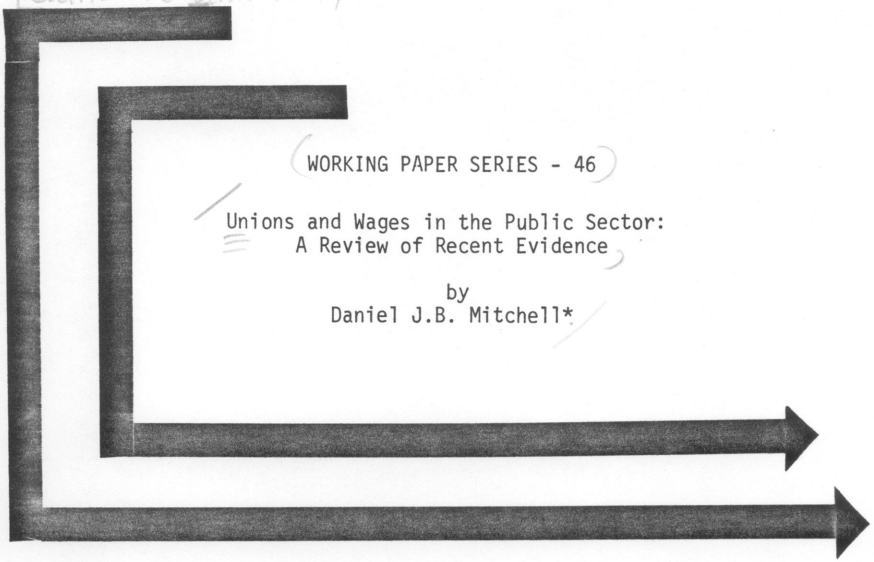

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Unions and Wages in the Public Sector: A Review of Recent Evidence

by

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Abstract

Research into the union impact on wages in government has continued to mushroom. Most studies have not found wide union/nonunion wage differentials in government. However, several studies suggest that public-sector unions have more significant effects in raising fringe compensation. Still, the management side has proven to be a tougher bargainer than many observers originally expected.

Significant gaps in knowledge about union wage impacts still exist. Important areas of future research include the degree of internal and external wage linkages in government compared with the private sector, the value employees and taxpayers place on unfunded pension promises, and the effects of impasse procedures on wage outcomes.

The impact of unions on public-sector wage determination has attracted growing interest by academics since the early 1960s. In an earlier essay in a volume sponsored by the Industrial Relation Research Association [1], I reviewed the research literature related empirical evidence for the period up to the mid-1970s. It was evident at that time that most of the literature was sparked by the growth of collective bargaining in government, particularly because that growth contrasted sharply with the relative decline of private unionization. During most of that period, government unions had the advantage of bargaining in a rapidly-expanding sector.

By the late 1970s, the economic climate had changed in government. Public-sector payroll employment rose at a 1.9 percent annual rate during 1975-1980, compared with a 3.3 percent annual expansion in the nonagricultural economy as a whole. In contrast, during the first half of the decade (1970-1975), the rates were 3.2 percent for government versus only 1.7 percent for nonagricultural employment [2,3]. The proportion of state and local employees reported by governments to be in bargaining units rose from 34.9 percent in 1975 to 38 percent in 1979. Hence, gains were still being reported despite slower employment growth. However, the rate of gain slowed in the late 1970s. Claimed membership in labor organizations rose from 27.2 percent of state and local payroll employment in 1970 to 34.2 percent in 1974, a hefty gain. Over the next four years, however, the ratio rose at a slower pace to 36.2 percent [4,5]. It appears that membership gains for unions will be more difficult in the future, both because overall employment growth in the sector has slowed and because a relatively large portion of the public workforce (compared with private employment) is already organized.

Given the changing economic climate and the continuing literature explosion on collective bargaining in government, it is important to review the ad-

vances made in research on the union wage impact in the public sector since the mid-1970s. Generally, more recent observers have considered the subject more thoroughly than their pre-1975 counterparts and have expanded it to consider previously untouched area. These include fringe benefits, impasse procedures, and resource-allocation decisions. In this paper I report on that recent literature set against a background of a more chilly economic situation.

I. Government Wage Trends

Although there had been relative wage gains of public workers in the 1960s compared with private-sector workers, by the mid-1970s these gains had leveled off [1, p.126]. An adverse economic climate in the public sector appeared to be taking its toll. In the late 1970s, "taxpayer revolts" limited expenditures and revenues in many jurisdictions. Interestingly, being represented by a labor organiation did not insulate public employees from these trends.

Table 1 breaks down three categories of public employees - state workers, local workers, and school district workers (a subcategory of local workers) - by their degree of unionization (above or below average), the proportion of full-time workers in each group in bargaining units in 1979. ("Unionization" applied to government workers refers to representation by any form of employee organization.) As can be seen from the table, in each case above-average unionization was associated with higher wage levels for the employees in question, higher rates of union membership (public and private) in the state, and higher earnings and per capita incomes in the state.[1]

[1]The figures on public and private unionization by state refer to unions only and omit associations.

Table 1

Wages, Incomes, and Nonfarm Unionization by Government

	State Employees		Local Employees		School District Employees	
Unionization Rate	Unionization > Mean	Unionization < Mean	Unionization > Mean	Unionization < Mean	Unionization > Mean	Unionization < Mean
State Employee Wage	$1025	$895	-	-	-	-
Local Employee Wage	-	-	$1020	$782	-	-
School District Employee Wage	-	-	-	-	$966	$795
Nonfarm Unionization Rate, 1978[a]	26.7%	17.3%	25.1%	17.0%	23.2%	17.2%
Manufacturing hourly earnings	$5.26	$4.58	$5.18	$4.55	$5.05	$4.44
Per capita Income	$6133	$5461	$6278	$5298	$5947	$5115
Annual Rate of Change, 1975-1979						
State Employee Wage	6.5%	7.5%	-	-	-	-
Local Employee Wage	-	-	6.7%	7.1%	-	-
School District Employee Wage	-	-	-	-	6.9%	7.1%
Manufacturing hourly earnings	8.4%	9.0%	8.6%	9.0%	8.6%	9.3%
Per capita income	9.7%	10.6%	10.0%	10.5%	10.5%	10.5%
Number of observations	17	33	22	29	25	20

Note: Figures are simple averages of state figures and apply to 1975 unless otherwise noted. Per capita income and nonfarm unionization refer to entire year. Other figures are as of October.

Table 1 - continued

[a] Excludes employee associations.

Source: U.S. Bureau of the Census, Labor-Management Relations in State and Local Governments: 1979, U.S. Government Printing Office, Washington, 1977. U.S. Bureau of the Census, Labor-Management Relations in State and Local Governments: 1975, U.S. Government Printing Office, Washington, 1977; Employment and Earnings, various issues; U.S. Bureau of Labor Statistics, Directory of National Unions and Employee Associations, 1979, U.S. Government Printing Office, Washington, 1980.

During 1975-1979, however, more heavily-unionized government workers tended to receive lower percentage increases in wages than lightly-unionized workers. This finding is in sharp contrast to the private sector where unionization was associated with larger wage increases as compared with nonunion workers. Of course, many factors were involved in explaining the surprising wage outcomes in government. The states with more heavily unionized government workers also were the ones experiencing lower rates of wage increase for private employees and lower rates of increase of per capita incomes during this period.

Nonetheless, government wages in all categories increased more slowly than private earnings and per capita incomes. Thus, the dire warnings, which were common in the 1960s and early 1970s, that unionization in the public sector would bring about a never-ending spiral of relative wage advance and tax increases seem excessive in hindsight. The data suggest that there are limits to union wage gains in the public sector, perhaps tighter limits than in the private economy. The lack of a "bottom line" in the public sector may make public managers **less** concerned about potential strike costs and therefore **more** willing to take a "tough" stance in bargaining than their private counterparts. This possibility stands in contrast to earlier fears that public managers - unconstrained by a bottom line and fearful of provioking strikes - would be willing to pass along exhorbitant wage increases to taxpayers.

II. The Wage Effect of Government

There is always a danger in empirical research of confounding the union wage effect with the wage effect of government per se. For the private sector, there is a supply/demand model available to economists interested in wage determination. A range of wages will be often observed for a particular occupation in a market area. Each employer selects and optimum wage policy based on a trade-off of turnover and hiring costs (screening, training, etc.) against wage

costs. Since turnover costs will vary across employers, so will wage policies. The model thus provides a criterion for establishing private-sector wage policy, namely turnover costs.

Government employers will also have turnover costs and in principle should make similar trade-offs. However, it is not clear that they will have the same incentives to do so, since output is not easily measurable and the political processes of decision making may differ from market processes.[2] Government employees tend to have lower turnover rates than their private counterparts, although this varies by sector. Median tenure on the job in 1978 for males in "public administration" ranged from 5.5 years in state and local government to 7.7 years for federal civil servants and 11.7 years for postal workers. This may be compared with 3.7 years for all nonagricultural male wage earners. For women, the median tenure figures were 2.6 years for state and local, 3.7 years for federal civil servants, and 8.1 years for postal workers, which may be compared with a 2.6 year nonagricultural median [7, Tables D and E].[3] If turnover costs were known to be the same for all levels of government and equal to the average in nonfarm employment generally, it would appear that except for women at the state and local level, government workers were overpaid on average. However, there is no handy measure of government turnover costs available and,

[2]It has been argued that government employers will react to excess turnover but not to excess queuing, thus biasing wage determination upward [6, p.257].

[3]The term "public administration" does not include all government workers, some of whom work in government enterprises.

hence, no way to make judgments about optimal turnover rates and pay levels in public employment.

Without turnover costs, the only comparisons that can be made are of actual salaries for "comparable" public and private workers. Most studies of government pay policies have therefore used the comparability approach. Through regression analysis, samples of workers are probed to determine what background characteristics (age, education, sex, etc.) are associated with pay level received in the private sector. The returns to these characteristics in public employment can then be estimated and the results compared. If results indicate that comparable workers in the public sector earn more (less) than those in the private sector, public workers are said to be overpaid (underpaid).

There are well known difficulties with this approach, even apart from the fuzzy concept of over- or underpayment in the absence of turnover-cost information. Cross-sectional regressions over individuals or occupational groups may be sensitive to specification and data sources. Some jobs in the public sector may be relatively unique, e.g., police officers, and background data such as educational attainment may not capture the uniqueness. Employer-specific explanatory variables such as firm size and capital intensity of production may not have much meaning in the public sector and may have to be omitted from the analysis. Conditions in public employment - such as job security - may attract individuals systematically different from those in private employment [8].[4] And,

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[4]It has been argued that government workers tend to be more risk averse (using such indirect measures as behavior with regard to automobile insurance and seat belts) and are attracted by greater job security in public employment. According to this argument, equal pay for government workers in fact results in overcompensation since job security is a valued benefit.

in any case, variations in conditions must be included in an evaluation of pay.[5]

There are wide variations in pay practices within broad government sectors. Within the federal government, pay for postal workers is determined through collective bargaining while for most other federal workers, pay is set through an interaction of Congress, the President, and a survey methodology. These procedures do not produce identical results. Postal pay in the 1970s increased more rapidly than nonpostal for federal civilian workers. Top executives' pay in the federal government is capped by a political process that links executive pay to Congressional salaries. The cap tends to remain in place for a period and then is adjusted, causing erratic movements at the upper end of the federal wage structure [10,11].

At the state and local level, there are also variations. Certain pay rates are more likely than others to be set by collective bargaining (e.g., teachers, transit workers). Some jurisdictions have loose financial constraints than others; others are tightly limited. Just as there is a political process involved in setting Congressional salaries, so the salaries of members of state

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[5]Quinn [9] presents data on relative working conditions in federal, state, and local employment as compared with the private sector. Conditions appear more favorable at the state and federal levels as compared with private employment.

legislatures may be set in ways which differ from other civil servants, and may influence pay of other high-paid public employees.[6]

Given all these qualifications, are government workers paid more than "comparable" private-sector workers? The answer that emerges after considerable statistical analysis does not seem to be much different qualitively from what is found by "eyeballing" unadjusted data. Table 2 shows that in 1978 average federal pay was 39-40 percent higher than average private-sector pay, but that state and local pay was about equal to average private-sector pay. These observations include no adjustment for occupational mix, education, or similar employee characteristics. Yet, that conclusion is crudely what is found after adjustment, too. Average federal pay tends to emerge as "too high;" average state and local pay is "about right."

Groups which in the private sector tend to be paid below average wages appear to be "overpaid" in government relative to their private counterparts. These findings are found, for example, in research by Sharon P. Smith [13] who reports higher public/private wage differentials for nonwhites and women than for whites and males. Such differentials may well have the effect of reducing net economy-wide wage discrimination. As Smith notes, these findings do not indicate that race or sex discrimination is absent in government. Rather they suggest that discrimination is a lesser factor in wage determination in the

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Table 2

Comparisons of Government and Private

Average Pay Levels, 1978

Level of Government	Ratio of Government to Private Pay Levels	
	Total Compensation per Full-Time Equivalent Employee	Wages and Salaries per Full-Time Equivalent Employee
Federal (Civilians)	1.39	1.40
State and Local	1.01	.99

Source: Survey of Current Business, 59:7, pp.54-55, 1979.

public sector than in the private sector.[7] Certainly, sex stereotyping is common in public employment and appears to have a long tradition behind it [16].

The taxpayer revolt of the mid-1970s had a wage-depressing effect on state and local workers, although there was some evidence of a recovery in the later part of the decade [17]. As has already been noted, there is evidence that unionized public employees experienced lower rates of pay increase during the late 1970s than other public workers, in part because they were located in areas where fiscal conditions were especially tight. Thus, while considerable literature on collective bargaining in the public sector developed prior to the fiscal crunch, the need for research on the impact of unions on civilian governnent wages remains a continuing one.

A special category of public-sector pay determination issues involves pay setting for the military. Military pay rose rapidly compared with other sectors during the first half of the 1970s. From 1970 to 1975, military wages and salaries per full-time equivalent employee rose at a 9.8 percent annual rate, compared with only 7.0 percent for the domestic sector as a whole. However, during 1975-1978, the annual increase in military pay was only 4.7 percent compared

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[7]D. Alton Smith [14] presents data for 1975 on the three levels of government indicating that while discrimination by race existed in the public sector, the net impact of government employment was a slight increase in the economy-wide black/white wage ratio. A comparability study was also done on postal employees using Social Security data for 1969. The study indicated that postal pay was above comparable levels in the private sector even before collective bargaining in the Postal System began [15].

with a continued 7.0 percent elsewhere [18, p.211, 19, p.55].[8] Recruitment needs in the military fell during the 1970s with the ending of the Vietnam War. Even so, it appears that the "effective demand" by Congress and the President for continuing with a volunteer army diminished during the late 1970s. The recruitment/retention problem will grow more acute in the late 1980s, as the population of entry-level age for the military shrinks due to the drop in birth rates in the 1960s. Calls for reimposition of the draft were widely heard by the late 1970s.

The issue of conscription (at low wages) versus a volunteer army (at competitive wages) raises questions unique to the military. However, there are aspects of military pay structure which have implications for other components of the public sector. In the military, pay is tied to rank. But within ranks there are widely different occupations with diverse labor-market conditions. Hence, even if, on average, military pay levels were correctly set, there might well be recruitment difficulties in specific occupations (and overpayments in others) [21, pp.56-60]. Although rigidities in pay structures in the military are probably more severe than elsewhere, examples of such inflexibilities can be found elsewhere in the civilian public sector. The police-fire pay linkage is an example. Teacher salaries which vary with tenure rather than field of specialization are another.

Obviously, such rigidities can also be found in the private sector. It is not uncommon in private firms for jobs to be linked together even in nonunion employment, say, by placing them at the same grade level. However, a fruitful

[8]Military compensation is not well measured by the wage payment alone because of the provision of in-kind benefits both during and after service [20].

topic for compensation research would be the relative rigidity in wage structure of public versus private employment.

III. Collectve Bargaining and Government Wages

Studies of union wage effects in government employment have continued to produce results consistent with the conclusions in my earlier study [1]. The-wage differentials associated with bargaining are not wider than those typically found in the private sector; they are often less. A 20 percent differential is about the maximum found, and usually the estimates are smaller. As in the private sector, unionization seems to have a stronger impact on wages for blue-collar workers relative to white collar [22]. There is a tendency - which also appears to mirror the private sector - for the union impact on pay to fall disproportionately on fringe benefits [23-25].

In the private sector, union/nonunion wage differentials tended to widen from the mid-1950s through the 1970s [26, 27]. Such findings are in contrast to the usual notion that the union wage effect (apart, perhaps, from a cyclical influence) is basically a one-shot affair. Limited evidence exists that there may be a build-up period for the union wage effect in the public sector, too. [24, p.204]. However, as already noted, the union/nonunion wage differential in the public sector may well have declined in the late 1970s.

Generally, the literature since the mid-1970s on the impact of unions and bargaining in the public sector has sought to apply models and findings previously applied to private employment. Attempts were made to model union membership growth econometrically. One such study analyzed the growth of teacher unionization and included the (negative) impact of the two rival teacher groups, the American Federation of Teachers and the National Education Association, on

each other [28]. Attempts have been made to explain public-sector strike activity econometrically, although there appear to be problems in finding stable statistical relationships over various time periods [29]. This instability may reflect the evolving nature of public-sector bargaining and may also reflect the ad hoc nature of strike modeling in both the public and private sectors.

Wage spillovers are another area in which private-sector work is beginning to be applied to the public sector. Some evidence has been developed supporting the notion of spillover (in the form of a "threat effect") among the uniformed services in municipal employment [30]. Evidence is also available of spillovers from union to nonunion workers [25]. The studies on public-sector spillover so far have been cross sectional. A time-series approach would be useful, particularly because time-series has been the emphasis of the private-sector research. According to one study of bargaining in New York City, a combination of maturity in relations between the parties and the city's fiscal crisis caused a move from pattern bargaining (a form of wage spillover) to coalition bargaining (a much tighter linkage) [31]. Since the same factors operated in other localities, perhaps similar evolutions will take place.

Investigations of why workers join unions - and what they expect to obtain from them - have been common in the industrial-relations literature. Because government workers are more heavily concentrated in white-collar jobs than employees in the private sector, and because unionization has affected white-collar and professional workers more in the public than the private sectors, there has been a suspicion that the motives for joining unions in government might be strongly noneconomic. There may well be noneconomic concerns that union members in the public sector hope will be addressed through bargaining. However, available evidence suggests that both professionals and nonprofessionals in government join unions for the traditional "bread and butter" reasons [32].

Some private-sector researchers have proposed that unionization may be a function of the wage, i.e., the opposite of the usual assumption that unions cause wages to be higher. Such endogeneity would confound interpretation of the unionization coefficient in a single-equation model. The difficulty with this approach in the private sector is that the pattern of unionization was formed many years ago, so that current worker propensities may not be an important factor in determining which groups are union or nonunion. But in the public sector, the case for considering the impact of the wage on unionization explicitly (as well as the reverse effect) is much stronger. Public workers are newly organized and their current propensities count for more. Some work has been done in the public sector in simultaneous equation modeling of the wage-unionization relationship in the case of police, and it appears that low-wage cities create a greater propensity of police to organize and bargain [23, pp.54-58].

One of the concerns of the private-sector literature on unionization is its impact on the cyclical adjustment of wages. Generally, it appears that union wages are less sensitive to short-term changes in the demand for labor. Various factors can be cited including long-term contracts, long-term planning horizons, and the fact that above-market wage levels will tend to produce excess supply regardless of the state of the business cycle. In the public sector, however, the degree to which these same factors might operate is uncertain. Public-sector union contracts tend to be shorter in duration than private-sector contracts, and the union wage effect is often estimated to be less than in private employment.

Unfortunately, the relatively recent development of public-sector bargaining usually makes extended time-series analysis of union wage behavior infeasible. However, there have been case studies of the impact of fiscal adversity on wage bargaining in government. These studies suggest that a

restrictive fiscal climate does have an impact on bargaining and does result in a moderation of wage settlements [33, 34]. In the mid-1970s, the New York City example may have had a demonstration effect on other cities, triggering a hardening of management and public attitudes [35]. In the long run, public wages may be kept in check by the potential mobility of the tax base itself, at least in nonfederal employment [36].

IV. Union Wages and Resource Allocation in Government

Economists generally expect that a profit-maximizing employer will substitute away from a factor of production whose relative price increases. In the absence of a profit motivation - the usual circumstance in government - it is less clear that such an effect will occur. However, to the extent that public managers are seeking to achieve some objectives, whether or not these objectives are their own, some general "social welfare," or the advancement of the interests of a particular constituency group,[9] there still are incentives to economize on inputs which become more costly.

Studies of this issue find that such substitution does occur. Public managers may cut back employment, although the net result may still be higher overall budgets [38].[10] They may reallocate funds away from departments whose

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[9]For example, George J. Borjas [37] finds evidence that federal bureaucrats are rewarded by higher wages to the extent that they serve particular well-defined constituencies. In this case self-interest and constituent interest merge.

[10]Gallagher [39] finds that teacher bargaining is associated with a net increase increase in overall expenditure per pupil.

wages are rising faster than others [40]. They may subcontract work to private suppliers [41]. Strike costs, or the threat thereof, may also lead to changes in management policy.[11] Finally, bargaining may lead to changes in the level of productivity and in the nature of services provided [43].

At times, public management may find it helpful to have a union on the scene. For example, it has been reported that some nonunion managements have invited unions to bargain so that wages could be raised (for recruitment purposes) while public ire was focused on the union and bargaining rather than on management [44]. Generally, however, public managers - as do their private-sector counterparts - fear that unions will limit managerial discretion. And, indeed, given that management may well try to substitute away from the cost impact of unionization, unions can be expected to react. Private-sector models of unions have often assumed that unions will set wages in response to a wage-employment trade-off, a trade-off which they accept passively. This approach has always been dubious, since it is unclear why unions with employment as well as wage goals would not actively pursue both objectives. Some evidence in the public sector supports just such a process. Union wage effects provoke employment-reducing substitutions. But unions are able to exert pressure to expand employment in their jurisdictions to counteract the substitution effect [45].

V. Union Wages and Impasse Procedures in Government

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[11] Probably the most dramatic example was the conversion of the postal system from a federal department to a quasi-automonous corporation in large part due to the postal strike of 1970 [42].

A special characteristic in the public sector is the tendency for the use of the strike to be illegal or tightly limited. Of course, public-sector strikes occur. However, the propensity to strike does appear to be lower in government than in the private sector.[12] In any event, since the strike is generally not officially a legal option for dealing with an impasse, procedures are frequently established to resolve disputes. Such procedures often involve mandatory use of fact-finding or arbitration. Two issues arise from such procedures. First, the effectiveness of particular procedures in resolving disputes - and especially in encouraging the parties themselves to reach a settlement - is often debated. Second, there is interest in what effects particular dispute-resolution procedures may have on the outcomes of the process. Specifically, do particular procedures lead to higher or lower wage settlements?

The first issue relates to the alleged "chilling" and "narcotic" effects of third-party intervention. It is argued that if the parties know that a third party may eventually enter the negotiatins and impose a compromise, it is in their interest to take extreme positions prior to intervention. In a split-the-difference procedure, any concessions made prior to the procedure will result in a less favorable settlement. It is also argued that once the parties begin to use a third-party procedure they will become reliant on it and will be

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[12]For example, during 1977-80, workers involved in strikes in government employment accounted for about 15 percent of total strikers. However, about one-fourth of union and association members were government workers. Moreover, since government contract durations tend to be shorter than in the private sector, the exposure to strike risk of a government employee should be higher than the risk in private employment [46-48].

unable to reach settlements independently. Final-offer arbitration is often put forward as a solution to these problems, especially the chilling effect.[13]

Because wage determination is the focus of this essay, however, the second question is of greater interest. There has been comparatively little work done on the impact on the wage outcomes of the various intervention processes. One study suggested that arbitration had a mild wage-boosting effect on municipal firefighter wages [50]. But another suggested that final-offer arbitration did not have such an effect on police and firefighter wages in Massachusetts [51]. Research in this area is obviously in a preliminary state. However, the widespread use of compulsory arbitration and other dispute-resolution procedures suggests that further work needs to be done.

VI. Fringe Benefits in Government

As already noted, there is evidence that unions have an especially marked impact on fringe benefits in both public and private employment. In public employment, however, some have suggested that this emphasis comes partly from a short-run management horizon which seeks to reach settlements by promising deferred compensation [6, p.258]. Fringe benefits can also be a convenient way of differentiating settlements between employee groups without appearing to do so. The costing of the true value of a fringe concession is often complicated. Even knowledge of the employer contribution is not necessarily definitive. In the case of pensions, public employers are not subject to ERISA standards and

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[13]Support for the existence of the narcotic effect can be found in Kochan and Baderschneider [49]. Obviously, there is a close conection between the two types of effects. If bargaining is chilled, then usage of the third-party procedure will become more frequent.

can more easily promise future benefits without setting aside full funding. Even so, public pension funds accounted for about forty percent of the assets of private and public pension programs in 1979; state and local plans accounted for about twenty-nine percent of such assets [52].[14]

Various interesting questions arise in the area of public fringes. First, is the mix in government between wages and fringes optimal in some sense? For the private-sector employer, the standard economic model suggests that the compensation mix should vary with employee tastes. Employers should, on the margin, set the mix so that the marginal value of an additional dollar of wage or fringe expenditure to the employees is the same. The absence of a profit motive in the public sector poses the same problem as it does in other aspects of government pay determination. Do public employers make private-style trade-offs? This question particularly arises when public jurisdictions eschew survey techniques for fringes while using them for wages. In recent years, however, especially on the federal level, interest in a total compensation approach (wages and benefits) in survey methodology and wage setting, has grown [53-55].

The interest in public fringe benefits as a policy issue has stimulated academic research on this element of government compensation. To a degree, the research has imitated the literature on pay comparability. That is, instead of just asking whether government and private wages are comparable, some researchers have asked about the comparability of government and private fringes. The issue is complicated by the fact that government workers often contribute to their fringe benefits. However, one study suggests that two factors nevertheless tend to make government benefits more generous than their private counter-

[14]The figure includes Railroad Retirement but excludes Social Security.

parts: price escalation and the duration of expected benefits (early retirement options). Where these factors operate, the differential is widest, i.e., at the federal level and for uniformed personnel in state and local government [56].

Underfunding of pensions has attracted research interest. The eventual budgetary aspects of such underfunding is of obvious concern to taxpayers. Available research indicates that government employees themselves may exhibit some skepticism about the value of unfunded promises. If so, government salaries would not be lower on a full dollar-for-dollar basis per extra dollar (present value) of future liability [57, 58]. In the absence of risk of bankruptcy, models can be developed which indicate that underfunding is not an irrational policy for a government employer. An important consideration, which may be influenced by tax laws, is the return that can be earned by the pension fund compared with the return that can be earned by taxpayers [59]. However, it is precisely the threat of bankruptcy that causes the issue to be raised. Taxpayers may not behave as though they are aware of the unfunded liability they are accruing, and they may not be prepared to accommodate to higher taxes at the time the liability comes due.

VII. Conclusions

As collective bargaining in the public sector matured, it was to be expected that the research literature on the subject would become more probing and penetrating. And, such a development in research on public-sector bargaining did occur. What is surprising is the substantial volume of literature that was produced in the late 1970s and early 1980s. About one-fourth of the membership in unions and associations is in government. Although no simple count is available, casual observation suggests that the proportion of literature on collective bargaining dealing with the public sector was substantially higher

than one-fourth during that period. This disproportionate interest was due to several factors.

First, the public sector was an area of growth for collective bargaining while unionization in the private area continued its long-term decline. Second, the occupational composition of government workers differs from the private sector. Government employment is more heavily biased toward white-collar occupations, and there has been a longstanding interest in the differential propensities to unionize between white- and blue-collar workers. Third, the public sector's fiscal difficulties have made the climate for collective bargaining more challenging. In the private sector, union wage settlements did not involve concessions until the period of economic slackness that began in 1979. But in the public sector, concessionary behavior was seen in several dramatic instances as early as the mid-1970s, notably as a reaction to the New York City budgetary crisis. Fourth, the public sector makes wider use of arbitration and fact finding for settling interest disputes than the private sector. Researchers have been interested in the implications of such dispute-settling procedures for the outcomes of bargaining and for the bargaining process itself. Fifth, pay setting in the public sector is - by definition - a matter of public policy. Issues such as the funding of pensions in government receive more attention in the media than similar problems in private employment. Academic researchers have a propensity to investigate problems which are in the spotlight.

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