THE OECD APPROACH TO MEASURING INCOME DISTRIBUTION AND POVERTY: STRENGTHS, LIMITS AND STATISTICAL ISSUES

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This paper describes and discusses the methodological and conceptual approach used by the OECD to measuring and comparing household income distribution across member countries. It also summarises the main findings from the latest OECD study "Growing Unequal?". Most of the methodological choices and approaches are neither novel nor path-breaking – to the contrary, most choices appear rather "conservative" and not very controversial. The strength of the OECD reporting system does not lie in its methodological assumptions, but rather in the setting up of an infrastructure that is maintained and updated over time. Such an infrastructure allows to build comparable indicators for the monitoring of distributive and anti-poverty goals and policies. The paper also describes four main limits of the OECD approach and discusses ways how to overcome those: limits linked to the data collection itself; limits embedded in the household surveys; limits in the monetary income concept; and conceptual limitations.

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Introduction

Inequalities and poverty matter in both poor and rich countries. While inequality and poverty manifest themselves in a variety of dimensions, 'income' is one of its most evident manifestations, and the one that better lends itself to periodic comparisons across countries and over time. Most people in OECD countries[1] do care about income inequalities and are capable of articulating judgements on the shape of the income distribution. When asked about whether income inequalities in their country are "too high" or "too low", a majority of respondents in all OECD countries indicate the first option, even if with large differences across countries in the size of this group.[2] Greater income inequality matters not only in itself – as an key element for the evaluation of overall well-being in society – but also instrumentally, i.e. as a means of attaining other valuable goals: politically, high inequality can fuel populist and protectionist sentiments, which may lead to policies inimical to economic growth and migration; economically, high inequality means a waste of human resources implied by a large portion of the population out of work or trapped in low-paid, low-skilled jobs.

In 2008, the OECD released a major report on trends and driving factors of income distribution in OECD countries, "*Growing Unequal?*". This report renewed with a long tradition of OECD work on these issues, and has generated much interest and debate. One of the main finding of the report was that, over the past two decades, income inequality has widened in more than three-quarters of OECD countries. While this conclusion may seem obvious to most commentators and analysts monitoring developments in each individual country, it is not so in a comparative perspective and it prompts a number of related questions. Has this trend affected all industrialised countries with similar intensity? Has it intensified over time? Does it reflect universal causes (e.g. linked to demographic factors, technical progress or globalisation) or do national circumstances make a difference?

In order to benchmark countries-performance in this field the OECD has developed over the years a statistical infrastructure which made use of a number of standardised concepts and classifications. While

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1 The OECD, which traces its roots to the Marshall Plan, was founded in 1961 and currently groups 30 countries committed to democratic government and the market economy (for a list of countries, see Table 3). It provides a forum where governments can compare and exchange policy experiences, identify good practices and promote decisions and recommendations. Its mission is to work for a "stronger, cleaner and fairer" world economy (www.oecd.org/)

2 These differences ranged from two thirds in the United States to nine tenth in a number of European countries. See Förster and Mira d'Ercole (2005), based on surveys undertaken in 1999 under the aegis of the International Social Science Programme. More recent data for individual countries suggest, if anything, that these sentiments have increased further in the 2000s, both in the boom years that preceded the "bubble" and in those that followed its bust.

inequalities and poverty are not only, or even mainly, about income, statistical information on the distribution of household incomes can be compared across all OECD member countries in a more reliable way than that for other monetary (e.g. wealth, consumption) and non-monetary (e.g. health, education) dimensions. This is why a significant part of the OECD report focuses on incomes.

Section 1 of this paper describes the OECD history of research into income distribution and poverty, dating back to the mid-1970s. It also discusses some of the methodological and conceptual choices that have been made to construct more comparable indicators. Section 2 reviews some of the main findings from the latest OECD study "*Growing Unequal?*". Section 3 considers limits of the OECD approach and describes some of the steps that have, or could, be undertaken to overcome those. Section 4 concludes.

Main features of the data collection and methodology

The OECD has a long association with research on the distribution of household income. The first stage in OECD work on this issue is represented by Sawyer (1976) who, in an article for the OECD *Economic Outlook*, reviewed the performance of 12 OECD countries in the late 1960s and early 1970s. An important drawback of this study was that it was based on commonly-used measures of inequality and poverty, measures which differed across countries. Because of this limit, the release of its findings led to many political controversies, and it took almost 20 years before the OECD ventured to analyse these issues again.

A true milestone in OECD work on these issues is represented by the report prepared by Atkinson, Rainwater and Smeeding (1995), who presented results referring to 12 OECD countries in the second half of the 1980s. These results were based on unit-record data from the Luxembourg Income Study (LIS) database, a standardised data environment that allows analysts to apply common definitions to micro records from different national surveys. This study was critical in establishing that a reasonable degree of comparability across countries could be assured by working on the unit-record data of individual countries, and that the patterns highlighted by these comparisons had the potential to enrich policy discussions. However, the discussion of the main results of the report with national authorities also highlighted areas where the "reclassified" LIS data departed from national data. At about the same time, and based on the same micro data from LIS, the OECD also published a review of the methodological options for the measurement of low incomes and poverty for international comparisons between developed market economies (Förster 1994a) and applied these to a subset of 14 OECD countries (Förster 1994b).

The third phase of OECD work began with the regular data collection undertaken by the OECD (at around five-year intervals) through a network of national consultants who provide standard tabulations based on comparable definitions and methodological approaches. This is done via a detailed data questionnaire and terms of references, available on the OECD home page (www.oecd.org/els/social/inequality). The first wave of this data collection was undertaken jointly by the OECD Employment, Labour and Social Affairs Directorate and the OECD Economic Department, and included 13 OECD countries in the mid-1980s and mid-1990s. Results were published in Burniaux et al. (1998) and Oxley et al. (1999). A second wave extended the coverage to 21 countries and included additional indicators (Förster and Pellizari 2000, Förster and Pearson 2002). The third wave of data collection added results for a year around 2000 for 27 OECD countries, with results summarised in Förster and Mira d'Ercole (2005). The latest wave of data collection, which served as one major input for the publication "*Growing Unequal?*" (2008), updated income information to the mid-2000s and included, for the first time, all 30 OECD member countries.

This approach to data collection, based on a network of national contact points, allows covering a broader range of OECD countries, based on information that is both more up-to-date relative to that available through other statistical sources and better suited for assessing changes in income distribution

over time. Its disadvantage is that it does not allow accessing the original micro-data, which constrains the analysis that can be performed.

The OECD data collection strives to achieve both comparability across countries and consistency over time.[3] The latter implies that discontinuities, due to either changes in the statistical source used or to changes in survey design or weighting, are generally addressed by collecting data for the same year both on a "new" and "old" basis, and then chain-linking the various indicators. This procedure for correcting breaks has been implemented, so far, for 10 countries. In other cases – notably 6 of the EU countries that recently shifted to using the new EU-SILC survey and discontinued the national surveys previously used by the OECD – no common data year was available and this constitutes a genuine break in the series.

A series of methodological choices have been made by the OECD in order to ensure the highest possible degree of comparability. The following sections describe some of their main features.

Income rather than consumption

Although economic analysis of poverty and inequality is ultimately interested in consumption possibilities, the OECD data focus on (disposable) household income. Indeed, the practice of comparing data on the distribution of income for some countries with data on the distribution of consumption for others is potentially misleading, for the reasons that are detailed by Atkinson and Brandolini (2001). There are several reasons why the socially-necessary minimum income (Y*) may differ from necessary minimum expenditure (E*). A household may attain E* with an income below Y* by relying on the goods produced by the households, by dissaving or by borrowing. On the other hand, an income above Y* may not be sufficient to attain E* due to certain market failures (access to housing is, for instance, is typically rationed for newcomers, e.g. immigrants). Choosing income over consumption (or spending) as an indicator for material living standard implies focusing on the capacities of individuals and households to participate in the mainstream of their society rather than on their actual consumption behaviour. Income as a yardstick is also used by LIS as well as by the European Union (EU) in the frame of the "at-risk-of-poverty indicators".[4]

The definition of income at the micro level is, however, not trivial. As a matter of fact, many countries use significantly different definitions for national publications on poverty and income inequality , e.g. gross (i.e. before income and payroll taxes) income in the United States; net (i.e. after tax) income before housing costs in Germany; net income after housing costs in the United Kingdom; or income before income taxes but after payment of social contribution paid by workers in France.

The OECD definition of household income follows the definitions put forward by the Canberra Group[5] (Franz et al. 1998, Expert Group 2001) and by LIS (Smeeding et al. 1990). Table 1 sets out the standard accounting framework that is underlying these definitions. In this framework, income from wages

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[3] For instance, the choice of the statistical sources to use for the OECD income distribution questionnaire is made in consultation with national authorities and consultants. A key criterion for that choice is that of temporal consistency between years.

[4] Before changing to income in the mid-1990s, the European Union relied on consumption as a yardstick for poverty measurement (namely 50% of the mean equivalent household expenditure), arguing that "household expenditure is a more reliable indicator for permanent income". (EUROSTAT 1990).

[5] The Canberra Group on Household Income statistics (1996 – 2000) was established to enhance quality of household income statistics by developing relevant standards on conceptual and practical issues. To improve international comparability, the Group developed and recommended a set of international guidelines. These guidelines led, in 2003, to the adoption of a resolution concerning household income and expenditure statistics by the 17th International Conference of Labour Statisticians.

and salaries, self-employment and property sum up to "factor income"; factor income plus occupational and private pensions gives "market income"; market income plus public and private cash transfers, as well as other types of cash income, produces "gross income"; finally, gross income minus personal income and wealth taxes, as well as workers social security contributions gives "cash disposable income". This last concept is used as the main measure of household well-being. The approach set out in Figure 1 is an accounting framework that allows different components of income to be related to each other and suitable aggregates to be derived: however, as will be discussed below, the framework is both linear and static. These limits matter for the interpretation of results.

Table 1. The income accounting framework

Income component
Gross wages and salaries from dependent employment
+
Self-employment income
+
Capital and property income
=
1. **Factor income**
+
Occupational and private pensions
=
2. **Market income**
+
Social security cash benefits (universal, income-related, contributory)
+
Private transfers
+
Other cash income
=
3. **Gross income**
-
Income tax (and employee social security contributions)
=
4. **Cash disposable income**

The time frame over which household income is assessed in the OECD questionnaire is the year, rather than weekly or monthly income. However, in some countries, the assessment period is shorter (often monthly and sometimes weekly income, which are then converted into annual values). Again, differences in the period over which income is assessed may influence comparative assessment: monthly (or weekly) income may be expected to fluctuate more than annual income, which would lead to an over-estimation of income inequality and poverty.[6] Unfortunately, the cross-country differences that exist in this (and other) respects could only by addressed through greater *ex ante* standardisation in survey practices. For a range of reasons (e.g. easiness in remembering), annual income seems the measure that is most suited to international comparisons. A further advantage of adopting the year as the accounting period is that comparisons can readily be made with household income data from the National Accounts.

[6] Some evidence exists. For example, Gibson et al. (2001) analyse 1992 micro data for two urban areas in Hebei and Sichuan in China to demonstrate that various measures of income inequality are higher (by 17% for the percentile ratio, and by 23% for the Gini coefficient) when relying on a measure for monthly, rather than annual, income.

Counting people rather than households

Most European research on income inequality has traditionally looked at the distribution of disposable income among individuals, while keeping the household (and, more rarely, the family) as the unit within which income is pooled and shared among its members. Conversely, most analyses in the United States have focused on the distribution of (pre-tax) income among families (and, more rarely, households). The OECD questionnaire describes the distribution of income among people rather than among households, i.e. taking the individual as the fundamental units of analysis. This implies that the income of the household is attributed to each of its members, irrespectively of who in the household receives that income. Technically, this means (under the current OECD convention) that a couple with two children is counted as four units rather than only once.[7] In practice, taking the individual as unit of analysis also assumes equal sharing of resources within a household. While this assumption may conceal inequalities in the distribution of income within the household (e.g. between men and women, or adults and children) it is obviously preferable than the alternative assumption of no sharing of resources within the household.[8] It has been shown, however, that differences between inequality measures based on those two units of analysis are not very large, especially when assessed in a comparative perspective (EUROSTAT 1990).

Accounting for economies of scale

Taking the individual as reference requires adjusting income to reflect differences in needs for households of different sizes. With equivalence scales, each household type in the population is assigned a value in proportion to its needs. The factors commonly taken into account to assign these values are the size of the household and the age of its members (i.e. whether they are adults or children). A wide range of equivalence scales exist, many of which are reviewed in Atkinson et al. (1995). Some of the most commonly used scales include the following:

- The "OECD equivalence scale". This assigns a value of 1 to the first household member, of 0.7 to each additional adult, and of 0.5 to each child. This scale (also called "Oxford scale") was mentioned by OECD (1982) for "possible use in countries which have not established their own equivalence scale". For this reason, this scale is sometimes labelled "(old) OECD scale".

- The "OECD-modified scale". After having used the "old OECD scale" in the 1980s and the earlier 1990s, the Statistical Office of the European Union (EUROSTAT) adopted in the late 1990s the so-called "OECD-modified equivalence scale". This scale, first proposed by Haagenars et al. (1994), assigns a value of 1 to the household head, of 0.5 to each additional adult member and of 0.3 to each child.[9]

- The Square Root Scale. Recent OECD publications comparing income inequality and poverty across countries use a scale that divides household income by the square root of household size. [10]

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7 Focusing on individuals rather than households has also been based on the argument according to which each individual in society should be treated as "equal citizen" in the distribution (Jarvis and Micklewright 1995). It also has been included in recommendation 9 in Atkinson et al. (2002) with the argument that "individuals are at the heart of our concern".

8 For a discussion of intra-household and intra-family inequality and possible effects on poverty and distribution estimates, see for example Haddad and Kanbur (1990), Jenkins (1991), Sutherland (1997) or Orsini et al. (2005).

9 As a matter of fact, an early OECD study included income comparisons on the basis of a scale very close to the OECD-modified scale (OECD 1976).

10 This means an "equivalence elasticity" of 0.5. OECD's initial methodological paper proposed and applied a similar but somewhat steeper equivalence scale with an elasticity of 0.55, labelled "policy-based scale" as

This scale implies that, for instance, a household of four persons has needs twice as large as one composed of a single person. However, some of the country reviews undertaken by the OECD, especially for Non-Member Economies, apply the equivalence scales that are in use in each country.

Table 2 illustrates how needs are assumed to change, as household size increases, for the three equivalence scales described above and for the two "extreme" cases of no sharing of resources within household (per-capita income) and full sharing (household income). In general, all equivalence scales are, to some extent, conventional, rather than based on the analysis of consumption expenditure for various countries. There is no universally accepted method for determining equivalence scales, and no equivalence scale is recommended by the OECD for general use.

Table 2. Equivalence scales and corresponding elasticities

Household size	Equivalence scale				
	per-capita income	"Oxford" scale ("Old OECD scale")	"OECD-modified" scale	Square root scale	Household income
1 adult	1	1	1	1	1
2 adults	2	1.7	1.5	1.4	1
2 adults, 1 child	3	2.2	1.8	1.7	1
2 adults, 2 children	4	2.7	2.1	2.0	1
2 adults, 3 children	5	3.2	2.4	2.2	1
Elasticity[1]	1	0.73	0.53	0.50	0

1. Using household size as the determinant, equivalence scales can be expressed through an "equivalence elasticity", i.e. the power by which economic needs change with household size. The equivalence elasticity can range from 0 (when unadjusted household disposable income is taken as the income measure) to 1 (when per capita household income is used). The smaller the value for this elasticity, the higher the economies of scale in consumption.

The choice of a particular equivalence scale depends on technical assumptions about economies of scale in consumption as well as on value judgements about the priority assigned to the needs of different individuals such as children or the elderly. These judgements will affect results. For example, the poverty rate of the elderly will be lower (and that of children higher) when using scales that give greater weight to each additional household member. In selecting a particular equivalence scale, it is therefore important to be aware of its potential effect on the level of income inequality and poverty, on the size and composition of the poor population, and on the ranking of countries. Studies have documented that income poverty rates are higher when using the extreme assumptions of per-capita income (e=0) and household income (e=1) than for intermediate elasticities, thus displaying a U-shaped function (Jenkins 1991 for the United Kingdom; Förster 1994a for a larger sample of OECD countries).[11]. Sensitivity analyses also suggest that while both the level and, in particular, the composition of income poverty are affected by the use of different equivalence scales, trends over time and rankings across countries are much less affected (Burniaux et al., 1998). While the choice of the most appropriate equivalence scale has been the subject of much discussion in individual countries (*inter alia* because of its importance for access to welfare benefits) this choice is less critical for the purposes of benchmarking countries performances.

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it was derived as the median value of elasticities inherent in social assistance programmes of 22 OECD countries (Förster 1994a).

11 This relates to the fact that both small households (e.g. single elderly) and large households (e.g. families with many children) tend to have above-average poverty risks.

Focusing on relative rather than absolute poverty

For the purposes of measuring poverty, the OECD questionnaire focuses on relative income indicators, as opposed to absolute income or subjective measures (i.e. the income level that people in each country would regard as "needed" to avoid poverty). Both absolute and subjective income thresholds pose difficult methodological issues for cross-country comparison of poverty (Förster 1994a), which the relative approach tries to overcome by comparing the incomes of each person to that of the resident population as a whole. This approach thus takes into account the different levels of well-being within a society and how it changes over time. Relative measures also allow one to compare income situations across countries, because they are independent of a specific country's definition of basic needs.

An additional reason for focusing at relative poverty is that both psychological and economic analyses have suggested that income differences within a society have real significance for the well-being of each person: people assess their own conditions through comparisons with others (Boarini et al., 2006). This implies that information on relative income matters for the assessment of the living conditions of people, independently of judgements on what is "fair" in society.

Income poverty is measured according to the so-called economic distance approach, namely as a fraction of typical (mean or median) income. The choice for one specific threshold is arbitrary but the presentation of results referring to a range of values (40%, 50% and 60% of median income) allows users to benchmark country performance according to their own view. The main threshold used in the OECD framework is 50% of median equivalised household disposable income.[12] In addition to poverty rates (or headcounts), other measures of relative poverty (such as poverty gaps, i.e. the distance between the average income of the poor and the poverty threshold) are also collected.

That said, OECD reports have also included measures of the absolute income of the poor population. One way to illustrate how "absolute" poverty has changed over time is to use a relative threshold in a base year which is then kept unchanged in real terms in later years (i.e. it is adjusted only for changes in consumer price inflation, as measured by the CPI). In particular, measures of income poverty "anchored" to a specific year are calculated in *Growing Unequal?* based on a threshold set at half of median income in the mid-1990s.[13] In addition, the real values of poverty thresholds, expressed in purchasing power parities for actual consumption, are also presented. These various indicators allow placing the estimates of relative poverty in the context of overall income differentials between countries.

Static rather than dynamic measures

The OECD income distribution questionnaire collects indicators referring to a benchmark year from the mid-1980s (mid-1970s for a few countries) until the mid-2000s, in approximate 5-years periods (Table 3). The data are cross-sectional, i.e. households are not followed over time though some of the underlying surveys allow tracking changes over time in the income and living conditions of the same person. One problem, for analysis of changes over time, is that inequality and poverty indicators for

[12] The (absolute) poverty line used in the United States is closer to 40% of median income, while a threshold of 60% of median income is used as a benchmark for "at-risk-of-poverty" at the EU level. EUROSTAT had previously used 50% of the average consumption as a poverty benchmark. It should be noted that poverty rates based on these latter two benchmarks are very similar. One of the reasons to adopt the 60%-median benchmark therefore was to ensure a certain comparability of published poverty estimates in EU countries over time. Another reason was to avoid the poverty estimates to be sensitive to few very low incomes.

[13] The EU set of social inclusion indicators includes a similar measure, namely the at-risk-of-poverty rate "anchored" in year t-3 and up-rated by inflation over the following three years.

individual countries refer to specific years that may differ in terms of the cyclical position of each country. In theory, changes between these years may not be fully representative of underlying trends. In practice, a comparison with "commonly used" measures of income inequality for several OECD countries suggests that this consideration is of limited practical importance for most countries.[14]

Table 3. Survey sources and income years of OECD income distribution questionnaire

Country	*Source*	*Income year*					
Australia	*Survey of Income and Housing*				1994/95	1999/00	2003/04
Austria	*Micro census*		1983		1993	1999	2004
	EU Survey of Income and Living Conditions						
Belgium	*Tax records*		1983		1995		
	European Community Household Panel				1995	2000	
	EU Survey of Income and Living Conditions						2004
Canada	*Survey of Consumer Finances*	1975	1985		1995		
	Survey of Labour and Income Dynamics				1995	2000	2005
Czech Republic	*Micro census*			1992	1996	2002	
	EU Survey of Income and Living Conditions						2004
Denmark	*Danish Law Model System*		1983		1994	2000	2005
Finland	*Household Budget Survey*	1976	1986		1995	2000	2004
	Income Distribution Survey						
France	*Enqûete Revenus Fiscaux*		1984	1989	1994	2000	2005
	EU Survey of Income and Living Conditions						2004
Germany	*German Socio Economic Panel (old Länder)*		1985	1990	1995		
	German Socio Economic Panel (all Länder)				1995	2000	2004
Greece	*Household Budget Survey*	1974	1986		1994	1999	2004
Hungary	*Hungarian Household Panel/Household Monitor Survey*			1991	1995	2000	2005
Iceland	*EU Survey of Income and Living Conditions*						2005
Ireland	*Living in Ireland Survey*		1987		1994	2000	
	EU Survey of Income and Living Conditions						2004
Italy	ITAXMOD95		1984	1991	1993		
	MASTRICT (microsimulation models based on Bank of Italy *Survey of Household Income and Wealth)*				1995	2000	2004
Japan	*Comprehensive Survey of Living Condition of the People on Health and Welfare*		1985		1995	2000	2003
Korea	*Household Income and Expenditure Survey (*combined with *Farm Household Economy Survey)*						2006
Luxembourg	*Panel Socio-Economique Liewen zu Lëtzebuerg*		1986/87		1996	2001	2004
Mexico	*Survey of Household Income and Expenditure*		1984		1994	2000	2004
Netherlands	*Income Panel Survey*	1977	1985	1990	1995	2000	2004
New Zealand	*Household Economic Survey*		1986	1991	1996	2001	2004
Norway	*Income Distribution Survey*		1986		1995	2000	2004
Poland	*Household Budget Survey*					2000	2004
	EU Survey of Income and Living Conditions						
Portugal	*Household Budget Survey*		1980	1990	1995	2000	
	EU Survey of Income and Living Conditions						2004
Spain	*Continuous Survey of Household Budgets*		1985	1990	1995		
	European Community Household panel				1995	2000	
	EU Survey of Income and Living Conditions						2004
Sweden	*Income Distribution Survey*	1975	1983	1991	1995	2000	2004
Switzerland	*Income and Consumption Survey*					2000-01	2004-05
Turkey	*Household Income and Consumption Survey*		1984		1994		2004
United Kingdom	*Family Expenditure Survey*	1975	1985	1991	1995	2000	2004
	Family Resources Survey						2004
United States	*Annual Social and Economic Supplement to the Current Population Survey*	1974	1984		1995	2000	2005

[14] Annual time-series of "commonly used" measures of income inequality in nine OECD countries — shown in Atkinson (2002) — display relatively minor variations around the trend (with the exception of Italy).

Nothing of the above methodological choices and approaches are new or path-breaking. To the contrary, most choices are rather "conservative" and not very controversial. The value of the OECD reporting system does not lie in its methodological assumptions, but rather in the setting up of an infrastructure that is maintained and updated over time.

Main results from the analysis

This section reviews some of the patterns identified in past waves of the OECD income analyses. Emphasis is here given to those patterns which pertain to the OECD area as a whole, rather than to highlight country differences.

Large differences in the shape of the income distribution across countries

Differences in the overall shape of the distribution of household income across OECD counties are both large and persistent. The Gini coefficient of income inequality is twice as high in Mexico (the OECD country where income distribution is widest) as in Denmark (the country where income distribution is narrowest), and differences remain large when excluding from the analysis countries at both ends of the league table of OECD countries (Figure 2).[15] Significant cross-country differences in inequality are found regardless of the measure used, with the ranking of countries little affected by which one is used.[16] When income distributions are compared betweens pairs of countries, in a large majority of cases the Lorentz curves do not cross each other, which implies that these country-rankings of the level of income inequality do not depend on the portion of the income distribution that is compared. There are of course uncertainties about the *precise* level of inequality in any country, because of small sample sizes, under-reporting of certain types of income, and over-representation of some demographic groups. Different statistical sources for the same country may also sometimes provide a different picture of how household income is distributed. But these uncertainties are not so large as to give serious grounds for doubting the broad sweep of the findings in terms of cross-country differences in inequality.

Large cross-country differences are also evident when looking at income poverty. While Figure 1 shows only one measure of relative income poverty (the poverty headcount, based on a threshold set at 50% of median income, shown as a diamond), cross-country patterns are fairly robust with respect to the choice of different thresholds.[17] Relative poverty rates are always among the lowest, whatever the threshold used, in Sweden, Denmark and the Czech Republic, and always among the highest in the United States, Turkey and Mexico; they are below-average in all Nordic and several Continental European countries, and above-average in Southern European countries as well as Ireland, Poland, Japan and Korea. A composite measure of poverty – constructed by combining information on both the number of poor people in each country and how much their income falls below the poverty line – ranged in the mid-2000s from around 1% in Sweden to around 7% in Mexico.

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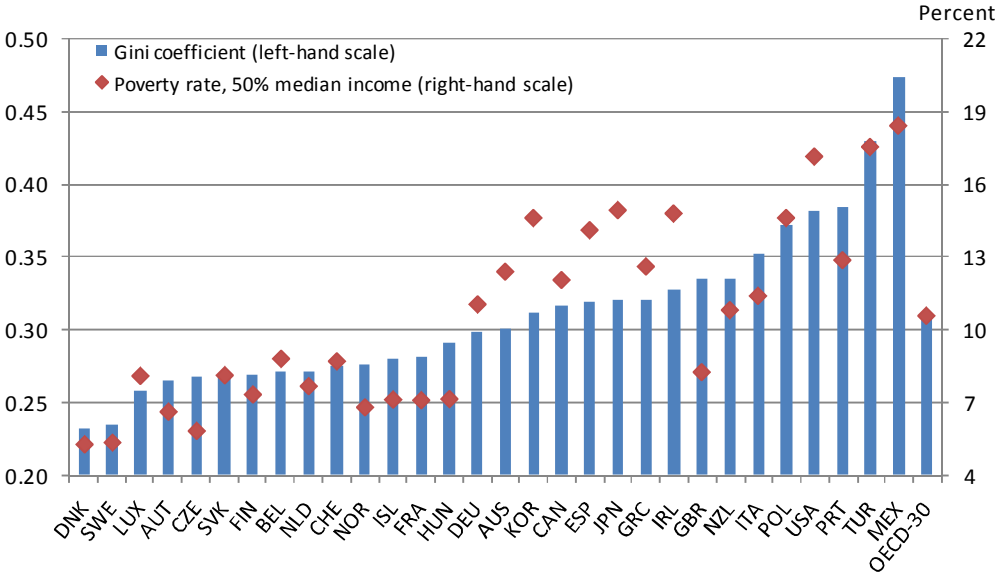
15 The Gini coefficient is a common measure of equality and ranges from 0 in the case of "perfect equality" (each share of the population gets the same share of income) to 100 in the case of "perfect inequality" (all income goes to the share of the population with the highest income).

16 This refers to five alternative inequality indicators: the mean log deviation (MLD); the squared coefficient of variation (SCV); the ratio between the upper limit of the 9th income decile and the upper limit of the 1st decile (P90/P10); the ratio between median income and the upper limit of the 1st decile (P50/P10) and the ratio between the share in total income of the top quintile and that of the bottom quintile (S80/S20, see *Growing Unequal?*, Annex 1.A2).

17 Income poverty rates for additional thresholds – 40% and 60% of median income – are shown in Chapter 5 (Figure 5.1) of *Growing Unequal?*.

Availability of employment opportunities is a key factor for cross-country comparisons on the prevalence of income poverty: countries where the share of people of working age in paid employment is higher also display lower poverty rates, and the same holds when looking at the relation between the level of employment of mothers and child poverty. At the same time, however, work is not the *only* factor shaping the risk of poverty: on average, people living in households with workers account for around 60% of the income poor (based on a 50% income threshold) across OECD countries, and for an higher share in the United States.

Figure 1. Levels of income inequality and income poverty in the mid-2000s



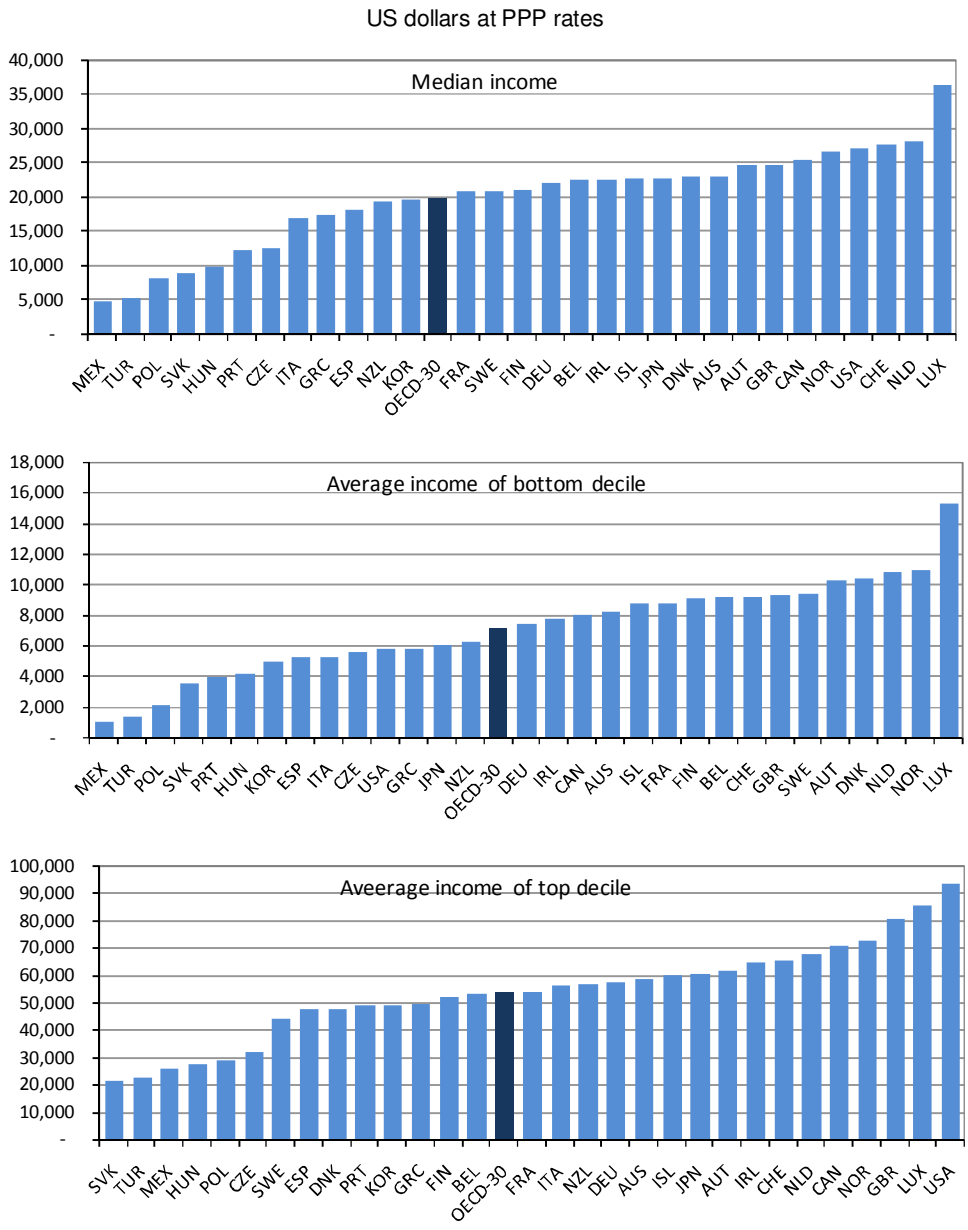
Note: Countries are ranked in increasing order of the Gini coefficient of income inequality. Data refer to the distribution of household disposable income in cash across people, with each person being attributed the income of the household where they live adjusted for household size. Poverty rates are defined as the share of individuals with equivalised disposable household income less than 50% of the median for the entire population.
Source: OECD (2008), *Growing Unequal?,* OECD, Paris.

Data on the absolute income level of individuals and households at different points of the distribution are also important for cross-country comparisons of economic welfare. Across countries, measures of mean equivalised household disposable income are highly correlated with conventional SNA aggregates (such as Net National Income per capita). There are, however, wide differences across countries in terms of:

- the income gap (in USD at PPP rates) between people in the top decile and in the bottom decile of the distribution (this gap ranges from USD 20 000 in the Slovak Republic to more than USD 85 000 in the United States).

- how people at similar points in a country's income distribution compare across countries – with the United States, for example, topping the league by a wide margin in terms of the average income of people in the top decile, while coming fourth (after Luxembourg, the Netherlands and Switzerland) when looking at median income, and 12th when looking at the average income of the bottom decile (Figure 2).

Figure 2. Income levels for people at different points in the distribution, mid-2000s



Note: The data refer to equivalised household disposable income of people at different points of the distribution. Income data for each country are adjusted for inflation (when they refer to a year different from 2005) and then converted into US dollars based on PPP rates for actual consumption in 2005. This exchange rate expresses the costs of a standard basket of consumer goods and services purchased on the market or provided for free (or at subsidised rates) by the public sector in different countries.
Source: OECD (2008), *Growing Unequal?*, OECD, Paris.

A widening in income inequality in a large majority of OECD countries

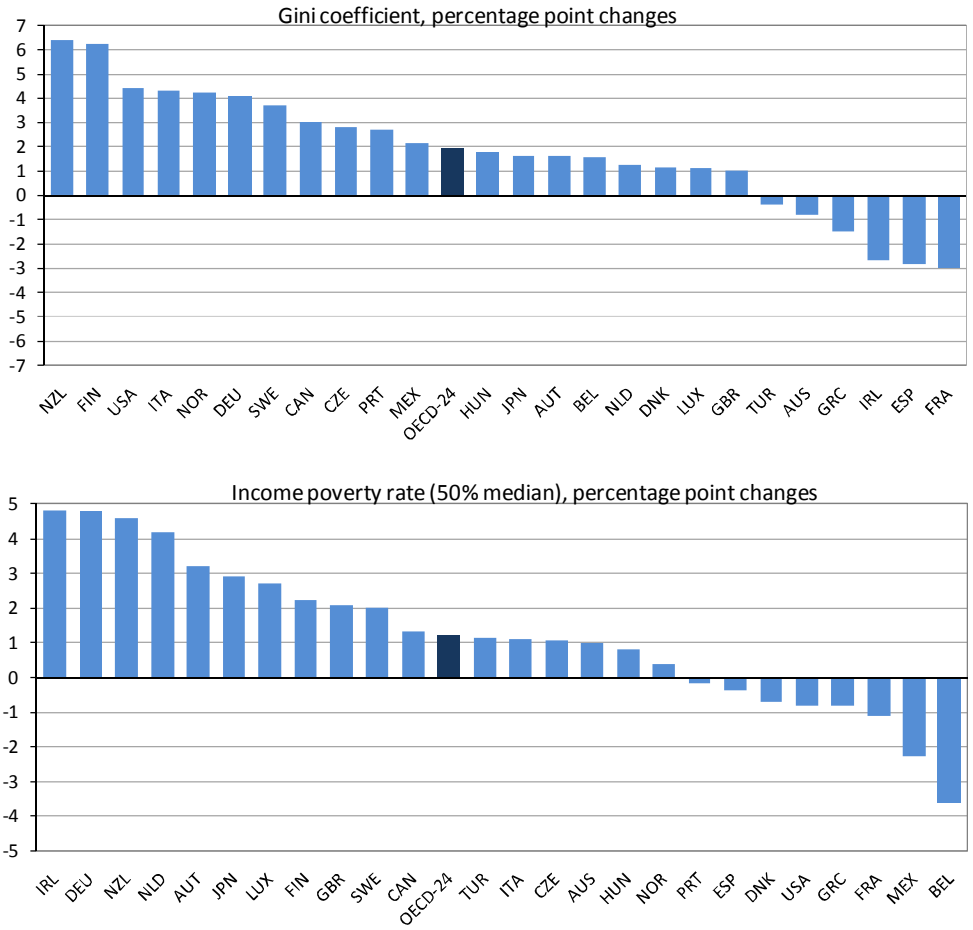
The past 20 years have experienced a widening of the income distribution in most OECD countries. On average, the Gini coefficient of income inequality increased by around 2 percentage points, *i.e.* 7% (Figure 3). This rise is equivalent to each person below the median hypothetically transferring around 7% of their own income to all those above the median, under the assumption that total household income is unchanged. [18] Other summary measures such as the standard coefficient of variation point to larger increases – by almost 30% since the mid-1980s – but these are more affected by developments at the extremes of the distribution. In all cases, these increases – while significant – fall short of the sharp rises sometimes advanced in public discussion on the subject.

Further, this increase has not affected all countries – as witnessed by declines in France, as well as in Ireland and Spain (where consistent time-series are however limited up to the year 2000), with broad stability in many other countries. The increase in income inequality was also larger in the decade from the mid-1980s to the mid-1990s than in the most recent decade, with some countries (*e.g.* Mexico, Turkey) recording large swings in performance. Since 2000, income inequality has increased significantly in Canada, Germany, Norway and the United States while declining in the United Kingdom, Mexico, Greece and Australia. These differences in how income inequalities have changed over time are important, as they suggest that the importance of common drivers (whatever their exact nature, e.g. globalisation) has not been large enough to offset the influence of country-specific factors.

The poverty headcount, based on a threshold set at half of median income, has also risen in most countries in the past 20 years, edging up by 0.6 percentage points in each of the two decades. While the increase in income poverty had been more moderate than for income inequality in the decade from the mid-1980s to the mid-1990s, the reverse applies to the most recent decade. Countries generally display consistent changes in terms of both income inequality and poverty over the entire period, although there are exceptions – *e.g.* Ireland combines a significant increase in relative income poverty (up to the year 2000) and a small decline in income inequality.

[18] When total household income rises, inequality can increase, despite real income growth for everyone, as long as the dispersion in growth rates across the distribution rises over time..

Figure 3. Changes in income inequality and income poverty over the past 20 years



Note: Poverty rates are defined as the share of individuals with equivalised disposable household income below 50% of the median for the entire population. Data refer to percentage point changes between the mid-1980s and mid 2000s, except for Czech Republic, Hungary and Portugal (from around 1990 to mid-2000s) and for Austria, Belgium, Czech Republic, Ireland, Portugal and Spain (from mid-1980s to around 2000).

Source: OECD (2008), *Growing Unequal?*, OECD, Paris.

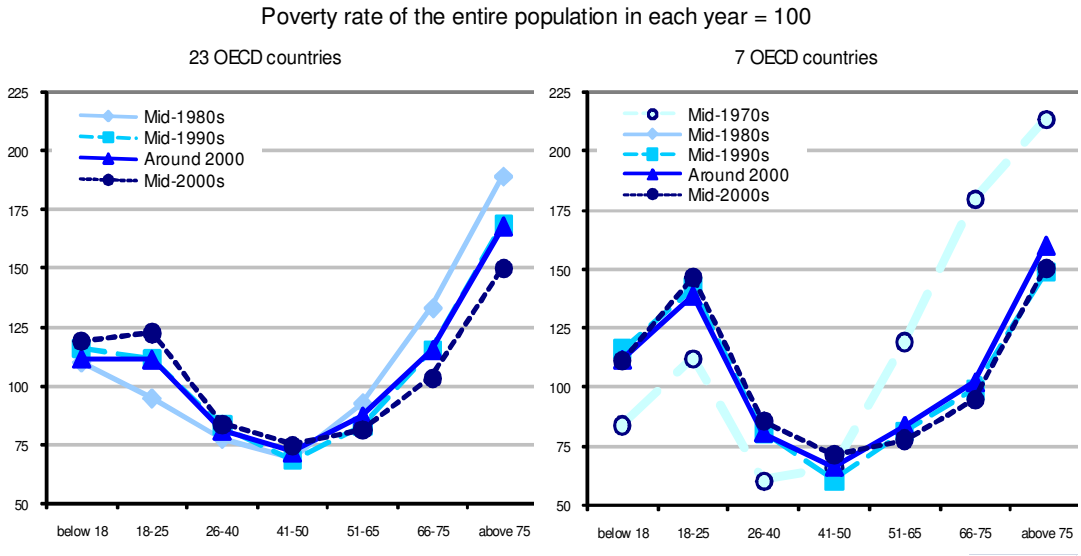
Shift in the relative income and poverty risks of various population groups

Aggregate trends in income distribution have affected people at various points of the distribution in different ways. In Ireland, Mexico and Turkey, the decline of income inequality experienced over the past decade has mainly reflected falls in the income share accruing to people in the top quintile of the distribution and gains for people in the middle three. Conversely, in most of the countries where income inequality increased over the decade, this mainly reflected gains at the top of the distribution.

One consequence of these large gains at the top of the distribution has been that middle-class families have often lost ground relative to the economy-wide average – the so-called phenomenon of the "hollowing out of the middle-class". This is especially evident in New Zealand and the United Kingdom (in the decade from the mid-1980s to the mid-1990s), as well as Canada, Finland and the United States (where the median to mean ratio fell by around 10% over the entire period). Conversely, the relative income of middle-class families has been stable in Denmark, France and Sweden, and has improved in the Netherlands and Greece throughout the period and in more countries since the mid-1990s.

Changes in economic conditions have also shifted poverty risks among various demographic groups. The most significant of these shifts has been away from the elderly and towards young adults and children (Figure 4). While the very old (people aged 75 and over) continue to be exposed to a greater risk of (relative-income) poverty than other age groups , this risk has fallen from a level almost twice as high as that of the population average in the mid-1980s to 50% higher by the mid-2000s. For people aged 66 to 75, this risk is now lower than for children and young adults. Conversely, children and young adults experienced poverty rates that are today around 25% higher than the population average, while they were close to and below that average, respectively, 20 years ago. Changes have been smaller when looking at poverty risks across household types, with lone parents as the group exposed to the highest risk – three times higher than average – a disadvantage that increased further over the past decade.

Figure 4. Risk of relative poverty by age of individuals, mid-1970s to mid-2000s, OECD average



Note: Relative poverty risk is the age-specific poverty rate divided by the poverty rate for the entire population times 100. The poverty threshold is set at 50% of median income of the entire population. OECD-23 is the average poverty rates across all OECD countries except Australia, Belgium, Iceland, Korea, Poland, the Slovak Republic and Switzerland. OECD-7 is the average for Canada, Finland, Greece, the Netherlands, Sweden, the United Kingdom and the United States. Data for mid-1980s refer to around 1990 for the Czech Republic, Hungary and Portugal; those for mid-2000s refer to 2000 for Austria, Belgium, the Czech Republic, Ireland, Portugal and Spain (where 2005 data, based on EU-SILC, are not comparable with those for earlier years).

Source: OECD (2008), *Growing Unequal?*, OECD, Paris.

Drivers of changes in income distribution

Cross-country differences in income inequality and poverty reflect the interplay of many factors. Three, in particular, have figured prominently in discussions on the subject. These are changes in demography and living arrangements; labour-market trends; and government tax and transfer policies. While it is not always easy to distinguish among these factors, the most recent OECD report on this subject highlights several patterns.

First, *demographic factors* have played an important role in shaping households' living conditions. The most direct way in which this has occurred is by reducing average household size, implying that economies of scale in consumption are lost and that a higher money income is needed to assure the same level of household well-being. The decline in household size (on average from about 2.8 to about 2.6) affected all OECD countries but was particularly large in Ireland, Italy, Japan, Mexico, Spain and the United Kingdom.

Changes in demography and changes in living arrangements also affect income inequalities. The most important channel is by increasing the share in the total population of groups with below-average income (e.g. the elderly or lone parents) or with higher within-group inequality. Comparing the actual change in income distribution to what would have occurred had the population structure (by both age of individuals and household type) remained "frozen" at the level prevailing some ten years ago suggests that these structural factors have increased income inequality in a majority of countries, and significantly so in Australia, Canada, France, Germany, the Netherlands and the United Kingdom. More important than population ageing per se have been the changes in living arrangements, which have implied that more people are living alone and in lone-parent households. These changes, coupled with a trend towards higher "assertive mating" (the tendency for men and women with similar education and earnings potential to form a family), had a sizeable influence on increasing household income inequality in some countries (e.g., for the United States, Karoly and Burtless,1995; and Gottschalk and Danziger, 2005).[19]

Second, *labour markets* are crucially important for income distribution. Personal earnings disparities among full-time workers have indeed increased rapidly since 1990, with most of the widening reflecting developments in the upper part of the distribution. This widening has also been sharper for men and women, considered separately, than for all workers, irrespective of their gender – as the decline of the wage gap between men and women working full time has narrowed the "distance" between the earnings distributions of men and women.

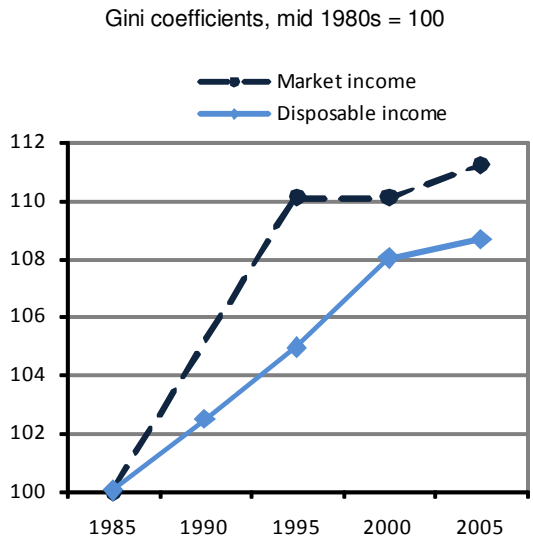
Disparities in *personal earnings* among workers, however, do not necessarily translate into a wider distribution of *household earnings* among all people, whether working or not. This is because higher employment (especially of second earners) may spread earnings among a larger number of households. Despite this potential offset, the polarisation of employment opportunities on income inequalities has played a significant role. In particular, the employment gains experienced throughout the OECD area since the second half of the 1990s have not led to significant declines in the share of people living in joblessness households. The persistence of high household joblessness despite higher employment has partly reflected the concentration of employment gains among people with high and intermediate education, and the decline of employment rates among less educated people. As a result of these contrasting developments, changes in the concentration of household earnings have been small in most OECD countries in the period from the mid-1990s to mid-2000s

At the same time, capital income and, to a lesser extent, self-employment income have become more concentrated in a much larger number of OECD countries. This suggests that non-wage income sources – whose measurement is subject to larger uncertainties than in the case of earnings – account for a significant part of the observed widening in the distribution of household disposable income.

Taking all market income sources together (from earnings, self-employment and capital income, as well as private and occupational pensions), their distribution has became more unequal than that of disposable incomes, especially between the mid-1980s and the mid-1990s and again since around 2000 (Figure 5).

[19] Coversely, there is little evidence of strong links between changes in the relative income of various groups and changes in their population size – suggesting that shifts in the relative income of various groups have been driven more by changes in access to jobs and support from the welfare system than by demographic factors *per se*.

Figure 5. Trends in market and total disposable income inequality, working-age population, OECD average



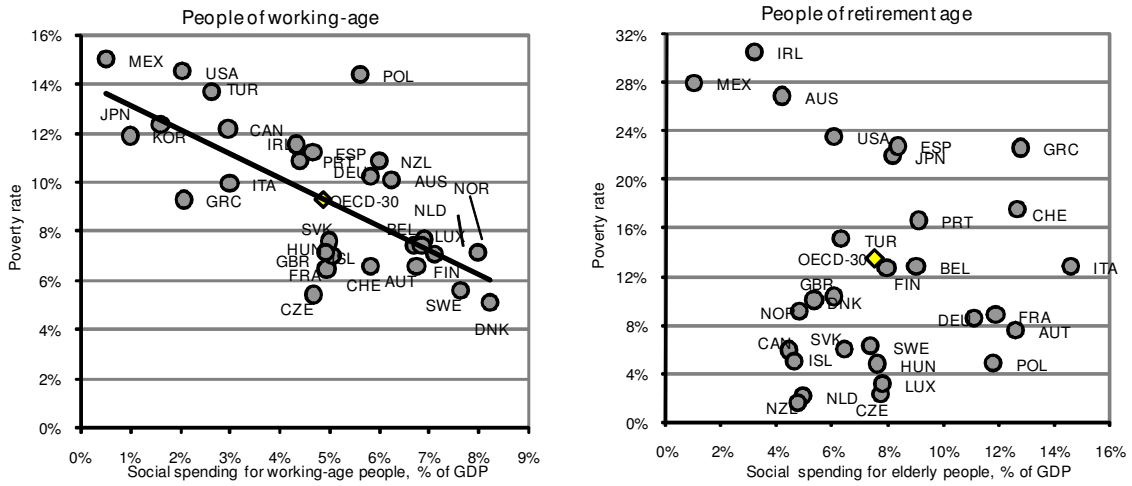
Note: OECD-15 is the average of countries for which information is available over the entire period from the mid-1980s to the mid-2000s (Canada, Denmark, Finland, France, Germany, Greece, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Sweden, the United Kingdom and the United States). Gini coefficients for market and disposable income are based on people ranked based on each of the two income concepts.

Source: Growing Unequal?

Finally, cross-country differences in the shape of the income distribution partly reflect differences in *how governments redistribute income* across individuals through the cash benefits they provide and the household taxes they collect. The effect of government redistribution in lowering income inequality is largest in the Nordic countries and lowest in Korea and the United States. The country-ranking is similar when looking at the effects of taxes and transfers in reducing income poverty. It appears that countries that redistribute more towards people with lower income achieve a more narrow distribution of household income and lower poverty rates. Also, most of this redistribution towards people at the bottom of the income scale is generally achieved through public cash benefits – with the main exception of the Unites States, where a large part of the support provided to low-income families is administered through the income tax system.

These cross-country differences in the scale of redistribution among people with different incomes partly reflect differences in the size and structure of social spending – with spending towards people of working age achieving a larger reduction in poverty than social spending towards the elderly (Figure 6). Differences in spending levels and structure are, however, only part of the story. OECD countries redistribute in a variety of ways: some through universal benefits, others with more targeted programmes; some mainly rely on transfers, others mainly granting tax rebates to low-income families. Also, redistribution across individuals with different income always coexists with redistribution across the life-course of the same person, with some evidence that countries that redistribute more across the lifecycle spend more, in the aggregate, than those that focus more on redistribution between rich and poor.

Figure 6. Poverty rates and social spending for people of working age and retirement age, mid-2000s



Note: Poverty rates based on a threshold set at half of median household disposable income. Social spending includes both public and mandatory private spending in cash (*i.e.* excluding in-kind services). Social spending for people of working age is defined as the sum of outlays for incapacity, family, unemployment, housing and other (*i.e.* social assistance) programmes; social spending for people of retirement age is the sum of outlays for old-age and survivors benefits. Social spending is expressed in percentage of GDP at factor costs. Data on poverty rates refer to the mid-2000s for all countries; data for social spending refer to 2003 for all countries except Turkey (1999).

Source: OECD (2008), *Growing Unequal?*, OECD, Paris.

When looking at changes over the past decade in the size of the redistribution from rich to poor, such changes differ significantly across countries but are small on average. The reduction of income inequality achieved by the combined effect of household taxes and public cash transfers declined over the past decade in around half of the countries; these developments were mainly driven by changes in the redistribution achieved by public cash transfers (which declined in most countries), which was partly offset by stronger redistribution through household taxes (in particular in Denmark, Germany, Italy, the Netherlands and the United Kingdom). There is also some evidence that lower redistribution towards people at the bottom of the income scale increased the risks of poverty among people of both working- and retirement-age.[20]

Limits and statistical issues

While the data outlined above allow comparing trends and drivers in income inequality across OECD countries, there are four types of limitations in the current OECD reporting system on income distribution. First, there are limits linked to the OECD data collection itself, such as the low frequency of data collection and the long time lags for processing and releasing such data. Second, there are limits embedded in the household surveys underlying the OECD data collection, such as underreporting of particular income components. Third, the reporting system is limited to cash income measures, although it is clear that any serious assessment of economic inequality would have to consider whether other factors – non-cash income, non-monetary measures, dynamic measures – validate or invalidate conclusions based on static income measures alone. Fourth, there are other conceptual issues that will need to be tackled in future research, such as the issue of how to improve measures of the redistributive impact of taxes and transfers.

[20] For results of a simple decomposition of changes in the poverty headcounts over the past decade, based on shift-share analysis, see Tables 5.4 and 5.5. of *Growing Unequal?*.

Under-reporting of cash-income components

The OECD income concept includes all components that are regularly received in cash and quasi-cash forms.[21] As information of these items is collected through surveys (in most cases), these data are subjected to under-reporting, which may bias assessments of how income inequality compares across countries. The degree of under-reporting may also change over time within each country, which may distort assessments of trends.

Most of the income items that are covered in the OECD questionnaire have a counterpart in the System of National Accounts (SNA), which hence provides a natural external benchmark for assessing the quality of these estimates. In practice, it is not obvious that SNA aggregates are always superior and more comprehensive than survey data: SNA data for the household sector may reflect errors in other accounts and be affected by the statistical procedures used to assure consistency across accounts. A comparison of information between the two sources in a given year highlights some significant differences between the two (Table 4). The differences are generally small for the aggregate of household disposable income, but more significant when looking at individual components. While several OECD countries regularly undertake such comparison of survey and SNA aggregates, the task is much more challenging when undertaken in a comparative perspective. Despite these difficulties, achieving a better integration of survey and national accounts data is a critical research priority for the future, with some OECD countries (such as France) in the process of developing a household appropriation account for major socio-economic groups (such as income and household type).

[21] The notion of "quasi-cash" income includes items such as food-stamps.

Table 4. Ratios of grossed up income components derived from survey sources to corresponding aggregates in National Accounts

		Ratio (Survey/SNA)						
			Mixed income					
		Earnings	Self-employment income	Capital income	Total	Public transfers	Household taxes	Household disposable income
Australia	2003/04 SIH	0.92	0.40	-0.62	5.62	0.65	0.74	1.08
Belgium	2004 EU-SILC	1.01	0.60	0.33	0.48	0.91	0.89	0.86
Canada	2005 SLID	0.93	0.73	1.05	0.91	1.48	0.91	0.99
Finland	2004 IDS	0.98	0.60	1.32	1.07	0.92	0.89	1.04
	2004 EU-SILC	0.98	2.69	0.33	1.17	0.64	1.06	0.96
France	2004 ERF	0.73	0.43	0.45	0.44	0.78	0.23	0.85
	2004 EU-SILC	0.83	1.95	0.88	1.02	0.11	0.76	0.78
Germany	2004 GSOP	1.06	0.33	-6.14	0.59	0.79	1.16	0.82
	2004 EU-SILC	0.96	0.97	-7.77	1.32	0.17	1.10	0.79
Greece	2004 EU-SILC	1.23	0.54	1.07	0.59	1.04	0.21	0.99
Italy	2004 SHIW/ISTAT	0.93	0.64	0.13	0.50	0.84	0.98	0.69
	2004 EU-SILC	0.76	0.65	1.11	0.78	0.11	..	0.75
Japan	2003 CSLC	0.85	0.78	1.91	0.99	0.77	0.84	0.85
Korea	2006 HIES	0.88	5.27	4.24	4.95	0.22	0.60	1.11
Netherlands	2004 IDS	1.04	0.44	3.29	0.99	0.84	0.62	1.17
	2004 EU-SILC	1.05	1.63	2.03	1.20	0.14	1.25	0.90
Norway	2004 IDS	1.04	0.92	3.10	1.70	0.72	0.97	1.05
	2004 EU-SILC	1.06	3.16	1.32	2.49	0.40	1.18	1.00
Spain	2004 EU-SILC	0.71	0.19	1.02	0.23	0.80	..	0.69
United Kingdom	2004 EU-SILC	0.92	2.45	2.31	2.40	0.28	1.63	1.23
United States	2005 CPS	0.98	0.17	-0.87	0.71	0.41	0.66	0.89
Average		0.95	0.97	0.84	1.48	0.76	0.81	0.95

Source: Computations based on OECD (2008), *Growing Unequal?* and OECD National Accounts

Other possible external benchmarks are available for other income components. Individual country studies that have compared information on public cash transfers to households from administrative sources with that available through household surveys have generally uncovered large under-reporting. Similar comparative work on public cash transfers could rely on information on expenditures data from administrative sources (both for the total and for major programme categories), as available from the OECD Social expenditure database.

Non-cash income components

The OECD income concept excludes various (imputed) income components that are not generally included in the household surveys that underlie the OECD tabulations. The importance of these imputed components varies across countries, and they may be more of less important for people at the top or bottom of the income scale. Some, such as goods produced for own consumption, are minor for most developed OECD economies but could be more important for less-developed OECD countries such as Mexico and Turkey and, a fortiori, for countries such as India and China; most of these income flows are also likely to be concentrated among subsistence farmers, who are clustered at the bottom of the income scale. Other components, such as imputed rents and other capital income flows are more important in richer countries, and more likely to be concentrated at the top than at the bottom of the income distribution. Their exclusion from the income definition used by the OECD may then imply that, when the share of these components

rise over time, trends in inequality are understated. As more OECD countries are moving in the direction of collecting more comprehensive information on these items in their surveys, the issue that will have to be faced is whether the standard OECD income definition shall be broadened in future work.

Other non-cash income components omitted from the "standard" accounting framework shown in Table 1 are government activities that impact on household well-being through the in-kind services they provide and the consumption taxes they collect. The value of publicly provided services for education, health and other social services varies significantly across countries (from less than 10% of household disposable income in Turkey to more than 40% in Denmark and Sweden), as well as over time (mainly reflecting the expansion of publicly provided education and health services). This suggests that including these imputed items in a more comprehensive measure of households' economic resources could significantly affect any assessment of cross-country comparisons of levels of inequality and of changes in individual countries.[22]

The recent OECD report *Growing Unequal?* applies different approaches to assess the impact of public services on the distribution of broader measures of household icnome. While some conclusions differ according to the techniques used, some general patterns also appear:

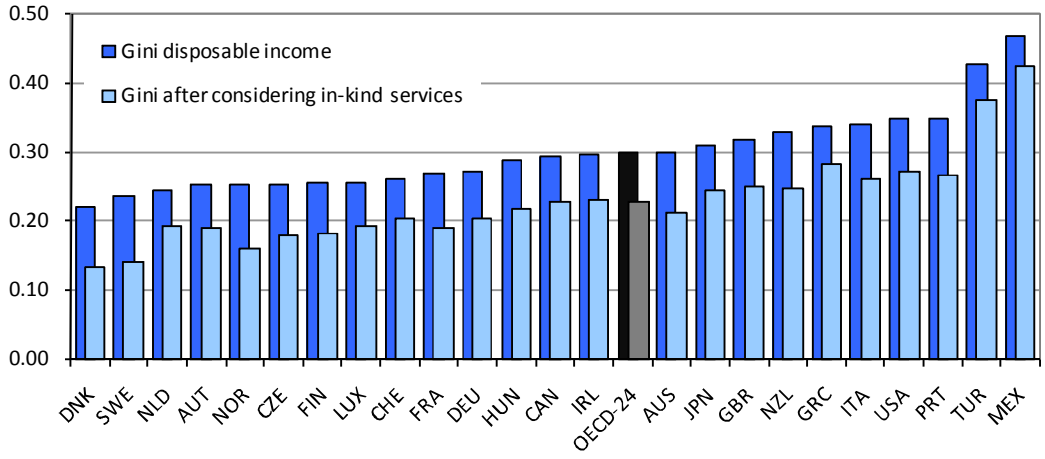
- Public in-kind services such as health and education are distributed rather uniformly across people belonging to various income groupings. This implies that they account for a larger share of household income at the bottom of the distribution than at the top. As a result, inclusion of these in-kind services narrows the Gini coefficient of income inequality at a point in time, by roughly one third on average across OECD countries, and by larger amounts in Sweden, Norway, Australia, Denmark, New Zealand, Portugal, France, Italy and the United States (Figure 7).

- This equalising effect, however, differs among programmes – with large reductions due to compulsory education, non-specialist health care and public housing, and negligible reductions for non-compulsory education. Indeed, non-compulsory education is more unequally distributed than income in around one in three countries.

- The effect of government services in narrowing the Gini coefficient of income inequality is quite large. It is equivalent to about half of the equalising impact of household taxes and public cash benefits. In the United States, public services appear to have the same impact in reducing inequality as do taxes and transfers.

[22] The SNA already foresees a concept of "adjusted" household disposable income, which includes the value of those publicly-provided public services that benefit individual users.

Figure 7. Influence of publicly provided services on income inequality, around 2000



Note: Countries are ranked from left to right in increasing order of the Gini coefficient of income inequality. Estimates of the effect of public in-kind services for health care, education and other social services in narrowing income inequality.

Source: Growing Unequal?,

Conversely, consumption taxes tend to increase income inequality, although their effect seems to be lower than that (in the opposite direction) of in-kind government transfers. While quantitatively important, however, it seems that at this stage these additional factors should be brought into the picture though one-off analyses, rather than being integrated in the OECD periodic collection.

Non-monetary measures

Money income is only a partial measure of living conditions and other measures are important in their own right. One of these measures is household wealth. Surveys measuring household assets and liabilities exist in several OECD countries, but differences in survey design in this field are much larger than in the case of income. *Growing Unequal?* draws some preliminary findings from comparative information on household wealth made available through the Luxembourg Wealth Study (LWS) project. The analysis is limited to eight OECD countries that are part of LWS, and to those types of assets for which information on their distribution is available for all these countries. In general, the importance of these excluded asset categories various across countries, affecting assessments of both the levels of household wealth and the extent of inequality in their distribution. Findings include the following:

- The distribution of wealth is much more unequal than that of income: this reflects differences in saving patterns across the income distribution (with small savings among those at the bottom of the income scale, and much larger ones for people at the top), and the importance of bequests for the transmission of wealth across generations.

- Different measures of wealth inequality (concentration coefficients, or the share of total wealth held by people in the top decile) and different definitions of household wealth (i.e. excluding business equity) lead to different country rankings: the share of wealth held by the top decile is higher in the United States that in the other OECD countries included in the OECD analysis, but this is not the case when considering the Gini coefficient.

- Country rankings also differ when comparing the absolute level of household assets and income, with Italy having the highest median net worth (followed by the United Kingdom) despite having

the lowest equivalised household income among the OECD countries included in the LWS. Sweden has the lowest median net worth (equivalised), despite an income that is above that of many other OECD countries.

- Median net wealth varies with the age of the household head, generally rising until the end of working life and then declining during retirement. This inverted-U profile is, however, less steep than for income, with only small declines taking place in Canada and a continued increase by age of the household head in the United States.

- Across individuals, income and net worth are highly correlated, but the correlation is not perfect. In general, income-poor people have fewer assets than the rest of the population, with a net worth generally about under half of that of the population as a whole.

Non-income measures are also important for poverty measurement. The term "material deprivation" is often used in European literature to refer to the extent to which people can afford those items and activities that are typical in their society. Studies of the size and feature of material deprivation are typically undertaken for individual countries and in a regional (i.e. European) context, but can also be extended (with a number of caveats) to a broader range of European and non-European countries. An analysis of this type is undertaken in *Growing Unequal?*, highlighting large differences in the extent of material deprivation across OECD countries. In general, the prevalence of material deprivation is higher in countries with high income poverty – suggesting that, at the aggregate level, relative income poverty is indeed identifying difficult living conditions. However, the prevalence of material deprivation is also higher in countries characterised by lower national income – suggesting that relative income poverty rates are a poor proxy for hardship in countries with a relatively low, but equally distributed, standard of living.

Other general patterns in material deprivation also emerge. Within countries, the likelihood of experiencing deprivation declines monotonically as income rises. It also declines with age, in contrast to the U-shaped relation between relative-income poverty and age found in most countries, suggesting that older people with low relative income are not necessarily "poor" in the sense of experiencing material hardship. Results also suggest that, while there is some overlap between low income and deprivation, a large share of income-poor people are not materially deprived and that, conversely, a large share of those materially deprived are not income-poor.

Information on these non-income measures of economic well-being is important for social policies. This is most evident when considering ways of improving the targeting of social programmes to reach those with greater needs. Income may be a poor proxy of economic needs, and equity concerns may relate to a range of inequalities (e.g. in education and health) that have not been addressed in the OECD report. Indirectly, the non-income measures considered in this report also point to the importance of looking at factors that go beyond the earnings capacity of people, to other constituents of an acceptable standard of living. More comprehensive information on asset holdings would also allow assessing the effects of the assets tests embodied in the social programmes of several countries on the behaviour of social-assistance clients, and the effect of the various asset-based welfare programmes recently introduced in several OECD countries. These are important issues for future research.

Measuring the redistributive effects of welfare states

A standard approach to account for the redistributive effect of the welfare state is to compare the income distribution "before" and "after" transfers (mostly public cash transfers) and taxes (mostly income taxes and workers social security contributions). Most of the comparative studies based on LIS, as well as earlier OECD work on this issue, relied on this standardapproach. However, as the situation that would prevail in the absence of redistribution cannot be directly observed, the "counter-factual" used in this

pre/post approach is problematic in three respects. First, taxes and transfers redistribute both vertically (between individuals) as well as horizontally (between generations). This is important insofar as the social protection systems of various countries put more emphasis on one or the other of these dimensions – social insurance based systems, for instance, focus primarily on horizontal redistribution.[23] Second, welfare state policies affect both the pre- and post tax/transfer distribution, not only the latter: active labour market programmes, for instance, will have an effect on the earnings distribution, to the extent that they help individuals with low earnings potential to move into jobs. Third, the standard approach assumes away behavioural changes, notably labour supply responses to taxes and transfers. These responses will vary between population and income groups. Bergh (2005) summarises the various biases embedded in the standard "pre/post" approach as "the counterfactual problem of welfare state research".

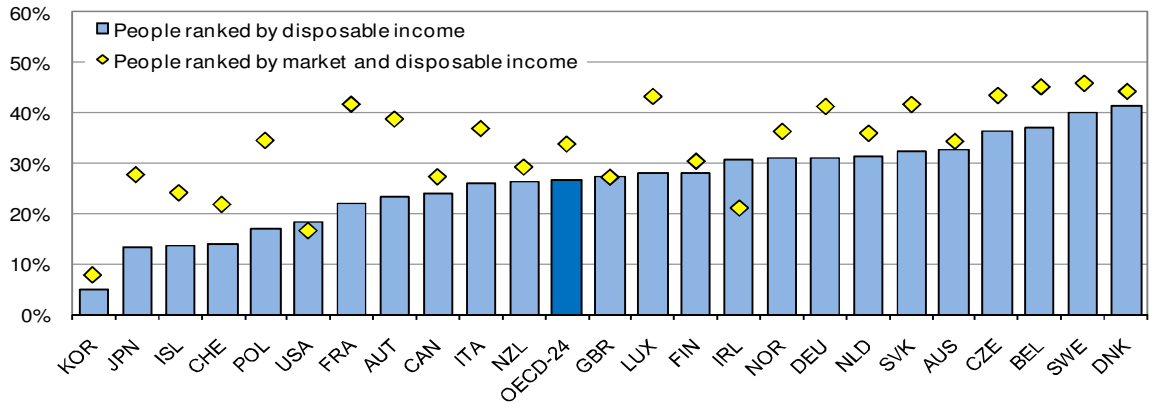
Growing Unequal? calculates two measures of the effect of income taxes and cash benefits in reducing income inequality. These are shown in Figure 8:

- In the first approach (shown as diamonds), inequality in the distribution of market income is computed by ranking people by their level of market income. This closely corresponds to the "standard approach" used by most comparative studies. On this measure, on average, across the 24 countries covered, the tax and transfer systems lower income inequality by around one-third (i.e. around 15 percentage points), with declines ranging from around 45% in Denmark, Sweden and Belgium to less than 8% in Korea.

- In the second approach (shown as bars) the Gini coefficient for market income is based on people ranked by their disposable income, i.e. individuals are ranked by where they end up "after" redistribution, rather than where they were placed "before" redistribution. On this second measure, the reduction of inequality achieved by taxes and transfers is a little more than one-fourth (i.e. around 11 percentage points), with declines ranging from around 40% in Sweden and Denmark to 5% in Korea.

Figure 8. Differences in inequality before and after taxes and transfers in OECD countries

Difference in concentration coefficients (percentage reduction), around 2005



Note: Countries are ranked, from left to right, in increasing order of the percentage reduction in the concentration coefficient achieved by household taxes and public cash transfers, based on people ranked by their household disposable income. Bars are computed based on grouped data for average market and disposable income, by deciles of people ranked by their household disposable

[23] Ståhlberg (2007) shows that the horizontal dimension of redistribution makes up about half of all redistribution in Australia but some 80% in Sweden.

income. Diamonds are computed based on individual data, with people ranked by market income (for the Gini coefficient of market income) and ranked by disposable income (for the Gini coefficient of disposable income).

Source: OECD (2008), *Growing Unequal?*, OECD, Paris.

The difference between the two measures of redistribution across countries can be seen as a result of the "re-ranking" of some households as a consequence of welfare state programmes. In particular, in countries with generous public pensions, the standard approach implies that middle-class individuals are plunged into market-income poverty on retirement, simply because it is the government, rather than the market, that provides their pensions: generous earnings-related public pensions are then measured as being very effective at reducing inequality, in part because they restore middle-income retirees to their pre-retirement ranking. A comparison between the two alternative measures suggests that, in some OECD countries, a significant part of the redistribution measured by the standard approach reflects such a re-ranking of people. In particular, the countries where the re-ranking effect is most significant are precisely those where public pensions account for more than 90% of the total disposable income of the retirement-age population – Austria, Belgium, France, Italy, Luxembourg and Sweden. In contrast, re-ranking is lower in Korea, the United States, Canada, Finland, the United Kingdom, Ireland and Australia, where public pensions are 50% or less of the disposable income of the retired.

While the use of two different benchmarks for the counterfactual distribution gives some important insights, the problem of taking into account behavioural changes in a comparative assessment of redistribution remains an important issue for future research on income distribution and social policies.[24]

Conclusive summary

This paper has described and discussed the strengths and limits of the approach used by the OECD to measuring and comparing household income distribution across countries. The objective of the OECD work in this area has been to anchor inequality and poverty concerns in the policy agenda of member countries. The monitoring of distributive and anti-poverty goals and policies requires adequate indicators and a statistical infrastructure: we believe that the efforts undertaken so far have allowed building the basis for such infrastructure. While the scope of "measurement errors" surely exists, this is not unique of income distribution analysis. Further, we believe that comparative work along the lines pursued by the OECD and other international organisations is a powerful tool to achieve greater convergence n statistical practices.

For around ten years now, the OECD has conducted a regular data collection (at around five-year intervals) through a network of national consultants who provide standard tabulations based on common definitions and methodological approaches. In that frame, a series of methodological choices have been made to ensure the highest possible degree of comparability. Some of their features are:

- Using income rather than consumption as a yardstick, with the benchmark concept defined as annual cash disposable income;

- Counting individuals rather than households or families;

[24] Bergh (2005) uses theoretical simulations based on artificially generated data to show that the behavioural feedback induced by taxes and transfers will increase pre-redistribution inequality when taxes are proportional and benefits are flat-rate, while it will decrease pre-redistribution inequality when taxes are progressive and benefits are positively income related. He concludes that the standard approach is "biased towards exaggerating the redistributive effect of flat-rate benefits and underestimating the redistributive effect of systems with progressive taxes and positively income-related benefits." Esping-Andersen and Myles (2009) propose to rely on partial empirical simulation models of the EUROMOD type to develop a more comprehensive methodology which includes the modelling of behavioural changes.

- Accounting for economies of scale by applying a square root equivalence scale;
- Focusing on relative rather than on absolute poverty;
- Collecting static rather than dynamic measures.

While several of these choices are clearly linked to issues of data availability and coverage – the prime aim being to describe comparable trends – others choices are rooted in conceptual and theoretical considerations. There remain, however, four types of limitations in the current OECD reporting system on income distribution

i. Limits linked to the OECD data collection itself: the low frequency of data collection, the long time lags for collecting and processing but also the fact that tabulations on specific aspects can only be undertaken by the data providers themselves.

ii. Limits embedded in the household surveys underlying the OECD questionnaire data collection: breaks in series, underreporting of particular income components.

iii. Limits in the monetary income concept: this concept disregards the sometimes growing importance of items such as own-occupied housing and life insurance claims, as well as publicly provided services or consumption taxes.

iv. Conceptual limitations: the accurate measurement of government redistribution, as well as the correct treatment of extended monetary and non-monetary measures of economic resources. The question arises whether and to what extent these additional factors should be integrated in the OECD periodic data collection.

Finally, the scope of this work has for a long time been limited to constructing comparable indicators across the most developed industrialised countries. With the ongoing OECD enlargement process, and enhanced co-operation with a number of large but significantly less developed countries, will require adaptation and extension of the OECD set of indicators on household income distribution.

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