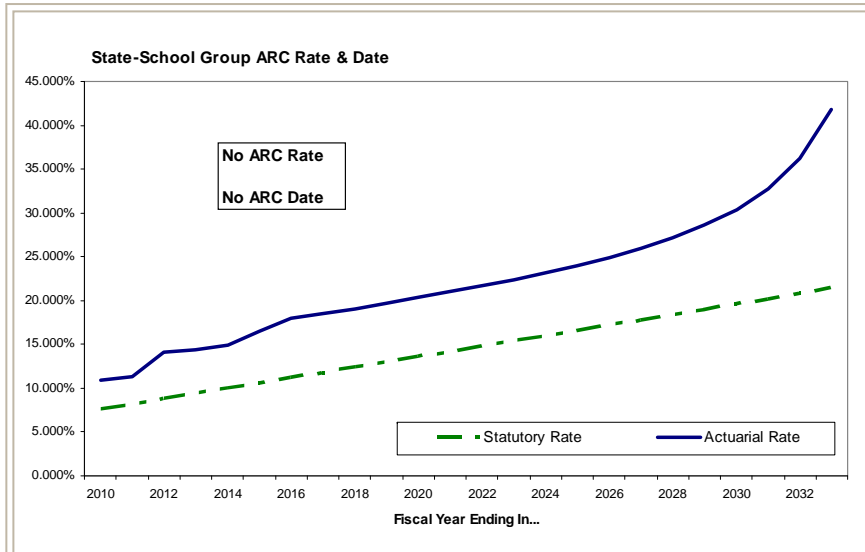
▪ **8.5% employer and 5.5% employee contribution to DC plan. Difference between statutory DB rate (with .6% cap) and 8.5% DC contribution credited to DB UAL.**



- As is true with the baseline DB plan, the State/School Group is out of actuarial balance under DC Option A.
- Under the baseline DB plan, the State/School Group is less than 50% funded for nine years. Under DC Option A, the State/School Group also falls below 50% funded in FY 2014 and then continues dropping to 37% funded from FY 2028 through FY 2033.
- The State/School Group UAL climbs to a peak of \$14.65 billion in FY 2031 – 26% higher than the peak UAL under the DB baseline.

State/School Combined Group: Defined Contribution Option B

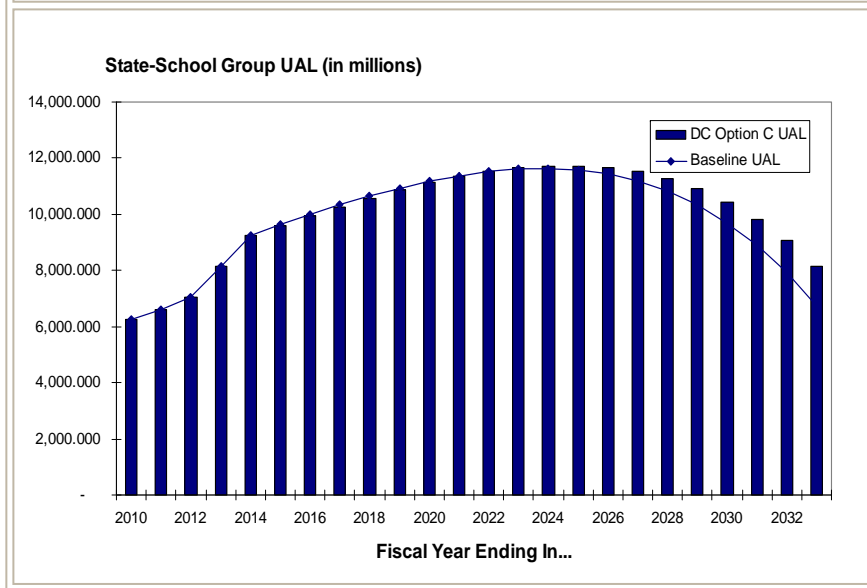
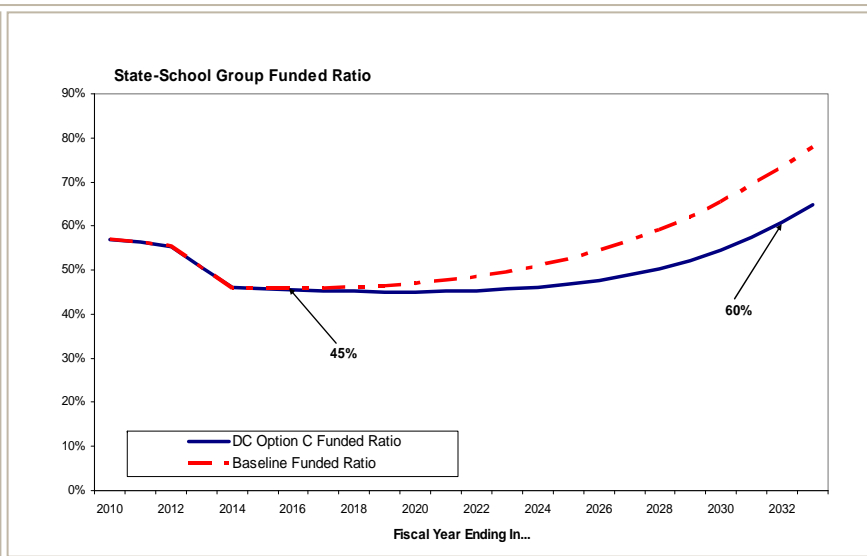
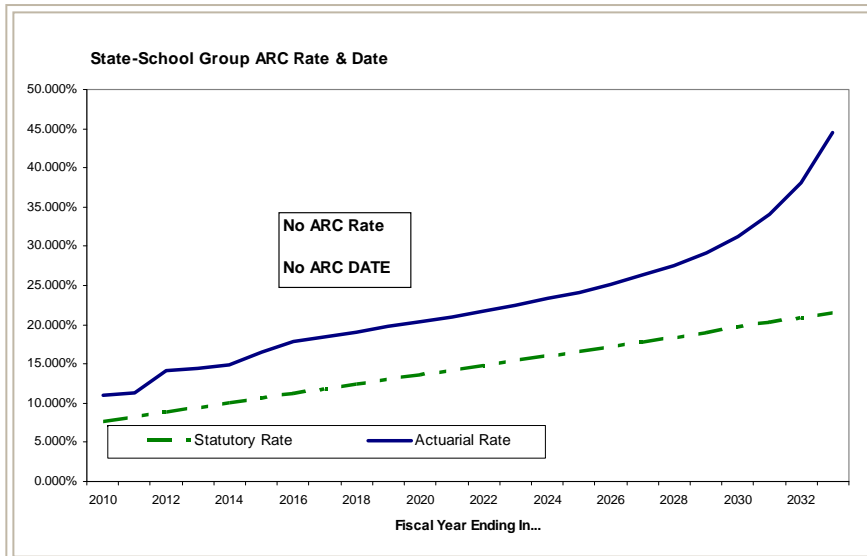
▪ **8.5% employer and 5.5% employee contribution to DC plan. Additional employer contribution to DB UAL equal to statutory DB rate (with .6% cap) minus the blended normal cost for Tier 1 and 2.**



- Under DC Option B, the State/School Group statutory rate does not reach the ARC rate through the end of the amortization period in 2033.
- Under DC Option B, the State/School Group's funded ratio trails the DB baseline funded ratio slightly – remaining below 50% funded for 13 years, versus 9 years under the DB baseline.
- A 60% funded ratio is reached in FY 2031 – two years later than the DB baseline.
- The State/School Group UAL under DC Option B tracks with the DB baseline since UAL amortization payments match.

State/School Combined Group: Defined Contribution Option C

▪ **3% employer and 6.0% employee contribution to DC plan. Difference between statutory DB rate (with .6% cap) and 3.0% DC contribution credited to DB UAL.**



- Like the other options, the State/School Group remains out of actuarial balance.
- Under DC Option C, the State/School Group's funded ratio trails slightly -- remaining below 50% funded for 14 years, versus 9 years under the DB baseline.
- A 60% funded ratio is reached in FY 2032 – three years later than the DB baseline.
- The State/School Group UAL under DC Option C is similar to the DB baseline. It peaks two years later at \$11.7 billion.

DC Options Cost Comparison Charts

DC Option A* Estimated Effect on the State and School Group (in Millions)

Fiscal Year	Current DB Plan	DB Tiers 1 & 2	DC Option A		Total	Difference	Cumulative
			DC	DB UAL			
2012	\$ 411.70	\$ 404.56	\$ 6.93	\$ 0.22	\$ 411.70	\$ -	
2017	\$ 636.51	\$ 453.58	\$ 132.10	\$ 50.82	\$ 636.51	\$ -	\$ -
2022	\$ 936.63	\$ 468.88	\$ 269.19	\$ 198.56	\$ 936.63	\$ -	\$ -
2027	\$ 1,340.06	\$ 455.91	\$ 422.92	\$ 461.23	\$ 1,340.06	\$ -	\$ -
2033	\$ 2,004.25	\$ 403.01	\$ 636.90	\$ 964.34	\$ 2,004.25	\$ -	\$ -
2010-2033	\$ 23,977.65	\$ 10,518.92	\$ 6,540.99	\$ 6,917.75	\$ 23,977.65	\$ -	\$ -

DC Option B** Estimated Effect on the State and School Group (in Millions)

Fiscal Year	Current DB Plan	DB Tiers 1 & 2	DC Option B		Total	Difference	Cumulative
			DC	DB UAL			
2012	\$ 411.70	\$ 404.56	\$ 6.93	\$ 5.19	\$ 416.68	\$ 4.97	
2017	\$ 636.51	\$ 453.58	\$ 132.10	\$ 146.71	\$ 732.40	\$ 95.89	\$ 294.63
2022	\$ 936.63	\$ 468.88	\$ 269.19	\$ 403.94	\$ 1,142.00	\$ 205.37	\$ 1,089.90
2027	\$ 1,340.06	\$ 455.91	\$ 422.92	\$ 807.52	\$ 1,686.35	\$ 346.30	\$ 2,529.02
2033	\$ 2,004.25	\$ 403.01	\$ 636.90	\$ 1,516.19	\$ 2,556.10	\$ 551.85	\$ 5,305.87
2010-2033	\$ 23,977.65	\$ 10,518.92	\$ 6,540.99	\$ 12,223.61	\$ 29,283.52	\$ 5,305.87	

*8.5% employer and 5.5% employee contribution to DC plan. Difference between statutory DB rate (with .6% cap) and 8.5% DC contribution credited to DB UAL.

**8.5% employer and 5.5% employee contribution to DC plan. Additional employer contribution to DB UAL equal to statutory DB rate (with .6% cap) minus the blended normal cost for Tier 1 and 2.

DC Options Cost Comparison Charts

DC Option C* Estimated Effect on the State and School Group (in Millions)

Fiscal Year	Current DB Plan	DB Tiers 1 & 2	DC Option C		Total	Difference	Cumulative
			Tier 3				
			<u>DC</u>	<u>DB UAL</u>			
2012	\$ 411.70	\$ 404.56	\$ 2.44	\$ 4.70	\$ 411.70	\$ -	
2017	\$ 636.51	\$ 453.58	\$ 46.62	\$ 136.30	\$ 636.51	\$ -	\$ -
2022	\$ 936.63	\$ 468.88	\$ 95.01	\$ 372.74	\$ 936.63	\$ -	\$ -
2027	\$ 1,340.06	\$ 455.91	\$ 149.27	\$ 734.88	\$ 1,340.06	\$ -	\$ -
2033	\$ 2,004.25	\$ 403.01	\$ 224.79	\$ 1,376.44	\$ 2,004.25	\$ -	\$ -
2010-2033	\$ 23,977.65	\$ 10,518.92	\$ 2,308.58	\$ 11,150.15	\$ 23,977.65	\$ -	\$ -

*3% employer and 6.0% employee contribution to DC plan. Difference between statutory DB rate (with .6% cap) and 3.0% DC contribution credited to DB UAL.

Retirement Benefit Adequacy

- The basic goal of retirement planning is to provide for a level of retirement income that will permit retirees to maintain their preretirement lifestyle throughout retirement.
- The accepted quantitative standard for measuring achievement of this goal is the “replacement ratio.”
 - Replacement ratio refers to the percentage of preretirement income that is provided or needed after retirement.
- **Minimum** target replacement ratios of 70 percent to 80 percent are commonly recommended by financial planners.
 - The appropriate replacement ratio for a particular member may need to be modified due to personal factors such as spousal income and retirement benefits.
- KPERS was designed to work in tandem with Social Security benefits and personal savings. All three components are necessary to provide an adequate replacement ratio throughout retirement.

Retirement Benefit Adequacy (Continued)

Example: KPERS Tier 2 member retiring at age 65 with 22 years of service (average for KPERS members) with \$40,000 salary.

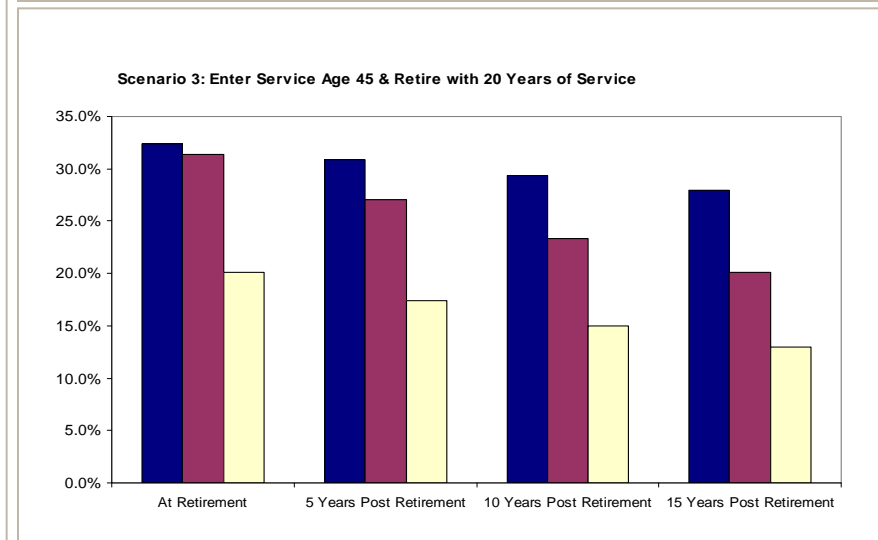
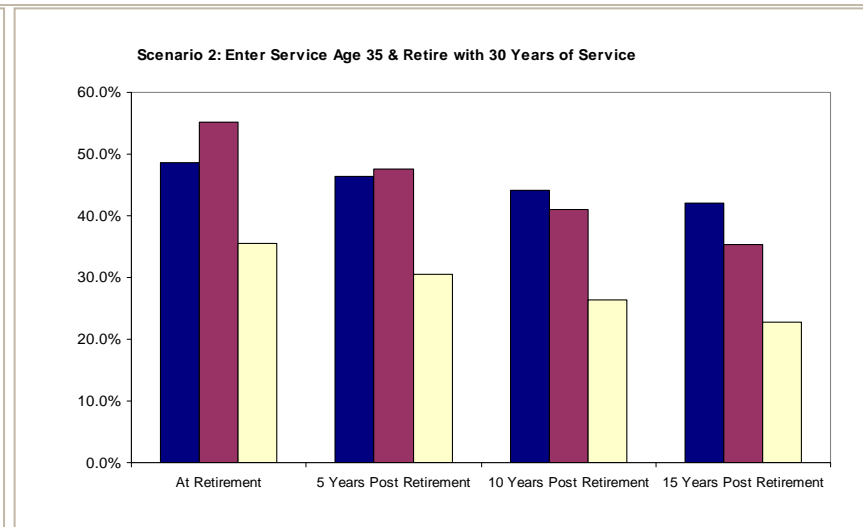
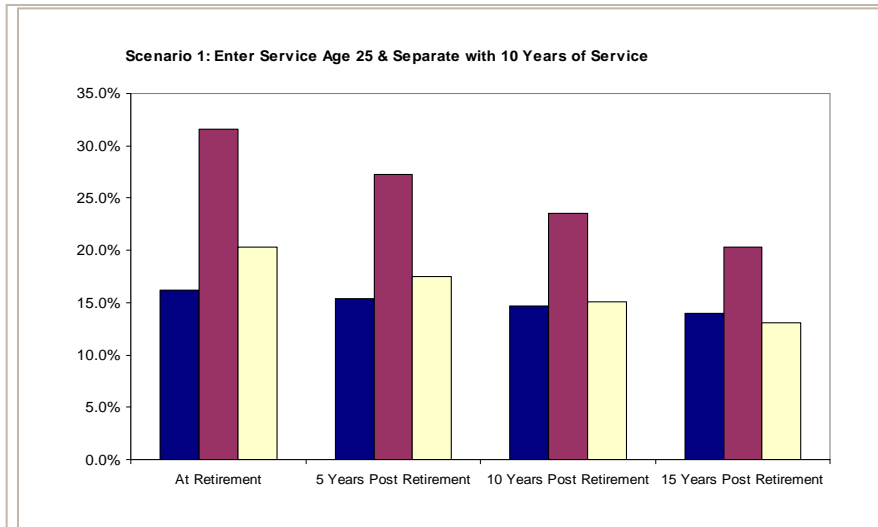
	Annual Benefit	% of Income Replaced
Social Security	\$13,800	34%
KPERS	\$14,260	36%
<u>Personal Savings</u>	<u>\$3,940</u>	<u>10%</u>
Total	\$32,000	80%

Income Replacement Ratio Comparisons

- Income replacement ratios for KPERS Tier 2 benefits and two defined contribution design options are compared on the following pages.
 - **“Regents” Design:** 8.5% employer contribution and 5.5% employee contribution.
 - **“Basic” Design:** 3% employer contribution and 6% employee contribution.
- To focus the comparison, Social Security benefits and personal savings are not shown.
- Three scenarios based on different initial employment ages are provided as a point of comparison.
 - **Scenario 1:** Employee entered service at age 25 and left KPERS covered employment at age 35.
 - **Scenario 2:** Employee entered service at age 35 and worked 30 years until retirement.
 - **Scenario 3:** Employee entered service at age 45 and worked 20 years until retirement.
- In each scenario, the following assumptions are used:
 - All employer DC contributions vest immediately.
 - A \$40,000 salary just prior to retirement at age 65.
 - A 7% preretirement investment return for both the Regents and Basic designs.
 - A 5% postretirement return for both the Regents and Basic designs.
 - A 3% future rate of inflation.

*Appendix A shows these scenarios with different pre-retirement investment returns

Income Replacement Scenarios



- **Scenario 1:** Regents plan has highest ratio at retirement (32%) vs. the Basic plan (20%) and KPERS (16%). The gap closes 15 years post retirement – Regents (20%), Basic (13%) and KPERS (14%).
- **Scenario 2:** Regents plan has highest ratio at retirement (55%) vs. KPERS (49%) and the Basic plan (35%). The trend reverses 15 years post retirement – KPERS (42%), Regents (35%) and Basic (23%).
- **Scenario 3:** KPERS plan has highest ratio at retirement (32%) vs. Regents (31%) and Basic plan (20%). The gap widens 15 years post retirement – KPERS (28%), Regents (20%) and Basic (13%).

■ DB Plans

■ "Regents" DC Plan

■ Basic DC Plan

Observations Regarding DC Options

A review of the DC options illustrates the following trade-offs and limitations:

DC Option A:

- The total employer contribution rate and State outlays for Tier 3 would be the same as the baseline DB Plan through FY 2033.
- The UAL for Tiers 1 & 2 would grow significantly compared to the DB baseline, and the funded ratio would decline.
- The income replacement ratios for Tier 3 would be the highest at retirement for most scenarios, but would decline post retirement in comparison to Tier 2.

DC Option B:

- The total contribution rate and State outlays for Tier 3 would be significantly higher than the baseline DB plan through FY 2033.
- The UAL for Tiers 1 & 2 would be paid off at the same level as the baseline DB plan, and the funded ratio would trail the DB baseline slightly.
- The income replacement ratios for Tier 3 would be the highest at retirement for most scenarios, but would decline post retirement in comparison to Tier 2.

Observations Regarding DC Options (Continued)

DC Option C:

- The total contribution rate and State outlays for Tier 3 would be the same as the baseline DB plan through FY 2033.
- The UAL for Tiers 1 & 2 would be similar to the DB baseline, and the funded ratio would trail the DB baseline slightly.
- The income replacement ratios at retirement and post retirement for Tier 3 career employees are significantly lower than Tier 2.

KPERS is seeking feedback from the Joint Committee regarding these DC options or others the Committee may wish to consider.



Appendix A

DC Options With Variable Returns

SCENARIO 1: RETIRED @ AGE 65 WITH ENTRY AGE OF 25 (SEPARATED AFTER 10 YEARS OF SERVICE)

Preretirement Return Assumption	Replacement Ratio @			
	Retirement	5 years	10 years	15 years
KPERS Tier II				
8	16%	15%	15%	14%
7	16%	15%	15%	14%
6	16%	15%	15%	14%
Regents plan: 8.5% ER & 5.5% EE				
8	44%	38%	33%	28%
7	32%	27%	24%	20%
6	23%	20%	17%	15%
Basic plan: 3% ER & 6% EE				
8	28%	24%	21%	18%
7	20%	18%	15%	13%
6	15%	13%	11%	9%

SCENARIO 2: RETIRED @ AGE 65 WITH ENTRY AGE OF 35 (30 YEARS OF SERVICE)

Preretirement Return Assumption	Replacement Ratio @			
	Retirement	5 years	10 years	15 years
KPERS Tier II				
8	49%	46%	44%	42%
7	49%	46%	44%	42%
6	49%	46%	44%	42%
Regents plan: 8.5% ER & 5.5% EE				
8	65%	56%	48%	42%
7	55%	48%	41%	35%
6	47%	41%	35%	30%
Basic plan: 3% ER & 6% EE				
8	42%	36%	31%	27%
7	35%	31%	26%	23%
6	30%	26%	23%	19%

 Highest Ratio
 Lowest Ratio

DC Options With Variable Returns

**SCENARIO 3:
RETIRED @ AGE 65 WITH ENTRY AGE OF 45
(20 YEARS OF SERVICE)**

Preretirement Return Assumption	Replacement Ratio @			
	Retirement	5 years	10 years	15 years
KPERS Tier II				
8	32%	31%	29%	28%
7	32%	31%	29%	28%
6	32%	31%	29%	28%
Regents plan: 8.5% ER & 5.5% EE				
8	35%	30%	26%	22%
7	31%	27%	23%	20%
6	28%	24%	21%	18%
Basic plan: 3% ER & 6% EE				
8	22%	19%	17%	14%
7	20%	17%	15%	13%
6	18%	16%	14%	12%