Commission on Taxation & Welfare
An Coimisiún um Chánachas agus Leas

Briefing Paper

Market income and redistribution by taxation and welfare systems

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Key Points

- Since welfare states emerged across Europe, one of the key functions of the taxation and welfare system has been to redistribute income across the population, such that the distribution of 'disposable income' is more equal than the original distribution of 'market incomes'.
- Since the 1970s, the international trend has been towards higher levels of income inequality. This has not, however, been a uniform experience and Ireland has been an exception.
- Inequality in market incomes is high in Ireland, while Ireland is closer to the middle in international rankings of inequality in disposable incomes.
- Some combination of increasing shares and diverging earnings (across occupations, sectors or households) could lead to diverging trends and, consequently, unequal distribution of market income.
- The redistributive function of the taxation and welfare systems differs depending on whether we trace this process at the level of the individual, the tax unit or the household.
- In the disposable income distribution, single adults are notable for their prevalence in the bottom three deciles, along with people not at work due to illness or disability, unemployed people and people on home duties.
- The proportion of people at risk of poverty has fallen over the past fifteen years. Nevertheless, certain cohorts remain more at risk.

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1. Introduction

For more than a century, since welfare states emerged across Europe, one of the key functions of the taxation and welfare systems has been to redistribute income across the population, such that the distribution of 'disposable income' is more equal than the original distribution of 'market incomes'.

In the early post-war era, economists paid relatively little attention to the issue of income distribution, since it was assumed that income inequality would gradually decline with economic growth, and indeed, comparatively little effort was devoted to measuring income inequality. This position has changed dramatically in recent decades. Beginning in the UK and the US in the 1970s, inequality began to increase quite significantly. Meanwhile, from the mid-1990s, major advances have been made in compiling internationally comparable datasets, showing how inequality has been changing within and across countries. This has led to a realisation that inequality had tended to increase in many counties, and the subject became increasingly prominent in international discussions.

Looked at today, as measured by the Gini coefficient, the distribution of market income in Ireland is highly unequal compared to other OECD countries. The impact of the taxation and welfare systems is such, however, that Ireland is closer to the middle in the ranking of OECD countries by levels of inequality in the distribution of disposable income.

This paper outlines the trends in market income inequality, internationally and in Ireland, and examines potential explanations for the distribution of market income in Ireland, as well as considering possible trajectories in the future. Possible explanations for the relatively unequal distribution of market income in Ireland include productivity, earnings dispersion, the sectoral and occupational composition of the Irish economy, and the skills of the working age population. The extent of redistribution under the taxation and welfare systems is presented with illustrations of the distribution of income and measures of inequality before discussing the consequences of inequality and concluding with matters for consideration by the Commission on Taxation and Welfare.

Understanding the way in which the tax and welfare system operate on the distribution of income is important. Any factors that may affect the future distribution of market incomes, and that can be identified at this point, will be relevant to the role that the taxation and welfare systems play in the future. This is of relevance to the Commission on Taxation and Welfare as the combined impact of the taxation and welfare systems on net income is based on a starting point of market income inequality. If we expect market income inequality to change over the coming decades, the taxation and welfare systems may have to adapt.

The extent of redistribution is, to a large degree, a matter of policy choice and the OECD and EU averages and rankings are used as benchmarks or reference points only without an inference as to what constitutes an appropriate policy target.

2. Executive Summary

Since welfare states emerged across Europe, one of the key functions of the tax and welfare system has been to redistribute income across the population, such that the distribution of 'disposable income' is more equal than the original distribution of 'market incomes'.

Since the 1970s, the international trend has been towards higher levels of income inequality. This has not, however, been a uniform experience and Ireland has been an exception, particularly in the period since the 1980s: an English-speaking country with high income growth, where the share going to the top 1% increased but there was a decline in measures of disposable income inequality.

Inequality in market incomes is high in Ireland, while Ireland is closer to the middle in international rankings of inequality in disposable incomes. Examining the latest available data (2018), Ireland is 15th of 23 countries when ranked by disposable income inequality, and second in market income inequality.

Some combination of increasing shares and diverging earnings (across occupations, sectors or households) could contribute to the unequal distribution of market income. As the primary source of income for the majority of people, the distribution of earnings has implications for market income inequality. Earnings reflect – at least to some extent – variation in productivity levels (which, in turn, reflects skills).

While labour supply decisions are based on household circumstances, differing views on how disposable income emerge depending on whether we trace the redistributive process at the level of the individual, the tax unit or the household. It reflects the imposition of taxes and charges and the payment of benefits. A number of secondary benefits are also relevant. Looking at the distribution of disposable income, single adults are notable for their prevalence in the bottom three deciles, along with people not at work due to illness or disability, unemployed people and people on home duties.

One of the consequences of how income is distributed is the proportion of people at risk of poverty. This has fallen over the past fifteen years, decreasing from 19.4% in 2004 to 12.8% in 2019 (the latest available data). Given the persistent inequality over the same period as measured by market income, the decrease in the proportion of people at risk of poverty represents a substantial redistributive achievement by the taxation and welfare systems. Nevertheless, certain cohorts remain more at risk.

Terminology

Measures of distribution (inequality)

- **Gini coefficient**: A Gini coefficient is a summary measure of income inequality across an entire population. Its value ranges from 0 to 1 – the lower the Gini value, the more equal the distribution of income.
- **Quantiles**: As the discussion on distribution generally features comparisons between income groups (e.g., top, middle, and bottom income households), quantiles are a means to compare across groups by dividing households — ordered by income from lowest to highest — into groups of equal size (i.e. an equal number of households). Dividing the population into fifths, tenths or hundredths gives quintiles, deciles and percentiles respectively.
- **Quantile ratios**: P90/P10 is the ratio of the upper bound value of the ninth decile (i.e. the 10% of people with highest income) to that of the first decile; P90/P50 of the upper bound value of the ninth decile to the median income; S80/S20 measures the ratio between the total income of the highest 20% and of the lowest 20%.
- **Equivalised household income**: The income of the household is summed and divided by the number of members in the household, with a weighting given to different members (e.g. adults and children). This adjustment is designed to reflect differences in needs for households of different sizes.

Market income →	Gross income →	Disposable income
Earnings, self-employed income, capital income→	Plus social security transfers, minus employment-related social insurance schemes→	Minus taxes paid on income

3. International trends in income and inequality

3.1 Income

Drawing on data across 31 rich countries from the Luxembourg Income Study (LIS), the OECD Income Distribution Database (OECD) and the World Inequality Database (WID), a study by Thewissen et al (2018) examines the international long-term trends in median incomes and income inequality.[1]

From 1987, Ireland doubled real median household income within 25 years (increasing by 106%), a performance that places it at the top of the rankings of countries for which we have data. Over broadly the same period, the group of countries where median income also grew noticeably includes Luxembourg (+80%), Sweden (+69%), and Belgium (+52%).

Looking at a broader range of countries, some of whom have shorter periods of income data, Ireland remains in the group of countries with average annual median income growth of 2% or more (Estonia, Ireland, Norway, Czech Republic, and Luxembourg). Below this, Belgium, Slovak Republic, Spain, Sweden and the UK averaged growth of approximately 1.5%. Finally, Germany, Italy, Japan, Hungary, Portugal, and Greece and the USA had annual median income growth under 0.5%, or negative growth.[2]

The share of total income going to the top 1% has generally gone up over this period, but by a great deal more in some countries than in others. One grouping of note is English-speaking countries – top income shares rose particularly rapidly in Australia, Canada, the UK and the USA. These countries also saw overall inequality rise markedly. Here, Ireland is the exception over the period since the 1980s: an English-speaking country with high income growth, where the share going to the top 1% increased but disposable income inequality declined (see next section).[3]

Examining the distribution more closely, the growth in real equivalised disposable income at the household level has been stronger at the bottom of the income distribution than at the middle or the

[1] Thewissen et al (2018), Rising Income Inequality and Living Standards in OECD Countries: How Does the Middle Fare?; Journal of Income Distribution

[2] Growth rates in compound annual growth rates and cover varying periods of time (including expansion/contraction). For more, see Thewissen et al (2018), Rising Income Inequality and Living Standards in OECD Countries: How Does the Middle Fare?; Journal of Income Distribution

[3] Thewissen et al (2018) notes the top 1% share data are only available for some OECD countries, refer to the share of the top in taxable (before income tax and social insurance contributions) rather than disposable income and to the tax unit rather than the household – more generally, estimates of top incomes are problematic for a variety of reasons and poorly captured in survey data; notwithstanding these caveats, the top 1% share in Ireland is estimated to have increased between 1987 and 2007 (6.1% to 11.6%)

top. In other words, over the past three decades those with the lowest incomes saw the largest proportional increases. [4]

3.2 Inequality

Improving data quality on incomes mean more countries can report statistics like the Gini coefficient – this means comparisons across decades include a changing cast of countries. Overall, before assessing Ireland's performance relative to other countries, the trend we can discern is of inequality increasing since the 1970s, with some flattening occurring during the international financial crisis. This trend of long-term increases in inequality is visible across measures other than the Gini coefficient.[5] Overall, internationally, the change in the Gini coefficient tends to be inversely associated with median income growth, meaning income growth has been associated with greater inequality.[6]

As a broad categorisation, English speaking countries led by the US and UK are the most unequal, with the Nordic countries the least unequal. From the mid-1980s, the Gini coefficient rose substantially in Sweden, the Slovak Republic, Poland, Israel, New Zealand, and Finland. In Ireland, at the same time as median incomes were increasing, the Gini coefficient decreased.

By ranking 23 of the richest EU or OECD countries (those with GDP per capita over $29,000, using purchasing power parity conversion, in 2012), we can get a sense of where Ireland sits on measures of market and disposable income inequality.

In 2004, Ireland was sixth in disposable income inequality, having started at second in the rankings on market income inequality. By 2010, Ireland (.298) is in the middle of these countries when ranked by disposable income inequality, while Ireland's market income inequality for all ages (.579 as measured by the Gini coefficient) is highest of the 23 countries, ahead of the UK (.523). At the lower end of the rankings on inequality of market income distribution, Norway (.408), Iceland (.399) and Netherlands (.421) are towards the bottom while Belgium (.472) is middle-ranked on the distribution of market income but among the most equal on disposable income.[7] The latest data available are for 2018, where Ireland is 15th of 23 countries when ranked by disposable income inequality, and second in market income inequality (see Table 1)

[4] See Roantree et al (2021), Poverty, income inequality and living standards in Ireland.
[5] P90:P10 ratio and S80:S20 using household survey data and top 1% shares using administrative taxation data
[6] Morelli et al (2014) Post-1970 Trends in Within-Country Inequality and Poverty: Rich and Middle Income Countries; Handbook of Income Distribution, Volume 2.
[7] ibid

Table 1 Gini coefficient for market and disposable income distribution, selected years 2004-2018

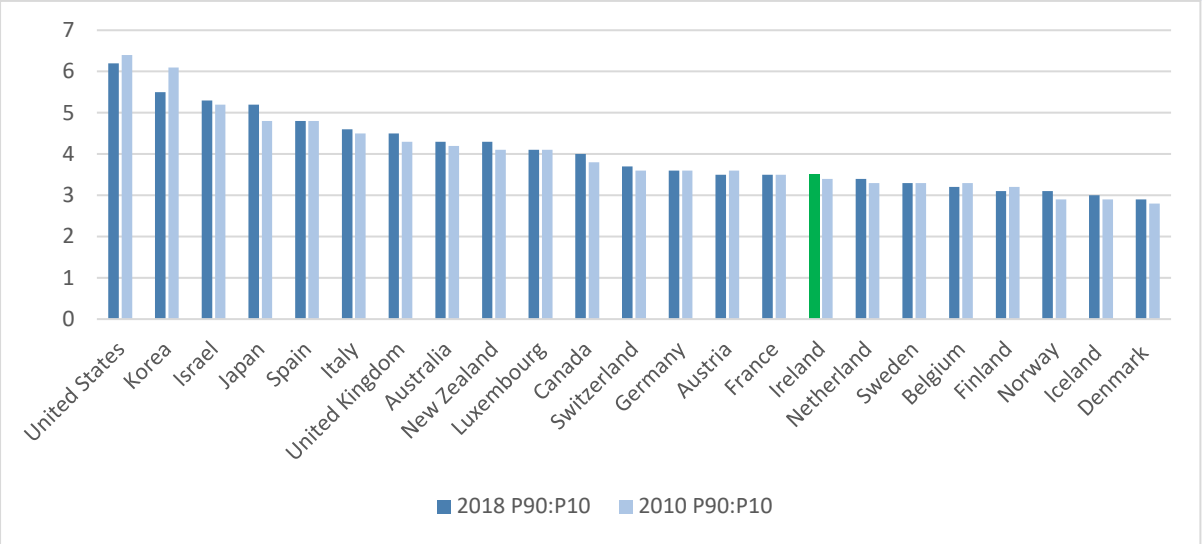
Country	2008 market	2008 disposable	2010, market	2010 disposable	2018 market	2018 disposable
Australia	0.468	0.336	0.469	0.334	0.454	0.325
Austria	0.489	0.28	0.496	0.28	0.494	0.28
Belgium	0.472	0.262	0.483	0.264	0.49	0.258
Canada	0.438	0.321	0.447	0.319	0.427	0.303
Denmark	0.405	0.242	0.429	0.252	0.446	0.264
Finland	0.469	0.266	0.485	0.265	0.509	0.269
France	0.483	0.293	0.505	0.303	0.529	0.301
Germany	0.494	0.287	0.492	0.286	0.494	0.289
Iceland	0.387	0.304	0.399	0.245	0.369	0.25
Ireland	0.538	0.295	0.579	0.298	0.52	0.292
Israel	0.498	0.371	0.501	0.376	0.444	0.348
Italy	0.491	0.317	0.507	0.321	0.511	0.33
Japan	0.344	0.329	0.488	0.336	0.501	0.334
Korea	0.486	0.314	0.341	0.31	0.402	0.345
Luxembourg	0.417	0.289	0.469	0.27	0.49	0.318
Netherlands	0.455	0.286	0.421	0.283	0.445	0.285
New Zealand	0.455	0.33	0.454	0.324	0.462	0.262
Norway	0.41	0.25	0.408	0.249	0.429	0.33
Spain	0.462	0.313	0.505	0.339	0.506	0.275
Sweden	0.426	0.259	0.441	0.269	0.428	0.299
Switzerland	0.373	0.312	0.374	0.298	0.386	0.366
United Kingdom	0.508	0.342	0.523	0.341	0.513	0.39
United States	0.486	0.378	0.499	0.38	0.505	0.325

Source: OECD Income Distribution Database (Total Population; Measure Gini coefficient; 2012 income definition); ranked by 2018 market Gini

Note: For 2010 Gini, Austria, Spain and Switzerland use 2012 income definition, values for Japan, New Zealand are 2009 values; for 2018, Denmark, Iceland, Switzerland and United States are 2017 values Netherlands 2016, New Zealand 2014; 2008 Spain use 2012 income definition; Japan 2006 values

Figure 1 shows an alternative measure of income inequality, the ratio between the 90th percentile and the 10th percentile, for the same group of countries in 2010 and 2018. In this measure, a higher value means greater inequality. The same pattern is evident, with Ireland slightly below the middle of this group of countries in the measure of disposable income inequality – meaning disposable income is relatively equally distributed (10 of the 23 countries were more unequal in 2010, 16 were more unequal in 2018).

Figure 1: P90:P10 ratios for 23 OECD/EU countries, 2010 and 2018



Source: OECD, Income Distribution Database
Notes: 2018 data: 2017 values for New Zealand and Switzerland; 2016 for Denmark, Iceland and Netherlands. 2010 data: 2009 values for Japan; Austria, Spain and Switzerland use the new 2012 income definition

4. Reasons behind market income inequality

4.1 International comparison

Table 2 shows market income inequality, as measured by the Gini coefficient, for Ireland and the OECD average, for the working age population (aged 18–65), for selected years between 2004 and 2018. Ireland's market income inequality is consistently higher than the OECD average over the period; while disposable income inequality is below the OECD average.[8]

Table 2 Income Inequality, market and disposable, by Gini coefficient - Ireland and OECD, selected years 2004-2018

	Market Income Inequality		Disposable Income Inequality	
Year	**Ireland**	**OECD**	**Ireland**	**OECD**
2004	0.45	0.42	0.31	0.32
2008	0.49	0.41	0.29	0.30
2012	0.54	0.43	0.31	0.32
2016	0.49	0.42	0.31	0.32
2018	0.47	0.42	0.29	0.32

Source: OECD Income Distribution Database (Working Age Population 18 – 65; Measure Gini coefficient, 2012 income definition)

[8] Table 12 and Table 13 in the appendix show the working age population and total population values for the Gini coefficient for the market income and disposable income for Ireland and the OECD average. Values for the total population show a slightly higher level of market income inequality compared to the working age population.

There are a number of possible reasons why this might be the case. Market income consists of primary market income – wages and salaries – and secondary market income, such as rents and dividends. If the distribution of earnings among those who work is high, then, all other things being equal, the distribution of market incomes will be high. If the level of unemployment or inactivity is high, such that some people have little or no market income, then this will affect the distribution also. By the same token, the distribution of unearned income, such as rents, might also be a factor. The distribution of secondary market incomes tends to be more unequal in most countries, because the distribution of wealth is generally unequal.

Earnings distributions are generally thought of in terms of individuals, where the unit of measurement of concern here is households. It is possible, and has been seen in other countries, that household composition can play a role in driving the level of inequality in market incomes. In the following sections, we look at possible explanations for the high level of market income inequality in Ireland.

4.2 Earnings Dispersion

Earnings Dispersion in Ireland

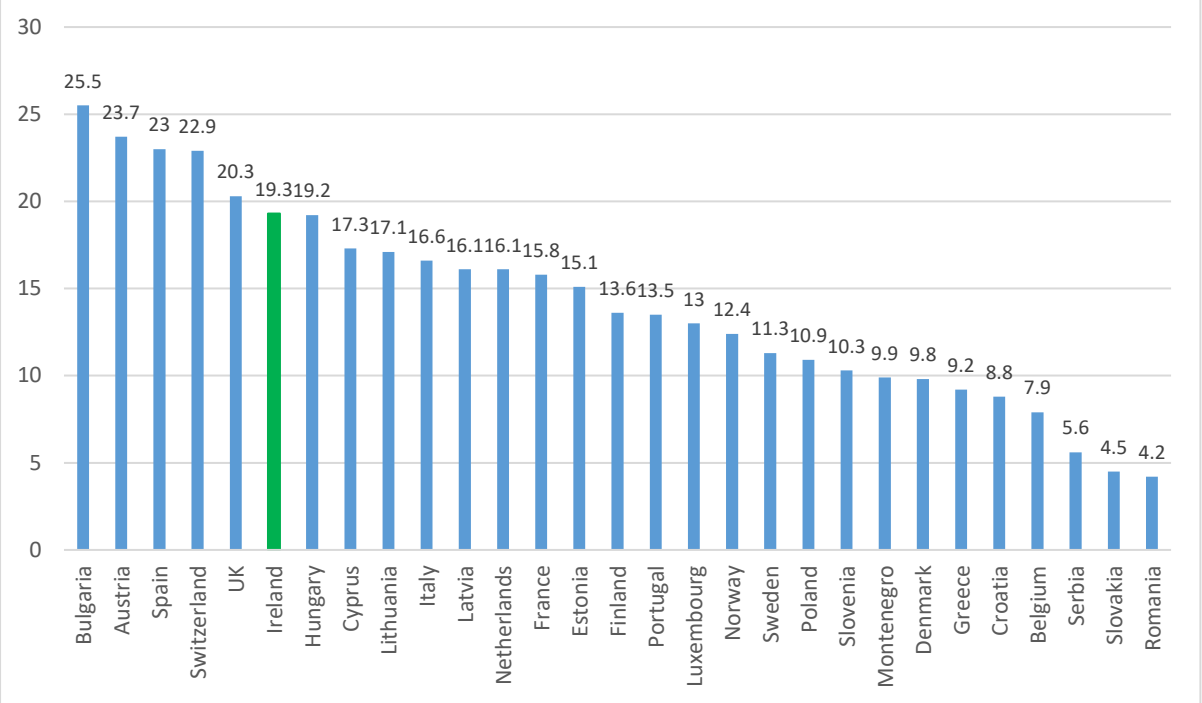
As the primary source of income for the majority of people, the distribution of earnings has implications for market income inequality. Earnings reflect – at least to some extent – variation in productivity levels (which, in turn, reflects skills).

The distribution of earnings can be represented in deciles, with those earning the top 10 per cent of incomes represented in the 9th decile and those earning the lowest 10 per cent of incomes represented in the 1st decile. Those earning the median incomes are represented in the 5th decile. The ratios between different deciles can be used to examine how equally earnings are distributed between the top, bottom and middle. [9]

Ireland had the sixth highest 90th percentile: 10th percentile ratio in the first quarter of 2020, as shown in Figure 2 below.

[9] For example, a 90:10 ratio of 3 can be interpreted as workers at the 90th percentile earning a wage that is 3 times that of workers at the 10th percentile.

Figure 2: Ratio of 90th percentile of the wage distribution to 10th percentile, selected European countries, (Q1 2020)



Source: International Labour Organization Global Wage Report 2020 – 2021

Table 3 (below) compares the Irish earnings dispersion with the OECD average at selected years between 2006 and 2018. During that time the OECD ratios between the 9th and 1st deciles, 9th and 5th deciles, and 5th and 1st deciles have all decreased over time. However; the Irish ratios between the 9th and 1st and 9th and 5th deciles have instead increased over time, with the 5th to 1st ratio decreasing.

This trend suggests that in the Irish case the ratio between the median and those lower in the distribution has remained stable, but there has been an increase in the ratio between those at the higher end of the distribution and those below (both the middle and the bottom deciles). Both measures that capture the earnings of the 90th decile have increased but this appears not to be part of some global trend – the equivalent metrics for the EU and OECD show a narrowing between high earners and those at the middle or at the bottom of the distribution.

Table 3 Earnings Dispersion, Ireland, EU and OECD, selected years

Year	9th to 1st earnings deciles ratio			9th to 5th earnings deciles ratio			5th to 1st earning deciles ratio		
	Ireland	EU27	OECD	Ireland	EU27	OECD	Ireland	EU27	OECD
2006	3.59	3.42	3.54	1.92	1.98	2.10	1.87	1.72	1.72
2010	3.64	3.34	3.56	1.93	1.97	2.10	1.89	1.70	1.71
2014	3.60	3.27	3.49	1.95	1.96	2.10	1.85	1.67	1.70
2018	3.73	3.18	3.32	2.10	1.94	2.02	1.79	1.64	1.64

Source: OECD Employment Database

The extent to which earnings reflects skills and productivity depends on factors such as the degree of labour market competition for certain occupations, regulatory constraints other institutional factors. The question of whether the resultant earnings amount to an adequate income for a given household leads to the range of in-work supports that also form part of the process of redistribution.

4.3 Productivity

There is considerable variation in productivity between different kinds of enterprises in Ireland, with a notable productivity gap between Irish small and medium-sized enterprises (SMEs) and large firms.[10] Across all sectors, foreign-owned firms are both larger and more productive and responsible for a disproportionately large share of output and value added. Irish SMEs account for 98.8 per cent of enterprises – similar in proportion to the EU28 as a whole – but for only 37.3 per cent of value added (latest data, 2018).[11]

Small and medium-sized enterprises in Ireland have particularly low productivity when compared to other OECD countries. Firms with 10 to 249 employees account for less than 20 per cent of overall output in Ireland, the lowest of all OECD countries. As a share of the total number of enterprises, micro enterprises are above the OECD average and above the level in comparable small open economies, with the proportion of medium-sized enterprises smaller than the average.[12] All of this is reflected in median earnings, with those in firms with under 250 employees earning less than the average for all employees, and those working for firms with more than 250 employees earning above average.[13]

[10] Defined as firms with 250 or less employees and annual turnover not exceeding €50 million or an annual Balance Sheet total not exceeding €43 million.
[11] CSO (2020) Business in Ireland 2018, Small and Medium Enterprises
[12] OECD (2019), SME and Entrepreneurship Policy in Ireland, OECD Studies on SMEs and Entrepreneurship, OECD Publishing, Paris, https://doi.org/10.1787/e726f46d-en.
Referencing OECD SBDS Database.
[13] See CSO table NSA99,

A cornerstone of Ireland's industrial policy has been the attraction of foreign direct investment. The importance of foreign investment to the economy is reflected in the fact that almost half of all Irish employment tax receipts are currently generated by foreign multinationals. Ireland's status as a small open economy means it is especially reliant on foreign direct investment but the Commission on Taxation and Welfare may wish to consider whether the industrial policy objective is a contributor to market income inequality, which the taxation and welfare systems subsequently moderate.

The proportion of GVA from agriculture is below the EU average whereas Ireland has a slightly greater share of employment in agriculture. Employment in services increased over the 1980s, when one in two people in employment worked in services sectors, to more than two in three at present. This did not occur in isolation but the EU-15 (as was), which also increased the share of all employment engaged in services sectors, started from a higher base.

Table 4 Proportion of total Gross Value Added, %, accounted for by Agriculture, Forestry and Fishing

Geopolitical Entity	2011	2012	2013	2014	2015	2016	2017	2018	2019
EU27	1.9	1.9	1.9	1.9	1.8	1.8	1.9	1.8	1.8
EU28	1.8	1.7	1.8	1.7	1.6	1.6	1.7	1.6	1.6
EU15	1.7	1.7	1.8	1.8	1.7	1.7	1.8	1.7	1.7
Ireland	1.3	1.1	1.2	1.4	1.0	1.0	1.3	0.9	1.0

Source: Eurostat (Current Prices, Million Euro)

Table 5 Proportion of total employment, %, accounted for by Agriculture, Forestry and Fishing

Geopolitical Entity	2011	2012	2013	2014	2015	2016	2017	2018	2019
EU27	16.3	16.3	16.2	16.0	15.7	15.3	15.0	14.7	14.5
EU28	16.0	16.0	16.0	15.9	15.6	14.3	15.0	14.8	14.7
EU15	15.1	15.2	15.3	15.2	15.9	14.7	14.4	14.2	14.0
Ireland	17.1	17.1	17.3	17.0	16.7	16.5	15.7	15.3	14.7

Source: Eurostat (Total Employment Domestic Concept, Thousands of Persons)

4.4 Skills

As a general rule, higher skills are systematically related to higher wages.[14] Analysis of 23 OECD countries shows this holds true, although the financial return to skills varies considerably. Ireland is second only to the United States in the magnitude of the effect, which is approximately twice as large as in the countries with the lowest returns to skills (Sweden, the Czech Republic, and Norway).

While the high return to skills in Ireland is a plausible explanation for part of the market income inequality that stems from earnings, improving skills is also a means to improve the employment prospects of unemployed people (and those outside the labour force), moving some people from no market income to some market income and increasing the market income of those at the bottom of the distribution. The OECD Skills Strategy for Ireland notes that a more effective use of skills could be a way of improving productivity and help close the productivity gap between Irish-owned firms and foreign-owned firms.[15]

The OECD highlights the low rate of adoption by firms of "high performance workplace practices" that would support the effective use of skills and the potential, in particular, to enhance numeracy and ICT skills.

4.5 Occupational composition

The longest times series on earnings by occupational grouping in Ireland is limited to the Industry sector. There was a considerable divergence from 1985 to 2015, with the gross earnings of the managerial occupational group pulling away from the gross earnings of clerical and industrial workers. With occupational shares changing over time, occupational changes are one of the labour market dimensions in which changes could spur a shift in the distribution of market income.

From 2007 to 2020, those in professional occupations increased their share of all employment from 17.2 per cent to 21.6 per cent. In the opposite direction, elementary occupations decreased from 14.5 percent to 10.7 per cent and skilled trades decreased from 18.5 per cent to 13.4 per cent.[16] This kind of combination of increasing shares and diverging earnings could lead to diverging trends and, consequently, unequal distribution of market income. If this is one factor contributing to market income inequality, it seems unlikely to be reversed in the short term.

[14] A one-standard-deviation increase in numeracy skills is associated with an 18 per cent wage increase among 35-54 year old full-time workers. See Hanushek et al (2014) Returns to skills around the world: Evidence from PIAAC, European Economic Review.
[15] OECD (2019), OECD Skills Strategy 2019: Ireland
[16] See CSO LFS data (Table QLF29) for employment by occupation categories and CSO data on historical earnings, 1938-2015.

4.6 Household composition

It is also possible that market income inequality in Ireland could be due to household composition to a greater extent than the labour market factors outlined so far. Whether household composition is exacerbating inequality is often examined by measuring the extent to which people with a given education level marry people with the same educational attainment, and whether this is changing over time. Given the correlation between educational attainment and earnings, a change in the household formation process leads (in the absence of other labour market shifts) to changes in market income inequality. As an example, if people with third level education are increasingly forming households with similarly educated people, the compositional effect means increases in earnings of households comprised of third level graduates outstrips increases for households comprised of people with lower educational levels. This would further exaggerate the change in the labour market from the increased employment rate for prime working age women, which has climbed steadily over 30 years – increasing from an average of 50 per cent in the 1990s to 66 per cent in the 2000s, 68 per cent in the 2010s and reaching 72 per cent in 2020. [17]

Although not particularly recent, an analysis of Census 2006 results published in 2011 looked at the long-term trend and concluded there was no evidence of a move towards those with higher levels of education forming households together with greater prevalence at that time

However, increasing homogeneity between members of a household, in respect of education levels, is not the only mechanism by which the household formation process could affect market income inequality. ESRI research examining how the probability of a working man being part of a multiple earner household has changed between 1987 and 2017 suggests lower earning men are now much less likely to be in a household with another earner. In contrast, high earning men are much more likely, compared to 1987, to be in a household with another earner.[18]

5. Redistribution

The distribution of market income excludes the effect of transfers and taxes, meaning the distribution is strongly influenced by the level of, or the absence of, earnings from employment. The relationship between market income and disposable income is determined by the taxation and welfare systems.

[17] Prime working age is 25-54 years, data from CSO LFS.
[18] Roantree (2020), Understanding Income Inequality in Ireland, Journal of the Statistical and Social Inquiry Society of Ireland; Vol. XLIX

For a given level of inequality of disposable income, the greater the dispersion of market income, the greater the redistributive requirement.

The redistribution that transforms market income occurs across a number of taxation and welfare measures – chiefly income tax and income support as well as social insurance and in-work benefits. Other benefits also have an impact and a paper outlining relevant housing, medical and child care benefits will be circulated for information. The true extent of redistribution includes access to public services provided either universally, at particular income thresholds or subject to other eligibility criteria – the focus in this paper is income and therefore on taxes, charges and benefits.

Table 6 outlines the process of moving from gross to disposable household income at median values, as well as providing an example of equivalisation assigning portions of household income to the individuals within the household. The first two columns show the sum of all income in the household; the following three columns show lower income values as the total has been apportioned to all individuals in the household as equivalised income. The final column illustrates income without any transfers – the extent of the benefits paid to households is evidenced by the fact that incomes at the median are increased by social transfers.

Table 6 Median incomes, household and equivalised, € nominal values, 2014-2019

Year	Total gross household income	Total disposable household income	Equivalised total disposable income	Equivalised total disposable income (including pensions)*	Equivalised total disposable income excluding all social transfers
2014	39,523	35,305	18,385	15,068	11,410
2015	42,790	37,391	19,461	16,596	13,136
2016	44,676	38,953	20,331	16,953	14,107
2017	45,631	39,499	20,869	18,182	15,162
2018	49,260	42,865	22,872	20,506	17,811
2019	51,217	43,552	23,979	21,171	18,072

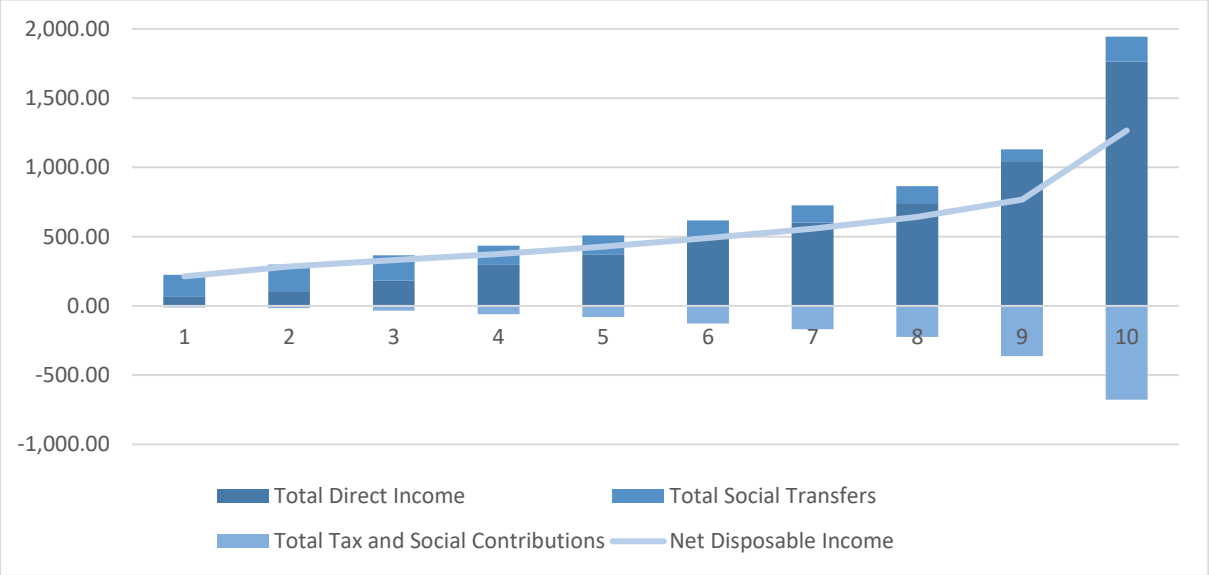
*Source: CSO SILC table SIA23, *including old-age and survivors' benefits but excluding all other social transfers*
Note: CSO and OECD equivalisation methods differ

5.1 Redistribution by household type

Household types also differ by the average extent of redistribution. Eurostat also estimates the impact of transfers by converting nominal payment amounts into purchasing power parity amounts - in other words, taking account of the cost of living across different countries. This approach highlights how

redistribution to single adults with dependent children is higher in Ireland than the EU average, which is consistent with overall expenditure categories outlined in the briefing paper (An Outline of the Irish Social Protection System) presented at the second meeting of the Commission. Figure 3 shows the contribution of three categories – income, tax and social insurance contributions, and social transfers – to equivalised disposable income of each decile.

Figure 3: Composition of net equivalised disposable income, 2019



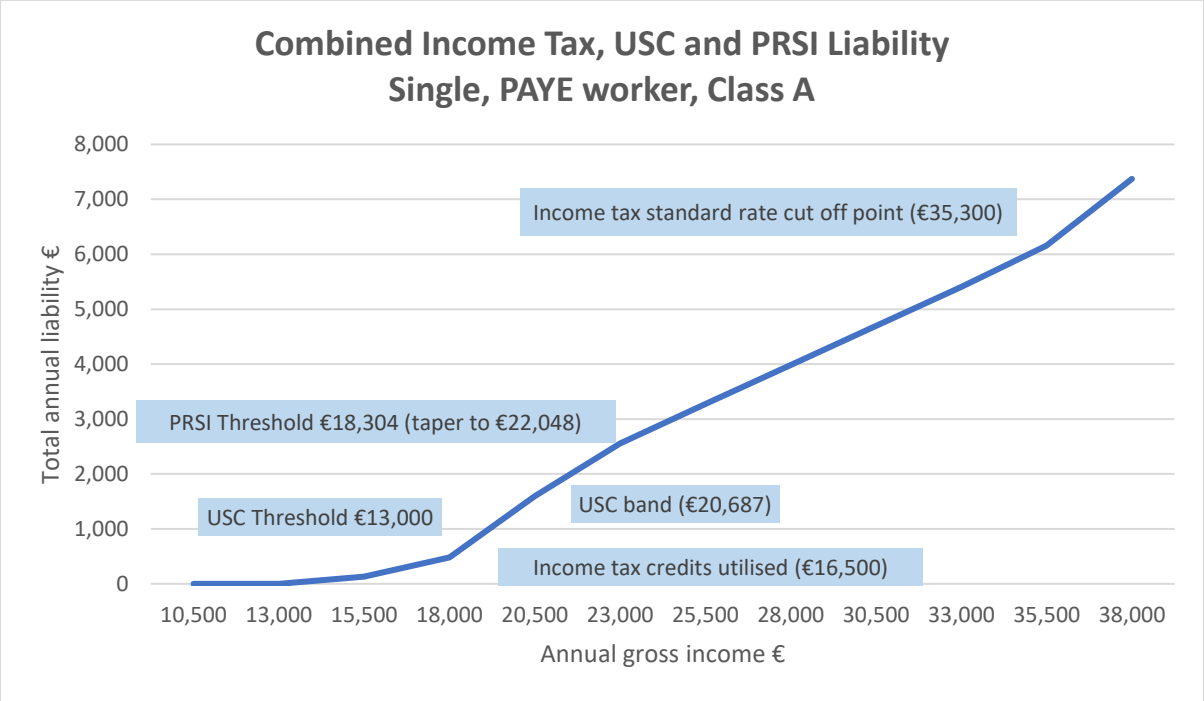
Source: CSO, SILC, Table 2.6

Beyond the redistributive effect of transfers, as market income is moderated to gross income, the redistribution process carried out by taxes and charges is illustrated in Figure 4, plotting annual liability to income tax, USC and PRSI against gross annual wages. The ascent of the curve illustrates that Ireland has one of the most progressive income tax systems in the developed world – the most progressive within the EU members of the OECD. The example here is of a single PAYE worker liable to Class A PRSI.[19]

Over 70% of individuals earn less than €40,000 per year, individuals with incomes of over €70,000 per annum are in the top 10% of income earners and those earning over €100,000 are in the top 3%.

[19] Most employee income is subject to Class A PRSI.

Figure 4: Combined income tax, USC and PRSI liability for a single PAYE worker, Class A PRSI



Source: Secretariat calculations

6. Interaction of tax and welfare

The shift from market income to disposable income occurs primarily through the taxation and welfare systems. For most people, this is what remains of gross earnings, after being subject to income tax, USC and PRSI, and the addition of social welfare benefits. However, the relationship between market income and disposable income differs depending on whether we trace this process at the level of the individual, the tax unit or the household.

The charge of PRSI and USC on earnings is to the individual, with no credits or measures that take account of the circumstances of family members or dependents. Income is taxed on the basis of tax units, with a historical allowance for a joint assessment of married couples, whereby one spouse may be assessed on the joint income of both individuals and tax credits and bands may be (partially) allocated between spouses who are living together. Social welfare payments are calculated to take account of household composition and in-work benefit is calculated on family size (but restricted to families with children). Some income tax credits are designed to account for the presence of dependents (the Single Person Child Carer Credit, the Home Carer Credit, the Incapacitated Child Tax Credit, Widowed Parent Tax Credit and the Dependent Relative Tax Credit).

There are also differences in the time frequency these systems operate: social insurance records frequency of contribution rather than earnings levels per se and counts weeks of insurable

employment; income tax and USC are charged on the amount of taxable income received in the full tax year.

While labour supply decisions are based on household circumstances, these differing views on how disposable income emerges can make estimation of the financial return to employment challenging. The consequences of the differences between income tax, USC and PRSI are set out in detail in a related paper, examining practical examples of the interplay of three separate charges and systems based on separate approaches and with differing core objectives, with the associated questions of horizontal equity.

7. Post tax and welfare income distribution

This section illustrates the distribution of disposable income in Ireland. Sources of data on income are varied: the international comparisons rely chiefly on harmonised versions of SILC data, which is a survey dataset, with population values extrapolated from a sample. Survey data are less reliable on top incomes. Administrative data are an alternative but are less comparable across countries and not always complete. For example, the Revenue Commissioners' administrative data on taxable incomes are particularly valuable as the only reliable view of the upper reaches of the income distribution, precisely where survey data are weakest, but do not capture income received in the form of untaxed benefits.

7.1 Disposable income measured by SILC

Table 7 and Table 8 show the distribution of disposable equivalised income across various characteristics. Single adults, either those aged over 65 years or those with children under 18 years, are notable for their prevalence in the bottom three deciles. Those who are not at work due to illness or disability, unemployed people and people on home duties are more prevalent in the bottom three deciles compared to those at work, students, or retired people.

Table 7 Household characteristics of individuals by net disposable equivalised income deciles, 2019

Decile	1 adult aged 65+	1 adult aged <65	2 adults, at least 1 aged 65+	2 adults, both <65	3 or more adults	1 adult with children < 18	2 adults with 1-3 children < 18	Other households with children < 18
1st	8.5	27.7	4.0	9.1	4.5	27.0	9.1	9.2
2nd	40.1	4.8	12.4	4.8	6.8	9.8	6.7	13.9
3rd	11.3	5.5	15.5	6.9	9.6	14.9	10.0	8.6
4th	5.2	6.3	11.2	5.3	10.6	10.3	9.8	15.0
5th	6.4	5.7	13.2	7.9	8.8	12.9	10.3	11.5
6th	5.4	8.8	10.3	8.5	9.7	8.4	11.7	10.2
7th	6.7	6.2	11.5	7.7	13.0	6.5	9.6	12.5
8th	5.0	8.5	9.0	9.6	10.8	6.8	11.1	11.0
9th	5.4	12.3	5.2	17.5	15.1	1.6	10.6	5.7
10th	6.0	14.3	7.7	22.7	11.3	1.7	11.1	2.3
All deciles	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: CSO SILC, Table SIA12

Table 8 Principle economic status of individuals by net disposable equivalised income deciles, 2019

Decile	At work	Unemployed	Student	Home duties	Retired	Not at work due to illness or disability
1st	3.1	28.0	16.1	18.9	6.5	34.4
2nd	4.3	18.7	11.1	17.7	20.4	14.9
3rd	5.9	14.9	8.4	16.9	15.1	15.8
4th	9.0	10.9	12.8	11.3	8.9	9.9
5th	10.4	4.3	11.7	8.7	10.1	7.8
6th	11.5	8.8	9.8	8.7	6.6	5.6
7th	11.8	5.6	10.4	6.1	10.4	5.1
8th	12.8	4.5	9.8	4.7	9.0	2.9
9th	15.7	2.8	4.8	3.2	5.8	2.0
10th	15.6	1.3	5.0	3.9	7.0	1.5
All deciles	100.0	100.0	100.0	100.0	100.0	100.0

Source: CSO SILC, Table SIA12

7.2 Income measured by taxation data

Using administrative data from the Revenue Commissioners, a collaboration between the OECD and the Revenue Commissioners examined not only the taxable income distribution but also income mobility over 2004 to 2012. An important caveat to this dataset is that, as it measures those who complete tax returns, it excludes those at the bottom of the income distribution where they are in receipt of untaxed benefits only (or undeclared income) and underestimates the income of those who commenced (or completed) working after (or before) a period of unemployment .[20]

That analysis finds the very highest income tax units in the top 1% characterised by a high share of income coming from capital and particularly low income mobility over time. Over the longest time period, when the opportunity for mobility is greatest, one in four of the tax units first, second and third deciles had not moved position eight years later. For the top decile, 55% remained in the top decile eight years later, with one in three from the ninth decile. This suggests mobility is low at the bottom of the taxable income distribution and particularly at the top. Examination of shorter periods, either 2004-2007 or 2007-2012, shows less mobility but the same pattern. Analysing by tax unit type shows more mobility among self-assessed tax units in the middle deciles, compared to PAYE employees, but less mobility at the bottom and top of the distribution.

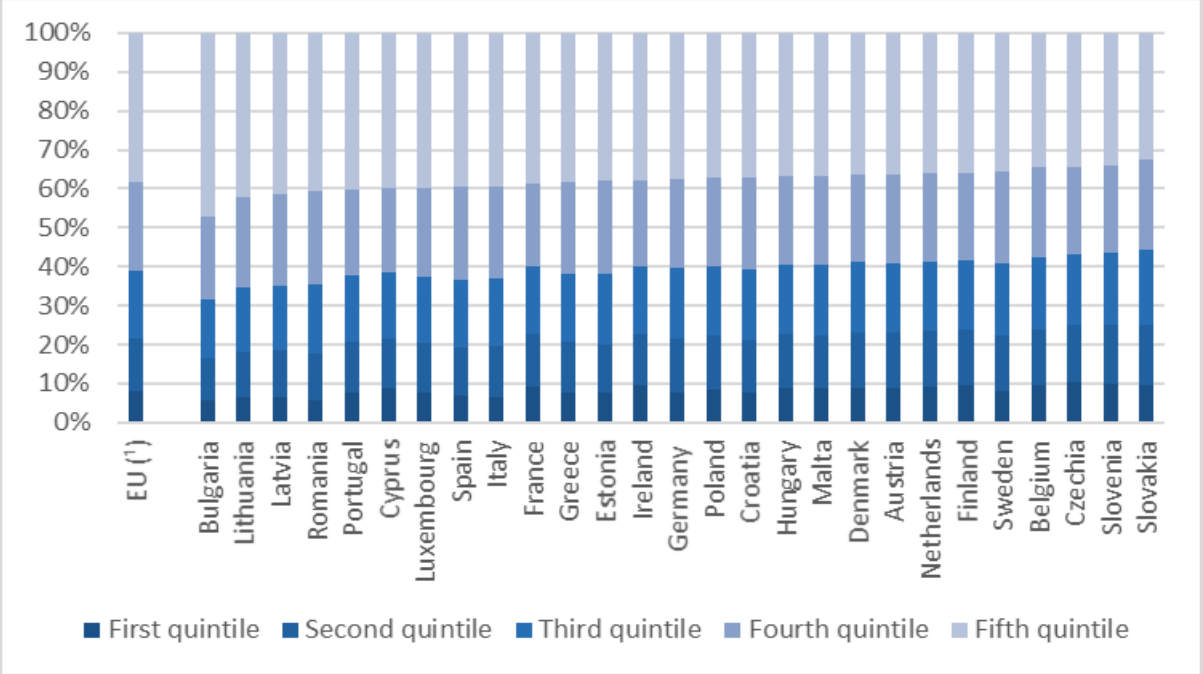
7.3 Disposable income and mobility

EU

In Eurostat's comparison of median equivalised disposable income in 2019, Ireland's €25,528 compares to an EU average of €17,819, a real increase of 1.5% on the preceding year in both cases[21]. Despite the difference in the level of the median income, the quintile shares are similar: in 2019, 38.2 per cent of income in the EU went to the top 20 per cent of the income distribution – in other words, two fifths of income goes to the top fifth. Ireland's top fifth of the distribution holds slightly less income (37.7 per cent). Figure 5 below shows how the distribution of equivalised disposable income varies across the EU by comparing how much of the total each quintile receives.

[20] The definition of income in this case is gross income on which tax is liable rather than disposable income.
[21] Using the same source data, the CSO and Eurostat equivalisation processes use different scales, which give different values for the equivalised disposable income.

Figure 5: Share of equivalised disposable income by income quintile, 2019



Source: Eurostat, table ilc_di01
Note: member states rank order on fifth quintile

The trend over the past five years is of a slight narrowing across the EU, with the top fifth in 2019 receiving slightly less than in 2014 (decreasing from 38.7 per cent to 38.2 per cent) and the income of the bottom fifth increasing from 7 % to 7.9 %,with Ireland the largest absolute increase across EU member states.

On measures of disposable income mobility, Ireland is slightly more mobile than the EU average. Some 19 per cent of the population moved up more than one income decile within three years over the 2014-2019 period, compared to an EU average of 16.3 per cent. Downward movements of the same magnitude were less frequent, at 15.8 per cent (the EU average is 15.3 per cent).

8. Consequences of income inequality

The discussion of the income distribution and inequality leads to the related matter of poverty reduction. Where poverty is measured as a relative point on the income distribution, measures aimed at reducing it will have the effect of reducing inequality (at least on some measures). At its narrowest, the redistributive function of taxation and welfare concerns the policy objective of alleviating the risk of poverty. This objective is pursued, over the medium to long term, by setting the conditions for

employment and income growth and, in the short term, by the provision of income support sufficient to alleviate the immediate risk of poverty.

8.1 Poverty

Trends in the risk of poverty

The relative measure of poverty is a count of those whose equivalised disposable income is 60 per cent of the median equivalised disposable income. Across the population, Table 9 shows the proportion of people at risk of poverty decreasing over the past fifteen years, from 19.4% in 2004 to 12.8% in 2019 (the latest available data). Given the persistent inequality over the same period as measured by market income, the decrease in the proportion of people at risk of poverty represents a substantial redistributive achievement by the taxation and welfare systems. Nevertheless, certain cohorts remain more at risk – these include lone parents, people with lower levels of education and those in households where no one is in employment.

Table 9 At risk of poverty rate, %, 2004-2019

Year	Both sexes	Men	Women
2004	19.4	18	20.8
2005	18.3	18.3	18.3
2006	17	16.6	17.4
2007	16.5	16	17
2008	14.4	14	14.9
2009	14.1	14.1	14.1
2010	14.7	14.3	15.1
2011	16	16.3	15.6
2012	16.9	16.8	17
2013	16.2	15.9	16.5
2014	16.7	16.5	17
2015	16.3	16.4	16.2
2016	16.2	15.9	16.6
2017	15.7	15	16.4
2018	14	13	14.9
2019	12.8	12.6	12.9

Source: CSO SILC, Table SIA12

Characteristics of those at risk of poverty

The latest Survey on Income and Living Conditions (SILC) data show the risk of poverty for people whose highest level of education is primary level is seven times that of people with third-level education. By a similar proportion, those whose self-reported principal economic status is 'unemployed' are at greater risk than those who describe themselves as 'at work'. Those most at risk are people who describe themselves as 'Unable to work due to permanent sickness/disability' and 'Unemployed'.[22]

This association between a lack of employment the risk of poverty is also seen in Table 10 below, which shows the distribution of disposable equivalised income by the number of people working in a household. Where no person is at work in a household, individuals are predominantly in deciles 1, 2 and 3 of the disposable equivalised income distribution. The correspondence between employment and a reduced risk of poverty may seem obvious but, given the influence of policy debates based on the experience of the UK and US, it is worth emphasising that Ireland does not have the same problems as the UK and the US in this case (where the scale of in-work poverty means employment status is not as reliable a predictor of the risk of poverty).

Table 10 Net disposable equivalised income, distribution by number of people working in a household, 2019

Deciles	No person	1 person	2 persons	3 or more persons
1st	29.5	10.1	1.3	0
2nd	21.7	11.3	4.6	1.3
3rd	16.4	13.6	5.4	3.2
4th	6.9	12.7	9.9	9.6
5th	7.2	10.4	11.7	8.4
6th	4.4	11	12.2	10.9
7th	4.5	9.1	11.7	18.3
8th	4.4	8.2	13.3	15.1
9th	2.3	6	14.4	21.7
10th	2.6	7.7	15.5	11.6
All deciles	100	100	100	100

Source: CSO SILC, Table SIA42

[22] Source: CSO, Survey on Income and Living Conditions, tables SIA14 and SIA15.

Over the past decade, lone parent households are those with the highest at risk of poverty rate – substantially greater than any other household type (Table 11). This is also true when using an alternative measure of poverty, the consistent rate of poverty, which has broadly the same pattern as the 'at risk of poverty rate' when disaggregated by highest level of education or principal economic status.[23]

Table 11 At risk of poverty rate, by household type, 2008-2019

Year	1 adult, with children under 18 years	2 adults with 1-2 children under 18	2 adults with 3+ children under 18	Other households with children under 18 years	Households without children
2008	36.4	9.7	16.7	15.1	12.3
2009	35.5	9.1	21.8	14	11.2
2010	24.7	13.8	18.9	19.5	10.9
2011	28.4	13.3	19.5	21.4	12.4
2012	30.2	13	20.2	22.2	14.6
2013	35.7	11.3	16.4	26.4	13.1
2014	34.7	11.9	20.8	24.1	14.2
2015	33.9	13.2	18	20.6	14.5
2016	39.4	10.7	19.5	22.4	14
2017	39.9	8.8	17.3	21.7	14.2
2018	33.5	8.4	16.3	14.5	13.6
2019	29.7	11.5	13.8	12.3	11.2

Source: CSO SILC, Table SIA49

9. Conclusion

This paper considers possible explanations for Ireland's high level of market income inequality. Many are interconnected – the earnings of the managerial occupational group pulling away from the gross earnings of clerical and industrial workers may reflect a changing return to skills, which reflects

[23] The consistent poverty measure counts people defined as being at risk of poverty (an equivalised income value below 60% of the median) as well as experiencing enforced deprivation, which is living in a household deprived of two or more of the eleven basic deprivation items (see CSO SILC for more detail).

changes in gross value added and productivity in sectors, all of which may be magnified by changes in household structures.

Many of the aspects discussed as possible drivers of market income inequality, particularly productivity and skills, are areas where taxation or welfare responses may not be the most appropriate. Nevertheless, they are relevant context for the Commission on Taxation and Welfare given that the redistributive function of the taxation and welfare systems is calibrated to respond to this market income baseline and transform it into the disposable income distribution.

Shaping the income distribution matters not only as a powerful force to shape median household incomes but also as a means of combatting the risk of poverty. The successful reduction in the risk of poverty – across the population – is acknowledged, notwithstanding that challenges persist for certain cohorts. The primacy of employment in determining both placement on the income distribution and the risk of poverty (these aspects are linked for relative measures of poverty) is also highlighted.

Inequality measured across dimensions other than income

Income is directly relevant to the employment-related aspects of the remit of the Commission on Taxation and Welfare. Two points may inform how the Commission interprets the analysis presented here. The first concerns related dimensions of inequality that are not addressed here; the second is the point-in-time perspective of many measures of inequality.

The distribution of wealth is related but separate to the distribution of income. Wealth is, in general, more unequally distributed than income and, in Ireland, those at the upper end of the income distribution also hold most wealth. Three fifths of total net wealth is held by the top two fifths of the income distribution, unchanged between 2013 and 2018, the most recent data.[24] While the capital income derived from wealth (assets) has consequences for income inequality, wealth inequality and its interaction with income is not considered in this paper.

Second, the focus in this paper is on cross-sectional or point-in-time inequality. Inequality over the lifetime is not captured by the datasets typically used to describe point-in-time inequality. People move to different points on the income distribution over the course of a lifetime and inequality over time is likely to be lower than point-in-time inequality.[25] This is of relevance when comparing older

[24] See CSO, Household Finance and Consumption Survey, Table HFC38

[25] See Levell et al (2015), Redistribution from a Lifetime Perspective, IFS Working Paper W15/27; this estimates inequality over a lifetime in the UK to quantify the intrapersonal redistribution where people contribute more (and receive less) at some points while receiving more (and contributing less) at other points. Given the quality and range of data required to calculate the same metric for the same people over a long period of time, and the attrition feature of most sample-based surveys, it arguably requires matched administrative data, which is then less comparable across countries.

and younger cohorts. The level of income inequality at a point in time may be of more or less concern depending on the level of income mobility over time. In view of the Commission's long-term remit, it may also be instructive to consider the transmission of inequality as a means to remediate the future levels of income inequality (which future versions of the taxation and welfare systems will have to mitigate).

10. Questions for the Commission on Taxation and Welfare

Income growth

What is the relationship between income growth and Ireland's redistributive function? In other words, can the taxation and welfare systems operate the same level of redistribution – from market income to disposable income – if income growth slows?

The horizon scanning workshop at the third meeting of the Commission on Taxation and Welfare (25 June 2021) considered factors that may have an impact over the coming ten to 15 years. These include climate change, changing healthcare needs, global complexity, technological change, the ebb and flow of preferences for globalisation, demographic change, and any increase in atypical work, many of which may have an impact on the distribution of market income. Members of the Commission on Taxation and Welfare may wish to consider whether these factors will accentuate market income inequality and, if so, how the taxation and welfare systems should respond.

Redistribution

Do Ireland's taxation and welfare systems strike the right balance between maintaining the incentive to increase earnings and alleviate some of the risks of low income (poverty and deprivation)?

Are income supports equitable in how they treat people of working age? How is this balanced with the requirement to meet differing needs? Is there a need to equalise employment services for working age people or to expand in-work benefits beyond families with children?

The focus on income

Many indicators of inequality focus on income. Is it appropriate to maintain a focus on income inequality? Information on the correlation between income and wealth is published every five years (and presumably with the imperfect measurement of top incomes associated with survey estimates).

Are more timely data, or a greater focus on the intersection of income and wealth, required? How could this inform policy proposals?

Mobility and inequality

Is the level of income mobility satisfactory to ameliorate point-in-time inequality? If not, what aspects of the taxation and welfare systems can facilitate increased mobility? Does intergenerational inequality (however defined) represent a brake on income mobility? Do we have a sufficient understanding of income mobility of individuals over time (within the lifetime)?

Appendix

Table 12 Income Inequality by Gini coefficient, working age, Ireland and OECD, 2004-2018

	Market Income Inequality		Disposable Income Inequality	
Year	Ireland	OECD	Ireland	OECD
2004	0.45	0.42	0.31	0.32
2005	0.46	0.42	0.32	0.32
2006	0.46	0.43	0.31	0.32
2007	0.47	0.42	0.30	0.31
2008	0.49	0.41	0.29	0.30
2009	0.53	0.43	0.32	0.32
2010	0.54	0.43	0.30	0.31
2011	0.53	0.44	0.31	0.33
2012	0.54	0.43	0.31	0.32
2013	0.53	0.44	0.32	0.33
2014	0.51	0.43	0.30	0.32
2015	0.50	0.43	0.30	0.33
2016	0.49	0.42	0.31	0.32
2017	0.48	0.42	0.29	0.32
2018	0.47	0.42	0.29	0.32

Source: OECD Income Distribution Database (Working Age Population 18 – 65; Measure Gini coefficient, 2012 income definition)

Table 13 Income Inequality by Gini coefficient,total populaation, Ireland and OECD, 2004-2018

	Market Income Inequality		Disposable Income Inequality	
Year	Ireland	OECD	Ireland	OECD
2004	0.51	0.46	0.32	0.31
2005	0.51	0.47	0.32	0.32
2006	0.51	0.47	0.32	0.31
2007	0.51	0.46	0.30	0.30
2008	0.54	0.46	0.30	0.30
2009	0.58	0.48	0.31	0.31
2010	0.58	0.48	0.30	0.31
2011	0.57	0.48	0.31	0.32
2012	0.58	0.48	0.31	0.32
2013	0.57	0.48	0.31	0.32
2014	0.55	0.48	0.30	0.32
2015	0.55	0.47	0.30	0.32
2016	0.54	0.47	0.31	0.32
2017	0.54	0.47	0.30	0.32
2018	0.52	0.47	0.29	0.32

Source: OECD Income Distribution Database (Total Population; Measure Gini coefficient; 2012 income definition)