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**Economic Commission for Europe**

## Conference of European Statisticians

**Sixty-fifth plenary session**

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Item 3 of the provisional agenda

**Measuring poverty****Future methodological work in measuring poverty:  
an OECD perspective****Note by the Organisation for Economic Co-operation and  
Development***Summary*

The document discusses areas of poverty measurement that would benefit from further methodological work. The document draws on work done by the Organisation for Economic Co-operation and Development (OECD) to advance the statistical agenda in this field. Firstly, the document notes the need to broaden the income definition used for poverty analysis to include imputed rents and social transfers in kind, presents evidence on the impact of such inclusion, and notes the challenges for cross-country comparability implicit in their measurement. Secondly, the document stresses the importance for considering wealth, alongside income, when measuring poverty and vulnerability, and provides evidence on the size of asset-based poverty in several OECD countries drawing on evidence from the second round of the OECD data collection on the distribution of household wealth. Finally, the document presents evidence on people's own perceptions of poverty, based on the OECD *Compare your Income* web-tool, showing how this evidence compares with traditional income poverty measures.

The document is presented to the Conference of European Statisticians' seminar on "Measuring poverty" for discussion.

## I. Introduction

1. This document focuses on some of the areas identified by the *CES Guide on Poverty Measurement* as requiring further methodological work. In particular, it addresses the issues of: (i) the measurement of imputed rents and social transfers in kind (STIK); (ii) the development of measures of vulnerability including wealth; and (iii) the relationship between objective and subjective measures of poverty.

2. Considering imputed rents and social transfers in kind is important in any analysis of poverty. First, an income measure that considers non-cash income represents a step towards a more complete measure of people's material well-being. Second, international comparisons of poverty based on a narrow concept of cash income may produce biased results, especially when housing tenure and welfare systems vary substantially across countries.<sup>1</sup> Finally, the inclusion of non-cash income components would allow for more coherent comparisons over time, both within and across countries, for example in times of changes in home ownership patterns and government social expenditures.

3. One should go further than broadening the income concept used in poverty analysis, and ask whether it would be possible to take into account other dimensions than income when trying to derive a more comprehensive picture of the prevalence of low material living standards in society. For instance, while income allows people to satisfy their needs and pursue many goals that they deem important to their lives, wealth makes it possible to sustain these choices over time. OECD evidence shows that the correlation, at the individual level, between income and wealth is less-than-perfect. For instance, less than half of households in the lowest quintile of household income are also in the lowest quintile of net worth, with nearly one fourth of them being in or above the third quintile of wealth (Murtin and Mira d'Ercole, 2015). This pattern partly reflects the concentration of wealth among the elderly who generally have lower income. Since information on income flows does not inform about the capacity of households to maintain a minimum standard of living during periods of low income, the joint analysis of income and wealth clearly improves our knowledge about households' economic well-being, and allows exploring the correspondence between households' current income and their vulnerability to income shocks.

4. Finally, as argued in the CES Guide, poverty can be defined and measured using different welfare metrics (e.g. income, expenditure) and approaches (e.g. absolute vs. relative cut-offs). These include approaches based on a subjective definition of poverty, reflecting the idea that people's views concerning their own situations should inform the debate on poverty. Subjective measures of poverty may help address a number of measurement issues affecting objective welfare metrics (e.g. under-reporting at both the upper and lower tails of the distribution, and the valuation of non-market production), and capture the multi-dimensional nature of economic well-being (e.g. access to non-market goods). While, as for any subjective measure, they may be affected by cultural biases (e.g. people may adapt their perceptions of what it means to be poor as their material circumstances improve), we have also learned how to manage and minimise these effects.

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<sup>1</sup> For instance, if certain services are provided by the state, free at the point of use, in Country A, while they are purchased on the market in Country B, then (all other factors being equal) a given level of cash income would provide a higher standard of living in Country A than in Country B.

## II. Description of current work and challenges

5. This section describes current OECD work and latest developments related to the topics addressed in the document. In particular, the section presents selected estimates from:

- (a) The OECD questionnaire on imputed rents and social transfers in kind circulated to national statistical offices (NSOs) of member countries in 2016;
- (b) Estimates of the prevalence of asset-based poverty; and
- (c) Insights on subjective measures of poverty from the OECD *Compare your income* web-tool.

### A. Imputed rents and social transfers in kind

6. Both imputed rents and social transfers in kind are important sources of economic well-being. Many households own the dwelling in which they live: in 2014, homeownership in OECD countries ranged from 39 per cent in Switzerland to above 70 per cent in Mexico and 90 per cent in Slovakia.<sup>2</sup> Additionally, some tenant households receive housing free or at subsidized rates from public housing, employers, friends or relatives. In some OECD countries, such as Finland and the United Kingdom, the share of households benefitting from subsidised rents is above 18 per cent of all households while in Norway, Sweden, Greece and Slovakia this share is almost nil.

7. Similarly, the importance of publicly provided services – such as health care, education and family services, as well as services to frail elderly, survivors and disabled people – varies considerably across OECD countries, ranging from close to 8 per cent of GDP in Turkey and Chile to 20 per cent in Denmark and Sweden (OECD Social Expenditure Database, [www.oecd/socx](http://www.oecd/socx)). On average, across the 35 OECD countries, these services constitute about 13 per cent of GDP, with health care and education services accounting for five to six percentage points each, and the remaining two per cent made up mainly of care services to children and the elderly.

8. The 2<sup>nd</sup> version of the *Canberra Group Handbook on Household Income Statistics* (2011) included imputed rents in its operational definition of income and recommended that, where possible, the value of social transfers in kind (STIK) should be included in the conceptual definition of household income to create a measure of adjusted disposable income. In practice, due to measurement challenges and methodological concerns, available international evidence on levels and trends in income inequality and poverty typically relies on a concept of *cash* income, thus ignoring the services from owner-occupied dwellings and the services that governments and charities provide to households for free or at subsidised prices.

9. In November 2015, the OECD Statistics Directorate conducted a stocktaking exercise addressed to NSOs in OECD countries to identify conceptual, methodological and data-related issues associated with the valuation of imputed rents and STIK. Twenty-nine countries replied to the questionnaire.<sup>3</sup> The analysis presented in this document is based on

<sup>2</sup> OECD Affordable Housing Database, [www.oecd/ahd](http://www.oecd/ahd)

<sup>3</sup> Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Japan, the Republic of Korea, Latvia, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom and the United States.

the replies provided by NSOs to the OECD, supplemented in the case of imputed rents with information from the European Union Statistics on Income and Living Conditions (EU-SILC) Universal DataBase (UDB) files (for those European statistical offices that did not complete and return the questionnaire, i.e. Iceland, Italy, Poland and Portugal). Overall, information is available for 33 OECD countries in the case of imputed rents, and for 29 countries in the case of social transfers in kind.

10. Answers to this questionnaire show that a large majority of OECD countries' NSOs include estimates of imputed rents in their national statistics on the distribution of household income (28 out of 33). Cross-country comparability is however limited, due to methodological and data-related issues. For instance, although most statistical offices (23 out of 28) value imputed rents based on the rental equivalence method (i.e. valuing the residence at the price of a dwelling with similar physical characteristics rented on the market), different approaches are used to implement this method. In total, 12 NSOs rely on a stratification approach (i.e. the housing stock is broken down by type, size, quality and location into strata, and the number of owner-occupied dwellings in each stratum is multiplied by the average rent paid for rented accommodation in the stratum). Four NSOs rely on regression methods (e.g. linear or weighted least square regressions). Five NSOs rely on the Heckman selection method (i.e. rents are modelled using a linear regression that incorporates the probability of being a tenant). Finally, two NSOs rely on a combination of different approaches.<sup>4</sup> The user cost method (i.e. the rent is assumed to be equal to the return of a virtual investment plan that one would have gained if the capital invested in the dwelling had been invested in this investment plan) is instead used in the Czech Republic, Slovakia, Denmark, Estonia and Iceland.

11. Another important difference concerns the types of household for which rent is imputed. Twenty-one out of 28 NSOs impute rents to both owner-occupiers and tenants paying below-market or rent-free rents; six limit the imputation to owner-occupiers only; and 1 apply it to both owners and households living in rent-free dwellings. A further limitation to cross-country comparability arises from the types of property for which imputed rents are estimated. Most NSOs impute rents only for those dwellings (and any associated buildings, such as a parking) that are used as a main residence by the household; this is consistent with Eurostat recommendations but differs from the treatment applied in the System of National Accounts, where imputed rents are estimated also for secondary homes. In Denmark, rents are imputed for both main residences and secondary homes located in the country; while in the Netherlands secondary homes abroad are also considered.

12. Only in five countries (Denmark, Israel, Mexico, the Netherlands and Switzerland) imputed rents are included in the main income concept used by NSOs when reporting on income inequality and poverty, while in five other countries (Australia, Estonia, Finland, France and Greece) they are included in secondary income concepts. Figure 1 shows the impact of imputed rents on income poverty and inequality, based on the replies provided by OECD countries' NSOs. Due to the methodological differences mentioned earlier, cross-country comparability of these estimates is limited. That said, including imputed rents in the definition of income would lead to lower poverty levels in eight countries (Australia, Belgium, Denmark, Finland, Germany, Greece, Spain and Switzerland)<sup>5</sup>, and to an increase in four countries (Austria, France, Mexico and Norway). In other words, in those countries

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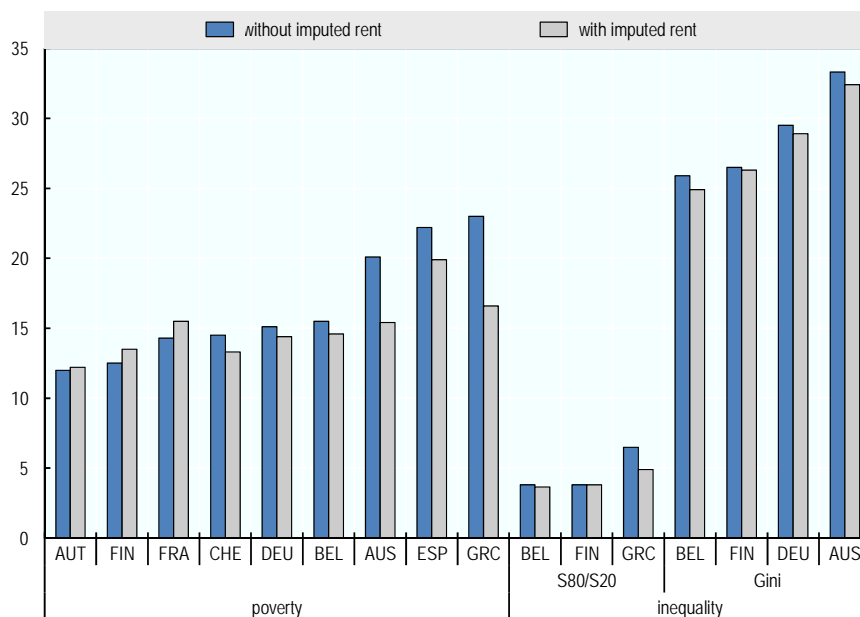
<sup>4</sup> For instance, in Spain imputed rents are calculated by combining the stratification method (weighted 70 per cent) and subjective self-assessments (weighted 30 per cent). A similar approach is applied also in Greece.

<sup>5</sup> In Greece and Australia, the poverty headcount falls by more than  $\frac{1}{4}$  when imputed rents are included in the income concept.

where the inclusion of imputed rents raises median income, and hence the poverty threshold, by more than it raise the income of those at the bottom of the distribution.

Figure 1

**The impact of imputed rents on income poverty and inequality**



13. As for social transfers in kind, estimating the value of government services and incorporating it in household income raises a range of conceptual and methodological questions. Among the former, is whether these services ultimately reach their intended beneficiaries (rather than being captured by some privileged groups). Among the latter, is which services should be included, how should these services be valued, and how to allocate their value among individuals and households with different characteristics.<sup>6</sup>

14. Only 10 NSOs (Australia, Austria, Denmark, Finland, France, Japan, Mexico, the Netherlands, Norway and Sweden), out of the 29 who replied currently include the value of STIK in the income concept used for their national statistics on income inequality and poverty, while two (Israel and the Republic of Korea) plan to do so in the future. There are however large differences in the range of services considered. First, all countries considered include services provided by the public sector, but four of them (Austria, Finland, the Netherlands and Mexico) also include services from non-profit organisations. Second, all 10 countries include the value of health care, but only nine include education services (all except Japan) and early childhood education and childcare (all with the exception of Mexico); long-term care services for elderly are included in seven countries and social

<sup>6</sup> Equally important is the issue of the equivalence scale to be used, as some types of non-cash income may imply needs that are not accounted for by the equivalence scales conventionally used in comparative analysis. The question is particularly relevant in the case of poverty analysis, as inclusion of non-cash incomes can lead to large changes in income to low-income households. For instance, the elderly or people with disabilities tend to utilise health services more often than others due to their worse health status. As a consequence, studies using standard equivalence scales risk overestimating the well-being of groups with relatively high needs for public services (Verbist et al. 2012).

housing in two (Australia and France).<sup>7</sup> Additionally, subsidies for use of public services are sometimes taken into account, e.g. subsidies for public transport and public utilities in Australia and Norway, and those related to cultural and recreational activities in Austria.

15. Different methods are used to evaluate STIK. Some NSOs (Austria, Denmark, Finland and Sweden) value these services based on their average cost of production, i.e. the transfer to the beneficiaries is assumed to be equal with the average cost of producing these services. Others rely on the average cost of provision of a market alternative (Australia, Japan and Norway), i.e. services are valued on the basis of what an individual would have spent if similar services had been bought on the market, or on their willingness to pay for them or on a mixed method (the Netherlands, Mexico and France).<sup>8</sup>

16. An additional issue is how to allocate these benefits across the population. This could be done either by allocating them to the beneficiaries (actual consumption approach) or by attributing an “insurance value” to each person based on their specific characteristics (e.g. age, gender, socio-economic status). The first approach is applied in three countries (Denmark, Finland and Mexico), the latter is applied (for all types of social transfers) in Japan, Norway and the Netherlands, while in Australia, Austria, France and Sweden, a combination of these two approaches is used. In most countries for which information is available, the value of STIK is attributed to individual beneficiaries; however, in France all STIK are attributed to the household as a whole, while in Australia childcare, healthcare and long-term services for the elderly are attributed to the household as a whole while other benefits are attributed to individual beneficiaries. Finally, in Austria the value of STIK is attributed to income quintiles.

17. The value of STIK is included in the national concept of household income only in four countries (Australia, Mexico, Norway and Sweden) out of 10, with values ranging from seven per cent of household cash disposable income in Mexico to 44 per cent in Denmark. Information on the impact of STIK on income poverty rates is available only for Norway, Finland and Australia, and reported in Figure 2. Including STIK in the income concept always lowers poverty rates, with the highest fall (from 15 per cent to seven per cent) recorded in Australia.

## **B. Asset-based poverty**

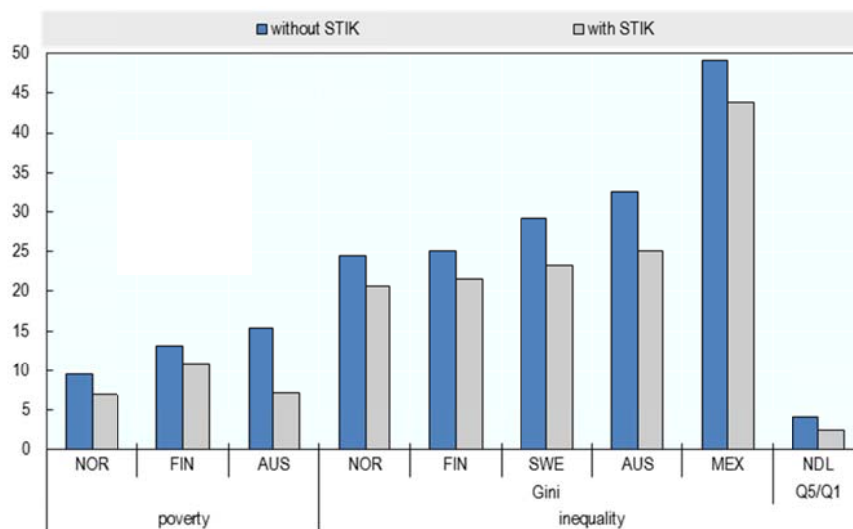
18. Low economic well-being is a function not just of an inadequate income flow but also of a low stock of wealth. In the context of the second round of the OECD data collection on the distribution of household wealth, OECD has collected information on asset-based poverty. This section discusses some of the methodological and measurement challenges encountered and presents preliminary results. The full set of results will be made available later in 2017.

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<sup>7</sup> Including social housing both in imputed rents and in STIK would, obviously, imply a double counting.

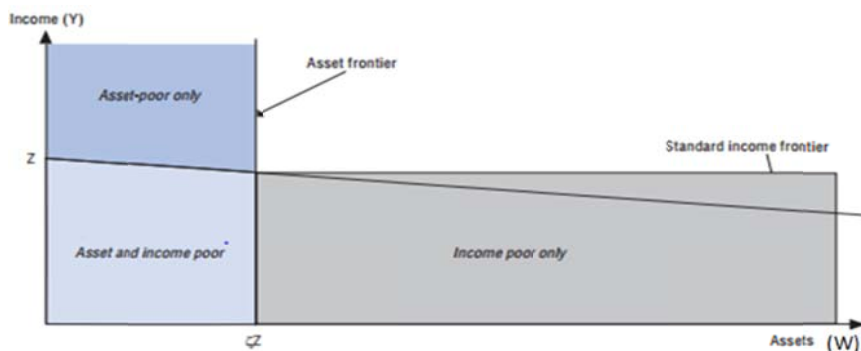
<sup>8</sup> In the Netherlands, for instance, the average cost of production is used for valuing health-care and long-term care services for the elderly, and the average cost of provision of a market alternative for education services and childcare.

Figure 2  
Impact of STIK on income poverty and inequality



19. Two methods are usually employed to take wealth into consideration when deriving a measure of poverty. The first method combines both income and wealth into a single measure of total economic resources, i.e. a wealth-enlarged income concept (Brandolini et al., 2010). The second method, which is used by OECD, considers income and assets as two distinct types of economic resources, i.e. viewing assets as a stock of material resources complementary to a flow of current income. Household wealth allows considering how long an individual can maintain a minimum acceptable way of life by drawing on their accumulated wealth, should their income suddenly fall because of a sudden adverse shock (e.g. loss of employment, disability, family disruption). Figure 3 illustrates this concept and its relationship to income poverty. In this figure,  $Y$  represents an individual's income and  $W$  represents an individual's wealth. In this space,  $Z$  represents the income poverty line, while the asset poverty line ( $\zeta Z$ ) corresponds to the income poverty line multiplied by a fraction  $\zeta$ , equal to the length of the reference period (e.g. in the case of a three months period,  $\zeta Z$  is equal to one-quarter of the income poverty line). An individual is counted as asset poor if  $W < \zeta Z$ , and as income poor if  $Y < Z$ .

Figure 3  
Asset and income-based poverty



Source: OECD (2013), OECD Framework for Statistics on the Distribution of Household Income, Consumption and Wealth, OECD Publishing. <http://dx.doi.org/10.1787/9789264194830-en>

20. Taking wealth into consideration allows distinguishing, within the income poor, those who have sufficient wealth to keep them above the poverty line for a period of at least  $\zeta$  months (the “income poor only”) from those who lack this buffer (the “asset and income poor”, shown by the light blue area). Both groups experience low income, but the latter are clearly worse-off than the former. A third, and potentially much larger group, group comprises the “asset poor only”, i.e. those individuals who currently have sufficient income to achieve the minimally acceptable standard of living but do not have enough assets to protect them from a sudden drop of their income.

21. The operationalisation of asset-based poverty depends on a number of methodological and conceptual choices, including those related to the unit of analysis (individuals or households), the choice of equivalence scale, the asset poverty thresholds ( $\zeta$ ), the wealth and income concepts used ( $W$  and  $Y$  respectively). With respect to unit of analysis and equivalence scales, the estimates presented in Table 1 refer to individuals (rather than households, which is the unit typically considered in wealth distribution data). They equalise wealth based on the same equivalence scale typically applied by the OECD to household income (i.e. the square root of household size) — even if no consensus exists in the literature on whether equalising wealth based on current household size makes sense, and what equivalence scale is most appropriate.

22. With respect to the income definition used, this should follow as much as possible that used for reporting income poverty, i.e. household *disposable* income. However, in many cases, information on households’ *disposable* income is not available in the data sources used for the computation of wealth statistics. For this reason, the choice is to rely on the concept of *gross* income, i.e. the total sum of wages and salaries, self-employment income, property income, and current transfers received. These are recorded before payments of taxes. Further, different types of wealth can be considered; the estimates in Table 1 define asset poverty both in terms of both liquid financial wealth (i.e. cash, quoted shares, mutual funds and bonds net of liabilities of own unincorporated enterprises) and of net worth (including housing wealth, i.e. the sum of non-financial and financial assets net of debts and other liabilities). Finally, different lengths of the reference period can be used, although most of the literature focuses on three, six and 12 months. Table 1 allow assessing the sensitivity of the results to the different choices made.



Table 1  
Asset-based poverty in selected OECD countries

Country	Year	Income poverty	Asset-based poverty							
		Equivalised gross income below the income poverty line 50%	Share of individuals with							
			Liquid financial wealth				Net wealth			
			Liquid fin. wealth <25% of inc poverty line (3 months)	Liquid fin. wealth <50% of inc poverty line (6 months)	Liquid fin. wealth <100% of inc poverty line (12 months)	Share of individuals liquid wealth poor (3 months) and income poor	Net wealth <25 % of income poverty line (3 months)	Net wealth <50 % of income poverty line (6 months)	Net wealth <100 % of income poverty line (12 months)	Share of individuals with net wealth poor (3 months) and income poor
AUT	2014	12.6	28.3	42.1	59.2	8.2	16.4	22.9	31.8	6.0
BEL	2014	16.4	34.5	45.3	57.9	11.7	13.0	15.8	19.3	7.3
CAN	2012	15.0	47.0	59.0	72.0	11.0	9.0	13.0	19.0	5.0
DEU	2014	19.8	42.0	53.6	67.3	13.7	23.5	28.7	35.6	10.6
ESP	2014	17.3	42.5	54.3	66.8	11.8	7.9	9.9	13.0	2.9
EST	2014	31.1	54.9	65.0	75.9	19.9	12.9	15.2	19.3	7.3
FIN	2014	18.2	47.0	59.7	72.6	12.5	21.8	25.1	29.8	9.0
FRA	2014	11.7	39.0	51.1	64.3	8.2	11.7	17.3	23.9	3.7
GRC	2014	13.4	65.3	75.1	84.8	11.4	13.4	17.7	20.8	4.2
HUN	2014	14.7	47.8	52.8	73.7	11.0	10.1	11.8	16.0	3.3
IRL	2014	16.7	55.3	65.9	75.9	12.5	25.5	29.4	34.1	6.2
ITA	2014	16.8	39.4	53.0	67.6	13.3	11.1	15.2	20.8	6.2
LUX	2014	13.3	38.1	49.6	61.3	9.0	11.8	16.2	19.6	4.2
LVA	2014	29.1	82.3	87.6	92.9	26.8	19.9	22.8	29.9	10.3
NLD	2014	14.2	37.6	51.6	67.4	8.2	21.7	27.0	33.6	5.0
NOR	2015	8.1	26.9	39.9	55.8	5.2	25.0	27.3	30.9	5.5
NZL	2014	10.9	62.7	69.7	77.1	9.5	10.2	13.7	18.9	4.0
POL	2014	15.7	64.0	75.1	85.2	13.1	12.8	15.4	17.8	4.6
PRT	2014	16.5	44.4	53.6	63.9	11.2	14.0	16.3	19.8	4.9
SVK	2014	16.7	55.6	68.5	81.2	13.8	7.0	9.6	13.2	3.1
SVN	2014	21.6	67.1	74.7	83.3	17.8	12.7	14.8	18.2	5.7
OECD (21)		16.6	48.7	59.4	71.7	12.4	14.8	18.3	23.1	5.7

Footnote: While data in the table are based on gross income generally, it should be noted that for Norway data are based on disposable income, not gross.