Reason Foundation
Policy Brief 124
June 2014

Phoenix Pension Reform Initiative Eliminates Taxpayer Risk, Saves Hundreds of Millions

By Anthony Randazzo, Director of Economic Research

Summary

The City of Phoenix Employee Retirement System is facing a $1.5 billion dollar unfunded liability and is operating with unrealistic actuarial assumptions that underestimate future taxpayer costs. Further, the 2013 reform initiative requires future employees to contribute unsustainably high percentages of their salaries to retirement savings, making retention very challenging.

We analyze a proposed reform to the system that would address these challenges and find it would reduce taxpayer liabilities, eliminate retention risk, and save taxpayers $394.7 million by conservative measures, and possibly reduce taxpayer costs as much as $1.6 billion over the next 25 years.

The Problem

The City of Phoenix Employee Retirement System (COPERS) is facing some serious problems that need to be addressed. At the last count, COPERS has just 56.6% of the money saved that it needs to pay its promised pension benefits. The system has also racked up $1.5 billion in pension debt, or unfunded liabilities—all of which needs to be paid for by taxpayers.[1] These problems have been known for a number of years now, but unfortunately the city's 2013 reform didn't adequately address the challenges facing Phoenix, and might inadvertently have made the problems worse.

The recent reform failed to eliminate the investment risks inherent in any defined-benefit system, meaning Phoenix taxpayers are still exposed to hundreds of millions in potential losses in coming years. Moreover, the reform's change to employee contribution rates is likely to make recruitment a near impossibility within a decade without some substantive change to the status quo.

1. Investment Risks: The 2008 financial crisis vividly demonstrated the investment risks that defined-benefit pension systems always face. Even missing investment targets by a small amount can mean big costs for taxpayers. For instance, COPERS expects its invested assets to average a return of 7.5% over the next 25 years. If the actual return is instead just a quarter percentage point lower at 7.25%, then taxpayers will have to pay nearly *$100 million more* in normal cost than is currently anticipated (see Table 1 below).

In the real world, $100 million in extra costs could translate into increases in property taxes or sales taxes. Alternatively, the city could make up the difference by eliminating some park services, deferring road and bridge maintenance, reducing library services, or some cutting some other city service.

And that is just if the assumption is off by a small amount. Figure 1 shows the range of *additional* costs Phoenix taxpayers will bear if the average actual return is lower than the currently expected rate. If the actual returns come in at an average of 5.5%, which Moody's Investor Service recently proposed as a responsible return assumption, then Phoenix taxpayers will be paying more than *$700 million* in added costs over the next 25 years.[2] Stanford economist Joshua Rauh has suggested the most honest and realistic assumption might be closer to a 3% rate of return, which would put additional taxpayer costs around the $1.4 billion mark.[3]

Figure 1: Potential Growth in Taxpayer Costs Due to Actual Investment Returns Lower Than Anticipated (in millions)

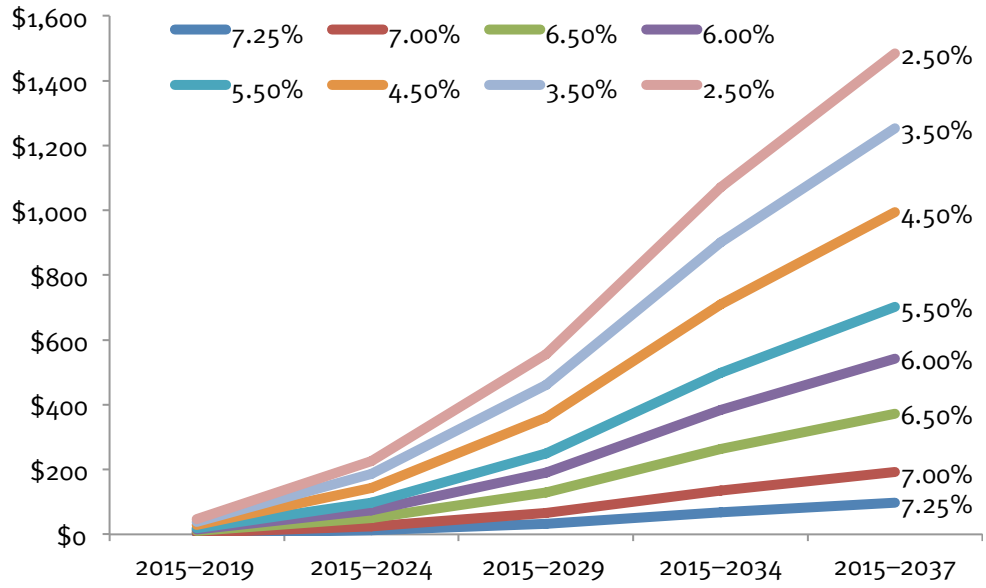


Table 1: Additional Normal Cost to Be Paid by Taxpayers If Actual Investment Return Rates Are Lower than Currently Assumed

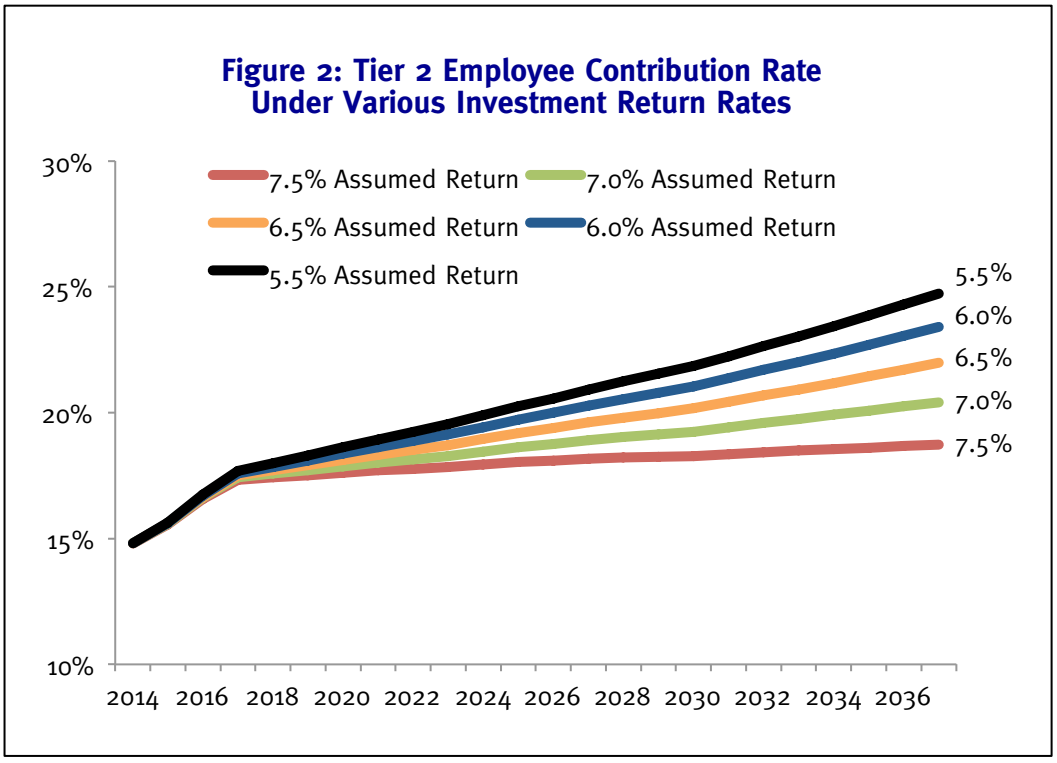
FYE Cumulative	7.25%	7.00%	6.75%	6.50%	6.25%	6.00%
2015-2019	$2,471,268	$4,930,068	$7,376,456	$9,810,485	$12,232,210	$14,641,685
2015-2024	$12,774,555	$25,387,807	$37,841,789	$50,138,510	$62,279,956	$74,268,088
2015-2037	$97,699,439	$192,388,410	$284,170,214	$373,144,452	$459,407,154	$543,050,910
FYE Cumulative	5.75%	5.50%	4.50%	3.50%	2.50%	Percentages are possible rates of return
2015-2019	$17,038,963	$19,424,099	$28,844,285	$38,074,438	$47,117,913	
2015-2024	$86,104,845	$97,792,142	$143,084,249	$186,132,414	$227,048,687	
2015-2037	$624,164,993	$702,835,477	$994,697,333	$1,253,590,933	$1,483,718,104	

2. Recruitment Risks: Even if the pension system achieves its expected returns the city faces another problem: employee retention.

A 2013 pension reform, passed by ballot initiative as "Prop 201," requires that future employees in the defined-benefit system share half the cost of prefunding their benefits *as well as* half the cost of unfunded liability payments. As a result, the city is projected to have declining contribution rates within the next five years (good for taxpayers). But the cost sharing also means *employee contributions* are going to increase sharply, creating little incentive for individuals to work for the city (bad for taxpayers).

"Tier 1" employees, those hired prior to the 2013 reform, contribute 5% of their pay toward pre-funding benefits. "Tier 2" employees, those hired after July 1, 2013 will contribute over 13% of pay in FY2014 and could be contributing as

much as 20% of their pay within a decade. Figure 2 shows what Tier 2 employee contribution rates will be over the next 25 years based on different assumed rates of return.



Even under the best-case scenario, Tier 2 employees will eventually be contributing a fifth of their pay (see the appendix for a full table). With realistic assumptions, though, Tier 2 employees are facing contribution rates above 20% within a decade. And since the vesting period for Tier 2 employees is 10 years, this means new workers for the city will have to choose between giving up 18% to 20% of their paycheck for at least a decade or give up their benefits if they choose to leave.[4]

A recruiting challenge would have two primary effects on the pension system that make the status quo projections unrealistic. First, if the city can't recruit new employees, it will either have to encourage old employees to stay longer in their posts or increase salary and other benefits to entice new workers. Both of those scenarios would mean higher pension costs than are currently projected because salary levels—which help determine pension benefits—would be higher than expected.

Second, if new employees are not hired into the Tier 2 system as anticipated, then the city's projections about paying down unfunded liabilities are not going to pan out. Tier 2 employees are expected to contribute 50% of the annual

amortized debt payments, but if potential employees balk at the idea of 25% contribution rates and having to pay off the debt accumulated for previous employees, then there will be fewer employees than expected. That in turn will mean fewer Tier 2 employees to share in the 50% cost of unfunded liability payments, which would drive up contribution rates further. Ultimately, the burden of paying off pension debt would end up back on taxpayers, meaning that projected declining contribution rates for the city will not become a reality.

These problems with the Tier 2 system's structure make some change to the status quo inevitable. The city will either need to pass a new reform to fix this problem, or embrace higher pension costs. Either way, the 2013 reform effort did not solve the problems in COPERS and current costs projections that take Prop 201 into account cannot be considered realistic.

The Proposed Solution

The Phoenix Pension Reform Act is an initiative by Citizens for Pension Reform that aims to address COPERS's problems with four changes:

(1) All future workers would be enrolled in a defined-contribution plan with lower employee contribution rates. Employees in the defined-benefit funds would remain there, and the systems would naturally phase-out. The city would still have to make annual payments to the defined-benefit fund, but would only contribute up to 8% of payroll for defined-contribution employees.

(2) So-called pension "spiking" would be ended by revising the calculation of current employees' pensions to remove unused sick time and vacation from counting toward defining the pension benefit.

(3) The calculation of defined benefits would be revised from a final highest average salary of three years to five years.

(4) Finally, employees would no longer be able to enroll in multiple retirement systems, such as participating in both the COPERS defined-benefit system and defined-contribution deferred salary programs outlined in city employee labor contracts.

The following sections analyze what the effects of these changes would be for Phoenix taxpayers.

The Assumptions in Our Analysis

This report modeled the anticipated changes from the proposed initiative versus current policy and assumptions for COPERS. Our independent actuarial analysis adopted all of the assumptions used in the most recent valuation for COPERS to build a baseline for the status quo. Because the city's actuary uses a 25-year amortization model to project costs and estimate returns, this report adopted the same approach. The most recent valuation covered fiscal year end (FYE) 2013 to 2037.

However, there are some additional factors to consider in measuring costs and savings of the proposed initiative: (1) what defined-contribution rate the city chooses; (2) whether or not the raw savings from ending spiking and changing final average salary are put back into the pension system; (3) investment performance of assets in the defined-benefit system; (4) how quickly the city pays down the $1.5 billion in pension debt currently in the system, and (5) what happens to "Tier 2" employees.

***1. Defined-Contribution Rate Policy*:** The cost of the new defined-contribution system will depend on the rate chosen by policymakers. The proposed reform initiative creates a cap of 8%, but the lower the rate chosen the less Phoenix taxpayers will have to spend—though the lower the rate, the less Phoenix will be contributing to employee retirement funds. This report provides a range of rate assumptions for estimating savings, though the headline savings figures assume a 7% defined-contribution rate.*

***2. Raw Savings Policy Option*:** The raw savings to annual normal cost from changing pensionable pay and recalculating final average salary will be immediately reflected once reform is implemented. However, there will still be significant debt in the COPERS system, so policymakers could choose to pay the currently scheduled normal costs and lower pension debt. This report assumes the savings will be put back into the pension system for the purposes of this analysis, but it is possible that policymakers will face competing political priorities.

---

* It is worth noting that if the costs of the defined-contributions are higher than projected contributions under the status quo that these do not constitute "transition costs" because deciding the rate for the defined-contribution accounts is a separate policy choice from creating them in the first place.

***3. Investment Performance*:** For the purposes of estimating net costs/savings to Phoenix taxpayers these calculations keep all COPERS actuarial assumptions, including investment return. However, as noted, actual investment returns are likely to be lower than anticipated, meaning the costs of the status quo system—which this report measures the proposed initiative against—are likely higher than currently projected. This means that this report's projected figures are likely a conservative estimate, keeping in mind that any additional costs to the defined-benefit pension system from investment losses in the future will happen *with or without the proposed initiative*.

***4. Debt Schedule*:** COPERS would not have to change its current debt payment schedule just because of the transition to a defined-contribution plan, thus there will be no change other than to slightly increase debt payments by putting the raw savings from the proposed initiative back into the system. However, Phoenix policymakers could choose to lower long-term taxpayer costs by paying down the $1.5 billion in unfunded liabilities even faster than scheduled. Just like making extra payments on a mortgage will lower the cost of a house over the long-term by reducing interest payments, so too does paying off pension debt as quickly as possible reduce net taxpayer costs.

***5. Tier 2 Employees*:** The proposed initiative would allow for employees currently in COPERS to switch to the defined-contribution system. We assume that all Tier 2 employees would move over to the individual retirement accounts because staying in the current system would mean a sharply increasing contribution rate.[5]

Based on these five sets of assumptions we provide raw cost/savings estimates, net cost/savings estimates under various scenarios, and summary analysis about transition costs.

The Raw Savings from Pension Reform Elements

The combined effects of changing pensionable pay and final average salary calculations yield an immediate $209.5 million reduction in pension debt and lower defined-benefit normal cost payments by $622 million over 25 years. Ending the ability to dual enroll in a deferred compensation plan will save $652.3 million over 25 years. All savings estimates assume a 7% defined-contribution rate.

***1. Pensionable Pay Savings*:** Revising benefit calculations by removing the ability to apply unused sick and vacation time will immediately reduce accrued actuarial liability (AAL) by about 9% or $155.9 million.† The reduced debt would be amortized over 25 years according to actuarial standards used by COPERS. This would also reduce gross normal cost by $460.1 million over 25 years since payroll would be unchanged for five years and normal cost is measured relative to payroll.

***2. Final Annual Salary Savings*:** The changes to the final annual salary definition would reduce debt $53.6 million, and reduce gross normal cost 3.4%—$161.9 million over 25 years.‡ The plan affects normal costs for FYE2014, and would also reduce FYE2014 accrued liability measures because of the actuarial standards used by COPERS.§

***3. Ending Dual Enrollment Savings*:** The limitation of employees to just one retirement program would effectively end the city's deferred compensation program for civilian employees, saving roughly $652.3 million between FYE2015 and FYE2037.[6] Phoenix has been offering a defined-contribution deferred salary option through its contracts with labor unions on top of the defined-benefit program. Over the past four fiscal years (FYE2010–FYE2013) this has created $72 million in additional costs for the city, which are not accounted for in the COPERS valuation because they are paid from the general revenue fund. The city has budgeted for spending another $17 million on this program in FYE2014 and is projecting spending an additional $17 million in

---

† A recent labor contract agreement has ended the practice of spiking for the next two fiscal years, but this report still counts the savings because the contract is only for two years. The pension reform initiative would end spiking completely, and so the savings should be measured over the whole of the actuarially modeled time frame.

‡ Reduction in normal cost due to the calculation change for Final Average Salary is approximately 3.4%. In order to estimate the effects, a model of career Entry Age normal costs for a 47 year old employee with salary of approximately 65,000 was used. Retirement was assumed at 60, with the present value function for a retirement annuity assumed to have a value of 11 (to reflect, for example, the equivalent of a 1.5% COLA per the plan actuarial valuation). When changing the final average salary from five years to three years, normal cost and the AAL were each reduced by approximately 3.4% from the baseline case. This was then applied as a change to the baseline model, impacting the June 2014 AAL and fiscal 2015 normal cost rates.

§ This portion of the initiative effectively would retroactively change benefits, since accrued years of service would be subject to the changed benefit calculation. Such a provision may be challenged in court. However, our analysis suggests that on the whole this pension reform initiative benefits taxpayers and pensioners because it shields pensioners from having to take haircuts in the future if the city's finances are overwhelmed by unfunded pension costs.

FYE2015. Because the defined-contribution system of the proposed initiative would provide greater retirement benefits than staying only in such a deferred compensation program, we believe the program will end completely for civilian employees.[7]

Summary Figures: Table 2 below provides a summary of the raw savings from pensionable pay changes, final average salary redefinition, and ending dual enrollment.

Table 2: Summary of Raw Savings from Pension Initiative

Proposed Reform	Dollar of Savings	Type of Savings
Pensionable Pay Changes	$155.9 million	Pension Debt Reduction
Pensionable Pay Changes	$460.1 million	Pension Normal Cost Savings
Final Average Salary Redefinition	$53.6 million	Pension Debt Reduction
Final Average Salary Redefinition	$161.9 million	Pension Normal Cost Savings
End Dual Retirement Plan Enrollment	$652.3 million	General Budget Cost Savings

The Net Savings for Phoenix Taxpayers

Assuming Phoenix policymakers choose a 7% defined-contribution rate, roll all raw savings from changes to pensionable pay and final average salary back into the system, enroll Tier 2 employees in the defined-contribution system, shut down the deferred compensation plan, and keep the same debt schedule, we find Phoenix taxpayers will save $31.6 million in year one of reform and have $394.7 million in less normal cost over the next two decades. Table 3 shows what the costs savings from the proposed initiative compared to the status quo would be under varying defined-contribution rate scenarios.

Under any scenario there will be cash flow normal cost savings in year one. However, because the status quo factors in sharply declining contribution rates for the city as a result of the cost sharing with Tier 2 employees (as discussed above), the measurable savings from the proposed initiative decline over time. However, because the status quo is not sustainable, those declining contribution rates are not realistic. Therefore, the actual savings brought about by the proposal would likely be substantially higher.

Table 3: Pension Reform Initiative Normal Cost Savings Projection Compared to Status Quo				
FYE	Defined Contribution Rates			
	8.0%	7.5%	7.0%	6.5%
2015	$30,467,879	$31,029,894	$31,591,909	$32,153,923
2016	$30,254,188	$31,002,069	$31,749,950	$32,497,831
2017	$27,921,708	$28,839,109	$29,756,510	$30,673,910
2018	$26,935,725	$28,003,924	$29,072,122	$30,140,321
2019	$25,818,083	$27,046,511	$28,274,940	$29,503,368
2020	$23,993,599	$25,423,951	$26,854,302	$28,284,653
2021	$22,522,758	$24,134,764	$25,746,770	$27,358,776
2022	$21,486,202	$23,256,777	$25,027,352	$26,797,926
2023	$20,321,786	$22,260,055	$24,198,323	$26,136,592
2024	$17,663,467	$19,851,949	$22,040,430	$24,228,911
2025	$14,711,715	$17,165,550	$19,619,384	$22,073,219
2026	$12,968,707	$15,625,643	$18,282,580	$20,939,517
2027	$10,257,219	$13,168,909	$16,080,600	$18,992,290
2028	$8,956,191	$12,053,501	$15,150,811	$18,248,122
2029	$8,404,914	$11,653,950	$14,902,987	$18,152,024
2030	$7,800,159	$11,207,749	$14,615,338	$18,022,928
2031	$4,311,063	$8,023,542	$11,736,022	$15,448,501
2032	$501,034	$4,535,571	$8,570,108	$12,604,645
2033	($2,601,694)	$1,723,185	$6,048,064	$10,372,944
2034	($5,962,684)	($1,332,081)	$3,298,523	$7,929,126
2035	($9,597,630)	($4,645,199)	$307,232	$5,259,662
2036	($13,523,055)	($8,231,942)	($2,940,829)	$2,350,284
2037	($16,498,042)	($10,907,651)	($5,317,259)	$273,132
Total Savings / Losses	$267,113,292	$330,889,730	$394,666,167	$458,442,605

The Alternate Scenario Savings Analysis

The current projected reduced contribution rates for the city are not a realistic benchmark since the status quo is unsustainably dependent on high employee contribution rates.[8] In effect, Prop 201 lowered projected employer contribution rates *artificially*, because it did so in a manner that will have to be changed soon or else see salary costs grow to retain Tier 2 employees. Assuming that the cost for the city will be higher than projected over the coming years due to retention challenges, we measured the proposed initiative against COPERs *before* the 2013 reform. Developing a model of the Phoenix pension system prior to the Prop 201 reform enabled us to use more realistic assumptions in projecting city contribution rates.

Making the same basic assumptions about the defined-contribution rate and use of savings, but comparing the proposed initiative to the costs of the pre-2013 COPERs system, Phoenix taxpayers would have $1.6 billion less in normal cost

over the next two decades were they to adopt the Phoenix Pension Reform Act. Table 4 below shows what cost savings from the proposed initiative compared to the pre-2013 reform would be under varying defined-contribution rate scenarios.

Table 4: Pension Reform Initiative Normal Cost Savings Projection Compared to Pre-2013 COPERS

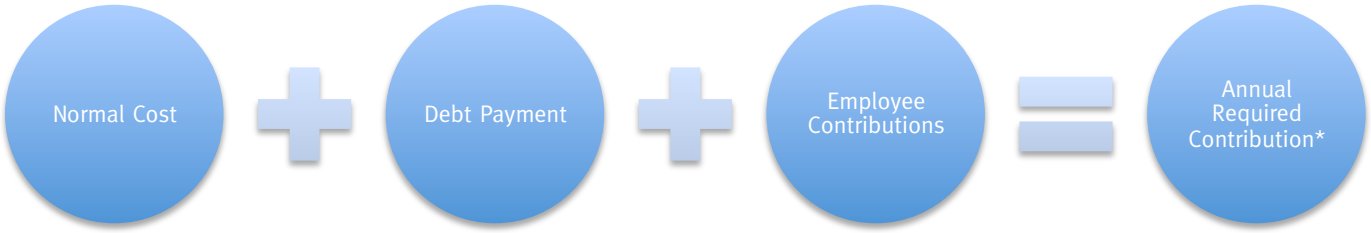
	Defined Contribution Rates			
FYE	8.0%	7.5%	7.0%	6.5%
2015	$38,057,889	$38,619,904	$39,181,919	$39,743,933
2016	$41,930,297	$42,678,178	$43,426,059	$44,173,940
2017	$43,743,382	$44,660,783	$45,578,184	$46,495,585
2018	$45,560,495	$46,628,693	$47,696,892	$48,765,091
2019	$47,451,220	$48,679,648	$49,908,077	$51,136,505
2020	$49,495,102	$50,925,453	$52,355,805	$53,786,156
2021	$51,544,629	$53,156,635	$54,768,640	$56,380,646
2022	$53,594,916	$55,365,490	$57,136,065	$58,906,640
2023	$55,725,580	$57,663,849	$59,602,117	$61,540,386
2024	$58,115,580	$60,304,061	$62,492,542	$64,681,024
2025	$60,604,615	$63,058,450	$65,512,284	$67,966,119
2026	$63,008,325	$65,665,262	$68,322,199	$70,979,136
2027	$65,603,534	$68,515,224	$71,426,914	$74,338,604
2028	$68,101,440	$71,198,750	$74,296,061	$77,393,371
2029	$70,589,413	$73,838,449	$77,087,486	$80,336,523
2030	$73,168,119	$76,575,709	$79,983,299	$83,390,888
2031	$76,176,443	$79,888,922	$83,601,401	$87,313,880
2032	$79,305,718	$83,340,254	$87,374,791	$91,409,328
2033	$82,440,899	$86,765,778	$91,090,657	$95,415,537
2034	$85,698,393	$90,328,997	$94,959,600	$99,590,204
2035	$89,082,922	$94,035,352	$98,987,783	$103,940,214
2036	$92,599,387	$97,890,500	$103,181,613	$108,472,726
2037	$96,115,374	$101,705,766	$107,296,157	$112,886,549
Total Savings	$1,487,713,670	$1,551,490,108	$1,615,266,546	$1,679,042,984

The Transition Cost Analysis

The proposed initiative imposes *zero additional* costs on net for Phoenix taxpayers, and it also has the distinct benefit of putting the city on a path to eliminate all taxpayer investment risk.

***1. Transition Costs*:** Public sector pension systems are traditionally created as "prefunded" systems. There are three components to pension funding: the annual cost to prefund pension liabilities (known as "normal cost"), the cost to pay off unfunded pension debt, and the employee's contribution (see Figure 3).

Figure 3



*(to prefund accrued pension benefits)

Under a normal scenario, employee contributions never subsidize debt payments. Normal cost is the amount actuarially determined to cover all benefits earned in a given year that will be invested over time and earn enough to fully pay out employee pensions upon retirement. The employee contribution is their share of covering the benefits they've earned.

The debt payment is an amortized contribution to cover unfunded liabilities that occur when actuarial assumptions about longevity, salary growth, or investment return turn out to be wrong. There is no legal reason that COPERS would have to change its debt amortization schedule due to the transition toward a defined-contribution system.[9] The city could change its debt amortization policy at the same time as implementing the defined-contribution system and pay more, but this wouldn't be *because of the transition*; it would be a separate policy choice.[10]

If the proposed initiative were implemented, employees in the COPERS defined-benefit would continue accruing benefits and the city would keep the same expected annual contributions to prefund those benefits. *So there would be no changes to normal cost for current defined-benefit members and no change to the debt amortization schedule.*

However, because Tier 2 members are required to share both 50% of the normal cost to fund their pension benefits *and* 50% of the debt amortization payment, there will be a change in overall annual required contributions if the proposed initiative is enacted.

This change is only relative to projections of costs after the 2013 pension reform that requires new employees to share the costs of paying off debt for old employee benefits. If the proposed pension reform initiative were to be measured against COPERS pre-2013, a more realistic assessment of future city costs, then there would be zero transition costs.

***2. Taxpayer Investment Risks Would Be Eliminated Over Time*:** Phasing out the defined-benefit system will eventually eliminate risks that assets underperform or that politicians underfund pension contributions—both of which can increase costs for taxpayers. The "normal cost" of prefunding accrued benefits is determined in part by estimating future investment returns to help pay for those benefits. If the actual return on assets is lower than the assumed rate, Phoenix taxpayers have to make up the difference.

COPERS currently assumes an average rate of return of 7.5% for the next 25 years, but as discussed previously, given current market conditions and the likelihood of one or two financial crises during the next two decades, this is an unrealistic assumption. (See again, Table 1 for possible losses from missed assumed rates of investment return.)

Because the reform allows current employees enrolled in the defined-benefit system to remain in their same plan, it is likely that the city will see some increased costs in the coming years from investment losses. The proposed initiative does not change COPERS's investment return assumptions. However, these losses would occur without the reform as well. Importantly, the reform will soften the effect of those losses because there will be fewer accrued benefits depending on COPERS assumed rates of return.

Once there are no more employees drawing a pension through a defined-benefit plan, the city will have completely phased out any investment risks for taxpayers.

Conclusion

The proposed initiative would address the two most fundamental challenges with COPERS today: the taxpayer liabilities associated with bad actuarial assumptions in the defined-benefit system and retention risk due to the design of Prop 201. The changes to pensionable pay calculation and final average salary would reduce the system's debt immediately and lower normal cost relative to current projections. Ending dual enrollment in retirement plans would also save taxpayers money, albeit through a different channel of the budget than normal cost for pension funding because it is accounted for separately.

Finally, depending on a host of policy choices, including what rate to set the new defined-contribution at and how to handle the cash flow savings from reform elements, we estimate that taxpayer costs over the next 25 years will be at least $394.7 million less than currently projected, and roughly $1.6 billion less than was projected in 2012.

About the Author

Anthony Randazzo is director of economic research at Reason Foundation, a nonprofit think tank advancing free minds and free markets. He can be reached at anthony.randazzo@reason.org.

Appendix

Additional Normal Cost to Be Paid by Taxpayers Due to Actual Investment Return Rates Being Lower than Assumed

	Employee Rates Baseline		Tier 2 Employee Rates Under Alternative Investment Return Rates			
FYE	Tier 1	Tier 2	7.00%	6.50%	6.00%	5.50%
2013	5.0%	13.62%	13.62%	13.62%	13.62%	13.62%
2014	5.0%	14.80%	14.80%	14.80%	14.80%	14.80%
2015	5.0%	15.56%	15.58%	15.59%	15.61%	15.62%
2016	5.0%	16.57%	16.61%	16.65%	16.69%	16.74%
2017	5.0%	17.34%	17.43%	17.51%	17.59%	17.68%
2018	5.0%	17.43%	17.57%	17.71%	17.85%	17.99%
2019	5.0%	17.51%	17.71%	17.91%	18.10%	18.29%
2020	5.0%	17.62%	17.88%	18.13%	18.38%	18.62%
2021	5.0%	17.70%	18.02%	18.33%	18.64%	18.94%
2022	5.0%	17.76%	18.15%	18.52%	18.88%	19.23%
2023	5.0%	17.83%	18.27%	18.71%	19.13%	19.54%
2024	5.0%	17.93%	18.45%	18.94%	19.42%	19.89%
2025	5.0%	18.03%	18.62%	19.18%	19.73%	20.24%
2026	5.0%	18.10%	18.76%	19.39%	19.99%	20.57%
2027	5.0%	18.18%	18.92%	19.62%	20.28%	20.92%
2028	5.0%	18.22%	19.04%	19.81%	20.54%	21.24%
2029	5.0%	18.24%	19.14%	19.99%	20.79%	21.54%
2030	5.0%	18.26%	19.24%	20.17%	21.04%	21.86%
2031	5.0%	18.34%	19.42%	20.42%	21.36%	22.24%
2032	5.0%	18.43%	19.59%	20.68%	21.69%	22.64%
2033	5.0%	18.49%	19.75%	20.92%	22.02%	23.04%
2034	5.0%	18.55%	19.91%	21.18%	22.35%	23.44%
2035	5.0%	18.61%	20.08%	21.44%	22.70%	23.86%
2036	5.0%	18.68%	20.25%	21.71%	23.05%	24.30%
2037	5.0%	18.72%	20.41%	21.97%	23.41%	24.73%

Endnotes

[1] Actuarial statistics drawn from "City of Phoenix Employees' Retirement System Actuarial Valuation Report As of June 30, 2013," produced by Cheiron, November 2013, p.23; Proposition 201 did not affect Tier 1 employees, who contribute 5% of payroll. It created Tier 2 employees, and made them responsible for 50% of the total Tier 2 contribution rate. This can include a portion of the cost to amortize unfunded liabilities. Tier 2 is projected to represent 100% of plan payroll after June 30, 2034.

[2] Estimate is based on assumed rate of return of 5.5% over the next 25 years, and adjustment down of 200 basis points from the current 25-year assumption. Additional costs would be increases in normal cost and reflected in annual required contributions. Moody's source: http://www.gfoa.org/downloads/GFOA2012Moodyspensionreport.pdf.

[3] Joshua Rauh, Robert Novy-Marx, "Policy Options for State Pension Systems and their Impact on Plan Liabilities," *NBER Working Paper No. 16453*, October 2010.

[4] Technically, employees can retire at age 60 with 10 or more years of service or at age 62 with five or more years of service. However, there will likely be few employees hired after July 1, 2013 into the Tier 2 over the age of 62.

[5] It is unclear whether Tier 1 employees would change, however, without knowing the defined-contribution rate. The benefits an employee receives will be different on an individual basis depending on his salary history, time in the system, and what constitutes the benefits of the new system. Therefore, this analysis assumes all Tier 1 employees remain in COPERS while acknowledging that cost/savings of the reform would shift depending on the behavior of Tier 1 employees.

[6] This analysis calculated this by taking the budgeted cost of the deferred compensation program for FYE2013 and FYE2014 as a percent of pay, plus the projected cost of the program for FYE2015 as a percent of pay, and took an average of the three years (3.37% of pay). Projected future costs assume the city would maintain the program with a cost of 3.37% of payroll each year.

[7] The elimination of the deferred compensation program may be construed as a reduction on compensation for employees. If the city were to make up for this compensation change with an increase in salary the net effects of all policy choices would mean the savings from the reform would not be available elsewhere in the budget. This however would be a separate policy choice for lawmakers.

[8] The status quo baseline has the city contribution rate falling over the next 25 years. This is because the city's contribution rate for Tier 2 employees is lower than for Tier 1. The 2013 reform splits normal costs and debt repayment costs between employees and the city. As payroll shifts from Tier 1 to Tier 2, the net employer contribution rate declines. Starting around 2020, there is a pretty quick drop in the city's defined-benefit contribution rate. However, because there will only be a few Tier 2 employees, the employee contribution will climb over time. The proposed reform will lead to a sharp increase in Tier 2 employee contributions if the employees are not shifted into the Tier 3 defined-contribution. Depending on what defined-contribution rate the city chooses (anything between 2.5% and 8%), eventually the net cost of the defined-contribution system will be higher than the Tier 2 defined-benefit system—that's not a cost due to transition; it is due to policy choices. When measuring the two systems against each other, it initially appears that the reform puts the city in a worse fiscal position over the long term. But, it is important to realize the status quo baseline will never become a reality. The only reason the city's contribution rate is falling is because the employee contribution rate is rising. And eventually it will be so high that all Tier 2 workers will quit or the city won't be able to hire people without offering very high salaries. Therefore, it is not good actuarial accounting to measure the proposed reform to the status quo to determine a net "savings" figure. The transition from defined-benefit to defined-contribution will improve retention and prevent city employees from facing high

contribution rates. That is one of the primary benefits of the transition to defined-contribution; the other is reducing taxpayer investment return risks.

[9] Josh B. McGee, "The Transition Cost Mirage—False Arguments Distract from Real Pension Reform Debates," *Laura and John Arnold Foundation*, http://www.arnoldfoundation.org/sites/default/files/pdf/LJAF_Transition_Cost_Policy_Brief.pdf.

[10] Defining costs when it comes to debt can depend on the timeframe being analyzed. Changing the amortization schedule to pay debt down faster would mean higher short-term costs for taxpayers, but it would decrease long-term, net costs because the assets put into the system would be earning investment return.