

Low Pay, Minimum Wages and Household Incomes: Evidence for Ireland

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Low Pay, Minimum Wages and Household Incomes: Irish Evidence

ABSTRACT

This paper examines the relationship between low hourly wages and household incomes, and the potential impact of increases in the national minimum wage on household poverty. Results based on up-to-date Irish data confirm the proportion of employees falling below the commonest low pay threshold (two-thirds of median hourly earnings) has increased from approximately 20 per cent in 2005 to 23 per cent in 2013. Results confirm, however, that very few low paid individuals are found in households with incomes below the most commonly used poverty line income cut-off i.e., 60 per cent of median equivalised income. This is a feature which is now well established across countries and over time. A corollary, illustrated using SWITCH, the ESRI microsimulation model, is that increases in the minimum wage result in increases in disposable income which are mainly in the upper half of the household income distribution. Policy may, of course, be concerned with low individual incomes as well as with low household incomes; but it is important to be clear about what minimum wage policy can, and cannot, achieve. It is also important, as recent UK experience illustrates, that the design of tax and welfare policy changes should take such factors into account from the outset.

1. INTRODUCTION

The Irish economy has undergone enormous changes in the past two decades. From the mid-1990s to the mid-2000s, GNP grew at an average rate of more than 6 per cent. Unemployment fell from 15 per cent in 1994 to rates of between 4 and 5 per cent in the years 2000 to 2007. A combination of international recession, a banking crisis, the bursting of a housing bubble and a fiscal crisis then led to a substantial fall in GNP, and a rise in unemployment, peaking at just over 15 per cent in 2012. In more recent years there has been an upturn in GNP and unemployment has fallen to around 8½ per cent. How have these dramatic developments at the macroeconomic level affected the level and distribution of earnings – the dominant source of income for households – and the extent of low pay in the Irish labour market? These topics have been addressed in a number of

recent papers (Doris et al., 2015; Holton and O’Neill, 2015; Collins, 2015). In this paper we add to, and reassess, evidence on inequality in hourly earnings and the extent of low pay. We also use SWITCH, the ESRI tax-benefit model, to assess the implications of changes in the level of the minimum wage for household net incomes.

This provides useful background information for discussion of policies aimed at supporting incomes in low paid employment. The new programme for government (Government of Ireland, 2016) gives the following commitment in respect of minimum wages:

Reducing poverty levels by supporting an increase in the minimum wage to €10.50 per hour over the next five years.

The programme for government further states that it will ‘strengthen the role of the Low Pay Commission in relation to the gender pay gap and in-work poverty’. A key element in both commitments is the reference to ‘reducing poverty levels’. In this paper, we do not attempt a comprehensive assessment of policy on low pay: work by McGuinness et al. (forthcoming) will provide evidence on this topic. Our focus, instead, is on the relationship between low pay and household incomes, and how this shapes and limits the potential of minimum wage policy to affect household poverty outcomes.

The paper is structured as follows. Section 2 reviews results on wage inequality for Ireland over years from the boom, bust and nascent recovery. The key database used by all authors (Voitchovsky et al., 2012; Holton and O’Neill, 2015; OECD, 2016) is the Survey on Income and Living Conditions (SILC). We follow a similar approach and present results which are based on the database for the SWITCH model, which is also constructed from SILC.¹ Section 3 then reports new results on the extent and nature of low pay based on the SWITCH database – which are consistent with earlier work by Collins (2015). The SWITCH model is then used to examine the first-round or ‘cash’ implications of the recently announced increase in the minimum wage. The concluding section summarises the main findings, which are of relevance to debate on policy instruments designed to support low-income workers, such as the National Minimum Wage and the Working Family Payment proposed in the programme for government.

¹ A key feature of the SWITCH database is that considerable efforts are made to ensure the maximum number of cases are retained for analysis. The fact that very similar results are obtained with this approach can be seen confirming the robustness of earlier findings.

2. WAGE INEQUALITY

The impact of economic recession on wage inequality has been widely discussed in the literature. While it is often assumed that recessions lead to rising inequality² Jenkins et al. (2013) study the impact of the Great Recession on 21 OECD countries and find considerable heterogeneity across countries in both the nature of the economic downturn and its distributional impact. Therefore, detailed empirical investigation is needed to examine how macroeconomic developments in Ireland have affected wage inequality.

In the Irish context, there have been a number of recent investigations of how wage inequality has changed during periods of strong growth and deep recession. Key measures used in such analyses are:

- The ratio of hourly wages for the 90th percentile (P90, the wage which divides the top 10 per cent of earners from others) to the median wage (P50, the wage of the middle-ranking worker).
- The ratio of the median hourly wage (P50) to the wage at the 10th percentile (P10).
- The ratio of the wage at the 90th percentile to the wage at the 10th percentile of the hourly wage distribution (P90/P10, which is the product of the other two ratios, P90/P50 and P50/P10).

Table 1 brings together estimates of the P90/P10 ratio from three sources. Voitchovsky et al. (2012) examined the prolonged boom of the 'Celtic Tiger' era, from 1994 to 2007. Holton and O'Neill (2015) examined the latter years of this boom and the period of recession and nascent recovery (2004 to 2013). For the overlapping years (2004 to 2007), both of these papers employ the same data source: the Survey on Income and Living Conditions (SILC) conducted by the Central Statistics Office (CSO).

The CSO's SILC Research Microdata File (RMF) includes data on hourly earnings based on earnings received in the last pay cheque divided by hours worked. As noted by Holton and O'Neill (2015), 'These data are subject to careful cleaning by the CSO, using administrative and other data sources'. To construct the SWITCH database, further data checks are carried out in order to reduce the number of

² A point noted by Matsaganis and Leventi (2014).

missing values on key variables. This results in the addition of some cases, particularly for earlier years, which were not available to earlier researchers. Such an approach is common in microsimulation models where a very wide range of variables is needed and a missing value on any such variable would lead to the exclusion of the many households. Our analysis, based on this approach, can be seen as providing a robustness check on the results derived by other approaches. In other respects, we follow Holton and O’Neill (2015) and Voitchovsky et al. (2012) in focusing on gross hourly earnings for employees in the age range 16-65 and with a wage in the range of €1 per hour to €100 per hour; excluding individuals who report working less than one hour per week, or more than 100 hours per week. Those who are in full-time education are also excluded.

TABLE 1 Hourly Earnings, Ratio of 90th Percentile to 10th Percentile, 1994-2013

	Voitchovsky et al. (2012)	Holton and O’Neill (2015)	Authors’ analysis using SWITCH database	N. in SWITCH database
1994	4.77			
1995	4.54			
1996	4.62			
1997	4.64			
1998	4.16			
1999	4.21			
2000	3.56			
2001	3.62			
2003	3.67			
2004	3.65	3.64		
2005	3.67	3.78	3.84	4,285
2006	3.92	4.05		
2007	4.00	4.04		
2008		3.92	3.90	3,207
2009		3.91		
2010		3.71	3.76	2,675
2011		3.71		
2012		3.72		
2013		3.85	3.81	3,174

Sources: Columns titled ‘Voitchovsky et al. (2012)’ and ‘Holton and O’Neill (2015)’ present the results sourced from the corresponding study. Column titled ‘Authors’ analysis using SWITCH database’ and ‘N. in SWITCH database’ present the authors’ estimates, based on SILC for corresponding years.

Voitchovsky et al. (2012) found that the P90/P10 measure was in the region of 4.5 to 4.8 in the mid-1990s,³ but fell to values in the region of 3.6 to 3.7 in the years 2000 to 2005. The final years of the boom saw this measure of wage inequality rise to 4 in 2007. Holton and O’Neill (2015) find a similar value for this year, from the same data source, and see a fall in the P90/P10 ratio to values close to 3.7 in the years 2010-2012, with an increase to 3.85 in 2013.

While there are some differences in the estimates in cases where the different analysts report results for the same year,⁴ some robust results do emerge. The long-run view is that wage inequality in Ireland has declined substantially from the levels of the mid-1990s through to the early 2000s. An increase in hourly wage inequality in the ‘bubble’ years was then counterbalanced by a reduction in inequality during the recession. Our results are broadly in line with those of Holton and O’Neill (2015), but suggest that changes in inequality over the 2005-2013 period may have been somewhat smaller. Holton and O’Neill concluded that ‘it is too early to say’ whether an increase in inequality between the levels of 2010-2012 and 2013 represents the start of a persistent trend. Our analysis confirms that caution is appropriate in this respect, with our estimates indicating a smaller increase in wage inequality from 2010 to 2013.

3. THE EXTENT OF LOW PAY

There are a number of ways in which ‘low pay’ can be defined. In the European context, Eurostat (2015) defines low wage earners as those earning two-thirds or less of national gross median earnings: this is similar in structure to a relative income poverty line or what Eurostat terms an ‘at risk of poverty’ measure. In both the UK and Irish contexts, the concept of a ‘Living Wage’ has also emerged. In the Irish context, an estimate of a ‘Living Wage’ has been proposed by the Living Wage Technical Group (2014). The Living Wage is aimed at arriving at a wage which gives ‘an adequate income to enable individuals to afford a socially acceptable minimum standard of living’.⁵ Collins (2015) explains that the Living Wage Technical Group calculated a value of €11.45 for the national living wage in

³ Data for the period 1994 to 2001 are from the Living in Ireland Surveys conducted by the ESRI.

⁴ For example, in 2005, the lowest value is 3.67 from Voitchovsky et al. (2012), while Holton and O’Neill and the present authors suggest an estimate close to 3.8.

⁵ The construction of the estimated ‘Living Wage’ is based on an examination of single adult households and the cost for a basket of over 2,000 items (Living Wage Technical Group, 2015a). Focus groups and expert opinion informed the decision of which items were deemed essential for a minimum standard of living. The items examined include food, furniture, housing and transport. Separate costs were calculated for individuals living in rural areas, towns, cities and the Dublin area. The national living wage was then calculated by averaging the minimum income needed to afford the essential living standard in each of these four regions, weighted by the proportion of the labour force resident in each region.

2014. In 2015, the calculated value increased to €11.50 per hour (Living Wage Technical Group, 2015b). These values are very similar to those calculated using the two-thirds of median earnings metrics for the same years. Setting the low pay cut-off at two-thirds of median earnings has the advantage that it is available for earlier years, and for other countries. Therefore, in our analysis we will focus on a low pay cut-off set at two-thirds of median earnings.⁶

In Table 2, we examine the proportion of employees classified as low paid in the years 2005-2013. The median wage is also presented to understand how nominal wages evolved over this period. We also present the low wage cut-off and the minimum wage for the same given years. These descriptive statistics indicate that while the median wage increased between 2005 and 2013, the proportion of low wage employees was broadly stable, at around 20 per cent, for the years 2005, 2008 and 2010; but that it increased to 23 per cent in 2013.

TABLE 2 Employees Earning Defined Low Wages (%)

	% of employees earning less than $\frac{2}{3}$ of the median wage (%)	Low pay cut-off $\frac{2}{3}$ median wage (€)	Minimum wage (€)
2005	20.0%	€9.0	€7.65
2008	20.6%	€10.5	€8.65
2010	20.1%	€11.2	€8.65
2013	23.0%	€11.4	€8.65

Source: Authors' estimates, based on SILC for corresponding years.

How does this compare with other countries? Here we use the OECD database on earnings (OECD, 2016). The concept used here is not hourly earnings, but the gross weekly earnings of full-time workers. Again, the cut-off used is two-thirds of median earnings, and the proportion measured as being low paid is 23 per cent for 2013. This is among the highest in the OECD. In terms of the implications of this statistic, it should be noted that Irish wage rates are among the highest in the EU on a purchasing power parity basis (Eurostat, 2015). In the UK, the incidence of low pay using the OECD definition is close to 20 per cent – lower than the 23 per cent for Ireland. At the same time, as illustrated in the paper by Callan et al. (2016), the incidence of pay below equal-valued wage rates in purchasing power parity terms is significantly lower in Ireland.

⁶ This is, of course, a relative construct – an alternative perspective would be to focus on the incidence of low pay in absolute terms: some information on this is included in the companion paper by Callan et al. (2016).

4. LOW PAY AND HOUSEHOLD INCOMES

Many authors have found that the relationship between low wages and household poverty is weak, while there is a stronger association between low-work intensity and household poverty, (see, for example, Marx and Nolan, 2012). Correspondingly reasons have been presented for why minimum wage policies cannot, alone, solve the issue of poverty. Neumark et al. (2005) in their study of US poverty and minimum wage policies, note that a significant number of minimum-wage earners live in households that are above the poverty threshold. Increasing the wages of these workers would have no impact on the national level of household poverty. Similarly, Nickell (2004), in his discussion of poverty in the UK notes that poverty is not a question of low-pay but rather worklessness. Thus, although an increase in wages for low wage earners may lift some households above the poverty threshold, international evidence suggests that overall impacts may be quite limited.

While such results are now well established in the literature for many countries, including the UK, recent UK reform proposals seem not to have fully realised the limited overlap between low pay and household poverty. Elming et al. (2015) assessed the potential compensation provided by the new 'National Living Wage' (NLW) for the personal tax and benefit measures proposed in last year's UK budget. They found, on generous assumptions, that the average value of the NLW to working age households currently benefiting from tax credits or welfare benefits was about a quarter of the value of the cuts in benefits/tax credits for such households. For low income working age households this proportion was even lower. The UK experience emphasises the value of having policy design informed by an accurate diagnosis of the situation. It is with this in mind, that we analyse here the limited overlap between low pay at individual level and household poverty.

We employ the Eurostat definition (2015) of household poverty. A household is categorised as 'at risk of poverty' if the household equivalised disposable income is less than the poverty threshold. The poverty threshold is defined as 60 per cent of the national median household equivalised disposable income. There are three key contrasts with the 'low pay' concept.

1. Low pay is measured at the individual level, while risk of poverty is measured at the household level. This implies that a person's risk of poverty will depend not only on their own income but also the income of other individuals in the household.

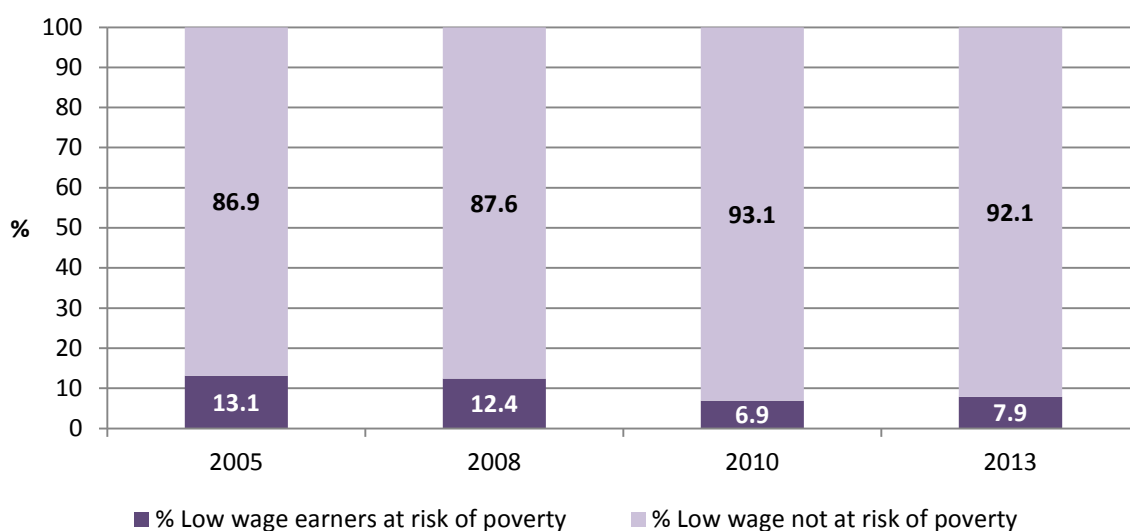
2. Given that household poverty status depends not just on income but also on needs, a person's risk of poverty will depend on the number of dependants in the household.
3. Low pay is calculated based on gross income while risk of poverty relates to disposable income. Thus, poverty is measured after accounting for social transfers while low pay is not.

Previous literature has examined the level of overlap between low pay and poverty. Nolan (1993) examined data collected for an Irish sample in 1987 and found that 20 per cent of low wage earners in Ireland were at risk of poverty. Marx and Verbist (1998) analysed a selection of OECD countries using data from the early 1990s and found that, with the exception of the US, less than 10 per cent of low wage earners were at risk of poverty.⁷ In a more recent analysis, Marx and Nolan (2012) examined a sample of EU residents who were interviewed in 2007 as part of the EU-SILC survey. The authors found that Italy had the highest level of in-work poverty at 22 per cent, while Ireland had the lowest at 5 per cent. It is worth noting that the authors restricted their analysis to employees who had worked for the entire 12 months prior to the interview. This deviates from our analysis where we include as low paid those who are currently low paid employees, but have previously experienced a spell of unemployment or been out of the paid labour market. Therefore, it is likely that our sample captures additional individuals who are at a higher risk of poverty.

Figure 1 confirms that there is a very low degree of overlap between low pay and household poverty in Ireland. Across all four waves of data, the proportion of low wage workers at risk of poverty is low, and the proportion has diminished somewhat over time, so that by 2013 fewer than eight out of every 100 low paid employees were in households at risk of poverty.

⁷ Marx and Verbist (1998) define the poverty threshold as 50 per cent of the mean household equivalised disposable income.

FIGURE 1 Low Wage Earners at Risk of Poverty



Source: Authors' estimates, based on SILC for corresponding years.

How is the risk of poverty for low paid individuals affected by household factors, such as the presence of other earners, or the presence or absence of children?

Table 3 examines this issue.

TABLE 3 Risk of Poverty for Low Paid Individuals, Classified by Household Situation, 2013

Low paid individuals, classified by household situation	% in households below 60% median equivalised income
More than one earner, no children	2
More than one earner, with children	1
Sole earner, no children	15
Sole earner, with children	17
All	8

Source: Authors' estimates, based on SILC for corresponding years.

The key factor here is the presence or absence of other earners. For low paid individuals who are the sole earner in the household, the risk of poverty is 15-17 per cent. For those who are in households with another earner, the risk is just 1 to 2 per cent.

The relationship between low pay and poverty can be examined further by looking at the distribution of low wage workers across the household income distribution, which is displayed in Table 4. The majority of low wage earners are located in the middle of the income distribution with smaller proportions in the

bottom and top quintiles. By 2013, about one-in-eight of low wage workers was in the poorest one-fifth of households, ranked by income per adult equivalent.

TABLE 4 Distribution of Low Wage Workers across Household Income Distribution, Selected Years, 2005-2013

Share of low wage workers (%)	Lowest income	2	3	4	Highest income
	%	%	%	%	%
2005	13	21	30	26	10
2008	17	17	32	25	9
2010	11	16	34	26	12
2013	12	23	29	28	8

Source: Authors' estimates, based on SILC for corresponding years.

Notes: Quintiles are defined based on the sample of all households, ranked by disposable income per adult equivalent.

The lack of overlap between low pay and poverty highlights other important factors that need to be considered. Low wage earners are less likely to be at risk of poverty when they live in households with multiple earners. One could consider the situation of a young adult earning a low wage but residing in the family home where the parents' income is sufficient to keep the household above the poverty threshold. Similarly, low wage earners with few dependants will be at lower risk of poverty. Conversely, employees who earn a wage which is above the low wage threshold may be at risk of poverty when they are the sole earners in the households or when their income is spread across multiple dependants.

However, this is not to say that a minimum wage policy is flawed if it fails to reduce poverty. Rather, it is important to understand the possibilities and limitations of targeted efforts to increase wages. Holton and O'Neill (2015) highlight that minimum wages are an effective tool in protecting the wages of the least skilled workers, especially during the Great Recession. Furthermore, Dolado et al. (1996) note that it may be unreasonable to expect that minimum wage policies can have an impact on households where nobody is in work. Therefore, when examining minimum wage policies, the authors suggest examining households which do have someone in work. In Table 5, we employ this restriction. Specifically, we examine the distribution of low wage workers across the income distribution of the subset of households which contain at least one employee. The majority of low wage workers are located at the bottom two quintiles of this distribution, highlighting that households containing low wage workers are in a vulnerable position when compared with other working households.

TABLE 5 Distribution of Low Wage Workers within Income Distribution of Households Containing an Employee, Selected Years, 2005-2013

Share of low wage workers (%)	Lowest income	2	3	4	Highest income
	%	%	%	%	%
2005	36	27	19	14	5
2008	34	28	20	13	5
2010	33	30	19	14	4
2013	37	26	22	10	4

Source: Authors' estimates, based on SILC for corresponding years.

Notes: Quintiles are defined based on the sample of households containing an employee.

Given the limited overlap between low pay and household poverty, and the patterns of incidence of low paid individuals in the household income distribution, it is of interest to examine the 'cash' or 'first round' effects of increases in the minimum wage. In previous research (Callan et al., 2015) we examined the impact of the increase in the minimum wage announced in Budget 2016 from €8.65 to €9.15. In doing so, we used SWITCH, the ESRI microsimulation model, to examine the impact of the minimum wage increase on household incomes. The net impact of the minimum wage change depends on: (1) how low paid individuals are distributed across the household income distribution and (2) on the extent to which an increase in the gross wage leads to an increase in disposable income, when account is taken of any increases in tax, USC and social insurance contributions, and/or withdrawal or reduction in social welfare payments to the individual and his or her spouse.

Figure 2 illustrates the distributional impact of raising the minimum wage.⁸ We find that this increase had little impact across the household income distribution. In particular, raising the minimum wage led to only small increases in income for the bottom quintile, larger increases for middle quintiles, and limited increases in the top quintile. This analysis indicates that households in the second and fourth quintiles are most affected by this policy change. This is not surprising, given that

⁸ In the SILC data underlying SWITCH, some employees report earning wages that are below the minimum wage. Our analysis groups these employees together with employees who report earning the minimum wage. We then assume that this entire group earns €8.65 under the base policy and examine the impact of increasing the wage by 50 cent for all of these workers collectively. Additionally, we assume that any individual earning a wage between €8.66 and €9.14 will see their wage increase to €9.15 under the reform. Potential spillover effects, whereby those earning just above the minimum wage could see their wages rise in response to an increase in the minimum wage, are not modelled. While such spillovers would affect the aggregate impact of a minimum wage, it is unlikely that the distributional patterns identified here would be much affected.

the majority of low wage workers are in households in the middle of the household income distribution.

FIGURE 2 Impact of Raising the Minimum Wage in Budget 2016 (Share of the Increase in Household Disposable Income)



Source: Authors' calculations using SWITCH, the ESRI tax-benefit model (www.esri.ie/switch).

5. CONCLUSION

In this paper we began by examining changes in wage inequality over the period of boom, bust and early recovery in Ireland. This analysis suggests some caution about the degree to which the nascent recovery may have led to increases in wage inequality, as results are somewhat sensitive to the methods used in the analysis. However, the broad picture of a substantial reduction in wage inequality since the mid-1990s is confirmed.

An examination of low wage workers revealed that the proportion of low wage employees has increased from approximately 20 per cent in 2005 to 23 per cent in 2013. Results also confirm that very few low paid individuals are found in households with incomes below the most commonly used poverty line income cut-off i.e., 60 per cent of median equivalised income. This is a feature which is commonly observed across countries and over time. A corollary, illustrated using SWITCH, the ESRI microsimulation model, is that increases in the minimum wage result in increases in disposable income which are mainly in the upper half of the household income distribution. Policy may, of course, be concerned with low individual incomes as well as with low household incomes; but it is important to be clear about what minimum wage policy can, and cannot, achieve. It is also important, as recent UK experience illustrates, that the design of tax and welfare policy changes should take such factors into account from the outset.

REFERENCES

- Callan, T., B. Colgan, C. Logue, M. Savage, J. R. Walsh (2015). 'Distributional Impact of Tax, Welfare and Public Service Pay Policies: Budget 2016 and Budgets 2009-2016', in Duffy, D., K. McQuinn, C. Morley, D. Foley (eds.) *Quarterly Economic Commentary, Winter 2015*, Dublin: Economic and Social Research Institute.
- Callan, T., B. Nolan, C. Keane, M. Savage and J. Walsh (2013). 'The Great Recession, Austerity and Inequality: Evidence from Ireland'. *Intereconomics*, Vol. 48(6), pp. 335-338.
- Callan, T., C. O'Dea, B. Roantree, M. Savage (2016). 'Financial Incentives to Work: Comparing Ireland and the UK', *Budget Perspectives Paper 2016/3*, Dublin: ESRI.
- Collins, M. L. (2015). 'Earnings and Low Pay in the Republic of Ireland: a profile and some policy issues'. The Nevin Economic Research Institute Working Paper, 2015/No.29.
- CSO (2015). Survey on Income and Living Conditions (SILC) (2014). Results. Available from www.cso.ie/en/media/csoie/newsevents/documents/pdfdocuments/prSILC2014.pdf. Accessed May, 2016.
- Department of Social Protection (2015). *Social impact assessment of the welfare and income tax measures in Budget 2016*, Available from www.welfare.ie/en/downloads/SocialImpact2016.pdf. Accessed May, 2016.
- Dolado, J., F. Kramarz, S. Machin, A. Manning, D. Margolis, C. Teulings, M. Keen (1996). 'The Economic Impact of Minimum Wages in Europe'. *Economic policy*, pp. 319-372
- Doris, A., D. O'Neill, O. Sweetman (2015). 'Wage flexibility and the great recession: the response of the Irish labour market', *IZA Journal of European Labor Studies*, Vol. 4(18), pp.1-24.
- Duffy, D., K. McQuinn, C. Morley, D. Foley (2015). *Quarterly Economic Commentary, Winter 2015*. Dublin: Economic and Social Research Institute.
- Elming, W., C. Emmerson, P. Johnson, D. Phillips (2015). 'An assessment of the potential compensation provided by the new "National Living Wage" for the personal tax and benefit measures announced for implementation in the current parliament', IFS Briefing Note No. 175.
- Eurostat (2015). *Earnings Statistics*. Available from http://ec.europa.eu/eurostat/statistics-explained/index.php/Earnings_statistics. Accessed May, 2016.
- Government of Ireland (2016). A Programme for a Partnership Government, Dublin: Department of the Taoiseach.
- Holton, N. and D. O'Neill (2015). 'The Changing Nature of Irish Wage Inequality from Boom to Bust'. Maynooth University Department of Economics, Finance and Accounting Working Paper Series, N264/15.

- Hood, A., R. Joyce and D. Phillips (2014). 'Policies to help the low paid', in IFS Green Budget 2014.
- Jenkins, S.P., A. Brandolini, J. Micklewright, B. Nolan, G. Basso (2013). 'The great recession and its consequences for household incomes in 21 countries' in Jenkins, S.P, Brandolini, A., Micklewright, J, Nolan (eds.) *The Great Recession and the Distribution of Household Income*, Oxford: Oxford University Press.
- Living Wage Technical Group (2015a). *Calculating a Living Wage for the Republic of Ireland*. Available from www.livingwage.ie/images/Documents/2015/Living_Wage_Technical_Document_-_July_2015.pdf. Accessed May, 2016.
- Living Wage Technical Group (2015b). *Living Wage 2015*. Available from www.livingwage.ie/images/Documents/2015/Living_Wage_2015.pdf. Accessed May, 2016.
- Living Wage Technical Group (2014). *Living Wage 2014*. Available from www.livingwage.ie/images/Documents/2014/Living_Wage_2014.pdf. Accessed May, 2016.
- Low Pay Commission (2015). 'Recommendations for the National Minimum Wage'. Available from www.lowpaycommission.ie/publications/national-minimum-wage-/recommendations-of-the-low-pay-commission-for-the-national-minimum-wage-2015-.pdf. Accessed May, 2016.
- Marx, I. and B. Nolan (2012). 'In-Work Poverty'. Growing Inequalities' Impacts Discussion Paper, 51.
- Marx, I. and G. Verbist (1998). 'Low wage employment and poverty: curse or cure?' in Bazen, S., M. Gregory, W. Salverda (eds.) *Low-wage Employment in Europe*, London: Edward Elgar.
- Matsaganis, M., C. Leventi (2014). 'Poverty and Inequality during the Great Recession in Greece'. *Political Studies*, Vol. 12(2), pp. 209-223.
- Neumark, D., M. Schweitzer, W. Wascher (2005). 'The Effect of Minimum Wages on the Distribution of Family Incomes: A Nonparametric Analysis'. *Journal of Human Resources*, Vol. 40(4), pp. 867-894.
- Nickell, S. (2004). 'Poverty and Worklessness in Britain'. *Economic Journal*, Vol. 114(494), pp. C1-C25.
- Nolan, B. (1993). 'Low Pay in Ireland'. The Economic and Social Research Institute General Research Series, Paper No. 159.
- Nolan, B. (1994). 'Low Pay and Poverty' in Nolan, B. and T. Callan (eds.) *Poverty and Policy in Ireland*, Dublin: Gill and Macmillan.
- OECD (2016). 'Earnings: Gross earnings: decile ratios', *OECD Employment and Labour Market Statistics* (database). Available from <http://dx.doi.org/10.1787/data-00302-en>. Accessed 10 May, 2016.
- Voitchovsky, S., B. Maître, B. Nolan (2012). 'Wage Inequality in Ireland's "Celtic Tiger" Boom'. *The Economic and Social Review*, Vol. 43(1), pp. 99-133.



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