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Benchmarking, Social Partnership and Higher Remuneration: Wage Settling Institutions and the Public-Private Sector Wage Gap in Ireland

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Abstract: This paper uses data from the 2003 and 2006 National Employment Surveys to analyse the public-private sector wage gap in Ireland. In particular, we investigate the impact of awards implemented under a number of wage setting institutions on the pay differential. These include the pay increases awarded by the Public Service Benchmarking Body in its first report and the increases given to higher-level posts in the public sector by the Review Body on Higher Remuneration in the Public Sector, Reports No. 40 and 41. The pay increases that were awarded under the Social Partnership process in Sustaining Progress and the Mid-term Review of Part Two of Sustaining Progress are also captured in the data used. The results indicate that the public sector pay premium increased dramatically from 7.7 to 23.5 per cent between 2003 and 2006. Furthermore, we found that by 2006 senior public service workers earned approximately 10 per cent more than their private sector counterparts, while those in lower-level grades earned between 24 and 32 per cent more. The public premium results derived in this paper relating to March 2006 predate the payment of the two most recent Social Partnership wage deals, along with the pay increases awarded in the second Benchmarking exercise and by the Review Body on Higher Remuneration in Reports No. 42 and 43. The results presented raise serious questions with respect to the justification for any further boosts to the pay levels of public sector workers.

Key words: Public-Private Sector Pay Gap, Wage Setting Institutions, Employer-Employee Linked Data, Ireland.

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Benchmarking, Social Partnership and Higher Remuneration: Wage Settling Institutions and the Public-Private Sector Wage Gap in Ireland

1.0 Introduction

Over the last decade, there has been a great deal of discussion about pay levels in the public sector in Ireland, and in particular about how wage rates in this sector compare with those in the private sector. From a policy perspective, there are a number of reasons why the relationship between pay in the public and private sectors is of importance. Firstly, policy-makers must ensure that pay rates in the public sector are of a sufficient level to attract and retain individuals with the qualifications and skills required to deliver good, quality, public services. Secondly, wage levels in the public sector should not lead the private sector as such a scenario will have potential knock-on effects on an economy's competitiveness (via wage inflation). Thirdly, a significant gap between public and private sector wages will influence competition for workers between both sectors. The consequence of this is that the private sector will be 'crowded-out' unless private sector wages increase. Finally, as the public sector wage bill is financed through taxation, in situations where an economy is fiscally constrained, governments must ensure that scarce tax resources are used optimally.

The current downturn in the Irish economy, and the consequential sharp deterioration in the public finances, has propelled the issue of public sector pay levels, and relativities with private sector wages, to the fore as a policy issue. Since the beginning of the current decade, much of the debate on public sector pay in Ireland has focussed on the wage processes that have awarded public sector workers considerable pay increases. In particular, the work of the *Public Service Benchmarking Body* (PSBB) has received much attention. A number of studies (Ruane & Lyons (2002) and O'Leary (2002)) questioned the awards made by the PSBB in its first report (June 2002) on the basis that the Body provided no evidence that public sector workers pay lagged behind their private sector counterparts. The researchers argued instead that public sector workers enjoyed a wage premium at this time, an assertion that has been subsequently supported by empirical evidence (Boyle, McElligot & O'Leary, 2004).

A second benchmarking report was produced in December 2007 which recommended pay increases to public servants in more senior positions. However, as with the first report, there was some doubt surrounding the extent to which public sector pay levels lagged behind the private sector.

In addition to the awards made under Benchmarking, senior officials in the public sector have received substantial pay increases in recent years from the *Review Body on Higher Remuneration in the Public Sector*. Beyond these wage setting rounds specific to the public sector, both public and private sector workers have benefitted from a series of regular wage increases implemented under the national Social Partnership pay agreements. The national wage deals apply to the private sector as well, where wages have not been agreed on at the local level. However, a smaller proportion of private sector workers are covered by the national pay deals (Barrett, Callan & Nolan (1999) and McGuinness, Kelly & O'Connell, (2008)).

Given the importance of the public-private sector wage gap, particularly in the current economic climate, the principle objective of this paper is to identify the impact that the three wage determination mechanisms discussed above – Benchmarking, the Review Body and the national pay deals – have had on the public-private sector wage differential in Ireland between 2003 and 2006. In particular, we investigate the effects of the following on the public-private sector wage gap: i) the pay increases that were awarded to public servants under the first Benchmarking exercise, ii) the increments given to higher-level posts by the Review Body in Reports No. 40 and 41, and iii) the wage increases that were agreed by the social partners in the *Sustaining Progress* and the *Mid-term Review of Part Two of Sustaining Progress* national pay deals. The public-private sector wage gap is analysed in terms of the overall differential and across the earnings distribution. Data from the 2003 and 2006 National Employment Survey's (NES's), a survey conducted by the Central Statistics Office (CSO), are used to undertake this analysis. The 2003 National Employment Survey (NES) data captures earnings prior to the increases given by the PSBB, the Review Body and the national wage agreements, and the 2006 data earnings post the implementation of these three wage-setting rounds.

The remainder of the paper is structured as follows. In Section 2 we provide some contextual information on the three wage determination processes analysed – Benchmarking, the Review Body and the national pay deals - along with an overview of the most recent research on the public-private sector pay gap in Ireland. The data and methodologies employed in the paper are outlined in Section 3. The results from our analyses are presented in Section 4. Finally, we conclude in Section 5 with a summary of our findings and some potential policy implications.

2.0 Context and Literature

Table 1 sets out the various pay increases that public sector workers have been awarded between 2003 and 2008 from Benchmarking, the Review Body and the national wage deals. As indicated in Section 1, the data that we use in this paper allows us to capture the impact of payments made under each of these three wage determination mechanisms between 2003 and 2006. However, we are unable to identify the impact of the pay increases that have been awarded to public sector workers since 2006, under each of the three wage setting processes mentioned above, as they fall outside the capture period of our data. Thus, the wage increases that public sector workers have received since 2006, which are set out in Table 1, should be borne in mind when evaluating the results that are presented later in the paper. We now give a brief description of the various processes that have given public sector workers pay increases between 2003 and 2006.

2.1 The Public Service Benchmarking Body (PSBB)

In June 2000, the *Public Service Benchmarking Body* (PSBB) was established in Ireland to examine and make recommendations on the pay levels of all key grades in the public service¹ in comparison with equivalent positions in the private sector². The establishment of the PSBB was a provision in the *Programme for Prosperity and*

¹ See Public Service Benchmarking Body (2002), Appendix A for a list of the public sector grades covered by the PSBB.

² Craft workers and general operatives in the public sector are covered by a *Parallel Benchmarking Process* and not by the PSBB. This process produced increases of about 17 per cent in its first report. A second process is currently underway (Department of Finance, 2008).

Fairness (PPF)³, the fifth Social Partnership agreement⁴. The Body's formation came about as a result of a recognition by the Government and social partners that the traditional approach to pay determination in the public service, which was predominately based on cross-sectoral relativities, had become unsustainable. In particular, pay increases were being progressively awarded to some grades without justification, which in turn led to pay demands from other groups within the sector. The upshot of this chain of pay claims, based on relativities, was the creation of substantial industrial relations problems around the end of the 1990s (e.g. the Garda blue flu). Discontent among public sector workers that pay levels in the private sector were above the norms set in the *Programme for Competitiveness and Work* national pay agreement⁵ added further fuel to the growing industrial relations unrest that took place at this time (PSBB, 2007). Specifically, public servants felt that their private sector counterparts were benefiting more from the significant economic growth that was taking place in the country at the time. Thus, the Benchmarking process was established by the Government and social partners to institute a new method of pay determination in the public service and also to ensure equity between public and private sector workers.

After undertaking a comprehensive assessment of the jobs, pay and conditions of both public and private sector workers, the PSBB delivered its first report in June 2002 in which it recommended varying levels of pay increases, ranging from 2 to 27 per cent, and averaging 8.9 per cent for the 138 public service grades examined⁶. The grades covered included administrative/clerical grades, civil servants, local authority workers, the Gardai, teachers, nurses, other health professionals and the defence forces. Following full implementation of the recommended increases, it is estimated that the extra cost to the Exchequer has been €1.2 billion per annum (PSBB, 2007)⁷.

³ Framework I, Annex II (page 39).

⁴ Social Partnership agreements are national programmes that set out income, fiscal, social, economic and competitiveness policy recommendations to ensure the country's future economic and social development. There have been nine agreements since the Social Partnership process commenced in 1987. Each agreement is negotiated through dialogue between the Government and the social partners. The social partners include trade unions, the main employer organisations, farming groups and the community and voluntary sector.

⁵ Third Social Partnership agreement.

⁶ The pay increases that were recommended, which were to be linked public sector modernisation plans, affected the pay levels of 230,000 public servants (PSBB, 2002).

⁷ The pay increases were introduced on a phased basis. One-quarter of the increases were backdated to the 30th November 2001, a provision that had been agreed on by the Government and social partners in

The Government and social partners agreed to a second Benchmarking exercise in 2004⁸, which resulted in a subsequent report being published in December 2007. On this occasion, after taking explicit account of the fact that public service pensions are more valuable than those in the private sector⁹, the PSBB found that the pay levels of only a few of the more senior public service grades lagged behind their private sector counterparts. Specifically, pay increases were only recommended for 15 of the 109 grades analysed, at an estimated annual cost of €50 million on full implementation¹⁰.

2.2 *The Review Body on Higher Remuneration in the Public Sector*

The *Review Body on Higher Remuneration in the Public Sector*¹¹, hereafter referred to as the Review Body, was established in May 1969 to advise the Government on the pay levels of the top posts in the public sector, such as members of the government, ministers of state, senior civil servants outside the scope of the civil service conciliation and arbitration scheme¹², the judiciary and so on¹³. Since its establishment, the Review Body has, by and large, conducted a general review of the remuneration levels of the posts under its remit every four years. A general review was due in 2004, however, the Minister for Finance at the time decided that the next report by the Review Body should coincide with the PSBB's second benchmarking report. Thus, the 2004 general review was postponed until 2007¹⁴. Nevertheless, in April 2005 the Government asked the Review Body to examine the pay levels of the public sector posts covered by it to identify if their wages had fallen behind their

December 2000. This first payment was sanctioned in May 2003, thus, it is not covered in the 2003 NES earnings data. The second phase, which covered half of the recommended increases, was paid on the 31st December 2003 and the final phase was paid on the 31st May 2005.

⁸ During the negotiations of the *Mid-Term Review of Part Two of Sustaining Progress* (Department of the Taoiseach, 2004).

⁹ The PSBB discounted private sector workers pay rates by 12 per cent to take account of the superior value of public service pensions (PSBB, 2007).

¹⁰ In the most recent Social Partnership agreement, *Towards 2016: Review and Transitional Agreements 2008-2009*, the social partners agreed that 5 per cent of the increases recommended in the second Benchmarking exercise should be paid from 1st September 2008, with payment of any balances to be discussed between the social partners in the context of any successor to the current agreement (Department of the Taoiseach, 2008).

¹¹ Also referred to in the literature as the "Buckley Review Group".

¹² Including secretaries general of government departments.

¹³ The salaries of chief executives of commercial state bodies and members of the House of the Oireachtas are no longer covered by the Review Body, since 1999 and 2005 respectively. See Review Body on Higher Remuneration in the Public Sector (2007) for an up to date list of the posts covered by the Review Body.

¹⁴ Going forward, the two payment exercises will be conducted at the same time (Review Body on Higher Remuneration in the Public Sector, 2005).

private sector counterparts since the last general review was conducted in 2000 and, if so, to recommend an interim increase to rectify them¹⁵. The Review Body was asked to report within two months (June 2005), consequently, the Body decided to examine the pay movements of the groups within its terms of reference as opposed to individual posts. In its examination, the Review Body found that the pay levels of the public sector groups covered by it had significantly fallen behind their private sector counterparts. Consequently, in their interim report, Report No. 40, the Review Body recommended a 7.5 per cent interim increase to basic salary for all the groups within its remit. Half of the recommended increase was paid on the 1st July 2005 and the balance on the 1st January 2006. A second interim report was produced at the end of 2005, Report No. 41, which covered certain higher-level positions within the Health Service Executive. In this report, the Review Body recommended that a 4 per cent increase be given to the posts examined, which was paid on the 1st January 2006.

The general review report by the Review Body, Report No. 42, was published in September 2007. This covered all the individual posts within the Body's terms of reference, as opposed to the broad public sector groupings. As with the PSBB in its second Benchmarking exercise, the Review Body took explicit account in the 2007 general review of the fact that public sector pensions are substantially more valuable than those in the private sector¹⁶. In doing this, the Body still found that some of the posts within its remit lagged behind comparable positions in the private sector and, therefore, recommended pay increases that ranged from zero to 36 per cent. A second general review report, Report No. 43, was produced in July 2008, which covered certain higher-level public sector positions (for example, posts in the Labour Court and State Solicitors) that could not be covered in the 2007 general review. The awards recommended in this report ranged from zero to 14 per cent. Five per cent of the increases in both of the general review reports were paid on the 1st September 2007.

¹⁵ The perception held at the time of the interim review was that the pay levels of the top posts in the public sector did lag behind comparable private sector workers and that seven years was too long for these public servants to have to wait to be reimbursed.

¹⁶ In the 2007 general review, the Review Body discounted private sector salaries by 15 per cent to account for the anomaly in the value of pensions between the posts within its remit and their equivalent counterparts in the private sector (Review Body on Higher Remuneration in the Public Sector, 2007).

However, given the current economic climate, payment of all pending awards has been suspended and will be reviewed in September 2010¹⁷.

2.3 *Social Partnership Pay Agreements*

Over the last decade and a half, the main mechanism that has determined public sector workers' wages has been the national pay agreements that have been negotiated under Social Partnership¹⁸. There have been nine pay deals to date, the most recent of which was agreed in October-November 2008. In the early days of Social Partnership modest wage increases were agreed on by the social partners in return for income tax reductions to boost take home pay, because of the bleak economic situation that the country was in when the pay agreements were first negotiated. However, as the economy recovered and moved into the 'Celtic tiger' era, larger pay increments were given in the national pay deals.

The pay agreements apply across both the public and private sector. However, as union density is lower in the private sector, a smaller proportion of workers in this sector are covered by the pay deals (Fitz Gerald, 1999). This aside, there are also clauses attached to the application of the pay increases in the private sector. Specifically, the recommended increases are negotiated between employers and unions "with due regard had to the economic, commercial and employment circumstances of the particular firm, employment or industry, whether arising from exchange rate movements or otherwise" (Sustaining Progress, p. 75)¹⁹. Thus, the pay increases are not automatically awarded in the private sector, as they are in the public sector. In addition, private sector employers can claim inability to pay the terms of the national wage agreement if its implementation was to result in a serious loss of competitiveness or employment in the firm in question. This clause in the private sector component of the pay agreements is increasingly likely to be invoked by employers given the current economic environment. Of course, pay deals in excess of the terms of the national agreements may also be negotiated in the private sector.

¹⁷ In July 2008, the Taoiseach announced that ministerial and parliamentary office-holders would not receive any of the payments that were awarded to them in the 2007 general review and that this decision would be reviewed in September 2010.

¹⁸ See footnote 5.

¹⁹ This private sector pay clause applies in all the pay agreements.

Sustaining Progress and the *Mid-Term Review of Part Two of Sustaining Progress* are the two pay agreements that are covered by the data used in this paper. The former pay deal awarded workers 7 per cent, which was paid in three phases between the 1st January 2004 and the 1st December 2004, while the latter wage agreement gave workers a 5.5 per cent increase in basic pay²⁰ between the 1st June 2005 and the 1st of June 2006²¹. The two subsequent pay deals, not covered by the data used in this study, are *Towards 2016* and *Towards 2016: Review and Transitional Agreement 2008-2009*. The *Towards 2016* pay deal awarded workers between 12.5 and 13 per cent, paid between 1st December 2006 and 1st September 2008, while under the latter agreement, which is the most recent, workers will receive between 5.5 to 6 per cent over a 21 month period.

2.4 Literature

In terms of the literature, a number of recent studies have analysed the public-private sector wage differential in Ireland²². Using microdata from the European Community Household Panel Survey (ECHP), Boyle, McElligot & O’Leary (2004) investigated the wage differential²³ over the 1994 to 2001 period and found that public sector workers earned between 10 and 17 per cent more than their private sector counterparts, with 13 per cent the estimated gap for 2001. Boyle *et al.* (2004) indicate that their estimates are larger than those found in similar studies in other countries. For example, Lucifora and Meurs (2006) estimated that the public sector premiums in France, Italy and the United Kingdom in 1998 were between 4 and 6 per cent. Boyle *et al.* (2004) also examined variations in the public sector premium across the earnings distribution. Their results showed that the premium was greatest for low-paid workers and smallest for public sector workers at the top of the earnings distribution, results which Boyle *et al.* (2003) indicate are in line with what has been found in other countries.

²⁰ 6 per cent for those below a certain income threshold level.

²¹ The third phase of this agreement, which consisted of a 2.5 per cent increase in basic pay, is not captured by the data used in this paper as the payment was implemented on the 1st June 2006 and the 2006 NES data relates to March.

²² See Ruane & Lyons (2002) and O’Leary (2002) for evaluations of the Benchmarking process and the first report produced by the PSBB.

²³ Using gross monthly wages as the dependent variable.

Focussing on third-level graduates, O’Connell & Russell (2006) found that in 2004 such individuals employed in the public sector earned 9 per cent more per month than their counterparts in the private sector, with the hourly premium estimated at 20 per cent. The inclusion of bonuses reduced the monthly premium to 7 per cent.

The most recent evidence on the public-private sector pay gap in Ireland comes from the econometric study that was undertaken as part of the second Benchmarking exercise²⁴. Using data from the 2003 NES, the study showed that public sector employees earned between 6 and 10 per cent more in weekly earnings than their private sector counterparts, with the premium of the order of 2 to 6 per cent among males and 10 to 15 per cent among females (Ernst & Young and Murphy, 2007)²⁵. The analysis also looked at variations across the earnings distribution and found that the public sector premium declined at the upper end of the distribution²⁶, turning into a discount at the very top, with males experiencing a larger penalty than females.

Each of the studies cited above have found, after controlling for various wage determining characteristics, that public sector workers in Ireland earn substantially more, on average, than those in the private sector. In addition, the research also shows that low-paid public sector workers tend to enjoy the highest premiums. While the data used in these studies will have captured some of the pay increases awarded under the Social Partnership pay deals, none of the research covers the time period when the first PSBB report increases were implemented or the rewards from the Review Body reports discussed above, Reports No. 40 and 41. Thus, no study has, as yet, considered the impact of these two wage determination processes on the public-private sector wage differential. The present paper seeks to add to the Irish literature in this area by addressing this issue.

²⁴ The study did not contribute directly to the pay recommendations that were made in the second report as the data used did not give a breakdown of earnings by grade levels. As with the first Benchmarking exercise, the pay recommendations in the second Benchmarking report were based on a comprehensive job evaluation scheme and a private sector salary survey.

²⁵ Unweighted NES data was used in most of this study.

²⁶ Similar to the results found by Boyle *et al.* (2004).

3.0 Data and Methodology

The data used in this study comes from the 2003 and 2006 National Employment Surveys (NESs). The NES is a workplace survey, covering both the public and private sectors, which is carried out by the Central Statistics Office (CSO). The employer sample is drawn from the CSO's Central Business Register. Selected firms are then asked to extract a systematic sample of employees from their payrolls²⁷. Approximately 89,000 employees were included in the 2003 NES survey and 78,860 in 2006. In keeping with Ernst & Young and Murphy (2007), the econometric study that formed part of the second Benchmarking exercise, we restrict our sample to full-time, permanent employees who are aged between 25 and 59, and exclude semi-state body employees²⁸. After these restrictions and exclusions, our final 2003 NES sample consisted of 27,417 employees, while the 2006 sample was 33,038. We apply cross-sectional weights to our data in order to ensure that our results are representative of the population of working age employees.

As well as including information on earnings, hour's worked (including overtime) and sector (public or private), the NES also contains a rich range of controls that are required to estimate the standard sorts of earnings models that are employed in the public-private sector wage gap literature. This includes various educational and personal characteristics, such as educational attainment, gender, work experience and occupation, along with detailed job (supervisory responsibilities, professional body membership, shift-work) and organisational (public sector, trade union membership, firm size) information. The earnings information collected in the NES represents the gross monthly amount payable by the organisation to its employees, and relates to the month of March in 2003 and 2006. This includes normal wages, salaries and overtime; taxable allowances, regular bonuses and commissions²⁹; and holiday or sick pay for the period in question. It does not include employer's Pay Related Social Insurance (PRSI), redundancy payments and back pay.

²⁷ Only employers with more than three employees are surveyed and the data are collected at the enterprise level. While the NESs are of enterprises with 3 plus employees, the results are calibrated to the Quarterly National Household Survey (QNHS) employment data for employees (excluding agriculture, forestry and fishing), which covers all employees.

²⁸ Commercial and non-commercial semi-state employees.

²⁹ It is likely that the peak of commission remuneration received by private sector workers over the last few years is captured by the data used in this study.

In terms of methodology, we begin by estimating standard OLS regressions with a public sector dummy variable included in the specification to identify what the overall public sector wage premium/discount is, controlling for a range of other important wage determining characteristics. We then use quantile regression, again with a public sector dummy variable, to identify how the premium/discount varies across the earnings distribution. As well as estimating an overall employee model, we also estimate separate male and female models to see how the premium/discount differs by gender. It should be noted that the methodology employed in this paper is based on the standard approach in the international literature to the comparison of earnings, and is similar to that adopted in the econometric study of the 2003 NES data prepared for the second Benchmarking report (Ernst & Young and Murphy).

4.0 Results

From Table 2 we can see that between 2003 and 2006, public sector workers weekly earnings grew by 27 per cent, while weekly wages in the private sector increased by 17 per cent. In terms of the wage gap in weekly earnings between both sectors, this increased from 23 per cent in 2003 to 34 per cent in 2006. While these figures seem to indicate that there has been a substantial growth in the wage gap between 2003 and 2006, a comparison of average weekly earnings like this can be misleading because of underlying differences in the composition of the two sectors, for example, differences in levels of education, occupation structure and length of work experience. The descriptive information from the 2006 NES sample, which is available in Table A1 in the Appendix, illustrates that there are variations in the structure of both sectors. On average, public sector workers tend to be better qualified, with 59 per cent holding some type of third-level qualification compared to 33 per cent of workers in the private sector. Public sector workers also have more work experience, an average of 20 years compared to 16 years for private sector workers. In addition, a higher proportion of public sector workers are in professional and associate professional occupations. All these factors would support public sector workers having higher earnings. Other noteworthy differences between the two sectors include hours worked, private sector workers were found to work longer hours. Furthermore, workers in the private sector were also more likely to undertake supervisory responsibilities. In terms of gender, 63 per cent of public sector workers were female

compared to just 36 per cent in the private sector. Thus, given these characteristic differences between the two sectors, there are certainly grounds to expect average earnings to differ across the public and private sectors. By adopting a multivariate estimation strategy, we can assess the extent to which higher earnings in the public sector go beyond the level that can be attributed to characteristic effects i.e. the framework allows us to accurately estimate the extent of any public sector wage premium, controlling for differences in educational levels, work experience and so on.

4.1 Did the Public Sector Premium Grow Between 2003 and 2006?

Public sector workers account for just over 20 per cent of the sample data. In line with the Ernst & Young and Murphy (2007) study, we use gross weekly wages as our dependant variable. While our sample has been constructed in line with the 2007 PSBB econometric study, our empirical specification differs slightly. In particular, in Ernst & Young and Murphy (2007) the right hand side variables included age, age squared and experience, however, on the grounds that age primarily acts only as a proxy for actual labour market activity, we include only experience and experience squared. This difference aside, the variables included in our models as controls are in line with those adopted in the PSBB econometric study.

Table 3 presents the results generated by our models using both the 2003 and the 2006 data. As indicated earlier, the models are estimated for all workers (i.e. both males and females) and then separately according to gender. The public sector premium for all employees was estimated at 7.7 per cent in the 2003 data. The premium was estimated to be 12.8 per cent among females and 2.1 per cent among males. Interestingly, our results are broadly in line with Ernst & Young and Murphy (2007) when unweighted data was used but differ somewhat from the weighted estimates³⁰. However, it is important to note from the outset that our results will not exactly correspond to those of Ernst & Young and Murphy (2007) due to differences in the choice of specification. Nevertheless, our initial estimates fall within the range

³⁰ See Appendix 2, Table 1b (Ernst & Young and Murphy, 2007).

reported in Ernst & Young and Murphy using a baseline model³¹. The other covariates in our model behave according to expectations.

When we re-estimate the model using the 2006 NES data we see that most of the covariates remain relatively constant in terms of their marginal effects. However, one point to note is the fall in the rates of return to education between 2003 and 2006. For example, the return to a third-level degree for males declined from 48.7 to 35.2 per cent, while female graduates experienced approximately a 13 percentage point decline to 31.7 per cent. Although provision of explanations for such changes in the returns to schooling is outside the scope of this paper, two obvious reasons for the observed decline lie in the growth in immigration and continued wage expansion in the construction sector that took place between 2003 and 2006. We undertook some preliminary sensitivity tests by assessing the impact on rates of return to education when immigrants and construction sector workers were excluded from our 2006 sample. The results suggest that such factors account for most of the fall in the return to male graduates and approximately a third of the decline to females. It is likely that changes in female labour market participation between 2003 and 2006 will account for a substantial proportion of what is left unexplained for females; however, this is a matter for future research.

In terms of our variable of interest, the overall public sector premium increased dramatically from 7.7 to 23.5 per cent between 2003 and 2006. There was also a good deal of convergence with respect to the male and female positions, with the public sector advantage for both genders approximating the average at 23 per cent. Thus, the results suggest that the initial rounds of Benchmarking and Review Body pay increases under Reports No. 40 and 41, along with the national pay deals signed between 2003 and 2006, substantially enhanced the position of public sector workers relative to their private sector counterparts. In fact, the pay premium increased by a factor of 1.8 for females and a staggering 11.3 for males.

It might be suggested that selection-bias (i.e. unobserved heterogeneity bias) is a potential issue in this public-private sector pay gap study. Such a bias might occur if

³¹ See Appendix 2, Table 1a (Ernst & Young and Murphy, 2007).

public and private sector employees differed in some unobservable respect that cannot be measured and, thus, specified in the wage equations but that nonetheless influenced earnings. Differences in innate ability and motivation are two sources of such bias. However, using 2003 NES data, Ernst & Young and Murphy (2007) did not find any statistically significant selection effects when they estimated earnings equations with Heckman (1979) selection effects. Furthermore, Ernst & Young and Murphy (2007) estimated their earnings' models using propensity score matching techniques to deal with any potential selection-bias but found that their OLS results were broadly in line with the propensity score matching model results. On this basis, the evidence suggests, in the Irish context at least, that unobserved heterogeneity bias is not an issue with respect to the public-private sector wage gap.

Ernst & Young and Murphy (2007), using quantile regression, also found evidence of a discount to the most senior public sector workers. It is reasonable to assume that this finding had some influence on the recommendations made by the PSBB in its second report to further increase the pay levels of some 15 senior public sector grades. Table 4 again replicates this analysis using both the 2003 and 2006 NES datasets. In line with Ernst & Young and Murphy (2007) we find evidence of a discount for the most senior public sector workers in 2003, as measured by their position in the earnings distribution, with the effect most pronounced for males. However, by 2006 these effects had been reversed with the most senior public sector workers receiving premiums of approximately 11 per cent irrespective of gender. The quantile regression results also indicate that the public sector advantage is even greater for employees at the lower end of the income distribution, with those in the lowest public sector grades earning between 27 and 32 per cent more than their private sector counterparts. Thus, these results raise serious questions with respect to the justification for any further boosts to the pay levels of public sector employees.

5.0 Summary and Conclusions

This paper uses data from the 2003 and 2006 National Employment Surveys to assess the impact of the pay increases under the first report of the Public Sector Benchmarking Body, those made by the Review Body on Higher Remuneration in the Public Sector, Reports No 40 and 41, as well as two national pay deals, on the public-

private sector pay gap. The study's central aim was to track changes in the relationship between pay in the public and private sectors following these pay setting rounds.

Our analysis shows that the overall public sector pay premium increased from less than 8 per cent in 2003 to almost 24 per cent in 2006, controlling for human capital and other relevant pay determining characteristics. The earnings gap increased from 2 to 24 per cent for males and from 13 to 23 per cent for females.

Previous research suggested that, in 2003, senior public sector employees incurred a pay penalty relative to their counterparts in the private sector, with these differences more pronounced for males (Ernst & Young and Murphy, 2007). Our study confirmed this pattern. However, when the analysis was replicated using the 2006 NES data, the results indicated that the pay penalty for the most the public sector workers observed in 2003 had been replaced in 2006 by wage premiums in the region of 11 per cent for both males and females. These results demonstrate that any pay deficiencies that existed prior to the first round of Benchmarking and the Review Body Reports No. 40 and 41 had been completely eradicated by 2006. The results provide no support for the recommendations of the 2007 Benchmarking report or the general Review Body Reports No. 42 and 43 that called for further upward adjustments in the salary levels of some senior public service grades.

Finally, it is important to note that it is likely that our estimates of the public-private sector pay differential will still contain a downward bias. This is due to the fact that the current study makes no adjustment for the higher relative value of public sector pensions, nor does it make any assessment of the potential value of increased job security within the public sector³². Furthermore, a number of additional payments have taken place under the various wage determination mechanisms discussed that fall outside the data capture period of this study. While these factors will be counteracted, to some extent, by a higher proportion of private sector workers

³² This could be potentially measured in terms of an opportunity cost i.e. by asking private sector workers the percentage of their pay that they would be willing to forgo for improved job security.

receiving benefit-in-kind³³, it is still likely that the public-private sector pay gap estimates derived in this paper are biased downwards.

³³ Current study is unable to correct for this.

Tables

Table 1: Benchmarking, Review Body on Higher Remuneration and Social Partnership Pay Awards, 2003 to 2008

	Coverage	Payment Time Period ¹	Award	2003 NES (March)	2006 NES (March)
Public Sector Benchmarking Body:					
Report No. 1	Public Service Only - All Grades	May 2003 - June 2005	2 - 27%	No	Yes
Report No. 2	Public Service Only - More Senior Grades	Sept 2008 ²	1 - 15%	No	No
Review Body on Higher Remuneration in the Public Service:					
Report No. 40	All Higher Posts in Public Sector (Interim)	July 2005 - Jan 2006	7.5%	No	Yes
Report No. 41	Higher Posts in Health Service Executive	Jan 2005	4%	No	Yes
Report No. 42	All Higher Posts in Public Sector (General)	Sept 2007 ³	0 - 36%	No	No
Report No. 43	Certain Higher Posts in Public Sector ⁴	Sept 2007 ⁵	0 - 14%	No	No
Social Partnership Pay Agreements:					
Sustaining Progress: Social Partnership Agreement 2003-2005 ⁶	Public and Private Sectors	July 2003 - May 2005	7%	No	Yes
Mid-Term Review of Part Two of Sustaining Progress: Pay and the Workplace	Public and Private Sectors	June 2005 - Nov 2006	5.5 - 6%	No	Yes ⁷
Towards 2016: Ten-Year Framework Social Partnership Agreement 2006-2015	Public and Private Sectors	Dec 2006 - Sept 2008	12.5 - 13%	No	No
Towards 2016: Review and Transitional Agreement 2008-2009 ⁸	Public and Private Sectors	Oct 2008 - June 2010	5.5 - 6%	No	No

Notes: ¹ Payment information obtained from various Department of Finance circulars (Department of Finance, 2003-2008).

² Five per cent of recommended awards to be paid on September 1st 2008. Payment of balances to be discussed in the context of a successor to recent Partnership deal.

³ Five per cent of the recommended increases were paid on September 1st 2007, with all pending increases to be reviewed in September 2010.

⁴ Continuation of Report No. 42 that covers posts in the Labour Court, Labour Relation Commissions, State Solicitors and Universities.

⁵ Same dates as those applying to Report No. 42 (Review Body on Higher Remuneration in the Public Sector, July 2008).

⁶ Pay pause for the first six months of this agreement with first phase paid on January 1st 2004.

⁷ The third phase of this agreement (2.5%) is not captured in the 2006 NES data as it was paid on the 1st of June 2006.

⁸ Pay pause for the first 11 months of this agreement for public service workers and 3 months for those in the private sector.

Table 2: Change in Mean Weekly Earnings between March 2003 and 2006¹

	2003	2006	Percentage
	(March)	(March)	Change
All-Employees			
<i>Total:</i>	566.51	677.04	19.5
<i>Public Sector:</i>	660.82	839.04	27.0
<i>Private Sector:</i>	538.52	628.35	16.7
<i>Raw Public-Private Sector Wage Gap:</i>	22.7	33.5	

Note: ¹Public Sector includes semi-state companies

Source: Constructed with data from the Central Statistics Office's National Employment Surveys, 2003 and 2006

Table 3: Weekly Wage OLS Regression Models

	2003 All	2006 All	2003 Males	2006 Males	2003 Females	2006 Females
Constant	2.972*** (0.043)	2.948*** (0.037)	3.200*** (0.069)	3.019*** (0.051)	2.968*** (0.057)	3.239*** (0.054)
Male	0.157*** (0.005)	0.166*** (0.005)	- -	- -	- -	- -
Public Sector	0.077*** (0.007)	0.236*** (0.006)	0.021** (0.011)	0.242*** (0.010)	0.128*** (0.010)	0.231*** (0.008)
Experience	0.029*** (0.001)	0.026*** (0.001)	0.032*** (0.001)	0.029*** (0.001)	0.023*** (0.001)	0.022*** (0.001)
Experience Squared	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Education Level (Ref=Primary or Less)						
Lower Secondary	0.071*** (0.011)	0.049*** (0.010)	0.073*** (0.014)	0.078*** (0.012)	0.049** (0.021)	-0.020 (0.017)
Higher Secondary	0.158*** (0.011)	0.102*** (0.009)	0.163*** (0.013)	0.125*** (0.011)	0.136*** (0.020)	0.058*** (0.015)
Post Secondary	0.213*** (0.011)	0.146*** (0.010)	0.225*** (0.014)	0.180*** (0.012)	0.148*** (0.021)	0.056*** (0.018)
Third-Level Non-Degree	0.269*** (0.012)	0.188*** (0.010)	0.279*** (0.016)	0.190*** (0.014)	0.235*** (0.020)	0.157*** (0.016)
Third-Level Degree	0.487*** (0.012)	0.352*** (0.010)	0.488*** (0.016)	0.354*** (0.014)	0.451*** (0.021)	0.317*** (0.016)
Supervisor	0.102*** (0.005)	0.083*** (0.005)	0.108*** (0.007)	0.089*** (0.007)	0.100*** (0.008)	0.076*** (0.007)
Professional Body Member	0.163*** (0.007)	0.139*** (0.007)	0.153*** (0.010)	0.149*** (0.010)	0.177*** (0.010)	0.134*** (0.009)
Shift-work	0.002 (0.004)	0.031*** (0.006)	-0.002 (0.005)	0.045*** (0.007)	0.007 (0.006)	0.008 (0.009)
Weekly Hours (ln)	0.670*** (0.011)	0.754*** (0.010)	0.668*** (0.018)	0.798*** (0.014)	0.682*** (0.014)	0.696*** (0.014)
Overtime Hours (ln)	0.007** (0.003)	-0.005** (0.003)	0.014*** (0.004)	-0.008** (0.004)	-0.023*** (0.006)	-0.009* (0.005)
Observations	27,417	33,038	15,384	19,055	12,033	13,983
R-squared	0.4713	0.4814	0.4181	0.4612	0.509	0.4985
F statistic	1110.13	1393.30	525.71	775.83	592.83	660.70

Note: Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Occupation controls included

Table 4: Public Sector Weekly Wage Quantile Regression Models³⁴

	2003 All	2006 All	2003 Males	2006 Males	2003 Females	2006 Females
10%	0.133*** (0.011)	0.322*** (0.011)	0.108*** (0.016)	0.330*** (0.016)	0.168*** (0.016)	0.306*** (0.015)
20%	0.122*** (0.011)	0.305*** (0.007)	0.082*** (0.014)	0.321*** (0.016)	0.186*** (0.013)	0.282*** (0.009)
30%	0.117*** (0.010)	0.294*** (0.008)	0.052*** (0.016)	0.299*** (0.014)	0.165*** (0.012)	0.271*** (0.008)
40%	0.100*** (0.008)	0.271*** (0.009)	0.030** (0.012)	0.264*** (0.013)	0.143*** (0.012)	0.257*** (0.010)
50%	0.080*** (0.009)	0.242*** (0.008)	0.015 (0.011)	0.238*** (0.011)	0.124*** (0.009)	0.234*** (0.010)
60%	0.056*** (0.009)	0.212*** (0.009)	-0.008 (0.011)	0.219*** (0.013)	0.107*** (0.014)	0.195*** (0.008)
70%	0.027*** (0.009)	0.180*** (0.009)	-0.039*** (0.011)	0.187*** (0.020)	0.068*** (0.008)	0.177*** (0.012)
80%	-0.014 (0.011)	0.139*** (0.010)	-0.060*** (0.015)	0.160*** (0.013)	0.040** (0.018)	0.133*** (0.011)
90%	-0.055 (0.015)	0.097*** (0.015)	-0.129*** (0.019)	0.107*** (0.019)	-0.011 (0.018)	0.115*** (0.020)
Observations	27,417	33,038	15,384	19,055	12,033	13,983

Note: Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

³⁴ Results on the other covariates included in the quantile regression models are available from the authors on request.

References

Barrett, A., Callan, T., & Nolan, B. (1999). Rising Wage Inequality, Returns to Education and Labour Market Institutions: Evidence from Ireland. *British Journal of Industrial Relations* 37 (1): 77-100.

Boyle, G., McElligot, R., & O'Leary, J. (2004). Public-Private Wage Differentials in Ireland, 1994-2001. *ESRI Quarterly Economic Commentary*, Special Article. Summer 2004. Dublin: The Economic and Social Research Institute.

Department of Finance. (2003-2008). Various Circulars on Application of Pay Increases to Public Sector Workers From Benchmarking, Higher Remuneration and National Social Partnership Pay Deals (<http://www.finance.gov.ie/>).

Department of Finance. (July 2008). *Analysis of Exchequer Pay and Pensions Bill*. Dublin: Stationary Office.

Department of the Taoiseach. (February 1994). *Programme for Competitiveness and Work*. Dublin: Stationary Office.

Department of the Taoiseach. (February 2000). *Programme for Prosperity and Fairness*. Dublin: Stationary Office.

Department of the Taoiseach. (February 2003). *Sustaining Progress: Social Partnership Agreement 2003-2005*. Dublin: Stationary Office.

Department of the Taoiseach. (June 2004). *Mid-Term Review of Part Two of Sustaining Progress: Pay and the Workplace*. Dublin: Stationary Office.

Department of the Taoiseach. (June 2006). *Towards 2016: Ten-Year Framework Social Partnership Agreement 2006-2015*. Dublin: Stationary Office.

Department of the Taoiseach. (September 2008). *Towards 2016: Review and Transitional Agreement 2008-2009*. Dublin: Stationary Office.

Ernst & Young and Murphy. (2007). “An Econometric Study of Earnings Based on National Employment Survey 2003 Data”.

FitzGerald, J. (1999). Wage Formation and the Labour Market, in F. Barry (ed.), *Understanding Ireland's Economic Growth*. London: Macmillan.

Lucifora, C. & Meurs, D. (2006). The Public Sector Pay Gap in France, Great Britain and Italy. *Review of Income and Wealth*, 52 (1): 43-59.

McGuinness, S., Kelly, E., & O'Connell, P. (2008). “The Impact of Wage Bargaining Regime on Firm-Level Competitiveness and Wage Inequality: The Case of Ireland”. ESRI Working Paper No. 266 (December). Dublin, Ireland: The Economic and Social Research Institute.

O'Connell, P.J. & Russell, H. (2006). Does it Pay to Go Public? Public-Private Wage Differences Among Recent Graduates in Ireland. *ESRI Quarterly Economic Commentary*, Special Article. Autumn 2006. Dublin: The Economic and Social Research Institute.

O'Leary, J. (2002). Benchmarking the Benchmarkers. *ESRI Quarterly Economic Commentary*, Policy Discussion Forum. Winter 2002. Dublin: The Economic and Social Research Institute.

Public Service Benchmarking Body. (June 2002). *Report of the Public Service Benchmarking Body*. Dublin: The Stationary Office.

Public Service Benchmarking Body. (December 2007). *Report of the Public Service Benchmarking Body*. Dublin: Stationary Office.

Review Body on Higher Remuneration in the Public Sector. (June 2005). *Report No. 40 to The Minister for Finance*. Dublin: Stationary Office.

Review Body on Higher Remuneration in the Public Sector. (December 2005). *Report No. 41 to The Minister for Finance on the Remuneration of Certain Posts in the Health Service Executive*. Dublin: Stationary Office.

Review Body on Higher Remuneration in the Public Sector. (September 2007). *Report No. 42 to The Minister for Finance on the Levels of Remuneration Appropriate to Higher Posts in the Public Sector*. Dublin: Stationary Office.

Review Body on Higher Remuneration in the Public Sector. (July 2008). *Report No. 43 to The Minister for Finance on The Levels of Remuneration Appropriate to Posts in the Labour Court, the Chief Executive of the Labour Relations Commission, State Solicitors and Certain Posts in Universities*. Dublin: Stationary Office.

Ruane, F. & Lyons, R. (2002). Wage Determination in the Irish Economy: An Economist's Perspective on the Benchmarking Report. *ESRI Quarterly Economic Commentary*, Policy Discussion Forum. Winter 2002. Dublin: The Economic and Social Research Institute.

Appendix

Table A1: Descriptive Statistics on 2006 NES Data Variables

Variables:	All		Public Sector		Private Sector	
	<i>Mean</i>	<i>Standard Deviation</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Mean</i>	<i>Standard Deviation</i>
<i>Wages:</i>						
Weekly Wages (€)	819.48	595.537	952.90	423.423	783.58	629.110
Male	0.585	0.493	0.373	0.484	0.642	0.480
Public Sector	0.212	0.409	-	-	-	-
Experience	16.998	10.363	19.862	10.892	16.227	10.078
Experience Squared	396.312	423.699	513.126	462.483	364.884	406.968
<i>Education Level:</i>						
Lower Secondary	0.143	0.350	0.082	0.275	0.159	0.365
Higher Secondary	0.276	0.447	0.204	0.403	0.296	0.456
Post Secondary	0.119	0.324	0.067	0.250	0.133	0.340
Third-Level Non-Degree	0.129	0.335	0.139	0.346	0.127	0.332
Third-Level Degree	0.259	0.438	0.456	0.498	0.206	0.404
Supervisor	0.379	0.485	0.332	0.471	0.392	0.488
Professional Body Member	0.142	0.349	0.250	0.433	0.113	0.317
Shift-work	0.204	0.403	0.222	0.416	0.199	0.399
Weekly Hours (ln)	3.632	0.262	3.538	0.281	3.657	0.251
Overtime Hours (ln)	0.641	0.946	0.447	0.795	0.693	0.976
<i>Occupation:</i>						
Managers & Administrators	0.137	0.344	0.046	0.210	0.162	0.368
Professional	0.144	0.351	0.362	0.481	0.085	0.279
Associate Professional & Technical	0.101	0.301	0.156	0.363	0.086	0.280
Clerical	0.135	0.341	0.142	0.349	0.133	0.339
Craft & Related	0.126	0.332	0.030	0.171	0.152	0.359
Personal & Protective Services	0.104	0.305	0.215	0.411	0.074	0.262
Sales	0.072	0.258	0.001	0.034	0.091	0.287
Plant & Machine Operatives	0.106	0.307	0.004	0.059	0.133	0.340
Other	0.076	0.264	0.043	0.202	0.085	0.278

Year	Number	Title/Author(s) ESRI Authors/Co-authors <i>Italicised</i>
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	268	The Determinants of Mode of Transport to Work in the Greater Dublin Area <i>Nicola Commins and Anne Nolan</i>
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