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8 Public Sector Growth and Labor Market Flexibility: The United States versus the United Kingdom

Rebecca M. Blank

Expansions in transfer and income security programs have direct effects on the behavior and well-being of those who are eligible for them. But such expansions also have indirect economic effects that may be equally important to understand in evaluating the impact of these programs. In most cases, these programs are run through the public sector and produce an increase in government expenditure and in public sector employment. If public sector labor markets operate differently than private sector labor markets, then expansions of the public sector can change the nature of labor market equilibrium. This could happen, for instance, if public sector jobs require a different set of worker skills, if the public sector wage-setting process is different, or if the elasticity of public employment and wages to demand changes is lower.

Major expansions of government-run programs throughout the post–World War II industrialized world resulted in increases in the size of the public sector. Table 8.1 shows the share of government outlays in gross domestic product (GDP) and the share of public employment in total employment for six advanced industrial countries over the last three decades.[1] Most European countries experienced a large increase in the relative size of the public sector and in public employment between 1960 and 1980, while the United States experienced more moderate growth in the public sector over these two decades. In

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1. For more extensive data on public sector comparisons across a variety of countries, see Rose (1985), OECD (1982), or Heller and Tait (1983).

Table 8.1 **Trends in Government Expenditure and Employment among Industrialized Nations**

A. Government Outlays as a Share of GDP

	1960	1980	1990
United States	27.0%	33.7%	36.1%*
United Kingdom	32.2	44.8	42.1
West Germany	32.4	48.5	46.0
France	34.6	46.1	49.9
Sweden	31.0	61.6	61.4
Total European Economic Community	31.8	45.2	48.7
Japan	17.5	32.6	32.3

*1989 statistic

B. Government Employment as a Share of Total Employment

	1960	1980	1990
United States	14.7%	15.4%	15.0%
United Kingdom	14.8	21.1	19.2
West Germany	8.0	14.6	15.1
France	—	20.0	22.6
Sweden	12.8	30.3	31.7
Total European Economic Community	11.1	16.9	17.6
Japan	—	6.7	6.0

Source: Organization for Economic Cooperation and Development (1992), *Economic outlook, historical statistics, 1960–90* (Paris: OECD), table 6.5 (for part A above), table 2.13 (for part B above).

contrast, the expansion of the public sector stops or slows substantially in all countries in the 1980s.

This paper investigates the implications of changes in the relative size of public and private sector labor markets in the United States and the United Kingdom. These two countries provide a particularly interesting comparison for at least three reasons. First, they both have relatively unregulated private sector labor markets;[2] thus, public/private differences between these countries will primarily reflect differences in the public sector. Second, the composition of the public sector in each country is quite different. The United States has a larger military sector, while the United Kingdom has more publicly owned industries, including a nationalized health sector. This potentially allows me to investigate the extent to which public/private differences can be ascribed to the different mix of goods produced in the public sector. Third, the pattern and timing of public and private sector growth has been quite different in the two countries. Both countries had similarly sized public sectors in 1960, but the

2. The unionization rate in the private sector in the United Kingdom is higher than in the United States. Coleman (1991) cites a United Kingdom unionization rate of about 38 percent in the mid-1980s in the United Kingdom. Freeman and Ichniowski (1988) cite a United States figure of 14 percent in 1986 in the United States.

United Kingdom saw greater relative public sector growth than the United States over the 1960s and 1970s and a greater decline in the public sector over the 1980s. The question is whether these differences have had differential effects on employment patterns and employment flexibility.

In the 1980s, the political winds in the two countries blew in similar directions, as both countries witnessed the election of conservative political leadership at the end of the 1970s. Both Ronald Reagan and Margaret Thatcher promised to shrink the size of government, to create greater competitive pressures in the public sector, and to better align public and private wages. In the United Kingdom, Thatcher embarked on major privatization efforts. Over the 1980s, more than twenty companies moved out of public ownership, while those companies that remained publicly owned were restructured to encourage more competitively based operations.[3] In addition, Thatcher implemented major changes in the wage-setting process in the public sector. Local governments were given more control over wage setting for local government workers. The structure for public wage setting was altered, as existing definitions of public/private comparability were changed. One of the more visible symbols of these changes was Thatcher's very public deunionization of a group of civil servants in the General Communication Headquarters (GCHQ) in 1984.

The Reagan administration made fewer nationally mandated changes in public sector labor markets over the 1980s. Because the United States never had the nationalized industries that existed in the United Kingdom, no major federal privatization occurred, although a number of state and local governments experimented with privatizing certain services, such as publicly owned jails and hospitals. Similar to Thatcher's GCHQ incident, the event that became the symbol of Reagan's concern about high wage levels in the public sector occurred in 1981, when he fired all striking air traffic controllers and decertified their union. The largest changes of the 1980s occurred at the state and local levels, where large numbers of jurisdictions conducted major comparability studies and realigned public and private sector wages, typically as an outgrowth of the discussion over comparable worth.[4]

This paper investigates the effect of the public sector on labor market flexibility in three ways. First, the paper compares the differences in employment and wages in the two sectors and investigates whether these differences simply reflect a different mix of product demands in the two sectors. Second, the paper investigates the nature of public/private wage differentials in the two countries and tests whether these differentials decreased over the 1980s when both countries made an effort at greater "wage alignment." Third, the paper looks at the

3. Companies that moved out of public ownership include British Telecom, Rolls-Royce, British Airways, and British Petroleum. For a thorough discussion of British privatization efforts and their effect, see Kay, Mayer, and Thompson (1986) or Vickers and Yarrow (1978).

4. While few jurisdictions actually implemented explicit comparable-worth plans, many updated their comparability wage-setting techniques in order to prevent or quiet criticism by local unions.

long-term adjustment process of employment and wages in both countries and investigates whether there is evidence of substantially different responses to aggregate demand changes in the two sectors.

8.1 Should the Public Sector Differ?

If there were no difference in the operation of the public versus the private sector, it would matter little whether services were provided by one or the other. In fact, however, there are at least three reasons why the labor markets in these two sectors could differ. First, many researchers have suggested that there is less market competition within the public sector. The public sector disproportionately provides public goods or creates and maintains monopolies in the production of goods, limiting the amount of market competition for public sector workers and their services.[5] The result might be public/private differences in the level and distribution of pay, in the quantity of workers hired and retained, and in the adjustment in pay and employment as demand changes. For instance, this lack of competition may increase the tendency toward strong internal labor markets in the public sector (e.g., the civil service or the military), which typically increases pay rigidities. Similarly, the monopolistic provision of socially necessary goods such as police or fire protection may lead to different levels of unionization and worker bargaining power. In recognition of this problem, many public sector wages in both countries are set through comparability surveys, designed to determine pay levels for equivalently skilled private sector workers whose wages are assumed to be market based.

Second, the public sector might have more diverse employment goals than the private sector. While the private sector's primary concern is profit maximization, the government may be pursuing social welfare goals or political goals as well as production-related goals in its employment decisions. For instance, the public sector might seek to reverse historical patterns of discrimination in the employment and promotion of women or minority workers. Alternatively, nonmarket political pressures may affect pay determination and expenditure decisions by public officials whose primary concern is the next election. These political and social concerns could result in different relative employment and wage levels among workers in the public sector.

Third, because the goods provided by the public sector differ from those provided by the private sector, there may be differences in the skill demands generated by public sector versus private sector expansions. In essence, the government buys a different bundle of goods and services than do consumers. To the extent that there is a trade-off between public demand and private demand, increases in public sector demand will disproportionately benefit those workers whose skills are more useful in the production of public than

5. Among local public sector employers, of course, there may be substantial cross-jurisdictional competition for workers.

of private goods. Some observers have further suggested that public sector goods, because they are heavily service oriented, are less likely to experience productivity-enhancing technological change. In this case, a growing public sector will have long-term productivity and cost implications for the economy.

Modeling the behavior of the public versus the private sector is a complex problem. To fully capture the complete set of possible differences, one would have to account for differences in the competitive environment, in the type of goods produced, and in the decision-making process of government versus private sector employers. While models have been developed that investigate each of these issues separately, there is no integrated model of public sector behavior currently available.

This paper is primarily an empirical exploration, investigating differences in the employment and wage outcomes in the public sector versus the private sector. To the extent that these findings shed some light on theoretical predictions of different causal theories, that will be noted. But these theories are impossible to disentangle empirically in any satisfactory manner with the data available for this paper.

8.2 U.S. and U.K. Public Sector Employment and Wages

Aggregate employment patterns in the United States and the United Kingdom have been very different over the past several decades, as have patterns of public sector employment. Table 8.2 shows trends in employment in the public and private sectors in both countries. All of the employment data discussed in this section come from the National Income and Product Accounts (NIPA) data of the two countries. Data are available from 1961 to 1990 for the United Kingdom, and from 1948 to 1990 for the United States.[6]

Within the United Kingdom, private employment was virtually flat throughout the 1960s and 1970s, showing an increase only in the 1980s. In contrast, public sector employment grew steadily to a peak in 1979 and then declined while private employment grew in the 1980s. Local government employment grew faster in the 1960s, while central government employment grew faster in the 1970s. Employment in nationalized industries was largely constant until 1980, although its share fell as other public employment expanded. After 1980 it fell steeply as many of these industries were privatized. Panels A through D of fig. 8.1 depict employment patterns in these sectors in the United Kingdom.

Within the United States, private employment grew strongly over the past three decades, almost doubling between 1960 and 1990. Public sector employment showed equally strong growth from 1960 through 1980; thus, the share

6. See appendix A for more information on data sources. Employment figures for the United States are reported as full-time equivalents over the entire period. Within the United Kingdom, full-time equivalent numbers are only available for the last decade, so I use actual employment numbers. Because of an expansion in part-time work in the United Kingdom, the full-time equivalent numbers show less employment growth over the 1980s than is reported here.

Table 8.2 **Employment Trends in the United States and the United Kingdom**

A. United Kingdom	1961	1970	1980	1990
Total employment (thousands)	24,458	24,752	25,328	26,914
Share of total (%)				
Private employment	76.0	73.7	70.8	77.6
Public employment	24.0	26.3	29.2	22.4
Total public employment (thousands)	5,860	6,515	7,387	6,040
Share of total (%)				
Central employment	30.5	29.6	32.4	38.0
Local employment	31.9	39.3	40.0	49.1
Public enterprise	37.5	31.1	27.6	12.9
B. United States[a]	1960	1970	1980	1990
Total employment (thousands)	56,312	70,671	86,346	104,918
Share of total (%)				
Private employment	81.9	80.0	81.9	83.1
Public employment	18.1	20.0	18.1	16.9
Total public employment (thousands)	10,209	14,117	15,620	17,734
Share of total (%)				
Federal employment	43.0	37.0	27.3	25.4
State/local employment	46.8	53.2	62.6	64.5
Public enterprise	10.1	9.7	10.1	10.1

Source: National Income and Product Accounts, United States and United Kingdom.

[a]For the United States, employment is reported as full-time equivalents.

of public sector employment remained almost constant. Over the 1980s, public employment grew, but less steeply than private employment, leading to a fall in the public share. Within the public sector, federal employment peaked in 1968, due to the large military buildup during the Vietnam War. State and local employment grew strongly over this entire time period, more than doubling in size. Employment in public enterprises in the United States is extremely small compared with the United Kingdom and grew at about the same rate as overall employment.[7] Panels A through D of fig. 8.2 depict the employment patterns in these sectors in the United States.

Table 8.3 analyzes the changing composition of employment within different parts of the public sector.[8] In the United Kingdom, the military's employ-

7. The U.S. NIPA include state/local and federal public enterprise employees in their counts of total state/local and federal employment. In the United Kingdom, public enterprise is considered a separate category from local and central employment. For comparability, whenever subsectoral data are presented in this paper, public enterprise employees are treated as a separate group of public employees in the United States.

8. The United Kingdom has only two levels of government, central and local. The United States, with a federalist system of government, has three levels, federal, state, and local. The data used in this section do not allow me to distinguish between state and local workers in the United States. In addition, the U.S. NIPA data do not provide as detailed a subsectoral breakdown of public employment as do the U.K. NIPA data.

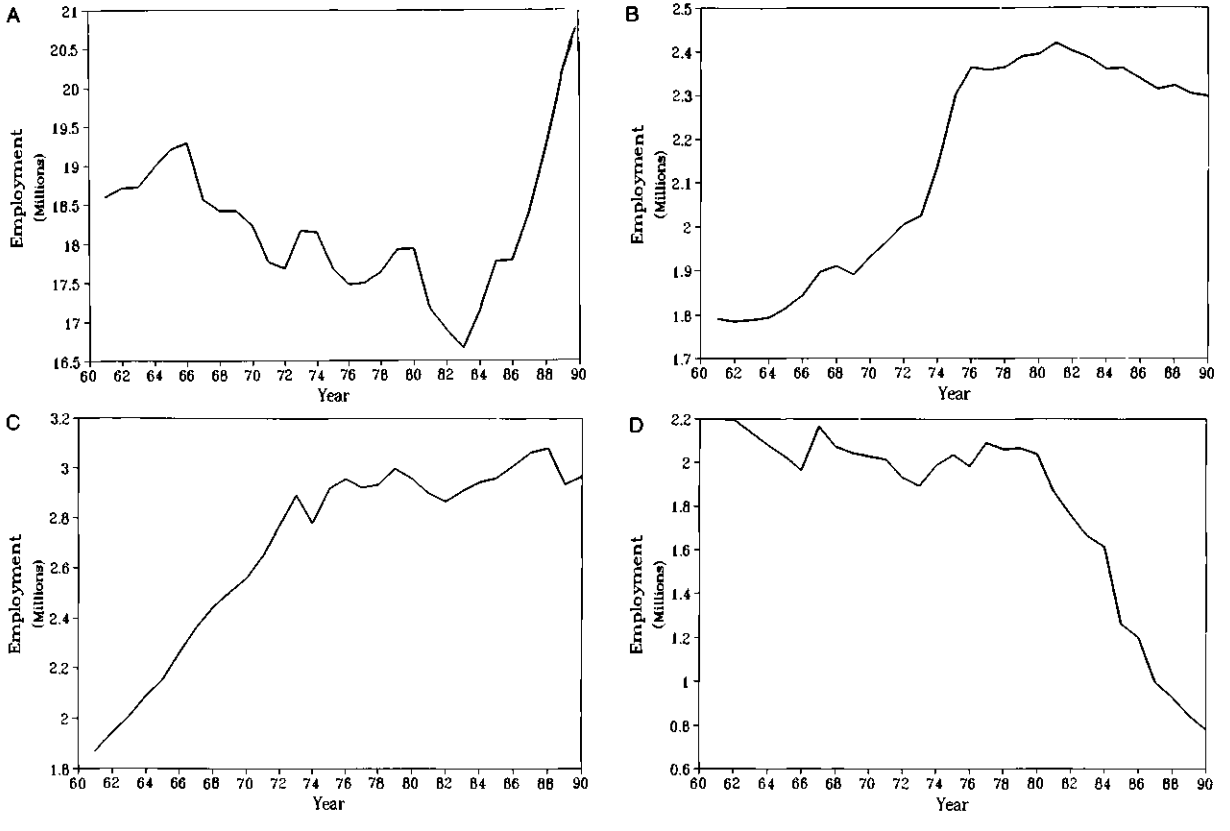

Figure 8.1 Employment patterns in the United Kingdom: (A) private employment; (B) central government employment; (C) local government employment; (D) public enterprise employment

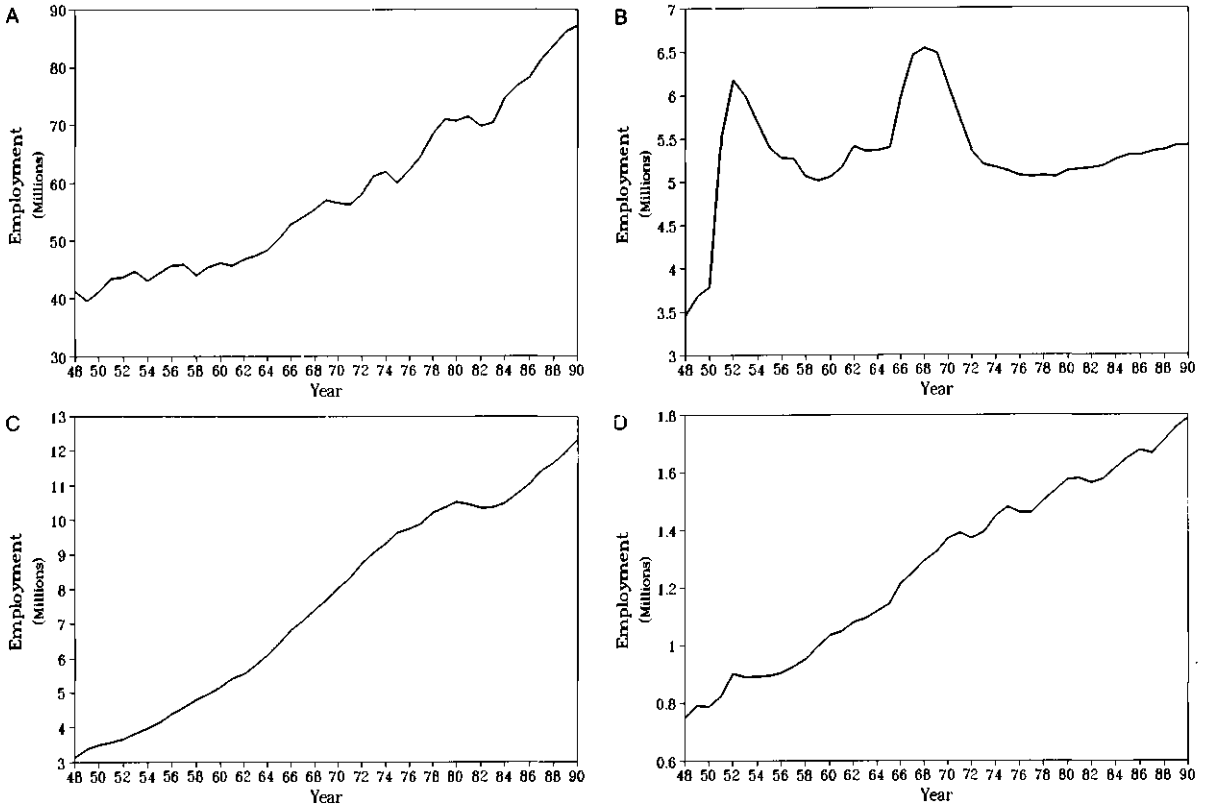

Figure 8.2 Employment patterns in the United States: (A) private employment; (B) federal employment; (C) state/local employment; (D) public enterprise employment

Table 8.3 **Public Sector Employment Components in the United States and the United Kingdom**

A. United Kingdom	1961	1970	1980	1990
Central government employment, share of				
Military	26.5%	19.3	13.5%	13.2%
National Health Service	32.1	38.4	49.1	53.4
Civilian (except NHS)	41.4	42.4	37.4	33.4
Local government employment, share of				
Education	42.0	48.5	50.8	48.2
Social services	9.1	10.4	11.7	14.0
Police	5.8	5.7	6.1	6.7
Other	43.2	35.5	31.4	31.1
B. United States	1960	1970	1980	1990
Federal government employment, share of				
Military	61.3%	62.6%	51.8%	50.6%
Civilian	38.7	37.4	48.2	49.4
State/local government employment, share of				
Education	52.1	56.2	55.6	57.5
Other	47.9	43.8	44.4	42.5

Sources: National Income and Product Accounts, United States and United Kingdom.

ment share steadily declined, while the National Health Service (NHS) expanded to over 50 percent of central government employment by 1990. At the local level, education has accounted for approximately half of all local employees in the United Kingdom since 1970. The share of employees in social services has expanded steadily over time, as has the share in police services.

In the United States, the military accounts for a much larger share of federal employment, although this share has fallen as the size of the armed forces has shrunk. At the state and local level, education accounts for a little over half of all employees. As in the United Kingdom, this share has been relatively flat since 1970.

In short, the United States experienced far more overall employment growth, both public and private, over the last three decades, while U.K. private sector labor markets were virtually stagnant for much of this period. Within the United Kingdom, the central government had twice the share of total employment in 1990 as the U.S. government did. This occurred despite much larger armed forces employment in the United States and partially reflects the presence of National Health Service workers as central government employees in the United Kingdom. As a share of total employment, local employment in

the United Kingdom is about equivalent to state and local employment in the United States and seems to be composed of similar types of spending. U.K. government enterprise accounts for a much larger share of total employment than in the United States, even after extensive privatization over the last decade.

It is worth noting that the most rapid public sector employment growth in both countries occurred at the state and/or local level. Much of this was due to the expansion of public employment in education, which increased particularly rapidly in the 1960s as both countries experienced strong population growth among the young.[9] This makes it difficult to attribute the overall sluggish labor market growth within the U.K. private sector to the larger public sector employment share in that country. In fact, the public sector component (local employment) that was growing most rapidly in the United Kingdom grew just as rapidly in the United States, accounted for just as much total employment, and clearly did not prevent private sector employment growth in that country.

The U.S. NIPA data include average annual earnings as well as employment by sector, but the U.K. NIPA data do not. From 1978 on, the New Earnings Survey (NES), a random national sample of workers in the United Kingdom, provides information on average gross weekly earnings among private and public sector workers.[10] Public and private sector wage trends from these two data sources are presented in table 8.4.[11]

Within the United Kingdom, there is little evidence of public/private earnings differences in the NES data, except in public enterprise in 1980. Between 1980 and 1990, relative public/private sector earnings declined among all public sector workers. Panel A of fig. 8.3 graphs public and private earnings trends from 1978 to 1990. Panel B of fig. 8.3 graphs earnings trends among central government, local government, and public enterprise workers. Real earnings generally increased among all workers over this time period.

Within the United States, there are positive public/private earnings differentials among federal workers and public enterprise workers. Unlike in the United Kingdom, there is no evidence of a decline in these differentials over the 1980s, and in fact they appear to grow somewhat. Panel A of fig. 8.4 graphs public and private earnings trends in the United States from 1948 to 1990. Panel B of figure 8.4 graphs trends in federal, state/local, and public enterprise earnings over this time period. Real earnings rose substantially among all groups of workers during the 1950s and 1960s and the 1980s.

9. The U.K. population under age 15 grew 10 percent in the 1960s, compared to U.S. growth of 5 percent in the same decade.

10. The NES data are not exactly comparable to the NIPA data. They do not include part-time or very low wage workers. This will lead to something of an overstatement of wage levels.

11. For comparability, weekly earnings in the United Kingdom are put into 1990 U.K. pounds, using the U.K. GDP deflator (at market prices), and then translated into U.S. dollars, using the 1990 purchasing power parity calculation by the OECD that sets £0.597 equal to $1. U.S. earnings are reported in 1990 U.S. dollars, using the U.S. GDP deflator.

Table 8.4 **Earnings Trends in the United States and the United Kingdom (1990 U.S. dollars)**

A. United Kingdom

		1980		1990	
	1960	Wages[a]	Public/ Private Ratio	Wages[a]	Public/ Private Ratio
Private wages	—	$333		$445	
Public wages	—	350	1.05%	429	0.96%
Central employment	—	331	0.99	404	0.91
Local employment	—	345	1.04	442	0.99
Public enterprise	—	380	1.14	446	1.00

B. United States

		1980		1990	
	1960	Wages[b]	Public/ Private Ratio	Wages[b]	Public/ Private Ratio
Private employment	$21,082	$24,755		$25,889	
Public employment	20,156	25,057	1.01%	27,585	1.07%
Federal employment	20,516	27,109	1.10	28,711	1.11
State/local employment	19,576	23,650	0.96	26,711	1.03
Public enterprise	21,310	28,223	1.14	30,343	1.17

Sources: New Earnings Survey (U.K. data); National Income and Product Accounts (U.S. data).

[a]Real average gross weekly earnings of full-time workers age 21 and over.

[b]Real average annual earnings of full-time equivalent workers.

The public/private earnings comparisons in table 8.4 are somewhat difficult to interpret, since they do not control for hours of work over the year or for differences in worker skills and characteristics between sectors. We will investigate public/private wage differentials more closely in section 8.4 of this paper, using microdata samples of workers in each country.

8.3 Public/Private Differences in Skill Demands and Worker Characteristics

As noted above, the type of workers employed in the public sector may differ from those hired in the private sector. This could be due to differences in the mix of public versus consumer goods, differences in the goals of public sector employers, and preferences for public sector jobs among certain groups of workers. To the extent that public sector expansions disproportionately increase employment options among certain workers, this can affect the long-run composition and productivity of the labor force.

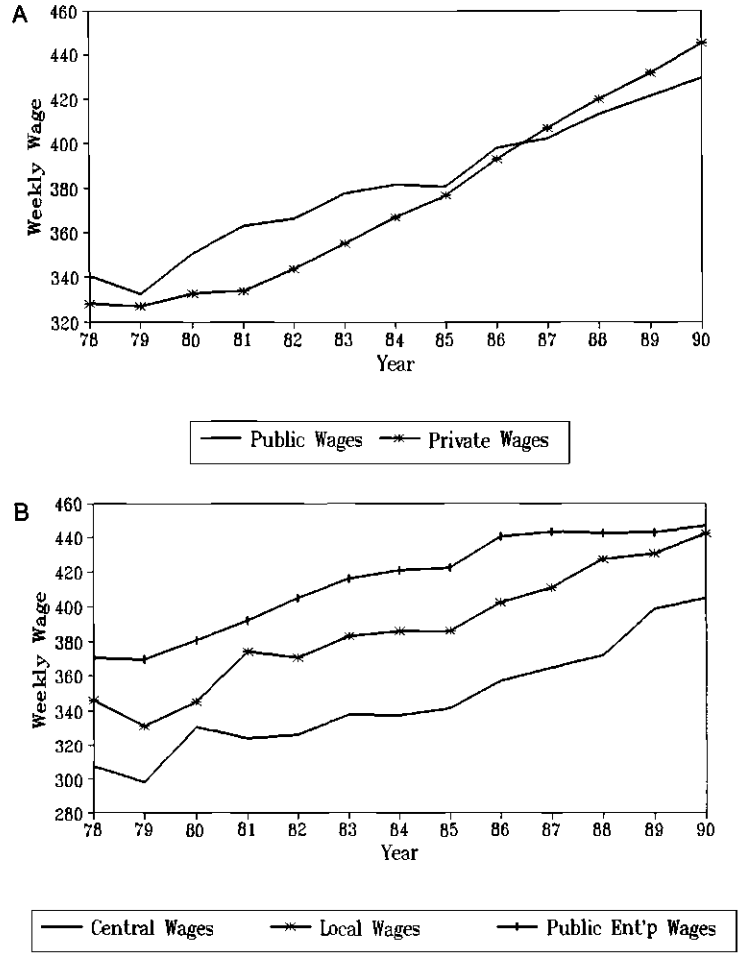

Figure 8.3 Wage patterns in the United Kingdom (1990 U.S. dollars): (A) public and private wages; (B) public sector wages

Previous research has documented differences in the characteristics of public and private sector workers.[12] In the United States, many studies have indicated that the public sector employs a substantially higher proportion of women and minorities. Its employees are also, on average, more skilled. Within the United Kingdom, there is less empirical evidence on this topic, but similar patterns seem to occur. The public sector hires more women and white-collar workers (Gregory 1990) and has more actively worked to hire racial minority and disabled individuals (Beaumont 1981). The effort to privatize large nation-

12. For a review of this research, see Ehrenberg and Schwarz (1986).

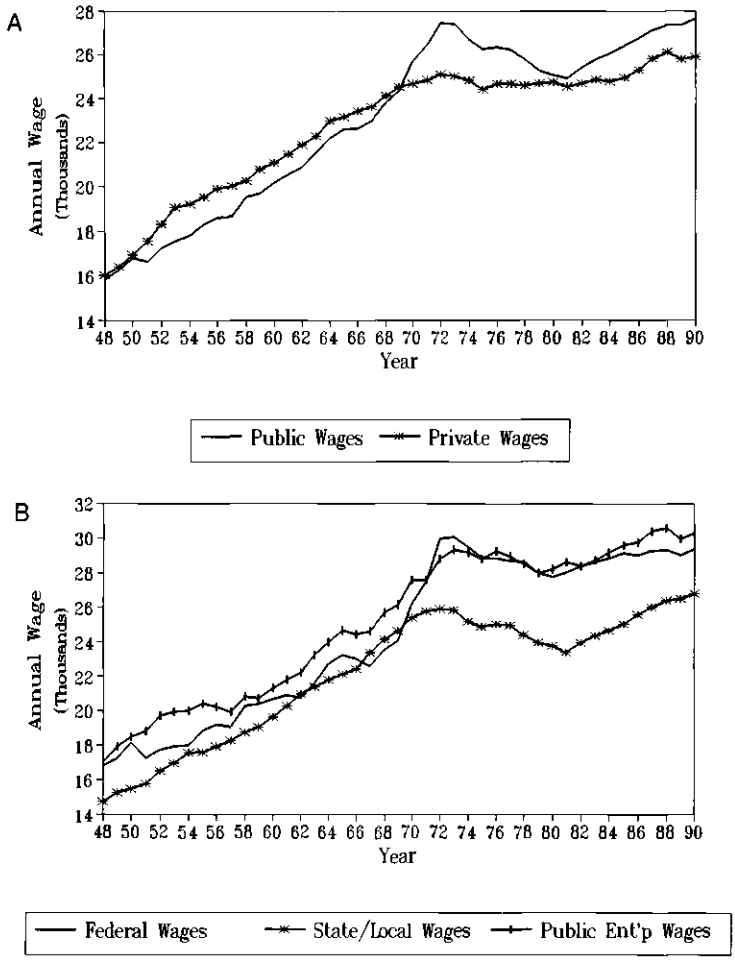

Figure 8.4 Wage patterns in the United States (1990 U.S. dollars): (A) public and private wages; (B) public sector wages

alized industries over the past decade has changed the mix of public employees (Kay and Thompson 1986).

This section investigates differences in skill demands and worker characteristics, updating previous research with evidence from the late 1980s. This section and the following two sections utilize two microdata random samples of workers in the United States and the United Kingdom. Within the United States, I use the Current Population Survey (CPS), which every March asks a barrage of questions about workers' employment and income during the previous year, including whether they were employed in the public sector or in a federal, state, or local government job. Because I am interested in changes over

the past decade, I extract a sample of workers age 18 to 64 from the 1990 and 1980 March CPS.

Within the United Kingdom, microdata with information on public sector employment are less available. The General Household Survey (GHS), an annual random survey of households, asked workers whether they were employed in the public or the private sector in the survey years 1983, 1985, and 1987. Unfortunately, this question did not ask whether public employees were in central, local, or public enterprise jobs. In the results reported here, I use samples of workers age 16 to 64 from the 1983 and the 1987 GHS.[13]

Table 8.5 reports the characteristics of public and private sector workers in the United Kingdom (in 1987) and the United States (in 1989). Both countries show very similar sectoral patterns. As others have noted, public sector workers in both countries have more education, are older, are more likely to be nonwhite,[14] and are more likely to be female. In the United Kingdom, public sector workers are also more likely to work part-time.

The bottom part of table 8.5 shows the occupational distribution of jobs in the public and private sectors in the two countries, using roughly comparable occupational categories. Similarities in the public/private occupational distribution of the two countries are apparent. Over one quarter of public sector employees are health, education, and welfare professionals, while less than 5 percent of private employees are in this area. The public sector has a higher proportion in service occupations and a much lower proportion in sales and blue-collar occupations. In the United Kingdom the public sector also has a smaller share of workers in general management positions, although in the United States the two sectors are about equivalent. Conversely, in the United States the public sector appears to employ a greater share of clerical workers, while the shares are equivalent in the United Kingdom.

Even within specific occupational groups, public sector workers are typically more highly educated and older. The greater use of nonwhite workers in the U.S. public sector is apparent among all U.S. occupations, while the greater use of part-time workers in the U.K. public sector is particularly concentrated among manual workers. Within the U.S. data, where I have enough observations to look at quite detailed occupational categories (e.g., "elementary school teacher"), these sectoral differences remain. This implies that there are probably differences in the entire labor market process by which employees are hired and retained in the public sector.

I have also looked at the changes in relative worker characteristics over time. As discussed above, there were major efforts to retrench the public sector in both the United Kingdom and the United States over the 1980s. As it turns out,

13. In the U.S. data, there are 69,974 workers in the 1990 March CPS sample and 74,059 workers in the 1980 March CPS. In the U.K. data, there are 7,519 workers in the 1983 GHS sample and 8,838 workers in the 1987 GHS sample.

14. In the United States, these are workers who report themselves as black and/or Hispanic. In the United Kingdom, these are respondents who are assessed by the interviewer to be "colored."

Table 8.5 Characteristics of Public and Private Sector Workers

	United Kingdom[a]		United States[b]	
	Public	Private	Public	Private
All workers				
Years of education	12.2	11.4	14.2	12.8
Age	39.2	35.7	39.1	35.6
Percentage nonwhite	3.7	3.4	17.9	13.7
Percentage part-time	26.4	22.1	15.9	16.8
Percentage female	53.0	44.8	53.7	46.0
Occupational shares (%)				
Health, education, and welfare professionals	27.1	3.2	27.0	4.8
Science and Engineering professionals	4.7	5.3	3.0	3.0
Managers, administrators, and other professionals	8.4	15.5	13.2	12.6
Clerical	18.8	18.6	23.3	15.9
Sales	0.3	10.4	1.0	13.5
Services	24.3	11.4	16.8	12.3
Farm, fishing, construction, and mining	4.7	3.5	2.7	6.7
Production, craft, and assembly	7.2	23.0	3.9	16.8
Transportation and materials moving	3.4	6.2	3.1	4.5
Labor and miscellaneous[c]	1.2	1.9	5.9	10.0

[a]1987 data.

[b]1989 data.

[c]Due to definitional differences in occupational categories between the two countries, many of the workers counted here for the United States are subsumed in other categories in the U.K. data.

there are few changes in the relative age or education levels in these two sectors over these years in either country. In the United States, there is also little evidence of changes in the relative use of part-time or minority workers in the two sectors. In the United Kingdom, there is an increase in the relative use of both part-time and female workers in the public sector.

It is clear from table 8.5 that expansions in the public sector will lead to growth in the share of white-collar, clerical, and service-sector jobs.[15] If there is any trade-off between public and private sector growth, blue-collar male workers will be most negatively affected by public sector expansion. Such expansion would increase the employment of women and (particularly in the United States) minority workers. These sectoral differences, however, reflect both demand and supply effects. There is evidence from the United States that

15. Of course, this assumes that any expansion in public sector demand results in expanded demand for the same mix of services currently provided by the public sector.

women and minorities are much more likely to select public sector jobs (Blank 1985). To the extent that the public sector provides more attractive job opportunities to workers (women and minorities) who are often considered disadvantaged in the labor market, this may increase long-term labor market productivity. Public sector expansions in the United Kingdom will also increase the share of part-time jobs, which may provide jobs to workers who would otherwise be unemployed. This could be viewed as increasing labor market flexibility, but the disadvantage of such flexibility is a larger share of the work force in lower-paid employment.

8.4 Public/Private Wage Differentials and Their Changes over Time

If public/private differences are solely due to differences in demand mix, then there is little reason to worry about the size of the public sector; if the private sector produced these goods, it would also demand the same mix of workers. If, however, these employment differences reflect an entirely different wage/employment equilibration process within the public sector, then this will be reflected in public/private wage differentials, even among workers in relatively similar jobs.

Most research in the United States indicates that substantial public/private wage differentials exist (Ehrenberg and Schwarz 1986), although this work has largely not tried to test underlying theories about these differences.[16] Initial work in the United States by Smith (1977) suggested that federal workers had higher wages than comparable private workers; state and local workers showed less consistent differences. Women and minorities were almost uniformly better paid in the public sector. More recent work has suggested that the wage advantage has eroded for federal workers, due primarily to the erosion of federal wages among more skilled employees (Freeman 1987; Krueger 1988b; Katz and Krueger 1991). Public/private wage differentials remain substantial even after controlling for selectivity into the public or private sector (Venti 1987; Gyourko and Tracy 1988).

Within the United Kingdom, there is much less empirical research on public/private wage differentials. Looking at raw public/private wage differences, Gregory (1990) finds higher pay for white-collar workers and lower pay for manual workers in the public sector, with no clear trends over time between 1970 and 1982. Recent attempts by the British government to substantially alter the determination of comparable pay levels has led to much discussion of how to determine effective public pay (Cappelli 1983; Kessler 1983; Kessler 1990), but there is little empirical work testing the effects of these changes.[17]

16. An exception is Katz and Krueger (1991), who find support for the theory that greater government bureaucracy and the nonprofit nature of the government affect public/private wages but unionization differences and changes in discretionary job categories do not.

17. Analysis of public/private pay differentials from other industrialized countries provides no evidence of consistent public/private patterns. Auld et al. (1980) find little difference in public/

This section investigates both aggregate and occupation-specific differences in public and private sector wages in the United States and the United Kingdom. To provide more detailed information on the nature of public/private wage differentials, four selected occupational groups are used: senior managers and professionals, professionals in health, education, or welfare–related occupations (hereafter HEW professionals), clerical workers, and manual workers. All of these occupational groups have substantial employment in both the public and private sectors. Appendix B defines these four groups in more detail.

I am particularly interested in changes in public/private wage differentials over the 1980s. As noted above, there was an effort in both countries to better align public and private sector wages during this decade. If the public sector was indeed out of line in its wage payments and if reforms over the 1980s were well directed, then the result should be a decline in public/private wage differences over the 1980s.

It is worth noting that wage changes might differ in the two sectors if productivity changes are occurring at a different rate among public and private sector jobs. Baumol (1967) first suggested that public sector jobs might experience little productivity change because of their labor-intensive nature. Empirical investigation of this issue, however, has indicated that public sector jobs experienced substantial productivity growth in recent decades,[18] and there is little reason to believe that productivity in the public sector has grown more slowly.

Table 8.6 presents the simple differences in log wages between the public and private sector in the early and late 1980s in columns 1 (U.K.) and 3 (U.S.).[19] In these data, there is a substantial difference in the level of public and private pay in the United Kingdom in 1983, larger than that reported in the New Earnings Survey, which shows essentially no public wage advantage. These two surveys are reporting on somewhat different samples; most notably, the New Earnings Survey includes only full-time workers, includes elderly workers, and excludes very low-wage workers. But the magnitude of the difference is problematic. In the 1983 GHS data, public sector workers receive 23.5 percent higher wages than public sector workers. Senior managers in the public sector are paid 11.2 percent more, while clerical workers are paid 34.1 percent more. Between 1983 and 1987, all of these differences decline substantially.

private wage changes in Canada between 1967 and 1975. Keller (1981) finds that skilled public sector employees in the Netherlands have higher relative wages. Zetterberg (1990) finds a similar pattern in Swedish data and also indicates that the overall public/private wage differential shrank in Sweden over the 1970s. Pederson et al. (1990) use Danish data from 1976 to 1985 to show that as public sector programs have expanded in that country, public sector wages have been reduced.

18. For a U.S.-based discussion of this issue, see Gramlich (1982). For a U.K.-based discussion, see Levitt and Joyce (1987).

19. In the United States, the wage data are the result of dividing annual earnings by annual hours of work. In the United Kingdom, the wage data are usual gross weekly earnings. Thus, the control for part-time work is presumably more important in the U.K. data than in the U.S. data.

Table 8.6 **Public/Private Differentials in Log Wages Over Time (standard errors in parentheses)**

	(1)	(2)	(3)	(4)	(5)	(6)
				Public Sector D.V. Regression Coefficients		
		Public Sector D.V.			Separated into:	
Worker sample	Simple Log Wage Difference	Regression Coefficient	Simple Log Wage Difference	Aggr. Public	Federal	State/Local
	United Kingdom (1983)		United States (1979)			
All	.235**	.140**	.090**	.001	.189**	−.048**
	(.018)	(.011)	(.006)	(.006)	(.012)	(.006)
Selected occupations						
Senior managers and professionals	.112*	.020	.117**	.029	.197**	−.029
	(.056)	(.049)	(.022)	(.025)	(.046)	(.029)
HEW professionals	.355**	.242**	−.022	−.009	.077*	−.015
	(.089)	(.049)	(.028)	(.015)	(.042)	(.015)
Clerical workers	.341**	.147**	−.034*	−.047**	.108**	−.090**
	(.031)	(.025)	(.016)	(.017)	(.031)	(.018)
Manual workers	.168**	.083**	.113**	.040	.090	.035
	(.024)	(.021)	(.033)	(.033)	(.091)	(.034)
	United Kingdom (1987)		United States (1989)			
All	.154**	.105**	.181**	.031**	.180**	−.010*
	(.019)	(.012)	(.007)	(.007)	(.013)	(.007)
Selected occupations						
Senior managers and professionals	−.073*	−.090*	−.004	−.099**	.032	−.147**
	(.057)	(.048)	(.021)	(.022)	(.040)	(.025)
HEW professionals	.318**	.159**	−.018	−.017	.153**	−.024*
	(.068)	(.039)	(.027)	(.017)	(.057)	(.017)
Clerical workers	.258**	.123**	.021	−.011	.111**	−.040*
	(.035)	(.028)	(.022)	(.023)	(.047)	(.025)
Manual workers	.085**	.094**	.265**	.152**	.235*	.145**
	(.036)	(.031)	(.033)	(.037)	(.113)	(.038)
	Difference: 1987−1983		Difference: 1989−1979			
All	−.081**	−.035*	.091**	.030**	−.009	.038**
	(.026)	(.017)	(.009)	(.009)	(.018)	(.010)
Selected occupations						
Senior managers and professionals	−.185**	−.110*	−.121**	−.128**	−.165**	−.118**
	(.079)	(.069)	(.031)	(.034)	(.063)	(.036)
HEW professionals	−.037	−.083*	.004	−.026	.076	−.009
	(.112)	(.063)	(.039)	(.022)	(.071)	(.022)

Table 8.6 (continued)

Worker sample	(1) Simple Log Wage Difference	(2) Public Sector D.V. Regression Coefficient	(3) Simple Log Wage Difference	(4) Public Sector D.V. Regression Coefficients: Aggr. Public	(5) Separated into: Federal	(6) State/Local
	Difference: 1987–1983		Difference: 1989–1979			
Clerical workers	−.083*	−.024	.055*	.036*	.003	.050*
	(.046)	(.037)	(.027)	(.028)	(.056)	(.031)
Manual workers	−.083*	.011	.152**	.112*	.145	.110*
	(.043)	(.037)	(.046)	(.050)	(.145)	(.051)

Note: In addition to public sector dummy variable, U.K. regressions include controls for education, experience, sex, region, marital status, color, country of birth, and part-time job. U.S. regressions include education, age, sex, region, marital status, race, and part-time job.

*Significant at 10 percent level.

**Significant at 1 percent level.

The log difference in public/private sector wages in the United States in 1979 (column 3) is substantially smaller. These CPS data are consistent with the public/private earnings differences in the NIPA data and indicate a public wage advantage of 9.0 percent. Among HEW professionals and clerical workers, U.S. public sector workers appear to be paid less. Quite in contrast to the United Kingdom, overall public/private pay differences between 1979 and 1989 rise on average in the United States, from 9.0 percent to 18.1 percent. These unadjusted differences in pay, however, may reflect differences in the skills needed on public and private sector jobs and therefore may reflect productivity-related differences in the group of workers hired into public versus private jobs. Column 2 presents the log wage regression coefficient on a dummy variable equal to 1 if a worker is employed in the public sector in the United Kingdom, controlling for education, experience, sex, region, race, marital status, and part-time employment. Thus, the regression coefficient measures any public/private difference in wages that remains after holding constant other standard determinants of wages. Column 4 presents a similar log wage regression coefficient on a public sector dummy variable in the United States. Columns 5 and 6 estimate separate public sector coefficients for federal and state/local workers in the United States.

The results in column 2 for the United Kingdom indicate that controlling for worker and job characteristics reduces public/private wage differences, although it does not eliminate them. The regression-adjusted public/private wage

difference declined 3.5 percent between 1983 and 1987; thus, in the United Kingdom, relative public/private wages did move closer together over the 1980s. This trend did not occur uniformly over all occupations, however. Clerical and manual workers saw little change in their public sector wage advantage. HEW professionals saw a clear decline, from a 24 percent wage advantage to a 16 percent wage advantage. But senior managers went from relatively comparable wages to public sector wages that were significantly lower than those in the private sector by the late 1980s.

Within the United States, the public sector coefficients (column 4) are also smaller than unadjusted differences.[20] Once worker characteristics are controlled for, there is no public sector advantage in 1979 and a small (3.1 percent) public sector advantage in 1989. There is little evidence in column 4 that the 1980s brought the wages of public sector workers more in line with their private sector counterparts. Senior public managers saw their wages go out of alignment, HEW professionals remained in alignment, and low-skilled manual workers saw substantial increases in their public sector advantage.

With the U.S. CPS data, I can estimate adjusted public wage differentials within the federal and the state/local sectors. The last two columns in table 8.6 do this. The results provide strikingly different conclusions that one would reach looking only at the aggregate public/private regression coefficients in column 4. There appears to be no net public sector wage differential, not because there is no difference in public/private wages but because there is a significant positive public wage advantage at the federal level offset by a significant negative public wage disadvantage at the state/local level. While the federal wage differential does not change over the 1980s, the negative state/local differential appears to come into better alignment with regard to public/private wages. Thus, the overall public sector wage differential appears to worsen, but this is entirely due to aggregation between federal and state/local effects.

Several conclusions should be drawn from table 8.6. First, both countries appeared somewhat successful at bringing wage levels more in line between the public and the private sector over the 1980s, although in the United States this consisted more of bringing state/local workers up to private sector wage levels, while in the United Kingdom this was the result of bringing down higher relative public wages. To the extent that both countries pursued a goal of bringing public and private wages into better alignment, this appears to have been achieved. Second, in both countries, senior public managers saw extensive relative wage declines. HEW professionals in the United Kingdom also experienced wage declines, but this did not happen in the United States. Third, the United States saw substantial relative wage gains among less-skilled manual workers, although this trend was not apparent in the United Kingdom. The

20. The results in this section are quite similar to those previously reported in Freeman (1987), Krueger (1988a), and Katz and Krueger (1991).

result of these changes among more- and less-skilled public sector workers in both countries should be to narrow the relative wage distribution in the public sector versus the private sector, a point I will pursue further below. Fourth, the substantial differences in the behavior of the U.S. federal and state/local sectors should create hesitation about drawing strong conclusions from the aggregate U.K. public/private wage changes. Disaggregating the U.K. public sector coefficient into the effects within the central, local, and public enterprise subsectors of the economy could result in a very different picture of public/private pay movements. In particular, privatization efforts within the United Kingdom could have changed the nature of jobs and workers within the public sector over these years, thus changing the selectivity of workers into the public sector. It would be extremely useful to be able to separate changes in public enterprises from changes in other public sector jobs, but unfortunately the data do not allow this.

Table 8.7 presents results similar to those in table 8.6 but focuses on differences between male and female workers. We noted above that women appear to be disproportionately more likely to be hired by the public sector. In table 8.7 we can investigate whether women in the public sector also receive a greater wage advantage. Columns 1 and 4 of the table repeat the aggregate "public sector wage effect" estimated from a regression controlling for worker and job characteristics in the United Kingdom and the United States, respectively. Columns 2 and 5 present similar results for male workers in the two countries, and columns 3 and 6 present results for female workers.

The primary conclusion from table 8.7 stands out sharply for both countries and for all occupations: women have larger public sector wage advantages than men, or they have smaller public sector wage disadvantages in virtually all occupations and years. Male public sector workers in the United Kingdom in 1983 have an 8.0 percent wage advantage, while female workers have a 21.4 percent advantage. In the United States in 1979, men have a 7.3 percent wage disadvantage in the public sector, while women have a 7.6 percent advantage. This wage advantage could be one reason for the greater presence of women in the public sector. In results not shown here, I have estimated probit models of public sector employment, including expected public/private wage differences in the regression. While the wage differences are important, women are more likely to be in the public sector, even after controlling for their larger public/private wage differential. This could imply that women prefer public sector work beyond its wage advantages, or it could indicate that public sector employers both give hiring preferences to women and pay them better than their public sector alternatives. (In other words, it is difficult to judge whether the additional propensity of women to select into the public sector is coming from the supply or the demand side of the labor market.)

At least three important omitted variables in the regressions reported in tables 8.6 and 8.7 might be affecting these results. First, as many have speculated, there may be substantial differences in the nonwage characteristics of

Table 8.7 **Public/Private Differentials in Log Wages by Gender over Time: Public Sector Dummy Variable Regression Coefficients (standard errors in parentheses)**

Worker Sample	All (1)	Male (2)	Female (3)	All (4)	Male (5)	Female (6)
	United Kingdom (1983)			United States (1979)		
All	.140**	.080**	.214**	.001	−.073**	.076**
	(.011)	(.014)	(.019)	(.006)	(.008)	(.009)
Selected occupations						
Senior managers and professionals	.020	.027	−.042	.029	−.050*	.193**
	(.049)	(.051)	(.137)	(.026)	(.028)	(.055)
HEW professionals	.242**	.041	.316**	−.009	−.061**	.030*
	(.049)	(.077)	(.062)	(.015)	(.023)	(.019)
Clerical workers	.147**	.083*	.153**	−.047**	−.084	−.047**
	(.025)	(.058)	(.025)	(.017)	(.140)	(.017)
Manual workers	.083**	.076**	.229*	.040	.017	.089*
	(.021)	(.021)	(.139)	(.033)	(.045)	(.046)
	United Kingdom (1987)			United States (1989)		
All	.105**	.029*	.164**	.031**	−.024**	.088*
	(.012)	(.015)	(.020)	(.007)	(.009)	(.009)
Selected occupations						
Senior managers and professionals	−.090*	−.131**	−.104	−.099**	−.186**	.024
	(.048)	(.052)	(.113)	(.022)	(.029)	(.035)
HEW professionals	.159**	.056	.219**	−.017	−.041*	.012
	(.039)	(.052)	(.054)	(.017)	(.030)	(.020)
Clerical workers	.123**	.037	.133**	−.011	.224	−.008
	(.028)	(.055)	(.030)	(.023)	(.216)	(.023)
Manual workers	.094**	.054*	.484**	.152**	.081*	.285**
	(.031)	(.031)	(.156)	(.037)	(.048)	(.059)
	Difference: 1987−1983			Difference: 1989−1979		
All	−.035*	−.051**	−.050*	.030**	.049**	.012
	(.017)	(.020)	(.027)	(.009)	(.012)	(.013)
Selected occupations						
Senior managers and professionals	−.110*	−.158*	−.062	−.128**	−.136**	−.169**
	(.069)	(.073)	(.177)	(.034)	(.040)	(.065)
HEW professionals	−.083*	.015	−.097	−.026	.020	−.018
	(.063)	(.093)	(.082)	(.022)	(.038)	(.028)
Clerical workers	−.024	−.046	−.020	.036*	.308	.039*
	(.037)	(.080)	(.040)	(.028)	(.258)	(.029)
Manual workers	.011	−.022	.255	.112*	.064	.196**
	(.037)	(.037)	(.209)	(.050)	(.066)	(.074)

*Significant at 10 percent level.

**Significant at 1 percent level.

public and private sector jobs, such as job security, fringe benefits, or work environment. If these differences are substantial, wage alignment between the two sectors might actually be an indication that total compensation is not in alignment. Unfortunately, I have no information on the nonwage characteristics of jobs in my data sets.

One way to infer information about total compensation is to look at the demand for public sector jobs. Katz and Krueger (1991) use U.S. federal applications data to indicate that there appear to be far more applications per job for blue-collar federal jobs than for white-collar federal jobs. Krueger (1988a, 1988b) also shows evidence of queues among federal workers in jobs with wage advantages. This implies that the pay differences we observe translate into total compensation differences, increasing the demand among workers for these jobs.

A second possible omitted variable is union status in the public and private sectors. Some have argued that public sector unions might be able to achieve higher wages because they can threaten to disrupt vital citizen services. Again, I do not have information on this variable in my data sets. Within the United States, there is little consistent evidence of greater public/private wage differences among unionized workers (Ehrenberg and Schwarz 1986; Trejo 1991), although some differences in wages and employment appear to occur under different bargaining arrangements (Zax 1989; Ichniowski, Freeman, and Lauer 1989). In the United Kingdom, there is little empirical work on this issue. Dickerson and Stewart (1992) have found few differences in the propensity of public sector unions to strike, once other factors are controlled for. Major changes in legislation and regulations governing trade unions in the United Kingdom over the past decade are generally believed to have weakened public sector union power (Saran and Sheldrake 1988; Towers 1989).

A third omitted variable problem is more amenable to investigation. It has been suggested that some of the public/private sector differences are due to differences in the average size of public versus private sector establishments. Existing research in labor economics indicates that larger establishments tend to offer different labor market contracts than smaller establishments do.[21] Larger corporations are likely to be more bureaucratic in their behavior, to have more strongly developed internal labor markets, and may be better able to smooth cyclical fluctuations. Some of the difference between public and private sector workers may be due to the fact that public sector jobs are more comparable to jobs in large corporations than those in small firms. In this case, an establishment size variable would act as a proxy for the different types of jobs and job contracts available in larger firms.

In the U.S. CPS data, I have no way to control for establishment size, but

21. Katz and Krueger (1991) look at this question for the United States, and Green, Machin, and Manning (1992) look at it for the United Kingdom. Neither paper looks at the wage effect of establishment size by public and private sector.

the U.K. GHS data includes this information. The GHS data for 1987 show that public sector workers are indeed more likely to be in larger establishments (see table 8.8 for frequency distribution). If there are differences in the labor market contracting arrangements of smaller and larger establishments, it is clear that the public/private wage differential will reflect these differences.

Table 8.9 presents the regression coefficients for public sector jobs, interacted with establishment size. Rows 1 through 4 report the results from a single regression, which interacts the public sector dummy with four dummy variables for each of the four establishment sizes coded into the GHS data. The results in the first four rows of table 8.9 appear to indicate that there is a differential wage level in public sector jobs that grows as establishment size increases, among both men and women. Workers in public sector establishments with over 1,000 workers received 15.6 percent higher wages in 1987, while workers in public sector establishments of less than 25 workers received only 4.9 percent higher wages.

If the wages of all workers differ by establishment size, however, this first regression might be misleading. The last four regressions presented in table 8.9 estimate separate wage regressions for workers in each size of establishment. These regressions tell quite a different story, indicating that both public and private workers in large establishments get higher wages. Within establishment size groups, the largest wage advantage for public sector workers appears to occur in the smallest establishments. In fact, in establishments of 25 workers or more, there are relatively small and frequently insignificant coefficients on the public sector dummy variable.

The results in table 8.9 confirm that establishment size is an important omitted variable in regressions that attempt to measure the impact of public sector employment on relative wages. As the bottom row of table 8.9 indicates, if I take the estimated public sector effects by establishment size, based on the four regressions at the bottom of table 8.9, and weight them by the share of public sector employment in each establishment size, I get an aggregate public/private wage differential of 4.3 percent in 1987. This compares to an estimated aggregate wage differential among all workers in 1987 of 10.5 percent when establishment size differences are not controlled for (table 8.6). In 1983, the estimated aggregate public wage differential is 6.8 percent, compared to an estimate of 14.0 percent when establishment size is not controlled for. Thus,

Table 8.8 **Frequency Distribution of U.S. Workers, by Establishment Size**

Establishment Size	Public Sector Workers	Private Sector Workers
1–24 workers	21.0%	39.0%
25–99	26.2	23.6
100–999	35.4	27.8
1000+	17.4	9.6

Table 8.9 **Interactive Effect of Establishment Size and Public Sector Placement on Wages of U.K. Workers (standard errors in parentheses)**

	All Workers (1)	Male (2)	Female (3)	All Workers (4)	Male (5)	Female (6)
	1983			1987		
Regression 1: Public sector and establishment size interacted						
Coefficient on:						
Public sector,*						
Size < 25	.007	−.001	.037	.049*	−.030	.106**
	(.023)	(.032)	(.032)	(.023)	(.033)	(.032)
Public sector,*						
25 ≤ size < 100	.127**	.047*	.211**	.082**	.013	.135**
	(.020)	(.025)	(.030)	(.021)	(.027)	(.031)
Public sector,*						
100 ≤ size < 1,000	.174**	.073**	.306**	.129**	.036*	.223**
	(.016)	(.019)	(.027)	(.018)	(.021)	(.030)
Public sector,*						
size ≥ 1,000	.205**	.146**	.299**	.156**	.081**	.200**
	(.021)	(.023)	(.039)	(.025)	(.029)	(.041)
Regression 2: Sample of establishment size < 25 only						
Coefficient on						
public sector	.155**	.107**	.208**	.206**	.104**	.259**
	(.029)	(.039)	(.041)	(.029)	(.041)	(.041)
Regression 3: Sample of 25 ≤ establishment size < 100 only						
Coefficient on						
public sector	.076**	.042*	.111**	.019	−.026	.049*
	(.022)	(.029)	(.033)	(.023)	(.029)	(.036)
Regression 4: Sample of 100 ≤ establishment size < 1,000 only						
Coefficient on						
public sector	.049**	.003	.122**	.016	−.009	.032
	(.016)	(.019)	(.026)	(.017)	(.021)	(.029)
Regression 5: Sample of establishment size ≥ 1,000 only						
Coefficient on						
public sector	.016	.027	−.019	−.064**	−.069**	−.122**
	(.021)	(.024)	(.039)	(.024)	(.029)	(.046)
Estimated aggregate public sector wage effect, using results from regressions 2 through 5	.068**	.030*	.120**	.043**	−.007	.071**
	(.010)	(.013)	(.017)	(.011)	(.014)	(.019)

Note: See table 8.6 for a list of control variables included in regression. Each cell represents a separate regression. Columns 1 and 4 estimated with all workers; columns 2 and 5 estimated with male workers only; columns 3 and 6 estimated wtih female workers only.

*Significant at 10 percent level.

**Significant at 1 percent level.

differences in labor market payments by establishment size seem to explain a little more than half of the public/private wage difference in the United Kingdom. On the other hand, significant public/private wage differences still remain, albeit at a smaller level, even after establishment size is controlled for. In addition, the same over-time trends are visible in the size-adjusted public sector effects, as the U.K. public/private differential shrinks by about one-third between 1983 and 1987.

The evidence in table 8.9 indicates that, in the United Kingdom, a little over half of the public/private wage differential is due to differences in wage contracts between establishments of different size, where public sector workers are disproportionately likely to be in larger establishments. The evidence that public sector workers in large establishments are paid similarly to private sector workers in large private firms provides little evidence of a less market-oriented public sector. On the other hand, there do appear to be wage advantages for public sector workers in smaller firms, which could indicate a greater degree of bargaining power or market protection than such workers have in the private sector. At least in part, this must be due to the fact that many U.K. public sector workers have their wages set through national agreements, and thus there are smaller wage differences between public sector workers in large and small establishments than among private workers employed in different establishment sizes.

8.5 Distribution of Public and Private Sector Wages

Both the United States and the United Kingdom experienced changes in the wage distribution over the 1980s. In the United States there were real increases in the wages of more-skilled workers and real decreases in the wages of less-skilled workers (Danziger and Gottschalk 1993). Within the United Kingdom there is also evidence of widening in the earnings distribution (Schmitt 1992), but the trends appear to be somewhat less pronounced than in the United States. One test of "sectoral differences" is to see whether the public sector mirrored the private sector in these distributional changes. The results in table 8.6 indicate that more-skilled public workers saw declining relative wages and less-skilled public workers saw increasing relative wages over the 1980s. This indicates that the public wage distribution did not widen as rapidly as the private wage distribution. Katz and Krueger (1991) have already confirmed this phenomenon for the United States.

Table 8.10 presents direct evidence on the relative wage distribution in the two sectors. It shows public and private wages at the 10th and the 90th percentile and the ratio of these wages to mean wages for both countries over the 1980s. Thus, the first row of the table indicates that the ratio of wages at the 10th percentile in the United Kingdom to mean public sector wages was 0.30 in 1983, while the equivalent ratio at the 90th percentile was 1.71. In the private sector, in contrast, these ratios were 0.23 and 1.78, respectively. This im-

Table 8.10 **Wage Distribution in the Public and Private Sectors (1990 U.S. dollars)**

	Gross Weekly Wages				Hourly Wage Rates			
	10th Percentile		90th Percentile		10th Percentile		90th Percentile	
	Wage Level	Ratio to Mean	Wage Level	Ratio to Mean	Wage Level	Ratio to Mean	Wage Level	Ratio to Mean
	United Kingdom (1983)				United States (1979)			
All workers								
Public	110	0.30	632	1.71	4.36	0.42	17.70	1.69
Private	73	0.23	563	1.78	3.79	0.38	17.70	1.77
Public/private	1.50	1.30	1.12	0.96	1.15	1.10	1.00	0.96
Senior managers and professionals								
Public	355	0.57	889	1.44	6.67	0.45	23.61	1.59
Private	237	0.40	984	1.65	5.45	0.38	25.44	1.77
Public/private	1.49	1.42	0.90	0.87	1.22	1.19	0.93	0.90
HEW professionals								
Public	159	0.38	680	1.62	5.63	0.48	17.94	1.53
Private	59	0.17	744	2.11	4.60	0.39	19.85	1.66
Public/private	2.71	2.24	0.91	0.77	1.22	1.25	0.90	0.92
Clerical workers								
Public	154	0.50	453	1.47	4.04	0.56	10.55	1.45
Private	88	0.36	406	1.67	4.18	0.54	11.07	1.43
Public/private	1.75	1.39	1.11	0.88	0.97	1.03	0.95	1.02
Manual workers								
Public	269	0.67	548	1.36	3.60	0.48	11.07	1.47
Private	191	0.54	521	1.46	2.79	0.37	11.30	1.51
Public/private	1.41	1.24	1.05	0.94	1.29	1.28	0.98	0.97
	United Kingdom (1987)				United States (1989)			
All workers								
Public	82	0.25	583	1.77	4.09	0.35	19.71	1.68
Private	61	0.20	571	1.85	3.16	0.30	19.23	1.82
Public/private	1.33	1.25	1.02	0.96	1.29	1.16	1.02	0.92
Senior managers and professionals								
Public	267	0.52	755	1.47	5.77	0.38	24.04	1.60
Private	255	0.43	10.4	1.68	5.38	0.34	30.77	1.72
Public/private	1.05	1.21	0.75	0.88	1.07	1.14	0.78	0.93
HEW professionals								
Public	149	0.38	614	1.57	5.45	0.39	21.63	1.54
Private	65	0.20	659	1.98	3.95	0.29	24.04	1.78
Public/private	2.26	1.90	0.93	0.79	1.38	1.32	0.90	0.86
Clerical workers								
Public	108	0.42	406	1.56	3.85	0.47	11.78	1.43
Private	61	0.27	392	1.75	3.69	0.44	13.19	1.57
Public/private	1.77	1.56	1.04	0.89	1.04	1.06	0.89	0.91
Manual workers								
Public	122	0.37	481	1.46	3.61	0.48	12.02	1.59
Private	124	0.39	490	1.53	2.38	0.38	11.06	1.79
Public/private	0.98	0.95	0.98	0.95	0.66	1.24	1.09	0.89

plies that U.K. public sector wages were less dispersed both below and above the mean than were private sector wages.

It is clear that at both points in time, public sector workers in both countries faced more compressed wage distributions than did private sector workers. For almost every occupation in every year in both countries, both the 10th percentile and the 90th percentile of wages in the public sector are closer to mean public sector wages than are 10th percentile and 90th percentile of wages in the private sector.

Over time, the data in table 8.10 indicate that the wage distribution in the public and private sectors of both countries widens over the 1980s, as both real wages and wages relative to the mean fall at the bottom and rise at the top of the distribution. The widening in the U.S. public sector occurs more slowly, however, so that there is a growing divergence in distribution between the public and private sectors. In contrast, the U.K. public sector appears to experience more widening than the private sector, and the distributions move closer together.

The results in table 8.10 indicate that the public sector was not immune to the distributional changes over the 1980s. Particularly in the United Kingdom, there is little evidence that the public sector did not react to the market forces that led to a widening wage distribution in that country. In the United States, the fact that the distribution of public sector wages did not widen as rapidly as the distribution of private sector wages could be an indication that the public sector is somewhat more protected from market forces and can be seen as evidence of at least somewhat different timing in the adjustment of the public sector to market changes.

8.6 Change and Cyclicality in Employment and Wage Adjustments

The evidence presented above indicates that there were substantial changes in the relative wage position of public sector workers in the United States and United Kingdom over the 1980s. Given the emphasis throughout that decade on the need for greater responsiveness and flexibility in the public sector in both countries, these wage changes can be read as a sign that efforts to increase public sector responsiveness were successful. But observations on two points in time provide limited information on the issue of market responsiveness. This section uses aggregate time series data on employment and wages in the United States and the United Kingdom to investigate the relative flexibility of public versus private sector labor markets in the two countries. There is only a limited amount of research on this topic in the United States[22] and no British research on it to date.

22. Freeman (1987) indicates that state/local employment is countercyclical, while federal employment has little cyclical responsiveness. Katz and Krueger (1991) find that state and local wages appear to move with private sector wages, while federal pay is less responsive to the cycle.

In this section, I return to the NIPA data on employment by sector and subsector within the United States and the United Kingdom. This provides information on U.S. employment and wages since 1948 and on U.K. employment since 1961. Unfortunately, as noted above, the U.K. NIPA do not report wages by sector. The NES data on public/private earnings reported in table 8.4 are only available since 1978, too short a time period for time series analysis. As a result, for the United Kingdom I use alternative wage series from the New Earnings Surveys that are available since 1970.[23] Compared to the U.S. wage data, these data provide much more inaccurate and approximate information on U.K. wages by sector and subsector.

Table 8.11 reports statistics on the general variability in sectoral employment and wages for these two countries. A simple story of "public sector rigidity" would imply that public sector employment and wages both have less variance over time. Column 1 of table 8.11 reports the standard deviation in first differences of log employment over time; column 3 reports the standard deviation in the difference in log wages.[24]

The results for employment and wages in the United Kingdom and the United States are somewhat unexpected. In both countries, the evidence indicates that public sector employment and wages are as variable as or more variable than private sector employment and wages. Within the United Kingdom, employment in public enterprise is particularly variable, largely due to declines in public enterprise employment over the 1980s with privatization. Within the United States, federal military employment is highly variable, while overall federal civilian employment shows much less variability. The U.K. wage data show somewhat higher variability in the public sector, although the more questionable nature of this data makes firm conclusions about U.K. wages difficult. There is little evidence of substantial variance in U.S. wages in either the public or private sectors.

The results in columns 1 and 3 of table 8.11 indicate that there is at least as much change occurring in employment and wages within the public sector as within the private sector, although the amount of variability differs by subsector. But it is not entirely clear how to interpret these results. There are at least two more causal questions that a simple standard deviation coefficient cannot

23. For private sector workers, I use average weekly wages among all workers. I use weekly wages among workers in the industry designated as "public administration" as a proxy for overall public sector wages. Among all central government workers, I use average weekly wages among executive-grade workers covered by national wage agreements; for local government workers, I use wages among administrative-, professional-, and technical-grade local government workers covered by national agreements. For National Health Service workers, I use wages among nurses and midwives covered by national agreements. For education workers, I use an occupational wage series for elementary and secondary teachers; for the police, I use an occupational wage series on police. See appendix A for more detailed descriptions.

24. I have also duplicated this analysis using standard deviations in the level value of log employment and log wages, as well as standard deviations in the residuals of a regression of log employment against a time trend. The results are similar to those reported here for log first differences.

Table 8.11 **Variability in Public and Private Sectors for Log Employment and Log Wages (standard errors in parentheses)**

	Employment			Real Wages		
	Standard Deviation in Log First Difference (1)	Regression Coefficient on Change in Log per Capita Disp. Income[a] (2)		Standard Deviation in Log First Difference (3)	Regression Coefficient on Change in Log per Capita Disp. Income[b] (4)	
United Kingdom						
Private sector	.023	.059	(.077)	.023	.377*	(.174)
Public sector	.022	−.003	(.073)	.040	.058	(.346)
Central—all	.019	.023	(.063)	.078	.437	(.668)
Central—NHS	.029	−.018	(.094)	.079	−.788	(.656)
Central—civilian (except NHS)	.025	.047	(.081)	—	—	
Local—all	.025	.019	(.084)	.040	−.140	(.341)
Local—education	.030	.018	(.100)	.072	.133	(.622)
Public enterprise	.065	−.085	(.216)	—	—	
United States						
Private sector	.026	1.127**	(.164)	.013	.232*	(.118)
Public sector	.038	.396	(.348)	.018	.136	(.166)
Federal—all	.070	.597	(.642)	.028	.208	(.260)
Federal—civilian	.040	.443	(.365)	.026	.139	(.245)
State/local—all	.017	.062	(.156)	.017	.022	(.161)
State/local—education	.019	.161	(.178)	.021	−.084	(.192)
Public enterprise	.021	−.039	(.196)	.020	.187	(.187)

Sources: U.K. employment: 1961–90 NIPA data; U.K. wages: 1970–90 New Earnings Survey data (see Appendix A for definitions). U.S. employment: 1948–90 NIPA data; U.S. wages: 1948–90 NIPA data.

[a]Regression is $\Delta\log(\text{employment}) = \alpha + \beta^*\Delta\log(\text{real disposable income/population})$

[b]Regression is $\Delta\log(\text{real wage}) = \alpha + \beta^*\Delta\log(\text{real disposable income/population})$

*Significant at 10 percent level.

**Significant at 1 percent level.

address. First, it would be interesting to know how public versus private sector employment and wages respond to cyclical change. Second, it would be interesting to know how public and private sector employment responds to demand changes. For instance, a finding that education employment is nonresponsive to the cycle may be irrelevant if educational demand moves noncyclically.

Columns 2 and 4 of table 8.11 provide some very simple correlations between aggregate economic cyclicality and changes in sectoral employment and wages. These columns report the regression coefficient on changes in real per capita disposable income, regressed against changes in log employment (column 2) or changes in the log of real wages (column 4). The results in these

columns provide a very simple measure of the contemporaneous correlations between aggregate demand movements and changes in sectoral labor markets.[25] In the United States, changes in private sector employment are strongly positively correlated with contemporaneous movements in real per capita disposable income. Changes in public sector employment are also positively correlated with change in disposable income, but the effects are much smaller in magnitude. In the United Kingdom, the correlation of changes in employment to changes in per capita disposable income is weak and insignificant in both the private and the public sectors of the economy.

U.S. wages are consistently procyclical in all sectors but are somewhat more cyclically correlated in the private sector than in the public sector. Federal wages appear to be more responsive to changes in per capita disposable income, while state and local wages (particularly in education) are relatively unaffected by these changes. U.K. wages are available for a much shorter time period and are less well measured by sector, as discussed above. Private sector wages show stronger cyclical correlation than public sector wages. For both countries, there is little evidence that local wages move with changes in per capita disposable income. Wages in the U.K. National Health Service appear rather strongly countercyclical.

The results in table 8.11 indicate that contemporaneous employment and wage changes in the private sector are generally more correlated with cyclical movements in the economy than are such changes in the public sector, although employment in the United Kingdom is not very cyclical in either sector. Changes in per capita disposable income, however, do not provide a good measure of demand for many government functions. For instance, health or education employment should move with the demand for those services, which may or may not be cyclical. In fact, certain federal functions in both countries are explicitly designed to grow countercyclically. In addition, table 8.11 presents only contemporaneous correlations. Employment and wage responses to demand changes may occur over time rather than instantaneously.

In order to more fully understand the relationship between changes in aggregate demand and changes in employment, an obvious approach is to turn to vector autoregressions. With annual data on only a small number of years, the usefulness of time series analysis may be limited, but it can provide some indication of how employment is related to demand changes over time.

I have run a variety of vector autoregression models. The specification reported in this paper for U.S. data is a four-equation system with two lags. The four equations estimated are (in sequence):

$$(1) \quad \mathrm{UR}_t = f(\mathrm{UR}_{t-1}, \mathrm{UR}_{t-2}, \mathrm{DispY}_{t-1}, \mathrm{DispY}_{t-2}, \mathrm{PubW/PrivW}_{t-1,j}, \mathrm{PubW/PrivW}_{t-2,j}, \mathrm{Employ}_{t-1,j}, \mathrm{Employ}_{t-2,j});$$

25. These results are quite sensitive to specification. Using level values rather than changes, the results change markedly with different specification of the time trend. The first-difference estimates are somewhat more stable across specifications but—as is typical with first differences—show less significant results.

$$(2)\quad \text{DispY}_t = f(\text{UR}_t, \text{UR}_{t-1}, \text{UR}_{t-2}, \text{DispY}_{t-1}, \text{DispY}_{t-2}, \text{PubW/PrivW}_{t-1,j}, \text{PubW/PrivW}_{t-2,j}, \text{Employ}_{t-1,j}, \text{Employ}_{t-2,j});$$

$$(3)\quad \text{PubW/PrivW}_{t,j} = f(\text{UR}_t, \text{UR}_{t-1}, \text{UR}_{t-2}, \text{DispY}_t, \text{DispY}_{t-1}, \text{DispY}_{t-2}, \text{PubW/PrivW}_{t-1,j}, \text{PubW/PrivW}_{t-2,j}, \text{Employ}_{t-1,j}, \text{Employ}_{t-2,j});$$

$$(4)\quad \text{Employ}_{t,j} = f(\text{UR}_t, \text{UR}_{t-1}, \text{UR}_{t-2}, \text{DispY}_t, \text{DispY}_{t-1}, \text{DispY}_{t-2}, \text{PubW/PrivW}_{t,j}, \text{PubW/PrivW}_{t-1,j}, \text{PubW/PrivW}_{t-2,j}, \text{Employ}_{t-1,j}, \text{Employ}_{t-2,j});$$

where UR is the national unemployment rate, DispY is real disposable per capita income, PubW/PrivW_j is the log difference between public sector wages in the jth branch of the public sector and private sector wages, and Employ_j is the per capita employment in the jth branch of the public sector.[26] I will interpret changes in real disposable per capita income as an approximate measure of changes in aggregate private sector demand.

To measure the effects of changes in government demand in branch j on government employment in branch j, I estimated a second system of equations, replacing real disposable per capita income with total government expenditures on goods and services on the jth branch of the public sector. For instance, this meant that one system of equations was run using unemployment rates, real state and local expenditures on goods and services in education, log differences between public sector wages in education and aggregate private sector wages, and state and local employment in education. While I could potentially include both government expenditures and disposable income per capita in the same system of equations, they are highly intercorrelated (their contemporaneous correlation coefficient is .987). Because I think that increases in government demand (government expenditures on goods and services) are conceptually somewhat different from increases in overall aggregate macroeconomic demand (per capita disposable income), I chose to estimate two separate systems of equations.

Within the United Kingdom, I used an identical specification, with two differences. First, I used the vacancy rate rather than the unemployment rate in the United Kingdom. Empirically, this made little difference, and the vacancy rate is probably a better measure of economic cyclicality. Second, I omitted the third equation and all data on public/private wage ratios from the U.K. estimates. I did this because the U.K. wage data was only available from the early 1970s, which seriously limited the usefulness of time series estimation. In addition, as noted above, these data are not a very accurate measure of sectoral wage levels.

The results from these vector autoregressions can only be viewed as indica-

26. I experimented with using GDP rather than disposable income, and it made no difference. Reordering unemployment and disposable income or reordering the wage ratio and employment in the system of equations also did not make a substantial difference.

tive. With annual data, the number of observations is limited and the model extremely simple. In addition, disposable per capita income and government expenditures on goods and services are uncomfortably endogenous measures of private and public sector demand. At best, these models provide only an approximate indication of the employment elasticity response to changes in private or public demand, although they probably provide superior estimates to the older cross-section literature that investigates this question.[27]

The estimation results from running these systems of equations for all sectors and subsectors for which I have employment data produce a host of coefficients. In order to summarize the results of these estimates, I estimated a series of impulse-response models. Essentially, these use the coefficients in the estimated system to calculate the effect of a 1 standard deviation exogenous shock to one of the variables on the succeeding variables in the model. I am interesting in looking first at the effect of an exogenous increase in per capita disposable income (interpreted as an exogenous increase in macroeconomic growth) on employment in the *j*th branch of the public sector, as estimated by the first system of equations. The second system of equations gives me impulse-response estimates of the effect of an exogenous increase in government expenditures in the *j*th branch of the public sector on employment in the *j*th branch of the public sector.

The results from these impulse-response models are shown in table 8.12. What I show is the contemporaneous effect of the shock on employment and the cumulative effect one year and three years after the shock occurs. I am primarily interested in the cumulative long-term effects, but these three effects together indicate the path of the response. In a number of cases, as we shall see, initial negative responses turn into substantial positive responses over time and vice versa. Columns 1 to 3 show the employment response in each category to shocks in government spending on goods and services in that category. Columns 4 to 6 show the employment response to shocks in real per capita disposable income. The coefficients in table 8.12 can be interpreted as the proportional change in the relevant employment variable resulting from a 1 standard deviation change in the relevant exogenous variable. For instance, the first row indicates that a 1 standard deviation increase in per capita disposable income produces a contemporaneous 0.13 percent increase in private sector employment, a 0.39 percent increase in private sector employment one year later, and a cumulative 1.04 percent increase three years out.

Look first at columns 1 through 3. The private sector coefficients indicate whether or not an increase in government spending on goods and services has any expansionary or contractionary effect on private sector employment. Within the United Kingdom, increases in government spending on goods and

27. An earlier public finance literature attempts to measure these elasticities by regressing aggregate employment against contemporaneous measures of expenditure and other variables (e.g., Ashenfelter 1977).

Table 8.12 **Impulse Response Effects in Log (Employment) One Year After a 1 Standard Deviation Shock in Real Public Expenditure or in Real Disposable Income per Capita (standard deviations in parentheses)**

Employment Category	Percentage change after shock in: Log (Appropriate Government Expenditure Category)			Log (Real per Capita Disposable Income)		
	Contemporaneous (1)	1 yr. out (2)	3 yrs. out (3)	Contemporaneous (4)	1 yr. out (5)	3 yrs. out (6)
United Kingdom						
Private sector	−0.42*	−0.63	−0.83	0.13	0.39	1.04*
	(0.30)	(0.60)	(1.25)	(0.26)	(0.42)	(0.70)
Public sector	0.18	0.26	−0.26	0.05	−0.14	−0.94*
	(0.27)	(0.43)	(0.73)	(0.31)	(0.33)	(0.49)
Central—all	0.55**	1.06**	1.16*	0.52**	0.50	0.85
	(0.21)	(0.38)	(0.79)	(0.21)	(0.40)	(0.75)
Central—NHS	0.76**	2.14**	2.90**	0.47*	0.64	0.84
	(0.29)	(0.60)	(1.13)	(0.34)	(0.63)	(1.19)
Central—civilian (except NHS)	0.17	0.18	−0.25	0.31	−0.21	−0.72
	(0.37)	(0.62)	(1.05)	(0.36)	(0.58)	(0.82)
Local—all	1.08**	0.99*	0.65	0.21	0.17	−0.33
	(0.34)	(0.50)	(0.54)	(0.32)	(0.50)	(0.48)
Local—education	0.77**	0.85*	0.05	0.05	−0.09	0.75
	(0.32)	(0.48)	(0.64)	(0.29)	(0.45)	(0.63)
Public enterprise	2.49**	2.93**	2.55*	0.13	0.002	−0.92
	(0.74)	(1.01)	(1.82)	(0.94)	(1.15)	(1.57)
United States						
Private sector	−0.51**	−0.58*	−0.37	0.39**	1.34**	0.71**
	(0.12)	(0.36)	(0.44)	(0.13)	(0.35)	(0.28)
Public sector	1.61**	0.49	−0.68	−0.40	1.32**	1.53*
	(0.26)	(0.54)	(0.73)	(0.34)	(0.54)	(0.67)
Federal—all	3.02**	1.14*	−0.32	−1.45**	1.58*	1.74*
	(0.53)	(0.85)	(1.02)	(0.59)	(0.89)	(0.93)
Federal—civilian	0.64*	−0.12	1.46**	−0.62*	1.31**	1.28**
	(0.34)	(0.45)	(0.38)	(0.34)	(0.51)	(0.45)
State/local—all	0.22*	0.48*	1.06*	0.10	0.12	0.42
	(0.13)	(0.24)	(0.48)	(0.14)	(0.25)	(0.41)
State/local—education	0.28*	0.45*	0.74*	−0.06	0.05	0.25
	(0.18)	(0.25)	(0.54)	(0.16)	(0.29)	(0.47)
Public enterprise	0.57*	0.66*	0.23	−0.06	0.40	0.71*
	(0.25)	(0.33)	(0.48)	(0.26)	(0.33)	(0.41)

Note: See text for description of VAR models underlying these impulse-response coefficients.

*Significant at 10 percent.

**Significant at 1 percent.

services seem to come at the expense of the private sector. Three years out, private employment has declined by slightly less than one percent (−0.83). Strikingly, while the initial effect of an increase in government spending on public employment is positive, its longer-run effect is essentially zero. This implies that in the United Kingdom, government spending does not have any long-run employment-increasing effects in either the public or the private sectors.

The employment response in the United States to government spending on goods and services is only slightly different. As in the United Kingdom, government spending reduces private sector employment, although by a smaller amount (−0.37) over three years. The initial effect on public sector employment is very strong (a 1.61 percent rise), but the long-term effect is relatively large and negative, with a large standard error. Thus, increases in overall government spending on goods and services appear to have few employment-enhancing effects in the long run in either country.

Different subsectors within the public sector respond quite differently to expansions in expenditures on goods and services within their own subsector. Within the United Kingdom, a 1 standard deviation increase in expenditure on goods and services within the National Health Service produces close to a 3 percent increase in NHS employment over three years. Central civilian expenditures, however, have small effects on civilian central employment. Increases in local expenditures produce about a 0.65 percent increase in local government employment, although the elasticity of education employment to education expenditures is substantially lower. Public enterprise expenditures have large employment effects.

Within the United States, federal civilian spending appears to produce substantial increases in federal civilian employment. A 1 standard deviation increase in state and local government spending results in a 1.06 percent increase in state and local employment after three years; education spending also produces long-run employment growth. Public enterprise spending has a very low employment elasticity in the United States.

Changes in aggregate public demand (as measured by per capita disposable income) produce different effects. A 1 standard deviation increase in disposable income translates into between a 0.71 (U.S.) and a 1.04 (U.K.) percent increase in private sector employment three years out. In the United Kingdom we again see a trade-off between public and private sector employment. Disposable income increases actually have a long-term negative effect on overall public sector employment. There is little evidence of employment trickle-down from the macroeconomy to the public sector. There are differences in the extent to which subsectors are affected by disposable income growth, but in general the public sector in the United Kingdom is far less affected (or even negatively affected) by overall demand expansions than the private sector is.

The U.S. results are strikingly different. Growth in disposable income actually produces larger long-term increases in public sector than in private sector

employment, primarily due to large employment elasticities at the federal level. In general, the U.S. economy appears to have a very different relationship between its public and private sectors, as measured by these estimates. While expansions in public sector demand have few employment effects outside of a few subsectors of government, expansions in private demand spill over into both sectors and expand employment in the long run. The United Kingdom appears to be much more balkanized between the sectors. Expansion in private disposable income has a net negative effect on public sector employment, while growth in public sector expenditures causes employment contractions over the long term in both sectors. These results are striking, given many of the similarities in the characteristics of the U.S. and U.K. public sectors that we observed earlier in this paper. In general, even though the public sectors in the two countries appear to attract a similar mix of workers and to repay them in somewhat similar ways, the larger macroeconomic relationships between these two sectors seem quite different, perhaps reflecting differences in unionization, government behavior, the openness of the economy to international competition, and macroeconomic structure.

8.7 Conclusions

This paper has investigated the relative differences in the public and private sectors in the United States and the United Kingdom, with particular attention to the question of how expansions in these two sectors affect the labor market. There are some striking similarities between the two countries: Both countries hire public sector workers who are more skilled, older, and more likely to be in professional or service occupations. Both countries show evidence of paying higher wages to certain groups of public sector workers, particularly women. Both countries have seen these wage differentials erode over the 1980s, particularly among senior public managers, and both have seen a widening of both public and private sector wage distributions.

The differences between the countries are also striking. The aggregate relationships between public and private sector spending and public and private sector employment in the two countries is quite different, with the United States showing much greater feed-through between the sectors and generally greater employment responsiveness to demand changes. The exact reasons underlying this difference are hard to judge with the data available here. In addition, the United States shows smaller public/private wage differentials in general and has seen a greater divergence in the distribution of wages in the public versus the private sector over the last decade.

The results also indicate that different groups within the public sector exhibit very different wage and employment behavior. It is hard to infer the expected effect of changes in public sector demand without specifying the exact nature of any particular change. Decreased government spending on education

will have a very different effect than decreased government spending on public enterprises. There is enormous variance in the employment and wage outcomes in different subsectors of the public sector and in their changes over time.

My general conclusion is that on the basis of the data in this paper, which admittedly provide only a partial picture of the public sector, there is little evidence within the United States of substantial inflexibilities emerging from the public sector. There is evidence over the 1980s that the wage-setting process has responded to attempts to align public and private wages more closely. Public sector wages and employment demonstrate substantial variability over time. The response of public and private sector employment to changes in public and private sector expenditures is generally similar. The most striking evidence of less flexibility in the public and private sectors is that the most-skilled and the least-skilled workers in the public sector have not seen their wages adjust as rapidly as in the private sector, while real wage changes for both of these groups have occurred over the 1980s. This is to the disadvantage of more-skilled workers, whose wages seem to be unduly low at this point relative to their private sector counterparts. But it is to the advantage of less-skilled workers, whose public sector wages appear not to have fallen as rapidly as their private sector counterparts.

Within the United Kingdom, there is also substantial evidence of labor market flexibility in the public sector. Public/private wage differentials are larger than within the United States, but they have also declined more rapidly over the 1980s. Wage distributions in the public sector have moved closer to private sector distributions. The primary evidence of inflexibility in U.K. public sector labor markets is that public sector employment does not appear to respond substantially to changes in overall demand. The very different relationship between demand changes and employment elasticities in the United Kingdom compared to the United States clearly deserves more research.

Overall, this paper provides little evidence that major contractions in the size of the public sector will produce substantially more flexible aggregate labor market outcomes. Contractions in the public sector, however, will clearly disadvantage certain workers and advantage others. In addition, the specific effects of any change in public sector size will depend heavily upon which particular subsectors within the public sector are shrinking and will vary by size of establishment and level of government.

Appendix A
Data Sources

National Income and Product Accounts (NIPA)

United States

Annual employment and annual wage data for full-time equivalent workers by public and private sector and by various subsectors of the public sector are available for the years 1948–90. Source: *Survey of Current Business,* U.S. Department of Commerce, Bureau of Economic Analysis.

United Kingdom

Employment data by public and private sector and by various subsectors of the public sector are available for the years 1961–90. Full-time equivalent employment is available only in more recent years. Source: *Economic Trends,* Central Statistical Office.

New Earnings Survey (NES): United Kingdom

Average weekly earnings, excluding those whose pay was affected by absence, for full-time male and female workers by occupational category, industry category, and for various national bargaining units, are available for the years 1970–91. Source: *New Earnings Survey,* Department of Employment, Government Statistical Service. (Annual publication.)

For the years 1978–91, average weekly earnings are available for private sector, public sector, central government, local government, and public enterprise workers. In order to obtain wages over a longer time period for the calculations reported in section 8.6, I used the NES data from 1970 to 1991, approximating the different sectors with the following wage series. (In all cases, I created a total wage series with a weighted average of wages among male and female workers in each category, using the share of observations among men and women in the category for weights.)

Private Sector. Wage series for all workers.

Public Sector. Wages for nonmanual workers in the public administration industry.

Central Government. Wages for civil service, executive-grade workers covered by national wage agreements.

National Health Service (Central Subsector). Wages for female nurses and midwives, National Health Service, covered by national wage agreements.

Local Government. Wages for local authorities, administrative, professional, and technical grades, covered by national wage agreements.

Education (Local Subsector). Wages for workers in the elementary and secondary occupation.

Police (Local Subsector). Wages for male workers in the police occupation.

Current Population Survey (CPS): United States

Collected monthly in the United States by the U.S. Bureau of the Census. Each March a special supplement asks about income and employment experiences of workers over the previous year. Available on tape from the Bureau of the Census.

General Household Survey (GHS): United Kingdom

Collected annually in the United Kingdom by the Social Survey Division of the Office of Population, Censuses, and Surveys (OPCS). Contains information on earnings, income, and demographic characteristics over the last pay period. Available on tape from the ESRC data archive at Essex University.

Appendix B

Occupational Categories for the United States and United Kingdom

Occupational classification codes from the CPS for the United States and key occupational statistics (KOS) from the GHS for the United Kingdom are used in this paper. There are two types of comparability problems with this data. First, within the United States, occupational codes change between the 1980 and 1990 CPS surveys and can only be matched approximately in some cases. Second, the U.S. and U.K. occupational categories are not identical. Although the GHS (U.K.) data provide a very detailed KOS breakdown in 1987 that can be generally although not precisely matched with the U.S. occupational classification codes, this detailed breakdown is not available in the U.K. data in 1983. Thus, this report uses relatively aggregate occupational comparisons between the United States and the United Kingdom that are only approximately comparable.

The four occupational categories used in tables 8.6 and 8.7 can be defined as follows:

United Kingdom

Senior Managers and Professionals. KOS category 1. Includes senior managers in professional and related occupations (excluding managers in health, education, and welfare–related professions) and senior supporting management; also senior national and local government managers.

Health, Education, and Welfare Professionals. KOS category 2. Professional and related occupations in education, welfare, and health.

Clerical Workers. KOS category 6. Clerical and related occupations.

Manual Workers. Semiskilled manual workers, tallied in compact socioeconomic group category 13.

United States

Senior Managers and Professionals. 1990: Senior executive, administrative, and managerial occupations (code numbers 3–19). 1980: A matched group of 1980 occupational categories, designed to mimic the 1990 category.

Health, Education, and Welfare Professionals. 1990: Health occupations, teachers, social scientists and urban planners, and social, recreation, and religious workers (code numbers 84–177). 1980: A matched group of 1980 occupational categories, designed to mimic the 1990 category.

Clerical Workers. 1990 and 1980: Secretaries, stenographers, and typists.

Manual Workers. 1990: Cleaning and building service occupations, except household (code numbers 448–55). 1980: Cleaning service workers.

Note that these last two occupational categories for the United States are more narrowly defined than are their U.K. equivalents.

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