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Earnings and Low Pay in the Republic Of Ireland

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Abstract As signs of economic recovery continue to emerge, issues relating to quality of life, living standards, the provision of public services and adequacy of income are returning to the policy sphere. Included among these are issues related to earnings and pay levels. This paper examines low pay both in the context of the distribution of earnings within the income distribution and the distribution of hourly earnings across all employees. While the analysis in the paper focuses on the latter, the paper grounds that assessment within the context of earnings among all workers, both employees and the self-employed. Overall the paper aims to provide greater clarity on the overall shape of earnings across the state and in particular to establish a more robust evidence base for our understanding of the nature and shape of low pay. The analysis implies some implications for policy and these are also explored.

Keywords: earnings distribution, low pay, Ireland
JELs: E24, D21, J31, J38

1. INTRODUCTION

As signs of economic recovery continue to emerge, issues relating to quality of life, living standards, the provision of public services and adequacy of income are returning to the policy sphere. Included among these are issues related to earnings and pay levels. In early 2015 the Republic of Ireland's Government appointed a Low Pay Commission to examine issues around low pay including minimum hourly rates and the conditions of workers, in particular those experiencing precarious employment patterns. This focus complements a broader consideration of pay levels in both the public and private sector and the emergence of a method for estimating an annual living wage for workers in the Republic.[1]

This paper examines low pay both in the context of the distribution of earnings within the income distribution and the distribution of hourly earnings across all employees. While the analysis in the paper focuses on the latter, it is relevant to ground that assessment within the context of earnings among all workers, both employees and the self-employed. Overall the paper aims to provide greater clarity on the overall shape of earnings across the state and in particular to establish a more robust evidence base for our understanding of the nature and shape of low pay.

The paper is structured as follows. Section 2 considers the context for this examination including previous assessments of earnings and low pay in Ireland. The data and methods used in the analysis are then outlined in Section 3. Next Section 4 examines the distribution of earnings across all workers and sets this in the context of the overall income distribution. Section 5 then focuses on the distribution of employee hourly income and in particular those at the bottom of that distribution, the low paid, examining both the composition of those who are low paid and the risk of low pay faced by employees with different characteristics. Complementing this, multivariate methods are used in Section 6 to isolate the effects of various characteristics on the probability of being low paid. Finally, in Section 7 the paper considers some policy issues implied by the analysis before concluding.

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[1] See www.livingwage.ie and Collins (2015c).

2. CONTEXT

A growing international literature on the segmentation and polarisation of the labour market over recent decades underpins an enhanced interest in the emergence of divides in the labour market.[2] As O'Farrell (2013) noted, the emergence of these trends in Ireland was somewhat masked by the economic boom, and in particular the construction boom, and is also likely to have been impeded by the scale and pace of that booms transition to a bust. However, as recovery emerges and employment levels grow, attention has begun to turn towards the nature of employment and earnings, echoing the aforementioned international literature.

Although arguments for decent working conditions and adequate pay remained a core objective of trade unions throughout boom and bust, renewed interest in this area was formalised in early 2015 with the establishment by Government of a Low Pay Commission. It has been tasked with reviewing, on an annual basis, the appropriateness of the minimum wage alongside examining broader labour market issues relating to the conditions of workers. Critical to such assessments is a deeper understanding of earnings and pay – the focus of this paper.

While there are quarterly publications of employment numbers, hours worked and wage trends[3], micro-level data on Ireland's earnings distribution has been infrequent. For the most part, previous assessments have been based on the *Structure of Earnings Survey*, a four-yearly Europe wide survey, which last occurred in 2010.[4] There have also been assessments of tax records although this data is often at the tax case (individuals and jointly assessed couples) rather than at the individual employee level.[5] Similarly, studies have used other administrative sources, such as redundancy records, to profile earnings or analysed the output from the various quarterly and annual/occasional statistical publications.[6]

This paper profiles the earnings distribution using micro-level data from a nationwide household income and livings standards survey (see next section) echoing earlier assessments by Blackwell (1989) using the *1980 Household Budget Survey*, Blackwell and Nolan (1990) and Nolan (1993) using the *1987 ESRI Survey of Income Distribution, Poverty and Use of State Services*, Nolan (1998) using the *1994 Living in Ireland Survey (LIS)* and Barrett et al (2000) using the 1997 *LIS*.[7] Although there have been other assessments of the scale and composition of those on low pay, and in particular those impacted by the introduction of, and changes to, the minimum wage, there has been limited assessment throughout most of the last decade.[8] Annual earnings data from the OECD also uses household survey data but only concentrates on full-time employees whereas the focus here is on all employees both full-time and part-time.[9]

3. DATA AND METHODS

The analysis in this paper draws from an examination of the micro data from the 2013 Central Statistics Office (CSO) *Survey on Income and Living Conditions* (SILC). This survey is part of an annual Europe wide household living standards survey and collects income and living standards information from a representative national sample. The data was released in late January 2015 and comprised responses from 12,663 individuals in 4,922 households.

Like all survey data sources, the SILC dataset, and consequently any analysis drawn from it, is subject to some caveats. In particular, income surveys tend to experience lower response rates from high income households.

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[2] See O'Farrell (2013: 3-9) and OECD (2014) for an overview.

[3] See various editions of CSO *Quarterly National Household Survey* (QNHS) and *CSO Earnings and Labour Costs Quarterly Survey*.

[4] A stand-alone *Structure of Earnings Survey* has since been discontinued with data now estimated using administrative sources. Previous assessments include Eurostat (2012), O'Farrell (2013), Healy (2014) and TASC (2015). In the 1980s Blackwell (1986, 1987) used an earlier version of this survey, the 1979 survey on the *Structure of Earnings in Industry, Distribution, Credit and Insurance*, to examine low pay in the Republic of Ireland. MacFlynn (2014) has also examined earnings and low pay in Northern Ireland using data from the UK *Annual Survey of Hours and Earnings* (ASHE) while Whittaker and Hurrell (2013) look at the issue for the UK as a whole.

[5] See for example Social Justice Ireland (2014: 282-283) and NERI (2014: 75-76). McCarthy et al (2012) use administrative data from both Revenue Commissioners and CSO to examine the earnings distribution and those earning less than 60% of median earnings.

[6] See Walsh and Whelan (1976) who used redundancy records, Walsh (2012) used CSO earnings and hours worked data and Bergin et al (2012) who used *National Employment Survey* data.

[7] Barrett, Callan and Nolan (1997) used both the 1987 *Survey of Income Distribution, Poverty and Use of State Services* and the *1994 Living in Ireland Survey* to look at the earnings distribution and returns to education while Callan and Reilly (1993) use the 1987 survey, and Hughes and Nolan (1997) use the 1994 survey, to examine earnings and trade union membership and earnings and various classifications of labour market segmentation respectively.

[8] See for example Nolan (1998), Nolan et al (2002), O'Neill (2004), O'Neill et al (2006) and Nolan et al (2006).

[9] The OECD data is outlined in table A1 of the appendix.

Similarly, successful sampling can be challenging among low-income households and minorities while those in institutions are excluded from the sample.[10] While the data includes a probability weight variable to correct for under-representation and non-response, and these weights are used in the analysis, deficits at both ends of the distribution remain. However, the collected income data is reconciled by the CSO with administrative tax and welfare records in an attempt to ensure its accuracy. Overall, the SILC data remains the most detailed and robust data source available for Irish individual and household income.

Using this dataset the paper focuses on direct income received as earnings for both employees and the self-employed. The focus on employee income is further developed by focusing on all those in the dataset indicating that their principal economic status is 'at work' and who are employees. The data includes values for the gross monthly earnings of employees in their main job and the number of hours employees usually work in their main job. Taken together these allow an estimation of the average hourly wage rate for an employee in their main job. Overall the 2013 SILC sample includes 4,449 earners of whom 3,825 receive employee income and 654 receive self-employment income (profit); there are a number of individuals receiving both. The hourly earnings data reflects a sample of 3,369 employees.

To assess the representativeness of the SILC data, Table 1 compares values generated from that data with other labour market indicators published by the CSO for the reference year. Overall, the SILC data compares well to the other labour market indicators.[11] There are challenges comparing the SILC results with measures of the number of employees in the *Quarterly National Household Survey* (QNHS). The latter uses the International Labour Office (ILO) method of measuring those who are at work, capturing all those working for pay, profit or in a family business for more than one hour a week as employed. Conversely, the SILC data is based on a measure of a person's principal economic status, the main thing that the person does. As a person may be employed for a few hours per week, for example working part-time, but may regard themselves as principally a student, retired, unemployed or working in the home, estimates of the total number of employees using these two approaches are likely to differ fairly substantially. In an attempt to take account of this, the table compares the number of individuals with any employee income (from SILC) with the QNHS measure of employees.

Table 1 Representativeness of the SILC Labour Market Estimates

Indicator	CSO Labour Market Data	SILC Analysis
Annual average earnings	€35,830	€35,487
Average hourly earnings	€20.75	€20.63
Average weekly hours	31.55hrs	33.22hrs
Employees / Any Employee Income	1,555,775	1,530,624
Employees % male	49.0%	47.5%
Employees % female	51.0%	52.5%

Notes: CSO labour market data is for 2013 and where data is quarterly it is averaged over the four quarters to provide an annual figure. Average annual earnings is from the *Earnings and Labour Costs Annual 2013*. Hourly earnings and hours worked data is from the *Earnings and Labour Costs Quarterly Survey*. Employee estimates are from the *Quarterly National Household Survey*. SILC values for annual average earnings and hourly earnings are calculated for the sample of employees for whom hourly earnings data is calculable.

As the SILC data is focused only on those whose principal economic status is 'at work' and who are employees, the number of workers represented by the hourly earnings analysis below (section 5) is a smaller figure than the total number with any employee income (section 4).

[10] These sampling challenges, common to all households surveys, are explored further in: Groves and Couper (1998), Fitzgerald et al (1998), Goyder (1987), Nathan (1999), Cheesbrough (1993), Lynn and Clarke (2002) and Uhrig (2008). Callan et al (2012) and Keane et al (2013) examine the 2008 and 2010 SILC microdata sets and adopt an alternative weighting approach, to that of the CSO, in an attempt to make the data more representative of the tax paying and welfare receiving population.

[11] A study by Foley et al (2015) examined the consistency of the SILC data compared to *Household Budget Survey* results. It also found that SILC provided "robust and reliable" measures (2015: 7).

Section 6 of the paper uses more formal multivariate methods to isolate the effect of certain characteristics on low pay. Using a logit model with a binary dependent variable (where 1=low pay), it examines a number of relationships implied by the research literature and the decompositions in section 5.

4. EARNINGS AND THE INCOME DISTRIBUTION

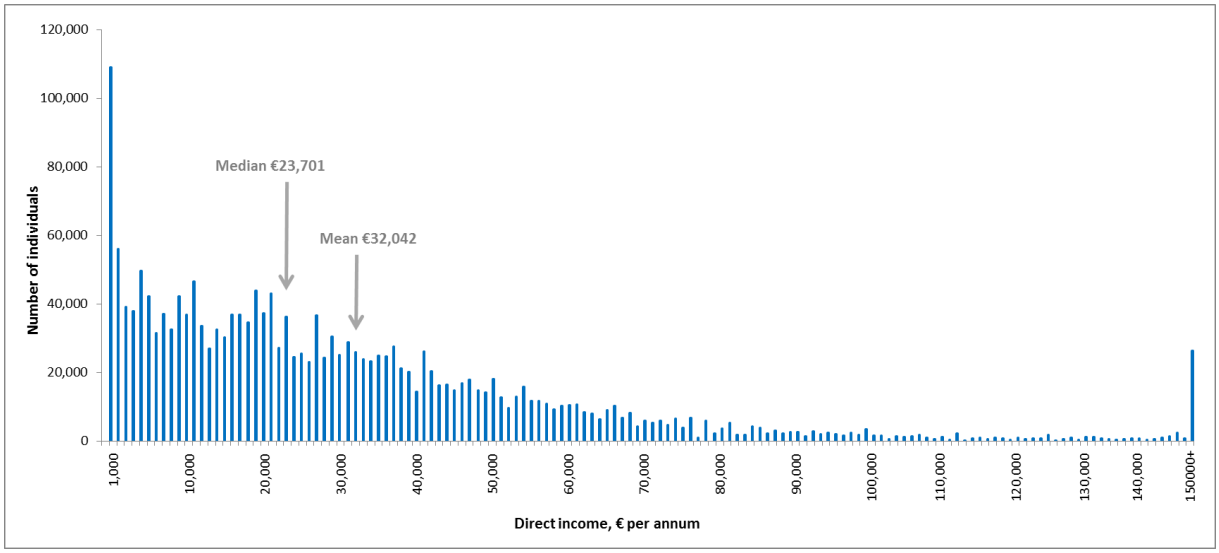
As a first insight into the nature of earnings in Ireland, this section examines earnings within the context of the income distribution. First, it looks at earnings from all sources (direct income) before focusing on the earnings of employees and the earnings (profits) of those who are self-employed.

Direct Income

Direct income captures the market income received by employees, the profits of the self-employed and other 'unearned' income including rental income, private pension income, investment income and interest income.[12] It is in effect the pre-distribution of income; that which arises before the redistributive mechanisms of taxation and welfare step in.[13] [14]

Chart 1 details the direct income distribution in 2013. The distribution is examined for all individuals aged 17 years or more and excludes those who record no direct income. The graph shows the number of individuals with different income levels, grouped in €1,000 income bands. The height of the bars represents the number of individuals in each of these groups. In 2013 the median direct income (representing the income of the middle earner in the distribution) was €23,701. In the same year the mean direct income was €32,042.

Chart 1: Ireland's Direct Income Distribution, individuals in 2013



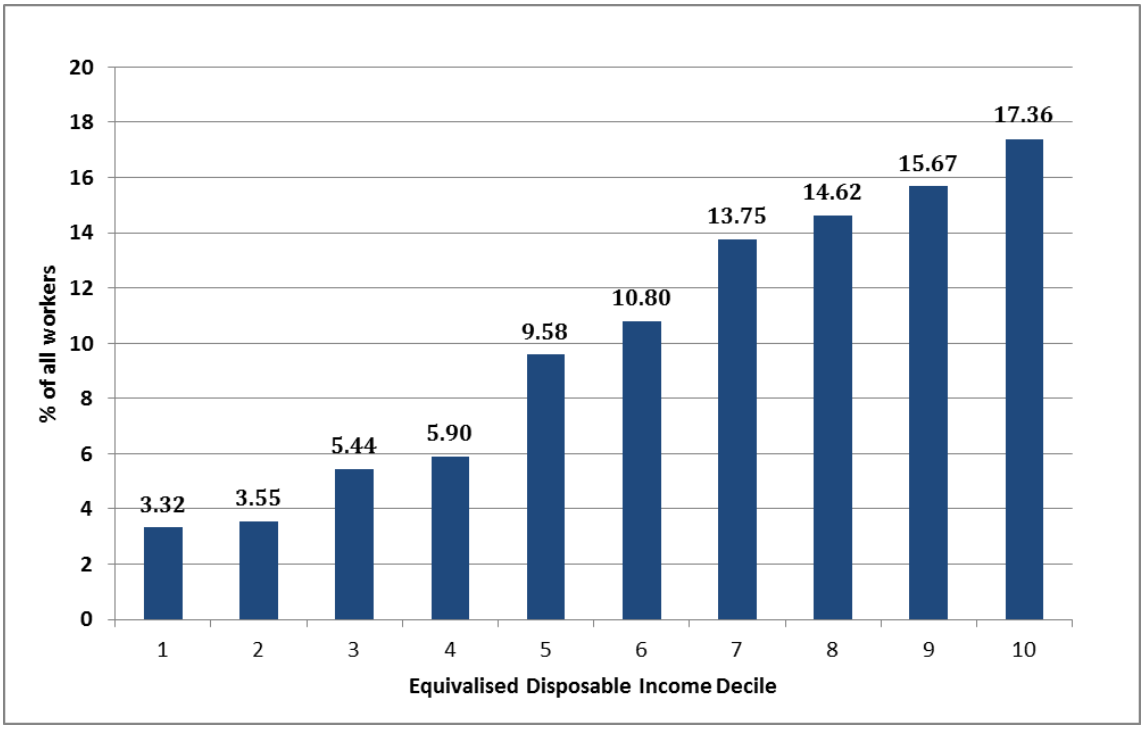
As the chart shows, the distribution of direct income is concentrated on incomes of less than €50,000 per annum. – representing 80% of all earners. Among the key points on the distribution of direct income are:

- 15% of those with a direct income, about 290,000 people, receive less than €5,000 (the average direct income for this group is €2,000 and most receive less than €1,000)
- 50% of those with a direct income receive between €5,000 and €35,000
- The top 10% of recipients have an income of more than €65,000
- The top 5% of recipients have an income of more than €85,000; this group approximates to the top 100,000 earners in the state
- The Gini coefficient for this distribution is 48.99

[12] The composition of direct income used in this paper is detailed in table A2 of the appendix.
[13] This is sometimes referred to as the pre-redistribution.
[14] Direct income plus social transfers gives the concept of gross income and when direct taxes are removed from this we get disposable income.

The precise location of workers within the overall income distribution is dependent not just on their own income but also on the family/household circumstances they share. This is because we measure the income distribution in terms of household post-tax and transfer income adjusted (equivalised) for the size and composition (children/adults) of households – a method which provides a more comprehensive understanding of living standards than just individual earnings. Using the SILC variable which captures individual's principal economic status (PES), Chart 2 summarises the location of workers (both employees and the self-employed) across the income distribution. It is broken down in to deciles, 10% groups rising from those with the lowest equivalised disposable income.

Chart 2: Location of those whose Principal Economic Status is 'at work' across the Income Distribution, 2013



Notes: The distribution of all PES categories is outlined in Table A3 of the appendix. The distribution is by equivalised disposable income decile using the national equivalence scale.

Unsurprisingly, given that the bottom of the income distribution contains high numbers of welfare dependent single people and households, workers are predominantly located in the top half of the income distribution. Almost 82% of workers are in the top six deciles; 72% in the top half of the income distribution; and 33% are in the top two deciles.

The remainder of this section focuses on the two elements of this direct income distribution that derive from work: employee income and self-employment income. Although often considered as mutually exclusive groups, these group are notably interlinked. Table 2 profiles the source of earnings for both individuals and households (the units people reside in) using the SILC 2013 data. Of the 1.53 million employees represented in the data almost 26,000 have both employee and self-employment income. Similarly, while the self-employment group is much smaller, with approximately 245,000 earners, almost 11% of the self-employed are also employees. At the household level the integration of both groups is more pronounced, with 22% of all households with work income having some element of self-employment income and 12% of such households receiving both employee and self-employment income. However, employee income remains the dominant source of direct income and it is to an examination of that concept that we next turn.

Table 2: Sources of Earnings – all workers in 2013

	Individuals		Households	
No earnings	1,704,638		605,953	
Employee income	1,504,798	**86.09%**	860,287	**77.94%**
Self-employed income	217,271	**12.43%**	108,869	**9.86%**
Both employee and SE	25,871	**1.48%**	134,603	**12.19%**
Total	**3,452,578**		**1,709,712**	
Total earners	***1,747,940***		***1,103,759***	

Notes: Individual data excludes those aged less than 17 years.
The number of employees does not include those on various active labour market schemes.

Employee Income

Employee income includes both cash and non-cash earnings by employees. Of these the former dominates and accounts for 99.5% of the average employees earnings. Non-cash income, measured as goods and services provided free or at reduced price by the employer to their employees, represents the remainder and averages at a value of €171 per annum.

Table 3 details the distribution of employee income in 2013. The distribution is examined for all those in the SILC sample who have any employee income and who are aged 17 years or more – representing 1,530,670 individuals. In 2013 the median employee income (representing the income of the middle earner in the distribution) was €27,619. In the same year the mean employee income was €35,079.[15]

Overall, the distribution of employee income roughly divides into quarters: 26% (approximately 400,000) earn less than €15,000 per annum; 28% (425,000) earn between €15,000 and €30,000; 24.5% (375,000) earn between €30,000 and €50,000; and 21.5% (330,000) earn more than €50,000 per annum. At the top of the distribution, 5% of employees earn more than €85,000 and 3.5% earn more than €100,000.

Self-Employment Income

Self-employment income comprises the gross cash benefits (profit) or losses from self-employment. Unlike employee income, self-employment income can have a negative value reflecting the recording of a loss. For the purposes of most income distribution assessments (in SILC and elsewhere) such losses are 'bottom coded' to €0.

Table 3 details the distribution of self-employment income in 2013. The distribution is examined for all those in the SILC sample who record a positive value for self-employment income and who are aged 17 years or more – representing 243,142 individuals. As outlined earlier (see Table 2) a portion of this group receives both employee and self-employment income (approximately 11%). In 2013 the median self-employment income was €15,968. In the same year the mean self-employment income was €25,699.

Overall, the distribution of self-employment income roughly divides into thirds: 33.1% (approximately 80,000) earn less than €10,000 per annum; 32.3% (78,000) earn between €10,000 and €25,000; and 34.6% (84,000) earn more than €25,000 per annum. At the top of the distribution, 7.5% of the self-employed earn more than €75,000 and 3% earn more than €100,000. Benchmarking the SILC data against the Revenue Commissioners Universal Social Charge (USC) distributive statistics highlights an underrepresentation of higher income self-employed earners in SILC. In 2013 Revenue reported that 10,400 individuals paid the USC levy on income in excess of €100,000 whereas the SILC data records 7,124 such individuals.

[15] Note there is a small difference in the mean reported in Table 3 compared to Table 1 as the former is for full sample of those individuals with employment income including those who also have self-employment income and those who elsewhere in the SILC survey indicate their PES is something other than employee (eg student). Conversely Table 1 only examines the sample of employees for whom hourly earnings data is calculable – these are used in the decomposition in the next section. This bigger sample, and inclusion of a greater number of lower income earners, reduces the mean from €35,487 (Table 1) to €35,079 (Table 3).

Table 3: Distribution of Employee and Self-Employed Earnings, 2013

Income Range		% of those with Employee income	% of those with SE income
From	To		
€1	€5,000	8.5%	18.0%
€5,000	€10,000	8.9%	15.1%
€10,000	€15,000	8.8%	15.0%
€15,000	€20,000	10.0%	11.5%
€20,000	€25,000	9.9%	5.8%
€25,000	€30,000	7.9%	7.4%
€30,000	€35,000	7.6%	4.2%
€35,000	€40,000	6.6%	7.3%
€40,000	€50,000	10.3%	4.4%
€50,000	€75,000	14.2%	3.8%
€75,000	€100,000	3.8%	4.6%
€100,000 +		3.5%	2.9%
		100.0%	**100.0%**
Mean		**€35,079**	**€25,699**
Median		**€27,619**	**€15,968**

Although the self-employed are a smaller group than employees, they are notably more concentrated on lower incomes; a point that should not be overlooked when discussing the situation of workers (employees and the self-employed) on low incomes. However, the remainder of this paper focuses on only one of these worker groups, employees. It also shifts from examining annual income to hourly income. This focus reflects the large size of the employee group, the heightened interest in those on low hourly pay rates and the relevance of policy choices to the hourly gross earnings of that group.

5. THE HOURLY EARNINGS DISTRIBUTION AND LOW PAY

This section focuses on the distribution of employee hourly income and in particular those at the bottom of that distribution, the low paid. An hourly earnings value is established for all those in the SILC dataset whose principal economic status is 'at work' and who are employees. Overall, the data is representative of 1,345,395 employees.[16] Of these employees, the mean hourly earnings is €20.63 per hour although 50% of employees earn less than €16.62 per hour.

Chart 3 presents a profile of the hourly earnings distribution in the Republic of Ireland. The chart also includes markers for three earnings thresholds. These include the ***minimum wage*** which stood at €8.65 per hour in 2013 having been restored to that level in July 2011 and originally set at that level in July 2007.[17] A ***Living Wage*** value of €11.45 per hour was first established in July 2014 by the Living Wage Technical Group who presented a methodological basis for its calculation and annual update.[18] In the absence of a comparable figure for 2013, the 2014 value has been used. Finally, the ***low pay threshold*** established by Eurostat in their most recent *Structure of Earnings Survey* (2010) is also used. This figure was estimated for those in firms of 10 or more employees and in all sectors of the economy excluding agriculture and public administration and defence. The threshold is calculated as two-thirds of median hourly earnings (the earnings of the middle person in the distribution), and the 2010 figure was €12.20 per hour.[19]

[16] This total represents the weighted value of the final sample size which was also cleaned to exclude variables with missing or spurious monthly earnings / unusual hours data.

[17] The minimum wage was raised from €8.30 to €8.65 in July 2007. It was reduced by €1 in February 2011 and restored to €8.65 in July 2011 (see Collins, 2015a).

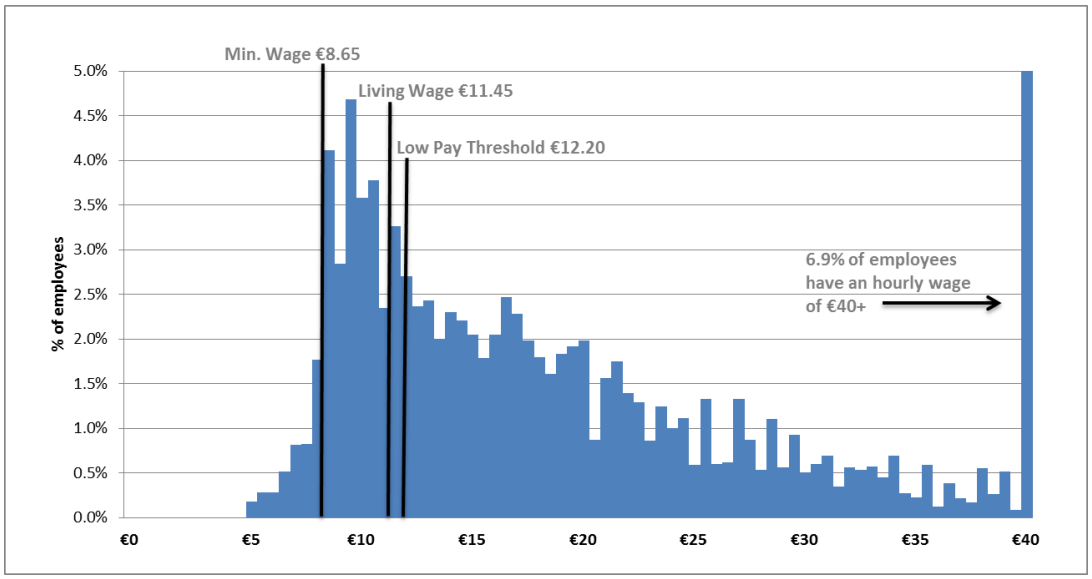
[18] Note, the Living Wage has been estimated for a single-person working full-time and as such the hourly figure does not necessarily capture employees who face different costs and circumstances (couples with children etc). As the figure is an hourly one derived from an assumption of full-time work, employees at or above the Living Wage but working less than a full-week (voluntarily or involuntarily) may also be unable to achieve a weekly living wage (see Living Wage Technical Group, 2014).

[19] The Eurostat estimate for median hourly earnings in 2010 was €18.25 and two-thirds of this is €12.1667 cent which they rounded to €12.20 in their publication (see Eurostat, 2012).

Using the SILC hourly earnings data, it is possible to estimate an update of the Eurostat threshold using a similar subgroup of employees. Looking only at those employees in NACE sectors B to S excluding sector O and who are in firms of 10 or more employees, the 2013 median hourly wage rate ranges between €17.14 and €17.25 per hour.[20] The corresponding low pay threshold is between €11.43 and €11.50 per hour and is thus similar to the 2014 Living Wage value.[21]

The data in Chart 3 are summarised in Table 4. Of all the employees examined in the data, 5.5% have an income below the statutory minimum wage – these include those exempted by the structure of the minimum wage including young workers under 18 years old, persons employed by a close relative, apprentices and those on structured training schemes. Using the hourly Living Wage as a threshold, the analysis finds that 25.6% of employees have an hourly wage rate of less than €11.45. Some 30.3% of employees lie below the low pay threshold of €12.20. These findings imply that almost 345,000 employees earn less than €11.45 per hour while just over 400,000 earn below €12.20 per hour.

Chart 3: Distribution of Hourly Earnings and Selected Pay Thresholds, Ireland 2013 (% employees)



Notes: A national Living Wage was first established in 2014 and that value is used in the absence of an earlier figure for 2013. The Eurostat low-pay threshold was established using data from the 2010 *Structure of Earnings Survey* – the figure has not been updated since. The small proportion of earners with hourly rates below the minimum wage include legitimate exemptions (those under 18 years, persons employed by a close relative, apprentices and those on structured training schemes), non-compliance and a degree of measurement error.

[20] The €17.14 figure is estimated for the full sample of employees for whom we have any hourly earnings data, the €17.25 is estimated for a reduced sample which excludes 30 observations with spuriously low hourly wage rates.
[21] Pentony (2015) reaches a similar conclusion when updating the Eurostat threshold using trends in income data since 2010.

Table 4: Distribution of Hourly Earnings, Ireland 2013 (% employees)

From	To	% of employees
minimum	€8.64	5.5%
€8.65	€9.99	8.3%
€10.00	€11.44	11.8%
€11.45	€12.19	4.7%
€12.20	€14.99	12.5%
€15.00	€19.99	19.6%
€20.00	€24.99	13.6%
€25.00	€29.99	8.4%
€30.00	€34.99	5.4%
€35.00	€39.99	3.1%
€40.00 +		6.9%
		100.0%
Mean	**€20.63**	
Median	**€16.62**	

Notes: See notes to Chart 3

Looking above these three low-pay categories, more than 40% of employees have an hourly rate of between €15-€30; 8.6% lie between €30-€40 and 6.9% have an hourly rate above €40 per hour. Consequently, irrespective of the threshold used, almost 70% of employees are not formally classified as low paid. The remainder of this section focuses on those at the bottom of the hourly earnings distribution, below two of the low pay thresholds: the €11.45 Living Wage and the Eurostat low pay threshold of €12.20.[22]

Who are the Low Paid?

To gain a better understanding of those who are low paid, we first explore the composition of this group and then examine the probability of workers with different characteristics experiencing low pay. Reflecting the data outlined above, the analysis considers those who are low paid as employees falling below the two hourly pay thresholds identified. Of course, it may be the case that employees above these thresholds with short, or involuntarily short, working weeks are low paid when judged on a weekly earnings basis. Tables 5a and 5b examine those below each of the two low pay thresholds. As a comparison, the distribution of all employees (both low paid and otherwise) is presented in the first column.

[22] A complementary paper (Collins, 2015a) profiles those earning the Minimum Wage.

Table 5a: The Incidence of Low Pay, Ireland 2013 (% employees)

	% employees	Below €12.20	Below €11.45
All employees	100.0	100.0	100.0
Gender*			
Male	47.5	40.4	39.8
Female	52.5	59.6	60.2
Age Group*			
18-29	17.4	34.5	35.8
30-39	32.6	27.7	28.7
40-49	24.8	19.2	16.6
50-59	19.4	12.3	12.8
60+	5.7	5.9	5.6
Highest Completed Education*			
Primary or below	4.5	7.9	7.9
Lower secondary	10.4	14.6	13.7
Higher secondary	23.3	34.4	34.8
Post leaving cert	12.3	16.8	17.3
Third level non degree	15.5	10.1	10.3
Third level degree or above	32.3	13.0	12.6
NACE Sector*			
Agri, forestry/ fishing	1.2	2.9	3.0
Industry	16.1	12.4	11.6
Wholesale and retail trade	14.3	24.1	23.8
Accommodation and food	7.5	17.1	18.1
Admin & support services	2.8	5.5	5.6
Health & social work	15.6	12.9	13.0
Pub Adm, Defence, Educ	17.4	5.6	5.6
All Other Sectors	25.2	19.7	19.4

Notes: Highest completed education excludes 1.78% of employees who did not state their level. NACE sectors: Industry includes construction while 'all other sectors' includes: transportation and storage; information and communication; financial, insurance and real estate activities; professional, scientific and technical; and those classified by the CSO as 'other NACE activities'.
* A weighted Pearson chi-squared test was used to determine if the reported differences between the sample categories are statistically significant. In the case of both decompositions $p < 0.001$

Women represent 60% of all those who are low paid; a finding that holds for both thresholds. When examined by age group, the data show that more than one-third of the low paid are aged less than 30 years. Between 60% and 65% of the low paid are aged less than 40 years; this group represents about half of all employees. The profile of the low paid across categories representing completed education levels is unsurprising, with 22% of the low paid not having completed secondary education.

Table 5b: The Incidence of Low Pay, Ireland 2013 (% employees)

	% employees	Below €12.20	Below €11.45
All employees	100.0	100.0	100.0
Occupation*			
Manager and admin	6.7	2.8	-
Professional	20.7	4.2	4.5
Associate Prof. & technical	12.8	6.2	6.6
Clerical and secretarial	13.4	9.7	9.0
Craft and related	9.5	9.7	9.8
Personal/ protective services	8.0	13.8	14.4
Sales	8.8	19.3	18.8
Plant/machine operatives	7.5	10.1	8.2
Others	12.5	24.3	25.9
Sector of employment*			
Public	29.2	10.1	9.7
Private	67.8	86.9	87.3
Hours Worked per week*			
1-19hrs	13.6	24.9	26.1
20-34.9hrs	24.0	31.5	30.6
35hrs+	62.5	43.7	43.3
Work status*			
Full-time	72.1	51.1	50.0
Part-time	27.9	48.9	50.0
Contract Type*			
Permanent	91.0	83.7	82.2
Temporary	9.0	16.3	17.8
Urban/rural location**			
Urban	66.4	61.9	64.1
Rural	33.6	38.1	35.9

Notes: - = sample too small to report.
* A weighted Pearson chi-squared test was used to determine if the reported differences between the sample categories are statistically significant. In the case of both decompositions $p < 0.001$
** in this case $p< 0.01$ for the €12.20 decomposition and $p = 0.1839$ for the €11.45 decomposition

Tables 5a and 5b also provide an insight into the location of the low paid within various sectors of the labour market. Using the €12.20 threshold, of all those who are low paid almost one-quarter are in the wholesale and retail sector with almost one-in-six (17.1%) in the accommodation and food sector. While the low paid exist within all occupational groups, there is a clear bias towards lower skilled occupations. The low paid are mainly concentrated in the private sector (87%) although one-in-ten are employees in the public sector.

44% of the low paid work 35 hours or more per week, although relative to employees overall, the low paid are more concentrated on low hours with 25% working less than 20 hours per week. Most low paid workers hold a permanent contract of employment (84%) although there are more low paid workers on temporary contracts (16.3%) than the proportion of such workers among all employees (9%). Similarly, the low paid split 50/50 between full-time and part-time work although the proportion of part-time work among all employees is much less at 28%. The low paid are also mainly urban based.

Who is most likely to be Low Paid?

As reported earlier, in 2013 30.3% of employees earned less than €12.20 while 25.6% earned less than €11.45. Tables 6a and 6b examine the risk of workers with different characteristics experiencing low pay. Of all male employees almost 26% are low paid when judged against the €12.20 threshold. The risk is higher for female employees with more than one-third (34.4%) low paid.[23]

[23] To minimise repetition, the text in the remainder of this section predominantly focuses on the risk employee's face of being below the €12.20 threshold. Tables 6a - 9 show the results for both thresholds.

The risk of being low paid declines with age, with 60% of all workers under 30 years being low paid. The risk falls to 19.1% for those employees aged between 50-59 years, although it increases once again for older workers. Risks also decrease with increases in the level of completed education; 53% of employees with only primary education are low paid while the risk is less than 20% for those with some completed third level education.

The concentration of low pay in particular sectors of the labour market is also detailed in Table 6a. The highest risk of low pay is for employees in the agricultural, forestry and fishing sector where seven out of every ten employees are low paid. Risks are similarly high for workers in the accommodation and food sectors (69%) although this is a much larger sector. Employees in administration and support services carry a 60% risk of being low paid while more than half of employees in the wholesale and retail trade are low paid. The lowest risk of being low paid is for workers in public administration, defence and education where less than 10% are low paid.

The risk of being low paid also varies by occupation type. It ranges from 6% for professional employees to more than 40% for employees who are plant and machinery operatives, 52% for those employed in personal and protective services and 66% for those employees in sales.

Employees in the private sector carry a 38.8% risk of being low paid and the risk of being low paid is much greater for employees on low hours (less than 20 hours per week). They face a risk of being low paid of 55%, with this risk declining for employees on longer working weeks. Full-time workers (and those on 35+ hours per week) face a one in five risk of being low paid while more than half of employees who work part-time are low paid. The risk of being low paid is also higher for those employees on a temporary contract (52%) and those living in rural areas (34%).

Table 6a: The Risk of Low Pay, Ireland 2013 (% employees)

	Below €12.20	Below €11.45
All employees	30.3	25.6
Gender*		
Male	25.7	21.4
Female	34.4	29.3
Age Group*		
18-29	60.1	52.7
30-39	25.8	22.5
40-49	23.5	17.2
50-59	19.1	16.7
60+	31.6	25.3
Highest Completed Education*		
Primary or below	53.0	44.9
Lower secondary	42.7	33.9
Higher secondary	44.8	38.2
Post leaving cert	41.5	36.0
Third level non degree	19.8	16.9
Third level degree or above	12.2	10.0
NACE Sector*		
Agri, forestry/ fishing	73.5	64.6
Industry	23.3	18.3
Wholesale and retail trade	51.1	42.6
Accommodation and food	68.7	61.5
Admin & support services	60.1	52.3
Health & social work	25.0	21.3
Pub Adm, Defence, Educ	9.7	8.3
All Other Sectors	23.6	19.6

Notes: See notes to Table 5a.

Table 6b: The Risk of Low Pay, Ireland 2013 (% employees)

	Below €12.20	Below €11.45
All employees	30.3	25.6
Occupation*		
Manager and admin	12.7	-
Professional	6.2	5.6
Associate Prof. & technical	14.7	13.1
Clerical and secretarial	21.9	17.1
Craft and related	30.7	26.4
Personal/ protective services	52.3	46.2
Sales	66.1	54.3
Plant/machine operatives	40.5	28.0
Others	58.8	52.9
Sector of employment*		
Public	10.5	8.5
Private	38.8	32.9
Hours Worked per week*		
1-19hrs	55.5	49.2
20-34.9hrs	39.7	32.7
35hrs+	21.2	17.7
Work status*		
Full-time	21.5	17.8
Part-time	53.1	45.8
Contract Type*		
Permanent	26.7	22.0
Temporary	52.6	48.0
Urban/rural location**		
Urban	28.3	24.7
Rural	34.3	27.3

Note: See notes to Table 5b.

The Household Characteristics of the Low Paid

A particular advantage of using the SILC data to assess the nature and composition of low pay is that it allows an examination of the low paid in their household context – a perspective that is often lacking in assessments based on earnings surveys. As such, it allows an exploration of the location of the low paid across the income deciles and greater details of the financial and family context that low paid workers live in.

Overall, the incidence of the households that the low paid live in is similar to that for employees in general – see Table 7. 52% of the low paid live in households with children while just over 4% live alone. However, the tenure status of the low paid notably differs from employees generally, with 42% of the low paid living in rented accommodation including almost 15% who rent at below the market rate, for example in social housing and other state supported housing. In 36.5% of cases, workers earning less than €12.20 per hour are the only earners in their household.

Given the information collected in the SILC data, it is also possible to gain an insight into the living standards of low paid workers. The experience of low pay does not, in and of itself, imply that a worker will experience a sub-optimal standard of living. Living standards are derived from the overall income and living conditions of households and include not just the employment income of the low paid employee, but also the income of others (if any) in the household, entitlements to welfare income and supports, the structure of the income taxation system, the provision of state services and living expenses. Consequently, an employee with an hourly income well above any of the low pay thresholds could be experiencing less than ideal living standards given the demands on their income and the limited, if any, income received by others in their household. However, given that earnings from employment income tends to be the major source of income for households, the association between those on low pay and issues such a poverty, debt and deprivation is of obvious interest.

Some 34.6% of the low paid have a full medical card – about twice the rate for employees in general. A similar proportion (35.8%) live in households that indicate that they have difficulty making ends meet (with difficulty or with great difficulty). Two-thirds of the low paid are in households that would be unable to afford an unexpected expense of €1,085 – again a figure which is larger than that for employees overall (46%). Likewise, one in five low paid workers (19.4%) live in a household that was required to go into debt in the 12 months prior to interview for the SILC survey, so that they could meet ordinary living expenses.

Among employees overall, 19.4% experience deprivation, defined as being unable to afford two or more of eleven basic items.[24] Among those who are low paid the proportion is more than 10% higher, with three in ten low paid workers experiencing deprivation. Similarly, the proportion of low paid workers in poverty (6.9%) is more than twice that of all employees (3.2%). However, the relationship between low pay and poverty is weak, a finding which echo's the earlier conclusion of Barrett et al that "most workers in poor households are themselves low paid – in Ireland and elsewhere – but very few employees are actually in such households" (2000: 142). Blackwell and Nolan put it another way "most employees are not in poor households – and most poor households do not contain an employee" (1990: 18).

Table 8 examines the location of low paid employees across the income distribution. Compared to employees in general, the low paid are more concentrated in the bottom half of the income distribution, although there are low paid employees located in households right across the income distribution; including 9% in the top two deciles. While 16% of all employees live in households that are in the bottom 40% of the income distribution, this is where more than one-third of the low paid live. However, a proportion of low paid employees live in relatively well-off households (in the top quintile of the income distribution) a finding that underscores the need to appreciate the difference between the concept of low-pay and low-income.[25]

[24] The full list of items is included in table A4 of the appendix.
[25] Hood et al (2014) also note this distinction in the UK's earnings data.

Table 7: The Incidence of Low Pay by household characteristics, 2013 (%)

	% employees	Below €12.20	Below €11.45
All employees	100.0	100.0	100.0
Household Composition*			
1 adult aged 65+	0.3	0.2	0.1
1 adult aged <65	6.3	4.0	4.2
2 adults, at least 1 aged 65+	1.5	1.4	1.5
2 adults, at least 1 aged < 65	21.2	20.9	20.4
3 or more adults	16.6	21.5	21.7
1 adult with children	3.3	5.5	6.2
2 adults with 1-3 children	36.5	26.7	27.1
Other households with children	14.4	19.8	18.9
Tenure Status*			
Owner-occupied	73.0	57.5	56.2
Rented at the mkt rate	18.8	27.8	28.4
Rented < mkt rate/ rent free	8.2	14.7	15.5
No of household members at work*			
1	31.6	36.5	38.3
2	55.3	46.8	44.6
3	13.1	16.7	17.0
Medical card*			
Medical card (full)	17.5	34.6	36.0
GP visit card	2.9	4.8	4.7
None	79.3	60.4	59.3
At risk of poverty status – household*			
No	96.8	93.1	92.6
Yes	3.2	6.9	7.4
Ability to make ends meet – household*			
With difficulty or great difficulty	27.5	35.8	35.9
Otherwise	72.5	64.2	64.1
Ability to afford unexpected expenses – household*			
Able	54.1	33.9	33.9
Unable	45.9	66.1	66.1
Household in Debt for ordinary living expenses over last 12 months*			
No	84.8	80.6	79.3
Yes	15.2	19.4	20.7
Deprivation (of 2 or more items of 11 items)*			
Not-experiencing	80.6	69.6	68.4
Experiencing	19.4	30.4	31.6

Notes: * A weighted Pearson chi-squared test was used to determine if the reported differences between the sample categories are statistically significant. In the case of both decompositions $p < 0.001$

The at risk of poverty measure is based on whether an employee lives in a household whose equivalised disposable income is less than 60% of the median. Difficulty making ends meet, inability to afford unexpected expenses (€1,085 without borrowing) and going into debt for ordinary living expenses are variables answered by the head of each household and that answer has been applied to each employee in the household. Deprivation, or the deprivation rate, is measured as being classified as deprived of 2 or more of 11 basic items – these items are listed in Table A4 of the appendix.

Table 8: The Incidence of Low Pay by Decile, 2013

Decile	% those at work#	% employees	Below €12.20*	Below €11.45*
Bottom	3.3	2.0	4.3	4.5
2	3.6	2.8	6.5	7.3
3	5.4	5.2	10.7	10.1
4	5.9	5.7	12.0	13.2
5	9.6	9.1	13.9	14.0
6	10.8	10.9	14.6	14.9
7	13.8	14.4	18.4	16.5
8	14.6	15.2	10.6	10.6
9	15.7	16.9	5.8	6.0
Top	17.4	17.9	3.2	2.9
Total	**100**	**100**	**100**	**100**

Notes: # data is the same at that outlined in chart 2
* A weighted Pearson chi-squared test was used to determine if the reported differences between the sample categories are statistically significant. In the case of both decompositions $p < 0.001$

Table 9 examines the risk of low pay faced by employees with various household characteristics. Within the household composition types, single parent employees face the highest risk of experiencing low pay with one in two earning below the Eurostat threshold. Reflecting the earlier results, and as might be expected, there is a strong relationship between low pay and low incomes. Of all those employees living in households whose overall income means they are in poverty, 65% are low paid. Of all those employees with a full medical card 60% are in low paid employment. Likewise, almost 40% of employees whose household experience a difficulty making ends meet are low paid (39.4%) while a similar number are in households that could not afford to pay for an unexpected expense (43.6%) and in a household who had to borrow to meet ordinary living expenses over the past year (38.7%). Of all those workers who are experiencing deprivation, almost half (47.6%) are low paid.

Table 9: The Risk of Low Pay by household characteristics, 2013 (%)

	Below €12.20	Below €11.45
All employees	30.3	25.6
Household Composition*		
1 adult aged 65+	18.4	11.5
1 adult aged <65	19.5	17.2
2 adults, at least 1 aged 65+	27.9	25.0
2 adults, at least 1 aged < 65	29.9	24.6
3 or more adults	39.2	33.5
1 adult with children	50.6	48.2
2 adults with 1-3 children	22.2	19.0
Other households with children	41.7	33.4
Tenure Status*		
Owner-occupied	23.9	19.7
Rented at the mkt rate	44.8	38.7
Rented below mkt rate/ rent free	54.0	48.0
No of household members at work*		
1	34.5	31.0
2	25.7	20.7
3	38.6	33.2
Medical card*		
Medical card (full)	59.9	52.5
GP visit card	50.1	41.4
None	23.1	19.1
At risk of poverty status – household*		
No	29.1	24.5
Yes	65.2	58.6
Ability to make ends meet – household*		
With difficulty or great difficulty	39.4	33.4
Otherwise	26.8	22.6
Ability to afford unexpected expenses – household*		
Able	19.0	16.0
Unable	43.6	36.8
Household in Debt for ordinary living expenses over last 12 months*		
No	28.8	23.9
Yes	38.7	34.9
Deprivation (of 2 or more items of 11 items)*		
Not-experiencing	26.1	21.7
Experiencing	47.6	41.7

Notes: See notes to Table 7

6. MODELLING LOW PAY

The analysis outlined in the earlier tables offers useful insights into the composition of low pay and the risks faced by employees with different characteristics and in different labour market settings. However, to substantiate the patterns found, and to draw more concrete conclusions on the relationship between various characteristics and low pay, more formal multivariate techniques are required.

This section uses a logit model to analyse the determinants of low pay where the dependent variable is those classified as earning less than €12.20 per hour. The purpose of the model is to isolate the effect of certain characteristics on low pay, so that controlling for other variables we can establish whether they have a statistically significant individual effect on the probability of an employee being low paid.

Reflecting the earlier decompositions, and the aforementioned literature around precarious work, particular attention is given to an examination of the relationship between low pay and three explanatory variables: working low hours (less than 20 hours per week); working part-time; and being an employee with a temporary contract. The presence of children in a household is also examined, to see if it too has a measurable effect on the probability of an employee being low paid.

Aside from these variables, the other independent variables control for gender, age, highest completed education level, sector of employment, occupation, whether the employee works in the public or private sector, whether the employee works in a firm/company with 10 or more employees and whether the employee is based in Dublin or outside Dublin.[26] The model is specified as follows:

$$y_i = \beta_1 + \beta_2 * \text{low\_hours} + \beta_3 * \text{part\_time} + \beta_4 * \text{temp\_contract} + \beta_5 * \text{children\_hh} + \beta_6 * \text{male} + \beta_7 * \text{age\_group} + \beta_8 * \text{highest\_educ} + \beta_9 * \text{nace\_sector} + \beta_{10} * \text{occupation} + \beta_{11} * \text{private\_sector} + \beta_{12} * \text{firm\_10ormore} + \beta_{12} * \text{dublin} + \beta_{13} * \text{low\_hours} * \text{pt} + \beta_{14} * \text{children\_hh} * \text{ageg} + \varepsilon_i$$

where β_1 is a constant and ε_i is a logistically distributed error term.

Table 10 summarises the results of the model – the full details are presented in Table A6 of the appendix.

The model found that, when controlling for all other modelled variables, that there was no statistically significant effect of low hours on an employee's probability of being low paid. Being a part-time worker was found to impact significantly and negatively on an employee's probability of being low paid – in other words, part-time workers are less likely to be low paid than those who work full time.

[26] Table A5 of the appendix provides a more comprehensive explanation of the variables modelled including interaction terms.

Table 10: List of Independent Variables and whether they were significant in modelling the probability of being low paid

Variable	Statistically Significant	Direction of influence	Note
lowhours (<20hrs)	No		No significant effect
part-time worker	Yes**	Negative	Being a part-time worker decreases the probability of being low paid when controlling for all other variables in the regression
temporary contract	Yes***	Positive	Being on a temporary contract increases the probability of being low paid when controlling for all other variables in the regression
children in household	Yes*	Negative	Decreases probability of low pay
male	Yes**	Negative	Decreases probability of low pay
age			
young (<35yrs)	Yes***	Positive	Compared to those employees who are aged between 35-55yrs, the probability of being low paid is higher
older (55yrs+)	No		No significant effect
highest completed education level			
low education	Yes***	Positive	Compared to those at post leaving cert level, the probability of being low paid is as per the direction of influence
higher secondary	Yes**	Positive	As above
3rd level non Degree	Yes*	Negative	As above
Degree+	No		No significant effect
NACE sector			
Agri, forest/ fish	Yes**	Positive	Compared to those in the wholesale and retail sector, the probability of being low paid is as per the direction of influence
Industry	Yes**	Negative	As above
Accomm and food	Yes***	Positive	As above
Admin & support	Yes*	Positive	As above
Health & social	No		No significant effect
Pub Adm, Defence, Educ	No		No significant effect
All Other Sectors	Yes*	Negative	As above
occupation			
Manager and admin	No		No significant effect
Professional	No		No significant effect
Asso. Prof. & technic	No		No significant effect
Craft and related	No		No significant effect
Personal/ protective	Yes***	Positive	Compared to those whose occupation is clerical and secretarial, the probability of being low paid is as per the direction of influence
Sales	Yes***	Positive	As above
Plant/machinery	Yes***	Positive	As above
Others	Yes***	Positive	As above
private sector	Yes***	Positive	Increases probability of low pay
firm of 10 or more	Yes***	Negative	Decreases probability of low pay
live in Dublin	Yes***	Negative	Decreases probability of low pay

Notes: Modelled using a logit regression with a binary dependent variable where 1= lowpaid. See full model output in the appendix Table A6. * = significant at the 5% level; ** significant at the 1% level; ***significant at <1% level.

The results also suggest that employees on a temporary contract carry a higher probability of low pay, when controlling for all other variables in the model – a finding which echoes some of the concern regarding the growing precarity of work for such employees in some sectors of the labour market. In their 2014 *Employment Outlook*, the OECD also examined this relationship and in the context of concerns regarding increasing labour market segmentation, and evidence of limited progression from temporary to permanent contracts, they explored the need to make "the use of temporary contracts more difficult and costly" (OECD, 2014).[27]

Being an employee living in a household with children (one or more aged less than 18 years) was found to have a significant and negative influence on the probability of being low paid.[28] This finding may be because working in a low paid job is unattractive for adults who would have to pay high childcare costs when working; the opportunity cost of staying at home and minding children is lower for employees who are, or would become, low paid.[29] Future analysis might investigate this relationship further; for example it would be interesting to isolate if there is any effect from the presence of very young children who are unable to look after themselves or who are not in secondary school. Similarly, if the sample size allowed it, it might be interesting to isolate these effects solely for women.

The other covariates in the model suggest that when controlling for the other variables in the regression, the risk of being low paid was higher for women and those who work in the private sector. The likelihood of being low paid decreased for those who live in Dublin and for employees in firms with ten or more employees. The latter result is of note, suggesting a concentration of low pay within small employment settings – an area of the labour market often not measured in employment based surveys of earnings.[30] This firm size effect also echoes labour market research findings, from Oi and Idson (1999) among others, on the positive relationship between wage and employer size.

Within sectors of the labour market, compared to employees in the wholesale and retail sector, the probability of being low paid is higher for those in the agricultural, food and fisheries sector as it is for employees in accommodation and food and those in administration and support services. It is lower for employees in industry. Within occupations, those who work in personal and protective services, sales and in the plant/machinery sector carry a statistically significantly higher probability of low pay compared to employees who are clerical and secretarial.

Using the completed education variable, compared to employees with a post leaving certificate, the probability of being low paid is higher for those with low completed education (primary and lower secondary) and higher secondary education while it is lower for those with a completed education at third level non-degree.

The model points towards a nonlinear relationship between age and the probability of low pay. The results in Table 10 compare the probability of low pay for young workers (less than 35 years) and older workers (55 years plus) compared to middle aged workers. Controlling for the other variables in the model, younger workers carry a higher risk of low pay than those who are middle aged. However, there is no statistically significant effect for older workers. Experiments during the model building process using an age in years variable, and a quadratic version of that variable (age squared), imply a non-linear relationship between age and low pay.[31] The data suggests that as employees get older the probability of being low paid decreases, but that this effect reduces with age – note the earlier decompositions (Table 5a) which point towards a higher risk of low pay for those in their 60s relative to those who are middle aged.

As a means of isolating the experience of individuals with a joint experience of low pay and low household income, the model was re-run with the sample split into two groups: employees above and below the median equivalised disposable income (see Table A7 in the appendix). For low paid employees in the bottom half of the income distribution the model finds that both part-time work and being on a temporary contract are associated with being in low pay. Otherwise, the results are broadly similar to those for employees overall and for those employees in the upper half of the income distribution.

[27] See also Whittaker and Hurrell (2013: 24) who find a similar association between low pay and temporary contracts in the UK

[28] Similar results (same coefficient sign and statistically significant) were found in the model building process using a variable measuring the presence of children aged less than 15 years.

[29] Collins et al (2012: 55-78) and Mac Mahon et al (2012) track the cost of a child across childhood, using a budget standards technique, and report costs as being high in infancy then declining before increasing once again as children become teenagers.

[30] In general, surveys such as the *Structure of Earnings survey* measure low pay among those in firms of ten or more employees. Limiting the examination in this way, often driven by sampling structures, partially explains the difference between the aforementioned Eurostat estimates of low pay in Ireland in 2010 being 20.7% and the result of the decompositions in table 4 which found that 30.3% of employees were low paid.

[31] The modelling found a negative coefficient for age and a positive coefficient for age-squared.

7. SUMMARY AND SOME POLICY ISSUES

This paper aims to provide greater clarity on the overall shape of earnings across the state and in particular to establish a more robust evidence base for our understanding of the nature and shape of low pay. Despite the relevance of these issues to the framing of a range of public policies, detailed empirical assessments have been limited. Indeed, in its 2015 report, the Low Pay Commission noted that "there is comparatively little published data regarding the low-paid in Ireland" (2015:29), a deficit this paper has attempted to address.

When looking at earnings the paper finds that the median employee income was €27,619 in 2013 and the mean employee income was €35,079. The distribution of employee income roughly divides into quarters: 26% earn less than €15,000 per annum; 28% earn between €15,000 and €30,000; 24.5% earn between €30,000 and €50,000; and 21.5% earn more than €50,000 per annum. At the top of the distribution, 5% of employees earn more than €85,000 and 3.5% earn more than €100,000.

Although the self-employed are a smaller group than employees, they are notably more concentrated within lower incomes. In 2013 the median self-employment income was €15,968 and the mean was €25,699. The distribution of self-employment income roughly divides into thirds: 33.1% earn less than €10,000 per annum; 32.3% earn between €10,000 and €25,000; and 34.6% earn more than €25,000 per annum. At the top of its distribution, 7.5% of the self-employed earn more than €75,000 and 3% earn more than €100,000.

Using hourly earnings the paper examined the nature and composition of low-pay in Ireland. 25% of employees earn an hourly wage of less than the Living Wage threshold of €11.45 per hour (approximately 345,000 employees) while 30% of employees earn below the Eurostat low pay threshold of €12.20 per hour (approximately 400,000 employees). Low pay is most common among women, it is concentrated in specific sectors of the economy including wholesale and retail, accommodation and food, administration and support services, and in the agricultural, forestry and fishing sector, although the latter is small in size. It also extends across the age groups, reflecting the fact that low-pay is not a transitory phase experienced principally by young employees starting out. The findings echo those of the most recent similar studies by Nolan (1993, 1998) and Blackwell and Nolan (1990).

At the household level, the paper finds that a high proportion of low paid employees are living in households that struggle financially, borrow for day to day living costs and experience deprivation. Among household types, single parents carry the highest risk of low pay. While the experience of low pay does not, in and of itself, imply that a worker will experience a sub-optimal standard of living, indeed we find low paid workers in the top quintile of the income distribution, the association between those on low pay and issues such a poverty, debt and deprivation is of obvious interest. However, despite these overlaps, the data reflects the fact that low-paid individuals and low-income families are related but different issues with a consequent need for policy to be cognisant of this and clear in the objectives it pursues.

The paper's findings carry a number of implications for policy. The structure of worker income, for both employees and the self-employed, offers a useful insight into the context of, in particular, income taxation choices. In general workers sit in the top half of the income distribution; so for example, any reduction in taxation to this group will invariably have a regressive income distribution effect.[32] Similarly, the distributive effects of any pay increases will be skewed towards the top half of the income distribution, irrespective of its structure. In either case, if policy objectives are focused on neutral or progressive outcomes, then these would have to be counterbalanced by changes to transfers lower down the income distribution.

The structure of worker income also offers an insight into the shape of the PAYE and self-employment taxation bases. Both include large numbers of workers with low incomes a phenomenon which carries implications for both the exchequer cost of reducing income taxes for these earners and the breath of the remaining income taxation base. Similarly, the structure of the worker earnings distribution carries implications for redistributive policy in general. To date such policy has predominantly focused on the disposable income distribution and on adopting various policy measures to improve it. While that should continue, policy needs to be more aware of the structure of the underlying direct income and earnings distribution – as the ILO put it, given the key role of earnings in

[32] Conversely, any increase in income taxation will have a progressive effect; a feature reflected in the distributive impacts of the income taxation focused Budget changes implemented in the early Budget's introduced during Ireland's economic crisis (see Keane et al, 2014 and Collins 2015b: 6-11).

household income, "in many countries, inequality starts in the labour market" (2015: xvii). Initiatives to increase low pay, enhance labour market participation and counter any widening of the direct income distribution need added attention.

From the perspective of labour market policy, the paper underscores the effectiveness of the minimum wage as providing a floor on the labour market. There are few earners below this rate although many cluster just above it and under the low-pay thresholds examined. The overall scale of low pay, involving at least one in every four employees, and its concentration within specific sectors of the labour market, points towards a need for policy to retain an interest in this topic and monitor any risk that it may become both embedded in certain areas of work and a permanent feature of the experience of some individuals within the labour market. Indeed, despite state intervention, in the form of low income taxation rates on low incomes and subsidies via Family Income Supplement (FIS), the findings highlight a concentration of the low paid in households experiencing difficulties in meeting ordinary living expenses.

Although the data used in this analysis is cross-sectional, its findings on the scale and composition of the low-paid reflect those from earlier studies. As such, this points towards the likelihood of persistent experiences of low pay for many employees and underscores the need for a broad-range of policy responses covering pay levels, taxation measures as well as access to opportunities for training and reskilling. Structural issues within the welfare, taxation and social insurance systems which limit employee's hours, days and earnings should also be considered.

The econometric analysis also highlights the prevalence of low pay among workers in small firms (less than 10 employees) a finding which carries implications for both the way we understand low pay and the way it is often measured. Regarding the latter, it is often the case that low pay is measured using firm level surveys which do not include small size firms, and firms in areas such as agricultural, forestry and fishing; measuring low pay in this way will invariably underestimate it.

Finally, the analysis identifies the association between temporary contracts and low pay. This result points to the relevance of addressing these contracts in the context of growing policy initiatives aimed at tackling precarious or non-regular employment.

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APPENDICES

Table A1: OECD Data on the % of Full-time Employees being in Low Pay, 2000-2013

Year	All FT Employees	FT males	FT females
2000	17.8	13.2	25.9
2001	*n/a*	*n/a*	*n/a*
2002	*n/a*	*n/a*	*n/a*
2003	19.2	16.0	24.4
2004	17.6	13.9	24.0
2005	20.1	16.9	25.3
2006	21.2	17.8	26.8
2007	21.7	17.8	28.1
2008	20.5	16.8	26.3
2009	21.5	18.2	26.3
2010	20.5	17.6	24.4
2011	24.2	22.9	25.9
2012	21.8	20.0	24.1
2013	23.3	19.1	28.9

Source: OECD Online Database (OECD.Stat)

Table A2: Composition of Direct Income

Employee income
Employee cash income
Employee non-cash income
Self-employment income
Other direct income
Value of goods produced for own consumption
Income from private pensions
Income from rental of property or land
Investment income (including interest, dividends and trusts)
Income received by people aged less than 17 years
Income from regular inter-household transfers

The concept of direct income outlined in Table A2 differs from that reported by the CSO in their annual SILC reports. The CSO definition records employer's social insurance contributions as an element of individual's direct income; technically it is part of the employee's employment income and provides, in conjunction with the employees own social insurance contributions, various entitlements. However, as most would regard this flow of income to employees as implicit (more a cost of employment than part of remuneration), it has been excluded from the direct income definition examined in the paper.

Table A3: Distribution of Individuals by Principal Economic Status across Deciles of Equivalised Disposable Income, 2013

Decile	At Work	Unemp.	Student	Home Duties	Retired	Ill/ disabled*	Other inactive person	Aged <16
Bottom	3.32	23.76	20.36	13.79	8.43	12.59	19.43	9.73
2	3.55	23.75	12.61	14.44	4.66	16.27	12.17	12.63
3	5.44	13.12	11.86	13.51	10.38	20.16	6.71	11.91
4	5.90	13.59	9.46	15.51	16.45	15.61	16.94	9.03
5	9.58	9.90	10.40	10.29	11.20	9.82	12.33	9.77
6	10.80	5.27	8.13	9.46	11.54	11.29	8.88	10.66
7	13.75	3.49	8.93	8.62	8.28	5.64	2.33	9.52
8	14.62	4.01	6.68	6.48	10.49	2.14	13.28	8.85
9	15.67	1.63	6.26	4.85	10.47	4.62	4.05	8.98
Top	17.36	1.49	5.30	3.06	8.11	1.86	3.88	8.91
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Notes: Equivalised using national scale.
*Not at work due to illness or disability

Table A4: The 11 items used to measure Deprivation in SILC 2013

Without heating at some stage in the last year;
Unable to afford a morning, afternoon or evening out in the last fortnight;
Unable to afford two pairs of strong shoes;
Unable to afford a roast once a week;
Unable to afford a meal with meat, chicken or fish every second day;
Unable to afford new (not second-hand) clothes;
Unable to afford a warm waterproof coat;
Unable to afford to keep the home adequately warm;
Unable to afford to replace any worn out furniture;
Unable to afford to have family or friends for a drink or meal once a month;
Unable to afford to buy presents for family or friends at least once a year.

Table A5: Variables legit analysis of low for pay

Name	Variable Description
y	The dependent variable with two discreet categories: not low paid (0) and low paid (1) where the low paid threshold is €12.20 per hour
low_hours	Employee works low hours (less than 20 hours per week): 1 if yes, 0 otherwise
part_time	Employee is a part time worker: 1 if yes, 0 otherwise
temp_contract	Employee is on a temporary contract of employment : 1 if yes, 0 otherwise
children_hh	Employee lives in a household with 1 or more children aged less than 18 years: 1 if yes, 0 otherwise
male	Employee is male: 1 if yes, 0 otherwise
age_group	The age group of the employee: 0 = young (below 35yrs); 1 = middle aged (35-55yrs); 2 = older (55+yrs)
highest_educ	The highest completed education level of the employee: 1= low (primary or lower secondary); 2= higher secondary; 3= PLC, 4=third-level non-degree; 5=third-level degree or above
nace_sector	The sector of employment the employee is in: 1= agriculture, forestry and fishing; 2= industry; 3= wholesale and retail trade; 4= accommodation and food; 5=admin and support services; 6=human health and social work; 7=pub admin, defence, education; 8=all other sectors
occupation	The occupation category of the employee: 1=manager and administrators; 2=professional; 3=associate professional and technical; 4=clerical and secretarial; 5=craft and related; 6=personal and protective services; 7=sales; 8=plant and machine operatives; 9= all other occupation categories
private_sector	Employee works in the private sector: 1 if yes, 0 otherwise
firm_10ormore	Employee works in a firm/company with 10 or more employees: 1 if yes, 0 otherwise
dublin	Employee lives in the Dublin region (city and county): 1 if yes, 0 otherwise
low_hours*pt	Interaction term between low hours and part time work
children_hh*ageg	Interaction term between children in household and age group

Table A6: Equation estimates for logit analysis of low pay

x	*Coefficient*	*Lineralised Std. Error*	*t*	*P>|t|*	*[95% Conf.*	*Interval]*
low_hours	0.043557	0.23361	0.19	0.852	-0.41448	0.501597
part_time	-0.58679	0.176751	-3.32	0.001	-0.93335	-0.24024
temp_contract	1.063478	0.222901	4.77	0.000	0.626433	1.500523
children_hh	-0.43905	0.182939	-2.40	0.016	-0.79774	-0.08035
male	-0.45208	0.144269	-3.13	0.002	-0.73495	-0.16921
age_group (0)	1.157082	0.180984	6.39	0.000	0.802225	1.511938
age_group (2)	-0.10653	0.193439	-0.55	0.582	-0.4858	0.272752
highest_educ (1)	0.78173	0.1894	4.13	0.000	0.410371	1.153089
highest_educ (2)	0.568986	0.168047	3.39	0.001	0.239495	0.898478
highest_educ (4)	-0.37525	0.193103	-1.94	0.052	-0.75387	0.003365
highest_educ (5)	0.211162	0.422894	0.50	0.618	-0.61801	1.040334
nace_sector (1)	1.469482	0.540018	2.72	0.007	0.410664	2.528301
nace_sector (2)	-0.62738	0.239929	-2.61	0.009	-1.09781	-0.15695
nace_sector (4)	1.241428	0.292643	4.24	0.000	0.667641	1.815216
nace_sector (5)	0.670661	0.338446	1.98	0.048	0.007067	1.334254
nace_sector (6)	-0.23935	0.26902	-0.89	0.374	-0.76682	0.288117
nace_sector (7)	-0.48933	0.305573	-1.60	0.109	-1.08847	0.109812
nace_sector (8)	-0.44475	0.207926	-2.14	0.033	-0.85243	-0.03707
occupation (1)	-0.46543	0.317849	-1.46	0.143	-1.08864	0.157782
occupation (2)	-0.5361	0.293747	-1.83	0.068	-1.11205	0.039853
occupation (3)	-0.10109	0.254803	-0.40	0.692	-0.60069	0.398505
occupation (5)	0.087416	0.281532	0.31	0.756	-0.46459	0.639419
occupation (6)	1.384614	0.253211	5.47	0.000	0.88814	1.881087
occupation (7)	1.114551	0.278115	4.01	0.000	0.569248	1.659854
occupation (8)	1.025362	0.283373	3.62	0.000	0.469751	1.580974
occupation (9)	0.90868	0.246311	3.69	0.000	0.425737	1.391624
private_sector	1.427052	0.206627	6.91	0.000	1.021916	1.832187
firm_10ormore	-0.8826	0.147242	-5.99	0.000	-1.1713	-0.59391
dublin	-0.56835	0.148332	-3.83	0.000	-0.85919	-0.27751
low_hours*pt	-0.21814	0.752316	-0.29	0.772	-1.69321	1.256934
children_hh*ageg	0.216402	0.203349	1.06	0.287	-0.18231	0.615109
N observations	*3,181*					
N weighted	*1,273,645*					
F (31, 3150)	*19.92*					
Prob > F	*0.0000*					

Notes: For categorical variables the reference categories are: age group: middle aged (1); highest education: post leaving certificate (PLC); NACE sector: wholesale and retail trade; and Occupation: clerical and secretarial.
Analysis completed in Stata survey mode.

Table A7: Logit analysis of low pay – above and below median equivalised income

	Below median income			*Above median income*		
x	***Coefficient***	***Lineralised Std. Error***	***P>|t|***	***Coefficient***	***Lineralised Std. Error***	***P>|t|***
low_hours	-0.12393	0.33302	0.7100	0.166737	0.340263	0.6240
part_time	-0.17836	0.295754	0.5470	-0.60132	0.231087	0.0090
temp_contract	0.471415	0.33233	0.1560	1.316096	0.280094	0.0000
children_hh	-0.93379	0.453351	0.0400	-0.59902	0.211326	0.0050
male	-0.70958	0.26892	0.0080	-0.31292	0.173584	0.0720
age_group (0)	1.135139	0.399121	0.0050	1.226444	0.22667	0.0000
age_group (2)	0.017523	0.36724	0.9620	-0.32581	0.256415	0.2040
highest_educ (1)	0.681596	0.309761	0.0280	0.75035	0.250581	0.0030
highest_educ (2)	0.328273	0.307218	0.2860	0.563901	0.206587	0.0060
highest_educ (4)	0.159777	0.344625	0.6430	-0.47936	0.249382	0.0550
highest_educ (5)	-0.00439	0.785566	0.9960	0.282909	0.465359	0.5430
nace_sector (1)	2.722235	1.366672	0.0470	1.004562	0.638136	0.1160
nace_sector (2)	-0.0018	0.418008	0.9970	-0.81058	0.305183	0.0080
nace_sector (4)	1.478586	0.48004	0.0020	1.071021	0.369856	0.0040
nace_sector (5)	1.361682	0.560863	0.0150	0.213654	0.443591	0.6300
nace_sector (6)	0.30669	0.477158	0.5210	-0.50277	0.34668	0.1470
nace_sector (7)	-0.59607	0.543816	0.2730	-0.24312	0.375271	0.5170
nace_sector (8)	-0.01445	0.391875	0.9710	-0.55235	0.245681	0.0250
occupation (1)	-0.47652	0.551072	0.3870	-0.61077	0.391567	0.1190
occupation (2)	0.081099	0.611844	0.8950	-0.81632	0.333894	0.0150
occupation (3)	-0.29916	0.504779	0.5540	-0.18694	0.297735	0.5300
occupation (5)	0.493021	0.499654	0.3240	-0.36859	0.359543	0.3050
occupation (6)	1.398223	0.427918	0.0010	1.200462	0.309839	0.0000
occupation (7)	1.915095	0.531762	0.0000	0.704482	0.34159	0.0390
occupation (8)	1.707035	0.489458	0.0010	0.257447	0.345191	0.4560
occupation (9)	0.720264	0.427283	0.0920	0.849141	0.313005	0.0070
private_sector	0.995221	0.343277	0.0040	1.737543	0.304053	0.0000
firm_10ormore	-0.63888	0.247409	0.0100	-0.95485	0.189841	0.0000
dublin	-0.66702	0.27577	0.0160	-0.41279	0.178714	0.0210
low_hours*pt	0.913888	0.899335	0.3100	-1.21228	1.02648	0.2380
children_hh*ageg	0.054466	0.391318	0.8890	0.16152	0.282198	0.5670
N observations	*755*			*2,426*		
N weighted	*306,411*			*967,234*		
F	*4.39*			*13.84*		
Prob > F	*0.0000*			*0.0000*		

Notes: For categorical variables the reference categories are: age group: middle aged (1); highest education: post leaving certificate (PLC); NACE sector: wholesale and retail trade; and Occupation: clerical and secretarial.
Analysis completed in Stata survey mode.

VOTE OF THANKS PROPOSED BY DONAL DE BUITLEIR, publicpolicy.ie

I am very pleased to second the vote of thanks to Dr Micheal Collins. We have a shortage of research in this area and this paper makes a very important contribution. My views should not be attributed to the Low Pay Commission or its members.

The Importance of Work
The solution to the problem of low incomes is not just related to pay rates but to the amount of work people do. The more work a household does, the less is risk of poverty. Our problem in Ireland is that we have the highest levels of very low work intensity households in the EU. The households with least work are 27 times more likely to be at risk of poverty than those with most work. Evidence suggests that moderate increases in the National Minimum Wage (NMW) do not have a significant effect on employment. There may be some effect on hours worked and we need more research on that. We do not know what effect higher increases in the NMW might have. We must balance any possible tradeoffs between increases in NMW and availability of work.

The Living Wage
The Living Wage is based on the concept that work should provide an adequate income to enable individuals to afford a socially acceptable minimum standard of living. The Living Wage is the average gross salary which will enable full-time employed adults (without dependents) across Ireland to afford a socially acceptable minimum standard of living. Detailed work has been carried out in Ireland by the Living Wage Technical Group which sets the minimum wage for a single adult at €11.50 an hour. This is an average figure and varies across the country from €10.45 to €13.05 in Dublin. The elements making up the Living Wage are derived from Focus Groups who recommend the components of a Minimum Essential Living Standard.

Some elements of the calculation of the Minimum Essential Living Standard appear surprising. For example, there is provision for an element of private health insurance which is availed of by less than half the population. A number of questions arise. What is the role of the tax and transfer system in ensuring that people have a proper living standard? The relationship between low pay and poverty is weak. As the paper points out half the workers on the NMW are in the top half of the income distribution.

The paper shows substantial numbers of self-employed have low incomes. Present moves to remove the tax discrimination against low income self-employed are important. However, the question remains. What is the best means of looking after self-employed on low incomes? Given that under existing law there is no provision for regional variations in the NMW, what weight should be given to the Living Wage concept in determining the National Minimum Wage?

Housing Costs
Housing costs vary significantly in individual cases. For example, housing costs in Dublin are 2.5 times higher than in rural areas (€180.72 v €72.01 per week) Given the substantial variation in the cost of housing, what is the best way to ensure that housing need is met in an affordable way ? Would targeted housing subsidies be more effective?

Let me conclude by thanking Dr Collins for his work on this important issue and I look forward to his future contributions in this area.

DISCUSSION

Richard McMahon: I congratulate all the speakers and query whether similar studies were undertaken by the Nevin Institute in Northern Ireland.

Fergal O'Connor: There were only two pairwise interaction terms left in the logit regression model in the report. Did the choice of interaction terms come from prior studies or did it come about through the model building process for the current paper?

Andrew Powell: The data on low pay is based on the Principal Economic Status (PES) of "At work". However, not all of those persons working may perceive themselves as being at work. For example, respondents may classify themselves as students or retired but still work for an income, in some cases a low income, during the survey reference period. Was account taken of respondents in such categories and if so by how much did they influence the data?

Eóin Flaherty: Chris Sibley, who couldn't to make it today, thought it would be useful to add median income values for aggregate level occupations to your income distribution graph. You could also do the same with one digit NACE codes. Adding this information would further help people understand how they are paid compared to their peers.

Patrick Foley: How well does the sample data support the ability to analyse and make statistical inference on certain sub-populations when their sample sizes are quite small and the sub-groups may not be fully represented in the sample, e.g. the low income self-employed? It should be noted that one of the primary variables used in the analysis, (i.e 'hours worked'), is self-reported and is not one of the key SILC variables around which the survey is designed. Therefore cautioned should be exercised around its use. The GINI coefficient calculated in this paper is based only on those classified as having direct income. Therefore it refers to a national sub-population. It is different from the official published GINI coefficient which applies to the entire population and is based on the concept of 'equivalised disposable income'. Also reference was made to a potential bias in the sample in that there may be missing observations in the extreme lower and upper ends of the distributions. I think that the issue may be more to do with precision rather than bias as the weighting used has the potential to reduce possible bias. However there may be an issue with measuring the upper end of the distribution precisely for two reasons;