

Public Pay in Britain in the 1990s

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Published by

The Institute for Fiscal Studies
7 Ridgmount Street
London WC1E 7AE
Tel: +44-171-291 4800
Fax: +44-171-323 4780
Email: mailbox@ifs.org.uk
Internet: <http://www.ifs.org.uk>

© The Institute for Fiscal Studies, November 1998

ISBN 1-873357-83-4

Printed by

KKS Printing
The Printworks
12-20 Rosina Street
London E9 6JE

Acknowledgements

This Commentary was financed by the Economic and Social Research Council (ESRC) under grant R000236371: Trends in public sector pay differentials and pay dispersion in the 1980s and 1990s, and by the ESRC-financed Centre for the Microeconomic Analysis of Fiscal Policy at the Institute for Fiscal Studies. Andrew Dilnot, Christian Dustmann, Paul Johnson and Steve Machin are acknowledged for their contribution to the ideas in, and comments on, this Commentary.

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Executive summary

The following are among our findings in this Commentary:

- In the ‘raw’ data from successive New Earnings Surveys — that is, comparing *average* public sector wages with *average* private sector wages — public sector workers are paid more than private sector workers, especially women. There is no evidence of any adverse trend in public sector pay relative to private sector pay in the ‘raw’ data series between the late 1970s and the mid-1990s.
- There is strong evidence that public sector workers do relatively better in recessions and private sector workers do relatively better in booms, i.e. the public–private sector wage differential is *countercyclical*.
- There have, however, been dramatic changes in the occupational composition of the public sector in the last 20 years: that is, in the type of jobs and the type of people employed in those jobs. When we correct the ‘raw’ differentials for these changes in occupational composition, a very different pattern of public sector pay emerges from the New Earnings Survey time-series data. There is still strong evidence of countercyclicity in the public–private sector wage differential. But the average differential is much smaller and declining over time. For women, the public–private sector pay differential has halved from around 16 per cent in the early 1980s to around 8 per cent in the early 1990s. For men, the differential, when corrected for occupational composition, has declined from around 8 per cent to 0 per cent in the same period.
- Economists’ theories suggest that pay bargaining mechanisms and worker characteristics differ between the private and public sectors. Changes in public sector management and composition in the 1980s would suggest greater convergence of average pay *levels* in the public and private sectors. This has broadly occurred but there are growing differences in pay *inequality* between and within each sector.
- We examine whether particular types of workers earned pay ‘premiums’ or ‘penalties’ in the public sector relative to the private sector in the period 1983–95, using the General Household Survey and successive waves of the British Household Panel Survey. We find that, generally speaking, women did better than men in the public sector relative to the private sector, but that this varies across type of job and occupation. Civil servants and, to a lesser extent, local government officers did better than workers with similar qualifications in the private sector. Likewise, pay was disproportionately highest for women in the public sector with school-leaving qualifications and in lower-grade non-manual jobs. Conversely, people with degrees fared less well in the public sector than in the private sector, as did people without any school qualifications, after controlling for union status.
- One possible reason why public sector workers do better in terms of pay might be that private sector workers have better access to fringe benefits or more attractive working conditions. There is no strong evidence for this; indeed, public sector workers fare better in a number of dimensions, notably access to occupational

pension schemes and to trade unions (which may help to improve working conditions). Nor is there evidence that, as the relative position of public sector workers has deteriorated in terms of pay, access to fringe benefits has improved.

- Pay is significantly less unequal in the public sector. Looking at different deciles of the wage distribution, the returns to education and age in the public sector vary inversely with income level, with women again doing better than men on average. This 'inequality-reducing effect' of the public sector has, in general, increased between 1983 and the first half of the 1990s. This is because, while pay inequality has increased in both sectors, it has increased much faster in the private sector. However, some lower-paid groups — notably unskilled manual workers in the public sector — have fared less well over the period.

1. Introduction

1.1 Setting the scene

Public pay setting continues to make the headlines. In the first half of 1998, private sector earnings growth exceeded an annual rate of 5 per cent, whereas public sector earnings grew at a rate of less than half that figure. However, the Chancellor of the Exchequer is determined to keep the lid on public spending and to resist pressure to accelerate public sector pay growth.

The stance of the Chancellor has already roused the wrath of the public sector trade unions, but their anger will be further heightened if the government presses ahead in its determination to increase pay differentiation within public sector occupations. Already, moves are afoot to pay teachers different amounts according to criteria such as measured productivity and achievement levels. There are also serious attempts to link pay in other parts of the public sector to local labour market conditions in, for example, the National Health Service. This may be done directly, by decentralised bargaining, or indirectly, by adjusting central government expenditure disbursements to reflect differences in private rates of pay in local markets, so that public sector workers in areas of traditionally lower pay may find their earnings growth reduced.

Although discrepancies between private and public sector pay increases might seem to be a familiar part of the industrial relations story in the UK over the last two decades, the background is now very different. The public sector has changed dramatically in that period. Public sector employment is a much lower share of total employment and the public pay bill a significantly lower proportion of the total pay bill than in 1979. And although the residual strength of trade unions in Britain lies in the public sector, the overall significance of trade unions in pay determination has been diminished by almost two decades of falling membership, reduced union recognition for collective bargaining and political marginalisation. Furthermore, the composition of the public sector work-force has changed due to contracting-out of many services and the introduction of private sector financial management techniques into the public sector. All these factors have affected public sector pay determination and the capacity of public sector employees to respond to a perception that public sector pay is lagging behind the private sector.

1.2 Contents

This Commentary therefore investigates a number of questions.

First, how have public sector workers fared relative to private sector workers since the early 1970s — in particular, did they do significantly worse in terms of pay under the 18 years of Conservative government from 1979 to 1997? Amongst public sector workers, which groups have been the gainers and losers?

Second, how has the composition of the public sector work-force changed? How have policies towards the public sector, such as privatisation, contracting-out and the establishment of agencies and autonomous trusts in the health sector, affected the public

sector work-force? To what extent have these compositional changes influenced the trend in public sector wages?

Third, which particular public sector workers obtain a pay 'premium' or 'penalty' relative to similarly qualified workers in the private sector? Why *should* particular groups of public sector workers fare better or worse than their private sector counterparts? What are the implications of pay disparities between private and public sector workers for the quality and efficiency of the provision of public services?

Finally, what is likely to happen to public sector pay in the immediate future — will there be a 'pay explosion' in the public sector? Can, and should, a Labour government enforce tough controls on the public pay bill? Indeed, with increased fragmentation of public sector institutions and agencies, is 'control of the public sector pay bill' a sensible target of government policy? How will the public sector work-force and pay bill be affected by other government policies, such as the introduction of a minimum wage?

2. Pay and employment in the public sector since 1979

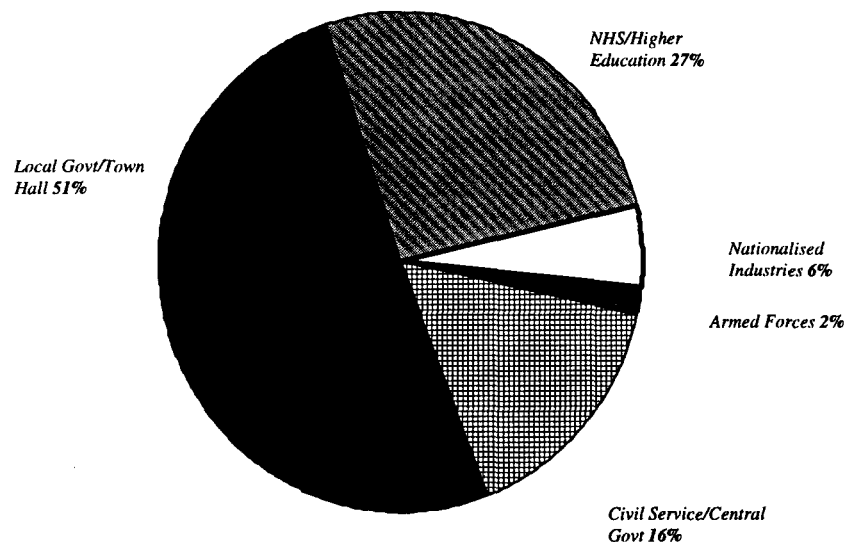
2.1 The importance of public sector pay and employment in the economy

Public pay costs currently make up just under a third of public expenditure — in 1995, £95.8 billion of total government spending of £300 billion.¹ This pay bill is a substantial sum of money, so what happens to public sector pay over time has a major influence on the path of government spending and on whether government targets for debt and net borrowing can be achieved.

Likewise, public sector employment remains a major component of total employment: in 1995, around 5 million employees out of total employment (excluding the self-employed) of just over 22 million were in central and local government, public corporations and governmental non-profit organisations — 23 per cent of total employment. In addition, the public sector bought in many services provided by private sector employees.

Aggregate government statistics reveal that the public sector employs about one in four of the employed work-force (excluding the self-employed) over the period 1991–95. Figure 2.1 uses data from the British Household Panel Survey (BHPS) to show the composition of the public sector work-force.²

Figure 2.1. The composition of the public sector work-force^a



^aThe NHS and higher education are added together in the statistics as other autonomous components of the public sector.

Source: Pooled BHPSs, 1991–95.

¹Using National Accounts data. The Public Expenditure Spending Plans give a somewhat lower proportion, since some purchases within the government sector — for example, purchases of NHS trust services by GPs — may be treated as provision of ‘goods and services’.

²The proportion of public sector workers in the BHPS sample used in this analysis is slightly higher than that in official statistics, at about 27 per cent. The BHPS undersamples workers in the armed forces (because it is a household survey) and slightly oversamples workers in local government.

Table 2.1. Educational qualifications and age of public and private sector workers

	<i>Men</i>		<i>Women</i>	
	Private sector	Public sector	Private sector	Public sector
<i>Highest educational qualification</i>				
Higher degree	1.9%	6.0%	0.6%	1.3%
First degree	9.9%	18.4%	6.4%	9.8%
HND/HNC	5.8%	10.5%	3.3%	5.7%
A level	22.0%	21.3%	15.0%	15.0%
O level	28.2%	23.4%	34.9%	33.7%
CSE	6.9%	4.3%	7.7%	6.4%
None	25.3%	16.2%	32.1%	28.1%
Mean age	36	39	36	39

Source: Calculated by authors from pooled BHPSS, 1991–95.

The characteristics of public sector workers differ from those of private sector workers in a number of ways. The public sector contains a disproportionate number of female employees: about 60 per cent of the public sector work-force is made up of women, compared with about 45 per cent of the private sector. Many more women than men work part-time, and so it is not surprising to find that there is a correspondingly higher proportion of part-time workers in the public sector. A greater proportion of the work-force have degrees in the public sector than in the private sector, reflecting the large numbers of teachers, civil servants, doctors and other professionals. Public sector workers are also, on average, slightly older than private sector workers. These compositional differences in educational qualifications and age are set out in Table 2.1. In addition, the nature of public sector work-places also differs from that of private sector ones: for example, they are more likely to be unionised (Millward, Stevens and Smart, 1992; Disney, Gosling and Machin, 1995).³

In addition to the direct role of public sector pay and employment in the labour market, both public sector pay and employment determination have indirect effects on other parts of the labour market. For example, in fields where public provision is still dominant, such as health and education, pay bargaining in the public sector will also have an impact on private sector pay setting, as well as on pay in comparable occupations. More indirectly, public pay setting at the lower end of the pay distribution will have an impact on other components of the government's budget, such as payment of tax credits to low-paid families.

However, although the public pay bill and employment are substantial proportions of total pay and employment, they are significantly less so than a decade ago. In 1985, public pay accounted for 39 per cent of total public spending and almost 36 per cent of total employment. It is unusual to see such large changes in relative pay shares and employment in an economy in such a short space of time. The last two decades have seen major policy changes towards public sector employment, including widespread

³According to the 1990 Workplace Industrial Relations Survey, 91 per cent of public sector establishments recognise unions for manual workers, and 98 per cent for non-manual workers. In the private sector, the respective figures are 44 per cent and 28 per cent. (Disney, Gosling and Machin, 1995, Table 1.)

Table 2.2. Probability of having no qualifications in the public sector

	1983 (GHS data)	1991–95 (BHPS data)
Men	-0.060*	-0.093*
Women	-0.030	-0.135*

* indicates that the coefficient is statistically different from zero at the 5 per cent confidence level.

Note: Figures show the probability that a low-educated man or woman is in the public sector *minus* the probability that a non-low-educated man or woman is in the public sector.

contracting-out of services previously provided by public bodies, privatisation of nationalised industries and attempts to introduce efficiency gains and productivity measures into public sector pay determination. These have all played a part in the declining importance of the public pay bill. The effects of these policies on the public sector labour market are discussed next. Even so, public pay and employment are still major determinants of public spending, and the time path of those aggregates remains of central importance to government policy.

One consequence of the changing nature of the public sector is that some occupational differences between the public and private sectors have narrowed, while others have increased. For example, Table 2.2 compares statistically the relative probability that someone with no formal qualifications will be in the public sector. An (asterisked) negative coefficient shows that an unqualified person is (significantly) *less* likely to be in the public sector. It can be seen that, in 1983, men with no qualifications are 6 per cent less likely to be in the public sector, although there was no significant difference in skill composition for women. Contrast this finding with the later period. Between 1983 and 1991–95, the skill discrepancy has been increased by such policies as contracting-out. As a result, by the later period, the probability of an unqualified person being in the public sector has decreased still further and is significantly lower for both men and women.

2.2 Institutional and compositional changes in public sector wage determination in the 1980s and 1990s

As mentioned in Section 2.1, public sector employment has declined steadily in recent years, from 7.45 million people in 1979, by 30 per cent, to 5.23 million in 1995.⁴ Privatisation, contracting-out and a general trend reduction in 'core' public sector employment have been the main causes of this change. In addition to quantitative changes, however, there has also been radical restructuring within the public sector, especially concerning the provision of health care, civil service functions and public sector pay management.

Privatisation and competition policy

Throughout the 1980s and until 1995, the privatisation programme resulted in a total of 750,000 jobs being taken out of the public sector. This total included British Telecom

⁴Public sector employment has continued to fall but official statistical sources differ in their treatment of public sector employment. For example, in 1996 there were 80,000 fewer full-time equivalents employed in the public sector than in 1995.

(250,000 jobs in November 1984), gas (89,000 jobs in December 1986), water (40,000 jobs in December 1989) and electricity (119,000 jobs in December 1990), as well as jobs in ports, ships, buses and airports. A further component, in the form of British Rail, was privatised in 1996, leading to a further reduction in public sector employment. After privatisation, most of the industries have been price- and quality-regulated, but investment, profits, and pay and employment have, in principle, been left to find their own market levels, even though 'excess' profit levels may have triggered regulatory reviews. This has led to substantial employment reductions in many, but not all, areas (the water industry is an exception), and pay differentials across workers within each of these industries have been widening.

This phenomenon of widening inequality is illustrated in Table 2.3, using a simple differencing methodology. It examines '90/10 ratios' (that is, the ratio of the wage of an individual at the 90th percentile to the wage of an individual at the 10th percentile) averaged across 'all production industries' (All P) relative to 'gas, electricity and water' (GEW), which were privatised in the late 1980s. As is demonstrated in more detail below, wage inequality was rising throughout the period: for example, the table shows that, among non-manual men in all production industries, the 90/10 ratio rose by 20 per cent between 1979 and 1988 (' $\Delta 90/10$, all production industries'). It will be noticed, however, that wage inequality in GEW increased at a much slower rate over this period, especially among manual workers, when these sectors were still in public ownership. After privatisation, however, the rate of growth of wage inequality in GEW was almost identical to that in production industries as a whole. This can be seen clearly by 'differencing the differences' in wage inequality, as is done in the last column of the table, and comparing the 1979–88 period with the 1988–97 period. Thus, after privatisation, these establishments have seen trends in pay inequality more characteristic of private industry.⁵

Table 2.3. Interdecile (90/10) ratios for men in a privatised industry

	All production industries	Gas, electricity and water	$\Delta 90/10$, all production industries (%)	$\Delta 90/10$, gas, electricity and water (%)	$(\Delta 90/10, \text{GEW}) - (\Delta 90/10, \text{All P})$
<i>Non-manual</i>					
1979	2.40	2.40			
1988	2.88	2.79	20.0	16.3	-3.7
1997	3.10	2.96	7.6	6.1	-1.5
<i>Manual</i>					
1979	2.04	1.88			
1988	2.33	1.91	14.2	1.6	-12.6
1997	2.48	2.00	6.4	4.7	-1.7

'All P' = All production industries.

'GEW' = Gas, electricity and water.

Source: New Earnings Survey, various years.

⁵For a similar finding from the US, see Card (1986, Table 2).

Contracting-out and compulsory competitive tendering

Contracting-out occurs when the provision of a service is moved from the public to the private sector but the payment for these services is still made centrally and not at the point of consumption. Over the 1980s, such moves were concentrated in the education sector, largely affecting local authorities. Universities have long been classified as a non-profit-making sector rather than 'public sector' (along with charities, trade unions etc.), although in Figure 2.1 we treated them as public sector. They were joined in this semi-autonomous status in 1989 by polytechnics, which had previously been under local authority control, (reducing public sector numbers by 60,000) and in April 1993 by further and higher education colleges (119,000 jobs). There was also an expansion in grant-maintained schools under the last Conservative administration so that 30,000 teachers are now classified as being in the private sector. As the government still has ultimate control over pay scales in education, we should expect these changes to influence pay structures only through changes in where people are actually put on these pay scales and in the tasks that people do.

Compulsory competitive tendering (CCT) occurs when local authorities or government agencies are required to buy in services from private contractors as a device to reduce the cost of providing a given quality of service. As falls in costs can only come about through increased efficiency or falls in unit wage costs, we should expect subsequent changes in the distribution of wages. In effect, CCT serves to 'privatise' the whole provision of the service, as in-house public sector providers who win a competitive tendering process have to be at least as efficient as the most competitive private sector firm. A series of judgements arising from the EU Transfer of Undertakings Directive of 1987 have limited the ability of organisations to radically alter existing terms and conditions covering employment when they are transferred out of the public sector. However, as new staff replace existing ones and new activities are undertaken, revised private sector arrangements increasingly come into play, with an enhanced role for subcontracting and individualised employment contracts.

Public sector pay management and other restructuring within the public sector

At the start of the 1980s, public sector workers enjoyed 'catch-up' pay awards stemming from the Clegg Inquiries which the incoming Conservative government had promised to honour. However, there was a subsequent clamp-down, with pay settlements below the rate of inflation until 1985. The mid-1980s saw the advent of running-cost control policies by which pay increases were supposed to be at least partially offset by efficiency gains. But in 1992, in the run-up to the general election, the public sector pay bill rose by 5 per cent more than inflation. Immediately after that election, the 1.5 per cent wage settlement limit policy was introduced and has been followed by a running-cost cash-freeze policy from 1993 to 1998 whereby all pay rises are supposed to be matched by offsetting input reductions.

This new system of 'public sector pay management' is intended to apply to the whole of the public sector, but, in practice, different arrangements have covered different groups. Nurses', teachers', doctors', dentists', armed forces and senior salaries, including those of MPs, have had the benefit of a semi-independent pay review body system, whereby

national pay rises are recommended by government-appointed independent advisers after considering evidence presented by the unions and government. The recommendations are not always honoured in full and are often staged rather than paid in full from the due date. In 1993, the 1.5 per cent wage limit was accompanied by the suspension of the review bodies. Nevertheless, the overall outcome has been to increase the pay for these groups faster, in general, than that of groups in the public sector that rely on negotiated outcomes. The police and firefighters have had pay formulas, which have also averted the need for negotiation and which have helped the police, particularly, to do better than average over the 1980s and the early 1990s.

The nationally negotiated pay system, which was gradually dismantled in the private sector during the 1970s in its traditional strongholds such as the engineering industry, remained largely intact in the public sector throughout the 1980s. However, local pay bargaining has developed in the health sector and even in the 'core' civil service in the 1990s. Local pay bargaining in government departments and civil service agencies, and amongst around 800 NHS trusts, has started to break down traditional relativities and has created new pay arrangements that are closer to those observed in the private sector.

3. Has public pay lagged behind private pay? An analysis for 1979–94

3.1 Prologue: the Labour Party, general elections and public sector pay

It is part of the conventional wisdom of economic management that post-election periods are usually associated with rapid rises in the public sector pay bill because of deferred and staged public pay settlements and other *de facto* incomes policies prior to elections. Historically, these supposed pay ‘explosions’ have been particularly associated with incoming Labour governments, designed to placate special interest groups such as trade unions (as in 1974–75, for example). But pay pressures are not unique to incoming Labour administrations: for example, in 1979 the Conservatives inherited the consequences of various special inquiries and the Clegg Commission designed to defuse the pay pressures that had built up in the preceding years.⁶ On occasion, too, such as in 1992, the public pay bill jumped *before* an election and remedial action was required to restore public finances after the election. Despite these ‘anomalies’, the commonly held view that there is a public pay cycle related to elections persists.

How does this affect the situation in 1998? After November 1992, the previous Conservative government operated a ‘pay bill freeze’: that is, the nominal value of the public sector pay bill was not permitted to rise. Higher real wages had to be paid for by higher productivity, i.e. fewer jobs.⁷ There was evidence of ‘creative accounting’ in pay bill management in order to sustain this policy — in particular, in reclassifying public sector workers in order to avoid ceilings — but in general the policy seems to have held down public pay settlements until the 1997 general election. The Labour Party pledged before the election that it would maintain a similar policy, and statements since 1 May 1997 have confirmed that tough policy. However, the Labour government plans to tackle at least one issue with implications for the public pay distribution by introducing a minimum wage, although the impact of the minimum wage, whatever its level, is likely to be much greater in the private sector where wage inequality is much greater (see also Gosling (1996)).

Past history suggests that a Labour government will find it hard to hold down public sector pay. However, assuming that such a policy of wage bill restraint can be retained, will this spell an end to the alleged ‘election cycle’ of public pay rates? And is it desirable to restrain public sector pay indirectly by this method, especially when there is evidence that private sector pay settlements began to accelerate after 1995?

Rapid readjustments of wages, especially if they take the form of a sharp rise in the public sector pay bill, pose severe pressures for governments: both a direct cost to the exchequer and an indirect cost if they trigger economy-wide wage pressures. But the alternative, of allowing persistent discrepancies in pay that are unrelated to differences in individual skills and productivity to remain, may also cause long-run disequilibria. Ultimately, in competitive labour markets, systematic variations in relative pay will lead to

⁶See Trinder (1994).

⁷In fact, in November 1992, the ‘wage bill freeze’ was relaxed slightly to allow a 1.5 per cent centralised increase but, subsequently, zero targeting was retained.

differences in labour quality and, ultimately, product and service quality in the adversely affected occupations. So the nettle of any systematic discrepancies in pay between the public and private sectors will have to be grasped in one form or another.

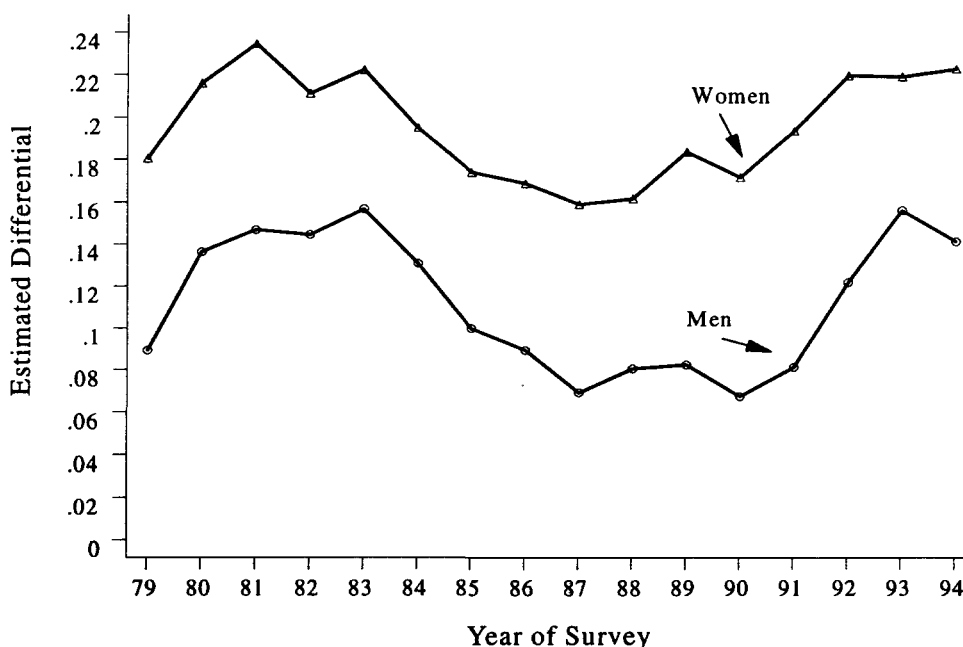
3.2 What has happened to public sector pay in the last two decades?

So what is the evidence on what has happened to public sector pay relative to private sector pay since the late 1970s? Figure 3.1 uses data from successive annual New Earnings Surveys between 1979 and 1994 to plot, for men and women separately, the 'raw' differential between average (mean) pay in the private and public sectors. Of course, this ignores all differences in the jobs people do in the two sectors and any changes over time in the types of jobs that people do in the two sectors.⁸

There are several interesting features to Figure 3.1. First, men and, particularly, women on average earn more in the public sector than in the private sector. It is likely that this is in large part to do with the different nature of jobs and skills in the two sectors. We examine that issue more explicitly in what follows.

Second, there is little evidence of a downward trend in the raw 'premium' for public sector workers relative to private sector workers. Indeed, the pay premium at the start of the series of Conservative administrations in 1979 is some 4 percentage points lower than that of 1994 for women and 5 percentage points lower for men. This means that, on average, for the 1979–94 period, public sector pay has grown slightly faster than private

Figure 3.1. Public sector wage premiums by gender



Source: New Earnings Survey, successive years.

⁸Although data are available until 1997, we plot the data to 1994 to maintain comparability with Figure 3.2.

sector pay. The period after 1994 has seen a deterioration in the position of public sector workers relative to private sector workers, with the 'raw' public sector premium all but disappearing for men and reduced by 4 percentage points for women. Note, given the ensuing discussion, that the economy has been in an upswing in that period. Even so, if there is now justified pressure for public sector 'catch-up' after the experience of a long period of Conservative administrations and the continued tight public expenditure controls of the incoming Labour government, it is not evident from these figures.

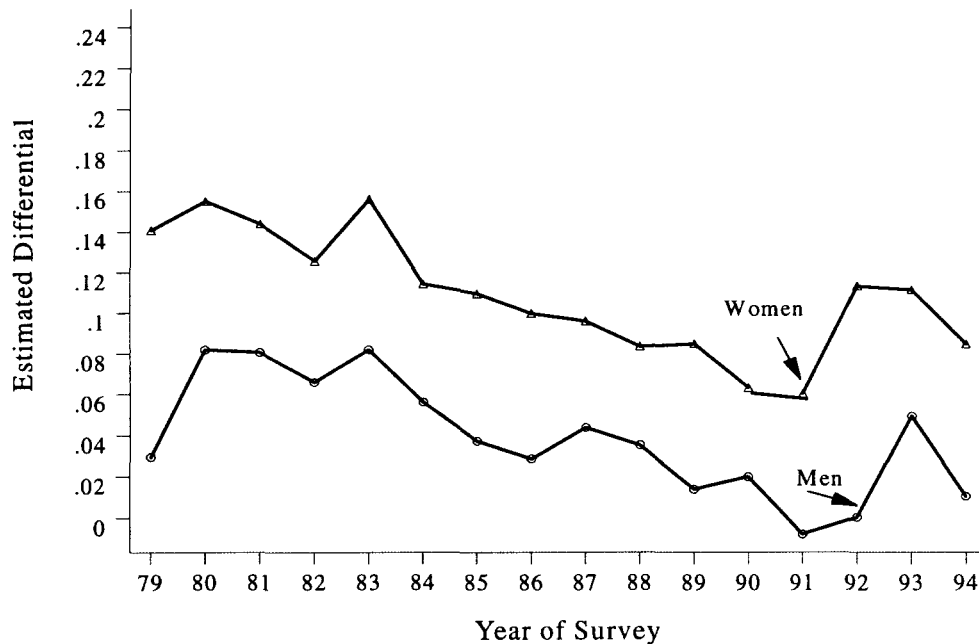
Third, there are differences in the rates of change in public and private pay *within* the period. Generally, the early 1980s and early 1990s saw public pay rise faster than private pay. The mid- to late 1980s and the mid- to late 1990s have seen average private pay rise faster than public pay. These differences illustrate a general conclusion concerning the primary explanation of average pay relativities across the two sectors: the ratio of public to private pay varies *countercyclically*. That is, when the economy is experiencing a more rapid rate of real growth, private pay tends to rise faster than public pay, with the converse when the economy moves into a recession. In so far as the economic cycle is related to the political (election) cycle, this may explain some of the pressures for 'catch-up' or, conversely, for tighter controls of public pay. Overall, the conclusion that emerges from Figure 3.1 is that public-private sector pay differentials over the last 20 years have been characterised by cyclicity rather than by trend.

3.3 Public sector relative pay assessed: the effect of the changing composition of the work-force

The previous analysis has shown that the average public sector pay premium exhibits cyclicity but no trend over the last 20 years. It would, however, be erroneous to draw the conclusion that workers in the public sector are in a roughly comparable position now to their position 20 years ago. To infer such a conclusion would require the assumption that the composition of public sector jobs relative to private sector jobs has remained largely unchanged over the same period. As suggested previously, this is not a tenable assumption. For example, the public sector in the 1980s and early 1990s saw a large decrease in the number of relatively unskilled manuals employed due to the central government policy of increasingly putting services in areas such as local government and the NHS out to competitive tender. At the same time, increased emphasis on efficiency and on introducing auditing procedures equivalent to those in the private sector has led to an influx of other professional staff, for example into NHS trusts and local government. Such compositional changes in public sector employment, if uncorrected, may bias the measured time path of the differential between public and private sector pay.

As a check on this possibility, we utilised the time series of individual data drawn from the New Earnings Survey. For each year, we ran an ordinary least squares (OLS) regression of individual pay on a public sector binary (dummy) variable and a set of occupational dummy variables. The premium (or penalty) can be calculated from the public sector dummy variable, but the inclusion of the additional occupational variables

Figure 3.2. Public sector wage premiums and penalties controlling for occupation



Source: Calculated by authors from successive New Earnings Surveys.

means that the resulting estimates control for changes in the occupational composition of the public and private sector work-forces.⁹

Figure 3.2 presents the results of this analysis. The difference from Figure 3.1 is dramatic. There is still evidence of cyclicity (although the upturn in public sector women's relative fortunes in the early 1980s is not so pronounced) but there is now also evidence of a clear downward trend in the public sector pay premium over the period as a whole. For both men and women, the premium falls by around 8 percentage points, halving it for women and almost eliminating it for men. Thus the 'raw' numbers in Figure 3.1, by ignoring occupational change, conceal this downward trend in the relative pay of the public sector.

By controlling for occupation, we have controlled for one of the main sources of disparities in individual pay. However, there are other factors that are important, such as age, educational qualifications, training received and so on. Although it is therefore tempting to infer from Figure 3.2 that, for men at least, by 1994 an equilibrium had been reached in which net pay was equalised, as evidenced by the zero premium to either sector, this would be misleading. We have not controlled for these other factors, nor for any net non-monetary (dis)advantages of either sector, nor for other sources of disparity in payments such as fringe benefits, especially pension benefits.

⁹Implicitly, we are also making a number of other assumptions: for example, that the impact of occupation on the individual wage is identical across the public and private sectors. We are also ignoring at this stage other determinants of individual pay that might differ across the public and private sectors. It is important to stress that we use very disaggregated occupations in these regressions; we examine the impact of individual characteristics in Section 4.

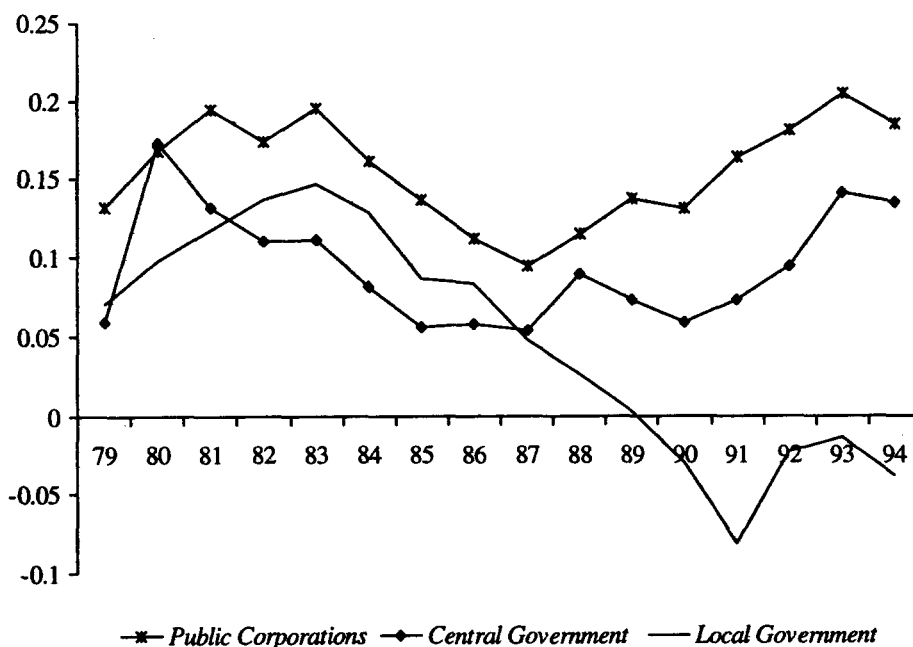
3.4 Pay trends in central government, local government and public corporations

Another facet of the public pay picture emerges if we look at these trends at a more disaggregated level. For comparison, the private sector is treated as one group, but average private sector pay can be compared with average pay in three different public sector categories. These sectors are: *central government*, composed of civil servants and related employees, social security, NHS employees and, for most of the period, institutions such as hospitals and universities; *local government*, which includes council employees, the fire service and police, and, for much of the period, all education (including higher education colleges); and *public corporations*, which includes nationalised industries, encompassing a diminishing number of production industries during the period.

Here again, however, compositional changes are important. In 1985, for example, 'public corporations' included the water and power industries, coal, railways, some road transport and ports, some shipbuilding and iron and steel. By 1995, most of these industries were in private hands and therefore excluded from the series. On the other hand, NHS trust employees were included in 'public corporations' from 1995 on. In that same year, universities were taken out of 'central government' and higher education colleges and grant-maintained schools out of 'local government', and put into a new category of public 'non-profit organisations'.

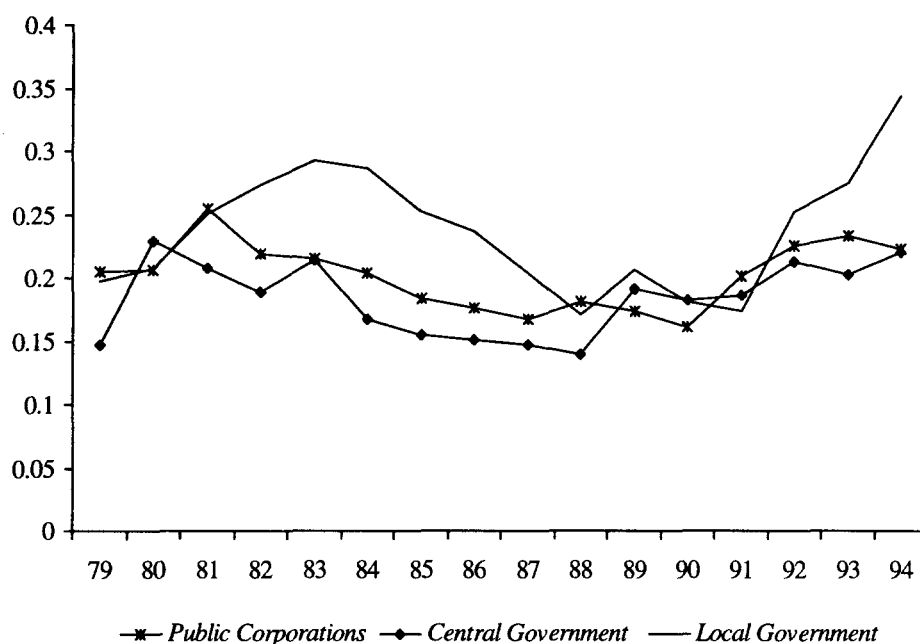
Bearing these changes in mind, Figures 3.3 and 3.4 look at the 'raw' ratios of public to private sector pay for the three subcategories of the public sector. For men, Figure 3.3 suggests a secular decline in the average pay of the local government sector relative to the private sector and to the other parts of the public sector. Those in public

Figure 3.3. Sectoral raw premiums and penalties for men



Source: New Earnings Survey, successive years.

Figure 3.4. Sectoral raw premiums for women



Source: New Earnings Survey, successive years.

corporations appear to exact the highest premium. Figure 3.4 suggests, in contrast, that women in local government obtained a boom in relative pay in the early 1980s and 1990s, with much smaller fluctuations over time in the pay of the other categories of female public sector workers. Note, however, that these trends do not control for occupational composition or for individual characteristics and, as we shall see, the picture changes when we control for the latter. The point emphasised here is that the trends in Figure 3.1 and even Figure 3.2 conceal very disparate trends across subsectors.

Given these disparate trends in the public sector, it would not be surprising to find that further disaggregation of public pay trends to particular occupations would reveal even more variation in pay trends. This proves to be the case: in a careful study of New Earnings Survey data from 1970 to 1992, Elliot and Duffus (1996) conclude that some groups of largely public sector workers, such as doctors, the police and nurses, did significantly better in real terms than private sector occupations, especially when account is taken of wage 'drift' — that is, discretionary increases such as bonuses and promotions over and above pay settlements. Other groups, particularly among manual workers, did worse. And those workers who found themselves for the first time in direct competition with private sector workers (such as local-government-employed manual workers) did significantly worse. This last result is confirmed using econometric methods in Disney and Gosling (1998), and the same heterogeneity of experience is confirmed in descriptive terms by Trinder (1994).

This therefore confirms a second conclusion: workers in the public sector have had quite different pay experiences in the 1980s and early 1990s; some have done very well relative to the private sector, while some have fared considerably worse. This is not a particularly surprising conclusion but it shows the importance of looking, not at trends in average

pay over time, but at different *types* of workers in the public sector and how their pay fares relative to that of comparable workers in the private sector.

The interpretation of compositional effects

As suggested in Section 1, the changing composition of the public sector work-force may reflect the changing nature of public sector jobs, such as the contracting-out of manual jobs in maintenance, refuse collection and various ancillary services, as well as the inclusion of more managerial occupations as a result of the establishment of quasi-autonomous agencies within the public sector. Figure 3.2 controlled for this by separating out the impact of the 'occupational mix' when calculating the public-private pay differential. However, there are other long-run and cyclical factors at work which may affect the relative composition of the public and private sectors. For example, in both the US and Britain, there has been a secular decline in the demand for unskilled labour relative to skilled labour, and an increase in the demand for women workers (often in part-time employment) relative to full-time males. Leaving aside any long-run adjustment of relative wages to relative demands and supplies of different types of workers, one would expect these trends to have conflicting effects on the average wage: a higher ratio of skilled to unskilled workers would tend to raise the average wage, while a higher ratio of female to male workers would tend to lower it.

A similar argument can be made over the economic cycle: in a recession, unskilled workers are more likely to lose their jobs than skilled workers and so the average wage, *ceteris paribus*, will tend to rise in a recession, whereas the reverse effect occurs in a boom. Thus the rise in average real wages observed as the economy moves from slump to boom is *understated* as a result of these compositional effects (Solon, Barsky and Parker, 1994). In so far as the public and private sectors employ different proportions of skilled and unskilled workers, these compositional effects will also affect relative pay.¹⁰

¹⁰So the countercyclicality of public sector pay relative to the private sector might in part be explained by the greater tendency for unskilled *private* sector workers to lose their jobs in recessions. But note that we have controlled for this effect in the regressions underlying Figure 3.2 since these control for differences in occupational composition between sectors.

4. The structure of wages in the public and private sectors

4.1 The British Household Panel Survey

This section examines the distribution of wages of public and private sector workers in more detail, using data from the four waves of the British Household Panel Survey (BHPS), from 1991 to 1994, supplemented by evidence from the General Household Survey of 1983. The BHPS is a panel survey, interviewing the same group of individuals, together with their household members, year after year. In this study, each year of the panel is used as a separate cross-section in its own right.¹¹ Each of the BHPS cross-sections used here contains detailed information about the personal characteristics, wages and job characteristics of between 3,500 and 4,000 workers. This is less than the full BHPS sample, as some workers have been dropped from the analysis because of problems of missing information. There is some attrition from the BHPS from year to year, whilst numbers are boosted slightly by new household members of the original respondents who join. Overall, the number of workers sampled falls by about 500 over the five-year period, although there is no evidence that attrition from the sample is biased towards employees from the private or the public sector.

4.2 The distribution of wages in the public and private sectors, 1983–95

As shown in Figures 3.1 and 3.2, wages in the public sector are higher, on average, than those in the private sector. This is confirmed in Table 4.1 using BHPS data on hourly earnings.¹² The table also shows that wages are less dispersed in the public sector (the 90/10 ratio gives the ratio of the wage of the individual at the 90th percentile of the income distribution to that of the individual at the 10th percentile). The last column gives the ratio of average earnings in the public sector to average earnings in the private sector. The data are not exactly comparable with those in Figure 3.1 because of differences in definitions, but they are broadly similar and confirm that there is a much higher discrepancy between public and private sector wages among women than among men.

Table 4.2 examines *weekly* earnings in the BHPS in order to permit a comparison with the 1983 General Household Survey (GHS) of average wages and wage dispersion. In terms of ratios of means, there is little difference in the ‘raw’ differential in the last column between 1983 and the 1991–95 period (remember, however, that we are not controlling for occupation, or for other individual determinants of earnings, in Tables 4.1 and 4.2). However, there *is* evidence of an increase in the inequality of earnings between 1983 and the early 1990s. This rise in inequality is much greater in the private sector than in the public sector. Private sector inequality, as measured by the 90/10 ratio, rose by 23 per cent for men and 36 per cent for women over the period, whereas the rise in inequality in the public sector was only 15 per cent for men and 6 per cent for women. The disparate trend in inequality between the two sectors is therefore most marked for women.

¹¹For the application of panel methods of analysis to the dataset, see Disney and Gosling (1998).

¹²Hourly earnings are the best measure of differences in wages because they abstract from any variation in hours and thus from any correlation of wages and hours. However, as we shall see later, hourly wages are not always available for comparisons across datasets over time.

Table 4.1. Mean hourly wages and the 90/10 ratio

	<i>Private sector</i>		<i>Public sector</i>		<i>Ratio of public to private sector mean</i>
	Mean (£)	90/10 ratio	Mean (£)	90/10 ratio	
<i>Overall</i>					
1991	6.46	3.56	7.40	3.16	1.15
1992	6.82	3.51	7.22	3.08	1.06
1993	7.01	3.68	7.47	3.13	1.06
1994	6.74	3.67	7.98	3.00	1.18
1995	7.73	3.67	8.36	3.00	1.08
<i>Men</i>					
1991	7.70	3.26	8.52	2.90	1.11
1992	8.12	3.33	8.12	2.90	1.00
1993	8.21	3.53	7.99	2.77	0.97
1994	7.95	3.58	8.77	2.93	1.10
1995	9.25	3.48	9.33	2.79	1.01
<i>Women</i>					
1991	5.86	3.10	6.70	3.02	1.14
1992	5.39	3.00	6.66	3.00	1.24
1993	5.73	3.28	7.16	3.02	1.25
1994	5.44	3.12	7.54	2.86	1.39
1995	6.08	3.23	7.79	2.87	1.28

Source: Calculated by authors from BHPs, 1991–95.

Table 4.2. Mean weekly wages and the 90/10 ratio

	<i>Private sector</i>		<i>Public sector</i>		<i>Ratio of public to private sector mean</i>
	Mean (£)	90/10 ratio	Mean (£)	90/10 ratio	
<i>Overall</i>					
1983 (GHS)	135.99	3.26	151.81	3.01	1.12
1991	260.00	3.63	289.52	2.98	1.11
1992	271.74	3.69	306.70	2.97	1.13
1993	282.80	3.73	315.91	2.91	1.12
1994	288.37	3.86	334.06	2.94	1.16
1995	308.13	3.62	334.64	3.07	1.09
<i>Men</i>					
1983 (GHS)	156.95	2.84	170.09	2.68	1.08
1991	298.36	3.14	324.61	2.83	1.09
1992	309.15	3.25	346.01	2.86	1.12
1993	321.45	3.43	349.43	2.99	1.09
1994	327.95	3.51	373.34	3.13	1.14
1995	342.40	3.48	379.98	3.07	1.11
<i>Women</i>					
1983 (GHS)	90.74	2.50	116.09	2.75	1.28
1991	191.81	3.03	253.24	2.79	1.32
1992	205.34	3.13	267.08	2.83	1.30
1993	216.82	3.23	284.75	2.79	1.31
1994	220.30	3.07	299.82	2.99	1.36
1995	246.14	3.40	293.95	2.92	1.19

Source: Calculated by authors from GHS, 1983, and BHPs, 1991–95.

4.3 The individual public sector premium or penalty by sector

As suggested previously, the composition of the public sector work-force is quite different from that of the private sector one, and it has been changing over time. Before examining the relative importance of different occupations in the two sectors, it is useful to see whether pay differences arise simply from differences in individual qualifications between the two sectors. In order to assess the extent to which the differences in the wage structure are a result of the differential characteristics of workers, such as their education and age, the study uses ordinary least squares (OLS) regression analysis. It pools the first five waves of the BHPS, in order to estimate basic human capital wage equations for men and women separately, with an indicator of the sector in which the worker is employed included as a binary (dummy) explanatory variable along with age and educational qualifications. This equation gives a better estimate of the average wage premium or penalty attached to working in the public sector since it controls for the differential qualifications and experience of the public and private sector work-forces.

The regression analysis shows that controlling for the age and education level of the worker does not eliminate the average wage differences between the two sectors. Men in the public sector have, on average, 4 per cent higher wages than men in the private sector once differences in age and education have been taken into account, whilst this figure is 18 per cent for women (see Table 4.3).¹³ However, not surprisingly in the light of the earlier discussion, the average premium is not distributed evenly across public sector workers. In fact, some workers receive considerably lower wages than their counterparts in the private sector and others about the same, having controlled for age and experience. This is also demonstrated in Table 4.3, which compares the average wages of workers in different subsectors of the public sector with those of private sector workers, controlling for individual characteristics.

As shown in Figure 2.1, the largest proportion of our sample of public sector workers are employed within local government. Table 4.3 shows that male workers in local government on average receive 4 per cent more than their private sector counterparts, while women earn 13 per cent more. Those in central government (the civil service) do even better, with male and female premiums of 10 per cent and 25 per cent respectively.

Table 4.3. Public pay premiums and penalties by gender and sector

	Men	Women
Public sector	0.036*	0.179*
<i>Of which:</i>		
Civil service / central government	0.096*	0.248*
Local government / town hall	0.039*	0.129*
NHS / higher education	-0.081*	0.234*
Nationalised industries	-0.001	-0.003*
Armed forces	0.010*	-0.006*

* indicates that the coefficient is significantly different from zero at the 5 per cent confidence level.

Source: Pooled BHPSs, 1991–95.

¹³In separate regressions for each year of data, this average wage difference does not change significantly over the period. Results are available on request.

In the NHS and higher education, in contrast, men and women have conflicting experiences: men fare significantly less well than in the private sector, while women do significantly better. The other differentials are small, since 'nationalised industries' (by the early 1990s) and the armed forces (a small sample in the BHPS) are rather small groups in the sample.

4.4 Occupational groups

Table 4.4 describes the occupational composition of the public and private sectors in the early 1990s in more detail by gender, and also provides estimates of the public sector premium or penalty by occupational group obtained by a similar procedure to that underpinning Table 4.3. In terms of composition, the table provides both the share of the public sector in total employment of a given occupation and the occupational composition of the public and private sectors. Thus, by way of illustration, 17 per cent of all male managers and administrators work in the public sector compared with 25 per cent of female managers and administrators. Male managers and administrators account for 12 per cent of male public sector employment and 6 per cent of female public sector employment, being typically civil servants or administrative grades in local government. Male public sector managers and administrators receive an average 6 per cent premium over their counterparts in the private sector. However, this difference was not statistically significant (no asterisk). In contrast, female public sector managers and administrators receive a 24 per cent premium over the private sector, and this difference is significantly different from zero.

Looking at the occupational proportions, Table 4.4 reveals that, among 'professional' occupations (such as teachers) and 'associate professional and technical' occupations (including, say, staff nurses, laboratory technicians and computer programmers), public sector employment is the dominant form of employment for women and also important

Table 4.4. Public pay premiums and penalties by occupational group

	<i>Men</i>			<i>Women</i>		
	% in public sector	% of public sector	Public sector wage differential	% in public sector	% of public sector	Public sector wage differential
Managers and administrators	17%	12%	0.06	25%	6%	0.24*
Professional	42%	21%	-0.06	77%	22%	0.03
Associate professional and technical	28%	13%	-0.08*	57%	18%	0.03
Clerical and secretarial	25%	11%	0.08*	27%	23%	0.05*
Craft and related	10%	8%	0.05	6%	0.4%	0.41*
Personal and protective services	58%	18%	0.43*	49%	21%	0.35*
Sales	1%	0.1%	-0.22	0.7%	0.2%	0.17
Plant and machine operatives	8%	5%	0.05	1%	0.2%	0.6*
Other	38%	11%	0.09	37%	10%	0.11*

* indicates that the coefficient is significantly different from zero at the 5 per cent confidence level.

Source: Pooled BHPSs, 1991-95.

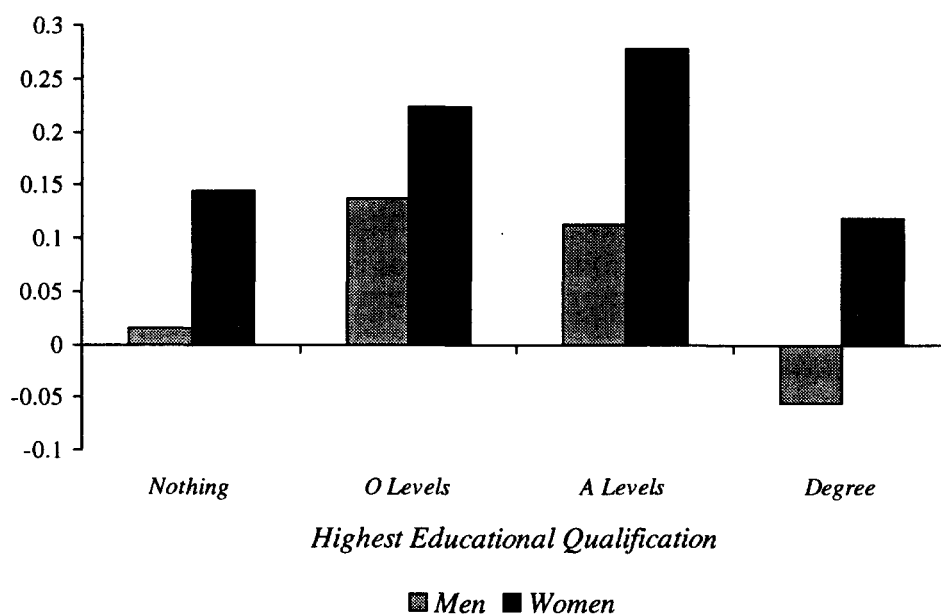
for men (bearing in mind that the average public sector proportion in the sample is just over 25 per cent). However, workers in these sectors do not obtain significant premiums relative to the private sector; in fact, male ‘associate professional and technical’ staff fare significantly worse than their private sector counterparts.

‘Personal and protective services’ are also a key public sector group, including occupations such as the police, and nursing auxiliaries, hospital assistants, educational assistants and nursery and childcare workers which are female-dominated. In contrast to the previous group, these occupations receive much higher wages in the public sector after controlling for differences in age and education. Clerical and secretarial occupations receive slightly higher wages on average in the public sector. Finally, there are other small occupational groups with occasionally significant wage effects: for example, female ‘plant and machine operatives’, of whom there are very few in general and particularly in the public sector, nevertheless appear to receive a significant premium in the public sector.

4.5 Educational groups

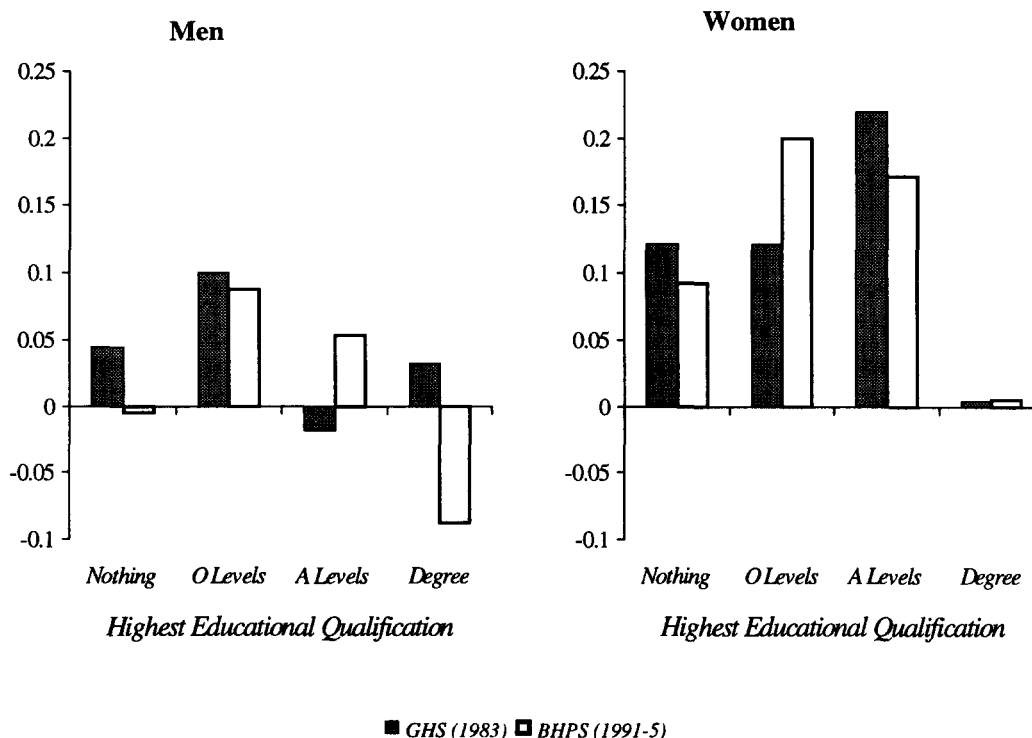
A final illustration of average wage differences across types of worker is provided by examining workers with different levels of education. The results of this decomposition are quite striking, as can be seen from Figure 4.1. In this figure, each bar represents the average proportional wage difference between public and private sector workers at each level of educational attainment. The dark bars are the premiums for women, whilst the shaded bars represent premiums and penalties for men. Men with degrees in the public sector actually see a significant wage *penalty* of almost 6 per cent compared with their private sector counterparts, whilst women obtain a premium. Men and women with

Figure 4.1. Public sector wage premiums and penalties by highest educational qualification



Source: Pooled BHPSs, 1991–95.

Figure 4.2. Public sector wage premiums and penalties by highest educational qualification
(full-time weekly earnings)



school-leaving qualifications but no tertiary education do best of all in the public sector relative to the private sector, but men with no qualifications receive similar wages on average in the public and private sectors. Unqualified women do, however, receive a public sector premium.

To confirm these results, data from the 1983 General Household Survey were also examined. In Figure 4.2, pay is again defined as 'weekly pay' in contrast to the hourly pay measures used in Figure 4.1, so as to maintain comparability between the BHPS and the GHS. A similar pattern of pay disparities is observed between the two surveys and time periods, although the differences in pay between educational groups are exacerbated when weekly rather than hourly pay is considered, especially among men. The disparity of returns between educational groups also appears to have intensified among men between 1983 and the early 1990s. Among men, the positive premium in the public sector to having a degree in 1983 has been replaced by a penalty, while those with A levels have improved their relative position. Among women, these changes over time are much less apparent. Growing private sector wage inequality, especially among women, may be one reason why this educational group 'inequality-reducing' effect of the public sector appears to have increased between 1983 and the early 1990s. The next subsection illustrates this point starkly.

4.6 Low and high income groups compared: percentile regressions

An additional technique for comparing the distribution of wages across workers is the use of percentile (quantile) regression rather than ordinary least squares. OLS allows us to predict the average (mean) wage of an individual with a given set of characteristics. We might think that some variables would influence the distribution as well as the level of wages within certain groups of workers, and this can be tested by estimating wage differences at various percentiles of the distribution of wages. The difference between the determination of wages at, say, the 10th percentile and at the 90th percentile tells us how the explanatory variables affect the inequality of wages within groups of workers.

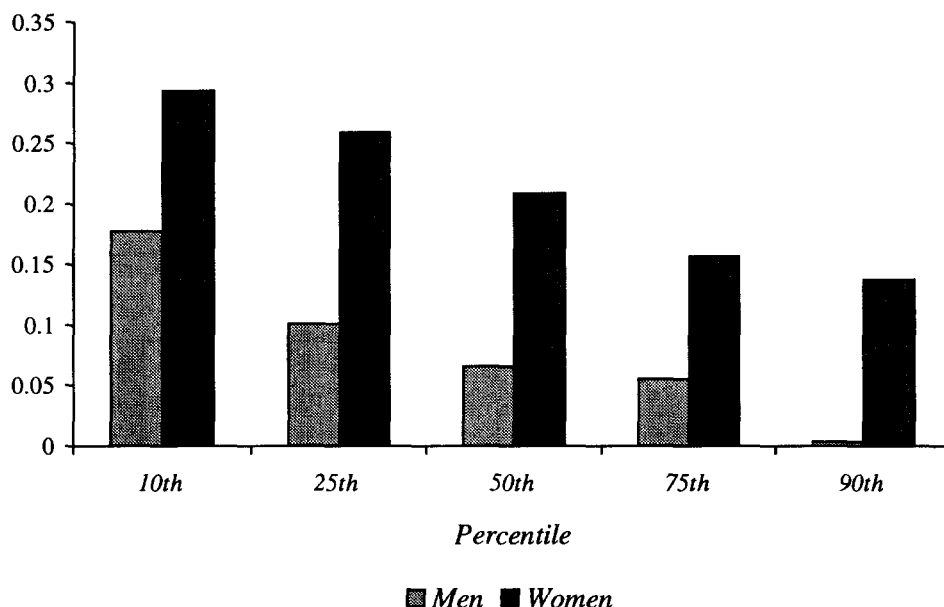
Why should the determinants of wages be different across percentiles of the conditional wage distribution? The answer lies in the facts that no dataset includes all the possible determinants of wages and that some workers may face different returns to the same characteristics from others, given the sorts of jobs they do. For example, one worker may be cleverer or better motivated than another worker with the same level of education. In addition, the public sector may be less willing to pay extra wages to get better-quality workers, and union wage setting may reduce the degree to which public sector wages are subject to random shocks. Therefore the differences in the wage distributions of public and private sector workers cannot be fully captured by a simple distributional shift, which is the implication of using a dummy variable technique. Quantile regression is one way of investigating more complex differences between distributions. It has been used to compare the wages of public and private sector workers in the US by Poterba and Rueben (1994) and wage distributions generally by Gosling, Machin and Meghir (1996) for the UK and Buchinsky (1994) for the US.

The results from the quantile regressions are again very striking and show that the wage premiums that were identified at the mean in fact encompass a range of wage differences at different parts of the distribution. For those at the bottom of the distribution, wages in the public sector are considerably higher than the wages of similar private sector workers, but for those at the top, wages in the two sectors are not significantly different. This is illustrated in Figure 4.3, which shows the estimated wage premium of public sector workers compared with private sector workers with similar characteristics at different percentiles of the wage distribution.¹⁴

Figure 4.3 shows that it is the lowest-paid group of public sector workers who see the largest mark-up to wages compared with workers of comparable age and education in the private sector; for men, the estimated coefficient at the 10th percentile is 17 per cent, whilst for women it is 28 per cent. Moving up the wage distribution, the size of the premium declines. Among the highest wage and salary earners, the wages of *male* public and private sector workers with similar characteristics are not statistically significantly different. An implication of this pattern of estimated public sector wage differentials at different parts of the wage distribution is that pay is more equally distributed in the

¹⁴Blackaby, Murphy and O'Leary (1997) use a somewhat similar procedure, using the Labour Force Survey, in order to break down the sources of the differences in public and private sector wages across the deciles of the earnings distribution. Most of the differences in wages across the deciles appear to result from differences in the personal characteristics of the sample, with the proportion explained by characteristics (as opposed to differences in returns to characteristics, and residual unobservables such as unmeasured labour quality) increasing further up the earnings distribution. However, the authors do not explicitly state which characteristics are important.

Figure 4.3. Public sector wage premiums across the wage distribution



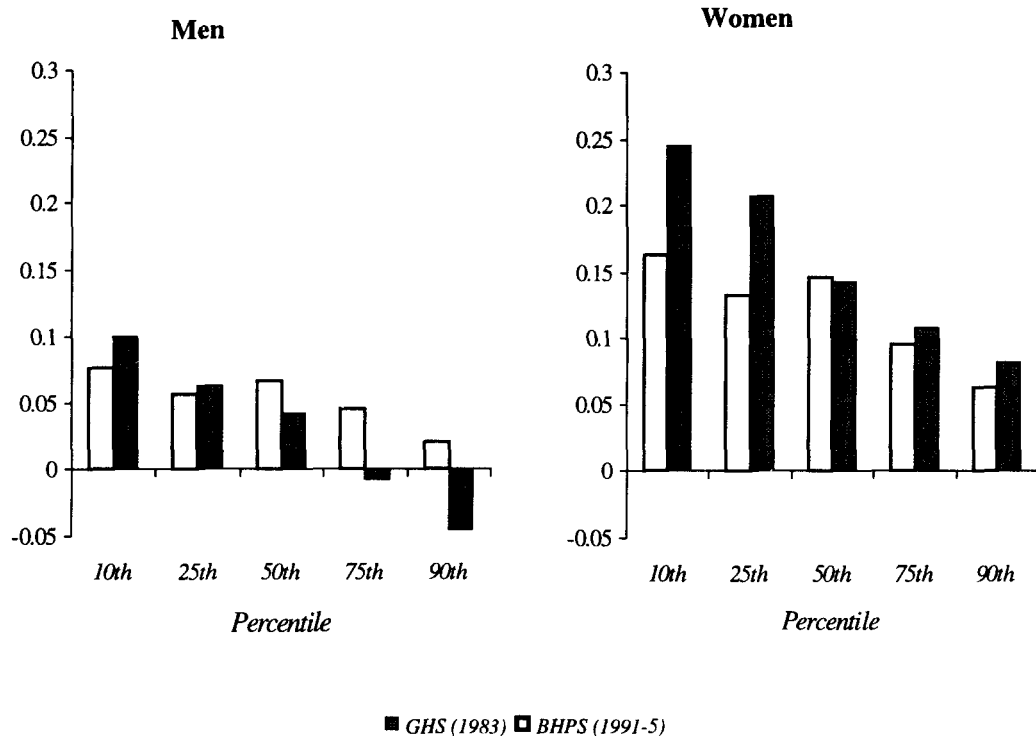
Source: Pooled BHPSs, 1991–95.

public sector than in the private sector, even after controlling for the different characteristics of workers.

Figure 4.4 again undertakes a comparison with the 1983 General Household Survey, of weekly rather than hourly earnings. The first, shaded, bar represents the quantile regressions from the GHS; the second, darker, bar reflects the results from the pooled BHPS data. For both men and women, the orderings of percentile premiums or penalties between the two survey dates are almost identical. What is striking, however, is that the 'gradient' from the lowest to the highest has increased. For men in the 10th percentile, for example, the public sector premium in 1983 was around 8 per cent, approximately halving to the 90th percentile. However, by the early 1990s, the disparity has increased from 10 per cent at the lowest decile to a penalty of 5 per cent at the highest decile. This stems largely from the differential trends in public and private sector pay inequality detailed earlier. Since private sector inequality has increased at a more rapid rate than public sector inequality, the impact has been to exacerbate the measured premiums and penalties attached to public sector affiliation across the income distribution.

In a stylised competitive world, the implication of the observed pattern of wage disparities between the private and public sectors is that workers of different *quality* are employed in the two sectors. Employers in the private sector would tend to recruit the better-quality workers at higher educational levels, given the apparent wage penalty to those with degrees in the public sector, whereas the public sector would tend to attract and recruit better-quality workers with lower educational qualifications. At the same time,

Figure 4.4. Public sector wage premiums and penalties across the earnings distribution (full-time weekly earnings)



the public sector could, say, retain better-quality civil servants, given the wage premium that it is paying them. If labour quality is a relevant consideration, then pay disparities can be justified in a competitive market.¹⁵

However, this world is highly stylised, even within the competitive paradigm, since, in reality, jobs differ in their non-wage attributes (such as fringe benefits) and people may have different preferences over these attributes. For example, more public sector workers have occupational pension rights than private sector workers (almost 90 per cent of public sector workers in the BHPS, compared with about 50 per cent of private sector workers), and in general the pension benefits associated with pension scheme coverage are more favourable in the public sector. Job spells are, on average, longer in the public sector than in the private sector, suggesting that, historically at least, job security is higher in the public sector.¹⁶ Notice, though, that if these non-wage attributes were added into the current wages of workers, they would tend to *increase* the differences in total remuneration between the public and private sectors, rather than explain away the average public sector pay premium.

¹⁵Adam Smith argued that public servants should be well paid to render them immune from bribery, but where occupations attracted considerable social status (for example, JPs), pay could be much lower.

¹⁶This is based on a comparison of the length of public and private sector job spells reported in the job histories section of the BHPS.

This leads us to the belief that further explanations are required to shed light on these pay disparities. In the next section, therefore, various explanations of these pay premiums and penalties across the public sector and relative to the private sector are considered.¹⁷

¹⁷A further possibility is that more sophisticated econometric procedures, such as panel data estimators that 'clean out' differences in unobservable characteristics between individuals, may eliminate some of the measured effects. This issue is discussed in more detail in Disney and Gosling (1998), where such estimation methods are implemented.

5. Trends in public and private pay: economic explanations

Previous sections have shown four main findings concerning public sector pay:

- The public pay differential relative to private pay is countercyclical.
- Controlling for occupation and the economic cycle, the public pay differential has fallen for both men and women over the last two decades.
- Analyses of individual pay, from the General Household Survey and the British Household Panel Survey, have shown differences in the ‘premium’ or ‘penalty’ attached to individual public employees, controlling for differences in age, educational attainment and other characteristics. These may be summarised as: in the public sector, relative to the private sector, women do rather better than men, highly qualified men and women do rather worse than those with school-leaving qualifications, and male and female civil servants and women in higher education and the NHS do rather better, whereas men in higher education and the NHS fare significantly worse, than in the private sector.
- Pay inequality is significantly lower in the public sector than in the private sector. Indeed, this equalising effect has strengthened over time as private sector pay inequality has grown faster than public sector pay inequality in the last decade and a half.

As Section 2 has suggested, institutional changes over the last two decades have tended to induce greater comparability between public and private sector pay determination. But why should pay setting arrangements differ between the two sectors in any event, and how do these arrangements affect pay? Can they explain both the areas of convergence in public and private pay, such as in average pay levels, and the areas of divergence, as in the inequality-reducing impact of the public sector and the differences *among* public sector workers described here? This section considers these issues.

Economists think of wages as being determined by the interaction between demand and supply but governed by the presence of labour market institutions. Such a framework of labour demand, labour supply and institutions can provide an appropriate way in which to examine these various empirical results concerning public sector pay, relative to the private sector.

One explanation for divergences in public and private sector pay arises from differences in the demand for labour between the two sectors. Typically, the public sector is engaged in the production of services, rather than in manufacturing or general industrial activity (public utilities are the main exception). The different nature of output in the public sector may imply greater demand, relative to the private sector, for workers with particular qualifications (as in education or health) and less demand for, say, manual workers with general skills. However, the exact nature of the ‘output’ of the public sector is immeasurable, other than by the application of indirect output measures and efficiency targets, and the ‘costs’ of producing that output can only be measured by the actual wages paid to public sector employees. In addition, pay in the public sector is susceptible to demand ‘shocks’ in product markets, and pay levels are generally indirectly regulated

by budgetary measures such as cash limits. So we would typically expect the relative 'mix' of workers in the public sector to differ from that in the private sector, to change differentially over time and to respond to different types of demand shocks over time.

Can demand factors explain the differences and changes observed here? Privatisation, contracting-out, 'market testing' and private sector techniques for financial management have led to greater emphasis on output measurement in the public sector in the last two decades. In areas where service provision can be quantified by output indicators, whether arbitrary or not, one would expect greater comparability in private and public sector pay determination, as in health, education and explicit service delivery. This is illustrated by the low premiums in such parts of the public sector and in the gradual erosion of the public pay differential over time. Equally, it is no surprise to find that in areas where it is hard to identify indicators of output, pay differentials can persist, as in the civil service premiums identified in Table 4.3. The impact of the changing 'mix' of demand for different types of labour in the public sector is shown in Figure 3.2, and the greater volatility of the demand for private sector output is illustrated by the countercyclical public sector differential in Figure 3.1. Finally, in confirmation of these points, there is evidence from Tables 4.1 and 4.2 that pay inequality within the public sector has increased, albeit at not as rapid a rate as in the private sector.

A second explanation for differences in pay structure between the public and private sectors originates in the fact that the hourly wage is only part of the relevant qualities of a job. In competitive labour markets, the theory of 'compensating differentials', which has its origins with Adam Smith, proposes that, with free entry to occupations, long-run pay differentials arise from the non-pecuniary characteristics of jobs. Jobs that are dirty or dangerous, for example, earn a premium, whereas jobs with positive characteristics, such as fringe benefits or security of job tenure, earn lower remuneration, other things being equal (Rosen, 1986).

Generally, public sector jobs (with the possible exception of the military and the emergency services) have fewer non-pecuniary disadvantages and a greater preponderance of positive characteristics, such as pension rights and job security, than private sector jobs. So one might expect that public sector pay would, on average, have a negative premium (or a penalty) relative to private sector pay, other things being equal. However, the variance of non-pecuniary characteristics is likely to be lower in the public sector, so that pay inequality should be lower than in the private sector, as is confirmed by the results here.

Some commentators have, however, questioned whether the competitive model of supply is applicable to the public sector. In public choice theory, the government is often modelled as a bureaucracy with entirely different goals from those of a private firm (Niskanen, 1971), although these goals are normally seen to have implications primarily for the size of the public sector and for the concealment of true efficiency savings from the provider of government finance. Where there is little check on efficiency or quality of service in a pure bureaucratic model of production, pay might be determined hierarchically (depending on the size and the span of the hierarchy) with little reference to individual productivity. This is, of course, the 'traditional' civil service model. The systematic introduction of measures of public sector output 'quality' and performance

throughout the 1980s, or explicit comparisons with private sector organisations, could have been expected to reduce pay inequality in some dimensions, by compressing traditional grading structures and hierarchies, while augmenting inequality in other directions, through the introduction of incentive payments to workers who are evaluated as above-average performers, by forming autonomous government agencies with key efficiency targets and so on.

In 'traditional' public-sector-dominated labour markets, such as education and health, where the public sector is the primary purchaser, the purchaser may have some monopsony power. This has been noted, for example, in the market for public teachers in the US (Landon and Baird, 1971; Luizer and Thornton, 1986). There, a profit-maximising employer can choose a combination of employment and wages such that the marginal revenue product of the worker exceeds the wage (Hicks, 1963) and pay can be below that in a competitive labour market (Machin, Manning and Woodland, 1993).

Although the possibility of monopsony, especially in local government, is strong, the public sector is not profit-maximising in the conventional sense. Indeed, it is quite likely that public sector employees, especially where they are well organised, can 'capture' the bureaucracy that is determining pay and, through collusion with officials, use review procedures to raise pay rates rather than lower them. This facet of public sector pay bargaining has been noted in analyses of the public sector wage effect (Ehrenberg and Schwarz, 1986). However, there is no clear evidence here of local monopsonistic situations facing other groups of public sector workers. Recent developments, such as the NHS reforms, have tended to decentralise decision-making so that individual units in the public sector (such as NHS trusts) can, in principle, compete for customers and for staff by differentiating their pay and conditions.¹⁸

It might seem strange to leave until last the 'conventional' explanation as to why pay differs in the public and private sectors — namely, because of the differences in institutional structure — but it can be argued that differences in structures arise because of disparities in demand and supply conditions, as detailed here. The most obvious institutional difference is that the public sector tends to be heavily unionised, albeit with some recent decline in unionisation among public sector manual workers, whereas private sector unionism is lower and has been contracting for a longer period (Disney, Gosling and Machin, 1995 and 1996). Trade union membership or, more pertinently, coverage by collective bargaining arrangements might be expected to raise pay; however, the evidence for the UK is that the union 'mark-up' has, on average, been rather small in most industries (Geroski and Stewart, 1986) and has been declining since the late 1980s (Stewart, 1995). Nevertheless, the scope for national bargaining in the public sector might be expected to give trade unions rather more power than in settings where pay bargaining has been decentralised. Thus the shift to local pay bargaining in the public sector in recent years is an important development.

¹⁸Where there are a limited number of competing purchasers of labour in the same market, and some degree of residual 'affiliation' to any given employer (i.e. the supply of labour to any single employer is not perfectly elastic), then we have the model of monopsonistic competition (Bhaskar and To, 1996), which produces somewhat similar predictions to the model of monopsony described earlier. For a discussion of the consequences of the NHS reorganisation for product markets, along similar lines, see Propper (1994).

Table 5.1. Public sector wage effects among unionised workers

	Whole sample	Excluding private sector non-union workers
<i>Men</i>		
Degree	-0.040	-0.030
A level or HND	0.094*	0.057*
O level, CSE or ONC	0.083*	0.043*
No qualification	0.007	-0.068*
<i>Women</i>		
Degree	0.133*	-0.038*
A level or HND	0.285*	0.136*
O level, CSE or ONC	0.221*	0.097*
No qualification	0.156*	0.055

* indicates that the coefficient is significantly different from zero at the 5 per cent confidence level.

Source: Pooled BHPSs, 1991–95.

Pay *inequalities* within sectors would also be affected by the presence of unions. It is well known that unions reduce pay inequalities, and indeed Gosling and Machin (1995) have attributed a significant part of the rise in inequality in pay in Britain to the decline in trade unionism. Union efforts to raise pay will induce employers to screen out lower-quality workers in order to raise average productivity levels, whilst the equality-enhancing efforts of trade unions in the public sector will induce the highest-quality workers to seek jobs in the private sector consistent with their qualities. Thus we might expect greater variation in the unmeasured quality of workers in the private sector than in the public sector.

That union coverage, rather than public sector job affiliation, is the source of the wage disparities identified here can be addressed directly in this section, by looking at coverage by union wage bargaining.¹⁹ As mentioned previously, public sector wages are set via a variety of different processes, ranging from national-level wage agreements, to local-level bargains, through to indexing formulas. Despite this variety of different wage setting arrangements, almost all public sector workers have their wages negotiated through union wage bargains of one form or another. By contrast, a far lower proportion (about 37 per cent in the BHPS) of private sector workers have their wages set via union wage bargaining.

In order to identify whether there is a ‘public sector effect’ on wages over and above that accounted for by the presence of unions, we compare the wages of public sector workers (almost all of whom are covered by union wage agreements) with those of unionised private sector workers only. Estimating the same wage equations on this smaller sample brings out some interesting results, shown in Table 5.1.

Controlling for age and education as before, we find that there is no clear relationship for men between public sector status and wages. Public sector men with degrees continue to fare significantly worse, and those with A and O levels better, in the public sector than in the unionised private sector. But the differentials are somewhat reduced, indicating that unions are playing a part in exacerbating the inequalities between sectors. However, the

¹⁹Examination of other explanations for pay differences is reserved for future work.

most striking result is for men with no qualifications. Their wages are insignificantly different between the public and private sectors until we control for union status, when it appears that public sector men do significantly worse than private sector unionised men. Thus the 'raw' insignificant differential between the public and private sectors conceals two, conflicting, effects: unqualified men are more likely to be unionised in the public sector, so raising their wages, but, if unionised, they do better in the private sector. A logical consequence of this (hard to test from the available data) is that employers of unionised unqualified men screen their employees for aptitude and other measures of quality more carefully in the private sector than in the public sector. Among men by occupation, it is again those in the civil service who receive higher wages, on average, relative to unionised private sector workers.

For women, again, there are important differences across educational groups. Women with degrees in the public sector now earn significantly less than private sector unionised women with degrees. For those with no school qualifications, there is not a significant gap between wages in the public sector and the wages of private sector unionised workers. The intermediate groups fare rather better and indeed it is amongst these groups with school-leaving qualifications that the bulk of female public sector employment is concentrated (as in the occupational breakdown depicted in Table 4.4). The important difference across the sexes is that the actual magnitude of the positive coefficients is much larger for women. Indeed, when the female public sector effect is estimated on all education groups together, there is a 16 per cent premium when public sector women are compared with all women and a 7 per cent premium when public sector women are compared with unionised women. All in all, therefore, much of the gap between public and private sector wages can be attributed to unionisation.

Finally, another pertinent institutional aspect is that the public sector is also disproportionately subject to 'external' non-market arrangements such as cash limits, bureaucratic supply mechanisms and institutional pay setting arrangements such as pay review bodies and wages councils. These will have affected the time path of average pay and the inequality of pay.

6. Conclusions

This Commentary has examined the evolution of public pay in the 1980s and 1990s, and the variation in public sector pay across various public sector groups, differentiated by gender, the part of the public sector in which they work, occupation and educational attainment. It has also shown how the pay 'premium' or 'penalty' attached to public sector workers relative to private sector workers has varied across the pay distribution.

The main findings of the Commentary were described in Section 1.3. A significant difference in average public sector pay relative to private sector pay is observed in the annual data, but this differential has in fact narrowed over time, once we control for the composition of workers in the public sector. Moreover, against a background of structural change in the economy which affects the public sector, such as privatisation and contracting-out, contracting unionism, growing pay inequality and changes in the relative demand and supply of different types of labour, we observe differences in pay relativities between the public and private sectors for various groups: the public pay 'story' is more complicated than the average figure would suggest. By way of illustration, unskilled manual workers in the public sector have seen the erosion of any premium to working in the public sector, which we attribute to the declining power of unionism and the implementation of policies such as compulsory competitive tendering. At the other extreme of the pay distribution, highly qualified male workers now seem to obtain significant penalties from working in the public sector, which we attribute to the growth of pay differentials in the *private* sector. Finally, women seem to do rather better in the public sector than in the private sector, which we believe stems from the wider range of occupations available in the public sector to women with school-leaving qualifications, such as teaching and nursing.

In Section 5, some thought was given to *why* such pay disparities might be observed, and it was suggested that the differentials might persist where there were differences in fringe benefits or in relative bargaining power, where it was hard to find comparative groups on which to base pay reviews, or where there were monopoly or monopsony features of the particular labour market. Where such features were absent, or had been eroded, by, for example, privatisation or compulsory competitive tendering, such differentials and differences in inequality should disappear in the long run. Some evidence for these arguments is presented in this Commentary.

Nevertheless, if differential pay in the public and private sectors *is* persistently observed and none of these institutional features seems important in a particular sub-market, alternative inferences have to be drawn. One possibility is that these measured premiums and penalties are statistical artifices which arise only because we have not controlled for other important variables, some of which may be unobservable, such as aptitude, ability at particular tasks and occupations, and so on. More sophisticated techniques would therefore be required to control for these factors — using the panel component of the British Household Panel Survey, for example. However, since our primary task here has been to compare the BHPS with data from an earlier period, such as the 1983 General

Household Survey and successive New Earnings Surveys, such methods are not pertinent.²⁰

Furthermore, if use of such techniques does eliminate the observed premiums and penalties, some thought must be given as to why the discrepancy occurs: as to why, for example, people with certain characteristics 'select' themselves (or are selected) into particular occupations, and as to what the consequences are of these processes. To take a simple example, a result of the penalty to male graduates in the public sector (Figure 4.2) may be that the public sector will attract lower-quality graduates in the long run. Such quality differences 'explain' the measured differential, but may still require a change of policy towards public sector pay if high-quality recruits are to be attracted. In similar vein, the high premiums attached to certain female jobs and qualifications (as in Table 4.3 and Figure 4.2) may suggest, not that public sector women are overpaid or overqualified for the jobs they do, but that the private sector either undervalues the types of jobs in which women are disproportionately concentrated or simply does not provide enough 'good' jobs. Policy inference from statistical procedures is always a potential minefield and the important issue of public sector pay is no exception. Further work on this important area should continue.

²⁰See, for example, Disney and Gosling (1998) for a use of such an approach and a critique of some of the inferences drawn from such techniques in this context.

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