Identifying states with the most (and least) justification for paring state public employment costs*

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Abstract

Governors and state legislatures are increasingly contemplating cuts in public sector jobs or public sector pay as part of a solution to state budget deficits. One problem they face, however, is understanding what to cut (jobs or pay?) and by how much. We offer a simple strategy for using cross-state comparisons to estimate how many public employees one would expect there to be in each state based on the state's structural and political characteristics. We do the same for public sector pay. We then compare these estimates with actual levels of public service employment and pay to calculate the specific number of "excess" jobs and the level of "excess" pay in each state. The analysis therefore provides evidence regarding which states have the strongest (and weakest) case for cutting public sector jobs and/or public sector pay.

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1 Introduction

Even though the economy is beginning to recover from the damage wrought by the global financial crisis, state governments continue to confront sizeable budget deficits and fiscal uncertainty. Unfortunately, budgetary problems are unlikely to end anytime soon. The federal stimulus money that has kept states afloat thus far will begin to dry up at the end of this year. History shows that worst budgetary problems for states tend to occur in the 24 months *after* a recession ends and that a full return to fiscal prosperity can take years.[1]

While the financial crisis has already forced states to enact deep cuts in popular government programs, such as K-12 education and health care for the poor, the emerging consensus is that further retrenchment is necessary. As a result, lawmakers in many states are now swinging the budget ax in the direction of state workers, often proposing very deep cuts in public employment and wages. These proposals go well beyond the hiring freezes and furloughs that have already been used as temporary fixes in most states. For instance, Meg Whitman, the Republican nominee for the California governorship, is campaigning on a promise to slash the number of her state's employees by 20,000 to 30,000.[2] Similar proposals are even coming from Democrats in states that are traditionally pro-labor. Current New York Governor (and liberal Democrat) David Paterson is proposing to lay off 10,000 state workers at the beginning of 2011, a plan that is supported by Andrew Cuomo, the Democratic nominee to replace Mr. Paterson.[3]

State workers are a target of downsizing efforts because their salaries, health care, and pension plans represent a large and growing share of state budgets. Indeed, lawmakers are already failing to meet promises made to public employees, and are doing so in ways that may have severe fiscal consequences. A recent study by the Pew Center on the States found that lawmakers have underfunded their pension obligations to current and retired workers by one trillion dollars, a figure

[1] *State of the States 2010: How the recession Might Change States*. 2010. Washington D.C: The Pew Center for the States.

[2] http://www.megwhitman.com/story/150/meg-whitman-says-state-leaders-should-cut-state-workforce-to-address-budget-crisis.html

[3] http://www.nytimes.com/2010/06/01/nyregion/01paterson.html

which is likely to be an underestimate.[4] According to Willie Brown, former long-time Speaker of the California Assembly, legislators and governors found it all too easy to bend to the wishes of politically powerful labor groups by promising increased hiring, salary, and benefits during prosperous years.[5] Now many officials—fairly or unfairly—are using the ongoing fiscal crisis as leverage to reign in spending on public employees.

Labor unions and groups who represent state workers are pushing back. Chris Shelton, a vice president with the Communications Workers of America, has said that the current budgetary atmosphere is the most "severe, pervasive and sustained attack on public employees" since workers were granted the right to organize.[6] Nowhere has the response by labor been more clear than in New Jersey, where the governor has proposed layoffs for state employees as well as cuts in their pay and benefits. In late May, upwards of 35,000 protestors (mostly from public employee unions and other progressive groups) took to the statehouse to demand an end to the proposed cuts. State workers and their allies argue that labor is being scapegoated.[7]

The problem that politicians contemplating layoffs obviously face is understanding how many employees can be cut without undermining the provision of public services that their constituents desire. How does one know if a state has "too many" public employees or if those employees are being paid "too much" money? How many public employees does it make sense for specific states to cut? By how much could salaries be reduced? Answering these questions is crucial to ongoing budget conflicts and, indeed, may provide important guidance to lawmakers.

We offer one possibility for addressing these questions. The approach involves comparing states with each other to see if the relative level of public employment (or pay) in a given state is more or less than that found in similar states. To do this, we must develop a list of variables that should affect the demand for public employees across states. A state's population is an obvious example—more populous states should require more public employees—but other variables should

[4] *The Trillion Dollar Gap: Underfunded State Retirement Systems and the Roads to Reform*. 2010. Washington D.C: The Pew Center for the States.

[5] http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2010/01/03/BA2V1BBGHH.DTL

[6] Heininger, Claire. 2010. "N.J. Gov. Chris Christie says State House rally had 'absolutely no effect' on him." *NewJersey.com* May 24.

[7] http://www.politico.com/news/stories/0610/38183.html

matter as well, including state GDP and various characteristics of the population. Using regression analysis and data from all 50 states, we estimate the effect of each of these variables on total public employment and public sector pay. The coefficient estimates from the regressions make it possible to calculate the predicted level of public employment or pay in each state. These predicted values represent the level of public sector employment or pay that one would expect in a particular state given (a) the values in that state of the variables that affect the demand for public employees or pay, and (b) the estimated effect of these variables on public sector pay in employment when we use data from all 50 states.

The approach produces easy-to-interpret estimates of the number of "excess" government workers and "excess" salary by state. The word "excess" here has a narrow meaning, one without normative connotation. It is simply the difference between the actual number of employees (or pay level) and the number of employees (or pay levels) predicted by the statistical model. "Excess" can be positive or negative, where a negative "excess" implies that a state has too few public employees (or too little pay). If a state like New Jersey, for example, has more employees than predicted from comparisons with similarly situated states, this only implies that New Jersey has "excess" employees *relative* to other states. One cannot judge from the data whether other states have somehow found the optimal number of employees and whether New Jersey therefore has too many. Making such normative judgments is far beyond what is possible here, and is likely beyond what is feasible in any such study.

We argue, however, that if states are contemplating balancing their budgets by making public sector cuts, relative comparisons across states is a tractable way to think about which states are the strongest and weakest candidates for such cuts. And for states bent on making such cuts, the analysis offers a way to think about how large the reductions could be in order to keep state levels in line with similarly situated states. Correspondingly, the results also identify the states with "too few" employees (relative to demand) and lower than expected wages, and thus, where reductions in public employment and salary are most likely unwise.

2 Models of state public employment and pay

Our goal is to estimate for each state (a) the need for state public employees, and (b) the expected payroll cost of public employees. We can then compare these estimates with actual levels to determine which states have higher and lower than expected levels of public employees and pay. The key to this approach lies in identifying those variables that affect the need for public employees, or their payroll cost. We are completely agnostic about which variables to include, and thus have cast a wide net, considering a number of variables relating to state demographic characteristics, wealth, and political ideology.

2.1 The number of state public employees

We measure the total number of state public employees as the number of FTEs (full-time equivalents). These data are from fiscal year 2008 and were obtained from U.S. Census Bureau's Government Finance Division. The number of FTEs varies dramatically across states, ranging from a low of 13,016 in Wyoming to a high of 393,989 in California. The mean across all states is 74,137.

The most important factor affecting the need for public employees is a state's population: larger states need more employees than smaller ones. We can use the relationship between state FTEs and population to illustrate the approach we adopt for estimating "excess" employees. Figure 1 depicts the tight relationship between the number of state public employees (FTEs) against the population, with both variables measured in logs. Logging the variables is appropriate given the strong skew in the data on population and state employees, and in the multivariate models that follow, we will log both the dependent variable and all right-hand side variables. The coefficients from the multivariate models are thus interpreted in terms of percentages. For example, the bivariate regression for Figure 1, where the log of state FTEs is the dependent variable and the log of population is the dependent variable, is given in the first column of Table 1. The coefficient on population is .776, which implies that a 1 percent increase in a state's population is associated with a 0.776 percent increase in the number of state employees. The black line in Figure 1 depicts

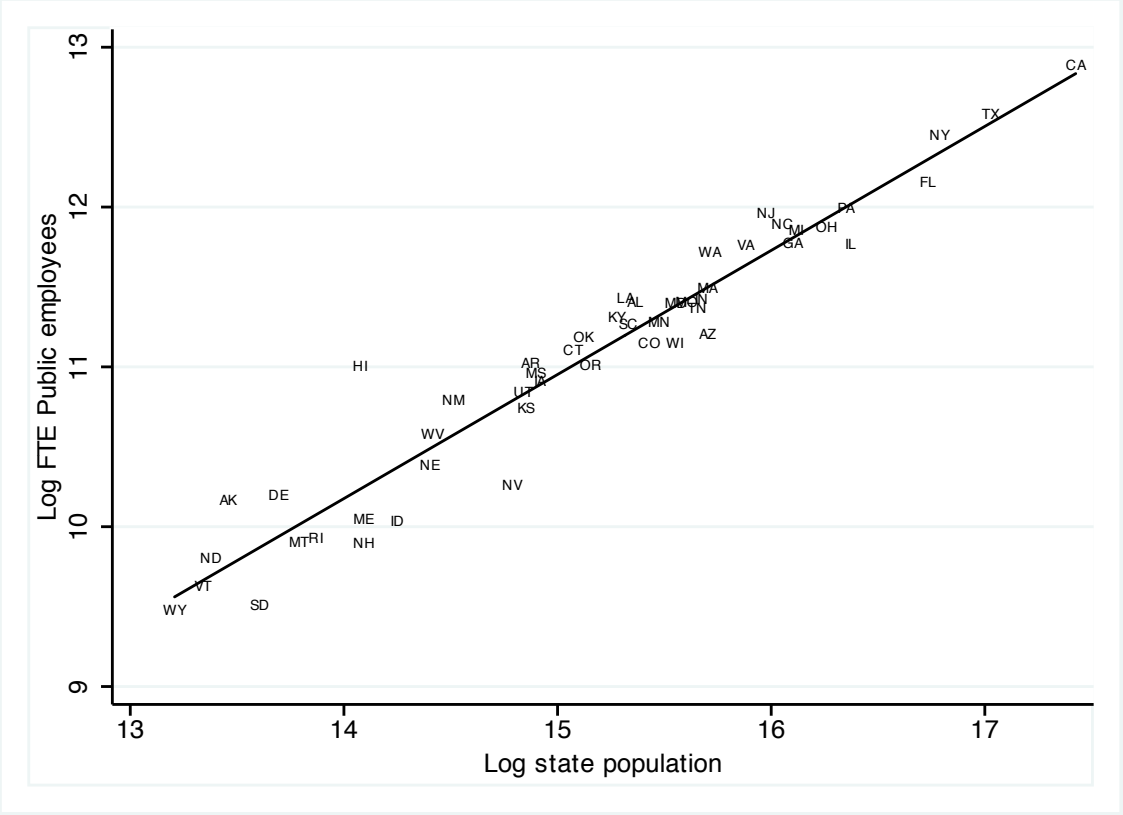

Figure 1: State population and the number of public sector employees

this bivariate regression line. States above the line have more employees than one would predict based on their population, and states below the line have fewer employees than one would predict. The residual in the regression is the distance from the line. In the figure, Hawaii is the state that is farthest from the regression line – the simple bivariate model suggests that given the relationship between population and public employees across the 50 states, Hawaii has 115 percent more employees than one would expect given its population. At the other extreme, Nevada has 41 percent fewer employees than one would expect given its population.

These estimates for Hawaii and Nevada must be taken with a grain of salt because other factors beside population affect the need for public employees. We consider two categories of variables that affect need. The first and most important category includes relatively exogenous elements of the state environment that influence how much the state can and must do in the public sector. Central among these is the wealth of a state. If some public sector services are considered a luxury good – with more parks and better highways and better universities, for example, being

demanded when the state can afford them – then richer states should have higher demand for such public goods, and thus more employees. We therefore control for state GDP/capita, our measure of state wealth. A state's population density may also affect its need for public employees if higher density, or the presence of very large metropolitan areas, creates the need for more public infrastructure, such as intensive public health or public transit systems. It is also possible that such density could limit the need for public employees by creating economies of scale. Or low density states like Alaska may need more employees to provide services across a vast geographic area. We therefore include the variables Population Density, and the Population of the State's Largest City in our group of controls. Some states will also have issues that could affect the need for public employees. Substantial poverty creates the need for particular types of services and social assistance, so the number of public employees should increase with the poverty rate. Similarly, the most needy individuals from a state's perspective are often the youngest and oldest citizens. The Age Dependency Ratio therefore measures the combined under-18 and 65-and-over populations divided by the 18-to-64 population. Finally, states may differ in the degree to which state versus local employees do different tasks. If some states rely more on local government employees, this may reduce the total number of state employees. We therefore include a variable, "Local public employees," which is the FTE of local public employees in a state. This allows us to take account of this potential "substitution effect."

The second category of variables affecting the need for public employees is political. In some states, all else equal, citizens will want more public services than in others. We might expect, for example, that more liberal states may demand more public services and thus a larger public sector. We can control for state liberalism by including a variable measuring the vote for John Kerry in the 2004 presidential election. Our second political variable is the proportion of state residents who are white. There is much evidence that whites are less supportive of policies that provide social support in contexts where a large number of recipients of such support are non-white. Thus, the size of social programs is smallest in states that have high proportions of non-whites, which should lead to the need for fewer public employees.

We should underline that our goal is not to control for every variable that is associated with public employment, but only those that affect need. It may be the case, for example, that unions for public employees are stronger in some states than others, and that the number of public employees and their pay are higher when unions are strong. But we would treat strong unions not as something explains the need for public employees but rather as a variable that may affect the number of employees independent of need.

Columns 2-4 of Table 1 provides results from regressions that include controls beyond population. As in column 1, all right-hand side variables in the model are logged. Model 2 includes the seven non-political variables. We find that states have more public employees when they have a larger population, are rich, and have high poverty rates. States have fewer public employees when they have high density, large metro areas, many citizens who are of a dependent age, and many local public employees. With the exception of Population Density and the Dependency Ratio, the coefficients for all of the variables are estimated fairly precisely.

Model 3 adds the two political variables affecting demand to model 2. The vote for Kerry is negative, indicating that state liberalism is actually associated with a lower number of state employees, although the coefficient is not precisely estimated. The percent of residents who are white is, as hypothesized, also negative, and very precisely estimated. Including these two variables has little effect on most of the estimates for the other variables from model 2. Most affected are Population and the Number of State Employees, which decrease in magnitude (and the coefficient for state employees is less precise). But the other variables produce roughly the same results.

Since the predicted number of public employees will be affected by the inclusion or exclusion of specific variables, one could argue that variables whose coefficients are measured rather imprecisely should be excluded. Model 4 therefore excludes from model 3 the three variables that are measured quite imprecisely: population density, the dependency ratio, and the Kerry vote. The results are very similar to model 3, with the main difference being that the number of state employees has a smaller and less precisely estimated coefficient.

Our main interest does not lie in exploring the effects of different variables on the number of

	(1)	(2)	(3)	(4)
Population	0.776***	1.430***	1.121***	1.012***
	(0.031)	(0.175)	(0.174)	(0.146)
GDP—capita		0.688**	0.540**	0.555**
		(0.207)	(0.180)	(0.170)
Population Density		-0.016	-0.004	
		(0.028)	(0.030)	
Largest city size		-0.098	-0.097*	-0.094*
		(0.050)	(0.044)	(0.038)
Poverty rate		0.474**	0.362**	0.343**
		(0.149)	(0.132)	(0.126)
Dependency Ratio		-0.489	-0.592	
		(0.510)	(0.518)	
Local public employees		-0.548***	-0.258	-0.171
		(0.136)	(0.148)	(0.131)
Kerry vote			-0.171	
			(0.190)	
Pct. White			-0.602***	-0.645***
			(0.162)	(0.153)
Constant	-0.692	0.193	4.894*	2.669*
	(0.485)	(1.937)	(2.330)	(1.133)
Adj. R-squared	0.931	0.952	0.965	0.966
N	50	50	50	50
Note: Standard errors in parentheses. $* p < .10, ** p < .05, *** p < .01$				

Table 1: Log-log model of the need for public employees.

public employees, but rather in estimating the predicted number of public employees in each state. To this end, which model in Table 1 should be used to estimate demand? Since the coefficients for many of the variables in models 2-4 are measured rather precisely, and since the overall fit of the models improves when the additional controls are added to model with just population, model 1 will clearly not provide the best estimates of the demand for public goods. But choosing among models 2-4 is more difficult and subjective. Therefore, rather than doing so, we will present for each state the range of predictions that emerges from the three models.

Table 2 presents the results. The second column lists the smallest residual for each state from the three models. For 31 states, the smallest residual is from Model 2 (whereas 10 are from model 3 and 9 are from model 4), so including the political variables, and in particular the percentage white, decreases the predicted percentage of public employees who are "excess" for many states. The states are sorted by this column, which represents the most conservative estimate for each state of (positive) "excess" public employees. The third column lists the largest residual for each state from the three models, our maximum prediction of each state's "excess" employees. For the maximum, 15 are from model 2, 17 from model 3 and 18 from model 4. The fourth column lists the range of predictions that exist across the three models. It is simply the value in column 3 minus the value in column 2. Columns 5 and 6 use the estimates of excess employees and the actual number of state employee to calculate the number of "excess" employees.

Consider the example of New Mexico, the state with the greatest "excess" number of employees when we use the most conservative estimates from each state. Results from the three models indicate that New Mexico has between 10,075 and 12,447 more employees than expected given the state's characteristics. In percentage terms this is an "excess" of between 20.8 and 25.6 percent, a range (use to rounding) of 4.9 percent.

The table shows that the stability of the predictions across the three models varies from state to state. The mean value of the range (column 4) is 8.5 percent. That is, the average difference between the maximum prediction and the minimum prediction is 8.5 percent. Indiana and New Hampshire have the greatest stability in their estimates, with ranges of only 1.5 and 2.0 percent

respectively. Mississippi (25.3) and Hawaii (22.4) have the greatest instability in the estimates across the three models.

Overall, 15 states have a conservative estimate of "excess" employees that is 5 percent or greater. These include several relatively populous states: New Jersey, Indiana, Washington and Kansas. The results also reveal 13 states that have a *maximum* "excess" that is less than -5 – that is, that have a level of public employment that is 5 percent or more smaller than what the model predicts. Nevada is the largest negative outlier. Using even the -67.5 figure in column 3, to reach the "expected" number of state employees, Nevada would have to more than double its public workforce.

We return to these results below, but first we turn to the analysis of public sector pay.

2.2 The payroll cost of state public employees

For analysis of the pay of state employees, the dependent variable is the total annual payroll expenditures on state employees (in 2008, measured in millions of dollars). This does not include pensions paid to retired employees, a very important issue that we do not analyze. The Census Bureau publishes only payroll data for the month of March, so we multiply this number by 12 to get a rough estimate of the annual payroll. The independent variables include those used for public employees, but we add two additional ones. The first is the measure of state public employees (in FTEs). More employees will of course cost more money. The second is the cost of living in the state ("State cost of living"), which we measure using estimates by Berry, Fording and Hanson.[8] States with higher costs of living will have to pay higher salaries.

The regression results are given in Table 3. Model 5 includes all the variables except the two political variables. Only three variables are precisely measured: the cost of living, the number of state employees, and GDP. Model 6 adds the two political variables – Kerry Vote and percent white. The results are very similar to those of model 5, with only the three variables previously

[8]See William D. Berry Richard C. Fording, Russell L. Hanson. 2000. An Annual Cost of Living Index for the American States, 1960-1995. The Journal of Politics, Vol. 62, No. 2 (May), pp. 550-567. The data are from 2007 and were downloaded from http://www.uky.edu/ rford/replicationdata.html.

State	% State Employees that are "excess"		Range of predictions (%)	Number of "excess" state employees	
	(Min. prediction)	(Max. prediction)	(Col. 3 - Col. 2)	(Min. prediction)	(Max. prediction)
New Mexico	20.8	25.6	4.9	10,075	12,447
Alaska	16.7	24.3	7.6	4,316	6,290
New Jersey	12.3	18.2	6.0	19,165	28,477
Arkansas	12.0	14.9	3.0	7,310	9,128
Oklahoma	10.4	14.7	4.3	7,492	10,609
Iowa	10.2	16.7	6.5	5,544	9,085
Indiana	9.8	11.3	1.5	8,905	10,259
Washington	9.0	19.1	10.1	11,043	23,439
Kansas	7.9	16.7	8.8	3,648	7,674
Hawaii	7.8	30.3	22.4	4,698	18,124
Nebraska	7.7	12.6	4.9	2,496	4,079
New York	7.3	12.8	5.5	18,573	32,592
Kentucky	7.2	15.7	8.5	5,851	12,719
Utah	6.8	14.0	7.1	3,469	7,100
Vermont	5.0	10.8	5.8	754	1,634
North Carolina	4.0	12.3	8.2	5,898	17,905
North Dakota	3.9	10.9	7.0	701	1,968
Alabama	3.4	15.0	11.6	3,003	13,387
Missouri	3.2	5.4	2.2	2,857	4,830
Virginia	0.5	8.8	8.3	692	11,227
Michigan	0.2	7.1	6.9	238	9,992
California	-0.7	3.8	4.5	-2,605	14,932
Pennsylvania	-0.8	7.7	8.5	-1,347	12,370
Ohio	-1.0	1.4	2.4	-1,467	1,939
Maryland	-2.1	15.1	17.3	-1,883	13,504
Connecticut	-2.8	2.1	4.9	-1,854	1,395
Wyoming	-6.4	6.6	12.9	-829	854
West Virginia	-6.4	6.6	13.0	-2,504	2,594
Minnesota	-8.2	0.6	8.8	-6,470	477
Texas	-8.8	-2.6	6.2	-25,638	-7,593
Massachusetts	-9.4	-0.3	9.0	-9,138	-328
Louisiana	-9.6	2.2	11.8	-8,815	1,992
South Carolina	-10.7	4.0	14.7	-8,308	3,148
Mississippi	-11.0	14.4	25.3	-6,280	8,250
Idaho	-11.0	-8.8	2.2	-2,502	-2,008
Montana	-11.8	-3.9	7.8	-2,338	-780
Oregon	-11.9	2.8	14.7	-7,159	1,694
Delaware	-12.6	-4.1	8.5	-3,362	-1,100
Florida	-12.7	-8.2	4.5	-24,079	-15,539
Maine	-13.1	-5.8	7.3	-3,014	-1,334
New Hampshire	-14.0	-12.0	2.0	-2,761	-2,375
Tennessee	-14.1	-11.8	2.3	-12,147	-10,157
Arizona	-14.3	-7.8	6.5	-10,448	-5,672
Wisconsin	-17.1	-9.1	8.1	-11,824	-6,247
Rhode Island	-22.2	-9.3	12.9	-4,531	-1,897
Illinois	-22.5	-19.3	3.2	-28,894	-24,807
Georgia	-26.9	-8.0	19.0	-34,956	-10,349
Colorado	-27.3	-10.1	17.2	-18,923	-6,986
South Dakota	-42.6	-35.7	7.0	-5,716	-4,782
Nevada	-80.2	-67.5	12.7	-22,800	-19,200

Table 2: "Excess" and Insufficient Public Employment by State

mentioned having precisely estimated coefficients. Model 7 therefore estimates the model with only the three variables that have a robust relationship with pay. The coefficients for these three variables are stable across the three models as is the model's extremely strong fit.

Table 4 has the same structure as Table 2, with the states sorted by their smallest estimated residual from the three models. The estimates are more stable across these models than those for the number of employees, with a mean for the range of estimates of only 3.3 percent. And neither the minimum nor the maximum estimated values come disproportionately from one of the models. The largest skew in this regard is that for 23 states, the maximum residual comes from model 7.

By far, Iowa is the state with the greatest "excess" pay, with from 14.1 to 18.2 percent higher pay than one would expect in comparison with similar states. If Iowa's public sector payroll was that same that the model predicts based on comparisons with other states, it would spend 433-557 million less than it currently spends on state employee salaries. California is second on the list, with "excess" pay ranging from 2.09 billion to 2.42 billion. At the other extreme, Hawaii and Missouri stand out as states that spend far less than one would expect given their characteristics.

2.3 Discussion

We have argued that one way to think about whether a state has "too many" public employees (or too much public sector pay) is to compare it to similar states. We would reiterate that this approach is not a normative one – we make no claim about the optimal level of public employees, as any such claim would come down in large part to one's own ideological dispositions. Rather, we are simply asserting that if one can identify structural and political factors that influence the need and demand for state services, then one can use regression analysis to estimate how many public employees (or how much public sector pay) there would be in any given state based on that state's structural and political factors, and based on patterns across the states. In our analysis, then, claims that a state has "excess" or "insufficient" employees are based only on comparisons with other states having similar structural and political factors that affect need and demand.

One thing that is clear from the analysis is that for numerous states, estimates of need

	(5)	(6)	(7)
State cost of living	0.748***	0.619**	0.748***
	(0.185)	(0.195)	(0.126)
State employees (FTEs)	0.902***	0.980***	1.057***
	(0.068)	(0.080)	(0.014)
Population	0.154	0.108	
	(0.124)	(0.125)	
GDP per capita	0.248*	0.228*	0.186*
	(0.102)	(0.100)	(0.073)
Population Density	-0.000	-0.007	
	(0.013)	(0.015)	
Largest city size	-0.015	-0.007	
	(0.024)	(0.025)	
Poverty rate	0.037	-0.009	
	(0.082)	(0.085)	
Dependency Ratio	-0.187	-0.063	
	(0.240)	(0.268)	
Local public employees	-0.012	-0.032	
	(0.072)	(0.079)	
Kerry vote		0.122	
		(0.101)	
Pct. White		0.126	
		(0.096)	
Constant	-5.950***	-6.828***	-6.540***
	(1.501)	(1.559)	(0.752)
Adj. R-squared	0.992	0.992	0.992
N	50	50	50
Note: Std. errors in parentheses. $*\ p < .10, **\ p < .05, ***p < .01$			

Table 3: Log-log model estimating total public sector pay (millions).

State	% Public pay that is "excess"		Range of predictions (%)	"Excess" state pay ($ millions)	
	(Min. prediction)	(Max. prediction)	(Col. 3 - Col. 2)	(Min. prediction)	(Max. prediction)
Iowa	14.1	18.2	4.1	433	557
California	7.8	9.0	1.2	2,090	2,422
Rhode Island	7.6	9.3	1.8	87	107
Minnesota	6.8	11.1	4.2	306	497
Idaho	6.8	9.0	2.2	71	95
Maryland	6.8	7.1	0.3	324	339
Wisconsin	6.2	10.7	4.5	230	395
Alabama	6.1	10.5	4.4	251	434
Michigan	5.8	7.6	1.8	429	561
New Jersey	4.9	7.1	2.2	497	720
Kentucky	4.7	5.8	1.1	173	214
Nevada	4.0	10.9	6.8	64	171
Ohio	3.9	6.1	2.2	290	455
Connecticut	3.7	4.4	0.7	152	181
Alaska	3.4	8.2	4.8	48	116
Vermont	3.3	6.6	3.3	25	51
Oregon	1.4	4.7	3.2	45	148
Illinois	1.2	5.4	4.2	88	383
Montana	1.2	1.8	0.6	10	16
Arizona	1.0	3.1	2.0	37	109
Louisiana	0.8	4.8	4.0	35	205
Oklahoma	-0.2	3.7	3.9	-6	114
Delaware	-0.8	1.7	2.5	-10	23
Utah	-1.6	3.6	5.2	-39	88
Colorado	-2.0	2.7	4.6	-75	101
Indiana	-2.1	-1.7	0.5	-90	-70
Kansas	-2.2	-1.2	1.1	-46	-24
Arkansas	-2.3	1.5	3.8	-58	38
Tennessee	-2.9	-0.9	2.0	-109	-33
North Carolina	-3.4	-2.0	1.4	-224	-134
Mississippi	-3.7	2.7	6.4	-82	61
New York	-3.8	-2.9	0.9	-574	-435
Texas	-3.8	-2.5	1.4	-529	-338
South Carolina	-4.6	-1.3	3.3	-148	-41
Virginia	-4.8	-4.2	0.6	-295	-258
South Dakota	-4.9	-2.0	2.9	-28	-12
Washington	-5.1	-2.3	2.8	-333	-152
West Virginia	-6.0	-3.8	2.2	-91	-57
New Mexico	-6.1	-0.5	5.6	-128	-10
Maine	-6.4	-2.0	4.4	-68	-22
New Hampshire	-7.8	-2.6	5.2	-76	-26
Florida	-8.5	-5.4	3.1	-726	-462
North Dakota	-9.2	-6.3	3.0	-68	-46
Wyoming	-9.4	-5.9	3.6	-53	-33
Pennsylvania	-10.0	-8.0	2.0	-800	-641
Massachusetts	-10.5	-7.6	2.9	-584	-424
Georgia	-10.6	-5.5	5.0	-596	-313
Nebraska	-12.4	-9.9	2.5	-164	-130
Missouri	-24.8	-22.8	2.0	-846	-779
Hawaii	-26.2	-6.0	20.1	-756	-174

Table 4: "Excess" and Insufficient Public Sector Pay by State

and demand vary quite substantially depending on which variables are included in the statistical models. This instability reminds us that if there are important factors affecting demand that we have not included in the models, then the results could change. The instability also underscores the pitfalls that can exist with making empirical claims that are overly precise regarding the number of public employees that are "excess" or the amount of public sector pay that are "excess" in each state.

These caveats in mind, the analysis can identify which states, based on relative comparisons with other states, are the strongest and weakest candidates for public sector cuts. To this end, we summarize the results of our analysis graphically in Figure 2. For each state, we have taken the most conservative estimates of "excess" public employees and pay. By conservative, we mean we have selected the estimated residual that is closest to zero. The vertical axis plots 'excess' pay, and states located above the gray line at 0 have higher total pay than one would predict given the state comparisons, while states below the line have lower pay than one would predict. The horizontal axis plots the number of 'excess' state employees: states to the right of the gray vertical line have more employees than one would predict while states to the left of the line have fewer.[9]

The state that most clearly presents itself as a candidate for reductions in both pay and total employees is Iowa, which has 10.2 percent more public employees than predicted, and 14.1 percent higher pay than predicted. Among the most populous states, New Jersey stands out as the strongest candidate for exploring reductions of both the number and pay of public employees. Some states are clear candidates for reductions on one dimension but not the other. New Mexico, for example, has far more employees than the model predicts, but pay in New Mexico is basically exactly where it should be in comparison to similar states.

The results also underline that meaningful cuts do not seem at all advisable in some states. The number of public employees is far below what one would expect in Nevada (not shown), South Dakota and Illinois, to name the most extreme cases. And cutting pay would seem a poor strategy in Missouri or Nebraska. It would be difficult to make cuts in states that have negative residuals in

[9]The graph omits Nevada, which is such a strong negative outlier on the number of public employees that its inclusion distorts the graph considerably, making it difficult to read.

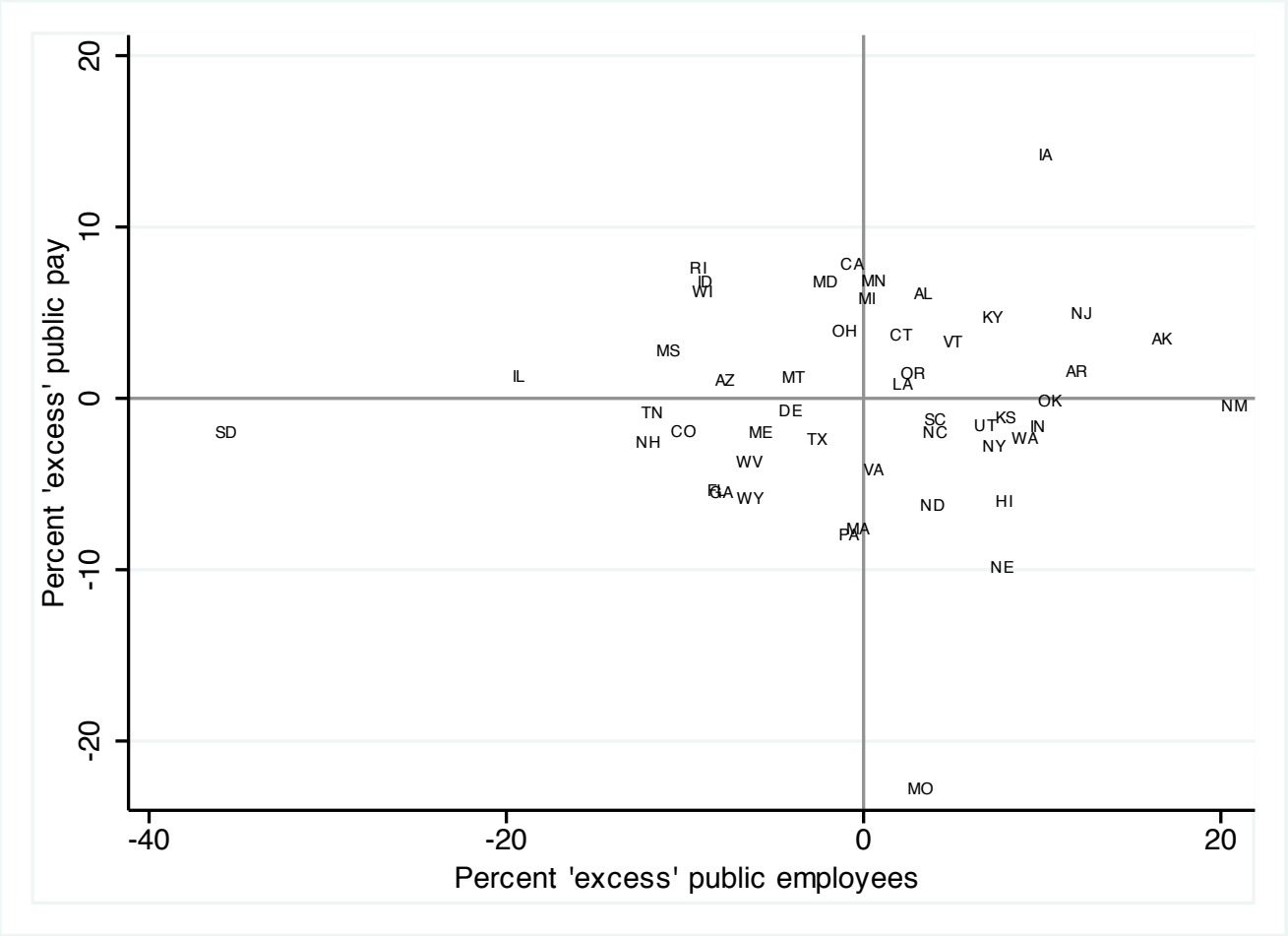

Figure 2: “Excess” employees and pay in the 50 states

our analysis without undermining (or further undermining) the provision of public services.

It makes little sense for us to comment on each state, and readers can focus on the state that is most interesting to them. But since the analysis provides a means of evaluating the proposals (and campaign promises) of governors and gubernatorial candidates that are prominent in current debates, we will discuss three of them. As mentioned in the introduction, Meg Whitman of California is promising to reduce the state workforce by upwards of 30,000 employees if elected. Our result suggests that her proposal is more than overly ambitious, as our conservative estimate indicates California actually has fewer public employees than expected from the comparisons with other states. By contrast, the analysis would support studying policies regarding public sector pay. By our most conservative estimate, public sector pay in California is more then 2 billion dollars higher than one would expect from the state comparisons (and this excludes pensions).

In New York Governor David Paterson has proposed a more modest, though still substantial, number of layoffs – 10,000 jobs.[10] Our most conservative estimate for New York is that the state has over 17,000 more public sector jobs than one should expect given the state comparisons, making Patterson's proposal seem quite reasonable. By contrast, public sector workers in New York earn less than one would expect from the state comparisons, so if one wishes to address budget problems in New York with public sector reform, freezing wages would seem to make little sense.

And in New Jersey, Governor Chris Christie is pushing a plan to eliminate 1,300 state jobs and reduce or freeze many salaries.[11] While his proposal has stirred up strong, organized opposition, our results suggest that if anything it is quite modest. By our most conservative estimates, public sector pay in New Jersey is 485 million dollars greater than one would expect based on state comparisons, and there are over 18,000 more public sector jobs than the state comparisons predict there should be.

It is of course possible that in places like New Jersey and Iowa, public sector workers are much more efficient than elsewhere, leading to higher pay, and that they do a wider variety of

[10] http://www.timesunion.com/AspStories/story.asp?storyID=941366
[11] http://www.nytimes.com/2010/03/17/nyregion/17budget.html

tasks, leading to more employees. Or it may be that New Jersey and Iowa have made a conscious decision to use public sector employment as a policy strategy for redressing inequality or helping disadvantaged groups. The analysis here therefore reminds us that further in-depth study of particular states may illuminate sensible explanations for the "excesses" and "insufficiencies" revealed here. But though further case study investigations are clearly useful, we hope this analysis provides an ideologically neutral way of thinking about which states are strong and weak candidates for reform, and about whether such reform should focus on the number of public employees or their pay.