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The New Great Debate about Unionism and Collective Bargaining in U.S. State and Local Governments

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Abstract
Recently some state and local governments in the United States have sharply reduced or eliminated public employee unionism and bargaining rights in the belief that their fiscal adversity stems mainly from overcompensation of public employees caused by collective bargaining. The authors examine public–private sector pay and benefit relationships, the effects of unions on public employee pay, the effectiveness of employment dispute resolution procedures, and the ability of public sector labor and management to combat fiscal adversity. They provide new evidence showing that: on balance, public employees are undercompensated relative to their private sector counterparts; the effects of unions on compensation are smaller in the public than in the private sector; and public sector dispute resolution procedures and joint labor-management initiatives to reform work function reasonably well.

Keywords
public policy, public sector unionism, collective bargaining, public-private sector compensation, dispute resolution, labor-management partnerships, workplace innovation

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THE NEW GREAT DEBATE ABOUT UNIONISM AND COLLECTIVE BARGAINING IN U.S. STATE AND LOCAL GOVERNMENTS

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Recently some state and local governments in the United States have sharply reduced or eliminated public employee unionism and bargaining rights in the belief that their fiscal adversity stems mainly from overcompensation of public employees caused by collective bargaining. The authors examine public–private sector pay and benefit relationships, the effects of unions on public employee pay, the effectiveness of employment dispute resolution procedures, and the ability of public sector labor and management to combat fiscal adversity. They provide new evidence showing that: on balance, public employees are undercompensated relative to their private sector counterparts; the effects of unions on compensation are smaller in the public than in the private sector; and public sector dispute resolution procedures and joint labor-management initiatives to reform work function reasonably well.

The United States is in the throes of the most intense, widespread public policy debate about state and local government employee unionism and collective bargaining since the enactment more than a half-century ago of the initial state laws authorizing such unionism and bargaining. Like then, much of the current political debate has occurred in the absence of empirical evidence about how collective bargaining actually functions or the results it generates. That was understandable in the 1960s because there was little if any record to draw on from state and local government unionism and bargaining. Hence, much theoretical speculation occurred about how private sector collective bargaining practices would work if transferred to the public sector generally and state and local government in particular. It is less defensible now, when there is a half-century of experience and empirical evidence about how public and private sector collective bargaining affect

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outcomes at the core of the contemporary policy debate. Our purpose here is to summarize the critical arguments in debate then and now and draw on evidence from state and local government bargaining as well as private sector bargaining as it bears on this debate. We then call for a new generation of empirical research that can assist in evaluating the policy options currently in play, research similar to the efforts that followed the passage of the first generation of state and local government unionism and bargaining laws.

Conceptual and Policy Debate: Then and Now

The debate that emerged in the 1960s was spurred by calls from elected officials, citizens, and scholars for federal and state-level actions to provide public sector employees with legal rights to unionize and engage in collective bargaining. The underlying rationale for these calls was equity-based, that is, a widespread belief that public employees should no longer be deprived of unionism and bargaining rights of the type that had been exercised by private sector employees since the mid-1930s. Wisconsin passed the first state-level public sector collective bargaining statute in 1959; in 1962 President Kennedy signed Executive Order 10988, which provided bargaining rights on a limited scope of issues for federal employees; and between 1960 and 1975, more than two-thirds of the states enacted similar laws to cover various occupational groups in state and local government. Union membership among public sector employees nationwide expanded in tandem with these laws (partly as a result and partly as a cause of these legislative actions), from less than 10% then to approximately 36% today.

During this early legislative activity and growth of public sector unions and collective bargaining, the opposition to this trend raised three theoretical arguments against it. The first argument was that the demand for public sector workers was inelastic because public employers could not shut down or move operations. Therefore, public sector unions would exploit this source of power, and wages (or total compensation) would inevitably be pushed up beyond that available to private sector workers (Marshall 1920). The second argument was based on a political theory that collective bargaining was incompatible with democratic government because it gave public employee unions special access to influence decisions of elected leaders, some of whom these unions helped put in office through their electoral support (Downs 1957; Wellington and Winter 1971).[1] This too would result in excessively higher wages and other outcomes that would harm the public interest. The third argument reflected specific concerns about how collective bargaining worked in the private sector, with the threat of a strike re-

[1]A referee suggests that a similar argument could be made about private sector unions, whose political activity in lobbying state government legislatures and the U.S. Congress is well known. In this regard, therefore, the public and private sectors may be more similar than different.

garded as the primary force for motivating negotiated agreements in that sector. Strikes by public sector employees, however, would not only inappropriately challenge democratic government but they could disrupt the flow of essential services and thereby threaten public health and safety (Taylor 1967). Yet the alternatives to strikes—mediation, fact-finding, arbitration or bargaining without some final resolution mechanism—would risk overdependence on third parties in shaping the process and outcomes of bargaining (Wirtz 1963; Northrup 1966).

Given that there was little if any empirical evidence to assess these arguments and issues, they were debated largely on theoretical, ideological, and partisan grounds (Lewin 1973). The result was a pattern of political outcomes in which states with relatively high levels of private sector union density, traditions of enacting progressive reforms in other areas of public policy, and high and rising per capita incomes were especially likely to enact public sector bargaining laws (Kochan 1973). The more specific technical debates over the right to strike were largely resolved through recommendations of advisory commissions composed of scholars and professionals with considerable experience in private sector bargaining. While several states allowed strikes for nonessential services, the dominant initial pattern was to outlaw strikes and provide various substitute dispute resolution processes, such as mediation and fact-finding. In subsequent years, a number of these statutes were amended to provide for the arbitration of public sector bargaining disputes, mainly in essential services such as police and fire. Some states also adopted or extended arbitration to cover teachers, nurses, and other local government employees.

These legal and institutional innovations spurred a generation of new empirical research evaluating the effects of collective bargaining and dispute resolution on decision-making processes and outcomes, especially fiscal and operational outcomes, of state and local governments. We review the results of this work in the empirical section of this article.

The proximate triggers of the current debate once again reflect a mixture of economic and political forces. The economic trigger was the fiscal crisis that state and local governments have been experiencing since 2008 as the effects of the Great Recession began to impact these governments' budgets. The debate largely centers on the extent to which public employee unions have contributed to this crisis through excessive pay and benefits they may have negotiated for their members. The proximate political trigger was the election of a new group of Republican governors who pressed for legislative reforms that would either eliminate or drastically limit collective bargaining for state and local government employees in their respective jurisdictions and thereby significantly reduce the power of public employee unions. Substantial evidence of this position is provided in speeches by Governor Chris Christie of New Jersey, Governor Mitch Daniels of Indiana, former governor Tim Pawlenty of Minnesota, and former governor Mitt Romney of Massachusetts, as well as in an op-ed written by Governor Scott

Walker of Wisconsin and in Michigan Governor Rick Snyder's report on the financial health of Michigan.[2]

As Lewin (2012) has shown, approximately 20 U.S. state legislatures have recently enacted or amended laws reducing the retirement (pension) benefits of state and local government employees, and about a dozen state legislatures have enacted or amended laws reducing health care benefits or increasing the cost of health care for state and local government employees. In this regard, the governors and legislatures were somewhat but not entirely out in front of citizens and voters. Various public opinion polls indicate that substantial proportions of such citizens and voters perceive public employees to be overpaid, especially in terms of retirement and health care benefits.[3] Concrete manifestations of these voter perceptions were recently demonstrated by citizens in San Jose and San Diego, California, who voted in favor of ballot measures calling for cutbacks in pension benefits for employees—current and new employees—of these municipal governments.[4]

Just as it had served as an early adopter of public sector bargaining, the state of Wisconsin became the early new-era battleground for taking away public employee bargaining rights, which had been granted and sustained for more than a half-century. Unfortunately, once again the political battles that led to scaling back public employee bargaining rights were largely driven by ideology and the outcomes were driven by the balance of political power, even though a significant body of empirical research on both public sector and private sector collective bargaining from earlier decades was available to inform these debates.

Hence, our primary objectives in this article are to bring empirical evidence to bear on the contemporary debate about state and local government employee unionization and collective bargaining by summarizing what is known from past and current research and to encourage a new wave

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[2]Politico quoted in "Gov. Daniels Bashes Public Employees as 'A New Privileged Class.'" Pat Garofalo on June 7, 2010, at 11:16 am. http://wonkroom.thinkprogress.org/2010/06/07/daniels-public-pay/.

"Gov. Pawlenty: Public employees are 'over-benefited and overpaid.'" Joe Kimball, April 30, 2010, 9:13 am. MinnPost.com. http://www.minnpost.com/politicalagenda/2010/04/30/17788/gov_pawlenty_public_employees_are_over-benefited_and_overpaid.

Governor Chris Christie addresses the NJCM at the Annual Luncheon Meeting in Atlantic City. Transcript, http://njcm.org/Conference2010. New Jersey Conference of Mayors.

"Mitt Romney blames the U.S. budget deficit on overpaid government workers." Posted on December 13, 2009, http://www.politicususa.com/en/Romney-Meet-The-Press.

Scott Walker, Op-Ed., "Why I'm Fighting in Wisconsin," WALL. ST. J., Mar. 10, 2011, at A17, available at 2010 WLNR 4819853.

"Dollars and Sense: How State and Local Governments in Michigan Spend Your Money." 2011 "Citizen's Guide to Michigan's Financial Health." Presented by Governor Rick Snyder January 31, 2011.

[3]See, as examples, the *Wall Street Journal*/NBC poll (February 2011), the *New York Times*/CBS poll (February 2011), the Gallup USA poll (March 2011), the Pew Research Center poll (March 2011), and the Quinnipiac poll (February 2011). Such perceptions are likely shaped by heightened economic insecurity induced by the Great Recession and by a related concern over governments' deficit spending.

[4]See http://www.mercurynews.com/elections/ci_20790991/early-returns-san-jose-voters-approving-pension-reform.

of empirical research that can support future policy choices. In particular, we address four questions:

1. How does state and local government employee compensation compare to the private sector? Have state and local government employees benefited from unions and collective bargaining in ways that now make them over-compensated relative to comparable private sector employees?
2. How have dispute resolution processes enacted in lieu of the right to strike performed in terms of achieving agreements, avoiding work stoppages, and affecting bargaining outcomes in state and local government?
3. How have the parties to state and local government labor-management relations responded to periodic financial crises that have arisen in their settings? That is, are these parties unable to adjust practices when conditions require or, alternatively, are they capable of negotiating adjustments that are responsive to problems and challenges affecting vital public interests?
4. In the shaping of future state and local government labor-management relations, what lessons should be considered from the results of innovations in private sector labor-management relations in the years since public sector statutes were first enacted?

How Does Public Employee Compensation Compare to the Private Sector?

Proponents of scaling back or eliminating public sector collective bargaining have argued that public sector employees are overpaid relative to their private sector counterparts. We evaluate this claim by drawing on multiple data sets and our own research as well as other recent studies. We use three data series that compare public and private employee compensation and alternative wage equation specifications to explore the robustness of the overpayment argument: (1) the U.S. Bureau of the Census: Integrated Public Use Microdata Series (IPUMS) of the March Current Population Survey—CPS (Ruggles et al. 2009); (2) the Current Population Survey Merged Outgoing Rotation Groups—CPS-MORG (U.S. Department of Commerce, Census Bureau, various years); and (3) the American Community Survey Public Use Microdata Area—ACS-PUMA.

To compare total compensation in the public and private sectors, fringe benefit data are also required. There is only one reliable source of such benefit information in the United States: the Employer Costs for Employee Compensation survey—ECEC—which is administered by the U.S. Department of Labor, Bureau of Labor Statistics (2010). The ECEC includes data from private industry and state and local governments, but provides information on size of organization only for private employers. Larger employers, that is, those with more than 100 employees, are significantly more likely to provide employees with benefits, in part, because they can spread

administrative costs over a larger group and, for insurance purposes, can more readily diversify risk and self-insure. State and local governments resemble larger size private employers. Therefore, benefit costs will be used to mark up CPS-IPUMS wage data by sector, occupation, and private employer size. Because the CPS-MORG and ACS-PUMA data do not contain a measure of employer size, the benefit costs will be used to mark up wages in these data sets by sector and occupation.

The CPS-IPUMS data reveal substantially different approaches to staffing and compensation as between the private and public sectors. For example, on average, state and local public sector workers are more highly educated than the private sector workforce; 54% of full-time state and local public sector workers hold at least a four-year college degree compared to 35% of full-time private sector workers.

Further, wages and benefits are allocated differently between private and public sector full-time workers in the United States (see Table 1). State and local government employees receive a higher portion of their compensation in the form of employer-provided benefits, and the mix of benefits is different from that in the private sector. The key question when considering both employer-provided benefits and direct pay, however, is whether state and local government employees have a total compensation package that costs about the same as they would receive if they were employed in the private sector. In other words, it is the total cost of the compensation package rather than the mix of pay and benefits that is important in making public sector-private sector comparisons. In our analysis, the ECEC data are used to mark up wages for benefit costs.

On average, public employers contribute 34.1% of employee compensation to benefits whereas private employers contribute between 26.1% and 33.1% of compensation to benefits, depending on organization size. Public employers provide relatively greater health insurance and pension benefits. Health insurance accounts for between 6.3% and 8.3% of private sector employee compensation compared to 11.2% of state and local government employee compensation. Retirement benefits also account for a substantially greater share of public employee compensation, 8.1% compared to between 2.8% and 4.8% in the private sector.[5] Most public employees also continue to participate in defined-benefit retirement plans managed by the state, while most large private sector employers have switched to defined-contribution plans, especially 401(k) plans.[6] By contrast, public employees receive considerably less supplemental pay and vacation time than private employees, and public employers contribute significantly less than private employers to legally mandated benefits.

[5]The Employer Costs for Employee Compensation reports the costs incurred by employers for active employees in the period under study. It does not capture the failure of employers to make payments, that is, missed contributions, during the period under study.

[6]The most recent data indicate that less than half of private sector workers participate in any employer provided pension plan (IPUMS CPS).

Table 1. Private Employers and State and Local Governments: Employer Costs of Total Compensation by Category, Sector, and Organization Size

Employer costs December–09 National	*Private employers* Employees All Sizes (%)	Employees 1 to 99 (%)	Employees 100 to 499 (%)	Employees 500+ (%)	*Government* state and local employees All (%)
Total compensation	100.0	100.0	100.0	100.0	100.0
Wages and salaries	69.6	73.7	70.2	66.9	65.9
Total benefits	30.4	26.3	29.8	33.1	34.1
Paid leave	6.9	5.5	6.9	8.6	7.6
Vacation	3.3	2.8	3.5	4.5	2.9
Holiday	2.2	1.9	2.2	2.5	2.3
Sick	1.1	0.6	0.8	1.1	1.9
Personal	0.4	0.2	0.3	0.4	0.5
Supplemental pay	2.5	2.8	2.7	3.6	0.8
Overtime	0.8	0.8	1.1	1.0	0.4
Shift differential	0.2	0.1	0.3	0.5	0.1
Nonproduction bonuses	1.4	1.9	1.4	2.1	0.3
Insurance	8.8	6.7	8.6	9.0	11.6
Life	0.2	0.1	0.2	0.2	0.2
Health	8.3	6.3	8.0	8.3	11.2
Short-term disability	0.2	0.1	0.2	0.3	0.1
Long-term disability	0.1	0.1	0.1	0.2	0.1
Retirement and savings	4.5	2.5	3.4	4.8	8.1
Defined benefit	2.7	0.9	1.4	2.2	7.2
Defined contribution	1.7	1.6	2.0	2.6	0.8
Legally required	7.7	8.9	8.2	7.2	6.0
Social Security	4.5	4.9	4.7	4.6	3.6
Medicare	1.1	1.2	1.2	1.2	1.0
Federal Unemployment Insurance	0.1	0.2	0.1	0.1	0.0
State Unemployment Insurance	0.5	0.7	0.6	0.3	0.2
Workers' Compensation	1.5	1.9	1.6	1.7	1.1

Sources: U.S. Department of Labor, U.S. Bureau of Labor Statistics, (U.S. DOL). 2010 Employer Costs for Employee Compensation, December 2009, unpublished detailed compensation data.

Specification of Compensation Equations: A Human Capital Approach

Ideally, compensation research would compare employees performing similar work across the labor market while controlling for variations in their performance. There are, however, numerous public sector occupations, such as police, fire, and corrections, which lack appropriate private sector

counterparts. Even apparently similar jobs may differ significantly between the public and private sectors. Teaching is one example of this; public schools accept all students whereas private schools are sometimes highly selective and may exclude or remove poor performers, special needs students, or disruptive students. Therefore, comparing workers of similar human capital or personal characteristics and labor market skills is most suitable to making public-private total compensation comparisons. We follow this approach, but also (in Appendix A) compare it to one study (Gittleman and Pierce 2011) that has attempted to introduce occupational controls into this type of comparison.

Prior research shows that education level is the single most important earnings predictor (Card 1999). Most occupations also reward experience because experience is associated with (or a proxy for) competency development and performance enhancement arising from on-the-job learning. Other factors widely found to affect compensation include gender, race, ethnicity, and disability, although productivity-related human capital differences arising in these respects are intermingled with labor market disadvantages stemming from historical patterns of discrimination (Katz and Autor 1998).

Table 2 presents estimates of standard earnings and total compensation equations for the period from 2007 to 2010 using the three data sets mentioned earlier. Panel A of the table shows that, on average, state and local government employees earn approximately between 9% and 10% lower (annual or weekly) wages than private employees. Also on average, public employees work fewer (weekly and annual) hours than their private sector counterparts. Panel B of Table 2 adjusts the equations for this difference, which results in estimated public employee wages that are between 5.8% and 8.5% lower than those of comparable private employees.[7]

Do these findings change when total compensation rather than wages is considered? The answer is no in terms of sign (or direction) and yes in terms of magnitude. To illustrate, panel A of Table 2 shows that state and local public employees earn 8.7% less than comparable private sector employees based on analysis of the CPS-IPUMS data set (which incorporates adjustments for employer-provided benefits by organization size, major occupation, and sector), and approximately between 3% and 4% less based on analyses of the CPS-MORG and ACS-PUMS data sets. When inter-sector differences in work hours are taken into account, as shown in panel B of Table 2, state and local public employees are estimated to earn 5.6% less than comparable private sector employees based on analysis of the CPS-IPUMS data, and between approximately 1% and 2.5% less based on analysis using the two other data sets (which are not adjusted for private sector employer

[7]Of course there is a potential for endogeneity in the reported estimates since we do not know, for example, whether the higher education of state and local government employees is required for their jobs, or whether the jobs are somehow more attractive than private sector jobs to relatively more highly educated employees (i.e., an omitted attribute).

Table 2. Summary Regression Results: State and Local Government vs. Private Sector Wage and Total Compensation Differentials

	Organization Size	*Wages*		
Panel A	*Annual IPUMS CPS*	*Annual IPUMS CPS*	*Weekly MORG CPS*	*Annual ACS PUMA*
All state & local public employees (%)	–8.99	–6.89	–8.97	–9.91
State public employees (%)	–12.06	–9.33	–10.82	–11.70
Local public employees (%)	–7.27	–5.54	–7.98	–8.85
	Organization Size	*Total Compensation*		
	Annual IPUMS CPS	*Annual IPUMS CPS*	*Weekly MORG CPS*	*Annual ACS PUMA*
All state & local public employees (%)	–8.73	–3.87	–3.03	–4.07
State public employees (%)	–11.76	–6.38	–5.04	–5.94
Local public employees (%)	–7.03	–2.48	–1.96	–2.97
Sample observations (no.)	210,136	210,136	333,725	3,359,739
Panel B *Adjusted for hours worked*	*Organization Size*	*Wages*		
	Hourly IPUMS CPS	*Hourly IPUMS CPS*	*Hourly MORG CPS*	*Hourly ACS PUMA*
All state & local public employees (%)	–5.81	–4.65	–8.50	–6.71
State public employees (%)	–8.53	–6.93	–10.36	–8.62
Local public employees (%)	–4.29	–3.38	–7.50	–5.59
	Organization Size	*Total Compensation*		
	Hourly IPUMS CPS	*Hourly IPUMS CPS*	*Hourly MORG CPS*	*Hourly ACS PUMA*
All state & local public employees (%)	–5.60	–1.18	–2.56	–0.89
State public employees (%)	–7.32	–8.27	–4.58	–2.88
Local public employees (%)	–0.01°	–4.11°	–1.48	0.27
Years 2007–2010	210,136	210,136	333,725	3,359,739

Sources: U.S. Bureau of the Census: Integrated Public Use Microdata Series (IPUMS) of the March Current Population Survey (CPS), U.S. Bureau of the Census Current Population Survey Merged Outgoing Rotation Groups (CPS–MORG), and U.S. Bureau of Labor Statistics, (U.S. DOL). 2010 Employer Costs for Employee Compensation, December 2009.
Notes: All results statistically significant except those marked with °.

size). In all these estimates, the relative underpayment is considerably greater for state government employees than for local government employees. (See Appendix A for full estimates.)

These pay and total compensation estimates indicate that state and local government employees are not overpaid, and, in fact, are somewhat undercompensated relative to their private sector counterparts. Controlling for education, experience, hours of work, gender, race, ethnicity, and disability in these inter-sector comparisons, the overall public employment compensation underpayment or penalty is a relatively small 5% (though with considerable variation by level of government and data set). This finding is closely consistent with, indeed replicates, the main finding reported in other recent estimates of public sector–private sector pay and total compensation

differentials that also use human capital models that control for education, experience, work hours, and other demographic variables (see Keefe 2012).

While there is a broad scholarly consensus about public employee undercompensation, there is disagreement about the appropriate wage (or total compensation) equation specification. One question at issue is whether or not to include union membership, employer size, or occupation in human capital–type wage equations. Bender and Heywood (2010) include unionization in their specification, but they appear to be alone among researchers in doing so. Gittleman and Pierce (2011) reflect the dominant view of this matter, arguing that unionization does not account for unobserved labor quality in a human capital–type wage equation. Nonetheless, higher union wages should allow employers to recruit higher quality employees, and union voice might make them more productive. Moreover, any spillover effects of unions on the wages of nonunion employees further complicate measurement of union effects. To test these competing views, we estimated wage equations that include private and public sector union membership. The results show that while unions have positive effects on wages in both sectors, the public sector union wage effect (3.7%) is markedly smaller than the private sector union wage effect (14.1%). This finding appears directly to contradict those who predicted that public sector unions would have a major bargaining power advantage due to the inelasticity of demand for public services or public employee insider access to, or block voting for supportive elected officials.

Unlike the apparent consensus among researchers to omit unionization from human capital–based studies of public sector versus private sector compensation, there is much disagreement about employer size. Allegretto and Keefe (2010), Keefe (2010, 2012), Biggs and Richwine (2011), Richwine and Biggs (2011a), and Munnell et al. (2012) include employer size in their estimating equations, while Schmitt (2010), Bender and Heywood (2010), and Gittleman and Pierce (2011) exclude employer size. Once again to test competing views, we estimated the wage and total compensation equations using the CPS-IPUMS data set that includes employer size as well as the CPS-MORG and ACS-PUMS data sets that do not include employer size. (See Appendix A for full estimates.) Our estimates show a public employee hourly pay (i.e., wage) underpayment of 5.8% when employer size is taken into account compared to a 4.7% underpayment when it is not taken into account. More telling is the finding that the public employee hourly total compensation underpayment is 5.6% when employer size is taken into account compared to 1.2% when it is not taken into account. Nonetheless, with or without employer size in the estimating equations, these studies find a public pay penalty for state and local government employees.

Our study, like most others, finds that on a total compensation basis public employees are undercompensated relative to their private sector counterparts. This overall finding is composed of under-compensation with respect to pay that is larger than overcompensation with respect to benefits.

There are critics of this majority view, however, most notably Biggs and Richwine (2011) and Richwine and Biggs (2011a, 2011b), who argue that the ECEC does not adequately account for the costs of state and local government retiree health benefits, the guaranteed nature of public sector pensions, and the value of public sector job security. When adjusting for these alleged omissions, they report that public employees are overcompensated by 30% in California and 43% in Ohio when compared with similar private sector employees.

The ECEC does not account for retiree health care expenditures if they are not prefunded and reflected in current employer costs. The U.S. Government Accountability Office (2007) estimates that retiree health benefits costs incurred by state governments constitute approximately 2% of salary and 1.5% of total compensation. The basic premise of the Richwine and Biggs (2011a) criticism is that retiree health insurance is an irrevocable, unalterable right that is mandated to be funded by a state irrespective of any changes in the labor force or the state's finances. This premise, however, is incorrect. In most states, public employee retiree health care is not a guaranteed benefit. Instead, an accurate assessment of public or private employee health care benefits requires an upward cost adjustment where a government jurisdiction or private employer provides retiree health benefits on a pay-as-you-go-retiree health insurance basis. Further, numerous states have recently altered public employee health care benefits and costs by cutting benefits for retirees and eliminating benefits for some current and prospective employees, increasing co-payments and deductibles, reducing the scope of illnesses covered by health insurance plans, and placing more stringent limits on catastrophic illness payments (Lewin 2012).

Another criticism offered by Biggs and Richwine (2011) involves the overstatement of public pension funding ratios. In this regard, Munnell et al. (2011) observe the following:

> Comparing ECEC pension data across the public and private sectors involves two problems. First, the ECEC contributions to defined benefit pension plans do not separate the normal cost and the amortization payment to reduce unfunded liabilities. As the employee only earns the normal cost, including the amortization payment overstates public sector compensation. Second, contributions to private sector 401(k) plans and public sector defined benefit plans are not comparable. The public sector contribution guarantees a return of about 8 percent, whereas no such guarantee exists for 401(k)s. Thus, the public sector contribution understates public sector compensation. (p. 5)

After making the appropriate adjustments to the ECEC for the proper valuation of pensions and retiree health insurance, Munnell et al. (2011) report that the two roughly balance out. Their estimated difference nationwide for total compensation is a 4% premium in favor of private sector employees.

Finally, regarding job stability, Munnell et al. (2011) and Keefe (2010) conclude that there is not a compensating job stability differential in the public sector compared to the private sector, as alleged by Biggs and Richwine

(2011) and Richwine and Biggs (2011a, 2011b). Rather, the observed greater job stability in the public sector is largely due to and consistent with the higher levels of education of the public relative to the private sector workforce. Stated differently, higher levels of education are associated with significantly lower unemployment rates in U.S. labor markets as a whole.

Relative Wage Compression in the Public Sector

Since 1970, there has been a significant relative compression of the wage distribution in the public sector (Borjas 2002). It has also long been known that public sector earnings show less dispersion than private sector earnings (Fogel and Lewin 1974). Therefore, individual earnings differentials apparently favor public employees at the bottom of the earnings distribution and private employees at the top of the distribution (Belman and Heywood 2004).

To more fully examine this matter, we estimate quantile regression equations (Angrist and Pishke 2008) using the CPS-IPUMS data on the distribution of public versus private employee hourly wages and total compensation. These equations include human capital variables and a control for employer size; the results are reported in Table 3. The quantile regressions allow us to examine compensation relationships between state and local government employment and private sector employment at various points in the distribution, while controlling for the varying influences of human capital on earnings. At the lowest decile, wages for local government employees are slightly higher (1.7%) and wages for state government employees are lower (3.1%) than for private sector employees. At the median, public employees earn wages 9.4% less than private sector employees and at the 90th percentile the public wage underpayment rises to 18.5%. Next, we examine the distribution of total compensation of public versus private sector employ-

Table 3. Quantile Regression Results: State and Local Government Employee Wages and Total Compensation Compared with Private Sector Employees

CPSIPUMS	*Percentiles*				
Hourly wages	*10%*	*20%*	*Median*	*80%*	*90%*
Public employees (%)	–0.1	–3.6	–9.4	–15.9	–18.5
Local employees (%)	1.7	–1.4	–7.0	–13.4	–16.4
State employees (%)	–3.1	–6.9	–14.2	–20.5	–22.5
	Percentiles				
Hourly compensation	*10%*	*20%*	*Median*	*80%*	*90%*
Public employees (%)	3.3	1.4	–2.1	–6.8	–8.4
Local employees (%)	4.5	3.4	0.4	–4.0	–6.2
State employees (%)	1.0	–1.6	–6.9	–12.0	–13.0

Sources: U.S. Bureau of the Census: Integrated Public Use Microdata Series (IPUMS) of the March Current Population Survey (CPS), U.S. Bureau of Labor Statistics, (U.S. DOL). 2010 Employer Costs for Employee Compensation, December 2009.

Note: All estimates are statistically significant at $p = < .01$ except median total compensation for local government employees, which is statistically insignificant.

ees. The quantile regression results show a total compensation premium (3.3%) for public employees at the first decile, which persists for local government employees (3.4%) at the 20th percentile but turns to a slight underpayment for state government employees (–1.6%). At the median, local government employee total compensation is not statistically different from similar private sector employee total compensation; however, state government employees are 6.9% undercompensated relative to similar private sector employees. At the 80th percentile, the public employee compensation under-payment is 6.8% (4% local and 12% state) and at the top decile the under-payment is 8.4% (6.2% local and 13% state). Hence, lower skilled, less educated public sector employees are compensated slightly higher than their private sector counterparts, whereas more skilled, better-educated employees are significantly more highly compensated in the private than in the public sector.

The preponderance of evidence from our analysis (and that of other researchers) of employee compensation costs on a per-hour basis shows that when controlling for education, experience, work hours, gender, race, ethnicity, and disability, public employees are undercompensated when compared to similar private employees. We estimate that, on average, full-time state and local government employees are relatively undercompensated by 5.6%, with the underpayment being substantially smaller for local government employees (4.1%) than for state government employees (8.3%). We also find significant differences in the distribution of wages between state and local government and private sector employee groups. Lower skilled, less educated public sector employees have significant wage and total compensation advantages over their private sector counterparts, while higher skilled, more educated public sector employees have significant wage and total compensation disadvantages relative to their private sector counterparts.

How Have State and Local Government Employment Dispute Resolution Procedures Performed?

The public sector bargaining laws enacted during the 1960s and 1970s were closely patterned after the private sector National Labor Relations Act (the Wagner Act), with the exception that public employee strikes were partially or totally banned and substitute procedures were often allowed or required. These procedures include mediation, fact-finding with recommendations, arbitration, or a mix thereof. Because there was little prior experience with these procedures, much debate and considerable research aimed at documenting and evaluating their effects ensued. The key findings from this research are summarized here.

Strikes

Most of the research on public sector strikes was carried out in the 1970s and early 1980s when public sector collective bargaining and the statutes

governing bargaining were still in their formative years. Strike rates in both the private and public sectors have declined considerably since that time. The evidence we draw on here comes mainly from those earlier studies.

Olson's (1988) review of the accumulated evidence on public sector strikes concluded that Interest arbitration provides the most effective deterrence of strikes. The most systematic analysis of this issue was carried out by Ichniowski (1982). He compared the rate of police strikes under no bargaining law, a law providing meet and confer rights only, laws providing bargaining without arbitration, and laws providing bargaining with arbitration. He found that strikes were most likely to occur in states without a bargaining law and least likely to occur in states with a bargaining law that provided for binding arbitration. He also looked at the effects of changes in these statutes in selected jurisdictions and found that changing from a bargaining law without arbitration to one with arbitration reduced the probability of a strike from 0.084 to 0.005. These results were consistent with Olson's findings from an earlier study of Wisconsin, Illinois, Indiana, New York, Ohio, and Pennsylvania.

Next, Olson found that strike penalties, when enforced, deter strikes. This finding comes from studies comparing the low strike rates of teachers in New York, where employees lose two days' pay for every day on strike, to strike rates in Pennsylvania, Ohio, Illinois, and Indiana, where strikes were either legal (Pennsylvania) or illegal but penalties were weak or not enforced. He also found that policies outside of collective bargaining can affect strikes, such as whether days lost to strikes are made up at the end of the previously scheduled school year.

Ability to Reach Agreements

Early on, that is, during the 1970s and 1980s, there was considerable concern that the lack of the discipline of a strike deadline or the existence of a third-party process, such as fact-finding or arbitration, would reduce the parties' incentive to reach negotiated agreements. A specific aspect of this concern was that there would be what some called a narcotic effect such that once arbitration or fact-finding was invoked in a particular negotiation, the parties would continue to rely on it in future negotiations. The evidence suggests, however, that over the long haul of public sector bargaining these worries were overstated (see Kochan et al. 2010).

1. The rate of reliance on arbitration (where it exists) has declined from between 10% and 30% in the early years of public sector bargaining to below 10% in most states today. In New York State, for example, 31% of police units went to arbitration between 1974 and 1976, the initial years of the arbitration statute, compared with 9% between 1995 and 2007. Similar declines occurred for firefighter bargaining units during this time. In most cases, the parties appear to have learned how to predict what an arbitrator will award and, with this understanding in mind, have

been able to negotiate agreements on their own (or with the help of mediators) without having to go through the formal arbitration process. There are notable exceptions to this, however. Some jurisdictions, particularly large, politically complex jurisdictions, are heavier users of arbitration than smaller jurisdictions.

2. Mediation has proved to be remarkably effective in assisting the parties in reaching negotiated agreements. Although evidence is limited in this regard, more than 70% of the cases referred to mediation in New York State police and firefighter negotiations were resolved voluntarily during the mediation process.

Effects on Outcomes

One of the most hotly debated yet least understood aspects of public employee bargaining concerns the effects of arbitration on pay outcomes. A recent nationwide study examined the effects of arbitration on police and firefighter wages using Census data from 1990 and 2000 (Kochan et al. 2010). The findings comport closely with the results of studies conducted during earlier decades, namely:

1. Wages of police and firefighters covered by arbitration statutes are not significantly different from wages for police and firefighters in states in which collective bargaining does not include arbitration but typically includes mediation, fact-finding, or both.
2. Wage growth for police and firefighters in states with bargaining laws that include arbitration did not differ from wage growth in states with bargaining laws that do not include arbitration.
3. There were no significant differences between wage increases awarded to police and firefighters in arbitration and wage increases resulting from negotiations without the use of arbitration.

These results are not surprising because most arbitration statutes require arbitrators to compare wages and other terms of employment together with cost of living, ability to pay, and other objective factors among comparable jurisdictions in shaping their awards.[8] Nevertheless, arbitration is not a panacea for all public sector labor problems. Specific limitations of arbitration include, first, that arbitrators tend to be very conservative. There is a strong norm in the labor relations profession (shared by arbitrators as well as management and labor representatives) that arbitrators should not break new

[8]In an earlier study that covered the period from 1983 to 2004, Farber (2005) initially found a statistically positive relationship between unionized public employee wages across a range of occupations and state public sector bargaining laws that combined a duty to bargain requirement with arbitration. A subsequent fixed-effects test of this regression model, however, yielded a statistically negative relationship between these two variables. Farber reports similar pairs of relationships between unionized public employee earnings and state bargaining laws that combine a duty to bargain with mediation and fact-finding and, separately, with the right to strike.

ground or award new benefits (or take away benefits) that they believe might be warranted but that the parties were unable to negotiate on their own. The norm is grounded in the belief that the parties to negotiations know their unique needs better than arbitrators. If the parties want to introduce a new concept into negotiations or bring about a major restructuring of pay, benefits, or other terms of employment, they should negotiate over them directly rather than leave such potentially complicated changes to an outside arbitrator. Consequently, arbitration tends toward a status quo bias. It is therefore not a tool for introducing major changes in employment practices and outcomes in times of fiscal adversity, let alone deep crisis, when the environment has changed or when new employment practices are being developed for other reasons.

Second, the time required to complete negotiations when arbitration is invoked appears to have increased significantly over the years. While systematic data are not available across all states that provide for the arbitration of public sector labor disputes, in New York State the median length of time from contract expiration to an arbitration award increased from 300 days during the period from 1974 to 1976 to 790 days during the period from 2001 to 2006. Delays of this magnitude pose three serious problems: (1) economic conditions may have changed considerably such that what may have appeared to be a fair, affordable pay or benefit increase at the time of contract expiration looks out of line with prevailing economic conditions when an arbitration award is issued; (2) employees may suffer economic hardship and become dissatisfied with the arbitration process; and (3) negotiations on a successor agreement may have begun before an arbitration award is issued, and thus the parties find themselves engaged in perpetual negotiations.

How Have State and Local Government Labor and Management Responded to Financial Crises and Other Pressures for Change?

Coalition Bargaining

Although the structure of public sector bargaining is typically based on specific occupations (police, firefighters, teachers, etc.) or other relatively narrow criteria, in times of financial or other crises various unions and state and local governments have had to respond in more coordinated fashion.

A compelling example is provided by the mid-1970s fiscal crisis in New York City municipal government, which was able to avoid bankruptcy through negotiation with a coalition consisting of several major and some smaller municipal employee unions that collectively enrolled about 80 separate bargaining units representing more than a quarter-million city employees (Lewin and McCormick 1981). Those negotiations, which occurred over a series of bargaining rounds, resulted in new agreements that included multiyear wage freezes, deferrals and cuts, fringe benefit givebacks, and productivity enhancements. Most important and notable, these negotiations

also resulted in substantial new investments and a multiyear rollover of prior investments of municipal employees' pension funds in New York City bonds and notes. It is no exaggeration to say that New York City was saved by these agreements, though it is also fair to say that certain prior collective bargaining agreements between the city and municipal employee unions contributed to the fiscal crisis.

More recently, in 2009, the Massachusetts legislature merged the state's multiple transportation agencies, workforces, and unions into a single integrated department of transportation. To address the myriad of issues involved in merging disparate wage structures, contracts, and work systems, a new union coalition was formed and sought to bargain as a single entity. Management agreed to negotiate with the coalition in return for full freedom to integrate the workforce without regard to traditional jurisdictional boundaries and work rules. This multiparty negotiation process produced an agreement that red-circled, that is, froze in place, the wages of the higher paid employees in return for the right to hire new employees at the lower state salary schedule. The agreement also created an operations improvement program in which 10% of the workforce savings achieved will be placed in an equity fund to help close wage gaps among employees doing similar work. Joint labor-management committees were created and chartered to address the myriad issues that would inevitably arise as the integration process moved forward and to further rationalize and modernize the job structures inherited from the state system. In short, this coalition negotiation process established the structures, processes, and alignment of interests needed to build a model public transportation system and organization (Kochan 2011).

Similar public employee coalitions have come together in San Francisco to negotiate major pension reforms, in Boston to negotiate major health care reforms, in Los Angeles to negotiate increased employee contributions to health care and pension plans, and in the state of Connecticut to negotiate benefit reforms and reductions in return for employment security guarantees. These examples indicate that during times of fiscal crisis, strong public sector management and union leadership can come together to make significant, necessary adjustments to existing agreements. Other examples, such as in sanitation service, that is, refuse pickup and disposal (Lewin 1987), similarly illustrate how municipal governments and public employee unions have been able to negotiate productivity improvements through adaptation to technological changes.

Education Reform

It is now widely recognized that the U.S. public education system is in need of improvement and reform. The Obama Administration has taken steps to achieve reform by providing Race to the Top and other school improvement grants, each of which requires active plans to improve the quality of teaching by holding districts and teachers accountable for improving student achievement. These programs, which build upon the No Child Left

Behind initiative of the George W. Bush Administration, call for significant changes in teacher contract provisions regarding performance evaluation, seniority, pay for performance, continuing education, and professional development.

A key question about these programs is whether teacher unions and public school officials and managers will be partners or impediments to reform. Examples of both resistance and partnership can be found around the country. For example, when faced with the difficult choice of whether to accept pay and benefit cuts or layoffs, teachers in some New Jersey school districts and in the Los Angeles Unified School District chose layoffs. These decisions resulted in larger class sizes, which angered parents in the respective communities.

In contrast, reform-minded union-management partnerships have been fostered in other public school districts, which in some cases occurred well before recent national education policy initiatives were adopted. In a recent study of six school districts in which teachers are represented by the American Federation of Teachers (AFT)—Cerritos, California; Toledo, Ohio; Hillsborough, Florida; Plattsburgh, New York; Norfolk, Virginia; and St. Francis, Minnesota—Rubinstein and McCarthy (2012) analyzed long-term collaborative partnerships between school administrators and local teachers' unions that focused on school improvement, student achievement, and teacher quality. They found that in these school districts, a culture of collaboration has been established that promotes trust and individual integrity, values union leadership, and respects teacher professionalism. Each district has established a district-level joint planning and decision-making forum in which union officials and school administrators work together to develop joint understanding and alignment of the strategic priorities of the district. The forums are complemented with school-specific building-level teams, improvement committees, and steering committees or advisory councils that meet regularly. Improving the quality of teaching is a core goal of collaborative labor-management reform efforts in these school districts, as manifested in new initiatives involving professional development, teacher evaluation, teaching academies, peer-to-peer assistance and mentoring programs, and provisions for dismissal of ineffective teachers.

Most of these districts have also negotiated contract language, or memorandums of understanding, that support their collaborative efforts. By using concrete language, these districts integrate real change into collective bargaining and institutionalize such change. In some cases, the contracts call for collaboration in district-level decision-making by requiring union representation on key committees. In other cases, contractual provisions have resulted in expanded opportunities for union involvement in decision-making through school board policy.

Beyond these local school district examples are numerous national and state-level efforts to support collaborative approaches to education innovation. For instance, the U.S. Department of Education in partnership with the Federal Mediation and Conciliation Service, national teacher unions,

and school superintendents' groups have held two national conferences to discuss how labor-management relationships can improve student achievement and school performance. Appendix C contains an excerpt of a joint statement from the group that calls for collaborative efforts to improve student performance. In Massachusetts, a new statewide Public Sector Labor Management Relations Collaborative has been created to facilitate local-level collaborative approaches to educational innovation (Bluestone and Kochan 2011). These and related efforts throughout the United States will provide data that are useful for assessing whether collective bargaining is a positive or negative force in education reform and improvement.

Lessons from Innovations in Private Sector Labor-Management Relations

Just as the first generation of public sector collective bargaining statutes was heavily influenced by prior private sector bargaining practices and experiences, so too should the next generation of public sector labor management relations take into account innovations in private sector practices that have demonstrated their value in the intervening years. Indeed, the last thirty years have witnessed considerable innovation and, in some cases, transformation in the nature, quality, and performance of private sector labor-management relations. Most of these innovations began in the 1980s in response to increased pressures from international and domestic nonunion competitors (Kochan, Katz, and McKersie 1986). Studies ranging from automobile, steel, and apparel manufacturing to airlines, health care, and telecommunications found positive performance effects for work systems innovations that bundle investments in workforce training and development with workplace processes that engage worker ideas and skills, encourage teamwork, and coordinate efforts across occupations (Appelbaum, Gittell, and Leana 2011).

The broadest study of the effects of these initiatives in manufacturing industries found, for example, that transformed nonunion work systems were 10% more productive than traditional nonunion workplaces, transformed unionized work systems were 15% more productive than traditional nonunion workplaces, and traditional unionized workplaces were 10% less productive than traditional nonunion workplaces (Black and Lynch 1997). A survey of a nationally representative sample of private sector union-management relationships conducted for the Federal Mediation and Conciliation Service in 2003 found that negotiation processes that used interest-based problem-solving techniques achieved more flexible work rules, more employee involvement in decision-making, and higher satisfaction with their labor-management relationships by both employer and union representatives. Yet, these innovations and transformations occurred in less than 10% of this national sample of private sector union-management relationships (Cutcher-Gershenfeld and Kochan 2004). Thus, instead of seeing diffusion of these innovative examples to the point where they might have become

the new standard model for labor management relations, the pace of innovation stalled and private sector union membership continued its long-term decline.

What lessons does this experience offer for current state and local government management and labor leaders? First, the patterns of innovation appear to apply to public sector employment settings. Indeed, the early adopters of innovative labor management relations in education reviewed here appear to have implemented many of the workplace, negotiations, and consultative reforms first introduced in the private sector. In fact, some of these early adopters did so explicitly after visiting well-known examples of private sector innovation, such as Saturn, or by working with mediators and consultants who had assisted private sector parties with these innovations (Foreberger 2011; Rubinstein and McCarthy 2012).

Second, just as the flurry of private sector innovations begun in the 1980s was motivated by intense competition from abroad and from nonunion workplaces, contemporary public sector innovation and reform efforts are arising out of the confluence of the political and fiscal pressures we mentioned at the outset of this article and by competition from nonunion charter schools, threats of privatization and outsourcing of unionized public sector jobs, or both. Thus, the time is right for researchers to take an active role in proposing experiments and changes in practices that are informed by evidence of what has worked in other settings and then carrying out the research needed to document the results achieved.

Third, these innovations, as with prior private sector initiatives, are taking place in the absence of explicit state- or national-level institutional and public policy support. The implication we draw from the private sector history is that even though well-designed and well-implemented innovations may produce performance improvements, they are not likely to spread and may not even survive on their own in the absence of government (in this case, state government) and related institutional support. In this respect, the endorsements of the national institutions listed in Appendix C and their state-level equivalents working together in Massachusetts are positive examples of the type of support that should increase the rate of diffusion and the chances of having lasting effects. If, however, the private sector pattern of isolated innovations is replicated, traditional arms-length or adversarial relationships will likely dominate and public sector union membership will decline, as it did in the private sector.

Research Needs and Opportunities

The decades of relative stability in public sector bargaining policy and practice have now given way to demands for transformational changes. The fiscal pressures on state and local government budgets and the nationally recognized need for improving elementary and secondary education outcomes will continue to challenge public sector labor and management leaders to find ways to improve the performance and control the costs of public

services. Moreover, calls for change will likely continue to take two different directions: Some will argue for the further rolling back of public employee wages, benefit and collective bargaining rights, while others will press public employee unions and public employers to work together in new ways to address fiscal and performance challenges. These different approaches are now once again creating a laboratory for experimentation, research, and learning akin to the variation in policies and practices that accompanied passage of the first generation of public sector collective bargaining legislation.

There are several ways researchers can contribute to the learning process and help move toward more evidence-based public policy making and collective bargaining practice. The policy research that followed passage of the initial wave of public sector bargaining statutes employed a wide variety of research methods, including intensive case studies, survey research, laboratory experiments (of dispute resolution methods), quasi-experimental field studies of changes in policies, and quantitative analyses of secondary databases and sources. We encourage the same diverse mix of research designs and methods now.

It will be important, for example, to have rich case studies of how the diverse, multiple stakeholders and interest groups that make up the public sector labor management landscape engage in the process of reform. Early research on public sector bargaining stressed the multilateral nature of these relationships and processes (Kochan 1974). The multilateral mix of interests is present both in specific employment relationships and in the state and national sponsors of collaborative efforts. Examining whether and how these multiple groups, each with their specific political interests, work together and sustain a coalition long enough to achieve performance improvements will help inform later adopters.

Similarly, just as the early years of public sector bargaining witnessed broad-scale experimentation with mediation, fact-finding, and arbitration as alternatives to strikes, we may now need to adapt these dispute resolution techniques not just to avoid work stoppages but also to facilitate innovation and reform. Understanding the potential changing roles of third-party facilitators, mediators, arbitrators, and state agencies responsible for public service reforms will help inform the education and training of the next generation of public sector "neutrals."

Much was learned from cross-state comparisons of collective bargaining laws and dispute resolution systems once these had sufficient years of experience to evaluate; however, in order to make such comparisons, each of those studies had to devote significant resources to collecting the necessary data. Few state agencies collected the data needed to track the performance of their laws. The lesson is clear: State and federal officials need to think ahead now about the data that will be required to evaluate whether more or less progress is made in meeting the challenges facing government officials, management, and employees through collaborative forms of innovation or through cutbacks in wages, benefits, and unionism and collective bargain-

ing rights. This will be the dominant question of interest in the years ahead. Now is the time to put resources into ensuring that data are collected to track systematically the outcomes of critical concern to the different stakeholders and the processes used to produce them.

Finally, we need to take actions now to build and evaluate statewide institutions and policies needed to diffuse and sustain innovative initiatives in state and local government labor-management relationships. Comparing diffusion rates across states that provide institutional or policy supports for collaboration with states that take either a laissez-faire or an oppositional approach to collaboration will not only be of benefit to informing the future of public sector labor management policies, it might also have implications for the future of private sector labor policy.

Conclusions

After a considerable hiatus, public sector unionism and collective bargaining are once again in the spotlight. At center stage is an ideological battle in which short- and long-term outcomes are highly uncertain. Less visible, but no less important, is direct empirical evidence on public sector labor-management relations. In sorting through the accumulated evidence, we find that when compared to private sector employees matched by education, organization size, and other relevant variables, state and local government employees on the whole are undercompensated rather than overcompensated. This overall conclusion takes into account relatively modest overpayment at lower occupational and skill levels and relatively substantial underpayment at higher occupational and skill levels.

Regarding dispute resolution procedures (i.e., mediation, fact-finding, and arbitration) variously included in state and local government collective bargaining laws, we conclude that they have worked well in terms of reducing the incidence of public employee strikes and achieving equitable outcomes. In certain instances, however, the time required to reach arbitrated settlements of public sector labor disputes has increased to the point where it imposes hardships on employees and excessive uncertainty on public employers and citizens. Consideration should therefore be given to setting time limits on arbitration decisions or otherwise reforming the arbitration process.

When it comes to the ability of state and local government labor and management to respond to fiscal crisis, the available evidence provides substantial historical and several contemporary examples of interest-based mutual gains negotiations and workplace innovations variously featuring coalition bargaining, joint partnerships, and multiparty arrangements that have been effective in enhancing performance outcomes and reducing the costs of public services. Some municipal governments and school districts have been especially successful in such efforts. The private sector offers similar historical and contemporary experiences, especially in certain industries and firms. The key challenge in this regard (both in the public and private sectors) is to sustain and diffuse mutual gains negotiations and in-

novative workplace practices, which in turn requires supportive public policies. In the absence of such policies or in the presence of opposite policies, state and local government labor and management will likely regress to the mean of adversarial, win-lose type negotiations and relationships.

The research community has an important role to play in helping to shape changing public sector labor-management policy and practice, in particular by providing a new wave of theoretical and empirical studies of direct relevance to the key issues in debate. By doing so, this generation of researchers will follow in the footsteps of their predecessors, whose studies have influenced the evolution of public sector bargaining policy and practice over the last half-century (Lewin et al. 1988).

In sum, we are at a moment of challenge and opportunity in which the future of the public sector is at stake. While the current crisis in state and local government bargaining is in some ways equivalent to the crisis that faced private sector collective bargaining during the 1980s, state and local governments have fewer degrees of freedom than private sector firms in dealing with the present crisis. These governments cannot shut down operations or move production abroad or, except in rare circumstances, engage in mergers, acquisitions, or bankruptcies. Therefore, unless elected officials, management, and union leaders step up to the challenge and accelerate the process of reform and improvement by working together, learning from experiences of the type reviewed here, and building on successful examples of jointly led innovation, we will likely encounter a period of protracted labor-management conflict that will further erode employee voice and precipitate a decline in the quality of public services. Education reform in particular will suffer from public conflict, and the public school environment will be characterized by high levels of stress and pent-up tensions, splitting local communities and setting back hopes for collaboration and innovation. Beyond education, however, all state and local public services, agencies, and functions are at a similar crossroad, with challenges to collective bargaining potentially resulting in prolonged conflict or, alternatively, new workplace, organizational, and labor-management innovations. It is therefore time for the research community to do its work—new work—in helping policy makers determine the key choices they will make in dealing with these high stakes issues.

Appendix A
Private Sector and State and Local Government: Compensation Comparisons and Full Regression Results

We compare workers of similar human capital or personal characteristics, labor market skills, and productivity affecting attributes to make public-private total compensation comparisons using standard OLS regressions with population sample weights.

The samples are restricted to full-time state and local government employees and private sector workers; they exclude federal employees, the self-employed, part-time employees, and agricultural and domestic employees. Each data set identifies an employee's full-time status, education level, experience level as a function of age minus years of education plus five, hours of work, gender, race, marital status, sector, and major occupations. In addition, some data sets provide disability, veteran, and citizenship status, employer organizational size, and industry. As with most studies of work and pay, we exclude part-

Table A.1. ECEC Benefit Markups Applied to Wages to Calculate Total Compensation

	Private employers, No. employees				
Occupations	*All*	*1 to 99*	*100 to 499*	*500+*	*State & local government*
All workers	1.2475	1.2318	1.2552	1.2630	1.3524
Occupational markups					
Management, business, and financial	1.2070	1.1955	1.2036	1.2212	1.2963
Professional and related	1.2184	1.1992	1.2108	1.2382	1.3298
Sales and related	1.2086	1.1997	1.2306	1.2041	1.3868
Office and administrative support	1.2717	1.2466	1.2847	1.3077	1.4151
Service	1.2550	1.2036	1.2758	1.3221	1.4185
Construction	1.3407	1.3213	1.3995	1.3364	1.4062
Installation, maintenance, and repair	1.2745	1.2561	1.3033	1.2983	1.3576
Production	1.2999	1.2667	1.3133	1.3296	1.3880
Transportation and material moving	1.3122	1.3027	1.3218	1.3193	1.4630

time workers because their work hours vary considerably, they earn substantially less than full-time workers, they are weakly attached to the labor force, and they typically lack benefit coverage.

We use three data series and alternative wage equation specifications to analyze and compare public and private employee compensation: (1) the U.S. Bureau of the Census: Integrated Public Use Microdata Series (IPUMS) of the March Current Population Survey (CPS); (2) the Current Population Survey Merged Outgoing Rotation Groups (CPS-MORG); and (3) the American Community Survey Public Use Microdata Area (ACS-PUMA).

The Employer Cost of Employee Compensation (ECEC) data were used for employer benefit costs to calculate employee total compensation. The BLS shared their unpublished sample estimates for major occupations by organizational sizes for private employers. Our study uses these ECEC sample estimates to calculate relative benefit costs for each private and public employee in the sample. We accomplished this by calculating the relative benefit markup for each private sector employee based on the size of organization that employs the individual and the employee's major occupation. Organization size is used for matching the CPS-IPUMS data, but cannot be used for the MORG-CPS or the ACS-IPUMS data because it is not a variable in those surveys. State and local government employees' wages were similarly marked up using an occupational benefit calculated using the ECEC data. It is assumed that when employees share information about their weekly or annual wage earnings they do not distinguish paid time off from time worked. Therefore, paid time off is not included in the markup. Census wages also include supplemental pay.

There is a debate about whether organizational size should be included in the specifications. The main argument for including employer size in wage equations is that it compensates for unobserved productive characteristics of labor. In the United States, large public and private organizations spend considerable resources recruiting and selecting employees. Through their human resources departments, large firms and government agencies recruit applicants and follow elaborate assessment procedures that may include aptitude and capability tests, physical evaluations, drug testing, medical screening, background and reference checks, reviews of licenses and certifications, decision-making simulations, and other practices. In the public sector, large organizations sometimes undertake not only these assessments but also additional reviews required by civil service regulations and security clearances. According to the Bureau of Labor Statistics's 2009 Occupational and Employment data, there were 198,190 employment, recruitment, and placement specialists working either on the demand or supply side of the labor market. This is in addition to 61,000 human resource managers who have some demand-side responsibility for staffing their organizations, and 815,000 human resource professionals employed either directly or indirectly by large organizations. This investment in employee selection and human resource management demonstrates the importance that large organizations in the United States place on hiring employees with the appropriate specific knowledge, skills, and abilities. From this research perspective, organizational size variables are proxies for labor quality not captured by standard human capital variables.

Further, large organizations can realize substantial savings in the provision of benefits, especially health insurance, because these firms self-insure and thereby escape the higher market costs of private insurance. In contrast, those who oppose the inclusion of employer size in these wage equations favor the traditional explanation that larger employers have relatively greater product market power and that workers capture some of these rents or, in the public sector, these rents emanate from taxpayers in return for employee and union political support. There is no overriding empirical resolution of this issue.

An alternative to the human capital method of assessing compensation is the job evaluation method, which scores jobs based on a variety of compensable factors and then uses a labor market survey of jobs to determine compensation. The Bureau of Labor Statistics collects this type of data in the National Compensation Survey (NCS), which is used to assess federal civilian compensation in comparison with private sector pay. The NCS collects information using the employer's most narrow occupational classification or job title and the incumbent individuals' earnings, work schedules, and job levels. NCS interviewers assign a level of work to all jobs in the survey within a scale of 1 to 15 that corresponds to pay levels in the General Schedule pay structure for federal government employees. In the job evaluation comparison method, work levels and occupations serve as substitutes for education level and experience. Using NCS microdata, Gittleman and Pierce (2011) estimate a model that includes detailed occupational and work level variables. They find that state government employees earn wages 2.3% below private sector employees and total compensation 8.7% above private sector employees whereas local government employees earn both higher wages (9.2%) and total compensation (17.6%) than private sector employees. These researchers also estimate a human capital model with occupational controls that finds state government employees earning 4.9% lower wages than private sector employees and local government employees earning 3.5% higher wages than private sector employees. Gittleman and Pierce (2011) refer to this model as a hybrid that controls for both human capital and occupation characteristics, though the NCS data exclude occupations unique to the public sector. These authors also report, however, that when examining occupations at the two-digit Standard Occupation Classification (SIC) level within the education occupation group, employment is relatively concentrated in kindergarten and preschool for the private sector, in primary and secondary teaching for local government, and in postsecondary teaching for state government. Because education accounts for 54% of state and local public employment in the United States, these within-occupation differences significantly bias the authors' occupational control estimates.

Further, in protective service occupations, professional police, detectives, and firefighters are employed in the public sector whereas relatively low-wage security guards are employed in the private sector. This difference is also masked by the authors' occupation variable, resulting in forced equality where there is none and therefore likely biasing their regression estimates. A similar "ignoring of difference" problem exists with Gittleman and Pierce's (2011) treatment of social service occupations. In addition, the NCS microdata are not publicly available, which precludes assessment of its embedded job evaluation model and the results derived from it. Still another criticism of including an occupation variable in a human capital model is that education and experience already control for occupational selection, hence a separate occupation control is redundant. Finally, the only largely populated occupations shared between private and public sectors are, except for registered nurses and maintenance workers, relatively low-wage and low-skilled occupations, such as office clerks, janitors, secretaries, and bookkeepers. Since we know that the public sector sets a floor on wages and benefits, these controls will overstate the influence of low-wage occupations on the earnings distribution. For these reasons, the wage equations should not include detailed occupational controls in regression analyses.

Health care cost increases are equally problematic and challenging in the private and public sectors. Retiree health care costs are a more serious problem in the public sector because many private sector firms have already cut back on these benefits or shifted a higher portion of the costs of retiree health care to employees and retirees. The specific levels of costs and the options for addressing them require state-specific fact gathering and offer an opportunity for public employers and public employee unions to pursue statewide bargaining or coalition bargaining or both, as others have done in response to past state- and municipal-level financial crises.

Public sector pension funding shortfalls vary considerably across states. The principal cause of such pension underfunding is the investment loss that occurred during the Great Recession. A secondary cause is the failure of some governments to make annual payments to cover the normal costs of pensions. This secondary cause can be addressed by requiring governments to make promised annual pension fund payments. Public employers and employee unions also need to address and, where appropriate, reform certain pension design and administrative features, such as those that increase pension benefits based on an employee's final years or year of service. We caution, however, that putative short-term savings in pension costs achieved by shifting to 401(k) and other defined contribution plans covering public employees put the public at risk of hidden costs, and are based on faulty assessment of the reasons for the public sector pension shortfall.

Appendix B

Table B.1 provides full regression estimates for a subset of the models reported in Table 2.

Table B.1. Full Regression Estimates for Wages and Compensations, Controlling for Hours Worked

	Natural Log of Wage Earnings				*Natural Log of Total Compensation*			
Independent Variable	*Annual PUMS*	*Annual PUMS*	*Weekly MORG*	*Annual ACS*	*Annual PUMS*	*Annual PUMS*	*Weekly MORG*	*Annual ACS*
State public employee	–0.1429	–0.0853	–0.1036	–0.0862	–0.0732	–0.0827	–0.0458	–0.0288
	0.0051	0.0065	0.0043	0.0014	0.0046	0.0065	0.0043	0.0014
Local public employee	–0.0700	–0.0429	–0.0750	–0.0559	–0.0001o	–0.0411o	–0.0148	0.0027*
	0.0038	0.0048	0.0034	0.0011	0.0035	0.0049	0.0034	0.0011
Hours of work	0.0005	0.0004	0.0065	0.0004	0.0005	0.0004	0.0065	0.0004
	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000
Experience (age ACS)	0.0371	0.0361	0.0301	0.0625	0.0384	0.0380	0.0302	0.0626
	0.0003	0.0005	0.0003	0.0002	0.0003	0.0005	0.0003	0.0002
Experience squared	–0.0006	–0.0006	–0.0005	–0.0006	–0.0006	–0.0006	–0.0005	–0.0006
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Less than high school			–0.2355	–0.1672			–0.2311	–0.1645
			0.0034	0.0015			0.0034	0.0015
High school graduate	0.2527	0.2692			0.2453	0.2587		
	0.0039	0.0062			0.0045	0.0072		
Some college	0.4071	0.4254	0.1348	0.1442	0.4001	0.4105	0.1275	0.1381
	0.0043	0.0068	0.0027	0.0010	0.0048	0.0077	0.0027	0.0010
Associate's degree	0.5266	0.5394	0.2036	0.2525	0.5136	0.5253	0.1940	0.2426
	0.0049	0.0076	0.0036	0.0013	0.0053	0.0084	0.0035	0.0013
Bachelor's degree	0.7829	0.8099	0.5176	0.5122	0.7505	0.7844	0.4955	0.4933
	0.0043	0.0071	0.0029	0.0011	0.0048	0.0078	0.0029	0.0011
Master's degree	0.9686	0.9988	0.6929	0.6956	0.9244	0.9683	0.6659	0.6729
	0.0052	0.0085	0.0044	0.0014	0.0056	0.0091	0.0044	0.0014
Professional degree	1.2787	1.2831	0.8119	0.9488	1.1936	1.2255	0.7859	0.9300
	0.0087	0.0172	0.0118	0.0034	0.0099	0.0184	0.0118	0.0034
Doctorate	1.1925	1.2387	0.8638	0.8129	1.1083	1.1666	0.8357	0.7894
	0.0095	0.0173	0.0100	0.0034	0.0099	0.0180	0.0100	0.0034

(*continued*)

Table B.1. Continued

	Natural Log of Wage Earnings				*Natural Log of Total Compensation*			
Independent Variable	*Annual PUMS*	*Annual PUMS*	*Weekly MORG*	*Annual ACS*	*Annual PUMS*	*Annual PUMS*	*Weekly MORG*	*Annual ACS*
Asian	–0.0286	–0.0292	–0.0233	0.0057	–0.0059o	0.0033o	–0.0233	0.0042*
	0.0048	0.0077	0.0056	0.0019	0.0051	0.0080	0.0056	0.0019
Black	–0.1374	–0.1189	–0.1402	–0.1096	–0.1350	–0.1218	–0.1387	–0.1087
	0.0033	0.0048	0.0031	0.0012	0.0033	0.0050	0.0031	0.0012
Hispanic	–0.1124	–0.1268	–0.1106	–0.0914	–0.1079	–0.1102	–0.1085	–0.0900
	0.0032	0.0045	0.0035	0.0012	0.0035	0.0050	0.0035	0.0012
Female	–0.2450	–0.2376	–0.2568	–0.2254	–0.2477	–0.2367	–0.2648	–0.2327**
	0.0021	0.0033	0.0020	0.0008	0.0022	0.0035	0.0020	0.0008
Disabled	–0.2982	–0.2785		–0.1411	–0.2415	–0.2367		–0.1402
	0.0078	0.0211		0.0017	0.0094	0.0214		0.0017
Married			0.0789	0.1115			0.0781	0.1108
			0.0021	0.0008			0.0021	0.0008
Noncitizen			–0.1370	–0.1688			–0.1344	–0.1660
			0.0042	0.0016			0.0042	0.0016
Veteran			0.0124	–0.0056			0.0134	–0.0046
			0.0035	0.0014			0.0035	0.0014
Organization size, 100 to 499	0.1322				0.0802			
	0.0031				0.0035			
Organization size, 500 to 999	0.1643				0.1291			
	0.0045				0.0045			
Organization size, greater than 1000	0.1872				0.1533			
	0.0024				0.0029			
Constant	8.6390	8.8684	5.9334	8.1521	8.9329	9.0127	6.1305	8.3439
	0.0063	0.0130	0.0054	0.0045	0.0073	0.0071	0.0054	0.0045
Observation	380,255	210,136	333,725	3,359,739	274,118	158,402	333,725	3,359,739
R squared	0.3859	0.3514	0.3691	0.4146	0.4082	0.3930	0.3642	0.4110

Notes: Standard error given below coefficient. All estimates statistically significant at .0001, except for those – o insignificant, * at .05 and, ** at .01.

Appendix C
"Transforming the Teaching Profession," Statement from the May 24, 2012, National Conference, Cincinnati, OH

Improving student learning and educational equity require strong, consistent, and sustained collaboration among parents, teachers, school boards, superintendents and administrators, business leaders, and the community. . . . It is in this spirit of collaboration that we offer this joint statement on elevating the teaching profession to improve the education of our students. The core elements of a transformed profession will include—

1. *A Culture of Shared Responsibility and Leadership:* In a transformed profession, educators take collective ownership for student learning; structures of shared decision-making and open-door practice provide educators with the collaborative autonomy to do what is best for each student . . . teachers and principals together make the primary decisions about educator selection, assignment, evaluation, dismissal, and career advancement—with student learning at the center. . . .
2. *Top Talent, Prepared for Success:* Students with effective teachers perform at higher levels . . . attracting a high-performing and diverse pool of talented individuals to become teachers and principals is a critical priority. . . .
3. *Continuous Growth and Professional Development:* Effective schools and districts are learning communities where teachers and principals individually and collaboratively continuously reflect on and improve their practice.
4. *Effective Teachers and Principals:* Effective educators have high standards of professional practice and demonstrate their ability to improve student learning.
5. *A Professional Career Continuum with Competitive Compensation:* [W]e need to offer educators career pathways that provide opportunities for increasingly responsible roles coupled with compensation that is high enough to attract and retain a highly skilled workforce. . . .
6. *Conditions for Successful Teaching and Learning:* We need schools and districts whose climates and cultures, use of time, approaches to staffing, use of technology, deployment of support services, and engagement of families and communities are optimized to continuously improve outcomes for the students they serve.
7. *Engaged Communities:* [N]o school can be a strong pillar of a thriving community without deep community responsibility for and ownership of the school's academic success. . . .

Signatories include Arne Duncan, U.S. Secretary of Education; Daniel A Domenech, Executive Director, American Association of School Administrators; Anne L. Bryant, Executive Director, National School Boards Association; Dennis VanRoekel, President, National Education Association; Michael Casserly, Executive Director, Council of the Great City Schools; Randi Weingarten, President, National Education Association; George H. Cohen, Director, Federal Mediation and Conciliation Service; and Gene Wilhoit, Executive Director, Council of Chief State School Officers.

Source: Joint Statement, May 24, 2012, Cincinnati, Ohio. See http://www.ed.gov/labor-management-collaboration.

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