The Gender Wage Gap in Ireland

Evidence from the National Employment Survey 2003

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The views expressed in this report are those of the authors and do not necessarily represent those of The Equality Authority or The Economic and Social Research Institute.

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FOREWORD

'The Gender Wage Gap in Ireland' is the fifth report arising from the 'Research Programme on Equality and Discrimination' which is being carried out by the Economic and Social Research Institute on behalf of the Equality Authority. The main aim of this study is to provide detailed new evidence on the factors that contribute to the gender pay gap in Ireland though an analysis of the National Employment Survey, 2003.

A particular advantage of this large dataset is that it allows for an in-depth examination of pay gaps in specific segments of the labour market. In addition to examining the pay gap for all employees, this study provides separate analyses of the full-time and part-time labour markets. It also provides a novel analysis of the gender pay gap *within* broad occupations and industries.

The report finds that the overall wage gap in 2003 was almost 22 per cent. On average men have more years of work experience than women and - among the factors identified here - this is the single biggest contributor to the pay gap. Nevertheless differential experience only accounts for a 3.1 per cent pay gap, or just over 14 per cent of the total. Many other factors - such as a higher incidence of supervisory roles, longer tenure and higher trade union membership among men and a higher incidence of part-time work among women - also widen the gap. The combined effects of broad occupational and sectoral gender segregation contribute 2.8 per cent, accounting for 13 per cent of the overall wage gap. A further interesting finding is that married or cohabiting men enjoy a wage premium which widens the gap. The authors interpret this as reflecting men's much lower likelihood of having spent time out of the labour market for family reasons. Finally, a gap of 7.8 per cent - one third of the total - cannot be attributed to any of the factors included in the analysis.

Further progress in tackling the gender wage gap will require carefully targeted actions to promote gender equality within the workplace. It will also require supporting policies to facilitate greater sharing of care between men and women and to address the wage penalty attached to taking time out to raise a family. Carefully targeted policies in turn require the kind of detailed and careful evidence which this study provides. We are grateful to Seamus McGuinness, Elish Kelly, Tim Callan and Phillip O'Connell of the ESRI for their expert and insightful work on this report. Thanks are also due to Laurence Bond, Head of Research with the Equality Authority, for his support to this research project.

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EXECUTIVE SUMMARY

The gender wage gap is a topic of enduring debate within both academic and policy circles. From a policy perspective, it is clearly important that citizens, on the basis of gender or any other attribute, should be treated equally in the labour market. Specifically with respect to gender, the existence of a large and pervasive pay gap would also suggest that females may be penalised for undertaking family responsibilities, and it may also be indicative of insufficient levels of support surrounding the need to achieve a work life balance.

This study assesses the magnitude and nature of the gender wage gap in Ireland in 2003 using the National Employment Survey (NES), a large and unique employer-employee matched dataset, compiled by the Central Statistics Office (CSO). A considerable benefit of the dataset used is that it contains detailed information on a number of key policy relevant variables. Thus, on top of analysing the impact of conventional factors on the gender wage gap, such as educational qualifications and experience, the dataset at hand allows us to identify the importance of various policy related factors, such as, collective wage bargaining and family-friendly policies. In addition to assessing the gender pay gap for all employees, the analysis is conducted separately for both the full-time and part-time labour markets.

A further advantage of the dataset used in this study is that its large sample enables us to assess the factors that contribute to the gender pay gap within both occupations and industries. The importance of such analyses in identifying the nature of the gender wage differential has been highlighted in previous Irish studies (e.g. Barrett, Callan *et al.*, 2000). However, it has not been possible, until now, to undertake this work because of a lack of large scale datasets with sufficient numbers of males and females in each occupation and sector category, which is what is required to make reliable statements on the gender wage gap.

The Gender Wage Gap in Ireland in 2003

In relation to all employees, the total observed gap (i.e., the raw log wage gap[1]) between men and women's wage rates in Ireland in 2003 was almost 22 per cent (Table A). Two thirds of the gap can be attributed to variations in observable characteristics between males and females, such as different levels of education and labour market experience, family responsibilities and job and firm characteristics. When account is taken of these factors the remaining 'adjusted wage gap' was just under 8 per cent. This adjusted differential is slightly higher than the 6 per cent reported for 1997 by Barrett, Callan, *et al.* (2002). However, it is difficult to make comparisons over time as within country estimates of the gender pay gap can vary widely depending on the data source and controls used within models.

Relative to the situation for all employees, a similar contrast was also observed for full-time employees: the raw gap in earnings was estimated at 18 per cent and the adjusted gap was 7 per cent. On the other hand, the situation for part-time workers emerged to be somewhat different. While the raw gap was assessed to be just under 6 per cent, this *increased* to 10 per cent when differences in various personal and employment attributes were taken into account. This result suggests that, based on their characteristics, part-time females should, in fact, earn slightly more than their male counterparts. Thus, within the part-time labour market, overall gender based differences in characteristics do not account for any component of the raw wage gap. Nevertheless, it is important to remember that the estimates of the adjusted wage gap for full-time and part-time workers are broadly similar in magnitude.

[1] The use of log wages is standard in studies of this kind.

The adjusted wage gap, i.e. the proportion of the raw wage gap that remains unexplained by the variation in observable characteristics between males and females, may, to some extent, reflect discrimination. However, one cannot simply assume that the entire unexplained component of the gap relates to pay discrimination, as all other factors that potentially influence the gap may not be fully captured in the available data. In addition, discrimination may influence the explained component of the wage gap where it shapes the distribution of the observable characteristics between men and women. Thus while discrimination may well be a factor, its relative weight remains unknown.

Table A: Gender Wage Gap in Ireland in 2003: Hourly Wages (Per Cent)*

	All Employees	Full-time Employees	Part-time Employees
Raw Wage Gap	21.7	17.6	5.9
Adjusted Wage Gap	7.8	6.9	10.0
Gap Unexplained	36.0	39.2	169.5

Note: *All human capital, family, job and firm-level characteristics contained in the dataset used in this report (including industry and occupation) are included in the models from which these results were derived.

The Role of Particular Characteristics in Explaining the Gender Wage Gap

The report examines the contribution, and relative importance, of various groups of characteristics, specifically human capital (e.g. education, experience, tenure, etc.), family responsibilities, and job and firm-level factors, along with industry and occupation, to the gender wage gap. For the all employee and full-time worker samples, differences in the labour market experience levels of males and females was by far the most important single influence in explaining the wage gap, a result that is standard in the international literature. Lower levels of female experience derive partly from the fact that females tend to take more time out of the labour market for family-related reasons. Higher levels of educational attainment among females served to reduce the wage gap but were insufficient to compensate for the effects of experience. Other factors of relevance include a lower incidence of part-time work and a higher incidence of supervisory responsibility, employment tenure and trade union membership among males, all of which widened the gap.

Married men, irrespective of employment type, were found to have higher earnings, which resulted in a widening of the pay differential. This is not to say that firms systematically reward individuals for marriage or co-habitation. A more likely explanation is that this factor is proxying "time-out" effects, i.e., cohabiting or married males are less likely to have spent time out of the labour market for family reasons relative to their female counterparts and this higher return reflects males' lower exposure to the negative effects of "time-out".

It was found that centralised wage bargaining, specifically the implementation of the national wage agreement (NWA), benefited females within both the full-time and part-time labour markets. The results also indicated that the existence of some family-friendly policies within firms, specifically career breaks, served to reduce the wage gap. However, this effect was evident within the all and full-time labour markets only. Presumably career breaks are an effective means by which full-time females can preserve their position on re-entry to the labour market and therefore avoid the negative wage implications of occupational downgrading. Working flexitime was found to have a neutral impact on the pay gap.

Within foreign-owned firms, female earnings were relatively higher. One possible explanation for this result is that such organisations implement more equitable human resource policies. In contrast, males experienced a relative advantage within large firms; however, the factors driving this result are not apparent from the data.

An interesting aspect of the results is that broad occupational or sectoral segregation appears to contribute relatively little to the average wage gap. Their combined effects increased the differential by 2.8 per cent, and accounted for just 13 per cent of the overall wage gap. The overall wage model shows that men's greater presence in Managerial occupations added somewhat to the gender pay gap as did women's relative concentration in Clerical occupations. Offsetting this, men's concentration in Plant operative positions reduced the gap so that, overall, occupational segregation increased the average pay gap by 1.6 per cent. In the sectoral analysis, it was found the higher concentration of males in the Construction sector and of females in the Health sector increased the pay gap, while females' presence in Financial intermediation had an offsetting effect. Overall industrial segregation added just 1.2 per cent to the pay gap. The results were broadly similar when the data was broken down by employment type. However, the analysis was conducted at the one-digit level only and we must be conscious of the fact that such broad aggregation may be obscuring relationships.

The Gender Wage Gap within Occupation and Industries

The study also assessed the extent to which the magnitude of the gender wage gap, and the factors contributing to it, varied across occupations and industries. With respect to occupation (Table B), the raw differentials were broadly similar; however, much larger variations occurred in terms of the adjusted wage gap, demonstrating that substantial differences existed in the magnitude of endowment effects (i.e., differences in characteristics such as human capital, family structure and organisational characteristics) across occupations. The adjusted wage gap varied from 1.8 per cent in Clerical occupations to 21.2 per cent for Plant operatives.

Table B: Summary of the Gender Wage Gap in Ireland in 2003 by Occupation: All Employees (Per Cent)

	Raw Wage Gap	Adjusted Gap	Gap Unexplained
Occupation:			
Managers and administrators	26.7	9.8	36.7
Professional	20.5	7.7	37.6
Associate professional and technical	25.8	12.5	48.4
Clerical and secretarial	16.4	1.8	11.0
Craft and related*	-	-	-
Personal and protective services	24.2	8.1	33.5
Sales	31.1	13.2	42.4
Plant and machine operatives	28.0	21.2	75.7
Other	20.4	14.3	69.9

*Craft and related could not be estimated due to a lack of females in this occupation.

Across all occupations, human capital factors relating to high levels of labour market experience and tenure were important factors in boosting the relative position of male workers. Nevertheless, job and firm level characteristics proved important also, particularly in Clerical and Sales occupations.

Regarding the sectoral analysis (Table C), the raw gender wage gap was more widely distributed ranging from 13.3 per cent in the Hotel sector to 45.8 per cent in

Health. However, in sectors such as Health, Business Services, Financial intermediation and Transport, differences in male and female endowments were found to account for a very high proportion of the raw gap and, consequently, the adjusted gender wage gap was much more narrowly distributed. In terms of the proportion of the wage gap that could be attributed to differences in the attributes of male and female workers, the pattern differed quite significantly from sector to sector. While human capital effects relating to education and experience were important in accounting for the differential in sectors such as Manufacturing, Public administration, and Health, firm and job level effects were of more significance in sectors such as Transport and Retail.

Table C: Summary of the Gender Wage Gap in Ireland in 2003 by Sector: All Employees (Per Cent)

	Raw Wage Gap	Adjusted Gap	Gap Unexplained
Sector:			
Mining, quarrying and manufacturing	26.6	13.9	52.3
Electricity, gas and water*	-	-	-
Construction	21.1	20.1	95.3
Wholesale and retail	29.0	12.8	44.1
Hotels and restaurants	13.3	5.0	37.6
Transport, storage and communication	17.9	0.7	3.9
Financial intermediation	39.7	2.4	6.0
Business services	26.9	4.6	17.1
Public administration and defence	19.3	7.3	37.8
Education	45.8	6.2	13.5
Health and social work	24.5	11.1	45.3
Other services	22.7	4.0	17.6

*Cannot be reported for confidentiality reasons

Policy Implications

Years of labour market experience are an important influence on the gender pay gap, particularly among all and full-time workers: the wage gap is increased both by lower levels of accumulated work experience among women as well as lower returns to that experience. At least part of the gender difference in work experience is due to women taking time-out for child care and other family responsibilities, suggesting that policies to support continuity in women's employment could help to reduce the wage gap. With respect to family-friendly policies, there is evidence to support the view that expanding the availability of career breaks for all and full-time females would improve their relative pay. Working flexitime has a neutral impact on the pay gap, while the greater concentration of women in part-time work, the most common form of flexible employment, is found to widen the gender pay gap by 1.9 per cent. Therefore, of these three flexible arrangements only career breaks are found to reduce the gender pay gap.

The research demonstrates that current partnership arrangements, through the implementation of the national wage agreement, have helped to standardise wages both within and across firms and sectors, and this in turn has improved the relative position of females, overall and within both the full-time and part-time labour markets. Finally with respect to policy, while the minimum wage appeared to have little impact within the all and full-time labour markets, it benefited part-time females in low waged firms quite substantially.

1. INTRODUCTION

1.1 Gender Differences in Pay

The extent to which male earnings exceed those of females, commonly referred to as the gender wage gap, is a topic of continuing debate within both academic and policy circles. From a policy perspective, it is clearly important that citizens, on the basis of gender or any attribute, should not be treated unequally in the labour market. Specifically with respect to gender, the existence of a large and pervasive pay gap would suggest that females may be penalised as a consequence of undertaking family responsibilities, and it may also be indicative of insufficient levels of support surrounding the need to achieve a work life balance. Within the Irish context, the gender pay gap is a particularly interesting question given the rapid changes that have taken place in the female labour market in recent times. For instance, McGuinness, McGinnity and O'Connell (2008) report that between 1994 and 2001 not only did the female employment rate increase dramatically from 40 to 55 per cent but that the barriers to participation also weakened.

The potential factors underlying the gap and, more particularly, the role of individual characteristics as opposed to discrimination, have been widely debated within the literature since the early 1970s. It is widely accepted that the gender wage gap has declined steadily throughout the 1980s and 1990s in most developed economies (Weichselbaumer and Winter-Ebner, 2005). However, despite a trend decline, the wage differential remains substantial in many countries; for example, estimates of the raw wage gap for the United States (US) and United Kingdom (UK) generally fall within the range of 20 to 30 per cent (Kunze, 2008).

This current study assesses the magnitude and nature of the gender wage gap in Ireland in 2003. Our work builds on several earlier studies which looked at the evolution of the gender pay gap in the country from the late 1980s to the year 2000 (see Callan and Wren, 1994; Barrett, Callan *et al*., 2000; Russell and Gannon, 2003). Consistent with other international evidence, these studies found that the gender pay gap in Ireland had fallen over the period in question, with female earnings increasing from 80 to 85 per cent of male average earnings. However, despite having narrowed, the Irish gender wage gap remained substantial in the face of extensive equality legislation, such as the Anti-Discrimination (Pay) Act 1974 and the Employment Equality Act 1998. Most of this gap could be attributed to differences in the labour market participation rates of males and females, in their educational attainment and work experience, and in the types of jobs they did. Nevertheless, not all of it could be attributed to observable differences in the characteristic make up of males and females and, consequently, it was estimated that 5 percentage points of the gap might be attributable to the effects of discrimination.

This report builds on these earlier studies by providing an up-to-date estimate of the male/female wage differential using a large and unique employer-employee matched dataset from 2003 called the National Employment Survey (NES), which was compiled by the Central Statistics Office (CSO).

1.2 The National Employment Survey 2003

The 2003 NES is a workplace survey, covering both the public and private sectors, which was conducted by the Central Statistics Office (CSO).[2] The information

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[2] While the NES survey was of enterprises with 3 plus employees, the results were calibrated to the Quarterly National Household Survey (QNHS) employment data for employees (excluding agriculture, forestry and fishing), which covers all employees.

contained in the NES was collected from a sample of employers and employees. The employer sample was selected from the CSO Central Business Register (CBR). Selected firms were then asked to draw a systematic sample of employees from their payrolls. Approximately 6,500 private sector employers and 300 public sector bodies were surveyed across the economy.[3.] Within this, 60,000 employees was included from the private sector and 29,000 from the public sector. From this total sample of 89,000 employees, returns were received for 54,000. After the elimination of employees with missing earnings information, part-time students and also the restriction of our sample to those of working age, the final sample used in this study consisted of 38,752 employees of whom 33,227 are full time employees and 5,525 are part time. When analysing the employee sample, cross-sectional weights were applied to ensure that the data were representative of the population of employees in employment.

The employer questionnaire requested information on employee earnings, hours worked and occupation: March 2003 was the reference period for this information.[4] The employer questionnaire also requested a number of employer-specific characteristics, such as business structure, ownership, pay agreements used, main markets for company product/services and provision of certain employee benefits and conditions, specifically company pension scheme, career breaks and work-sharing and/or part-time work. Employees were also issued with a separate survey within which they were asked to provide information on their age, gender, educational attainment, family status, employment status (part-time or full-time), length of time in paid employment, length of service with current employer and also other job-related characteristics (for example, trade union membership, shift-work, supervisory role, job flexibility and attendance patterns, etc). Those who indicated that they worked part-time were also asked to specify the reasons for this.[5]

1.3 Issues to be Addressed

This study assesses the magnitude and nature of the gender wage gap in Ireland in 2003. In addition to assessing the pay gap for all employees, the analysis is conducted separately for both the full-time (FT) and part-time (PT) labour markets. A further advantage of the dataset used in this study is that its large sample enables us to assess the factors contributing to the gender pay gap within both occupations and industries. The importance of such analyses in identifying the nature of the gender wage differential has been highlighted in previous Irish studies (e.g. Barrett, Callan *et al.*, 2000). However, it has not been possible, until now, to undertake this work because of a lack of large scale datasets with sufficient numbers of males and females in each occupation and sector category, which is what is required to make reliable statements on the gender wage gap.

A further considerable benefit of the dataset used is that it contains detailed information on a number of key policy relevant variables. Thus, on top of analysing the impact of conventional factors on the gender wage gap, such as educational qualifications and experience, the dataset at hand allows us to identify the importance of various policy related factors, such as, collective wage bargaining and family-friendly policies.

[3] Only employers with more than three employees were surveyed and the data were collected at the enterprise level.

[4] The earnings information collected in the 2003 NES represents the gross monthly amount payable by the organisation to its employees. This includes normal wages, salaries and overtime; taxable allowances, regular bonuses and commissions; and holiday or sick pay for the period in question (March 2003). It does not include employer's PRSI, redundancy payments and back pay.

[5] The reasons for working part-time included family commitments, financially secure, cannot find a full-time job, etc.

At the firm level, the survey contains information on wage setting regime, human resource practices and organisational structure. In addition to factors relating to human capital accumulation and occupational segregation, we hope to be able to address the following in this study:

- We will examine the influence of employer wage setting mechanisms. Specifically, we will measure the extent to which the gender pay gap varies with the degree to which wages are set according to national, industry, business or individual-level agreements. Furthermore, the data enable an assessment of the extent to which the implementation of the minimum wage has led to an improvement in the relative position of females and a narrowing of the gender wage gap.

- The introduction of flexible working arrangements is often cited as a realistic means of improving female levels of labour market attachment and thereby achieving a reduction in the gender wage gap. However, apart from O'Connell and Russell (2005), there appears to be little empirical evidence on the likely direct impact of flexible working policies on male/female wage differentials. The data here measure the extent to which employers implement policies such as career breaks and work sharing which, presumably, enable females to better combine family and work commitments and, as such, this will allow some assessment of the impacts of such policies.

- The importance of employer characteristics relating to ownership, industry and export orientation will be analysed. More particularly, we will undertake a detailed assessment of the extent to which the gender pay gap varies across occupations and industries.

1.4 Structure of the Report

The report is structured as follows. Chapter 2 provides a review of the various theories that attempt to explain the gender pay gap and examines the international evidence. Chapter 3 provides descriptive data on the distribution of the wage determining attributes included in our analysis between males and females in Ireland. Five sets of such characteristics are considered: Human Capital; Family Structure; Job and Firm-level Characteristics; the Occupational Distribution of Employment and the Industrial Distribution of Employment.

Chapters 4 and 5 present econometric evidence on the extent and nature of the gender pay gap in Ireland. Chapter 4 provides the overall results, as well as separate analyses of the full-time and part-time labour markets, while Chapter 5 provides the detailed analyses across occupations and sectors. Chapter 6 provides a summary and conclusion to the study.

Finally, detailed technical information on the methodology and on the findings are provided in the Appendices.

2. WHAT DOES THE LITERATURE SAY?

This chapter of the report considers the theories that economists and sociologists have developed to explain the gender wage gap and the possible explanations behind the observed decline of the gap in many countries. It also assesses existing estimates of the gender wage gap in Ireland.

Historically, lower wages for women has been justified by ideological beliefs about why some workers should earn more than others. In the late eighteenth century, the notion that women needed less to survive than men was reflected in British poor-law regulations that set the allocations for women at about two-thirds that of men. An additional and more recent justification for paying women less than men is the idea that women do not support themselves (Reskin and Padavic, 1994). This argument suggests that men as "breadwinners" need to earn more in order to support families, including women who withdraw from the labour market to perform caring roles. This, of course, takes no account of the fact that, around the world, many men do not earn enough to support a family, and that many women live alone, or raise families on their own. More recent approaches to gender inequality have pointed to the different characteristics of individual men and women at work, and to the characteristics of the jobs and organisations in which they work.

2.1 The Role of Human Capital

According to standard economic theory, individual earnings will be primarily determined by the amount of skills (referred to as human capital) acquired through both education and on-the-job training. On average, studies of the male/female pay gap attribute a relatively large proportion of the earnings differential to differences in the levels of human capital accumulated by males and females. As females, on average, tend to have lower amounts of human capital relative to their male counterparts, in particular lower levels of on-the-job experience, this accounts for a proportion of the earnings gap. In a meta-analysis of 263 studies of the gender pay gap, Weichselbaumer and Winter-Ebner (2005) report that characteristic differences, which typically relate to human capital effects, accounted for approximately 80 per cent of the gender pay gap.

The reasons why females tend to build up less education/training and experience over the course of their working lives have been widely discussed in the literature. The explanation posited by the standard human capital model of the labour market (Becker, 1964; and Mincer and Polachek, 1974) has three main elements. First, as females tend to experience more career breaks because of family commitments, commonly referred to as "time-out", the amount of human capital built up through on-the-job training will be lower. Second, time-out of the labour market will result in some depreciation of existing skills and may also mean that some females will fall behind in terms of changing occupational or workplace practices that have arisen as a result of technological progress (skill-biased technical change). One of the consequences of this pattern is that the pay gap is greater among older workers (Reskin and Padavic, 1994). Third, females envisaging time-out will have a lower expected income stream from employment and, as a consequence, are assumed to invest in lower amounts of training.

Manning and Swaffield (2005) estimate that lower levels of labour market attachment[6] among females explains around 50 per cent of the widening pay gap

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[6] Within the economic literature 'attachment' refers to labour market behaviour (e.g. duration of employment experience, number of hours worked) rather than to attitudes/values such as work commitment.

that emerges following labour market entry. As stated earlier, a similar conclusion was reached by Barrett, Callan *et al.* (2000) with respect to the gender pay gap in Ireland. What is more, it is unclear that females returning to the labour market necessarily recommence their career where they left off. For instance, Manning (2006) asserts that when women return to the labour market they often do so on a part-time basis and often-in lower status jobs than they held previously. Clearly, the extent to which females experience occupational downgrading following labour market re-entry is likely to be a key factor in explaining their lower returns to labour market experience. From a policy perspective, the provision of career breaks could be successful in lessening the extent of such downgrading, a factor that is explored in further detail later in the report.

A key proposition of the human capital approach is that these patterns of women's education and work decision may relate, at least to some extent, to preference, with the implication that the resulting inequality in earnings is not a policy issue. The role of preferences in producing unequal outcomes between men and women in the labour market has been controversial in sociological approaches to the issue. Hakim (1996, 2002) argues that many women have different work values than men and place a higher value on family. Accordingly, they invest less in work and education, as in the human capital approach, and accept poorer working conditions and lower pay because of this. Women who are secondary earners are more likely to place higher value on non-monetary aspects of jobs, such as convenient and flexible hours, proximity and other social factors. Others maintain that Hakim places too much emphasis on preferences in explaining the gender wage gap, arguing that the practical and financial difficulties posed by childcare in countries with poor public childcare provision are important reasons for women's low rate of full-time working and their tendency to be concentrated in low-wage part-time jobs (Ginn *et al.*, 1996).

Finally, in addition to differences in the quantity of human capital accumulated by both males and females, important differences may also exist in the type of education received.[7] For instance, Machin and Puhani (2003) estimate that, among UK graduates, field of study accounts for between 9 and 19 per cent of the male/female gender wage gap.[8] Gender differences in subject choice, at secondary as well as tertiary levels of education, may reflect differences between young men and women in the extent to which they find certain subjects useful, important, interesting or enjoyable and the extent to which they believe they can perform well in those subjects (Jonsson, 1999). Moreover, these preferences may reflect broader processes of socialisation into what are considered appropriate gender roles. Differences in field of study can also reflect differences in the availability of subjects to males and females within secondary education, as well as the gendered nature of advice and encouragement of students at second level (NCES, 2000; Fouad, 1994; and Fontaine and Ohana, 1999). Choice of course may also be influenced by cultural stereotypes regarding what jobs are appropriate to men and women, but also by actual patterns of occupational segregation in the workforce and thus by students expectations of what jobs will be accessible to them (Gaskell, 1984; Helwig, 1998; and Miller and Budd, 1999).

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[7] Such differences may be due to gender stereotyping within schools or the home. Gender-based differences in tastes may also be a factor here.

[8] This result was obtained after controlling for age, region, industry, part-time work and public sector employment.

2.2 Job and Employer Characteristics

It is fair to say that human capital theory, which highlights differences in the levels of education and skills acquired by males and females, has been the most powerful framework for explaining the gender pay gap. However, there is increasing evidence stemming from the literature on skills mismatch that job characteristics, such as firm size and sector, are also important in determining wages (Hartog and Oosterbeek, 1988; Alba-Ramirez, 1993; Groot, 1996; Kiker *et al.*, 1997; Sloane, Battu and Seaman, 1996; and McGuinness, 2003). Models that stress the dual importance of worker and job characteristics are referred to as assignment models of the labour market (see Sattinger, 1993). However, in spite of the evidence supporting assignment theory and an existing literature linking employer characteristics to earnings (Brown and Medoff, 1989; Oi and Idson, 1999; and Krueger and Summers, 1987), little is known of the extent to which such factors contribute to the gender pay gap.

Within the context of job and firm-level characteristics, factors such as wage setting methods and the minimum wage also need to be considered. With respect to wage setting, collective bargaining structures may reduce wage differentials by eliminating wage differences both within and across sectors and firms (Plasman and Sissoko, 2004). Minimum wages may also reduce the wage gap as women are more heavily located in lower segments of the wage distribution; thus, any policy, which reduces the level of wage dispersion, should also reduce the gender wage gap (Plasman and Sissoko, 2004). However, it has also been argued that there may be negative consequences of the minimum wage via increases in the cost of basic childcare provision and other domestic services (Arulampalam, Booth and Bryan, 2007). In relation to the existing evidence, Plasman and Sissoko (2004), Blau and Kahn (1996, 2000) and Gartner and Gesine (2004) present evidence that supports the view that collective bargaining reduces the gender wage gap (see Barrett, Callan *et al.* (2000) for Irish evidence on this). One of the advantages of the data set used in the current study is that it includes a range of indicators about the jobs and firms in which people work and about wage bargaining practices in those firms, so we are able to examine these issues in some detail.

It should be pointed out that within the literature generally, there has been a failure to incorporate job and employer characteristics into studies of gender pay, primarily related to a lack of employee-employer linked data as opposed to the dominance of any particular view of the labour market. Nevertheless, a recent paper by Mumford and Smith (2007), using WERS[9] data for the UK, did address the issue. Their study found that factors such as contractual status and trade union membership had significant impacts on the wage differential. Here we also investigate the impact of job and employer characteristics using an employer-employee linked dataset. In particular, we include information on wage bargaining, firm size, export intensity and ownership type (FDI). While the expectations with respect to wage bargaining have already been discussed, the other variables are included on the grounds that they have been strongly linked with earnings within the existing literature (Brown and Medoff, 1989; Oi and Idson, 1999; and Krueger and Summers, 1987) and, as such, we are interested in examining the possibility that these impacts may differ according to gender.

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[9] Workplace Employee Relations Survey

2.3 Occupational Segregation

It has also been established that, even in instances where males and females possess similar amounts of human capital and perform similar jobs, females may be paid less as a result of being crowded into specific occupations, a phenomenon known as occupational segregation (see Bergmann, 1989). This may result from gender attitudes in both allocation to jobs as well as in the valuation of work. Gender attitudes may lead men and women to differ in their occupational choices (Polavieja, 2007), partly in consequence of gender differences in field of study, discussed above. Moreover, employers may draw on similar gender attitudes in their employment, pay and promotions decisions, thus favouring men over women. Occupational segregation, it is argued, creates labour surpluses that reduce female earnings. Models of this type of segregation suggest that men will be paid more even if they have the same human capital and do the same job by virtue of the fact that many of them are not competing with females in the more crowded, lower paying, labour markets (see Blau and Kahn (2000) and Petersen and Morgan (1995) as evidence of this). Nevertheless, some studies suggest that the contribution of occupational segregation to the gender wage gap appear to be relatively small. In relation to the Irish evidence on this, both Callan (1991) and Reilly (1991) found that occupational segregation added little to the explanation of the gender wage gap in Ireland; however, highly aggregated occupational categories were used in both of these studies. Callan (1991) indicated that an examination of the wage gap using finer occupation classifications would be useful; however, he also cautioned that while this might explain more of the wage differential, it would still leave unanswered the question of why males and females occupy different positions within the finer occupational categories. In a study of the UK labour market, Miller (1987) reported that if the male and female occupational distributions were congruent, the wage gap would fall by just 13 per cent with the majority of the gap explained by differences in wage related characteristics. Manning (2006) argues that initial choice of occupation does not appear to put females at a major wage disadvantage on first entry to the labour market. He claims instead that the gap emerges after labour market entry and that it is mostly attributable to lower levels of labour market attachment among females as opposed to occupational segregation. Overall, the extent to which occupational crowding is due to discrimination or the preferences of females is unclear. It may be that females are drawn to certain jobs that are easier to enter and exit, thus facilitating a better work/family balance.

2.4 Labour Market and Career Mobility

Another line of reasoning used to explain the gender wage gap, which unfortunately we cannot test in any way using the current data, features job mobility models based around job search (Burdett, 1978) and matching (Stigler, 1962; and Jovanovic, 1979). These models describe the process by which workers are matched with firms and generally associate voluntary mobility with an improved match and wage growth. If females are less mobile than men, or experience lower wage growth following a voluntary quit, this may contribute to a gender wage gap. Some recent evidence suggests that females are less likely to change employer (McGuinness and Wooden, 2009), however, it is not clear that such differences contribute to the wage gap. While some studies report that the wage gains following a voluntary separation are less for females (Loprest, 1992), others (Keith and McWilliams, 1995) found that although men and women have different patterns of mobility, the wage effects of mobility tend to be similar. In a UK study of early career workers, Manning and Swaffield (2005) estimate that differences in labour market mobility patterns account for approximately 6 per cent of the gender wage gap.

A more recent strand in the literature that is worth mentioning, but again is something that we cannot look at here, examines the extent to which females are less inclined to bargain relative to men and, thus, are less likely to "move forward" in the labour market. This suggests that there exists behavioural differences between men and women and, specifically, that female workers are more passive in bargaining situations. Booth (2007) argues that discrimination at hiring may weaken females' willingness to bargain over starting wages. She also discusses the possibility that females may be more risk averse and less competitive. Such hypotheses were explored by Manning and Swaffield (2005) using psychological data, relating to self-esteem. However, they conclude that the impact of observable behavioural differences on the gender pay gap was quite small, at most accounting for 2 per cent.

2.5 Discrimination

The proportion of the raw wage gap that cannot be explained by any of the above factors is generally attributed to discrimination. However, it is unwise to assume that the entire unexplained component of the gap relates to discrimination, as all factors that potentially influence the gap will not be captured in the data. For example, if it transpires that men are more motivated than women, the failure to control for motivation, which will clearly influence wages, will lead to an overestimation of discrimination. Bearing this in mind, according to Weichselbaumer and Winter-Ebner (2005), despite the gender wage gap having fallen steadily since the 1970s, the unexplained proportion of the raw gap has remained constant at around 20 per cent. While it is true that a proportion of the residual gap will be due to unobserved differences in preferences regarding work/family balance, pay discrimination may well be a factor, however, its relative weight is unknown. In addition, discrimination may influence the explained component of the wage gap where it shapes the distribution of the observable characteristics between men and women.

A principal source of discrimination is likely to stem from male domination in the hiring process and a high-perceived cost of employing females due to their greater tendency to exit from the labour market for family reasons. Becker (1971), in his employer tastes model, argues that individuals in certain groups, such as males, will have a preference against individuals from another group, females, and that this taste can be treated like any other in that the discriminating employer may require some pay-off (for example, a lower hiring wage) in return for recruiting someone from the less desirable group. Booth (2007) argues that discrimination is also likely to exist in the promotions process, which will tend to inhibit female wage growth. The promotions process, although usually well defined, may rely on certain criteria such as the ability to work excessive hours, which make it more difficult for females to progress professionally if they have family commitments. Even where promotion has been achieved, discrimination may play a role on the salary level to which females ascend following promotion, and an upper limit to the level of wage progression may also exist (that is, a glass ceiling).

2.6 Common Findings

Taking the literature as a whole, a number of stylised facts emerge:
- The gender wage gap has been declining steadily in most industrial nations over recent decades (Kunze, 2008; Barrett, Callan *et al.*, 2000; and Weichselbaumer and Winter-Ebner, 2005) although the unexplained portion of the gap has tended to decline less.
- The earnings gap begins to widen after the point of labour market entry and to grow with age (Weichselbaumer and Winter-Ebner, 2005; and Manning and Swaffield, 2005).

- The gap tends to be higher in the private sector and lower in the public sector (Arulampalam, Booth and Bryan, 2007; Booth, 2007; and Weichselbaumer and Winter-Ebner, 2005) and finally,
- The gap between married men and women is higher than that for single people (Barrett, Callan *et al.*, 2000; and Kunze, 2008).

2.7 Why Might the Gap be Closing?

As stated above, the unadjusted gender wage gap appears to be declining in most developed economies and it is worth discussing some of the reasons put forward to explain the observed trend. The most obvious and plausible explanations are that female levels of labour market attachment and human capital accumulation have been increasing. Goldin, Katz, and Kuziemko (2006) demonstrate, for the US economy, that college completion rates were higher for females born after 1960, while Manning (2006) shows for the UK that employment rates have increased dramatically among females born after 1954. As females acquire more education and gain increasing levels of experience from reduced family related absences, their human capital characteristics converge with those of their male counterparts and the gap closes. It could also be the case that the market for female labour has tightened more quickly than that for males, which will also have led to a reduction in the gap. Another potential explanation is that the range of equality legislation introduced since the 1970s is impacting on wage returns. However, the observation that the unexplained component of the wage gap, generally considered to be an indicator of discrimination, has remained constant over time would tend to suggest that the direct effects of legislative changes on the gap have levelled off somewhat. Nevertheless, it is possible that improved equality frameworks themselves continue to encourage more females to participate in both education and the labour market, therefore, leading to further indirect reductions in the gender wage gap.

2.8 Estimates of the Gender Wage Gap in Ireland

The most rigorous analysis of the gender pay gap in Ireland to date, conducted by Barrett, Callan *et al.* in 2000 concluded that, after controlling for differences in characteristics and time-out, the adjusted differential declined from 14.7 per cent in 1987 to 4.4 per cent in 1994 and 5.8 per cent in 1997. However, as Plantenga and Remery (2006) point out in a review of the gender wage gap in thirty European countries, within country estimates can vary widely depending on the data source and controls used within the models. With respect to Ireland, and focusing on studies that use data covering the 1994 to 2001 period, estimates of the adjusted gender pay gap range from 4.4 to 21.8 per cent. This can be seen in Table 2.1. The most obvious explanation for the relatively wide spread in estimates is that the cross-country datasets that generated the largest estimates contained fewer controls for human capital, job and personal characteristics and, more specifically, time-out of the labour market. Barrett, Callan *et al.* (2000) and Olivetti and Petrongolo (2006), which generate the lowest estimates, do include such measures.[10]

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[10] See Fox (2006) for further reading on the Irish literature.

Table 2.1: Studies on the Irish Gender Pay Gap (1994-2001)

Author	Year	Data and Sample Size	Adjusted Gap
Plasman and Sissiko	2004	1995 European Structure of Earnings Survey (Irish N = 35,941)	21.8
Olivetti and Petrongolo	2006	European Community Household Panel Survey 1994-2006 (Irish N = 4,000 pa)	14.2 (1999)
Barrett, Callan *et al.*	2000	Survey of Income Distribution 1987 (N = 2,763), Living in Ireland Survey 1994 and 1997 (N = 3,000)	14.7 (1987) 4.4 (1994) 5.8 (1997)
Arulampalam *et al.*	2005	1994-2005 European Community Household Panel Survey pooled (Ireland N = 10,000)	21.0 (total period)

3. DESCRIPTIVE ANALYSIS

3.1 Introduction

In Table 3.1 we compare unadjusted wage gaps in the 2003 National Employment Survey (NES) with more recent NESs, March 2006 and October 2006,[11] and earlier surveys having similar coverage: the Living in Ireland Surveys (LIS) for 1994, 1997 and 2000, which were conducted by the Economic and Social Research Institute (ESRI), and the earlier Survey of Income Distribution and Poverty (SIDP) for 1987, also carried out by the ESRI.[12]

Table 3.1: Mean Hourly Gender Wage Gap in Ireland

	Female	Male	F/M ratio
	€	€	%
1987 SIDP	5.42	6.77	80.1
1994 LIS	8.10	9.79	82.7
1997 LIS	9.59	11.28	85.0
2000 LIS	11.14	13.07	85.2
2003 NES	14.93	17.74	84.2
2006 NES (March)	17.74	20.28	87.5
2006 NES (October)	17.67	20.50	86.2

The unadjusted wage ratio was about 80 per cent in 1987, and women's wages rose slightly over the next 10 years to about 85 per cent of the average male wage. The figure in the 2003 NES is somewhat smaller at about 84 per cent. However, the most recent data from the 2006 NES indicates that the wage gap had narrowed to 86.2 per cent in that year (October).

As argued earlier, however, some of the wage gap can be explained by factors such as different levels of experience and time-out of the labour market between men and women. In Chapters 4 and 5 of this report, in order to adjust for these differences, we apply the Oaxaca-Blinder decomposition.[13] This approach statistically decomposes the gap between male and female wages into components arising from gender-based differences in the returns to wage determining characteristics, on the one hand, and the distribution of such characteristics among male and female workers, on the other.

In this chapter here we assess how the distribution of the wage determining attributes included in our decomposition varies between males and females in Ireland. Five sets of such characteristics are considered: Human Capital; Family Structure; Job and Firm-level Characteristics; the Occupational Distribution of Employment and the Industrial Distribution of Employment.

The descriptives are analysed in terms of all workers, full-time workers (FT) and part-time workers (PT). FT workers account for approximately 97 percent of the male

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[11] The 2006 NES datasets, March and October, allow us to derive the average unadjusted wage gap. However, the two surveys were mainly devoted to collecting information on training (March and October) and job vacancies and employee skills (October only), consequently they did not collect the range of covariates that we use from the 2003 survey to decompose the gender wage gap in the present study.

[12] We do not, at this point, consider CSO statistics on average earnings by gender in (manufacturing) industry, which include only a minority of both male and female employees.

[13] See Appendix A.

sample but just 72 per cent of the female sample. The rationale for separating out FT and PT workers lies in the fact that the nature of jobs available to PT and FT workers, and the characteristics of such workers, tend to be very different. This is evidenced by the fact that even after controlling for observable differences, studies have consistently shown that PT females earn substantially less that their FT counterparts (Harkness, 1996; Jepsen, O'Dorchai, Plasman and Rycx, 2005; Manning and Petrongolo, 2006; Mumford and Smith, 2009). The reasons put forward by such studies for this pay gap relate to largely unobservable factors including: (a) differing preferences that effect job choice, (b) productivity differences related to lower hours of work, and (c) co-ordination difficulties that make it difficult for employers to place PT workers in certain positions. Given the evidence suggesting substantial differences in both the personal characteristics and job opportunities facing FT and PT workers it is worthwhile to examine these two groups separately.

3.2 Human Capital

Table 3.2 compares levels of educational attainment (measured in terms of highest qualification), age, experience, employment tenure and membership of a professional body by both gender and employment type.[14] Dealing firstly with the all workers sample, relative to their male counterparts female workers are, on the whole, better qualified with a lower percentage of individuals educated to the primary or lower secondary level (21.4 per cent compared to 28.4 per cent), and a much higher proportion of certificate/diploma holders and graduates (36.1 per cent compared to 26.7 per cent). Higher levels of educational attainment among females will tend to reduce any wage gap. However, as expected, female levels of experience are below those of males by a factor of 20 per cent and this will contribute to a widening of the earnings differential. The extent to which higher levels of female educational attainment will counteract the influence of lower experience will depend on the relative returns to these attributes and the extent to which such returns vary according to gender.

In relation to age, there is no variation in the average age of male and female workers, which is approximately 36 years. Regarding tenure, the average employment tenure of a male worker is, at 9.6 years, almost a third higher than that of females. Given the usual importance of tenure in determining earnings, it is likely that this factor will lead to some widening of the wage gap. There is little difference in the proportions of male and female employees who are members of professional bodies.

Among FT workers, the higher educational attainment of females is even more marked - with just 15.1 per cent of FT females educated to the primary or lower secondary level compared to 28.0 per cent of FT males , and again a much higher proportion of certificate/diploma holders and graduates (41.7 per cent of FT females compared to 26.9 per cent of FT males). However FT females are somewhat younger than FT males - with averages ages of 33.9 and 36.3 respectively. This age difference - combined with longer periods spent in education on average - contributes to the lower average experience of FT females (13.2 years compared to 17.4 for FT males). However, it is likely that time-out influences will contribute to the remaining differential in experience. Again, the average employment tenure of a male full-time worker is almost a third higher than that of females.

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[14] Appendix B, Table B.1, presents the descriptives for the all, FT and PT samples i.e. no gender distinction.

The patterns observed for PT employees differ substantially.[15] When compared to the total sample and the break down for FT employees, PT workers are older. Regarding levels of education, PT employees are much more likely to be educated to primary or lower secondary level and are much less likely to be certificate/diploma holders or graduates. The gap in educational attainment is particularly marked for PT and FT female employees. Nevertheless, while it is true to say that PT workers are generally less educated relative to all/FT employees, there are few apparent differences in the educational profiles of male and female PT workers. However - despite being of similar average age and educational attainment - PT females still have fewer years of experience compared to PT males (15.3 years compared to 18.7). This gap is probably related to time-out of the labour market for family reasons. However the average employment tenure of female part-time workers is slightly higher than that of males Overall though, these data suggest that differences in human capital endowments are unlikely to be an important factor in explaining any PT gender wage gap.

Table 3.2: Human Capital Levels by Gender and Employment Type

	All Males (%)	All Females (%)	Full-time Males (%)	Full-time Females (%)	Part-time Males (%)	Part-time Females (%)
Primary	9.4	6.8	9.1	3.5	17.3	15.3
Lower secondary	19.0	14.6	18.9	11.6	20.1	22.3
Upper secondary	27.9	32.2	27.9	32.5	28.4	31.3
Post secondary	17.0	10.3	17.1	10.7	12.3	9.4
Cert/Diploma	9.7	16.7	9.8	18.5	7.5	11.9
Third-level	17.0	19.4	17.1	23.2	14.4	9.8
Age	36.5	36.2	36.3	33.9	41.9	42.1
Experience (years)	17.4	13.8	17.4	13.2	18.7	15.3
Tenure (years)	9.6	7.3	9.7	7.3	6.7	7.5
Professional body	12.3	11.5	12.5	13.1	9.2	7.3

3.3 Family Structure

As is the case here, most gender pay gap studies do not contain measures of time-out;[16] however, various proxies are often used that are strongly correlated with time-out. Specifically, information on family structure and responsibility, such as the number/age of children and marital status, are often used to account for time-out effects.

Table 3.3 compares the family characteristics of male and female workers in the overall, FT and PT labour markets. Turning first to the total employee sample, there are little differences with respect to the proportions of males and females with children of any age active in the labour market. Similarly, the proportions of employees who are married or cohabiting are also broadly comparable. Not surprisingly, females are much more likely to have a partner that works full-time, whereas males are much more likely to have a partner that is employed part-time.

With respect to the FT sample, relative to males, females in the FT labour market are much less likely to have children of school attending age. However, there is little difference in the proportions of FT males and females with children aged 18 and

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[15] Within the dataset, part-time employment status is self-assessed.

[16] However, the study by Barrett, Callan *et al.* (2000) does contain a measure of time-out of the labour market.

over, suggesting that a substantial proportion of females return to the labour market following the completion of child rearing duties. Consistent with expectations regarding time-out, females living with a partner have a much lower presence in the FT labour market relative to their male counterparts. Compared to FT females, FT male employees are also much more likely to have a partner who works PT and much less likely to have a partner who is employed FT, which again is consistent with a framework within which males take primary responsibility for income generation in family structures. The NES data also contains a variable indicating if the employee's journey to work included a school run or other drop off; both FT and PT females were found to be more likely to undertake such a responsibility.

In relation to the PT labour market, females with children and those who are living with a partner are much more likely to be active within this labour market relative to both FT females and PT males, confirming the importance of PT work among females with family responsibilities. In line with this view, the majority of PT females have a partner who works FT. In terms of family structure, PT and FT males appear broadly similar with the exception that PT males appear less likely to have a child under 6 or to have a partner who is working FT.

Table 3.3: Family Structure by Gender and Employment Type

	All Males (%)	All Females (%)	Full-time Males (%)	Full-time Females (%)	Part-time Males (%)	Part-time Females (%)
Child less than 6 years	17.9	15.1	18.2	11.2	9.7	25.4
Child 6 to 17 years	26.9	26.2	27.0	17.5	24.7	48.7
Child over 18 years	12.3	14.0	12.2	10.0	16.6	24.2
Married/Cohabits	60.7	56.2	60.8	49.6	56.1	73.5
Partner works full-time	26.6	50.6	27.0	46.3	14.8	61.9
Partner works part-time	15.9	2.8	15.9	2.2	17.3	4.3
School run	7.7	15.6	7.8	12.6	4.8	23.5

3.4 Job and Firm-level Characteristics

The NES is somewhat unique in terms of Irish data in that it provides very detailed information on the job and firm-level characteristics of each employee (Table 3.4). Dealing firstly with job attributes, relative to their female counterparts, all male employees are much more likely to belong to a trade union. They are also more likely to supervise staff and work fixed hours. These patterns were also observed when the FT gender distributions were compared. With respect to part-timers, relative to FT workers, they are less likely to belong to unions, hold supervisory positions and work fixed hours. Compared to PT males, PT females are much more likely to work fixed hours.

With respect to firm-level characteristics, the data suggests that PT workers differ from the other employment-type populations, both the FT and total employee populations, in a number of respects. PT female workers are more heavily concentrated in firms that have adopted what could be classed as family-friendly policies, such as career breaks and work sharing/option to go PT. All/FT female workers are much more likely to belong to firms where a high proportion of managers are female.[17] Whether or not the higher share of females in female-led firms results in any substantial reduction in the wage gap remains to be seen. Regarding pay determination, all/FT female employees are slightly more likely to be employed in firms where the national-level wage agreement is the primary mechanism for determining pay and somewhat less likely to be employed in firms where business-

[17] The female-led firm variable relates to the proportion of managers within the firm that are female.

level agreements are dominant. Again, there is some evidence within the literature suggesting that such a highly centralised wage determination system, as seen here, should result in a moderation of the gender pay gap.

Compared to all/FT employees, PT workers are much less likely to be employed in foreign-owned firms and more likely to be employed in firms that could be generally characterised as low waged.[18] Comparing male and female PT workers, as with the all/FT workforce, we again see that females are more heavily concentrated in firms adopting family-friendly policies and employing a higher proportion of female managers.

Table 3.4: Job and Firm Characteristics by Gender and Employment Type

	All Males (%)	All Females (%)	Full-time Males (%)	Full-time Females (%)	Part-time Males (%)	Part-time Females (%)
Job						
Union member	39.6	29.9	40.0	30.3	28.7	28.9
Supervise	36.5	28.5	37.4	34.3	10.7	13.6
Flexi-work	21.8	25.8	21.1	23.3	42.9	32.3
Firm						
Part-time workers	3.4	27.8	-	-	-	-
Export intensity	29.9	42.9	29.9	43.2	33.3	42.1
Foreign-owned	19.2	16.5	19.7	19.7	5.5	8.1
Minimum wage cover	6.6	9.0	6.4	8.1	10.4	11.3
Career breaks	23.4	33.0	23.3	31.8	24.9	35.9
Work sharing/part-time work	65.5	82.6	65.0	79.9	77.4	89.8
Firm size	4.9	5.2	4.9	5.2	4.7	5.2
Females % of management	6.8	20.7	6.8	22.1	6.5	17.1
National-level wage agreement	49.6	54.1	49.4	52.0	55.7	59.4
Individual-level wage agreement	22.4	24.8	22.5	25.4	20.8	23.3
Business-level agreement	5.8	6.2	5.8	7.1	5.0	4.0
Industry-level agreement	12.4	4.8	12.7	4.5	5.3	5.6
Other agreement	1.7	2.0	1.7	2.1	2.0	1.6

3.5 The Occupational Distribution of Employment

As discussed within the literature review, occupational segregation is known to account for some proportion of the observed gender wage gap. However, there is much less agreement on the extent to which such segregation reflects choice as opposed to discrimination. Table 3.5 gives the occupational distributions for all, FT and PT workers in 2003. Within the all/FT labour markets, females were much more heavily concentrated within the Clerical and Associate professional occupations. Approximately, 55 per cent of all/FT males were employed as Managers, Craft workers or Plant operatives compared to approximately 20 per cent of all/FT females. With respect to occupational segregation, while we do observe much higher proportions of males in occupations such as Craft and Plant operatives, which require intermediate skills, while females are heavily dominant in Clerical posts, which are also intermediate in terms of skill content, there is no evidence that females are under-represented in more skilled occupational groupings. In fact, approximately 33 per cent of all/FT females are employed in Managerial, Professional or Associate professional occupations compared to approximately 30 per cent of males.

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[18] This effect is proxied by the variable measuring the proportion of the workforce earning the national minimum wage.

The pattern with respect to the PT labour market mirrors that of the all/FT markets in terms of male dominance in Craft and Plant occupations and female dominance in Clerical posts. Also, female representation is, on the whole, greater within the three most educated/skilled occupations. Nevertheless, the occupational mix at the upper end of the distribution is somewhat different from the all/FT labour markets as PT females are more dominant (less) in Associate professional (Professional) occupations.

Taken as a whole, the descriptive analyses provide no evidence that females within the Irish labour market are being channelled, either by choice or discrimination, into more low skilled occupations. Conversely, the results indicate that, relative to their male counterparts, females in the all, FT and PT labour markets have higher levels of representation within the top three occupational groupings combined.

Table 3.5: Occupational Distribution of Employment by Gender and Employment Type

	All Males (%)	All Females (%)	Full-time Males (%)	Full-time Females (%)	Part-time Males (%)	Part-time Females (%)
Occupation						
Managers and administrators	13.0	11.1	13.4	14.2	1.5	3.3
Professional	8.9	7.9	8.9	8.6	10.4	6.0
Associate professional and technical	8.2	13.6	8.3	13.4	4.7	13.9
Clerical and secretarial	6.9	26.7	6.9	28.5	6.9	22.1
Craft and related	24.2	2.0	24.7	2.4	10.3	1.1
Personal and protective services	6.7	13.6	6.3	11.6	20.2	19.0
Sales	5.3	11.9	5.1	9.9	9.9	17.2
Plant and machine operatives	16.7	5.9	16.7	7.1	18.1	2.8
Other	10.0	7.2	9.7	4.3	18.0	14.6

3.6 The Industrial Distribution of Employment

Finally, we examine how employment is distributed by industry (Table 3.6). Across all three labour markets (all, FT and PT), males were much more heavily concentrated in the Manufacturing and Transport sectors. Unsurprisingly, given the structure of the economy in 2003, the Construction industry was found to account for just under a fifth of total male all/FT employment, however, it was much less important for PT males. The Health sector was a key source of employment for All, FT and PT females. Finally, the Retail sector was found to be relatively more important in the context of PT employment, and this was true irrespective of gender.

Table 3.6: Industrial Distribution of Employment by Gender and Employment Type

Sector	All Males (%)	All Females (%)	Full-time Males (%)	Full-time Females (%)	Part-time Males (%)	Part-time Females (%)
Mining, quarrying and manufacturing	27.0	14.2	27.5	17.2	13.4	6.3
Electricity, gas and water*	-	-	-	-	-	-
Construction	18.7	1.3	19.1	1.4	4.6	0.9
Wholesale and retail	12.3	16.3	12.1	14.9	16.4	20.0
Hotels and restaurants	4.5	8.1	4.3	7.9	10.8	8.7
Transport, storage and communication	9.6	4.2	9.6	4.8	10.3	2.7
Financial intermediation	4.2	7.2	4.3	8.6	0.8	3.6
Business services	8.9	10.3	9.0	11.2	7.6	8.0
Public administration and defence	3.5	5.0	3.5	5.4	4.2	4.2
Education	2.3	6.7	2.0	5.9	9.1	8.8
Health and social work	4.1	20.9	3.8	17.1	12.9	30.9
Other services	3.4	5.3	3.2	5.3	9.2	5.5

*Cannot be reported for confidentiality reasons

3.7 Summary

In this section we attempted to highlight the main characteristics differences between males and females in the overall, FT and PT labour markets. On the whole, females, were found to possess higher levels of education and lower levels of experience. This was most marked among full-time workers. With respect to family structure, females with children of school age were less (more) likely to be active in the FT (PT) labour market. In terms of job and firm characteristics, we found that females were somewhat more likely to be employed in firms that offered family-friendly policies. Regarding the industrial relations environment, all/FT males were more likely to be members of a trade union relative to all/FT females, while females were generally more likely to be employed in firms implementing the national wage agreement. In terms of occupation, there was no evidence to suggest that females were being heavily segregated into low wage occupational groupings. In fact, the analysis revealed that, overall females were slightly more likely to be employed in Professional and Managerial occupations. Finally, the patterns observed with respect to industry were largely as expected with all/FT males heavily employed in Manufacturing and Construction, while there were greater numbers of all/FT females employed in Health, Retail and Manufacturing. The PT distribution was somewhat different with males much less likely to be employed in Construction and higher representation of PT females in the Health sector relative to their all/FT counterparts.

4. ECONOMETRIC ANALYSIS OF THE GENDER WAGE GAP IN IRELAND IN 2003

4.1 Introduction

This chapter of the report measures the gender wage gap and breaks it down into the proportion that is attributable to (i.e. due to) differences in the characteristics of males and females (e.g. education, experience, etc.) and the proportion that cannot be explained. Box 4.1 sets out a formal explanation of the decomposition methodology. A more detailed discussion of the techniques generally used in studies of this kind, and the empirical problems associated with them, is given in Appendix A.

The measure of the wage gap used in the decompositions is the log of hourly wages net of overtime.[19] The use of log wages is standard in studies of this kind. This approach helps to reduce the impact of outliers and facilitates an ease of interpretation. This econometric based estimate differs somewhat from that implied by Table 3.1 that is based on simple ratios.

The results from the Oaxaca-Blinder decomposition for all employees are reported in Section 4.2. We then disaggregate the analysis to assess the extent to which differences exist between the FT and PT labour markets in Sections 4.3 and 4.4. In order to assess the impact of various groups of characteristics, the decompositions have been estimated using a specification that includes controls for Human Capital characteristics (HC), Family Structure (FS), Job and Firm-level characteristics (JF), Industry (IND) and Occupation (OCC). A full description of the variables included in each specification is given in Appendix C, Table C.1. In terms of the following analysis, the emphasis focuses on explaining the observable characteristic differences that drive a wedge between male and female earnings i.e. the endowment effect.

4.2 Decomposing the Gender Wage Gap: All Employees

The raw gap (or unadjusted log wage gap) was 21.7 per cent, which is in line with Barrett, Callan *et al.* (2000) who report a raw differential of 19.8 per cent for 1997. Differences in endowments accounted for a gap of 13.9 per cent, leaving an unexplained differential of 7.8 per cent. Thus, endowments account for 64 per cent of the total gender pay gap in 2003. This 2003 adjusted differential (7.8 per cent) is higher than the 5.8 per cent reported for 1997 by Barrett, Callan *et al.* (2000). However, it must be borne in mind that although we do include proxies for time-out of the labour market in our analysis, we were not able to directly account for the substantial influence of time-out on the wage gap as the earlier study did.[20] Thus, depending on how well our indirect measures of time-out control for this important characteristic, it could be the case that the true adjusted wage gap for 2003 may be somewhat less than that reported here.

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[19] The earnings data used in the decomposition relates to gross hourly wages net of overtime. The average hourly wage rates in 2003 for FT employees were €17.91 for males and €15.51 for females. In relation to PT employees, the wage rates were €13.75 and €11.80 per hour for males and females respectively.

[20] In their 1997 decomposition, Barrett, Callan *et al.* (2000) estimated that time-out alone accounted for just under 20 per cent of the gender wage gap.

Box 4.1: The Decomposition Methodology

To understand how wage effects are decomposed, we begin by setting out the basic wage relationship for males and females:

$$LogW_m = \alpha_m + \beta_m X_m + \varepsilon_m \qquad (1)$$

$$LogW_f = \alpha_f + \beta_f X_f + \varepsilon_f \qquad (2)$$

where the W_m and W_f are the wages of men and women, α_m and α_f are the intercept terms that describe the wages males and females would earn if they held no wage related characteristics, X_m and X_f are the characteristics of men and women, and β_m and β_f are the rates of return to these characteristics (e.g. a value of 2.0 on experience would indicate that wages increase by 2 per cent for each year of labour market experience). Once we have estimated these through OLS, the average wage difference between men and women can be measured and broken down as follows:

$$\overline{W_m} - \overline{W_f} = (\overline{X_m} - \overline{X_f})\hat{\beta}_m + (\hat{\beta}_m - \hat{\beta}_f)\overline{X}_f + \alpha_m - \alpha_f = E + C + U \qquad (3)$$

Note that the bars in equation (3) indicate a mean value. The left hand side term in this equation is the difference between male and female earnings (i.e. the gender wage gap); the first term on the right hand side measures the element of the gap that is due to males having more favourable characteristics than females (endowments effect); the second term measures the element due to males and females earning a different return for given characteristics (this is referred to as the coefficient affect, and is sometimes thought to reflect discrimination); and the third term is the element that measures the difference in male and female wages that are not attributable to any differences in their characteristics or returns to these characteristics (shift effect). If E represents the endowment effect, C represents the coefficient effect and U the shift effect, then:

- The total wage gap, or raw differential (R), is equal to E + C + U

and

- The adjusted differential (D) i.e. what remains after we account for differences in endowments, is equal to C + U.

The adjusted wage gap, i.e. the proportion of the raw wage gap that remains unexplained by the variation in observable characteristics between males and females, may, to some extent, reflect discrimination. However, one cannot simply assume that the entire unexplained component of the gap relates to pay discrimination, as all other factors that potentially influence the gap may not be fully captured in the available data. In addition, discrimination may influence the explained component of the wage gap where it shapes the distribution of the observable characteristics between men and women. Thus while discrimination may well be a factor, its relative weight remains unknown.

Returning to the 2003 all employee decomposition results (Table 4.1), in terms of the individual sets of attributes, job and firm characteristics accounted for 23.5 per cent of the wage gap, with human capital characteristics accounting for 17.5 per cent and family structure differences - our proxies for time-out - accounting for 10.1 per cent. Industry and occupational factors were found to explain only 13 per cent of the overall log gap.

We can get a more comprehensive picture of the specific variables that are driving the endowment effect from Table D.1 in Appendix D, which gives a more detailed breakdown of the decomposition reported in Table 4.1. With respect to the job and firm characteristics, which is the most important set of attributes in the all-employee labour market, the largest single element relates to the fact that a lower proportion of males work PT,[21] which results in a 1.9 percentage point widening in the gender pay gap. This is compounded by a further 1.6 per cent widening of the gap, which arises as a consequence of a lower proportion of females in supervisory positions. Turning to human capital effects, the most important characteristic relates to higher levels of experience amongst males, which widens the gap by 3.1 percentage points. This is followed by higher average tenure among males, which extends the gap by a further 1.7 percentage points. In terms of family structure, a higher rate of cohabitation among males extends the gap by 1.2 percentage points. With respect to occupation effects, the lower proportion of females in higher (lower) paying Managerial (Clerical) occupations extended the pay gap by approximately 2 percentage points.

Table 4.1: Decompositions of the Male/Female Wage Gap: All Employees

	ALL	HC	FS	JF	IND	OCC
Amount attributable	26.0					
- due to endowments (E):	13.9	3.8	2.2	5.1	1.2	1.6
- due to coefficients (C):	12.1	10.9	1.7	4.5	-1.0	-4.0
Shift coefficient (U):	-4.3					
Raw differential (R) {E+C+U}:	21.7					
Adjusted differential (D) {C+U}:	7.8					
Endowments as % total (E/R):	64.0	17.5	10.1	23.5	5.5	7.4
Unexplained as % total (D/R):	36.0					

It is very likely that the nature of the gender pay gap, and the importance of the various groups of variables that potentially explain it, will differ substantially between the FT and PT labour markets. Given the large sample size available to us here, we have estimated the decompositions at this more disaggregate level and the results are presented in Sections 4.3 and 4.4.

4.3 Decomposing the Gender Wage Gap: Full-time Employees

The results from the FT decomposition are given in Table 4.2. The results are broadly comparable to those for the all worker sample, with a raw differential of 17.6 per cent falling to an adjusted differential of 6.9 per cent when account is taken for differences in observable characteristics. However, the importance of the various characteristic bundles differs somewhat between the FT and the all employee decompositions. Human capital factors represent the most important group of attributes for the FT sample, accounting for just under 20 per cent of the raw differential. This is followed by family attributes (15.9 per cent) and job and firm characteristics (14.2 per cent). Industry and occupation differences were once more

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[21] Working PT is associated with lower wage in the male labour market.

relatively unimportant, accounting for approximately only 10 per cent of the raw differential in the FT worker sample.

Table D.2 in Appendix D details the impact of each variable on the gender wage gap in the FT labour market. Dealing firstly with human capital influences, while the higher proportions of females educated to certificate/diploma and third level reduced the gap slightly, these impacts were in no way sufficient to counteract the consequences of less labour market experience. The lower levels of accumulated experience among females (the endowments effect) widened the wage gap by 4.2 per cent.[22] Higher levels of tenure were also important, leading to a 1.7 percentage point increase in the gap. With respect to family structures, again the higher incidence of marriage/cohabitation among males resulted in a 1.9 percentage point increase in the wage gap.

In terms of job and firm characteristics, higher levels of union membership and supervisory responsibilities among males widened the gap by a combined total of 1.9 percentage points.

In terms of both occupation and sector, the situation is one of competing influences which largely cancel each other out. Specifically, males benefit by a higher (lower) representation in Managerial (Clerical) occupations but lose as a result of a higher concentration in Plant operative occupations. With regards to sector, observed endowment effects were generally small in magnitude. However, males did benefit from lower concentrations in relatively low-waged industries such as Health and Education.

Table 4.2: Decompositions of the Male/Female Wage Gap: Full-time Employees

	ALL	HC	FS	JF	IND	OCC
Amount attributable	11.6					
- due to endowments (E):	10.7	3.5	2.8	2.5	1.0	0.9
- due to coefficients (C):	0.9	0.9	2.6	1.0	-0.6	-3.0
Shift coefficient (U):	6.0					
Raw differential (R) {E+C+U}:	17.6					
Adjusted differential (D) {C+U}:	6.9					
Endowments as % total (E/R):	60.8	19.9	15.9	14.2	5.7	5.1
Unexplained as % total (D/R):	39.2					

4.4 Decomposing the Gender Wage Gap: Part-time Employees

Table 4.3 gives the decomposition results for PT workers. While male PT workers are obviously a somewhat select group of workers, our sample size is sufficient to make some assessment of the extent to which they are treated differently in the labour market relative to their female counterparts. Furthermore, the results from preliminary regression analysis confirms that the general direction of various characteristics on earnings follow expectations and are similar across both groups, however, the decomposition analysis reveals some differences.

When examining the PT labour market results, it is immediately obvious that the situation is much more complex relative to that observed for FT employees. The raw differential was 5.9 per cent, which is much lower than that reported for FT workers (17.6 per cent). The proportion of the gap accounted for by differences in endowments is negative at -4.1 per cent. This indicates that, based on their

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[22] The total effect of experience is derived by adding the level and squared terms.

attributes, PT females should actually be earning more that PT males. As a consequence of the negative endowments effect, when the impact of endowments are excluded from the raw differential the adjusted differential gap actually increases to 10 per cent. The results indicate that PT females are, on the whole, slightly better endowed in terms of wage determining characteristics than PT males.

Table D.3 in Appendix D gives the detailed breakdown of the decomposition for PT employees. Dealing firstly with the human capital aspects of the decomposition, we find that the results are somewhat different to those of the all/FT models with males endowed with slightly less experience, while females gain from having higher proportions educated to degree level. In terms of family structure, the situation with respect to cohabitation is reversed relative to the all/FT labour markets, with females gaining from a higher incidence of cohabitation. In relation to job and firm characteristics, no particular large effects are observed. Sector and occupational effects are also very small with the overall endowment effects accounting for less than 0.5 percentage points in both cases, with no particular components worthy of comment.

Table 4.3: Decompositions of the Male/Female Wage Gap: Part-time Employees

	ALL	HC	FS	JF	IND	OCC
Amount attributable	-5.4					
- due to endowments (E):	-4.1	-2.0	-1.6	-0.4	0.5	-0.6
- due to coefficients (C):	-1.3	4.1	2.4	2.3	-2.7	-7.4
Shift coefficient (U):	11.3					
Raw differential (R) {E+C+U}:	5.9					
Adjusted differential (D) {C+U}:	10.0					
Endowments as % total (E/R):	-69.5	-33.9	-27.1	-6.8	8.5	-10.2
Unexplained as % total (D/R):	169.5					

4.5 Summary

This section of the report used standard econometric methods to estimate the overall wage gap between males and females in the various labour markets, and also examined the importance of individual endowments in explaining such gaps. With respect to both the overall and FT labour markets, the results were broadly similar. Specifically, the total gap within the overall labour market was 21.7 per cent which fell to 7.8 per cent when account was taken for differences in endowments. Job and firm level characteristics proved most important followed by human capital and family structure effects. These results were driven by higher levels of labour market experience and tenure and lower levels of part-time work among males. The results for FT workers were broadly similar in terms of the overall magnitude of the adjusted and unadjusted wag gaps. However, in this context human capital effects were more important than job and firm level characteristics, with higher levels of male experience again a dominant driver of the wage gap. Finally, the situation for PT workers was very different with endowment differences actually favouring females, which led to the adjusted wage gap of 10 per cent lying above the unadjusted wage of 5.9 per cent.

There was little consistent evidence to support the view that institutional factors exerted a strong influence on the gender pay gap particularly. In the context of the overall model; however, some influences were apparent when the data was disaggregated by employment type. Within the FT labour market, females earned a higher return to the national wage agreement which reduced the gap somewhat, but

any advantage was more or less eradicated by the benefits to trade union membership that accrued to males. Nevertheless, within the PT labour market trade union membership, the minimum wage and national wage bargaining all benefited females; thus, the evidence is at best mixed. With respect to family-friendly policies, there was some evidence to suggest that the existence of career breaks benefited females in the FT labour market.[23] Finally, there was little to support the view that females did better when employed in female-led firms.

An interesting aspect of the results is that broad occupational or sectoral segregation appears to contribute relatively little to the average wage gap. Their combined effects increased the differential by 2.8 per cent, and accounted for just 13 per cent of the overall wage gap. The overall wage model shows that men's greater presence in Managerial occupations added somewhat to the gender pay gap as did women's relative concentration in Clerical occupations. Offsetting this, men's concentration in Plant operative positions reduced the gap so that, overall, occupational segregation increased the average pay gap by 1.6 per cent. In the sectoral analysis, it was found the higher concentration of males in the Construction sector and of females in the Health sector increased the pay gap, while females' presence in Financial intermediation had an offsetting effect. Overall industrial segregation added just 1.2 per cent to the pay gap. The results were broadly similar when the data was broken down by employment type. However, the analysis was conducted at the one digit level only and we must be conscious of the fact that such broad aggregation may be obscuring relationships.

With respect to family structure, within both the overall and FT labour markets, there was little evidence that the existence of children had a large impact on the gender pay gap. However, males, irrespective of employment type, were found to earn a much larger return to living with a partner and this resulted in a more substantial widening of the pay differential. This is not to say that firms systematically reward individuals for marriage or co-habitation. A more likely explanation is that this factor is proxying "time-out" effects i.e. cohabiting or married males are less likely to have spent time out of the labour market for family reasons relative to their female counterparts and this higher return reflects males' lower exposure to the negative effects of "time-out".

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[23] The workshare and/or PT work variable is excluded from the PT model as clearly it will be highly endogenous with PT working status. Consequently, this also suggests that we should be cautious of any observed impact within the all employee model as some bias effects may also be evident here due to correlation again with PT working status.

5. AN ANALYSIS OF THE GENDER WAGE GAP WITHIN OCCUPATIONS AND SECTORS

5.1 Introduction

Previous Irish research by Barrett, Callan *et al.* (2000) indicated the potential benefits of being able to estimate decompositions within occupations. Such an approach allows us to assess the extent to which the gender wag gap varies across occupations. However, data constraints, and in particular the small size associated with the dataset used in that study, rendered such an approach impossible. One clear advantage of the data used here is that the large sample size facilitates such a disaggregated analysis. Furthermore, in the same way that inter-occupation differences are potentially important from a policy perspective, so too are inter-industry differentials. With respect to inter-industry differentials, there is some limited research in this area of relevance to Ireland. Gannon *et al.* (2006) using data from the 1995 European Structure of Earnings Survey report a raw differential of 35 per cent and estimate that inter-industry wage differences account for 20 per cent of this differential. However, this is much larger than the results derived in this study suggests. Specifically, the analysis here suggests that inter-industry wage differentials accounts for just 1 per cent of the total differential. However, it is important to note that the methodologies used in the two studies are not directly comparable; nevertheless, the differences appear stark.

5.2 Occupation Analysis

Given the relatively small sample sizes, particularly for PT males, and the similarity of the overall decompositions with those for FT workers, it was not feasible to provide occupation decompositions by employment type. Consequently, we report the occupation specific results for all employees only (Table 5.1).[24] The decompositions are estimated at a one digit level as reliable information at the two digit level was not available to us in the dataset used in the study. The raw pay gap was found to vary from 16.4 per cent in Clerical occupations to 31.1 per cent in Sales, which suggests a relatively low level of variation around the economy average of 21.7 per cent. However, there is a good deal more variation in the adjusted pay gap, which ranges from just under 2 per cent in Clerical occupations to 21.2 per cent in Plant operatives. It would not be true to characterise the pattern as one of high adjusted differentials in low skilled occupations and low adjusted differentials in high skilled occupations given that it is as high as 12.5 per cent in Associate professional and as low as 7.7 per cent in Personal services.

Table 5.2 provides a further breakdown of the explained component of the gender wage gap by variable type, that is, it assesses the relative importance of Human Capital (HC), Family Structure (FS), Job and Firm characteristics (JF) and Industry (IND) in explaining the wage differential. A more detailed breakdown for each occupational grouping is provided in Appendix E, Tables E1 to E7. Human capital differences accounted for between 25 and 50 per cent of the overall wage gap with the influence largest in the Associate Professional occupation and lowest in Sales, Clerical and Professional occupations. However, it is difficult to generalise the results across occupations and, as a consequence, we will consider the results of each grouping in turn.

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[24] The exception is Craft occupation, which could not be estimated due to a lack of females in this occupation.

Managers

With respect to Managers, endowment differences accounted for just under two thirds of the 26.7 per cent observed wage gap with human capital, family commitment and job characteristic differences each accounted for approximately one third of the explained component. The principal factors driving up male wages related to higher levels of experience and tenure, a higher incidence of marriage/cohabitation and supervisory responsibilities, and a lower incidence of part-time working (Table E1).

Professional Occupations

In Professional occupations, endowment effects again account for just below two thirds of the 20.5 per cent raw differential with each of the four sub-components accounting for approximately a quarter of the explained wage gap. Once again differences in experience, tenure, cohabitation, supervision and PT working proved important, however, industry effects were also significant with males benefiting from a lower concentration in the Health sector (Table E3).

Associate Professionals

With respect to Associate professionals, the raw differential was 25.8 per cent falling to 12.5 per cent when account was taken of endowments. Human capital effects relating to experience and tenure accounted for almost 50 per cent of the explained differential with a lower concentration of males in Public administration also proving important (Table E4).

Clerical Occupations

The most dramatic difference between the raw and adjusted wage differentials occurred in Clerical occupations with the wage gap falling from 16.4 to 1.8 per cent when account was taken of endowment differences (Table 5.1). While human capital effects relating to higher levels of experience, tenure and education among male clerical workers accounted for 25 per cent of the differential, over three quarters of the explained component related to job and firm characteristics; more specifically, male earnings were higher than females due a lower incidence of PT working and a higher incidence of supervisory responsibilities and employment in larger firms (Table E4).

Personal Services

In Personal services, the wage gap fell from 24.2 to 8.1 per cent when account was taken of characteristic differences. Job and firm level factors relating to higher levels of trade union membership, more supervisory responsibility, higher levels of large firm employment and a lower incidence of PT work all contributed to higher relative male earnings in this occupation (Table E5).

Sales Occupations

In Sales occupations, the majority of the decline in the raw to adjusted differential from 31.1 to 13.2 per cent was also related to job and firm level factors, however, in this instance the lower incidence of PT working among males proved the most significant single factor in boosting male relative earnings (Table E6).

Plant Operatives

The smallest fall in the raw differential was observed in the plant operative occupation with endowment differences accounting for a mere 25 per cent of the

overall raw gap. As a consequence, the adjusted wage gap remained relatively high in this occupational grouping at 21.2 per cent.

Other Occupations

A similar pattern was also observed within the Other occupation, with the raw differential falling from 20.4 to 14.3 per cent when account was taken of differences in endowments. Thus, within both the Plant operatives and Other occupations between 70 and 75 per cent of the raw wage gap remained unaccounted for.

Table 5.1: Decompositions of the Male/Female Wage Gap by Occupation: All Employees

	Manag.	Prof.	Assoc Prof.	Cler.	Per. & Prot.	Sales	Plant & Mach.	Other
Amount attributable	28.6	6.1	6.6	18.6	-3.6	62.9	-26.9	31.6
- due to endowments (E):	16.9	12.8	13.3	14.6	16.1	17.9	6.8	6.1
- due to coefficients (C):	11.7	-6.7	-6.7	3.8	-19.7	45.0	-33.7	25.5
Shift coefficient (U):	-1.9	14.4	19.2	-2.0	27.8	-31.8	54.9	-11.2
Raw differential (R) {E+C+U}:	26.7	20.5	25.8	16.4	24.2	31.1	28.0	20.4
Adjusted differential (D) {C+U}:	9.8	7.7	12.5	1.8	8.1	13.2	21.2	14.3
Endowments as % total (E/R):	63.3	62.4	51.6	89.0	66.5	57.6	24.3	30.1
Unexplained as % total (D/R):	36.7	37.6	48.4	11.0	33.5	42.4	75.7	69.9

Table 5.2: Occupational Breakdown of Endowment Element by Characteristic Type: All Employees

	Manag.	Prof.	Assoc. Prof.	Cler.	Per. and Prot.	Sales	Plant and Mach.	Other
Raw Gap	26.7	20.5	25.8	16.4	24.2	31.1	28.0	20.4
- amount due to endowments (E):	16.9	12.8	13.3	14.6	16.1	17.9	6.8	6.1
HC Endowments (%)	32.0	26.6	49.6	25.3	28.0	24.6	35.3	-
FS Endowments (%)	34.3	24.2	17.3	4.8	9.3	3.9	36.8	-
JF Endowments (%)	33.1	23.4	6.0	75.3	52.8	67.6	39.7	-
IND Endowments (%)	0.6	25.8	27.1	-5.5	9.9	3.9	-11.8	-
Total (%)	100	100	100	100	100	100	100	100

5.3 Sector Analysis

The results of the sectoral analysis for all employees are reported in Tables 5.3 and 5.4, with a more detailed breakdown of the decomposition results given in Appendix F, Tables F1 to F10.[25] The raw differentials are somewhat more widely distributed compared to the occupational spread. At 13.3 per cent the raw wage gap was lowest in the Hotel sector and highest in Education where the differential was 45.8 per cent (Table 5.3). The proportion of the raw gender wage gap accounted for by differences in endowments ranged from just 4.7 per cent in Construction to over 80 per cent in the Transport, Financial intermediation, Business services, Education and Other services sectors. Consequently, the adjusted differential ranged from 20.1 per cent in Construction to 0.7 per cent in Transport (Table 5.3). In industries such as

[25] Due to small sample sizes, particularly for PT males, it is not possible to provide sectoral decompositions by employment type.

Manufacturing and Public administration, human capital differences were an important driver of the explained component of the male/female wage differential, while in industries such as Transport, Health and Retail differences in job and firm characteristics were of most importance (Table 5.4). Occupational variation, presumably deriving from a higher concentration of males in more senior occupations, contributed to over a third of the explained gap in Financial intermediation and the Business services sectors. As was the case with the occupational analysis we will discuss each decomposition in turn.

Manufacturing

Dealing firstly with Manufacturing, the raw gap stood at 26.6 per cent falling to 13.9 per cent when account was taken of endowments. The adjusted wage differential in Manufacturing was the second largest in terms of magnitude with only the Construction industry reporting a larger gender wage differential. Human capital differences accounted for 40 per cent of the explained wage differential with higher levels of experience and tenure among male workers again the most important factor. Male earnings in Manufacturing were also boosted as a consequence of higher proportions of workers fulfilling supervisory roles and employed in Managerial occupations (Table F1).

Construction

As stated earlier, there was little difference between the raw and adjusted wage gaps in the Construction industry and, as a consequence of the absence of any endowment effects; the sector had the largest adjusted wage gap at 20.1 per cent.

Retail

Differences in endowments accounted for over 50 per cent of the raw differential in the Retail sector with the adjusted wage gap standing at 12.8 percent. While differences in labour market experience did contribute to the explained wage gap, the most substantial factor related to the higher incidence of PT working among females (Table F2).

Hotels

The raw differential within the Hotels sector was 13.3 per cent; however, this fell to 5 per cent when account was taken of characteristic differences between male and female workers. Male wages in this sector were again higher due to a lower incidence of PT working and a higher rate of supervisory responsibility (Table F3).

Transport

In the Transport sector the raw wage gap of 17.9 per cent virtually disappeared when characteristic differences were accounted for with firm/job level differences relating to higher incidences of trade union membership, large firm employment and a lower incidence of PT working (Table F4). Males in the Transport industry were also more likely to be employed in firms that offered career breaks and these were also typically higher paying establishments.

Financial Intermediation and Business Services

In Financial intermediation a high gender raw wage gap of 39.7 per cent fell dramatically to just 2.4 per cent when account was taken of characteristic effects. A similar pattern was also found for Business services where the gender wage gap fell from 26.9 to 4.6 per cent. Within both sectors, male workers were more likely to be educated to degree level, undertake supervisory roles, and be employed in

managerial or professional occupations and less likely to work PT or be employed in clerical roles (Tables F5 and F6).

Public Administration

In Public Administration, the raw gap stood at 19.3 per cent falling to 7.3 per cent when account was taken of endowments. Male earnings within the sector were higher by virtue of higher levels of experience and tenure, a higher concentration of graduates and also higher levels of supervisory responsibility (Table F7).

Education Sector

Within the Education sector, the wage gap fell dramatically from 45.8 to 6.2 per cent when account was taken of differences in characteristics. Males employed in Education again had higher levels of experience and were more likely to be graduates, however, job and firm-level differences proved just as important as human capital effects. Male employees in the Education sector were more likely to belong to a trade union or have their wage levels determined by a process of individual wage bargaining, with both these factors leading to increased relative wages. Furthermore, wages tended to be higher in female-led organisations and, somewhat interestingly, males were more heavily concentrated in such establishments which also improved their relative position (Table F8).

Health Sector

In the Health sector, the raw wage gap was 24.5 per cent falling to 11.1 per cent when endowments were accounted for. Male earnings in Health were superior by virtue of higher levels of experience and tenure, a higher incidence of supervisory activity and a lower incidence of working PT (Table F9).

Other Services

Other services sector the raw wage gap stood at 22.7 per cent with the adjusted wage gap found to be 4 per cent. Within Other services the principal factor related to occupational effects with males more heavily dominant in Managerial and Professional occupations (Table F10).

Table 5.3: Decompositions of the Male/Female Wage Gap by Sector: All Employees

	Manu-facturing	Const-ruction	Wholesale and Retail	Hotels and Restaurants	Trans-port	Financial Inter-mediation	Business Services	Public Adminis-tration and Defence	Education	Health	Other Services
Amount attributable	28.8	-7.7	20.8	-27.1	5.0	32.1	35.8	-2.8	17.2	19.1	9.2
- due to endowments (E):	12.7	1.0	16.2	8.3	17.2	37.3	22.3	12.0	39.6	13.4	18.7
- due to coefficients (C):	16.1	-8.7	4.6	-35.4	-12.2	-5.2	13.5	-14.8	-22.4	5.7	-9.5
Shift coefficient (U):	-2.2	28.8	8.2	40.4	12.9	7.6	-8.9	22.1	28.6	5.4	13.5
Raw differential (R) {E+C+U}:	26.6	21.1	29.0	13.3	17.9	39.7	26.9	19.3	45.8	24.5	22.7
Adjusted differential (D) {C+U}:	13.9	20.1	12.8	5.0	0.7	2.4	4.6	7.3	6.2	11.1	4.0
Endowments as % total (E/R):	47.7	4.7	55.9	62.4	96.1	94.0	82.9	62.2	86.5	54.7	82.4
Unexplained as % total (D/R):	52.3	95.3	44.1	37.6	3.9	6.0	17.1	37.8	13.5	45.3	17.6

Table 5.4: Sectoral Breakdown of Endowment Element by Characteristic Type: All Employees

	Manu-facturing	Const-ruction	Wholesale and Retail	Hotels and Restaurants	Trans-port	Financial Inter-mediation	Business Services	Public Adminis-tration and Defence	Education	Health	Other Services
Raw Gap	26.6	21.1	29.0	13.3	17.9	39.7	26.9	19.3	45.8	24.5	22.7
- amount due to endowments (E):	12.7	1.0	16.2	8.3	17.2	37.3	22.3	12.0	39.6	13.4	18.7
HC Endowments (%)	40.2	-	24.1	6.0	18.0	30.8	18.8	57.5	40.2	46.3	10.7
SF Endowments (%)	16.5	-	11.1	1.2	13.4	5.6	8.1	19.2	7.3	3.0	21.9
JF Endowments (%)	21.3	-	56.2	110.8	75.6	30.3	35.4	30.8	36.4	57.5	12.3
OCC Endowments (%)	22.0	-	8.6	-18.1	-7.0	33.2	37.7	-7.5	16.2	-6.7	55.1
Total (%)	100	100	100	100	100	100	100	100	100	100	100

5.4 Summary

The data at hand enabled us to estimate the gender wage gap decompositions within both occupation and sector. With respect to occupation, the raw differentials were broadly similar; however, much larger variations occurred in terms of the adjusted wage gap, demonstrating that substantial differences existed in the magnitude of endowment effects across occupations. The adjusted wage gap varied from 1.8 per cent in Clerical occupations to 21.2 per cent for Plant operatives. Across all occupations, human capital factors relating to high levels of labour market experience and tenure were important factors in boosting the relative position of male workers. Nevertheless, job and firm level characteristics proved important also, particularly in Clerical and Sales occupations. The firm level factors that emerged to be important in explaining higher male earnings at the occupational level included a lower incidence of PT working and a higher incidence of supervision, large firm employment and trade union membership.

With respect to sectoral effects, the raw gender wage gap was more widely distributed ranging from 13.3 per cent in the Hotel sector to 45.8 per cent in Health. However, in sectors such as Health, Business services, Financial intermediation and Transport, differences in male and female endowments were found to account for a very high proportion of the raw gap and, consequently, the adjusted gender wage gap was much more narrowly distributed. In terms of the proportion of the wage gap that could be attributed to differences in the attributes of male and female workers, the pattern differed quite significantly from sector to sector. While human capital effects relating to education and experience were important in accounting for the differential in sectors such as Manufacturing, Public administration, and Health, firm and job level effects were of more significance in sectors such as Transport and Retail.

6. CONCLUSIONS AND POLICY IMPLICATIONS

This report provides an updated assessment of the male-female wage gap in Ireland in 2003. We review the methods used in the extensive international literature, which seeks to understand the extent of the gap between male and female wages. Data from the 2003 National Employment Survey is used to estimate the extent to which the wage gap in Ireland can be attributed to factors measured in that survey, and to arrive at an adjusted gap between male and female wages in Ireland. This is done first for all workers and then separately for both full-time and part-time employees.

In relation to all workers, the total observed gap between male and female wage rates was almost 22 per cent., however, the adjusted gap is just under 8 per cent, which is the wage gap when account is taken of differences in the endowment levels of male and female workers. A similar contrast is observed for full-time workers. The raw gap in earnings was estimated at 17.6 per cent. After taking account of gender-based differences in worker and job characteristics, this gap fell to 6.9 per cent.

The adjusted wage gap, i.e. the proportion of the raw wage gap that remains unexplained by the variation in observable characteristics between males and females, may, to some extent, reflect discrimination. However, one cannot simply assume that the entire unexplained component of the gap relates to pay discrimination, as all other factors that potentially influence the gap may not be fully captured in the available data. In addition, discrimination may influence the explained component of the wage gap where it shapes the distribution of the observable characteristics between men and women. Thus while discrimination may well be a factor, its relative weight remains unknown.

In terms of the explained component, differences in levels of labour market experience accounted for the largest single proportion of the explained gap, a result that is standard in the international literature. Lower levels of female experience derive largely from the fact that females tend to take more time-out of the labour market for family-related reasons. Higher levels of educational attainment among females served to reduce the wage gap but were insufficient to compensate for the effects of experience. Other factors of relevance include a higher incidence of supervisory responsibility and longer employment tenure among males, both of which widened the gap.

The data allowed us to assess the impact of centralised wage bargaining, trade union membership and the minimum wage on the gender wage gap. It was found that centralised wage bargaining, specifically the implementation of the national wage agreement, benefited females within both the full-time and part-time labour markets. However, only females in the part-time labour market gained from trade union membership. The minimum wage was also found to only benefit part-time females. The impact of female leadership within the firm proved largely unimportant. This result does not support the predictions of the tastes discrimination model, which hypotheses that male-dominated firms have an aversion to hiring females, which must be compensated through lower female wages. While both occupational and industrial segregation led to some increases in the wage gap, their effects were relatively small. Given that the concentration of females in certain low wage occupations has been cited as a key factor in explaining the gender wage gap, this is an interesting and unusual occupational segregation result. The evidence suggests that the traditionally low paid Clerical occupations that are dominated by females are in fact relatively well paid within the Irish context. In addition, females are slightly more dominant in Professional and Associate professional occupations. The results

indicate that the existence of some family-friendly policies, specifically career breaks, within firms served to reduce the wage gap. Presumably career breaks are an effective means by which female can preserve their position on re-entry to the labour market and therefore avoid the negative wage implications of occupational downgrading. Working flexitime was found to have a neutral impact on the pay gap, while the greater concentration of women in part-time work, the most common form of flexible employment, is found to widen the gender pay gap by 1.9 per cent. Therefore, of these three flexible arrangements only career breaks are found to reduce the gender pay gap.

The detailed examination of part-time workers in Chapter 4 shed some further light on this issue. The situation for part-time workers was markedly different from that of the overall or full-time labour markets. While the raw gap was assessed at just under 6 per cent, this rose to 10 per cent when account was taken of characteristics. The results suggest that based on their attributes, part-time female workers should be expected to earn slightly more than their male counterparts. However, due to a substantial average wage advantage to males, which may be due to either unobserved influences or discrimination effects, women working part-time actually earned less per hour than their male counterparts. Therefore, while full-time women workers appear to suffer some disadvantage in terms of specific attributes, those working part-time appear to incur a high average pay penalty unrelated to any one, or set, of characteristics. It is important to note, however, that the estimates of the adjusted gender wage gap for full-time and part-time workers are broadly similar in magnitude (7 per cent for full-time workers and 10 per cent for part-time workers). With respect to policy, however, some differences are apparent. For example, while the minimum wage or trade union membership appears to have little impact within the full-time labour market, they benefit part-time females quite substantially. Similarly, while career breaks serve to reduce the full-time gender wage gap, the evidence suggests that they are much less effective in a part-time context.

Finally, the study assessed the extent to which the magnitude of the gender wage gap varied within occupations and industries. With respect to occupation, the raw differentials were broadly similar. However, much larger variations occurred in terms of the adjusted wage gap, demonstrating that substantial differences existed in the magnitude of endowment effects across occupations. The adjusted wage gap varied from 1.8 per cent in Clerical occupations to 21.2 per cent for plant operatives. Regarding the sectoral analysis, the raw gender wage gap was more widely distributed ranging from 13.3 per cent in the Hotel sector to 45.8 per cent in Health. However, in sectors such as Health, Business services, Financial intermediation and Transport, differences in male and female endowments were found to account for a very high proportion of the raw gap and, consequently, the adjusted gender wage gap was much more narrowly distributed.

Notwithstanding almost thirty years of policy and legislation to promote equality of pay and opportunities, and the development of a well-established policy framework to support gender equality in the labour market, the gap between the average hourly wages of men and women remains substantial, although it has narrowed slowly.

Our findings in this study are consistent with previous studies that analysed the gender wage gap in Ireland for various years between 1994 and 2000, e.g. Barrett, Callan, *et al.* (2000) and Russell and Gannon, (2004). Both of these studies found that a significant part of the average wage gap was due to differences in years of work experience and years out of the labour market for family and other reasons. The present study shows that years of work experience remain an important influence on the gender pay gap in Ireland, but as noted previously, we were unable to fully

assess the impact of time-out of the labour market due to lack of available information on this in the National Employment Survey. In effect, however, the years of work experience is a cumulative measure which incorporates years out of the labour market for family reasons. We found the impact of work experience to be particularly strong among full-time employees where the wage gap was increased both by lower levels of accumulated work experience among women, as well as by lower returns to that experience. Among part-time employees, women had somewhat longer work experience, but they also received slightly lower returns to experience than did men.

These findings suggest that policies to reduce the gender wage gap could be most effective if they serve to increase continuity in women's employment. These include parental and maternal leave and childcare provision, as well as employment practices designed to reconcile family and working life, although our findings in this study suggest that such policies would have to be carefully designed. A number of reforms were introduced to Parental Leave in 2006, but since such leave remains unpaid, this means that many families are unable to afford the loss of income entailed by such leave. Flexibility on the part of employers in how such leave is taken, for example as a day per week rather than as a block, might make use of parental leave more feasible. The duration of Maternity Leave has been extended on several occasions in recent years. It was 22 weeks during 2003 when the data for the National Employment Survey were collected, and now stands at 26 weeks. While this is to be welcomed, the combined effects of paid Maternity Leave with unpaid Parental Leave may serve to reinforce traditional gender roles, including the primary role of women in childcare and other caring responsibilities, and thus counteract policies to support continuity of women's employment.

The provision of high quality affordable childcare is a key policy lever in any attempt to increase women's employment continuity and thus reduce the gender wage gap. There has been substantial investment in childcare in recent years. Nevertheless, there remains a significant childcare deficit in Ireland that particularly confronts the parents of young children, and undermines policies to increase female labour force participation.

Employers also have a role to play in supporting continuity in women's employment. This includes removing barriers to retention, and implementing flexible working arrangements, as well as supporting the childcare needs of their staff.

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Appendix A: Technical Issues

A1: Measuring the Gender Pay Gap

The raw gender pay gap is derived by simply taking the log difference in wages between males and females i.e.

$$g_i = \ln W^m - \ln W^f, \qquad (1)$$

where $\ln W^m$ is the logged wage rate of males, $\ln W^f$ is the logged wage rate of females and g_i is the wage gap between males and females.[26] This is generally referred to as the "raw" or "unadjusted" gap as it takes no account of the education or skill levels of individuals (characteristic differences). The adjusted gap, which takes account of individual characteristics, is obtained through regression analysis. The simplest means of obtaining the adjusted pay gap is to estimate a wage equation containing a dummy (1,0) variable to indicate gender i.e.:

$$W_i = \beta X_i + \gamma\, female + \varepsilon_i, \qquad (2)$$

where W_i is the log wage of individual i, X_i is a set of controls for individual characteristics (age, education, experience, training etc), β measures the return to each characteristic and γ measures the adjusted gender pay gap.

Nevertheless, the estimate in Equation (2) is generally uninformative with respect to the nature of the pay gap. However, a decomposition of the above equation was developed by Blinder (1973) and Oaxaca (1973) which allowed researchers to separate out the component of the pay gap that was due to differences in the human capital levels of males and females. The Oaxaca-Blinder decomposition is generally written as:

$$\overline{W_m} - \overline{W_f} = (\overline{X_m} - \overline{X_f})\widehat{\beta}_m + (\widehat{\beta}_m - \widehat{\beta}_f)\overline{X}_f = E + U \qquad (3)$$

The first term on the right hand side, $(\overline{X_m} - \overline{X_f})\widehat{\beta}_m$, describes the extent to which female wages would be higher if they possessed the same average characteristics as men; and, as such, it encapsulates the proportion of the gender wage gap that is attributable to differences in characteristics. This is referred to as the explained component (E). Note, in this instance males represent the reference group for non-discrimination. The second term on the right hand side, $(\widehat{\beta}_m - \widehat{\beta}_f)\overline{X}_f$, measures the extent female earnings would rise if characteristics held by females earned the same return than when held by men, as such, it is a measure of the extent to which males and females holding similar characteristics are treated differently in the labour market. This is the unexplained component (U) of the wage gap and it is often attributed to discrimination. Thus, the Oaxaca-Blinder decomposition enables researchers to separate out the proportion of the gender wage gap that arises because of differences in the nature of human capital accumulation and the returns to such attributes between males and females.

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[26] The use of log wages is standard in studies of this kind. This approach helps to reduce the impact of outliers and facilitates an ease of interpretation.

The Oaxaca-Blinder decomposition has become the standard approach adopted in studies of gender pay. However, the approach is associated with an index number problem in that the choice of the reference group will affect the results produced by the decomposition. This is not a major problem as available software now allows researchers to estimate the gap under either reference group or a weighted combination of both. Neumark (1988) developed a decomposition approach designed to overcome the index number problem: however, this method relies on some strong assumptions as to how discrimination in the labour market operates. Additional extensions to the methodology include that of Juhn *et al.* (1993) who developed a decomposition that measures the unexplained component in terms of the average position of women in the wage distribution and this was further extended by Blau *et al.* (1996) to enable comparisons over time and between countries. Finally, Brown *et al.* (1980) developed a decomposition to measure specifically the importance of occupational segregation. While these additional decompositions represent potential alternatives to the Oaxaca-Blinder, the superiority of any one approach has not been established and the method adopted will largely depend on the research question to be addressed and the nature of the available data. In this study the adjusted wage gap is assessed using the standard Oaxaca-Blinder decomposition, as the pooled model is not suitable given that we also examine the gap within the PT labour market.

Given that an objective of this study is to separate out the impact of individual characteristics on the gender pay gap, we must be conscious of an identification problem associated with the use of dummy variables in decompositions where the number of categorical dummies exceed one (Oaxaca and Ransom, 1999). Specifically, it is not possible to estimate the relative effects of any particular dummy variable, as the impacts will change depending on the reference category used. Examples of groups of variables affected by the identification problem include education, sector, occupation, pay bargaining mechanism, etc. To overcome this problem, we follow Gardeazabal and Ugidos (2004) and estimate the decompositions imposing a normalising restriction on each set of dummy variables.[27] The implementation of this restriction leaves the other coefficients unaffected. In this study, we were not able to apply the normalisation restriction to certain occupations (Sales and Plant and machine operatives) and sectors (Hotels and restaurants, Financial intermediation, Public administration and defence, and Education), thus, unrestricted decompositions were estimated instead.

A2: Potential Sources of Bias

There are a number of factors that can potentially bias our estimate of the gender pay gap which need to be considered. The principal areas of concern are:

- **Unobserved differences:** Not all wage determining characteristics that vary by gender will be observed by the researcher and this may result in at least some over-estimation of the proportion of the gap often attributed to discrimination. For instance, unobservable differences between males and females in areas such as motivation or commitment to work will impact wage levels. If we accept that, on average, females' preferences towards the home will result in a lower general career attachment, then failure to observe such preferences may lead to an under-estimate of the explained component and an over-estimate of the discrimination component of the gender wage gap.

[27] The normalisation of the restriction on the coefficients can be written as follows: $\sum_{j=1}^{J} \beta_{jg} = 0$.

- **The use of potential as opposed to actual experience levels**: Many studies do not have information on the actual level of labour market experience and, as a consequence, estimated experience is used (typically age less assumed years of education). This ignores the higher level of female exits from the labour market and will overestimate the level of actual female experience, which will in turn lead to an over-estimate of the adjusted wage gap.[28]

- **Sample selection:** The labour force participation decisions of men and women tend to be very different. The decision to participate in the labour market will depend on certain observable variables (number of children, costs and provision of childcare, spousal income) and unobservables which may relate to, for instance, preferences and/or views of child rearing etc. As a result, those females who are observed as active in the labour market are likely to be very different from those who remain inactive. If it transpires that, for instance, the expected wages of female participants are, on average, greater than those of non-participating females, then the observed wage gap will be lower than in a study that included earnings data for all females. This effect is termed sample selection bias. Unfortunately, the data set used in this study only observed females who actually participated in the labour market, ruling out the possibility of selection controls.

- **Endogenous variables:** Some controls that are included as independent characteristics might themselves be caused by unequal treatment of the sexes, for example, occupation may reflect gender stereotyping at school level or discrimination among employers. If this is in fact the case then the inclusion of such controls will result in discriminatory effects being attributed to characteristic differences.

- **The wage variable:** The tendency of males to work longer hours than females and do more overtime implies that the use of any wage variable other than that related to ordinary time hourly earnings will tend to overstate the magnitude of the unexplained wage gap.

Exactly how important these factors are is difficult to estimate. Kunze (2000), in a survey of the literature, argues that estimates of the gender wage gap are likely to be biased as a result of failure to account for selection bias and/or endogeneity of some right hand side variables. However, the study fails to provide any estimates of this expected source of bias. Jarrell and Stanley (2004) conclude that, following a meta-analysis of US studies, relative to hourly wage rates, annual, weekly or hour wages derived from annual data significantly upwardly bias the estimated wage gap. From a methodological standpoint, they state that the use of a gender dummy, as opposed to the decomposition approach, lowers the estimate, as does a failure to account for sample selection bias. The failure to include actual experience has a large positive impact on the gap. However, the Jarrell and Stanley (2004) study is limited in that it relies on a very small sample of just 41 US specific studies.

Weichselbaumer and Winter-Ebner (2005) conduct a more extensive analysis on 1,535 estimates of the unexplained gender pay gap taken from 788 studies published in 263 articles covering 63 countries. They find that the choice of data has a much larger impact than the methodology employed, and specifically, the gap tends to be lower when estimated on data sets restricted to certain categories of individual, such as those in certain occupations, age groups, etc. With respect to methodology they show that using estimated experience, as opposed to actual experience, over-estimates the unexplained gap by an average of 1.8 log points. In addition, there was

[28] A potential concern relating to actual experience is its potential endogeneity with respect to earnings i.e., higher levels of observed experience may themselves be a result of higher earnings.

also evidence that studies that fail to use an hourly wage variable generate higher estimates of the unexplained gap. There was little or no evidence in the study to show that the choice of decomposition method or absence of sample selection controls impact significantly on the estimated wage gap. While, in an ideal world, all unobserved heterogeneity and selection bias would be eradicated and only data on actual experience and hourly wage rates would be included in a study of this kind, data constraints ensure that this is never possible. Nevertheless, the Weichselbaumer and Winter-Ebner (2005) study suggests that, provided estimates are based on information on actual labour market experience and hourly wage rate data is used, the impact of the remaining potential sources of bias are likely to be non-existent or trivial.

Appendix B: Descriptive Statistics for All, Full-time and Part-time Employee Samples

Table B1: Descriptives for All, Full-time and Part-time Employee Samples

	All	Full-time	Part-time
Hourly wage rate	16.19	16.90	12.03
Males	53.4	60.5	12.3
Human Capital:			
Primary	8.2	6.9	15.6
Lower secondary	16.9	16.0	22.0
Upper secondary	29.9	29.7	31.0
Post secondary	13.9	14.6	9.7
Cert/Diploma	13.0	13.3	11.3
Third-level	18.2	19.5	10.4
Age	36.4	35.4	42.1
Experience (years)	15.7	15.7	15.7
Tenure (years)	8.5	8.7	7.4
Professional body	12.0	12.7	7.5
Family Structure:			
Child less than 6 years	16.6	15.4	23.5
Child 6 to 17 years	26.6	23.3	45.7
Child over 18 years	13.1	11.4	23.3
Married/Cohabits	58.6	56.4	71.3
Partner works full-time	37.8	34.6	56.1
Partner works part-time	9.8	10.5	5.9
School run	11.4	9.7	21.2
Job Characteristics:			
Union member	35.1	36.2	28.9
Supervise	32.8	36.2	13.2
Flexi-work	23.7	22.0	33.6
Firm Characteristics:			
Part-time workers	14.8	-	-
Export intensity	36.0	35.1	41.1
Foreign-owned	17.9	19.7	7.7
Minimum wage cover	7.7	7.1	11.2
Career breaks	27.9	26.7	34.6
Work sharing/part-time work	73.5	70.9	-
Firm size	5.0	5.0	5.1
Females % of management	13.3	12.9	15.8
National-level wage agreement	51.7	50.4	58.9
Individual-level wage agreement	23.6	23.7	23.0
Business-level agreement	6.0	6.4	4.1
Industry-level agreement	8.9	9.4	5.6
Other agreement	1.9	1.9	1.6
No single type of wage agreement	8.3	8.5	7.2
Occupation:			
Managers and administrators	12.1	13.7	3.1
Professional	8.4	8.8	6.5

Table B1: continued

	All	Full-time	Part-time
Occupation:			
Associate professional and technical	10.7	10.3	12.8
Clerical and secretarial	16.1	15.4	20.3
Craft and related	13.9	15.9	2.2
Personal and protective services	10.0	8.4	19.1
Sales	8.4	7.0	16.3
Plant and machine operatives	11.7	12.9	4.7
Other	8.7	7.6	15.0
Sector:			
Mining, quarrying and manufacturing	21.0	23.4	7.2
Electricity, gas and water*	-	-	-
Construction	10.6	12.2	1.4
Wholesale and retail	14.2	13.2	19.6
Hotels and restaurants	6.2	5.7	9.0
Transport, storage and communication	7.1	7.7	3.7
Financial intermediation	5.6	6.0	3.2
Business services	9.6	9.9	8.0
Public administration and defence	4.2	4.2	4.2
Education	4.3	3.6	8.8
Health and social work	11.9	9.0	28.7
Other services	4.3	4.0	5.9
Sample size	*38,685*	*33,185*	*5,500*

*Cannot be reported for confidentiality reasons.

Appendix C: Variable Labels and Definitions

Table C1: Variable Labels and Definitions

Label	Definition
Human Capital:	
Lower secondary	Lower secondary qualification (1,0 dummy variable)
Upper secondary	Upper secondary qualification (1,0 dummy variable)
Post secondary	Post secondary qualification (1,0 dummy variable)
Cert/Diploma	Cert/Diploma qualification (1,0 dummy variable)
Third-level	Third-level qualification (1,0 dummy variable)
Professional body	Member of a professional body (1,0 dummy variable)
Experience	Experience (measured in years)
Experience squared	Experience squared
Family Structure:	
Child less than 6 years	Has child less than 6 years of age (1,0 dummy variable)
Child 6 to 17 years	Has child aged between 6 and 17 (1,0 dummy variable)
Child over 18 years	Has child over 18 years of age (1,0 dummy variable)
Married/Cohabits	Living with a married or unmarried partner (1,0 dummy varitable)
Partner works full-time (FT)	Respondent's partner works FT (1,0 dummy variable)
Partner works part-time (PT)	Respondent's partner works PT (1,0 dummy variable)
School run	Journey to work includes a school run (1,0 dummy variable)
Job and Firm Characteristics:	
Union member	Member of a trade union (1,0 dummy variable)
Supervise	Respondent supervises staff in their job (1,0 dummy variable)
Tenure	Length of time with current employer (measured in years)
Flexi-work	Has flexible working arrangement (1,0 dummy variable)
Export intensity	Percentage of turnover that is generated by exports
Foreign-owned	Works in a foreign-owned company (1,0 dummy variable)
Minimum wage cover	Minimum wage cover (%)
Career breaks	Employer offers career breaks (1,0 dummy variable)
Work sharing/part-time work	Employer offers work sharing and/or PT work (1,0 dummy variable)
Firm size	Number of employees in the firm (continuous)
Females % of management	Percentage of females in managerial positions
Individual-level wage agreement	Individual-level wage agreement (1,0 dummy variable)
Business-level agreement	Business-level agreement (1,0 dummy variable)
Industry-level agreement	Industry-level agreement (1,0 dummy variable)
National-level wage agreement	National-level agreement (1,0 dummy variable)
Other agreement	Other agreement (1,0 dummy variable)
Overeducated	Dummy variable indicating that the individual has an education level more than one standard deviation above the occupational mode
Occupation:	
Managers and administrators	Managers and administrators (1,0 dummy variable)
Professional	Professional (1,0 dummy variable)
Associate professional and technical	Associate Professional and technical (1,0 dummy variable)
Clerical and secretarial	Clerical and secretarial (1,0 dummy variable)
Craft and related	Craft and related (1,0 dummy variable)
Personal and protective service	Personal and protective service (1,0 dummy variable)
Sales	Sales (1,0 dummy variable)

Table C1: continued

Label	Definition
Plant and machine operatives	Plant and machine operatives (1,0 dummy variable)
Other	Other gainful occupations (1,0 dummy variable)
Sector:	
Mining, quarrying and manufacturing	Mining, quarrying and manufacturing (1,0 dummy variable)
Electricity, gas and water*	Electricity, gas and water (1,0 dummy variable)
Construction	Construction (1,0 dummy variable)
Wholesale and retail	Wholesale and retail (1,0 dummy variable)
Hotels and restaurants	Hotels and restaurants (1,0 dummy variable)
Transport, storage and communication	Transport, storage and communication (1,0 dummy variable)
Financial intermediation	Financial intermediation (1,0 dummy variable)
Business services	Business services (1,0 dummy variable)
Public administration and defence	Public administration and defence (1,0 dummy variable)
Education	Education (1,0 dummy variable)
Health and social work	Health and social work (1,0 dummy variable)
Other services	Other services (1,0 dummy variable)

*Cannot be reported for confidentiality reasons.

Appendix D: Econometric Results on the Gender Wage Gap

Table D1: Detailed Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff.
Human Capital:			
Primary or less	-0.7	-0.7	0.0
Lower secondary	-0.8	-0.4	-0.4
Upper secondary	-0.2	0.2	-0.4
Post secondary	0.6	0.1	0.5
Cert/Diploma	-0.3	-0.5	0.2
Degree	-0.1	0.1	-0.2
Experience	36.5	13.0	23.5
Experience squared	-21.8	-9.9	-11.9
Tenure	1.5	1.7	-0.2
Professional body	0.0	0.2	-0.2
Subtotal	*14.7*	*3.8*	*10.9*
Family Structure:			
Child less than 6 years	0.1	0.1	0.0
Child 6 to 17 years	-0.7	0.0	-0.7
Child over 18 years	0.4	0.1	0.3
Married/Cohabits	5.3	1.2	4.1
Partner works full-time (FT)	-1.1	0.7	-1.8
Partner works part-time (PT)	-0.1	-0.1	0.0
School run	0.0	0.2	-0.2
Subtotal	*3.9*	*2.2*	*1.7*
Job and Firm Characteristics:			
Union membership	1.4	0.7	0.7
Supervise staff	1.6	1.6	0.0
Flexi-work	0.5	0.0	0.5
Part-time work	2.7	1.9	0.8
Individual-level wage agreement	-0.4	-0.1	-0.3
Business-level wage agreement	0.2	0.0	0.2
Industry-level wage agreement	-0.1	0.0	-0.1
National-level wage agreement	-1.8	0.0	-1.8
Other wage type agreement	0.0	0.0	0.0
No single type of wage agreement	0.3	0.0	0.3
Export intensity	1.0	-0.2	1.2
Foreign-owned firm	-0.5	0.2	-0.7
Minimum wage cover	0.2	0.1	0.1
Offers career breaks	-1.2	-0.1	-1.1
Offers work sharing and/or PT work	-1.7	0.5	-2.2
Firm size	6.0	0.2	5.8
Females % of management	0.9	0.2	0.7
Overeducated	0.5	0.1	0.4
Subtotal	*9.6*	*5.1*	*4.5*

Table D1: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	1.6	1.9	-0.3
Professional	-0.1	0.1	-0.2
Associate professional and technical	-0.2	-0.2	0.0
Clerical and secretarial	-2.0	2.0	-4.0
Craft and related	-0.5	-0.6	0.1
Personal and protective service	-0.1	0.3	-0.4
Sales	0.4	0.1	0.3
Plant and machine operatives	-0.9	-1.3	0.4
Other	-0.6	-0.7	0.1
Subtotal	*-2.4*	*1.6*	*-4.0*
Sector:			
Mining, quarrying and manufacturing	-0.3	-0.2	-0.1
Electricity, gas and water*	-	-	-
Construction	1.1	1.0	0.1
Wholesale and retail	0.7	0.0	0.7
Hotels and restaurants	0.0	0.1	-0.1
Transport, storage and communication	0.1	0.1	0.0
Financial intermediation	-0.2	-0.8	0.6
Business services	-0.3	0.0	-0.3
Public administration and defence	-0.3	0.1	-0.4
Education	-0.2	-0.5	0.3
Health and social work	-0.4	1.3	-1.7
Other services	-0.1	0.0	-0.1
Subtotal	*0.2*	*1.2*	*-1.0*
Total	**26.0**	**13.9**	**12.1**

*Cannot be reported for confidentiality reasons.

Table D2: Detailed Decomposition Results: Full-time Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	-1.0	-0.9	-0.1
Lower secondary	-0.9	-0.7	-0.2
Upper secondary	-0.2	0.3	-0.5
Post secondary	0.6	0.1	0.5
Cert/Diploma	-0.2	-0.6	0.4
Degree	-0.9	-0.7	-0.2
Experience	18.1	15.3	2.8
Experience squared	-11.8	-11.1	-0.7
Tenure	1.0	1.7	-0.7
Professional body	-0.3	0.1	-0.4
Subtotal	***4.4***	***3.5***	***0.9***
Family Structure:			
Child less than 6 years	0.6	0.2	0.4
Child 6 to 17 years	-0.6	-0.1	-0.5
Child over 18 years	0.6	0.2	0.4
Married/Cohabits	5.3	1.9	3.4
Partner works full-time (FT)	-0.4	0.6	-1.0
Partner works part-time (PT)	0.0	-0.1	0.1
School run	-0.1	0.1	-0.2
Subtotal	***5.4***	***2.8***	***2.6***
Job and Firm Characteristics:			
Union membership	2.2	0.7	1.5
Supervise staff	1.4	1.2	0.2
Flexi-work	0.7	0.1	0.6
Individual-level wage agreement	-0.7	-0.1	-0.6
Business-level wage agreement	0.2	0.0	0.2
Industry-level wage agreement	-0.1	0.0	-0.1
National-level wage agreement	-1.7	0.0	-1.7
Other wage type agreement	0.0	0.0	0.0
No single type of wage agreement	0.4	0.0	0.4
Export intensity	0.8	-0.3	1.1
Foreign-owned firm	-0.9	0.1	-1.0
Minimum wage cover	0.2	0.1	0.1
Offers career breaks	-1.6	-0.1	-1.5
Offers work sharing and/or PT work	0.0	0.3	-0.3
Firm size	1.9	0.1	1.8
Females % of management	0.3	0.2	0.1
Overeducated	0.4	0.2	0.2
Subtotal	***3.5***	***2.5***	***1.0***

Table D2: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	1.4	1.7	-0.3
Professional	0.0	-0.1	0.1
Associate professional and technical	0.1	-0.2	0.3
Clerical and secretarial	-1.4	2.0	-3.4
Craft and related	-0.5	-0.6	0.1
Personal and protective service	-0.1	0.2	-0.3
Sales	0.3	0.1	0.2
Plant and machine operatives	-0.8	-1.2	0.4
Other	-1.1	-1.0	-0.1
Subtotal	*-2.1*	*0.9*	*-3.0*
Sector:			
Mining, quarrying and manufacturing	-0.1	-0.1	0.0
Electricity, gas and water*	-	-	-
Construction	1.1	1.0	0.1
Wholesale and retail	0.8	0.0	0.8
Hotels and restaurants	0.1	0.1	0.0
Transport, storage and communication	0.3	0.1	0.2
Financial intermediation	-0.5	-1.0	0.5
Business services	-0.3	0.0	-0.3
Public administration and defence	-0.4	0.1	-0.5
Education	-0.2	-0.4	0.2
Health and social work	-0.4	1.0	-1.4
Other services	-0.1	0.1	-0.2
Subtotal	*0.4*	*1.0*	*-0.6*
Total	**11.6**	**10.7**	**0.9**

*Cannot be reported for confidentiality reasons.

Table D3: Detailed Decomposition Results: Part-time Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	0.2	-0.5	0.7
Lower secondary	0.4	0.0	0.4
Upper secondary	2.3	-0.5	2.8
Post secondary	-0.2	-0.2	0.0
Cert/Diploma	-1.7	0.2	-1.9
Degree	0.5	1.3	-0.8
Experience	12.7	3.6	9.1
Experience squared	-14.5	-5.6	-8.9
Tenure	1.7	-0.4	2.1
Professional body	0.7	0.1	0.6
Subtotal	*2.1*	*-2.0*	*4.1*
Family Structure:			
Child less than 6 years	-1.3	0.1	-1.4
Child 6 to 17 years	0.1	-0.2	0.3
Child over 18 years	-0.4	0.1	-0.5
Married/Cohabits	6.1	-2.4	8.5
Partner works full-time (FT)	-2.9	2.1	-5.0
Partner works part-time (PT)	-1.5	-1.0	-0.5
School run	0.7	-0.3	1.0
Subtotal	0.8	-1.6	2.4
Job and Firm Characteristics:			
Union membership	-2.6	0.0	-2.6
Supervise staff	-0.7	-0.4	-0.3
Flexi-work	-0.5	0.0	-0.5
Individual-level wage agreement	1.8	-0.2	2.0
Business-level wage agreement	-0.9	0.0	-0.9
Industry-level wage agreement	0.3	0.0	0.3
National-level wage agreement	-1.0	0.0	-1.0
Other wage type agreement	0.0	0.0	0.0
No single type of wage agreement	0.4	-0.1	0.5
Export intensity	-0.2	0.1	-0.3
Foreign-owned firm	0.2	0.0	0.2
Minimum wage cover	-2.6	0.0	-2.6
Offers career breaks	3.8	-0.2	4.0
Firm size	2.3	-0.1	2.4
Females % of management	1.5	0.4	1.1
Overeducated	0.1	0.1	0.0
Subtotal	*1.9*	*-0.4*	*2.3*

Table D3: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	0.0	-0.1	0.1
Professional	0.1	0.1	0.0
Associate professional and technical	-0.4	-1.1	0.7
Clerical and secretarial	-3.9	2.1	-6.0
Craft and related	-0.2	-0.3	0.1
Personal and protective service	-0.9	-0.4	-0.5
Sales	-1.0	0.9	-1.9
Plant and machine operatives	0.2	-0.2	0.4
Other	-1.9	-1.6	-0.3
Subtotal	*-8.0*	*-0.6*	*-7.4*
Sector:			
Mining, quarrying and manufacturing	-0.4	-0.2	-0.2
Electricity, gas and water*	-	-	-
Construction	0.8	0.2	0.6
Wholesale and retail	-0.6	0.0	-0.6
Hotels and restaurants	-1.3	-0.7	-0.6
Transport, storage and communication	-1.4	-0.7	-0.7
Financial intermediation	0.0	-0.5	0.5
Business services	-1.7	0.2	-1.9
Public administration and defence	0.9	0.0	0.9
Education	1.8	0.9	0.9
Health and social work	-0.9	1.1	-2.0
Other services	0.6	0.2	0.4
Subtotal	*-2.2*	*0.5*	*-2.7*
Total	**-5.4**	**-4.1**	**-1.3**

*Cannot be reported for confidentiality reasons.

Appendix E: Detailed Occupation Decomposition Results

Table E1: Detailed 'Manager' Occupation Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	-1.4	-0.8	-0.6
Lower secondary	-0.4	-0.1	-0.3
Upper secondary	3.2	0.1	3.1
Post secondary	0.3	-0.1	0.4
Cert/Diploma	3.3	-1.0	4.3
Degree	3.7	-0.5	4.2
Experience	-4.9	15.1	-20.0
Experience squared	6.3	-9.2	15.5
Tenure	2.0	1.4	0.6
Professional body	-0.5	0.5	-1.0
Subtotal	***11.6***	***5.4***	***6.2***
Family Structure:			
Child less than 6 years	0.6	0.0	0.6
Child 6 to 17 years	-2.0	-0.4	-1.6
Child over 18 years	0.2	0.0	0.2
Married/Cohabits	4.4	4.3	0.1
Partner works full-time (FT)	7.3	2.8	4.5
Partner works part-time (PT)	-0.7	-1.2	0.5
School run	-0.2	0.3	-0.5
Subtotal	***9.6***	***5.8***	***3.8***
Job and Firm Characteristics:			
Union membership	-0.4	-0.2	-0.2
Supervise staff	-0.3	0.9	-1.2
Flexi-work	0.6	0.0	0.6
Part-time work	3.2	2.4	0.8
Individual-level wage agreement	-0.4	-0.1	-0.3
Business-level wage agreement	0.1	-0.1	0.2
Industry-level wage agreement	0.3	0.0	0.3
National-level wage agreement	-1.9	0.0	-1.9
Other wage type agreement	-0.2	-0.1	-0.1
No single type of wage agreement	0.5	0.1	0.4
Export intensity	1.6	-0.4	2.0
Foreign-owned firm	-1.2	0.2	-1.4
Minimum wage cover	0.2	0.1	0.1
Offers career breaks	2.1	0.0	2.1
Offers work sharing and/or PT work	-2.1	0.6	-2.7
Firm size	-3.7	0.8	-4.5
Females % of management	3.4	0.6	2.8
Overeducated	1.3	0.8	0.5
Subtotal	***3.1***	***5.6***	***-2.5***

Table E1: continued

Variable	Attrib	Endow	Coeff
Sector:			
Mining, quarrying and manufacturing	-0.1	-0.1	0.0
Electricity, gas and water*	-	-	-
Construction	-0.7	-0.2	-0.5
Wholesale and retail	1.8	-0.2	2.0
Hotels and restaurants	0.6	0.6	0.0
Transport, storage and communication	1.2	-0.1	1.3
Financial intermediation	1.0	-0.6	1.6
Business services	0.1	-0.4	0.5
Public administration and defence	0.0	0.1	-0.1
Education	0.2	0.1	0.1
Health and social work	0.3	0.8	-0.5
Other services	-0.2	0.0	-0.2
Subtotal	*4.3*	*0.1*	*4.2*
Total	**28.6**	**16.9**	**11.7**

*Cannot be reported for confidentiality reasons.

Table E2: Detailed 'Professional' Occupation Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	-0.1	0.0	-0.1
Lower secondary	0.1	0.1	0.0
Upper secondary	0.1	0.0	0.1
Post secondary	0.5	0.1	0.4
Cert/Diploma	-0.6	-0.3	-0.3
Degree	-1.5	1.1	-2.6
Experience	17.4	9.2	8.2
Experience squared	-7.5	-7.8	0.3
Tenure	-0.1	1.0	-1.1
Professional body	-0.8	0.0	-0.8
Subtotal	*7.5*	*3.4*	*4.1*
Family Structure:			
Child less than 6 years	0.0	0.0	0.0
Child 6 to 17 years	2.7	0.0	2.7
Child over 18 years	0.0	0.0	0.0
Married/Cohabits	2.1	1.2	0.9
Partner works full-time (FT)	1.5	1.5	0.0
Partner works part-time (PT)	0.5	0.5	0.0
School run	0.0	-0.1	0.1
Subtotal	*6.8*	*3.1*	*3.7*
Job and Firm Characteristics:			
Union membership	-1.7	0.1	-1.8
Supervise staff	2.8	1.4	1.4
Flexi-work	2.5	0.1	2.4
Part-time work	2.1	1.3	0.8
Individual-level wage agreement	-0.4	0.6	-1.0
Business-level wage agreement	-0.4	0.0	-0.4
Industry-level wage agreement	0.1	0.2	-0.1
National-level wage agreement	-6.8	-1.1	-5.7
Other wage type agreement	0.2	-0.1	0.3
No single type of wage agreement	0.0	0.0	0.0
Export intensity	1.8	-0.7	2.5
Foreign-owned firm	1.3	1.4	-0.1
Minimum wage cover	-0.2	0.0	-0.2
Offers career breaks	-3.9	0.4	-4.3
Offers work sharing and/or PT work	-2.0	-0.2	-1.8
Firm size	-3.2	-1.0	-2.2
Females % of management	0.7	0.5	0.2
Overeducated	0.7	0.1	0.6
Subtotal	*-6.4*	*3.0*	*-9.4*

Table E2: continued

Variable	Attrib	Endow	Coeff
Sector:			
Mining, quarrying and manufacturing	-0.8	-0.4	-0.4
Electricity, gas and water*	-	-	-
Construction	0.0	0.0	0.0
Wholesale and retail	0.1	0.0	0.1
Hotels and restaurants	0.0	0.1	-0.1
Transport, storage and communication	0.0	0.1	-0.1
Financial intermediation	0.1	0.3	-0.2
Business services	0.5	0.4	0.1
Public administration and defence	-1.8	-0.7	-1.1
Education	-1.4	-1.0	-0.4
Health and social work	1.2	4.3	-3.1
Other services	-0.2	-0.2	0.0
Subtotal	*-1.8*	*3.3*	*-5.1*
Total	**6.1**	**12.8**	**-6.7**

*Cannot be reported for confidentiality reasons.

Table E3: Detailed 'Associate Professional' Occupation Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	-0.2	-0.2	0.0
Lower secondary	0.0	0.0	0.0
Upper secondary	-0.5	0.1	-0.7
Post secondary	0.6	0.1	0.5
Cert/Diploma	-0.6	-0.4	-0.2
Degree	-1.0	0.6	-1.6
Experience	31.3	12.9	18.4
Experience squared	-12.9	-8.6	-4.2
Tenure	-0.6	1.9	-2.5
Professional body	-0.3	0.2	-0.5
Subtotal	*15.8*	*6.6*	*9.2*
Family Structure:			
Child less than 6 years	-1.2	0.0	-1.2
Child 6 to 17 years	0.4	0.0	0.4
Child over 18 years	0.6	0.1	0.5
Married/Cohabits	6.1	1.2	4.9
Partner works full-time (FT)	-1.0	1.1	-2.1
Partner works part-time (PT)	-0.8	-0.7	-0.1
School run	-0.7	0.6	-1.3
Subtotal	*3.4*	*2.3*	*1.1*
Job and Firm Characteristics:			
Union membership	0.8	0.3	0.5
Supervise staff	1.2	1.0	0.2
Flexi-work	1.8	-0.1	1.9
Part-time work	2.3	-0.8	3.1
Individual-level wage agreement	-0.3	0.1	-0.4
Business-level wage agreement	0.3	0.0	0.3
Industry-level wage agreement	-0.2	-0.1	-0.1
National-level wage agreement	-5.8	0.1	-5.9
Other wage type agreement	0.1	-0.1	0.2
No single type of wage agreement	-0.1	0.0	-0.1
Export intensity	-2.0	-0.1	-1.9
Foreign-owned firm	-0.1	0.6	-0.7
Minimum wage cover	-0.1	0.1	-0.2
Offers career breaks	3.4	-0.1	3.5
Offers work sharing and/or PT work	-10.8	0.1	-10.9
Firm size	-8.6	-0.2	-8.4
Females % of management	0.7	0.0	0.7
Overeducated	*0.9*	0.0	0.9
Subtotal	*-16.5*	*0.8*	*-17.3*

Table E3: continued

Variable	Attrib	Endow	Coeff
Sector:			
Mining, quarrying and manufacturing	0.9	0.2	0.7
Electricity, gas and water*	-	-	-
Construction	0.2	0.2	0.0
Wholesale and retail	-0.1	0.0	-0.1
Hotels and restaurants	0.0	0.0	0.0
Transport, storage and communication	-0.2	0.0	-0.2
Financial intermediation	0.4	0.3	0.1
Business services	0.3	0.2	0.1
Public administration and defence	2.1	1.9	0.2
Education	0.2	-0.7	0.9
Health and social work	0.5	1.3	-0.8
Other services	-0.6	0.0	-0.6
Subtotal	*3.9*	*3.6*	*0.3*
Total	**6.6**	**13.3**	**-6.7**

*Cannot be reported for confidentiality reasons.

Table E4: Detailed 'Clerical' Occupation Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	-0.2	-0.2	0.0
Lower secondary	-0.2	0.1	-0.3
Upper secondary	-0.9	0.1	-1.0
Post secondary	0.3	0.0	0.3
Cert/Diploma	0.0	-0.1	0.1
Degree	2.0	1.8	0.2
Experience	18.4	6.2	12.2
Experience squared	-13.1	-6.6	-6.5
Tenure	2.4	1.4	1.0
Professional body	1.2	1.0	0.2
Subtotal	*9.9*	*3.7*	*6.2*
Family Structure:			
Child less than 6 years	-1.0	0.0	-1.0
Child 6 to 17 years	0.8	-0.1	0.9
Child over 18 years	0.1	0.0	0.1
Married/Cohabits	5.4	0.1	5.3
Partner works full-time (FT)	-1.6	0.0	-1.6
Partner works part-time (PT)	0.2	0.1	0.1
School run	-0.2	0.6	-0.8
Subtotal	*3.7*	*0.7*	*3.0*
Job and Firm Characteristics:			
Union membership	1.0	0.5	0.5
Supervise staff	3.3	2.6	0.7
Flexi-work	-0.8	0.1	-0.9
Part-time work	1.4	3.9	-2.5
Individual-level wage agreement	-1.5	0.1	-1.6
Business-level wage agreement	0.2	0.0	0.2
Industry-level wage agreement	-0.2	0.0	-0.2
National-level wage agreement	-1.3	-0.1	-1.2
Other wage type agreement	0.3	0.0	0.3
No single type of wage agreement	0.1	0.0	0.1
Export intensity	0.6	0.1	0.5
Foreign-owned firm	-0.6	0.5	-1.1
Minimum wage cover	-0.1	0.1	-0.2
Offers career breaks	-0.3	0.2	-0.5
Offers work sharing and/or PT work	-1.7	0.4	-2.1
Firm size	4.7	2.5	2.2
Females % of management	-0.4	0.0	-0.4
Overeducated	0.2	0.1	0.1
Subtotal	*4.9*	*11.0*	*-6.1*

Table E4: continued

Variable	Attrib	Endow	Coeff
Sector:			
Mining, quarrying and manufacturing	0.3	0.0	0.4
Electricity, gas and water*	-	-	-
Construction	0.3	0.0	0.3
Wholesale and retail	1.2	0.0	1.2
Hotels and restaurants	0.2	0.0	0.1
Transport, storage and communication	-0.8	-0.5	-0.3
Financial intermediation	0.3	0.2	0.0
Business services	-0.2	0.0	-0.2
Public administration and defence	-0.2	0.0	-0.2
Education	-0.1	-0.1	-0.1
Health and social work	-0.3	-0.4	0.2
Other services	-0.6	0.0	-0.7
Subtotal	*0.1*	*-0.8*	*0.7*
Total	**18.6**	**14.6**	**3.8**

*Cannot be reported for confidentiality reasons.

Table E5: Detailed 'Personal' Occupation Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	-0.1	-0.2	0.1
Lower secondary	0.4	-0.1	0.5
Upper secondary	1.2	0.0	1.2
Post secondary	0.3	0.0	0.3
Cert/Diploma	-1.0	-0.4	-0.6
Degree	-1.0	0.0	-1.0
Experience	24.7	9.7	15.0
Experience squared	-15.9	-7.3	-8.6
Tenure	3.0	2.9	0.1
Professional body	0.0	-0.1	0.1
Subtotal	*11.6*	*4.5*	*7.1*
Family Structure:			
Child less than 6 years	0.5	0.2	0.3
Child 6 to 17 years	-1.4	0.0	-1.4
Child over 18 years	-0.5	0.0	-0.5
Married/Cohabits	6.3	1.2	5.1
Partner works full-time (FT)	-3.1	0.7	-3.8
Partner works part-time (PT)	-0.5	-0.4	-0.1
School run	-0.4	-0.2	-0.2
Subtotal	*0.9*	*1.5*	*-0.6*
Job and Firm Characteristics:			
Union membership	2.7	2.8	-0.1
Supervise staff	3.7	1.6	2.1
Flexi-work	0.0	0.0	0.0
Part-time work	1.8	2.7	-0.9
Individual-level wage agreement	-0.9	-0.6	-0.3
Business-level wage agreement	-0.7	0.3	-1.0
Industry-level wage agreement	-0.9	-0.1	-0.8
National-level wage agreement	-0.4	-0.5	0.1
Other wage type agreement	0.3	-0.1	0.4
No single type of wage agreement	0.2	-0.1	0.3
Export intensity	1.5	-1.2	2.7
Foreign-owned firm	-0.8	0.4	-1.2
Minimum wage cover	-0.2	0.6	-0.8
Offers career breaks	-2.0	0.7	-2.7
Offers work sharing and/or PT work	-15.3	-0.2	-15.1
Firm size	1.4	2.3	-0.9
Females % of management	0.6	0.2	0.4
Overeducated	1.0	-0.3	1.3
Subtotal	*-8.0*	*8.5*	*-16.5*

Table E5: continued

Variable	Attrib	Endow	Coeff
Sector:			
Mining, quarrying and manufacturing	0.0	0.0	0.0
Electricity, gas and water*	-	-	-
Construction	0.6	0.5	0.1
Wholesale and retail	-0.5	-0.4	-0.1
Hotels and restaurants	-3.5	-1.2	-2.3
Transport, storage and communication	0.5	0.9	-0.4
Financial intermediation	-0.5	-0.1	-0.4
Business services	-2.8	-1.4	-1.4
Public administration and defence	0.8	0.7	0.1
Education	0.5	-0.5	1.0
Health and social work	-3.0	0.8	-3.8
Other services	-0.4	2.3	-2.7
Subtotal	*-8.1*	*1.6*	*-9.7*
Total	**-3.6**	**16.1**	**-19.7**

*Cannot be reported for confidentiality reasons.

Table E6: Detailed 'Sales' Occupation Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Lower secondary	1.1	-0.3	1.4
Upper secondary	5.6	-0.3	5.9
Post secondary	2.2	0.3	1.9
Cert/Diploma	0.8	-0.5	1.3
Degree	2.4	0.9	1.5
Experience	26.7	13.5	13.2
Experience squared	-15.7	-10.7	-5.0
Tenure	1.3	0.7	0.6
Professional body	1.1	0.8	0.3
Subtotal	*25.5*	*4.4*	*21.1*
Family Structure:			
Child less than 6 years	0.1	0.2	-0.1
Child 6 to 17 years	0.5	0.1	0.4
Child over 18 years	1.6	-0.1	1.7
Married/Cohabits	8.2	0.9	7.3
Partner works full-time (FT)	-3.8	-0.1	-3.7
Partner works part-time (PT)	-0.9	-0.5	-0.4
School run	0.6	0.2	0.4
Subtotal	*6.3*	*0.7*	*5.6*
Job and Firm Characteristics:			
Union membership	-0.4	0.0	-0.4
Supervise staff	-0.1	1.1	-1.2
Flexi-work	1.3	0.3	1.0
Part-time work	2.1	7.7	-5.6
Individual-level wage agreement	1.1	-0.1	1.2
Business-level wage agreement	0.1	0.0	0.1
Industry-level wage agreement	-0.2	0.0	-0.2
National-level wage agreement	-0.6	0.0	-0.6
Other wage type agreement	-0.2	0.1	-0.3
Export intensity	0.8	-0.1	0.9
Foreign-owned firm	3.1	0.2	2.9
Minimum wage cover	-0.6	1.8	-2.4
Offers career breaks	-1.1	0.6	-1.7
Offers work sharing and/or PT work	-0.7	0.6	-1.3
Firm size	-2.7	0.1	-2.8
Females % of management	0.0	-0.2	0.2
Overeducated	0.8	0.0	0.8
Subtotal	*2.7*	*12.1*	*-9.4*

Table E6: continued

Variable	Attrib	Endow	Coeff
Sector:			
Mining, quarrying and manufacturing	3.5	2.8	0.7
Electricity, gas and water*	-	-	-
Construction	0.3	0.4	-0.1
Wholesale and retail	21.1	-0.8	21.9
Hotels and restaurants	1.0	0.1	0.9
Transport, storage and communication	0.2	-1.8	2.0
Financial intermediation	1.0	0.4	0.6
Business services	1.3	-0.1	1.4
Public administration and defence	0.0	0.0	0.0
Education	-0.3	0.0	-0.3
Health and social work	0.2	-0.4	0.6
Subtotal	*28.4*	*0.7*	*27.7*
Total	**62.9**	**17.9**	**45.0**

*Cannot be reported for confidentiality reasons.

Table E7: Detailed 'Operatives' Occupation Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Lower secondary	-2.9	0.1	-3.0
Upper secondary	-4.4	-0.7	-3.7
Post secondary	-0.1	0.5	-0.6
Cert/Diploma	-1.5	-0.4	-1.1
Degree	-1.2	-0.1	-1.1
Experience	23.5	10.7	12.8
Experience squared	-15.1	-9.2	-5.9
Tenure	0.6	1.5	-0.9
Professional body	0.1	0.0	0.1
Subtotal	*-1.0*	*2.4*	*-3.4*
Family Structure:			
Child less than 6 years	0.1	0.0	0.1
Child 6 to 17 years	0.1	0.5	-0.4
Child over 18 years	-0.3	-0.1	-0.2
Married/Cohabits	2.9	0.8	2.1
Partner works full-time (FT)	1.7	0.5	1.2
Partner works part-time (PT)	1.3	0.7	0.6
School run	-0.3	0.1	-0.4
Subtotal	*5.5*	*2.5*	*3.0*
Job and Firm Characteristics:			
Union membership	4.2	1.0	3.2
Supervise staff	-0.8	0.2	-1.0
Flexi-work	0.7	1.0	-0.3
Part-time work	2.0	-0.2	2.2
Individual-level wage agreement	-2.8	-0.7	-2.1
Business-level wage agreement	-0.4	0.2	-0.6
Industry-level wage agreement	-0.5	0.0	-0.5
National-level wage agreement	-8.1	-0.4	-7.7
Other wage type agreement	-0.1	0.0	-0.1
Export intensity	6.9	1.4	5.5
Foreign-owned firm	-1.3	-0.1	-1.2
Minimum wage cover	0.0	0.0	0.0
Offers career breaks	3.4	1.5	1.9
Offers work sharing and/or PT work	2.6	0.0	2.6
Firm size	3.0	-1.3	4.3
Females % of management	-0.1	0.1	-0.2
Overeducated	0.5	0.0	0.5
Subtotal	*9.2*	*2.7*	*6.5*

Table E.7: continued

Variable	Attrib	Endow	Coeff
Sector:			
Mining, quarrying and manufacturing	-32.2	1.9	-34.1
Electricity, gas and water*	-	-	-
Construction	0.3	0.3	0.0
Wholesale and retail	-3.0	-0.4	-2.6
Hotels and restaurants	0.0	0.0	0.0
Transport, storage and communication	-2.8	-1.5	-1.3
Financial intermediation	-0.1	0.0	-0.1
Business services	-1.2	0.1	-1.3
Public administration and defence	-1.0	-1.0	0.0
Education	0.0	0.0	0.0
Health and social work	-0.5	-0.1	-0.4
Subtotal	*-40.6*	*-0.8*	*-39.8*
Total	**-26.9**	**6.8**	**-33.7**

*Cannot be reported for confidentiality reasons.

Appendix F: Detailed Sector Decomposition Results

Table F1: Detailed 'Manufacturing' Sector Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	-0.8	-0.4	-0.4
Lower secondary	-1.3	-0.1	-1.2
Upper secondary	-1.4	0.6	-2.0
Post secondary	0.7	0.2	0.5
Cert/Diploma	0.7	-0.3	1.0
Degree	1.0	-0.1	1.1
Experience	32.6	14.7	17.9
Experience squared	-20.4	-11.6	-8.8
Tenure	5.3	2.0	3.3
Professional body	-0.8	0.1	-0.9
Subtotal	*15.6*	*5.1*	*10.5*
Family Structure:			
Child less than 6 years	0.1	0.0	0.1
Child 6 to 17 years	-1.9	-0.2	-1.7
Child over 18 years	0.7	0.0	0.7
Married/Cohabits	6.1	0.9	5.2
Partner works full-time (FT)	-0.5	1.2	-1.7
Partner works part-time (PT)	0.5	0.1	0.4
School run	0.0	0.1	-0.1
Subtotal	*5.0*	*2.1*	*2.9*
Job and Firm Characteristics:			
Union membership	0.7	0.3	0.4
Supervise staff	0.7	1.7	-1.0
Flexi-work	-0.7	0.2	-0.9
Part-time work	1.4	1.1	0.3
Individual-level wage agreement	-0.7	0.0	-0.7
Business-level wage agreement	0.2	0.1	0.1
Industry-level wage agreement	-0.1	0.0	-0.1
National-level wage agreement	-1.7	-0.1	-1.6
Other wage type agreement	0.0	0.0	0.0
No single type of wage agreement	0.4	0.0	0.4
Export intensity	5.3	0.1	5.2
Foreign-owned firm	-0.9	-0.5	-0.4
Minimum wage cover	0.1	0.0	0.1
Offers career breaks	-0.1	0.0	-0.1
Offers work sharing and/or PT work	1.6	0.1	1.5
Firm size	0.0	-0.2	0.2
Females % of management	-0.1	0.0	-0.1
Overeducated	-0.5	-0.1	-0.4
Subtotal	*5.6*	*2.7*	*2.9*

Table F1: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	1.4	1.6	-0.2
Professional	0.5	0.7	-0.2
Associate professional and technical	-0.1	0.1	-0.2
Clerical and secretarial	-0.5	1.1	-1.6
Craft and related	0.0	-0.5	0.5
Personal and protective service	0.2	0.1	0.1
Sales	-0.2	0.0	-0.2
Plant and machine operatives	1.3	-0.7	2.0
Other	0.0	0.4	-0.4
Subtotal	*2.6*	*2.8*	*-0.2*
Total	**28.8**	**12.7**	**16.1**

Table F2: Detailed 'Wholesale and Retail' Sector Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	-1.0	-0.5	-0.5
Lower secondary	-0.8	-0.2	-0.6
Upper secondary	0.8	0.0	0.8
Post secondary	0.9	0.1	0.8
Cert/Diploma	0.5	-0.4	0.9
Degree	0.1	0.2	-0.1
Experience	12.5	11.0	1.5
Experience squared	-6.6	-7.6	1.0
Tenure	0.8	0.7	0.1
Professional body	0.8	0.6	0.2
Subtotal	*8.0*	*3.9*	*4.1*
Family Structure:			
Child less than 6 years	0.1	0.1	0.0
Child 6 to 17 years	-0.1	0.0	-0.1
Child over 18 years	0.6	0.0	0.6
Married/Cohabits	8.2	1.1	7.1
Partner works full-time (FT)	-0.5	1.0	-1.5
Partner works part-time (PT)	-0.8	-0.6	-0.2
School run	0.2	0.2	0.0
Subtotal	*7.7*	*1.8*	*5.9*
Job and Firm Characteristics:			
Union membership	0.8	0.1	0.7
Supervise staff	1.0	1.5	-0.5
Flexi-work	1.4	0.3	1.1
Part-time work	1.9	5.1	-3.2
Individual-level wage agreement	0.9	0.1	0.8
Business-level wage agreement	0.6	0.2	0.4
Industry-level wage agreement	0.0	0.0	0.0
National-level wage agreement	-1.3	0.2	-1.5
Other wage type agreement	-0.2	0.1	-0.3
No single type of wage agreement	0.3	0.0	0.3
Export intensity	1.1	0.0	1.1
Foreign-owned firm	1.1	0.4	0.7
Minimum wage cover	-0.3	0.8	-1.1
Offers career breaks	0.0	-0.3	0.3
Offers work sharing and/or PT work	-0.1	0.4	-0.5
Firm size	-4.6	-0.1	-4.5
Females % of management	-0.2	0.2	-0.4
Overeducated	0.5	0.1	0.4
Subtotal	*2.9*	*9.1*	*-6.2*

Table F2: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	2.9	2.9	0.0
Professional	0.5	0.4	0.1
Associate professional and technical	0.1	0.2	-0.1
Clerical and secretarial	-0.6	1.0	-1.6
Craft and related	-1.0	-1.0	0.0
Personal and protective service	0.1	0.0	0.1
Sales	3.3	0.8	2.5
Plant and machine operatives	-1.6	-1.5	-0.1
Other	-1.5	-1.4	-0.1
Subtotal	*2.2*	*1.4*	*0.8*
Total	**20.8**	**16.2**	**4.6**

Table F3: Detailed 'Hotels and Restaurants' Sector Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Lower secondary	-0.4	-0.1	-0.3
Upper secondary	0.8	-0.4	1.2
Post secondary	0.0	0.2	-0.2
Cert/Diploma	-2.1	-0.3	-1.8
Degree	-3.2	0.1	-3.3
Experience	4.6	5.9	-1.3
Experience squared	-5.4	-5.2	-0.2
Tenure	3.3	0.2	3.1
Professional body	0.4	0.1	0.3
Subtotal	*-2.0*	*0.5*	*-2.5*
Family Structure:			
Child less than 6 years	1.3	0.1	1.2
Child 6 to 17 years	-0.8	0.3	-1.1
Child over 18 years	0.8	-0.6	1.4
Married/Cohabits	6.5	0.0	6.5
Partner works full-time (FT)	-4.8	1.4	-6.2
Partner works part-time (PT)	-0.9	-1.1	0.2
School run	0.9	0.0	0.9
Subtotal	*3.0*	*0.1*	*2.9*
Job and Firm Characteristics:			
Union membership	0.9	0.1	0.8
Supervise staff	4.4	2.6	1.8
Flexi-work	1.0	0.3	0.7
Part-time work	-0.4	4.7	-5.1
Individual-level wage agreement	-5.2	0.0	-5.2
Business-level wage agreement	-2.4	-0.1	-2.3
Industry-level wage agreement	-1.3	0.1	-1.4
National-level wage agreement	-8.1	0.3	-8.4
Other wage type agreement	-0.5	0.0	-0.5
Export intensity	-0.5	-0.4	-0.1
Foreign-owned firm	-0.7	0.0	-0.7
Minimum wage cover	-2.2	-0.4	-1.8
Offers career breaks	0.1	0.0	0.1
Offers work sharing and/or PT work	-5.3	1.0	-6.3
Firm size	-2.3	0.0	-2.3
Females % of management	-1.1	0.9	-2.0
Overeducated	0.6	0.1	0.5
Subtotal	*-23.0*	*9.2*	*-32.2*

Table F3: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	0.8	1.9	-1.1
Professional	0.1	0.0	0.1
Associate professional and technical	0.2	0.0	0.2
Clerical and secretarial	-3.3	-2.9	-0.4
Craft and related	-0.4	-0.3	-0.1
Personal and protective service	-2.0	-0.1	-1.9
Plant and machine operatives	-0.1	-0.1	0.0
Other	-0.4	0.0	-0.4
Subtotal	*-5.1*	*-1.5*	*-3.6*
Total	**-27.1**	**8.3**	**-35.4**

Table F4: Detailed 'Transport' Sector Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	-1.3	-1.4	0.1
Lower secondary	-0.7	-0.4	-0.3
Upper secondary	-0.2	0.1	-0.3
Post secondary	-0.4	0.0	-0.4
Cert/Diploma	-0.2	-0.8	0.6
Degree	-0.3	-0.5	0.2
Experience	-2.6	12.1	-14.7
Experience squared	2.7	-7.0	9.7
Tenure	-3.0	0.9	-3.9
Professional body	0.4	0.1	0.3
Subtotal	*-5.6*	*3.1*	*-8.7*
Family Structure:			
Child less than 6 years	1.0	0.3	0.7
Child 6 to 17 years	1.0	0.3	0.7
Child over 18 years	0.1	0.4	-0.3
Married/Cohabits	3.0	1.1	1.9
Partner works full-time (FT)	-3.0	0.7	-3.7
Partner works part-time (PT)	-0.5	-0.4	-0.1
School run	0.4	-0.1	0.5
Subtotal	*2.0*	*2.3*	*-0.3*
Job and Firm Characteristics:			
Union membership	7.5	3.9	3.6
Supervise staff	0.3	0.7	-0.4
Flexi-work	0.4	0.0	0.4
Part-time work	0.1	2.2	-2.1
Individual-level wage agreement	-4.5	-0.5	-4.0
Business-level wage agreement	0.1	0.5	-0.4
Industry-level wage agreement	0.1	0.0	0.1
National-level wage agreement	-4.1	-0.5	-3.6
Other wage type agreement	0.3	-0.1	0.4
No single type of wage agreement	-0.2	0.1	-0.3
Export intensity	-0.5	-0.7	0.2
Foreign-owned firm	0.2	-1.1	1.3
Minimum wage cover	0.7	0.2	0.5
Offers career breaks	4.0	3.5	0.5
Offers work sharing and/or PT work	-4.0	0.2	-4.2
Firm size	9.2	4.4	4.8
Females % of management	0.5	0.1	0.4
Overeducated	0.8	0.1	0.7
Subtotal	*10.9*	*13.0*	*-2.1*

Table F4: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	2.2	1.2	1.0
Professional	0.0	0.1	-0.1
Associate professional and technical	-0.4	-0.1	-0.3
Clerical and secretarial	1.5	3.5	-2.0
Craft and related	-0.4	-0.4	0.0
Personal and protective service	-2.4	-1.9	-0.5
Sales	0.7	0.1	0.6
Plant and machine operatives	-1.4	-1.3	-0.1
Other	-2.1	-2.4	0.3
Subtotal	*-2.3*	*-1.2*	*-1.1*
Total	**5.0**	**17.2**	**-12.2**

Table F5: Detailed 'Financial Intermediation' Sector Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Lower secondary	0.3	-0.1	0.4
Upper secondary	1.3	-0.9	2.2
Post secondary	0.3	-0.6	0.9
Cert/Diploma	0.8	-1.4	2.2
Degree	8.7	7.9	0.8
Experience	22.0	14.9	7.1
Experience squared	-11.0	-11.3	0.3
Tenure	-2.3	1.1	-3.4
Professional body	2.1	1.9	0.2
Subtotal	***22.2***	***11.5***	***10.7***
Family Structure:			
Child less than 6 years	-0.6	-0.3	-0.3
Child 6 to 17 years	1.8	0.3	1.5
Child over 18 years	-0.1	0.0	-0.1
Married/Cohabits	0.3	0.6	-0.3
Partner works full-time (FT)	-2.8	0.3	-3.1
Partner works part-time (PT)	0.9	0.5	0.4
School run	-1.5	0.7	-2.2
Subtotal	***-2.0***	***2.1***	***-4.1***
Job and Firm Characteristics:			
Union membership	-2.1	0.2	-2.3
Supervise staff	4.7	3.3	1.4
Flexi-work	0.9	0.2	0.7
Part-time work	3.7	2.8	0.9
Individual-level wage agreement	1.8	0.0	1.8
Business-level wage agreement	0.7	0.0	0.7
Industry-level wage agreement	0.0	0.0	0.0
National-level wage agreement	1.7	0.0	1.7
Other wage type agreement	-0.1	-0.1	0.0
Export intensity	2.2	0.3	1.9
Foreign-owned firm	-0.4	0.6	-1.0
Minimum wage cover	-0.1	0.0	-0.1
Offers career breaks	-1.0	0.1	-1.1
Offers work sharing and/or PT work	-21.7	0.6	-22.3
Firm size	12.1	1.8	10.3
Females % of management	3.2	-0.7	3.9
Overeducated	2.5	2.2	0.3
Subtotal	***8.1***	***11.3***	***-3.2***

Table F5: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	4.9	4.8	0.1
Professional	1.4	1.8	-0.4
Associate professional and technical	0.0	0.5	-0.5
Clerical and secretarial	-1.9	5.4	-7.3
Craft and related	0.0	0.0	0.0
Personal and protective service	-0.2	0.1	-0.3
Plant and machine operatives	0.0	0.0	0.0
Other	-0.4	-0.2	-0.2
Subtotal	*3.8*	*12.4*	*-8.6*
Total	**32.1**	**37.3**	**-5.2**

Table F6: Detailed 'Business Services' Sector Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	-0.2	-0.1	-0.1
Lower secondary	-0.5	0.0	-0.5
Upper secondary	0.2	0.4	-0.2
Post secondary	0.7	0.0	0.7
Cert/Diploma	0.3	-0.3	0.6
Degree	3.5	2.6	0.9
Experience	31.1	8.8	22.3
Experience squared	-19.6	-8.2	-11.4
Tenure	0.9	0.2	0.7
Professional body	0.9	0.8	0.1
Subtotal	*17.3*	*4.2*	*13.1*
Family Structure:			
Child less than 6 years	0.1	0.2	-0.1
Child 6 to 17 years	-0.1	0.0	-0.1
Child over 18 years	0.2	0.0	0.2
Married/Cohabits	6.3	0.9	5.4
Partner works full-time (FT)	-2.8	0.6	-3.4
Partner works part-time (PT)	0.1	-0.1	0.2
School run	0.0	0.2	-0.2
Subtotal	*3.8*	*1.8*	*2.0*
Job and Firm Characteristics:			
Union membership	0.7	0.2	0.5
Supervise staff	2.9	3.4	-0.5
Flexi-work	-0.2	-0.1	-0.1
Part-time work	1.6	2.8	-1.2
Individual-level wage agreement	-3.8	0.1	-3.9
Business-level wage agreement	-0.2	0.1	-0.3
Industry-level wage agreement	-0.4	-0.2	-0.2
National-level wage agreement	-0.2	0.0	-0.2
Other wage type agreement	0.2	-0.2	0.4
No single type of wage agreement	0.4	-0.1	0.5
Export intensity	2.2	0.3	1.9
Foreign-owned firm	-0.2	0.4	-0.6
Minimum wage cover	1.6	0.1	1.5
Offers career breaks	0.1	0.0	0.1
Offers work sharing and/or PT work	-1.2	0.3	-1.5
Firm size	1.5	0.4	1.1
Females % of management	1.1	0.1	1.0
Overeducated	0.7	0.3	0.4
Subtotal	*6.8*	*7.9*	*-1.1*

Table F6: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	2.8	2.9	-0.1
Professional	5.5	3.8	1.7
Associate professional and technical	1.7	0.5	1.2
Clerical and secretarial	0.6	3.5	-2.9
Craft and related	0.0	0.0	0.0
Personal and protective service	-1.2	-0.5	-0.7
Sales	0.5	0.0	0.5
Plant and machine operatives	-0.4	-0.5	0.1
Other	-1.6	-1.3	-0.3
Subtotal	*7.9*	*8.4*	*-0.5*
Total	**35.8**	**22.3**	**13.5**

Table F7: Detailed 'Public Administration' Sector Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Lower secondary	-0.3	0.4	-0.7
Upper secondary	-5.2	-2.5	-2.7
Post secondary	0.5	0.4	0.1
Cert/Diploma	-2.6	-1.5	-1.1
Degree	2.7	2.8	-0.1
Experience	0.5	5.9	-5.4
Experience squared	1.6	-2.1	3.7
Tenure	-2.5	2.7	-5.2
Professional body	0.5	0.8	-0.3
Subtotal	*-4.8*	*6.9*	*-11.7*
Family Structure:			
Child less than 6 years	0.2	0.0	0.2
Child 6 to 17 years	1.1	0.0	1.1
Child over 18 years	0.3	0.2	0.1
Married/Cohabits	4.2	1.5	2.7
Partner works full-time (FT)	0.5	0.8	-0.3
Partner works part-time (PT)	-0.5	-0.3	-0.2
School run	-0.8	0.1	-0.9
Subtotal	*5.0*	*2.3*	*2.7*
Job and Firm Characteristics:			
Union membership	-4.1	-0.3	-3.8
Supervise staff	1.3	1.8	-0.5
Flexi-work	1.1	1.7	-0.6
Part-time work	2.6	-0.1	2.7
Individual-level wage agreement	0.0	0.0	0.0
Business-level wage agreement	0.0	0.0	0.0
Industry-level wage agreement	0.0	0.0	0.0
National-level wage agreement	19.6	0.0	19.6
Other wage type agreement	0.0	0.0	0.0
Export intensity	-4.0	-0.2	-3.8
Foreign-owned firm	0.0	0.0	0.0
Minimum wage cover	-0.2	0.0	-0.2
Offers career breaks	-18.7	0.0	-18.7
Offers work sharing and/or PT work	18.4	0.1	18.3
Firm size	17.1	0.2	16.9
Females % of management	0.1	0.0	0.1
Overeducated	0.8	0.5	0.3
Subtotal	*34.0*	*3.7*	*30.3*

Table F7: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	-0.4	0.5	-0.9
Professional	-5.9	0.0	-5.9
Associate professional and technical	-14.3	3.5	-17.8
Clerical and secretarial	-6.5	3.3	-9.8
Craft and related	-2.2	-2.1	-0.1
Personal and protective service	-0.1	0.0	-0.1
Plant and machine operatives	-1.6	-1.6	0.0
Other	-6.0	-4.5	-1.5
Subtotal	*-37.0*	*-0.9*	*-36.1*
Total	**-2.8**	**12.0**	**-14.8**

Table F8: Detailed 'Education' Sector Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Lower secondary	-0.7	0.7	-1.4
Upper secondary	-0.2	-0.6	0.4
Post secondary	0.9	-0.6	1.5
Cert/Diploma	-1.1	-1.1	0.0
Degree	9.2	8.9	0.3
Experience	17.5	14.9	2.6
Experience squared	-8.1	-8.9	0.8
Tenure	1.7	2.3	-0.6
Professional body	-0.3	0.3	-0.6
Subtotal	*18.9*	*15.9*	*3.0*
Family Structure:			
Child less than 6 years	-1.5	0.0	-1.5
Child 6 to 17 years	6.7	0.1	6.6
Child over 18 years	-0.9	-0.3	-0.6
Married/Cohabits	6.6	2.1	4.5
Partner works full-time (FT)	1.3	0.1	1.2
Partner works part-time (PT)	0.8	0.7	0.1
School run	-0.5	0.2	-0.7
Subtotal	*12.5*	*2.9*	*9.6*
Job and Firm Characteristics:			
Union membership	10.6	4.9	5.7
Supervise staff	-2.6	-0.5	-2.1
Flexi-work	3.0	0.5	2.5
Part-time work	3.8	-0.8	4.6
Individual-level wage agreement	-0.9	5.3	-6.2
Business-level wage agreement	-1.0	0.2	-1.2
Industry-level wage agreement	0.0	0.0	0.0
National-level wage agreement	-6.3	0.8	-7.1
Other wage type agreement	-3.1	1.2	-4.3
Export intensity	4.0	0.9	3.1
Foreign-owned firm	0.0	0.0	0.0
Minimum wage cover	-1.3	1.1	-2.4
Offers career breaks	-16.0	-4.6	-11.4
Offers work sharing and/or PT work	8.8	0.1	8.7
Firm size	-10.5	1.1	-11.6
Females % of management	-2.7	4.2	-6.9
Overeducated	0.9	0.0	0.9
Subtotal	*-13.3*	*14.4*	*-27.7*

Table F8: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	1.2	1.0	0.2
Professional	0.1	4.1	-4.0
Associate professional and technical	0.4	0.2	0.2
Clerical and secretarial	-0.5	2.4	-2.9
Craft and related	-0.5	-0.4	-0.1
Personal and protective service	1.0	0.0	1.0
Plant and machine operatives	-0.1	-0.1	0.0
Other	-2.5	-0.8	-1.7
Subtotal	*-0.9*	*6.4*	*-7.3*
Total	**17.2**	**39.6**	**-22.4**

Table F9: Detailed 'Health' Sector Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	0.6	-0.2	0.8
Lower secondary	0.2	0.6	-0.4
Upper secondary	0.3	0.1	0.2
Post secondary	-0.3	-0.1	-0.2
Cert/Diploma	-0.5	-0.3	-0.2
Degree	0.6	1.8	-1.2
Experience	36.5	10.5	26.0
Experience squared	-21.7	-8.2	-13.5
Tenure	1.4	1.4	0.0
Professional body	2.2	0.6	1.6
Subtotal	*19.3*	*6.2*	*13.1*
Family Structure:			
Child less than 6 years	-1.0	-0.2	-0.8
Child 6 to 17 years	-1.8	0.1	-1.9
Child over 18 years	1.0	-0.2	1.2
Married/Cohabits	-2.1	0.0	-2.1
Partner works full-time (FT)	0.7	-0.1	0.8
Partner works part-time (PT)	1.1	1.1	0.0
School run	0.6	-0.3	0.9
Subtotal	*-1.5*	*0.4*	*-1.9*
Job and Firm Characteristics:			
Union membership	-5.9	-0.5	-5.4
Supervise staff	7.3	2.9	4.4
Flexi-work	0.2	0.0	0.2
Part-time work	6.0	1.4	4.6
Individual-level wage agreement	-1.7	0.6	-2.3
Business-level wage agreement	-0.3	0.2	-0.5
Industry-level wage agreement	0.1	-0.1	0.2
National-level wage agreement	4.8	0.9	3.9
Other wage type agreement	0.1	0.2	-0.1
No single type of wage agreement	0.1	-0.3	0.4
Export intensity	5.1	0.4	4.7
Foreign-owned firm	0.9	0.5	0.4
Minimum wage cover	-1.5	0.3	-1.8
Offers career breaks	-1.4	0.3	-1.7
Offers work sharing and/or PT work	-13.7	0.1	-13.8
Firm size	-1.0	0.4	-1.4
Females % of management	1.1	0.1	1.0
Overeducated	1.7	0.3	1.4
Subtotal	*1.9*	*7.7*	*-5.8*

Table F9: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	0.3	0.8	-0.5
Professional	-1.1	0.0	-1.1
Associate professional and technical	-0.8	0.0	-0.8
Clerical and secretarial	-1.0	-0.3	-0.7
Craft and related	-0.9	-0.9	0.0
Personal and protective service	0.0	0.3	-0.3
Sales	0.2	0.0	0.2
Plant and machine operatives	-0.7	-0.7	0.0
Other	3.4	-0.1	3.5
Subtotal	*-0.6*	*-0.9*	*0.3*
Total	**19.1**	**13.4**	**5.7**

Table F10: Detailed 'Other Services' Sector Decomposition Results: All Employees

Variable	Attrib	Endow	Coeff
Human Capital:			
Primary or less	-0.4	-0.4	0.0
Lower secondary	-0.4	0.1	-0.5
Upper secondary	3.5	-0.7	4.2
Post secondary	0.2	0.0	0.2
Cert/Diploma	-3.3	0.1	-3.4
Degree	2.0	1.2	0.8
Experience	7.9	3.8	4.1
Experience squared	-8.6	-5.0	-3.6
Tenure	-3.2	2.2	-5.4
Professional body	0.0	0.7	-0.7
Subtotal	*-2.3*	*2.0*	*-4.3*
Family Structure:			
Child less than 6 years	-1.3	0.0	-1.3
Child 6 to 17 years	-1.0	0.5	-1.5
Child over 18 years	-0.6	0.0	-0.6
Married/Cohabits	3.4	2.9	0.5
Partner works full-time (FT)	0.4	1.5	-1.1
Partner works part-time (PT)	-1.4	-1.5	0.1
School run	0.5	0.7	-0.2
Subtotal	*0.0*	*4.1*	*-4.1*
Job and Firm Characteristics:			
Union membership	-0.2	0.5	-0.7
Supervise staff	5.6	3.9	1.7
Flexi-work	1.5	0.8	0.7
Part-time work	2.1	-3.2	5.3
Individual-level wage agreement	0.8	0.1	0.7
Business-level wage agreement	0.1	0.1	0.0
Industry-level wage agreement	0.5	0.2	0.3
National-level wage agreement	6.0	-0.2	6.2
Other wage type agreement	-0.7	-0.3	-0.4
No single type of wage agreement	0.8	-0.2	1.0
Export intensity	-0.3	-0.1	-0.2
Foreign-owned firm	0.2	-0.1	0.3
Minimum wage cover	-1.8	-0.1	-1.7
Offers career breaks	4.9	0.3	4.6
Offers work sharing and/or PT work	-0.2	0.1	-0.3
Firm size	-10.4	0.7	-11.1
Females % of management	0.2	-0.6	0.8
Overeducated	2.0	0.4	1.6
Subtotal	*11.1*	*2.3*	*8.8*

Table F10: continued

Variable	Attrib	Endow	Coeff
Occupation:			
Managers and administrators	4.8	3.9	0.9
Professional	1.3	1.2	0.1
Associate professional and technical	0.9	-0.1	1.0
Clerical and secretarial	-7.4	3.0	-10.4
Craft and related	-0.8	-0.7	-0.1
Personal and protective service	0.3	2.2	-1.9
Sales	-0.7	0.3	-1.0
Plant and machine operatives	1.2	0.3	0.9
Other	0.8	0.2	0.6
Subtotal	*0.4*	*10.3*	*-9.9*
Total	**9.2**	**18.7**	**-9.5**

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