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Volume Title: When Public Sector Workers Unionize

Volume Author/Editor: Richard B. Freeman and Casey Ichniowski, eds.

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-26166-2

Volume URL: <http://www.nber.org/books/free88-1>

Publication Date: 1988

Chapter Title: Introduction:The Public Sector Look of American Unionism

Chapter Author: Richard B. Freeman, Casey Ichniowski

Chapter URL: <http://www.nber.org/chapters/c7900>

Chapter pages in book: (p. 1 - 16)

Introduction: The Public Sector Look of American Unionism

Richard B. Freeman and Casey Ichniowski

After decades in which collective bargaining with the government was considered virtually “impossible” in America,¹ unionization achieved in the 1970s and 1980s greater strength in the public sector than in the private sector. In 1986 over a third of public sector workers were organized into unions, and over 40 percent were covered by collective agreements compared to a union density in the private sector of 14 percent. Nearly one in three union members was a public employee. The National Education Association, the American Federation of Teachers, the American Federation of State, County, and Municipal Employees, and the Service Employees International Union (with nearly half its membership in the public sector) were among the largest unions in the country. Unions of fire fighters and police were well-established exemplars of the craft-type organizations that once dominated American labor. Public sector unionism had become *the* vibrant component of the American labor movement.

Why did union density and collective bargaining prosper in the public sector while declining elsewhere? What does the new public sector “look” of organized labor mean for the economy? Do labor-management relations in the public sector mirror private sector patterns or do they represent something novel on the labor scene? What can the private sector learn from the success of collective bargaining in the public sector?

This volume examines these questions with: new data on public sector labor laws; previously unanalyzed Census/Survey of Governments data

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on state and local government labor relations practices; specially constructed data sets on teachers, police, federal employees, and arbitrators; labor relations histories in particular states; and extracts from the Current Population Survey and other surveys of individuals. These new data permit analyses of public sector unionism that go beyond estimating the impact of a 0-1 union variable on wages that has been the focus of much past work. The research highlights fundamental differences between public and private sector labor relations in the conditions that foster or undermine unionism; the pay and employment outcomes unions produce; and the procedures by which unions secure benefits for their members.

Studies of the growth of public sector collective bargaining attribute the 1970s and 1980s spurt largely to the enactment of comprehensive labor laws that impose a duty to bargain on managers, often with compulsory arbitration to resolve disputes. The greater effectiveness of these laws than that of the National Labor Relations Act, which governs private sector unionism, is explained by the political incentives that keep public sector managers from opposing unions and committing unfair labor practices to the extent done in the private sector.

The studies of union impacts find that public sector unions have different or more pronounced effects than private sector unions in several areas: reducing layoffs and unemployment and increasing employment of members; raising wages of nonunion workers through "spillover" or "threat" effects; and increasing expenditures in organized departments. In addition, teacher unionism has been found to be associated with higher student test scores. As a result of these impacts, the wage differential between union and nonunion workers, commonly used to measure what unions do, *understates* the impact of unionism on the public sector.

Finally, the research shows that public sector unionism affects outcomes in ways that go beyond standard collective bargaining: through lobbying and political campaigning that influence both the goals and behavior of management and citizens' views about desired public services, and through use of final outcome arbitration to resolve impasses rather than the traditional strike weapon.

The Central Role of Labor Laws in Public Sector Labor Relations

Students of the U.S. Labor movement have long debated the role of labor law in unionization. Some argue that laws are a fundamental determinant of union strength, crediting (blaming) the National Labor Relations Act of 1936 and decisions of the War Labor Board for much of the rise of private sector unionism in the 1940s, and blaming (crediting) union decline in the 1970s and 1980s on the ensuing failure of labor law to control illegal management activities in representation

elections.² Others, noting union successes in periods of legal adversity and the ability of management and labor to circumvent legal restrictions, feel that laws have little effect on unionism.³

The variation in public sector labor laws among states and occupations at a point in time and over time—which ranges from outlawing collective bargaining to providing arbitration mechanisms to resolve contract disputes—provides a “natural experiment” to evaluate the role of legal enactment in the evolution of collective bargaining. Accordingly, NBER researchers developed a data set measuring public sector labor law from 1955, when bargaining with the government seemed impossible, to 1984, when many states had enacted comprehensive public sector labor laws; they obtained data on collective contracts in Ohio and Illinois, industrial states whose public sector unionization prior to enactment of laws are oft-cited counter examples to the claim that laws are important; and they determined the dates when police departments first signed collective contracts in cities throughout the country. Analyses of these data yield five broad conclusions about the role of labor law in the rise of collective bargaining in the public sector.

1. The legal environment is critical in determining whether or not public sector employers bargain collectively with their workers.

The evidence is threefold. First, favorable state public sector labor laws increase the probability that a municipal department is governed by a collective contract, even when other diverse determinants of contract status, including extent of union membership⁴ and the city in which a department is located, are held fixed (Freeman and Valletta, this volume, chap. 3, tables 3.2 and 3.3). Second, passage of comprehensive public sector labor laws induced sharp increases in the percentage of departments bargaining within a state. Among police, research indicates that the impact of laws is so substantial that within eight years of enactment of laws mandating arbitration virtually all departments bargain contractually with their workers, while in the absence of laws it would take “forever” (252 years) for workers to achieve such coverage (Ichniowski, this volume, chap. 1, table 1.2, figure 1.2). Third, analysis of Ohio and Illinois shows that the 1983 comprehensive public sector laws enacted in these “exceptions” induced dramatic spurts in contract coverage: in Illinois the probability that school districts signed contracts increased by 32 percentage points within a year of enactment (Saltzman, this volume, chap. 2, table 2.4). Moreover, unionism prior to passage of the laws was abetted by favorable court decisions on the legality of collective bargaining. While not “necessary” for unionization, favorable public sector labor laws seem to be a sufficient condition for rapid growth.

2. *Economic benefits and costs do not readily explain the timing of public sector labor laws.*

The trend in public sector labor law has been, first, to legalize union activity and require managers to “meet and confer” with unions; second, to require managers to bargain with unions; and, third, to mandate arbitration or other final closure mechanisms to guarantee a contract (Valletta and Freeman, this volume, appendix B). To the extent that passage of the laws themselves depends on fundamental economic forces, the factors that determine enactment of laws should be part of the economic analysis of union growth. Can we identify such factors?

While cross-state comparisons show that state characteristics such as per capita income and public expenditures are associated with public sector laws favorable to unionism (Kochan 1973; Faber and Martin 1980; Hunt, White, and Moore 1985), analysis of changes over time fail to turn up systematic factors that cause states to enact laws earlier rather than later (Farber, this volume, chap. 5). Different states moved at different speeds toward comprehensive public sector labor laws, apparently for “idiosyncratic” political reasons involving patronage, personalities, and union rivalry rather than broad economic or social factors. That Ohio and Illinois did not enact comprehensive labor laws until 1983 is consistent with this pattern. Viewed negatively, the inability to explain the timing of state labor laws suggests limits to economic analysis of legal developments and the need for detailed legislative histories to understand changes. Viewed positively, the finding suggests that treating the timing of the laws as exogenous does not create significant biases in analyzing the impact of laws on bargaining and thus strengthens the conclusion that laws can be treated as an independent cause of the growth of collective bargaining.

3. *Public sector laws favorable to collective bargaining raise wages in nonunion as well as union departments but have substantial adverse employment consequences only for nonunion departments.*

By spurring collective bargaining, public sector labor laws are indirectly responsible for union-induced changes in wages and employment. In addition, the laws affect economic outcomes by enhancing the bargaining power of unions and altering management decisions in nonunion departments as well.

Indicative of the impact of laws on union bargaining strength, unionized workers in municipal departments in states with laws favorable to collective bargaining receive about 6 percent higher pay than those in states with unfavorable laws and appear to experience a comparable increase in pay following passage of favorable laws.⁵ Indicative of the

apparent impact of the laws on nonunion departments, the pay of nonunion municipal workers is about 3 percent higher in states with comprehensive public sector labor laws than in other states, seemingly as a result of the “threat” that those workers will also unionize. The employment consequences of strong collective bargaining laws, by contrast, differ between union and nonunion departments: unionized departments experience only marginally lower employment in favorable legal environments despite higher wages whereas nonunion departments suffer considerable job loss, suggesting that unions use some of the power they attain from favorable legislation to maintain employment (Freeman and Valletta, this volume, chap. 3, tables 3.5 and 3.7).

4. Among states that obligate employers to bargain, wages are no higher with compulsory arbitration than with other dispute resolution mechanisms, whereas wages are noticeably higher with strike-permitted laws.

One of the hallmarks of public sector labor relations is the use of dispute resolution mechanisms, including compulsory interest arbitration of various forms, in place of strikes and lockouts. While at one time public sector unions opposed such alternatives to the strike, more recently management has alleged that arbitration favors unions. Dramatizing this complaint in 1977, one Massachusetts mayor stripped to his shorts before television cameras to show that arbitration was “stripping” the city of its money (*New Bedford Standard-Times*, 25 January 1977). Extant research, however, finds that arbitrated settlements are, if anything, lower than negotiated settlements (Ashenfelter and Bloom 1984). This leaves only one possible way for arbitration to raise wages: by creating an environment in which cities agree to high negotiated settlements for fear that arbitrators will impose even higher wages. If this were true, cities in states with compulsory arbitration would pay more for comparable labor (all else the same) than cities in states that simply require employers to bargain with unions; pay would rise especially rapidly when state laws changed from duty-to-bargain to compulsory arbitration. The evidence, however, shows that pay in states with compulsory arbitration laws does not differ noticeably from that in other duty-to-bargain states, whereas pay is on the order of 2–9 percent higher in states that permit strikes (Freeman and Valletta, this volume, chap. 3, table 3.8). That arbitration has little impact on wages in states that encourage bargaining is important in light of evidence that arbitration laws reduce strike rates (Ichniowski 1982), for it suggests that compulsory arbitration resolves impasses without strikes—the aim of these laws—without increasing wages and salaries.

5. *Arbitrators do not favor one side or the other nor respond greatly to the facts of a case when labor and management make "reasonable" proposals; rather, they tend to "split the difference."*

The question of the extent to which arbitrators split the difference between offers as opposed to making independent judgments based on the facts is a long-standing one. One way to evaluate arbitrator behavior is to devise "laboratory-type experiments" in which the researcher asks arbitrators to settle pseudocases that isolate the effect of given conditions on outcomes. In an NBER experiment, the researcher asked arbitrators to resolve cases patterned after actual contract disputes and varied the settlements proposed by labor and management. In a set of identical cases, arbitrators tended to split the difference between offers, giving higher (lower) awards when management or labor offers were high (low) even under identical factual situations (Bloom, this volume, chap. 4). At first blush this might suggest that the best strategy for unions and management is to make extreme proposals regardless of the facts. This would be an incorrect inference, however, as arbitrators do indeed place primary weight on facts when offers and facts are unrelated (Bazerman and Farber 1985). Arbitrators split the difference when they feel the proposals of the two sides reflect the facts. As in actual cases both sides generally base offers on the facts, the result is that arbitrators often split the differences in actual practice.

The Effects of Public Sector Collective Bargaining on Wages

Following the private sector union literature, much research on public sector unionism has examined the impact of unions on wages. Reviewing this extensive body of research, Lewis (this volume, chap. 6) concludes that:

6. *Union/nonunion earnings differences tend to be smaller in the public sector than in the private sector but vary considerably among workers and are far from negligible.*

On average the earnings of union workers exceed those of nonunion workers by 8–13 percent in the public sector, which is about 5 percentage points lower than union/nonunion earnings differences in the private sector. However, some groups of unionized public sector workers obtain as large (local government workers) or larger (public school teachers) earnings advantages over nonunion workers as does the average unionized private sector worker. Looking at demographic groups, union/nonunion earnings differences are higher for women than for men in the public sector but are about the same for black as for white

workers. Among occupations outside of teaching, union earnings advantages are smaller for blue-collar workers in the public sector than in the private sector, at least among males, and are modest for police, fire fighters, and most hospital workers.

The new NBER research adds to and modifies the findings of earlier work, leading to three further findings:

7. *Nonunion workers appear to benefit from the presence of unionism in the public sector, receiving higher pay in states with laws favorable to collective bargaining and in cities where other workers are unionized.*

The first bit of evidence of wage spillovers in the public sector is the finding, noted under point 3 above, that the earnings of nonunion workers in states with laws that favor collective bargaining are higher than the earnings of nonunion workers in other states, all else held fixed. The second piece of evidence is that nonunion workers earnings increased especially rapidly in states that enacted comprehensive collective bargaining laws compared to nonunion worker earnings in other states (Freeman and Valletta, this volume, chap. 3, tables 3.5 and 3.7). The third piece of evidence is that workers in unorganized departments of a city receive higher pay when workers in other departments are organized (Zax and Ichniowski, this volume, chap. 12, tables 12.3 and 12.6). Wage “spillover” from organized police to fire fighters, where pay parity is an explicit issue in collective bargaining, is especially pronounced. The interpretation of these relations as resulting from the threat of union organization is supported by other research showing that, among police at least, low-wage departments have the highest chances of being organized (Ichniowski, Freeman, and Lauer 1987).

8. *Public sector wages rise with size of department, partly because larger cities have a greater ability to pay, as reflected in property values and family incomes, while wage differences between union and nonunion public sector workers depend modestly on the city's ability to pay.*

In the private sector, pay increases with the size of firm or establishment, particularly in the nonunion sector, implying that unions raise wages less at large workplaces. Do wages rise with size and union premiums fall with size in the public sector as well? What is the effect of controlling for measures of the size of department or city and the ability to pay on the union wage premium?

Increases in pay with size in the public sector are about as large as the increases in pay with size in the private sector, but they reveal a

different pattern by union status, with union effects on wages independent or increasing with size. Data on individuals from the Current Population Survey (CPS) indicate that a 10 percent increase in the size of a government unit is associated with a 0.2 percent increase in wages⁶ and a rise in the union wage premium of about 0.4 percent, other factors held fixed. The rise in the union premium at larger workplaces may reflect greater union political power where employment is greater or possibly the ability of strong unions to raise employment as well as wages (see point 10 below). Data from the Survey of Governments (SOG) on municipal departments show a more pronounced relation between size and pay, with a 10 percent increase in size associated with a 0.4 percent increase in pay, but no change in the union premium with size (Brown and Medoff, this volume, chap. 7, table 7.3). As far as can be told, moreover, only about a fifth of the increase in pay with city size results from factors such as property values that measure a city's "ability to pay." Similarly, while some of the public sector union/nonunion wage differential can be attributed to disproportionate unionization of larger departments and of workers in cities with greater ability to pay, the vast bulk of the effect must be attributed to unionism per se rather than to these correlates.

9. *Despite the fact that federal employee unions do not negotiate pay, many federal workers earn more than they would in the private sector, producing queues for federal jobs.*

The question of whether federal employees are paid more or less than otherwise comparable workers in the labor market has generated considerable controversy. Comparisons of wages based on the CPS, which contains information for individual characteristics, show federal employees to be relatively highly paid (Smith 1977), with the greatest differences being among minorities and women (Asher and Popkin 1984). Comparisons of wages in narrowly defined occupations gives, however, the opposite pattern, with significant pay disadvantage to federal workers in the late 1970s and 1980s (Freeman 1988). Which picture of federal pay is right?

Evidence from workers who move between federal and private employment supports the view that federal pay is relatively high for average workers, as those who move from private to federal employment obtain larger wage gains than those who move from one private employer to another. In addition, Civil Service Commission data show sizeable queues for federal employment (Krueger, this volume, chap. 8). As federal worker unions do not negotiate pay, these wage advantages cannot be attributed to collective bargaining. One possible reason for high pay, consistent with the increase in pay by size in the

public sector, is that the federal government is by far the nation's largest employer. Another possibility is that the federal government's national pay scale—chosen for reasons of administrative ease, internal labor market mobility, and politics—requires that average pay be high enough to attract labor in high-wage local markets.

The Effects of Public Sector Unionism on Employment, Labor Turnover, Output, and Budgets

Because union wage effects are smaller in the public than in the private sector, it is common to conclude that public sector unions are weaker than their private sector counterparts. NBER research rejects this notion because of the pronounced effects of public sector unionism on other labor market outcomes—employment, layoffs, output, and budgets.

10. Public sector unionism raises employment of organized workers.

It is generally held that private sector union wage gains come at the expense of employment, as enterprises economize on more expensive labor.⁷ The pattern in the public sector seems to be quite different. Consistent with earlier work (Zax 1985), comparisons of employment across cities show that with diverse factors held fixed, departments that bargain collectively hire more workers than otherwise similar departments that do not bargain collectively (Freeman and Valletta, this volume, chap. 3, tables 3.5 and 3.6; Zax and Ichniowski, this volume, chap. 12, tables 12.1–12.3). Coupled with the positive impact of collective bargaining on wages, this implies that payrolls are higher in union departments and also produces higher total expenditures in those departments (Zax and Ichniowski, this volume, chap. 12, tables 12.4 and 12.5). Only among teachers have NBER researchers failed to find a positive bargaining effect on employment (Kleiner and Petree, this volume, chap. 11, table 11.6), though here other recent research has detected such effects (Eberts and Stone 1986).

There are two possible reasons why employment of unionized labor might be higher in the public sector despite higher wages. One is that public sector unions shift the demand for members' services through political activity—lobbying and campaigning for additional public expenditures that increase both wages and employment. An alternative explanation is that unions use their bargaining strength to force employers off demand curves in accord with union preferences for jobs (producing so-called efficient contracts), for instance, by demanding contract clauses that specify a minimum number of police per cruiser, or fire fighters per shift or piece of equipment, or pupils per classroom.

Without denying union use of collective bargaining to alter employment, the fact that city councils and legislatures need not appropriate the money to finance negotiated settlements forces unions to complement contract provisions with political and lobbying activities that affect the level of demand. In the public sector unions cannot rely exclusively on collective bargaining behind closed doors to obtain desired agreements, efficient or not.

11. Public sector unionism reduces layoffs and unemployment but has only marginal effects on quits.

The impact of unionism on turnover are strikingly different in the public sector than in the private sector (Allen, this volume, chap. 10). Unions in the public sector reduce substantially temporary and indefinite layoffs, whereas they increase those layoffs in the private sector (Medoff 1979). The magnitudes of the public sector effects are, moreover, quite large: in the mid-to-late 1970s the likelihood that public sector employees would be on temporary or indefinite layoff was 40 percent less for unionized than nonunion employees, whereas in the private sector unionists were three times more likely to be on temporary or indefinite layoff than nonunion workers (Allen, this volume, chap. 10, table 10.3). On the other hand, quit rates, which unionism lowers markedly in the private sector (Freeman 1980), are barely affected by union status in the public sector (Allen, this volume, chap. 10, tables 10.5 and 10.6). The net of these two effects—reductions in layoffs and modest impacts on quits—is that unionism in the public sector appears to increase job stability and reduce the probability of unemployment for members. This is consistent with the finding that public sector unionism raises employment (see point 10) and is a major element in our conclusion that public sector unions have more substantial economic effects than shown in simple comparisons of union and nonunion wages.

12. Teacher unionism is associated with increased student test scores, but the reasons for this association are not well determined.

Extant research on the impact of unionism on productivity in the public sector presents a mixed picture: some studies show positive union effects, others find negative effects, while others report no effects, leading to the generalization that on net unionism is neutral to productivity in the public sector (Freeman 1986; Methe and Perry 1980). Using special tabulations of student test scores and other indicators to measure outputs in education, NBER researchers found educational productivity to be somewhat higher, other factors held fixed, in more

highly unionized states. Longitudinal data that contrast scores in the same state over time show a comparable result, though whether the effects come from the presence of a labor organization per se or from collective bargaining is unclear (Kleiner and Petree, this volume, chap. 11, table 11.8). Working separately with data for individual students rather than states, Eberts and Stone (1986) report comparable results for students with average achievement levels, but more complex ones for more/less able students. Unfortunately neither study is able to identify the particular factors—better management due to union pressures? lower turnover? greater teacher effort?—by which unionism is associated with greater educational productivity.⁸

13. State aid to local school districts does not increase wages or employment in a unionized setting but, rather, reduces taxes.

When a state awards a school district unexpected grants-in-aid, how much of the funds show up in higher teacher pay or employment or other educational expenditures as opposed to reductions in local taxes? Surprisingly, in highly unionized states such as New York (Ehrenberg and Chaykowski, this volume, chap. 9) and Michigan (Murnane, Singer, and Willett 1986), districts have used such money largely to reduce property taxes. Why? One possibility is that school districts were unwilling to make major salary or employment commitments based on state financing that they view as uncertain. Another possibility is that the failure to raise wages or employment is a “period effect” due to the 1970s and early 1980s “tax revolt” at the state and local levels. Finally, it is possible that in these states unions used their lobbying resources to increase educational spending from normal funding sources to such an extent that taxpayers were unwilling to finance additional resources for schooling. Whichever interpretation is correct, the fact that state relief does not augment school spending highlights the limitations on the ability of unions to raise spending through collective bargaining and thus helps explain union pressure for state laws that earmark increased state aid for higher minimum salaries, as in New Jersey, or for general teachers’ salaries, as in New York, and the importance of activity outside normal collective bargaining.

14. Public sector collective bargaining raises expenditures on unionized functions but appears to have little impact on total municipal expenditures.

Further evidence on the limited ability of public sector unions to affect outcomes through bargaining is given by the surprising fact that while cities that bargain with unions in four municipal functions (police,

fire, sanitation, and street and highway workers) spend more on these activities than other cities, they do not have higher *total* city budgets than cities that do not bargain with unions (Zax and Ichniowski, this volume, chap. 12, table 12.4). The implication is that the bulk of union-induced increases in expenditures on organized activities is funded by reallocating city moneys from nonorganized to organized activities rather than by increasing total spending and taxes. If this finding is correct,⁹ public sector unions would seem to have greater ability to alter line items in a given city budget than to increase taxes and budgets, perhaps because taxpayers pay more attention to total tax bills than to expenditures on specific services. By contrast, private sector unions are more likely to impact bottom-line profits than the allocation of moneys within a firm.

Interpreting Public Sector Labor Relations

Despite comprehensive labor laws that mimic the National Labor Relations Act and a tradition of drawing on the experience of the private sector, public sector unions and management have evolved a new and different labor relations system. Why? What explains the features of public sector labor relations found in this volume and in other research?

Our analysis stresses the distinct incentives and constraints that operate in political as opposed to economic markets, in particular the fact that public sector management and labor, unlike private employers and unions, must appeal to voters to support their actions. For unions, this creates an opportunity to affect the agenda of the employers who face them across the bargaining table. At the same time it makes them frame demands and set policies on the allocation of resources to public services broadly defined as well as on benefits to members, and thus go beyond the bargaining table to convince those who ultimately foot the bill of the virtue of their case. Since political influence depends in part on how large a group one can muster, moreover, public sector unions tend to place great weight on employment outcomes (see Courant, Gramlich, and Rubinfeld 1979). On the employer side, the fact that management is beholden to an electorate that includes public sector workers and politically active unions induces management to take a less adversarial approach to collective bargaining than do private sector managers beholden to shareholders. Further reducing the adversarial relation is the fact that unions can be an important ally in convincing the electorate, or the legislature, or other governmental bodies of the need to increase budgets. Finally, the belief that government employees should not have the right to strike has spurred public sector development of arbitration to resolve impasses, which itself alters the nature of the management-labor conflict.

Another important factor that differentiates the public sector from the private sector in the United States (though not in most countries) is the setting of public sector labor law on a decentralized state basis. Decentralization of the law allows areas of the country favorably inclined to unionism to encourage collective bargaining and areas with unfavorable attitudes to restrict it. It also has led to numerous “experiments” with different modes of regulating union and management conduct and conflicts, encouraging institutional innovation and diversity. In contrast to the private sector, where workers and employers have been limited to the traditional model of exclusive representation, bargaining-to-contract, and strikes to settle impasses, the public sector has offered a range of unions and union-type organizations from worker associations with whom employers need not bargain to full-fledged collective bargaining organizations with diverse alternative modes of impasse resolution.

Given the greater success of collective bargaining in the public sector than in the private sector in the 1970s and 1980s, the time would seem to have come for researchers and practitioners to begin to ask what the private sector might learn from the public sector experience rather than the converse.

Notes

1. In 1962 George Meany was quoted as declaring that it is “impossible to bargain collectively with the government.” See Kramer, (1962, 41).

2. See, for example, Freeman (1988).

3. John Dunlop, in particular, has argued that union growth occurs in spurts not necessarily related to legal developments (pers. comm. 1987). For the public sector, Burton (1979) has advanced the argument that policy changes are no more important than several other factors.

4. In the public sector there is considerable membership in unions without actual bargaining to a contract, as shown in Freeman, Ichniowski, and Zax (this volume, appendix A).

5. In these calculations a law favorable to collective bargaining is defined as a duty-to-bargain law without arbitration or the right to strike, while an unfavorable environment is defined as a state without any public sector labor law. In the Freeman and Valletta legal index (this volume, chap. 3), these laws have values of about 1.0 and -1.0 , respectively, indicating that they are one standard deviation above and below the mean in terms of favorableness to collective bargaining. Hence, we have multiplied the coefficients in their tables by 2 to obtain the figures in the text.

6. Brown and Medoff (this volume, chap. 7) suggest that the “company” employment variable is perhaps a better measure of size of government in the CPS file than the site employment variable, so we concentrate on their company results here.

7. The evidence for a negative employment effect is, however, weak (Pencavel and Hartsog 1984), and models of efficient contracts suggest that it may in fact be negligible if unions are able to redistribute economic rents efficiently.

8. The failure of these studies to identify the mechanism underlying the improved performance of schools in a union environment mirrors the general failure of economists to determine causes of productivity advance and the more specific problem in determining why productivity tends to be higher in unionized settings in the private sector.

9. Valletta (1987) uses a different methodology and obtains comparable results with the SOG data, indicating that this finding is not dependent on a particular model specification. It should, however, be corroborated with other data (tax rates and the like).

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