



*Research for new economic policies*

## **NERI Working Paper Series**

---

# **Income Inequality in the Republic of Ireland (2004-2015)**

**Ciarán Nugent**

**March 2019**

**NERI WP 2019/No 61**

---

For more information on the NERI working paper series see: [www.NERInstitute.net](http://www.NERInstitute.net)

**PLEASE NOTE: NERI working papers represent un-refereed work-in-progress and the author(s) are solely responsible for the content and any views expressed therein. Comments on these papers are invited and should be sent to the author(s) by e-mail. This paper may be cited.**

## **Nevin Economic Research Institute (NERI)**

31/32 Parnell Square  
Dublin 1  
Phone + 353 1 889 7722

45-47 Donegall Street  
Belfast BT1 2FG  
Phone + 44 28 902 46214

Email: [info@NERInstitute.net](mailto:info@NERInstitute.net)  
Web: [www.NERInstitute.net](http://www.NERInstitute.net)

# **Income Inequality in the Republic of Ireland (2004-2015).**

**Ciarán Nugent\*\*** (NERI) Nevin Economic Research Institute, Dublin, Ireland

**Keywords:** Inequality; Income Distribution; Market income; Gross Income; Disposable Income

**JEL Codes:** O30; O33; O43

---

## **ABSTRACT**

This paper provides a descriptive overview of the distribution of market income (income from market sources), gross income (income from all sources before taxes) and disposable income (income after taxes) in the Republic of Ireland between 2004 and 2015. Rather than households (the more common unit of analysis in the literature), this analysis focusses on taxpayer units, also known as income cases, building on and adding to recent work on Irish income distribution from both perspectives. The paper continues with analysis of income inequality using various indicators prevalent in the literature including Gini coefficients, percentile ratios and top and bottom inequality measures. Although the Gini coefficient, a summary measure and the most common income inequality indicator in the literature, was relatively stable in gross and disposable income terms between 2004 and 2015 (in line with findings in several recent publications), a more detailed examination of the data shows widening income inequality between groups at different points in the income distribution over time. Significantly, the gap between the bottom (income at the 10<sup>th</sup> percentile) and the middle point of the distribution (median income) was wider in 2015 relative to the years pre-crisis. This is also the case between the bottom and the top (income at the 90<sup>th</sup> percentile) of the distribution. The gap between the middle point in the distribution and the top was virtually unchanged over the same period. These trends apply to both gross and disposable income.

**This version: 25 February 2019**

---

\*\* The author gratefully acknowledges helpful feedback from Dr Tom McDonnell & Paul Goldrick-Kelly. The usual disclaimer applies. All correspondence to [ciaran.nugent@nerinstitute.net](mailto:ciaran.nugent@nerinstitute.net)

# Income Inequality in the Republic of Ireland (2004-2015).

Ciarán Nugent (NERI) Nevin Economic Research Institute, Dublin, Ireland.

## 1. INTRODUCTION

Inequality is a consistent theme in public discourse, not only of interest to the public at large but to politicians competing within the electoral process and academics from every discipline within the social sciences. Interest has grown in tandem with rising income and wealth inequality across the OECD over the past number of decades (Piketty 2013, Cingano 2014, Oxfam 2016). Recently established narratives of the role of income inequality in precipitating the financial crisis of 2008, particularly in the US, have further reinforced the importance of income distribution for policymakers (Cingano 2014, Stockhammer 2015).

This is a descriptive paper, which builds on and complements recent research on Irish income distribution. Several recent studies on the topic in Ireland have focused on the 'household' as the unit of analysis (Collins 2014; Savage et al 2015; Holton 2016; Callan, Bercholtz & Walsh 2018). Addressing a gap in the literature, the approach in this paper is to examine trends in income distribution by *income case* (or taxpayer unit) from 2004 to 2015, expanding on a recent paper by the Irish Revenue Commissioners with a focus on income cases (Kennedy, Stanley & Haugh 2018). For anyone not in a marriage or civil partnership an income case refers to the individual (CSO 2017). Although married or cohabiting couples can opt not to have their incomes jointly assessed, due to data availability this model assumes couples are jointly assessed in all cases. This is the option that benefits most couples.

The paper provides a comprehensive overview of the distribution of market income or 'pre-distribution', gross income (after transfers) and disposable income (after taxes) for all Irish income cases between 2004 and 2015. These 'real-life' income indicators are tangible and easily understandable for a wide audience. The vast majority of adults will have had some direct experience with all three. Quality of life issues around the cost of living for different groups with the same income (households with children, renters etc.) are beyond the scope of the paper.<sup>1</sup>

---

<sup>1</sup> Equivalised disposable income, a quality of life measure designed to incorporate issues around consumption related to the economies of scale of marriage and costs related to family size, though common in the literature is beyond the scope of the paper. In the same way, an array of other cost-of-living issues, which might affect the purchasing power and standard of living of families such as imputed rent (the advantages to homeownership relative to renting), are beyond the scope of the paper.

In addition to providing Gini coefficients, the paper examines a handful of other income distribution indicators commonly found in the literature: income percentile ratios and top and bottom inequality measures. These indicators highlight the relative changes at different points in the distribution over time. For instance, has the disposable income of the taxpayer unit at the 10th percentile grown at the same pace as the unit at the 90th over the past decade?<sup>2</sup>

The Gini coefficients for Irish income cases in both gross and disposable terms are remarkably stable over the period 2004-2015, in line with finding in recent time-series analyses on Irish households (Savage et al 2015; Callan, Bercholtz & Walsh 2018). Supplementary indicators however show a more complex story. Significantly, bottom inequality (the gap between the bottom decile and mean income) increased in both gross and disposable income during this period, with little change in top inequality (the gap between mean income and the top decile). This finding comes with a caveat however. Identified trends in top inequality are likely to be underestimates as it is becoming increasingly difficult to capture the incomes of the top 1% through survey collection (Krugman 2017). An examination of relative income growth at various points in the distribution (percentile ratios) paints a similar picture. The gap between the bottom (the 10th percentile) and the middle (median income) as well as the gap between the bottom and the top (the 90th percentile) are significantly wider in 2015 than in the years preceding the financial crisis. The difference between the middle and the top remained stable.

The paper proceeds as follows. Section 2 provides a short literature review on income inequality in an Irish and International context. Section 3 details the dataset used and discusses issues around the accuracy of household surveys, particularly when it comes to capturing income at the top of the distribution. This section also outlines the components of the three indicators (market, gross and disposable income). Section 4 describes the model and lays out the pros and cons of income cases relative to households as the unit of analysis. Finally, Section 5.1 describes changes in Irish income distribution over time and Section 5.2 analyses income distribution through Gini coefficients and percentile ratios.

## **2. BACKGROUND AND CONTEXT**

Income inequality is just one piece of a complicated puzzle in the analysis of the distribution of living standards across society, over time and relative to other societies. A focus on income omits factors such as longer-term access to resources in the form of savings, access to credit

---

<sup>2</sup> The 10th percentile is the point in the income distribution at which 10% of all income cases receive less and 90% receive more. The 90th percentile is the point at which 90% of income cases receive less.

or financial support from family (Keister & Moller 2000). The distribution of wealth, which is considerably more unequal than income and arguably a household's real financial position, is beyond the scope of this paper (McDonnell 2013, Cowell et al 2017). In 1997, evidence suggests the top 10% of Irish households held 42% of all net wealth in Ireland while the top 1% held 10% (Nolan 1999). This had grown to an estimated 53.8% and 14.8% by 2013 (Lawless & Lynch 2016, Wickham 2017). Similarly, income analysis does not take into account levels of debt or different levels of living expenses for some groups, such as those with sick or disabled members in the family, which affect living standards. Cross-country comparisons of income inequality are also problematic as countries differ in the level of state support or services they provide through general taxation (OECD 2011a, Watson et al 2017). This applies to the same country over time if government have cut or improved services. Two countries with the exact same disposable income Gini coefficient, or the same country with equal Gini scores at two points in time, do not necessarily have the same level of inequality.

## **2.1 International**

Rising income inequality, as measured by the Gini coefficient, has been a feature across the global north for the past three decades and more (Cohen, & Ladaique 2018). In the mid-eighties, the average Gini coefficient of household equivalised disposable income (zero = perfect equality, one = perfect inequality) stood at 0.29 in OECD countries and increased to 0.32 by the late 2000's, rising in 17 out of 22 countries (OECD 2011). This included countries traditionally viewed as more egalitarian, such as Germany and the Nordic states (Cingano 2014). In 2013, the average income of the top decile of the population across OECD members was about 9.5 times that of the bottom decile compared to 7 times in the 1980's.

The role of income inequality in precipitating the international financial crisis and the following years of stagnation have contributed to the renewed politicisation of income inequality (Cingano 2014, Stockhammer 2015). In the aftermath of the financial crisis, the use of public funds to stabilise the financial system and following austerity and so-called 'deficit fetishism', the issue of inequality, its causes and consequences, has been of particular importance in the battle of ideas (Stiglitz 2016). Concerns over growing income inequality and inclusive growth however, have been in conflict with the dominant orthodoxy and political drive for balanced budgets (especially in the EU). In the Eurozone, in the name of stabilising the common currency, arbitrary budgetary constraints and targets with no grounding in economic theory or research have forced member states to cut back spending on supports and services (Stiglitz 2016). At the same time, governments have cut public sector wages to restrict wage growth in the wider economy, justifying the approach with the flawed narrative

that wages or 'competitiveness' in crisis countries were to blame for the crisis. This is also true of Ireland. There is however, no evidence to suggest that high wages were a principal factor in the financial crisis (Bergin, Kelly & McGuinness 2012).

## **2.2 Inequality and Economic Growth**

Economic justifications for an appropriate level of inequality rely on the theory that higher savings rates at the upper end of the income distribution will translate into higher investment, leading to stronger economic growth (Schmidt-Hebbel & Serven 2000). Commentators often refer to this as 'trickle-down economics'. The link between functional income distribution and growth is central to Solow (1956)'s neoclassical model of economic growth as well as to neo-Keynesian growth models.

Missing from most public discourse on the topic and particularly absent in the ongoing debate in the EU on austerity and deficit reduction through wage and welfare support suppression, is that wages or income at the bottom of the distribution are important sources of demand for goods in an economy. This drives economic growth. The marginal propensity to consume at the lower end of the income distribution is higher such that households at the lower end spend a higher proportion of their income in the local economy on goods and services (Carvalho & Rezai 2015). Lower disposable income at the bottom of the distribution affects the decisions of business to invest, as there is less demand forecast for any future product. Higher wages are also a driver of productivity. When employers face higher wage bills they have stronger incentive to invest in cost saving technology and to develop more efficient business practices (Onaran & Stockhammer 2008, 2009).

Higher income inequality likely has a negative impact on economic growth (Cingano 2014). Evidence suggests that rising income inequality reduced growth rates by around 10 percent between the 1980's and the late 2000's in Mexico and New Zealand and growth would have been 20% faster in the US, UK, Sweden, Finland and Norway had the level of inequality remained unchanged over the same period rather than widening as it did. In Ireland, Spain and France the research found the opposite to be true; falling inequality (as measured by Gini) had a positive impact on GDP growth in the two decades up until the financial crisis. The analysis found that falling bottom inequality in particular (the ratio between average and bottom decile incomes) facilitates economic growth, with robust results (Cingano 2014).

## **2.3 Inequality and Society**

A body of work in political science supports the theory that public support for political institutions is highly correlated with individual as well as contextual economic circumstances (Norris 1999). Evidence suggests that inequality contributes to political polarisation (McCarty, Poole, & Rosenthal 2006). Addressing these trends have become a priority in many countries with worries that persistent unequal distribution of the gains of economic growth will stoke resentment, fuel populist sentiment and lead to protectionism (Cingano 2014; Inglehart & Norris 2016). These trends may help to explain some of the big political shifts in the US and UK over recent years (Inglehart & Norris 2019). Changing political landscape is also evident across the EU including Ireland where the dominance of established parties has made way to the rise of independents in the aftermath of the financial crisis and subsequent years of austerity. The Global Economic Forum identified inequality and polarisation as two of the top three global risks in 2017 in its annual Global Risk Report (WEO 2017).

Evidence suggests that rising inequality is a key factor of much of modern industrial society's social problems from rates of drug abuse, to depression, underage pregnancy and violent crime (Wilkinson & Pickett 2009, 2015). Corak (2013) posits that increasing inequality over recent decades is negatively affecting upward social and intergenerational mobility in the US; or in short, access to the American dream.

## **2.4 Measuring Income Inequality**

The Gini coefficient is a summary measure and the dominant statistical indicator of income inequality internationally.<sup>3</sup> International organisations such as the OECD, calculate this indicator with gross income, disposable or equivalised disposable income to give a before-and-after tax picture of income distribution.<sup>4</sup> However, it is not exhaustive or a definitive measure of inequality. As a summary measure, the Gini does not capture relative movements at different parts of the income distribution (Cingano 2014). In Spain for instance, inequality in the upper half of the distribution fell at the same time as it increased in the bottom half between 1995 and 2009. The Gini coefficient showed that income inequality declined in this period, providing only a partial view of developments in that country (Cingano 2014).

---

<sup>3</sup> The Gini coefficient equals the area between the Lorenz curve (which plots cumulative shares of the population, from the poorest to the richest, against the cumulative share of income that they receive) and the 45° line, taken as a ratio of the whole triangle.

<sup>4</sup> Equivalised disposable income incorporates household size, recognising the economies of scale households with more adults will have in terms of living expenses as well as recognising the likely impact on living standards related to the cost of raising children.



There are particular problems in cross-country comparisons of income distribution reliant on the Gini coefficient. Relying on income alone ignores cross-country differences in supports and services provided by the state (the social wage). Two countries with equal Gini coefficients in disposable (after tax) income might still have different levels of inequality if one country provides universal health services, free education and housing and the other does not. The same principle applies to measuring income inequality over time in the same country. If costs related to education or health were transferred from the state to individuals over a period (third level fees for instance), analysis of income indicators alone only refers to one piece of a complicated puzzle. Ultimately, this makes it more difficult to make strong inferences in comparing the wider concept of inequality across countries or over time relying on income-based indicators alone (Stiglitz et al 2009).

## **2.5 Drivers**

Changes in wage distribution, which makes up around 75% of household income, was the major driver of growing income inequality since the 1980's. There are many factors contributing to increased wage dispersion (OECD 2011). According to an OECD report in 2007, evidence suggests that technological change has been the most important driver, above trade liberalisation. The role of policy, regulations and institutions are also central to these trends (Koske et al 2012). This applies both to the pre-distribution of wages as well as outcomes from government policy that impact net income. Research from the IMF suggests that the biggest institutional drivers of rising income inequality are the decline of trade union density in employment and the rate at which minimum wages are set (Jaumotte and Osorio-Buitron 2015).

In addition, the share of part-time employment increased from 11% in the mid-1990s to about 16% by the late 2000s on average across the OECD, with particularly strong growth in Germany, Ireland, the Netherlands, and Spain (OECD 2010). This coincides with the mass entry of women to the workforce. According to most recent estimates, part-time work is as high as 23% of employment in Ireland in 2017 (McDonnell & Nugent 2018). These jobs tend to be at the bottom of the wage distribution. Changes in household structure, specifically the growth in single-headed households as a share of all households (about 15% to 20% on average in the OECD between the 80's and late 00's) are also likely contributing to the widening gap in household incomes (OECD 2011). Other drivers may include a growing trend of 'assortative mating' (a trend where relationships and family formation across social classes are becoming less frequent as a proportion of all new families) (OECD 2011). Finally,

widening inequality in the male wage distribution is one of the strongest factors driving these trends (driven in part by the rise in part-time employment).

### **3. DATA**

The two most recent income distribution papers already mentioned use different data sources: administrative tax data (Kennedy, Stanley & Haugh 2018) and survey data (Callan, Bercholtz & Walsh 2018). There are advantages and disadvantage to both (Poterba 2007). Administrative tax data allow researchers to capture top income shares, but do not contain information on households who do not pay tax (typically at the bottom of the distribution). Administrative data also lack the non-taxable components of household income.

This paper utilises micro data from the 2004, 2008, 2012 and 2015 Central Statistics Office (CSO) *Survey on Income and Living Conditions* (SILC). This is an annual EU-wide survey drawn from a nationally representative sample. In 2015, this included data on 13,793 individuals in 5,452 households.

Although the SILC dataset is the widest and most detailed survey on individual and household income in Ireland, there are some issues to highlight regarding the data. First, income surveys tend to suffer from lower response rates from households in the higher end of the distribution and issues around confidentiality may result in further underestimation of income at the top (Collins 2014). Income surveys are likely to miss entirely those at the very top of the income distribution (Krugman 2017). There is widespread consensus that household surveys tend to be representative of 99% of the distribution with evidence that this problem is likely getting worse over time, due in part to growing opportunities for the movement of capital in an increasingly globalised marketplace (Burkhauser et al 2012). In addition, sampling issues exist for households with certain characteristics, such as immigrants and those at both ends of the distribution related to nonresponse rates, leading to under-representation of these groups (Groves and Couper 1998). The CSO calculate and provide probability weights for each household and individual in the dataset to adjust for these issues though they are imperfect. The CSO also use administrative tax and welfare records to improve the accuracy of the survey.

Using Eurostat definitions, the paper focuses on three indicators to map the distribution of income in the Republic of Ireland: Market/Direct income, Gross Income and Disposable/Net Income.

Market income or 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:

= *(individual level) employee cash + company car + cash benefits or losses from self-employment + pension from individual private plan + (household level) income from rental of a property or land + regular inter-household cash transfer received + interest, dividends, profit from capital investments in unincorporated business + income from u-16's*

Gross income captures market income plus state transfers such as unemployment or disability benefit:

= *(individual level) employee cash + company car + cash benefits or losses from self-employment + pension from individual private plan + unemployment benefits + old-age benefits + survivors benefits + sickness benefits + disability benefits + education related allowances + (household level) income from rental of a property or land + regular inter-household cash transfer received + interest, dividends, profit from capital investments in unincorporated business + income from u-16's*

Disposable income or net income captures market income and state transfers minus taxes such as taxes on income or on wealth:

= *(individual level) employee cash + company car + cash benefits or losses from self-employment + pension from individual private plan + unemployment benefits + old-age benefits + survivors benefits + sickness benefits + disability benefits + education related allowances – regular taxes on wealth – regular inter household cash transfer paid - tax on income and social contributions + (household level) income from rental of a property or land + regular inter-household cash transfer received + interest, dividends, profit from capital investments in unincorporated business + income from u-16's*

## **4. THE MODEL**

### **4.1 Income Cases**

Recent work on household income distribution reported Irish Gini coefficients to be relatively stable over recent years (Savage et al 2015; Callan, Bercholtz & Walsh 2018). In addition, a report by the Irish Revenue Commissioners using Irish tax data provided a descriptive account of how the distribution of (declared and taxable) gross income evolved in Ireland by taxpayer unit (income case) between 2006 and 2015 (Kennedy, Stanley & Haugh 2018). This report was limited in scope to taxable income for those with taxable

## Box 4.1

### Income case

The term *income case* is interchangeable with the term *taxpayer unit*. For adults not in a marriage or civil partnership this would refer to the individual, whether or not they declare income. In the case of persons in a marriage or civil partnership, although the couple can opt for the *Revenue Commissioners* to count them separately or together, this analysis considers them as one income case or unit.

income, however. To fill a gap in the literature, this paper examines Irish income distribution over time by income case. The analysis includes the market, gross and disposable income of all income cases, including the section of Irish society dependent on government transfers.<sup>5</sup>

Analysis by income case is quite common in the literature (Danziger & Tausing 1979; Piketty 2003, 2005, 2011, 2013; Piketty & Saez 2003, 2006; Bach, Corneo & Steiner 2009; Bakija, Cole & Heim 2012; Guner, Kaygusuz & Ventura 2014; Verbist & Figari 2014; Bargain et al 2015; Kennedy, Stanley & Haugh 2018). In addition to collecting data on household income, the Central Statistics Office collect and publish income data by income case in *Income Tax and Corporation Tax Distribution Statistics*.

Though researchers often use the term household interchangeably with the term income case, there are some slight but important differences to note, especially if comparing results with other analysis on Irish income distribution. For most people, their income unit and household are the same but some households include multiple income units.

The CSO collect the data for the *Survey on Income and Living Conditions* by dwelling. They treat all individuals residing in a dwelling as a household. Focussing on one unit over another could have a significant impact on results. Though each unit has distinct advantages and disadvantages, income cases incorporate some demographics that would receive little attention in a household level analysis.

Analysis by income case takes into account changes in modern living arrangements, such as the growing numbers in shared rented accommodation and adult children living with their

---

<sup>5</sup> Exceptions are made for two groups in the model who might otherwise be treated individually or separately as taxpayer units. First, cohabiting (unmarried) couples with children are counted as single income units (with the assumption that they share living expenses). Second, adult children in education up to 24 years and living with their parents are not counted as separate units (assuming that they are dependents). Their incomes however, are included in their parent's income.

parents. For instance, this approach treats three professionals renting rooms in a house together as separate units, rather than one household. The share of owner occupied houses fell in Ireland from 81.7% in 1991 to 67.6% in 2016 (Census 2016). Resources in shared rental accommodation tend not to be pooled and expenses tend not to be shared (Vogler 2005). A woman working part-time for minimum wage in retail does not enjoy the same standard of living as her flatmate in I.T. As mentioned, the focus here is on pure income indicators. This approach captures the relative individual incomes sharing housemates enjoy assuming that their combined income does not reflect a collective income that all three have claim to.<sup>6</sup>

There are other strong empirical arguments for treating these individuals as such, especially in a time-series analysis on income. If three young professionals living together earned €20,000 each, an analysis of household income would show them as one household with an annual gross income of €60,000. An analysis of income units would classify the same individuals as three units earning €20,000 each, with obvious implications for any research on income distribution. This is a difference of three units in the bottom third of the distribution compared to one household in the top. If those same individuals all got a raise of €2,000 and decided to move out and live alone, a time-series based on households would see one household in the top third of the distribution turn into three in the bottom third with each reported to have had their incomes drop by €38,000 in a year. By income unit, each would see a raise of €2,000. By contrast, if a young graduate in an entry-level position found herself unable to meet rising rental costs and moved home to her parents who were both doctors, income analysis at the household level would report that in a year the same individual jumped from the bottom quintile of the income distribution to the top.

Another advantage to analysis by income case in a time-series is that living arrangements are not independent of personal economic circumstances or macroeconomic context, as the last example illustrates. The affordability of buying a house, driven by unemployment and stagnant wages, played an important role in the significant rise in the share of individuals in rented accommodation between 2006 and 2016 (Nugent 2018a). There has also been a significant rise in adult children living at home in Ireland, the UK and the US in the same

---

<sup>6</sup> The Irish state also recognises these three individuals as separate tax cases. For instance, if all three wished to apply for the Housing Assistance Payment (HAP) whilst renting a house together, they would have to do so individually, with the success of their applications based on their individual incomes and unrelated to the incomes of their housemates.

period of stagnation (Census 2016; ONS 2017; Fry 2013). In Ireland, the number of adults in their thirties living at home fell from 70,707 to 65,693 between 2002 and 2006 but increased to 91,000 by 2011, closely linked to economic conditions. The latest census showed that 430,000 adults live at home in Ireland today, almost twice the figure as a decade before (CSO 2016). Rising numbers of adults living at home are a reflection of income and inequality, issues at the very centre of the analysis under consideration.

Living at home has no bearing on the taxable income of adults living at home, nor are there any related benefits to the parents of adult children, such as the universal child benefit. Income case or taxpayer unit data has an advantage in capturing the deteriorating economic situation associated with these changes in living arrangements, which analysis at the household level would disguise. In doing so, this analysis also identifies the estimated 20.2% of under-25's unemployed in 2015 in receipt of reduced rates of jobseekers allowance, which would not afford them the opportunity to live independently. This group's income is likely not to register in any household level analysis.

This paper uses data from the *Survey on Income and Living Conditions* to examine the distribution of Irish market, gross and disposable income by in 2004, 2008, 2012 and 2015. In addition to Gini coefficients, the analysis includes a comprehensive examination of income thresholds for each of the three income indicators, market, gross and net income.

The model identifies 6,833 income cases in SILC 2015 from 5,452 households. The model estimates 2,245,105 income cases in Ireland in 2015. This figure compares favourably to the CSO estimate of 2,301,798 taxpayer units in *Income tax and Corporation Tax Distribution* in the same year, a difference of 2.5%.<sup>7</sup> Income estimates for 2015 also compare favourably to recent research by Revenue on the topic (Kennedy, Stanley & Haugh 2018) and population estimates compare favourably to results from Census 2016.

---

<sup>7</sup> The treatment of under 18's and students under 24 as dependents and not individual income cases in the model helps to explain some of this gap as many would be considered tax cases by revenue.

## 5. RESULTS

### 5.1 Changes in income distribution: descriptive statistics

This section describes the distribution of Irish market, gross and net income in 2004, 2008, 2012 and 2015 for all income cases with a focus on income at specific thresholds in the distribution (the income cases at the 10<sup>th</sup> and 90<sup>th</sup> percentiles for instance). The section also maps out real term movements in income at these thresholds over time.<sup>8</sup>

#### 2004

The market or direct income (income from purely market sources) of an estimated 1,997,190 **income cases** in Ireland was €15,656 in 2004 with a mean of €25,477 (see Table 1.1).<sup>9</sup> Three quarters of income cases received less than €36,505 from market sources with nine in ten receiving less than €62,800. According to SILC data, half of all income cases had a gross income (including state transfers) of less than €21,100, three quarters less than €41,007 and

**Table 1.1 Income Thresholds 2004**

Income cases			
Income Thresholds	Market Income	Gross Income	Net Income
5%	€0	€2,080	€2,047
10%	€0	€6,512	€6,448
25%	€0	€10,076	€10,000
<b>Median</b>	<b>€15,656</b>	<b>€21,100</b>	<b>€19,029</b>
75%	€36,505	€41,007	€34,379
90%	€62,800	€68,038	€52,990
95%	€83,656	€87,925	€65,722
<b>Mean</b>	<b>€25,477</b>	<b>€31,683</b>	<b>€25,998</b>
No. obs	7,202	7,239	7,239
Income Cases (model estimate)	1,997,190	2,005,408	2,005,408

nine in ten less than €68,038. Average gross income was €31,683. Median net or disposable income was €19,029 in 2004. Three quarters of income cases took home less than €34,379 and ninety per cent less than €52,990. One in four people took home €10,000 or less. The average net income in 2004 was €25,998 (Table 1.1).<sup>10</sup>

#### 2008

The financial crisis first hit the Irish labour market in 2008. Unemployment rose in all four quarters from 5.0% in the first to 7.7% at the end of the year. The CSO conduct the *Survey on*

<sup>8</sup> Incomes reported for each year, unless otherwise stated, are nominal figures.

<sup>9</sup> A significant proportion of income cases have no market income whatsoever and this analysis includes all of those out of work, retirees and the disabled. Estimates for median income therefore will be low relative to median wages.

<sup>10</sup> For supplementary charts and further detail of income distribution changes for various income case types see Chart 1.1- 1.12 in the appendix.

**Table 1.2 Income Thresholds 2008**

Income cases			
Income Thresholds	Market Income	Gross Income	Net Income
5%	€0	€3,211	€3,211
10%	€0	€8,418	€8,199
25%	€0	€13,396	€13,177
<b>Median</b>	<b>€16,858</b>	<b>€25,838</b>	<b>€24,084</b>
75%	€42,265	€50,680	€43,742
90%	€76,950	€84,698	€68,128
95%	€104,399	€112,949	€87,102
<b>Mean</b>	<b>€30,175</b>	<b>€39,250</b>	<b>€33,081</b>
No. obs	6,671	6,710	6,710
Income Cases (estimate)	2,223,271	2,237,283	2,237,283

*Income and Living Conditions* throughout the year and the annual data reflect this. In the four years between the 2004 and 2008, the nominal median market income for all **income cases** rose by 7.7% from €15,654 to €16,858. The mean also increased in nominal terms by 18.4% to €30,175. According to the CSO, the Consumer Price Index showed a rise of 15.6% between January 2004 and January 2008.

Adjusted for inflation, median market income fell 7.7% and as the mean increased 2.8% between 2004 and 2008 to €16,858 and €30,175 (Table 1.2). The real market income threshold for the top 10%, increased by 6.9% such that ten per cent of Irish income cases earned over €76,950. Nominal median gross income (including state transfers) rose by 22.4% (6.8% in real terms) to just under €26,000 with the mean rising 24% (8.4% in real terms) to €39,250. The gross income threshold for the top 10% increased to €84,698 (8.9% in real terms). Mean and median nominal disposable income rose 27% to €33,081 (11.4% in real terms) and 26.5% to €24,084 (10.9% in real terms) between 2004 and 2008. The income threshold at which ninety percent of cases took home less increased by 12.9% in real terms in the same period to €68,128. The increase in net income at the 95<sup>th</sup> percentile was even higher at 16.9% in real terms.

## 2012

Between 2007 and 2012, Ireland experienced a catastrophic property crash, financial crisis, banking bailout and recession, a very small fraction of which shows up in the 2008 data. As expected, income fell across the board. According to the CSO, the Consumer Price Index dropped and increased again to a price level almost identical to that in 2008 in 2012.<sup>11</sup>

<sup>11</sup> The CPI in 2012 was 99.78 that of 2008.



**Table 1.3 Income Thresholds 2012**

Income cases			
Income Thresholds	Market Income	Gross Income	Net Income
5%	€0	€1,979	€1,604
10%	€0	€7,811	€6,900
25%	€0	€13,253	€12,495
<b>Median</b>	<b>€11,042</b>	<b>€24,902</b>	<b>€23,592</b>
75%	€38,957	€46,728	€39,925
90%	€76,458	€81,589	€62,482
95%	€100,618	€105,212	€76,991
<b>Mean</b>	<b>€26,310</b>	<b>€37,168</b>	<b>€30,071</b>
No. obs	5,673	5,673	5,673
Income Cases (estimate)	2,215,295	2,215,295	2,215,295

Mean market income fell from €30,175 in 2008 to €26,310 in 2012 (a 13.1% real term decline). Table 1.3 gives estimates of income at different points in the distribution in 2012. In 2012, three quarters of cases recorded a market income of less than €38,957 and nine in ten less than €76,458 (these thresholds were 8.7% and 0.4% lower in 2012 than in 2008 in real terms). Median and mean gross income fell from €25,838 to €24,902 and from €39,250 to €37,168, -3.6% and -5.3% respectively. Nine out of ten cases had income of less than €81,589, representing a drop of 3.4%. Mean net income fell by 9.1% in real terms, with a drop in median net income of 2%. The 90% threshold fell by 8.1% in real terms over four years.

## 2015

The CPI grew just 0.8% from 2012 to 2015. In 2015, median market income was €14,449, up 30.1% in real terms in three years, reflecting a return to work for tens of thousands (see Table 1.4). However, this remained 14.0% below the median in 2008 (€16,858) and 23.9% lower than in 2004 in real terms. The mean rose to €30,748 in 2015, 4.4% higher than in

**Table 1.4 Income Thresholds 2015**

Income cases			
Income Thresholds	Market Income	Gross Income	Net Income
5%	€0	€1,820	€1,610
10%	€0	€7,805	€7,498
25%	€0	€13,388	€13,117
<b>Median</b>	<b>€14,449</b>	<b>€28,172</b>	<b>€25,880</b>
75%	€44,727	€53,162	€43,530
90%	€83,835	€90,021	€66,517
95%	€111,190	€118,928	€81,727
<b>Mean</b>	<b>€30,748</b>	<b>€41,370</b>	<b>€32,660</b>
No. obs	6,861	6,862	6,862
Income Cases (estimate)	2,245,016	2,245,106	2,245,105

2004 and 1.2% higher than in 2008 in real terms. Market income thresholds for the top 25% (€44,727) and top 10% (€83,835) were up 5.2% and 8.3% in real terms compared to 2008, implying a divergence between the upper and lower half of the distribution. Introducing state supports, the gross income of the median income case in Ireland was €28,172 in 2015, a real increase of 12.5% on 2012 and 8.4% higher than in 2008. At the top of the distribution, ten percent of cases had an annual gross income of more than €90,021. This was 9.5% higher in real terms than the same threshold in 2012 and 5.4% higher than in 2008 (see Table 1.2). Mean gross income in 2015 (€41,370) had also surpassed 2008 in real terms by 4.8% and 2004 by 14.3%. For after-tax income, the data show a more progressive outcome between 2008 and 2015 than market and gross income. Median disposable income was €25,880 in 2015, up by 8.8% on 2012 in real terms and on 2008 by 6.8%. Mean net income for all Irish income cases was €32,660 in 2015; an increase of 7.8% in real terms on 2012 but still 1.8% lower than in 2008. The income case at the 90<sup>th</sup> percentile reported a disposable income of €66,517, down 1.8% in real terms on the same point in 2008.

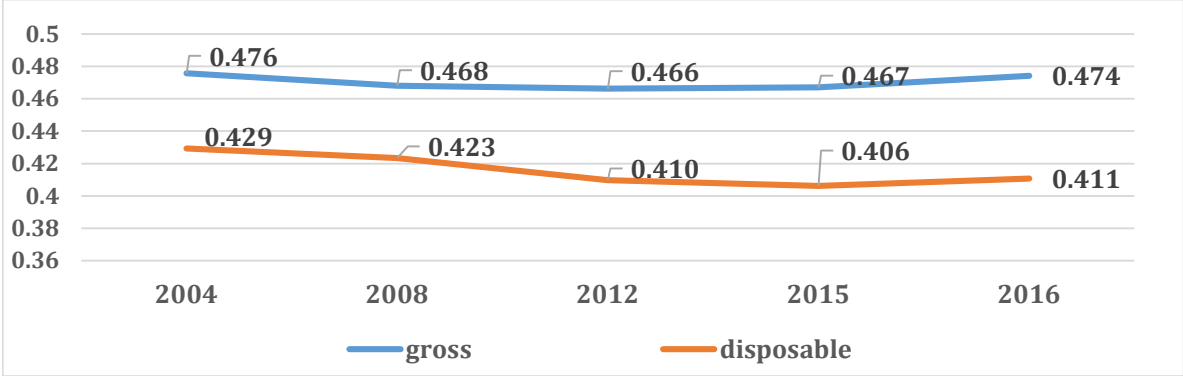
**5.2 Measuring Inequality over time**

**5.2.1 The Gini Coefficient**

With a focus on income cases, this analysis gives attention to certain groups that receive no specific consideration in analysis at the household level. These groups are disproportionately represented at the lower end of the income distribution (those in shared rental accommodation and adult children living in the family home). Thus, it is not surprising that Gini coefficients show greater income inequality than analysis at the household level for both gross and disposable income.

Gini coefficients at an income case level show a more unequal distribution than analysis produced at household level by the OECD and Eurostat and in recent academic research in

**Chart 5.1 Gini Coefficient (Income Cases)**



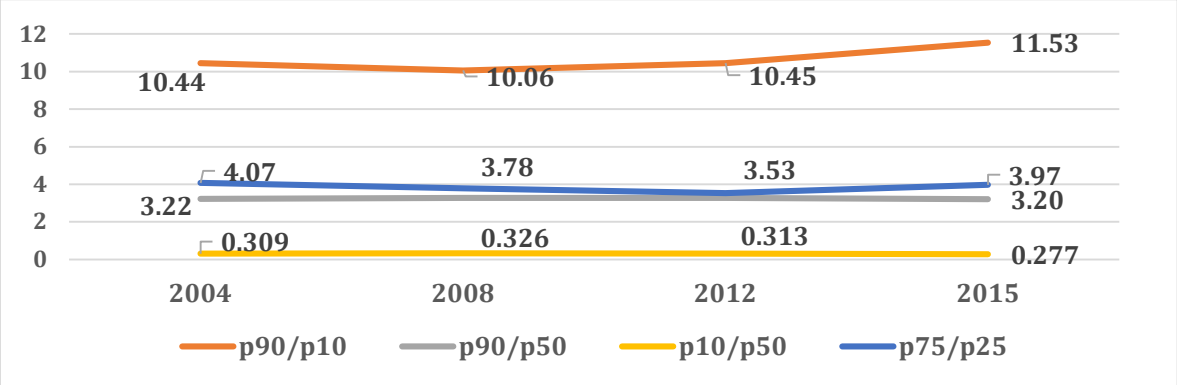
both gross and disposable income between 2004 and 2015 (Savage et al 2015; Callan, Bercholtz & Walsh 2018). Trends over time and the difference between gross and disposable Gini scores however, are broadly similar to estimates at household level (OECD 2017). In 2004, the Gini coefficient for Irish income units was 0.475, with a reduction in income inequality by 2008 (0.468). Between 2008 and 2015, gross income distribution, as measured by the Gini hardly changed. In disposable income terms however, the Gini coefficient decreased slightly from 0.429 in 2004 to 0.406 in 2012. Disposable income inequality increased slightly in the first years of recovery to 0.411 in 2015. This compares to a 0.30 score for households (OECD 2018).

**5.2.2 Percentile Ratios**

Examining multiple indicators is important for any in-depth analysis of income distribution. The choice of indicator matters. The Gini coefficient is a summary measure that does not tell us anything about movements in different parts of the distribution and does not lend itself to any obvious intuitive interpretation. The coefficient offers a limited picture in terms of ‘who gets what and how has it changed’. Percentile ratios are useful in comparing different points in the distribution, particularly as they change over time (Burkhauser et al 2009). In the interest of consistency and comparability, this section focuses on gross and net income.<sup>12</sup>

Gross income inequality between the 90<sup>th</sup> percentile (the upper bound value of the ninth decile) and the 10<sup>th</sup> percentile (the upper bound value of the first decile) fell significantly between 2004 and 2008 from 10.44 to 10.06. During the recession however, this gap

**Chart 5.2 Percentile Ratios (Gross Income)**



**Notes:** Ratios refer to the incomes recorded at given thresholds in the distribution. Thus, p90/50 refers to the ratio of the income case at the threshold for the top 10% and median income.

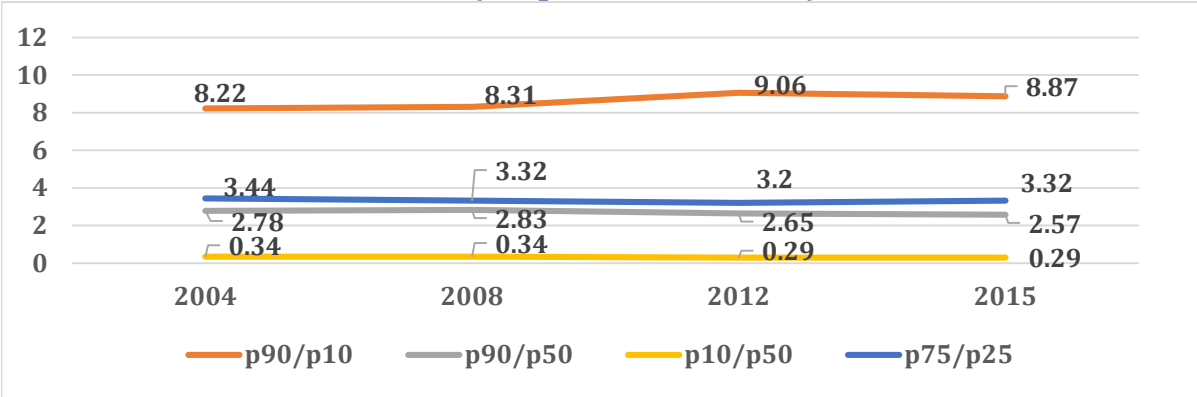
<sup>12</sup> As this is an examination of all income cases in Ireland, there are some issues with the utility of these indicators for market income. As over 10% of income cases will have zero market income in any economy (unemployment, retirement etc.) percentile ratios using the bottom decile threshold become meaningless (as any number divided by zero is undefined). Suffice to say that employment rates were lower in 2015 than in 2004 with almost identical real market income at the top 10% threshold. In addition to growing problems capturing the income of the top 1% (already discussed), this is evidence of an increase in market income inequality between the bottom and the top.

widened again to a ratio of 10.45 in 2012. Even with strong employment gains, growth at the 90<sup>th</sup> percentile continued to outpace growth at the 10<sup>th</sup> between 2012 and 2015, such that gross income at the lower end of the tenth decile was 11.53 times that of the upper bound of the first decile. This is a significantly higher level of inequality between these two points than at any time since 2004. The change between the income case in the middle of the distribution and the top 10% threshold between 2004 and 2015 was negligible. In 2015, gross income at the 90<sup>th</sup> percentile was of 3.2 times the median compared to 3.22 in 2004.

The gap between the one-quarter mark in the gross income distribution and the three-quarter mark narrowed between 2004 and 2015 from 4.07 times to 3.97. The trend downward from 2004 and 2012 (3.53) reversed upon the return to growth in 2012. The ratio of gross income at the bottom 10% threshold and the median, also closed slightly during the boom years between 2004 (0.309) and 2008 (0.326). Gross income at these two bounds diverged again during the recession such that gross income at the top of the first decile was 31.3% of the median in 2012. Between 2012 and 2015, even with significant gains in employment in the Irish economy gross income at the 10<sup>th</sup> percentile fell as a proportion of the median to a level of inequality higher than that recorded in 2004 (0.277 in 2015).

Ratios in disposable income show similar trends between 2004 and 2015, though the increase in the 90-10 ratio is less pronounced. The gap between net income at the 10% mark and at the 90% mark increased slightly between 2004 and 2008 (8.22 times to 8.31) and accelerated during the crisis (to 9.06 in 2012). Net income inequality fell slightly between these two thresholds from 2012 to 2015. Net income at the top 10% threshold was 8.87 times that at the bottom 10% (this remained significantly higher than the 8.22 recorded in 2004). The gap between median net income and the 90<sup>th</sup> percentile increased slightly between 2004

**Chart 5.3 Percentile Ratios (Disposable Income)**



**Notes:** Ratios refer to the incomes recorded at given thresholds in the distribution. Thus, p90/p50 refers to the ratio of the income case at the threshold for the top 10% and median income.

(2.78) and 2008 (2.83) but trended downward from 2008 until 2015 (2.57). The gap in disposable income between the 10<sup>th</sup> percentile and the middle widened in the same period. In 2004, the income unit at the 10<sup>th</sup> percentile had a net income of 33.9% that of the median. With little movement in the four years up until 2008, this figure fell to 29% in 2015. Similar to the trend in gross incomes, the ratio in the disposable income at the seventy-five percent mark relative to the twenty-five percent mark trended downwards between 2004 and 2012, with a slight resurgence between 2012 and 2015. The ratio in 2015 (3.32) was equal to the ratio in 2008 but less than in 2004 (3.44).

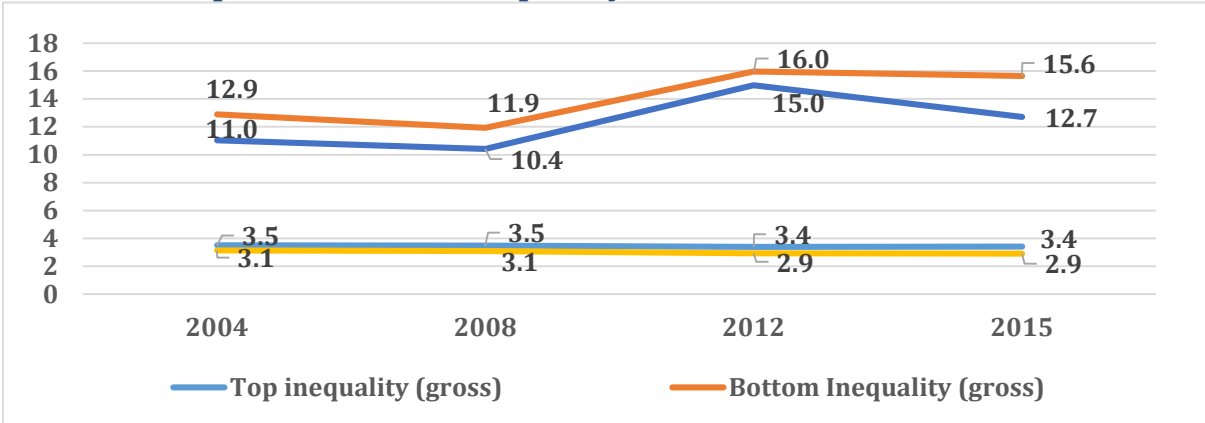
**5.2.3 Top and Bottom Inequality**

Top and bottom inequality indicators measure mean income in the top and bottom decile with mean income overall. OECD research finds strong evidence to suggest that lowering bottom inequality in disposable income has a positive impact on aggregate economic growth (Cingano 2014).

The results show that for income cases, top inequality has decreased marginally in gross and disposable terms since 2004 in Ireland i.e. the difference in income between the mean and the top has hardly changed in 12 years.<sup>13</sup> Mean annual income for those in the top decile of the income distribution relative to the mean dropped from 3.5 times to 3.4 in gross terms and from 3.1 to 2.9 in net income between 2004 and 2015.

Bottom gross income inequality however, having decreased between 2004 and 2008 from 12.9 to 11.9 grew substantially between 2008 and 2012 to 16.0. The ratio only fell marginally

**Chart 5.4 Top and Bottom Inequality**



**Note:** Top and bottom inequality refer to the ratio of mean income to the mean in the top and bottom deciles

<sup>13</sup> As noted previously, household surveys fail to pick up the very top of the income distribution and this problem is likely getting worse over time (Krugman 2017). Therefore, top inequality, which relies on the average income of the top decile, is not only likely to be underestimated, but this underestimation is higher in 2015 than it was in 2004.

in three years of strong economic and employment growth, standing at 15.6 in 2015. Disposable income in bottom inequality followed a similar trend though the ratio fell during the first three years of recovery up to 2015 from 15.0 to 12.7. This was still significantly above 2004 (11.0) and 2008 (10.4). Simply put, the mean disposable income of all income units was 12.7 times the mean disposable income of the bottom decile in 2015, compared to 15 times in 2012 and 10.4 times in 2008 pointing again to significantly higher inequality between the bottom and the middle than existed pre-crisis.

## **6. Conclusion**

SILC data shows that median market income had not recovered from the recession by 2015 and was lower in real terms than in 2004. With employment and participation rates lower than in the years leading up to the crisis, this is the expected result (McDonnell & Nugent 2018). However, mean market income in 2015 had marginally exceeded the level in 2008 and the income threshold marking the 90<sup>th</sup> percentile (or top 10%) had surpassed the same point in 2008 by 8.3% in real terms. Mean and median figures for both gross and disposable income had recovered in real terms in 2015 to approximately the same level as in 2008.

OECD estimates of GINI coefficients on Irish income distribution suggest Ireland has a high level of market income inequality or pre-distribution relative to other OECD countries and an average level of inequality in disposable income. This has led many to comment that the Irish State does relatively more 'heavy lifting' in this regard. In addition, OECD GINI estimates suggest income inequality improved in the years leading up to the crisis and did not change much over the course of the crisis and subsequent years of recovery. This analysis based on GINI coefficients at the income case level found supporting evidence to this support these estimates. The model produced higher GINI coefficients (higher inequality) for income units of gross and disposable income than those produced at a household level, as expected. Trends over time matched trends produced at household level by the OECD, as did the gap between the two measures of gross and net income. Whilst the gross income GINI hardly changed in 11 years, the net income GINI came down slightly, suggesting a decline in income inequality over the period.

However, further investigation of supplementary income inequality indicators paints a more complex picture. The ratio of gross income at the 90<sup>th</sup> to the 10<sup>th</sup> percentile showed a much wider gap between these two points in the distribution in 2015 than in 2004, with little improvement in the recovery post-2012. The equivalent measure of net income shows this

gap has also widened in the same period, though it improved somewhat after 2012. Income inequality between the tenth percentile and the median (the bottom and the middle) widened by both gross and net measures and by significant margins. The gap between median gross income and the 90<sup>th</sup> percentile hardly changed in the same period though inequality in disposable income improved slightly between these two points between 2004 and 2015.

Top income inequality (the ratio of average income in the top decile to average income) was marginally lower in 2015 than in 2004 in both gross and net income terms. Bottom gross income inequality however (the ratio of average income in the bottom decile to average income), having narrowed between 2004 and 2008, accelerated during the crisis and decreased only marginally between 2012 and 2015, remaining higher than at any stage since 2004. Though the decrease in bottom inequality in disposable income between 2012 and 2015 was more significant than in gross income, the gains were not enough to make up the ground lost during the recession either and remained higher in 2015 than in 2004. Due to the growing issue of capturing income at the very top of the distribution in household surveys, this ratio is likely an underestimate.

Research from the IMF suggests that the level at which the minimum wage is set is a major factor in the level of income inequality in an economy and that positive intervention in 'pre-distribution' can drive better outcomes (Jaumotte & Osorio-Buitron 2015). Analysis from the OECD concludes that redistributive policies to improve outcomes in the distribution of disposable income have no negative impact on growth and in fact, that falling bottom inequality has a positive impact on growth rates (Cingano 2014). The same paper suggests increases in marginal tax rates on the highest earners as well as on capital income. The success of these policy changes depend on appropriately designed institutions with sufficient funding to ensure better compliance.

## APPENDIX:

The model calculates each indicator as per Eurostat EU-SILC definitions.

### Market/direct income

- gross employee cash or near cash income (PY010G),
- company car (PY021G),
- gross cash benefits or losses from self-employment (including royalties) (PY050G),
- pensions received from individual private plans (other than those covered under ESSPROS) (PY080G),
- Plus market income components at household level
- income from rental of a property or land (HY040G),
- regular inter-household cash transfers received (HY080G),
- interests, dividends, profit from capital investments in unincorporated business (HY090G),
- income received by people aged under 16 (HY110G));

### Gross income (Note: Employers social contributions are not included in this definition of gross income)

- gross employee cash or near cash income (PY010G),
- company car (PY021G),
- gross cash benefits or losses from self-employment (including royalties) (PY050G),
- pensions received from individual private plans (other than those covered under ESSPROS) (PY080G),
- unemployment benefits (PY090G),
- old-age benefits (PY100G),
- survivor' benefits (PY110G),
- sickness benefits (PY120G),
- disability benefits (PY130G),
- education-related allowances (PY140G)
  - Plus gross income components at household level
- income from rental of a property or land (HY040G),
- family/children related allowances (HY050G),
- social exclusion not elsewhere classified (HY060G),
- housing allowances (HY070G),
- regular inter-household cash transfers received (HY080G),
- interests, dividends, profit from capital investments in unincorporated business (HY090G),
- income received by people aged under 16 (HY110G));

### Disposable income

- gross employee cash or near cash income (PY010G),
- company car (PY021G),
- gross cash benefits or losses from self-employment (including royalties) (PY050G),
- pensions received from individual private plans (other than those covered under ESSPROS) (PY080G),
- unemployment benefits (PY090G),
- old-age benefits (PY100G),
- survivor' benefits (PY110G),
- sickness benefits (PY120G),
- disability benefits (PY130G),
- education-related allowances (PY140G);
  - Plus gross income components at household level
- income from rental of a property or land (HY040G),
- family/children related allowances (HY050G),
- social exclusion not elsewhere classified (HY060G),
- housing allowances (HY070G),
- regular inter-household cash transfers received (HY080G),
- interests, dividends, profit from capital investments in unincorporated business (HY090G),
- income received by people aged under 16 (HY110G));
  - Minus
- regular taxes on wealth (HY120G),
- regular inter-household cash transfer paid (HY130G),
- tax on income and social insurance contributions (HY140G)



## Supplementary Tables and Charts: Income case types

2004

### Table 1.1 Income Thresholds 2004

	Income cases			Single men			Single women		
	Market Income	Gross Income	Net Income	Market Income	Gross Income	Net Income	Market Income	Gross Income	Net Income
5%	0	2,080	2,047	0	0	0	0	0	0
10%	0	6,512	6,448	0	3,725	3,636	0	2,540	2,500
25%	0	10,076	10,000	0	7,320	7,182	0	7,436	7,321
<b>Median</b>	<b>15,656</b>	<b>21,100</b>	<b>19,029</b>	<b>11,479</b>	<b>14,560</b>	<b>13,731</b>	<b>2,950</b>	<b>10,480</b>	<b>10,379</b>
75%	36,505	41,007	34,379	23,790	24,862	20,773	18,000	20,342	18,070
90%	62,800	68,038	52,990	36,000	36,660	28,201	29,628	30,641	24,837
95%	83,656	87,925	65,722	46,451	48,000	35,180	36,750	38,290	30,258
<b>Mean</b>	<b>25,477</b>	<b>31,683</b>	<b>25,998</b>	<b>15,328</b>	<b>18,593</b>	<b>15,661</b>	<b>10,397</b>	<b>15,056</b>	<b>13,164</b>
No. obs	7,202	7,239	7,239	1,861	1,898	1,898	2,229	2,229	2,229
Sum of wgt	1,997,190	2,005,408	2,005,408	541,609	549,826	549,826	565,448	565,448	565,488

### Table 1.1A Income Thresholds 2004

	Single Parents			Couples		
	Market Income	Gross Income	Net Income	Market Income	Gross Income	Net Income
5%	0	8,827	8,827	0	13,156	12,678
10%	0	9,515	9,515	0	15,639	15,371
25%	0	12,536	12,536	12,000	24,696	23,113
<b>Median</b>	<b>1,824</b>	<b>17,128</b>	<b>16,740</b>	<b>36,526</b>	<b>42,414</b>	<b>36,597</b>
75%	9,180	22,168	21,802	59,000	63,969	50,948
90%	25,480	29,963	27,084	87,369	93,014	68,847
95%	35,000	37,563	30,770	110,538	116,200	81,738
<b>Mean</b>	<b>7,412</b>	<b>18,704</b>	<b>17,724</b>	<b>43,600</b>	<b>52,484</b>	<b>42,088</b>
No. obs	224	224	224	2,888	2,888	2,888
Sum of wgt	56,769	56,769	56,769	833,363	833,363	833,363

2008

### Table 1.2 Income Thresholds 2008

	Income cases			Single men			Single women		
	Market Income	Gross Income	Net Income	Market Income	Gross Income	Net Income	Market Income	Gross Income	Net Income
5%	0	3,211	3,211	0	0	0	0	0	0
10%	0	8,418	8,199	0	4,214	4,174	0	4,527	4,412
25%	0	13,396	13,177	0	10,115	9,975	0	10,540	10,487
<b>Median</b>	<b>16,858</b>	<b>25,838</b>	<b>24,084</b>	<b>11,204</b>	<b>16,668</b>	<b>15,988</b>	<b>7,000</b>	<b>15,131</b>	<b>14,875</b>
75%	42,265	50,680	43,742	24,428	26,689	23,844	23,004	28,333	25,304
90%	76,950	84,698	68,128	39,670	46,476	36,696	37,531	41,082	33,992
95%	104,399	112,949	87,102	51,311	59,363	46,546	48,463	51,703	41,114
<b>Mean</b>	<b>30,175</b>	<b>39,250</b>	<b>33,081</b>	<b>16,251</b>	<b>22,095</b>	<b>19,116</b>	<b>14,531</b>	<b>21,210</b>	<b>18,714</b>
No. obs	6,671	6,710	6,710	1,729	1,768	1,768	2,084	2,084	2,084
Sum of wgt	2,223,271	2,237,283	2,237,283	637,533	651,544	651,544	654,855	654,855	654,855

**Table 1.2A Income Thresholds 2008**

	Single Parents			Couples		
	Market Income	Gross Income	Net Income	Market Income	Gross Income	Net Income
5%	0	12,042	13,537	0	18813	18420
10%	0	14,759	14,759	0	23,061	22,658
25%	0	17,747	17,842	11,767	31,325	30,240
<b>Median</b>	<b>4,261</b>	<b>22,887</b>	<b>23,486</b>	<b>43,946</b>	<b>54,732</b>	<b>48,476</b>
75%	13,183	30,369	30,369	74,231	81,575	67,841
90%	26,906	40,014	37,757	112,288	119,824	90,608
95%	40,272	47,976	42,498	148,661	152,117	107,910
<b>Mean</b>	<b>9,861</b>	<b>25,697</b>	<b>25,175</b>	<b>53,494</b>	<b>66,653</b>	<b>54,928</b>
No. obs	164	164	164	2,694	2,694	2,694
Sum of wgt	61,472	61,472	61,472	869,409	869,409	869,409

2012

**Table 1.3 Income Thresholds 2012**

	Income cases			Single men			Single women		
	Market Income	Gross Income	Net Income	Market Income	Gross Income	Net Income	Market Income	Gross Income	Net Income
5%	0	1,979	1,604	0	0	0	0	0	0
10%	0	7,811	6,900	0	2,403	2,403	0	2,500	2,373
25%	0	13,253	12,495	0	8,798	8,369	0	10,062	10,062
<b>Median</b>	<b>11,042</b>	<b>24,902</b>	<b>23,592</b>	<b>65</b>	<b>13,423</b>	<b>13,253</b>	<b>1,336</b>	<b>14,271</b>	<b>14,082</b>
75%	38,957	46,728	39,925	18,222	24,205	21,161	19,078	25,057	22,423
90%	76,458	81,589	62,482	38,883	43,756	32,675	38,833	42,611	33,410
95%	100,618	105,212	76,991	48,535	55,952	41,544	51,408	56,881	39,788
<b>Mean</b>	<b>26,310</b>	<b>37,168</b>	<b>30,071</b>	<b>11,920</b>	<b>18,662</b>	<b>15,606</b>	<b>12,496</b>	<b>19,890</b>	<b>16,825</b>
No. obs	5,673	5,673	5,673	1,311	1,331	1,331	1,575	1,575	1,575
Sum of wgt	2,215,295	2,215,295	2,215,295	562,484	562,484	562,484	575,135	575,135	575,135

**Table 1.3A Income Thresholds 2012**

	Single Parents			Couples		
	Market Income	Gross Income	Net Income	Market Income	Gross Income	Net Income
5%	0	12,769	12,184	0	15412	15000
10%	0	13,665	13,665	0	19,874	19,556
25%	0	17,218	17,056	3,756	27,390	26,652
<b>Median</b>	<b>3,120</b>	<b>22,416</b>	<b>22,113</b>	<b>32,891</b>	<b>43,989</b>	<b>39,694</b>
75%	14,259	28,282	27,093	67,633	75,055	58,772
90%	29,487	37,574	34,837	102,171	107,456	76,773
95%	43,626	46,494	38,433	129,138	137,266	93,106
<b>Mean</b>	<b>12,621</b>	<b>27,093</b>	<b>23,969</b>	<b>43,544</b>	<b>58,442</b>	<b>46,404</b>
No. obs	268	268	268	2,499	2,499	2,499
Sum of wgt	82,307	82,307	82,307	995,368	995,368	995,368

2015

**Table 1.4 Income Thresholds 2015**

	Income cases			Single men			Single women		
	Market Income	Gross Income	Net Income	Market Income	Gross Income	Net Income	Market Income	Gross Income	Net Income
5%	0	1,820	1,610	0	0	0	0	0	0
10%	0	7,805	7,498	0	2,367	2,124	0	2,500	2,459
25%	0	13,388	13,117	0	9,810	9,776	0	10,003	9,823
<b>Median</b>	<b>14,449</b>	<b>28,172</b>	<b>25,880</b>	<b>2,708</b>	<b>13,762</b>	<b>13,518</b>	<b>2,462</b>	<b>14,516</b>	<b>14,128</b>
75%	44,727	53,162	43,530	23,807	28,092	24,281	20,037	27,172	23,788
90%	83,835	90,021	66,517	43,360	47,850	34,761	39,443	43,206	32,808
95%	111,190	118,928	81,727	57,848	58,982	44,430	51,253	55,200	38,881
<b>Mean</b>	<b>30,748</b>	<b>41,370</b>	<b>32,660</b>	<b>15,467</b>	<b>22,065</b>	<b>17,912</b>	<b>13,162</b>	<b>20,727</b>	<b>17,375</b>
No. obs	6,861	6,862	6,862	1,701	1,707	1,707	1,974	1,974	1,974
Sum of weight	2,245,016	2,245,106	2,245,105	561,231	561,231	561,231	612,957	612,957	612,957

**Table 1.4A Income Thresholds 2015**

	Single Parents			Couples		
	Market Income	Gross Income	Net Income	Market Income	Gross Income	Net Income
5%	0	13,472	13,453	0	19,304	18,695
10%	0	13,700	13,700	0	23,491	23,049
25%	0	17,463	17,044	0	32,672	30,792
<b>Median</b>	<b>5,241</b>	<b>23,392</b>	<b>23,238</b>	<b>20,187</b>	<b>50,811</b>	<b>44,038</b>
75%	20,400	31,067	28,828	47,277	83,740	62,759
90%	41,300	43,254	34,159	79,436	120,098	82,577
95%	54,887	56,487	42,374	102,879	157,549	102,269
<b>Mean</b>	<b>13,158</b>	<b>26,511</b>	<b>24,109</b>	<b>31,952</b>	<b>65,568</b>	<b>50,678</b>
No. obs	213	213	213	2,967	2,968	2,968
Sum of weight	62,092	62,092	62,092	1,008,735	1,008,825	1,008,825

Chart 1.1 Market Income 2004

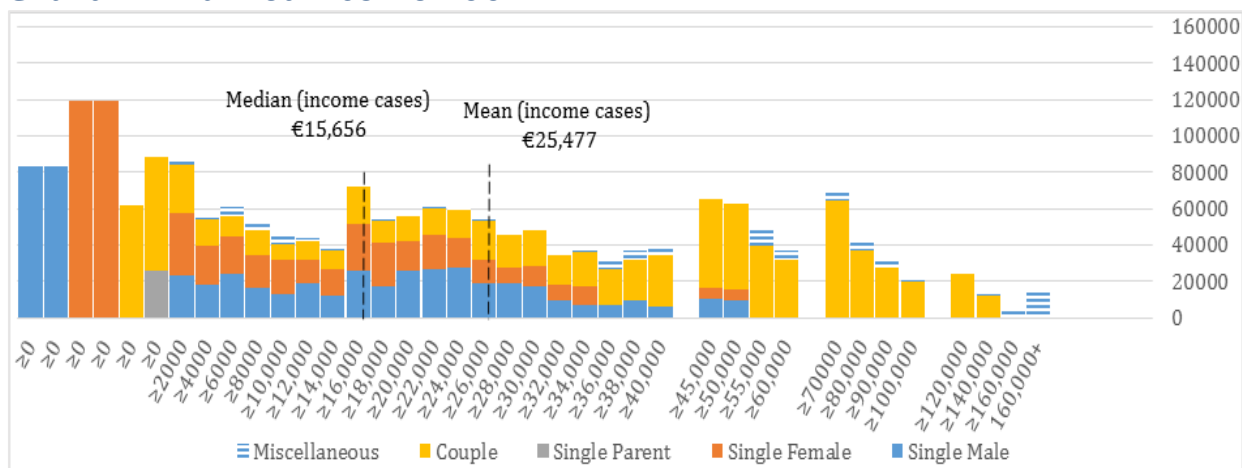


Chart 1.2 Gross Income 2004

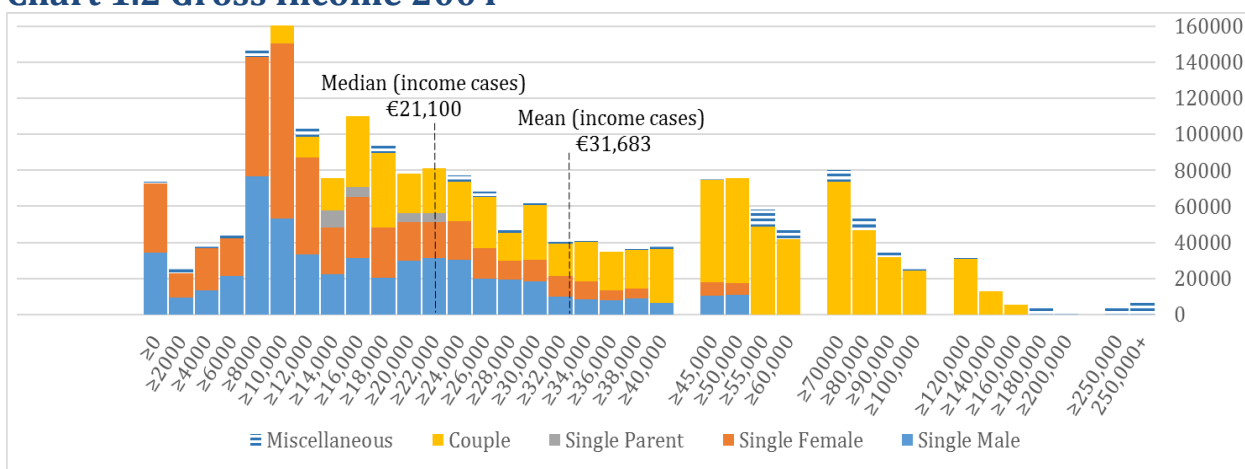
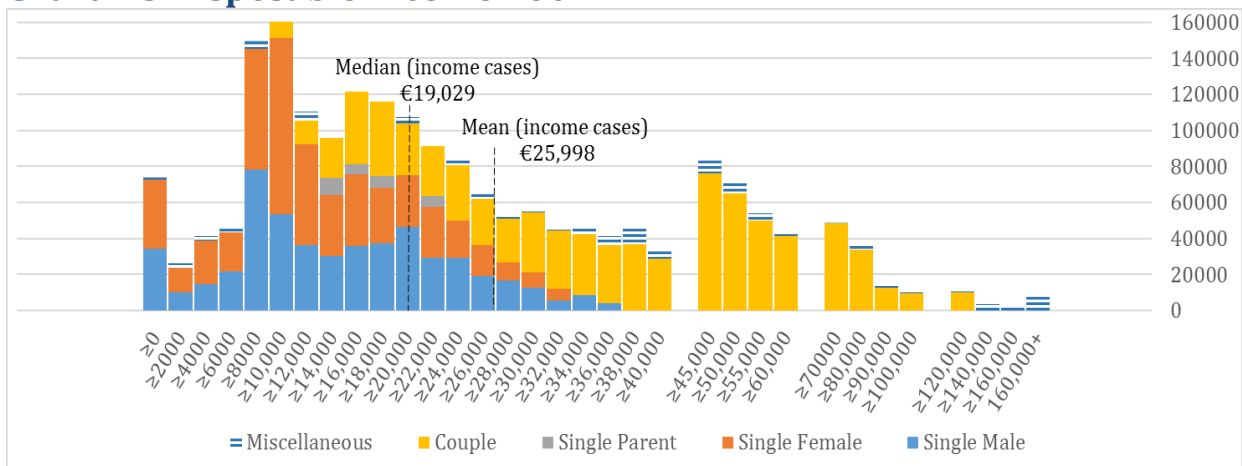


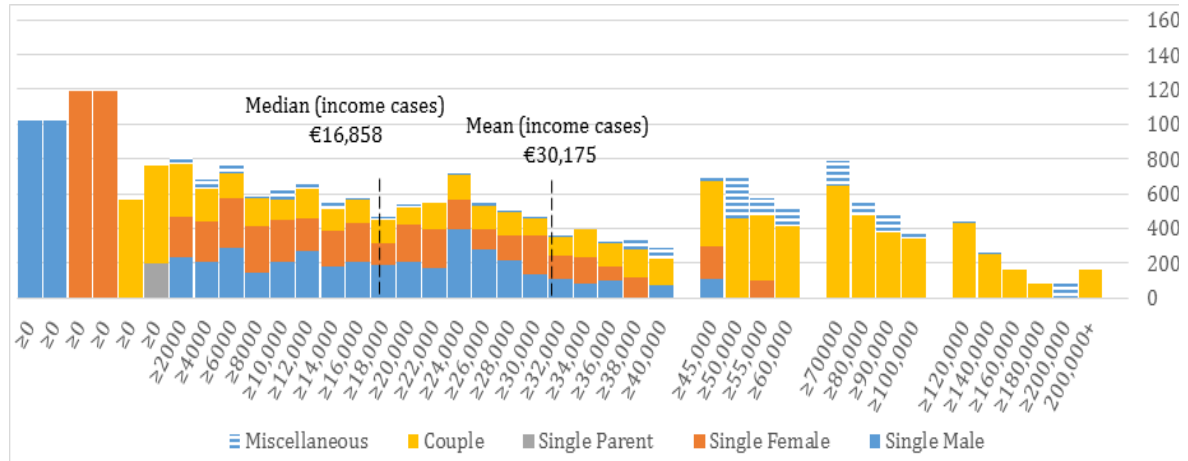
Chart 1.3 Disposable Income 2004



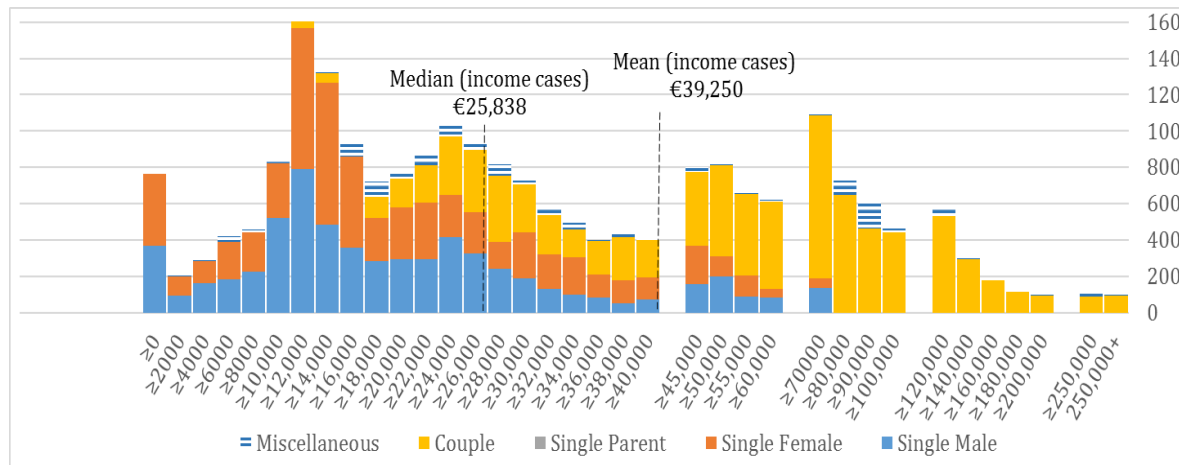
Source: CSO, Survey on Income and Living Conditions (2017)

<sup>14</sup> In charts 1.1 - 1.12, income cases are placed in income bands of €2,000 up to €40,000. To deal with sampling issues towards the upper end of the distribution, the approach is to widen income bands to €5,000, €10,000, €20,000 and €50,000. This allows for larger samples of respondents within income bands for more robust statistical inference. An additional 'miscellaneous' category is also given to account for instances where the observed sample size of income cases within an income band is too small. Observed instances of single parents make up most of the miscellaneous category towards the bottom of the distribution due to insufficient

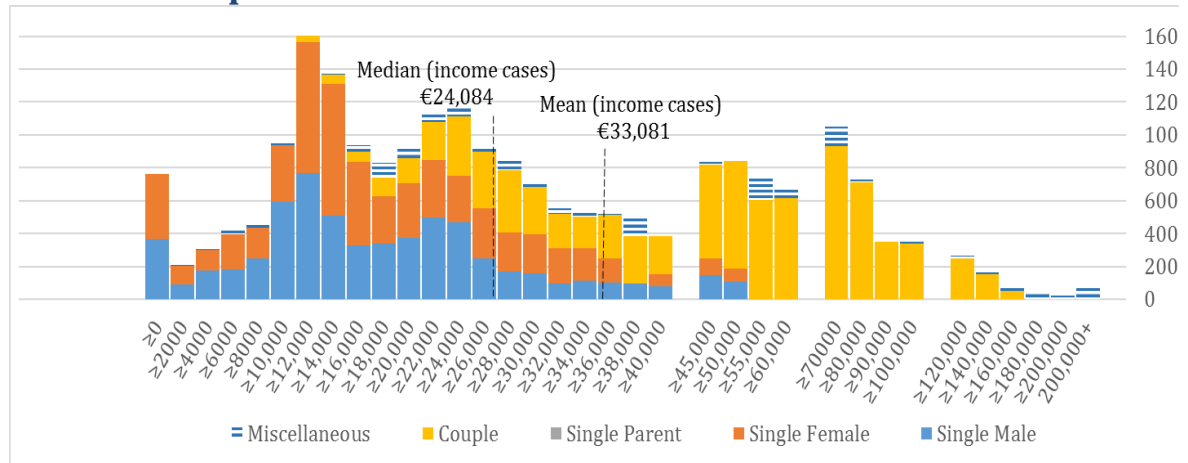
**Chart 1.4 Market Income 2008**



**Chart 1.5 Gross Income 2008**



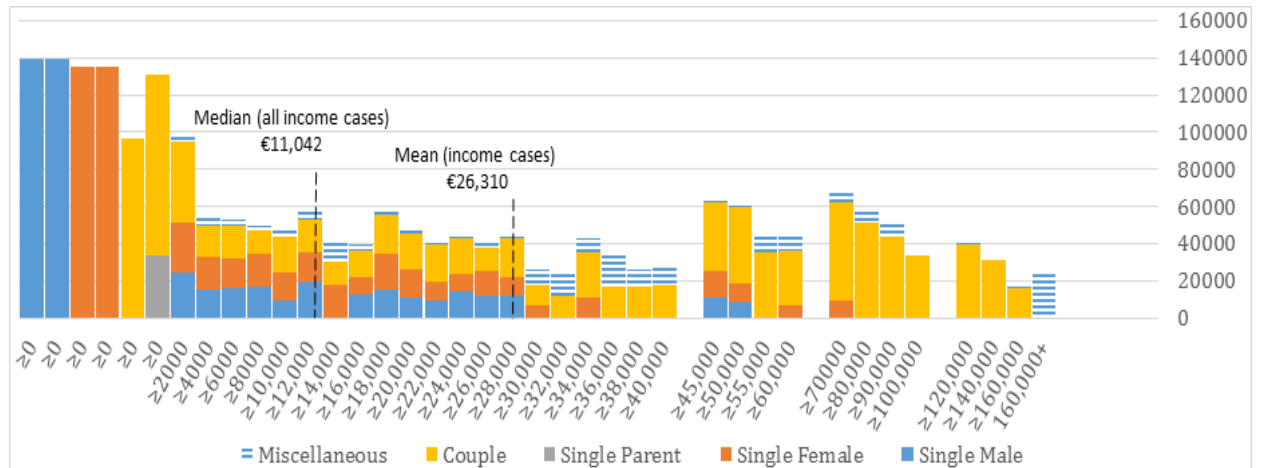
**Chart 1.6 Disposable Income 2008**



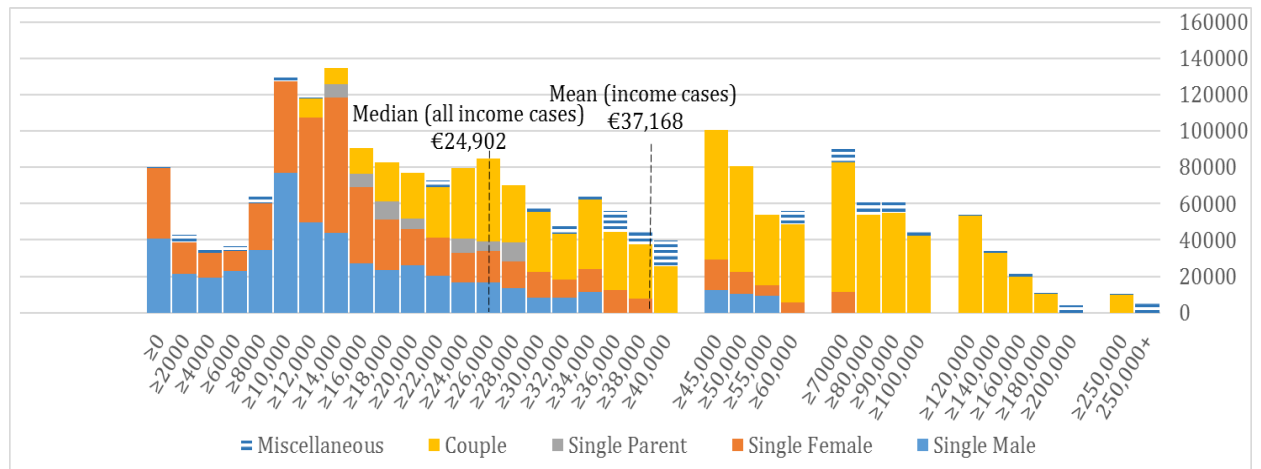
**Source:** CSO, Survey on Income and Living Conditions (2017)

samples. At the top end of the distribution the 'miscellaneous' income cases are made up of all four income case types, though observed couples make up the majority.

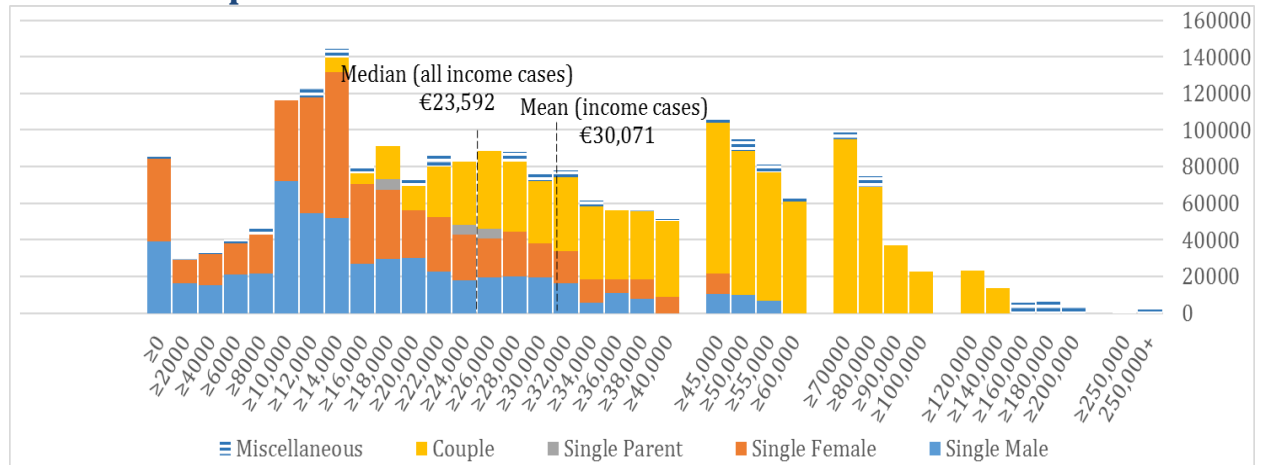
**Chart 1.7 Market Income 2012**



**Chart 1.8 Gross Income 2012**

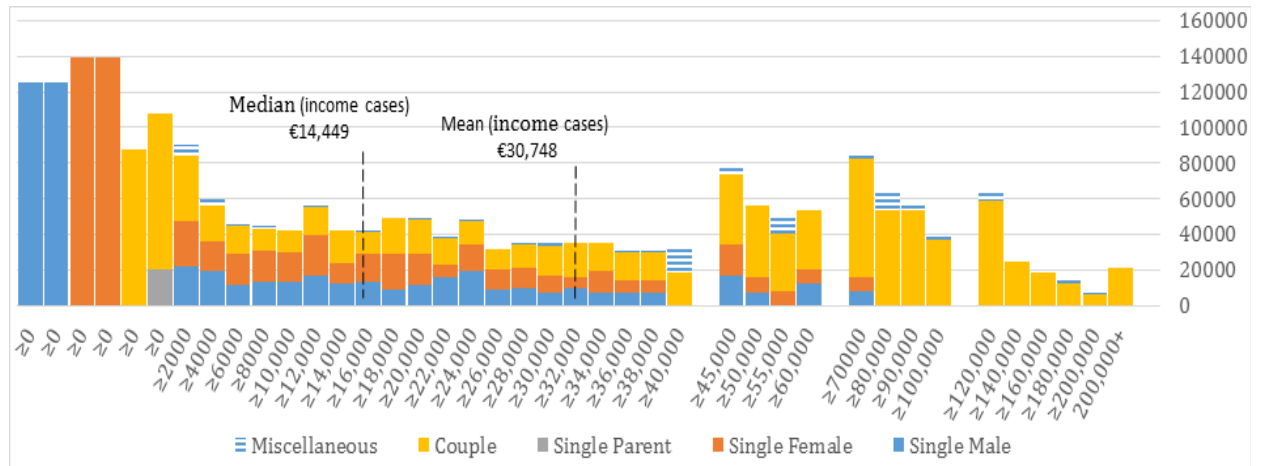


**Chart 1.9 Disposable Income 2012**

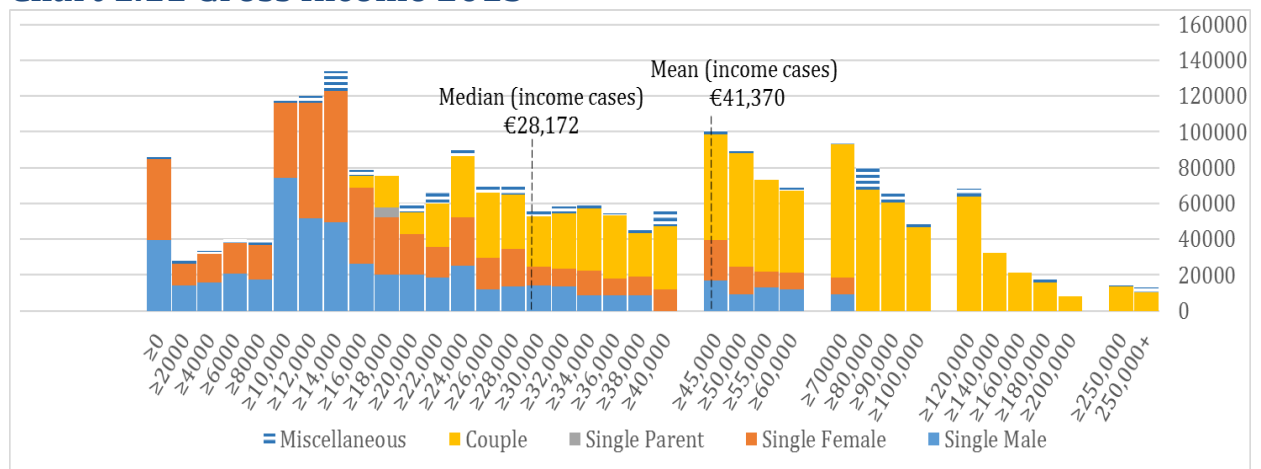


Source: CSO, Survey on Income and Living Conditions (2017)

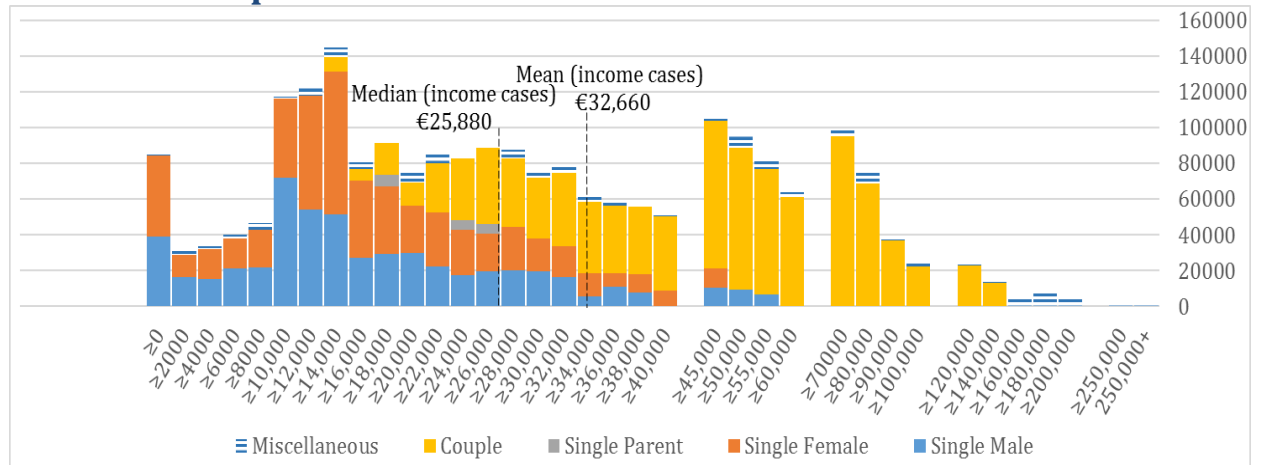
**Chart 1.10 Market Income 2015**



**Chart 1.11 Gross Income 2015**



**Chart 1.12 Disposable Income 2015**



Source: CSO, Survey on Income and Living Conditions (2017)

## REFERENCES

- Bach, S., Corneo, G., & Steiner, V. (2009). [From bottom to top: the entire income distribution in Germany, 1992–2003](#). *Review of Income and Wealth*, 55(2), 303-330.
- Bakija, J., Cole, A., & Heim, B. T. (2012). [Jobs and income growth of top earners and the causes of changing income inequality: Evidence from US tax return data](#).
- Bargain, O., Dolls, M., Immervoll, H., Neumann, D., Peichl, A., Pestel, N., & Siegloch, S. (2015). [Tax policy and income inequality in the United States, 1979–2007](#). *Economic Inquiry*, 53(2), 1061-1085.
- Belman, D. and P. Wolfson (2013), "[Does Employment Respond to the Minimum Wage? A meta-analysis of recent studies from the New Minimum Wage Research](#)",
- Boushey, H., DeLong, J. B., & Steinbaum, M. (Eds.). (2017). [After Piketty: The agenda for economics and inequality](#). Harvard University Press.
- Burkhauser, R. V., Feng, S., & Jenkins, S. P. (2009). [Using the P90/P10 index to measure US inequality trends with Current Population Survey data: A view from inside the Census Bureau vaults](#). *Review of Income and Wealth*, 55(1), 166-185.
- Burkhauser, R. V., Feng, S., Jenkins, S. P., & Larrimore, J. (2012). [Recent trends in top income shares in the United States: reconciling estimates from March CPS and IRS tax return data](#). *Review of Economics and Statistics*, 94(2), 371-388.
- Callan, T., Bercholz, M., & Walsh, J. R. (2018). [Income growth and income distribution: a long-run view of Irish experience](#) (No. BP2019/3).
- Carvalho, L., & Rezai, A. (2015). [Personal income inequality and aggregate demand](#). *Cambridge Journal of Economics*, 40(2), 491-505.
- Causa, O., Araujo, S., Cavaciuti, A., Ruiz, N., & Smidova, Z. (2014). [Economic growth from the household perspective: GDP and Income Distribution Developments across OECD Countries](#). *OECD Economic Department Working Papers*, (1111), 0\_1.
- Causa, O., de Serres, A., & Ruiz, N. (2015). [Can Pro-growth Policies Lift all Boats? An Analysis Based on Household Disposable Income](#) (No. 1180). OECD Publishing.
- Cingano, F. (2014). [Trends in income inequality and its impact on economic growth](#). OECD.
- Cohen, G., & Ladaïque, M. (2018). [Drivers of Growing Income Inequalities in OECD and European Countries](#). In [Reducing Inequalities](#) (pp. 31-43). Palgrave Macmillan, Cham.
- Collins, M. (2014). [Household Income Distribution in the Republic of Ireland](#). Nevin Economic Research Institute. Working Paper Series.
- Corak, M. (2013). [Income inequality, equality of opportunity, and intergenerational mobility](#). *The Journal of Economic Perspectives*, 27(3), 79-102.
- Cowell, F., Nolan, B., Olivera, J., & Van Kerm, P. (2017). [Wealth, top incomes and inequality](#). *National wealth: What is missing, why it matters*, 175-206.
- CSO (2017), [Revenue Statistics](#), Statistics & Economic Research Branch



- CSO (2018), *Survey on Income and Living Conditions 2004-2015*
- CSO (2018a), [Household Budget Survey, appendix 1, concepts and definitions](#)
- Danziger, S., & Taussing, M. K. (1979). [The income unit and the anatomy of income distribution](#). *Review of Income and Wealth*, 25(4), 365-375.
- Doucouliafos, H. and T. Stanley (2009), "[Publication Selection Bias in Minimum Wage Research? A Meta-Regression Analysis](#)", *British Journal of Industrial Relations*, 47(2), pp. 406-428.
- Eurostat (2018), [European Union Statistics on income and Living Conditions](#), Metadata
- Fry, R. (2013). [Young adults after the recession: Fewer homes, fewer cars, less debt](#). *Pew Research Center*. February, 21.
- Groves, R. M., & Couper, M. P. (1998). [Non-response in household interview surveys](#). *International Journal of Market Research*, 40(4), 363.
- Guner, N., Kaygusuz, R., & Ventura, G. (2014). [Income taxation of US households: Facts and parametric estimates](#). *Review of Economic Dynamics*, 17(4), 559-581.
- Hardoon, D., Fuentes-Nieva, R., & Ayele, S. (2016). [An Economy For the 1%: How privilege and power in the economy drive extreme inequality and how this can be stopped](#). Briefing paper series. Oxfam
- Holton, N. (2016) [The Distribution of Household Income in the Republic of Ireland](#). Nevin Economic Research Institute. InBrief Series.
- Inglehart, R., & Norris, P. (2016). [Trump, Brexit, and the rise of populism: Economic have-nots and cultural backlash](#). *Harvard JFK School of Government Faculty Working Papers Series*, 1-52.
- Norris, P., & Inglehart, R. (2019). [Cultural Backlash and the Rise of Populism: Trump, Brexit, and Authoritarian Populism](#). Cambridge University Press.
- Jaumotte, M. F., & Osorio, M. C. (2015). [Inequality and labor market institutions](#). IMF.
- Keister, L. A., & Moller, S. (2000). [Wealth inequality in the United States](#). *Annual Review of Sociology*, 26(1), 63-81.
- Kennedy, Stanley & Haugh (2018). [Income Dynamics & Mobility in Ireland: Evidence from Tax Records Microdata](#), Irish Government Economic & Evaluation Service
- Koske, I., Fournier, J. M., & Wanner, I. (2012). [Less income inequality and more growth—Are they compatible? Part 2. The distribution of labour income](#). OECD
- Krugman, P (2017), Why We're in a New Gilded Age. In Boushey, H., DeLong, J. B., & Steinbaum, M. (Eds.). (2017). [After Piketty: The agenda for economics and inequality](#) (Chpt 10) Harvard University Press.
- McCarty, N., Poole, K. T., & Rosenthal, H. (2006). [Polarized America: The dance of ideology and unequal riches](#) (Vol. 5).

- McDonnell, T (2013), [Wealth Tax: Options for its Implementation in the Republic of Ireland](#). NERI Working Paper Series (no. 6).
- McDonnell, T & Nugent, C (2018), [Labour Market Trends in the Republic of Ireland](#), NERI Working Paper Series (no. 53).
- Nolan, B. (1999). [Survey Information on Household Assets: Some Irish Lessons](#). *The Geneva Papers on Risk and Insurance. Issues and Practice*, 24(1), 77-94
- Norris, P. (Ed.). (1999). [Critical citizens: Global support for democratic government](#). OUP Oxford.
- Nugent, C. (2017). [Intergenerational Inequality In Ireland](#), NERI Research inBrief, Dublin
- Nugent, C. (2018). [A time-series analysis of precarious work in the elementary professions in Ireland](#). *Psychosociological Issues in Human Resource Management*, 6(1).
- Nugent, C. (2018a). [Wage sufficiency in the context of the Irish Housing Emergency-Rents and access to homeownership](#). NERI Working Paper Series.
- OECD (2011), [How's life? Measuring well-being](#). OECD Paris
- OECD (2011a), [An Overview of Growing Income Inequalities in OECD Countries: Main Findings](#), OECD Paris
- OECD (2013), [OECD Guidelines for Micro Statistics on Household Wealth](#), OECD Publishing, Paris
- OECD (2017), [Government at a Glance 2017](#), OECD Publishing, Paris
- OECD (2018), [Income Distribution Database \(IDD\)](#), OECD Paris
- Onaran, Ö., Stockhammer, E., & Grafl, L. (2011). [Financialisation, income distribution and aggregate demand in the USA](#). *Cambridge Journal of Economics*, 35(4), 637-661.
- ONS (2017). [Young adults living with their parents](#), Office of National Statistics
- Ostry, M. J. D., Berg, M. A., & Tsangarides, M. C. G. (2014). [Redistribution, inequality, and growth](#). IMF.
- Pickett, K. E., & Wilkinson, R. G. (2015). [Income inequality and health: a causal review](#). *Social Science & Medicine*, 128, 316-326.
- Piketty, T. (2003). [Income inequality in France, 1901–1998](#). *Journal of political economy*, 111(5), 1004-1042.
- Piketty, T. (2005). [Top income shares in the long run: An overview](#). *Journal of the European economic association*, 3(2-3), 382-392.
- Piketty, Thomas (2011). [“On the Long-Run Evolution of Inheritance: France 1820–2050.”](#) *Quarterly Journal of Economics* 126 (3): 1071–1131.
- Piketty, T., & Saez, E. (2003). [Income inequality in the United States, 1913–1998](#). The

Quarterly journal of economics, 118(1), 1-41.

Piketty, T., & Saez, E. (2006). [The evolution of top incomes: a historical and international perspective](#). *American economic review*, 96(2), 200-205.

Poterba, J. (2007). [Income inequality and income taxation](#). *Journal of Policy Modelling*, 29(4), 623-33.

Savage, M., Callan, T., Nolan, B., & Colgan, B. (2015). [The Great Recession, austerity and inequality: evidence from Ireland](#) (No. 499). ESRI Working Paper

Schmidt-Hebbel, K., & Serven, L. (2000). [Does income inequality raise aggregate saving?](#) *Journal of Development Economics*, 61(2), 417-446.

Stiglitz, J., Bougrov, A., Boutros-Ghali, Y., Fitoussi, J. P., Goodhart, C. A., Johnson, R., & Persaud, A. (2009). [Report of the Commission of Experts of the President of the United Nations General Assembly on Reforms of the International Monetary and Financial System](#). In *UN Conference on the World Financial and Economic Crisis and its Impact*, United Nations, New York.

Stiglitz, J. (2016). [The Euro: And its threat to the future of Europe](#). Penguin UK.

Stockhammer, E., Onaran, Ö., & Ederer, S. (2008). [Functional income distribution and aggregate demand in the Euro area](#). *Cambridge journal of Economics*, 33(1), 139-159.

Stockhammer, E. (2015). [Rising inequality as a cause of the present crisis](#). *Cambridge Journal of Economics*, 39(3), 935-958.

Verbist, G., & Figari, F. (2014). [The redistributive effect and progressivity of taxes revisited: An International Comparison across the European Union](#). *Public Finance Analysis*, 70(3), 405-429.

Wilkinson, R. G., & Pickett, K. (2009). [The spirit level: Why more equal societies almost always do better](#). London: Allen Lane.

Wickham, J. (2017). [Cherishing all equally: Economic inequality in Ireland](#).

World Economic Forum (2017). [Global Risks Report](#). In *World Economic Forum*.

## RECENT NERI WORKING PAPERS

The following is a list of recent research working papers from the NERI. Papers are available to download by clicking on the links below or from the NERI website:

<http://www.neriinstitute.net/research/category/neriworkingpaperseries/>

Number	Title/Author(s)
60	<a href="#">The Future of Work: The impact of automation technologies for job quality in Northern Ireland</a> - Paul Mac Flynn & Lisa Wilson
59	<a href="#">The Future of Work: The impact of automation technologies for employment in Northern Ireland</a> - Sórcha Foster and Lisa Wilson
<b>2018</b>	
58	<a href="#">Innovation and Growth: Concepts and Policy Implications</a> - Tom McDonnell
57	<a href="#">Productivity on the island of Ireland – A tale of three economies</a> -Paul Goldrick-Kelly & Paul Mac Flynn
56	<a href="#">Housing Affordability for Ireland’s Young People in the Context of the Cost of Living: A Long-Term Assessment</a> –Dara Turnbull
55	<a href="#">‘Bad’ Jobs and Productivity: The Flexibility Paradox</a> - Paul Mac Flynn & Lisa Wilson
54	<a href="#">Equality in Irish Healthcare – Time for a New Deal</a> - Paul Goldrick-Kelly & Tom Healy
53	<a href="#">Labour Market Trends in the Republic of Ireland</a> – Tom McDonnell & Ciarán Nugent
52	<a href="#">Housing provision in Northern Ireland and its implications for living standards and poverty</a> – Paul Mac Flynn & Lisa Wilson
51	<a href="#">Wage sufficiency in the context of the Irish Housing Emergency - Rents and access to homeownership</a> - Ciarán Nugent
<b>2017:</b>	
50	<a href="#">The gendered nature of employment and insecure employment in Northern Ireland: A story of continuity and change</a> - Lisa Wilson
49	<a href="#">A Low Skills Equilibrium in Northern Ireland?</a> -Paul Mac Flynn
48	<a href="#">Taxation and Revenue Sufficiency in the Republic of Ireland</a> – Paul Goldrick-Kelly & Thomas A. McDonnell
47	<a href="#">Northern Ireland, the Republic of Ireland and the EU Customs Union</a> – Paul Mac Flynn
46	<a href="#">Public Spending in the Republic of Ireland: A Descriptive Overview and Growth Implications</a> – Thomas A. McDonnell & Paul Goldrick Kelly
45	<a href="#">Patterns and Trends in employment arrangements and working hours in Northern Ireland</a> – Lisa Wilson
44	<a href="#">A long-term assessment of Irish house price affordability</a> - Dara Turnbull
43	<a href="#">A time series analysis of precarious work in the elementary professions in Ireland</a> – Ciarán Nugent
42	<a href="#">Industrial Policy in Northern Ireland: A Regional Approach</a> – Paul Mac Flynn
41	<a href="#">Ireland’s Housing Emergency – Time for a Game Changer</a> –Tom Healy & Paul Goldrick-Kelly
40	<a href="#">Innovative Competence, How does Ireland do and does it matter?</a> – Thomas A. McDonnell
<b>2016:</b>	
39	<a href="#">Productivity and the Northern Ireland Economy</a> – Paul Mac Flynn
38	<a href="#">Divisions in Job Quality in Northern Ireland</a> – Lisa Wilson
37	<a href="#">Employees on the Minimum Wage in the Rep of Ireland</a> –Micheál Collins