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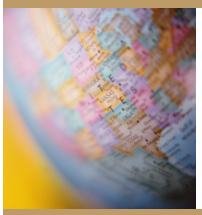

CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

STATE AND LOCAL PENSION PLANS NUMBER 29, FEBRUARY 2013

LOCALLY-ADMINISTERED PENSION PLANS: 2007-2011

*By Alicia H. Munnell, Jean-Pierre Aubry, and Joshua Hurwitz**

Introduction

Most of the attention in the wake of the financial crisis and ensuing recession has focused on state-administered pension plans. But cities often administer their own plans, and stories circulate about the perils facing Chicago, Philadelphia, Providence, and others.[1] To assess the status of locally-administered plans, this *Issue in Brief* reports on a survey of 128 locally-administered plans in 43 states.

The sample is limited to local entities with plans of their own, because the goal is to compare the effect of local versus state administration. Such a focus, however, leaves out an important component of the local story. For example, the sample includes no city or town in Mississippi, Montana, or Nevada, because cities and towns in those states do not sponsor their own plans but rather participate in state plans. In fact, for the nation as a whole, only 42 percent of local pension contributions go to locally-administered plans, while 58 percent go to state-administered plans. Thus, an equally, or perhaps more, important question is the burden of local pension contributions – to both local and state plans – on local budgets.

Because of the many dimensions of the local story, this *brief*, which reports just on localities with pension plans, is the first of three that will assess pensions from a local perspective. The second *brief* will analyze the burden of pensions on localities by doubling the sample to include localities without plans and calculating the impact of pension contributions on local budgets. The third *brief* will explore the bankruptcies that have occurred at the local level and see whether it is possible to identify the role of pensions among other common contributing factors.

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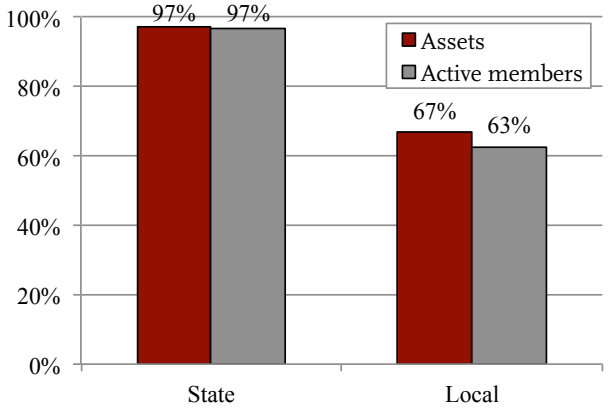
This *brief* proceeds as follows. The first section describes the sample. The second section compares the funded status of local plans to that of state plans and reveals a puzzle – sponsors of locally-administered plans pay a higher percentage of the annual required contribution (ARC), but these plans are less well funded than state-administered plans. The third section uses regression analysis to untangle this seeming conundrum. An equation explaining percent of ARC paid confirms that, even after controlling for a number of factors that could affect contribution behavior, state-administered plans pay less. A second equation explaining the relationship between funded levels, percent of ARC paid, and other factors suggests an answer: investment returns. Indeed, for mature plans with substantial assets that receive most of their income from investments, the higher returns historically earned by state-administered plans explain their higher funded levels. A closer look at returns also suggests why the funded level of local plans declined by less than that for state plans since the economic crisis – they held less in equities and other risky assets and therefore suffered less from the collapse of the stock market. The final section concludes that the locally-administered plans in our sample, which includes plans from the problem cities cited above, are slightly less funded than state-administered plans, but have been closing the funding gap in recent years.

The Sample

The survey data are for 2007 and the most recent year available – generally a mix of 2010 and 2011.[2] The intent was to include the largest locally-administered plans from each state, but, as noted in the introduction, some states have no localities that administer plans. As a result, the final sample consists of 128 local plans from 43 states (see Appendix A). The data for 19 of these plans come from the Center's *Public Plans Database*; the data for the other 109 are newly collected.

Figure 1 shows the comprehensiveness of the state-administered and locally-administered databases. The state sample covers about 97 percent of assets and workers relative to the totals reported by the U.S. Census Bureau. The sample of local plans represents 67 percent of local plan assets and 63 percent of local workers. This outcome is to be expected given that state-administered plans are few and large, while locally-administered plans are many and often small.[3]

Figure 1. Sample Plans as a Percent of Total Assets and Active Members, by Level of Administration



Sources: Authors' calculations from U.S. Census Bureau, *Employee-Retirement Systems of State and Local Governments* (2010); and *Public Plans Database* (2010).

Locally-administered plans range enormously in size. Three plans – the New York City Employee Retirement System, the New York City Teachers Retirement System, and the Los Angeles County Employee Retirement System – each have assets in excess of $30 billion. In contrast, six plans in our sample each have less than $10 million.

The employee groups covered by state- and locally-administered plans differ. State-administered systems tend to have more teacher plans, while locally-administered systems have more plans for police and firefighters (see Table 1). Under both arrangements, plans for general employees account for about 60 percent of the total in our sample.

Table 1. State- and Locally-Administered Plans by Type of Employee, Percent

Group covered	Administration level	
	State	Local
General employees	60.7 %	56.3 %
Teachers	29.9	9.4
Police/firefighters	9.3	34.4

Source: *Public Plans Database* (2011).

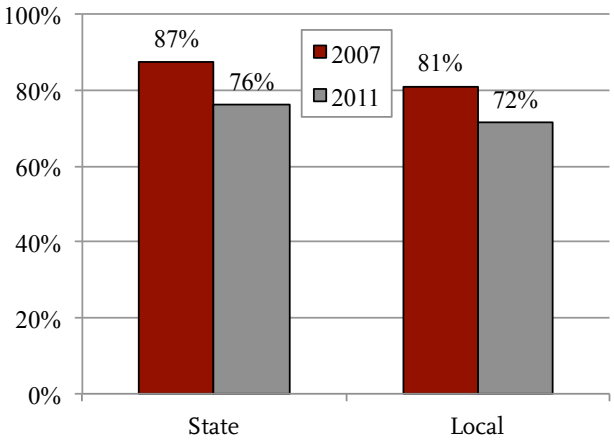
The Funded Status

Two measures capture the financial health of public plans: 1) the funded ratio, which shows the portion of the plan's liabilities covered by assets; and 2) the percent of ARC paid, which shows the extent to which the sponsor is keeping up with benefits as they accrue and paying down unfunded obligations.[4]

Funded ratio

Figure 2 presents the aggregate funded ratios for state- and locally-administered plans for 2007 and 2011. In both cases, funded levels dropped over the period as a result of the financial crisis, from 87 percent to 76 percent for state plans and from 81 percent to 72 percent for local plans.[5] Of course, the magnitude of the liabilities – and the funded ratios – depends on the rate used to discount promised benefits. Discounting by a riskless rate, which reflects the fixed nature of the benefit commitments, increases the liabilities significantly and reduces the 2011 funded ratios to the 50-percent range. Nevertheless, the major takeaway from this exercise is that while locally-administered plans have been slightly less funded than state-administered plans, they have fared somewhat better through the financial crisis, closing the funding gap to just 4 percentage points.[6]

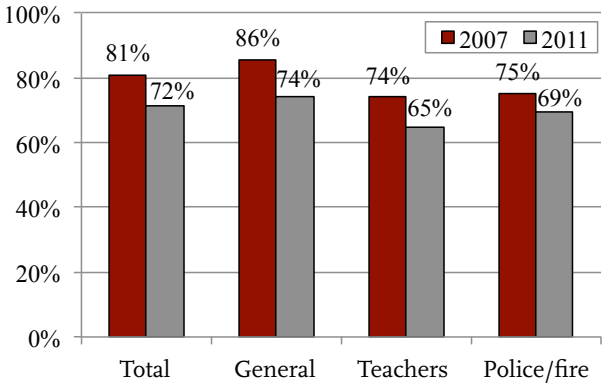
Figure 2. Aggregate Funded Ratios for State- and Locally-Administered Plans, 2007 and 2011



Sources: Authors' calculations from *Public Plans Database* (2007 and 2011); and various financial and actuarial reports.

Figure 3 shows the funded ratios for the three main types of locally-administered plans: general employee, teacher, and police/fire. Of the three, general employees are the best funded but suffered the greatest decline between 2007 and 2011, while teachers' plans had the lowest funded ratio throughout the period.

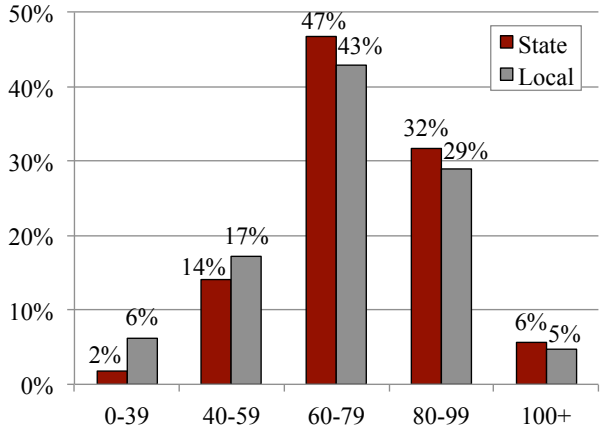
Figure 3. Funded Ratios for Locally-Administered Plans by Type of Plan, 2007 and 2011



Sources: Authors' calculations from *Public Plans Database* (2007 and 2011); and various financial and actuarial reports.

Finally, Figure 4 shows the distribution of funded ratios for state- and locally-administered plans in 2011. Compared to state plans, local plans have nearly the same percentage of plans that are fully

Figure 4. Distribution of State and Locally-Administered Plans by Funded Ratio, 2010



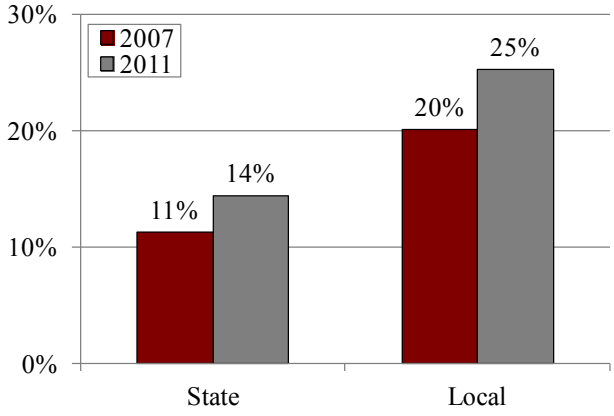
Sources: Authors' calculations from *Public Plans Database* (2007 and 2011); and various financial and actuarial reports.

funded and a greater percentage of plans with very low levels of funding. Three of the ten worst funded are Chicago pension plans.

The ARC

While the funded ratio provides a snapshot, ARC payments show the extent to which the plan sponsor has a funding strategy and is sticking to it. The Governmental Accounting Standards Board defines the ARC as the normal cost plus a payment to amortize the unfunded liability, generally over a 30-year period. Because of the deterioration in the funded status of plans, the ARC increased between 2007 and 2011 at both the state and local level (see Figure 5). The ARC at the local level, however, is substantially larger than at the state level, because police and fire plans – which provide relatively high benefits at younger ages – are expensive.

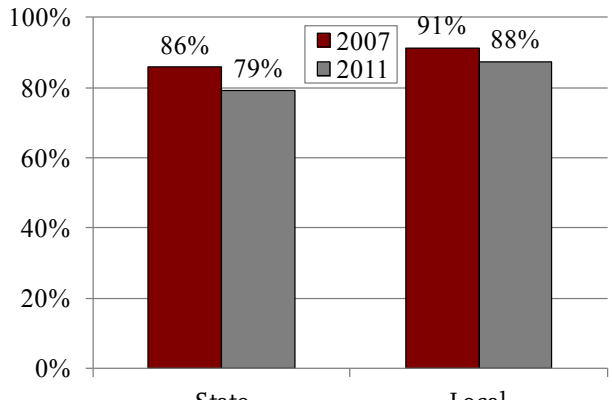
Figure 5. ARC as a Percent of Payroll for State- and Locally-Administered Plans, 2007 and 2011



Sources: Authors' calculations from *Public Plans Database* (2007 and 2011); and various financial and actuarial reports.

Figure 6 shows the percent of the ARC paid by sponsors of both state- and locally-administered plans. While sponsors at the state level significantly reduced the percent of ARC paid, locally-administered plans did a better job in covering the ARC. Therefore, while local plans in general have a higher ARC per dollar of payroll, they also contribute a higher percentage of total ARC each year. Yet, despite the higher ARC payments, locally-administered plans are less well funded than those administered at the state level. How can that be?

Figure 6. Percent of ARC Paid by State- and Locally-Administered Plans, 2007 and 2011



Sources: Authors' calculations from *Public Plans Database* (2007 and 2011); and various financial and actuarial reports.

Explaining Behavior of State- and Locally-Administered Plans

To resolve the puzzle, the following section looks at factors that affect the payment of the ARC, factors that affect funded levels given ARC payments, and factors that explain the declining gap between the funded status of state-administered and locally-administered plans.

Making the ARC Payment

A regression was used to estimate the relationship between the average percent of ARC paid from 2007 to 2010 and four types of factors: the plan's governance structure; the discipline of the sponsor; the presence of other plans; and the characteristics of the plan.

Governance. Three aspects of the governance structure could affect the likelihood of paying the ARC.

- *State plan*. The aggregate data show that, on average, sponsors of state-administered plans pay a lower percentage of their ARC than those of locally-administered plans. The question is whether the relationship holds after controlling for other factors.
- *Statutory contribution rate*. Plans with statutory contribution limits are likely to pay a smaller percentage of their ARC.[7]

- *Employees/retirees on the board.* Boards with a lot of workers and retirees could be more interested in benefit expansion or greater cost-of-living adjustments than in funding benefit promises. Alternatively, workers and retirees have a major stake in the plan's success, so their presence on a board would tend to encourage funding. Earlier studies have shown mixed results.[8]

Lack of Fiscal Discipline. Two characteristics would signal that a plan sponsor is not disciplined in its fiscal effort.

- *Actuarial cost method.* The projected unit credit (PUC) cost method allows sponsors to postpone contributions and therefore is a less stringent funding method. Sponsors that opted for this method may be less committed to funding their plans and therefore pay less of their ARC.
- *Debt-to-revenue.* If a locality is having fiscal problems, it may meet current non-pension obligations by cutting back on the annual contribution to the pension plan.

Other Retirement Plan. Sponsors that provide other sources of retirement income to participants may be less likely to pay the ARC.

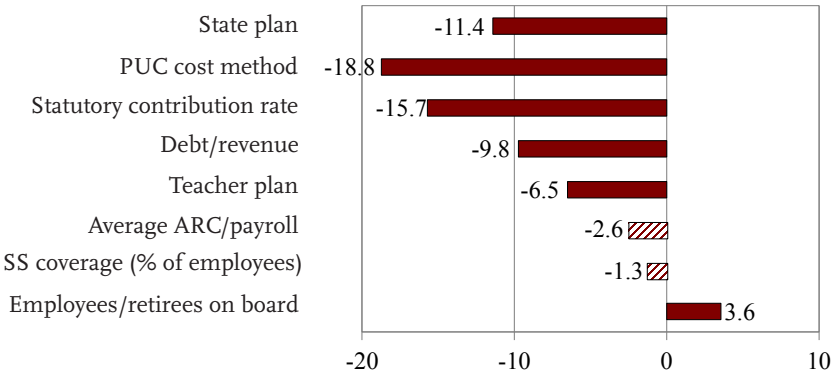
- *Social Security coverage.* Sponsors might feel less responsibility to fund the plan if participants are also covered by Social Security.

Plan Characteristics. The likelihood of paying the ARC might depend on the cost of the plan and the type of employees covered.

- *ARC as a percent of payroll.* The higher the ARC as a percent of payroll, the more costly it is to make the full payment.
- *Teacher plan.* Teachers have longer tenures than general government employees and higher earnings (due to higher education levels), and these factors translate into larger pension liabilities and a higher ARC.[9]

The results of the regression are shown in Figure 7. (The full results are reported in Appendix B.) Most variables entered with their expected signs, have statistically significant coefficients, and have an economically meaningful impact on the percent of ARC paid. The story that emerges is as follows. First, paying the ARC reflects a commitment to fiscal discipline. Plan sponsors that borrow freely and have high levels of debt relative to revenue are less likely to pay the ARC. And the choice of the PUC actuarial method – in the context of state and local plans – also appears to be a signal that politicians are less committed to funding their plans. Other factors, such as governance and plan characteristics, have an effect, but being fiscally responsible is the key. Surprisingly, even after controlling for these factors that influence the percent of ARC paid, state-administered plans are inherently less likely to pay the ARC.

Figure 7. Factors Associated with Average Percent of ARC Paid, 2007-2010



Notes: Closed plans are excluded from the regression. Marginal effects reflect a one-unit change for dichotomous variables and a one-standard-deviation change for continuous variables. Standard errors are adjusted for state-level clustering. Solid bars indicate that the coefficient is significant at the 10-percent level or better. An additional control not depicted is Social Security coverage.

Sources: Authors' calculations from *Public Plans Database* (2007-2010); and U.S. Census Bureau, *State and Local Government Finances* (2007-2010).

Funding the Plan

Given that state-administered plans pay a smaller share of the ARC even after controlling for other factors, why do they end up with higher funded ratios? Clearly other factors are at play. These factors fall into three categories: governance, history, and assumptions.

Governance and Size.

- *State plan*. State plans are slightly better funded than local plans in aggregate, but fared worse over the period from 2007 to 2010. The state variable is included to determine whether being a state- versus locally-administered plan significantly influences the funded ratio, even after controlling for other relevant factors.
- *Plan size*. Our previous studies have shown that larger plans tend to be better funded.[10] Possible reasons may be that not funding could have a significant impact on future taxpayers, or that larger plans are more in the political spotlight than smaller plans.
- *Investment council*. If a plan has a dedicated investment board or hires financial advisors in making its investment decisions, the plan should have greater returns, which leads to more assets and a higher funded ratio.[11]

History. Today's funded status depends very much on what has happened in the past. Here two factors appear important.

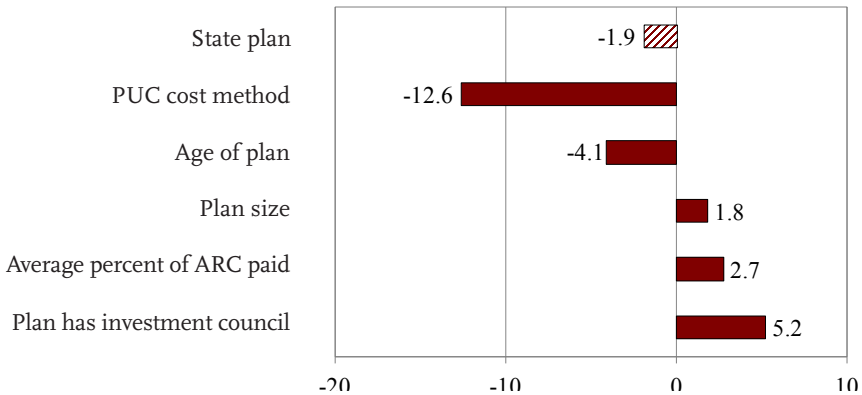
- *Average percent of ARC paid*. Consistently paying more of the ARC should be associated with a higher funded ratio. The average percent of ARC paid from 2007 to 2010 is used as a proxy for the plan's long-term commitment to funding.
- *Age of plan*. Older plans are likely to have promised benefits over a longer period of time without putting aside funds to cover the promises, thereby creating a large unfunded liability. Therefore, the older the plan, the lower the expected funded ratio.

Assumptions. The meaningfulness of the ARC as a mechanism for pre-funding benefits depends crucially on the realism of the underlying assumptions.[12]

- *Actuarial cost method*. Use of the PUC cost method in this case is associated with lenient assumptions, given that the PUC method permits the least stringent funding requirement. Use of the PUC method is likely to be associated with a smaller funded ratio.[13]

As shown in Figure 8, all of the variables have the expected relationship with the funded status of the pension plan, and almost all coefficients were statistically significant. (The full equation is reported in Appendix B.) The exception is state-administered plan, which says that, after accounting for governance, history, and assumptions, the funded ratio is not directly influenced by whether a plan is administered at the state or local level. One clue to untangling the conundrum of the higher percent of ARC paid and

Figure 8. Factors Associated with State/Local Pension Funded Ratios, 2010



Notes: Closed plans are excluded from the regression. Values for percent of ARC paid are averaged over the 2007-2010 period. The results shown are for a one-unit change for dichotomous variables and one-standard-deviation change for continuous variables. Standard errors are adjusted for state-level clustering. Solid bars indicate that the coefficient is significant at the 10-percent level or better.
Source: Authors' calculations from *Public Plans Database* (2007-2010).

lower funded ratios of locally-administered plans is the significance of an investment council and its implications for returns.

The Role of Investment Returns

An explanation for locally-administered plans' slight but persistent funding gap despite paying more of the ARC is that state-administered plans have experienced higher investment returns over the long haul than locally-administered plans (see Table 2). These higher returns reflect a higher share of portfolios invested in risky assets (see Figure 9). While the excess returns appear slight, for mature plans that receive most of their revenue from investment returns, a difference of about 30 basis points is enough to offset the impact of paying even 10 percent less of the ARC. That is, over the long run the higher investment returns have more than compensated for the lower percent of ARC paid.

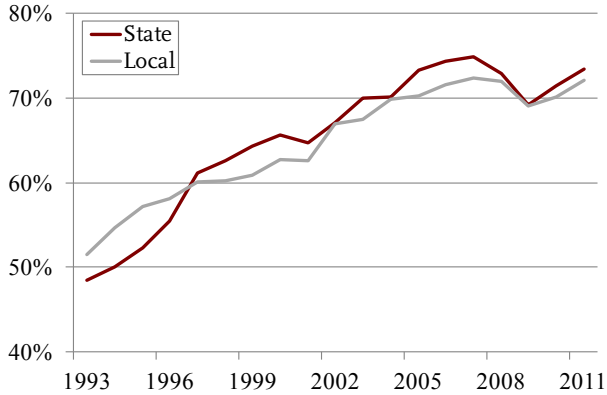
In the last few years, however, the pattern of investment returns has reversed; locally-administered plans outperformed state-administered plans from 2007 to 2010. Slightly better investment returns, combined with larger ARC payments, have shrunk the funding gap between state-administered and locally-administered plans from 6 percentage points to 4 percentage points.

Table 2. Aggregate Geometric Returns for State- and Locally-Administered Pension Plans

Period	State	Local	Difference (S-L)
1990-2011	9.23	8.74	0.49
1995-2011	7.75	7.40	0.35
2000-2011	5.60	5.18	0.42
2005-2011	5.67	4.84	0.83
2007-2010	-3.60	-3.11	-0.49

Source: U.S. Census Bureau, *Employee-Retirement Systems of State and Local Governments* (2010).

Figure 9. Percentage of Total Assets Invested in "Risky" Assets for State- and Locally-Administered Pension Plans, 1993-2011



Note: "Risky" assets are defined as any assets except cash, bonds, and mortgages.
Source: Authors' calculations from U.S. Census Bureau (2011).

Conclusion

Although press accounts often suggest that locally-administered plans are significantly less funded than those administered by states, our sample of 128 local plans from 43 states suggests that they are nearly as well funded and have been closing the gap in recent years. Averages, as always, hide a lot of variation and a number of plans, including large cities such as Chicago, Philadelphia and Providence, have seriously underfunded plans.

More importantly, locally-administered plans are only one aspect of the local pension story. As noted, only 42 percent of local pension contributions go to locally-administered plans, while 58 percent go to state plans. Thus, an equally, or perhaps more, important issue is the burden of local pension contributions – to both local and state plans – on local budgets. The budget story is the topic of the next *brief* in this series.

Endnotes

1 Allegheny Institute (2012); Kerkstra (2012); Maher, White, and Bauerlein (2012); Newcombe (2011); Olsen (2012); and Russ (2012).

2 The most recently reported data for eight of the plans are for fiscal year 2009.

3 In total, the Census identifies 222 state-administered and 3,196 locally-administered systems, compared to 107 and 128 in our samples, respectively (see U.S. Census Bureau, 2011).

4 In June 2012, the Governmental Accounting Standards Board approved Statements 67 and 68, which will ultimately eliminate the concept of an ARC. However, the employer's payment of the ARC is currently the most standardized metric for measuring commitment to funding.

5 The results for local plans differ somewhat from a recent study by The Pew Charitable Trusts (2013), primarily because our latest data cover 2011 while Pew's latest data cover 2010.

6 Our earlier update on local plans reported the same funded ratio for both state- and locally-administered plans in 2010. This finding would suggest that the situation for locally-administered plans deteriorated between 2010 and 2011. However, after updating the 2010 results to incorporate more recent estimates, the funded ratios in 2010 were not identical for the two types of plans – instead, state-administered plans were better funded than locally-administered plans, which is consistent with the analysis in this *brief*.

7 The degree of constraint varies significantly (Munnell 2012). For example, the statutory rates in Texas roughly equaled the actuarially determined ARC, so the contribution level fell only slightly short of the required amount. In contrast, the rate in Kansas was well below the required amount, so the sponsors contributed only about 65 percent of the ARC.

8 See Carmichael and Palacios (2003); Mitchell and Hsin (1997); Schneider and Damanpour (2002); and Yang and Mitchell (2005).

9 Weller, Price, and Margolis (2006).

10 See, for example, Munnell, Haverstick, and Aubry (2008) and Munnell, Aubry, and Quinby (2011).

11 Previous studies have directly included a measure of the rate of return on investments (see Yang and Mitchell, 2005). For our analysis, return data were not available for many local plans.

12 The most important assumption – the discount rate – has generated a lot of controversy. The issue is that actuaries discount using expected long-term returns, while financial theory suggests a rate that matches the riskiness of the promised benefit stream (see, for example, Novy-Marx and Rauh (2011)). However, since all plans use a rate of about 8 percent, the lack of variation would provide no insight for this analysis.

13 Another possible explanation is that, for mature plans, the PUC requires a larger ARC payment than other cost methods, so not paying the ARC results in a larger funding shortfall.

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APPENDIX

Appendix A: Locally-Administered Plans – Assets, Funded Ratio, and ARC Paid, 2011

State	Plan name	Actuarial value of assets (millions)	Funded ratio	Average percent of ARC paid (2007-10)
AK	Anchorage Police and Fire Retirement System	$301	76.6%	100%
AL	Birmingham Retirement and Relief System*	913	82.0	76
AR	Little Rock City Firemen's Pension and Relief Fund*	73	49.9	41
	Little Rock City Policemen's Pension and Relief Fund*	49	40.1	33
AZ	Phoenix ERS	1,835	66.7	100
	Tucson Supplemental Retirement System	643	69.2	100
CA	Contra Costa County ERA	5,427	78.5	100
	Los Angeles County ERS	39,194	80.6	100
	Los Angeles City ERS	9,691	72.4	101
	Los Angeles City Fire and Police Pension System	14,338	86.3	100
	Los Angeles Water and Power Employees' Retirement Plan	7,465	80.3	101
	Marin County Employees' Pension Plan	1,065	74.2	100
	Orange County ERS	9,064	67.0	100
	San Diego County ERA	8,542	81.5	103
	San Francisco City & County ERS	16,313	87.7	100
	San Jose Police and Fire Department Retirement Plan*	2,577	79.8	100
CO	Denver Employees Retirement Plan*	1,943	85.0	91
	Denver Public Schools Retirement System	2,805	81.5	251
CT	Bridgeport Police Retirement Plan B*	113	82.8	105
	Bridgeport Public Safety Plan A*	193	56.8	53
	Town of Greenwich Retirement System*	326	80.6	100
	Hartford Municipal ERF	1,018	83.5	114
	New Haven City ERF	177	46.5	100
	New Haven Policemen and Firemen Retirement Fund	290	52.1	100
DC	DC Police Officers' & Firefighters' Retirement Plan	3,594	108.6	100
	DC Teachers' Retirement Fund	1,574	101.9	100
DE	Dover General Employee Pension Plan*	20	38.1	112
	New Castle County Pension Program*	411	87.0	90
	Wilmington Police Pension Fund*	72	53.8	100
FL	City of Jacksonville General Employees Retirement Plan	1,582	71.3	102
	City of Miami Fire Fighters' and Police Officers' Retirement Trust*	1,181	76.4	100
	Pensacola General Pension and Retirement Fund*	119	68.5	100
	Tallahassee Retirement System**	1,128	103.7	100
	Tampa City Firefighters and Police Officers Pension Fund*	720	91.5	100

State	Plan name	Actuarial value of assets (millions)	Funded ratio	Average percent of ARC paid (2007-10)
GA	Atlanta Board of Education Fund*	$115	17.1%	113%
	Atlanta Fire Fund**	423	60.5	103
	Atlanta General Employees Pension Fund*	867	53.7	105
	Atlanta Police Fund**	592	59.8	115
	Cobb County ERS Pension Plan*	381	53.8	102
IA	Des Moines Water Works Pension Plan	38	74.1	117
ID	Pocatello Police Retirement Pension Plan	9	93.1	100
IL	Chicago Firemen's Annuity and Benefit Fund	1,102	28.6	41
	Chicago Laborers' and Retirement Board Employees' Annuity and Benefit Fund	1,422	66.1	56
	Chicago Municipal Employees' Annuity and Benefit Fund	5,552	45.2	37
	Chicago Policemen's Annuity and Benefit Fund	3,445	36.2	52
	Chicago Teachers' Pension and Retirement Fund	10,109	59.7	60
	Cook County Employees' Annuity and Benefit Fund	7,897	62.5	52
IN	Marion County Law Enforcement Personnel Retirement and Disability Plans	153	74.2	98
KS	Wichita ERS	513	92.5	100
	Wichita Police and Fire Retirement System	511	90.8	100
KY	Lexington-Fayette Policemen's and Firefighters' Retirement Fund	501	66.0	154
	Louisville-Jefferson County Firefighters' Pension Fund*	7	29.5	100
	Owensboro City Employees' Pension Fund	4	127.4	100
	Owensboro Police and Firefighters' Retirement Fund	5	68.0	27
LA	City of Baton Rouge and Parish of East Baton Rouge ERS	1,028	72.2	109
	New Orleans ERS	380	74.8	60
MA	Boston Retirement Board*	4,593	62.2	110
MD	Anne Arundel County Employees' Retirement Plan	516	79.0	100
	Baltimore City Fire and Police ERS	2,546	82.0	106
	Baltimore County ERS*	2,197	80.0	100
	Baltimore City ERS	1,410	72.7	100
	Montgomery County ERS	2,869	76.6	100
MI	Detroit Police and Fire Retirement System	3,805	99.9	72
	Detroit General Retirement System*	3,238	87.1	100
	Wayne County Employees' Pension Plan	795	49.8	100
MN	Duluth Teachers Retirement Fund	235	73.2	63
	Minneapolis ERF	911	73.5	77
	Minneapolis Police Relief Association*	255	62.8	63
	St. Paul Teachers' Retirement Fund Association	973	70.0	71

State	Plan name	Actuarial value of assets (millions)	Funded ratio	Average percent of ARC paid (2007-10)
MO	Kansas City ERS*	$750	75.3%	101%
	St Louis City ERS	662	78.6	140
	St Louis Police Retirement System	695	81.3	147
	St. Louis City Public School Retirement System*	944	88.6	133
NC	Charlotte Firefighters' Retirement System	366	89.5	101
ND	Bismarck City Employees' Pension Plan	59	81.9	166
	Fargo Employees' Pension Plan	28	59.3	56
	Fargo Police Pension Plan	32	59.2	68
NE	Omaha ERS	237	56.3	49
	Omaha Police and Fire Retirement System	467	43.4	51
	Omaha School Employees' Retirement System*	1,078	73.5	106
NH	Manchester Employees' Contributory Retirement System	153	61.6	100
NJ	Jersey City ERS**	69	42.8	77
NY	New York City Board of Education Retirement System**	1,964	66.7	100
	New York City ERS*	42,556	77.2	100
	New York City Fire Pension Fund**	7,305	54.2	100
	New York City TRS*	31,135	62.9	100
	New York City Police Pension Fund**	22,676	71.3	100
OH	City of Cincinnati ERS	1,466	66.8	61
OK	Oklahoma City ERS*	525	92.6	100
	Tulsa City Municipal Employees' Pension Fund*	372	76.8	93
OR	Portland Fire and Police Disability and Retirement Plan	26	1.0	51
PA	Philadelphia Municipal Retirement System*	4,381	47.0	75
	Pittsburgh Firemen's Relief and Pension Plan	210	61.9	131
	Pittsburgh Municipal Pension Plan	187	66.2	131
	Pittsburgh Policemen's Relief and Pension Plan	235	60.2	131
RI	Providence ERS	423	31.9	99
SC	City of Spartanburg Retirement Plan*	9	58.8	68
	Greenville City Fire Department's Pension Plan*	31	79.3	153
SD	Sioux Falls ERS	264	87.4	100
TN	Knox County DB Plan*	60	80.0	78
	Knox County Teachers' DB Plan*	70	90.0	106
	Nashville-Davidson Metropolitan Employees' Benefit Trust Fund*	2,144	90.8	106
	City of Memphis Retirement System	1,838	75.1	56

State	Plan name	Actuarial value of assets (millions)	Funded ratio	Average percent of ARC paid (2007-10)
TX	City of Austin ERS	$1,791	65.7%	66%
	City of Austin Fire Fighters Relief and Retirement Fund**	589	88.7	111
	City of Austin Police Retirement System*	547	70.5	102
	Dallas ERF*	3,027	92.2	148
	Dallas Police and Fire Pension Plan	3,379	73.9	97
	El Paso City Employees' Pension Fund *	570	80.2	99
	Fort Worth ERF*	1,895	76.6	89
	Houston Firefighters' Relief and Retirement Fund	3,222	90.6	100
	Houston Municipal Employees Pension System	2,329	61.4	75
	Houston Police Officers' Pension System*	3,527	83.3	45
	San Antonio Fire and Police Pension Fund	2,331	90.6	100
VA	Arlington County ERS*	1,504	95.2	100
	Richmond Retirement System	493	58.6	100
	Fairfax County ERS*	2,636	69.9	70
	Fairfax County Police Officers Retirement System*	900	79.3	78
	Fairfax County Educational Employees' Supplementary Retirement System*	1,823	76.5	100
	Newport News ERF	641	56.0	48
	Norfolk ERS	832	78.2	100
VT	Burlington ERS	135	71.0	103
WA	Seattle City ERS	1,954	68.3	87
WI	Milwaukee County ERS	1,837	89.2	445
	Milwaukee ERS	4,405	96.0	75
WV	Charleston Firemen's Pension and Relief Fund*	7	5.0	37
	Morgantown Employees' Retirement and Benefit Fund	36	81.3	98
	Wheeling City Employee's Retirement and Benefit Fund*	31	110.8	100

Note: "ERS" = Employees' Retirement System; "ERA" = Employees' Retirement Association; "ERF" = Employees' Retirement Fund.
* = Actuarial asset and funded ratio data are from fiscal year 2010.
** = Actuarial asset and funded ratio data are from fiscal year 2009.
Source: Authors' calculations from various financial and actuarial reports.

Appendix B: Regression Results

Table B1. Regression Results for Factors Associated with Average Percent of ARC Paid, 2007-2010

Variable	Coefficient
State plan	-11.399**
	(5.604)
Statutory contribution rate	-15.722***
	(3.979)
Employees/retirees on board (% of board)	0.165**
	(0.075)
PUC cost method	-18.759***
	(4.532)
Debt/revenue	-0.102**
	(0.041)
SS coverage (% of employees)	-0.043
	(0.055)
Average ARC/payroll	-0.154
	(0.160)
Teacher plan	-6.532*
	(3.398)
R-squared	0.231
Number of observations	205

Note: Robust standard errors are in parentheses. Coefficients are significant at the 10-percent (*), 5-percent (**) or 1-percent (***) levels.
Source: Authors' calculations.

Table B2. Summary Statistics for Factors Associated with Average Percent of ARC Paid, 2007-2010

Variable	Mean	Standard deviation	Minimum	Maximum
Average percent ARC paid	95.38	35.85	25.44	444.83
State plan	0.49	0.50	0	1
Statutory contribution rate	0.26	0.44	0	1
Employees/retirees on board (% of board)	52.70	21.46	0	100
PUC cost method	0.14	0.35	0	1
Debt/revenue	118.30	95.57	4.83	613.50
SS coverage (% of employees)	69.79	30.41	0	100
Average ARC/payroll	18.00	16.62	0.93	152.19
Teacher plan	0.20	0.40	0	1

Source: Authors' calculations.

Table B3. Regression Results for Factors Associated with State/Local Pension Funded Ratios

Variable	Coefficient
State plan	-1.925
	(3.073)
Plan size	0.015 ***
	(0.004)
Plan has investment council	5.210 **
	(2.150)
Average percent of ARC paid (2007-2010)	0.079 *
	(0.043)
Age of plan	-0.225 ***
	(0.058)
PUC cost method	-12.643 ***
	(2.886)
R-squared	0.295
Number of observations	194

Note: Robust standard errors are in parentheses. Coefficients are significant at the 10-percent (*), 5-percent (**) or 1-percent (***) levels.
Source: Authors' calculations.

Table B4. Summary Statistics for Factors Associated with State/Local Pension Funded Ratios

Variable	Mean	Standard deviation	Minimum	Maximum
Funded ratio	75.57	18.38	0.65	153.52
State plan	0.52	0.50	0	1
Plan size	73.70	120.48	0.23	834.06
Plan has investment council	0.22	0.42	0	1
Average percent of ARC paid (2007-2010)	94.21	34.51	25.44	444.83
Age of plan	65.27	18.38	12	123
PUC cost method	0.14	0.35	0	1

Source: Authors' calculations.

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