Out of Balance?

Comparing Public and Private Sector Compensation over 20 Years

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Executive Summary

The current recession and the resulting fiscal difficulties faced by state and local governments have renewed interest in the compensation of the public workforce in regard to pay, pensions, and other benefits. In this report we examine the extent to which state and local government compensation in the United States is comparable to compensation in the private sector.

Levels of compensation help determine both the competence and the efficiency of governmental services. Excessive levels waste resources, depriving governments of the opportunity to address other costly objectives or to reduce burdens to taxpayers. Insufficient levels make it difficult, if not impossible, to attract workers of the quality needed to provide the services demanded by citizens. Comparability with the private sector is the most generally accepted standard by which economists and compensation specialists judge whether the processes for determining compensation in the public sector are working.

In this report we use publicly available data from the U.S. Bureau of Labor Statistics, along with an established methodology used by researchers since the 1970s, to compare worker earnings across and between private, state, and local sectors. We analyze differences in pay between each sector as reported for the last several decades, up to and including the latest estimates. We also estimate the variation of these trends across some of the largest states.

Next, to compare overall compensation across public and private sectors, we describe benefit levels and composition in public and private sectors. The earnings–comparability estimates are adjusted to include benefits.

The analysis finds that:

- Public and private workforces differ in important ways. For instance, jobs in the public sector require much more education on average than those in the private sector. Employees in state and local sectors are twice as likely as their private sector counterparts to have a college or advanced degree.

- Wages and salaries of state and local employees are lower than those for private sector workers with comparable earnings determinants (e.g., education). State employees typically earn 11 percent less; local workers earn 12 percent less.

- Over the last 20 years, the earnings for state and local employees have generally declined relative to comparable private sector employees.

- The pattern of declining relative compensation remains true in most of the large states we examined, although some state-level variation exists.

- Benefits (e.g., pensions) comprise a greater share of employee compensation in the public sector.

- State and local employees have lower total compensation than their private sector counterparts. On average, total compensation is 6.8 percent lower for state employees and 7.4 percent lower for local workers, compared with comparable private sector employees.

This recession calls for equal sacrifice, but long-term patterns indicate that the average compensation of state and local employees is not excessive. Indeed, if the goal is to compensate public and private workforces in a comparable manner, then the data do not call for reductions in average state and local wages and benefits.

Introduction

The Standard of Comparability

The principle of comparability contends that public sector workers should earn compensation to match that of similar workers doing similar work in the private sector. The standard of comparability in the setting of public sector compensation has at least a 150-year history in the promulgated standards of the U.S. federal government.[1] The natural variation in state and local governments means that the compensation of their workers depends on state-specific legislation and cannot be easily summarized. Nonetheless, many states incorporate comparability standards either into dispute-resolution processes[2] or as a central principle in the legislation of compensation. Many states have established surveys designed to support legislated or implied comparability standards.[3] Although these surveys of private employers are often limited to earnings, some include benefit costs.[4]

Research Often Finds Lower Earnings for State and Local Workers

Despite the persistent policy importance of the standard of comparability, much of the history of concern over public sector compensation has been fear that it was too low, not that it was too high. Kearney and Carnevale summarize the evidence prior to the mid-1960s by saying that "[u]ntil the rise of unions in the public sector, public employees were consistently underpaid relative to similar workers in the private sector."[5] Only after this period did public sector earnings begin to increase relative to their private sector counterparts. Thus, by the late 1970s, economists became very interested in whether comparability had been achieved. The earliest econometric study, published by Smith in 1976, found that state and local public sector workers enjoyed a negligible earnings advantage of 1 to 2 percentage points.[6]

The approach that Smith pioneered represents one of the two major methodologies for examining comparability. Her approach came to be known as the "people" approach, the object of which was to standardize for known earnings determinants associated with a particular worker: education, training, experience, job location, broad occupation, and other worker characteristics. After standardizing for these earnings determinants, remaining mean earnings differences between public sector (state and local) and private sector workers represent the public earnings differential. An earnings differential at or near zero would be evidence of comparability. The pattern of results from such studies has not changed dramatically since her early work, but it depends on both the particular sample and the characteristics that are used to standardize across workers.[7]

> *"…detailed results are somewhat mixed and dependent on time period, data source, and exact methodology."*

Belman and Heywood used data from the Current Population Survey, finding variation across seven major states. They found that in six states, the differential for local government workers was negative (i.e., public sector employees earned less than comparable private sector wages), and that for state workers, the differential was positive in four states and negative in three.[8] Lee used the National Longitudinal Survey with its panel data structure and particularly detailed worker characteristics. The most simple regression-based estimates suggested that female state workers earned 3 percent less than comparable private workers and that male state workers earned 8 percent less than comparable private workers. Female local workers also earned about 3 percent less, while male local workers earned essentially the same as private workers. Adjusting for detailed measures of ability (e.g., intelligence tests) causes these generally to move toward zero. Examining individual workers as they change sectors (fixed-effect estimates) suggests some positive public sector differentials for women but largely no difference for men.[9]

More recently, Lewis and Galloway used the large sample sizes of detailed census data to examine differentials in each state, after adjusting for worker characteristics. They combined state and local government workers within a state to generate a single public differential for each state. They concluded that "most state and local governments pay less than private firms in the same state for similar workers." While they present differentials that range from –15.2 percent in Kansas to +13.0 percent in Nevada, 44 of the states emerged with negative differentials (an earnings advantage for private sector workers), with most within a handful of percentage points of zero (comparability).[10] Borjas tracked public sector earnings differentials from the 1960s to 2000. His data suggest a fairly steady pattern over time for men but a declining relative position for

women in the public sector. By the end of his time period, the differentials were similar for both genders, at about 9 percent less in the local sector and 12 percent less in the state sector.[11]

Although this is not an exhaustive review, it makes clear that the detailed results are somewhat mixed and dependent on time period, data source, and exact methodology. Yet, the estimated earnings differential for state and local government workers is typically 10 percentage points or less and is negative more often than positive.

Public and Private Sector Workforces and Jobs Differ

The critical point to take from the "people" approach to estimating earnings differences is that the characteristics of state and local government employees differ dramatically from those of the private sector. State and local governments consist disproportionately of occupations that demand more skills and earn higher wages. As a consequence, the typical state or local government employee has substantially more education, training, and experience. Adjusting for these differences is required to compare apples to apples. Indeed, adjusting for these differences typically explains most of the observed earnings advantage of the typical state and local worker.

This line of research can be contrasted with the second broad methodology of detailed "position" comparisons. In these studies, efforts are made to compare duties of each job and to find positions with comparable duties in the both public and private sectors. Thus, junior accountants are compared with junior accountants, and computer operators with computer operators. The earnings differences across sectors within these narrow positions are then aggregated to construct an average difference.

The idea of comparing similar positions and duties is appealing, but requires judgment in matching positions that appear comparable but may not be identical. Even if the judgment is accurate, some positions and duties will simply not have reasonable equivalents across sectors. For instance, firefighters or police officers may simply not have a private sector equivalent. Indeed, Belman and Heywood show that, of the 509 detailed three-digit census occupation definitions, approximately 150 are unique to either the public or the private sector. These occupations account for as much as 31 percent of the public workforce.[12] Examining the Wisconsin State Wage Survey, Belman and colleagues found 124 occupational definitions that appear

in the private sector and either the state or local sector. These common occupations account for only 20 percent of all private sector occupations and only 43 percent of all state government workers.[13] Many of the tasks performed within private and public sectors appear to be done uniquely in only one of those sectors.

> *"…explanation of the standard of comparability and its measurement rarely makes it to the popular press."*

Despite these problems of comparison, a number of position-based studies of comparability have been undertaken. Among the more complete of them was that undertaken by U.S. Bureau of Labor Statistics (BLS) researcher Michael Miller in 1996. The BLS designed the Occupational Compensation Survey Program (OCSP) to allow one-to-one comparison of workers performing essentially the same job through wide portions of the economy, including state and local governments. This involved matching detailed job descriptions to 44 occupations broken into seven categories. The results are instructive. "Contrary to comparisons based on overall averages or broad occupational groups, private industry paid better for virtually all professional and administrative occupational job levels and for the majority of technical and clerical job levels. For blue-collar workers, the situation was mixed."[14] The patterns made clear that at the bottom of skill and responsibility hierarchies, state and local government employees had an advantage, but in the middle and upper portions, private workers had an advantage. Indeed, among the 80 comparisons possible among the white-collar jobs, private industry paid better than state and local governments in four out of five positions.

Individual studies within states illustrate some of the potential pitfalls of aggregating data. Ballard and Funari showed data from the American Community Survey as reported by the Michigan House Fiscal Agency. They reported that the unadjusted average earnings for employees of the state of Michigan exceed that of private sector workers. Yet, when comparing earnings within educational category (less than high school, high school degree, some college, etc), Michigan state employees earned less within every one of the eight educational categories.[15] This reflects the composition fallacy known as *Simpson's Paradox.*

The average state worker appears to earn more only because the state hires more of those in the highly educated categories that tend to earn more, not because workers with the same education earn more in the public sector.

It seems fair to conclude that the central tendency of both approaches to comparability—people or positions—suggests that the earnings of state and local workers are not excessive. There exist, of course, alternative standards of setting governmental compensation, but in the end, they may be of only modest assistance.[16]

> *"…state and local government workers across the country are more than twice as likely to have at least bachelor's degrees."*

Unfortunately, explanation of the standard of comparability and its measurement rarely makes it to the popular press. For example, *USA Today* routinely reports on aggregate pay and benefit differences between the public and private sectors. Most recently, that paper reported that the average compensation of public sector workers (sum of earnings plus benefits) was $11.90 per hour more than that of average private sector workers.[17] Local newspapers report similar differences in average compensation within their area. The *Sun Journal* in Lewiston, Maine, highlighted that state workers in Maine had average compensation that was around 9 percent higher than the average in Maine's private sector.[18] While recognizing that this did not prove waste, the editorial board called the difference "unsustainable" and said that something should change. Despite the tone of these and similar articles, the averages they report provide no evidence on the issue of whether or not public sector workers are overcompensated, as they fail to adjust for either the composition of positions or the characteristics of workers. The tone also appears difficult to reconcile with the concerns expressed by public administrators that it will be difficult to replace baby boomers about to retire, and that the general desire for government jobs has declined markedly since the late 1980s.[19]

The critical object of any comparability exercise is, and has been for decades, an effort to compare similar workers doing similar duties. It is recognized that the average public sector and private sector worker are not similar workers doing similar duties. This is a well-known condition to compensation specialists, who repeatedly show that the typical state and local public sector worker has more education, more tenure, and greater responsibilities. As but a single example, more than half of the jobs in the state of Michigan's workforce *require* at least a bachelor's degree to apply.[20] As shown in the data analysis, state and local government workers across the country are more than twice as likely to have at least bachelor's degrees. Thus, the fact that public sector workers receive greater average compensation than private sector workers should be no more surprising than the fact that those with more skills and education earn more. The question of comparability examines the differences between sectors after controlling for the differences in the workers and their jobs. Thus, both the politically charged newspaper reports and the hand-wringing public administrators could be correct. Public sector workers earn more on average than private sector workers, but less than they would earn if they took their skills to the private sector. The critical policy information is not in the first statement (it is largely irrelevant), but rather, is on the second statement—that of comparability.

Methodology for Estimating Comparability

In this study we present a new examination of comparability, using the standard people-based approach that has been commonly recognized since at least 1976.[21] Our examination uses individual worker data from the annual Outgoing Rotation Group (ORG) of the Current Population Survey (CPS). The CPS is a monthly survey of 50,000 to 60,000 households conducted by the U.S. Census Bureau for the Bureau of Labor Statistics. Among other purposes, the CPS serves as the basis of the monthly unemployment rate. The annual ORG collects data from all those households that are in the last month of their four months as participants in the survey.[22] The ORG data is standardized for question continuity by the National Bureau of Economic Research (NBER) and is publicly available.[23] We use the years 1983 to 2008, the most recent years available, containing all the needed variables. This allows us to provide not only a recent snapshot of the current degree of comparability but also a picture of the historical pattern over the last 25 years.[24]

The basic methodology estimates the log of hourly earnings for each employee for each year, holding constant a set of relevant earnings determinants provided

by the CPS. Among these determinants are the two critical sectors: state and local government. Thus, we isolate the influence of employment in these sectors while controlling for other characteristics that are typically relevant in determining wages, such as education, age, and other demographic characteristics.[25] We turn to these estimates after first describing critical differences between the public and private sectors apparent in the data. Next, we estimate the comparability differential in pay annually for the last several decades, breaking down the latest estimates to identify and demonstrate variations across some of the largest states. We proceed to describe benefit levels and composition in the public and private sectors, adjusting earnings-comparability estimates to gain a general flavor for overall compensation comparability. We conclude that state and local government workers are not generally overcompensated. Broadly speaking, comparability standards have probably been met on average but, if anything, workers in the state and local government are slightly undercompensated relative to their private sector counterparts.

For a more detailed description of study methodology and robustness checks, see the Technical Appendix.

Results of Comparability Analysis

State and Local Occupations Require More Education, and Employees Stay Longer

Table 1 presents the available earnings determinants and their means for three time periods. First, examining the data across all years (shown in the right-hand columns of Table 1), we note that workers in the state and local sector are disproportionately female, married, black, and unionized compared to in the private sector. Critically, they are also older and much more educated. In the private sector, only 22.6 percent of workers have completed college, whereas in the state sector the figure is 48.1 percent. In the local sector, this is 47.9 percent. The fact that state and local workers are more than twice as likely to have college degrees, seen in light of the large labor-market premium for educational qualifications, makes clear that simple averages in earnings should not be compared across sectors. This difference in the prevalence of college degrees simply reflects the jobs that need to be done in these sectors. The most common occupations in state and local sectors include teachers, social workers, nurses, and university professors.[26]

Table 1. *Means of Variables from the Current Population Survey*

	1983			2008			All years		
Variable	**Private**	**State**	**Local**	**Private**	**State**	**Local**	**Private**	**State**	**Local**
Hourly wage	$17.91	$19.03	$18.73	$20.57	$22.17	$22.15	$18.98	$21.19	$21.02
Male	60.7%	51.5%	50.1%	60.2%	43.2%	42.4%	60.0%	47.7%	45.9%
Married	65.6%	67.5%	71.6%	58.1%	63.8%	66.7%	60.5%	64.6%	68.4%
White	79.8%	77.9%	78.4%	66.6%	72.1%	73.2%	73.5%	75.0%	75.0%
Black	8.9%	13.2%	13.4%	9.6%	13.4%	11.5%	9.6%	14.1%	13.6%
Other race	2.7%	3.2%	1.7%	6.7%	6.2%	4.6%	4.2%	4.4%	3.0%
Hispanic	8.6%	5.8%	6.5%	17.1%	8.3%	10.8%	12.7%	6.5%	8.4%
No high school degree	18.1%	8.3%	10.5%	10.7%	2.3%	3.1%	13.8%	4.0%	5.4%
High school degree	40.5%	29.7%	26.1%	31.4%	17.5%	18.6%	36.6%	22.8%	23.3%
Some college	23.1%	21.2%	18.7%	29.6%	24.4%	25.1%	27.1%	25.0%	23.3%
College degree	11.3%	14.8%	16.2%	20.6%	28.7%	28.8%	16.0%	23.0%	23.2%
Post college	7.1%	26.1%	28.5%	7.7%	27.1%	24.5%	6.6%	25.1%	24.7%
Age, in years	35.8	38.6	39.8	39.8	44.1	43.7	37.4	41.6	41.7
Covered by union contract	20.7%	40.6%	55.5%	9.2%	39.1%	50.6%	13.0%	38.4%	52.3%
Number of Observations	90,687	5,509	10,880	67,433	5,287	8,386	2,176,203	144,034	251,632

Note: Monetary values are in 2008 dollars.

Table 1 also presents the means of these variables for the first and last year in our time series, giving a sense of how they may have changed over time. The comparison shows that although educational credentials have increased in all sectors, the gap between public (state and local) sectors and the private sector has remained enormous. The comparison shows an aging of the workforce that is most pronounced in the state sector, a sharp decline in private sector unionization, and an increasing concentration of women in the state and local sectors.

Although the raw wage differences in Table 1 suggest higher earnings for state and local workers, they do not adjust for the differences in earnings determinants emphasized in this report. As an illustration, if we limit our data to college-educated workers, those in state government earn 13 percent less than those in the private sector, while those in local government earn 11 percent less than those in the private sector. The overall averages frequently used (e.g., in the media) are misleading because even though those with college degrees earn less in the public sector, they earn more than those without college degrees. This problem of composition becomes amplified when you take into account that the public sector includes a larger share of jobs that require college education.

State and Local Workers are Paid Less than Comparable Private Sector Workers

We now explore how much of the raw wage difference between sectors can be attributed to basic earnings determinants, such as age, experience, education, and occupation. In our basic specification, we regress the log wage against education variables, personal and job characteristics, and indicator variables for each state of residence. Including the set of state indicators controls for differences in cost-of-living and earnings patterns and allows more nearly similar circumstances to be compared between public and private sector workers.[27] We estimate this specification separately for each year in two samples. The first sample includes all private sector workers and state government workers, and the second sample includes all private sector workers and local government workers. Including an indicator for government workers in each sample allows an annual estimate on the earnings difference between state and private workers, and between local and private workers, while holding constant the determinants of earnings.

To give a flavor of these estimates we show the regression results for a single year, 2008, in Table 2. The left-hand section shows the comparison of private sector workers to workers in state government. The

Table 2. *OLS Regression Results for 2008 CPS Data*

Variable	State and Private Workers		Local and Private Workers	
	Coefficients in %	t	Coefficients in %	t
Public sector worker	−11.0*	−16.80	−11.6*	−21.79
Male	20.2*	54.97	21.2*	59.18
Married	11.4*	30.32	10.6*	29.17
Black	−15.5*	−29.06	−15.0*	−28.89
Other race	−11.1*	−17.32	−10.3*	−16.26
Hispanic	−20.3*	−43.32	−19.6*	−42.80
High school degree	21.9*	32.10	22.4*	33.23
Some college	44.8*	58.73	45.2*	60.20
College degree	97.5*	101.73	97.1*	103.34
Post college	148.7*	114.13	147.0*	116.92
Age	5.0*	55.62	5.0*	56.97
Age squared	−0.05*	−48.14	−0.05*	−49.37
Covered by union contract	16.2*	27.58	15.0*	27.47
Adjusted R^2		0.412		0.412

*Significant at the 1 percent level.

Notes: Other variables controlled for but not reported are a constant term and state of residence. The excluded racial category is white. The excluded educational category is no high school degree. Coefficients are converted into percentage differentials.
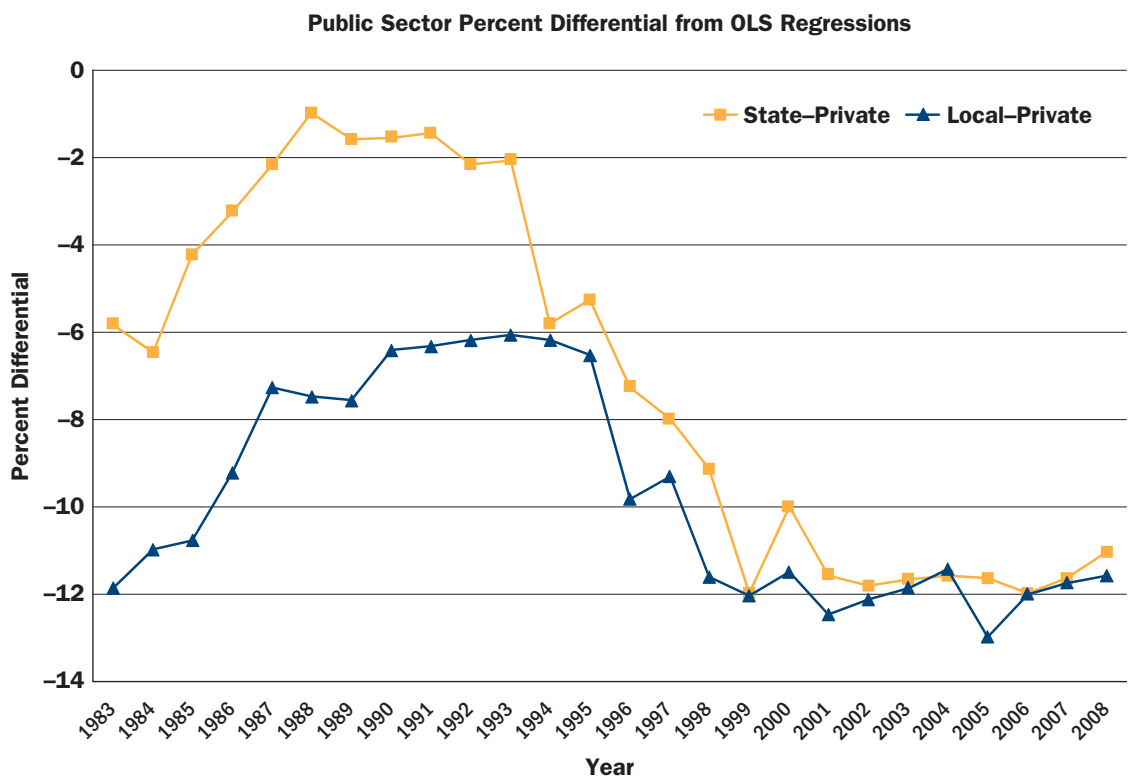
data in the table represent the percentage increases or decreases in actual wages associated with the variables.[28] Thus, the model suggests that men earn 20 percent more than women, high school graduates earn 22 percent more than dropouts, and college graduates earn 98 percent more than dropouts (essentially double), holding all other variables constant. The estimate for 2008 shows that state workers were paid *11 percent less* than their otherwise-equal private sector counterparts.

The right-hand section of Table 2 shows the analogous estimate for the comparison of local government and private sector workers. In 2008, local government workers were paid closer to *12 percent less* than their private sector counterparts. Thus, despite average wages that are some 12 or 13 percent higher, the adjusted wage gap in 2008 is roughly the same size, but negative (see Figure 1). The adjusted wage gap provides an estimate of comparability, and the estimate suggests state and local workers are, on average, underpaid, controlling for other determinants of wages. In other words, controlling for education and other characteristics, the data show that local government workers are paid substantially less than their private sector counterparts.[29] The major driver in this basic pattern is the fact that government workers have jobs that demand more education, which is not accounted for by raw averages.[30]

Pay Differential has Moved over Time against State and Local Workers

Figure 1 presents the estimated hourly earnings differentials (controlling for the earnings determinants) for state and local sectors for each year. An estimate of approximately zero is an indicator of comparability. The earnings differentials estimated for both the state and local sector are negative in every year. Over much of the early period, pay for state workers appears to be more comparable to private sector workers, but this comparability vanishes in later years. The state government differentials start out as single-digit negative, increasing toward zero in the late 1980s, then dropping sharply to a seemingly stable rate of –12 percent in more recent years. The state government differential began this period at –10 to –12 percent, rose modestly to around –6 percent, and then returned to a lower level of –12 percent. Recall that prior research, which had used a similar approach, found differentials of around –10 percent in 2000, the last year to provide that data.[31] Thus, the broad pattern that we identify has been presented before, but we isolate that earnings comparability has not been reached or improved since that research was conducted. If anything, the pay differential has moved several percentage points further from comparability.[32]

Figure 1
Public–Private Wage Differentials, 1983–2008

Public Sector Percent Differential from OLS Regressions

Legend: ■ State–Private   ▲ Local–Private

Y-axis: Percent Differential
X-axis: Year

The Same Pattern Holds across Many Large States

To compare variations across the nation, we examine several states with larger populations as separate samples. We then re-estimate the earnings equations with the observations associated with the individual state. Thus, state and local workers from California are compared with private workers from California. This goes beyond simply accounting for broad differences in earnings and cost of living by state and allows all of the earnings determinants to take coefficients that are unique to each state. We present the results for a series of seven states in Figures 2 through 8.

As might be anticipated, the patterns differ by state and, to some extent, by time. California (Figure 2) follows the hump-shaped pattern over time that was evident in the national sample. The differentials are routinely negative for local workers but emerge as positive for state workers at the peak of the "hump" in the late 1980s and early 1990s. Both state and local differentials have been persistently negative lately but are smaller (less negative) than those for the nation as a whole. The differentials in Texas (Figure 3, p. 11) show a smaller and earlier "hump," and the recent downward trajectory is more dramatic. Recently, both state and local differentials have averaged between −15 and −20 percent—far from comparability. The

"hump" shape is evident for New York (Figure 4), with positive differentials for both state and local workers at its height, but both differentials have remained modestly negative recently. Pennsylvania (Figure 5, p. 12) shows a weak downward trend, with local sector differentials being around −10 percent recently. In Illinois (Figure 6, p. 12), the differentials were never positive and are now strongly negative, as much as −15 percent. In Michigan (Figure 7, p. 13), local government differentials were always negative, and for only four years was the state government differential positive. Clearly, the overall pattern is one of negative, and often large, differentials, particularly toward the end of the selected time period. Only Florida (Figure 8, p. 13) stands out. For much of our time series, the local differential has been positive until recently, while the state differential is negative much more often.

Although patterns for the individual states vary, it is clear that an overall national pattern does not follow from strange compositional issues in which only a small number of states with negative differentials somehow dominate. The hump-shaped pattern with differentials declining only recently, and typically being negative, is evident across many of the states. Unfortunately, within low-population states, sample sizes are prohibitively small for drawing reasonable conclusions using CPS ORG data.

Figure 2
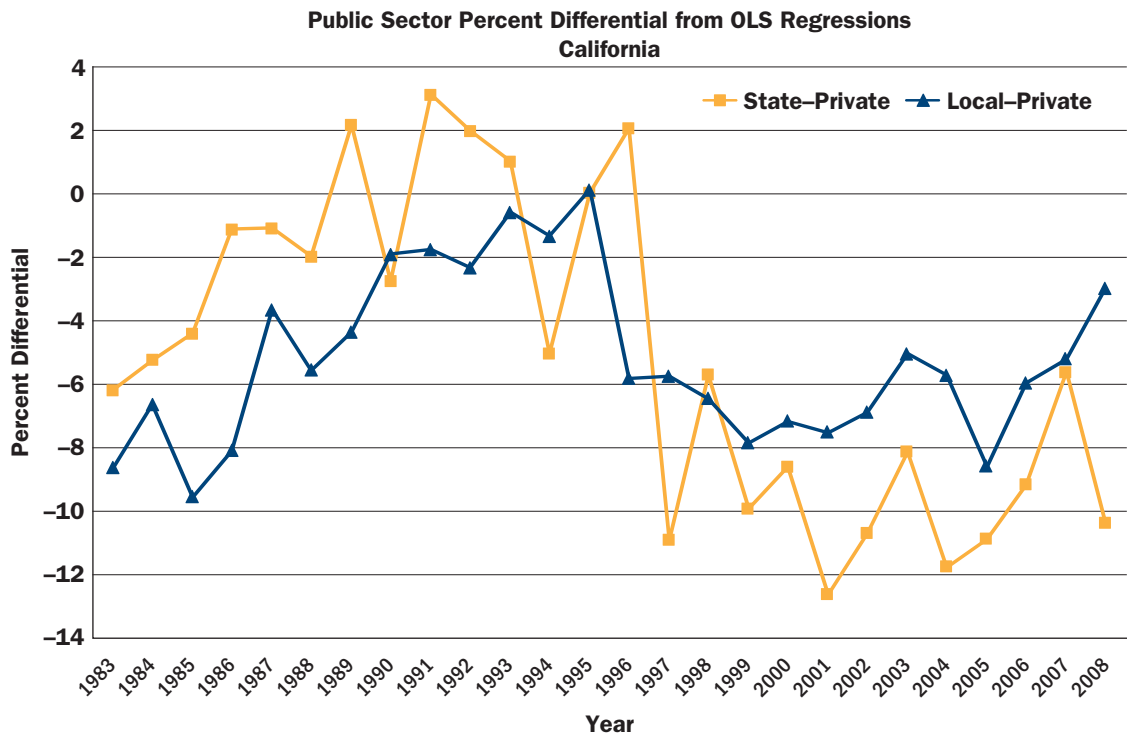*Public–Private Wage Differentials within California, 1983–2008*

Public Sector Percent Differential from OLS Regressions
California

Figure 3
Public–Private Wage Differentials within Texas, 1983–2008

Public Sector Percent Differential from OLS Regressions
Texas
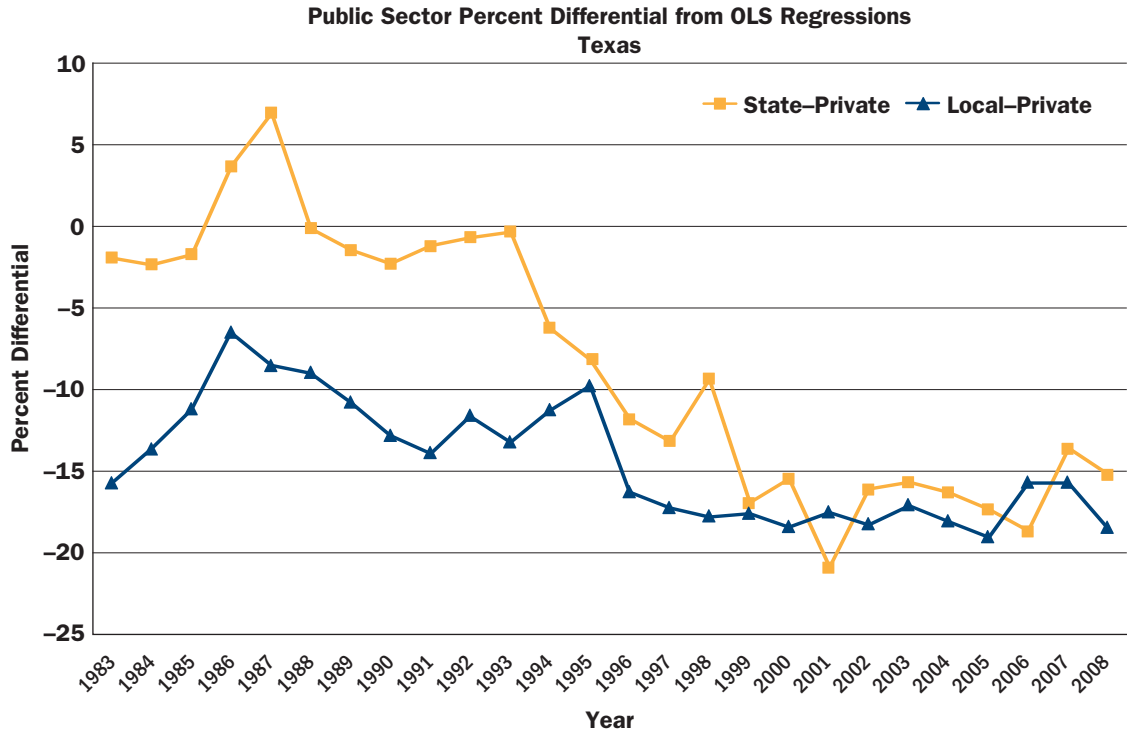
Figure 4
Public-Private Wage Differentials within New York, 1983–2008

Public Sector Percent Differential from OLS Regressions
New York
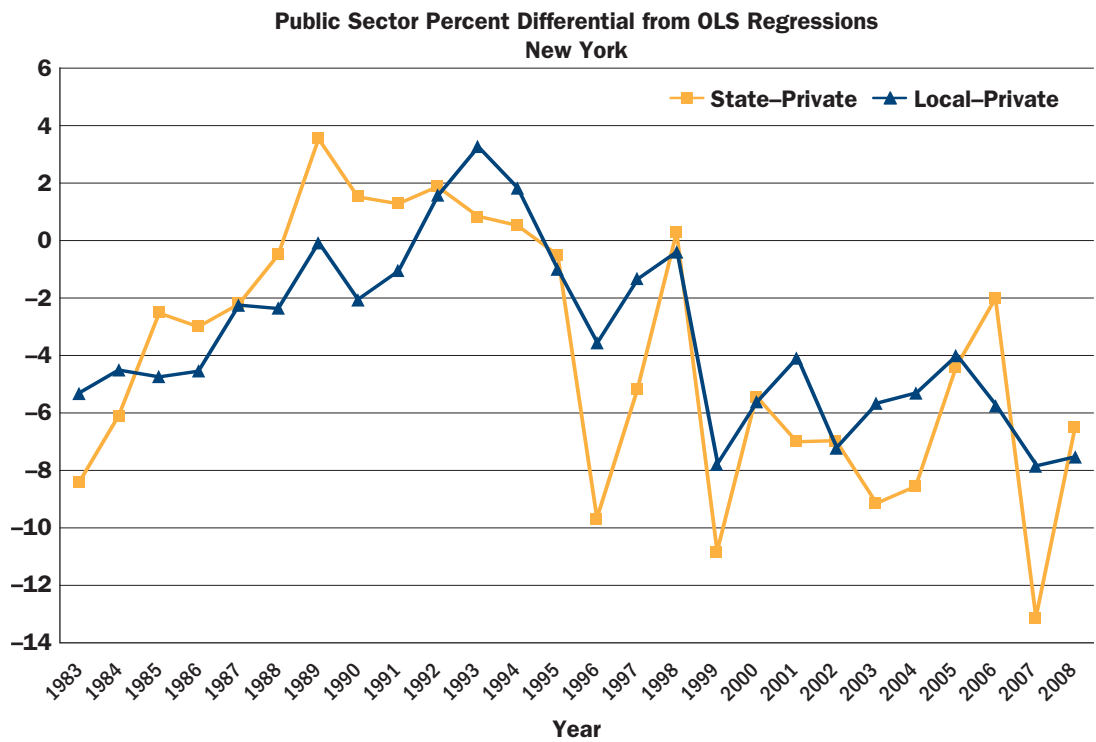
Figure 5
Public–Private Wage Differentials within Pennsylvania, 1983–2008

Public Sector Percent Differential from OLS Regressions
Pennsylvania
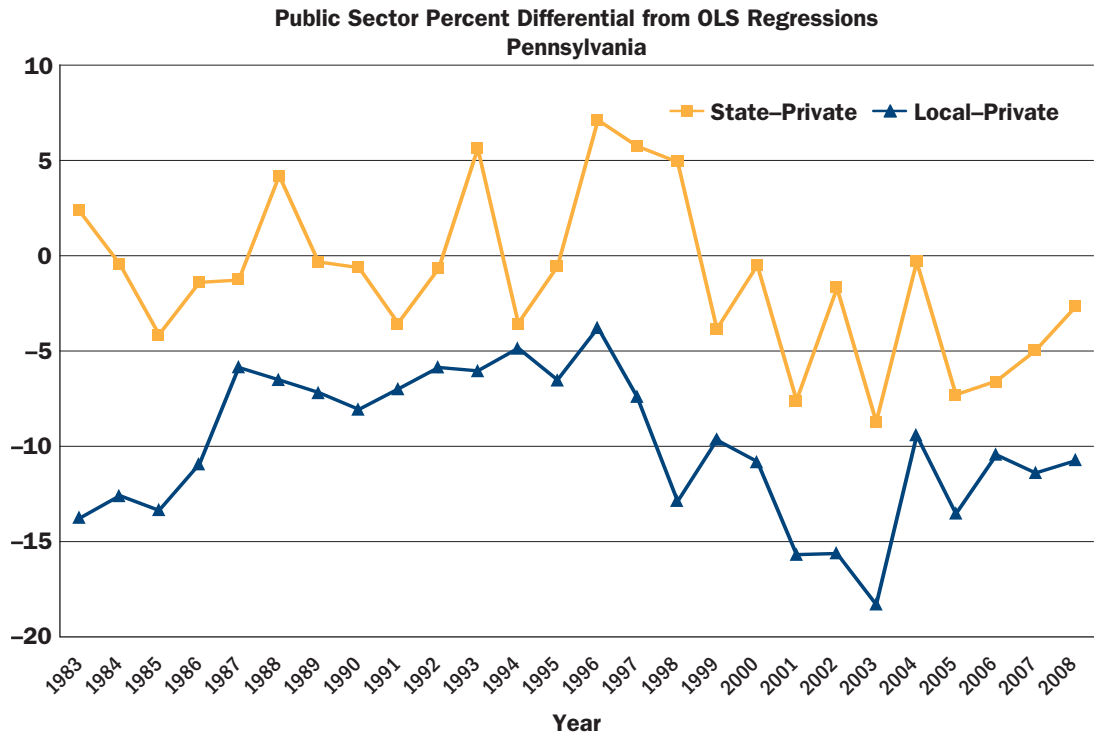
Figure 6
Public-Private Wage Differentials within Illinois, 1983–2008

Public Sector Percent Differential from OLS Regressions
Illinois
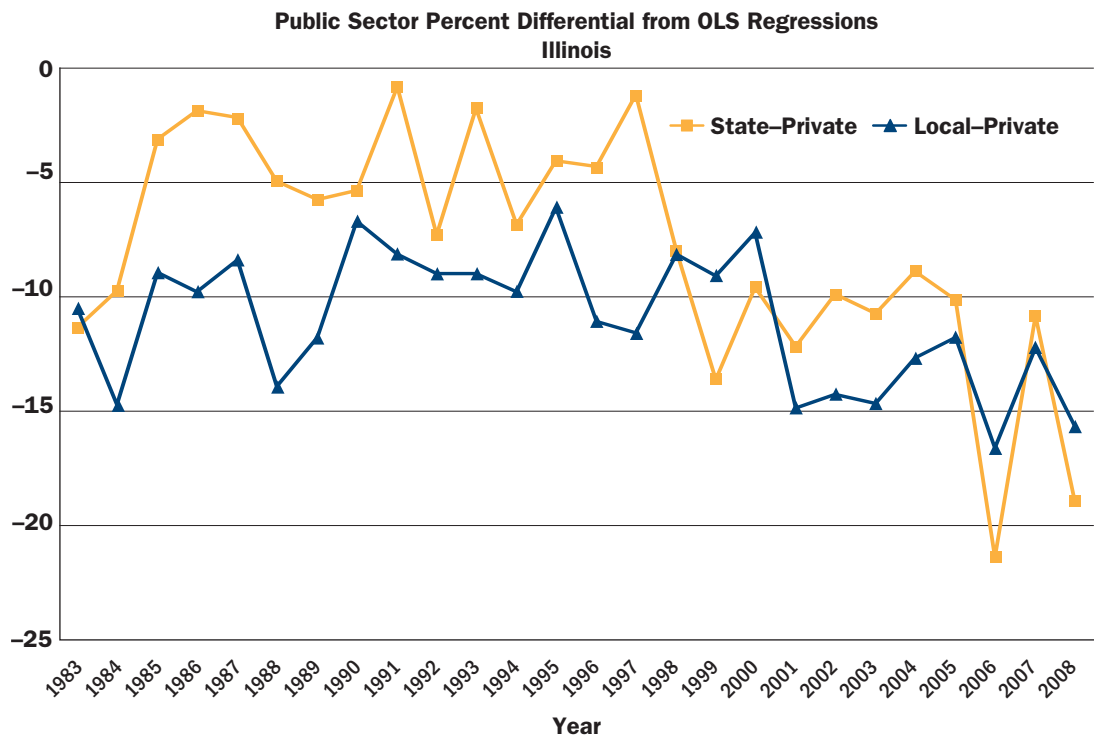
Figure 7
Public–Private Wage Differentials within Michigan, 1983–2008

Public Sector Percent Differential from OLS Regressions
Michigan
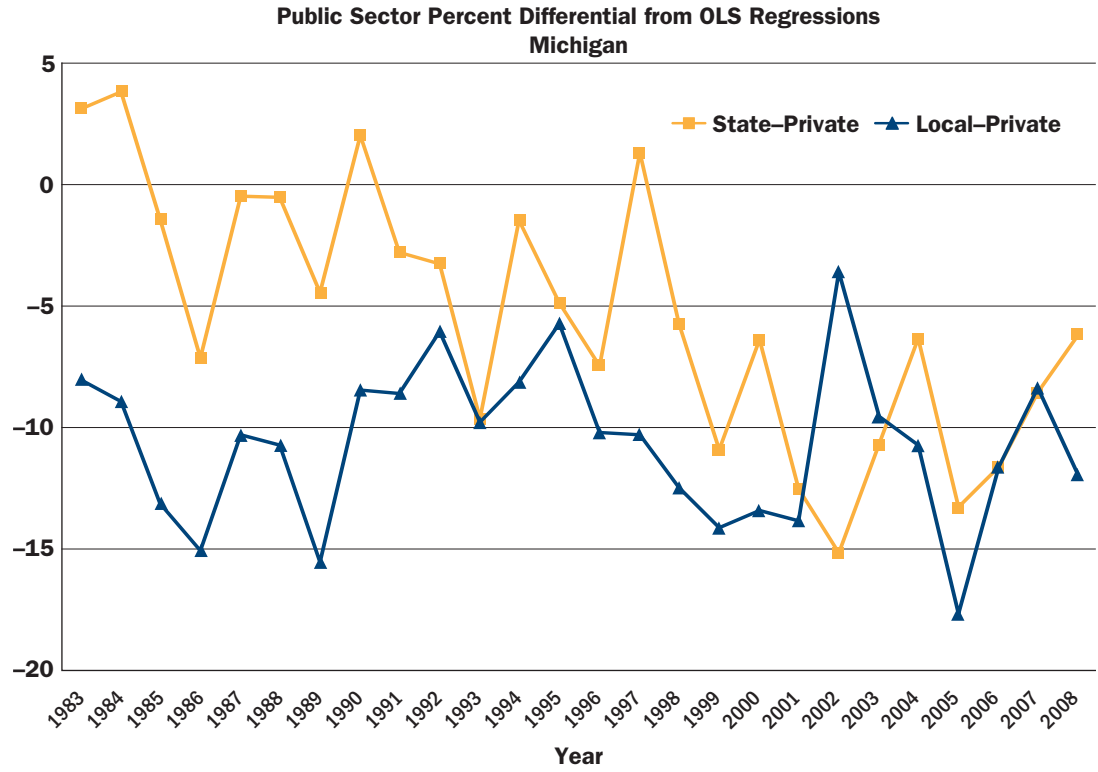
Figure 8
Public–Private Wage Differential within Florida, 1983–2008

Public Sector Percent Differential from OLS Regressions
Florida
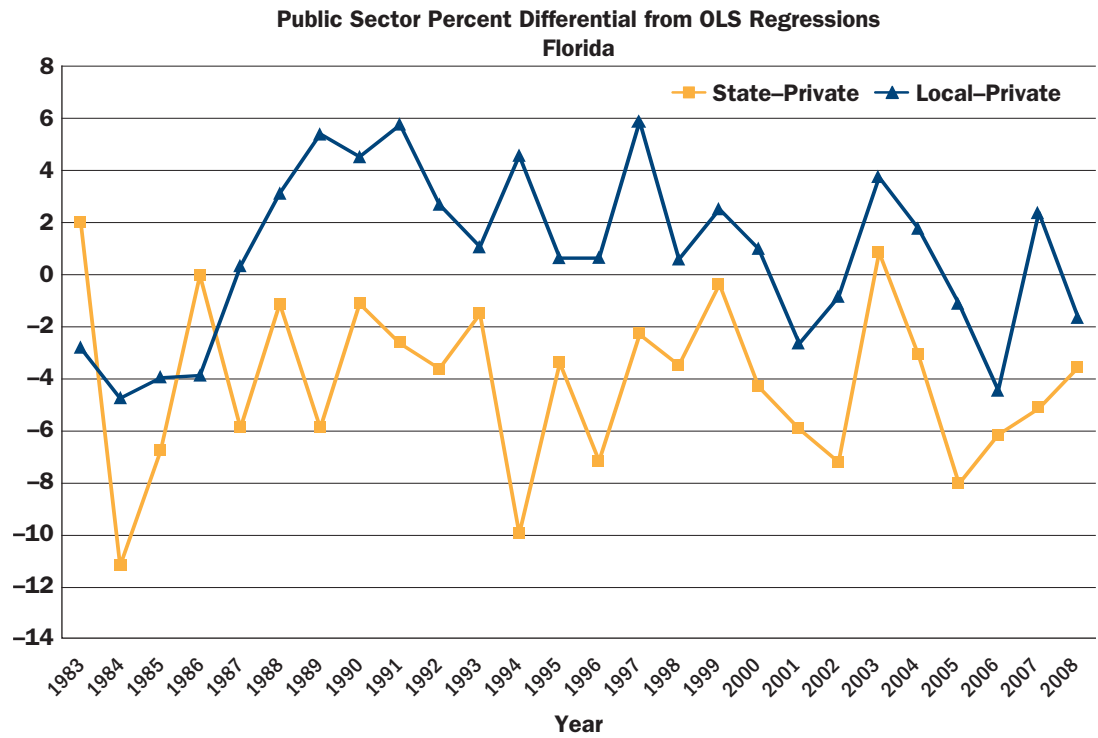
Table 3. *Average Public–Private Wage Differentials, 2000–2008*

	State–Private (%)	Local–Private (%)
Full country	−11.4	−12.0
California	−9.8	−6.1
Texas	−16.6	−17.6
New York	−7.0	−5.9
Pennsylvania	−4.5	−12.9
Illinois	−12.5	−13.3
Michigan	−10.1	−11.2
Florida	−4.8	−0.2

Note: Controls are the same as in Table 2.

State Workers Earn 11 Percent Less and Local Workers 12 Percent Less than Private Sector Workers

To summarize our findings, we have averaged the estimated earnings differentials for 2000 to 2008. These results, for both the nationwide sample and the individual states, are presented in Table 3. This gives average differentials of −11.4 percent for state workers and −12.0 percent for local workers. We also present the same averages for the individual states that we examined earlier in this section. The range for local workers is from −0.2 percent in Florida to −17.6 percent in Texas, whereas the range for state workers is from −4.5 percent in Pennsylvania to −16.6 percent in Texas.[33]

The Role of Benefits in Assessing Total Compensation

Although it seems that wages are below comparability in state and local public sectors, this report's ultimate objective is to make a comparison that includes other forms of compensation, including pensions and insurance. To do this, we need to have a reasonable working estimate of the extent to which state and local earnings are comparable with the private sector. In this section, we adjust our estimates of wage comparability to account for differences in benefits between state and local governments and the private sector.

We start with the basic realization that, if benefits comprise the same share of state and local compensation that they do of private compensation, the wage differential provides a suitable measure of total com-

pensation comparability. To see this, imagine that every worker across every sector receives benefits that are a fixed proportion of his or her total compensation (and so, of earnings). Using the wage determinants to examine these benefits would result in the same percentage differential as estimated using wages. We exploit this fact to adjust the wage differential with the actual data, which shows that the benefit share of total compensation in state and local government differs from that in the private sector.

Unfortunately, the CPS does not contain measures of the value of benefits[34]; instead, we use data from the National Compensation Survey.[35] We use the most recently available report, which details these costs on a quarterly basis from 2004 to the second quarter of 2009. We focus on costs from 2004 to 2008, to better dovetail with the last year of the CPS data. The benefit costs are itemized in nearly two dozen categories, including pensions, insurance, bonuses and supplemental pay, paid leaves, and legally required benefits (e.g., social security, Medicare).

Benefits Make Up a Slightly Larger Share of Compensation in the State and Local Sector

The information that is most relevant to our adjustment is the share of total compensation provided by benefits and its complement, the share of total compensation provided by earnings. Together these two shares represent the sum of all compensation. As emphasized, if earnings were the same share of total compensation in both state and local government and the private sector, our best estimate of the percentage difference in total compensation, that holds constant worker and job characteristics, would be exactly that estimated in the last section. Instead, the data make clear that benefits comprise a larger portion of compensation in state and local government; thus, earnings are a smaller share of compensation in state and local government.

Table 4 (p. 15) presents the relevant shares for two private sector samples and for the combination of state and local government. The total private firm sample has earnings that are approximately 71 percent of total compensation, while the large-firm private sector sample has an earnings share of 69 percent and the state and local sample has an earnings share of about 67 percent. These shares make clear that benefits are a slightly larger share of compensation in state and local government, although not dramatically different, particularly when compared to larger private sector firms. Within all benefits, individual category shares can be

Table 4. *Earnings and Benefits as Shares of Total Compensation*

Sector	Benefits as a share of compensation (%)	Earnings as a share of compensation (%)
Total private sector	29.15	70.85
Large firms in private sector	31.42	68.58
State and local government	32.65	67.35

Notes: The shares are averaged across quarterly estimates from 2004 to 2008. Data are from the National Compensation Survey and the associated Employment Cost Index published by the Bureau of Labor Statistics. Large firms are those with 100 or more workers.

Table 5. *Estimated Total Compensation Differentials (Pay and Benefits)*

Earnings estimation	State (%)	Local (%)
All private sector sample	−6.8	−7.4
Large-firm private sector sample	−10.4	−9.8

Note: Large firms are those with 100 or more workers.

rather different in one sector or the other. Thus, the share of all compensation associated with retirement and savings averages 6.5 percent in the state and local sector but only 4.5 percent in the private sector. In contrast, the share associated with supplemental pay and non-production bonuses is 4.0 percent in the private sector but only 1.2 percent in the state and local sector.

State and Local Workers Receive Less Total Compensation than Their Private Sector Counterparts

In the previous section, we held worker and job characteristics constant and estimated a resulting percentage difference in wages equal to −11.4 percent for local government workers. This implies that the ratio of local government to private wages is 0.886. If workers in each sector had earnings as the same share of total compensation, that ratio would be our best estimate of the ratio of total compensation. We know that, because the share that benefits comprise for state and local workers is larger, the appropriate ratio of total compensation will be larger than that for earnings alone. The implied adjustment multiplies the ratio of local to private wages, 0.886, by the ratio of private earnings share to local earnings share.[36] Using the all private sector earnings share, the second ratio is 1.052 (.07085/0.6735), and when multiplied by the earnings ratio, yields a total compensation ratio of 0.932. This implies a total compensation differential of −6.8 percent. Thus, assuming the determinants of benefits match the estimated determinants of hourly earnings, and adjusting for the fact that state and local compensation is more heavily oriented toward benefits, the

local government workers receive less than comparable total compensation.

Table 5 presents the state and local total compensation differentials, applying this methodology to both state and local governments using both of the full private sample and large-firm private sample earnings to compensation ratios from Table 4. The reason for including the large-employer share (employers with 100 or more workers) is that most government employers are large employers, and recognizing this may increase the degree of comparability. Certainly, the provision of health insurance and pensions are well recognized to positively vary with the size of the employer in the private sector.[37] Each of these adjustments results in a total compensation differential that adds to the relative position of state and local workers. The resulting estimates for the total compensation differential range from essentially 0 percent to −10 percent for local workers and from −2.5 percent to −10 percent for state workers. In short, incorporating benefits makes state and public workers appear somewhat less poorly compensated, but our estimate suggests they still receive less total compensation than similar private sector workers.

While the assumption that the determinants of benefit values mimic the determinants of wages could be debated, it recognizes a crucial point. Benefits should be expected to be higher if the public sector workers are more highly educated and doing jobs that command higher earnings. In the private sector, benefits are greater for the more educated. As the public sector consists disproportionately of the educated, we would expect the average level of benefits to be higher in the public sector.[38] As with earnings, the average comparison of benefit levels between the public and private sectors reveals nothing about comparability in compensation between the two levels. Our adjustment process recognizes this point and serves to emphasize, at minimum, that compensation in the public sector is not excessive.

Many State and Local Workers Contribute to the Cost of Benefits

The costs of benefits paid by employers may represent only a portion of the full costs. A share of these costs can be moved to employees, as most employees contribute to their pension and health insurance costs. The required contributions of state and local employees are modestly lower than that of private employees, but the magnitude of these differences is small.

The National Compensation Survey shows that in March 2009, the share of family medical coverage plans paid by private sector employees averaged 30 percent, while that share paid by state and local employees averaged 27 percent. Interestingly, if one limits the size of the employer to 500 workers or more, the share by private sector employees is only 24 percent, while the state and local share remains 27 percent.[39]

The National Compensation Survey indicates that 66 percent of private workers have required contributions to retirement plans but that 58 percent of state and local workers have required contributions. Yet, within the realm of defined benefit plans, the majority of state and local government workers have required contributions, while private employees typically do not have required contributions.

Last, it is important to understand that 28 percent of state and local workers are not eligible for Social Security, and their pension plans should be compared with the combination of private pensions and social security. Munnell and Soto (2007, p. 6) reported that, when limiting state and local pensions to those in which workers are eligible for social security, the employee contribution rate averages 5 percent. This can be compared to the private sector average contribution rate of 6 percent for defined-contribution plans and essentially zero for defined-benefit plans.[40] Thus, while the available data make it difficult to pinpoint the extent of differences in employee contributions, there is no indication that they would be of the scale sufficient to reverse the findings that we have provided on the overall role of benefits.

Conclusion

In this study we found that state and local workers are compensated less than their private sector counterparts. We implemented a standard comparability exercise, using the CPS and following common methodological choices that reflect the heart of the discipline. Our results of lower compensation for state and local workers are consistent with previous findings, and we expand on them. The differentials were evident by 2000 in the work of others, and the patterns identified have either remained or grown since then. Although a comparison of unadjusted average earnings will show that wages are higher among jobs in state and local government, this result is largely due to the fact that the workers in those sectors have more education. Holding education and other characteristics the same, typical state and local workers earn an average of 11 percent less and 12 percent less, respectively, than comparable private sector workers.

We use aggregate employer data on benefit costs to adjust the earnings differentials estimated. Workers in the state and local sector receive a slightly larger share of their compensation in benefits, but it is not dramatically larger. When we account for this difference, most of the estimates remain negative, suggesting lower total compensation in state and local sectors after accounting for worker and job characteristics.

There are several implications of our exercise. First, the compensation of state and local workers is not excessive. Second, this remains true when including benefits. Third, the pattern of results over the last 20 years has generally been one of declining relative earnings of state and local workers compared to similar private sector workers. Fourth, this remains true in most of the states that we examined, although some heterogeneity exists. These implications lead to the policy prescription that now is not the time to advocate for large-scale rollbacks in the compensation of state and local workers. Although the current recession calls for equal sacrifice, the long-term pattern indicates that state and local workers are not, on average, overcompensated. If the goal is to compensate state and local sector employees in a manner comparable to those in the private sector, the data do not call for reductions in state and local wages. If anything, they call for increases.

Technical Appendix

Detailed Methodology

As mentioned in the report, we present an examination of data using the standard people-based approach to analyzing private–public sector comparability that is commonly used since Smith.[41] Our examination uses data from the annual Outgoing Rotation Groups (ORG) of the Current Population Survey (CPS). The earnings data identify usual weekly earnings, which we convert to hourly wages by dividing by usual weekly hours. We limited the sample to those working full-time by excluding those working less than 35 hours per week.[42] We also excluded resulting wage calculations that are less than $1 per hour and more than $500 per hour. An important note is that some CPS observations have allocated data for earnings and hours. The survey imputes (rather than measures) when data on hours and earnings are not reported. We excluded all such allocated data to avoid the issue of match bias in the resulting estimates.[43]

The CPS data also clearly identify workers who are employed by either a state or a local government. We kept the two levels of government separate in all estimations, presenting an estimate of comparability for each year for both levels. The earnings of workers at these two levels were compared to workers who are employed (not self-employed) in the private sector, and earnings were estimated according to the following equations for each year and for the state government–private sector sample and the local government–private sector sample, respectively:

$$\ln w_{it} = X_{it}\beta_t^1 + S_{it}\delta_t^S + \varepsilon_{it}$$

and

$$\ln w_{it} = X_{it}\beta_t^2 + L_{it}\delta_t^L + \varepsilon_{it}$$

where for worker i in time t, lnw is the natural log of the average hourly wage, X is a vector of earnings determinants (gender, marital status, race/ethnicity, education, age, union status, state of residence, and a constant term), S is an indicator variable of whether the worker is employed in the state government sector, L is an indicator variable of whether the worker is employed in the local government sector, and ε is a random error term. The parameters to be estimated include the two coefficient vectors β^1 and β^2 and δ^S and δ^L. The latter two are critical for this study, as

they indicate the log-wage differential between comparable state government and private sector workers and between comparable local government and private sector workers.

Robustness Checks

As a robustness check, we explored a second variant of the earnings equations that includes occupational controls. The proper use of occupational controls is much disputed in the academic literature on public wage differentials. As a theoretical matter, even relatively broad occupational groups can be highly specific to either the public or the private sector.[44] There are few blue-collar production workers in the public sector and virtually no fire and police workers in the private sector. The statistical consequence of controlling for completely unique occupations is, essentially, throwing out large segments of the workforce from the comparability exercise.[45] This may be appropriate, but it is done at the cost of offering a judgment based only on those workers which are not in unique occupations. Borjas, in his study of the differential over time, simply excluded all occupational controls, as we did in our first set of estimates.[46]

In providing a comparison that includes occupational controls, we faced a practical issue. The system of occupational classifications changed in 2000 in a way that makes maintaining a consistent set of classifications difficult. We adapted by using the latter set of classifications and cross-walking back to earlier years to maintain the same approximate classification. We present this second variant on the estimates as an alternative that attempts to more closely compare those doing similar work, but we recognize and acknowledge both the imprecision that we have introduced and the problems associated with occupations that are nearly unique to either the public or private sector. We show the results for 2008 in Table A1 (on page 18) and over time in Figure A1 (on page 19). The percentage differentials continue to be negative, suggesting that public sector workers earn less, but they emerge as smaller negative differentials. This pattern is confirmed in the state-specific regressions reported in Figures A2 through A8, Table A2, and Table A3 (on pages 19–23).

As further robustness checks, in computing the state and local differentials over time, we used two alternative techniques. First, we used median regressions within each year, as the typical mean regressions may

Table A1. *OLS Regression Results for 2008 ORG CPS Data with Occupation Controls*

	State and Private Workers		Local and Private Workers	
	Coefficients in %	t	Coefficients in %	t
Public sector worker	−6.5*	−9.63	−3.7*	−6.28
Male	17.1*	44.35	17.3*	45.78
Married	9.3*	26.70	8.6*	25.43
Black	−11.6*	−22.62	−11.7*	−23.35
Other race	−10.3*	−16.90	−10.1*	−16.89
Hispanic	−16.5*	−36.54	−15.9*	−35.91
High school degree	17.1*	26.88	17.2*	27.44
Some college	31.3	44.21	31.3*	44.92
College degree	64.2*	72.12	65.2*	74.35
Post college	99.2*	83.20	100.9*	86.63
Age	4.4*	51.87	4.4*	53.07
Age squared	−0.043	−44.24	−0.043*	−45.40
Covered by union contract	20.3*	35.66	20.9*	38.85
Business/financial ops	−6.8*	−8.67	−5.8*	−7.44
Computer and math	7.2*	7.53	7.9*	8.23
Engineering	1.1	1.14	1.4	1.37
Science	−12.2*	−7.91	−9.7*	−6.09
Social service, arts, sports	−22.7*	−23.34	−22.1*	−22.85
Legal	1.6	1.04	1.0	0.66
Education, library	−33.0*	−36.84	−34.8*	−46.63
Healthcare practitioner	−5.4*	−6.32	−5.1*	−5.93
Heathcare service	−33.4*	−33.24	−33.1*	−32.85
Protective service	−30.3*	−25.03	−24.1*	−23.18
Food prep and serving	−43.3*	−62.26	−43.1*	−62.56
Cleaning and maintenance	−41.0*	−51.23	−40.5*	−52.47
Personal care and service	−40.3*	−41.17	−38.9*	−39.60
Sales	−25.7*	−44.90	−25.2*	−44.31
Office and admin support	−27.9*	−51.38	−27.7*	−51.52
Farming, fishing, forestry	−44.1*	−32.43	−44.0*	−32.35
Construction and extraction	−18.6*	−25.59	−18.3*	−25.47
Installation, maintenance, repair	−19.7*	−25.20	−19.3*	−24.95
Production	−28.7*	−47.07	−28.1*	−46.42
Transportation	−32.9*	−50.88	−32.5*	−50.89
Adjusted R²		0.481		0.480

*Significant at the 1 percent level.

Notes: Other variables controlled for, but not reported, are constant term and state of residence. The excluded racial category is white. The excluded educational category is no high school degree and the excluded occupational category is managerial. Coefficients are converted into percentage differentials.

Figure A1

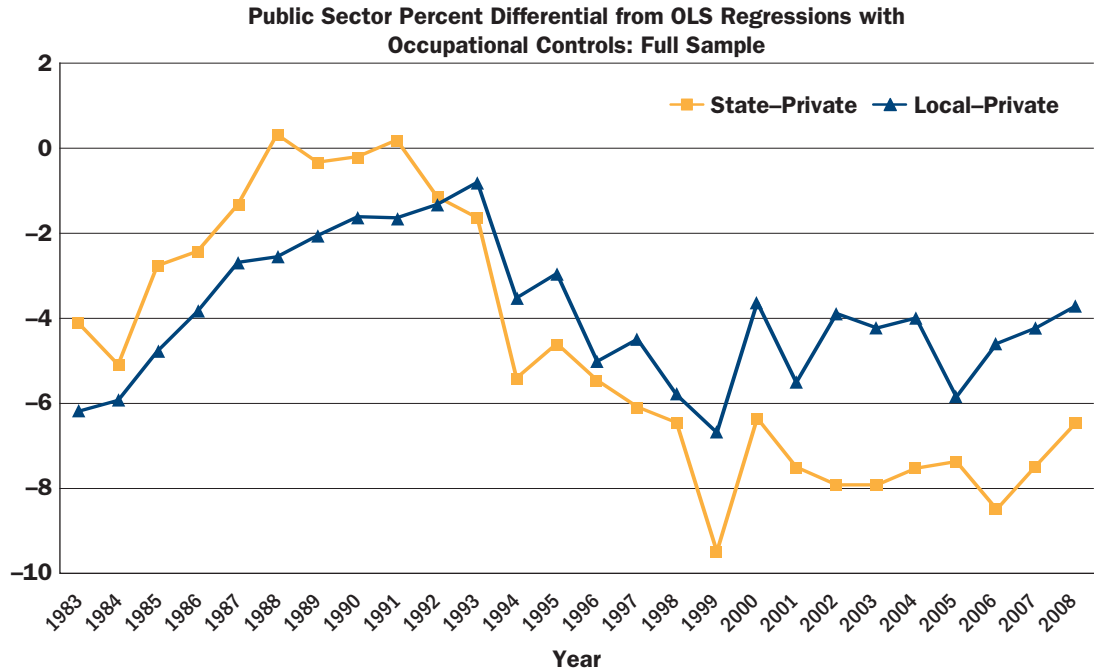*Public–Private Wage Differentials for Full Sample Controlling for Occupation, 1983–2008*

Public Sector Percent Differential from OLS Regressions with Occupational Controls: Full Sample

Table A2. *Average Public–Private Wage Differentials with Occupation Controls, 2000–2008*

	State–Private (%)	Local–Private (%)
Full country	−7.4	−4.4
California	−6.9	−1.3
Texas	−10.2	−7.7
New York	−5.8	−1.5
Pennsylvania	−2.6	−6.7
Illinois	−7.2	−2.3
Wisconsin	−6.2	−3.9
Florida	−3.0	−6.1

Note: Controls are the same as in Table A1.

Table A3. *Estimated Total Compensation Differentials with Occupation Controls*

Earnings estimation	State (%)	Local (%)
All private sector sample	−5.7	−2.7
Large-firm private sector sample	−2.5	0.1

Note: Large firms are those with 100 or more workers.

be misleading. The results in Figure A9 (p. 23) show that it makes essentially no difference in the general pattern of results if median regressions are used rather than standard OLS regressions.

Second, we estimated each year's state and local differential using the Oaxaca decomposition technique.[47] In this technique, we estimated private-sector earnings (assuming, if you will, that it represented market returns) and projected the earnings of each state and local worker (assuming that their characteristics were rewarded in the same fashion). As Figure A10 (p. 24) shows, the resulting percentage difference remains negative, and the years 2000 to 2008 actually

show a couple of percentage points reduction from those shown in Figure 1.

Standards Other than Comparability

Although alternative standards of setting governmental compensation exist, they may be of only modest assistance. Thus, one view is that the public sector compensation should be judged by "ability to pay." This involves the difficult tasks of measuring that ability and distinguishing inability from reluctance. Certainly communities can face financial stringency, but arguments for public sector wage relief may reflect either

Figure A2
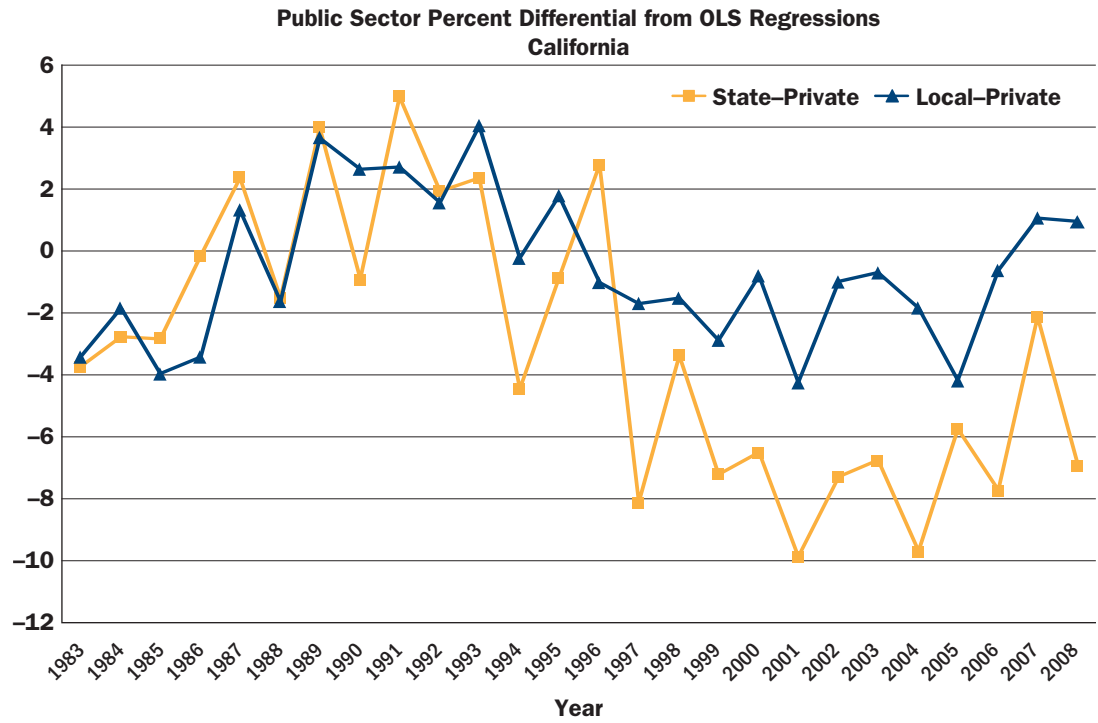*Public–Private Wage Differentials within California, Controlling for Occupation*

Public Sector Percent Differential from OLS Regressions
California

Figure A3
Public–Private Wage Differentials within Texas, Controlling for Occupation

Public Sector Percent Differential from OLS Regressions
Texas
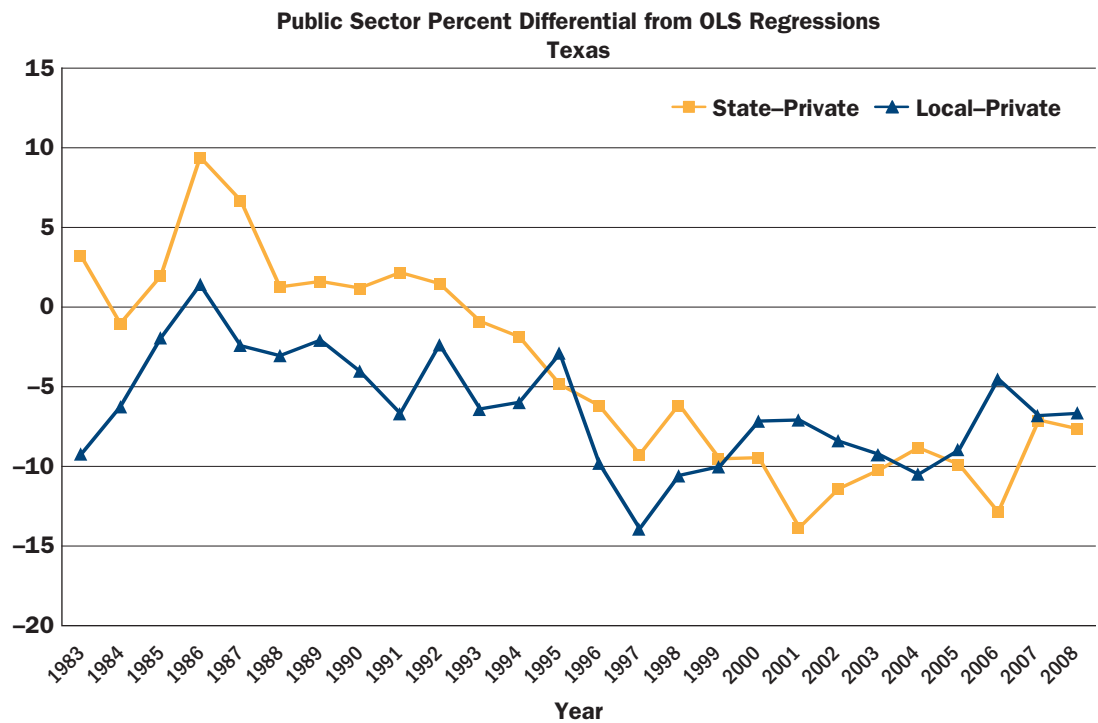
Figure A4
*Public–Private
Wage Differentials
within New York,
Controlling for
Occupation*

Public Sector Percent Differential from OLS Regressions
New York
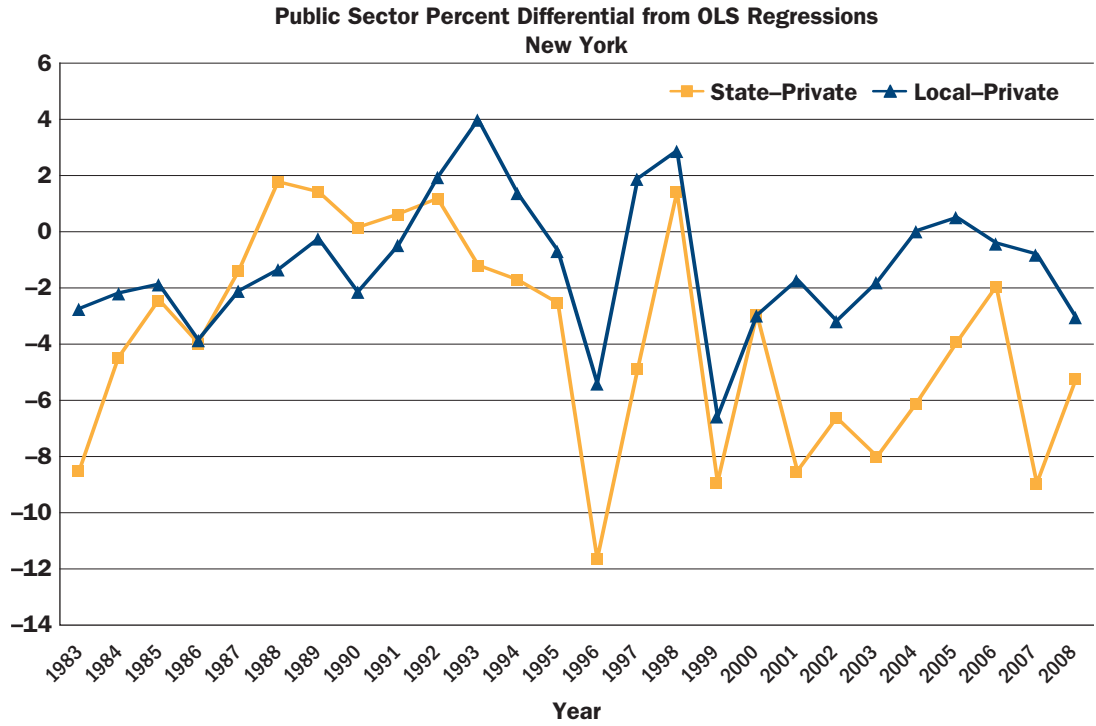
Figure A5
*Public–Private
Wage Differentials
within Pennsylvania,
Controlling for
Occupation*

Public Sector Percent Differential from OLS Regressions
Pennsylvania
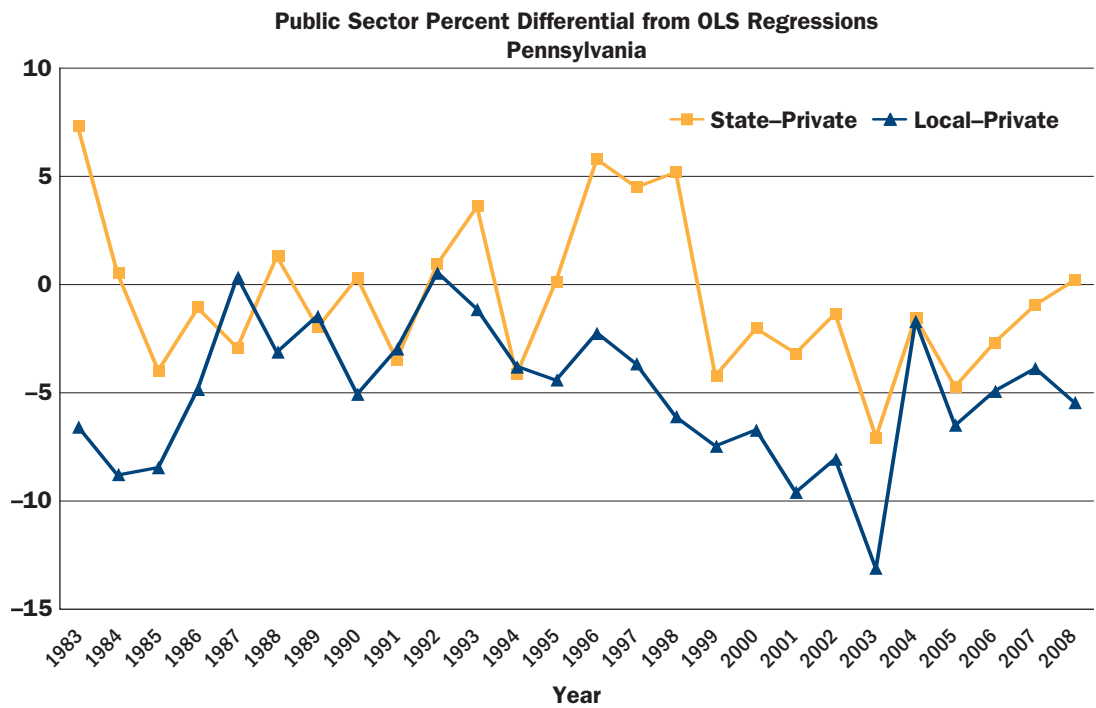
Figure A6
Public–Private Wage Differentials within Illinois, Controlling for Occupation

Public Sector Percent Differential from OLS Regressions
Illinois
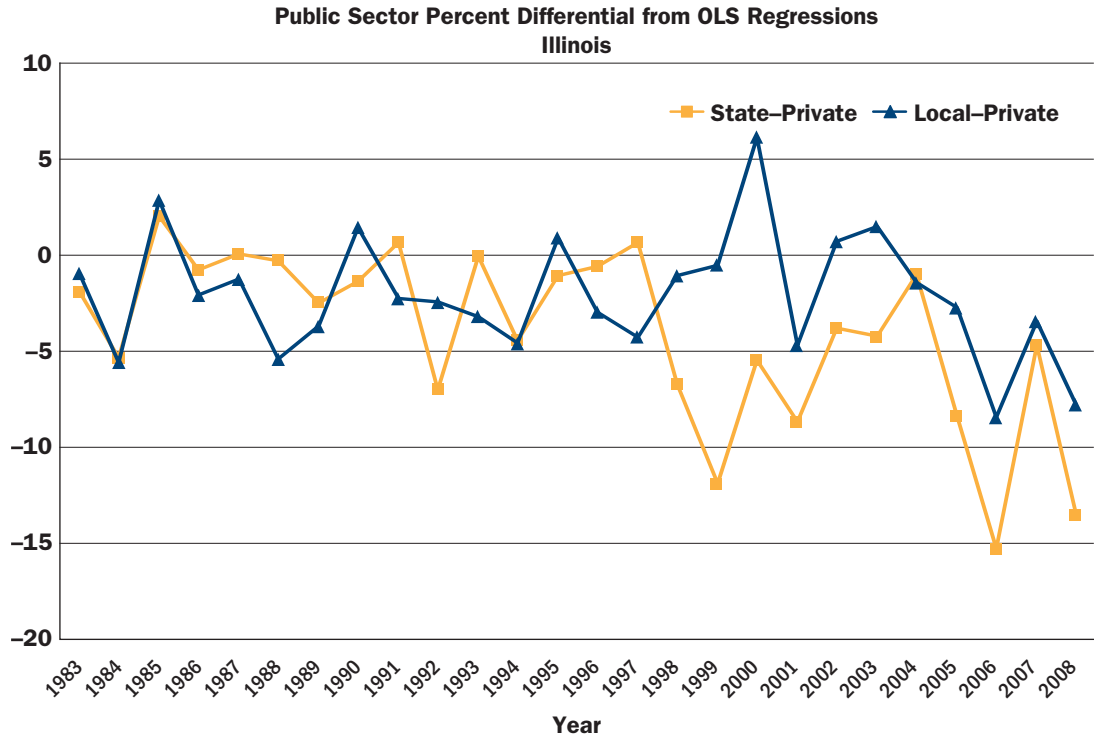
Figure A7
Public–Private Wage Differentials within Michigan, Controlling for Occupation

Public Sector Percent Differential from OLS Regressions
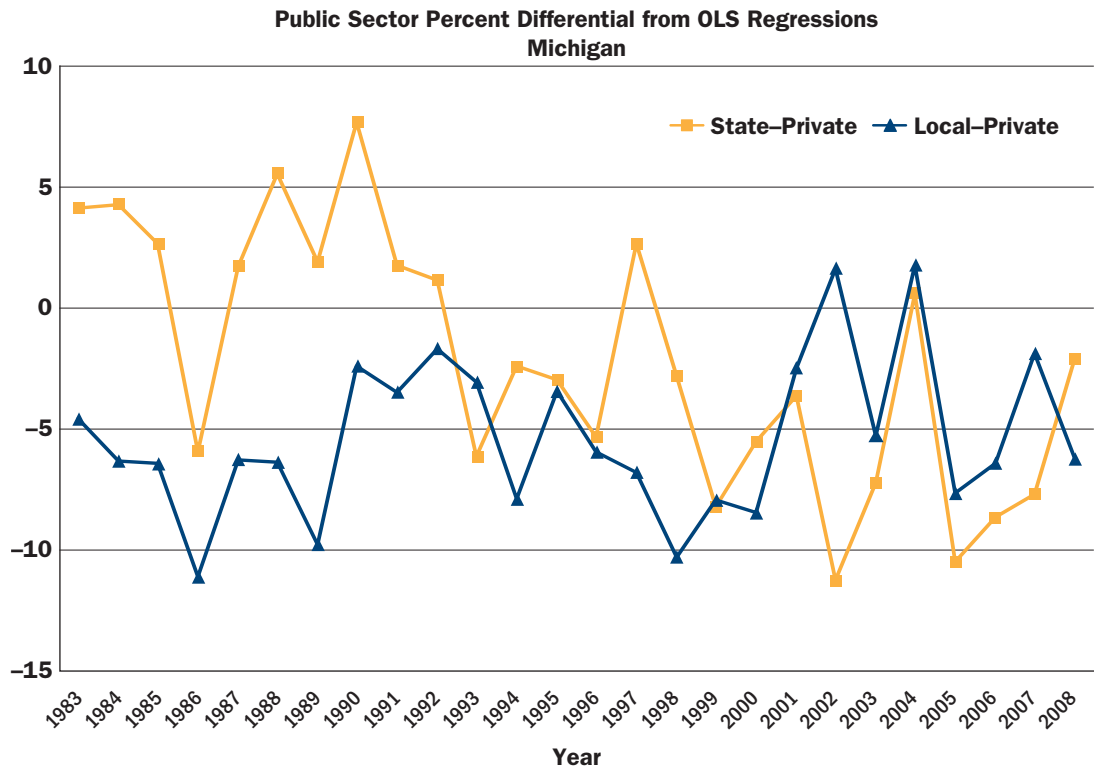Michigan

Figure A8
Public–Private Wage Differentials within Florida, Controlling for Occupation

Public Sector Percent Differential from OLS Regressions
Florida
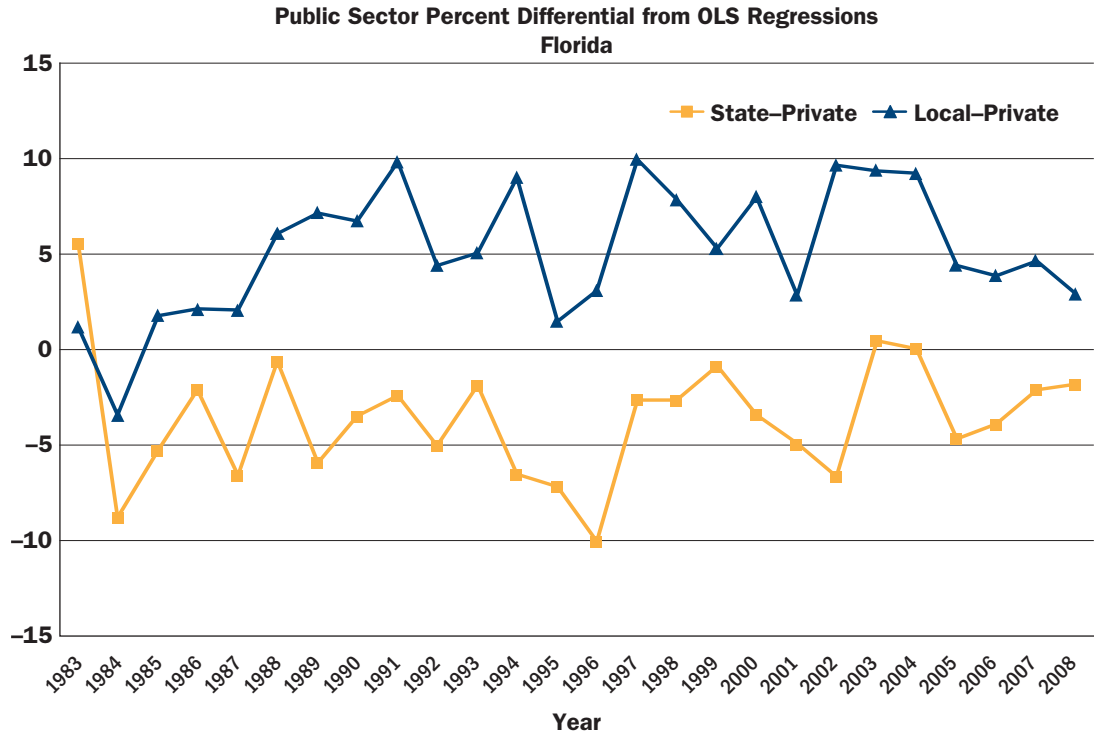
Figure A9
Public–Private Wage Differentials using Median Regressions, 1983–2008

Public Sector Percent Differential from Median Regression
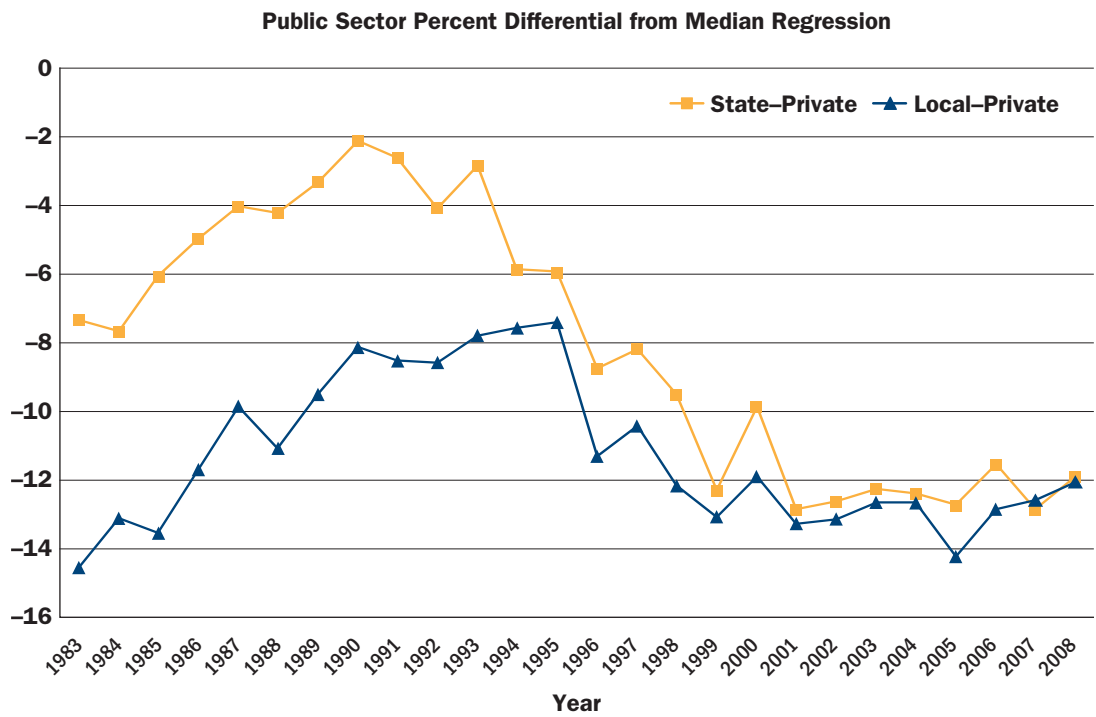
Note: Estimates include no controls for occupation but do include all other controls listed in Table 2 (p. 8).

Figure A10. *Public–Private Wage Differentials using the Oaxaca (1973) Method*

Public Sector Percent Differential from Oaxaca Methodology

Notes: Estimates follow the Oaxaca (1973) method. First, a wage regression is estimated for private sector workers. Then, using the characteristics of state and local workers, a hypothetical private sector wage is calculated. The difference reported is the average difference between the actual state or local wage and the hypothetical private sector wage for public sector workers.

an unwillingness to tax adequately or discretionary decisions to spend on other objectives. For instance, if a government has a budget deficit but a low tax rate, then what is its ability to pay?

Yet, none of these difficulties mean that public sector workers are, or should be, immune to conditions around them. Thus, in the current recession, many state governments have instituted unpaid furloughs that reduce the level of compensation. In local governments, not only have there been furloughs, but some jurisdictions have explicitly tied compensation to measures of revenue—such as the sum of taxes, fees, and state aid.[48] More generally, Freeman suggested that public sector pay differs over time as much as private sector pay. Over any reasonable time period, even jurisdictions with agreed-on low ability to pay may not be able to reject comparability.[49] If a local jurisdiction decides that it does not have the ability to pay and permanently reduces wages below the level of the private sector and other nearby jurisdictions, it will simply be unlikely to attract needed workers and may be compelled to re-adopt comparability.

A second, frequently mentioned standard other than comparability contends that the government should be a "model employer."[50] In this view, governments have a role of advocating and demonstrating employment policies such as due process, merit systems, pensions, health insurance, and anti-discrimination measures. Thus, wage regression estimates frequently suggest that the extent of earnings discrimination is smaller in public sectors.[51] This frequently implies that female workers, for example, may earn more than their private sector counterparts, even as men do not.[52] According to the model-employer view, female workers may not receive comparable wages with the private sector, but nonetheless they receive the appropriate wage if their public sector premium offsets the discrimination they would otherwise face in the private sector. The implication that model-employer wages should be higher can easily be reversed when making other comparisons with the private sector. The government might lower earnings for workers whose private sector counterparts have elevated wages, reflecting less than competitive markets. Beyond trying to remedy imperfections in the

private markets, this view also argues that in a system that relies on employer-based health insurance and retirement plans, public employers should be at the forefront in making sure that each are provided.

In the end, the model that a public sector employer should set remains in the eye of the beholder. As Belman and Heywood and Bender and Elliott detailed, in a variety of overseas settings, politicians have attempted to set public pay lower in the hope that it would become a standard for bargainers in the private sector and serve as an informal incomes policy and a tool for macroeconomic policy.[53] In the face of the complexity and ambiguity of both ability-to-pay and the model-employer paradigms, the standard of comparability provides more certainty and applicability across a range of settings.

Notes

1 Smith, S. P. 1987. "Wages in the public and private sector: Comment," In David Wise, Ed., *Public Sector Payrolls.* Chicago: University of Chicago Press.

2 Hill, M., and DeLacenserie, E. 1991. Interest criteria in fact-finding and arbitration. *Marquette Law Review, 74,* 399–49.

3 Belman, D., Franklin, T., and Heywood, J. S. 1994. Comparing public and private earnings using state wage surveys. *Journal of Economic and Social Measurement, 20,* 79–94.

4 Belman, D., and Heywood, J. S. 1996. "The structure of compensation in the public sector," In Belman, D., Gunderson, M., and Hyatt, D., Eds., *Public Sector Employment in a Time of Transition.* Madison, WI: Industrial Relations Research Association.

5 Kearney, R. C., and Carnevale, D. G. 2001. *Labor Relations in the Public Sector,* 3rd Edition. New York: Marcel Dekker.

6 Smith, S. P. 1976. Government wage differentials by sex. *Journal of Human Resources, 11*(2), 185–199.

7 Bender, K. A. 1998. The central government: Private sector wage differential. *Journal of Economic Surveys, 12,* 177–220.

8 Belman, D., and Heywood, J. S. 1995. State and local government wage differentials: An intrastate analysis. *Journal of Labor Research, 16,* 187–201.

9 Lee, S. 2004. A Reexamination of public-sector wage differentials in the United States: Evidence from the NLSY with Geocode. *Industrial Relations, 43*(2), 448–472.

10 Lewis, G. B., and Galloway, C. S. 2009. "A National Analysis of Public/Private Wage Differentials at the State and Local Levels by Race and Gender." Paper presented at the annual meeting of the Midwest Political Science Association, 67th Annual National Conference, The Palmer House Hilton, Chicago.

11 Borjas, G. J. 2003. The wage structures and sorting of workers into the public sectors," In Donahue, J. D., and Nye, J. S., Eds., *For the People: Can We Fix Public Service?* Washington, DC: Brookings Institution Press.

12 Belman, D., and Heywood, J. S. 2004. Public sector wage comparability: The role of earnings dispersion. *Public Finance Review, 32,* 567–587.

13 Belman, D., Franklin, T., and Heywood, J. S. 1994. Comparing public and private earnings using state wage surveys. *Journal of Economic and Social Measurement, 20,* 79-94.

14 Miller, M. A. 1996. The public-private pay debate: what do the data show? *Monthly Labor Review, 119*(5), 18–29.

15 Ballard, C. L., and Funari, N. S. 2009. *The Retrenchment of the State Employee Workforce in Michigan.* Research paper, Department of Economics, Michigan State University.

16 See the Technical Appendix for examples of different standards of comparability.

17 Cauchon, D. 2009. Benefits widen public, private workers' pay gap. *USA Today,* April 10.

18 *Sun Journal* (Editorial Board). 2009. Squealing about the income gap. October 1, Lewiston, ME.

19 Lewis, G. B., and Frank, S. A. 2002. Who wants to work for the government? *Public Administration Review, 62,* 395–404.

20 Ballard, C. L., and Funari, N. S. 2009. *The Retrenchment of the State Employee Workforce in Michigan.* Department of Economics, Michigan State University.

21 Smith, S. P. 1976. Government wage differentials by sex. *Journal of Human Resources, 11*(2), 185–199.

22 Each household spends 4 months being surveyed, is out of the survey for 8 months, and then re-enters for 4 months before exiting the survey.

23 This data is available at www.nber.org/cps.

24 The CPS data provides earnings but not benefit information. We use alternative data to adjust the measures of earnings comparability we derive from the CPS but defer that discussion until the next section of the report. See the Technical Appendix for a more detailed discussion of the methodology used.

25 The use of log earnings as the dependent variable follows both from the basic theory of the human capital model and from the repeated experience that it generally provides a superior fit to the data. Such log earnings models provide consistent estimates of the proportional impact of wage determinants under the assumption that the distribution of the error term is independent of the regressors. While we follow the dominant strategy, we recognize that when this assumption is violated, alternative estimations may be superior. (Blackburn, M. L. 2007. Estimating wage differentials without logarithms. *Labour Economics, 14,* 73–98.) We emphasize that the general tenor of our results does not vary greatly with alternative treatments of how to estimate the impact of state and local employment on earnings.

26 Belman, D., and Heywood, J. S. 2004. Public sector wage comparability: The role of earnings dispersion. *Public Finance Review, 32,* 567–87.

27 As an illustration, if state and local workers are disproportionately located in higher earnings states, failure to include the indicators would bias the estimates. Indeed, G. J. Borjas (1986, The earnings of state government employees in the United States, *Journal of Urban Economics 19,* 156–173) showed that changes of earnings of state employees reflect changes in the wealth of their state as well as a variety of other economic and political determinants. The indicator in the CPS is the state in which the worker resides not the state in which the worker is employed. The latter is not available in the CPS.

28 The regression coefficient β is converted to the percentage effect by $\varepsilon^{\beta} - 1$.

29 The exact estimate is sensitive to the inclusion or exclusion of particular variables. For example, the estimated state and local government percentage wage gaps are smaller if one does not control for union coverage but are larger if one uses broad regional dummies instead of specific states. Yet, none of these potential changes alters the basic pattern of the adjusted wage gap indicating lower pay for state and local government workers.

30 See the Technical Appendix for a robustness check of this regression that includes occupational controls.

31 Borjas, G. J. 2003. "The wage structures and sorting of workers into the public sectors." In Donahue, J. D., and Nye, J. S., Eds. *For the People: Can We Fix Public Service?* Washington, DC: Brookings Institution Press.

32 For a robustness check, see the Technical Appendix.

33 We also estimated an alternative specification that included occupational controls in the earnings equation. This presents smaller but still negative averages over the last nine years: –7.4 percent for state workers and –4.4 percent for local workers. Full time series of the estimates which include the occupational controls are included in the Technical Appendix for the nationwide sample and for each of the seven states.

34 Ideally, the CPS would include a measure of the value of benefits for each worker. Yet, worker survey data on such values might be unreliable as few workers accurately know the value of their benefits. Perhaps as a consequence, the CPS does not contain measures of the value of benefits. It shares this characteristic with all the major individual worker survey data that labor economists commonly use. Thus, the use of more aggregate data must be used but the insights gained from the wage comparability exercise will still need to be applied.

35 This is not a survey of workers but of employers. Collected by the Bureau of Labor Statistics, it details the cost of employee compensation and is used to construct the frequently used Employment Cost Index. The data is available at ftp://ftp.bls.gov/pub/special.requests/ocwc/ect/ececqrtn.pdf.

36 The ratio of local to private earnings can be written as (E^L/E^P) while the shares of earnings to total compensation are $\beta^L = (E^L/T^L)$ and $\beta^P = (E^P/T^P)$. Thus, $(E^L/E^P)(\beta^P/\beta^L) = T^L/T^P$, which is the ratio of total compensation for local workers to that for private workers.

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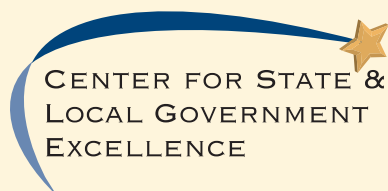
Out of Balance?

Comparing Public and Private Sector Compensation over 20 Years

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