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# A STUDY OF MINIMUM WAGE EMPLOYMENT IN IRELAND: THE ROLE OF WORKER, HOUSEHOLD AND JOB CHARACTERISTICS

BERTRAND MAÎTRE, SEAMUS MCGUINNESS AND PAUL REDMOND



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**November 2017**

Economic and Social Research Institute;  
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## ACRONYMS

CDF	Cumulative distribution function
CSO	Central Statistics Office
LPC	Low Pay Commission
MW	Minimum Wage
NMW	National Minimum Wage
OLS	Ordinary least squares
QNHS	Quarterly National Household Survey
SILC	Survey of Income and Living Conditions

## EXECUTIVE SUMMARY

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### INTRODUCTION

This study uses Irish data from the Survey of Income and Living Conditions (SILC) to examine the factors underlying differences in the relative risk of being in receipt of the National Minimum Wage (NMW) among groups with relatively high rates of exposure to NMW employment, such as females, young people and non-Irish nationals. The results for Ireland are then compared with the UK. The study attempts to identify the factors driving a higher propensity of minimum wage employment among specific risk groups. The research is interested in understanding the degree to which the likelihood of minimum wage employment is driven by factors such as personal characteristics (like education and experience), job conditions within particular occupations or factors related to household composition and caring responsibilities.

### DESCRIPTIVE ANALYSIS: INCIDENCE AND INDIVIDUAL / HOUSEHOLD CHARACTERISTICS

- The incidence of adult minimum wage employment in 2014 was 4.9 per cent, which represents a slight decline from the rate of 5.6 per cent recorded in 2013. The comparable incidence of minimum wage employment in the UK in 2014 was higher, at 7.7 per cent.
- In 2014, females were over twice as likely to be earning the minimum wage relative to males. Specifically, 6.9 per cent of female employees were in receipt of the NMW, compared to 2.7 per cent of male employees. This compares to female and male rates of 6.7 per cent and 4.3 per cent in 2013, respectively. Given that the sample of NMW workers in the SILC data is relatively small, we cannot rule out the possibility that the increased gender disparity observed in the 2014 data reflects temporary sampling disparities, as opposed to a permanent shift in the composition of NMW employees. Consequently, we would stress that the recent observed increase in the female NMW share should be treated with some caution. Nevertheless, the finding that females are much more likely to be in receipt of the NMW seems consistent with international trends; it is therefore unlikely that this finding is due to sampling error.
- At 9 per cent, the incidence of minimum wage pay among non-Irish nationals was over twice that of Irish employees.
- With regard to age, young persons in the 18–29 age category had the highest exposure to NMW employment, at 13.9 per cent.
- Workers with lower levels of schooling were more likely to fall into the minimum wage category relative to graduates.

- The NMW incidence was almost three times higher among part-time workers compared to their full-time equivalents. The incidence of NMW employment was also particularly high among: individuals employed on temporary contracts (7 per cent); those working between 1 and 19 hours weekly (11.7 per cent); those employed in the accommodation and food sector (15.3 per cent); and those in sales (14.4 per cent) and elementary (13.4 per cent) occupations.
- In terms of composition, females accounted for almost three-quarters of NMW workers in the period, while young people (18–29 years) and migrants made up 53.3 and 25.5 per cent of NMW employees, respectively. A comparison of these figures to average employment shares of females (51.9 per cent), young people (18.5 per cent) and migrants (13.5 per cent) demonstrates that these groups are disproportionately represented among NMW employees relative to what would be expected given their overall presence in the labour market.
- Relative to the UK, we see that the incidence of minimum wage employment is broadly similar across the two countries in respect of gender, age, education and job-related characteristics. However, the percentage of NMW workers who are foreign citizens is higher in Ireland compared to the UK (25.5 per cent versus 13.6 per cent), which cannot solely be explained by the fact that foreign citizens in Ireland also make up a larger proportion of the entire workforce compared to the UK (13.5 per cent versus 9.7 per cent).

### **DESCRIPTIVE ANALYSIS: POVERTY RISK**

- Employees in receipt of the NMW are more at risk of poverty than non-NMW workers. Specifically, 17 per cent of NMW workers belong to households whose income is less than 60 per cent of the median equivalised household income, compared to a rate of 3.3 per cent of non-NMW workers.
- In terms of deprivation rates (defined as being unable to afford at least 2 out of 11 basic items, including food, clothing, heating, furniture and some social participation activities), 28 per cent of NMW workers are defined as being deprived, relative to 19.5 per cent of non-NMW workers.
- With regard to the incidence of consistent poverty (defined as being both at risk of poverty and deprived), 5.7 per cent of NMW workers fall into this category, compared to 1.6 per cent of non-NMW workers.
- The poverty and deprivation patterns with respect to gender are somewhat mixed. Female NMW workers are much more likely to belong to households at risk of poverty (20.2 per cent compared to 7.8 per cent for male NMW workers); however, the deprivation rate for NMW workers of both genders is 28 per cent. With respect to consistent poverty, male NMW workers have a household incidence of 7.6 per cent, compared to 5.0 per cent for female NMW employees.



## DESCRIPTIVE ANALYSIS: GENDER, HOUSEHOLD EARNING STATUS AND PART-TIME EMPLOYMENT

- Within the labour market, 75 per cent of male employees and 60 per cent of female employees describe themselves as primary earners. By contrast, just under 50 per cent of both male and female NMW workers describe themselves as such.
- When we focus the analysis on households with more than 1 employee earner, the data show that NMW employees are much more likely than average to be secondary earners and this is particularly true for females. Just 13 per cent of NMW-earning females in multiple-earner households are primary earners, compared to 19.5 per cent of males.
- Part-time workers account for over 50 per cent of all NMW employees and 56 per cent of all female NMW workers, indicating that uncovering the motives for doing low-paid part-time work among females is important for understanding the factors underlying the gender imbalance in NMW employment. Females may face constraints that impact their ability to transition from part-time to full-time employment. This could be due to the gendered division of work in the home, if there is an expectation that women's paid work should fit their family life. Welfare policies may also create disincentives for women with children to return to full-time work. In Ireland, the high cost of childcare is a particularly important factor influencing women's employment decisions.
- Part-time employees in the SILC data were asked a series of questions regarding their motives for accepting their current jobs, which provides us with some insights into the motives for NMW employment, albeit one that is restricted to the part-time component of the labour market. Just under three-quarters of male part-time NMW workers describe themselves as under-employed (they would prefer to work more hours or in a full-time job), compared to just under one-third of female part-time workers. Just under one-quarter of female part-time workers accepted their part-time NMW job because it enabled them to look after children or other people, a factor that did not influence part-time NMW male employees. Just over 20 per cent of male and female part-time NMW workers accepted their current job because it enabled them to combine work with education and training.
- While minimum wage workers have an above-average tendency to belong to economically disadvantaged households, these types of individuals make up only a small proportion of the total population of minimum wage employees. For example, 28 per cent of employees on the minimum wage in 2014 were from deprived households, compared to 19.5 per cent of workers earning above the minimum wage. Therefore, minimum wage increases will also benefit a large number of individuals who are not from economically disadvantaged or deprived households. The estimates confirm previous analysis by both the Irish Low Pay Commission and Logue and Callan (2016), which concluded that, as a policy tool, the NMW will have only a limited effect

on widespread poverty reduction. Similar to the UK, household poverty risk in Ireland may be more a problem of joblessness than of low pay (Nickel, 2004; Watson *et al.*, 2012).

## MULTIVARIATE ANALYSIS

- Multivariate analysis indicates that being female raises the probability that an individual is in receipt of the NMW by 3 percentage points. After controlling for a range of other factors that potentially explain the incidence of NMW employment, the additional risk associated with gender falls to 1 percentage point. The results from the models suggest that two-thirds of the initial 3 percentage point differential can be explained by a combination of the types of jobs undertaken by females and the occupations or sectors within which they are located. Females in receipt of the NMW had a greater tendency to work in the private sector, on a part-time basis, or in firms either located in certain sectors, such as accommodation and food, or that had fewer employees.
- We also show that young people aged 18–29 years were 9 percentage points more likely to be in receipt of the NMW, relative to those aged 50–59 years. This youth penalty disappeared when we controlled for tenure, job type, occupation and sector. The results suggest that the higher NMW risk faced by young people is explained entirely by factors such as lower levels of experience and the type of employment undertaken, or sector involved.
- Much of the initial higher relative risk faced by migrants (5 percentage points) and individuals with low levels of schooling (7 percentage points) is accounted for when we control for both job type and sector. However, a significant risk of up to 3 percentage points for both groups cannot be explained by the data in our models.
- For the UK, the results show a similar pattern to Ireland. The effects of gender, nationality, education, single-parent household status and firm size on the likelihood of minimum wage employment in the UK strongly resemble the Irish results. A number of differences do exist, however. Specifically, working 1 to 19 hours per week in the UK has a stronger effect on the probability of being a minimum wage worker compared to the Irish data. There are also differences relating to occupation, with craft and protective services occupations having a greater effect on the likelihood of minimum wage employment and sales having a smaller effect compared to Ireland.

## CONCLUSIONS

From a policy perspective, the research raises a number of important questions. While the higher relative risk faced by females is low, it is also the case that females face higher relative disadvantage. This is largely related to an increased likelihood of working part-time and a higher concentration of females in sectors such as

‘wholesale and retail’, ‘accommodation and food’ and ‘other’. Further research is required to understand the extent to which females choosing to work part-time or to balance work and family life with a full-time job can do so within their chosen occupations or are forced to switch to lower-paying sectors or occupations. Given that sectoral effects also appear to play a role in explaining the higher relative risk experienced by non-Irish nationals, young people and workers with low levels of schooling, the reasons underlying low pay in sectors where NMW employees are heavily concentrated require further investigation.

## CHAPTER 1

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### Introduction

Minimum wages have become an increasingly common feature of modern labour markets. According to the Organisation for Economic Co-operation and Development (OECD), 26 of its 34 members currently implement statutory minimum wages (OECD, 2015). It appears that the adoption of minimum wage legislation has gathered pace over recent decades, with 9 of the 26 countries having adopted the minimum wage since 1990. Consistent with this trend, the National Minimum Wage (NMW) in Ireland was implemented in 2000.

The policy motives for adopting minimum wages are wide ranging and vary from country to country. However, the policy is primarily implemented in order to ensure a minimum earnings level for low-paid workers who are generally accepted to have low levels of bargaining power. Additional policy objectives relate to the reduction of wage inequality and in-work poverty. With respect to Ireland, a Low Pay Commission was established in 2015 with the remit of making recommendations to government on the most appropriate level of the NMW. In its role, the Low Pay Commission is tasked with recommending a rate that assists as many low-paid workers as possible, to set a rate that is both fair and sustainable, taking into account the likely impacts on factors such as general earnings growth, inequality, employment, unemployment and competitiveness.<sup>1</sup> Thus, the primary objective of the legislation in Ireland is consistent with those of other countries with a focus on ensuring fair pay for workers with low bargaining power. Given the underlying policy context, this report identifies the characteristics of individuals most likely to be impacted by minimum wage decisions in the context of both individual and household traits. By taking this approach, we are attempting to understand the factors driving the higher propensity of minimum wage employment among specific groups such as females, young people and migrants. We are interested in understanding the degree to which the likelihood of minimum wage employment is driven by factors such as personal characteristics (like education and experience), job conditions within particular occupations, or factors related to household composition and caring responsibilities.

The remainder of the paper is organised as follows. Chapter 2 presents an overview of the relevant research literature. Chapter 3 presents a discussion of descriptive statistics relating to the incidence of minimum wage employment in Ireland among various subgroups of the population, as well as statistics on poverty and

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<sup>1</sup> Specified under the National Minimum Wage (Low Pay Commission Act) 2015.

deprivation. It also provides comparative statistics for the UK. Chapter 4 outlines the methodology used, while Chapter 5 presents the results. Chapter 6 concludes.

## CHAPTER 2

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### Background and literature review

From 2007 to 2016, the National Minimum Wage (NMW) in Ireland was €8.65 per hour for an adult worker.<sup>2</sup> However, following the establishment of a Low Pay Commission in 2015 and their subsequent recommendations, recent amendments have been made to the NMW. In January 2016, the rate for an adult worker increased from €8.65 to €9.15 per hour and in Budget 2017 the Irish government announced that the NMW would further increase to €9.25 from January 2017.<sup>3</sup>

When designing and implementing minimum wage policies, it is important to know which segments of the population are most affected by these changes. However, as noted by Belman *et al.* (2015), studies on the minimum wage typically focus on *what* the minimum wage affects, namely focusing on employment outcomes, rather than *who* it affects.<sup>4</sup> From a theoretical perspective, the employment effects of minimum wages differ depending on the model used to describe the labour market. There are two main textbook models of the labour market, both of which predict different outcomes. The model of a perfectly competitive labour market predicts that a binding minimum wage (a minimum wage that is greater than the market clearing wage) will result in a decrease in employment due to demand for labour falling short of supply of labour as a result of the higher wage. However, in the monopsony model, there is one employer (buyer of labour) who has a degree of market power, which enables them to keep wages below the perfectly competitive wage rate. If a minimum wage is set that is higher than the monopsony wage, but lower than (or equal to) the perfectly competitive wage, then the monopsony model predicts an increase in employment.

While not focusing specifically on minimum wage workers, a related strand of the literature considers the characteristics of low-wage workers. Eurostat (2016) looks at low-wage employment in the European Union and finds that, on average, females, young people and those with low levels of education are more likely to be low-wage workers.<sup>5</sup> Specifically, it found that 21.1 per cent of female employees, 30.1 per cent of employees under 30 years of age and 28.2 per cent of employees

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<sup>2</sup> In February 2011, the rate was reduced from €8.65 to €7.65 per hour for an adult worker; however, this decision was reversed in July 2011 and the minimum wage of €8.65 was restored.

<sup>3</sup> There are also sub-minimum rates for workers aged under 18 (€6.48 per hour) and those aged over 18 and in their first year of employment (€7.40 per hour) or their second year of employment (€8.33 per hour). In addition, employees aged over 18 who are in structured training during working hours may receive between 75 per cent and 90 per cent of the NMW.

<sup>4</sup> For example, a large body of literature investigates the employment effects of minimum wage changes, with the evidence pointing to small or zero effects. For recent studies see, for example, Baek and Park (2016), Liu *et al.* (2016), Dolton *et al.* (2015) and Hirsch *et al.* (2015).

<sup>5</sup> Low-wage earners are defined as individuals that earned two-thirds or less of their national median gross hourly earnings.

with low levels of education are low-wage earners, compared to 13.5 per cent of male employees, 13.5 per cent of employees aged 30–59 years and just 7 per cent of employees with a high education level. Lucifora *et al.* (2005) review the evidence on low-wage employment in Europe and find that the low-paying industries tend to be the same across countries; they include retail, hotels and catering, agriculture and personal services.

The empirical literature has identified heterogeneous impacts of minimum wage changes across various subgroups of the population. Dickens *et al.* (2015) find negative employment effects for females working part-time in the UK, with no effect for full-time workers. Autor *et al.* (2016) show that in the US, females are the main beneficiaries of minimum wage related reductions in earnings inequality. In related work, Schafer and Gottschall (2015) find evidence that countries with a higher minimum wage relative to median earnings have lower gender pay gaps. However, Blau and Kahn (2003) find no significant effect of minimum wages on the gender pay gap when collective bargaining coverage is controlled for. Belman *et al.* (2015) find little to no employment effect for teens, young adults and women as a result of minimum wage changes; however, there is evidence to suggest that single mothers with low education are negatively affected. The employment effect for men, where it exists, tends to be driven by an adjustment in hours worked. Liu *et al.* (2016) find that minimum wage increases lead to negative employment effects for 14–18 year olds in the US, with no effect for those aged 19–24 years. Our study, while related to this strand of literature, differs in that we examine the risk factors in both the UK and Ireland that determine whether or not an individual is likely to be a minimum wage worker, such as age, education, gender, family status and occupation, as opposed to different outcomes of minimum wage changes among subgroups of the population.<sup>6</sup> This approach, which focuses on why certain groups are more likely to be in receipt of the minimum wage (as opposed to whether the impact of the minimum wage has differential impacts across groups) is somewhat rare. For Australia, McGuinness and Freebairn (2007) find that a variety of factors related to both personal characteristics and job characteristics are important determinants of being in low pay. Specifically, McGuinness and Freebairn (2007) found that risk of low pay was higher for workers with low levels of educational attainment, aged 21–30 or above 60 years, employed in casual jobs or non-unionised firms or employed part-time.

With respect to the role of individual characteristics, a common theme across countries is that females and part-time workers account for a disproportionate share of minimum wage workers. In the Irish data, we see that females account for

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<sup>6</sup> Eurostat figures show that the minimum wage, expressed as a percentage of the median gross monthly earnings, was 47 per cent in the UK and 44 per cent in Ireland. (See [http://ec.europa.eu/eurostat/statistics-explained/index.php/Minimum\\_wage\\_statistics](http://ec.europa.eu/eurostat/statistics-explained/index.php/Minimum_wage_statistics).)

almost three-quarters of minimum wage employees in 2014 and part-time workers account for over 50 per cent of minimum wage employees, despite making up only 30 per cent of all employees. There is also evidence to suggest that females are particularly penalised as a consequence of being more likely to take time out of the labour market for the purposes of childrearing and other caring responsibilities. Joshi *et al.* (1999) show that women who interrupted their employment at childbirth incurred a subsequent pay penalty, while McGuinness *et al.* (2011) identify taking time out of the labour market for family reasons as a key factor in explaining the gender pay gap in Ireland. The same paper provides some insights into the extent to which the disproportionate presence of females among minimum wage workers is related to family-related decisions by examining responses to a battery of questions on job motives among part-time workers in the SILC data.

Minimum wage employment within developed economies tends to be concentrated within particular sectors and occupations, suggesting that occupational segregation may be responsible for the disproportionate presence of particular groups among minimum wage employees. It should be noted that the debate around occupational segregation is also linked with the issue of family responsibilities on the grounds that females may select into certain occupations that facilitate greater flexibility to combine work and caring roles; nevertheless, there is evidence to suggest that the necessity to make such trade-offs tends to force many females into low-paid occupations. Manning and Petrongola (2008) argue that, in the UK, females working part-time earn less than their full-time counterparts as they are more likely to be employed in jobs that tend to not be available on a full-time basis, suggesting that it is not always possible for a woman with family responsibilities to remain in their chosen occupation. Thus, the higher incidence of low pay among females may be due to the necessity of being forced to switch to lower-paid employment, in order to balance work and caring commitments (Gregory and Connolly, 2008). For the US, England *et al.* (1999) found little evidence to support the view that occupations with disproportionately high shares of female workers had lower pay penalties for intermittent employment, which is consistent with a constrained choice argument. McGinnity and McManus (2007), in a comparative study of Britain, the US and Germany, conclude that a range of factors related to social welfare entitlements, labour market structures and family policies jointly determine cross-country differences in the extent to which females working part-time can achieve a work–family balance, as well as the level of financial penalty associated with this mode of employment.

Finally, considering factors such as household composition as a determining factor for minimum wage employment, our analysis also contributes to the debate in the literature as to whether an NMW is an effective tool for combating poverty. It is



not always clear whether the minimum wage targets the most disadvantaged groups in society. MaCurdy (2015) and Logue and Callan (2016) analyse the distributional impacts of minimum wage increases in the US and Ireland respectively and find that increases in the minimum wage are inefficient for boosting the incomes of poor families, as a substantial portion of the earnings increase goes to families at the higher end of the income distribution. The Irish Low Pay Commission (2016) has also stated that a minimum wage by itself appears to be a blunt instrument for tackling poverty. Likewise, Sabia and Nielsen (2015) find no evidence that the minimum wage reduces poverty in the US due to poor target efficiency. However, Holton and O'Neill (2017) find that the Irish minimum wage is an effective tool in protecting the income of low-skilled workers, particularly during recessions, while Autor *et al.* (2016) find that minimum wages reduce earnings inequality in the lower end of the earnings distribution in the US. Garnero *et al.* (2015) present similar results in a study of 18 European countries.

## CHAPTER 3

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### Data and descriptive statistics

The data used in our analysis come from the Survey of Income and Living Conditions (SILC) microdata, which is provided by the Central Statistics Office (CSO) in Ireland. SILC collects information on income and living conditions by means of household interviews, which take place on a continuous weekly basis throughout the year. The income reference period is the 12 months prior to the date of the interview. As such, the income reference period for 2014 spans from January 2013 to December 2014. Participation in the survey is voluntary for the selected survey respondents. The overall response rate in 2014 was 54 per cent and the sample size was 5,486 households and 14,078 individuals. We focus our analysis on employees aged over 18 years of age. This does not include individuals working on community employment schemes, assisting relatives with unpaid work, undertaking apprenticeships or the self-employed.<sup>7</sup>

The SILC data provide information on gross monthly earnings of employees in their main job and the number of hours usually worked. We use this information to calculate average hourly wage rates for employees. Collins (2015) suggests that given the calculations involved in estimating hourly earnings, it is likely that individuals whose estimated earnings are *near* the minimum wage are in fact *on* the minimum wage. Therefore, Collins (2015) identifies minimum wage earners as individuals whose hourly earnings are +/- 5 per cent from the €8.65 threshold. We use the same +/- 5 per cent cut-off, thereby categorising all employees earning between €8.22 and €9.08 per hour as being on the minimum wage. We find that 4.9 per cent of employees are on the minimum wage in SILC 2014.<sup>8</sup> There are few comprehensive sources of data in Ireland to compare estimates on the minimum wage; this paper draws on the results from the analysis of SILC 2014. Recently, in quarters 2–4 of the Quarterly National Household Survey (QNHS) 2016, the CSO has included new questions about receipt of the National Minimum Wage (NMW). The CSO warns that the QNHS is not designed to be an earnings survey and that one ought to be cautious in interpreting these results. They found that, in that period, between 9 and 11 per cent of employees earned the minimum wage or less (CSO, 2017).<sup>9</sup> Eurostat published figures that are more comparable with our own results. They show that in 2014, between 4 and 5 per cent of employees aged 21

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<sup>7</sup> The Community Employment (CE) scheme aims to support long-term unemployed people to get back to work with part-time and temporary jobs within local communities.

<sup>8</sup> Using the Irish SILC 2014, and taking account of the sub-minima rates distinguishing the tenure history for employees aged 18 and over, will increase the percentage of employees on the minimum wage by 0.2 percentage points only. Only 4 per cent of employees on the minimum wage have a second job.

<sup>9</sup> The QNHS results differ from the SILC analysis done in this paper as the QNHS surveyed people aged 15 years and over while in SILC we restricted the analysis to those aged 18 years and over. Also, at the time of the QNHS survey in 2016, the reference to the minimum wage was €9.15 per hour while it was €8.65 in 2014.

years and over were earning less than 105 per cent of the monthly minimum wage, a result similar to that based on the analysis of SILC 2014 presented in this paper.<sup>10</sup>

We generate descriptive statistics to show the risk of being on the minimum wage by various employee characteristics, comparing Ireland to the UK. In order to generate the comparative statistics for both countries, shown in Tables 1A and 1B, we use the 2014 EU-SILC data provided by Eurostat.<sup>11</sup> The EU-SILC data and the SILC data provided by the CSO should produce the same results, which we verify by calculating the same statistics using both sets of data. The results are broadly the same, apart from small differences, typically in the order of 0.1 to 0.2 percentage points, which may be due to Eurostat and the CSO using different weights. Some differences also exist for some of the socio-demographic variables due to harmonisation processes for the purpose of European comparison. However, this has no impact on the conclusions of the study. Descriptive statistics relating to gender, age, nationality, education, sector of work and job characteristics (hours and contract type) are shown in Table 1A. There are slight differences in the occupational categories for Ireland (SOC, 2010) and the UK (ISCO-08) and as such, we present these statistics separately in Table 1B so that the differences in occupational categories are clear.

We consider both the incidence of NMW employment and its composition by key characteristics. For example, the incidence measures the proportion of females and migrants who are in receipt of the NMW, while the compositional analysis assesses the proportion of NMW employees who are female or who are migrants. For each characteristic, we also show the ratio of the percentage of employees on the NMW to the percentage of all employees, thereby allowing us to clearly see whether certain characteristics are over- or under-represented among NMW employees. A figure greater than 1 indicates that a given characteristic is over-represented among NMW workers relative to all workers. This approach is useful for illustrating that while certain groups may be disproportionately represented among NMW workers, the overwhelming majority of employees (95 per cent) earn above the NMW and, therefore, have a low NMW risk. In terms of incidence, Table 1A shows that 4.9 per cent of adult employees were on the minimum wage in Ireland. Females were over twice as likely to be earning the minimum wage relative to males; specifically, 6.9 per cent of female employees were in receipt of the NMW compared to 2.7 per cent of male employees. This compares to male and female rates of 4.3 per cent and 6.7 per cent in 2013, respectively. Given that the sample of NMW workers in the SILC data is relatively small, we cannot rule out the

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<sup>10</sup> See [http://ec.europa.eu/eurostat/statistics-explained/index.php/Minimum\\_wage\\_statistics](http://ec.europa.eu/eurostat/statistics-explained/index.php/Minimum_wage_statistics).

<sup>11</sup> The EU-SILC data are used for Tables 1A and 1B. The CSO SILC data are used throughout the remainder of the paper for the analysis relating to Ireland only. Due to sample size constraints, our descriptive analysis of occupations focuses only on sales and elementary occupations, which contain the highest percentage of MW employment out of all occupations.

possibility that the increased gender difference observed in the 2014 data reflects temporary sampling disparities, as opposed to a permanent shift in the composition of the NMW. Consequently, we would stress that the recent observed increase in the female NMW risk should be treated with some caution. Nevertheless, the finding that females are much more likely to be in receipt of the NMW seems consistent with international trends and therefore it is unlikely that this finding is due to sampling error.

**TABLE 1A INCIDENCE AND COMPOSITION OF MINIMUM WAGE EMPLOYMENT IN IRELAND AND THE UK BASED ON GENDER, NATIONALITY, AGE, EDUCATION, SECTOR OF EMPLOYMENT AND JOB CHARACTERISTICS (%), EU-SILC 2014**

	Minimum wage incidence (%)		Composition				% employees on NMW / % all employees	
			% employees on the NMW		% all employees			
	Ireland	UK	Ireland	UK	Ireland	UK	Ireland	UK
<b>Gender</b>								
Male	2.7	5.7	26.3	37.6	48.1	50.5	0.55	0.74
Female	6.9	9.7	73.7	62.4	51.9	49.5	1.42	1.26
Total	4.9	7.7	100	100	100	100	1.00	1.00
<b>Nationality</b>								
National	4.2	7.4	74.5	86.4	86.5	90.3	0.86	0.96
Foreign citizen	9	10.8	25.5	13.6	13.5	9.7	1.89	1.40
<b>Age group</b>								
18–29	13.9	11.9	53.3	37	18.5	24	2.88	1.54
30–39	3.6	6	22.9	17.8	31	23.1	0.74	0.77
40–49	2.3	6.9	12.1	22.7	25.5	25.4	0.47	0.89
50–59	2.2	6.1	8.4	15.7	18.9	19.8	0.44	0.79
60+	2.9	6.8	3.3	6.8	6	7.7	0.55	0.88
<b>Education</b>								
Primary	5.2	11.9	4.9	2.8	4.8	1.8	1.02	1.56
Secondary	7.2	10.6	46.6	74.4	31.9	53.9	1.46	1.38
Post-secondary and tertiary	4.5	3.9	48.4	22.8	63.3	44.3	0.76	0.51
<b>NACE sector</b>								
Agriculture & industry	[3.5]	6.6	[10.7]	11.5	15.4	13.4	0.69	0.86

TABLE 1A (CONTD.)

	Minimum wage incidence (%)		Composition				% employees on NMW / % all employees	
			% employees on the NMW		% all employees			
	Ireland	UK	Ireland	UK	Ireland	UK	Ireland	UK
Wholesale and retail	9	14.4	25.1	26.7	13.4	14.3	1.87	1.87
Accommodation and food	15.3	20.2	22.8	14.3	7.2	5.5	3.17	2.60
Health and social work	[3.5]	7.4	[10.3]	14.4	14.3	15.2	0.72	0.95
Public admin and defence	*	4.1	*	9	17.8	17.2	*	0.52
Other	4.3	5.4	28.1	24.1	31.8	34.4	0.88	0.70
<b>Hours worked per week</b>								
1–19hrs	11.7	19.3	30.8	23.5	12.9	9.4	2.39	2.50
20–34.9 hrs	6.4	11.7	29.7	28.7	22.6	19	1.31	1.51
35hrs+	3	5.2	39.5	47.7	64.5	71.6	0.61	0.67
<b>Work status</b>								
Full-time	3.3	6	48.8	59.6	71.8	77.2	0.68	0.77
Part-time	9.2	13.6	51.2	40.4	28.2	22.8	1.82	1.77
<b>Contract type</b>								
Permanent job/ contract of unlimited duration	4.4	7.5	84.6	94.9	89.6	96	0.94	0.99
Temporary job/ work contact of limited duration	7	9.7	15.4	5.1	10.4	4	1.48	1.28
Total number of cases	3,981	8,420						

Note: The asterisk (\*) indicates not enough observations to be reported. Parentheses [ ] indicate where there are 20–50 observations in a cell. Such estimates are considered to have a wider margin of error and should be treated with caution.

**TABLE 1B INCIDENCE AND COMPOSITION OF MINIMUM WAGE EMPLOYMENT BY OCCUPATION IN IRELAND AND THE UK (%) EU-SILC 2014**

Occupation	Minimum wage incidence (%)	% employees on the NMW	% all employees	% employees on NMW / % all employees
<b>Occupation, Ireland (SOC2010)</b>				
Sales and customer service occupations	14.4	26.7	9.3	2.87
Elementary occupations	13.4	36.8	13.8	2.67
<b>Occupation, UK (ISCO-08)</b>				
Services and sales workers	14.5	36.5	19.4	1.88
Elementary occupations	18.7	22.8	9.4	2.43

*Note:* Due to some temporary issue of comparability in the EU-SILC data, the occupational results for Ireland are based on the Standard Occupational Classification 2010 (SOC2010) drawn from the CSO SILC 2014, while the UK results are based on the ISCO-08 drawn from the Eurostat EU-SILC 2014. These two occupational classifications still allow, however, broad occupational comparison between Ireland the UK.

At 9 per cent, the incidence of being a minimum wage employee among non-Irish nationals was over twice that of Irish employees. With regard to age, young persons in the 18–29 age category had the highest incidence of NMW employment, at 13.9 per cent. Workers with lower levels of schooling were more likely to fall into the minimum wage category relative to graduates. Also, the incidence of NMW employment was almost three times higher among part-time workers compared to their full-time equivalents and was higher for workers with temporary jobs (7 per cent) compared to those with permanent jobs (4.4 per cent). The incidence of NMW employment was particularly high among individuals working between 1 and 19 hours weekly (11.7 per cent), those employed in the accommodation and food sector (15.3 per cent), and those in the sales (14.4 per cent) and elementary (13.4 per cent) occupations.<sup>12</sup>

The overall incidence of NMW employment in the UK in 2014, at 7.7 per cent, was higher than in Ireland.<sup>13</sup> Some differences were identified regarding particular groups; relative to the Irish case, the risk of minimum wage employment in the UK is particularly high for part-time workers (13.6 per cent), those working 1–19 hours per week (19.3 per cent) and individuals working in accommodation and food (20.2 per cent) and wholesale and retail sectors (14.4 per cent). Notwithstanding these differences, however, the incidence of minimum wage employment with respect to various characteristics was broadly similar between the two countries in terms of gender, nationality, age, education, occupation and type of work.

<sup>12</sup> This includes occupations such as cleaners, general operatives, packers and waitresses.

<sup>13</sup> We adopt the same measurement approach to defining a minimum wage worker. For the UK, the 2014 cut-off point is defined as £6.50 plus or minus 5 per cent (£6.18 to £6.83).

Table 1A also examines the composition of minimum wage employment across various worker characteristics for both the UK and Ireland. It is not surprising, given the higher relative incidences, that females, young people and migrants are over-represented among the population of NMW employees in 2014. Females accounted for almost three-quarters of NMW workers in the period, while young people (18–29 years) and migrants made up 53 per cent and 26 per cent of NMW employees, respectively.<sup>14</sup> These figures compare to average employment shares of females (51.9 per cent), young people (18.5 per cent) and migrants (13.5 per cent), demonstrating that these groups are disproportionately represented among NMW employees relative to what would be expected given their overall presence in the labour market.

When comparing the two countries, it is important to note that given the higher overall incidence of NMW employment in the UK, there will be a tendency for all UK percentages to be scaled up. Moreover, when making cross-country comparisons, it is also important to consider the incidence of worker characteristics among the entire working population, which we also show in Table 2. We see that the overall pattern, in terms of the incidence of minimum wage employment, is broadly similar across the two countries in respect of gender, age, education and job-related characteristics. However, there is a greater overrepresentation of young people on the minimum wage in Ireland compared to the UK, which can be seen by referring to the last two columns in Table 1A. The percentage of NMW workers who are foreign citizens is higher in Ireland than in the UK (25.5 per cent versus 13.6 per cent), which is not explained by the fact that foreign citizens in Ireland also make up a larger proportion of the entire workforce compared to the UK (13.5 per cent versus 9.7 per cent).

In Table 2 we report the composition of minimum wage employment in Ireland by household type, level of work intensity, welfare dependence and social class. Relative to their general presence within the labour market, employees from single-adult households with children, as well as those in multi-adult households (with or without children), households with low levels of work intensity and households with high welfare dependence, are over-represented among the sample of minimum wage workers. We assess the relative risk of poverty and deprivation among NMW employees using the following three measurement approaches: (1) At risk of poverty (belongs to a household where total income is

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<sup>14</sup> In Ireland and the UK, women aged 18–29 years accounted for 39 per cent and 22 per cent, respectively, all of NMW workers. This is consistent with the higher incidences for female and younger workers in Ireland compared to the UK.

below 60 per cent of the median); (2) Deprived<sup>15</sup>; and (3) Consistent poverty.<sup>16</sup> Table 3 shows that the risk of deprivation is higher among NMW workers than among non-NMW workers. Our results suggest that while the majority of beneficiaries of minimum wage increases may come from households that are not economically disadvantaged, in relative terms the minimum wage does impact economically disadvantaged households. Specifically, the risk of poverty for minimum wage workers is 17 per cent, compared to 3.3 per cent for non-minimum wage workers. As such, the results appear consistent with previous Irish studies (Logue and Callan, 2016) and those from the international literature (Maître *et al.*, 2012; Marx and Nolan, 2012), which indicate limited overlap between low wage and income poverty. As Logue and Callan (2016) show in the Irish case, the main contributing factor to this is the presence of other earners in the household. Logue and Callan (2016) found that low-paid workers have a risk of poverty of 15–17 per cent (depending on the presence of children) when they are the sole earner in the household, while it ranges between 1 per cent and 2 per cent (depending on the presence of children) for multiple-earner households. Our analysis shows that the majority of NMW workers are living in multiple-earner households. As such, the results appear consistent with the view that the vast bulk of individuals with high poverty risks tend not to be in employment.<sup>17</sup> The poverty and deprivation patterns with respect to gender, as shown in Table 4, are mixed. Female NMW workers are more likely to be at risk of poverty (20.2 per cent compared to 7.8 per cent for males); however, NMW workers of both genders have deprivation rates of 28 per cent. With respect to consistent poverty, the risk is one and a half times greater for male NMW employees compared to their female counterparts, at 7.6 per cent and 5.0 per cent respectively. This suggests that while male NMW workers are less likely than female NMW workers to be at risk of poverty, those male workers that are at risk of poverty are more likely than their female counterparts to simultaneously experience deprivation.

There are similar mixed results for young people and non-Irish nationals. However, the vast majority of NMW workers are not at risk of poverty under each of the metrics considered here. Nevertheless, NMW workers aged 18–29 years are more likely to be at risk of poverty than older age groups, but less likely to experience

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<sup>15</sup> Individuals are defined as deprived if they indicate that they are unable to afford two or more of the following: two pairs of strong shoes, a warm waterproof overcoat, buy new (not second-hand) clothes, eat meal with meat, chicken, fish (or vegetarian equivalent) every second day, have a roast joint or its equivalent once a week, had to go without heating during the last year through lack of money, keep the home adequately warm, buy presents for family or friends at least once a year, replace any worn out furniture, have family or friends for a drink or meal once a month, have a morning, afternoon or evening out in the last fortnight for entertainment.

<sup>16</sup> This describes a situation whereby an individual is simultaneously at risk of poverty and deprived.

<sup>17</sup> In 2014 only 19 per cent of those aged 18 and over that are at risk of poverty self-defined their activity as working (authors' calculations).



deprivation. Likewise, non-Irish nationals are more likely to be at risk of poverty but less likely to experience deprivation than Irish nationals.

**TABLE 2 COMPOSITION OF EMPLOYEES ON THE MINIMUM WAGE IN IRELAND (%), SILC 2014**

	% all employees	% employees on the NMW	% employees on NMW / % all employees
<b>Household type</b>			
1 adult 18 years+	6.8	2	0.29
2 adults 18 years+	22	16.9	0.77
3+ adults 18 years+	18.5	30.4	1.64
2 adults, 1 child	13.5	4.1	0.30
2 adults, 2 children	16.7	10.9	0.65
2 adults, 3 children	5.9	6.9	1.17
2 adults, 4+ children	1.6	0.5	0.31
1 adult, children	3.2	9	2.81
3 adults+, children	11.7	19.2	1.64
Total	100	100	
<b>Household work intensity</b>			
Very low work intensity [0–0.2]	2.7	6.1	2.26
Low work intensity [0.2–0.45]	8.5	21.8	2.56
Medium work intensity [0.45–0.55]	13.7	11.1	0.81
High work intensity [0.55–0.85]	27.6	34.8	1.26
Very high work intensity [0.85–1]	47.6	26.2	0.55
Total	100	100	
<b>Welfare dependence</b>			
Social transfers <25% disp house income	76.5	60.8	0.79
25%<=Social transfers <50%	13.4	18.7	1.40
50%<=Social transfers <75%	7.3	12.7	1.74
Social transfers =>75% disp hous income	2.8	7.9	2.82
Total	100	100	

**TABLE 2 (CONTD.)**

	% all employees	% employees on the NMW	% employees on NMW / % all employees
<b>Social class</b>			
Higher salariat	9.7	3.5	0.36
Lower salariat	28.1	5	0.18
Intermediate	21.6	15.6	0.72
Lower services, sales, technical	23.2	38	1.64
Routine	17.4	37.9	2.18
Total	100	100	
Total number of cases	3872	198	

Note: The household work intensity Eurostat measure is the ratio of the total time spent at work by all working age adults within a household, during the income reference period, over the total theoretical time they could have worked.

Table 5 shows the primary earner status of employees in 2014. Within the labour market, 75 per cent of male employees and 60 per cent of female employees describe themselves as primary earners. However, just under 50 per cent of NMW workers, irrespective of gender, describe themselves as primary earners. When we focus on households with more than one earner, the data show that NMW employees are more likely to be secondary earners and this is particularly true for females. Just 13 per cent of NMW-earning females in multiple-earner households are primary earners, compared to 19.5 per cent of NMW-earning males.

**TABLE 3 RISK OF POVERTY AND DEPRIVATION AMONG WORKERS IN IRELAND, SILC 2014**

	Not on NMW	On NMW	Total
<b>At risk of poverty (60% median income)</b>	3.3	17.0	3.9
<b>Deprived</b>	19.5	28	19.9
<b>Consistent poverty</b>	1.6	5.7	1.8

**TABLE 4 RISK OF POVERTY AND DEPRIVATION BY SOCIO-ECONOMIC GROUP IN IRELAND, SILC 2014**

	Employees on the minimum wage		
	At risk of poverty (60% median income)	Deprived	Consistent poverty
<b>Male</b>	7.8	27.9	7.6
<b>Female</b>	20.2	28.0	5.0
<b>Young people (18–29)</b>	23.3	22.9	7.0
<b>All other age groups (30+)</b>	10.1	33.6	4.1
<b>Irish</b>	13.3	32.9	6.4
<b>Non-Irish</b>	27.5	14.1	3.5
<b>Total</b>	17.0	28	5.7

In Table 6 we show the distribution of part-time and full-time employees by minimum wage status. Part-time workers account for 51 per cent of all NMW employees and 56 per cent of female NMW employees.<sup>18</sup> Therefore, uncovering the motives for the uptake of low-paid, part-time work among females is important to understand the factors underlying the gender imbalance in NMW employment. Part-time employees in the SILC data were asked a series of questions regarding their motives for accepting their current job, which provides us with some insight into the motives for accepting NMW employment, albeit one that is restricted to the part-time component of the labour market. As shown in Table 7, just under three-quarters of male part-time NMW workers describe themselves as under-employed, meaning they want to work more hours or work in a full-time job, compared to just under one-third of female part-time NMW workers. The comparable figure for all male employees, as opposed to just those on the NMW, is 58 per cent, whereas the figure for female employees remains unchanged. Just under one-quarter of part-time females accepted their part-time NMW job because it enabled them to look after children or other people; however, this was not a factor influencing the decision of part-time NMW male employees. Females may face constraints that impact their ability to transition from part-time to full-time employment. This could be due to the gendered division of work in the home, if there is an expectation that women's paid work will fit their family life (McRae, 2003). Welfare policies may also create disincentives for women with children to

<sup>18</sup> The figure of 51 per cent is the sum of males and working part-time (9.7 per cent + 41.3 per cent) and 56 per cent is derived from the percentage of part-time female workers on the NMW among all women on the NMW (41.3 per cent / 41.3 per cent + 33 per cent).

return to full-time work (Tomlinson, 2006). In Ireland, the high cost of childcare is a particularly important factor influencing women's employment decisions. Finally, just over 20 per cent of male and female part-time NMW workers accepted their current job as it enabled them to combine work with education and training.<sup>19</sup>

**TABLE 5 PRIMARY EARNER STATUS OF EMPLOYEES IN IRELAND, SILC 2014**

	% all employees	% employees on the MW
<b>Male</b>	75.5	47.5
<b>Female</b>	59.7	49.0
<b>Young (18–29)</b>	48.8	40.2
<b>Non-Irish nationals</b>	66	43
<b>All employees</b>	67.2	48.6
When there is more than one earner in the household:		
<b>Male</b>	62.6	19.5
<b>Female</b>	32.6	13.2
<b>Young (18–29)</b>	30.1	12.8
<b>Non-Irish nationals</b>	48.8	26.1
<b>All employees</b>	47.5	14.9

**TABLE 6 DISTRIBUTION OF PART-TIME AND FULL-TIME EMPLOYEES BY NMW STATUS IN IRELAND, SILC 2014**

	All employees	Employees on the MW
<b>Male working full-time</b>	41.2	16
<b>Male working part-time</b>	6.2	9.7
<b>Female working full-time</b>	33	33
<b>Female working part-time</b>	19.6	41.3
<b>Total</b>	100	100

<sup>19</sup> From the SILC survey we cannot establish whether or not part-time NMW workers that are also in education or in training are full-time students. However, they all define their principal economic status as being at work as opposed to being in education or training.

**TABLE 7 REASON FOR WORKING PART-TIME AMONG WORKERS BY GENDER IN IRELAND, SILC 2014**

	Employees on the MW		All employees	
	Male	Female	Male	Female
<b>Undergoing education or training</b>	23.5	22.5	18.6	8.8
<b>Want to work more hours, but cannot find a full-time job or work more hours in this job</b>	72.5	32.5	57.5	32.5
<b>Do not want to work more hours</b>	3.9	9.2	8.3	17.2
<b>Number of hours in all jobs are considered as full-time job</b>		3.4	3.6	2.1
<b>Looking after children or other people</b>		23.8	3.8	27.0
<b>Other reasons</b>		8.6	8.2	12.4
<b>Total</b>	100	100	100	100

## CHAPTER 4

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### Multivariate analysis

We use the pooled (2013 and 2014) SILC data to identify the extent to which various worker, household and job characteristics influence the probability that an employee will earn the NMW. We adopt a forward stepwise approach to the analysis by beginning with a very basic specification that controls for gender, age, education and nationality, before adding other variables related to household composition, location, contractual status, occupation and sector. The advantage of this approach is that it enables us to get a sense of the extent to which the higher NMW incidence of particular groups is driven by other characteristics that are heavily concentrated within that group. For instance, if we observe that the increased probability of females being minimum wage workers falls when we add household composition to the model, this would suggest that the higher proportions of females earning the NMW are, at least partially, driven by a higher concentration within certain household types. As with the descriptive analysis above, the models exclude workers under the age of 18 and, consequently, the estimates refer to the probability of being in receipt of the adult NMW rate. In our empirical analysis, the probability of being on the minimum wage is a function of personal, human capital and job-related variables. Specifically,

$$\begin{aligned} \text{MinWage}_i = & \alpha + \beta_1 \text{Gender}_i + \beta_2 \text{Nationality}_i + \beta_3 \text{Age}_i + \beta_4 \text{Education}_i + \beta_5 \text{Location}_i + \\ & \beta_6 \text{Family}_i + \beta_7 \text{Work}_i + \beta_8 \text{Firm}_i + \beta_9 \text{Occupation}_i + \varepsilon_i \end{aligned} \quad (1)$$

where  $\text{MinWage}_i$  is a binary variable that equals one if individual  $i$  earns in or around the minimum wage.<sup>20</sup> We control for the individual's gender, nationality (Irish or non-Irish), age, education and geographic location (Dublin, border/midland/west, or south and east). In addition, we include explanatory variables to indicate the individual's family status (number of adults and children, single/married, primary earner), work status (type of contract, hours worked, job tenure) as well as variables capturing firm characteristics (public/private sector and firm size). Regarding occupation, we report results from two separate specifications; one based on the individual's occupation and one based on the sector in which they work.

Estimating equation (1) using ordinary least squares (OLS) corresponds to a linear probability model. However, this is problematic as the estimated probabilities are not constrained to the 0-1 interval. Therefore, we estimate the probit model,

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<sup>20</sup> Defined as +/- 5 per cent of the adult minimum wage.

$$Pr(\text{MinWage}_i = 1|x_i) = F(x_i'\beta) \quad (2)$$

where  $F(\cdot)$  is the cumulative distribution function (CDF) of the normal distribution and  $x_i$  denotes the vector of independent variables referred to in equation (1). We estimate the model on the entire pooled sample of individuals from the 2013 and 2014 SILC data. In addition, we separately estimate the model for various subgroups, including males, females, non-Irish nationals and young people (18–29 years).

## CHAPTER 5

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### Results

Table 8 shows the results from our probit model (equation 1). As we are pooling two years of data, 2013 and 2014, and given the longitudinal component of the SILC data, some individuals appear in both 2013 and 2014. Specifically, there are 6,480 observations; 4,090 individuals appear just once and 1,195 appear in both years. Accordingly, we cluster standard errors at the individual level. We adopt a forward stepwise approach and report results from six different specifications. The most basic is specification (1), which includes gender as the only explanatory variable. We gradually add additional covariates to each specification as follows: age, nationality, education and marital status in specification (2); region, family type and primary earner status in specification (3); and private/public sector, hours worked, contract type, job tenure and firm size in specification (4). Specifications (5) and (6) are the fully specified models; the only difference between them being that specification (5) includes occupation controls and (6) includes sectoral controls.

The results from specification (1) of the pooled model indicate that, before controlling for other factors, being female raises a worker's likelihood of being in receipt of the NMW by 3 percentage points.<sup>21</sup> This is in line with the descriptive statistics that also show a gap of approximately 3 percentage points between men and women. The relatively low impact of gender on the risk of NMW employment reflects the fact that while females have a relatively higher exposure to the minimum wage than males, the overwhelming majority of employees of both genders earn above the NMW. As such, being female in itself only slightly increases the probability that a worker will earn the NMW.

The results from specifications (2) and (3) show that characteristics related to a worker's age, nationality and education have a larger impact on the probability of earning the NMW than gender. Specifically, people aged 18–29 years are between 6 and 9 percentage points more likely to earn the NMW than those aged 50–59 years, while non-Irish nationals are 5 percentage points more likely to earn the NMW than Irish employees. With respect to education, employees qualified to lower second level (or below) are 6 to 7 percentage points more likely to earn the NMW than graduates.

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<sup>21</sup> The marginal effects are shown in the tables of results, as are the standard errors of the marginal effects. For continuous independent variables, this indicates the change in the probability for an infinitesimal change in the variable. For dummy variables, the marginal effects indicate the discrete change in the probability.



Other noteworthy aspects of the model include the finding that employees in single-adult households with children and households consisting of three or more adults and children are more likely to earn the NMW.<sup>22</sup> While this does not contribute to the gender differential, it highlights potential barriers faced by lone parents in accessing the labour market, with the models suggesting that much of the 4 percentage point disadvantage faced by this group can be explained by job type and sector.

**TABLE 8 MINIMUM WAGE PROBIT MODEL: POOLED SILC DATA (2013 AND 2014)**

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
<b>Male (ref)</b>						
Female	0.03*** (0.005)	0.03*** (0.005)	0.02*** (0.005)	0.01*** (0.004)	0.01*** (0.004)	0.01*** (0.004)
<b>Irish (ref)</b>						
Non-Irish national		0.05*** (0.011)	0.05*** (0.011)	0.03*** (0.008)	0.01*** (0.006)	0.03*** (0.007)
<b>Age 50–59 (ref)</b>						
18–29		0.09*** (0.020)	0.06*** (0.018)	0.02 (0.011)	0.01 (0.008)	0.01 (0.010)
30–39		0.02** (0.009)	0.01 (0.009)	0.00 (0.007)	0.00 (0.006)	0.00 (0.007)
40–49		0.00 (0.008)	-0.00 (0.008)	-0.01 (0.006)	-0.01 (0.005)	-0.01 (0.006)
Over 60		0.00 (0.012)	0.01 (0.013)	0.01 (0.010)	0.01 (0.008)	0.01 (0.010)
<b>Further/Higher educ (ref)</b>						
Lower 2nd or less		0.07*** (0.013)	0.06*** (0.012)	0.03*** (0.009)	0.00 (0.005)	0.03*** (0.008)
Upper 2nd, Tech or Voc		0.03*** (0.006)	0.02*** (0.006)	0.01** (0.004)	-0.00 (0.003)	0.01 (0.004)
<b>Couple (ref)</b>						
Single		0.01* (0.006)	0.02** (0.008)	0.01 (0.006)	0.00 (0.005)	0.01 (0.005)
<b>Dublin (ref)</b>						
Border/Midland/West			0.02*** (0.008)	0.01** (0.006)	0.01 (0.005)	0.01* (0.006)
South and East			0.02*** (0.006)	0.01** (0.005)	0.01 (0.004)	0.01* (0.004)
<b>2 adults with children (ref)</b>						
1 adult no child			-0.01* (0.008)	-0.01 (0.006)	-0.01 (0.005)	-0.01 (0.006)
2 adults no children			-0.00 (0.007)	-0.00 (0.005)	0.00 (0.004)	0.00 (0.005)

<sup>22</sup> The results are robust to the inclusion of a dummy variable which indicates whether the employee has a dependent child. For example, in three-adult households with children, one of the adults may be an adult child of the other two adult parents. In this case, the adult child has no dependents, whereas the adult parents do. Including this dummy variable does not result in a statistically significant coefficient; neither does it substantially alter the other results.

TABLE 8 (CONTD.)

	(1)	(2)	(3)	(4)	(5)	(6)
3+ adults no child			0.01 (0.008)	0.01 (0.007)	0.00 (0.005)	0.01 (0.007)
1 adult with children			0.04** (0.019)	0.02* (0.013)	0.01 (0.010)	0.02* (0.013)
3+ adults with children			0.03** (0.011)	0.02** (0.008)	0.01 (0.006)	0.02** (0.008)
<b>Not primary earner (ref)</b>						
Primary earner			-0.02*** (0.006)	-0.01 (0.004)	-0.00 (0.003)	-0.01 (0.004)
<b>Public sector (ref)</b>						
Private sector				0.02*** (0.004)	0.01*** (0.003)	0.02*** (0.004)
<b>Permanent contract (ref)</b>						
Temporary contract				-0.00 (0.006)	0.00 (0.005)	-0.00 (0.006)
Occasional contract				0.01 (0.008)	0.00 (0.006)	0.00 (0.007)
<b>Over 35 hours worked (ref)</b>						
1–19 hours				0.02*** (0.008)	0.01 (0.005)	0.02** (0.007)
20–34 hours				0.01 (0.005)	-0.00 (0.004)	0.00 (0.005)
<b>10+ years tenure (ref)</b>						
0 years				0.06*** (0.019)	0.04*** (0.015)	0.06*** (0.019)
1–4 years				0.04*** (0.008)	0.03*** (0.007)	0.04*** (0.008)
5–9 years				0.01* (0.006)	0.01 (0.005)	0.01** (0.006)
<b>Firm size 50+ (ref)</b>						
1–10 employees				0.03*** (0.007)	0.03*** (0.006)	0.03*** (0.007)
11–19 employees				0.01* (0.007)	0.01* (0.006)	0.01* (0.007)
20–49 employees				0.01 (0.007)	0.01 (0.006)	0.01 (0.006)
<b>Occupation manager + profess+ associate profess + clerical and secretarial (ref)</b>						
Skilled trades					0.03** (0.013)	
Caring, leisure and other services					0.05*** (0.014)	
Sales and customer services					0.08*** (0.017)	
Process, plant and machine operatives					0.03**	

TABLE 8 (CONTD.)

	(1)	(2)	(3)	(4)	(5)	(6)
					(0.015)	
Elementary					0.09***	
					(0.016)	
<b>Tertiary<sup>23</sup> (ref)</b>						
Industry						0.00
						(0.006)
Agric + forestry + fishing						0.01
						(0.016)
Wholesale and retail trade						0.01*
						(0.006)
Transport and storage						-0.01
						(0.009)
Accommodation and food						0.03***
						(0.011)
Observations	6,480	6,480	6,480	6,480	6,480	6,480

Notes: Spec (1) controls for gender. Spec (2) adds controls for age, nationality, education and marital status. Spec (3) adds controls for region, family type and primary earner status. Spec (4) adds controls for private/public sector, hours worked, contract type, job tenure and firm size. Spec (5) includes occupational controls and spec (6) sectoral controls. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Looking at the job characteristics of workers, being employed in a small firm raises the probability of earning the NMW by 3 percentage points, while a job in sales or elementary occupations raises the likelihood of NMW employment by 8 and 9 percentage points respectively. With regard to sector, specification (6) shows that being employed in the accommodation and food sector increases the probability of earning the minimum wage by 3 percentage points. There is also a regional effect, with workers in the border/midland/west and south/east regions being 1 to 2 percentage points more likely to be in minimum wage employment than workers in Dublin. Unsurprisingly, workers in the private sector are more likely to earn the minimum wage, as are workers with low tenure and those working a small number of hours. It should be noted that tenure and age are positively correlated.<sup>24</sup> Therefore, disentangling the separate effects of these two variables on the probability of minimum wage employment is difficult; some of the apparent tenure effect may instead be related to age. The coefficient for the age variable (18–29 years) is relatively large and statistically significant in specifications (1) to (3). However, when we add in the tenure controls in specification (4), the age coefficient becomes smaller and not statistically significant, whereas the tenure variable is positive and statistically significant. The fact that minimum wage work

<sup>23</sup> finance + insurance + prof + scientific + admin support+ pub admin and defence + educ + health and social work + other services

<sup>24</sup> For example, the correlation coefficient between having 1 to 4 years' tenure and being aged 18–29 years is 0.3.

is associated with low tenure may also be attributable to high turnover in jobs that are relatively unstable and offer little job security.

With respect to gender, we see the estimated coefficient declines from 3 to 2 percentage points when we control for family type and primary earnings status (specification (2)). The risk falls to 1 percentage point when we include controls for job type and when we include controls for occupation and sector. The empirical analysis suggests that the female disadvantage arises primarily from the types of jobs females undertake and the sector and occupation within which these jobs are located. Table 8 also shows that young people aged 18–29 years are 9 percentage points more likely to be in receipt of the NMW relative to those aged 50–59. The youth penalty disappeared when job tenure, job characteristics, occupation and sector were included in the model. The results suggest that the higher NMW risk faced by young people is explained by factors such as lower levels of experience and sector of employment. Finally, while it is also the case that much of the higher relative risk of both migrants and individuals with low levels of schooling is accounted for when we control for both job type and sector, a risk of up to 3 percentage points cannot be explained by the data in our models.

When we estimate a broadly similar model for the UK (Table A1 in the appendix), we get a very similar pattern to Ireland. The effects of gender, nationality, education, single-parent households and firm size on the likelihood of minimum wage employment in the UK strongly resemble the Irish results. A number of differences do exist. Specifically, working 1 to 19 hours in the UK has a stronger effect on the probability of being a minimum wage worker, compared to the Irish data. There are also differences relating to occupation, with craft and protective services occupations having a greater increase on minimum wage employment and sales having a smaller effect, compared to Ireland.

We also estimate equation (1) separately for females, males, non-Irish nationals and young people (18–29 years); the results are shown in Tables A2–5 respectively, in the appendix. It should be noted that the results of the separate models are not directly comparable as they are estimated on distinct samples; however, they do give us a sense of the extent to which different factors are at play within the subgroups. The nationality effect is particularly strong when we focus on females only (Table A2); depending on the specification, non-Irish females are 2–7 percentage points more likely to be minimum wage workers than Irish females. Likewise, education is an important contributing factor as females with lower second-level education or less are 3–9 percentage points more likely to be minimum wage workers, compared to females with tertiary education. The non-Irish national impact was lowest in the specification controlling for occupation, suggesting that non-Irish national females are heavily concentrated in professions

where low wages are more common, such as sales or elementary occupations.<sup>25</sup> Focusing on young people (those aged 18–29 years; see Table A5) indicates that being female and being a non-Irish national increases the probability of being a minimum wage worker, by 4–5 percentage points and 6–8 percentage points respectively.

For males, the nationality and education effects are significant but smaller than they are for females; non-Irish males are 1–4 percentage points more likely to be on the minimum wage than Irish males, and males with low education levels are 0–5 percentage points more likely to be minimum wage workers than well-educated males (Table A3). Males employed in sales occupations are most likely to be on the NMW.

Focusing on non-Irish nationals, occupation is particularly important; non-Irish workers in sales occupations are 19 percentage points more likely to be on the minimum wage than non-Irish professionals (Table A4). Other important factors are gender, age and tenure. Non-Irish females are 4–7 percentage points more likely to be on the minimum wage than non-Irish males; younger non-Irish nationals (18–29 years) are 7–12 percentage points more likely to be on the minimum wage than older non-Irish nationals (50–59 years); and non-Irish workers with 1–4 years' tenure are 7–11 percentage points more likely to be on the minimum wage than experienced workers (those with 10 years' experience or more).

In terms of occupation, similarly strong effects are found when we focus on young people aged 18–29 years (Table A5), where individuals in sales occupations are 18 percentage points more likely to be minimum wage workers. The gender effect is also important; young women are 3–5 percentage points more likely to be on the minimum wage than young men. Finally, being employed within a small firm (1 to 10 employees) raises the probability that a young person will be paid the NMW by 10 percentage points.

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<sup>25</sup> 'Elementary' is a diverse occupational category consisting of professions that do not easily fall into any of the other definitional groupings.

## CHAPTER 6

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### Summary and conclusions

From 2007 to 2016, the National Minimum Wage (NMW) in Ireland was €8.65 per hour for an adult worker. However, following the establishment of a Low Pay Commission in 2015 and their subsequent recommendations, recent amendments have been made to the NMW. The rate for an adult worker increased from €8.65 to €9.15 per hour in January 2016, with a further increase to €9.25 from January 2017.

When designing and implementing minimum wage policies, it is important to know which segments of the population are most affected by these changes. In this study, we address gaps in the literature by investigating the relative incidence of minimum wage employment across distinct groups of workers in the labour market and identify the risk factors that increase an individual's probability of being a minimum wage worker. We use Irish data from 2013 and 2014 that includes a rich set of personal, family and job-related characteristics. We find that just under 5 per cent of workers were in receipt of the NMW in 2014, a figure below the comparable UK rate of 7.7 per cent. The proportion of female employees earning the NMW was 6.9 per cent, which compares to an incidence of 2.7 per cent among male employees. The compositional analysis indicates that females account for almost three-quarters of NMW employees. However, multivariate analysis suggests that a good deal of the observed gender differential was related to the type of jobs more typically undertaken by female NMW employees. Specifically, females earning the NMW were more concentrated in certain sectors and occupations, and had a higher propensity to have lower occupational tenure, to be employed in small firms and to work part-time. We found that the gender differential decreased only slightly when various household and family characteristics are controlled for, such as secondary earning status and the presence of children, suggesting that the type of jobs undertaken by low-paid female workers may be as important in explaining the NMW status as factors related to household or caring responsibilities. Given that the majority of female NMW workers are employed part-time, we were able to exploit a battery of questions on the motives for taking up part-time work to explore the issue further. While 72 per cent of male workers indicated that they were in part-time employment because they could not secure a full-time position, the comparable figure for females was 33 per cent. Just under one-quarter of females working part-time accepted their part-time NMW job because it enabled them to look after children or other people. This may be due to constraints facing females, such as the high cost of childcare, which limits their ability to transition from part-time to full-time employment. A further 20 per cent of female part-time NMW workers

accepted their current job because it enabled them to combine work with education and training.

Overall, the evidence suggests that factors related to occupational segregation may be as important as family responsibilities in understanding the higher incidence of NMW employment among females. However, the two factors are unlikely to be independent as family circumstances are likely to play a substantial role in the job search behaviour of a large proportion of female workers, particularly those seeking part-time employment.

At 9 per cent, the incidence of minimum wage pay among non-Irish nationals was over twice that of Irish employees. With regard to age, young people aged 18–29 years had the highest exposure to NMW employment, at 13.9 per cent. Workers with lower levels of schooling were more likely to fall into the minimum wage category relative to graduates. The youth disadvantage became statistically insignificant within the multivariate framework when factors related to job type were included (such as part-time work, temporary contract, working in a small firm). As was the case for gender, these results suggest that much of the non-Irish national and low educational disadvantages are explained by a combination of job type variables and a higher relative concentration in low-paid occupations. Nevertheless, a substantial non-Irish national penalty remains in specifications containing all relevant controls and this is a potential cause for concern.

Our analysis also contributes to the debate in the literature as to whether an NMW is an effective tool for combating poverty. While this is rarely stated as an explicit objective of the NMW, minimum and living wage levels are often key elements in the debate surrounding in-work poverty. We find that while minimum wage workers have an above-average tendency to belong to economically disadvantaged households, they make up only a relatively small proportion of the total population of minimum wage employees. Over one-quarter (28 per cent) of employees on the minimum wage in 2014 were from deprived households, compared to 19.5 per cent of workers earning above the NMW. Therefore, minimum wage increases will also benefit a large number of individuals who are not from economically disadvantaged or deprived households. As found previously by Logue and Callan (2016), our analysis shows that the majority of NMW workers are in multiple-earner households and as a consequence have a lower risk of poverty. The estimates confirm previous analysis, by both the Irish Low Pay Commission and Logue and Callan (2016), that the NMW represents a relatively ineffective policy tool for reducing poverty in Ireland as, similar to the UK, household poverty risk may be more a problem of joblessness (Nickel, 2004; Watson *et al.*, 2012).

From a policy perspective, the research raises a number of important questions. While females' risk of earning the NMW is low, it is clear that, for many females on the NMW, their low income relates to their part-time status and higher concentration in sectors such as 'wholesale and retail', 'accommodation and food' and 'other'. Further research is required to understand the extent to which females who choose to work part-time can do so within their chosen occupations or are forced to switch to lower-paying sectors and occupations that are typically associated with part-time employment. Given that sectoral effects also appear to play a role in explaining the higher relative risk experienced by females, non-Irish nationals and young people, further investigation is required into the reasons underlying low pay in sectors where NMW employees are heavily concentrated.



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## APPENDIX

TABLE A1 MINIMUM WAGE PROBIT MODEL FOR THE UK: POOLED DATA (EU-SILC 2013 AND 2014)

	(1)	(2)	(3)	(4)	(5)	(6)
<b>VARIABLES</b>						
Female	0.03*** (0.004)	0.03*** (0.004)	0.03*** (0.004)	0.01** (0.004)	0.01*** (0.004)	0.01*** (0.004)
Foreign citizen		0.03*** (0.009)	0.03*** (0.008)	0.03*** (0.008)	0.01** (0.007)	0.02*** (0.008)
<b>Age 50–59 (ref)</b>						
18–29		0.04*** (0.009)	0.04*** (0.009)	0.04*** (0.009)	0.03*** (0.008)	0.03*** (0.008)
30–39		-0.01 (0.006)	-0.01 (0.006)	-0.00 (0.006)	0.00 (0.006)	-0.00 (0.006)
40–49		-0.01 (0.005)	-0.01* (0.005)	-0.00 (0.005)	-0.00 (0.005)	-0.00 (0.005)
Over 60		0.01 (0.008)	0.01 (0.008)	-0.01 (0.006)	-0.00 (0.006)	-0.01 (0.006)
<b>Ref group: less than 3rd level</b>						
Education_Thirdlevel		-0.06*** (0.004)	-0.06*** (0.004)	-0.05*** (0.004)	-0.03*** (0.004)	-0.04*** (0.004)
<b>Ref: not single</b>						
Single		0.00 (0.005)	-0.00 (0.005)	-0.00 (0.005)	-0.00 (0.004)	-0.00 (0.005)
<b>Ref group: 2 adults with children</b>						
1 adult no child			0.01 (0.008)	0.02** (0.008)	0.01* (0.008)	0.01* (0.008)
2 adults no children			-0.00 (0.005)	0.01* (0.005)	0.01 (0.005)	0.01 (0.005)
3+ adults no child			0.01 (0.007)	0.02** (0.007)	0.01* (0.006)	0.01** (0.007)
1 adult with children			0.04*** (0.012)	0.03** (0.010)	0.02* (0.009)	0.03** (0.010)
3+ adults with children			0.03*** (0.011)	0.03*** (0.010)	0.02** (0.009)	0.03*** (0.010)
<b>Ref group: Permanent contract</b>						
contract_temporary				0.01 (0.009)	0.01 (0.009)	0.01 (0.010)
<b>Over 35 hours worked (ref)</b>						
1–19 hours				0.11*** (0.011)	0.06*** (0.009)	0.09*** (0.010)
20–34 hours				0.05*** (0.007)	0.03*** (0.006)	0.04*** (0.006)
<b>Firm size 50+ (ref)</b>						
1–10 employees				0.03*** (0.006)	0.03*** (0.006)	0.03*** (0.006)
11–19 employees				0.03*** (0.007)	0.03*** (0.007)	0.03*** (0.007)
20–49 employees				0.03*** (0.006)	0.02*** (0.005)	0.03*** (0.006)

**TABLE A1 (CONTD.)**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Ref group: managers</b>						
Craft					0.07***	
					(0.007)	
Personal protective services					0.09*	
					(0.047)	
Sales					0.03***	
					(0.011)	
Plant and machinery operatives					0.07***	
					(0.014)	
Elementary					0.12***	
					(0.012)	
<b>Ref group: admin/health/public admin and defence</b>						
Industry						0.01
						(0.006)
Agriculture and forestry						0.03
						(0.027)
Wholesale and retail						0.05***
						(0.007)
Accommodation and food						0.06***
						(0.012)
Observations	14,711	14,711	14,711	14,711	14,711	14,711

Notes: Spec (1) controls for gender. Spec (2) adds controls for age, nationality, education and marital status. Spec (3) adds controls for family type. Spec (4) adds controls for hours worked, contract type and firm size. Spec (5) includes occupational controls and spec (6) sectoral controls. Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.01$ .

**TABLE A2 MINIMUM WAGE PROBIT MODEL (FEMALES ONLY), SILC 2013 AND 2014**

	(1)	(2)	(3)	(4)	(5)
<b>VARIABLES</b>					
<b>Irish (ref)</b>					
Non-Irish national	0.07*** (0.017)	0.07*** (0.017)	0.05*** (0.014)	0.02** (0.010)	0.04*** (0.013)
<b>Age 50–59 (ref)</b>					
18–29	0.11*** (0.026)	0.07*** (0.024)	0.02 (0.016)	0.01 (0.012)	0.02 (0.015)
30–39	0.03** (0.014)	0.03* (0.014)	0.02 (0.012)	0.01 (0.010)	0.01 (0.012)
40–49	0.00 (0.013)	-0.00 (0.012)	-0.00 (0.010)	-0.01 (0.008)	-0.00 (0.010)
Over 60	-0.01 (0.016)	0.00 (0.018)	-0.00 (0.013)	-0.00 (0.010)	-0.00 (0.012)
<b>Further/Higher Eeuc (ref)</b>					
Lower 2nd or less	0.09*** (0.022)	0.07*** (0.020)	0.04** (0.015)	-0.00 (0.008)	0.03** (0.014)
Upper 2nd, Tech or Voc	0.05*** (0.010)	0.04*** (0.009)	0.02** (0.007)	0.00 (0.005)	0.01* (0.007)
<b>Couple (ref)</b>					
Single	0.01 (0.009)	0.02* (0.010)	0.01 (0.008)	0.00 (0.006)	0.00 (0.008)
<b>Dublin (ref)</b>					
Border/Midland/West		0.04*** (0.013)	0.02** (0.010)	0.01 (0.008)	0.02* (0.009)
South and East		0.03*** (0.009)	0.02*** (0.008)	0.01* (0.006)	0.01** (0.007)
<b>2 adults with children (ref)</b>					
1 adult no child		-0.03** (0.012)	-0.02** (0.009)	-0.02*** (0.006)	-0.02** (0.009)
2 adults no children		-0.00 (0.010)	0.00 (0.008)	-0.00 (0.007)	0.00 (0.008)
3+ adults no child		0.02* (0.015)	0.02* (0.012)	0.02 (0.010)	0.02* (0.013)
1 adult with children		0.05** (0.024)	0.02 (0.016)	0.02 (0.013)	0.03* (0.017)
3+ adults with children		0.03* (0.016)	0.01 (0.012)	0.01 (0.009)	0.01 (0.011)
<b>Not primary earner (ref)</b>					
Primary earner		-0.01 (0.008)	-0.00 (0.006)	0.00 (0.005)	-0.00 (0.006)
<b>Public sector (ref)</b>					
Private sector			0.02*** (0.006)	0.02*** (0.006)	0.02** (0.007)
<b>Permanent contract (ref)</b>					
Temporary contract			0.01 (0.010)	0.01 (0.010)	0.01 (0.011)
Occasional contract			0.02	0.01	0.02

TABLE A2 (CONTD.)

	(1)	(2)	(3)	(4)	(5)
			(0.015)	(0.012)	(0.014)
<b>Over 35 hours worked (ref)</b>					
1–19 hours			0.04***	0.01	0.03***
			(0.012)	(0.009)	(0.011)
20–34 hours			0.00	-0.00	0.00
			(0.007)	(0.006)	(0.007)
<b>10+ years tenure (ref)</b>					
0 years			0.07***	0.05**	0.08***
			(0.028)	(0.022)	(0.028)
1–4 years			0.05***	0.03***	0.05***
			(0.012)	(0.010)	(0.012)
5–9 years			0.01	0.00	0.01
			(0.009)	(0.007)	(0.008)
<b>Firm size 50+ (ref)</b>					
1–10 employees			0.03***	0.03***	0.04***
			(0.010)	(0.009)	(0.010)
11–19 employees			0.02*	0.02	0.02*
			(0.011)	(0.010)	(0.011)
20–49 employees			-0.00	-0.00	-0.00
			(0.008)	(0.007)	(0.008)
<b>Occupation manager + profess+ associate profess + clerical and secretarial (ref)</b>					
Skilled trades				0.07*	
				(0.040)	
Caring, leisure and other services				0.06***	
				(0.017)	
Sales and customer services				0.08***	
				(0.020)	
Process, plant and machine operatives				0.02	
				(0.036)	
Elementary				0.13***	
				(0.026)	
<b>Tertiary (ref)</b>					
Industry					0.01
					(0.012)
Agric + forestry + fishing					-0.01
					(0.021)
Wholesale and retail trade					0.01
					(0.009)
Transport and storage					-0.00
					(0.031)
Accommodation and food					0.07***
					(0.020)
Observations	3,500	3,500	3,500	3,500	3,500

Notes: Spec (1) adds controls for age, nationality, education and marital status. Spec (2) adds controls for region, family type and primary earner status. Spec (3) adds controls for private/public sector, hours worked, contract type, job tenure and firm size. Spec (4) includes occupational controls and spec (5) sectoral controls. Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.01$ .

**TABLE A3 MINIMUM WAGE PROBIT MODEL (MALES ONLY), SILC 2013 AND 2014**

	(1)	(2)	(3)	(4)	(5)
<b>VARIABLES</b>					
<b>Irish (ref)</b>					
Non-Irish national	0.03*** (0.013)	0.04*** (0.013)	0.01** (0.007)	0.01 (0.005)	0.01* (0.007)
<b>Age 50–59 (ref)</b>					
18–29	0.08*** (0.033)	0.04* (0.026)	0.01 (0.010)	0.00 (0.007)	0.01 (0.010)
30–39	0.00 (0.011)	0.00 (0.011)	-0.01 (0.006)	-0.00 (0.004)	-0.00 (0.005)
40–49	-0.00 (0.010)	0.00 (0.009)	-0.01 (0.005)	-0.00 (0.004)	-0.01 (0.005)
Over 60	0.01 (0.017)	0.02 (0.017)	0.01 (0.011)	0.01 (0.009)	0.01 (0.011)
<b>Further/Higher educ (ref)</b>					
Lower 2nd or less	0.05*** (0.014)	0.04*** (0.013)	0.02** (0.008)	0.00 (0.004)	0.02** (0.008)
Upper 2nd, Tech or Voc	0.01 (0.007)	0.01 (0.007)	0.00 (0.004)	-0.00 (0.002)	0.00 (0.004)
<b>Couple (ref)</b>					
Single	0.01 (0.009)	0.01 (0.011)	0.01 (0.006)	0.00 (0.005)	0.01 (0.006)
<b>Dublin (ref)</b>					
Border/Midland/West		0.01 (0.009)	0.00 (0.005)	-0.00 (0.003)	0.00 (0.005)
South and East		0.01 (0.007)	0.00 (0.004)	0.00 (0.003)	0.00 (0.004)
<b>2 adults with children (ref)</b>					
1 adult no child		-0.01 (0.010)	0.00 (0.007)	0.00 (0.006)	0.00 (0.007)
2 adults no children		0.00 (0.009)	0.00 (0.005)	0.00 (0.004)	0.00 (0.005)
3+ adults no child		-0.01 (0.008)	-0.00 (0.005)	-0.00 (0.003)	-0.00 (0.004)
3+ adults with children		0.02* (0.014)	0.02 (0.010)	0.01 (0.007)	0.01 (0.009)
<b>Not primary earner (ref)</b>					
Primary earner		-0.02*** (0.008)	-0.01* (0.005)	-0.01 (0.004)	-0.01* (0.005)
<b>Public sector (ref)</b>					
Private sector			0.01*** (0.003)	0.01*** (0.002)	0.01*** (0.003)
<b>Permanent contract (ref)</b>					
Temporary contract			-0.00 (0.004)	-0.00 (0.003)	-0.00 (0.004)
Occasional contract			-0.00 (0.006)	-0.00 (0.004)	-0.00 (0.005)
<b>Over 35 hours worked (ref)</b>					
1–19 hours			0.00 (0.006)	-0.00 (0.003)	0.00 (0.006)



**TABLE A3 (CONTD.)**

	(1)	(2)	(3)	(4)	(5)
20–34 hours			0.01	0.00	0.01
			(0.006)	(0.004)	(0.006)
<b>10+ years tenure (ref)</b>					
0 years			0.03	0.02	0.03
			(0.021)	(0.016)	(0.021)
1–4 years			0.03***	0.02**	0.03***
			(0.010)	(0.008)	(0.010)
5–9 years			0.02**	0.01*	0.02**
			(0.008)	(0.006)	(0.008)
<b>Firm size 50+ (ref)</b>					
1–10 employees			0.03***	0.02***	0.03***
			(0.009)	(0.007)	(0.009)
11–19 employees			0.01	0.00	0.01
			(0.008)	(0.005)	(0.007)
20–49 employees			0.02**	0.02**	0.02**
			(0.009)	(0.007)	(0.009)
<b>Occupation manager + profess+ associate profess + clerical and secretarial (ref)</b>					
Skilled trades				0.02*	
				(0.009)	
Caring, leisure and other services				0.04	
				(0.031)	
Sales and customer services				0.10***	
				(0.035)	
Process, plant and machine operatives				0.02*	
				(0.012)	
Elementary				0.05***	
				(0.017)	
<b>Tertiary (ref)</b>					
Industry					-0.00
					(0.004)
Agric + forestry + fishing					0.01
					(0.012)
Wholesale and retail trade					0.00
					(0.005)
Transport and storage					-0.01
					(0.004)
Accommodation and food					-0.00
					(0.005)
Observations	2,964	2,964	2,964	2,964	2,964

Notes: Spec (1) adds controls for age, nationality, education and marital status. Spec (2) adds controls for region, family type and primary earner status. Spec (3) adds controls for private/public sector, hours worked, contract type, job tenure and firm size. Spec (4) includes occupational controls and spec (5) sectoral controls. Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.01$ .

**TABLE A4 MINIMUM WAGE PROBIT MODEL (NON-IRISH NATIONALS ONLY), SILC 2013 AND 2014**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>VARIABLES</b>						
<b>Male (ref)</b>						
Female	0.07*** (0.022)	0.06*** (0.021)	0.06*** (0.021)	0.05*** (0.018)	0.03* (0.017)	0.04** (0.018)
<b>Age 50–59 (ref)</b>						
18–29		0.12* (0.067)	0.12* (0.067)	0.07 (0.057)	0.07 (0.053)	0.07 (0.056)
30–39		0.04 (0.039)	0.05 (0.039)	0.04 (0.035)	0.03 (0.030)	0.04 (0.035)
40–49		-0.03 (0.036)	-0.02 (0.037)	-0.01 (0.033)	-0.02 (0.026)	-0.02 (0.031)
Over 60		0.05 (0.084)	0.05 (0.085)	0.04 (0.076)	0.03 (0.066)	0.03 (0.071)
<b>Further/Higher educ (ref)</b>						
Lower 2nd or less		-0.04 (0.035)	-0.04 (0.036)	-0.02 (0.033)	-0.03 (0.022)	-0.02 (0.033)
Upper 2nd, Tech or Voc		0.03 (0.023)	0.03 (0.023)	0.01 (0.018)	0.00 (0.015)	0.01 (0.018)
<b>Couple (ref)</b>						
Single		-0.02 (0.021)	-0.03 (0.022)	-0.03 (0.018)	-0.03** (0.014)	-0.03 (0.017)
<b>Dublin (ref)</b>						
Border/Midland/West			0.01 (0.029)	-0.00 (0.023)	-0.02 (0.016)	-0.01 (0.023)
South and East			-0.01 (0.024)	-0.01 (0.021)	-0.03 (0.018)	-0.02 (0.021)
<b>2 adults with children (ref)</b>						
1 adult no child			0.03 (0.053)	0.03 (0.047)	0.04 (0.049)	0.03 (0.047)
2 adults no children			0.01 (0.027)	0.01 (0.023)	0.03 (0.022)	0.01 (0.023)
3+ adults no child			0.07 (0.050)	0.06 (0.044)	0.05 (0.041)	0.06 (0.044)
1 adult with children			-0.02 (0.048)	-0.03 (0.034)	-0.02 (0.027)	-0.03 (0.036)
3+ adults with children			0.01 (0.034)	-0.00 (0.028)	-0.00 (0.022)	-0.00 (0.028)
<b>Not primary earner (ref)</b>						
Primary earner			-0.06** (0.023)	-0.03 (0.020)	-0.02 (0.016)	-0.03 (0.019)
<b>Public sector (ref)</b>						
Private sector				0.04** (0.022)	0.02 (0.024)	0.04** (0.022)
<b>Permanent contract (ref)</b>						
Temporary contract				-0.03 (0.023)	-0.02 (0.016)	-0.02 (0.023)
Occasional contract				-0.01 (0.033)	-0.01 (0.027)	-0.01 (0.031)
<b>Over 35 hours worked (ref)</b>						

TABLE A4 (CONTD.)

	(1)	(2)	(3)	(4)	(5)	(6)
1–19 hours				0.04	0.01	0.04
				(0.036)	(0.026)	(0.036)
20–34 hours				0.01	0.00	0.01
				(0.023)	(0.018)	(0.022)
<b>10+ years tenure (ref)</b>						
0 years				0.12	0.07	0.10
				(0.089)	(0.071)	(0.083)
1–4 years				0.11**	0.07*	0.10**
				(0.043)	(0.037)	(0.041)
5–9 years				0.04	0.02	0.04
				(0.033)	(0.028)	(0.032)
<b>Firm size 50+ (ref)</b>						
1–10 employees				0.10***	0.09***	0.09***
				(0.037)	(0.034)	(0.038)
11–19 employees				0.08*	0.08*	0.07
				(0.045)	(0.041)	(0.046)
20–49 employees				0.05	0.04	0.05
				(0.036)	(0.032)	(0.036)
<b>Occupation manager + profess+ associate profess + clerical and secretarial (ref)</b>						
Skilled trades					0.02	
					(0.036)	
Caring, leisure and other services					0.13**	
					(0.065)	
Sales and customer services					0.19**	
					(0.075)	
Process, plant and machine operatives					0.05	
					(0.057)	
Elementary					0.18***	
					(0.052)	
<b>Tertiary (ref)</b>						
Industry						-0.01
						(0.028)
Agric + forestry + fishing						0.03
						(0.059)
Wholesale and retail trade						0.00
						(0.024)
Transport and storage						-0.03
						(0.033)
Accommodation and food						0.02
						(0.027)
Observations	816	816	816	816	816	816

Notes: Spec (1) controls for gender. Spec (2) adds controls for age, nationality, education and marital status. Spec (3) adds controls for region, family type and primary earner status. Spec (4) adds controls for private/public sector, hours worked, contract type, job tenure and firm size. Spec (5) includes occupational controls and spec (6) sectoral controls. Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.01$ .

**TABLE A5 MINIMUM WAGE PROBIT MODEL (18-29 YEARS ONLY), SILC 2013 AND 2014**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>VARIABLES</b>						
<b>Male (ref)</b>						
Female	0.05** (0.022)	0.05** (0.022)	0.05** (0.022)	0.04* (0.021)	0.04* (0.021)	0.03 (0.021)
<b>Irish (ref)</b>						
Non-Irish national		0.08** (0.036)	0.08** (0.038)	0.07** (0.038)	0.06 (0.036)	0.07* (0.038)
<b>Further/Higher educ (ref)</b>						
Lower 2nd or less		0.06 (0.070)	0.04 (0.065)	0.04 (0.060)	0.01 (0.049)	0.04 (0.059)
Upper 2nd, Tech or Voc		0.06** (0.023)	0.05** (0.023)	0.03 (0.022)	0.01 (0.021)	0.03 (0.022)
<b>Couple (ref)</b>						
Single		0.05* (0.028)	0.03 (0.032)	0.01 (0.034)	0.01 (0.033)	0.01 (0.035)
<b>Dublin (ref)</b>						
Border/Midland/West			0.08** (0.036)	0.05 (0.033)	0.03 (0.030)	0.06 (0.034)
South and East			0.03 (0.026)	0.02 (0.024)	0.01 (0.023)	0.02 (0.025)
<b>2 adults with children (ref)</b>						
1 adult no child			-0.03 (0.061)	0.00 (0.074)	0.02 (0.077)	0.01 (0.077)
2 adults no children			-0.01 (0.038)	0.02 (0.039)	0.03 (0.040)	0.02 (0.040)
3+ adults no child			0.03 (0.041)	0.03 (0.038)	0.03 (0.037)	0.03 (0.039)
1 adult with children			0.17 (0.106)	0.14 (0.103)	0.12 (0.096)	0.16 (0.108)
3+ adults with children			0.09* (0.050)	0.07 (0.046)	0.06 (0.043)	0.08* (0.048)
<b>Not primary earner (ref)</b>						
Primary earner			-0.04* (0.024)	-0.02 (0.022)	-0.02 (0.021)	-0.02 (0.023)
<b>Public sector (ref)</b>						
Private sector				0.04 (0.028)	0.02 (0.031)	0.04 (0.030)
<b>Permanent contract (ref)</b>						
Temporary contract				0.01 (0.027)	0.02 (0.028)	0.01 (0.028)
Occasional contract				0.03 (0.041)	0.03 (0.038)	0.03 (0.042)
<b>Over 35 hours worked (ref)</b>						
1–19 hours				0.05* (0.032)	0.01 (0.029)	0.04 (0.033)
20–34 hours				-0.01 (0.026)	-0.03 (0.023)	-0.02 (0.026)
<b>10+ years tenure (ref)</b>						
0 years				0.20	0.20	0.21

TABLE A5 (CONTD.)

	(1)	(2)	(3)	(4)	(5)	(6)
				(0.150)	(0.149)	(0.155)
1–4 years				0.11	0.10	0.12
				(0.076)	(0.073)	(0.079)
5–9 years				0.05	0.06	0.05
				(0.099)	(0.100)	(0.103)
<b>Firm size 50+ (ref)</b>						
1–10 employees				0.10***	0.10***	0.10***
				(0.033)	(0.032)	(0.033)
11–19 employees				0.06	0.06	0.06
				(0.039)	(0.038)	(0.038)
20–49 employees				0.09**	0.08*	0.08*
				(0.043)	(0.041)	(0.043)
<b>Occupation manager + profess+ associate profess + clerical and secretarial (ref)</b>						
Skilled trades					0.05	
					(0.058)	
Caring, leisure and other services					0.12**	
					(0.059)	
Sales and customer services					0.18***	
					(0.052)	
Process, plant and machine operatives					0.10	
					(0.083)	
Elementary					0.16***	
					(0.052)	
<b>Tertiary (finance + insurance + prof + scientif + admin support+ pub admin and defence + educ + health and social work + other services) (ref)</b>						
Industry						-0.01
						(0.034)
Agric + forestry + fishing						-0.05
						(0.049)
Wholesale and retail trade						0.04
						(0.029)
Transport and storage						0.02
						(0.035)
Accommodation and food						
Observations	965	965	965	965	965	965

Notes: Spec (1) controls for gender. Spec (2) adds controls for age, nationality, education and marital status. Spec (3) adds controls for region, family type and primary earner status. Spec (4) adds controls for private/public sector, hours worked, contract type, job tenure and firm size. Spec (5) includes occupational controls and spec (6) sectoral controls. Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.01$

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