

NBER WORKING PAPER SERIES

UNIONISM COMES TO THE PUBLIC SECTOR

Richard B. Freeman

Working Paper No. 1452

NATIONAL BUREAU OF ECONOMIC RESEARCH  
1050 Massachusetts Avenue  
Cambridge, MA 02138  
September 1984

The research reported here is part of the NBER's research program in Labor Studies and project in Government Budget. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research.

Unionism Comes to the Public Sector

ABSTRACT

This paper argues that public sector labor relations is best understood in a framework that focuses on unions' ability to shift demand curves rather than to raise wages, as is the case in the private sector. It reviews the public sector labor relations literature and finds that: (1) public sector unionism has flourished as a result of changes in laws; (2) the effects of public sector unions on wages are likely to have been underestimated; (3) public sector unions have a somewhat different effect on wage structures than do private sector unions; (4) compulsory arbitration reduces strikes with no clearcut impact on the level of wage settlements; (5) public sector unions have diverse effects on non-wage outcomes as do private sector unions.

In terms of evaluating public sector unionism, the paper argues that by raising both the cost of public services (taxes) and the amount of services public sector unionism involves a different welfare calculus than private sector unionism.

Richard B. Freeman  
National Bureau of  
Economic Research  
1050 Massachusetts Avenue  
Cambridge, MA 02138

## I. INTRODUCTION AND SUMMARY

In the 1950s only a small minority of public sector workers were organized and even AFL-CIO President George Meany believed "It is impossible to bargain collectively with the government."<sup>1</sup> Virtually no states had laws permitting collective bargaining for public employees. Strikes were prohibited. Analysts of unionism regarded most public sector employees as unorganizable.

In 1980 about 43 per cent of government employees were represented by labor organizations and 32 per cent were covered by contractual agreements.<sup>2</sup> Over three-quarters of the states had legislation authorizing collective bargaining by public employees.<sup>3</sup> Eight states permitted strikes by some public workers. According to the Current Population Survey (CPS) 43% of government employees compared to 22 % of private sector employees were "represented by labor organizations" in May 1980.<sup>4</sup>

What caused the sudden surge in public sector unionism in the United States? What are its economic consequences? How have various states and localities dealt with the organization of their employees? Which laws and procedures have proven more/less successful in coping with the unionism of public employees? In what ways does labor relations in the public sector parallel labor relations in the private sector? In what ways has the public sector been unique?

To answer these questions, I review the results of the past two or so decades of research on public sector labor relations. The research represents a significant and expanding effort by labor specialists. In 1960 relatively few labor relations articles in the leading journals dealt with the public sector; in 1983 not only were there numerous public sector articles in the labor jour-

nals but the field had grown sufficiently to produce two specialized journals, as well as numerous books and research treatises.<sup>5</sup>

The review shows that while we have amassed considerable knowledge about the nature of public sector labor relations, there are noticeable gaps in our understanding of what public sector unions actually do. The following seven propositions provide a general overview of the major findings and issues in public sector labor relations:

1. A fundamental difference between public sector and private sector collective bargaining is that public sector unions can affect the demand for labor through the political process, as well as affect wages and work conditions through collective bargaining. However, the intrinsic political aspect of public sector bargaining does not necessarily make the demand for public sector workers more inelastic than the demand for private sector workers, and thus does not necessarily give public sector unions great economic power. While it is true that public employers do not face competition in their locality, they are subject to the discipline of a budget and, in the long run, to exit and entry of residents and businesses (the Tiebout adjustment). Similarly, while public sector unions may have an advantage in bargaining because they can help elect the political leaders against whom they negotiate, "legislative vetoes" of negotiated settlements and taxpayers' referenda which limit taxes create potential weaknesses for unions. Finally, in contrast to private sector unions which are free to wield the strike threat as a weapon, union power in most public sector jurisdictions is limited by restrictions on striking.

2. The growth of public sector unionism in the past two decades can be traced, in large part, to the passage of laws (executive orders) which have

sought to bring the private sector industrial relations model to the public sector. In states with laws favorable to unionism, public sector unionism has flourished; in states without such laws, it has not. General lack of management opposition to public sector unionism, possibly due to the political power of unions, has been important for union victories in representation elections in the public sector. There is some indication that the spurt in public sector unionism has ended, leaving the U.S. with about a 30-40% union coverage of public sector labor.

3. Much of the literature concludes that public sector unions have had relatively modest effects on wages compared to the effects of private sector unions on wages. This result, if true, would resolve the debate over the relative strength of unions in public and private employment. A careful reading of the evidence, however, shows the finding to be questionable on several grounds: First, many public sector union wage studies looked at unions when they were just establishing themselves during a period of public sector expansion. If, as seems reasonable, the wage effects in first contracts are smaller than in later contracts and if union wage effects are smaller in booming than in declining markets, much of the early literature has understated the long term "equilibrium" impact of public sector unions on compensation. A second problem with the generalization is that few studies have distinguished between the effects of public employment per se versus effects from the type of occupations organized in the public sector. Public sector unions include a relatively large number of white collar workers, whose wages appear to be only moderately affected by unionism in the private sector. They include protective service workers, for whom it is difficult to find comparable occupational groups in the

private sector. The limited studies of union effects on blue collar workers in the public sector show wage effects similar to those in the private sector. A third reason for questioning the conclusion that public sector unions have weak wage effects is the likelihood that, because of "comparability" of wages across cities, there are greater "spillovers" of wage settlements in the public sector than in the private sector, biasing downward standard cross-section estimates of the union effect. Finally, for some groups, public sector compensation packages differ greatly in dimensions not captured in standard data sets. While these considerations do not necessarily prove the conventional generalization to be wrong, they suggest it should not be accepted without further investigation.

4. With respect to wage structure, public sector unions have quite different effects on some aspects of wage structure than private sector unions do, and quite similar effects on other aspects. The teachers' unions appears to widen educational wage differentials, while policemen and firefighters' unions appear to have little effect on the range of salaries for their members. This contrasts with the general equalizing effect of unionism on such differentials in the private sector. On the other hand, most studies find that in both the public sector and the private sector the union impact on fringe benefits is greater than the union effect on wages, and our analysis of overall inequality of earnings shows less inequality among union than among nonunion public sector workers.

5. Despite being illegal in all but eight states, strikes are part of public sector labor relations. From the 1960s to the 1980s, the number of strikes increased drastically until 1 of every 8 strikes occurred in the public sector. Public sector strikes are generally of short duration. While injunctions

often fail to halt strikes, there is evidence that the nature of strike laws affects their frequency. Public sector alternatives to the strike, in the form of various types of compulsory arbitration, have been successful in reducing strikes with no clearcut impact on the level of wage settlements. Arbitrators' decisions show no apparent bias toward one side or the other, despite frequent claims to the contrary. Final offer arbitration appears to have worked reasonably well, with less of a 'chilling effect' on negotiations than conventional arbitration, consistent with theory.

6. The limited evidence available on the effects of public sector unions on productivity shows that unionism is not inimical to productivity. Some studies find positive union effects, some find essentially no effects, but few find negative effects. However, problems of measuring output of public services make any firm generalization difficult. With respect to public budgets, studies suggest that unionization does, indeed, increase the share of a municipality's budget going to the workers in an organized function.

7. Several aspects of market performance have not, as yet, been extensively explored by public sector researchers. These include: the effect of public sector unions on turnover, which is known to be lower, in general, in public employment; the net effect of unions on the dispersion of earnings; the effect of unions on employment and wage responses to cyclical and other economic swings; and, most important of all, the effect of unions on the "price" of output, taxes, property values, and municipal finances in total.

Succeeding sections of this essay provide detailed evaluation of the research that underlies these seven propositions.

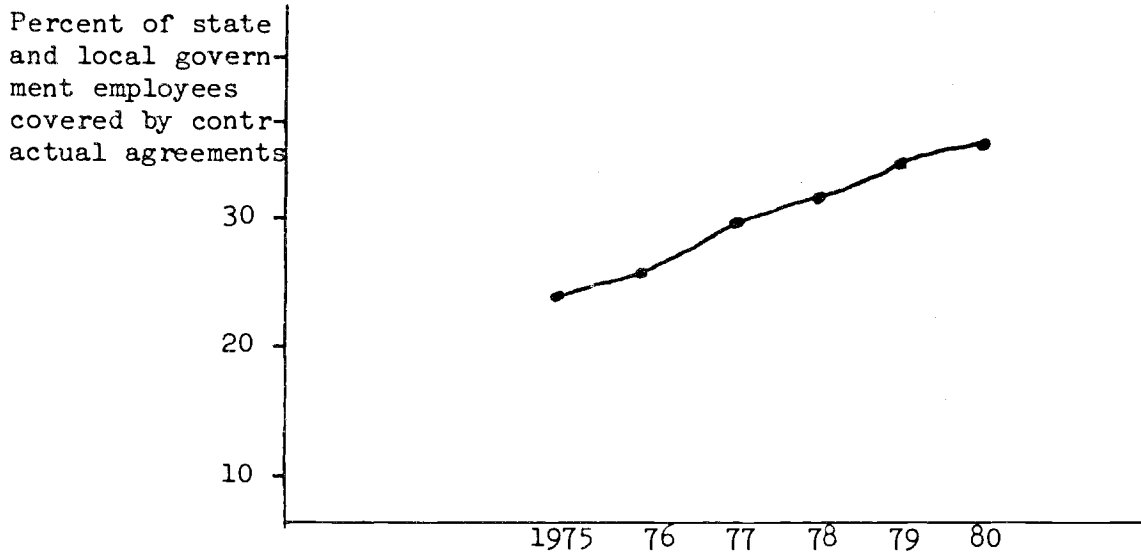
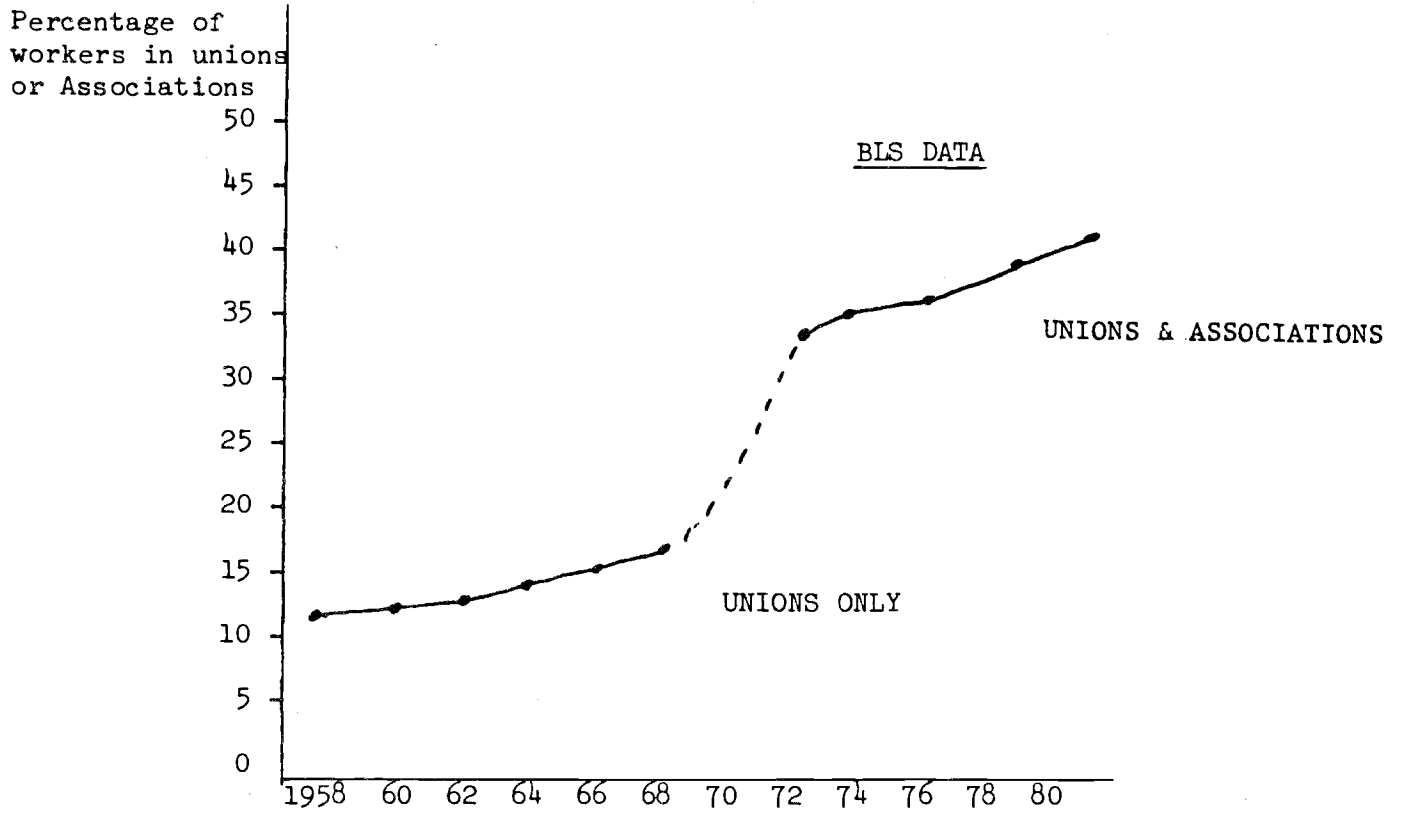
## II. THE NEW UNIONISM

Unions typically grow in sudden spurts after years of stagnation. As can be seen in Figure 1, this is true of public sector unions in the United States. During the mid 1960's - early 1970's, public sector union membership more than quadrupled.<sup>6</sup> The sudden growth of public sector unions was remarkable in that it occurred during a period of noticeable decline in the organization of the private sector. It came as a surprise to most observers, who had cited such factors as the security of public sector work, the high proportion of female, black, and white collar workers, adverse public attitudes, civil service laws and prohibitions on strikes as factors inhibiting organization.<sup>7</sup> Indeed, as late as February 1959, the AFL-CIO executive council stated that 'in terms of accepted collective bargaining procedures, government workers have no right beyond the authority to petition Congress--a right available to every citizen.'<sup>8</sup>

Table 1 shows that, while some of the newly organized public sector workers are in unions that are predominantly in the private sector, the majority of workers are in newly emergent public sector unions. These unions have certain distinct characteristics. First, in jurisdictional terms, many are more like craft than like industrial unions, being organized along occupational lines (i.e., the postal workers' unions, the teachers' unions, the police, the firefighters, the sanitation workers, and the transit workers). Second, the new unions have organized an exceptionally large number of "white collar" workers, even if one excludes the teachers. As Table 2 shows, less than one third of public sector organized workers are in units covering only blue collar employees. The comparable figure for private sector workers is a bare 12%.<sup>9</sup> Third, in addition to the unions which can and do negotiate and sign collective



Figure 1: The Changing Proportion of Public Sector Workers Organized



Department of Commerce and Department of Labor,  
 Labor Management Relations in State and Local  
 Governments, Issues for 1975 - 1980 (BCDL).

- Sources: (1) Directory of National Unions & EE Association, 1979  
 U.S. Department of Labor, BLS Bulletin 2079.
- (2) BLS Data - National Directory, 1979 and Statistical  
 Abstract, various years for employment.

Table 1: The Public Sector Unions, 1980

	<u>Membership</u>
<u>Teachers</u>	
America Federation of Teachers	551,000
National Education Association	1,684,000
American Association of University Professors	66,000
<u>Public Safety</u>	
International Association of Firefighters	178,000
International Conference of of Police Associations	50,000
Fraternal Order of Police	150,000
<u>State and Local Government</u>	
American Nurses Association	180,000
American Federation of State, County, and Municipal Employees	1,098,000
Service Employees International (1975)	180,000
Teamsters (1975)	100,000
Laborers (1975)	80,000
Assembly of Government Employees (1975)	600,000
<u>Federal Non Postal<sup>a</sup></u>	
American Federation of Government Employees	255,000
National Federation of Federal Employees	40,000
National Treasury Employee's Union	53,000
National Association of Government Employees (1982 Joined Service Employment)	50,000
International Association of Machinists	7,500
Postal and Federal	29,000-30,000
<u>Postal Unions</u>	
American Postal Workers Union	251,000
National Association of Letter Carriers	230,000

Note: Rounded off to nearest thousand.

Source: Bureau of National Affairs, unless otherwise stated, pp. 13-43. Service Employees International, Teamsters, Laborers, and Assembly of Government Employees is from Burton, 1975

<sup>a</sup>Levitan and Noden, Table 1

Table 2: Jurisdictional Coverage of Public Sector Unions

	<u>Percent Covered by Unions</u>
Federal Workers, 1981	61%
Federal Wage Systems (Blue Collar)	86%
General Schedule (White Collar)	54%
State and Local, 1981	49%
Local, 1976	52%
Teachers	68%
Police	53%
Fire	71%
Sanitation	40%
Hospitals	29%
In State and Local Contracts, 1976	
White Collar Only	42%
White Collar and Blue Collar	27%
Blue Collar Only	31%

Sources: Sar Levitan and Alexandra Noden, p.15  
 State and Local, Troy Table C  
 Contracts, Mitchell, p. 130

agreements over wages and fringes and working conditions, there are the sizeable federal employee unions which do not sign agreements over wages and fringes.

What caused the spurt of public sector unionism in the late 1960's - 1970's?

What changes led to the sudden organization of traditionally non-unionizable public sector workers?

First and foremost were changes in the laws regulating public sector unions. In the federal sector, Executive Order 10988 which President Kennedy announced in 1962, and which was later strengthened by ensuing presidents, was the principle cause of the rapid organization of federal employees. It provided for the recognition of federal worker unions but limited the scope of bargaining. Before 1962 unionization of federal employees was going nowhere; then suddenly, it shot upward. At the state and local level there were a variety of changes in the law occurring mostly in the 1960's and 1970's (see Table 3), which were followed by a rapid growth of unionization. The laws favorable to collective bargaining ranged from weak "meet and confer" laws, to requirements for bargaining, to compulsory arbitration when resolving disputes. While the various laws differ among types of employees (i.e. police and firefighters have different regulations than the teachers), states that have favorable collective bargaining laws in one area also have them in others, permitting the broad classification of states in Table 3.

As an example of the rapid change in state laws, consider Massachusetts. In 1958 it passed a law allowing public employees to join unions but not to bargain over economic matters. In 1964, it passed a law requiring bargaining over work conditions, which was extended in 1965 to include wages, but did not

Table 3: Changes in State Laws Regulating Public Sector Unionism

	1959	1969	1979
No Law	40	17	11
Prohibit Collective Bargaining	4	7	3
Bargaining that Permits "Meet and Confer"	5	13	9
Bargaining Required	1	15	38
Arbitration/Other Dispute Resolution Mechanism	n.a	n.a	19

Source: Tabulated from U.S. Department of Labor State Profiles: Current State of Public Sector Workers Relations, 1971, 1979.

Numbers for 1979 were calculated from p. 65 of 1979 profile.

contain any terminal mechanism for settling unresolved issues. In 1974 the state legislature ordered final offer arbitration to settle impasses. Then, responding to municipalities unhappy with final offer arbitration, the legislature developed a labor-management committee to resolve impasses through a variety of mechanisms. In the span of a decade, the state moved from no legal bargaining to bargaining with a dispute resolution mechanism guaranteeing a contract.<sup>10</sup>

In addition to passing laws which encouraged collective bargaining, the majority of states instituted public employee relations boards (PERB's) to hold representation elections among workers and to resolve charges of unfair labor practices.<sup>11</sup>

Studies of the spurt in public sector unionism (see Table 4) uniformly show that these laws were a major factor in the growth of public sector unionization. States that enacted laws had rapid increases in unionization in ensuing years. States that did not had no such growth. The more favorable the laws were to unions the greater the growth of unionization. For instance, in states where laws permit strong union security clauses, teachers unions appear to have done better than in other states. This is not to say that public sector bargaining does not exist in the absence of a law. Indeed, Ohio is a good counter example. But one counter example does not disprove a social science generalization. For the most part, the spurt in public sector unionism was associated with changes in state laws regulating collective bargaining.

Finally, it should be noted that there is some indication in the growth curves for public sector union organization that this spurt has come to an end. From 1972 to 1980 the share of state and local full-time employees with employee

Table 4: Studies of Impact of Legal Environment  
on Public Sector Union Growth and  
Determinants of Favorable Laws

<u>Study</u>	<u>Group</u>	<u>Result</u>
<u>UNION GROWTH</u>		
Moore	Teachers, cross-state and time series, 1919- 1970	Mandatory bargaining laws help AFT not NEA
Reid and Kurth	Public employee unionism, 1972-1980	Progressive state labor law raises unionism
Dalton	Government employees, 1976	Mandatory bargaining laws greatly raise union density
Reid and Kurth	Teacher unionism, 1972-1980	Teachers union growth spurred by provisions allowing exclusive representation, checkoff of dues, deterred by right- to-strike laws
Moore	Public sector unionism, 1968	Comprehensive collective bargaining laws raise unionism
Ichniowski; Lauer	Police unionism, 1960-1980	Collective bargaining laws are a key factor in police organization
<u>DETERMINANTS OF LAWS</u>		
Faber and Martin	Laws on teacher collective bargaining	Urbanized states and those scoring high (low) on ADA (ACA) ratings passed laws earlier
Kochan	State public employee bargaining laws	Per capita change in income 1960-70, state per capita expendi- tures of government, and innovativeness of state leads to public sector collective bargaining laws

organization representation was virtually unchanged at almost 50 per cent.<sup>12</sup>

Why Did the New Laws Induce the Spurt in Public Sector Unionism?

The various state public employee labor laws of the mid 1960's - 1970's established mechanisms for workers to vote for/against collective representation and required public sector employees to bargain with them. Both of these legal innovations were already part of the National Labor Relations Act governing private sector unionism. They can be viewed as making public employees more like private employees. Yet unionism in the private sector declined during the period. One possible reason for the different results is that there was "pent-up" demand for unionization in the public sector, but not in the private sector. Another reason, which I believe to be more important, is that public sector employers have not fought union organization of their workers to the extent that private sector employers have. As public officials, they cannot break the spirit or letter of the law, as management can in the private sector. Hence, the same nominal election procedures produce different results in the two settings.

Finally, an important issue which must be addressed in any analysis of the impact of laws on society is whether the legal changes have a true independent effect on social outcomes or whether they are simply an intervening or mediating factor for more fundamental forces. Studies of the variables associated with passage of laws favorable to public sector collective bargaining show that the laws have come first in states with high income per capita and a history of innovations in governmental activity. Some show that these laws are more likely in states that are highly unionized in the private sector, but others do not. While detailed analysis of legislative votes and of the history of key legisla-



tion is required to determine full causal routes the available evidence suggests that the laws had an independent effect. Without legislation favorable to collective bargaining we would not have observed the extensive unionization of the public sector in United States, at least not to the extent which actually occurred.

### III. THE NEW SETTING

The public sector differs in several important ways from the private sector (see Figure 2). Public employers have the sovereign powers of the state; they generally are monopolies in their local area; they are ultimately responsible to the voting public, including public sector workers; and some produce essential services (police, fire, and defense).

Do these differences make the private sector industrial relations system essentially inapplicable to the public sector, or are these differences substantially no greater than the differences between various private industries such as steel and construction, for example? Do the unique features of the public sector give unions of governmental employees particularly strong economic power, as some have alleged?

#### The Sovereign Power Issue

Among the first objections to public sector unionism was the claim that such unionism infringes on the sovereign power of the state in determining levels of services and rules for the behavior of public employees. Surely, it was argued, one cannot allow public employees, particularly the military, the police, or fire fighters to have power independently of the elected government.<sup>13</sup> The counter argument is that there is nothing special about employee-employer relations for most public sector workers. Why should a worker employed in a private firm under city contract operate under a drastically different labor law than the equivalent worker in a city owned service?

The sovereignty issue has, for the most part, been resolved by allowing public sector workers to organize, but by forbidding most, particularly those in "essential services," from striking. For workers in "nonessential services,"

Figure 2: Industrial Relations System in Public Sector  
Compared to Private Sector

<u>Actors</u>	<u>Public Sector</u>	<u>Private Sector</u>
1. Management	Elected officials Legislative/City Council voters, through referendum	Managers
2. Unions	Often white collar	Mostly blue collar
3. Third Party	Compulsory arbitration Police, military power of state	Some mediation some arbitration
4. Workers	Usually have some job security, more likely to be worse on blacks	Workers
<u>Technology/Market</u>		
5. Output Produced	Unpriced goods, hard-to- measure public goods	Priced goods and services for private consumption/investment
6. Competition	Monopoly in local market	Competitive markets in most cases
7. Entry & exit	Residents and businesses can move across locales	New firms enter/ leave given locale
8. Budget Conditions	Budget constraint Can change taxes Intergovernmental grants Short-term debt	Profits "buffer" changes in wages Raise/lower prices to change revenues
<u>Power</u>		
9. Influence on other side	Unions can help elect political leaders	Unions have no say in company policy
10. Conflict tools	Strikes often prohibited	Free to strike with only modest Taft-Hartley restrictions
11. Illegal Acts	Management unfair labor practices unlikely	Little penalty for management unfair labor practices. Illegal acts frequent and rising

however, actual penalties for strikes are often moderate, effectively allowing short strikes (see section V).

The federal government stands in a unique position with respect to sovereignty. While federal employees are allowed to form unions and negotiate over working conditions, they do not negotiate over wages and are not allowed to strike. The high unionization in the federal sector thus provides evidence for worker desire for representation in a large bureaucratic organization, exclusive of the "monopoly" power of unions to raise wages through collective bargaining.

#### The Monopoly/Inelastic Demand Issue

The argument that the monopoly power which governments have in their jurisdiction creates such inelastic demand for public sector employees as to give public employee unions great economic power was stressed by Wellington and Winter in their 1971 book:<sup>14</sup>

"...to the extent union power is delimited by market or other forces in the public sector, these constraints do not come into play nearly as quickly as in the private.

"...some of these services are such that any prolonged disruption would entail an actual danger to health and safety. . . the demand for numerous governmental services is relatively inelastic, that is relatively insensitive to changes in price. Indeed, the lack of close substitutes is typical of many governmental endeavors."

I reject this claim for three reasons:

1) In the short run governments face tax and budget constraints that create a potentially more rather than less elastic demand for labor. This is because an employer operating under a budget constraint has no profit "residual" from which to pay higher wages or in which to put savings from lower wages. All of the adjustment to changes in wages take the form of an adjustment in quantities. More broadly, the budget serves as a 'disciplinary' device in the

public sector as does market demand in the private sector, forcing a quantity price tradeoff on the employer.

2) In the long run, cities and states are not really monopolies, since residents and businesses can move from one jurisdiction to another. Indeed, by analogy with the factor equalization theorem of trade theory, mobility should compensate fully for the monopoly power governments have in their jurisdiction. Citizens unhappy with level of public services can move elsewhere, reducing the taxable population and thus the ability to pay public sector wages. Mobility places great constraints on public sector union bargaining power as has been stressed by Courant, Gramlich, and Rubinfeld. Moreover, in jurisdictions where taxation of property raises funds for operation of governments, the capitalization of taxes in property values is an additional constraint on public sector budgets and thus on union ability to raise wages.

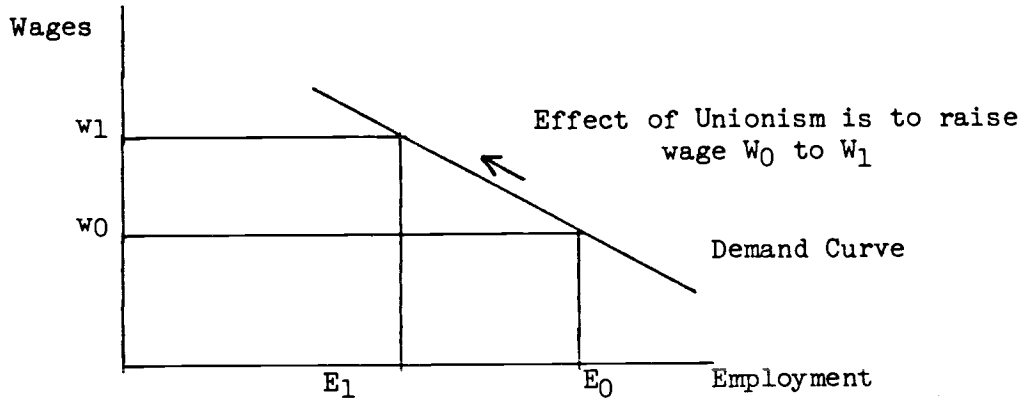
3) Where public sector workers are "essential" they are almost always forbidden to strike which greatly reduces their economic power, as noted earlier.

### The Political Context

The political dimension clearly creates a distinct environment for labor relations which leads collective bargaining down different paths than in the private sector. While private sector unions can occasionally alter the demand for labor curve (through union label campaigns, or by bargaining over employment as well as wages) the usual assumption is that they alter the cost of labor, with firms responding by changing the level of employment (see Figure 3A). Indeed, the standard model of private sector unionism evaluates the monopoly loss due to unionism in terms of the lower national output because of the reduc-

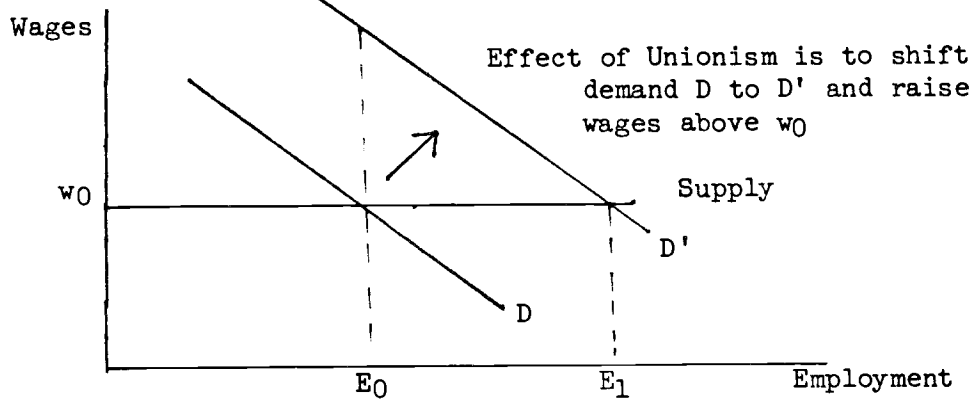
Figure 3: Differences Between Public Sector and Private Sector Union Effects

A. Private Sector Union Wage Effects

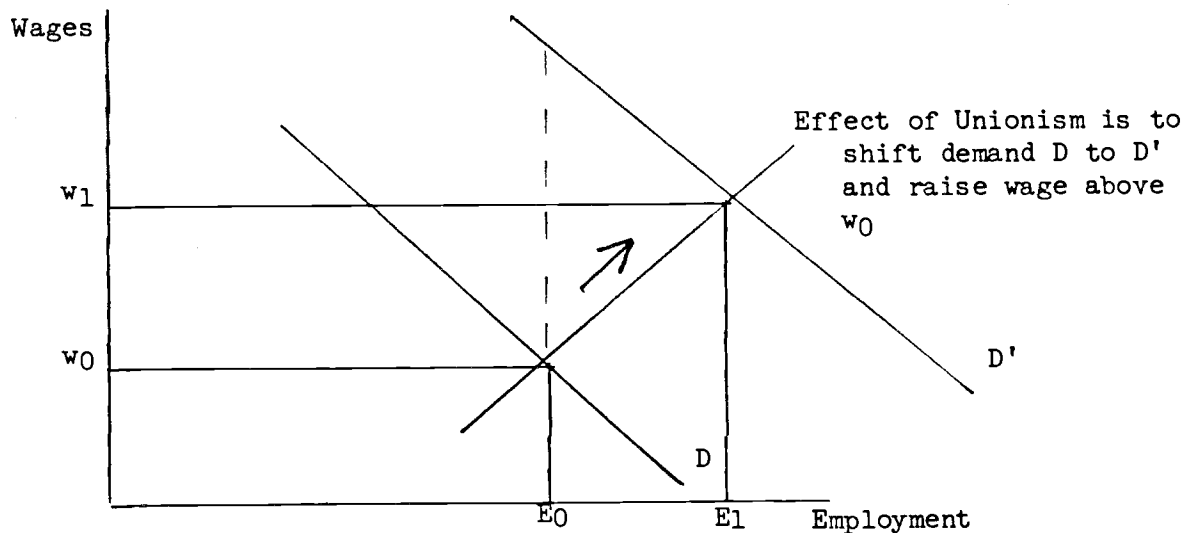


B. Public Sector Shift in Demand Effects

Case I: Perfectly elastic supply curve



Case II: Upward-sloping Supply Curve



tion in employment and increased marginal product in the union sector. By contrast, public sector unions can be viewed as using their political power to raise demand for public services, as well as using their bargaining power to fight for higher wages (Figure 3B and 3C). A possible criticism of public sector unions is that they increase public goods production beyond the social optimum, raising rather than lowering employment.

Politics, however, is a two-edged sword, and it is by no means clear whether collective bargaining in a political context increases or reduces union power. On the one hand, public sector workers are an identifiable voting bloc and potential activist group in local election campaigns. But so too are taxpayers. In the private market consumers affect wages of workers only indirectly through shifts in purchases when increased wages lead firms to raise prices. In the public sector 'consumers' can affect wages directly by electing officials, passing referendum and the like which restrict settlements. In virtually every state, so-called "legislative vetos" can vitiate bargains, as legislatures/councils refuse to raise the money to fund signed contracts. For example, in the 1970s, despite signed contracts college professors in the University of Massachusetts system did not receive salary increases for several years because the legislature did not allocate the funds.<sup>15</sup> Taxpayer revolts, as evidenced in proposition 13 (California) or 2 1/2 (Massachusetts), have also been used by opponents of public spending to limit potential union wage gains by capping tax revenues or budgets.

In other circumstances unions have effectively used legislature or voter support to win terms they could not gain at the negotiating table, as the following case cited by the Labor Management Relations Service indicates:

A prime example of union use of the referendum to bypass a municipal employer unreceptive to union demands is that of the St. Louis Fire Fighters Local 73, who sought by special election to obtain equal pay with policemen. They rang doorbells and conducted an intensive campaign for votes in homes and taverns and at barbecues and labor and political meetings. The firemen also appealed for votes in newspaper, television, and radio advertisements. It was estimated that the entire campaign, financed by assessments on members of Local 73, cost between \$35,000 and \$50,000. This compared to the \$6,000 spent by the firemen's principal opponent, Mayor Alfonso J. Cervantes, who campaigned against the raise claiming it would cost the city \$1.7 million for a full year and probably cause a reduction in the number of fire companies. The firemen, claiming that these were "scare tactics," prevailed, as the voters gave the proposal a 64.7 percent majority; it needed sixty percent to pass.<sup>16</sup>

The term 'multilateral bargaining' is commonly used to refer to the situation in which public sector unions bargain not simply with those across the table from them but with other interested public parties as well. In such bargaining, need for public services, public expenditures, quality of services, as well as wage packages are often at stake. Neither in theory nor in practice does multilateral bargaining necessarily improve the union's ability to win wage gains.

In sum, the unique features of the public sector do, indeed, make it different from the private sector, producing a different industrial relations system. Careful examination of how these features affect the bargaining power of the two sides suggests, however, that the relative strength of unions in the public versus the private sector cannot be resolved by a priori logic. The issue requires empirical analysis, to which we turn next.



#### IV. UNION COMPENSATION EFFECTS

The general tone of studies dealing with the effect of public sector unionism on compensation is that the effects tend to be small. Indeed, most survey articles have concluded that "The 'average' wage effect of unionism in government... is roughly on the order of five per cent...smaller than the average union wages impact in private industry."<sup>17</sup>"The general effects (of public sector unions) which have been measured are not huge."<sup>18</sup>

This generalization rests on extensive analysis of teachers unions, police and firefighters organizations, and on studies of the Current Population Surveys.

The studies vary substantially. Some analyze wages of public sector workers by state, city, or district at a moment in time, using the fraction in a collective organization or having contracts as the "union variable." Others analyze rates of change in wages over time, looking for an acceleration in the rate of change after unionization. Some look at wages of individuals on large data tapes. Others perform before/after comparisons of wage rates. For the most part, the studies relate to the period from the mid 1960s to the early or mid 1970s. In this section I review briefly the relevant studies and examine the evidence and arguments that I believe question the existing generalization.

##### The Studies of Teachers

Table 5 reports the results of diverse estimates of the effect of school teachers unionization on wages, organized by time period, unit of analysis, and the approach taken. The results for 1965-1968, which cover the beginnings of teacher unionism, support the view that at that time teachers unionism

Table 5: The Wage Effect of Teachers Unionization

Finding by Year, Study and Type of Experiment  
(CS = Cross-Section; B/A = Before/After)

YEAR	STATE STUDY	TYPE OF EXPERIMENT	DISTRICTS STUDY	TYPE OF EXPERIMENT	INDIVIDUAL STUDY	TYPE OF EXPERIMENT
1965-70	Kasper '67-68	CS	Landon/Pierce '65-68 Baird/Landon '66-67 Thornton '69-70 Lipsky/Drotning '67-68	1% 5% 4% 3%	CS CS CS CS	
			Rehmus/Wilner '61-65 to '66-68 Zuelke-Frohreich '68-69 Hall-Carroll '68-69 <sup>a</sup> Frey '69-70 Schmenner '67-70 (big cities only)	6% 0% 2% 1% 12-14%	B/A CS CS CS CS	
1970-74	Brown '61-65 <sup>b</sup> to '66-71	B/A	Chambers '70-71	6-12%	CS	Baugh & Stone '74 7% CS
	Smith, U.S. Total '61-62 to '63-71	B/A				Baugh & Stone '74-75 4% B/A
1975- 82	Balfour '69-70	B/A	Holmes '75	3-10%	CS	Baugh & Stone '77 21% CS Baugh & Stone '77-78 12% B/A

Notes: <sup>a</sup>Hall and Carroll figure calculated by dividing \$165, increase from unions, by \$9133, calculated mean salary, in the article.

<sup>b</sup>Figures from Brown article were calculated by taking the difference between negotiating states' per cent increase in salaries for teachers and % increase for other workers (71.6% - 99%) and subtracting from this number the difference between non-negotiating states' % increase in salaries for teacher and % increase for other workers (50.5%-103.8%) from Table 5, p. 61.

did not greatly affect compensation levels. Averaging across all the studies, the union effect for the early period is a bare 3 per cent. The studies for 1969-1974, by contrast, show larger positive union effects, of about 6 per cent on average. The most recent Baugh and Stone analysis of individuals for 1977 finds very large effects, of 21 per cent in a cross section and 12 per cent in a before/after framework. Comparing 1974-1975 CPS results with 1978-1979 results they find a tripling in the union wage effect over time. As a check on this finding, I estimated their cross-sectional model for 1973 and 1981 and obtained a similar result. As a further check, I have also examined the pay of teachers across states by degree of unionization and also find evidence of a rising union impact.

There are several possible causes for the increased wage effect of the teachers union. One likely cause is changed economic conditions. In the early period the market for teachers was strong, with consequent good wages for non-union as well as union teachers; in the latter period the market was weak with the teachers union using its power to offset some downward pressure on wages. Another hypothesis is that modestly higher differentials in rates of change of pay per settlement cumulated over time to a sizeable union effect. A third possibility is that, in fact, the power of the teachers union has risen because of increased willingness to strike and changes in state laws regulating teachers collective bargaining. Which, if any, of these possibilities is correct requires not only a careful analysis of the teachers union wage effect using comparable data over time (along lines of Baugh-Stone) but also better measures of union economic power than has been common in studies. Because of differences in the legal treatment of teachers unions across states and over

time, simple dichotomous or percentage organized variables are potentially misleading: two areas with the same "unionization" may have different economic outcomes because in one area the law gives the union of teachers greater power than in the other, for instance, by requiring final offer arbitration or allowing strikes.

### Protective Service Workers

The second most extensively studied group of public sector unions are the police and firefighters, for whom the standard study has found moderate effects in the area of 5-10 percent (see Table 6). For both occupations, there is a general finding that effects are larger on total compensation than on wages; that effects are larger for larger cities; and that effects may vary over time. The Feuille, Hendricks and Delaney estimates of police union effects over time show a definite rise from the early 1970s to the mid-1970s, followed by a decline at the turn of the decade.

There are two possible problems with the studies of union effects among protective service workers which suggest the 5-10 percent wage effects may underestimate the actual impact of unionism. The first problem is the not-so simple matter of measures for pay. All of the studies use reported salary rates or average salary compensation from the Census of Governments or the International City Management Association (ICMA) or comparable sources. These sources value one of the components of compensation which unions appear to raise--retirement pay-- at current employer cost rather than at the actuarial value to workers. If, as some claim, the public sector has a bias toward deferred compensation because politicians have a short time horizon this is likely to understate the effect of public sector unions. In addition, standard

Table 6: The Wage Effect of the Protective Service Unions

Firefighters

	<u>Year</u>	<u>Estimated Effects of Unions on Pay</u>
1. Ashenfelter	'61-'66	4%-14%
2. Ehrenburg	'69	8%-10%
3. Ichniowski	'66	0%
	'76	3%- 4%
	'66-'76	
4. Ehrenberg & Goldstein	'67	7%
5. Wayslenko	'68	12%-14%
6. Schmenner (Police and Firefighters)	'62-'70	15%
	<u>Police</u>	
1. Wayslenko	'68	0%-2%
2. Ehrenberg & Goldstein	'67	7%
3. Bartel and Lewin	'73	4%-6%
4. Hall & Vanderporten	'73	3-12%
5. Feuille, Hendricks, and Delaney	'71-'75	5%- 7%
	'76-'78	9%-11%
	'79-'81	6%- 7%
6. Kearney - Morgan	'76	1%
7. Freeman, Ichniowski and Lauer	'76	CS 3%-7% "Spillover" 18%
	<u>General Municipal and Other</u>	
1. Schmenner	'62-'70	no union effect
2. Freund	'65-'71	no union effect

Note: Hall and Vanderporten figures calculated by dividing coefficients for mean salary by both minimum and maximum average annual salary scales (\$9,925 and \$12,312) in 1973 from Statistical Abstract of U.S. 1976, p. 166.

data sets ignore other "extra compensation" (days worked at overtime) which are important in the protective services.

Table 7 provides a rough notion of the possible error in analysis due to this data problem. It compares the reported compensation from the Urban Institute "Twelve City Studies" with the reported compensation from the ICMA in the same year. The differences are large and suggestive of a sizeable problem in empirical analysis.

The second potential problem with estimates of the effects of protective service worker unionism is the possibility of sizeable "spillovers" from union to nonunion cities. Such spillovers are more likely for these occupations than for others because of the lack of equivalent occupations in the private sector and the consequent tendency for police and fire fighters to stress pay comparability across cities. One admittedly crude way to examine this idea is to relate wages to unionism in a greater geographic area. Studies which have done this suggest union wage effects are roughly twice as large as the 5-10 percent the standard cross-section analysis.<sup>19</sup>

#### Additional Groups

In addition to the studies of teachers and protective service unions, there have been a few studies of union wage effects in particular blue-collar occupations which are directly comparable to those in the private sector. As Table 8 shows, these studies present a very different picture of the relative economic impact of unionism in the public and private sectors than is indicated in the earlier literature: even in the early 60s and 70s these studies show no noticeable difference in the wage impact of unions in the two sectors. For some groups of workers (bus drivers, sanitation workers) the union effects have been

Table 7: Comparison of Pay of Police  
Reported by ICMA and Reported in "Twelve City Study"

City	<u>International City Management Association</u>	<u>"12 City Study"</u>
	Total Compensation Per Hour Worked	Total Compensation per hour worked (5 years experience)
San Francisco	19.45	21.99
Los Angeles	14.40 <sup>a</sup>	21.76
Philadelphia	13.83	16.47
San Diego	11.37	14.10

<sup>a</sup>Pension data not reported to ICMA

Sources: ICMA, tabulated from tapes.  
"12 City Study," from E. Dickson and G. Peterson Public Employee  
Compensation, The Urban Institute, Table 2.

Table 8: Effects of Unionism: Public vs. Private Sectors  
by Occupation

	<u>Result</u>
1. Bus drivers, 1963-71 (Hamermesh)	Unionized drivers in government owned buslines do 3-6% better than those in private owned lines.
2. Construction workers, 1970 - 1972 (Hamermesh)	Unions in the public sector raise wages 16-25% comparable to increases in the private sector.
3. Sanitation workers, 1974 (Edwards and Edwards)	Unionism raises public sector wages by 11-13% compared to 0-5% in private sector.
4. Hospital workers, 1966, 69, 72 (Fottler)	Unions in the public sector raise wages by 10-14% compared to 14-19% in the private sector.
5. All Blue Collar and White Collar Workers, 1967-77 (Moore and Raisian)	Unionism raises blue collar wages by 23% in the public sector compared to 31% in the private sector; unionism raises white collar wages by 6% in the public sector compared to 4% in the private sector.
6. All Blue Collar and White Collar Workers, 1971 (Shapiro)	Unionism has no effect on white collar wages in public sector or in private sector but has a 20% effect on blue collar wages in the public sector and a 25% effect in the private sector (some differences for blacks).



larger in the public sector; in others (construction) they are about the same in the two sectors; while in others (hospital workers), they are slightly less in the public sector. Moore and Raisian found in the Michigan Panel Survey that unionism raised blue collar wages significantly in the public sector and raised white collar wages more in the public sector. Overall, the evidence in Table 8 provides an important antidote to the claim that public sector unions have smaller wage effects than private sector unions because the government is the employer. If public sector unions have smaller wage effects, it could be because of the occupations covered.

#### The Total Work Force

An alternative to the analysis of detailed occupations which occupies much of public sector labor relations research is to examine the pay of all government employees on large data sets. The most important such study, by Sharon Smith, found that in 1975 government employees in general were paid more than private sector employees, but that unionism raised wages less for public sector than for private sector workers, controlling for a wide variety of additional wage determinants. Using a slightly different model, with fewer controls, I report in Table 9 similar union results for 1973 and 1981 with, however, evidence of increases in the union impact in some government sectors and decreases in others. Moore and Raisian's analysis of the Michigan Panel Survey of Income Dynamics shows greater variation in the public sector union effect over time, with a drop from the late 1960s (when few were organized) to the early 1970s and a rising effect thereafter. In the absence of a comprehensive study of various data sets, definitions of government employees, and different models, the safest conclusions are that the union effects differ significantly over time and are

Table 9: Effects of Public Sector Unions

From Micro Individual Surveys

Current Population Survey

Regression Coefficients from Log-Linear Wage Equations

	1973	1981
Union Impacts on Government Workers	.13	.09
Federal <sup>a</sup>	.00	.04
State Pub Ad.	.03	.17
Local Pub Ad	.08	.11
Other Non-pub Ad	.16	.11

Michigan Panel Survey  
(Moore and Raisian)Averaged from Moore and Raisian, Table 1  
Percentage Union Wage Premium

	Public Sector (except education)	Economy as a whole
1967-69	12	23
1970-72	6	22
1973-75	17	24
1976-77	15	27

Source: CPS, tabulated by author using standard log wage equations.  
Michigan Panel Survey, Moore and Raisian

<sup>a</sup>Federal effect should be zero, and in 1981 the coefficient  
is not statistically different from zero.

generally smaller than those in the private sector (for any of the reasons given earlier but are far from negligible.

#### Composition of Compensation

Private sector unions raise "fringe benefits," especially deferred compensation, more than they raise wages, and have sizeable impacts on the structure of wages, reducing personal differentials and the overall inequality of earnings within the union sector. Do public sector unions have the same effects?

With respect to deferred compensation there is good reason to believe that they should have larger effects. First, on the union side, the same arguments that have been advanced to predict higher fringe spending under unionism in the private sector should also hold for the public sector. Second, as noted on the employer side, it is argued that politicians with short time horizons should be especially willing to pay fringes.

In fact, as Table 10 shows, all studies find that public sector unions raise fringe benefits by considerably more than they raise wages, except for hospital workers. One important consequence of the increased pensions due to public sector unions is that public sector retirement funds had assets of 355 billion dollars in 1982.<sup>20</sup> It is the size of these funds that underlies the Rifkin-Barber argument that public sector assets should be invested in the states in which the workers live, "to make the north rise again."

What public sector unions do to the structure of wages is less clear. On the one hand, there is Holmes' evidence that teacher unionism raises the premiums for education and for experience, which runs counter to the private sector union effect in reducing these differentials. On the other hand, Gustman and Segal have found that teacher unionism reduces the number of steps in the

Table 10: Effects of Public Sector Unions  
on Composition of Compensation

<u>Group</u>	<u>Conclusion</u>
1. Firefighters (Ichniowski)	Union raises spending on fringes by 7% compared to 4% wage effect.
2. Police	
a. Bartel and Lewin,	Union raises spending on fringes by 8-17% compared to 6-12% wage effect.
b. Feuille	Union raises spending on fringes by 12% compared to 5-10% wage effect.
c. Feuille, Hendricks, and Delaney	Unionized cities have fringe benefits 20-30% higher than union cities, compared to roughly 5-11% for wage effect
3. Teachers	
a. Holmes	Teacher union raises premium for education and for experience
b. Moore	Teachers union reduces secondary school/elementary school premium by 6%.
c. Gustman & Segal	Teachers affect pension levels substantially for those with less than 25 years of experience (48%) but not those with more experience.
4. Sanitation (Edwards & Edwards)	Unions raise spending on fringes by 27-43 % compared to 9-22% wage effect.
5. Hospital Workers	
a. Becker	Unionization has moderately greater effects on fringes than on salaries.
b. Feldman & Scheffler	Unionization increased fringes about 6% while wages increased 8-12% in a hospital with 50% of employees unionized.
c. Cain et.al.	Unions had a large effect on fringes but a small and statistically insignificant impact on wages.

salary structure, which reduces inequality, and Moore reports a reduction in the secondary teacher-elementary teacher differential in Nebraska. The various studies of the effect of firefighters and police give a mixed picture of the union impact on minimum versus maximum salaries. Some studies find larger effects on minimums than on maximums but not by very much, while others find smaller effects.<sup>21</sup>

To get an overall picture of how public sector unions affect the structure of personal differentials and inequality, I have made a preliminary analysis of Current Population Survey data in 1973 and 1981. Taking non-federal government workers as a whole, I find a lower standard deviation of log wages among those who are union members:

	1973	1981
Union	.39	.41
NonUnion	.55	.54

In addition, I find that separate regressions for the wages of the two groups show:

1. Smaller effects of education in the union setting, particularly in 1973;
2. Smaller effects for sex in the union setting, especially in 1981, implying a greater union impact on female than male wages; this result is consistent with Sharon Smith's analysis, which showed larger union effects on female than on male wages;
3. Slightly positive effects of being black in the union setting, compared to slightly negative effects of being black in the nonunion setting, implying a larger union impact for blacks than for whites;
4. A mixed pattern of age effects on wages, different from that found

in the private sector.

The finding that public sector unionism reduced sex differentials is but one indication of union efforts to equalize pay between the sexes. In what is perhaps the most important development in public sector wage determination in decades, AFSCME has won, in federal court, increases in the wages of female workers in the state of Washington of 31 per cent and upwards, to bring about "comparable worth." According to the ruling in District Court, from 1983 to 1985, the state must bring wages for workers in predominantly female job classifications up to levels paid to workers in predominantly male occupations that require comparable skill, responsibility and working conditions. AFSCME brought the original suit after ten years of trying to get the state to comply with the findings of the states' own comparable worth studies. It has been estimated that the raises will bring about \$200 million to affected employees over the two years and \$500 million in back pay to about 15,000 workers, mostly women.<sup>22</sup> Unless the decision is reversed on appeal the landmark pay equity ruling may revolutionize pay practices in the public sector.

#### Wages and Employment in a Macro Context

With about 15% of the work force employed in the public sector, the extent to which public sector wages and employment vary over business cycles and in response to secular changes has important macro-economic implications. At one point many analysts believed public sector labor markets to be less responsive to economic conditions than private sector markets.<sup>23</sup> The sharp increase in relative wages and employment of public workers in 1960s and decreases in pay (and incomes, employment) in the 1970s calls into question this generalization. During the 1970s-1980s the federal government broke from its stated com-

parability policy to grant smaller pay increases than those in the private sector, raising the possibility that in times of stagflation public sector wages are more responsive to conditions. I know of no significant study of the macroeconomics of public sector wage and employment responsiveness to inflation, normal business cycle swings, and abnormal changes. Such an investigation should be clearly tied to public finance studies of cyclical/secular/abnormal changes in federal, state and municipal finances and to variations in sales/income and property tax legislation across state municipalities.

## V. NON-WAGE EFFECTS

Analysis of the non-wage effects of private sector unions have followed two lines of research. The classic Slichter, Healy & Livernash book, The Impact of Collective Bargaining in Management presented the results of 100 or so case studies concerned with changes in personnel practices, management and productivity. More recently, labor economists have used modern quantitative tools to estimate the effects of unions on turnover, job satisfaction, productivity, capital/labor ratios, and profits.<sup>24</sup>

Is it reasonable to expect public sector unions to have as significant effects on non wage outcomes as private sector unions have?

Because of the unique features of the public sector environment, the answer varies depending on the outcome. Since turnover is often low in the public sector in the absence of unions, one would expect only marginal effects on quits and layoffs. As productivity is often said to be lower in the public sector than in the private sector in the absence of unions, there may be more room for positive union productivity effects. Because of civil service rules, there may be less union impact on personal policies, but because of managerial inefficiency, there may be more. Finally, the effect of unions on the public sector equivalents of profit and prices--taxes, bond ratings, and property values--will be large or small, depending on the power of the unions to raise budgets, which can be determined only empirically.

Research on the effects of public sector unions on non-wage outcomes is limited, but the topic is important and deserves as much attention as the more heavily researched topics of compensation and arbitration-strike issues which respectively precede and succeed this section.



In this section I review the relevant findings on non-wage outcomes and what they suggest may result from a more complete analysis.

### Employment and Budgets

In the private sector it is universally accepted that one of the substantial responses to union wage effects is a reduction of employment. As noted in section 2, this is questionable for the public sector, as lobbying for higher budgets could raise employment as well as wages. The empirical evidence supports higher, or at least not lower, employment effects of public sector collective bargaining. In the most comprehensive study of ICMA data for 400 cities over a decade, Zax has estimated that public sector unionism raises employment by about 10%.<sup>25</sup> Victor found essentially no change in employment for police and increases in firefighters employment under unionism. Benecki found increases in employment in small cities but reductions in very large cities, for reasons that are not clear. In a highly sophisticated analysis, Inman reports higher employment for both police and firefighters under unionism, but a negative union wage effect for police. As his model is a complex multi-equation system with endogeneous unionism, it is unclear whether these results come from the data or from the particular structure imposed on the data.

If unions have a positive or non-negative effect on employment without controlling for wages, and if they raise wages, then budgets in organized jurisdictions should be higher than in unorganized jurisdictions. Indeed, four studies of the impact of unionism on size of budgets show such effects.<sup>26</sup> Moreover, the evidence by Ebert for the impact of specific contract items on the allocation of dollars to use categories among New York school districts shows that the effect of collective contracts on expenditures can be studied in terms of the

cost of specific contractual points.

The analyses of the relation between unionism and employment and budgets, while consistent with our general theme of public sector unions' raising demand for labor, should not be viewed as complete. With the exception of Inman, who estimates a complete structural model with endogenous unionism, and Zax, who estimates a demand curve for labor, much of the analysis of union impacts on employment and budgets is unconnected to the analysis of union wage effects. None of the studies adequately models the budget process, its interrelation to taxes, inter-governmental grants, or debt financing. In contrast to the studies of compensation, none of the studies provides a before/after test of findings. What is lacking, and needed, is a consistent analysis of the full effects of public sector unionism on labor costs, employment and finances.

### Productivity

Despite the difficulty of measuring the output of many public goods, there have been a surprisingly large number of studies on the relation between unionization in the public sector and productivity. Some of the studies have followed the Brown-Medoff production function methodology for analyzing union impacts on productivity. Others have used quite different methods, ranging from case studies to analyses of manager (worker) perceptions of productivity effects to simple comparisons (correlations) of productivity indices with measures of unionism.

Table 11 presents a brief summary of the studies. It gives the group covered, method of analysis, and finding. Rabid opponents of public sector unionism will be surprised to find that there is little evidence that public sector unions adversely affect productivity. Of the 11 studies in the table,

Table 11: Effects of Unionization of Productivity in Public Sector

	<u>Method</u>	<u>Finding*</u>
1. Stanley	Case study of 19 state and local governments. Analyzes union impact on personnel administration, work supervision, and financial management by reviewing interviews, government reports, bargaining outcomes, and press reactions from 1968-69.	No net effect. Can increase program effectiveness by exacting safety programs, equal levels of service throughout a city, and adequate staff organization. Also provides psychological security for workers. However, can decrease efficiency by increasing costs and impeding the use of flexible management.
2. Coulter	Discriminant analysis for firefighters of 324 municipalities with populations 25,000 and over. Uses total cost (property loss from fires plus expenditures) per capita as a measure of productivity	Unionism variable not statistically significant.
3. Feuille, Hendricks and Delaney	Regression equations for police calculated for each year from 1971-80 and for 8 types of crimes. Outputs were measured as reported crime rates and the rate of crimes cleared by arrests.	Unions decrease crime rate but effect is unstable, depending on the type of crime and year. No systematic association with clearance rates.
4. Ehrenberg, Schwarz	Regressions for libraries, 1977 cross-section data. Output is measured 8 ways such as number of interlibrary loans and number of borrowers.	Ranges from zero effect to positive effect (33%) All values, however, are statistically insignificant or only marginally so.
5. Perry, Angle, and Pittel	Regression analysis for public transit in Western U.S., 1977. Service effectiveness is measured by revenue passengers per service area population and revenue passengers per revenue vehicle hour.	Unionization did not have significant impact.

Table 11 continued

	<u>Method</u>	<u>Finding*</u>
6. Noam	Regressions for building inspectors in 1970. Output is measured as number of building permits granted as well as the total construction volume supervised.	The effects were often negative but not statistically significant.
7. Salkever	Regressions for hospitals measuring the cost of hospital services for 4 New England States, 1975.	Negative effect. Production costs increased 5-9% with most of increase from nonwage sources.
8. Gallagher	Management and local union representatives assessment by questionnaire for 117 hospitals in a Canadian province during 1970s. Measures of impacts used fall into 4 categories: economic, employer attitudes and behavior, management policy and control and quality care.	Positive effect
9. Wheeler and Kochan	Job evaluation correlation for firefighter officers by interviewing both officers and chiefs. Used interviews, questionnaire, and officer.	Slightly negative effect, perhaps due to some effects on discipline and grievance handling.
10. Crane, Lentz, and Shafritz	Regressions for state governments, 1974-75 using surveys, interviews, and various secondary sources. Output is measured as the level of state productivity improvement effort.	Strong positive impact by unions.
11. Eberts	Regression analysis of teachers in mid-1970's for factors believed to be determinants of student achievement.	Concludes that overall effect is unclear. Teachers covered by collective bargaining spend less time in instruction but more time preparing for class. Collective bargaining increases experience and education level of teachers.

six show essentially no union effect, three report positive effects of varying strength while three report negative effects. Each study has sizeable problems with output measures; for example, the Ehrenberg-Schwarz study, which concluded that unionism had essentially no effect on productivity, found a positive effect on output for one measure, interlibrary loans; and the Feuille et.al study, which I categorize as showing positive productivity effects, found no effect on crime clearance rates. Also, there were problems with the structure of the models, especially concerning the control variables and the routes by which unionism affects output. These results are therefore hardly strong enough to warrant a firm generalization. They do, however, reject the presumption that public sector unionism necessarily has adverse effects on productivity, and suggests that, if there is a general effect, it may very well be positive. At the least, the evidence backs the weak generalization offered by Methe and Perry in the Public Administration Review that "collective bargaining has had no (negative) impact on the effectiveness of local services."<sup>27</sup>

### Personnel Practices

Perhaps the most important way unionism affects the operation of enterprises is to force firms to alter their personnel practices. Rules replace managerial discretion in a wide variety of decision areas. Grievance and arbitration procedures give workers "due process" at the work place.

A priori it is difficult to predict whether public sector unions would have a larger or smaller effect on personnel practices than private sector unions. On the one hand, civil service regulations, tenure laws for teachers, and the like provide some protection for the majority of public sector workers, thus limiting the scope for unionism. On the other hand, public sector manage-

ment is allegedly inefficient and full of political decision-making which increases the need for explicit personnel practices and grievance machinery. While there has been no definitive summary of personnel practices before/after unionism or practices between union/nonunion areas, the available literature suggests that unions have had a sizeable impact on personnel practices, with contractual protection generally superceding civil service or other legal protection. The Carpenter and Ashworth study of personnel practices in Mississippi found that many non-union cities diverged noticeably from the Civil Service model, even to the extent of failing to have explicit job definitions. The Beyer, Trice and Hunt study of supervisory policies in the federal government found that unions have positively affected supervisors' use of management-initiated policies regarding alcoholism. In his 1972 study, Stanley found that "most department heads interviewed--said that this union pressure is good for both employees and management,"<sup>28</sup> a result consistent with Slichter, Healy and Livernash's work on the private sector. In the federal government, where contracts deal solely with work conditions, Levitan and Noden rejected "the myth that worker rights and collective bargaining are contrary to efficiency."<sup>29</sup> In his analysis of hospitals in Canada, Gallagher found that both management and union agreed that unionization forced regular and professional personnel practices onto the institutions.

In terms of econometric research, several analysts have sought to evaluate the effects of unionism on personnel practices by coding collective bargaining contracts according to whether or not specific provisions favor the union or the management. Kochan, Gerhart and Feuille et al. found that in states where public sector labor laws are most favorable to unionism, contracts have been

titled in favor of workers, as one would expect. Eberts has analyzed the cost impact of personnel practices embodied in contracts in New York City schools, and found that those relating to labor jurisprudence and grievance categories were costly to management.

Each of the various public sector occupations have different personnel practice issues. In teaching, one issue relates to the extent to which state law on tenure can be overridden by collective bargaining contracts. Courts have decided the issue differently in different states. Another important issue relates to the power of principals to assign/layoff teachers. If and when school administrations push for merit pay, that will certainly become a major issue in bargaining. Among police and firefighters, key personnel issues have included: parity, pay, and manning issues. For sanitation and various blue collar public sector workers, the issue of subcontracting to private sector organizations has been important and the evidence suggests that unions have managed to reduce contracting out.

No good estimates exist of the extent to which contracts trade-off personnel practices and related non compensation conditions for compensation.

#### Revenue, Taxes, and Welfare

If unions raise public sector budgets, then they necessarily raise the need for revenue and thus taxes, inter-governmental transfers, or debt. A consistent model of union impacts on the public sector requires investigation of these effects as well as those on wages, employment and budgets. Unfortunately, until recently, there has been little investigation of the effect of public sector unions on budgets and taxes (one exception is Benecki's 1978 study, another is Levy's 1984 bachelor's degree thesis work) and none on the consistency bet-

ween the various estimates of union effects on compensation, budgets, employment, and productivity.<sup>30</sup> This is a major short coming in the research for both substantive and methodological reasons. Substantively, failure to demonstrate a union impact on "bottom line" issues like taxes and municipal/state debt seriously hampers any social evaluation of public sector unionism. Methodologically, failure to analyze union impacts on all of the diverse outcome variables results in a loss of information and less efficient as well as possibly biased estimates of key parameters.

Still, on the basis of the existing estimates of the effect of unions on employment, wages and budgets described earlier, it is likely that public sector unions raise both taxes and public services above what they would be in the absence of the unions.

Does this mean that there is a social welfare loss due to excessive public goods resulting from unionism?

In the absence of a generally accepted theory or empirical results on whether a democratic government over-or under--produces public goods, no answer can be given to the question. In analysis of private sector unionism, second-best considerations may weaken our belief in the standard welfare evaluation of the output loss due to union wage effects, but does not lead us to reject it. For the public sector, the problem of evaluating whether the average citizen would be better/worse off in the absence of public sector union lobbying for public goods is sufficiently complex to leave one agnostic. If, as Galbraith argued in The Affluent Society, there is a tendency to under produce public goods, the union pressures may be socially beneficial. If, by contrast, the conservative fear that there are inherent tendencies to over-produce public



goods are correct, public sector unions are on the wrong side of the social welfare ledger. Perhaps theories of actual output decisions in the public sector, as opposed to the normative theory of public goods production, can help us determine whether or not the potential expansion of output in the public sector due to public sector unionism is socially good or bad.

To sum up, just as private sector unions have significant non-wage effects, so too do public sector unions. In the private sector some of these effects - - lower turnover, more professional management--help raise productivity to counter-balance union wage effects, at least in part. In the public sector some of the effects of political lobbying seems to operate in the direction of increasing expenditures on output of public goods. Analysis of the non-wage effect of public sector unions, particularly on taxes and overall municipal finances has been relatively sparse, but offers some suggestions for evaluating public sector labor relations and for future research.

## VI. IMPASSE RESOLUTION

A major policy and research issue in public sector labor relations concerns which rules and institutions should be used to resolve disagreements about terms of contracts, and concurrently how to treat strikes. The various state legislatures and municipalities have experimented with a wide variety of mechanisms for impasse resolution. Eight states have legalized strikes for some public sector workers, thereby letting the traditional private sector battle of economic strength or threat thereof serve as the ultimate pressure for agreements. Many states make public sector strikes illegal, some with rather severe penalties for strikers. In recent years a sizeable number of states have opted for conventional or final offer binding arbitration as a means for achieving settlements in the absence of strikes.

In this section I examine what we have learned about public sector strikes and arbitration substitutes for the strike.

### Public Sector Strikes

Strikes have a bad press. No one really likes them. But in a system of free collective bargaining they serve an important function. Without the strike, or some substitute form of economic weapon, labor might never be able to force management to take its demands seriously, and management might never be able to force workers to withdraw demands/give concessions.

Despite being outlawed in most jurisdictions, strikes in the public sector are far from rare. As Table 12 shows, the country has experienced a sizeable number of public sector strikes. Indeed, between 1960-64 and 1976-80, the number of stoppages in the public sector rose from 32 per year to 500 per year.<sup>31</sup>

Public sector strikes differ in their basic dimensions from private sector

Table 12: Selected Work Stoppage Measures  
All Industries and Government, 1979

<u>Item</u>	<u>All Industries</u>	<u>Total</u>	<u>State</u>	<u>Local</u>
Days of idleness as a percent of estimate total working time	0.15	0.08	0.06	0.10
Workers involved as a percent of total employment	1.9	1.6	1.4	2.2
Average number of workers involved per stoppage	358	428	853	383
Average days of idleness per worker	20.1	11.7	10.6	12.0

Source: Bureau of Labor Statistics, Work Stoppages in Government, 1979. March 1981, Report 629, Table 2.

strikes. They are of much shorter duration but tend to involve more workers per strike. According to Nelson, Stone and Swint they follow a different cyclical pattern than private sector strikes, falling rather than rising in business expansions.

Just as the various states have adopted different laws regulating collective bargaining in the public sector, so too have they developed different laws regulating strikes. Eight states permit strikes (see Table 13). Some have no explicit regulations but outlaw strikes under judicial interpretation. Others outlaw strikes with varying penalties for strike breakers--penalties which are sometimes not enforced.

Which of these legal treatments is most successful in limiting strikes? Is it better to make strikes legal, to have harsh penalties, or to have moderate penalties? What is the effect on states of a collective bargaining statute which compels unresolved issues to be settled by conventional or last offer arbitration?

There have been a sizeable number of studies of these questions (see Table 14). The most notable and consistent finding is that compulsory arbitration does, indeed, serve as an effective deterrent to strikes. Several studies have found a curvilinear relation between public sector labor laws and strike incidence, with states having weak "meet and confer" laws being more strike prone than states with no comprehensive public sector labor relations law and those with compulsory arbitration having the fewest number of strikes.<sup>32</sup> Whatever good or ill effects compulsory arbitration has on bargaining and settlements, it does, nevertheless, limit strikes.

By contrast, studies which fail to distinguish between types of public

Table 13: Statutory Regulation of Strikes by State, 1979

Strikes are legal for some public sector workers (8 states)

Alaska	Oregon
Hawaii	Pennsylvania
Minnesota	Vermont
Montana	Wisconsin

Strikes of some public sector workers not treated in law but regarded as illegal by courts (12 states)

Arizona	
Colorado	None
Idaho	Silent for teachers, firefighters prohibited
Illinois	Strikes are illegal and striking employees may be fired.
Louisiana	Police officers can't strike; labor organizations violating may be fined \$500; otherwise silent
Mississippi	None
New Mexico	Silent; state employees prohibited and may lose deduction privileges and certification
North Carolina	Silent
South Carolina	Silent
Utah	None
West Virginia	None
Wyoming	Silent

Strikes prohibited, with no sanction or with no specific penalties provided (17 states)

Alabama	Prohibited
Arkansas	Prohibited
California	Prohibited
Connecticut	Prohibited
D.C.	Prohibited
Kansas	Prohibited
Kentucky	Prohibited
Maine	Prohibited
Massachusetts	Prohibited
Michigan	Prohibited
Missouri	Prohibited
North Dakota	Prohibited
New Hampshire	Prohibited
New Jersey	Prohibited
Rhode Island	Prohibited
Washington	Prohibited; uniformed employees fined up to \$250 per day.

Table 13 (Continued)

## Heavy Penalties (15 States)

Delaware	Prohibited; union recognition revoked for two years, dues deduction for one. Penalties are mandatory
Florida	Prohibited; court may enjoin and may fine union up to \$5,000 for contempt and union officers \$50-\$100 per day; employer may recover damages. Employee may be dismissed or put on probation for six months. Union may lose certification or dues deduction and may be fined up to \$20,000 per day for each day of strike.
Georgia	Prohibited; dismissal with 3 year ban on rehiring; no salary increase for 3 years and 5 year probation; inciting a strike is a misdemeanor punishable by up to 1 year imprisonment, a fine of \$100-1000, or both.
Indiana	Prohibited; employer may sue for injury or damage. Union loses dues deduction privilege for one year. Employee may not be paid for days on strike.
Iowa	Prohibited; court may enjoin and fine up to \$500 per individual or \$10,000 for union for each day or violation and/or six months imprisonment. Individual may be fired and not rehired for one year.
Maryland	Prohibited; recognition revoked for two years. Dues deduction suspended one year. Penalty mandatory.
Nebraska	Prohibited; violators guilty of class 1 misdemeanor.
Nevada	Prohibited; strike may be enjoined. Union may be fined \$50,000 per day, union leader \$1,000 per day or jailed. Employer can dismiss, or suspend, or demote worker, cancel collective bargaining agreement and/or withhold wages for period of strike.

Table 13 (Continued)

## Heavy Penalties Continued

State	Year of Statute	Statutory Sanctions
New York		Prohibited; one year probation and loss of two days pay for each day on strike. Union loses dues deduction. Employer may seek injunction.
Ohio		Prohibited; termination possible. One year freeze on salary if rehired plus two year probationary period.
Oklahoma		Prohibited; union loses recognition. Employee may not be paid for strike. Police and fire may be fired or dismissed.
South Dakota		Prohibited; union fined to \$50,000, employee \$1,000 or jailed up to one year or both. Employer can seek injunction.
Tennessee		Prohibited; employer may seek injunction; employees may be dismissed or forfeit tenure for 3 years.
Texas		Prohibited; employee dismissed, loses reemployment or other benefit rights. Fines for police and fire. No wage increase for 1 year.
Virginia		Prohibited; employee dismissed, no rehiring possible for one year.

Source: Bureau of Labor Statistics, Summary of Public Sector Labor Relations Policies, 1979.

Table 14: Findings in Empirical Studies  
Of Public Sector Strikes

<u>Study (year)</u>	<u>Group</u>	<u>Finding</u>
1. Balfour & Holmes	teachers across states 1974 - 1977	States with permitted or harsh penalties have more strikes than those with moderate penalties; low salaries induce more strikes
2. Klauser	Hawaii impasse procedures 1971 - 1977	Only one strike; legalization limits strikes
3. Stern & Olson	teachers, police, and firefighters 1975 - 1977	Propensity to strike during negotiations is lowest with compulsory arbitration, highest with no bargaining law
4. Wheeler	firefighters strikes 1969 - 1972	Compulsory arbitration laws reduce strikes
5. Burton & Krider	cross-state 1968-1971	Prohibiting or penalizing strikes, third party procedure laws, and type of bargaining law have no discernible effects on strikes
6. Rodgers	same as Burton & Krider 1974-1975	making strikes illegal and third party procedures reduce strike
7. Ichniowski	police 1972-1973, 1976-1978	compulsory arbitration reduces strikes
8. Horn, McGuire and Tomkiewicz	teachers stikes across states, 1977	Districts that engage in collective bargaining have fewer strikes than those with no bargaining required or with meet and confer procedures; higher wages reduce strikes



Table 14 (continued)

9. Fallon	all state public sector strikes 1972	Compulsory arbitration procedures have no significant effects or very minor ones.
10. Colton	teachers strikes 1960-1975, cross-states	no relation between strikes and bargaining statute
11. Weintraub and Thornton	teachers strikes over time 1946-1973	Districts with permissive bargaining legislation have more strikes.

sector bargaining laws yield mixed results, possibly because of the existence of cases where bargaining laws without compulsory arbitration increase strikes and partly because of cases where compulsory arbitration laws reduce them (for example, Colton versus Weintraub and Thornton among teachers).

The findings with respect to strike laws per se are also less clear. Balfour and Holmes found strikes most frequent in states with very harsh penalties and in those with no penalties, and least in those with moderate penalties. Fallon found strikes less frequent in those with no penalties. Klauser cited the Hawaii experience as showing that legalization of strikes reduces them, presumably because of the greater pressure on management to reach agreement with workers.

Douglas' study of New York's Taylor law shows that public officials are loathe in many instances to impose the penalties of the law, which includes a two-for-one pay penalty for each day on strike, loss of checkoff of dues, and which requires workers to go back to their jobs immediately. From 1967-78 272 illegal work stoppages produced only 173 charges of illegal activity, and 136 injunctions. In several instances the disputes produced exceedingly bitter labor-management relations which might have been avoided under a different collective bargaining law. In this regard the Zimmer-Jacobs study of New York prison guard strikes suggests that the greatest problem of a punitive strike law is the danger that it exacerbates disputes, rather than helps resolve them.

Finally, in light of the longstanding sovereignty issue in public sector labor relations, one must not forget that in a number of cases, governors and the President have used the National Guard or the army to break illegal public sector strikes. The most notable such recent case was President Reagan's use of

Air Force traffic controllers to defeat PATCO and ultimately crush that union. In the 1970s, the National Guard was used to temporarily replace striking public sector workers by both liberal and conservative governors. The likelihood of such force being used may be an important deterrent to protective service strikes, which may be rendered largely ineffective as a result.

### Binding Arbitration

A major research effort has been devoted to the consequences of compulsory arbitration, either conventional or final offer, on public sector labor relations. The theory of conventional arbitration has focused on the "chilling" effect that such third party resolution can have on negotiations. In the most often argued analysis, if two parties operating under a conventional arbitration statute believe the arbitrator will "split-the-difference," negotiations will be chilled, as each side will refuse to make concessions for fear they will lower its award in arbitration. By contrast, final offer arbitration--under which the arbitrator must pick one of the two offers--is claimed to have less of a chilling effect. In a rigorous model Crawford has shown that in fact in a world without uncertainty, but with multiple issues in which parties expect arbitrators to split the difference, the two forms of arbitration may yield the same result, and are unlikely to be Pareto efficient.

The major criticism leveled against final offer arbitration is that it provides identifiable winners and losers which is bad for labor relations. In New Jersey and Massachusetts--two extensively studied states--unions have tended to win approximately 2/3rds of the arbitration awards, leading to considerable complaint by cities.<sup>33</sup> If employers and unions had equally realistic final offers, and arbitrators make decisions close to union offers most of the time,

the cities would have a legitimate gripe. In fact, however, Ashenfelter and Bloom have found that the reason unions win more in New Jersey is that union offers are more realistic perhaps because union leaders are more risk-averse than municipal officials, they even find that final offer arbitration produces smaller settlement than conventional arbitration.

Finally, as noted in our previous discussion of strikes, there has been considerable concern about the extent to which compulsory arbitration laws reduce strikes, particularly compared to laws that make collective bargaining illegal or that simply penalize public sector strikes.

When the issue of binding arbitration initially surfaced in the public sector literature, there was a notable lack of empirical evidence on its effects. As Table 15 shows, by 1981, 18 states had some form of binding arbitration, 8 of whom relied exclusively on conventional arbitration, and 10 of whom experimented with some form of final offer arbitration. While binding arbitration has been invoked for nearly all workers, it has been most widely used to deal with the problems of protective service employees.

Analysis of the effects of the laws on negotiations and wages has taken various forms: before/after studies within states; cross-section comparisons between groups that are covered by the arbitration provision with those that are not; comparisons of arbitration awards with negotiated settlements; and laboratory experiments designed to evaluate how various dispute resolution mechanisms affect negotiations.

Because the presence of compulsory arbitration dispute resolution may affect negotiations, the most problematic of the approaches is to compare the wages determined by arbitration with those set in negotiations. This is

Table 15: Compulsory Arbitration Laws, 1980

	<u>Covered Employees</u>	<u>Arbitration</u>
Alaska	Law enforcement, fire-fighters, prison, hospital	Conventional
Connecticut	Municipal employees and teachers	Final offer, Issue by issue
Hawaii	Firefighters	Final offer
Iowa	All	Final offer, issue by issue
Maine	State	Conventional
Massachusetts	Police and firefighter	Final offer
Michigan	Police and firefighter	Final offer on economic issues, conventional on others
Minnesota	All (with some minor exceptions)	Final offer, issue by issue
Nebraska	All except teachers	Conventional
Nevada	Firefighters All	Final offer Conventional or final offer
New Jersey	Police, firefighters, prison	Final offer or conventional
New York	Police and firefighters	Conventional
New York City	All	Conventional
Oregon	Police, firefighters, retail hospital, prison	Conventional
Eugene, Oregon	Public safety	Final offer by issue
Pennsylvania	Guards, courts, police and firefighters	Conventional
Rhode Island	State Police and firefighters Teachers	Conventional, not binding on wages Conventional Conventional
Washington	Police and firefighters	Conventional

Table 15 continued

Wisconsin	Police and firefighters	Conventional or final offer
	Municipal	Conventional
Wyoming	Firefighters	Conventional

Source: U.S. Department of Labor, Labor Management Services Administration.  
Summary of Public Sector Labor Relations Policies, 1981.

because, as Farber and Katz point out, the presence of a binding arbitration provision may change negotiations as well, depending on the nature of the arbitrator's preference function. In addition, the selection of jurisdictions into arbitration creates potential "selectivity bias" problems.

Table 16 summarizes current findings of the effects of compulsory arbitration on economic outcomes. First, as noted earlier, binding arbitration definitely reduces strikes. With respect to bargaining, the issue is unresolved. Some analysts conclude that conventional arbitration has harmed bargaining. Others claim that it does not. Some have argued that once two parties get involved with arbitration, there is a "narcotic effect," in which they keep coming back for more arbitration rather than proceeding to bargain. Others have argued that the effect is illusory rather than real. As the Butler and Ehrenberg and Kochan-Baderschneider debate in the ILRR makes clear, it is difficult to isolate "true" state dependence from unobserved characteristics that cause this behavior. While the overall impact of arbitration on bargaining is unclear, the general expectation that "final offer" arbitration will be less chilling than conventional arbitration seems, for the most part, to be supported in the data.

There is no clear conclusion in the literature regarding the impact of compulsory arbitration on wages. Several studies of varying quality conclude that compulsory arbitration raises wages while others, also of varying quality, conclude it does not. The most sophisticated study, by Ashenfelter and Bloom finds final offer arbitration does not produce higher wage settlements than does conventional arbitration, despite municipal complaints to the contrary (if anything, the data show slightly lower settlements in New Jersey).

Table 16: Effects of Compulsory Arbitration  
on Economic Outcomes

A. Effects on Bargaining

Compulsory Arbitration Reduces Bargaining

1. Wheeler - Conventional, firefighters. Management bargainers are less likely to change positions on starting wages when compulsory arbitration laws exist. Also, there is a greater gap between party and impasse positions.
2. Kochan and Baderschneider - Conventional, New York firefighters and Police. Parties have a high and increasing rate of dependence on 3rd party arbitration.
3. Lipsky and Barocci - Final Offer, Massachusetts firefighters, police and teachers. Measured as proportion of negotiations that resulted in impasses.
4. Somers - Final offer, Massachusetts firefighters and police. Final offer arbitration led to increased reliance on 3rd party arbitration. Didn't lead to increase of pre-impasse bargaining.

Compulsory Arbitration Does Not Reduce Bargaining

1. Grodin - conventional, Nevada
2. Loewenberg - Conventional, Pennsylvania police and firefighters. Two-thirds of municipalities that negotiated arrived at negotiated settlement.
3. Gallagher and Pegnetter - Final offer, Iowa. Final offer arbitration encourages negotiations.
4. Long and Feuille - Final offer, Eugene Oregon. Case study of 7 negotiation-arbitration experiences since 1971. Moderate encouragement of bargaining.
5. Lipsky and Barocci - Final offer, Massachusetts firefighters, police and teachers. Measured by number of cases settled by arbitration.

B. Effects on Wages

Compulsory Arbitration Raises Wages

1. Loewenberg - Conventional, Pennsylvania police arbitration resulted in larger increases than in negotiations or employer determinations.
2. Stern, Rehms, et. al. - Final offer, Wisconsin and Michigan. Regression analysis shows weak evidence of a positive relation for firefighters and police in both states from 1 - 5%.



Table 16 (continued)

3. Olson - Conventional, firefighters for population of 100,00 and over.
4. Kochan and Jick - Police and firefighters in New York state. The nature of the impasse procedure - factfinding or arbitration - had a positive impact for management salary but no movement for union salaries.

#### Compulsory Arbitration Does Not Raise Wages

1. Somers - Final offer, Massachusetts. Final offer arbitration leads to excessive percentage wage increases.
2. Bloom - New Jersey. None of coefficients for arbitration was significantly different from zero in regression analysis with salary changes as dependent variable.
3. Ashenfelter and Bloom - New Jersey, Final offer arbitration has less effect than conventional.
4. Loewenberg - Firefighters median increase in salary is similar to that for negotiated settlements or for decisions determined by an arbitration award.

Finally, in addition to the statistical analysis of the effects of actual arbitration and other dispute resolution mechanisms, there have been several laboratory experiments of how the various mechanisms affect behavior (see Table 17). These studies, while by no means conclusive, have tended to support the claim that final offer arbitration has less of a chilling effect on negotiations than does conventional arbitration and gives some evidence that both have some similar effects.

Table 17: Results of Laboratory Experiments  
of Impasse Resolution Procedures

<u>Study</u>	<u>Finding</u>
1. Johnson and Tullar	Expected third-party resolution leads to bargaining when "Need to save face" is high.
2. Bigoness	Expected compulsory arbitration impedes bargaining if high conflict between sides.
3. Urban	Expected conventional arbitration leads to more time to reach agreement.
4. Johnson and Pruitt	Less time to reach agreement.
5. DeNisi and Dworkin	More information about final offer procedures leads to closer agreements.
6. Notz and Starke	Final offer reduces difference in negotiations. Conventional arbitration increases differences.
7. Subbarao	Final offer leads to smaller differences in negotiating than conventional arbitration does.
8. Magenau	Allowing strikes is more effective than arbitration in producing voluntary agreements. Final offer leads to greater narrowing of differences than conventional arbitration.

## VII. CONCLUSION: UNANSWERED QUESTIONS

As the preceding review and summary of findings shows, much has been learned about public sector labor relations. Much also remains to be learned. Wage studies covering more recent periods of time are likely to produce different estimates than those covering earlier periods, leading to different overall conclusions about the power of public sector unions. Additional analysis of the legal and political environment under which unionism operates should illuminate the unique aspects of public sector labor relations.

Perhaps what is most sorely needed in this area of research is a general analytic framework around which the diverse research studies can be organized to answer questions regarding the unique aspects of public sector labor relations. For the most part, researchers have applied the same basic analytic framework used in the private sector, concentrating on wage and other compensation effects of collective bargaining. If the analysis in this review essay is correct, this misses much that is unique about the public sector in terms of both positive and normative economics. Whereas in the private sector one can infer employment declines from union-induced wage increases, this does not appear to be valid in the public sector because of union potential to shift demand outward through the political process.

As a general guide, models in which public sector unions affect demand for labor rather than just wages, and influence the entire budget and tax position of cities and states appear to offer the best hope for understanding what public sector unions do and of allowing a social evaluation of what the advent of unionism to the public sector means for the United States economy.

## Appendix A: The Measurement of the Extent of Collective Bargaining

Because public sector unions operate under different state laws, the definition of "unionism" is by no means clear. Existing data provide several widely used sets of figures, which are described below:

### (1) Membership in a Bargaining Organization

The term "bargaining organization" was coined by Burton (in Aaron, Grodin, and Stern) to include unions and bargaining associations (or what BLS calls employee associations). Burton divides public sector organizations into three classes: unions, bargaining associations, and nonbargaining organizations. Unions are characterized by strike endorsement, emphasis on collective bargaining, exclusion of supervisors from membership, and AFL-CIO affiliation. Bargaining associations also rely on collective bargaining, but are generally averse to strikes, are more likely to emphasize political action instead, usually include supervisors, and are affiliated with AFL-CIO. The National Education Association (NEA) is an example. Finally, non-bargaining organizations don't bargain as a group, don't strike, are not affiliated with AFL-CIO, but generally include supervisors as members. An example is the American Bar Association (ABA). Bureau of Labor Statistics data was used by Burton to estimate this figure. According to Burton, a shortcoming of the BLS data is that it underestimates coverage by excluding municipal public employee associations. Other problems are that BLS includes membership outside the US as well as retired and unemployed workers. Post 1979 the Bureau of National Affairs has kept this series.

### (2) Membership in an Employee Organization

The Bureau of the Census, Department of Labor (BCDL) defines an employee

organization as "an organization (e.g., union, association, federation, or council) that exists for the purpose, in whole or in part, of dealing with the employer concerning personnel policies and practices, employee grievances, labor disputes, wages, rates of pay, hours of employment, and other conditions of work." The data is available only as the percent of full-time employees and exists from 1974 to the present.

(3) Employees Represented by Bargaining Units

The BCDL defines a bargaining unit as a group recognized as appropriate for representation by an employee organization for the purpose of collective and/or meet and confer discussions. Units commonly include both member and nonmembers of the organization.

(4) Employees Covered by Contractual Agreement

The BCDL defines a contractual agreement as "a written document developed by collective negotiations between representatives of the employer and employee organizations that describes the conditions of employment (e.g., wages, hours, fringe benefits, etc.) and the methods by which disputes or grievances arising during the term of the contract shall be resolved.

(5) Employees Represented by Labor Organizations (CPS)

CPS includes both members of unions and employer associations engaged in collective bargaining as well as those covered by a union or employee association contract. No retirees, unemployed union members, or persons in the armed forces are included. Moreover, it includes members only in the United States. A major problem, however, is that while the CPS reports "government" workers as part of its "Class of Worker" question, it breaks up the government into state, federal, and local only for those workers in public administration.

The following figures provide some notion of the range of figures one gets from different surveys:

<u>State and Local Employees</u>	<u>1976</u>	<u>1980</u>
1. % of employees with bargaining organization membership (BLS)	37%	--
2. % of full-time employees with employee organization membership (BCDL)	49.8	48.8
3. % of all employees represented by bargaining units (BCDL)	35.8	38.4
4. % of employees covered by contractual agreement (BCDL)	27.7	32.1
5. % represented by labor organizations (CPS)	--	43.4

## Notes

1. The Meany quote is from Leo Kramer, Labor's Paradox -- the American Federation of State, County, and Municipal Employees, AFL-CIO (Wiley, 1962), p. 41. One estimate for the percent of workers organized in unions in the government sector is 13 percent. Burton, "The Extent of Collective Bargaining in the Public Sector," pp. 2-3. However, few of these workers had contracts.
2. See Appendix A for other estimates of collective bargaining coverage.
3. 39 states have such legislation. U.S. Department of Labor, Labor-Management Services Administration, Summary of Public Sector Labor Relations Policies, 1980, p. V.
4. Bureau of Labor Statistics, Earnings and Other Characteristics of Organized Workers, May 1980 (Bulletin 2105), table 17.
5. The two specialized journals are the Government Union Review, and the Journal of Collective Negotiations." The bibliography to this paper shows the growth of research articles.
6. Because of differences in the data and in the fine line between associations and unions, these and other statements about the growth of public sector unions are approximations.
7. See Burton, p.8.
8. See Steiber, p. 117.
9. See Mitchell, p. 130
10. Jonathan Brock, Bargaining Beyond Impasse, pp. 27-29.
11. 34 states (including Washington, D.C.) have some kind of employee relations board. Calculated from "Summary of Public Sector Labor Relations Policies," 1981.
12. See U.S. Bureau of Census.
13. Wellington and Winter, The Unions and the Cities, p. 15 and 30.
14. Wellington and Winter, p. 15 and 30.
15. According to the Massachusetts Teachers Association, the years were January 1979 to July 1976.
16. Labor Management Relations Service, The Role of Politics in Local Labor Relations, p. 8.
17. Lewin, D. "Public Sector Labor Relations," Labor History, Winter 1977, p. 138.



18. Mitchell, D.J.B., Public Personnel Management, March-April 1978, p. 89.
19. See Freeman, Ichniowski, and Lauer; Ehrenberg and Goldstein; Chambers.
20. Munnell, "Who Should Manage the Assets of Collectively Bargained Pension Plans?" p. 19.
21. For example, studies which show large effects on the minimum are Feuille, Hendricks, and Delaney; Wasylenko; Kearney-Morgan; and Ichniowski. Studies which find larger effects on the maximum are Hall-Vanderporten and Bartel-Lewin.
22. AFL-CIO News,
23. These beliefs were based on Depression and World War II experiences.
24. R.B. Freeman and J.L. Medoff, What do Unions Do? Basic Books, 1984.
25. Zax, pp. 144-147
26. Benecki, for general municipal services in all but the very largest cities. Gallagher, on teacher's budgets. Feuille et.al. for police budgets; Zax, for all municipal groups.
27. Methe and Perry, p. 368.
28. Stanley, p. 3.
29. Levitan and Noden, p. 138.
30. On the basis of Benecki's limited calculations, a complete analysis of union effects might be expected to show greater revenue per capita, higher property taxes, higher sales taxes, but lower user charge revenue in unionized municipalities and lower debt. Because Benecki finds different patterns for large cities than for other, does not obtain internally consistent results in all cases and includes "three institutional bargaining variables" likely to have affected his estimates of union impacts, I regard his findings as only suggestive. They are, however, valuable in raising the possibility that a major research payoff could come from the proper analysis of union impacts on broadly defined municipal finances.
31. Calculated from Handbook of Labor Statistics, 1971 and 1983.
32. Wheeler, Stern, and Olson; Rodgers; Ichniowski; Fallon; Horn; McGuire and Tomkiewicz.
33. For New Jersey, see Bloom or Ashenfelter and Bloom. For Massachusetts, see Lipsky and Barocci or Somers.

## REFERENCES

- Aaron, B., J.R. Grodin and J.L. Stern (eds.) Public Sector Bargaining, Madison, Wisconsin: Industrial Relations Research Association, 1979.
- Adler, J. and D.L. Rosenthal, "Fact Finders and the Resolution of Issues at Impasse: A Survey of New York State Perb Neutrals," Journal of Collective Negotiations, Vol. 4(4), 1975, pp. 381-407.
- Allen, S.G., "An Empirical Model of Work Attendance," The Review of Economic Statistics, Vol. 63(1), 1981, pp. 77-87.
- Alutto, J.A. and J.A. Belasco, "Determinants of Attitudinal Militancy Among Nurses and Teachers," Industrial and Labor Relations Review, January 1974, pp. 216-227.
- Ashenfelter, O. and D. Bloom, "The Pitfalls in Judging Arbitrator Impartiality by Win-Loss Tallies Under Final Offer Arbitration," Labor Law Journal, August 1983, pp. 534-539.
- Ashenfelter, O. and D.E. Bloom, "Models of Arbitrator Behavior: Theory and Evidence," American Economic Review, March 1984, pp. 111-124.
- Ashenfelter, O. and R.G. Ehrenberg, "The Demand for Labor in the Public Sector," in Labor in Public and Nonprofit Sectors, D.S. Hamermesh, ed., New Jersey: Princeton University Press, 1975.
- Ashenfelter, O. "The Effect of Unionization on Wages in the Public Sector: The Case of Fire Fighters," Industrial and Labor Relations Review, January 1971, pp.191-202.
- Aussieker, B., "The Incidence and Impact of Faculty Union Strikes," Labor Law Journal, 1977, pp. 777-784.
- Aussieker, B., "Multilateralism and Faculty Unionism," Industrial and Labor Relations Review, 28th Annual Winter Proceedings, 1975, pp. 93-101.
- Baderschneider, J., "Collective Bargaining Pressure on Municipal Fiscal Capacity and Fiscal Effort," Paper presented at the Annual Meeting of the National Academy of Management, Atlanta, August 1979.
- Baird, Robert N. and John H. Landon, "Communication: The Effects of Collective Bargaining on Public School Teachers' Salaries," Industrial and Labor Relations Review, Vol. 25, (3), April 1972, pp. 410-417.
- Balfour, G.A., "More Evidence that Unions Do Not Achieve Higher Salaries for Teachers," Journal of Collective Negotiations, Vol. 3(4), 1974, pp. 289-303.
- Balfour, A. and A.B. Holmes, "The Effectiveness of No Strike Laws for Public School Teachers," Journal of Collective Negotiations, Vol. 10 (2), 1981, pp. 133-144.

- Barnum, D.T., and I.B. Helburn, "Influencing the Electorate: Experience with Referenda on Public Employee Bargaining," Industrial and Labor Relations Review, Vol. 35(3), 1982, pp. 330-342.
- Barnum, D.T., "From Private to Public: Labor Relations in Urban Transit," Industrial and Labor Relations Review, October 1971, pp. 95-115.
- Bartel, A. and D. Lewin, "Wages and Unionism in the Public Sector: The Case of Police," The Review of Economics and Statistics, Vol. 63(1), 1981, pp. 53-59.
- Baugh, W.H. and J.A. Stone, "Teachers, Unions, and Wages in the 1970s: Unionism Now Pays," Industrial and Labor Relations Review, Vol. 35(3), 1982, pp. 368-376.
- Bazerman, M.H. and H.S. Farber, "Arbitrator Decision Making: When are Final Offers Important?" National Bureau of Economic Research, Working Paper no. 1183, August 1983.
- Becker, E.B., "Union Impact on Wages and Fringe Benefits of Hospital Nonprofessionals," Quarterly Review of Economics and Business, Vol. 19(4), 1979, pp. 27-44.
- Bellante, D. and J. Long, "The Political Economy of the Rent-Seeking Society: The Case of Public Employees and Their Unions," Journal of Labor Research, Vol. 2(1), 1981, pp. 1-14.
- Benecki, S., "Municipal Expenditure Levels and Collective Bargaining," Industrial Relations, Vol. 17(2), 1978, pp. 216-230.
- Bent, A.E. and T.Z. Reeves, Collective Bargaining in the Public Sector, Menlo Park, California: The Benjamin/Cummings Publishing Company, Inc., 1978.
- Bernstein, M.C., "Alternatives to the Strike in Public Labor Relations," Harvard Law Review, Vol. 85(459), 1971, pp. 459-475.
- Beyer, J.M., Trice, H.M. and R.E. Hunt, "The Impact of Federal Sector Unions on Supervisors' Use of Personnel Policies," Industrial and Labor Relations Review, Vol. 33(2), 1980, pp. 212-231.
- Bloom, D.E., "Theoretical and Empirical Research on Arbitration," A proposal to the National Science Foundation, February 1, 1983
- Bloom, D.E., "Collective Bargaining, Compulsory Arbitration, and Salary Settlements in the Public Sector: The Case of New Jersey's Municipal Police Officers." Journal of Labor Research, Fall 1981, pp. 369-384.
- Blumberg, A., Brannigan, M. and D. Nason, "Administrative Power and Collective Bargaining in the Schools," Journal of Collective Negotiations, Vol. 10(4), 1981, pp. 327-335.
- Bornstein, T., "Legacies of Local Government Collective Bargaining in the 1970s," Labor Law Journal, March 1980, pp. 165-172.

- Bowers, M.H., "Legislated Arbitration: Legality, Enforceability, and Face-Saving," Public Policy Management, July-August 1974, pp. 270-278.
- Brock, J. Bargaining Beyond Impasse, Joint Resolution of Public Sector Labor Disputes, Boston: Auburn House Publishing Co., 1982.
- Brookshire, M.L. and M.D. Rogers, "Productivity and Collective Bargaining in the Public Sector," Labor Law Journal, August 1981, pp. 473-479.
- Brown, T.A., "Have Collective Negotiations Increased Teachers' Salaries? A Comparison of Teachers' Salaries in States With and Without Collective Bargaining Laws for Public School Personnel, 1961-1971," Journal of Collective Negotiations, Vol. 4(1), 1975, pp. 53-65.
- Bruce, C.J., "The Compatibility of Arbitration and Bargaining," Criticism and Comment, Industrial Relations, Vol. 21(3), pp. 398-401.
- Burton, J.F., Jr., "The Extent of Collective Bargaining in the Public Sector," in B. Aaron, J.R. Grodin and J.L. Stern (eds.) Public Sector Bargaining, Madison, Wisconsin: Industrial Relations Research Association, 1979
- Burton, J.F., Jr., "Public Sector Strikes: Legal, Ethical, and Practical Considerations," in Ethics, Free Enterprise, and Public Policy, R.T. DeGeorge and J.A. Pichler, eds., Oxford University Press: New York, 1978.
- Burton, J.F., Jr., and C.E. Krider, "The Incidence of Strikes in Public Employment," in Labor in Public and Nonprofit Sectors, D.S. Hamermesh, ed., New Jersey: Princeton University Press, 1975.
- Butler, R.J. and R.G. Ehrenberg, "Estimating the Narcotic Effect of Public Sector Impasse Procedures," Industrial and Labor Relations Review, Oct. 1981, Vol. 35(1), pp. 3-20.
- Cain, G.C., B.E. Becker, C.G. McLaughlin and A.E. Schwenk, "The Effect of Unions on Wages in Hospitals," in Research in Labor Economics, Ronald G. Ehrenberg (ed.) Vol. 4, (1981), Greenwich, Connecticut: JAI Press, pp. 191-320.
- Caldwell, W.E. and L.M. Jeffreys, "The Effect of Teacher Strikes on Student Achievement: New Evidence," Government Union Review, Winter 1983, Vol. 4(1) pp. 40-58.
- Carpenter, R.E. and D.N. Ashworth, "An Examination of Personnel Practices in Mississippi Municipalities," Journal of Collective Negotiations, Vol. 11(3), 1982, pp. 267-273.
- Chambers, J.G., "The Impact of Collective Bargaining for Teachers on Resource Allocation in Public School Districts," Journal of Urban Economics, Vol. 4, 1977, pp. 324-339.
- Chauhan, D.S., "The Political and Legal Issues of Binding Arbitration in Government," Monthly Labor Review, September 1979, pp. 34-41.

- Coffinberger, R.L., "An Investigation of the Intensity of Traditional Unionization Motives In A NonBargaining Environment," Journal of Collective Negotiations, Vol. 11(2), 1982., pp. 113-118.
- Coffinberger, R.L., "Why Public Employees Join Unions in a NonBargaining Environment," Journal of Collective Negotiations, Vol. 10(3), 1981, pp. 209-215.
- Colton, David L. "Collective Bargaining Laws and Teachers Strikes," Journal of Collective Negotiations, Vol. 7(3), 1978, pp. 201-212.
- Cook, A.H., "Comparable Worth: Recent Developments in Selected States," Industrial Relations Research Association, Spring Meeting 1983, pp. 494-503.
- Corcoran, K.J. and D. Kutell, "Binding Arbitration Laws for State and Municipal Workers," Monthly Labor Review, October 1978, pp. 36-40.
- Coulter, P.B. "Organizational Effectiveness in the Public Sector: The Example of Municipal Fire Protection," Administrative Science Quarterly, Vol. 24, March 1979, pp. 65-81.
- Courant, P.N., E.M. Gramlich, and D.L. Rubinfeld, "Public Employee Market Power and the Level of Government Spending," American Economic Review, Vol. 69(5), pp. 806-817.
- Craft, J.A., "Fire Fighter Strategy in Wage Negotiations," Quarterly Review of Economics and Business, Vol. 11(3), 1971, pp. 65-75.
- Craft, J.A., "Public Employee Budget Negotiations: Budget Search and Bargaining Behavior," Public Personnel Review, October 1970, pp. 244-249.
- Crane, E.G., B.F. Lentz, and J.M. Shafritz, State Government Productivity: The Environment for Improvement, New York: Praeger Special Studies in U.S. Economic, Social and Political Issues, 1976.
- Crawford, V.P., "On Compulsory-Arbitration Schemes," Journal of Political Economy, February 1979, pp. 131-160.
- Dalton, A., "A Theory of the Organization of State and Local Government Employees," Journal of Labor Research, Vol. 3(2), 1982, pp. 163-177.
- Decker, K.H., "The Importance of Impasse for Pennsylvania's Public Employees and Employers," Journal of Collective Negotiations, Vol. 9(3), 1980, pp. 275-280.
- DeNisi, A.S. and J.B. Dworkin, "Final-Offer Arbitration and The Naive Negotiator," Industrial and Labor Relations Review, Vol. 35(1), 1981, pp. 78-87.
- Derber, M., Jennings, K., McAndrew, I., and M. Wagner, "Bargaining and Budget Making in Illinois Public Institutions," Industrial and Labor Relations Review, October 1973, pp. 49-61.

- Dickson, E. and G.E. Peterson, Public Employee Compensation: A Twelve City Comparison, Washington, D.C.: The Urban Institute Press, 1980.
- Donn, C.B., "Games Final-Offer Arbitrators Might Pay," Industrial Relations, Vol. 16(3), 1977, pp. 306-314.
- Douglas, J.M., "Injunctions Under New York's Taylor Law: An Occupational Analysis," Journal of Collective Negotiations, Vol. 10 (3), 1981, pp. 249-265.
- Dunn, F. and C.T. Bailey, "Identifiable Trends in Teacher Attitudes Toward Collective Negotiation," Journal of Collective Negotiations, Vol. 2(2), 1973, pp. 113-124.
- Eberts, R.W., "Union Effects on Teacher Productivity," Industrial and Labor Relations Review, April 1984, Vol. 37 (3), pp. 346-358.
- Eberts, R.W., "How Unions Affect Management Decisions: Evidence From Public Schools," Journal of Labor Research, Vol. 4(3), 1983, pp. 239-247.
- Edwards, L.N. and F.R. Edwards, "Wellington-Winter Revisited: The Case of Municipal Sanitation Collection," Industrial and Labor Relations Review, Vol. 35(3), 1982, pp. 307-318.
- Edwards, L.N. and F.R. Edwards, "The Effect of Unionism on the Money and Fringe Compensation of Public Employees: The Case of Municipal Sanitation Workers," Unpublished.
- Ehrenberg, R.G., "Heterogeneous Labor, Minimum Hiring Standards, and Job Vacancies in Public Employment," Journal of Political Economy, Vol. 81, 1973, pp. 1442-1450.
- Ehrenberg, R.G., "The Demand for State and Local Government Employees," The American Economic Review, Vol. 63, (3), 1973, pp. 366-379.
- Ehrenberg, R.G. "Municipal Government Structure, Unionization, and the Wages of Fire Fighters," Industrial and Labor Relations Review, October 1973, pp. 36-48.
- Ehrenberg, R.G., and G.S. Goldstein, "A Model of Public Sector Wage Determination," Journal of Urban Economics, Vol. 2, 1975, pp. 223-245.
- Ehrenberg, R.G. and J.L. Schwarz, "Public Sector Labor Markets," National Bureau of Economic Research, Working Paper 1179, August 1983.
- Ehrenberg, R.G., Sherman, D.R. and J.L. Schwarz, "Unions and Productivity in the Public Sector: A Study of Municipal Libraries," National Bureau of Economic Research, Reprint No. 370, 1983.
- Ehrenberg, R.G. and R. Smith, "Comparable Worth in the Public Sector," Paper in Progress, May 1984.
- Faber, C.F. and D.L. Martin, Jr., "Two Factors Affecting Enactment of Collective Bargaining Legislation in Public Education," Journal of Collective Negotiations, Vol. 8(2), 1979, pp. 151-159.

- Fabiano, M.A. and J.W. Adams, "Attitudes of State Clerical Employees Toward Unions," Journal of Collective Negotiations, Vol. 9(4), 1980, pp. 329-342.
- Fallon, R., "The Effects of Public Policy on the Incidence of Public Sector Strikes," Unpublished, 1977.
- Farber, H.S., "Splitting-the-Difference in Interest Arbitration," Industrial and Labor Relations Review, Vol. 35(1), 1981, pp. 70-77.
- Farber, H.S. and H.C. Katz, "Interest Arbitration, Outcomes, and the Incentive to Bargain," Industrial and Labor Relations Review, Vol. 33(1), 1979, pp. 55-63.
- Feldman, R. and R. Scheffler, "The Union Impact on Hospital Wages and Fringe Benefits," Industrial and Labor Relations Review, January 1982 Vol. 35 (2), pp. 196-206.
- Feuille, P. and J.C. Anderson, "Public Sector Bargaining: Policy and Practice," Industrial Relations, Vol. 19(3), 1980, pp. 309-324.
- Feuille, P., "Selected Benefits and Costs of Compulsory Arbitration," Industrial and Labor Relations Review, Vol. 33(1), 1979, pp. 64-76.
- Feuille, P., "Public Sector Impasses: Symposium Introduction," Industrial Relations, Vol. 16(3), 1977, pp. 264-272.
- Feuille, P., "Police Labor Relations and Multilateralism," Industrial Relations Research Association, 1973, pp. 170-177.
- Feuille, P., Hendricks, W., and J.T. Delaney, "The Impact of Collective Bargaining and Interest Arbitration on Policing," Final Report to the National Institute of Justice, U.S. Department of Justice, December 1983.
- Fogel, W. and D. Lewin, "Wage Determination in the Public Sector," Industrial and Labor Relations Review, April 1974, pp. 410-431.
- Fording, T.E., "The Market for Public School Teachers and the Effect of Unionism and Collective Bargaining on Teacher Salaries," A thesis presented to the Departments of Economics and Government, Harvard University, March 24, 1982.
- Fottler, M.D., "The Union Impact on Hospital Wages," Industrial and Labor Relations Review, Vol. 30(3), 1977, pp. 342-355.
- Fox, M.S. and M.H. Wince, "The Structure and Determinants of Occupational Militancy Among Public School Teachers," Industrial and Labor Relations Review, October 1976, pp. 47-58.
- Frank, G.B. and H.E. Graham, "The Serendipitous Effect of Accounting Data Disclosure on Municipal Collective Bargaining," Journal of Collective Negotiations, Vol. 10(3), 1981, pp. 217-230.

- Freeman, R.B., "Demand for Labor in a Nonprofit Market: University Faculty," in Labor in Public and Nonprofit Sectors, D.S. Hamermesh, ed., New Jersey: Princeton University Press, 1975.
- Freeman, R.B., C. Ichniowski, and H. Lauer, "Inter-Municipal Bargaining Spillovers in the Determination of Police Compensation," September 1982, unpublished.
- Freund, J.L., "Market and Union Influences on Municipal Employee Wages," Industrial and Labor Relations Review, April 1974, pp. 391-404.
- Frey, D.E. "Wage Determination in Public Schools and the Effects on Unionization, in Labor in Public and Nonprofit Sectors, D.S. Hamermesh, ed., New Jersey: Princeton University Press, 1975.
- Galbraith, J.K. The Affluent Society, Boston: Houghton Mifflin 1969.
- Gallagher, D.G. and R. Pegnetter, "Impasse Resolution Under the Iowa Multistep Procedure," Industrial and Labor Relations Review, Vol. 32(3), 1979, pp. 327-338.
- Gallagher, D.G., "Teacher Bargaining and School District Expenditures," Industrial Relations, Vol. 17(2), 1978, pp. 231-237.
- Gallagher, D.G., "Perceptual Measures of Union and Collective Bargaining Impacts," Unpublished.
- Gatewood, L.B., "Factfinding in Teacher Disputes: The Wisconsin Experience," Monthly Labor Review, October 1974, pp. 47-51.
- Gentile, J.F., "Arbitration in the Federal Sector: Selected Problem Areas," Industrial Relations Research Association, Spring Meeting 1983, pp. 482-487.
- Gerhart, P.F., "Determinants of Bargaining Outcomes in Local Government Labor Negotiations," Industrial and Labor Relations Review, Vol. 29(3), 1976, pp. 331-351.
- Gerhart P.F. and J.E. Drotning, "Dispute Settlement and the Intensity of Mediation," Industrial Relations, Vol. 19(3), 1980, pp. 352-359.
- Gerhart, P.F. and J.E. Drotning, "Is Fact Finding Useful in the Public Sector?" Journal of Collective Negotiations, Vol. 10(3), 1981, pp. 279-286.
- Gifford, C.D., (ed.), Directory of U.S. Labor Organizations, 1982-83 Edition, The Bureau of National Affairs, Inc. Washington, D.C. 1982.
- Gilmore, C.B., "The Impact of Faculty Collective Bargaining on the Management of Public Higher Educational Institutions," Journal of Collective Negotiations, Vol. 10(2), 1981, pp. 145-151.
- Glasser, J., "Some Suggested Impasse Resolution Procedures," Journal of Collective Negotiations, Vol. 8(3), 1979, pp. 209-221.



- Gold, C., Rodney, E.D., and J. Graham, "Reinstatement After Termination: Public School Teachers," Industrial and Labor Relations Review, Vol. 31(3), April 1978, pp.310-321.
- Grodin, J.R., "Arbitration of Public Sector Labor Disputes: The Nevada Experiment," Industrial and Labor Relations Review, October 1974, pp. 89-102.
- Gustman, A.L. and M. Segal, "Interstate Variations in Teachers' Pensions," Industrial Relations, Vol. 16(3), 1977, pp. 335-344.
- Gustman, A.L. and M. Segal, "Teachers' Salary Structures: Some Analytical and Empirical Aspects of the Impact of Collective Bargaining," Industrial Relations Research Association, 1977, pp. 437-445.
- Haber, H.L., "Alternatives in Public Sector: Factfinding with binding Recommendations," Monthly Labor Review, p. 43 -44.
- Hall, W.C., and N.E. Carroll, "The Effect of Teachers' Organizations on Salaries and Class Size," Industrial and Labor Relations Review, January 1973, pp. 834-841.
- Hall, W.C. and B. Vanderporten, "Unionization, Monopsony Power, and Police Salaries," Industrial Relations, Vol. 16(1), 1977, pp. 94-100.
- Hamermesh, D.S., Labor in the Public and Nonprofit Sectors, Princeton, New Jersey: Princeton University Press, 1975.
- Hamermesh, D.S., "The Effect of Government Ownership on Union Wages," in Labor in Public and Nonprofit Sectors, D.S. Hamermesh, ed., New Jersey: Princeton University Press, 1975.
- Hartman, R.W., Pay and Pensions for Federal Workers, Washington, D.C.: The Brookings Institution, 1983.
- Haskell, M.A., "Centralization or Decentralization of Bargaining Among State Government Employees: An Examination of the Options," Journal of Collective Negotiations, Vol. 10(1), 1981, pp. 19-31.
- Helburn, I.B. and J.I. Matthews, "The Referendum as an Alternative to Bargaining," Journal of Collective Negotiations, Vol 9(2), 1980, pp. 93-105.
- Hellriegel, D. and R.B. Peterson, "Collective Negotiations: A Behavioral Analysis," Industrial and Labor Relations Review, January 1971, pp. 249-264.
- Hellriegel, D., French, W. and R.B. Peterson, "Collective Negotiations and Teachers: A Behavioral Analysis," Industrial and Labor Relations Review, 1970, pp. 380-396.
- Henkel, J.W., "Collective Bargaining in Higher Education: State Legislatures Still Hold the Purse Strings," Labor Law Journal, June 1980, pp. 353-367.

- Henkel, J.W. and N.J. Wood, "Collective Bargaining by State Workers: Legislatures Have the Final Voice in the Appropriation of Funds," Journal of Collective Negotiations, Vol. 11(3), 1982, pp. 215-223.
- Hill, M.D., "Variations in Job Satisfaction Among Higher Education Faculty In Unionized and NonUnionized Institutions in Pennsylvania," Journal of Collective Negotiations, Vol. 11(2), 1982, pp. 165-178.
- Holmes, A.B., "Union Activity and Teacher Salary Structure," Industrial Relations, Vol. 18(1), 1979, pp. 79-85.
- Holmes, A.B., "Effects of Union Activity on Teachers' Earnings," Industrial Relations, Vol. 15(3), 1976, pp. 328-332.
- Honadle, B.W., "A Model of the Public Sector Wage Determination Process With Special Reference to Institutional Factors," Journal of Collective Negotiations, Vol. 10(2), 1981, pp. 105-121.
- Honadle, B.W., "Wage Determination in the Public Sector: A Critical Review of the Literature," Journal of Collective Negotiations, Vol. 10(4), 1981, pp. 309-325.
- Horn, R.N., McGuire, W.J., and J. Tomkiewicz, "Work Stoppages by Teachers: An Empirical Analysis," Journal of Labor Research, Vol. 3(4), 1982, pp.487-496.
- Horn, R.N., McGuire, W.J., and J. Tomkiewicz, "An Empirical Model of Strike Activity by Teachers," Journal of Collective Negotiations, Vol. 11 (2), 1982, pp. 155-164.
- Horton, R.D., "Arbitration, Arbitrators, and the Public Interest," Industrial and Labor Relations Review, July 1975, pp. 497-507.
- Horton, R.D., Lewin, D. and J.W. Kuhn, "Some Impacts of Collective Bargaining on Local Government," Administration and Society, Vol. 7(4), 1976, pp. 497-516.
- Huettner, D.A. and T.L. Watkins, "Public Sector Bargaining: An Investigation of Possible Environmental Influences," Industrial and Labor Relations Review, 26th Annual Winter Proceedings, 1973, pp. 178-187.
- Hulpke, J.F. and D.A. Watne, "Budgeting Behavior: If, When, and How Selected School Districts Hide Money," Public Administration Review, November/December 1976, pp. 667-674.
- Ichniowski, C., "Arbitration and Police Bargaining: Prescriptions for the Blue Flu," Industrial Relations, Vol. 21 (2), pp. 149-166.
- Ichniowski, C., "Economic Effects of the Firefighters' Union," Industrial and Labor Relations Review, Vol. 33(2), 1980, pp. 198-211.
- Ichniowski, C., "The Impact of Bargaining Legislation on Police Union Growth Estimation With Variable-Knot Logistic Splines," Unpublished.

- Immerman, R.J., "Administrative Attitudes Toward Labor Conflict Resolution in the Public Sector: An Empirical Investigation," Journal of Collective Negotiations, Vol. 2(1), 1973, pp. 97-112.
- Inman, R.P., "Wages, Pensions, and Employment in the Local Public Sector," in Public Sector Labor Markets, P. Mieszkowski and G.E. Peterson (eds.) Washington, D.C.: The Urban Institute Press, COUPE Papers on Public Economics, 1981.
- Jacobs, J.B., "The Role of Military Forces in Public Sector Labor Relations," Industrial and Labor Relations Review, Vol. 35(2), 1982, pp. 163-180.
- Johnson, D.F. and D.G. Pruitt "Preintervention Effects of Mediation vs. Arbitration," Journal of Applied Psychology, Vol. 56 (1), 1972, pp. 1-10.
- Johnson, D.F. and W. Tullar, "Style of Third Party Intervention, Face-Saving and Bargaining Behavior," Journal of Experimental Social Psychology, 1972, Vol. 8 (4), pp. 319-330.
- Kasper, H., "The Effects of Collective Bargaining on Public School Teachers' Salaries," Industrial and Labor Relations Review, Vol. 25, 1972, pp. 410-423.
- Katz, H.C., "Municipal Pay Determination: The Case of San Francisco," Industrial Relations, Vol. 18(1), 1979, pp. 44-58.
- Katz, H.C., "The Municipal Budgetary Response to Changing Labor Costs: The Case of San Francisco," Industrial and Labor Relations Review, Vol. 32(4), 1979, pp. 506-519.
- Katz, H.C., and D. Lewin, "Efficiency and Equity Considerations in State and Local Government Wage Determination," Industrial Relations Research Association, 1980, pp. 90-98.
- Katz, W.D., "Public Referendums and Public Employee Collective Bargaining: Are They Compatible?" Journal of Collective Negotiations, Vol. 8(2), 1979, pp. 183-195.
- Kearney, R.C., "The Impacts of Police Unionization on Municipal Budgetary Outcomes," Paper Presented at the Annual Meeting of the Midwest Political Science Association, Chicago, April 1978.
- Kearney, R.C. and D. Morgan, "The Effect of Employee Organizations on the Compensation of Police Officers," Journal of Collective Negotiations, Vol. 9(1), 1980, pp. 17-31.
- Keller, B.K., "Impasse Procedures and Strikes in the Public Sector: The Cases of the USA and West Germany," Journal of Collective Negotiations, Vol. 8(1), 1979, pp. 61-66.
- Klauser, J.E., "Public Sector Impasse Resolution in Hawaii," Industrial Relations, Vol. 16 (3), October 1977, pp. 283-289.

- Kleiner, M.M. and C.E. Krider, "Determinants of Negotiated Agreements for Public School Teachers," Educational Administration Quarterly, Vol. 15(13), pp. 66-82
- Kochan, T.A., "A Theory of Multilateral Collective Bargaining in City Governments," Industrial and Labor Relations Review. Vol. 27(3), 1974, pp. 525-542.
- Kochan, T.A., "Correlates of State Public Employee Bargaining Laws," Industrial Relations, Vol. 322, October 1973, pp. 322-336.
- Kochan, T.A. and J. Baderschneider, "Estimating the Narcotic Effect: Choosing Techniques That Fit the Problem," Industrial and Labor Relations Review, Vol.35(1), 1981, pp. 21-28.
- Kochan, T.A. and J. Baderschneider, "Dependence on Impasse Procedures: Police and Firefighters in New York State," Industrial and Labor Relations Review, Vol. 31(4), 1978, pp. 431-449.
- Kochan, T.A., Huber, G.P., and L.L. Cummings, "Determinants of Intra-organizational Conflict in Collective Bargaining in the Public Sector," Administrative Science Quarterly, Vol. 20, March 1975, pp. 10-23.
- Kochan, T.A., and T. Jick, "The Public Sector Mediation Process," Journal of Conflict Resolution, Vol. 22(2), 1978, pp. 209-238.
- Kochan T.A. and H.N. Wheeler, "Municipal Collective Bargaining: A Model and Analysis of Bargaining Outcomes," Industrial and Labor Relations Review, Vol. 29(1), 1975, pp. 46-66.
- Kolb, D.M., "Roles Mediators Play: State and Federal Practice," Industrial Relations, Vol. 20(1), 1981, pp. 1-17.
- Kramer, L., Labor's Paradox -- The American Federation of State, County, and Municipal Employees, AFL-CIO (Wiley, 1962).
- Krislov, J., "Arbitration, Arbitrators, and the Public Interest," Comment, Industrial and Labor Relations Review, Vol. 31(1), 1977, pp. 71-77.
- Kruger, D.H. and H.E. Jones, "Compulsory Interest Arbitration in The Public Sector: An Overview," Journal of Collective Negotiations, Vol. 10(4), 1981, pp. 355-373.
- Labor-Management Relations Service, "The Role of Politics in Local Labor Relations--A Special Report Based on a Survey of 78 U.S. Cities," 1972.
- Lafranchise, P.A., and M.T. Leibig, "Collective Bargaining for Parity in the Public Sector," Labor Law Journal, September 1981, pp. 598-608.
- Landon, J.H., and R.N. Baird, "Monopsony in the Market for Public School Teachers," American Economic Review, Vol. 51(5), 1971, pp. 966-971.
- Lauer, H. S., "The Effect of Collective Bargaining in Municipal Police Forces on Wages, Salaries, and Fringe Benefits," Undergraduate Thesis for Department of Economics, Harvard College, March 1979.

- Lawler, J.J., "Faculty Unionism in Higher Education: The Public Sector Experience," Labor Law Journal, August 1982, pp. 475-480.
- Lehr, T., Caldwell, W., and D. Di Lucchio, "Consultant Effectiveness During Collective Bargaining Activity in Pennsylvania Schools," Journal of Collective Negotiations, Vol. 11(3), 1982, pp. 259-266.
- Levitan, S.A. and A.B. Noden, Working for the Sovereign, Employee Relations in the Federal Government, Baltimore and London: John Hopkins University Press, 1983.
- Levy, A., "Collective Bargaining and its Effects on Municipal Finances," Harvard University Senior thesis, March 1984.
- Lewin, D., "Public Sector Labor Relations," Labor History, Winter, 1977, pp. 133-143.
- Lewin, D., "The Prevailing-Wage Principle and Public Wage Decisions," Public Personnel Management, November-December 1974, pp. 473-485.
- Lewin, D., Feuille, P. and T.A. Kochan, Public Sector Labor Relations: Analysis and Readings, Second Edition, Sun Lakes, Arizona: Thomas Horton and Daughters, 1981.
- Lewin, D. and J. H. Keith, Jr., "Managerial Responses to Perceived Labor Shortages," Criminology, Vol. 14, May 1976, pp. 65-93
- Lieberman, M., "The Role and Responsibilities of the Parties in School District Bargaining," Journal of Collective Negotiations, Vol. 10(1), 1981, pp. 95-103.
- Lindman, E.L., "Are Teachers' Salaries Improving?" Phi Delta Kappan, April 1970, pp. 420-422.
- Lipsky, D.B., and T.A. Barocci, "Final-Offer Arbitration and Public-Safety Employees: The Massachusetts Experience," Industrial Relations Research Association, 1977, pp. 65-77.
- Lipsky, D.B. and J.E. Drotning, "The Influence of Collective Bargaining on Teachers' Salaries in New York State," Industrial and Labor Relations Review, October 1973, pp. 18-33.
- Loewenberg, J.J., "The Effect of Compulsory Arbitration on Collective Negotiations," Journal of Collective Negotiations, Vol. 1(2), 1972, pp. 177-190.
- Loewenberg, J.J., "Compulsory Arbitration for Police and Firefighters in Pennsylvania in 1968," Industrial and Labor Relations Review, Vol. 23 (April 1970), pp. 367-379.
- Long, G. and P. Feuille, "Final-Offer Arbitration: 'Sudden Death' in Eugene," Industrial and Labor Relations Review, January 1974, pp. 186-203.

- Magenau, J.M. "The Impact of Alternative Impasse Procedures on Bargaining: A Laboratory Experiment," Industrial and Labor Relations Review, Vol. 36(3), 1983, pp. 361-388.
- Marmo, M., "Public Employee Unions: The Political Imperative," Journal of Collective Negotiations, Vol. 4(4), 1975, pp.369-379.
- Martin, J.E., Barclay, L.A., and L.L. Biasatti, "Attitudes and Public Sector Union-Management Relationships," Journal of Collective Negotiations, Vol. 8(2), 1979, pp. 171-181.
- McCollum, J.K., "Decertification of the Northern Virginia Public Sector Local Unions: A Study of Its Effect," Journal of Collective Negotiations, Vol. 10(4), 1981, pp. 345-353.
- Mellow, W., "Unionism and Wages: A Longitudinal Analysis," The Review of Economics and Statistics, Vol. 63(1), 1981, pp. 43-52.
- Mellow, W., "Worker Differences in the Receipt of Health and Pension Benefits: Extending the Analysis of Compensation Differentials," Industrial Relations Research Association, 34th Annual Proceedings, pp. 16-23.
- Methe, D.T. and J.L. Perry, "The Impacts of Collective Bargaining on Local Government Services: A Review of Research," Public Administration Review, July/August 1980, pp. 359-371.
- Miller, R.U., Becker, B.B., and E.B. Krinsky, "Union Effects on Hospital Administration: Preliminary Results from a Three-State Study," Labor Law Journal, August 1977, pp. 512-519.
- Mitchell, D.J.B., "The New Climate: Implications for Research on Public Sector Wage Determination and Labor Relations," Industrial Relations Research Association, Spring Meeting, 1983, pp. 473-479.
- Mitchell, D.J.B., "The Impact of Collective Bargaining on Compensation in the Public Sector," in B. Aaron, J. R. Grodin and J.L. Stern (eds.) Public Sector Bargaining, Madison Wisconsin: Industrial Relations Research Association, 1979, pp. 118-149.
- Mitchell, D.J.B., "Collective Bargaining and Wage Determination in the Public Sector: Is Armageddon Really at Hand?" Public Personnel Management, Vol. 7(2), March-April 1978, pp. 80-95.
- Mitchell, D.J.B., "The General Effects (Of Public Sector Unions) Which Have Been Reviewed are Not Huge," Public Personnel Management, March-April 1978.
- Moore, G.A., "The Effect of Collective Bargaining on Internal Salary Structures in the Public Schools," Industrial and Labor Relations Review, Vol. 29(3), 1976, pp. 352-362.
- Moore, W.J., "An Analysis of Teacher Union Growth," Industrial Relations, Vol. 17(2), 1978, pp. 204-215.

- Moore, W.J., "Factors Affecting Growth in Public and Private Sector Unions," Journal of Collective Negotiations, Vol. 6(1), 1977, pp. 37-43.
- Moore, W.J. and J. Raisian, "A Time Series Analysis of Union/NonUnion Relative Wage Effects in the Public Sector," Industrial Relations Research Association Series, 34th Annual Meeting, Dec 28-30, 1981.
- Moskow, M.H., J.J. Loewenberg and E.C. Koziara, Collective Bargaining in Public Employment, New York: Random House, 1970.
- Moskow, M.H. and K. McLennan, "The Impact of Decentralization on Collective Bargaining in Urban Education," Industrial Relations Research Association, Vol. 22, 1969, pp. 236-247.
- Munnell, Alicia H., "Who Should Manage the Assets of Collectively Bargained Pension Plans?" New England Economic Review, Federal Reserve Bank of Boston, July/August 1983, pp. 18-30.
- Najita, J.M., "State Government Employee Bargaining: Selected Characteristics," Labor Law Journal, August 1982, pp. 467-475.
- Nelson, C.R., Kang, H., "Pitfalls in the Use of Time as an Explanatory Variable in Regression," National Bureau of Economic Research, Technical Working Paper No. 30, November 1983.
- Nelson, N.E., "Final Offer Arbitration: Some Problems," The Arbitration Journal, Vol. 30, 1975, pp. 50-58.
- Nelson, W. B., Stone, G.W., Jr., and J.M. Swint, "An Economic Analysis of Public Sector Collective Bargaining and Strike Activity," Journal of Labor Research, Vol. 2(1), 1981, pp. 77-98.
- Noam, E.M., "The Effect of Unionization and Civil Service on the Salaries and Productivity of Regulators," in New Approaches to Labor Unions, Research in Labor Economics, J.D. Reid, Jr. (ed.), supplement 2, 1983.
- Notz, W.W. and F.A. Starke, "Final-Offer Versus Conventional Arbitration as Means of Conflict Management," Administrative Science Quarterly, Vol. 23, June 1978, pp. 189-203.
- Olson, C.A., "The Impact of Arbitration on the Wages of Firefighters," Industrial Relations, Vol. 19(3), 1980, pp. 325-339.
- Pegnetter, R., "Fact Finding and Teacher Salary Disputes: The 1969 Experience in New York State," Industrial and Labor Relations Review, January 1971, pp. 226-242.
- Perry, C.R., "Teacher Bargaining: The Experience in Nine Systems," Industrial and Labor Relations Review, Vol. 33(1), 1979, pp. 3-17.
- Perry, J.L. and C.H. Levine, "An Interorganizational Analysis of Power, Conflict and Settlements in Public Sector Collective Bargaining," American Political Science Review, Vol. 70, December 1976, pp. 1185-1201.

- Perry, J.L., H.L. Angle, and M.E. Pittel, The Impact of Labor-Management Relations on Productivity and Efficiency in Urban Mass Transit, Washington, D.C.: U.S. Department of Transportation, Research and Special Programs Administration, Office of University Research, 1979.
- Peterson, R. B., "A Cross-Cultural Study of Secondary School Teachers' Attitudes Regarding Job Satisfaction, Professionalism, and Collective Negotiations (Sweden and State of Washington)," Journal of Collective Negotiations, Vol. 5(2), 1976, pp. 113-124.
- Peterson, R.B. and H.D. Smith, "Making Sense Out of Teacher Professionalism, Job Satisfaction, and Attitudes Toward Collective Negotiations," Journal of Collective Negotiations, Vol. 3(3), 1974, pp. 227-239.
- Reder, M.W., "The Theory of Employment and wages in the Public Sector," in Labor in the Public and Nonprofit Sectors, D.S. Hamermesh, ed., New Jersey: Princeton University Press, 1975.
- Reed, A., "Local Labor Negotiations and the Urban Mass Transit Industry," Journal of Collective Negotiations, Vol. 8(3), 1979, pp. 253-266.
- Rehms, C.M., "New Developments in Public Sector Arbitration," Industrial Relations Research Association, 1974, pp. 307-323.
- Rehms, C.M., "Constraints on Local Governments in Public Employee Bargaining," Michigan Law Review, Vol. 67, 1969, pp. 919-930.
- Rehms, C.M., and B.A. Kerner, "The Agency Shop After Abood: No Free Ride, But What's the Fare?," Industrial and Labor Relations Review, Vol. 34(1), 1980, pp. 90-100.
- Rehms, C.M. and E. Wilner, The Economic Results of Teacher Bargaining: Michigan's First Two Years, Ann Arbor: University of Michigan and Wayne State University Research Papers in Industrial Relations and Human Resources, No. 6, 1968.
- Reid, J.D., Jr. and M. Kurth, "The Organization of State and Local Government Employees: A Comment on Dalton," Unpublished.
- Reid, J.D., Jr. and M. Kurth, "The Importance of Union Security to the Growth of Unionism," Unpublished.
- Reynolds, M., "Cause and Effect in Public Sector Unionism: An Economic Analysis," Government Union Review, Winter 1983, Vol. 4 (1), pp. 3-22.
- Rifkin, J. and R. Barber, The North Will Rise Again: Pensions, Politics, and Power in the 1980's, Boston: Beacon Press, 1978.
- Rodgers, R.C., "A Replication of the Burton-Krider Model of Public-Employee Strike Activity," Industrial Relations Research Association Series, 33rd Annual Proceedings, 1980, pp. 241-251.



- Rosen, H.S., "An Alternative: Meet and Confer--The Experience in Santa Clara County," Labor-Management Relations Service, Paper No. 12, 1972.
- Ross, D.B., "The Arbitration of Public Employee Wage Disputes," Industrial and Labor Relations Review, Vol. 23(1), 1969, pp. 3-14.
- Salkever, D.S., "Unionization and the Cost of Producing Hospital Services," Journal of Labor Research, Vol. 3(3), 1982, pp. 311-334.
- Sarthory, J.A., "The Collective Bargaining in Public Education in the 1980s," Industrial Relations Research Association, 33rd Annual Proceedings, pp. 284-289.
- Schmenner, R.W., "The Determination of Municipal Employee Wages," Review of Economics and Statistics, Vol. 55, 1973, pp. 83-90.
- Schramm, C.J., "The Role of Hospital Cost-Regulating Agencies in Collective Bargaining," Labor Law Journal, August, 1977, pp. 519-525.
- Schramm, L.R.H., "Is Teacher Tenure Negotiable: A Review of Court Decisions," Journal of Collective Negotiations, Vol. 6(3), 1977, pp. 245-256.
- Schutt, R.K., "Models of Militancy: Support for Strikes and Work Actions Among Public Employees," Industrial and Labor Relations Review, Vol. 35(3), 1982, pp. 406-422.
- Shapiro, D., "Relative Wage Effects of Unions in the Public and Private Sectors," Industrial and Labor Relations Review, Vol. 31(2), January, 1978, pp. 193-204.
- Shaw, L.C. and R.T. Clark, Jr., "The Practical Differences Between Public and Private Sector Collective Bargaining," UCLA Law Review, Vol 19(867), 1972, pp. 867-886.
- Shaw, L.C. and R.T. Clark, Jr., "Public Sector Strikes: An Empirical Analysis," Journal of Law--Education, Vol. 2(2), 1973, pp. 217-234.
- Slichter, S. H., J.J. Healy, and E.R. Livernash, The Impact of Collective Bargaining on Management, The Brookings Institution, Washington, D.C., 1960.
- Smith, A.W., "Have Collective Negotiations Increased Teachers' Salaries?" Phi Delta Kappan, December 1972, pp. 268-269.
- Smith, R.L. and A.H. Hopkins, "Public Employee Attitudes Toward Unions," Industrial and Labor Relations Review, July 1979, pp. 484-495.
- Smith, R.L. and W. Lyons, "Public Sector Unionization and Municipal Wages: The Case of Fire Fighters," Paper presented at the Annual Meeting of the Midwest Political Science Association, Chicago, April 1978.
- Smith, S.P., Equal Pay in the Public Sector: Fact or Fantasy, Princeton, New Jersey: Princeton University, Industrial Relations Section, 1977.

- Smith, S.P., "Government Wage Differentials," Journal of Urban Economics, Vol. 4, 1977, pp. 248-271.
- Smith, S.P., "Pay Differentials Between Federal Government and Private Sector Workers," Industrial and Labor Relations Review, Vol. 29(2), 1976, pp. 179-197.
- Somers, P.C., "An Evaluation of Final-Offer Arbitration in Massachusetts," Journal of Collective Negotiations, Vol. 6(3), 1977, pp. 193-228.
- Stanley, D.T. and C.L. Cooper, Managing Local Government Under Union Pressure, Washington, D.C.: The Brookings Institution, 1972.
- Stanley, D.T., "Change: The Impact of Unions on Local Government," Labor Management Relations Service of The League of Cities, March 1972.
- Staudohar, P.D., "Subcontracting in State and Local Government Employment," Journal of Collective Negotiations, Vol. 9(3), 1980, pp. 245-251.
- Staudohar, P.D., "Negotiation and Grievance Arbitration of Teacher Tenure Issues," Labor Law Journal, July, 1978, pp. 413-419.
- Staudohar, P.D., "Quasi-Strikes by Public Employees," Journal of Collective Negotiations, Vol. 3(4), 1974, pp. 363-371.
- Staudohar, P.D., "Fact-Finding for Settlement of Teacher Labor Disputes," Phi Delta Kappan, April 1970, pp. 422-423.
- Stern, D. and K. Bagley, "How Participants in Collective Bargaining for Public School Teachers in California Perceive the Interests of Teachers in Relation to Other Groups," Journal of Collective Negotiations, Vol. 10(1), 1981, pp. 63-73.
- Stern, J.L., "A Look Ahead at Public Employee Unionism," in The Annals of the American Academy of Political and Social Science, Louis A. Ferman, special ed., May 1984, Vol. 473, Beverly Hills, CA: Sage Publications, pp. 165-176.
- Stern, J.L. and C. Olson, "The Propensity to Strike of Local Government Employees," Journal of Collective Negotiations, Vol. 11 (3), 1982, pp. 201-214.
- Stern, J., C. Rehmus, J. J. Lowenberg, H. Kasper, and B. Dennis, Final Offer Arbitration. Lexington, Massachusetts, Lexington Books, 1975.
- Stern, R.N., "Intermetropolitan Patterns of Strike Frequency," Industrial and Labor Relations Review, Vol. 29(2), 1976.
- Stieber, J., Public Employee Unionism: Structure, Growth Policy, Washington, D.C.: The Brookings Institution, 1973.
- Subbarao, A.V., "The Impact of Binding Interest Arbitration on Negotiation and Process Outcome," Journal of Conflict Resolution, Vol. 22(1), 1978, pp. 79-103.

- Sulzner, G.T., "The Impact of Impasse Procedures in Public Sector Labor: An Overview," Journal of Collective Negotiations, Vol. 4(1), 1975, pp. 3-21.
- Summers, C.W., "Public Employee Bargaining: A Political Perspective," Yale Law Journal, Vol. 83, 1974, pp. 1156-1199.
- Sundermann, J.D., "Ascertaining Attitudes of Union Members in Public and Private Employment," Public Personnel Review, April 1966, pp. 115-120.
- Thornton, R.J., "The Elasticity of Demand for Public School Teachers," Industrial Relations Vol. 18(1), 1979, pp. 86-91.
- Thornton, R.J., "Monopsony and Teachers' Salaries: Some Contrary Evidence, Comment," Industrial and Labor Relations Review, July 1975, pp. 574-575.
- Thornton, R.J., "The Effects of Collective Negotiations on Teachers' Salaries," Quarterly Review of Economics, Vol. 11(4), 1971, pp. 37-46.
- Troy, L., "The Agenda of Public Sector Unions and Associations," Government Union Review, Spring 1983, pp. 15-35.
- U.S. Bureau of the Census, Labor Management Relations in State and Local Government: 1980, Series GSS no. 102, Washington, D.C.: U.S. Government Printing Office.
- U.S. Department of Labor, Bureau of Labor Statistics, Handbook of Labor Statistics, December 1983, Table 132 Bulletin 2175 and 1971, Bulletin 1705.
- U.S. Department of Labor, Labor Management Services Administration, Summary of Public Sector Labor Relations Policies, 1971 and 1979.
- U.S. Department of Labor, Bureau of Labor Statistics, "Work Stoppages in Government, 1975," U.S. Government Printing Office, 1976.
- U.S. Department of Labor, "Municipal Government Wage Surveys: New Orleans, Louisiana, June 1975," Bureau of Labor Statistics, 1976.
- U.S. Department of Labor, Labor Management Service Administration, State Profiles: Current Status of Public Sector Labor Relations, November 1971.
- Vehorn, C.L. "Market Interaction Between Public and Private Goods: The Demand for Fire Protection," National Tax Journal, Vol. 32(1), 1979, pp.29-39.
- Victor, R.B., The Effects of Unionism on Wage and Employment Levels of Police and Firefighters, Santa Monica, California: The Rand Corporation, 1977, p. 5924.
- Wagner, T.E., "Public Employee Collective Bargaining in the Absence of Enabling State Legislation," Journal of Collective Negotiations, Vol. 10(4), 1981, pp.337-343.
- Wasylenko, M.J., "Some Evidence of the Elasticity of Supply of Policemen and Firefighters," Urban Affairs Quarterly, Vol. 12 (3), 1977, pp. 365-382.

- Watkins, T.L., "The Effects of Community Environment on Negotiations," Journal of Collective Negotiations, Vol. 1(4), 1972, pp. 317-327.
- Weber, A.R., "Paradise Lost; or Whatever Happened to the Chicago Social Workers?" Industrial and Labor Relations Review, April 1969, pp. 323-338.
- Weber, C.T., "The Ability to Pay Criterion: Some Recent Evidence," Journal of Collective Negotiations, Vol. 9(3), 1980, pp. 213-221.
- Weintraub, A.R. and R.J. Thornton, "Why Teachers Strike: The Economic and Legal Determinants," Journal of Collective Negotiations, Vol. 5(3), 1976, pp. 193-206.
- Wellington, H.H. and Winter, R.K., The Unions and the Cities, Washington, D.C.: The Brookings Institution, 1971.
- Wellington, H.H. and R.K. Winter, Jr., "The Limits of Collective Bargaining in Public Employment," Yale Law Journal, Vol. 78(7), 1969, pp. 1107-1127.
- Wheeler, H.N., "How Compulsory Arbitration Affects Compromise Activity," Industrial Relations, Vol. 17(1), 1978, pp. 80-84.
- Wheeler, H.N., "Public Sector Impasses: Symposium Introduction," Criticism and Comment, Industrial Relations, Vol. 17(2), 1978, pp. 252-254.
- Wheeler, H.N., "Closed Offer Alternative to Final Offer Selection," Industrial Relations, Vol. 16(3), 1977, pp. 298-305.
- Wheeler, H.N., "An Analysis of Fire Fighter Strikes," Labor Law Journal, January 1975, pp. 17-20.
- Wheeler, H.N. and F. Owen, "Impasse Resolution Preferences of Fire Fighters and Municipal Negotiators," Journal of Collective Organizations, Vol. 5(3), 1976, pp. 215-224.
- Wheeler, H.N. and T.A. Kochan, "Unions and Public Sector Supervisors: The Case of Fire Fighters," Monthly Labor Review, U.S. Department of Labor, Bureau of Labor Statistics, December 1977.
- Wilson, A.P. and E.F. Moon, "The Importance of Selected Categories of Employee Benefits to Public School Teachers," Journal of Collective Negotiations, Vol. 8(1), 1979, pp. 31-38.
- Witney, F., "Final-Offer Arbitration: The Indianapolis Experience," Monthly Labor Review, May 1973, pp. 20-25.
- Word, W.R., "Factfinding in Public Employee Negotiations," Monthly Labor Review, February 1972, pp. 60-64.
- Wortman, M.S., Jr., Overton, C.E., and R. Johnson, "The Structure of Management Rights Clauses in Major Metropolitan Firefighter Contracts," Labor Law Journal, October 1978, pp. 624-582.

- Yaffee, B., "Political Activities of New York State Public Sector Employee and Employer Interest Groups," Journal of Collective Negotiations, Vol.2(3), Summer, 1973, pp. 317-331.
- Zax, Jeffrey, Compensation and Employment in American City Governments, Ph.D. Thesis at Harvard University, unpublished, 1984.
- Zagoria, S., "Resolving Impasses by Public Referendum," Monthly Labor Review, May 1973, pp. 36-38.
- Zimmer, L. and J.J. Jacobs, "Challenging the Taylor Law: Prison Guards on Strike," Industrial Labor Relations Review, July 1981, Vol. 34 (4), pp. 531-544.
- Zuelke, D.C., and L.E. Frohreich, "The Impact of Comprehensive Collective Negotiations on Teachers' Salaries: Some Evidence From Wisconsin," Journal of Collective Negotiations, Vol. 6(1), 1977, pp. 81-88.