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Does Household Worklessness Explain Ireland's High Working-Age Market Income Inequality?

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Abstract: Ireland has a particularly high level of inequality in incomes from the market, before redistribution by transfers and direct taxes, and also a very high level of household joblessness. How much does the latter serve to explain the former? We assess this by comparing Ireland in depth with five comparator countries: France, Germany, Spain, Sweden and the UK. Decomposition of the Gini coefficient by income source shows the dominant role played by income from labour in market income inequality in all these countries. Decomposition of Generalised Entropy measures and counterfactual shift-share exercises based on them show that Ireland's high proportion of working-age households with no earner is indeed an important contributor to its ranking in terms of market income inequality. However, relatively high levels of dispersion in earnings within one-earner and two-earner households also contribute and their drivers need to be better understood.

I INTRODUCTION

Compared with other rich countries, Ireland is distinctive in its relatively high level of inequality in income from the market 'pre-distribution', on which transfers and direct taxes operate. The extent of redistribution via social transfers and direct taxes is then also very high, so that inequality in disposable income after they have been taken into account is close to the rich country average. Another distinctive and long-standing feature is Ireland's relatively high proportion of

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households with little or no work or income from work. Does this high household worklessness suffice to explain why overall market income inequality is so high in the case of Ireland? That is the question this paper addresses.

In doing so we concentrate on inequality among working-age households, leaving to one side the complex issues around whether pensions going to older/retired households are to be regarded as market income or transfers. Further, we concentrate on a comparison between Ireland and five selected comparator countries, namely France, Germany, Spain, Sweden and the UK. This serves to broaden significantly beyond the Ireland-UK comparison often employed, while making the investigation and presentation of results much more tractable than if for example all EU countries were to be included. The selected countries span widely-used 'varieties of capitalism' and welfare regime typologies, and also – crucially for current purposes – a wide span in terms of levels of market income inequality as well as prevalence of households with no income from labour. The comparative perspective is particularly illuminating in this instance because it allows us to tease out the relationship between features of the Irish income distribution that are distinctive but appear to have been rather stable over time, so that looking at change over time, while also helpful, would be less illuminating.

We first briefly review previous research, analytical methods and how income from the market and 'working-age' households are defined and measured. We then employ decomposition by income source with the Gini coefficient to demonstrate the central role that income from work plays in market income inequality. We then examine how inequality in income from that source varies across and within sub-groups defined in terms of the number of earners in the household, using Generalised Entropy inequality measures. On this foundation we bring out the salience of Ireland's particularly high proportion of working-age households containing no earner. Finally, the conclusions are summarised.

Our focus is on the impact that Ireland's high household worklessness has on income inequality, rather than on trying to understand why it is high in the first place – on which see Watson *et al.* (2012). It is also important to highlight at the outset a central feature of 'income from the market' as measured here and in the literature, namely that it is a construct derived mechanically from information obtained in surveys about the components of disposable income, which is what is actually observed (albeit with error) 'in the world'. We do not and cannot know what the level and distribution of income from the market would be if there were no direct taxes and no social transfers. Deriving market income from measured disposable income by simply subtracting transfers and adding back direct taxes and social insurance contributions in effect assumes that it would be the same in the absence of the tax/transfer system, which of course would hardly be the case. It is an analytic convenience that allows what underpins the distribution of disposable income to be deconstructed, but the artificial nature of the exercise must be kept to

the fore. This is most obvious with respect to older households relying entirely on social transfers, but also relevant for the working-age population on which we concentrate here.

II CONTEXT, PREVIOUS LITERATURE AND ANALYTICAL APPROACHES AND CHOICES

Income inequality in Ireland has been studied in comparative perspective for many years, but with most of the attention paid to levels and trends in inequality in terms of disposable income, and to the role of transfers and taxes in affecting Ireland's ranking and trajectory in that respect. For example, studies based on household surveys carried out by the ESRI from 1987 up to 2000 such as Callan and Nolan (1992), Callan and Nolan (1999), Nolan and Maître (2000) and Nolan *et al.* (2000) concentrated for the most part on analysis of levels and trends in disposable income inequality in comparative perspective. Nolan and Smeeding's (2005) comparative perspective did not dwell on market income inequality as they found Ireland around 2000 to be below the average for a set of OECD countries in that respect; they did however flag earnings and wage disparities as an important factor in market income inequality differences across these countries. Much of the subsequent research exploiting microdata from the EU-SILC survey carried out by the CSO since 2003 has had a similar emphasis (for example Nolan *et al*., 2014). At the same time, research on the redistributive impact of Ireland's transfer and tax systems based on survey microdata and tax-benefit simulation modelling has grown extensively since Callan and Sutherland's (1997) comparison of social protection in Ireland and the UK. The availability of integrated tax-benefit simulation models for all the EU countries in the EUROMOD framework now allows direct redistribution in Ireland and its evolution over time to be studied comparatively in great depth, so that overall trends can be compared and the impact of specific policy changes identified (see for example Bargain and Callan, 2015).

The fact that measures produced by Eurostat of the redistributive impact of social transfers and direct taxes now show that these bring about a greater reduction in inequality in Ireland than any other EU country has been widely commented on (see for example TASC, 2019). At the same time, this has also served to highlight that the level of market income inequality on which these taxes and transfers operate is itself particularly high. Indeed, inequality measures produced by Eurostat from EU-SILC show Ireland to now have the highest level of inequality in the EU in that respect (as measured by the ratio of the share of the top to bottom quintile in market income). Roantree (2020) investigates trends in market income inequality from 1987 to 2017, documenting an increase over that period in the Gini coefficient and some other summary measures, though not ones that are more sensitive to incomes towards the bottom. Patterns of earnings growth and employment, especially the

way in which women's employment rates have risen, are put forward as contributory factors. Having highlighted that Ireland had the highest Gini coefficient for market income among EU countries, Roantree suggests that this arises because of the large number of individuals in households without any market income rather than because of an extremely unequal distribution among those with positive amounts of market income. This is supported by the presentation of inequality measures calculated for only those with some market income, where Ireland is seen to have a level of inequality that is around or below the average across EU countries.

Another recent study by Sologon *et al*. (2021) seeks to account for differences in disposable income inequality between Ireland and the UK, incorporating labour market structures and returns and demographic composition as well as tax-benefit systems into the analysis. The paper is primarily concerned with presenting and illustrating an analytical framework for such comparative exercises, integrating micro-econometric and micro-simulation approaches in a decomposition analysis based on EUROMOD and its harmonised datasets. Their main empirical finding from the empirical illustration of its application to the Ireland-UK comparison is the substantial role played by tax-transfer structures and policies, the Irish system being more redistributive due to a higher tax progressivity and higher average transfer rates, which in turn are largely attributable to policy parameter differences but also to differences in the market income distribution. In setting out their approach, Sologon *et al*. (2021) also provide a helpful description of methods employed in the literature to account for and understand differences in income inequality across countries. The approach they develop builds on and extends Bourguignon *et al*. (2008), modelling the full income distribution rather than specific summary indices and allowing a number of determinants/drivers to be examined at the same time. The contribution of these factors to observed differences in inequality over time or across countries is assessed via simulated counterfactual distributions that would prevail if those factors were the same rather than different across countries or at the time-points being compared.

Here we are focusing specifically on one factor, the extent of household worklessness, and rely instead on the simpler decompositions of summary inequality measures that have been the mainstay of the literature since Shorrocks (1980; 1982) clarified their relevant properties and the analytical approaches they permit. More specifically, we make use of the fact that decomposition of the Gini coefficient provides a convenient way to assess the role of different income sources in overall inequality, and that decomposition of Generalised Entropy (GE) measures allows one to assess the contribution of inequality within and between discrete sub-groups so that they also account fully for total inequality. We employ this mix of decomposition approaches together with shift-share simulation analysis to assess the drivers of inequality differences across countries in very much the same way as Brewer and Wren-Lewis (2016), for example, use them to understand the drivers of inequality change over time.

Before embarking on this analysis it is necessary to note the complexities involved in defining and measuring 'market income' and in deciding what constitutes a 'working-age household' and distinguishing these in the data. Focusing first on the income component, market income conventionally includes earnings (before employee social insurance contributions are deducted), self-employment income, capital income (dividends, interest, and rent), and income from private pension plans. However, the measure we will employ here does not add in employers' social insurance contributions, which would be included in some analyses (and in the measure included in for example the OECD's Income Distribution Database). Turning to what counts as working age, we focus on the age of the head/reference person and only include households where that person is aged from 20 to 59 in order to minimise the impact of students and those retired 'early' on the numbers of households with no income from employment or self-employment. We equivalise incomes to adjust for household size and composition using the modified OECD scale employed by Eurostat, and rely on data from EU-SILC throughout.

Before proceeding it should also be noted that we rely on EU-SILC because it has the crucial data we need on household incomes, but that Ireland's share of 'jobless households' – to use the terminology employed to describe the EU social indicator – as measured there is higher than in the Labour Force Survey, the official source for that indicator. (The extent of the divergence in 2017, the year to which our analysis refers, is that the percentage of working-age households with no-one in work is about 2 percentage points lower in the LFS than EU-SILC.) This divergence has been reviewed in CSO (2014) and can be expected to contribute to Ireland's relatively high level of inequality in market income in EU-SILC.

III DECOMPOSING MARKET INCOME INEQUALITY FOR WORKING-AGE HOUSEHOLDS BY INCOME SOURCE

We begin our analysis with the role of different sources or types of market income, to bring out the centrality of income from work. For this purpose we employ the Gini decomposition methodology put forward by Lerman and Yitzhaki (1985) in this context. In their framework the Gini coefficient for total income inequality, G, can be expressed as:

$$G = \sum_{k=1}^{K} S_k G_k R_k \tag{1}$$

where S_k represents the share of component k in total income (i.e. $S_k = \mu_k/\mu$), G_k is the Gini coefficient of income source k, and R_k is the Gini correlation between income source k and total income. The contribution of income from different sources to overall inequality depends on the shares of income from each source in total household income, the Gini coefficient for inequality in the distribution of

income from each source taken alone, and the (Gini) correlation of income from each source with total income.

For this analysis the income sources we distinguish are labour income (comprising employee earnings and self-employment income), income from capital (comprising interest, dividends and rent), private pensions (including occupational and individual) and other (including regular transfers from other households).

Applying this decomposition approach to data from EU-SILC 2017 for our six countries produces the contributions to total market income inequality among the working-age population shown in Table 1. We see that labour income makes by far the largest contribution to the overall Gini for market income everywhere. This source of income accounts for 96 per cent of overall inequality in Ireland, for 93-94 per cent in Germany, Spain and the UK, and for 87-88 per cent in France and Sweden. Income from capital accounts for a modest proportion, about 3-4 per cent, except in France and Sweden where it contributes 10-11 per cent. Sources such as private pensions and other types of income account for very little of the inequality in market income.

Table 1: Decomposition of Market Income Inequality for Working-Age by Income Source

	France	*Germany*	*Ireland*	*Spain*	*Sweden*	*UK*
Labour income	86.9	93.8	96.0	93.8	88.5	92.6
Capital income	11.5	3.9	3.0	4.6	9.8	4.2
Private pensions	0.0	0.3	0.2	0.5	0.9	0.1
Other income	1.6	2.0	0.8	1.1	0.8	3.1
Total income	100.0	100.0	100.0	100.0	100.0	100.0

Source: Data from EU-SILC 2017.
Note: Table shows the contribution to inequality in overall market income of income from different sources.

These results highlight that income from labour drives overall inequality in market income as measured in these surveys. Comparison of income totals by source in such surveys with external data from administrative/tax systems and National Accounts aggregates shows that income from capital is generally much less well represented than other sources (see Törmälehto, 2019). This relates to but goes well beyond the difficulties faced by surveys in capturing the very top of the income distribution where income from capital is particularly important. Income from self-employment is also less fully captured than employee earnings, as also shown in aggregate in Törmälehto (2019) vis-à-vis National Accounts aggregates, and investigated at micro-level compared with tax returns in, for example, Cabral *et al*., 2020. (The inclusion of capital gains would serve to increase this divergence considerably, as shown by for example Advani *et al*., 2021, for the UK.) Here we

leave these significant issues to one side and continue to focus on incomes as measured in EU-SILC; it is worth noting though that the two countries where income from capital is seen to be particularly important in Table 1 – France and Sweden – draw on data from register/tax sources in arriving at the incomes reported in EU-SILC (see Goedeme and Trinidade, 2019).

IV DECOMPOSING MARKET INCOME INEQUALITY FOR WORKING-AGE HOUSEHOLDS BY NUMBER OF EARNERS

We now want to bring out the role played by differences across households in the number of earners they contain versus dispersion in income among households with a given number of earners, and in particular of variation in the proportion with no-one in work. Table 2 shows the breakdown of households categorised by number of earners from zero up to three or more in each of our six countries, together with the share of market income going to each of these groups of households. We see that households containing no earner make up only 4 per cent of all households in France, 6 per cent of all households in Germany, Spain and Sweden, 8 per cent for the UK, and is as high as 12 per cent in Ireland. These households have very little market income – less than 0.5 per cent of the total – mostly income from capital or private pensions.

Table 2: Population Versus Income Shares by Number of Earners

	France		*Germany*		*Ireland*	
Number of earners	*Pop. Share*	*Income share*	*Pop Share*	*Income share*	*Pop. Share*	*Income share*
0	3.9	0.1	6.2	0.2	11.9	0.1
1	30.6	23.9	33.9	28.4	28.8	21.2
2	60.2	69.5	54.5	65.1	50.2	65.7
3 or more	5.3	6.4	5.4	6.3	9.1	13.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
	Spain		*Sweden*		*UK*	
Number of earners	*Pop. Share*	*Income share*	*Pop Share*	*Income share*	*Pop. Share*	*Income share*
0	5.8	0.2	5.8	0.1	8.5	1.2
1	28.6	21.5	31.9	24.0	27.6	19.6
2	55.8	67.1	58.8	70.8	53.1	66.1
3	9.9	11.1	3.6	5.1	10.8	13.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Data from EU-SILC 2017.
Note: Table shows the share of working-age households in each number of earners category and the share of market income going to those households.

One-earner households make up about 30 per cent of working-age households in most countries, with Germany highest at 34 per cent. The income share going to these households is always less than their share in the population, usually by about 7 percentage points; Ireland is typical rather than distinctive in that respect.

Households with two earners make up only 50 per cent of all households in Ireland, 53-54 per cent in Germany and the UK, and 56 per cent in Spain, compared with 59-60 per cent in France and Sweden. Their share in total market income is always considerably greater than their share in the working-age population, with that gap being about 10-11 percentage points in France, Germany and Spain, 12-13 percentage points in Sweden and the UK, and as much as 15 percentage points in the case of Ireland.

Households with three or more earners account for only 4-5 per cent of all working-age households in France, Germany and Sweden, but for 9-11 per cent in Ireland, Spain and the UK. Their share in total market income is also always greater than their population share, but often only modestly so, reflecting the fact that 'additional' earners beyond the reference person and partner are often younger adults on low earnings, or even students or other marginal workers.

The level of inequality within each of these 'number of earners' categories is then presented in Table 3. This first shows the Gini coefficient, with which inequality is consistently highest within the no-earner group; this is unsurprising since only a minority of households in that group have any market income. For the three groups that do contain an earner, within-group inequality consistently declines with the number of earners, being highest in the one-earner group and lowest where there are three or more (although for Spain the Gini for 2 and 3+ earners is the same). Within each of the 'number of earner' groups Ireland generally has a particularly high level of inequality, though similar to the UK for most.

Table 3 also shows three alternative summary inequality measures for each group and overall, each of which are from the same broad 'family' of Generalised Entropy measures. These are the mean log deviation (MLD) or GE(0) measure; the Theil index or GE(1) measure; and half the squared coefficient of variation or GE(2). (The number in brackets is the value at which the inequality aversion parameter is set in the generalised entropy formula for the measure in question.) These inequality measures, unlike the Gini, are particularly tractable in terms of sub-group decomposition of overall inequality into exhaustive within- and between-group components, a property we exploit below.[1] Table 3 shows that all three of these measures display a similar pattern to the Gini in terms of level of inequality in the different sub-groups distinguished, generally declining as we

[1] Note that the GE(0) and GE(1) measures involve taking the log of income and thus will be undefined for zero values, and households with zero incomes will be dropped when the relevant commands in Stata are employed to derive these measures. Here we thus follow a common practice of setting zero values to 1, so when logs are taken these are retained in the analysis, though as Cowell and Victoria-Feser (1996) note this can sometimes lead to non-robust results.

Table 3: Inequality by Number of Earners

	Gini	*GE(0)*	*GE(1)*	*GE(2)*
Number of earners		*France*		
0	0.88	3.97	1.82	4.78
1	0.42	0.39	0.33	0.50
2	0.31	0.17	0.17	0.24
3	0.27	0.12	0.13	0.17
All	0.37	0.50	0.26	0.34
Number of earners		*Germany*		
0	0.90	4.91	2.07	6.34
1	0.39	0.33	0.27	0.32
2	0.31	0.16	0.17	0.24
3	0.22	0.08	0.08	0.09
All	0.38	0.67	0.27	0.31
Number of earners		*Ireland*		
0	0.93	4.83	2.50	8.90
1	0.51	0.53	0.51	1.28
2	0.37	0.26	0.25	0.36
3	0.30	0.14	0.15	0.17
All	0.49	1.33	0.45	0.64
Number of earners		*Spain*		
0	0.90	4.32	2.18	8.80
1	0.46	0.48	0.38	0.55
2	0.36	0.26	0.22	0.25
3	0.36	0.25	0.23	0.32
All	0.43	0.72	0.33	0.38
Number of earners		*Sweden*		
0	0.87	4.36	1.87	5.21
1	0.39	0.38	0.29	0.51
2	0.27	0.13	0.13	0.18
3	0.22	0.09	0.10	0.14
All	0.36	0.65	0.25	0.31
Number of earners		*UK*		
0	0.92	6.19	2.31	5.72
1	0.50	0.49	0.48	0.87
2	0.35	0.21	0.23	0.36
3	0.24	0.11	0.10	0.10
All	0.44	0.91	0.36	0.50

Source: Data from EU-SILC 2017.

Note: Table shows the level of inequality among households in each number of earners category and overall as measured by the alternative summary inequality measures.

move from no-earner through to 3+ earner households. With the GE(1) measure, Ireland consistently has the highest inequality within each of the 'number of earner' categories, and this is often though not always the case with GE(0) or GE(2).

We can now assess the contribution to overall inequality of inequality 'between' versus 'within' households categorised by number of earners, using these decomposable GE inequality measures, with which the between- and within-group components fully account for total inequality. Table 4 presents the results. We see that inequality within the sub-groups is by far the most important contributor with all three measures in every country. However, the MLD and Theil measures consistently suggest a larger contribution from between-group inequality than GE(2). With the MLD/GE(0), that component accounts for only about 14 per cent of overall inequality in the UK but for 23 per cent in France, Germany and Spain, 31 per cent for Sweden and as much as 35 per cent in Ireland. The Theil measure shows between-group contributions that are generally similar to that, though larger in the case of the UK. With the GE(2) measure, inequality between the different sub-groups accounts for no more than 10-12 per cent of total inequality in France, Spain and the UK, 14-16 per cent in Germany and Ireland, and 17 per cent for Sweden.

These decompositions serve to highlight first that the relative importance of between versus within-group inequality, like the overall level of inequality itself, is sensitive to the summary measure employed. They then highlight that inequality within the sub-groups is always the dominant contributor to overall inequality, for each country and with each measure. Even in the case of Ireland where it is less important than elsewhere with the GE(0) and GE(1) measures, it still accounts for two-thirds of total market income inequality with those measures.

This means that Ireland's distinctively high share of working-age households with no earner – which we probe further in the next section – is clearly significant but is not the sole factor contributing to Ireland's relatively high level of market income inequality. The relatively high dispersion in labour incomes among one-earner and two-earner households in particular is also important, especially when it comes to the comparison with France, Germany and Sweden. The fact that dispersion within these groups in Ireland is similar to the UK, with which bilateral comparisons have been most common, should not obscure the role it plays in a broader comparative context. Ireland's relatively high level of earnings dispersion among employees compared with other EU and OECD countries, as well as patterns of labour force participation and the relationship between the earnings of partners, are potential factors in underpinning that dispersion, which merit further teasing out. We do not pursue this further empirically here, but note in the conclusions section some of the factors likely to be playing a role and the complexities involved in teasing them out.

Table 4: Inequality Decomposition by Number of Earners with GE Inequality Measures

	GE(0)		*GE(1)*		*GE(2)*	
	Level	*%*	*Level*	*%*	*Level*	*%*
			France			
Within	0.38	76.9	0.21	80.9	0.30	89.8
Between	0.12	23.1	0.05	19.1	0.03	10.2
			Germany			
Within	0.51	76.3	0.20	74.7	0.27	85.9
Between	0.16	23.7	0.07	25.3	0.04	14.1
			Ireland			
Within	0.87	65.4	0.30	66.0	0.54	84.4
Between	0.46	34.6	0.15	34.0	0.10	15.6
			Spain			
Within	0.55	77.2	0.26	78.8	0.33	87.5
Between	0.16	22.8	0.07	21.2	0.05	12.5
			Sweden			
Within	0.45	69.0	0.17	68.9	0.26	83.0
Between	0.20	31.0	0.08	31.1	0.05	17.0
			UK			
Within	0.78	86.1	0.28	77.9	0.44	87.7
Between	0.13	13.9	0.08	22.1	0.06	12.3

Source: Data from EU-SILC 2017.
Note: Table shows inequality within and between four 'number of earner' categories as measured by alternative summary inequality measures.

V THE SHARE OF NO-EARNER HOUSEHOLDS AND MARKET INCOME INEQUALITY

We now divide working-age households into just two distinct groups, those with no adult earning income from employment or self-employment and those which contain at least one such earner. Table 5 shows the contribution to overall inequality of inequality between these two sub-groups versus within them in each country with the GE(0)/MLD, GE(1)/Theil and GE(2) measures. Comparison with Table 3 shows that inequality between these two sub-groups accounts for a very substantial proportion (90 per cent or more with the MLD and about 70-80 per cent with the Theil) of the between-group inequality contribution found when four rather than two sub-groups were distinguished. With all three measures the contribution of

inequality between these two groups to overall inequality is particularly large in Ireland.

Table 5: Inequality Decomposition by Subgroup: No versus Some Earners

	GE(O) %	*GE(1)* %	*GE(2)* %
		France	
Within	80.0	86.8	94.3
Between	20.0	13.3	5.7
		Germany	
Within	78.3	79.8	90.3
Between	21.7	20.2	9.7
		Ireland	
Within	67.8	73.2	89.7
Between	32.2	26.8	10.3
		Spain	
Within	79.9	84.6	92.5
Between	20.1	15.4	7.5
		Sweden	
Within	72.6	78.2	90.5
Between	27.4	21.8	9.5
		UK	
Within	89.2	85.4	93.1
Between	10.8	14.6	6.9

Source: Data from EU-SILC 2017.
Note: Table shows inequality within and between two 'number of earner' categories as measured by alternative summary inequality measures.

We can now use these decompositions as a base from which to assess the impact on overall inequality of varying the proportion of households with no earners. We do this by means of shift-share analysis which these summary inequality measures permit in a rather straightforward fashion. In effect, inequality within each of the two sub-groups – households with no earners and households with one or more earner – can be held constant while the size of these two groups is varied and the level of overall inequality is re-calculated. (We assume the income share of the no-earner group, which is in any case always very small, remains unchanged so only population shares are altered; relaxing this assumption and changing income shares proportionately would make no difference to the results.)

In implementing this exercise we ask how the inequality measure for each country would change if its observed share of no-earner households is replaced by

a) the average share across the six countries being studied; b) the lowest share observed in these countries, which is the one for France; and c) the highest share observed, which is of course the one for Ireland.

Table 6 shows the results of this exercise with the GE(0)/Mean Log Deviation measure. Reducing Ireland's share of no-earner households to the six-country average reduces its overall inequality measure by one-third, and reducing its share to the lowest country level brings it down by almost a half. When a common no-earners share is applied across all the countries these exercises still leave Ireland with the highest level of inequality, but the gap between Ireland and the other countries is greatly reduced. Where the actual inequality level for Ireland is about twice as high as Germany or Sweden, for example, the simulated level with the average no-earner households share is only about one-fifth higher; Ireland's actual inequality figure is 46 per cent higher than the UK's, whereas its simulated level on this basis is only 16 per cent higher. The simulated gap between Ireland and the countries with much lower inequality levels is also very much narrower.

Table 6: Market Income Inequality with Varying Proportions of No versus Some Earners, GE(0)/Mean Log Deviation Inequality Measure

	Actual	*Simulated*		
		28-country average (6% no-earners)	*Lowest zero-earner (4% no-earners)*	*Highest zero-earner (12% no-earners)*
Inequality level				
France	0.501	0.646	0.501	0.997
Germany	0.667	0.672	0.509	1.066
Ireland	1.332	0.877	0.689	1.332
Spain	0.716	0.748	0.597	1.111
Sweden	0.654	0.690	0.522	1.097
UK	0.910	0.754	0.590	1.151
% change				
France		+29.0	0	+99.1
Germany		+0.7	–23.7	+59.9
Ireland		–34.2	–48.3	0
Spain		+4.5	–16.5	+55.2
Sweden		+5.4	–20.3	+67.6
UK		–17.1	–35.1	+26.5

Source: Data from EU-SILC 2017.
Note: Table shows actual inequality and inequality with simulated shifts in proportion of no-earner vs earner households with MLD inequality measure.

Table 7 shows the results of the corresponding exercise when the GE(1)/Theil measure is employed instead. The impact of the change in share of no-earner households is more modest with this measure, but for Ireland inequality is still reduced by 14 per cent when the country average share is substituted for the actual share, and by 19 per cent when the lowest observed share is substituted. Harmonising the share of no-earner households across the six countries once again serves to reduce the gap between Ireland and the other countries. Imposing the cross-country average share everywhere brings Ireland's inequality level down to 35-45 per cent higher than France and Germany's, compared to the actual figure of 70 per cent higher; vis-à-vis the UK that reduction is from 23 per cent to 13 per cent higher. The imposition of a common share of no-earner households thus makes rather less of an impact than we saw with the MLD measure, but still reduces the gap between Ireland and the other countries substantially.

Table 7: Market Income Inequality with Varying Proportions of No versus Some Earners, GE(1)/Theil Inequality Measure

	Actual	*Simulated*		
		6-country average (6% no-earners)	*Lowest zero-earner (4% no-earners)*	*Highest zero-earner (12% no-earners)*
Inequality				
France	0.261	0.284	0.261	0.340
Germany	0.266	0.267	0.244	0.323
Ireland	0.447	0.387	0.363	0.447
Spain	0.331	0.336	0.314	0.393
Sweden	0.249	0.254	0.231	0.313
UK	0.364	0.343	0.322	0.397
% change				
France		+8.6	0.0	+30.2
Germany		+0.3	–8.1	+21.5
Ireland		–13.5	–18.8	0.0
Spain		+1.5	–5.3	+18.7
Sweden		+2.0	–7.3	+25.5
UK		–5.7	–11.5	+9.0

Source: Data from EU-SILC 2017.
Note: Table shows actual inequality and inequality with simulated shifts in proportion of no-earner vs earner households with Theil inequality measure.

Finally, Table 8 shows the results of the shift-share exercise when the GE(2) measure is employed. The impact of the change in share of no-earner households is now rather more modest than with the GE(0) or GE(1) measures. For Ireland

inequality is reduced by 11 per cent when the country average share is substituted for the actual share, and by 15 per cent when the lowest observed share is substituted. With the cross-country average share, Ireland's inequality level is 20 per cent higher than the UK compared with the actual figure of 28 per cent higher.

Table 8: Market Income Inequality with Varying Proportions of No versus Some Earners, GE(2) Inequality Measure

	Actual	*Simulated*		
		6-country average (6% no-earners)	*Lowest zero-earner (4% no-earners)*	*Highest zero-earner (12% no-earners)*
Inequality				
France	0.336	0.355	0.336	0.407
Germany	0.314	0.315	0.296	0.364
Ireland	0.643	0.575	0.550	0.643
Spain	0.382	0.387	0.366	0.440
Sweden	0.311	0.315	0.296	0.366
UK	0.501	0.481	0.461	0.534
% change				
France		+5.8	0.0	+21.3
Germany		+0.2	–5.7	+15.8
Ireland		–10.5	–14.5	0.0
Spain		+1.3	–4.2	+15.2
Sweden		+2.0	–4.8	+17.6
UK		–4.0	–8.0	+6.6

Source: Data from EU-SILC 2017.
Note: Table shows actual inequality and inequality with simulated shifts in proportion of no-earner vs earner households with GE(2) inequality measure.

VI CONCLUSIONS

Ireland has a relatively high level of inequality in market incomes for reasons that are poorly understood. Here we have assessed the role played by the proportion of working-age households with no-one in work, which is also particularly high in Ireland as shown by widely-cited EU social indicators. We concentrated on comparison of inequality in Ireland with five selected countries, namely France, Germany, Spain, Sweden and the UK. This serves to broaden the frame significantly beyond the comparison with only the UK that is often employed, while making the investigation much more tractable than if many more EU or OECD countries were included.

We first employed Lerman/Yitzhaki Gini decomposition to show that income from labour drives overall inequality in market income for working-age households in all these countries (at least as measured in household surveys) and accounted for 96 per cent of overall inequality in Ireland. Households with no earner were seen to comprise 11 per cent of working-age households (as we have defined them) in Ireland, compared to 8 per cent in the UK and 6 per cent or lower in the other countries. Using the decomposability properties of Generalised Entropy measures, and distinguishing households with no earner versus those with at least one, allowed us to assess the impact on overall inequality of varying the proportion of no-earner households by shift-share analysis. Substituting the average share of no-earner households across the six countries for the observed levels brought down the level of inequality and narrowed the gaps between Ireland and other countries substantially. The simulated level of inequality in Ireland in this exercise was only 10-12 per cent higher than the UK compared with the actual gaps of 46 per cent with the MLD or 23 per cent with the Theil measure. The gap between Ireland and the lower-inequality countries also narrows very considerably with the MLD measure while being reduced by about half with the Theil measure. The corresponding impacts with the GE(2) measure, which weights inequality towards the top more heavily, are in the same direction but more modest.

While we have shown that the level of household worklessness is an important factor, it is clearly not the whole story in Ireland's relatively high level of market income inequality. To arrive at a more comprehensive explanation it will also be necessary to investigate what underlies the relatively high dispersion in labour incomes we also found among one-earner and two-earner households in particular. Neither the level of 'low pay' at individual level nor the correlation between the earnings of partners in couples in Ireland versus the other countries provides a ready explanation: low pay levels (in EU-SILC) are similar to Germany, Spain and the UK, though much higher than France or Sweden, and the correlation between the earnings of partners (including zero earnings) is not particularly high (see Azzolini *et al.,* 2021). Understanding the complex inter-relationships between labour force participation and earnings of different household members and the driving mechanisms at work clearly requires in-depth analysis, further exploiting the rich available comparative microdata.

However, our findings reinforce once again the salience of household joblessness and thus of policies to combat it. As brought out in Watson *et al.*'s (2012) study of the Irish case and the international evidence, this complex phenomenon is a product of a wide range of inter-related underlying factors working at individual, household, local and regional levels. An effective policy response will have to operate at those levels in a coherent way and encompass the way social protection (including for housing costs) is provided, targeted training and support in job search and acquisition, childcare provision and financing, and industrial policies including support for enterprise in the areas most affected.

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