A Comparative Perspective on Trends in Income Inequality in Ireland*

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Abstract: Both overall income inequality and inequality in the distribution of earnings rose sharply during the 1980s and 1990s in a number of industrialised countries, notably the UK and the USA. This makes it particularly important to know how the distribution of income in Ireland has been changing over time, how it compares with other countries, and what factors contribute to explaining Ireland's particular experience. This paper addresses these issues with household survey data allowing us to provide a picture of the distribution of household income in Ireland up to 1997. This allows us to assess for the first time how inequality has been changing during Ireland's boom. Comparisons are also made with recent estimates for other countries, notably from the European Community Household Panel, so that both Ireland's current distribution and trends over time can be placed in comparative perspective. A decomposition analysis of changes over time is implemented, and trends in the distribution of earnings among individual employees are also analysed.

I INTRODUCTION

The 1980s and 1990s saw Ireland on a macroeconomic roller-coaster ride, with stagnation through much of the 1980s, economic growth accelerating from 1987, stop-starting in the early 1990s, and then reaching and sustaining exceptionally high levels from 1994. Recent research internationally has highlighted the fact that income and earnings inequality increased very sharply

during the 1980s and into the 1990s in a number of industrialised countries, notably the UK and the USA. Against the background of dramatic changes in the macroeconomy, has Ireland seen such an increase in inequality?

Here we examine how the distribution of income evolved in Ireland during the 1980s and 1990s, using for the first time data up to 1997. As well as seeking to understand the factors underlying this evolution, we place Ireland in comparative perspective both in terms of levels and trends in inequality, drawing on recent and forthcoming comparative data from Eurostat and the OECD.

II DATA AND METHODS

Studies of the distribution of income in Ireland rely on household surveys rather than administrative tax/social security records.[1] The Household Budget Survey (HBS) carried out by the Central Statistics Office is primarily an expenditure survey but also contains detailed income data, and has been carried out nationally in 1973, 1980, 1987 and 1994/95 (see Murphy, 1984).[2] Surveys carried out by The Economic and Social Research Institute represent the other main source. The Survey of Income Distribution, Poverty and Use of State Services was carried out in 1987 (described in Callan, Nolan *et al.*, 1989). The Living in Ireland Survey (LII) is the Irish element of the European Community Household Panel (ECHP), an annual longitudinal survey which commenced in 1994 (see Callan *et al.*, 1996). Previous research on income inequality in Ireland has drawn on these surveys and documented the pattern up to 1994, and we do not attempt to review that research here.[3] Rather, we present a range of new findings on trends in the Irish distribution up to 1997, using the Living in Ireland Survey for that year, and on Ireland's distribution in comparative perspective in the mid-1990s.

Since we will be relying primarily on the Living in Ireland Surveys for 1994 and 1997, it is worth noting some of their key features. The sampling frame for the 1994 survey was the Register of Electors, and the survey was designed to provide a national sample from the population resident in private households.

1. See Nolan (1978) and Callan (1991) on the relationship between data on incomes from household surveys and tax/social welfare records.

2. The frequency with which the Household Budget Survey is carried out has been increased to every five rather than seven years, starting with 1999/2000.

3. Nolan (1978) and Rottman *et al.* (1982) analysed income distribution in the 1973 HBS, Murphy (1984, 1985) and Rottman and Reidy (1988) in 1973 and 1980. Callan and Nolan (1992a) used the 1987 ESRI survey. Callan and Nolan (1997) examined inequality in the household income distribution in the 1973, 1980 and 1987 HBS, and Callan and Nolan (1999) used these together with the 1987 and 1994 ESRI surveys. O'Neill and Sweetman (1998) compared the distributions of income and expenditure in the 1987 and 1994/95 HBS.

(Both those living in institutions such as long-stay hospitals, nursing homes and prisons, and those who are homeless, are thus excluded).[4] Responses were obtained from a sample of 4,048 households, 64 per cent of valid addresses contacted. The sample for analysis has been reweighted to correct for non-response, on the basis of number of adults in the household, urban/rural location, age and socio-economic group of household head, using external information from the much larger Labour Force Survey. The overall representativeness of the sample data has been validated by comparison with a variety of external information and on this basis they appear to represent the target population well in terms of for example age/sex composition, household composition, social security recipiency, and taxable income.[5]

The 1997 Living in Ireland Survey was the fourth wave of the panel survey, and sought to interview all members of households first interviewed in 1994. There was sizeable attrition between Waves 1 and 4: of the original 14,585 sample individuals, only 63 per cent (9,208) were still in completed Wave 4 households, with another 805 individuals having joined the sample at some point in the intervening years. (Attrition has varied a good deal across the countries participating in the ECHP: from wave 1 to wave 2 the Irish figure was towards the upper end but not an outlier.) The main reason for household non-response was refusal (ranging from 9 per cent of the eligible sample in Wave 2 to 6 per cent in Wave 4), while among the newly-generated households difficulties in obtaining forwarding addresses for those who moved also contributed to the non-response rate. The 1997 sample was weighted along a number of dimensions to account for attrition among the original sample and the addition of new individuals and households (where households in the original sample split or join new households) in the period between 1994 and 1997. Detailed validation suggested that attrition was not, however, associated with characteristics such as income or deprivation levels or social welfare recipiency, and appeared not to have a significant impact on the structure of the sample. In particular, the pattern of attrition does not appear likely to have biased the picture provided by the surveys of the distribution of income in 1997 versus 1994, because the attrition rate over this period was similar across the income distribution.

Disposable income is the core measure employed here, that is income from the market plus social welfare payments less income tax and employees' social security contributions; we also use gross income, before deduction of tax and contributions, and direct income, which is gross income less cash transfers. The time-period these cover is important. Both the ESRI surveys and the HBS

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4. In line with common practice internationally, private households are defined in terms of shared residence and common housekeeping arrangements.
5. See Callan *et al.* (1996) Chapter 3.

obtained information for most sources of income (earnings, social security transfers, pensions) in respect of the amount received in the current pay period (usually last week, fortnight or month). For income from self-employment, farming, rent and investment income, on the other hand, details were recorded on the basis of the most recently available annual figures. In constructing household income all these are converted to a weekly average, which we will call *current* income. In some other countries and some of the main sources of international comparisons on income inequality, however, an *annual* accounting period for income from all sources is adopted. Data on that basis were also obtained in the LII surveys, since an annual accounting period is the one Eurostat wished to focus on in the ECHP. Estimates of annual income were also constructed from the 1987 ESRI survey in order to provide data for Ireland for that year to the Luxembourg Income Study database, now widely employed in cross-country studies of income distribution.

A range of methodological issues arise in measuring income inequality (see for example Jenkins (1991); Cowell (1995); Atkinson, Rainwater and Smeeding (1995)). Here we cannot discuss these in any depth, but simply note the key ones and set out the approaches followed here. While the ultimate source of concern is the welfare of the individual, income is generally shared among members of a given family or broader household, and we follow common practice and use the household as income recipient unit.[6] The extent to which income is actually shared within the household so as to equalise living standards is an empirical question which has recently been receiving some attention (see for example Lundberg, Pollak and Wales (1997); Cantillon and Nolan (1998)) but is particularly difficult to address.

Since a given income will provide a different living standard to the individuals in a large versus a small household, equivalence scales are used to adjust income for differences in household size and composition. Actual household income is then divided by the number of equivalent adults in the household (rather than simply the number of persons) to produce equivalised income. There is no consensus as to which method for estimating these scales is most satisfactory, and studies such as Buhman *et al.* (1988) and Coulter, Cowell and Jenkins (1992) have shown the extent to which the scale used can affect the measured income distribution. A variety of equivalence scales has been used in research on the Irish income distribution and in cross-country studies, and here we make reference to four. One is the square root of household size, without distinguishing between adults and children. The second is widely known as the OECD scale: where the first adult in the household is given a value of 1, each other adult is

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6. Persons living at the same address with common housekeeping count as a household even if not related.

attributed a value of 0.7 and each child is attributed a value of 0.5. The third is the "modified OECD" scale, where each additional adult is attributed a value of 0.5 and each child 0.3.[7] The final one was derived from the scales implicit in Irish social security rates some time ago, and has been one of those employed in research on poverty here: it gives each additional adult a value of 0.66 and each child 0.33.

A further issue is whether one focuses on the distribution of income among households, which attributes each household equal weight in the analysis, or on the distribution among individuals. As noted by Atkinson, Rainwater and Smeeding (1995), it makes sense to treat each household as a single unit if no adjustment is made to income for household size. When equivalent income is used, however, counting persons rather than households (by weighting each household by the number of persons it contains) provides valuable information, since it is ultimately individual welfare that is the focus of concern.

The distribution of income among households and/or persons may be portrayed and summarised in a number of different ways. Following conventional practice we present decile shares — the share of total income going to the bottom 10 per cent, the next 10 per cent, …. top 10 per cent. As summary measures of inequality we employ the Gini coefficient and Theil's entropy measure.[8] Comparison of Lorenz curves, showing the cumulative proportion of total income received by the bottom x per cent of persons, provides a more comprehensive way of ranking distributions in terms of inequality. If one distribution has a higher proportion of total income going to the bottom x per cent than another for all x it is said to "Lorenz-dominate" it, and can be said with confidence to have a lower level of inequality, as reflected in inequality measures satisfying a set of reasonable conditions. (Where the ranking is being made independently of the levels of mean income, and given certain assumptions about the social welfare function, it will also be associated with a higher level of social welfare.) Where Lorenz curves cross, no such unambiguous ranking is possible (Atkinson, 1971). Generalised Lorenz curves provide a convenient way of incorporating information about average living standards into the comparison of the level of social welfare yielded by different distributions: cumulative mean incomes instead of cumulative income shares are plotted against cumulative population shares (see Shorrocks, 1983; Jenkins, 1991).

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7. As in studies for Eurostat such as Hagenaars, de Vos and Zaidi (1994), we take adult here to be age 14 years or over.

8. These and other commonly-used summary inequality measures are fully described in e.g. Cowell (1995).

III TRENDS IN INCOME INEQUALITY IN IRELAND

As background to our main analyses relying on the ESRI surveys, we begin by looking at the shape of the income distribution in the HBS going back to 1973. Table 1 shows the decile shares in disposable income among households, without adjustment for size or composition, from the 1973, 1980, 1987 and 1994/ 95 Household Budget Survey, together with Gini and Theil summary measures.[9]

We see that from 1973 to 1980 the shares of deciles 2-7 all rose slightly, at the expense of the top decile. This is reflected in falling Gini and Theil inequality measures, and 1980 Lorenz-dominates 1973. Between 1980 and 1987 the share of the bottom two deciles rose substantially and that of the top decile again fell, but the Lorenz curves cross and there is no unambiguous dominance. From 1987 and 1994, there was now a shift away from the bottom 40 per cent and the summary measures rose, but the Lorenz curves again cross. Over the whole period 1973-1994/95 the shares at the bottom rose and at the top fell, and the inequality measures are lower at the end of the period, but the Lorenz curves actually cross in the middle.[10]

It is important to place these trends in inequality in the context of the evolution of average real incomes, because the pattern of real income growth was very different in the sub-periods covered. Between 1980 and 1987, for example, average disposable household incomes actually fell in real terms. With the income share of the bottom deciles slightly higher, Generalised Lorenz curves for the distribution of disposable income in the 1980 and 1987 Household Budget Survey cross: no unambiguous ranking is possible on this basis. Between 1987 and 1994, on the other hand, average household income rose substantially in real terms and Generalised Lorenz curves show an increase in social welfare.

Since ESRI surveys are also available for 1987 and 1994, the next step is to compare the distribution in these surveys with the HBS, and that is done in Table 2. We see that in each of the years the share going to the top decile is rather higher in the ESRI surveys. One important difference between the ESRI and HBS surveys is in the timing of the fieldwork, and this may have had an impact on farm incomes in particular, but the reasons for this divergence merit

9. It was necessary to calculate these summary inequality measures from the decile shares rather than from microdata; while this will understate the extent of inequality at each point in time (because inequality within each decile is ignored) it should capture trends over time.

10. Standard errors for both decile shares and summary inequality measures would be of considerable assistance in assessing the significance of changes over time such as those discussed here; while methods for deriving these are not straightforward they are developing rapidly (see for example, Davidson and Duclos (1998) for a discussion and Madden and Smith (2000) for a related Irish application in the context of poverty measures).

Table 1: *Decile Shares in Disposable Income Among Households,*
1973-1994/95 Household Budget Surveys

	Share in Total Disposable Income (%)			
Decile	1973	1980	1987	1994-95
Bottom	1.7	1.7	2.2	2.1
2	3.3	3.5	3.7	3.5
3	5.0	5.1	5.0	4.8
4	6.5	6.6	6.3	6.0
5	7.8	7.9	7.6	7.6
6	9.2	9.3	9.2	9.2
7	10.9	11.0	11.0	11.3
8	13.0	13.0	13.4	13.6
9	16.2	16.2	16.6	16.7
Top	26.4	25.7	25.0	25.1
All	100.0	100.0	100.0	100.0
Gini	0.367	0.360	0.352	0.362
Theil	0.221	0.211	0.200	0.210

Source: Decile shares for 1973 and 1980 from Rottman and Reidy (1988) Table 7.4, for 1987 and 1994/95 from microdata tapes (with correction for top-coding).

further investigation.[11] As far as trends over the 1987-1994 period are concerned, the HBS show a shift away from the bottom half of the distribution towards the top, though not the very top. The ESRI surveys also suggest some increase in the shares of deciles 7 and 8, but now at the expense of deciles 2 and 3 with the very bottom gaining.

It would be unwise to read much in welfare terms into these distributional changes, because up to this point incomes have not been adjusted for differences in household size and composition. Unfortunately, only limited results on an equivalised basis are available from the HBS,[12] and we concentrate from here on the ESRI surveys. Table 3 shows the distribution of equivalised disposable

11. The 1987 ESRI survey measured farm income for 1986, a particularly bad year, whereas the HBS used accounts for 1987 when farm incomes were on average over 25 per cent higher. The 1994 ESRI survey was carried out in the second half of that year, whereas the HBS went from then well into 1995. A handful of households in each ESRI survey have very high incomes from self-employment, and estimates of the share of income going to the top are very sensitive to the sampling and subsequent treatment of such high-income "outliers". The very top of the HBS distribution is difficult to investigate because the microdata released to researchers has been top-coded.

12. The top-coding of the 1987 and 1994/1995 HBS microdata released to researchers makes equivalisation problematic at the top. The only equivalised results available from 1980 were produced by the CSO for Roche (1984). Expenditure data from the HBS does not suffer from the same problem, and have been used to compare 1994 with 1987 in Madden (2000).

Table 2: *Decile Shares in Disposable Income Among Households, 1987 and 1994 ESRI and HBS Surveys*

| | Share in Total Disposable Income (%) | | | |
| | 1987 | | 1994 | |
Decile	ESRI	HBS	ESRI	HBS
Bottom	2.0	2.2	2.3	2.1
2	3.4	3.7	3.3	3.5
3	4.8	5.0	4.6	4.8
4	5.9	6.3	6.0	6.0
5	7.3	7.6	7.5	7.6
6	8.8	9.2	9.1	9.2
7	10.7	11.0	11.1	11.3
8	13.2	13.4	13.5	13.6
9	16.5	16.5	16.5	16.7
Top	27.4	25.1	26.4	25.1
All	100.0	100.0	100.0	100.0

income among households in the 1987 and 1994 ESRI surveys using the four sets of scales described earlier. The share of the bottom decile increases and the top falls, but otherwise there is something of a shift from the rest of the bottom half to the rest of the top half of the distribution.

We now move on to the 1994-1997 period, comparing the distributions shown by the Living in Ireland Surveys for these years. (See also Nolan, Maître, O'Neill

Table 3: *Decile Shares in Equivalised Disposable Income Among Households, 1987 and 1994 ESRI Surveys, Alternative Equivalence Scales*

	Share in Total Equivalised Disposable Income (%)							
	Equivalence Scale							
	1/0.7/0.5		1/0.5/0.3		Square Root		1/0.66/0.33	
Decile	1987	1994	1987	1994	1987	1994	1987	1994
Bottom	3.0	3.6	3.2	3.9	3.1	3.6	3.2	3.9
2	4.7	4.8	4.8	4.6	4.5	4.4	4.8	4.8
3	5.8	5.5	5.6	5.3	5.3	5.1	5.8	5.4
4	6.6	6.1	6.4	6.1	6.3	6.1	6.5	6.1
5	7.4	7.1	7.4	7.2	7.4	7.4	7.4	7.1
6	8.6	8.5	8.7	8.9	8.8	9.0	8.7	8.7
7	10.0	10.4	10.3	10.7	10.4	10.9	10.2	10.5
8	12.2	12.5	12.4	12.9	12.6	12.9	12.3	12.7
9	15.3	16.0	15.3	15.8	15.6	16.0	15.2	15.9
Top	26.4	25.4	25.9	24.8	26.0	24.6	25.9	25.0
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

and Sweetman (2000) for an analysis of the distribution of income from that source.) Table 4 presents the decile shares in disposable income among households. We see that the distribution was generally rather stable over the period, though the middle did gain at the expense of the top. The two summary inequality measures both show about the same level of inequality in the 1997 survey as in 1994.

Table 4: *Decile Shares in Disposable Income Among Households, 1994 and 1997 Living in Ireland Surveys*

| Households | Share in Total Disposable Income (%) | |
Decile	*1994 LII*	*1997 LII*
Bottom	2.3	2.1
2	3.3	3.3
3	4.6	4.5
4	6.0	6.0
5	7.5	7.7
6	9.1	9.5
7	11.1	11.2
8	13.5	13.4
9	16.5	16.5
Top	26.4	25.8
All	100.0	100.0
	Inequality Measure	
Gini	0.377	0.373
Theil	0.237	0.236

Focusing on the distribution of equivalised income among households, Table 5 presents the comparison for 1994 and 1997 with each of the equivalence scales described earlier. The share of total equivalised income going to the bottom two deciles now falls between 1994 and 1997, with the top half of the distribution but not the top decile gaining. While there are some differences across the scales in the exact pattern of change, all show a marginal increase in inequality as measured by the Gini and Theil summary indices.

Up to this point, we have presented results for the distribution of income among households. When equivalent income is used, focusing on persons may be more appropriate since we are primarily concerned with the distribution of welfare or living standards among persons rather than households. Table 6 compares the distributions of equivalised income (with the 1/0.66/0.33 scale) among households and among persons in the 1994 and 1997 Living in Ireland surveys. We see that counting persons rather than households does not substantially alter the shape of the distribution in either year, though it does

reduce the share of the top 30 per cent and increase the share of middle income groups. Comparing the distribution among persons in 1994 with 1997, there is now even less change with the bottom decile losing slightly but the share of the top decile now unchanged.

Table 5: *Decile Shares in Equivalised Disposable Income Among Households, 1994 and 1997 Living in Ireland Surveys, Alternative Equivalence Scales*

| | Share in Total Equivalised Disposable Income (%) | | | | | | | |
| | 1/0.7/0.5 Scale | | 1/0.5/0.3 Scale | | Square Root Scale | | 1/0.66/0.33 | |
	1994	1997	1994	1997	1994	1997	1994	1997
Bottom	3.6	3.4	3.9	3.5	3.6	3.3	3.9	3.6
2	4.8	4.7	4.6	4.4	4.4	4.1	4.8	4.6
3	5.5	5.2	5.3	5.2	5.1	5.0	5.4	5.2
4	6.1	6.2	6.1	6.1	6.1	6.4	6.1	6.1
5	7.1	7.3	7.2	7.6	7.4	7.7	7.1	7.5
6	8.5	8.8	8.9	9.1	9.0	9.2	8.7	9.0
7	10.4	10.6	10.7	10.9	10.9	11.2	10.5	10.7
8	12.5	12.8	12.9	13.1	12.9	13.1	12.7	13.0
9	16.0	16.2	15.8	15.7	16.0	15.8	15.9	15.9
Top	25.4	24.9	24.8	24.5	24.6	24.3	25.0	24.6
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Gini	0.331	0.333	0.327	0.330	0.332	0.333	0.325	0.329
Theil	0.191	0.188	0.184	0.185	0.188	0.187	0.184	0.185

Table 6: *Decile Shares in Equivalised Disposable Income Among Household and Among Persons, 1994 and 1997 Living in Ireland Surveys (1/0.66/0.33 Scale)*

| | Share in Total Equivalised (1/0.66/0.33) Disposable Income (%) | | | |
| | 1994 LII | | 1997 LII | |
Decile	Among Households	Among Persons	Among Households	Among Persons
Bottom	3.9	3.8	3.6	3.6
2	4.8	4.9	4.6	4.7
3	5.4	5.6	5.2	5.5
4	6.1	6.4	6.1	6.6
5	7.1	7.5	7.5	7.5
6	8.7	8.9	9.0	9.2
7	10.5	10.6	10.7	10.6
8	12.7	12.6	13.0	12.6
9	15.9	15.3	15.9	15.4
Top	25.0	24.4	24.6	24.3
All	100.0	100.0	100.0	100.0

IV EXPLAINING THE TRENDS

A wide range of different factors affect how the income distribution evolves over time, and these operate through a variety of channels of influence. Here we point towards some important factors and suggest how they may have been operating over the period from 1994 to 1997.

Up to this point we have been focusing on disposable income, that is after cash transfers have been received by households and income tax and PRSI contributions deducted. To understand what lies behind it, the obvious place to start is with the distribution of income from the market, and market income plus cash transfers, to see how these have been evolving. Table 7 presents decile shares in direct (market) and gross income among households in the 1994 and 1997 Living in Ireland surveys. As is commonly the case in industrialised countries, both cash transfers and direct tax have an equalising impact on the shape of the income distribution, with the effect of transfers being substantially more pronounced. The bottom 30 per cent of the distribution has virtually no income from the market, while the top 10 per cent has about 35 per cent of the total. State cash transfers bring the share of the bottom 30 per cent of households up to about 10 per cent of total income.

We now see that inequality fell for market income between 1994 and 1997. The distribution of direct income in 1997 looks rather similar to 1994, but both the Gini and Theil coefficients suggest that inequality fell.

Table 7: *Decile Shares for Direct and Gross Income Among Households, 1994 and 1997 Living in Ireland Survey*

| | Share in Total Income (%) | | | |
| | Direct | | Gross | |
Decile	1994	1997	1994	1997
Bottom	0.0	0.0	1.9	1.8
2	0.0	0.0	2.7	2.7
3	0.3	1.1	3.9	3.8
4	2.8	3.8	5.1	5.3
5	6.0	6.8	6.8	7.3
6	9.0	9.3	8.8	9.1
7	12.1	11.9	11.0	11.1
8	15.7	15.1	13.6	13.7
9	20.1	19.2	17.6	17.0
Top	34.0	32.8	28.6	28.4
All	100.0	100.0	100.0	100.0
	Inequality Measure			
Gini	0.565	0.536	0.422	0.417
Theil	0.587	0.529	0.295	0.291

Turning to gross income, the summary inequality measures suggest little change in inequality. The redistributive impact of social welfare transfers, as measured simply by the fall in the Gini coefficient they produce, declined marginally over the period. As far as income tax and employee PRSI contributions are concerned, they produce about the same further reduction in the Gini coefficient in each of the two years (i.e. 10 per cent), so the overall relationship between gross and disposable income distributions was broadly unchanged.

This does not mean that the distributions of the different types of income coming from the market were unchanged throughout the period. Income from earnings represents by far the most important source of income for households in Ireland, as in other industrialised countries. There have been dramatic changes in the distribution of earnings in the United States and the UK in recent years, and this has been shown to be a major factor contributing to the increase in household income inequality there. The search for explanations has focused on factors such as a shift in demand towards more skilled labour due to skill-biased technical change, globalisation and competition from developing countries, and institutional changes such as labour market deregulation and declining minimum wages.[13] Some industrialised countries have experienced much smaller increases in earnings inequality, however, while others again have maintained stability in their earnings distributions (OECD, 1993 and 1996).

Data from the ESRI household surveys also allow trends in the earnings distribution to be analysed. Table 8 shows the distribution of gross hourly earnings, and weekly earnings among full-time employees, in terms of various percentiles as a proportion of the median. From 1987 to 1994 there was a marked widening in dispersion throughout the distribution except at the very bottom, and the ratio of the top to the bottom decile rose sharply. From 1994 to 1997 the top decile continued to move away from the median. In the bottom half of the distribution, however, both the bottom decile and the bottom quartile now kept pace with the median, if anything increasing marginally faster. As a result, the ratio of the top to the bottom decile for hourly earnings was unchanged while that for weekly earnings fell back slightly.

Over the whole period from 1987 to 1997, then, there was a substantial widening in earnings dispersion in terms of hourly wages, except at the very bottom. Rapid economic growth from 1994 on did not lead to acceleration in the trend, but it did continue, primarily driven by relatively rapid increases for those towards the top of the distribution, with no indication — unlike the UK or the USA — that the bottom has been falling behind the median. Returns to higher

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13. See for example Katz and Murphy (1992); DiNardo and Lemieux (1996); Freeman (1993); Machin (1997).

Table 8: *Distribution of Earnings in 1987, 1994 and 1997*

	1987	*1994*	*1997*
All Employees, Hourly Earnings:	*As Proportion of Median*		
Bottom Decile	0.47	0.47	0.48
Bottom Quartile	0.73	0.68	0.69
Top Quartile	1.37	1.50	1.53
Top Decile	1.96	2.24	2.32
Full-time Employees, Weekly Earnings:			
Bottom Decile	0.50	0.48	0.51
Bottom Quartile	0.75	0.72	0.71
Top Quartile	1.35	1.43	1.42
Top Decile	1.82	1.97	2.02

levels of education, especially university education, increased over the period 1987-1994 and decomposition analysis has shown that this accounted for a substantial proportion of the increase in earnings dispersion over that period (see Barrett, Callan and Nolan 1999). Centralised wage setting is clearly not enough in itself to limit the growth in earnings inequality.[14]

Why then did increasing earnings dispersion among employees over most of the distribution not feed through to greater inequality in the distribution of market income among households between 1994 and 1997? In contrast to the UK and the USA, between 1987 and 1994 the substantial increase in labour force participation by married women has been shown to have had if anything an equalising effect on the household income distribution (Callan, Nolan, O'Neill and Sweetman, 1998). Replication of that analysis, distinguishing the participation rates and earnings of partners and looking at the relationship between them, for the 1994-1997 period is a priority.

Insights into the factors affecting the income distribution can be obtained by decomposition of inequality between and within particular population sub-groups, and by income source.[15] In decomposing by sub-group we have used the mean logarithmic deviation (MLD) to look at a range of household characteristics for 1994 and 1997, categorising households by the age, sex, and labour force status of head, and by composition type. Distinguishing three age groups, for

14. Gottschalk and Joyce's (1997) seven-country study shows that some other countries with centralised bargaining also saw substantial increases in returns to skill in the 1980s/1990s, but these were offset by factors such as declining age premia or declining inequality within age or education groups.

15. Decomposition of inequality by sub-groups is discussed in, for example, Shorrocks (1980), (1984) and Cowell (1995).

example, we find that inequality within each of the age groups and between them all rose between 1994 and 1997. Perhaps the most interesting results are when households are categorised by the labour force status of the head, and these are summarised in Table 9. We see first that there is more inequality among households headed by a self-employed person (including farmers) than among those headed by an employee, and relatively little inequality among households headed by someone who is unemployed or ill, or engaged full-time in working in the home. There are also major differences across the groups in mean equivalised income: households headed by an employee or a self-employed person have much higher mean incomes than those with an unemployed or ill head or one working full-time in the home. In 1994, these differences in mean income across the groups accounted for about 27 per cent of the inequality in the overall sample. By 1997, the inequality produced by these differences in mean income had fallen slightly, so they accounted for 23 per cent of overall inequality. This was offset by increases in within-group inequality, which rose for the self-employed and unemployed. The size of some of the groups had also changed substantially, with the proportion of household heads in employment increasing and unemployed falling.

Table 9: *Decomposition of Inequality in Disposable Equivalised Income by Labour Force Status of Head, 1994 and 1997*

Group	Inequality Within Group (MLD*1000)		Group Mean Income/Overall Mean		Group Share in Population (%)	
Head:	*1994*	*1997*	*1994*	*1997*	*1994*	*1997*
Employee	101	100	1.24	1.19	41	46
Self-employed	237	239	1.14	1.17	19	19
Unemployed/ill	55	97	0.56	0.54	17	14
Retired	104	118	0.91	0.90	12	13
Home duties	75	67	0.67	0.59	10	9
All	159	169	1.0	1.0	100	100
Inequality:		*1994*			*1997*	
Within-group		72.9			76.8	
Between-group		27.1			23.2	

Decomposition by income source provides an alternative perspective, and here the measure commonly employed is the squared coefficient of variation (Shorrocks, 1982). Table 10 shows the way the composition of total disposable household income changed over the period, and the extent to which these different sources were evenly or unevenly spread over all households (not just

recipients of that source), as reflected in the squared coefficient of variation for each source.

Table 10: *Decomposition of Inequality in Disposable Income by Income Source, 1994 and 1997*

Income Source	Income Source as % of Total		Inequality Measure for Income Source	
	1994	*1997*	*1994*	*1997*
Earnings	56.5	58.9	1.6	1.3
Self-employment	9.5	9.8	22.2	31.6
Farming	5.5	5.6	22.8	17.2
Interest, dividends and rent	1.8	2.2	35.5	45.5
Pensions	4.2	3.9	16.0	16.3
Social Welfare	19.2	16.3	1.4	1.4
Child Benefit	1.8	1.9	2.3	2.2
Other	1.9	2.1	19.7	15.3

We see that the share of earnings in total disposable income rose by almost 3 percentage points from 1994 to 1997, with the share of social welfare transfers declining. This reflects both rising employment and declining unemployment, and the fact that social welfare support rates lagged behind the very rapid pace of growth in earnings. Earnings, social welfare transfers and Child Benefit are the most equally distributed income types across all households, with income from self-employment and property (interest, dividends and rent) very much more unevenly spread across households. Between 1994 and 1997, this inequality measure rose quite sharply for income from self-employment and property, though it declined for earnings. (The correlation between income from each source and total household income also influences total inequality, and earnings became less highly correlated with total income while income from self-employment and property became more highly correlated over the period.)

V INCOME INEQUALITY IN IRELAND IN INTERNATIONAL PERSPECTIVE

In order to be able to assess the implications of both the level of inequality in the distribution of income in Ireland and how it has been changing over time, one needs to employ a comparative perspective. How does the distribution of income in Ireland compare with other industrialised countries, and are trends in the Irish distribution merely a reflection of what has been happening elsewhere? In this section we address these issues drawing on some recent data sources and studies.

It has become clear in recent years that great care is needed in making cross-country comparisons of income inequality levels and trends. Without careful attention to maximising the degree of comparability of the estimates in terms of income concept, income unit, time period, nature and coverage of data source, equivalence scale (where relevant) and so on, misleading conclusions can be reached. The income distribution database assembled by the Luxembourg Income Study (LIS) is designed to overcome these obstacles to the greatest extent possible. The preferred income concept in the LIS is annual rather than weekly, but the 1987 ESRI survey has been used to estimate the distribution of annual income in Ireland, and that data is included in the LIS database. The comprehensive comparative study of income inequality based (mostly) on LIS data by Atkinson, Rainwater and Smeeding (1995) for the OECD thus provides a reference point for the mid-late 1980s.

Their results on inequality in the distribution of equivalised disposable income (using the square root equivalence scale and with person weighting), as summarised in the Gini coefficient, are shown in Table 11. Ireland is seen to have an exceptionally high level of inequality compared with the other OECD countries covered, with only the USA having a higher Gini coefficient. This reflects the fact that the lower parts of the Irish income distribution have a relatively low share of total income, but even more important is the fact that the top decile has a larger share in Ireland than in any of the other countries covered. This is subject to the caveat that, as noted earlier, the top decile has a smaller share in the 1987 Household Budget Survey than in the ESRI survey, but even so the Irish distribution was clearly among the more unequal in the LIS dataset in the mid-late 1980s.

A more up-to-date comparative picture can be obtained from data from the European Community Household Panel survey, which got under way in 1994. In the ECHP survey, like the LIS, the reference period is annual for all income sources, in the case of Wave 1 relating to the calendar year 1993 and Wave 2 1994. The ESRI Living in Ireland Survey constitutes the Irish element of the ECHP, and collected income information on both a (largely) current and an annual basis: the former was used earlier (consistent with the HBS), but the latter will be used here for comparability with other countries in the ECHP. Table 12 shows the Gini coefficient and the share of the bottom and top decile for the distribution of equivalised disposable income, now using the modified OECD scale, in Wave 1 of the ECHP.

Ireland is still shown as having a relatively high Gini coefficient, but it is now rather lower than Portugal, and similar to a group that includes the UK, Spain and Greece. The level of inequality rose quite sharply in the UK between the mid-late 1980s and the mid-1990s,[16] but it would be surprising if it had

16. See for example Goodman, Johnson and Webb (1997).

Table 11: *Gini Coefficient for Distribution of Equivalised Disposable Income among Persons, Various Countries, Mid-Late 1980s*

Country	Year	Gini
Australia	1985	0.295
Belgium	1988	0.235
Canada	1987	0.289
Finland	1987	0.207
France	1984	0.296
Germany	1984	0.250
Ireland	1987	0.330
Italy	1986	0.310
Luxembourg	1985	0.238
Netherlands	1987	0.268
Norway	1986	0.234
Portugal	1989/90	0.310
Spain	1990/91	0.310
Sweden	1987	0.220
UK	1986	0.304
USA	1986	0.341

Source: Atkinson, Rainwater and Smeeding (1995) Table 4.4, except Spain from Table 5.21 and Portugal from Table 5.20.

Table 12: *Distribution of Equivalised Disposable Income among Persons, 1993 from ECHP*

Country	Gini	Share of Bottom Decile	Share of Top Decile
Belgium	0.28	3.0	21.9
Denmark	0.22	4.4	19.8
France	0.31	3.1	24.3
Germany	0.29	2.6	22.4
Greece	0.35	2.1	26.1
Ireland	0.34	3.3	26.4
Italy	0.32	2.3	23.5
Luxembourg	0.31	3.3	24.4
Netherlands	0.27	3.7	21.7
Portugal	0.39	1.9	29.3
Spain	0.34	2.6	25.5
UK	0.35	2.7	26.3
Average	0.31	2.9	23.5

increased in for example Luxembourg and Portugal by as much as the comparison of the ECHP and Atkinson *et al*'s., results suggest. A good deal of work on reconciling data from different sources remains to be done, but the picture of

Ireland's relative position in terms of inequality is consistent in the first two waves of the ECHP. It is worth noting that the share going to the bottom decile is in fact relatively high in Ireland: the share going to the top decile, though no longer the outlier portrayed in Atkinson *et al.*, is still among the next-highest to Portugal. (This means, *inter alia*, that the level of measured inequality will be particularly sensitive to the weights which a particular summary inequality measure gives to different parts of the distribution.)

A recent study on trends in income distribution and poverty by the OECD (Forster, 2000) provides another basis of comparison for the level of inequality in Ireland versus other countries, and is also particularly valuable in terms of a comparative picture on recent trends. It does not include some of the EU countries with relatively high levels of inequality — notably Spain and Portugal — but it does include Greece, Italy and the UK. It relies on figures supplied to the OECD by national experts, including for Ireland results from the 1994 Living in Ireland survey. On this basis Ireland is shown as having the same level of inequality as the UK in the mid-1990s, lower than Greece and Italy. However, the OECD study also shows that Ireland has a higher level of inequality than non-EU countries such as Australia and Canada, though lower than the USA. While the OECD study tried to harmonise the measurement procedures adopted across countries, differences inevitably remain; one is that while annual disposable income was the main focus, for a number of countries — including Ireland — current income had to be used.

As far as trends in income inequality are concerned, for the ten countries for which data was available from the mid-1970s to the mid-1990s no general trends emerged, with inequality falling or stable for more countries than it was increasing. In the period from the mid-1980s to the mid-1990s, though, for which data on 20 countries was available, more of a common trend is apparent. Inequality increased in twelve countries — in half of these by considerable amounts — while it remained stable in four and decreased only slightly in another four. Ireland is shown in the study as belonging to this last group, registering a slight decrease in inequality. Several other aspects of the trends shown are worth highlighting. The UK was the only country displaying marked increases in inequality both from the mid-1970s to the mid-1980s and from the mid-1980s to the mid-1990s. The USA saw a substantial increase in inequality during the earlier period, but the OECD's figures suggest only a marginal further increase there by the mid-1990s. However, the fact that the majority of countries experienced increases in inequality in the later period does suggest some underlying dynamic in terms of economic forces, policy or both.

The OECD study is particularly valuable in that it goes beyond showing the extent to which trends in inequality were shared across industrialised countries, to also explore the extent to which common factors were at work. It finds some

very important common features, but also many intriguing differences over the mid-1980s-mid-1990s period. Perhaps the most notable common feature is that the share of earnings going to the lower income groups among the working population decreased in all the countries covered in the study, and the share going to middle income groups generally declined as well. The same was true of market incomes generally, including income from self-employment and capital, but earnings dominate that total. This was not, or not entirely, translated into higher inequality of disposable incomes because both transfers and taxes offset its effects, and indeed in many countries the redistributive effects of taxes and transfers increased over the period.

The declining share of earnings or market income going to lower income groups here refers to total household earnings, with households ranked by equivalised disposable income. It could reflect both changes in the distribution of earnings among earners, and in the distribution of earners across households. The OECD study does not look at the first of these in detail, being focused on households, but does have some interesting insights on the second element. It shows that the proportion of households of working age with no earner increased in most countries, and that such households had much lower levels of income than those with one or two or more earners. The proportion with two or more earners also increased in about half the countries, so there was a quite widespread tendency towards polarisation into work-rich and work-poor households. However, decomposition showed that the more important contributor to increasing inequality in household incomes was increasing inequality within fully-employed versus workless versus "mixed" households.

Another important pattern common to many of the countries covered in the study was an increase in the average incomes of the elderly towards the overall average. The main gains here were for those aged between 66 and 74 rather than those aged 75 and over, so it was recent retirees who were doing better. Also, inequality within the retirement-age population decreased in a considerable number of countries, though public old-age pensions tended to become less rather than more equally-distributed among that group reflecting the importance of earnings-related components in many countries. Non-pension transfers, on the other hand, tended to become more equally distributed among the working-age population, generally reflecting the impact of family cash benefits.

The OECD study covers the period only up to the mid-1990s. None the less, it provides an enormously valuable comparative framework within which the Irish experience can be set, and helps to bring out some of the factors which merit further investigation in the Irish case.

VI CONCLUSIONS

Both overall income inequality and inequality in the distribution of earnings rose sharply during the 1980s and 1990s in a number of industrialised countries, notably the UK and the USA. This makes it particularly important to know how the distribution of income in Ireland has been changing over time, and what factors explain Ireland's particular experience. This paper has used household survey data to provide a picture of the distribution of household income in Ireland and how it was evolving up to 1997. It shows that there was at most a marginal increase in inequality between 1994 and 1997. While the dispersion of earnings among individual employees increased, decomposition analysis pointed towards some other factors at work, including the declining share of social welfare transfers in total income and greater inequality in the distribution of income from self-employment.

A comparative picture of inequality in Ireland versus other industrialised countries was also provided, drawing on recent data from Eurostat and the OECD. This showed Ireland's distribution to be among the more unequal in the European Union, together with the UK, Greece and Spain though less unequal than Portugal. Ireland was however not an outlier among OECD countries, as suggested by an earlier study for the OECD based on data for the mid-late 1980s. As far as trends in income inequality are concerned, a fairly widespread though not universal trend towards increased inequality in the period from the mid-1980s to the mid-1990s is found in a forthcoming OECD study. The most notable common underlying feature was that the share of earnings going to the lower income groups among the working population decreased in all the countries covered in the study. This was not, or not entirely, translated into higher inequality of disposable incomes because both transfers and taxes offset its effects, and indeed in many countries the redistributive effects of taxes and transfers increased over the period. The Irish data included in that study goes up only to 1994, but it provides a valuable comparative context in which to analyse the rather different Irish experience from that point on.

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