INEquality and POverty in Boom and Bust: Ireland as a Case Study

Brian Nolan, Bertrand Maître, Sarah Voitchovsky and Christopher T. Whelan

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Growing Inequalities’ Impacts
Inequality and Poverty in Boom and Bust: Ireland as a Case Study

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1. Introduction

Ireland, a small country of only 4 million people, none the less represents a particularly interesting case study on the distributional impact of pronounced macroeconomic fluctuations. In the first instance this is because Ireland has seen quite remarkable macroeconomic fluctuations over the past two decades, with the fastest economic growth rates in the OECD during the so-called ‘Celtic Tiger’ boom followed by the post-crisis recession which had a more negative impact on national output in Ireland than in any other OECD country. The decade of exceptionally rapid growth from the mid-1990s saw the numbers employed expand dramatically and unemployment reduced to 4%, but included an unsustainable credit-fuelled expansion in the construction sector and unbridled property price boom. Recession from 2008 onwards went together with a bursting of the property bubble, a collapse in asset values, a banking crisis of unprecedented proportions, and a ballooning fiscal deficit. This toxic combination meant that by late 2010, despite substantial increases in taxation and expenditure cuts, the Irish government had to avail of a ‘bail-out’ by the EU and IMF. The scale of the boom and subsequent recession, accompanied by sustained expansion and then retrenchment in public spending and sharp swings in taxation, mark Ireland out as an outlier in terms of macroeconomic fluctuations, and likely to be particularly illuminating as a case study on their impact on the distribution of income and on poverty.

As we will see, the evidence suggests that the distribution of disposable income among households was relatively stable over the course of the boom, though with some increase in the share going to the top. The immediate impact of the recession hit the better-off proportionately more than those on low incomes, so that summary indicators of income inequality declined, but this appears to have been followed by a sharp increase in income inequality. The evolution of poverty and social exclusion in the face of these macroeconomic shocks and inequality trends depends very much on the indicator one highlights, in particular whether the focus is on relative income thresholds, income thresholds held fixed in purchasing power terms, material deprivation, or broader measures of vulnerability.

The first section of the paper summarises the key features of the macroeconomy over the course of Ireland’s boom and bust. Section 2 discusses the data sources on which the analysis relies. Section 3 examines the evolution of individual earnings and their dispersion, key to understanding what is happening in the labour market and a central component of market income. Section 4 focuses on the distribution of income from all sources, describing the way summary measures of income inequality and income shares going to different parts of the distribution changed over time. Section 5 looks at the role of state transfers and direct taxation in redistributing
income, and the role changes in these structures and their parameters played in the way inequality evolved. Section 6 focuses on poverty and social exclusion, looking at how aggregate indicators changed over time and how different groups fared in terms of these indicators. Finally, Section 7 brings together the central findings and brings out the lessons for the broader understanding of the relationship between the macroeconomy and income inequality/poverty.
2. Ireland’s Macroeconomic Roller-Coaster

The rate of economic growth and the increase in numbers employed in Ireland during the so-called “Celtic Tiger” years from 1994 to 2007 were dramatic by any standards. Key macroeconomic and labour market trends over the period are summarised in Table 1. From 1994 to 2000 the average annual increase in real GNP was 7%, being among the highest in the OECD, giving rise to the “Celtic Tiger” label. Growth dipped in 2001-02 but then returned to 4-6% per annum up to 2007, at which point Ireland’s GNP per capita was among the highest in the European Union. This economic growth was accompanied by an increase in the total number in employment from 1.2 million in 1994 to 1.7 million by 2000. Although the annual increase then slowed somewhat, by 2007 there were 2.1 million in employment, a remarkable increase of 75% since 1994. Unemployment also declined very rapidly, from 16% in 1994 to 4% by 2000, staying at that level up to 2007. The employment rate rose very sharply as more married women in particular were drawn into the paid workforce: whereas about half of all working-age adults were in the workforce in 1994, by 2007 this had reached 69% (with the rate for women going from 40% to 60%). Migration was also extremely important in the expansion of the workforce, allowing growth to continue at a rapid pace as the domestic pool of unemployed and inactive shrank. While Ireland has traditionally been a country of outward migration, significant net immigration emerged from 1997, with a wave of return migration by Irish people who had left for Britain and the USA in the 1980s, followed by substantial numbers from other EU countries - an entirely new phenomenon for Ireland – particularly after the 2004 enlargement of the EU.
Exports were the key driver of economic growth in the first phase of the Celtic Tiger boom, increasing rapidly from 1997 to 2000 in particular, and both total foreign direct investment flows internationally and the share coming to Ireland were particularly strong in these years. Export growth was significantly lower in the second half of the boom, with a loss in competitiveness as inflation ran well ahead of the rest of the euro-zone. Domestic sources of demand predominated, the construction sector in particular grew to an unprecedented extent, and property prices rose very rapidly despite the scale of building. This was reflected in a shift in the sectoral distribution of employment in the second half of the boom away from production and distribution (down from 39% of employment in 2000 to 34% in 2007) towards construction (up from 10% in 2000 to 13% in 2007) and public administration, health and education (up from 19% to 22%). Meanwhile the importance of financial and other business services grew throughout the whole period, accounting for 14% of employment at the end compared with about 9% at the outset.

The high water mark of Ireland’s economic boom was in 2007, with the global financial crisis and the bursting of the domestic property bubble leading to an unprecedented contraction in GDP in 2008-2009. The economy then ‘flatlined’ in 2010 and 2011, with no increase in GDP, export growth being offset by very weak domestic demand. The overall employment rate fell to below 60%, unemployment rose to 14.4% by 2011, and net emigration also returned, both of Irish citizens and recent arrivals from eastern Europe. The decline in employment was very heav-

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### Table 1: Trends in Key Macroeconomic and Labour Market Variables, Ireland

<table>
<thead>
<tr>
<th>Year</th>
<th>GNP %</th>
<th>Numbers Employed '000</th>
<th>Unemployment Rate %</th>
<th>Employment Rate %</th>
<th>Net Migration '000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>6.5</td>
<td>1,220.6</td>
<td>14.7</td>
<td>52.2</td>
<td>-4.7</td>
</tr>
<tr>
<td>1995</td>
<td>5.6</td>
<td>1,281.7</td>
<td>12.2</td>
<td>54.0</td>
<td>-1.9</td>
</tr>
<tr>
<td>1996</td>
<td>7.6</td>
<td>1,328.5</td>
<td>11.8</td>
<td>55.1</td>
<td>8</td>
</tr>
<tr>
<td>1997</td>
<td>10.1</td>
<td>1,379.9</td>
<td>10.3</td>
<td>56.1</td>
<td>19.2</td>
</tr>
<tr>
<td>1998</td>
<td>7.6</td>
<td>1,505.5</td>
<td>7.8</td>
<td>59.6</td>
<td>17.4</td>
</tr>
<tr>
<td>1999</td>
<td>8.5</td>
<td>1,605.9</td>
<td>5.8</td>
<td>62.5</td>
<td>17.3</td>
</tr>
<tr>
<td>2000</td>
<td>9.8</td>
<td>1,684.1</td>
<td>4.3</td>
<td>64.5</td>
<td>26</td>
</tr>
<tr>
<td>2001</td>
<td>3.8</td>
<td>1,738.0</td>
<td>3.6</td>
<td>65.2</td>
<td>32.8</td>
</tr>
<tr>
<td>2002</td>
<td>2.9</td>
<td>1,768.5</td>
<td>4.2</td>
<td>65.0</td>
<td>41.3</td>
</tr>
<tr>
<td>2003</td>
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<td>1,800.0</td>
<td>4.4</td>
<td>64.9</td>
<td>30.7</td>
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<td>2004</td>
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<td>1,852.2</td>
<td>4.5</td>
<td>65.4</td>
<td>32</td>
</tr>
<tr>
<td>2005</td>
<td>5.6</td>
<td>1,944.6</td>
<td>4.7</td>
<td>67.1</td>
<td>55.1</td>
</tr>
<tr>
<td>2006</td>
<td>6.3</td>
<td>2,034.9</td>
<td>4.6</td>
<td>68.2</td>
<td>71.8</td>
</tr>
<tr>
<td>2007</td>
<td>4.2</td>
<td>2,113.9</td>
<td>4.7</td>
<td>69.0</td>
<td>104.8</td>
</tr>
<tr>
<td>2008</td>
<td>-1.8</td>
<td>2,099.6</td>
<td>5.7</td>
<td>67.6</td>
<td>64.3</td>
</tr>
<tr>
<td>2009</td>
<td>-8.1</td>
<td>1,928.6</td>
<td>12.0</td>
<td>62.2</td>
<td>1.6</td>
</tr>
<tr>
<td>2010</td>
<td>0.9</td>
<td>1,892.5</td>
<td>13.6</td>
<td>60.1</td>
<td>-27.5</td>
</tr>
<tr>
<td>2011</td>
<td>-2.5</td>
<td>1,809.7</td>
<td>14.4</td>
<td>59.2</td>
<td>-27.4</td>
</tr>
</tbody>
</table>

Source: Central Statistics Office
ily concentrated among young men, with the unemployment rate for men aged 20-24 soaring from 8% to over one in three; the increase for older men, while still pronounced, was considerably less, while the increase for younger women was substantially lower than for young men but again greater than for mid-career or older women.

Patterns of public expenditure and taxation both reflected the swings in economic growth and employment and mediated their impacts on household incomes. During the first part of the boom period, the increase in the tax base and decline in unemployment boosted revenue and reduced the requirement for social protection cash transfers. In the second part, however, cuts in direct taxes were implemented while income support rates were increased, notably for pensioners. The tax base became highly unbalanced, with income tax cuts being offset by revenue from stamp duties and other taxes on property development and sales. This meant that while the Exchequer was showing a substantial surplus by the mid-2000s, this masked a fundamental vulnerability that became all too obvious with the onset of the crisis. The recession had a profound impact on the government’s fiscal position, not only due to the downturn in economic activity and increase in unemployment, but also because of the calamitous effect of the property “bust” on tax revenue. The general government balance (GGB) went from a position of surplus to a deficit of 7% of GNP in 2008, and the debt to GDP ratio, having fallen to a remarkably low 25% by 2007, soared. At the same time the severe problems facing the banking system, reflecting the scale of exposure to property-based loans whose underlying assets lost much of their value, had to be addressed. By late 2010, despite substantial increases in taxation and expenditure cuts, the deficit including the support provided to the banking system reached 32%; the Irish government was unable to fund this at acceptable rates on international financial markets and had to avail of a bail-out by the EU and IMF. This brought with it agreement to a programme of public spending cuts and tax increases to 2014 intended to bring the deficit down to 3%, whose effects are still being played out and are fundamental to the medium- and long-term impact of the economic crisis on income inequality and poverty.
3. Data

The micro-data on which we primarily rely in analysing earnings, income inequality and poverty come from two sets of large-scale household surveys, the only sources that allow for year-by-year analysis of incomes etc. over the period. The first is the Living in Ireland Survey (LII), a longitudinal household panel survey carried out by the Economic and Social Research Institute (ESRI) that formed the Irish component of the European Community Household Panel (ECHP) which ran from 1994 to 2001. In the first wave (fully described in Callan et al., 1996), 4,048 households were interviewed with a response rate of 63% of valid addresses contacted. The samples for analysis are reweighted to correct for non-response, and the overall representativeness of the original sample data was validated by comparison with a range of external information (see for example Callan et al., 1996). The survey sought detailed information on the earnings, education, labour market experience and other characteristics of the employees in sample households. Over 3,000 employees responded fully to such questions, and they also appeared to represent employees well, in terms of age, sex, occupation and industry, when compared with available external data. By 2000 the overall sample size had declined substantially due to attrition, so 1,500 new households were added. Detailed checks suggested that the overall impact on the sample structure was slight, and the reweighting scheme sought to compensate for any biases to the extent that available external information allowed (see Whelan et al., 2003, Appendix A.).

Like the broader ECHP of which it was part, the Living in Ireland Survey was discontinued in 2001. At EU level the ECHP was replaced by EU Statistics on Income and Living Conditions (EU-SILC), which is an “output-co-ordinated” framework rather than an input-coordinated harmonised survey, and is now the reference source for common indicators on poverty and social inclusion in the European Community. In Ireland the information required under this framework is obtained via a dedicated household survey, called SILC, conducted by the Central Statistics Office (CSO). This has been carried out annually since 2003 with a total completed sample size of the order of 5,000 to 6,000 households and 13,000-14,000 adult individuals in each year (except for the first year when the sample was about half this large). The sampling frame and reweighting procedures differ from the Living in Ireland Survey (see for example CSO, 2005, 2008, 2011 for details), but these are similarly designed to ensure
the sample is representative of the population using external controls. The information sought about earnings and income in the two sets of surveys are similar, with certain differences to be noted at the appropriate point below.

In addition to these two core sets of micro-data, reference will be made to other surveys (notably the Household Budget Surveys carried out every 5 years by the CSO), and to administrative data from the administration of the tax and social welfare systems. Income tax data, in particular, provides for a perspective on trends in income towards the top of the income distribution that cannot be reliably captured by general household surveys, as highlighted by recent very influential ‘top income’ studies internationally relying on such data (see for example Atkinson and Piketty, 2007, 2010, Atkinson, Piketty and Saez, 2011).
4. Earnings Inequality

We now investigate what happened to earnings and earnings dispersion among individual employees over this period of boom and bust. It is important in doing so to point to some significant aspects of and changes in labour market institutions over the period. Wage bargaining in Ireland was centralized at the national level from 1987 through a process known as social partnership, in which the government, employers and unions concluded agreements on wage levels in both private and public sectors, together with a wide range of economic and social policies. The contribution of these agreements to Ireland’s rapid economic growth, and indeed the extent to which they represent successful social corporatism, is debated, but wage restraint does seem to have contributed to enhanced competitiveness in the earlier part of the boom. The centrally bargained increases generally set a floor, with more profitable firms – particularly in the multinational sector – often giving greater increases, and with public sector workers receiving substantial additional increases from 2002. With the onset of the economic crisis this social partnership fell into disarray, with wages in the private sector no longer negotiated and agreed centrally. After a unilateral reduction in public service pay in 2009, an agreement between government and public sector unions (known as the ‘Croke Park Agreement’) in 2010, to run until 2014, set out that there would be no compulsory redundancies or further wage cuts in the public sector, in return for productivity-enhancing flexibility in work practices etc.

The introduction of a national minimum wage for the first time around the mid-point of the boom, in 2000, was also an important institutional change. Prior to that, as in the UK, for many years minimum wages had been set only for a limited number of occupations or sectors. The national minimum wage, by contrast, sets a minimum for all employees aged 18 or over, with reduced rates payable for younger/inexperienced workers. It has been increased over time since introduction at irregular intervals, broadly in line with median earnings as we will detail below, and the potential impact of this innovation on the earnings distribution in both boom and recessionary periods is of particular interest.

In analysing earnings inequality, a variety of alternative populations of earners and concepts of earnings are of substantive interest – notably the distribution among full-time employees versus all workers, and the dispersion of hourly, weekly and annual earnings. The number of hours worked in the week and of weeks worked in the year are clearly central to individual earnings and household income, but hourly wages more directly relate to differential rewards to skill and effort, and it is on the dispersion of hourly gross earnings across all employees that we focus. Employees were asked in the surveys about the gross pay they received in their last pay period, how long this covered (a week, fortnight, month etc.), and the hours worked during that period. They were also asked whether this
was the amount they usually receive, and if not what was their usual gross pay and hours usually worked. Hourly earnings we derive for most employees as reported last gross pay received divided by hours worked in that pay period; for the small proportion of responding employees (generally about 5%) who stated that their last pay was not usual, we use the usual amount received divided by hours usually worked. We have also harmonised to the greatest extent possible across the surveys the employees included in the analysis, excluding those working in apprenticeships, in state-backed employment schemes, or while in full-time education. This degree of harmonization of the earnings variable and coverage across the Living in Ireland and SILC surveys provides for some reassurance that the switch from one to another is not introducing a major discontinuity in the earnings distribution, borne out by the similarity in the measured earnings distributions.

Mean and median earnings rose rapidly in real terms throughout the boom period, with average earnings increasing by 38% and the median going up by 34% between 1994 and 2007. Figure 1 shows how the level of earnings at the bottom decile ($P_{10}$), bottom quartile ($P_{25}$), top quartile ($P_{75}$), and top decile ($P_{90}$) evolved year by year, together with the mean and median ($P_{50}$), each in constant price terms expressed as an index with base 1994=100. We see that the lower part of the distribution saw above-average growth up to 1999, with the upper part lagging behind, but the really striking feature is the scale of the increase in the bottom decile and quartile from 1999 to 2000. In the period from 2000 to 2007, by contrast, the top quartile and decile rose faster than the median. Over the boom period as a whole, then, the bottom quartile and especially the bottom decile rose more rapidly than the median, while the top quartile and decile lagged modestly behind it.

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1 See Barrett, Callan and Nolan (1999), Barrett, FitzGerald and Nolan (2002), and McGuinness, McGinnity and O’Connell (2009) for analysis of the evolution of earnings dispersion and returns in the earlier part of the boom using the Living in Ireland Survey data.
The implications for the overall shape of the earnings distribution are brought out in Table 2, showing the level of earnings at different percentiles as proportions of the median, together with the ratio of the top to the bottom decile, \( P_{90}/P_{10} \), a widely-used summary measure of earnings dispersion. The entire distribution was relatively stable from 1994 to 1997, with the bottom decile at about half the median and the top decile at 2 1/4 times the median or more. The top decile then fell relative to the median in 1998, followed by a very marked increase in the bottom decile as a proportion of the median in 2000. The net result was that the \( P_{90}/P_{10} \) summary dispersion measure fell very sharply indeed from 1997 to 2000, from 4.8 to 3.6, a scale of change rarely seen internationally in this summary measure of earnings dispersion. After 2000 the bottom decile and quartile both fell back slightly relative to the median, but the bottom decile in particular remained well above the level seen before 2000. However, the top quartile and especially the top decile now pulled away from the median, coming close to reversing the falls seen in the late 1990s. The net impact was that by 2007 the \( P_{90}/P_{10} \) ratio had risen from 3.6 back up to 4, a substantial increase but still leaving it well below the level of 4.8 seen in 1994.
Table 2: Distribution of Hourly Earnings, All Employees, 1994–2009

<table>
<thead>
<tr>
<th>Year</th>
<th>Bottom Decile</th>
<th>Bottom Quartile</th>
<th>Top Quartile</th>
<th>Top Decile</th>
<th>P90/P10</th>
<th>P50/P10</th>
<th>P90/P50</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>0.49</td>
<td>0.69</td>
<td>1.53</td>
<td>2.35</td>
<td>4.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>0.50</td>
<td>0.70</td>
<td>1.54</td>
<td>2.27</td>
<td>4.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>0.49</td>
<td>0.69</td>
<td>1.50</td>
<td>2.24</td>
<td>4.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>0.50</td>
<td>0.71</td>
<td>1.52</td>
<td>2.33</td>
<td>4.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>0.51</td>
<td>0.67</td>
<td>1.45</td>
<td>2.12</td>
<td>4.16</td>
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</tr>
<tr>
<td>1999</td>
<td>0.51</td>
<td>0.73</td>
<td>1.45</td>
<td>2.15</td>
<td>4.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>0.59</td>
<td>0.75</td>
<td>1.44</td>
<td>2.10</td>
<td>3.56</td>
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</tr>
<tr>
<td>2001</td>
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<td>1.44</td>
<td>2.09</td>
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<td></td>
<td></td>
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<td>2002</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>2003</td>
<td>0.56</td>
<td>0.73</td>
<td>1.46</td>
<td>2.04</td>
<td>3.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>0.58</td>
<td>0.74</td>
<td>1.46</td>
<td>2.12</td>
<td>3.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>0.57</td>
<td>0.73</td>
<td>1.46</td>
<td>2.11</td>
<td>3.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>0.56</td>
<td>0.71</td>
<td>1.50</td>
<td>2.18</td>
<td>3.92</td>
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<tr>
<td>2007</td>
<td>0.56</td>
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<td>1.50</td>
<td>2.26</td>
<td>4.00</td>
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<tr>
<td>2008</td>
<td>0.57</td>
<td>0.71</td>
<td>1.50</td>
<td>2.23</td>
<td>3.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>0.56</td>
<td>0.71</td>
<td>1.50</td>
<td>2.20</td>
<td>3.88</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The immediate impact of the recession on average earnings varied across employees and sectors. The SILC survey shows average gross hourly earnings among employees continuing to increase in both real and nominal terms in 2008, as the crisis had its first impact, and again in 2009. (This is also the case in a new employer-based earnings series produced by the Central Statistics Office covering all employees, available from 2008.) Focusing on the dispersion in hourly earnings among employees, the ratio of the top to the bottom decile (P90/P10) was not substantially altered by the recession to 2009, with the ratio of the median to the bottom decile (P50/P10) unchanged and the ratio of the top decile to the median (P90/P50) marginally down. In 2010, the CSO’s average earnings series shows a decline of 2 per cent comparing 2010 with 2009, with average weekly earnings falling by slightly more.

Analysis by Voitchovsky, Maître and Nolan (2011) of the factors underpinning the evolution of earnings dispersion during the boom reveals declining returns to both education and work experience from 1994 to 2000, and decomposition analysis using the approach developed by Machado and Mata (2005) showed this, rather than changes in workforce composition, to be key to the narrowing dispersion over this sub-period. These declining returns may be associated with the substantial immigration of relatively highly skilled workers attracted by the availability of jobs in a very rapidly expanding economy. The decomposition analysis also suggested that by contrast in the second half of the boom, from 2000 to 2007, the change in returns would now have produced some

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2 This employs quantile regressions to partition the observed distribution of earnings into ‘price’/wage coefficients and ‘quantity’/composition components, allowing a set of counterfactual earnings distributions to be derived holding constant the workforce composition by education and experience observed in a base year but applying the returns to education and experience seen in a different year, and vice versa. Autor, Katz and Kearney (2005) demonstrate that the Machado-Mata technique nests the other decomposition approaches in use in the literature.
increase in dispersion. The impact of changing characteristics was now similar in direction to that of returns, but the widening gap between top and middle predominantly reflecting the effects of changing returns. The increase in higher earnings may be associated with the changing pattern of immigration and the changing nature of employment growth in that part of the boom.

The introduction of the minimum wage in April 2000 also appears to have been important, anchoring the bottom of the distribution at a higher proportion of the median from then onwards. The minimum wage was introduced at (the IR£ equivalent of) €5.59 per hour; the level of hourly earnings cutting off the bottom decile in the LII surveys rose from €4.46 in 1999 to €5.93 in 2000, an increase of 33%, compared with increases of 20% at P20 and 15% at the median. The minimum wage was then increased over time broadly in line with median earnings, and as Figure 2 shows P10 and the minimum wage evolved in a very similar fashion up to 2007 – with P10 for women tracking the minimum wage even more closely. The fact that the minimum wage was introduced in the middle of a boom has to be emphasised: sustained demand for low-skilled workers allowed it to anchor the bottom of the distribution while very low levels of unemployment were sustained. In the period from 2004, when many of the immigrants coming from the new EU member states worked in unskilled and semi-skilled jobs and increased the supply of labour available for those jobs, only a modest decline in the bottom decile relative to the median was seen. When recession hit the minimum wage became a source of concern, and was cut by €1 in February 2010, but this was reversed after the change of government in July of that year, helping to explain the fact that the bottom of the earnings distribution remaining unchanged at about 56% of the median at a time of very rapidly rising unemployment.

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3 It is worth noting that while the sample in the Living in Ireland Survey was substantially supplemented in 2000, the increase in P10 relative to the median in the overall sample was also seen in the continuing sample alone, and so was not simply a product of sampling factors.
Figure 2: Earnings at the Bottom Decile and Level of the Minimum Wage
5. Income inequality

We now turn to the evolution of distribution of income from all sources, rather than employee earnings, among individuals living together in households. The point of departure in terms of Ireland’s level of income inequality before the onset of the Celtic Tiger boom (on which see Nolan and Maitre, 2000; Nolan, Maitre, O’Neill and Sweetman, 2000; Nolan and Smeeding, 2005) is worth noting. On summary measures of income inequality such as the Gini coefficient, Atkinson’s inequality measure, the Theil coefficient, and the ratio of the 90th to the 10th percentile, Ireland at that point (early-mid 1990s) was above average within the EU and the OECD. That was consistent with relatively low social protection spending (as a proportion of national income) and low redistributive impact of income transfers together with direct taxes, arising in particular from low spending on public pensions, in turn reflecting both a low share of older persons in the population and the flat-rate nature of the social security pension system. In terms of the institutional structures more broadly, Ireland’s level of income inequality was similar to most of the other countries in the Liberal welfare regime in which it would customarily be placed.

This in fact turns out to have remained the case over the years of the ‘Celtic Tiger’ boom, when summary inequality measures were rather stable with only a modest increase towards the end of that boom. The figures available over the period are from different sources and sometimes on different bases, and need careful interpretation (see for example Nolan and Smeeding, 2005). Broadly speaking, as Table 3 shows, summary inequality measures calculated in the most harmonised way from the most directly comparable household surveys were rather stable up to 2008.
Table 3: Summary Income Inequality Measures, Equivalised Disposable Income Among Persons (1/0.66/0.33 equivalence scale) Ireland 1994–2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Living in Ireland Survey</th>
<th>SILC</th>
<th>Household Budget Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>0.32</td>
<td></td>
<td>0.30</td>
</tr>
<tr>
<td>2000</td>
<td>0.31</td>
<td></td>
<td>0.30</td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td>0.32</td>
<td>0.30</td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td>0.32</td>
<td>0.32</td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td>0.32</td>
<td>0.32</td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td>0.32</td>
<td>0.32</td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td>0.31</td>
<td>0.32</td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td>0.29</td>
<td>0.32</td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td>0.34</td>
<td>0.32</td>
</tr>
</tbody>
</table>


Summary measures may mask important changes occurring in different parts of the income distribution, so one can also look at decile shares – the share of total income going to those in the bottom 10%, next 10% etc. Over the boom years the available household surveys suggest a modest increase in the share going to the top 10%, but mostly balanced by a decline for others in the top half rather than further down the distribution, as shown in Table 4 based on the LII survey to 2001 and SILC from 2004. Compared with figures from the Household Budget Survey (HBS) SILC data shows larger shares going towards the top and the comparison between LII and SILC may overstate the increase in share for that party of the distribution after 2001.

Table 4: Decile Shares, equivalised disposable income (among persons, 1/0.66/0.33 scale)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BOTTOM</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>3.7</td>
<td>3.2</td>
<td>3.3</td>
<td>3.3</td>
<td>3.4</td>
<td>3.5</td>
<td>3.6</td>
<td>2.8</td>
</tr>
<tr>
<td>2</td>
<td>4.7</td>
<td>4.5</td>
<td>4.7</td>
<td>4.7</td>
<td>4.9</td>
<td>5.1</td>
<td>5.3</td>
<td>4.8</td>
</tr>
<tr>
<td>3</td>
<td>5.5</td>
<td>5.5</td>
<td>5.6</td>
<td>5.7</td>
<td>5.7</td>
<td>5.9</td>
<td>6.1</td>
<td>5.7</td>
</tr>
<tr>
<td>4</td>
<td>6.4</td>
<td>6.9</td>
<td>6.8</td>
<td>6.8</td>
<td>6.6</td>
<td>6.8</td>
<td>7.0</td>
<td>6.5</td>
</tr>
<tr>
<td>5</td>
<td>7.6</td>
<td>8.0</td>
<td>8.0</td>
<td>7.9</td>
<td>7.7</td>
<td>7.9</td>
<td>8.1</td>
<td>7.5</td>
</tr>
<tr>
<td>6</td>
<td>9.0</td>
<td>9.3</td>
<td>9.3</td>
<td>9.2</td>
<td>9.0</td>
<td>9.1</td>
<td>9.2</td>
<td>8.9</td>
</tr>
<tr>
<td>7</td>
<td>10.7</td>
<td>10.8</td>
<td>10.6</td>
<td>10.6</td>
<td>10.6</td>
<td>10.4</td>
<td>10.6</td>
<td>10.2</td>
</tr>
<tr>
<td>8</td>
<td>12.6</td>
<td>12.7</td>
<td>12.3</td>
<td>12.2</td>
<td>12.2</td>
<td>12.2</td>
<td>12.3</td>
<td>11.9</td>
</tr>
<tr>
<td>9</td>
<td>15.4</td>
<td>15.6</td>
<td>14.7</td>
<td>14.6</td>
<td>15.1</td>
<td>14.7</td>
<td>14.8</td>
<td>15.2</td>
</tr>
<tr>
<td>TOP</td>
<td>24.4</td>
<td>23.8</td>
<td>24.9</td>
<td>25.9</td>
<td>24.8</td>
<td>24.5</td>
<td>23.3</td>
<td>26.6</td>
</tr>
</tbody>
</table>
Household surveys may have particular difficulty right at the top of the income distribution, so trends in that respect may be better captured by data from the income tax system. Large increases in top income shares have been revealed by recent studies based on this data source, being particularly pronounced in countries such as the USA and the UK but by no means confined to them (see Atkinson and Piketty, 2007, 2010, Atkinson, Piketty and Saez, 2011)). Estimates of the share of total income going to the top 1 per cent in Ireland derived from data produced by the Revenue Commissioners do suggest a sharp increase, from about 6% to 10% over the 1990s (Nolan, 2007). This appears to have continued through the latter part of the boom, with the share of the top 1% reaching 12.5% in 2006, before falling back with the onset of the recession. While changes in reporting behaviour.

As noted earlier, Ireland’s economic boom was notable for a substantial increase in married women’s labour force participation, but this did not have a disequalizing effect on the household income distribution because it was seen for women married to lower-earning as well as to high-earning men. Social welfare support rates initially lagged behind average earnings, especially net of tax as direct taxes were cut, but subsequently made up much of that ground, as larger annual increases were awarded in annual Budgets towards the latter years of the boom. While substantial in real terms, those increases in social welfare were still exceeded by the increase in average net household income (before or after equivalisation to take household size and composition into account), to which increasing numbers of earners in the household also contributed.

Turning to the period from the onset of the recession, the impact on average household incomes and on the distribution was striking. Whereas EU-SILC income data for most other EU countries use the previous calendar year, so income data labelled ‘2010’ actually refers to 2009, Ireland uses the 12 months prior to the interview date as the period for measuring household incomes, with interviewing carried out throughout the year, and thus the latest income data, from the 2010 survey, is slightly more up-to-date (Central Statistics Office, 2011). As shown in Table 5, average net equivalised income continued to rise in 2008 but fell by over 5 per cent in 2009, with the median falling by 7 per cent; similar trends were seen for gross income, before direct taxes and social insurance contributions are deducted. Changes in the composition of total income coming into households in the survey, underlying these declines in the average, are also shown: there is a decline in the share of total income coming from employment in both 2008 and 2009 (with much of that fall in self-employment income) while investment income also falls, with a sharp rise in the importance of cash social transfers and a marginal decline in direct tax and social contributions as a share of net income.

4 These figures are an updating of the estimates in Nolan (2007), which, together with a methodological note, are now on the World Top Incomes Database http://g-mond.parisschoolofeconomics.eu/topincomes/
Table 5: Mean and Median Net and Gross Equivalised Household Incomes and Composition of Net Income, Ireland 2004–2009

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Mean</th>
<th>Net Median</th>
<th>Gross Mean</th>
<th>Gross Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>24,366</td>
<td>21,271</td>
<td>31,231</td>
<td>26,082</td>
</tr>
<tr>
<td>2007</td>
<td>30,319</td>
<td>25,844</td>
<td>37,908</td>
<td>30,254</td>
</tr>
<tr>
<td>2008</td>
<td>31,064</td>
<td>28,567</td>
<td>38,467</td>
<td>31,328</td>
</tr>
<tr>
<td>2009</td>
<td>29,300</td>
<td>25,543</td>
<td>36,356</td>
<td>29,157</td>
</tr>
</tbody>
</table>

\( \€ \) in 2004 prices

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Mean</th>
<th>Net Median</th>
<th>Gross Mean</th>
<th>Gross Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>24,366</td>
<td>21,271</td>
<td>31,231</td>
<td>26,082</td>
</tr>
<tr>
<td>2007</td>
<td>27,145</td>
<td>23,138</td>
<td>33,939</td>
<td>27,086</td>
</tr>
<tr>
<td>2008</td>
<td>26,715</td>
<td>23,097</td>
<td>33,082</td>
<td>26,942</td>
</tr>
<tr>
<td>2009</td>
<td>26,385</td>
<td>23,001</td>
<td>32,738</td>
<td>26,256</td>
</tr>
</tbody>
</table>

\% of total net income


To see where in the income distribution these changes will have had their effects, Table 6 compares the composition of net income in 2007 and 2009 for those in the bottom 30 per cent of the distribution, the next 50 per cent, and the top 20 per cent. Focusing first towards the bottom, there was relatively little change for the bottom 30 per cent: two-thirds of its income already came from social transfers in 2007 and this went up by a modest 1 percentage point, with a corresponding fall in income from employment and investment. For the net 50 per cent of the distribution the changes were more pronounced: income from employment fell by 8 percentage points and investment income by 2 percentage points, with a sharp rise in the share coming from cash transfers and a fall in the share of income tax and social contributions. For the top 20 per cent there was much more stability in income composition, with some decline in investment income and increase in the share of income tax and social contributions.

Focusing on the distributional implications, the share of income going to each decile group and summary inequality measures for net equivalised income (using the square root of household size equivalence scale) are shown in Table 4.5. Strikingly, it is the share of the top ten per cent that sees most change, falling from close to 25
per cent before the crash to 23.2 per cent by 2009, whereas the shares of each of the bottom 5 decile groups rose, so the share going to the bottom half of the distribution went up by 1.3 per cent of total income. This is reflected in a decline in the summary measures of inequality, with the Gini coefficient for example down to 0.30 by 2009, a decline of 6 per cent. (Indeed, the distribution for 2009 Lorenz-dominates that for 2007.)

Up to that point, then, the impact of the recession was equalizing rather than disequalizing, indeed quite considerably so. This could of course be at least partly a matter of timing: in addition to the most immediate effects could impacting more substantially on income towards the top (via profits and income from capital and self-employment), but that might not continue to dominate other effects as the recession continues to bite. Furthermore, timing matters particularly in this instance because of the nature and phasing of the policy response via the tax and social welfare systems is particularly important in this case: as discussed in the next section, increases in taxation dominated in 2008 and 2009 and were rather progressive in character, whereas from 2010 reductions in social welfare were also implemented, which will have affected the shares of those towards the bottom.

The results for 2010 suggest that this, and other factors, contributed to a dramatic increase in inequality in that year, with the Gini coefficient rising from 0.30 to over 0.34. This increase may also reflect the impact of lump-sum payments to those retiring, notably from the public service where early retirement was incentivised to reduce the pay bill, since these lump sums are counted as income in the year received. It will take some time before the impact of the recession on income inequality becomes clear, but it is clearly highly significant that the initial inequality-reducing impact in the Irish case has not been sustained.

To give some indication of the impact of the recession on different types of person and household, Table 4.6 shows how mean income changed by household composition, and for persons categorised by age and gender. Each reveals a dramatic difference between older persons and the rest of the population: between 2007 and 2009 those aged 60 or over and their households saw substantial increases in average net income in real terms, of 10 per cent or more, while other households, and both adults of working age and children, saw declines of 3 per cent to 6 per cent. This reflects the impact of declines in employment and in income from self-employment on those of working age and their families, together with the remarkable extent to which pensioners have been insulated from the effects of the crisis in income terms.
6. Poverty, Social Exclusion and Vulnerability

As well as the overall impact of the recession on the distribution of income, the impact on incomes towards the bottom, in other words on poverty and social exclusion, is of particular interest from a policy perspective. With the widely-used relative approach to deriving an income poverty threshold, incorporated for example into the EU’s set of commonly-agreed social inclusion indicators, a threshold of 60 per cent of median equivalised income in the country in question is often employed. In the case of Ireland, Table 6 shows that relative income poverty measured in this fashion increased in the earlier years of the Celtic Tiger boom, despite the sharply rising levels of employment and incomes from work, largely because those remaining reliant on social transfers fell behind. Much of this ground was made up in the latter part of the boom, so that by 2005-2007 Ireland’s relative income poverty rate was above the EU and OECD averages but not an outlier.

Table 6: Percentage of Persons Below 60% of Median Relative Income Poverty Line, Ireland 1994–2010

<table>
<thead>
<tr>
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<th></th>
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<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td>15.6</td>
<td>21.9</td>
<td>18.0</td>
<td>18.5</td>
<td>17.0</td>
<td>16.5</td>
<td>14.4</td>
<td>14.1</td>
<td>15.8</td>
</tr>
<tr>
<td>CHILDREN (&lt;18)</td>
<td>24.6</td>
<td>23.7</td>
<td>21.2</td>
<td>23.1</td>
<td>20.2</td>
<td>19.9</td>
<td>18.0</td>
<td>18.6</td>
<td>19.5</td>
</tr>
<tr>
<td>WORKING AGE</td>
<td>12.2</td>
<td>16.4</td>
<td>17.6</td>
<td>16.2</td>
<td>16.6</td>
<td>15.0</td>
<td>13.5</td>
<td>13.0</td>
<td>15.3</td>
</tr>
<tr>
<td>OLDER (65+)</td>
<td>6.0</td>
<td>38.4</td>
<td>27.1</td>
<td>20.1</td>
<td>13.6</td>
<td>16.5</td>
<td>11.1</td>
<td>9.6</td>
<td>9.6</td>
</tr>
</tbody>
</table>

Equivalence Scale 1/0.66/0.33
Source: Analysis of LII and SILC microdata, published SILC Reports.

The immediate impact of the Great Recession was to reduce this relative income poverty measure: in 2007, 16.5 per cent of persons were in households below 60 per cent of median equivalised household income, and this fell to 14 per cent in 2008 and 2009. This reflects the factors already adverted to in discussing the increasing share of total income going to the bottom deciles in the distribution - relating to the incomes most affected, the nature of the policy response, and timing – as well as the nature of this poverty measure. Those towards the bottom of the income distribution were already heavily reliant on social transfers as the main source of income, since the households involved largely comprise older persons and those of working age who, for a range of reasons, are not in sustained employment. The increase in unemployment and corresponding decline in income from employment which was the most obvious effect of the recession will thus have left many of them unaffected. The evolution of income support rates for the unemployed, pensioners and others relying on social protection is also important: these cash transfers are not formally indexed to prices or wages, instead any increases are entirely at the discretion of the government of the day, generally announced along with taxation changes in the annual Budget statement.
Support rates provided in weekly social transfers were actually increased for 2009, as discussed in more detail in the next section. These increases in income support took place at a time when, most unusually, poverty thresholds framed in purely relative terms were going down since average/median incomes across all households were declining. So the relative position of those relying on social transfers improved considerably, serving to offset the impact of increasing numbers relying on those transfers. These factors are reflected in the changes in composition of those falling below relative income poverty thresholds: in 2007, 9 per cent of those below the 60 per cent relative income threshold were unemployed, but this was up to 13 per cent by 2009; the proportion made up of those who are retired fell by about the same amount. Results for 2010 however show that the percentage of persons falling below the 60% relative income threshold rose by about 1.5 percentage points. This increase was concentrated among children and working-age adults, with the rate for older persons unchanged.

These patterns observed with relative income poverty also reflect *inter alia* the evolution of the relative income threshold itself, which in such a deep recession can actually fall. In such a situation it is useful to also look at what happened to poverty measured vis-à-vis income thresholds held constant in purchasing power terms rather than moving in line with average incomes – often referred to as an ‘anchored’ poverty threshold/rate. Table 7 shows that such a threshold, derived as 60 per cent of median income in 2006 and subsequently moving in line with the consumer price index, was stable in 2009 and actually fell in 2010. The percentage of persons falling below that threshold fell in 2007, was stable in 2008-2009 as the recession hit, and then rose very sharply in 2010.

**Table 7: Prices and Anchored Poverty Thresholds, Ireland 2004–2010**

<table>
<thead>
<tr>
<th>Year</th>
<th>CPI</th>
<th>Anchored 2006 Poverty Threshold in Constant Prices (€)</th>
<th>Below Anchored Threshold (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>95.9</td>
<td>10,566</td>
<td>17.0</td>
</tr>
<tr>
<td>2007</td>
<td>100.4</td>
<td>11,058</td>
<td>12.8</td>
</tr>
<tr>
<td>2008</td>
<td>105.2</td>
<td>11,583</td>
<td>11.6</td>
</tr>
<tr>
<td>2009</td>
<td>105.4</td>
<td>11,604</td>
<td>12.8</td>
</tr>
<tr>
<td>2010</td>
<td>100.9</td>
<td>11,117</td>
<td>17.0</td>
</tr>
</tbody>
</table>


It is also relevant to note trends in deprivation over these years, as captured by a range of non-monetary indicators included in the same household survey. These showed increasing levels of deprivation in 2008 and a sharper rise in 2009. Taking 11 deprivation items used in monitoring poverty in Ireland, the percentage reporting deprivation on 2 or more items rose from 12 per cent in 2007 to 14 per cent in 2008 and 17 per cent in 2009. The largest increases were seen for items such as being able to afford an afternoon or evening out or to replace worn-out furniture. Results for 2010 show a further sharp increase in deprivation, with 22.5 per cent reporting deprivation on two
or more of these items. Clearly the deprivation measure is capturing aspects of the recession that are in important respects different from those tapped by the relative income poverty measure.

The ‘consistent poverty’ measure widely used in analysing poverty and framing official poverty reduction targets in Ireland captures those both falling below the 60% income line and experiencing enforced absence of two or more of these basic deprivation items. (Interpretation of estimates from 1994-2001 are complicated by the fact that the deprivation items and threshold were subsequently changed, so we concentrate on the period from 2004 onwards). Table 8 shows that, having declined from 7% to 4% between 2004 and 2008, this measure rose to 6.2% by 2010. The consistent poverty measure was intended to capture those “truly poor” and the available evidence shows that it is extremely effective in capturing a highly disadvantaged segment of the population (Whelan, 2007), though in a situation where relative income thresholds are falling it may be less helpful in tracking key trends than would otherwise be the case.

Table 8: Percentage of Persons ‘Consistently Poor’, Ireland 1994-2010

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td>6.8</td>
<td>7.0</td>
<td>5.1</td>
<td>4.2</td>
<td>5.5</td>
<td>6.2</td>
</tr>
<tr>
<td>CHILDREN (&lt;18)</td>
<td>9.9</td>
<td>10.8</td>
<td>7.4</td>
<td>6.2</td>
<td>8.7</td>
<td>8.1</td>
</tr>
<tr>
<td>WORKING AGE</td>
<td>6.1</td>
<td>6.1</td>
<td>4.7</td>
<td>3.9</td>
<td>4.9</td>
<td>6.4</td>
</tr>
<tr>
<td>OLDER (65+)</td>
<td>3.3</td>
<td>3.1</td>
<td>2.0</td>
<td>1.4</td>
<td>1.1</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Source: Analysis of LII microdata, SILC published reports.

In the context of the Great Recession a great deal of recent debate in Ireland has focused on the need to “protect the vulnerable” as public spending is cut and taxes increased. However, there appears to be little consensus about which groups should qualify for this label and protection. Neither the conventional income poverty measure nor the consistent poverty measure which captures the current intersection of low income and relatively extreme deprivation seems adequate for this purpose. Locating the notion of vulnerability in the context of the broader discussion of social exclusion, it focuses attention on both multidimensionality and dynamics, to take into account insecurity and exposure to risk and poverty. It incorporates the notion of a heightened probability of being exposed to risks. The annual rounds of EU-SILC for 2004-2010 allow us to distinguish clusters with contrasting multidimensional profiles and document trends over time in such vulnerability levels. The clusters are identified using latent class analysis which assumes that each individual is a member of one and only one of N underlying classes and that, conditional on membership of an unobserved class, the observed variables are independent. By identifying an
underlying economically vulnerable class, we can account for the associations between our manifest indicators of disadvantage. The contrast is between clusters is in terms of risk profiles rather than current levels of disadvantage.

Our analysis of economic vulnerability is based on three manifest indicators. The first variable is a 4-category classification in terms of income poverty distinguishing those below a 50% of median income poverty line, between the 50% and 60% lines, between the 60% and 70% lines, and above 70% of the median. The second element distinguishes those above/below the threshold in terms of basic deprivation which forms part of the consistent poverty measure. The final component is a dichotomous measure of economic stress which distinguishes those reporting such stress in relation to at least 3 out of four relevant items in SILC (relating to being in arrears, having difficulty in making ends meet, being unable to cope with unanticipated expenses, and housing costs representing a substantial burden).

Exploratory analysis revealed that there was very little variation in outcome between 2004 and 2008, so we concentrate on comparing the results for this period with those for 2009 and 2010. Our initial analysis assumed the profile of the economically vulnerable class remained constant over time but the size of the class was allowed to vary. This model misclassified only 2.8% of cases in the 4 x 2 x 2 tables involving the cross-classification of the three manifest variables. The contrasting multidimensional risk profiles of the vulnerable and non-vulnerable clusters are set out in Table 9 below. We see that 24% of the vulnerable group were below the 50% line compared to 6% of the non-vulnerable cluster. The corresponding figures below the 60% line were 42% and 11%. The contrast between these groups was even sharper in terms of economic stress. For the vulnerable class the risk level of reporting stress in relation to three or more elements of the economic stress index was 70% compared to 4% for the non-vulnerable. For basic deprivation the contrast is even sharper, with the respective risk levels being 76% and 2%. The model we have employed thus identifies a vulnerable group with a highly distinctive multidimensional risk profile in which basic deprivation is the primary differentiating factor, followed by economic stress, with a more moderate contrast relating to income poverty.

Table 9: Conditional Probabilities for Latent Class Model with Heterogeneous Class Size over Time, Ireland 2004–10

<table>
<thead>
<tr>
<th><strong>Income Poverty</strong></th>
<th><strong>Economically Vulnerable</strong></th>
<th><strong>Yes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>70% +</td>
<td>0.814</td>
<td>0.374</td>
</tr>
<tr>
<td>60–70%</td>
<td>0.075</td>
<td>0.211</td>
</tr>
<tr>
<td>50–60%</td>
<td>0.053</td>
<td>0.182</td>
</tr>
<tr>
<td>&lt; 50</td>
<td>0.058</td>
<td>0.233</td>
</tr>
<tr>
<td><strong>Basic Deprivation 2+</strong></td>
<td>0.018</td>
<td>0.756</td>
</tr>
<tr>
<td><strong>Economic Stress 3+</strong></td>
<td>0.036</td>
<td>0.705</td>
</tr>
</tbody>
</table>
The size of the vulnerable class was stable over the period 2004-2008, as already noted, when it was about 16.5%. This rises significantly, to 22.6%, in 2009 and sharply again to 29.7% in 2010. Thus the scale of the economic crisis is reflected in an almost doubling of the level of economic vulnerability.

The model from which these results are derived involves an oversimplification since it assumes that the multidimensional profile remains uniform over time. Allowing variation in the profile across the three time periods does provide a better fit and misclassifies only 0.04% per cent of cases. Allowing such variation has little effect on estimates of the size of the vulnerable class, the key difference relates to its multidimensional profile. Over time the risk for the vulnerable group of being below the 60% line declines from 48% between 2004 and 2008 to 32% in 2009 and 28% in 2010; its risk of basic deprivation increases from 76% in 2004-08 to 80% in 2009 before declining to 71% in 2010; and its risk of economic stress declines modestly from 70% in 2004-08 to 68% in 2009 before increasing sharply to 78% in 2010. Thus when we allow for variability in the nature of economic vulnerability over time, the vulnerable come to be distinguished from the rest of the population less by the risk of having high income poverty levels (and to a lesser extent by exposure to basic deprivation) and more by experience of higher levels of economic stress. These results are entirely consistent with available evidence relating to the fall in the relative income poverty threshold and the exacerbation of debt problems in the crisis.
7. **Taxes and Transfers**

The distributional impact of such tax and welfare changes can be analysed using the SWITCH tax-benefit simulation model (on which see for example Callan et al., 2009). The benchmark against which the impact of policy is conventionally measured in such exercises is a tax and welfare policy which is indexed in line with wage growth, which would be distributionally neutral, unlike a measure of impact based on unchanged tax and welfare policy in nominal terms. The analysis relates to the narrower family/tax unit (of single adult or couple plus dependent children if any) towards which the tax and welfare codes are primarily focused, rather than the wider household to which the earlier income inequality and poverty figures refer. We see in Table 10 that, on this basis, during the first half of the high growth period (1995 to 2001) budgetary policy budgetary policy boosted the incomes of the upper half of the income distribution. Tax/welfare changes produced gains of 12 per cent or more for the top 60% of tax units, as against a loss of 2 per cent for the bottom 20% of tax units and a small gain for the second quintile. By contrast, budgets over the five years 2002-2006 were highly progressive when taken together, with substantial percentage gains for those at the bottom of the distribution and very limited gains towards the top of the distribution.5

<table>
<thead>
<tr>
<th>Table 10: Distributive Impact of Budgets from High Growth Period, Ireland 1995-2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AVERAGE GROWTH RATE</strong></td>
</tr>
<tr>
<td>8.2%</td>
</tr>
<tr>
<td>17.4%</td>
</tr>
</tbody>
</table>

The onset of the recession plunged Ireland into fiscal crisis and changes to direct taxes and social transfers constituted one of the main planks in the government’s response. This was rather tardy, only beginning in late 2008 when introducing the Budget for 2009, which brought in a new income levy charged on gross income that increased with income and had none of the allowances or reliefs that apply in the standard income tax system. Remarkably, social transfer rates were actually increased at that point, by about 3 per cent, despite falling inflation and the fiscal situation. At that point the scale of the recession was not yet fully appreciated and the stated aim was to protect the most vulnerable, but prices were falling and holding rates unchanged would have sufficed to increase their purchasing power. A special ‘emergency’ Budget in April 2009 then doubled the rates for the income levy and the long-standing health levy. The Budget for 2010 implemented 4% cuts in nominal rates of social welfare support for recipients of working age but not for pensioners, with a further cut of the same magnitude in 2011, and universal Child Benefit was also cut by 10 per cent in each year. The Income and Health levies were restructured

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5 See Callan, Walsh and Coleman (2005), Callan, Keane and Walsh (2009).
and combined into a new Universal Social Charge, and income tax was increased via reduced credits rather than raising rates. The complex set of changes in taxes and transfers over the period are summarised in Table 11.

### Table 11: Principal Changes in Social Protection and Direct Taxes, Ireland 2009–11

<table>
<thead>
<tr>
<th><strong>Budget 2009</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● income levy introduced</td>
<td></td>
</tr>
<tr>
<td>● 3% rise in welfare payment rates</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Supplementary Budget April 2009</strong></th>
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<tbody>
<tr>
<td>● Levy rates doubled (to 2/4/6), Health levy doubled (to 4)</td>
<td></td>
</tr>
<tr>
<td>● PRSI ceiling raised</td>
<td></td>
</tr>
<tr>
<td>● Christmas bonus abolished</td>
<td></td>
</tr>
<tr>
<td>● Early Childcare Supplement halved, to be abolished</td>
<td></td>
</tr>
<tr>
<td>● Cuts in payment rates for unemployed under 21</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Budget 2010</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● Cuts in welfare for working age of 4%</td>
<td></td>
</tr>
<tr>
<td>● Larger cuts for 21-25 year-olds</td>
<td></td>
</tr>
<tr>
<td>● Child Benefit cut by 10% with compensation for welfare recipients</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Budget 2011</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● Cuts in welfare for working age of 4%</td>
<td></td>
</tr>
<tr>
<td>● Child Benefit cut by 10% with no compensation for welfare recipients</td>
<td></td>
</tr>
<tr>
<td>● Universal Social Charge – combining Income and Health levies</td>
<td></td>
</tr>
<tr>
<td>● Increases in income tax via reduced credits</td>
<td></td>
</tr>
<tr>
<td>● Cuts in public service pensions</td>
<td></td>
</tr>
<tr>
<td>● Restricting tax reliefs on employee pension contributions</td>
<td></td>
</tr>
</tbody>
</table>

The distributional impact of these tax and welfare changes can also be analysed using the tax-benefit simulation model. The results presented in Figure 3 relate to the impact of tax and welfare changes over the entire period 2009–11 taken together, benchmarked to the average change in earned incomes over the period, which in this case most unusually was a decline of 4 per cent. The two Budgets introduced in 2009 and focused mostly on increasing taxes produced a highly progressive pattern, with considerable increases in the share of income going to lower

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6 On which see Callan, Nolan, Keane and Walsh, (2010), Callan, Nolan and Walsh (2011), Callan, Keane, Savage and Walsh, (2012).
parts of the distribution and substantial falls for the top end of the income distribution. Subsequent Budgets for 2010 and 2011 implemented cuts in social transfers for those of working age, which impacted on lower income groups, but also further increased direct taxes. The overall impact of tax and welfare changes over the period was still highly progressive, as shown in Figure 3. While every decile group saw a decline in income due to the combined effects of tax increases and cuts in social transfers these were least towards the bottom, reflecting the extent to which policy sought to insulate those relying on pensions in particular from the impact of the recession.

Figure 3: Distributive Impact of Tax and Welfare Changes 2009-2011, Ireland

Note: losses for each quintile group are shown against a wage-indexed benchmark of -4% change.

Another policy response to the fiscal crisis which had immediate implications for household incomes and their distribution focused on public sector pay. The public sector, broadly defined, accounted for about 17 per cent of total employment before the onset of the recession, and pay accounts for a very large share of current public expenditure so cuts were seen as potentially playing a major role in fiscal correction. In addition, public sector pay rose rapidly during the boom and the public/private sector premium appears to have widened significantly (Kelly, McGuinness and O’Connell 2009a, b). A public sector pension levy was introduced in 2009, which charged rates of between 5 per cent and 10 per cent on earnings above €15,000. The Budget for 2010 then announced reductions in public service salaries of 5 per cent on the first €30,000, 7.5 per cent on the next €40,000, and 10 per cent on the next €55,000 of salary. (Retired public servants receiving pensions linked to pay in the grade did not have their pensions cut in line with that pay.) The impact of the pension levy and pay cut taken together on the total disposable income of different decile groups has been simulated with SILC survey data distinguishing these employees, and with few public sector employees in the bottom 4 deciles the net impact on that part of the distribution is close to zero. The proportionate fall in disposable income then rises steadily as one moves up the distribution, from an average fall of 0.5 per cent for the fifth and sixth decile groups up to 3 per cent for the top decile group. This re-
flucts both the position of public sector workers in the distribution and the fact that the pay cuts were structured to have greater impact as the pay level involved rose.

The programme of fiscal retrenchment agreed with the funders of the bail-out to bring the fiscal deficit down to 3 per cent by 2015 continues to be implemented, and will entail further substantial cuts in public spending combined with some further increases in taxation. Public sector numbers will continue to be reduced on a voluntary basis, at least until the expiry of the current agreement with the trade unions in 2014 which commits the government to not implementing involuntary redundancies. The precise nature of the spending cuts implemented will determine their distributional implications, as already hotly debated in Ireland as in the UK and other countries implementing such retrenchment. From an analytical perspective this highlights the importance of going beyond the cash income of households to obtain a comprehensive picture of their economic circumstances incorporating the value of services provided free or in subsidised fashion by the state, as well as the indirect taxes they pay; several studies have sought to do so at a point in time (see for example Callan and Keane, 2009), but being able to capture the impact of public spending cuts and indirect tax increases on 'final income' and wellbeing over time is a clear priority.
8. Conclusions and Implications

Ireland represents a particularly interesting case study to assess the distributional impact of pronounced macroeconomic fluctuations, having experience remarkable macroeconomic fluctuations over the past two decades, with the fastest economic growth rates in the OECD during the so-called ‘Celtic Tiger’ boom followed by post-crisis recession in which national income plummeted. The impact of these fluctuations on wage inequality, overall income inequality, poverty and social exclusion, and the role of the tax and social protection systems in influencing the ‘pass-through’ from market to disposable income is of central importance, both proximately in the face of the current crisis and in a medium-to longer-term perspective.

Focusing first on dispersion of hourly earnings among employees, there were contrasting trends over the early and later parts of the Irish boom, with the lower part of the wage distribution recording above-average growth from 1994 to 2000, whereas from 2000 to 2007 the top quartile and decile rose faster than the median. Over the boom period as a whole, overall wage dispersion declined, and the first few years of the recession did not alter that outcome. Returns to both education and work experience declined from 1994 to 2000 but rose in the latter part of the boom, which may be associated with the changing patterns of immigration and sectoral employment growth, while the introduction of the minimum wage in 2000 was important in anchoring the bottom of the earnings distribution, in particular when the recession hit and unemployment rose rapidly.

Turning to the distribution of disposable income among households, figures from different sources do not tell a consistent story over the period and have to be interpreted with care. Overall it appears that income inequality was relatively stable over the course of the boom, though with some increase in the share going to the top. Changes in employment rates, including a sharp increase in women’s labour force participation, ensured that the effects the boom were widely dispersed throughout the distribution. The recession initially hit the better-off proportionately more than those on low incomes, with income from capital and self-employment falling, so summary indicators of income inequality declined in 2009, but then rose sharply in 2010.

The evolution of poverty and social exclusion in the face of these macroeconomic shocks and inequality trends depends very much on the indicator one highlights, in particular whether the focus is on relative income thresholds, income thresholds held fixed in purchasing power terms, material deprivation, or broader measures of vulnerability. Relative income poverty fluctuated over the course of the economic boom, rising in the early part but falling back in the latter, as social transfers – and pensions in particular – initially lagged behind but then caught up on average income. The immediate impact of the recession was to reduce relative income poverty, though it then rose in
2010. These relative income thresholds were falling in line with average income, and ‘anchored’ thresholds moving instead in line with prices show a very marked reduction in poverty over the boom years, but a sharp increase in 2010. Material deprivation rates also fell markedly over the boom but rose after the onset of recession, as did the ‘consistent poverty’ measure employed in framing official poverty reduction targets (and combining relative income poverty and material deprivation). In the crisis the need to “protect the vulnerable” has been highlighted as public spending is cut and taxes increased, but without much clarity about whom this is intended to include: here we have summarised an analytical approach that identifies a vulnerable group with a highly distinctive multidimensional risk profile in which basic deprivation is the primary differentiating factor, followed by economic stress, with a more moderate contrast relating to income poverty.

Changes in the structure and parameters of the tax and social protection systems can play a crucial role in distributional outcomes, and can be analysed using tax-benefit simulation modelling. Results of such analytical exercises show that during the first half of the high growth period budgetary policy boosted the incomes of the upper half of the income distribution, whereas over the five years 2002-2006 tax and transfer changes taken together were highly progressive, with substantial percentage gains for those at the bottom of the distribution and very limited gains towards the top of the distribution. Changes to direct taxes and social transfers then constituted one of the main planks in the government’s response to the economic crisis, and their overall impact from 2008 to 2012 was highly progressive, While every decile group saw a decline in income due to the combined effects of tax increases and cuts in social transfers these were least towards the bottom, reflecting the extent to which policy sought to insulate those relying on pensions in particular from the impact of the recession. Graduated cuts to public sector pay were also progressive in terms of their impact on the household income distribution.

The analysis presented here has focused for the most part on income, but in conclusion it is also worth noting that the boom and bust will also have had deep-seated effects on the distribution of wealth. Wealth held in forms other than housing is highly concentrated, in Ireland as elsewhere, but the house price bubble, was a central feature of the boom and bust period. Investment in housing (including buy-to-let) fuelled by ready availability of credit and low interest rates became very widespread as a means of wealth accumulation in the boom. After the bust, with house prices down to half their 2007 peak levels, substantial numbers are in negative equity; overall the recession may have seen the distribution of wealth among those who hold some become more unequal, while the gap between those with and without wealth may have narrowed.

See Jäntti, Sierminska and Smeeding, (2008) for a comparative analysis of wealth distribution in a number of OECD countries based on data from the Luxembourg Wealth Study.
Looking to the future, the macroeconomic and fiscal prospects for Ireland over the next few years are fraught, with major implications for income inequality and socio-economic inequality more broadly. The commitment to reduce the fiscal deficit to 3 per cent by 2015 (from over 14 per cent at its peak) is at the core of the agreement between Ireland and the IMF/EU associated with the autumn 2010 bail-out, and will entail major cuts in public spending combined with some further increases in taxation. Public sector numbers will continue to be reduced, but the prospects for a sustained upturn in private sector employment are not good, despite strong export performance. The likely distributional implications of retrenchment in spending on public services are difficult to establish when the nature of the cuts is not yet clear, but their salience highlights the importance of going beyond the cash income of households to obtain a comprehensive picture of their economic circumstances and the medium-to-long-term distributional impact of the recession. In a similar vein, an inter-generational perspective is especially important: those already retired may be spared the worst effects, those in the workforce will carry the burden of substantial extra taxation and reduced cash and non-cash support, but the young seeking to enter the work-force for the first time or already unemployed may be the most seriously affected if unemployment fails to come down from its current very high levels for young people. Out-migration is already a significant feature, as it has been in previous Irish recessions, but the extent to which these young migrants will be in a position to return to Ireland having obtained valuable experience, as they did in the 1990s, crucially depends on the resumption of economic growth at a level sufficient to lead to substantial and sustained net job creation.
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Information on the GINI project

Aims

The core objective of GINI is to deliver important new answers to questions of great interest to European societies: What are the social, cultural and political impacts that increasing inequalities in income, wealth and education may have? For the answers, GINI combines an interdisciplinary analysis that draws on economics, sociology, political science and health studies, with improved methodologies, uniform measurement, wide country coverage, a clear policy dimension and broad dissemination.

Methodologically, GINI aims to:

- exploit differences between and within 29 countries in inequality levels and trends for understanding the impacts and teasing out implications for policy and institutions,
- elaborate on the effects of both individual distributional positions and aggregate inequalities, and
- allow for feedback from impacts to inequality in a two-way causality approach.

The project operates in a framework of policy-oriented debate and international comparisons across all EU countries (except Cyprus and Malta), the USA, Japan, Canada and Australia.

Inequality Impacts and Analysis

Social impacts of inequality include educational access and achievement, individual employment opportunities and labour market behaviour, household joblessness, living standards and deprivation, family and household formation/breakdown, housing and intergenerational social mobility, individual health and life expectancy, and social cohesion versus polarisation. Underlying long-term trends, the economic cycle and the current financial and economic crisis will be incorporated. Politico-cultural impacts investigated are: Do increasing income/educational inequalities widen cultural and political ‘distances’, alienating people from politics, globalisation and European integration? Do they affect individuals’ participation and general social trust? Is acceptance of inequality and policies of redistribution affected by inequality itself? What effects do political systems (coalitions/winner-takes-all) have? Finally, it focuses on costs and benefits of policies limiting income inequality and its efficiency for mitigating other inequalities (health, housing, education and opportunity), and addresses the question what contributions policy making itself may have made to the growth of inequalities.

Support and Activities

The project receives EU research support to the amount of Euro 2.7 million. The work will result in four main reports and a final report, some 70 discussion papers and 29 country reports. The start of the project is 1 February 2010 for a three-year period. Detailed information can be found on the website.

www.gini-research.org