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UNIONS AND JOB SECURITY
IN THE PUBLIC SECTOR

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Unions and Job Security in the Public Sector

ABSTRACT

This study examines the effect of unions on job security in the public and private sectors. Despite much lower unemployment rates for public than private sector workers, once one controls for differences in worker and job characteristics, the odds of being unemployed are identical for nonunion workers in the public and private sectors. The picture is quite different for union workers, who face greater odds of becoming unemployed than nonunion workers in private sector jobs but much lower chances of becoming unemployed in the public sector. The ability of unions to reduce layoff and unemployment rates in the public sector seems attributable to the political power to prevent budget cuts and the absence of Unemployment Insurance subsidies or supplemental unemployment benefits.

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"Altogether, it's one sweet deal: generous pay and benefits, lifetime job security, meaningless performance evaluation, and, last, but not least, protection from all the swings of fortune that affect workers in private industry."

-Washington Monthly, Jan. 1983

I. Introduction

The question of how public sector employers adjust employment in periods of declining demand would not have been considered a serious issue until the last half of the 1970s. Employment at both the state and local levels grew at such a rapid and sustained pace before then that this issue arose only in a few isolated cases. This all changed with the 1974-75 recession and the widespread adoption of tax and expenditure limitations such as Proposition 13 in California. Since 1975, government employment has declined as a share of total employment, and since 1980 it has stayed about constant in absolute terms. As a result, many governments have been forced to make hard decisions about how to trim their payrolls.

This paper examines how public sector unions have been able to influence these decisions. Studies by Medoff (1979) and Blau and Kahn (1983) on the impact of unions on labor market adjustment in the private sector have found much higher temporary and indefinite layoff rates for union than for nonunion workers. There is mixed evidence on how unions affect permanent layoff rates. Freeman and Medoff (1984) report that permanent layoff rates calculated for 3-digit manufacturing industries between 1958 and 1971 and in 1981 show no difference between industries that are predominantly unionized and those that are not, but they also show that the May 1973-75 and 1977 Current Population Surveys (CPS) for manufacturing workers indicate lower permanent layoff rates for union members. Blau and Kahn find higher permanent layoff rates for union than nonunion workers in manufacturing in the National Longitudinal Survey (NLS) younger male cohort, but no union-nonunion difference for manufacturing workers in the NLS older male cohort. When they expand these samples to include all

sectors except construction, they find unionism has no effect on the probability of permanent layoff for either younger or older males.

Section II compares the postwar trend in unemployment rates for private and public sector workers and reports the first estimates of layoff rates for public sector workers. These results show that although there has been some convergence of the unemployment rates of these two groups, the odds of being on layoff remain much lower in the public sector. Among public sector workers, layoff probabilities are considerably lower for union members, a marked contrast to the pattern of higher layoff rates under unionism in the private sector.

Sections III and IV compare both the theoretical and institutional factors that influence employment adjustment decisions in the public and private sector and point out how the impact of unionism is likely to vary between the two sectors. The May 1973-75 and 1983 Current Population Surveys and the 1976-82 Panel Survey of Income Dynamics (PSID) are used in Sections V and VI to estimate public-private and union-nonunion differences in unemployment and layoff probabilities. Section VII examines the impact of public sector unions on Unemployment Insurance (UI) coverage for state and local government employees before such coverage became universal and estimates the impact of that coverage on unemployment probabilities. The main results, summarized in Section VIII, are: (1) unions reduce by a substantial amount the already low layoff and unemployment probabilities in the public sector in contrast to those in the private sector, where layoff rates are much higher under unionism, and (2) nonunion public sector workers have temporary layoff rates and overall unemployment probabilities comparable to those of nonunion private sector workers.

II. Public Sector Layoff and Unemployment Rates

Unemployment rates for all civilian workers and for government workers are presented in Figure 1. Both series exhibit a rising trend over time, a reflection of well known structural changes in the labor market. What is less apparent in Figure 1, but can be shown easily in a simple regression equation, is that the gap between these two unemployment rates has narrowed throughout this period. Let UGOV = unemployment rate for government workers, UTOT = unemployment rate for nonagricultural private wage and salary workers, and T = time trend (1 for 1948, ... , 38 for 1985). These variables were used to estimate the following equation:

$$\text{UGOV} = 1.373 + 0.086 \cdot \text{UTOT} - 0.027 \cdot \text{T} + 0.0117 \cdot \text{T} \cdot \text{UTOT} \quad R^2 = .854$$

(0.528) (0.095) (0.024) (0.0037)

This equation shows that for a given national unemployment rate, the unemployment rate for government workers was considerably higher in the later part of the sample period. For a civilian unemployment rate of 6 percent, this model predicts that the government unemployment rate for 1948 would be 1.9 percent, but in 1985 it would be 3.5 percent. In other words, controlling for the overall state of the labor market, unemployment of government workers is almost twice as high today as in the late 1940s.

Mean layoff rates for public and private sector workers from the 1973-84 May CPS are reported in Table 1. These layoff statistics represent the share of the labor force unemployed in the survey week because of a layoff. They are not at all comparable to the layoff rates that used to be published by the Bureau of Labor Statistics (BLS), which reported the fraction of workers (instead of the labor force) laid off in a particular month (rather than all previous months). The sample is restricted to the May surveys because of the availability

of data on union status in that month and the computational burden of using all of the monthly tapes over a 12-year interval. One problem with using the May survey for estimating public sector layoff rates is that educational employees are unlikely to be on layoff in that month. To adjust for this bias, separate estimates are reported for the public sector, with schools, colleges, and universities excluded from the sample.

Temporary layoffs are those with recall within less than thirty days, whereas indefinite layoffs are those with recall within thirty days or more or those with no definite recall date. Because of the very small number of public sector workers experiencing either of these types of layoffs, the sum of these two layoff rates is reported in Table 1. Both are distinguished from permanent layoffs by the expectation of recall. The permanent layoff rate is the fraction of the experienced labor force consisting of unemployed workers who said they started looking for work because they had lost their previous job.

Average temporary and indefinite layoff probabilities in May for 1973 through 1984 are about four times greater in the private than in the public sector. Between 0.6 and 2.4 percent of the experienced labor force in the private sector was on temporary or indefinite layoff during those years. The corresponding layoff probabilities for the public sector are not only much lower, but also their range is much narrower--between 0.2 and 0.5 percent for all public sector employees and between 0.2 and 0.6 percent for public sector employees excluding education. Although the time period under consideration is quite narrow, the patterns for 1975-76, 1980-81, and 1982-83 indicate that the peak in layoff rates for the public sector lags that for the private sector by one year. There is no evidence that the ratio of the public to the private temporary and indefinite layoff rate has changed between 1973 and 1984.

Permanent layoff rates also are much greater in the private sector, but the relative gap between public and private permanent layoff rates seems to have narrowed in recent years. Between 1973 and 1977, permanent layoff rates were about three times larger in the private sector than in the public sector (two and a half times larger when education is excluded from the public sector). This gap has narrowed to about two and a half times larger between 1978 and 1984 (two times larger when education is excluded from the public sector). This narrowing is largely attributable to upward drift in the permanent layoff rate in the public sector. The layoff rate for all public sector employees was 0.5 percent in 1973 and 1974 but never fell below 0.8 percent in later years. The pattern is more pronounced when education is excluded; the layoff rate was 0.7 and 0.6 percent in 1973 and 1974 but never fell below 1.1 percent thereafter.

Starting in 1982, the CPS public use tapes identify public sector workers by level of government, which allows separate layoff rates to be computed for federal, state, and local employees (see Table 2). There is very little difference in the average temporary and indefinite layoff rates among these three groups over this period. Permanent layoff rates are slightly higher for federal and local than for state employees in 1982 and 1983, and are much higher for federal than for state and local employees in 1984. The pattern for 1984 apparently reflects the continued pressure for nonmilitary cuts in the federal budget.

Even though the average public employee is subject to a very low layoff risk, this may be attributable to differences in the type of work between the public and the private sector. To determine whether any public sector workers are subject to layoff risks comparable to those for the average private sector worker, layoff rates for public and private sector employees are reported for

selected industries in Table 3. Because of small samples in individual years, the data are summarized in three-year groups.

These results show that the risk of temporary or indefinite layoff is greatest for public sector jobs in construction, utilities, and federal and state public administration. However, these layoff rates are almost always far below those for the average private sector worker in Table 1. The only exceptions to this general trend are employees in state public administration in 1976-78 and in urban transit in 1982-84. The odds of temporary or indefinite layoffs are practically zero in education and the postal service. Permanent layoffs in the public sector are most likely to occur in construction, utilities, and local public administration. Except for construction, these layoff rates are also well below those in the private sector in Table 1.

The public-private comparisons within particular industry groups for temporary and indefinite layoffs in Table 3 show that layoff rates are roughly equal in the public and private sectors in transportation, utilities, hospitals, and education, but that private sector layoff rates are much higher in construction. The patterns for permanent layoffs are quite different. Although the private sector has higher permanent layoff rates in construction, transportation, and elementary and secondary schools, the public sector has higher permanent layoff rates in utilities and hospitals. These patterns suggest that careful controls for industry characteristics will be needed to estimate accurately the difference in layoff and unemployment probabilities between the public and private sectors.

Comparisons of mean layoff rates for union and nonunion workers in the public and private sectors are reported in Table 4. These can be computed only for 1973-1975 and 1977 because in all other years unemployed workers were not

asked about union membership. Within the public sector, temporary and indefinite layoff probabilities are slightly lower (0.1 percentage points) for union workers. The average gap in permanent layoff rates is also rather small in three out of the four years. However, the exception to this overall tendency is a very important one. In 1975, at the trough of a severe recession, the permanent layoff rate for nonunion public employees was twice as large (1.4 percent) as that for union workers (0.7 percent). This suggests that when the pressure for layoffs is greatest, union workers in the public sector have a much better chance of keeping their jobs than nonunion public employees. The exact opposite pattern is observed in the private sector, where union members have considerably higher layoff rates than nonunion workers.

Further evidence on differences in unemployment and layoff rates between the public and private sectors for 1976 to 1981 from the PSID is reported in Table 5. Separate rates are reported for heads of households and wives. In both samples the percentage of respondents experiencing unemployment during a particular year as well as the percentage who lost their last job because of a permanent layoff (including plant closings and dismissals) are much higher in the private than the public sector. Because of the considerably smaller sample sizes and the shorter time period for which data are available, it is very difficult to spot any convergence of private and public unemployment or layoff rates in the PSID.

III. Unions and Public Sector Layoffs: Theory

Demand shocks are likely to differ between the public and private sectors because of differences in technology and consumer characteristics. For instance, labor demand in agriculture and construction fluctuates a great deal over the

course of a year because of the dictates of seasons and weather, whereas except for elementary and secondary education, public sector labor demand consists of services provided throughout the year. Demand for public services is also relatively insensitive to conditions in credit markets, in contrast to some goods produced in the private sector, such as construction and durable manufactures. These arguments indicate that there will be less seasonal and cyclical variability in demand for public than for private goods, which will result in lower layoff rates in the public sector, other things equal.

Even if public and private employers had to deal with the same labor demand shocks, there are still a number of reasons to expect them to have different layoff rates. Two obvious factors are purely technological -- public services cannot be produced for inventory in periods of slack demand and they are very labor intensive. As a result, cuts in government budgets almost always require some cuts in payroll.

These cuts must be obtained by some combination of reduced wages, reduced hours, or reduced employment. Most government jobs are at the state and local levels, where wage studies such as Smith (1977) and Freeman (1985) tend to find rates equal to those in the private sector. In such a situation wage cuts would produce savings in the short run but would eventually result in higher turnover and excessive recruiting, hiring, and training costs. Wage cuts in federal jobs would be less likely to create these problems, as all studies have found those rates to be well above those paid in comparable private sector jobs. The tradeoff between hours and employment cuts will be heavily influenced by the attractive fringe benefit packages offered by most public sector employers and the relatively small amount of specific on-the-job training in many government jobs,

especially in education. Both of these factors will make it more economical to use layoffs instead of hours reductions in many public sector jobs.

This assumes, however, that all downward shifts in demand are actually translated into budget cuts. Throughout the 1970s state and local governments were highly successful in obtaining federal aid under various guises (revenue sharing, CETA) to maintain programs that would have been terminated otherwise. On various occasions local governments also have received fiscal infusions from state governments. This avenue of revenue enhancement is not available to the federal government, but it does not have to meet the balanced budget constraint that most state and local governments face. All of these examples illustrate how governments can find substitutes for tax revenue (some of which are automatically tied to local unemployment rates and thus indirectly tied to the revenue of state and local governments) to maintain their budgets and thereby avoid layoffs.

Freeman (1985) has shown that public sector employment has less year-to-year variability than private sector employment. His study, along with the results on mean layoff rates in Table 1, also suggests that the cyclical pattern in public sector employment lags that observed for private sector employment.

These patterns probably result from differences in sources of revenue between the public and private sectors. Much of the revenue of state and local governments comes from sources well insulated from cyclical behavior, such as property taxes and intergovernmental grants. (Fluctuations in revenue would arise mainly from income and sales taxes, which would vary with output and sales in a particular state, county, or city.) This dampens the impact of any shock.

Lags in making adjustments to any given shock result from the political process. If these lags are long enough, managers in the public sector have more

time to plan their manpower responses to declines in demand. This allows them to make greater use of hiring freezes, which allow them to reduce their adjustment costs by (1) avoiding hiring persons who will later have to be laid off and (2) using attrition to reduce the number of employees, thereby avoiding the costs of layoffs (severance pay, unemployment benefits, reputation). An adequate planning horizon is absolutely essential for hiring freezes to be a very useful adjustment device. The incentive to use hiring freezes and attrition in the public sector in place of layoffs will be offset to some extent by low rates of voluntary turnover, which result in smaller reductions in employment levels through attrition than in the private sector.

It would be inappropriate to discuss public-private differences in layoff probabilities and completely ignore Unemployment Insurance (UI). Today almost all private and government employees are covered by UI, so differences in coverage are not likely to create differences in employee preferences for layoffs relative to other adjustment devices. The low unemployment rates in the public sector make it quite unlikely that any group of public sector workers will collectively receive more in benefits than they spend on payroll taxes. In fact, many governments finance UI benefits for their workers through direct reimbursement rather than using payroll tax contributions. Thus, UI will encourage layoffs to a lesser degree in the public than the private sector.

The above discussion indicates that the factors likely to influence layoff decisions in the public sector are quite distinct from those in the private sector. In the absence of collective bargaining, no unambiguous predictions can be made about how layoff and unemployment rates are likely to vary between the public and private sectors.

Under collective bargaining median voter models predict that in both the public and private sectors, greater weight will be given to the preferences of older, less mobile workers in the determination of personnel policies. Except in cases of drastic declines in demand, these workers will prefer a policy of layoffs based on seniority. Such a policy completely insulates them from any cutbacks in wages or hours that might otherwise be required.

Another factor behind the preference of unions in the private sector for seniority-based layoffs is the union-nonunion differential in UI subsidies. This is not likely to be important in the public sector because, as noted above, the financing mechanisms and low layoff rates result in effective self-insurance. Furthermore, supplemental unemployment benefits are rarely provided in union contracts in the public sector. These two factors suggest that the union-nonunion gap in layoff rates should at least be smaller in the public than the private sector.

In addition, there are unique aspects of unionism in the public sector that could result in lower layoff rates for union workers in that sector. Freeman (1986) argues that public sector unions have the ability to shift the demand curve for their services through political activity. Public sector union members represent a significant part of the electorate in many state and local elections. This allows them to use both political power and bargaining power to push for higher wages and membership. In addition the utility function of public sector unions will put a higher weight on membership because additional members give them even more political leverage. Whether public sector unions are actually successful in obtaining higher wages and employment is an empirical question, however, because they can also serve as a lightning rod for attracting political opposition to the higher taxes required to fund higher payrolls.

This political dimension of union behavior in the public sector is likely to influence layoffs through two different channels. First, the observed lag of employment in the public sector suggests that unions as well as managers have the opportunity to plan strategies for avoiding layoffs. This can be done in a variety of different ways, such as moderation in wage negotiations or political pressure within the appropriate government body to keep its payrolls intact. Second, public sector unions at the local and state levels can also push for additional revenue from higher levels of government as a substitute for any drop in local or state tax revenues. For instance, in Congress public sector unions have been strong supporters of CETA which, under Titles I, II, and VI granted sizable sums for public employment programs. These programs prevented a number of cities from having to lay off municipal employees.

On balance, the effect of unions on layoffs in the public sector cannot be predicted ex ante. Although the most senior workers would prefer a system of layoffs based on seniority if payroll cuts are required, the potential political power of unions may enable them to prevent such cuts from taking place or make them considerably smaller than they would have been in the absence of collective bargaining.

IV. Unions and Public Sector Layoffs: Institutions

Rules and procedures governing layoffs in the nonunion segment of the public sector, if they exist at all, are determined by legislation or regulation. There has been only one study to my knowledge of layoff policies in the public sector. A survey of state governments done by the Bureau of National Affairs (1982a) found that twenty states based layoffs primarily or solely on seniority, twenty-four have policies that take both seniority and performance

into account, and six states have no laws or policies on layoffs. Even in states in which layoffs are based on both seniority and performance, managers sometimes do not have much discretion in deciding who is to be laid off. For instance, in Utah layoffs are based on the sum of the employee's rankings with respect to previous performance evaluations and seniority. In many cases veterans are given special preference in layoff or recall procedures.

During the 1981-82 recession a number of states revised their layoff procedures to ensure that recent gains in hiring women and minorities were not eradicated by "last hired, first fired" policies. Bureau of National Affairs (1982b) identified five states in which state agencies were required to maintain a percentage of women and minorities after a layoff equal to that in the agency prior to the layoff. In many other cases, managers were instructed to take affirmative action into consideration along with other criteria in deciding which persons were to be laid off and which were to be recalled.

Under collective bargaining in the private sector, procedures for layoffs are almost always specified in the union contract. Freeman and Medoff report that seniority is the most important factor in determining who gets laid off in about 80 percent of all contracts. Five different studies by BLS of contract provisions between 1970 and 1975 indicate that these practices were not as widespread in the public sector. The percentage of employees covered by agreements containing various layoff-related provisions in these studies is reported in Table 6. Most of the municipal agreements in cities with populations of 250,000 and over in 1970 contained no provisions regarding layoffs. This can be attributed to a combination of three factors: (1) the recentness of most collective bargaining relationships in that period, (2) layoff procedures already specified by ordinances or civil service regulations that in many cases were presumably based

at least in part on seniority, and (3) the rapid growth in municipal employment that had taken place in preceding years. Given these three factors, most unions at that time apparently placed little priority on bargaining over layoff and recall provisions. Collaborating evidence for the BLS studies is found in Eberts's (forthcoming) study of over 500 New York school districts in the mid-1970's -- only 20 percent of public school teachers were covered by RIF provisions.

Even five years later, the share of union contracts containing layoff and recall provisions in the public sector, although much higher than before, was still much smaller than that in the private sector. Only 65 percent of the contracts during this period contained language pertaining to layoffs and only 35 percent specified recall rights. Both figures are considerably higher than their counterparts in 1970, which no doubt reflects the decline in the fiscal health of many cities over this period as well as increased experience with how layoffs are conducted under civil service rules. Perry's (1979) case study of nine school systems also points out a trend toward a greater percentage of union contracts containing layoff provisions. He found that in 1967 contractual provisions regarding layoffs were "virtually nonexistent." Ten years later, the contracts in eight of the nine districts contained language regarding layoffs.

Even if union contracts in the public sector are still less likely to address layoff issues than contracts in the private sector, it seems safe to conclude that much greater weight is given to seniority in determining layoffs in governments with collective bargaining agreements than in those without collective bargaining. There is also evidence that contract provisions do affect layoff decisions in the public sector. Eberts shows that RIF provisions are

correlated with much lower separation rates for teachers in school districts with declining enrollment, especially for teachers with more than nine years of experience.

Layoff provisions are far from the only mechanism that public sector unions have to influence government behavior. Levine, Rubin, and Wolohojian (1981) discuss a case in Oakland where the firefighters union used binding arbitration to reverse a city council decision to eliminate 26 positions in 1975. In other cases unions have exerted political pressure to prevent cutbacks. For instance, in 1976 the police and firefighters unions in Cincinnati petitioned for a referendum to freeze staffing at current levels (the petition did not pass). To protest the proposed transfer of a state-managed hospital in Pennsylvania, Wilburn and Worman (1980) report that five unions successfully joined forces to exert pressure, including radio, newspaper, and television advertisements telling residents in the area where the hospital was located that it was vital to their welfare.

A final factor that may be important in some of the period under study here is the endogeneity of UI coverage for many state and local employees before December 1974. Before 1972, when state employees in hospitals and higher education were brought into the system, relatively few state and local public sector employees were covered by UI. Some states had voluntarily decided to cover their own employees and a few even had laws requiring all local employees to participate. Title II of the Emergency Jobs and Unemployment Assistance Act of 1974 (PL 93-567) brought almost all state and local workers into the system. Although this program was supposedly a temporary measure prompted by the 1974-75 recession, the Unemployment Compensation Amendments of 1976 made these changes permanent. Before these federal statutes were enacted, however, the

political power of public sector unions is likely to increase the odds of UI coverage in areas that were heavily unionized. This presumably would result in somewhat higher layoff rates, other things equal. This issue will be examined more closely in Section VII.

V. Evidence from the Current Population Survey

To identify the separate effects of unionism and public sector status on layoff probabilities, two specifications were estimated over the May 1973-75 CPS. The first includes separate dummies for union and public sector status; the second adds a union-public sector interaction term. The extremely large sample size precludes estimation of probit equations. OLS results for the entire sample are reported in Table 7; probit results for the second specification for one-fourth of the sample, randomly selected, appear in Table 7A. Temporary layoff equations could not be estimated for the random sample because none of the public sector workers in the smaller sample were on temporary layoff.

A. Public-Private Comparisons. How do layoff rates for public and private sector workers compare? Once controls for union status and other job and personal characteristics are included, are the layoff probabilities for public sector workers still very small relative to those of private sector employees? The answers from the first specification largely reaffirm the results from Table 1. For all three types of layoffs under consideration, the OLS results indicate that layoff rates are much lower in the public sector: 0.1 percentage points lower for temporary layoffs, 0.4 percentage points lower for indefinite layoffs, and 0.7 percentage points lower for permanent layoffs.

The second model allows these comparisons to be made separately for union and nonunion workers. The results show that, except for permanent layoffs, the

public-private difference in layoff rates for nonunion workers is much smaller than the public-private difference for union and nonunion workers combined. There is no public-private difference in temporary layoffs for nonunion workers. The public-private difference in indefinite layoffs is much smaller for nonunion workers than for union and nonunion workers combined.

Events initiating spells of unemployment for the experienced labor force include not only layoffs, but also quits and labor force re-entries. To get a complete picture of how job security compares in the public and private sectors, quits and labor force re-entries should also be examined, especially the latter. Previous research by Clark and Summers (1979), among others, shows frequent transitions between the states of unemployment and out of the labor force. These transitions have raised the question of whether being unemployed is behaviorally distinct from being out of the labor force, as many transitions could arise from measurement error or temporary cessation of job search. There is a clear possibility that many of the persons who are classified as labor force re-entrants were laid off before the survey period. If so, then ignoring labor force re-entrants may result in a biased comparison of public and private sector job security.

The drawback with using the information on labor force re-entry is the difficulty in interpreting the results. It is impossible to distinguish between persons who left their last jobs voluntarily and those who were laid off. Despite the problems with interpretation of labor force re-entrant behavior, the empirical results should provide a more complete picture of relative job stability in the public and private sectors. The impact of union and public sector status on unemployment attributable to labor force re-entry, along with

unemployment resulting from quits and total unemployment regardless of source is reported in the last three rows of Tables 7 and 7A.

In both models workers whose last job was in the public sector are much more likely to be unemployed labor force re-entrants than workers whose last job was in the private sector. The results for the second model show that this relationship holds for nonunion, but not union, public sector workers. Nonunion public sector workers are 0.7 percent more likely than nonunion private sector workers and 0.8 percent more likely than union private sector workers to be unemployed force re-entrants. These results, although difficult to interpret, suggest that the lower permanent layoff rates observed in the public sector may not tell the entire story about job security in the public sector. One of two things is certain: either the public-private difference in layoff rates for nonunion workers is overstated in Tables 7 and 7A or unemployment resulting from voluntary turnover is higher in the public sector for nonunion workers.

In contrast to other studies (e.g., Long (1982)) that have found lower voluntary turnover in the public sector, the odds that a person will quit his last job to search for a new job are no lower for public than for private sector workers. The discrepancy between this finding and those of earlier studies is probably attributable to the narrowness of the turnover variable in the CPS, which does not report quits unless they are followed by a spell of unemployment.

Further evidence on quits from the PSID is reported in Table 8. (Details on how the data set was constructed are reported in the next section.) These results show that quit rates for heads of households are lower in the public than private sector. In the model, which allows the public sector coefficient to vary for union and nonunion workers, quit probabilities in the public sector are 2.1 percent lower for nonunion workers and 0.3 percent lower for union workers than

for their counterparts in the private sector. The estimated public-private differences for wives are very imprecise, indicating that there is no pronounced quit differential for them. It is interesting to note that among both heads and wives the impact of union status on quits is much smaller in the public sector.

The key issue for interpreting the labor force re-entry results in Tables 7 and 7A is how quits accompanied by unemployment compare for union and nonunion workers in the public sector. To examine this question, the dependent variable was set equal to one if a person quit the job held a year ago and experienced unemployment during the past year. These results, reported in the last two columns of Table 8, show a slightly lower probability of quits followed by unemployment for union than for nonunion workers in the public sector. This implies that the results in the first three rows of Table 7 actually overstate the public-private difference in layoff rates and that a large share of the unemployed labor force re-entrants who left public sector jobs did not do so voluntarily.

The last row of Tables 7 and 7A compares the odds that public and private sector workers will be unemployed for any reason. The first specification shows unemployment rates are 0.9 percent lower in the public sector. This difference narrows to a statistically insignificant 0.2 percent for the nonunion labor force in the OLS results for the second specification. In the probit results, unemployment probabilities are the same in the public and private sectors for nonunion workers. In other words, considering all possible causes of unemployment together, nonunion public sector workers are just as likely to be unemployed as nonunion private sector workers. The lower odds of permanent layoffs are offset by the greater odds of being an unemployed labor force re-entrant.

B. Public Sector Unions. In addition to the models in Tables 7 and 7A, another way to compare the impact of unions on job security in the public and private sectors is to estimate separate equations for each sector. The union coefficients for each sector are reported in Table 9. Because of the great cost of estimating probit equations (the results in Table 7A required 7995 seconds of CPU time), OLS results are reported here.

Whereas union members in the private sector are much more likely to be on temporary or indefinite layoff than nonunion members, this does not seem to be the case in the public sector. The coefficients imply slightly lower temporary and indefinite layoff rates in the public sector for union members, but the standard errors are sufficiently large to prevent rejection of the null hypothesis of no union-nonunion difference.

The impact of unionism on permanent layoffs also is completely different in the public and private sectors. In the private sector, union members are just as likely to be laid off permanently as nonunion workers. In the public sector, permanent layoff rates are 0.4 percent lower for union than nonunion workers. These results on layoffs imply that public sector unions have been much more successful in promoting job security than their private sector counterparts.

The evidence on unemployment due to quits and labor force re-entry as well as the evidence for all types of unemployment combined is consistent with this implication. Union members are less likely to become unemployed re-entrants in both sectors, but the impact of unionism is greater in the public sector both in proportional and absolute terms. Surprisingly, although union members in the private sector are less likely to quit their jobs and become unemployed, there is no union-nonunion difference in this type of quit behavior in the public sector. Looking across all types of unemployment, the results in the last row of Table 9

show that union members are 0.4 percent more likely than nonunion workers to become unemployed in the private sector but 1.2 percent less likely in the public sector.

C. Retrospective Evidence for 1982. Two key limitations of the results from the 1973-75 CPS are that (1) during that period employment in the public sector was still growing and (2) many union contracts did not contain layoff provisions. Since then, government budgets have been squeezed by legislation to limit taxes and expenditures as well as by a recession more severe than that in 1974-75. This would presumably give unions less political flexibility to maintain public sector payrolls, while at the same time make union members more sensitive to job security issues and in all likelihood increase the share of union contracts containing rules on layoffs. As a result, one would have good reason to question whether the results for 1973-75 are still pertinent today.

These results cannot be replicated for more recent years because after 1977 the CPS stopped asking unemployed workers about union status at their previous job. One alternative approach is to use the May 1983 CPS, which reports union status for half the sample (instead of a quarter of the sample, as in all other surveys since 1981) and matches these records with the March 1983 CPS, which contains retrospective data on unemployment during 1982. At the cost of restricting the sample to employed workers, union-nonunion differences in unemployment during 1982 can be estimated for both the public and private sectors.

Unemployed persons in the May 1983 sample consist of those who either were recalled to their old jobs or were successful in finding new jobs. Those who were still jobless at the time of the survey are omitted from the sample. This should be kept in mind when interpreting the results; they are not directly comparable

to those reported from the 1973-75 CPS. Three different independent variables are examined: a dummy equal to one if the respondent was unemployed during 1982, spells of unemployment during 1982, and weeks of unemployment during 1982. Probit equations were estimated for the dummy dependent variable; OLS was used for the other dependent variables. The distinctions between union and nonunion as well as private and public workers are based on the job held at the time of the survey. (The models were also estimated over a data set in which these distinctions were based on the longest job held in 1982. The results were basically the same and are not reported here.)

With regard to union-nonunion differences, the results in Table 10 are comparable to those in the last line of Table 7. Considering all possible causes of unemployment, there is no difference in the probability of unemployment in 1982 or spells of 1982 unemployment between union and nonunion workers in the model without interaction between union and public sector status. When the interaction is added to the model, the number of spells is slightly higher for union than nonunion workers in the private sector, but there is no difference in weeks of unemployment or unemployment probabilities for union and nonunion workers in the private sector.

The key result of a negative union impact on unemployment probability in the public sector from the 1973-75 CPS continues to hold for the 1982 CPS. This is demonstrated by the large negative interaction coefficients in Table 10 and by the union coefficients for public sector workers in Table 11. Focusing on the latter, the results show that public employees belonging to unions were 2.3 percent less likely to have been unemployed in 1982 than nonunion public employees.

The only finding from the 1973-75 CPS that does not carry over to the more recent sample is that pertaining to public-private differences in unemployment probabilities for nonunion workers. Nonunion public employees were 4.4 percent less likely to have been unemployed in 1982 than nonunion private employees. They also had significantly fewer spells and weeks of unemployment in 1982. This result is most likely attributable to either the restricted sample in the May 1983 CPS or the lagged response of public sector layoffs to downturns in economic activity documented in Table 1; it need not be inconsistent with the findings in Table 7.

Table 11 also reports separate union coefficients for federal, state, and local workers. Although the union coefficient is slightly higher for federal than for state or local workers, the difference is not significant.

VI. Evidence from the Panel Survey of Income Dynamics

The PSID has reported both union status and class of worker on a continuous basis since 1976. The main advantages of exploring this data set are that it spans the period between the two CPS samples and that it can be used to estimate fixed effects models. A possible disadvantage is that the PSID sample consists of households that have been continuously tracked for 14 years, and such households are likely to be less than perfectly representative of the labor force.

Two different indicators of job security are examined: (1) whether the respondent is currently unemployed or was unemployed in the past year and (2) whether the respondent lost his previous job because he was laid off or fired or because his company closed (job losses for any of these reasons will be referred to as layoffs below). Survey responses to these questions in year $t+1$ are regressed on independent variables for year t . As in the CPS, the sample is

restricted to wage and salary workers. When using the PSID, the question always arises as to whether observations from the 1967 Survey of Economic Opportunity (SEO) subsample should be included. In this case the coefficients are relatively insensitive to composition of the sample, so observations from the SEO subsample are included in the results reported below. Splitoff households formed during the sample period and persons who were self-employed during any of the sample years are deleted to facilitate data set management. Separate models are estimated for heads of households (assumed by the PSID to be the male in two-earner households) and wives.

The PSID results for heads in Table 12 show that, just as in the CPS, the odds of being unemployed are about the same for public and private sector workers not covered by collective bargaining. In the model without any interaction between union and public sector status, union employees have a 3.8 percent higher probability of being unemployed; public sector employees, a 3.1 percent lower probability. However, this model restricts the impact of unionism to be the same in both the public and private sectors. When this restriction is removed by adding a union-public sector interaction term, there is no longer any significant difference between the odds of being unemployed in public and private sector jobs for nonunion workers. Union workers in the private sector are 4.8 percent more likely to have been unemployed than nonunion workers, but there is no difference in unemployment probabilities in the public sector between union and nonunion workers.

Wives who are union members working in the private sector are 6.4 percent more likely to experience unemployment than nonunion workers in that sector. In the public sector, union members are 1.2 percent less likely to have been

unemployed than nonunion workers. Among nonunion workers there is once again no significant public-private difference in unemployment probabilities.

Unionism has little impact on the odds that a person in the PSID will lose his job in either the public or private sector. The union and union-public sector interaction coefficients are both not significantly different from zero, in contrast to the CPS in which the interaction was negative. Household heads working in the public sector are 2.1 percent less likely to lose their jobs regardless of union status, but the odds of job loss for wives are equal in the public and private sectors.

The unemployment and job loss probability equations were also estimated separately over samples of public and private sector employees, allowing for complete interactions with all independent variables instead of union status alone. These results, reported in Table 13, further accentuate the differential impact of unionism on unemployment probabilities. Among household heads, union members are 4.8 percent more likely to experience unemployment in the private sector but 0.3 percent less likely in the public sector. The results for wives are even more striking. They have a 5.7 percent higher unemployment probability under unionism in the private sector but a 3.9 percent lower probability under unionism in government jobs. Union status is uncorrelated with job loss probabilities in either the public or private sector.

The models reported in Table 12 were also estimated separately for male and female heads, as well as for whites and nonwhites within both the heads and wives samples. These results, available upon request, point to the same conclusion as in Tables 11 and 12: union workers in the private sector have higher odds of becoming unemployed than nonunion workers, but in government jobs unionism is associated with equal or lower unemployment probabilities.

A final way to establish the robustness of this result over these samples is to estimate a fixed effects model. Although it is now widely accepted that such models are not a panacea for biases associated with unobserved heterogeneity of workers who obtain jobs in the public and private sectors, it would be difficult to be very confident in the findings in Table 12 if they were completely inconsistent with the results from a fixed effects specification. The fixed effects results for heads (see Table 14) are quite similar in terms of the signs of the coefficients to the results reported above. The decrease in the size of the coefficients and the increase in the size of the standard errors is not surprising in light of results obtained in other studies with fixed effects estimators. However, in the wives sample, the coefficients actually tend to be somewhat larger in the fixed effects results. There is no readily apparent reason for this unusual result. Whatever the reason, it is quite clear, even in the fixed effects results, that the impact of unionism on the odds of becoming unemployed is quite different in the public and private sectors.

VII. Public Sector Unions and Unemployment Insurance

Relatively few state and local government workers were covered by UI until the beginning of 1972. In 1960 about 280,000 state and 53,000 local government workers were covered by UI, almost all of them living in New York, Connecticut, Michigan, Wisconsin, Minnesota, Oregon, and the District of Columbia. In the fourth quarter of 1971, coverage had grown to almost 600,000 state and 220,000 local government employees, but it was still concentrated in the same states as before, plus Washington and Hawaii. Despite the rapid growth of public sector unionism during this period, there was virtually no change in the coverage of public employees until the Employment Security Amendments of

1970, which brought state employees in hospitals and higher education into the system, became effective at the beginning of 1972. At roughly the same time Ohio, Florida, Illinois, Texas, Pennsylvania, Iowa, Louisiana, and Oklahoma provided UI coverage to most other state employees. Fourteen states took steps to cover additional state and local government workers in 1972, 1973, and 1974. By the end of 1974, 2.5 million state and 1.5 million local government employees were covered. This represented about 75 percent of all state employees and less than 25 percent of all local employees.

Almost all state and local workers were brought into the UI system by Title II of the Emergency Jobs and Unemployment Assistance Act of 1974. This program was instituted as a temporary measure to help deal with the fiscal stress many state and local governments were facing at the time. Benefits for state and local government workers were provided directly by the federal government. Coverage of state and local government workers became permanent under the Unemployment Compensation Amendments of 1976, which became effective at the beginning of 1978. Benefits are financed through either regular contributions to the state fund or direct reimbursement.

Before all state and local government workers were brought into the system, coverage rates tended to be higher in states with large percentages of public sector workers belonging to unions, as shown in Table 15. In a simple regression of the percentage of local workers covered by UI on percentage of public sector workers belonging to unions (federal, state, and local) over the 21 states that can be identified in the May 1973-75 CPS, the union coefficient (S.E.) is 1.370 (0.584). The union coefficient in the same regression for coverage of state workers was 0.528 (0.357).

On the surface these results suggest that union pressure was a significant factor contributing to UI coverage in the public sector before 1974. However, four of these twenty-one states had high coverage rates in 1960, well before public sector bargaining was very widespread. If these four states are dropped from the sample, the union coefficient (S.E.) drops to 0.319 (0.484) in the state employee coverage rate equation and to 1.060 (0.656) in the local employee coverage equation. Thus, it is not at all clear that public sector unions can take the credit or the blame for the growth of UI coverage.

Did the changes in coverage have a big effect on unemployment rates? This can be tested over a sample of state and local public administration workers in the May 1973-75 CPS residing in states or SMSAs that can be matched with data on UI coverage rules and percentage covered by UI. During this period we observe differences in coverage rates across states in 1973 and 1974 and differences in coverage rates within some states between 1973-74 and 1975. Specifications included either three regional dummies or a complete set of 38 state dummies and were estimated for the entire 1973-75 sample as well as for a separate 1973-74 sample. All six unemployment measures used in the results reported in Tables 7 and 9 were examined as dependent variables.

Of the forty-eight equations estimated, only one had a significant UI coverage coefficient. A representative set of results using state dummies over the 1973-75 sample is reported in Table 16. Unless public administration employees are not representative of the work force in the public sector, these results indicate that UI coverage did not contribute to unemployment, even in a period when the federal government was paying some of the benefits. There are two likely explanations. First, other federal programs including CETA provided

assistance to governments under fiscal stress and these programs may have made layoffs unnecessary. Second, there was no UI subsidy in cases for which the federal government was not paying the benefits.

VIII. Conclusion

This paper has shown that despite the much lower observed unemployment probabilities for workers in the public sector, once one controls for differences in worker and job characteristics, the odds of being unemployed are identical in the public and private sectors for nonunion workers in the May 1973-75 CPS and the PSID. Even though public sector jobs are less subject to seasonal and cyclical shocks and cyclical patterns lag those in the private sector, these factors seem to be exactly offset by the inability to produce for inventory and the labor intensity of the production process in the public sector. Although the May 1983 CPS indicates lower unemployment probabilities for nonunion public sector workers than for nonunion private sector workers, this could very well be attributable to the restriction of the sample to employed persons or the lag of public sector layoff rates behind those in the private sector. One important implication of this result is that failure to account for differences in job security is not likely to systematically bias the results of public-private pay comparisons.

This paper's other major conclusion is that the impact of unions on unemployment and permanent layoff probabilities varies substantially between private and government jobs. The odds of being unemployed are much higher under unionism in the private sector, but they tend to be lower for union than nonunion workers in the public sector. Previous studies have attributed the higher layoff rates for union members in the private sector to the greater weight given to the

preferences of older workers under unionism, as reflected by the widespread use of layoffs by seniority in downturns, and larger benefits while unemployed (both from UI and supplemental benefit plans). The adjustment process in the public sector operates differently because the political power of public employee unions can be used in many cases to prevent budget cuts, an optimal outcome for both senior and junior employees. When cuts are necessary, the absence of any UI subsidy or supplemental benefits makes layoffs a less attractive option for members of public sector unions than other adjustment mechanisms such as wage moderation.

Table 1. Percentage of experienced labor force on layoff, by year and class of worker

Year	Temporary and indefinite layoff			Permanent layoff		
	Private sector	Public sector	Public sector excluding education	Private sector	Public sector	Public sector excluding education
1973	.63	.17	.25	1.45	.51	.67
1974	.70	.18	.25	1.59	.53	.61
1975	2.44	.22	.32	3.62	1.22	1.53
1976	1.15	.35	.44	3.01	1.19	1.47
1977	.93	.27	.37	2.62	.85	1.12
1978	.72	.22	.29	2.09	.89	1.12
1979	.72	.15	.16	1.75	.84	1.13
1980	1.92	.27	.34	2.57	.98	1.30
1981	1.42	.36	.36	2.82	1.40	1.91
1982	2.08	.35	.42	4.06	1.66	1.93
1983	2.06	.50	.59	4.98	1.99	2.47
1984	1.24	.31	.43	3.09	1.36	1.72

Source: May CPS public use tapes

Table 2. Percentage of experienced public sector labor force on layoff, by year and level of government

	Temporary and indefinite layoff			Permanent layoff		
	Federal	State	Local	Federal	State	Local
1982	.31	.37	.35	1.66	1.50	1.73
1983	.47	.63	.46	2.11	1.83	2.01
1984	.47	.12	.33	1.82	1.30	1.23

Source: May CPS public use tapes

Table 3. Percentage of experienced labor force on layoff, by time period and industry

Industry	Temporary and indefinite layoff				Permanent layoff			
	1973-75	1976-78	1979-81	1982-84	1973-75	1976-78	1979-81	1982-84
Construction								
Public	.75	.22	.50	.17	1.09	2.19	2.38	3.61
Private	3.15	2.84	3.70	4.63	5.97	5.95	5.48	9.12
Street railways, bus lines								
Public	.22	.00	.20	1.30	.45	.55	.55	1.17
Private	.00	.53	.29	.88	.61	1.43	2.35	3.70
Utilities and sanitary services								
Public	.00	.72	.24	.90	.90	1.14	1.64	2.61
Private	.20	.24	.09	.60	.57	.60	.89	1.55
Hospitals								
Public	.20	.20	.14	.27	1.11	.67	.47	1.62
Private	.12	.12	.16	.50	.62	.82	.72	.99
Elementary and secondary schools								
Public	.03	.12	.24	.23	.26	.59	.56	.92
Private	.16	.08	.19	.14	.30	1.29	1.31	1.50
Colleges								
Public	.18	.12	.14	.22	1.05	.47	.53	1.60
Private	.26	.26	.00	.37	.60	1.12	1.06	1.35
Postal service	.13	.24	.08	.04	.34	.32	.08	.43
Federal public administration	.26	.38	.40	.29	.71	1.21	.95	1.42
State public administration	.46	.96	.44	.46	.56	.97	1.38	1.33
Local public administration	.08	.34	.19	.45	1.10	1.23	2.00	2.16

Source: May CPS public use tapes

Table 4. Percentage of experienced labor force on layoff, by year, class of worker, and union status

Year	Temporary and indefinite layoff				Permanent layoff			
	Private sector		Public sector		Private sector		Public sector	
	Union	Nonunion	Union	Nonunion	Union	Nonunion	Union	Nonunion
1973	1.22	.45	.24	.16	1.74	1.36	.37	.55
1974	1.54	.44	.08	.22	1.88	1.50	.71	.47
1975	5.56	1.58	.04	.28	4.26	3.45	.72	1.38
1977	1.80	.69	.20	.30	2.98	2.52	.67	.93

Source: May CPS public use tapes

Table 5. Unemployment incidence and permanent layoff rate by household status, year and class of worker

Year	Percentage experiencing unemployment during year		Permanent layoff rate	
	Private sector	Public sector	Private sector	Public sector
A. Heads of Households				
1976	14.6	7.1	4.8	0.6
1977	14.1	4.3	4.2	1.0
1978	13.0	5.0	3.5	0.7
1979	12.9	6.3	3.7	0.7
1980	16.6	5.5	4.4	1.7
1981	16.7	5.4	5.9	2.2
B. Wives				
1979	12.8	11.8	4.1	2.2
1980	13.9	9.7	4.1	0.0
1981	15.6	8.6	6.1	2.5

Source: PSID; SEO subsample excluded

Table 6. Percentage of workers covered by collective bargaining agreements with selected layoff provisions

	Municipal agreements 1970	Police and fire agreements, 1972-73	State and county agreements, 1972-73	State and local agreements, Jan. 1, 1974	State and local agreements, July 1, 1975
Reference to reduction in force		15.0	46.2	62.0	65.2
Advance notice of layoff	4.7			23.9	24.1
Union role in reduction in force	1.7		12.3	16.9	19.8
Bumping procedures	6.4			26.5	28.3
Recall rights	18.6	12.6	31.9	30.8	35.2

Source: BLS Bulletins 1759, 1861, 1885, 1920, 1947

Table 7. Coefficients of union and public sector status in CPS unemployment probability equations, by cause of unemployment

Dependent variable	Mean of dependent variable	Model 1: No interaction		Model 2: Union-public sector interaction		
		Union	Public sector	Union	Public sector	Interaction
1. Temporary layoff	.25	.205 (.035)	-.104 (.052)	.287 (.038)	-.008 (.056)	-.388 (.080)
2. Indefinite layoff	.81	.527 (.062)	-.419 (.092)	.735 (.069)	-.175 (.099)	-.983 (.143)
3. Permanent layoff	1.91	-.168 (.094)	-.689 (.141)	-.061 (.105)	-.563 (.151)	-.508 (.219)
4. Re-enter labor force	1.81	-.347 (.091)	.392 (.137)	-.192 (.102)	.574 (.147)	-.733 (.213)
5. Quit last job	.75	-.170 (.060)	-.036 (.090)	-.191 (.067)	-.061 (.096)	.099 (.139)
6. Unemployed	5.54	.037 (.156)	-.874 (.233)	.568 (.173)	-.250 (.250)	-2.513 (.362)

Note: All equations are estimated by OLS from a sample of 154937 observations from the May 1973-75 CPS. Each equation also contains the following variables: age and its square, years of schooling completed, and binary indicators of race (1), sex (1), marital status (1), region (3), occupation (11), industry (39), and year (2).

Table 7A. Coefficients of union and public sector status in CPS unemployment probit equations, by cause of unemployment.

Dependent variable	Union	Public sector	Interaction
1. Indefinite layoff	.205 (.055) [.146]	-.162 (.158) [-.085]	-.700 (.319) [-.190]
2. Permanent layoff	.010 (.044) [.033]	-.178 (.087) [-.520]	-.210 (.144) [-.564]
3. Re-enter labor force	-.039 (.053) [-.104]	.219 (.074) [.702]	-.273 (.132) [-.557]
4. Quit last job	-.044 (.069) [-.058]	-.008 (.110) [-.011]	-.065 (.174) [-.083]
5. Unemployed	.095 (.031) [.863]	.007 (.055) [.058]	-.416 (.093) [-2.606]

Note: All equations are estimated over a sample of 38739 observations randomly selected from the pooled May 1973-75 CPS. Each equation contains the same additional variables as in Table 7, except that there are 34 industry dummies. Partial derivative of probability of unemployment at mean values of independent variables is reported in brackets.

Table 8. Coefficients of union and public sector status in PSID quit probit equations

	All quits		Quit and unemployed during year	
	Heads of households	Wives	Heads of households	Wives
<u>Model 1: No interaction</u>				
Union	-.206 (.040) [.026]	-.295 (.087) [-.048]	-.253 (.067) [-.006]	-.214 (.161) [-.007]
Public sector	-.134 (.054) [-.017]	-.030 (.082) [-.006]	-.175 (.094) [-.004]	-.203 (.158) [-.007]
<u>Model 2: Union-public sector interaction</u>				
Union	-.235 (.045) [-.030]	-.375 (.113) [-.059]	-.231 (.072) [-.005]	-.235 (.188) [-.008]
Public sector	-.171 (.060) [-.021]	-.065 (.088) [-.012]	-.141 (.103) [-.003]	-.215 (.169) [-.007]
Interaction	.128 (.090) [.018]	.200 (.173) [.041]	-.138 (.177) [-.003]	.076 (.352) [.003]
Mean of dependent variable	.083	.127	.023	.022
Sample size	13873	3796	13873	3796

Note: All equations are estimated over the 1976-82 PSID. Each equation also contains the following variables: age and its square, tenure with employer and its square, years of schooling, number of children, and binary indicators of race (2), region (3), occupation (5), industry (8), and year (5 for heads, 2 for wives). Dummies for sex and marital status (1) are also included in the equation for heads.

Table 9. Coefficients of union status in CPS unemployment probability equations, by cause of unemployment and class of worker

Dependent variable	Private sector		Public sector	
	Mean	Union coefficient (S.E.)	Mean	Union coefficient (S.E.)
1. Temporary layoff	.292	.271 (.042)	.059	-.045 (.037)
2. Indefinite layoff	.956	.684 (.076)	.131	-.077 (.056)
3. Permanent layoff	2.170	-.143 (.113)	.728	-.370 (.130)
4. Re-enter labor force	1.854	-.211 (.105)	1.588	-.734 (.188)
5. Quit last job	.821	-.215 (.071)	.441	.012 (.102)
6. Unemployed	6.100	.386 (.184)	2.954	-1.239 (.254)

Note: Sample and control variables are the same as in Table 7. There are 127482 observations in the private sector equation; 27455, in the public sector equation.

Table 10. Coefficients of union and public sector status in unemployment equations, May 1983 CPS

Dependent variable	Mean of dependent variable	Model 1: No interaction		Model 2: Union-public sector interaction		
		Union	Public sector	Union	Public sector	Interaction
1. Unemployed during 1982 (yes=1)	.148	-.032 (.028) [-.006]	-.329 (.048) [-.060]	.022 (.032) [.005]	-.234 (.053) [-.044]	-.255 (.068) [-.046]
2. Spells of unemployment during 1982	.219	.005 (.010)	-.099 (.017)	.027 (.012)	-.073 (.019)	-.072 (.021)
3. Weeks of unemployment during 1982	2.487	-.331 (.131)	-.896 (.222)	-.224 (.157)	-.774 (.242)	-.346 (.278)

Note: Equation 1 is estimated by probit and equations 2 and 3 are estimated by OLS from a sample of 22803 observations from the May 1983 CPS. Each equation also contains the following variables: age and its square, years of schooling completed, and binary indicators of race (1), sex (1), marital status (1), region (3), occupation (11), and industry (37).

Table 11. Coefficients of union status in unemployment equations, May 1983 CPS,
by class of worker

Sample	N	Unemployment during 1982 (yes = 1)		Dependent variable Spells of unemployment during 1982		Weeks of unemployment during 1982	
		Mean	Union coefficient (S.E.)	Mean	Union coefficient (S.E.)	Mean	Union coefficient (S.E.)
1. Private	18348	.166	.007 (.031) [.002]	.249	.020 (.013)	2.800	-.302 (.166)
2. Public	4455	.070	-.200 (.064) [-.023]	.097	-.042 (.013)	1.198	-.521 (.177)
3. Federal	913	.071	-.360 (.166) [-.030]	.105	-.053 (.031)	1.163	-1.086 (.405)
4. State	1117	.071	-.203 (.140) [-.018]	.199	-.047 (.027)	1.225	-.379 (.365)
5. Local	2425	.070	-.169 (.088) [-.020]	.094	-.042 (.017)	1.199	-.489 (.248)

Note: Sample and specification are the same as in Table 10, except that six industry dummies are used in each equation.

Table 12. Coefficients of union and public sector status in PSID unemployment probit equations

Sample and dependent variable	Mean of dependent variable	Model 1: No interaction		Model 2: Union-public sector interaction		
		Union	Public sector	Union	Public sector	Interaction
A. Heads (N=13873)						
1. Unemployed during year	.154	.190 (.033) [.038]	-.176 (.050) [-.031]	.242 (.036) [.048]	-.058 (.059) [-.011]	-.300 (.083) [-.049]
2. Job loser	.049	-.020 (.046) [-.001]	-.300 (.076) [-.019]	-.037 (.050) [-.003]	-.342 (.090) [-.021]	.109 (.121) [.008]
B. Wives (N = 3796)						
1. Unemployed during year	.140	.149 (.074) [.031]	.034 (.083) [.007]	.294 (.086) [.064]	.148 (.089) [.030]	-.508 (.162) [-.076]
2. Job loser	.046	-.096 (.114) [-.007]	-.163 (.127) [-.011]	-.035 (.124) [-.002]	-.103 (.135) [-.007]	-.334 (.299) [-.019]

Note: Estimation method and control variables are the same as in Table 8.

Table 13. Coefficients of union status in PSID unemployment probit equations, by class of worker

Sample	Private sector		Public sector	
	Mean	Union coefficient (S.E.)	Mean	Union coefficient (S.E.)
A. Heads				
1. Unemployed during year	.175	.214 (.037) [.048]	.079	-.039 (.087) [-.003]
2. Job loser	.057	-.051 (.051) [-.004]	.022	.016 (.013) [.0003]
B. Wives				
1. Unemployed during year	.153	.249 (.089) [.057]	.097	-.266 (.156) [-.039]
2. Job loser	.054	-.017 (.126) [-.002]	.020	-.590 (.363) [-.004]

Note: Sample and control variables are the same as in Table 12.

Table 14. Fixed effects estimates of PSID unemployment probability equations

Sample	Model 1: No interaction		Model 2: Union-public sector interaction		
	Union	Public sector	Union	Public sector	Interaction
A. Heads	.014 (.013)	-.013 (.014)	.024 (.015)	-.004 (.016)	-.028 (.022)
B. Wives	.017 (.036)	.020 (.029)	.078 (.043)	.050 (.031)	-.148 (.058)

Note: The dependent variable equals one for those who were unemployed during the year; zero, otherwise. Each equation also includes tenure with employer and its square, number of children and binary indicators of marital status (1), region (3), occupation (5), industry (8), and year (5 for heads, 2 for wives).

Table 15. Public sector unionization and Unemployment Insurance coverage of state and local employees.

State	Type of UI coverage, 1974		Percentage covered by UI, October 1973		Percentage union members, public sector
	State	Local	State	Local	
Massachusetts	N	N	56	0	38.9
Connecticut	M	M	100	100	37.0
New York	M	E	100	3	49.0
New Jersey	N	N	34	0	29.9
Pennsylvania	M	N	100	0	39.0
Ohio	M	M	100	100	27.5
Indiana	N	N	50	5	21.2
Illinois	M	N	100	0	28.0
Michigan	M	M	100	100	43.3
Wisconsin	M	M	100	90	40.7
Iowa	M	N	100	1	11.7
Missouri	E	E	49	0	13.6
Virginia	M	E	100	0	10.2
North Carolina	N	N	52	0	6.1
Georgia	N	N	50	1	6.9
Florida	M	M	100	100	12.9
Kentucky	E	N	44	0	7.4
Louisiana	M	N	100	1	10.5
Texas	M	E	100	0	7.5
California	M	E	100	19	23.6
Hawaii	M	M	100	100	54.7

M = mandatory coverage
 E = elective coverage
 N = no law on coverage

Sources: Type of UI coverage and percentage covered by UI are from U.S. Congress (1976). Percentage union members for public sector employees residing in each state is calculated from the May 1973-75 CPS, using CPS sampling weights.

Table 16. Coefficients of Unemployment Insurance coverage in unemployment probability equations for state and local public administration employees, May 1973-75 CPS.

Dependent variable	Mean of dependent variable	Model 1: Type of UI coverage		Model 2: Percentage Covered
		Mandatory	Elective	
Temporary layoff	.08	-.096 (.208)	.305 (.209)	-.144 (.186)
Indefinite layoff	.16	-.163 (.296)	-.002 (.296)	.039 (.263)
Permanent layoff	.78	-.055 (.652)	-.055 (.654)	.146 (.582)
Re-enter labor force	1.44	-.464 (.866)	.469 (.869)	-.795 (.774)
Quit last job	.44	-.770 (.496)	-.665 (.498)	-.327 (.443)
Unemployed	2.83	-1.661 (1.202)	.015 (1.206)	-1.290 (1.074)

Note: All equations are estimated by OLS from a sample of 3819 observations. Each equation also contains the following variables: age and its square, years of schooling completed, and binary indicators of race (1), sex (1), marital status (1), state (38), occupation (11), year (2), and industry (1).

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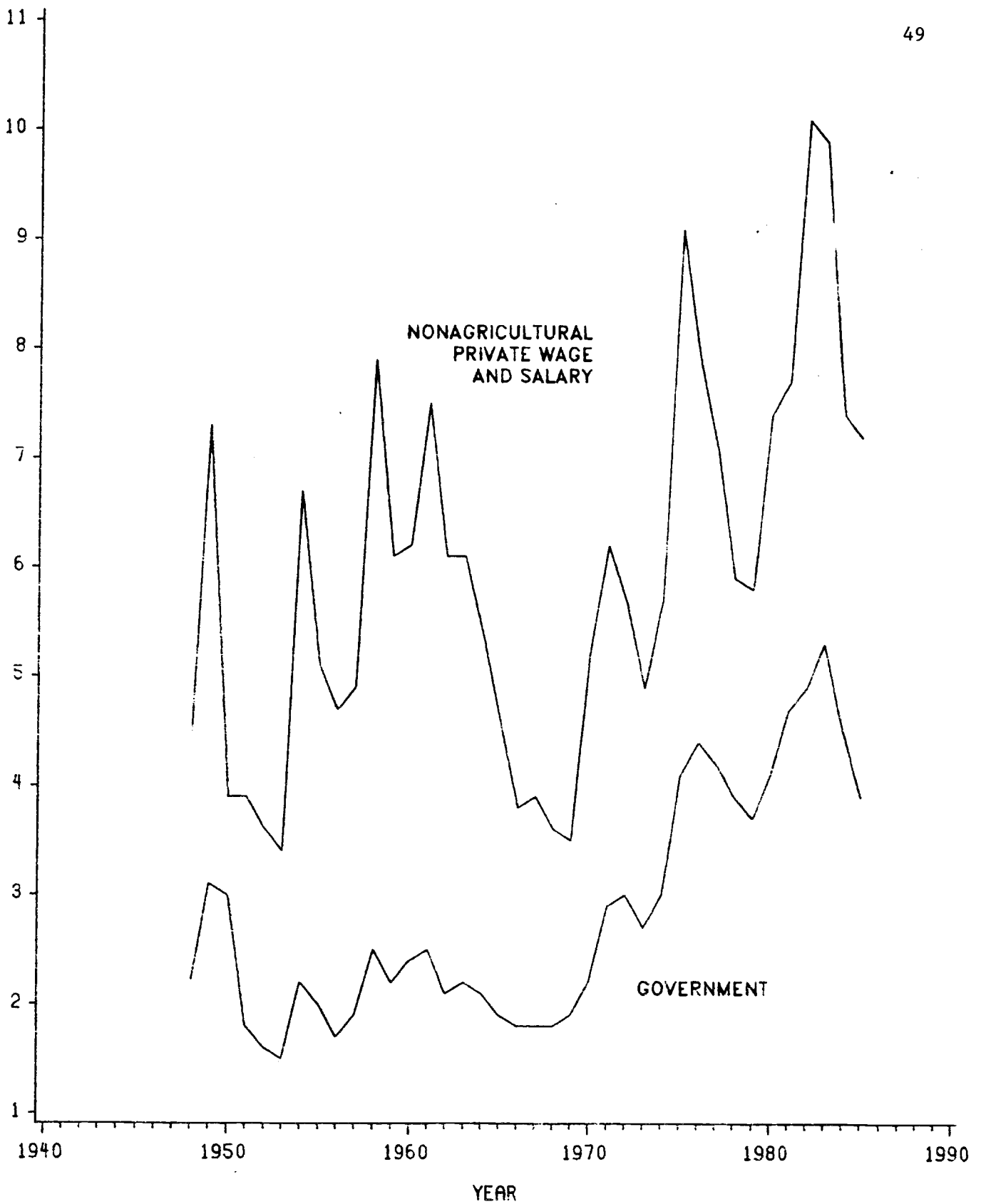


FIGURE 1. UNEMPLOYMENT RATES FOR NONAGRICULTURAL PRIVATE WAGE AND SALARY WORKERS AND FOR GOVERNMENT WORKERS, 1948-1985