

IGNORING IT DOESN'T MAKE IT GO AWAY:
**CONNECTICUT'S \$51 BILLION
UNFUNDED RETIREE LIABILITY**



Located on the campus of Trinity College

The Yankee Institute for Public Policy
By J. Scott Moody and Wendy P. Warcholik, Ph.D.

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Executive Summary

Connecticut's state government administers retirement benefits for state employees, teachers, and those in the judicial system. These three groups include about 175,000 working or retired people. Of those, 71,781 drew pension benefits in FY 2008.

The state estimates that pension obligations for active and retired state employees, teachers, and judges total \$41.3 billion. Yet, the state has only set aside \$25.5 billion in assets to pay for these obligations. As a result, the defined benefit retirement system is massively underfunded. The pension system reports an unfunded liability of \$15.9 billion – an amount nearly equal to the state's entire annual budget.

New analysis by the Yankee Institute concludes that Connecticut's real unfunded liability is actually even bigger. Pension liabilities are being dramatically underestimated by the state because of unrealistic assumptions about discount rates and rates of return. This new study finds that the real pension liability is between \$50.4 billion and \$80.7 billion. Applying the \$25.5 billion that has been set aside to cover these expenses, the state's unfunded pension liability is more like \$24.9 billion to \$55.2 billion, or at least 56 percent higher than currently forecast.

That's just pension liability. On top of that is Connecticut's Other Post-Employment Benefits (OPEB) system, such as health and life insurance, which is in even worse shape. The OPEB system has zero assets set aside to pay for \$26 billion in obligations. Without offsetting assets, the OPEB system operates on a "pay-as-you-go" basis which maximizes the tax burden on the shoulders of Connecticut's taxpayers.

Add the two obligations to retirees together and Connecticut's total unfunded retiree liability (pension and other benefits) clocks in at \$50.9 billion to \$81.2 billion. For comparison, that lower figure is about three times the entire annual state budget.

And the problem is getting worse. Connecticut's state government, in FY 2008, was to pay \$2.968 billion to the state's pension and OPEB system, based on the stated unfunded liability estimate. Instead, the state issued \$2 billion in General Obligation Bonds (GO) for the Teachers' Retirement System (TRS) to make up for the contribution shortfall, gambling with pension money through risk arbitrage.

Two options are available to policy makers to solve Connecticut's pension and OPEB crisis:

Raise taxes, which would weaken Connecticut's economy and jeopardize the state's ability to ever meet its pension and OPEB obligations; and

Replace the traditional defined benefit system with a defined contribution system for new employees. If the state began meeting its annual required contribution, normal turnover in the workforce will begin to bring down the unfunded pension liability to more manageable levels.

Understanding the Unfunded Retiree Liability

Connecticut's pension system is designed to pay a member, such as a state employee, a fixed level of income upon retirement. The level of income is based on such factors as length of service and average level of compensation. This type of pension system is commonly called a "defined benefit" system and is controlled by the employer.

Many in the private sector may not be familiar with a defined benefit pension system because nearly all companies operate under a “defined contribution” pension system. In a defined contribution system, the employer and employee contribute a set amount of funds into a retirement plan, usually based on a percentage of income. In this system, the employee makes his or her own investment decisions and chooses how much to take out during retirement.

Connecticut’s defined benefit pension system consists of three separate retirement systems: the State Employees Retirement System (SERS); the Teachers’ Retirement System (TRS); and the Judicial Retirement System (JRS). They will hereafter be referred to as the “Connecticut pension system.” As of June 30, 2008, SERS had 92,881 active and retiree members, TRS had 81,919, and JRS had 446, for a total of 175,246 people.

Of those, 71,781 drew pension benefits in FY 2008. Under SERS, 38,093 retired members received annual benefits of \$1,047,479,000, or an average of \$27,498 per retiree. Under TRS, there were 28,787 retired members drawing annual benefits of \$1,231,069,368, an average of \$42,768 per retiree. Under JRS, there were 226 retired members drawing annual benefits of \$17,789,740, or an average of \$79,066 per retiree.

Additionally, there are the State Employee OPEB Plan (SEOPEBP) and the Retired Teacher Healthcare Plan (RTHP) that both deal with Other Post Employment Benefits (OPEB), such as healthcare and life insurance, and will hereafter be referred to as the “Connecticut OPEB system.”

Actuarial Valuation Date as of June 30	State Employees Retirement System (SERS)				Teachers' Retirement System (TRS)				Judicial Retirement System (JRS) (a)			
	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio (AVA/AAL)	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio (AVA/AAL)	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio (AVA/AAL)
1992	\$3.426	\$6.669	-\$3.243	51.4%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1993	\$3.696	\$7.190	-\$3.494	51.4%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1994	\$3.945	\$7.329	-\$3.385	53.8%	\$5.602	\$8.223	-\$2.621	68.1%	\$0.063	\$0.148	-\$0.085	42.7%
1995	\$4.209	\$7.838	-\$3.629	53.7%	n.a.	n.a.	n.a.	n.a.	\$0.070	\$0.155	-\$0.084	45.6%
1996	\$4.604	\$8.139	-\$3.534	56.6%	\$6.648	\$9.627	-\$2.979	69.1%	\$0.078	\$0.162	-\$0.084	48.2%
1997	\$5.131	\$8.833	-\$3.702	58.1%	n.a.	n.a.	n.a.	n.a.	\$0.088	\$0.167	-\$0.080	52.4%
1998	\$5.670	\$9.592	-\$3.923	59.1%	\$7.721	\$10.970	-\$3.249	70.4%	\$0.098	\$0.168	-\$0.070	58.4%
1999	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2000	\$7.196	\$11.512	-\$4.316	62.5%	\$9.606	\$11.798	-\$2.192	81.4%	\$0.123	\$0.182	-\$0.058	67.9%
2001	\$7.639	\$12.105	-\$4.467	63.1%	n.a.	n.a.	n.a.	n.a.	\$0.133	\$0.194	-\$0.061	68.7%
2002	\$7.894	\$12.806	-\$4.912	61.6%	\$10.387	\$13.680	-\$3.293	75.9%	\$0.138	\$0.209	-\$0.071	66.1%
2003	\$8.059	\$14.224	-\$6.165	56.7%	n.a.	n.a.	n.a.	n.a.	\$0.143	\$0.211	-\$0.068	67.6%
2004	\$8.238	\$15.129	-\$6.890	54.5%	\$9.847	\$15.071	-\$5.224	65.3%	\$0.151	\$0.220	-\$0.069	68.6%
2005	\$8.518	\$15.988	-\$7.470	53.3%	n.a.	n.a.	n.a.	n.a.	\$0.160	\$0.235	-\$0.075	68.2%
2006	\$8.951	\$16.830	-\$7.879	53.2%	\$10.190	\$17.113	-\$6.923	59.5%	\$0.170	\$0.247	-\$0.077	68.7%
2007	\$9.585	\$17.888	-\$8.303	53.6%	n.a.	n.a.	n.a.	n.a.	\$0.182	\$0.261	-\$0.079	69.8%
2008	\$9.990	\$19.243	-\$9.253	51.9%	\$15.271	\$21.801	-\$6.530	70.0%	\$0.192	\$0.267	-\$0.075	71.8%

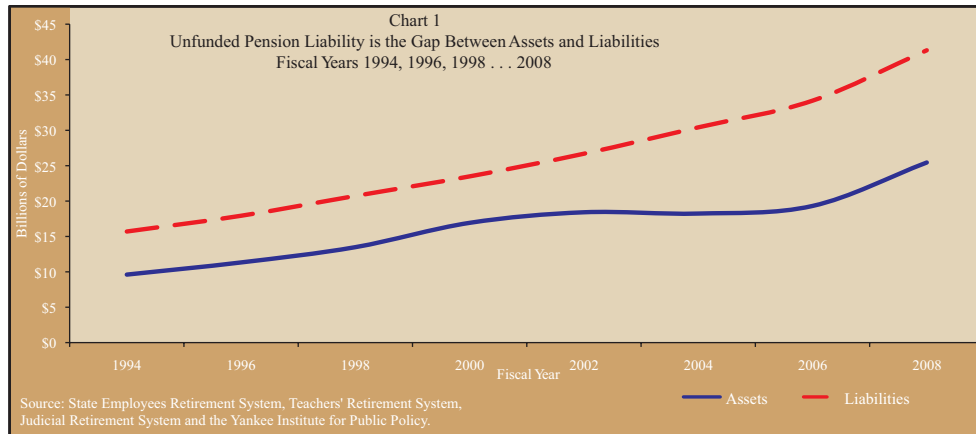
(a) The actuarial valuation date for years 1994, 1995, 1996 and 1997 are as of September 30.
Source: State Employees Retirement System, Teachers' Retirement System, Judicial Retirement System and The Yankee Institute for Public Policy.

The health of Connecticut’s pension and OPEB system is based on two elements—assets held versus liabilities accrued:

Assets: The market value of stocks, bonds and other investments that are held by the pension system. The total value of the assets changes constantly, going up or down with market changes. In addition, the Connecticut state government makes an annual contribution.

Liabilities: The present value of pension benefits to be paid out to current and future retirees. Each year liabilities grow based on a number of assumptions such as expected salary increases, mortality, turnover and other factors.

For the pension and OPEB system to be considered “fully funded,” assets must equal liabilities. Unfortunately, the pension and OPEB system is far from being fully funded and is currently running a large deficit called the unfunded pension liability. For example, in FY 2008, the State Employees Retirement System had assets worth an estimated \$9.9 billion while liabilities were estimated to be \$19.2 billion. This leaves an unfunded pension liability (liabilities minus assets) of \$9.3 billion.



A common way to show the unfunded pension liability is the “funded ratio” which is assets divided by liabilities. Table 1 and Chart 1 show the funded ratio for the pension system while Table 3 shows the funded ratio for the OPEB system. The funded ratio for the pension system in FY 2008 was a dismal 51.9 percent for SERS, 70 percent for TRS and 71.8 percent for JRS.

More disturbingly, as shown in Table 3, the OPEB funded ratio in FY 2008 was zero percent. The state has set aside nothing while facing a staggering liability of \$26 billion.

The state government’s contribution to the pension and OPEB system is already quite sizable. As shown in Table 2, the annual required contribution to the state retirement system was \$1.248 billion in FY 2008. As shown in Table 4, the annual required contribution to the state OPEB system was \$1.602 billion. To put this into perspective, the FY 2008 state pension and OPEB contribution combined (\$2.969 billion) would consume nearly all the sales tax revenue (\$3.2 billion in FY 2008).¹

Unfortunately, the state government has not been living up to the annual required contributions. If the state had been making its full contribution, then the funding ratios would not be nearly as bad as they are.

Due to this underfunding, the state government decided in FY 2008 to issue \$2 billion in General Obligation Bonds (GO) for the Teachers’ Retirement System to make up for the contribution shortfall. The goal was to boost the funded ratio and reduce the long-term cost of the TRS.

In the short-run, Table 1 shows that the funded ratio did improve from 59.5 percent in FY 2007 to 70 percent in FY 2008. However, whether or not the GO bonds will reduce the long-term costs of the TRS is an open question. In fact, the state government is playing a game of chance that could leave taxpayer’s facing an even larger pension burden.

Arbitrage: Gambling Using General Obligation Bonds to Fund the Pension System

The gamble state government is making is that the returns earned on investing the borrowed money will exceed the costs of borrowing the money, commonly referred to as “risk arbitrage.” This is the equivalent of a homeowner taking a second mortgage on her house to invest in the stock market in the hope that the investments pay more than the cost of the mortgage.

Fortunately, the GO bonds were issued with a favorable average interest rate of 5.85 percent for the majority of the issuance. If the assumed rate of return of 8.5 percent under TRS comes to fruition, then the pension system will have netted 2.65 percentage points. However, that is a big “if.” Recent economic conditions remind us that one never knows when the economy might take a nosedive, or how long it may take to recover.

¹ Tax collection data from the U.S. Department of Commerce’s Census Bureau. <http://www.census.gov/govs/statetax/index.html>

Table 2 Schedule of Employer (State) Pension Contributions Fiscal Years 1999 to 2008 in Millions of Dollars									
Actuarial Valuation Date as of June 30	State Employees Retirement System (SERS)			Teachers' Retirement System (TRS)			Judicial Retirement System (JRS)		
	Annual Required Contribution	Actual Contribution	Difference	Annual Required Contribution	Actual Contribution (a)	Difference	Annual Required Contribution	Actual Contribution	Difference
1992	\$431.2	\$250.3	-\$180.9	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1993	\$444.2	\$290.8	-\$153.4	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1994	\$310.2	\$310.2	\$0.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1995	\$351.8	\$290.8	-\$61.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1996	\$335.1	\$335.1	\$0.0	n.a.	n.a.	n.a.	\$9.2	\$9.2	\$0.0
1997	\$349.2	\$348.9	-\$0.3	n.a.	n.a.	n.a.	\$9.3	\$9.3	\$0.0
1998	\$334.8	\$334.5	-\$0.3	n.a.	n.a.	n.a.	\$9.3	\$9.3	\$0.0
1999	\$315.6	\$315.6	\$0.0	\$221.6	\$188.3	-\$33.2	\$9.3	\$9.3	\$0.0
2000	\$342.8	\$342.8	\$0.0	\$240.5	\$204.4	-\$36.1	\$9.3	\$9.3	\$0.0
2001	\$354.2	\$375.6	\$21.4	\$252.5	\$214.7	-\$37.9	\$9.8	\$9.8	\$0.0
2002	\$415.5	\$415.5	\$0.0	\$210.7	\$204.5	-\$6.2	\$9.6	\$9.6	\$0.0
2003	\$425.9	\$421.5	-\$4.5	\$221.2	\$179.8	-\$41.4	\$10.1	\$10.1	\$0.0
2004	\$474.0	\$470.3	-\$3.7	\$270.5	\$185.3	-\$85.2	\$11.6	\$11.6	\$0.0
2005	\$516.3	\$518.8	\$2.5	\$281.4	\$185.3	-\$96.0	\$12.2	\$12.2	\$0.0
2006	\$623.1	\$623.1	\$0.0	\$296.2	\$396.2	\$100.0	\$11.7	\$11.7	\$0.0
2007	\$663.9	\$663.9	\$0.0	\$425.3	\$412.1	-\$13.2	\$12.4	\$12.4	\$0.0
2008	\$716.9	\$711.6	-\$5.4	\$518.6	\$2,518.6	\$2,000.0	\$13.4	\$13.4	\$0.0
Total	\$7,404.8	\$7,019.2	-\$385.6	\$2,938.6	\$4,689.4	\$1,750.8	\$137.4	\$137.4	\$0.0

(a) FY 2008 "actual contribution" includes \$2 billion General Obligation Bond.
Source: State Employees Retirement System, Teachers' Retirement System, Judicial Retirement System and The Yankee Institute for Public Policy.

Economist James B. Burnham, the Murrin Professor of Global Competitiveness at Duquesne University, summed up the political situation by saying,

“As attractive as this plan [risk arbitrage] may appear from a budgetary perspective, the issuance of pension bonds generally carries significant risks that are often downplayed in light of immediate fiscal pressures and the concerns of pensioners.”²

Official Pension and OPEB Liabilities are Dramatically Underestimated

Complicating matters is new evidence that official pension and OPEB liabilities are being dramatically underestimated based on current actuarial methods. The problem revolves around the “discount rate” or “interest rate” used. For example, a 5 percent interest rate means that a \$100 today grows to \$105 a year from now (\$100 times 1.05 percent), while a 5 percent discount rate means that \$105 a year from now is worth \$100 today. In effect, the discount rate is the opposite of the interest rate.

Table 3 Connecticut's Unfunded Retiree Healthcare Liability Fiscal Year 2008 in Billions of Dollars								
Actuarial Valuation Date as of June 30	State Employee OPEB Plan (SEOPEBP)				Retired Teacher Healthcare Plan (RTHP)			
	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio (AVA/AAL)	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio (AVA/AAL)
2008	\$0.000	\$23.700	-\$23.700	\$0.000	\$0.000	\$2.319	-\$2.319	\$0.000

Source: Office of the State Comptroller and The Yankee Institute for Public Policy.

In a new study, economists Robert Novy-Marx and Joshua Rauh found that the median discount rate was 8 percent which, conversely, means that these pension systems anticipate earning 8 percent annually.³ For instance, Connecticut’s pension system uses discounts rates above the national median with both SERS and JRS at 8.25 percent and TRS at 8.5 percent. The study recalculates state pension liabilities both nationally and by state using more realistic, lower discount rates.

² Burnham, James B., “Risky Business? Evaluating the Use of Pension Obligation Bonds,” *Government Finance Review*, June 2003. <http://www.gfoa.org/downloads/GFRJune03.pdf>

³ Novy-Marx, Robert and Rauh, Joshua D., *Public Pension Promises: How Big are They and What are They Worth?* (July 10, 2009). Available at SSRN: <http://ssrn.com/abstract=1352608>

Nationally, the study finds that the total reported state pension liability for 116 of the largest pension plans was \$1.039 trillion. However, using more realistic, lower discount rates yields estimates for pension underfunding ranging from \$1.31 trillion to whopping \$3.23 trillion.

As shown in Table 5, Connecticut’s \$42.8 billion stated pension liability increases to somewhere in the range of \$50.4 billion to \$80.7 billion.

Connecticut’s maximum pension liability is 38 percent of Gross Domestic Product, 25th highest in the country and the 3rd highest in New England. Yet, even a middling rank still means there is still a lot of room for improvement considering Connecticut’s pension burden is over twice as high as lowest-ranked Nebraska’s (17.5 percent).

Table 4 Schedule of Employer Retiree Health Care Contributions Fiscal Year 2008 in Billions of Dollars						
Actuarial Valuation Date as of June 30	State Employee OPEB Plan (SEOEBP)			Retired Teacher Healthcare Plan (RTHP)		
	Annual Required Contribution	Actual Contribution (Employer and Employees)	Difference	Annual Required Contribution	Actual Contribution (Employer and Employees)	Difference
2008	\$1,602.7	\$463.2	-\$1,139.5	\$116.1	\$20.8	-\$95.3

Source: Office of the State Comptroller and The Yankee Institute for Public Policy.

Unfortunately, the study does not examine the state of unfunded OPEB liabilities. However, the adjustment to Connecticut’s OPEB liability may not be as extreme as for the unfunded pension liability because the assumed discount rate is already a much lower 4.5 percent for Retired Teachers Healthcare Plan. However, it is unknown for sure since the actuarial details for the much larger State Employees OPEB plan are not yet publicly available.

An Economics Lesson: What is Deadweight Loss?

With Connecticut’s state government facing daunting unfunded pension and OPEB liabilities, the temptation might be to raise taxes to pay for the shortfall. This would only compound the economic problems posed by these liabilities by weakening Connecticut’s economy. Higher taxes mean higher “deadweight losses” on the economy.

It is well established that people respond to tax incentives and disincentives. For example, they may buy a larger house than they otherwise would because they can deduct the mortgage interest from their federal income taxes. Since the behavior is tax-induced, it harms the economy; if not for the tax break, the taxpayer would make other choices about how to use the extra money.

“the temptation to raise taxes to pay for the shortfall would only compound the economic problems posed by these liabilities by weakening Connecticut’s economy.”

“Deadweight loss” is a term used by economists to describe economic activity forgone by consumers and producers because of the higher relative price of goods that result from the tax. Taxpayers may respond to the proposed higher tax rates by reducing their work effort, lowering their consumption, or even leaving the state to avoid the higher tax bill. In other words, the very process of transferring resources from the private to the public sector results in a permanent loss of current and future economic output.

Chart 2 graphically shows how economists are able to estimate deadweight losses where Quantity (Qe) and Price (Pe) show the market equilibrium. The addition of a tax has the same effect as an

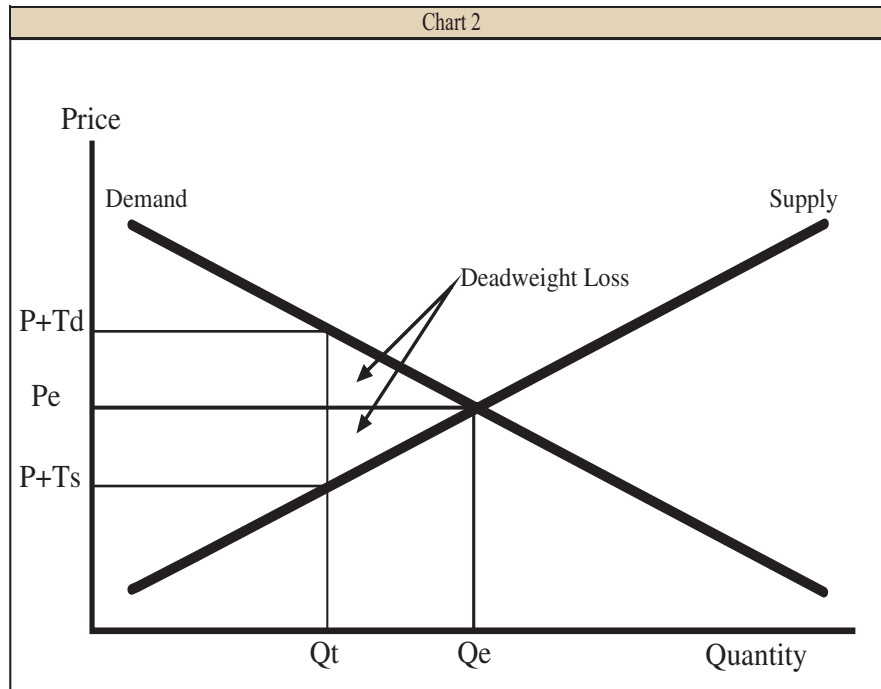
Table 5
Pension Burdens by State and Rank
as of FY 2008
Billions of Dollars

State	Reported Pension Liabilities	Minimum Estimated Pension Liabilities	Maximum Estimated Pension Liabilities	2007 GDP	Maximum Estimated Pension Liabilities as a Percent of GDP	Rank
Alabama	\$41.0	\$45.5	\$78.8	\$164.5	47.9%	10
Alaska	\$14.5	\$16.2	\$24.3	\$44.9	54.1%	7
Arizona	\$40.6	\$41.8	\$85.1	\$246.0	34.6%	29
Arkansas	\$20.8	\$22.8	\$38.3	\$95.1	40.3%	20
California	\$484.2	\$493.4	\$805.7	\$1,801.8	44.7%	15
Colorado	\$55.6	\$59.3	\$105.4	\$235.8	44.7%	16
<i>Connecticut</i>	\$42.8	\$50.4	\$80.7	\$212.3	38.0%	25
Delaware	\$6.9	\$8.0	\$12.0	\$61.5	19.5%	49
Florida	\$124.1	\$137.7	\$213.7	\$741.9	28.8%	40
Georgia	\$75.2	\$81.4	\$137.3	\$391.2	35.1%	28
Hawaii	\$16.6	\$18.4	\$28.1	\$62.0	45.3%	12
Idaho	\$11.9	\$11.6	\$21.0	\$52.1	40.3%	19
Illinois	\$151.1	\$177.7	\$284.8	\$617.4	46.1%	11
Indiana	\$36.4	\$38.9	\$62.4	\$249.2	25.0%	45
Iowa	\$24.5	\$23.4	\$42.3	\$129.9	32.6%	34
Kansas	\$20.1	\$20.2	\$36.0	\$117.0	30.8%	37
Kentucky	\$43.6	\$43.0	\$74.5	\$152.1	49.0%	9
Louisiana	\$35.7	\$40.7	\$61.4	\$207.4	29.6%	39
<i>Maine</i>	\$13.7	\$14.9	\$24.0	\$48.0	50.0%	8
Maryland	\$50.2	\$56.5	\$88.2	\$264.4	33.4%	31
<i>Massachusetts</i>	\$55.4	\$63.3	\$96.7	\$352.2	27.5%	41
Michigan	\$69.9	\$77.1	\$118.4	\$379.9	31.2%	36
Minnesota	\$57.9	\$69.2	\$109.9	\$252.5	43.5%	18
Mississippi	\$29.3	\$32.1	\$51.8	\$87.7	59.1%	4
Missouri	\$51.3	\$59.0	\$88.6	\$229.0	38.7%	23
Montana	\$8.6	\$9.9	\$15.4	\$34.3	44.9%	14
Nebraska	\$7.9	\$7.9	\$14.1	\$80.4	17.5%	50
Nevada	\$24.0	\$26.5	\$44.0	\$129.3	34.0%	30
<i>New Hampshire</i>	\$7.8	\$9.0	\$14.2	\$57.8	24.6%	46
New Jersey	\$123.4	\$140.0	\$204.8	\$461.3	44.4%	17
New Mexico	\$26.7	\$29.6	\$45.0	\$75.2	59.8%	3
New York	\$227.0	\$248.4	\$356.2	\$1,105.0	32.2%	35
North Carolina	\$68.7	\$71.6	\$117.0	\$390.5	30.0%	38
North Dakota	\$3.6	\$4.1	\$6.7	\$28.5	23.5%	48
Ohio	\$190.9	\$215.1	\$332.5	\$462.5	71.9%	1
Oklahoma	\$32.3	\$35.6	\$54.7	\$136.4	40.1%	21
Oregon	\$56.6	\$63.2	\$90.4	\$158.3	57.1%	6
Pennsylvania	\$104.1	\$124.3	\$190.5	\$533.2	35.7%	27
<i>Rhode Island</i>	\$12.4	\$14.8	\$27.1	\$46.7	58.0%	5
South Carolina	\$39.7	\$41.1	\$68.4	\$151.7	45.1%	13
South Dakota	\$7.1	\$7.2	\$13.6	\$35.2	38.6%	24
Tennessee	\$34.7	\$36.7	\$58.1	\$245.2	23.7%	47
Texas	\$179.0	\$190.3	\$313.5	\$1,148.5	27.3%	42
Utah	\$20.4	\$23.6	\$38.5	\$105.6	36.5%	26
<i>Vermont</i>	\$3.8	\$4.3	\$6.7	\$24.6	27.2%	43
Virginia	\$61.6	\$65.6	\$100.1	\$384.1	26.1%	44
Washington	\$58.9	\$66.4	\$101.1	\$310.3	32.6%	33
West Virginia	\$12.3	\$13.2	\$19.1	\$57.9	33.0%	32
Wisconsin	\$82.9	\$91.4	\$153.3	\$233.4	65.7%	2
Wyoming	\$7.0	\$7.8	\$12.3	\$31.5	39.0%	22
Total	\$2,975.1	\$3,250.5	\$5,167.1	\$13,623.2	37.9%	--

Source: See Note 3.

artificial price increase. The new price point of intersection with the Demand ($P+T_d$) and Supply ($P+T_s$) curves is at Quantity (Q_t). The rectangle formed by the new intersection is the revenue gained by the tax.

The resulting triangle represents the deadweight loss — the value of trade that would have occurred without the tax, but is now forgone because of the tax. Deadweight loss can be estimated by calculating the area of the triangle.



Source: The Yankee Institute for Public Policy.

However, estimating the deadweight loss is subject to the degree to which taxpayers change their behavior. If, in fact, taxpayers buy significantly more expensive homes because mortgage interest is deductible, then the deadweight loss is large. Economists refer to this as the “tax elasticity” (TE). The example above shows high tax elasticity. Graphically, in Chart 1, TE is shown by the steepness and curvature of the supply and demand curves.

Based on this standard economic methodology, Harvard economist Martin Feldstein pioneered the empirical estimations of deadweight loss. In Feldstein’s own words:

“The appropriate size and role of government depend on the deadweight burden caused by incremental transfers of funds from the private sector. The magnitude of that burden depends on the increases in tax rates required to raise incremental revenue and on the deadweight loss that results from higher tax rates ... recent econometric work implies that the deadweight burden caused by incremental taxation (the marginal excess burden) may exceed one dollar per one dollar of revenue raised, making the cost of incremental government spending more than two dollars for each dollar of government spending.”⁴

In two exhaustive studies, Feldstein finds, based on actual taxpayer behavior derived from IRS data, that the TE is 1.28.⁵ That is, a 1 percent change in marginal tax rates yields a 1.28 percent change in taxable income.

⁴ Feldstein, Martin, “How Big Should Government Be?” *National Tax Journal*, Vol. 50, No. 2 (June 1997), pp. 197-213.

⁵ Feldstein, Martin, “The Effect of Marginal Tax Rates on Taxable Income: A Panel Study of the 1986 Tax Reform Act,” *NBER Working Paper No. 4496*, October 1993 and Feldstein, Martin, “Tax Avoidance and the Deadweight Loss of the Income Tax,” *NBER Working Paper No. 5055*, March 1995. The 1.28 TE is based on the median value estimates by Feldstein.

Option #1: Raise Taxes and Drag on the Economy

For FY 2008, this would have required an increase in the then top individual income tax rate from 5 percent to 5.88 percent (note this analysis is based on FY 2008 data which is prior to the enactment of the “millionaire surtax” raising the highest rate to 6.5%).⁶ Such a large rate increase would yield a permanent loss to Connecticut’s economy of \$91 million per year, every year.

As shown in Table 6, in order to fully pay for the OPEB annual contribution, Connecticut’s individual income tax revenue would have to increase by \$1.235 billion.

Table 6 Deadweight Loss Estimate of Higher Personal Income Tax to Fully Fund OPEB	
	FY 2008
Higher Personal Income Tax to Fully Fund OPEB	\$1,235,000,000
Deadweight Loss:	
Annual:	\$91,000,000
Present Value:	\$3,018,000,000
Source: The Yankee Institute for Public Policy.	

In present value terms, the total deadweight loss to Connecticut’s economy is a staggering \$3.018 billion.⁷ In effect, such a tax hike creates a hole in Connecticut’s economy. Without this deadweight loss, private companies with streams of output into perpetuity would fill the hole.

Also keep in mind that the annual state pension and OPEB contributions used in the deadweight loss calculations are based on the stated pension and OPEB unfunded liabilities. Since the liabilities (and annual contributions) are most assuredly higher than that, the corresponding deadweight losses would also be much higher.

Quantifying deadweight losses shows the magnitude of the negative economic impact of taxes on the economy and strongly suggests that reducing government spending is the better option relative to increases in taxes. Recent economic studies, at the international, national and state-level, further support this point.

First, Harvard economists Alberto Alesina and Silvia Ardagna examine the economic effects of fiscal policy in countries that constitute the Organization for Economic Cooperation and Development from 1970 to 2007. They find that:

“[a]s for fiscal adjustments those based upon spending cuts and no tax increases are more likely to reduce deficits and debt over GDP ratios than those based on tax increases. In addition, adjustments on the spending side rather than on the tax side are less likely to create recessions.”⁸

Second, UC Berkeley economist David Romer and Christina Romer (now Chair of the Council of Economic Advisors to President Obama), examine the economic effects of U.S. fiscal policy since 1947. They find that:

⁶ Connecticut’s individual income tax system is very close to a flat rate system with the top tax bracket starting at only \$10,000 in taxable income. As such, for simplicity, this analysis assumes a flat 5 percent marginal tax rate in its calculations. This results in a minor over-estimate of the deadweight loss.

⁷ Based on a 3 percent discount rate.

⁸ Alesina, Alberto and Ardagna, Silvia, “Large Changes in Fiscal Policy: Taxes versus Spending,” NBER Working Paper No. 15438, October 2009. An earlier version of the study can be found here: http://www.economics.harvard.edu/faculty/alesina/files/Large%2Bchanges%2Bin%2Bfiscal%2Bpolicy_October_2009.pdf

“The resulting estimates indicate that tax increases are highly contractionary. The effects are strongly significant, highly robust, and much larger than those obtained using broader measures of tax changes. The large effect stems in considerable part from a powerful negative effect of tax increase on investment.”⁹

Finally, economists Stephen Brown, Kathy Hayes and Lori Taylor examine the economic effects of fiscal policy of U.S. states. They find that:

“If anything, most public services do not appear to justify the taxes needed to finance them . . . this finding would seem to imply that other state and local public capital has been increased to the point of negative returns, perhaps because a growing stock of other public capital is indicative of an increasingly intrusive government.”¹⁰

Option #2: Switch to Defined Contribution Systems

Rather than raising taxes, other states are moving away from the traditional defined benefit pension systems and towards a defined contribution system similar to the 401k system that is popular in the private sector. Currently, eleven states have moved to defined contributions in one of three ways with varying levels of cost savings.¹¹ Connecticut should join this movement to reduce the long-term costs of the pension system.

First, the largest cost savings can be achieved by moving all new government employees into a defined contribution system. Currently, two states (Michigan in 1997 and Alaska in 2006) and the District of Columbia fall into this category

Second, the next largest cost savings can be achieved by having both defined benefit and defined contribution systems. Currently, two states, Indiana and Oregon, fall into this category.

Finally, many states allow for their employees to choose between a defined benefit plan or a defined contribution plan. Depending on the specifics of each plan, there could be a lot of choice (both plans yielding very similar benefits) or very little choice (one plan yielding substantially greater benefits). As such, choice and, correspondingly, cost savings can vary by state. Currently, seven states (Washington, North Dakota, Montana, Florida, South Carolina, Ohio and Colorado) fall into this category.

Given Connecticut’s large unfunded pension liabilities, the state should go directly to the most effective option which is to follow in the footsteps of Michigan, Alaska and the District of Columbia. At the very least, putting new employees into a defined contribution plan will not add further to the unfunded pension liability. As long as the state meets its annual required contribution, normal turnover in the workforce will begin to bring down the unfunded pension liability to more manageable levels.

Conclusion

In the end, only two options are available to policy-makers to solve Connecticut’s pension and OPEB crisis: 1) raise taxes; or 2) reform the pension and OPEB systems. Raising taxes would weaken Connecticut’s economy and jeopardize the state’s ability to ever meet its pension and OPEB obligations. The best option is to reform these systems by switching to a defined contribution program.

Without these reforms, state government will end up asking for greater sacrifices from citizens, such as higher taxes, to pay for the pension and OPEB benefits of government workers at levels that most citizens do not have themselves.

⁹ Romer, Christina D. and Romer, David H., “The Macroeconomic Effect of Tax Changes: Estimate Based on a New Measure of Fiscal Shocks,” NBER Working Paper No. 13264, July 2007. An earlier version of the study can be found here: http://www.crei.cat/activities/crei_seminar/06-07/romer.pdf

¹⁰ Brown, Stephen P.A., Hayes, Kathy J., and Taylor, Lori L., “State and Local Policy, Factor Markets, and Regional Growth,” *Review of Regional Studies*, Vol. 33, No. 1, 2004, pp. 40-60. An earlier version of the study can be found here: <http://www.dallasfed.org/research/papers/2002/wp0202.pdf>

¹¹ Golub-Sass, Alex, Haverstick, Kelly, Munnell, Alicia H., Soto, Mauricio, Wiles, Gregory, “Why Have Some States Introduced Defined Contribution Plans?” *Center for Retirement Research, Boston College*, Number 3, January 2008. http://crr.bc.edu/images/stories/Briefs/slp_3b.pdf?phpMyAdmin=43ac483c4de9t51d9eb41

About the Yankee Institute For Public Policy

The Yankee Institute is a think tank that develops and advocates free-market and private sector solutions to public policy issues. Founded in 1984, Yankee has offices on the campus of Trinity College in Hartford, Connecticut. The Yankee Institute is a nonpartisan research and educational organization and is classified by the IRS as a 501 (c) (3) non-profit.

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