

PRELIMINARY: PLEASE DO NOT QUOTE

**WHAT DETERMINES PUBLIC SECTOR PAY REVIEW BODY
DECISIONS IN THE UK?**

by

Peter Dolton

(Royal Holloway College, University of London and CEP,LSE)

and

Adeline Aw

(London School of Economics)

ABSTRACT:

This paper investigates the public sector pay determination process governed by the pay review body (PRB) system in the UK. It focuses on the factors determining the pay review outcomes and awards. While inflation and average earnings indicators, budget concerns, the unemployment rate, and political conditions were found to significantly influence recommendations, the relative strength of these influences on actual awards varied considerably. Pay awards were found to respond more to projected cost-of-living increases as measured by the inflation forecast. Pay awards in the Blair government era were found to be considerably lower than under other governments. Correspondingly, actual pay awards were observed to have little impact on the real earnings of PRB occupations conditional on PRB coverage.

1. INTRODUCTION

Since the establishment of the Doctors and Dentists Review Body (DDRB), Top Salaries Review Body (TSRB) and the Armed Forces Pay Review Body in 1971 by the Heath government, the pay review body (PRB) system has evolved over the past decades to cover nearly 1.5 million people or around 25% of public sector workers (Horsman, 2004). While similar independent review systems governing the pay of senior civil servants may be found in countries such as Canada, Japan and the Netherlands, the PRB system is a phenomenon unique to Britain in terms of its widespread coverage of non-managerial public sector employees (OECD, 1994). Given the significant size of its remit group, it is important that the pay determination process within the PRB system, and its impact on public sector pay, is well understood.

There are now 7 Pay Review Bodies (PRBs): the Doctors and Dentists Review Body (DDRB), Top Salaries Review Body (TSRB), the Armed Forces Pay Review Body (AFPRB), Nursing and Other Health Professions (NOHPRB), Prison Service Pay Review Body (PSPRB), School Teachers Review Body (STRB). These review bodies are charged with making recommendations on pay for their remit groups having regard to: the need to recruit, retain and motivate staff; regional and local variation in labour markets; Government departments output targets and expenditure limits and the overall Government inflation target. We seek to understand the process by which the PRBs fulfil this remit.

In this paper, we attempt to unravel the pay review process undertaken by the PRBs in order to determine the factors which affect both recommended and implemented pay awards each year. With data gathered from published PRB reports from 1971 to 2006, this issue is addressed in Section 3 using panel estimation on a series of potential explanatory variables derived from the tripartite bargaining-style process of pay determination.

2. BACKGROUND

While each of the seven PRBs currently in existence has its own defining characteristics, the PRBs are linked by several common features. All are established with a chair and a committee of members appointed by the Prime Minister, and are serviced by an independent civil service secretariat, the Office of Manpower Economics (White, 2000). Barring the statutory underpinnings of the teachers' pay arrangements, PRB recommendations are non-binding, although the government rarely rejects them outright. The deliberation process, involving both trade union and employers' bodies, starts as early as the last quarter of

the preceding year, with final reports reaching the government at the end of the preceding calendar year for decisions on implemented awards to be made by the start of the current year. Pay increases are then usually implemented from April of the current year.

As observed by Thomason (1985), PRBs cover public sector occupations which are not constrained by product market forces and where 'trading' is absent. Instead, some groups have been previously covered under Whitley-style negotiating processes which have broken down. In some PRB occupations, such as the medical and teaching professions, the state acts as a near-monopsonist. In fact, some PRB occupations are also those denied the opportunity to bargain independently over remuneration¹, or in need of protection from arbitrary policy changes. These factors have led the system to be portrayed as "a surrogate for the operation of the forces of either the market or collective bargaining" (Thomason, 2003, p. 82). Indeed, the system is traditionally viewed as a form of pay determination distinct from conventional collective bargaining (Fredman and Morris, 1989; OECD, 1994). White aptly describes the PRBs as institutions "halfway between fully-fledged collective bargaining and unilateral imposition by government" (White, 2000, p. 71).

White (2000) documents the chronological development of the pay review body (PRB) system and its role in public sector pay determination through the changing political and macroeconomic climate of the past three decades. In particular, White (2000) highlights a distinction in the rationale behind the establishment of the first three PRBs in 1971, and the creation of the following PRBs for nursing groups and teachers. While the creation of the former PRBs was a pragmatic response to fill the gap left by the collapse of the previous Kindersley Committee and provide some form of independent pay review for the groups involved, the latter are viewed as arrangements to contain conflict over pay determination following a period of increasing militancy and industrial action. It has been further suggested that the PRB system has remained politically attractive over the past decades as an 'arms length' mechanism for dealing with public sector groups deemed to be politically sensitive while avoiding open conflict. This view of the PRB system has been adopted in recent discussions of the system by Currie, Bacon and Hoque (2003) and White and Hatchett (2003). In a study of the PRBs' behaviour under the Labour government, Horsman (2003) showed that the PRBs have an independent 'policy personality' that is generally consistent over the long term. Combined with the politically expedient nature of the PRBs, White (2000) and White and Hatchett (2003) argue that these traits have led to the PRB system frustrating current attempts

¹ Marsden (1995) in Silvestre and Eraud (eds.) (1995).

to decentralise public sector pay determination and introduce more flexible private sector pay practices.

Despite the questions that have arisen in recent years regarding the effectiveness of the PRB mechanism as a means of pay determination for essential public sector occupations, evidence on the pay impact of the PRB system is almost non-existent. A recent paper by Makepeace and Marcenaro-Gutierrez (2006) examines data from the Labour Force Survey (LFS) and the NES over the 11-year period 1993 – 2003, focusing on the position of occupational groups covered by the PRBs. Controlling for age, educational level, region, working hours, and occupation, Dolton, Makepeace and Marcenaro-Gutierrez (2007) conduct yearly regressions of an individual's gross weekly earnings on these characteristics and relevant dummies to investigate the effect of working in the public sector and in specific PRB occupations on pay. Using Difference-in-Difference estimation they find that the impact of the PRB pay relative to the non-PRB public sector is negligible. This calls into question the *raison d'etre* of the PRBs and suggests that a careful examination of how PRBs make their decision is timely.

3. UNDERSTANDING THE PAY REVIEW PROCESS

Before looking at the impact of the PRB system on real earnings, however, the determinants of pay settlements within PRB groups must be better understood.

Data

An unbalanced panel of data on PRB recommendations and actual pay increases implemented by the government since the inception of each PRB was collated, and is summarised in Appendix 1. For the nursing occupations, recommendations for professions allied to medicine (PAMs) and that for nurses and midwives (NAMs) were made separately until 2004, when the two remit groups were combined under the Review Body for Nursing and Other Health Professions (NOHPRB). Hence, these recommendations have been separated to form two distinct series. Figures 1 and 2 below show the trends in pay recommendations and actual awards respectively over the period of analysis for the panel of PRB groups².

² An explanation of group name abbreviations is given in Appendix 1 footnotes.

Figure 1: Evolution of PRB Pay Recommendations over 1971 – 2006

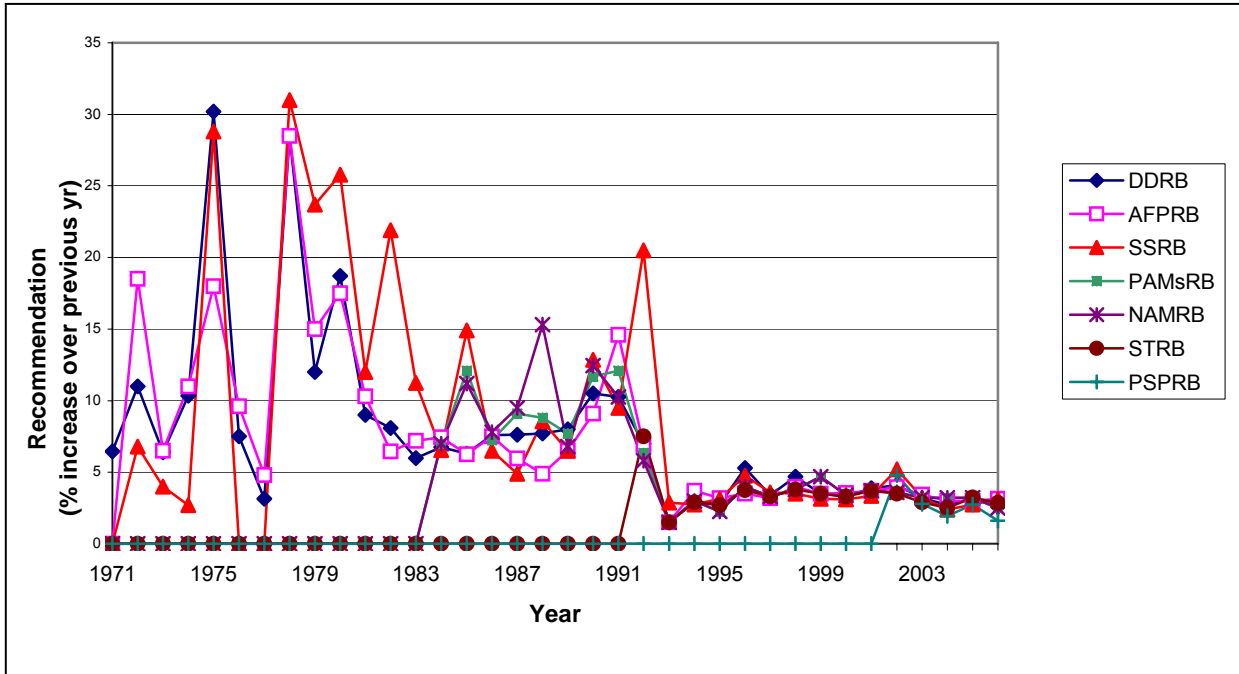
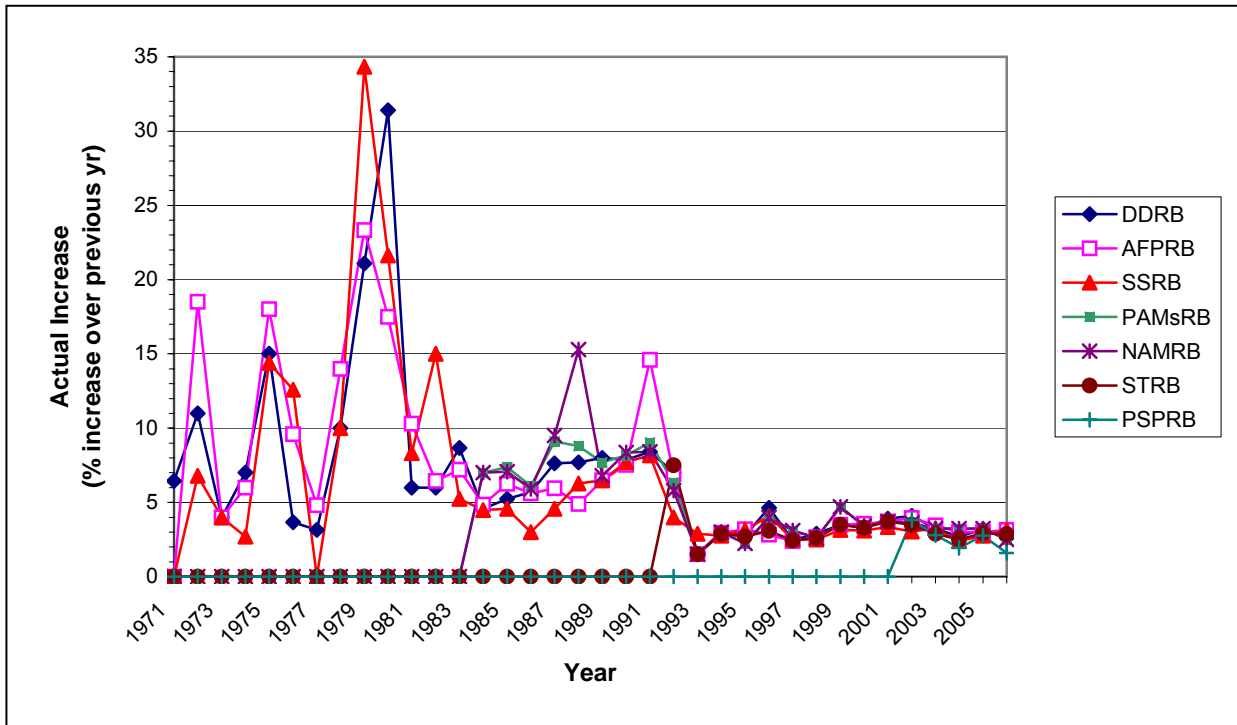


Figure 2: Evolution of Actual Pay Awards over 1971 – 2006



Explanatory Variables

As set out in each PRB report, the key historical role of the PRBs is to make pay recommendations using evidence obtained on the state of the economy, motivation, recruitment and retention concerns, as well as economy-wide pay comparisons. Thus, the following categories of regressors were considered as potential explanatory variables for pay review recommendations (PRR) and actual pay increases (ACT).

Inflation and average earnings evidence are likely to be a key influence in public sector pay determination, given the above emphases on the prevalent economic conditions and broad pay comparability. Consequently, 3 inflation indicators were considered: these include the percentage change in the retail price index in the year preceding the pay review (RPILAG), the first derivative of RPILAG over 6 months immediately preceding the review (RPIFD), and a forecast variable for inflation in the year of the review (FORECAST). Cost of living indicators and inflation indicators derived from survey data were also explored but excluded as these data series were incomplete for a significant part of the time frame. Similarly, 2 average earnings indicators were considered: the percentage change in the average earnings index for the whole economy in the year prior to the review (AEILAG) and the first derivative of AEILAG over 6 months immediately preceding the review (AEIFD). The use of AEIFD and RPIFD captures the effect of recent trends in inflation and average earnings on pay determination.

In addition, general labour market variables are likely to play a significant role. In particular, the unemployment rate for the whole economy in the year preceding the review (UNRLAG) is a possible indicator of the need for pay rises to facilitate recruitment and retention – a tighter labour market may create pay pressures owing to the need for expansion in staff numbers. On the other hand, the number of working days lost in the year preceding the review (WDLLAG) gives an indication of overall worker discontent, which may affect the outcomes of the pay review process if the PRBs are indeed an important mechanism in averting employer-employee conflict, as White (2000) suggested.

Government Comprehensive Spending Reviews are a fairly new innovation but governmental expenditure constraints have always been relevant to potential earning uplift recommendations. Budget considerations are also potentially relevant, given the presence of governmental representatives in the administration of the review process and especially since the implementation decision is undertaken by the government. Therefore, we consider two possible indicators of budget constraints that may limit pay increases – the public sector net

cash requirement in the preceding year (PSNCRLAG), which is an indicator of government borrowing, and total public sector real current expenditure in the preceding year (PSGROWLAG).

Finally, a set of political variables was included to investigate the extent to which the pay review process is affected by political forces. These include an indicator of the political party in power (PPP), an indicator of whether the review year was an election year (ELECT), and political survey indicators to measure the popularity of the ruling government (POGAVE and POGV). To further distinguish between the effect of the Blair Labour government and that of previous Labour governments, the PPP indicator was split into two indicators, LAB and BLAIR. A comprehensive list of the potential explanatory variables described is given in Appendix 2.

4. MODEL SPECIFICATION

Preliminary estimation suggested that variables RPILAG, RPIFD, FORECAST, AEILAG and AEIFD were closely related. To avoid multicollinearity problems, a more parsimonious specification of inflation and average earnings was sought. To this end, the correlation structure of the above set of variables was first investigated. The results are shown in Table 1 below.

Table 1: Correlation Coefficients Between Inflation and Average Earnings Indicators

ρ	RPILAG	RPIFD	AEILAG	AEIFD	FORECAST
RPILAG	1	.	.	.	.
RPIFD	-0.275	1	.	.	.
AEILAG	0.922	-0.057	1	.	.
AEIFD	-0.061	0.270	-0.116	1	.
FORECAST	0.771	0.290	0.845	0.225	1

The strong correlation between RPILAG and AEILAG above suggests that it would be very difficult to distinguish between the effects of the two indicators. Furthermore, these variables are also highly correlated with the FORECAST variable.

Preliminary estimation also suggested that the variable PSNCRLAG had an insignificant effect on any of the dependent variables considered, while a choice had to be made between using the PPP variable and distinguishing further between the Blair and non-Blair Labour governments.

To resolve these issues, the search for a sensible and relatively parsimonious specification was carried out by comparing the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) across models with different regressors but at least one variable from each regressor category. The following fixed effects panel specification, which was the best in terms of minimising both the AIC and BIC, was used in STATA:

$$\text{DEPVAR}_{it} = \beta_1 \text{RPIFD}_t + \beta_2 \text{FORECAST}_t + \beta_3 \text{AEIFD}_t + \beta_4 \text{UNRLAG}_t + \beta_5 \text{PSGROWLAG}_t + \beta_6 \text{WDLLAG}_t + \beta_7 \text{LAB}_t + \beta_8 \text{BLAIR}_t + \beta_9 \text{ELECT}_t + \beta_{10} \text{POGAVE}_t + \beta_{11} \text{POGV}_t + \text{CONSTANT} + \text{FIXED}_i + \varepsilon_{it}$$

where DEPVAR_{it} may be PRR_{it} or ACT_{it} ,

$$\sum_i \text{FIXED}_i = 0^3,$$

$$\varepsilon_{it} \sim \text{i.i.d.N}(0, \sigma_\varepsilon^2)^4, \tag{1}$$

This was chosen over a random effects specification for simplicity and due to the low cost in terms of degrees of freedom resulting from the small number of PRB groups relative to the time dimension. Hausman tests were performed to support this choice but failed due to small sample problems.

Given that explanatory variables such as the unemployment rate and inflation measures are used in the model, the presence of unit roots in the data series may be a cause for concern. In fact, with the exception of the unemployment rate variables and inflation indicators, the Elliott-Rothenberg-Stock (1996) modified augmented Dickey-Fuller test⁵ rejects the null hypothesis of a unit root for all other explanatory variables used in the model. However, with the relatively small sample size, it is doubtful that the modified unit root tests have sufficient power for obtained test results to have strong modelling implications. It is also unclear whether recently proposed panel augmented Dickey-Fuller tests such as Levin, Lin and Chu's (2002) test have sufficient power to correctly reject the null of a unit root in our small-sample

³ FIXED_i are the fixed effects associated with each PRB group. The given constraint is needed to avoid multicollinearity in the specification.

⁴ Where $\sim \text{i.i.d.N}(\cdot)$ indicates that the ε_{it} are independently drawn from an identical normal distribution.

⁵ Test results are given in Appendix 3.

unbalanced panel of dependent variables. With relatively short time dimensions of at most 36 years in the sample, we thus suggest that any apparent non-stationary behaviour detected in the explanatory variables or potential non-stationarity in the dependent variables may be modelled using persistent stationary processes and proceed with specification (1) above.

5. RESULTS

Estimation results for dependent variables PRR and ACT are reported below in Tables 2 and 3 respectively. Because of the relatively small sample sizes in our analysis, bootstrap standard errors are given for all parameter estimates.

In the estimation of the determinants of PRR above, strongly significant coefficients were obtained on the slope indicators, RPIFD and AEIFD. In particular, if inflation in the 6 months preceding the review is rising at the rate of 1 percentage point per month, the PRR is reduced by about 3.8 percentage points. This suggests that the magnitude of pay recommendations is dampened by the need to contain inflationary pressures on the economy. On the other hand, an increase in the AEI measure at the same rate appears to be accommodated by pay recommendations that are 4.1 percentage points higher. This suggests that rising average earnings in the economy is an opposing force to rising inflation in determining pay recommendations during periods where earnings and inflation move in tandem due to a need to maintain broad pay comparability. Given the low correlation found between RPIFD and AEIFD in the previous section, we submit that this result is robust and not a consequence of collinearity between regressors. A significant positive coefficient on FORECAST at the 5% level also implies that the forecast level of inflation for the review year influences pay decisions positively. Hence, while rising inflation trends exert a negative pressure on pay recommendations, a forecasted inflation level which is 1 percentage point higher leads to a 0.3 percentage points increase in pay recommendations, possibly due to pressure from the union side to match pay to predicted cost-of-living increases.

Other significant parameter estimates exhibited the expected signs. In particular, a rise in real public sector current expenditure of £1b (2005 prices) in the preceding fiscal year is associated with a 0.6 percentage point decrease in pay recommendations. This implies that government budget constraints are factored into the pay deliberation process and thus affect not only the actual pay rise implemented, but also recommendations made. Thus, Treasury concerns have a clear impact even at the recommendation stage.

**Table 2: Fixed Effects Panel Estimation of the Determinants of Pay Review
Recommendations**

DEPENDENT VARIABLE		PRR	
VARIABLE		PARAMETER ESTIMATE	P-VALUE
RPIFD		- 3.758*** (0.890)	0.000
FORECAST		0.320** (0.165)	0.053
AEIFD		4.100*** (0.882)	0.000
UNRLAG		- 0.633*** (0.253)	0.012
PSGROWLAG		- 0.571*** (0.094)	0.000
WDLLAG		0.172*** (0.044)	0.000
LAB		1.655 (2.477)	0.504
BLAIR		- 6.153** (1.515)	0.000
ELECT		0.337 (0.314)	0.284
POGAVE		0.122** (0.042)	0.003
POGV		0.079 (0.070)	0.258
CONSTANT		7.178** (3.045)	0.018
No. of observations	169	No. of groups	7
R² [Within]	0.7189	Wald statistic [X²₍₁₁₎]	41181.61
AIC	876.3	BIC	913.9
<p>Note: Nonparametric bootstrap standard errors in parentheses. *** denotes statistical significance at the 1% level, ** denotes statistical significance at the 5% level, * denotes statistical significance at the 10% level.</p>			

A possible sign of the influence of recruitment and retention concerns on the pay review process is the negative relationship obtained between UNRLAG and the PRR. A 1 percentage point increase in the unemployment rate in the preceding year is associated with a -0.6 percentage points lower pay recommendation for the current year, *ceteris paribus*. Taking into account the specialised skill requirements of some PRB occupations such as the medical and nursing professions, the economy-wide unemployment rate in the preceding year cannot be an accurate measure of current supply conditions in these labour markets given the time required to acquire the relevant skills, and especially if the education decision takes into account long-term expected returns. Nevertheless, a high general unemployment rate might be an indication of reduced competition from other sectors for labour of the equivalent skill level, and thus of some labour market slack. Under such circumstances, one might expect a less critical role for immediate pay increases in retaining workers and attracting entrants into PRB occupations.

The small but significant positive relationship found between the number of working days lost in the preceding year, which is indicative of trade union militancy, and the PRR confirms that the PRB deliberation process has characteristics similar to wage bargaining models. In many 'New Keynesian' models of union wage determination, for example, increased militancy due to greater trade union power, leads to greater bargaining power and thus a larger bargained wage increase. In the case of PRB occupations, while specific remit groups are denied the right to industrial action *per se*, we posit the existence of an indirect relationship. Increased trade union militancy in the general economy can result in a greater willingness to recommend larger pay increases, perhaps due to the need to forestall potential conflict or unhappiness among remit group occupations, which may have political consequences if left unaddressed.

A large disparity was found between the effect of Blair and non-Blair Labour regimes on pay recommendations, relative to Conservative regimes. Compared to the period of Conservative control, PRBs under the Blair Labour regime have been much less willing to recommend large pay increases, to the extent of over 6 percentage points less on average, even after controlling for the effects of the size of public expenditure and forecasted inflation. In contrast, PRBs under non-Blair Labour governments do not seem to differ greatly in behaviour compared to those during the Conservative regimes. This result, obtained for the time frame from the PRBs' inception to the present period, is in stark contrast with the findings in Horsman (2003). In the earlier work, Horsman examined recommended headline pay rates from 1992 to 2003 and concluded that PRB remit groups have done better in the post-1997

period under Labour in terms of both recommended awards and actual pay increases implemented.

Among the political variables explored, ELECT and POGV were found to have insignificant effects on PRR even at the 20% level. However, the PRR increases by slightly over 0.1 percentage points for every matching percentage points increase in POGAVE. This implies that pay recommendations are positively influenced to some extent by good prevailing political conditions.

With actual pay rises implemented (ACT) as the dependent variable in Table 3, coefficients of the same signs are obtained for most explanatory variables in this model compared to the previous one shown in Table 2. However, estimated magnitudes of the effects of RPIFD and AEIFD are almost halved while that of FORECAST has more than doubled. Compared to the PRBs, the government appears to be more willing to make pay concessions for higher forecasted inflation levels and associated cost-of-living changes, but less so for the purpose of bringing public sector pay in line with average earnings trends. Also, the estimated magnitude on the UNRLAG parameter is reduced by a third compared to that in the PRR case, indicating that actual pay awards are less responsive to signs of labour market slack, perhaps to ensure that recruitment and retention needs are sufficiently met.

While the magnitude of the BLAIR coefficient is now reduced by about a third compared to that in the model for PRR, it is still strongly significant, supporting the previous PRR model findings that contradict the Horsman (2003) results. In addition, a significant negative coefficient twice the magnitude of that on BLAIR was obtained on the LAB dummy. This indicates that non-Blair Labour governments have restrained actual pay increases to a greater extent than both the Blair and Conservative governments.

Table 3: Fixed Effects Panel Estimation of the Determinants of Actual Pay Awards

DEPENDENT VARIABLE		ACT	
VARIABLE		PARAMETER ESTIMATE	P-VALUE
RPIFD		- 2.247** (1.105)	0.042
FORECAST		0.791*** (0.252)	0.002
AEIFD		2.506*** (0.522)	0.000
UNRLAG		- 0.427*** (0.171)	0.013
PSGROWLAG		- 0.619*** (0.225)	0.006
WDLLAG		0.051 (0.043)	0.240
LAB		- 7.284*** (2.326)	0.002
BLAIR		- 3.745** (1.943)	0.054
ELECT		0.466 (0.322)	0.148
POGAVE		0.090 (0.068)	0.186
POGV		0.030 (0.042)	0.483
CONSTANT		4.217* (2.381)	0.077
No. of observations	170 (unbalanced panel)	No. of groups	7
R² [Within]	0.6512	Wald statistic [X²₍₁₁₎]	122374.87
AIC	862.4	BIC	900.0
<p>Note: Nonparametric bootstrap standard errors in parentheses. *** denotes statistical significance at the 1% level, ** denotes statistical significance at the 5% level, * denotes statistical significance at the 10% level.</p>			

On the other hand, the effect of working days lost in the previous year (WDLLAG) is now insignificant at the 20% level. This highlights a key difference between traditional forms of pay bargaining and the PRB structure of pay determination – while pay concessions to avoid conflict are present at the recommendation stage, these are not followed through at the implementation stage since recommendations are non-binding and the final implementation decision rests with the government. It is interesting that, in contrast to traditional Whitley-style wage bargaining processes where employee groups have a direct influence on actual pay awards, this system of negotiation has not broken down despite its insensitivity to trade union activity at the implementation phase.

Finally, the weakly significant positive coefficients found on ELECT and POGAVE suggest a tentative positive relationship between the government popularity, the occurrence of a general election in the review year and actual pay awards. Since the government undertakes the implementation decision, one would expect that the effect of political variables would carry through to the actual pay awards. It is possible that our use of crude political variables, such as the ELECT dummy, has introduced noise into the estimated relationship that may be eliminated with the use of more sensitive data from political surveys. However, improvements in this direction were not possible due to the lack of a relatively complete time series over the given period.

6. CONCLUSION

Using an empirical approach, we have attempted to shed light on the pay determination process which has been used for the determination of a large fraction of public sector employees over the last 35 years. Panel analysis of data collected on the pay recommendations and actual pay awards yielded quantitative evidence of the influence of PRB remit concerns, such as inflation, earnings comparability, and recruitment, on pay recommendations and awards.

Our analysis suggested that the process of pay determination is subtle with a variety of influences. In particular, budget concerns, the rate of increase in inflation, and the presence of labour market slack as indicated by the lagged unemployment rate exhibit a negative relationship with pay recommendations and awards. On the other hand, the rate of increase in

the average earnings index and cost-of-living increases as measure by the inflation level have a positive impact on pay recommendations, although the strength of this relationship is diminished with actual awards. Political factors are also found to influence pay recommendations. While PRBs are noted to have made substantially lower pay recommendations under the Blair Labour government after conditioning for other factors in the model, pay recommendations have also been observed to rise with current average government popularity. Furthermore, our results provide an indication that these political influences carry through to actual pay awards implemented. For example, the negative effect of the Blair political regime, which is as high as 6 percentage points in magnitude, is a finding that is robust with both pay recommendations and actual awards as dependent variables. What is abundantly clear from even the most cursory examination of Figure 1 and 2 is that from 1992 onwards we have been in a very new era of public sector wage increases. Specifically we are now in an era where all recommendations and all PRB remit group wage rises are *de facto* very close to the level of inflation. With this framework, future pay recommendations and awards may be better predicted using the relevant indicators and we may even pose the question of whether we need the PRBs to actually make recommendations at all!!.

ACKNOWLEDGEMENTS

The authors would like to thank Steve Palmer of the Office of Manpower Economics for access to the review body reports archive in the Office of Manpower Economics library.

REFERENCES

- Currie, G., B. Bacon and K. Hoque (2003), "Editorial: Pay in the Public Sector", *Public Money & Management*, 23 (4), pp. 219-221.
- Dolton, P. Makepeace, G. and O. Marcenaro-Gutierrez (2007), "The Earnings of Workers Covered by Pay Review Bodies: Evidence from the Labour Force Survey", Paper delivered at the Royal Economic Society, Warwick University.
- Elliott, G., T. Rothenberg and J. H. Stock (1996), "Efficient Tests for an Autoregressive Unit Root", *Econometrica*, 64, pp. 813-836.
- Fredman, S. and G. S. Morris (1989), *The State as Employer: Labour Law in the Public Services*, Mansell, London.
- HM Treasury, UK, *Forecasts for the UK Economy*, 12 Dec 2006, <http://www.hm-treasury.gov.uk/economic_data_and_tools/forecast_for_the_uk_economy/data_forecasts_in_dex.cfm>.
- Horsman, M. (2003), "Continuity and Change: Public Sector Pay Review Bodies, 1992-2003", *Public Money & Management*, 23 (4), pp. 229-236.
- Horsman, M. (2004), "The Pay Review Bodies Revisited", *Public Money & Management*, 24 (5), pp. 317-320.
- Ipsos MORI, *Political Monitor: Voting Intention in Great Britain 1979 – Present*, 12 Dec 2006, <<http://www.ipsos-mori.com/polls/trends/voting-all-trends.shtml>>.
- King, A. and R. J. Wybrow (eds.) (2001), *British Political Opinion, 1937 – 2000: The Gallup Polls*, Politicos Publishing, London.
- Levin, A., C. F. Lin and C. S. J. Chu (2002), "Unit Root Tests in Panel Data: Asymptotic and Finite Sample Properties", *Journal of Econometrics*, 108, pp. 1-24.
- Ng, S. and P. Perron (1995), "Unit Root Tests in ARMA Models with Data Dependent Methods for the Selection of the Truncation Lag", *Journal of the American Statistical Association*, 90, pp. 268-81.
- Office for National Statistics, UK, *Time Series Data*, 01 Apr 2006, <<http://www.statistics.gov.uk/statbase/tsdintro.asp>>.
- Office of Manpower Economics, UK (2007), *Review Body on Doctors' and Dentists' Remuneration Members' Guide*.
- Office of Manpower Economics, UK (2007), *Review Body for Nursing and Other Health Professions Members' Guide*.
- Organisation for Economic Co-operation and Development (OECD) (1994), "Public Service Pay Determination and Pay Systems in OECD Countries", Public Management Occasional Papers, 1994 Series No. 2, Paris.
- Reports of the Pay Review Bodies (1971 – 2006), available from the Office of Manpower Economics, UK.

- Silvestre, J. J. and F. Eyraud (eds.) (1995), "Pay Determination in the Public Sector: An International Comparison between France, Great Britain and Italy", International Labour Office Labour Law and Labour Relations Programme, Occasional Paper No. 6, Geneva.
- Thomason, G. F. (1985), "The Pay Review Bodies", *Health Services Manpower Review*, 11 (3), pp. 1-6.
- Thomason, G. F. (2003), "Adjusting the Role of the Pay Review Bodies", *Croner's Human Resources and Employment Review*, 1 (2), pp. 81-86.
- White, G. (1997), *The Office of Manpower Economics 1971 – 1996: A Historical Review of Its Role, Functions and Activities*, University of Greenwich Business School, Appendix 1: Summary of Pay Review Body Recommendations.
- White, G. (2000), "The Pay Review Body System: Its Development and Impact", *Historical Studies in Industrial Relations*, 9 (Spring 2000), pp. 71-100.
- White, G. and A. Hatchett (2003), "The Pay Review Bodies in Britain under the Labour Government", *Public Money & Management*, 23 (4), pp. 237-244.

APPENDIX 1

Dependent Variables: Pay Review Body Recommendations and Actual Pay Awards Implemented

YEAR	DDR ⁶		AFPR ^{7*}		SSRB ^{8*}		PAMs ⁹		NAMs ¹⁰		STRB ¹¹		PSPRB ¹²	
	PRR ¹³	ACT ¹⁴	PRR	ACT	PRR	ACT	PRR	ACT	PRR	ACT	PRR	ACT	PRR	ACT
1971	6.45*	6.45	.	.	.	.	.	.	.	.	.	.	.	.
1972	11*	11	18.5	18.5	6.8	6.8	.	.	.	.	.	.	.	.
1973	6.4*	4	6.5	4	4	4	.	.	.	.	.	.	.	.
1974	10.35*	7	11	6	2.7*	2.7	.	.	.	.	.	.	.	.
1975	30.2 [¶]	15	18	18	28.8 [¶]	14.4	.	.	.	.	.	.	.	.
1976	7.5*	3.671	9.6	9.6	.	12.587	.	.	.	.	.	.	.	.
1977	3.15*	3.15	4.8	4.8	.	.	.	.	.	.	.	.	.	.
1978	28.5 [¶]	10	28.5* [¶]	14	31 [¶]	10	.	.	.	.	.	.	.	.
1979	12	21.091	15	23.333	23.7	34.336	.	.	.	.	.	.	.	.
1980	18.7	31.4	17.5*	17.5	25.8	21.63	.	.	.	.	.	.	.	.
1981	9	6	10.3 [◊]	10.3	12	8.325	.	.	.	.	.	.	.	.
1982	8.1	6	6.45*	6.45	21.9	15	.	.	.	.	.	.	.	.
1983	6	8.67	7.2 [◊]	7.2	11.248 [†]	5.25	.	.	.	.	.	.	.	.
1984	6.75 [†]	4.563	7.45* [†]	4.854	6.55* [†]	4.479	7*	7	7*	7	.	.	.	.
1985	6.3*	5.25	6.25*	6.25	14.9* [†]	4.575	12.1 [†]	7.367	11.2* [†]	7.067	.	.	.	.
1986	7.6 [◊]	5.7	7.5	5.6	6.5	3	7.25*	6.1	7.8	5.9	.	.	.	.
1987	7.625*	7.625	5.96	5.96	4.9* [†]	4.575	9.1	9.1	9.5	9.5	.	.	.	.
1988	7.7*	7.7	4.9	4.9	8.55 [†]	6.275	8.8	8.8	15.3	15.3	.	.	.	.
1989	8	8	6.5*	6.5	6.5	6.5	7.7	7.7	6.8	6.8	.	.	.	.
1990	10.5* [†]	7.875	9.1* [†]	7.525	12.85* [†]	7.713	11.7* [†]	8.175	12.45* [†]	8.363	.	.	.	.

⁶ DDRB: Review Body on Doctors' and Dentists' Remuneration.

⁷ AFPRB: Armed Forces' Pay Review Body.

⁸ SSRB: Review Body on Senior Salaries (formerly Review Body on Top Salaries 1971 – 1992).

⁹ PAMs / PAMsRB: Professions Allied to Medicine (part of the remit group of the Review Body for Nursing and Other Health Professions, NOHPRB).

¹⁰ NAMs / NAMRB: Nurses and Midwives (part of the remit group of the Review Body for Nursing and Other Health Professions, NOHPRB).

¹¹ STRB: School Teachers' Review Body.

¹² PSPRB: Prison Service Pay Review Body.

¹³ Pay Review Body pay rise recommendation for the current year starting 1st April.

¹⁴ Actual pay rise implemented by government for the current year starting 1st April.

1991	10.25* [†]	8.417	14.6*	14.6	9.5 [†]	8.167	12.1* [†]	9.033	10.25* [†]	8.417	.	.	.	.
1992	7*	7	6.9*	6.9	20.5* [¶]	4	6.35*	6.35	5.8*	5.8	7.5	7.5	.	.
1993	1.5	1.5	1.5	1.5	2.885	2.885	1.5	1.5	1.5	1.5	1.5	1.5	.	.
1994	3	3	3.7* [†]	2.95	2.75	2.75	3	3	3	3	2.9	2.9	.	.
1995	2.75	2.75	3.2*	3.2	3.15*	3.15	2.25*	2.25	2.25*	2.25	2.7	2.7	.	.
1996	5.3* [†]	4.633	3.5* [†] [▲]	2.833	4.75* [†]	4.083	4	4	4	4	3.75 [†]	3.083	.	.
1997	3.4 [†] [▲]	2.467	3.2* [†]	2.4	3.6* [†]	2.533	3.3 [†]	3.11	3.3 [†]	3.11	3.3 [†]	2.433	.	.
1998	4.7* [†]	2.9	3.975* [†]	2.658	3.5 [†]	2.5	3.8 [†]	2.6	3.8 [†]	2.6	3.8 [†]	2.6	.	.
1999	3.5	3.5	3.5*	3.5	3.15*	3.15	4.7	4.7	4.7	4.7	3.5	3.5	.	.
2000	3.3	3.3	3.55*	3.55	3.1*	3.1	3.4	3.4	3.4	3.4	3.3	3.3	.	.
2001	3.9	3.9	3.7	3.7	3.35*	3.35	3.7	3.7	3.7	3.7	3.7	3.7	.	.
2002	4.1	4.1	3.95*	3.95	5.2*	3.05	3.6	3.6	3.6	3.6	3.5	3.5	4.8 [†]	3.825
2003	3.225	3.225	3.45*	3.45	3.249*	3.249	3.225*	3.225	3.225*	3.225	2.9	2.9	2.8	2.8
2004	2.7*	2.7	3*	3	2.4*	2.4	3.225*	3.225	3.225*	3.225	2.5	2.5	1.95*	1.95
2005	3.2*	3.2	3	3	2.75*	2.75	3.225*	3.225	3.225*	3.225	3.25 [†]	2.938	2.75*	2.75
2006	2.6*	2.6	3.15*	3.15	3.125*	3.125	2.5*	2.5	2.5*	2.5	2.86	2.86	1.6	1.6

Further notes on methodology:

* Midpoint of a range of recommendations.

[†] Staged within the current year starting 1st April. Actual increase reflects value of the award over the current year starting 1st April, taking into account staging effects.

[¶] Staged over subsequent years. Actual increases in subsequent years reflect staged awards implemented in addition to current year awards. Figures for subsequent stages of awards (as a % of the base year) are made comparable to the current year awards by expressing them as a % rise over the previous year's actual pay levels.

[◇] Figure reflects average increase in total paybill.

[▲] Excludes increases to basic pay awarded as pensions compensation payments.

[◆] Excludes increases to the X-factor for armed forces pay.

^{*} Determined by the National Health Service (NHS) Agenda for Change deliberations.

[▼] No review in 1976 and 1977.

Sources:

1. White, Geoff (1997), *The Office of Manpower Economics 1971 – 1996: A Historical Review of Its Role, Functions and Activities*, University of Greenwich Business School, Appendix 1: Summary of Pay Review Body Recommendations.
2. White, Geoff (2000), "The Pay Review Body System: Its Development and Impact", *Historical Studies in Industrial Relations*, Vol 9. pp.71 – 100, Appendix.
3. Office of Manpower Economics (2007), *Review Body on Doctors' and Dentists' Remuneration Members' Guide*.
4. Office of Manpower Economics (2007), *Review Body for Nursing and Other Health Professions Members' Guide*.
5. Reports of the Pay Review Bodies (1971 – 2006), available from the Office of Manpower Economics, UK.

APPENDIX 2

List of Explanatory Variables for Tables 2 and 3

SERIES	DESCRIPTION	SOURCE
RPI	Annual inflation (% change in the Retail Price Index).	ONS ¹⁵ series CZBH (annual).
RPILAG	Annual inflation (% change in the Retail Price Index) in the preceding year.	ONS series CZBH (annual).
RPIFD	First derivative of the least squares line passing through monthly figures for the % change in the Retail Price Index (over last 12 months) from Sept of previous year to Feb of current year.	ONS series CZBH (monthly).
CYFCAST	Current year Treasury inflation forecast (based on RPIX) for 1977 – 2003 (made in Q4 of previous year). No comparable series based on RPIX after 2003.	Treasury-provided historical inflation forecasts for 1977 – 1997. 1994 – 1997 figures are the year-ahead HM Treasury forecasts in the preceding year. 1998 – 2003 figures from the January reports on the HM Treasury website ¹⁶ .
FORECAST	Inflation forecast for the current year derived by augmenting missing data in the CYFCAST series with current year realisations of inflation measured by RPI.	See RPI and CYFCAST.
AEILAG	Annual % change in Average Earnings Index for the Whole Economy (seasonally adjusted) in the preceding year.	ONS series LNMU.
AEIFD	First derivative of the least squares line passing through monthly figures for % change in Average Earnings Index (over last 12 months) from Sept of previous year to Feb of current year.	ONS series LNMU.
UNR	Current annual unemployment rate for age 16 and over (% , seasonally adjusted).	ONS series MGSX.
UNRLAG	Annual unemployment rate for age 16 and over (% , seasonally adjusted) in the previous year.	ONS series MGSX.
PSNCR	Public sector net cash requirement (£b) in real terms (not seasonally adjusted). Deflated by the GDP deflator (2005 prices).	ONS series RURQ. GDP deflator calculated from ONS series YBHA and ABMI. Base year (100) = 2005. Formula: YBHA/ABMI * 100.
PSNCRLAG	Public sector net cash requirement (£b) in real terms (not seasonally adjusted) in the preceding year. Deflated by the GDP deflator (2005 prices).	ONS series RURQ. GDP deflator calculated from ONS series YBHA and ABMI. Base year (100) = 2005.

¹⁵ Office for National Statistics, UK. ONS data from <<http://www.statistics.gov.uk/statbase/tsdintro.asp>>.

¹⁶ Taken from <http://www.hm-treasury.gov.uk/economic_data_and_tools/forecast_for_the_uk_economy/data_forecasts_index.cfm>.

		Formula: YBHA/ABMI * 100.
PSGROW	Public sector total current expenditure (£b) in real terms (not seasonally adjusted). Deflated by the GDP deflator (2005 prices).	ONS series ANLT. GDP deflator calculated from ONS series YBHA and ABMI. Base year (100) = 2005. Formula: YBHA/ABMI * 100.
PSGROWLAG	Public sector total current expenditure (£b) in real terms (not seasonally adjusted) in the preceding year. Deflated by the GDP deflator (2005 prices).	ONS series ANLT. GDP deflator calculated from ONS series YBHA and ABMI. Base year (100) = 2005. Formula: YBHA/ABMI * 100.
WDLLAG	Total working days lost (in millions) for all industries and services in the preceding year.	ONS series BBFW.
PPP	Dummy variable indicating the political party in power. 1 = Labour 0 = Conservative	-
LAB	Dummy variable indicating the ruling political party 1 = non-Blair Labour government 0 = otherwise	LAB and BLAIR together are collinear with PPP.
BLAIR	Dummy variable indicating the ruling political party 1 = Blair Labour government 0 = otherwise	LAB and BLAIR together are collinear with PPP.
ELECT	Dummy indicating whether the year was an election year. 1 = election year 0 = otherwise	-
POGAVE	Average percentage of respondents who answered that they would vote for the party actually in power in that year.	Figures for 1971 – 2000 taken from King and Wybrow (2001). Figures for 2001 – 2006 taken from the Ipsos MORI Political Monitor: Voting Intention in Great Britain 1979 – present ¹⁷ .
POGV	Sample variance for each year's survey results on the popularity of the government in power.	Figures for 1971 – 2000 taken from King and Wybrow (2001). Figures for 2001 – 2006 taken from the Ipsos MORI Political Monitor: Voting Intention in Great Britain 1979 – present.

¹⁷ Taken from <<http://www.ipsos-mori.com/polls/trends/voting-all-trends.shtml>>.

APPENDIX 3

Elliott-Rothenberg-Stock (1996) Modified Augmented Dickey-Fuller Test

The Elliott, Rothenberg and Stock (ERS) (1996) test is a modified augmented Dickey-Fuller Generalised Least Squares (DFGLS) test of

$H_0 : \rho = 1$ (null hypothesis of a unit root) against

$H_1 : \rho < 1$

for the series $\{y_t\}$. This is done by estimating the following equation:

$$y_t^d = \rho y_{t-1}^d + \sum_{j=1}^k \phi_j \Delta y_{t-j}^d + v_t \quad \text{where } v_t \sim \text{i.i.d.}N(0, \sigma_v^2),$$

$\{y_t^d\}$ in the above equation is the generalised least squares de-trended series obtained from $\{y_t\}$.

Results are presented in the table below for the optimal lag length k chosen using the sequential t-test proposed by Ng and Perron (1995), which removes successive lags in a general-to-specific model selection framework.

We reject H_0 at the 10% level if the DF-GLS τ test statistic exceeds the given critical value. Variables for which this is true are identified by an asterisk in the table above.

VARIABLE	DF-GLS τ TEST STATISTIC	10% CRITICAL VALUE	OPTIMAL LAG LENGTH K
WDL*	- 2.506	- 2.377	9
PSGROW*	- 3.636	- 2.866	3
FORECAST*	- 3.215	- 2.660	5
RPIFD	- 1.448	- 2.764	4
AEIFD	- 1.616	- 2.764	4
AEI*	- 5.021	- 2.660	5
UNR	- 1.676	- 2.371	9
UNR^M	- 1.547	- 2.371	9
UNR^F	- 1.541	- 3.039	1