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Preface

Poverty is increasingly recognized as a global phenomenon. The call for internationally comparable poverty measures is especially strong in the context of the 2030 Agenda for Sustainable Development. Moreover, the recent economic crisis has heightened the need for reliable and timely statistics for international monitoring and national policymaking on poverty reduction.

To improve the international comparability and availability of statistics on poverty and the related metadata, the Conference of European Statisticians established a Task Force in 2014. The Task Force on Poverty Measurement worked through 2015 and 2016 to develop the present Guide.

The Guide refers to the Sustainable Development Goals indicators and their underlying data needs and includes specific recommendations to national statistical offices. The Guide is based on the experience of UNECE member countries and other countries participating in the work of the Conference of European Statisticians.

The implementation of the Guide's recommendations would improve international comparability of poverty statistics. The publication mainly targets national statistical authorities and provides useful information for policymakers, researchers and other users of poverty data.

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The chapters of the Guide have been discussed and agreed by the entire Task Force. Some organizations took primary responsibility for drafting certain chapters, as follows: chapters 1 and 2 by UNDP and UNECE, chapter 3 by the United Kingdom (ONS), and chapters 4 and 5 by OPHI. Ben Slay (UNDP) edited the entire Guide.

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1.1 Why this Guide?

1. Poverty is increasingly recognized as a global phenomenon. The call for internationally comparable poverty measures is especially strong in the context of the 2030 Agenda for Sustainable Development. Moreover, the recent economic crisis has heightened the need for reliable and timely statistics for international monitoring and national policymaking on poverty reduction.

2. In the UNECE region, countries' approaches to poverty measurement vary significantly. For many indicators, wide varieties of definitions, methods, and primary data sources are not fully matched by national or international guidelines for their application.

3. The Rio Group created by the United Nations Statistical Commission published a Compendium of best practices in poverty measurement (Rio Group, 2006). While the Compendium presents important concepts and definitions, it also pointed out that the state of the art and the very unequal availability of statistical instruments across countries were not conducive to the preparation of a universally applicable handbook at that time.

4. The Canberra Group handbook on household income statistics (UNECE, 2011) presents the concepts and components of household income, describes country practices and provides guidance on quality assurance and dissemination. It also includes a brief section on the analysis of income poverty. The Canberra Group handbook thus addresses the methodological basis for income poverty measures, but does not specifically elaborate and provide recommendations on poverty indicators and the related methodological choices. Furthermore, issues of non-monetary poverty were beyond the scope of the Handbook.

5. In 2013, the OECD published the Framework for Statistics on Distribution of Household Income, Consumption and Wealth (OECD, 2013a), which is an internationally agreed framework to support the joint analysis of micro-level statistics on household income, consumption and wealth. The same year the OECD published also the Guidelines for Micro Statistics on Household Wealth, an internationally agreed set of guidelines for producing micro statistics on household wealth (OECD, 2013b).

6. In 2012, the Bureau of the Conference of European Statisticians (CES) conducted an in-depth review of poverty statistics based on a paper by the State Statistics Service of Ukraine and Eurostat (UNECE, 2012a,b). The review provided an analysis of the methodological issues underlying poverty measurement and presented two case studies: one at international level (Eurostat) and the other at national level (Ukraine). As a follow-up to the in-depth review, the Bureau requested the CES secretariat to organize a seminar to discuss how to improve poverty measurement.

7. The seminar "The way forward in poverty measurement" was held in Geneva on 2-4 December 2013 with representatives from 29 countries and major international agencies active in poverty measurement in the UNECE region (CISSTAT, Eurostat, OECD, UNDP, World Bank). Participants discussed the main methodological issues in poverty measurement, data comparability, and inter-linkages between poverty, inequality, vulnerability and social exclusion. The seminar identified the need for guidelines and

recommendations for improving the international comparability and availability of poverty statistics, and recommended that a Task Force undertake this work.

8. The CES Bureau established the Task Force on Poverty Measurement in 2014. It worked through 2015-2016 to develop this Guide.

1.2 Objective of the Guide

9. The objective of the Guide is to provide guidance in applying various measurement approaches at national level and to improve the international comparability of poverty statistics. The Guide focuses on areas where the statistical community has expressed a particular need for further guidance, which include availability and comparability of key poverty measures, data requirements and measurement issues, and recent approaches to poverty measurement.

10. The Guide refers to the Sustainable Development (SDG) indicators and their underlying data needs and includes specific recommendations to national statistical offices. The Guide is based on the experience of UNECE member countries and other countries participating in the work of the Conference of European Statisticians[1].

11. The Guide is primarily aimed at statisticians. It may also be relevant for policymakers for formulating targets for poverty reduction.

1.3 Outline of the Guide

12. **Chapter 2** provides an overview of poverty and related concepts such as inequality, social inclusion, vulnerability to poverty, and poverty risk. It discusses the importance of poverty measurement and opens the debate about the advantages and disadvantages of different approaches and the value of complementary measures. The chapter offers a synopsis of the methodological choices countries have and defines the bigger scope of measurement challenges in our contemporary world.

13. **Chapter 3** addresses the monetary approach to poverty, including the income and consumption expenditure measures that are most commonly used in measuring monetary poverty. The chapter explains concepts and definitions, provides an overview of data sources, and discusses the advantages and disadvantages of various welfare measures. It examines in detail such key measurement issues as measuring self-employment income, goods and services produced for own consumption, transfers between households, social

[1] The Conference of European Statisticians is composed of national statistical organizations in the UNECE region (for UNECE member countries, see http://www.unece.org/oes/nutshell/member_states_representatives.html) and includes in addition Australia, Brazil, Chile, China, Colombia, Japan, Mexico, Mongolia, New Zealand, and Republic of Korea. The major international organizations active in statistics in the UNECE region also participate in the work, such as the statistical office of the European Commission (Eurostat), the Organization for Economic Cooperation and Development (OECD), the Interstate Statistical Committee of the Commonwealth of the Independent States (CIS-STAT), the International Monetary Fund (IMF) and the World Bank.

transfers, and transfers in kind. The chapter also reviews various approaches to setting a poverty line or threshold, illustrated with country examples. It identifies policy-relevant poverty indicators, concerning the level and depth of poverty, and how these change over time. Finally, the chapter provides an overview of current practices, highlighting challenges related to assuring the comparability of poverty estimates.

14. Today it is broadly recognised that poverty reaches beyond people's material conditions, including aspects such as poor health, job insecurity, social exclusion, malnutrition, and lack of personal security. Moreover, an integrated measure of multidimensional poverty has been included in the SDGs, to complement income poverty measures and show interconnected deprivations. **Chapter 4** therefore introduces non-monetary deprivations, reflecting Agenda 2030's recognition that poverty is a multidimensional phenomenon. The chapter starts by showing the motivations for multidimensional measurement, with an emphasis on European countries. It then shows how countries can design basic dashboards of social indicators and gives examples from the region. The chapter also introduces the indices of multiple deprivations and provides examples of material deprivation measures in Europe. On these topics the Guide does not provide specific recommendations. Nevertheless, the users may find useful the experiences that exist on some countries and organizations.

15. **Chapter 5** addresses the measurement of multidimensional poverty and demonstrates its relevance for policy design and analysis at global, regional, and national levels. The key challenges faced by statistical offices in developing a multidimensional poverty index include identifying the various welfare dimensions, selecting indicators in assessing deprivations at the individual or household level, and fixing poverty lines both for each dimension and overall. Although these measures are in general adapted to national circumstances, the need to ensure comparability at global and regional levels is also recognized. The chapter describes relevant measurement experiences in other regions and provides guidance to countries interested in developing multidimensional poverty measures regarding measurement design and how measures guide policy.

16. On some topics, the Guide does not make any clear-cut recommendations due to insufficient evidence from current practice. Such areas include the measurement and consideration in poverty estimates of social transfers in kind, household wealth, housing costs, and individual-level poverty. Furthermore, a person's own subjective perceptions of his or her well-being are important for understanding poverty, and robust measures of this would need to be worked out. An overview of the areas envisaged for further work is provided in **Chapter 6** entitled "Challenges for the future".

17. Annex I presents poverty-related targets and indicators in the 2030 Agenda for Sustainable Development. Results from the UNECE survey on methods of poverty measurement in official statistics are presented in Annex II.

1.4 Why measure poverty? How is it measured today?

18. UNDP's 1991 Human Development Report captured the human development paradigm in a single sentence: "The real objective of development is to increase people's choices". The underlying concept is the ability to live long, healthy, and creative lives.

Additional choices include political freedom, guaranteed human rights, and self-respect—what Adam Smith called the ability to mix with others without being "ashamed to appear in public". From this standpoint, poverty is the inability to obtain or realize choices and opportunities; it is a violation of human dignity. Poverty means a lack of basic capacity to participate effectively in society. It means not having enough to feed and clothe a family, not having a school or health clinic to go to, not having land on which to grow one's food or a job to earn one's living, not having access to credit. It means insecurity, powerlessness and exclusion of individuals, households, and communities. It means susceptibility to violence, and it often implies living in marginal or fragile environments, without access to clean water or sanitation (United Nations Economic and Social Council, 1998).

19. This broad definition of poverty should lend itself to practical measurement, which in turn should inform public discourse and policy actions. Poverty measurement therefore faces: (i) methodological issues ("get it right"); and (ii) public policy concerns ("make it useful"). This Guide addresses both sets of issues, to be useful for evidence-based policymaking at global, regional, national, and even sub-national levels. Such aspirations imply additional requirements for poverty indicators, as the meaning and measurement of poverty at these different levels can be quite different. While attempts to produce and use globally comparable poverty statistics inevitably face questions about different living standards and lifestyles, they make possible international comparisons and efforts to establish best practices. For these reasons, the promotion of international comparability is of great importance. Moreover, the adoption of Agenda 2030 further underscores the imperative of developing guidelines and identifying best practices in measuring international progress in poverty eradication.

20. Poverty should be measured for a number of different reasons. First, poverty measures provide estimates of the magnitude of the problem, and raise its visibility—they **keep poor people on the policy agenda**. Second, poverty measures are needed to **identify poor people and pockets of poverty, and then to target appropriate policy interventions**. This requires data disaggregation, in order to identify population groups that face higher risk of poverty, based *inter alia* on personal characteristics, family structure, place of residence, etc. It also requires dynamic measures that can monitor poverty over time and identify those trapped in poverty for longer periods. High quality poverty statistics are therefore needed to **monitor and evaluate outcomes—especially the effectiveness of policy, programming, and project interventions focusing on poor people**.

21. Poverty measurement has direct implications for policymaking, as different perspectives on poverty can produce different empirical conclusions. It starts with conceptual definition of what exactly is being measured. Are we concerned about inequality at the lower end of the distribution, falling short of some absolute minimum living standards, the inability to "keep up with the Joneses", or some broader type of social exclusion? Once the basic conceptual questions are answered, the definition of poverty should be operationalized in statistical terms. This seemingly technical issue can have serious (but often hidden) implications for policies. For instance, the use of different equivalence scales can produce different results for child versus elderly poverty, which can in turn create mixed signals for social protection policies.

1.5 Poverty and the Millennium Development Goals

22. The Millennium Declaration was adopted by heads of State and Government at the United Nations General Assembly in 2000; the Millennium Development Goals (MDGs) were adopted soon after. The eradication of extreme poverty and hunger were at the top of the agenda, as reflected in MDG 1 "Eradicate extreme hunger and poverty",[2] which was supported by two targets: Target 1 ("Halve, between 1990 and 2015, the proportion of people whose income is less than $1 a day", in purchasing-power-parity [PPP] terms) and Target 2 ("Halve, between 1990 and 2015, the proportion of people who suffer from hunger"). These two targets were supposed to be monitored at the global level by five indicators.[3] However, recent studies show that numerous statistical offices were unable to collect, analyse, and disseminate the data used for MDG reporting. MDG statistics were often based on donor-funded surveys or modelling exercises (Loewe and Rippin, 2016).

23. Criticisms to the "$1-a-day" poverty line stressed not only its arbitrariness, but also its failure to take into consideration other basic needs apart from food and essential non-food spending, such as housing, clothing, and heating. In addition, the low $1-per-day poverty line was not relevant for many countries, which contributed to the slow take-up of the MDG agenda in many countries.[4]

24. More broadly MDG progress was measured via over 60 internationally agreed (global) indicators; many others were used at the national level. With regards to poverty, the global MDG indicators were tailored to the specific situation of low-income countries. In 1990, people classified as living in extreme poverty based on this threshold were mainly found in rural regions. Nowadays, one fourth of the extremely poor live in cities. Therefore, a number of countries set their own national targets and added alternative indicators in order to capture these trends.

25. The current globally used poverty threshold of PPP$1.90/day is also very low for countries in the UNECE region. To remedy this situation, the World Bank has suggested that in middle-income countries, two or more thresholds should be used. Other issues with absolute poverty lines are apparent in their high sensitivity to the choice of the PPP base year, the exchange rate used to convert income in national currency into US dollars, and the basket of goods chosen to compute the PPP. Partly due to these problems, some institutions like the European Union and the OECD do not use absolute poverty thresholds for international comparisons, but rather rely on relative thresholds expressed as a share of median income (Bradshaw and Mayhew, 2011).

[2] For the list of MDG goals see http://www.unmillenniumproject.org/goals/gti.htm#goal1.

[3] The Target 1 indicators were: (1) the proportion of the population below living $1 (1993 PPP) per day (World Bank) (*For monitoring country poverty trends, indicators based on national poverty lines should be used, where available.*); and (2) the poverty gap ratio [incidence x depth of poverty] (World Bank). Target 2 indicators included: (3) the share of the poorest quintile in national consumption (World Bank); (4) the prevalence of underweight children under five years of age (UNICEF-WHO); and (5) the proportion of the population below minimum dietary consumption levels (FAO).

[4] Similar issues appeared for the global Multidimensional Poverty Index. The deprivation thresholds selected were quite demanding, resulting in very low multidimensional poverty headcounts for many countries in Europe and Central Asia.

26. A general pattern was that, while richer countries generally engaged in less detailed and comprehensive poverty reporting under MDG 1, they frequently added other "national" targets and indicators that better suited their circumstances. These included, for example, measures of poverty prevalence among ethnic minorities such as the Roma, single mothers, or the proportion of population that depends on social benefits.

1.6 Monitoring the Sustainable Development Goals

27. The Sustainable Development Goals (SDGs) were adopted in September 2015 by world leaders as the monitoring framework for the 2030 Agenda for Sustainable Development, a plan of action for "people, planet, peace, partnership, and prosperity". Consisting of 17 goals and 169 targets, the SDGs build on the development journey inherited from the MDGs. Their reach is however much wider than poverty, gender, hunger, and major health problems. The SDGs break new ground by addressing inequalities, economic growth, decent jobs, energy, natural resources and environment, climate change, human settlements, and peace and justice, among others. They represent an agreed vision to put people and planet on a sustainable path by 2030.

28. There are a number of other important differences between the SDGs and the MDGs. First, while the MDGs were driven to a significant extent by the donor community,[5] the SDGs were developed by all Member States through a participatory process. While the MDGs were applicable mostly to the least developed countries, the SDGs offer an agenda for all people of the world, putting specific emphasis on "leaving no one behind"—which has serious implications for monitoring and evaluation. SDG targets go beyond averages and refer to different groups (e.g., women and men; migrants; urban and rural inhabitants; the poor, middle-class, and the more well off). Last but not the least, the SDGs offer an integrative agenda (compared with the narrower, sectorial MDGs).

29. These differences have important implications for SDG monitoring, and especially for poverty measurement. First, SDG goals and targets have to be treated as a network of targets, rather than as a list of standalone isolated variables (Le Branc, 2015).[6] As a result, poverty-related targets and indicators are found not only under Goal 1 ("End poverty in all its forms everywhere") and Goals 10 ("Reduce inequality within and among countries"), but in many others goals (see annex I for overview of Goals 1 and 10 SDG targets and indicators). The set of "poverty" indicators relevant for these goals will therefore be much larger than for the SDGs, including both absolute poverty (Indicator 1.2.1: "The proportion of the population living below the national poverty line, by sex and age"), relative poverty (Indicator 10.2.1: "The proportion of people living below 50 per cent of median income, by age, sex and persons with disabilities"), non-income poverty measures (Indicator 6.2.1: "The proportion of the population using safely managed sanitation services, including a hand-washing facility with soap and water"), as well as multidimensional poverty (Indicator 1.2.2:

[5] The goals of the "Shaping the 21st Century" report became the basis of the United Nations' Millennium Declaration and its MDGs (Organisation for Economic Co-operation and Development, 1996).
[6] See also http://peleah.me/sdg/sdgs-targets.html for SDGs as a Network of Targets.

"The proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions").

30. This comprehensive set of indicators represents a challenge for monitoring. While a global list of indicators has been agreed (United Nations Statistical Commission, 2016a), many of these indicators either lack an established methodology (so-called "tier 3 indicators") or are not supported by the regular production of the relevant official statistical data ("tier 2 indicators"). Out of the 229 approved global SDG indicators, only 119 are at present classified as "ready to go" tier 1 indicators; 44 are classified as tier 2 indicators, and another 76 are tier 3 indicators. In response, the United Nations Statistical Commission has "emphasized that the global indicators . . . are intended for global follow-up and review of the 2030 Agenda for Sustainable Development and are not necessarily applicable to all national contexts, and that indicators for regional, national and subnational levels of monitoring will be developed at the regional and national levels" (*Ibid*., paragraph 47/101/(i)).

31. The SDG goals and targets pose significant challenges for national statistical offices, in terms of the capacity to produce the data needed to use the required indicators. Some of the SDG indicators are currently set up in a very general form and countries will require further methodological guidance in order to produce the data needed for their use. An example of such broadly defined indicators are those for target 1.2 ("Reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions"); 1.2.1 ("The proportion of the population living below the national poverty line, by sex and age"); and 1.2.2 ("The proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions").

32. Most SDG indicators required for monitoring poverty, inequality, and employment come from household surveys. However, many household surveys are not designed in order to measure living standards and poverty; the emphasis is instead on measuring food consumption, housing services, and the cost of living (Gibson, 2015). In addition, in many countries the surveys are conducted on an irregular basis. Even if countries have a regular household survey in place, the data provided by the survey may be either insufficient or not in line with the international standards. Sub-national poverty measurement, in particular, faces issues of inadequate data, as in most cases surveys are not representative at the local level.

33. Although the development of the SDG indicators at the regional, national, and sub-national levels will pose challenges for national statistical offices and international organizations, it could also offer opportunities to strengthen statistical systems and make better use of innovative and inclusive data techniques for monitoring sustainable development. UN-led discussions for the Europe and Central Asia region concluded that building national ownership of SDGs in national policy frameworks would require tailoring indicators to national conditions (United Nations Development Programme Istanbul Regional Hub, 2016). To do this, governments would need to build new statistical partnerships for poverty reduction, improve metadata for survey quality, and assess data ecosystems. This Guide seeks to support these efforts.

1.7 International comparability - key to successful policies

34. There is a large global spectrum of poverty indicators and definitions. To give a comprehensive picture of poverty, national statistical offices use multiple concepts and thresholds. In addition to absolute poverty lines, many countries use relative lines defined as a certain percentage of national median income. This is the most frequently used measure in richer countries in the region. However, in times of crisis, changes in the percentage of people living under such poverty line may lead to counterintuitive results, because the median income to which the line relates may fall by more than the incomes of the poorest households. Counterintuitive results could also be observed in times of economic growth when the benefits of growth are distributed unequally towards the rich, in which case the higher median would show increase in the number of poor. There is consensus that no single approach is sufficient for monitoring poverty at the national and regional levels. The results from different approaches thus have to be communicated clearly, to allow correct interpretation of the different measures.

35. For national governments, the availability of comparable poverty measures can provide important information when dealing with the implementation or evaluation of policies and programmes. Without international comparisons, it is difficult for countries to measure their progress towards eradicating poverty. In the UNECE region, this implies both comparing efforts to neighbours to establish best practices in the region, and developing key statistical measures to facilitate comparison across sub-regions. It could also mean that lower middle-income countries may need to compare their approaches and poverty conditions to those prevailing in more developed economies, in order to establish programmes based on what has been done in similar contexts.

36. Use of the same poverty definitions operationalized in different ways (e.g., by using different equivalence scales, or using income rather than consumption as a welfare metric) can produce quite different results, both within and across countries. This in turn can also affect national and regional policy decisions. Moreover, the choice of definitions and indicators for monitoring countries' current state and progress faces certain trade-offs. On the one hand, ensuring international comparability suggests the use of universal definitions and harmonised methodologies; but on the other hand, a certain degree of flexibility is needed for a measure to be truly meaningful in a country-specific context—suggesting the use of indicators that reflect national characteristics. Countries should therefore measure poverty in ways that respond to their needs and policy priorities. To preserve this flexibility, keeping two poverty targets (global and national) for both monetary and multidimensional poverty is foreseen in SDG monitoring, as was the case with MDGs.

37. Many international organizations—the World Bank, OECD, UNDP, Eurostat, just to mention a few—produce poverty data. There have been continuous efforts to improve capacity in statistical offices to develop poverty measures in line with international standards. However, in most cases, these data are not comparable and often cover only a limited number of countries. A lack of comparable data across countries and time impedes effective policy actions. Data produced by countries are not always comparable internationally, largely for two main reasons:

- Country data primarily respond to national needs, which do not always correspond to international standards; and

- Country data reflect national statistical capacities, which are not always able to meet international standards.

38. Both of these concerns are relevant for the UNECE region—which is quite heterogeneous in terms of development levels, so that countries have different needs when measuring poverty. The periodicity of surveys providing poverty data varies widely between countries, with some countries conducting surveys only every 10 years.

39. National statistical offices mainly rely on two major surveys to measure poverty: the annual EU-SILC (European Union Statistics on Income and Living Conditions) survey that provides information on household disposable incomes and different types of material deprivations; and household budget surveys, which are typically conducted every three to five years. Some countries apply either surveys or measure income poverty from register data. See Annex II for a summary of countries' approaches.

2 Conceptual Background

2.1 The concepts of poverty, inequality, and social exclusion

40. Poverty and social exclusion are interlinked with inequality but cannot be reduced to inequalities of income alone (Sen, 1997). Poverty is a situation in which inequalities leave some people so far away from the social mainstream that the deprivations they experience push them below what are viewed as basic standards.

41. In practice, poverty is often operationalized and measured in terms of income or consumption poverty. Poverty lines can be defined on the basis of absolute needs (e.g., the cost of a minimum food basket plus an allowance for basic non-food basic needs), or on relative social standards that prevail in a given society at a given time.

42. One of the main sources of dissatisfaction with absolute poverty measures is that they ignore concerns about relative deprivation, shame, and social exclusion (Ravallion, 2015). Sen (1983) argued that a person's capabilities should be seen as the absolute standard but that "... an absolute approach in the space of capabilities translates into a relative approach in the space of commodities". Often people face interlinked deprivations (lack of education, meagre employment opportunities, etc.), which in turn reduce their income. ("When you work, you have friends. As soon as you lose your job, you have no friends at all"—UNDP Regional Bureau for Europe and the Commonwealth of Independent States, 2011, p. 8).

43. While poverty is a relatively static definition of disadvantage, social exclusion can be seen both as a process and as an outcome. As a process it pushes certain individuals to the margins of their society. It prevents their full participation in relevant social, economic, cultural, and political activities. As an outcome, social exclusion denotes the status and characteristics of the excluded individual. Examples of the many dimensions of social exclusion are: poverty, a lack of basic competencies, limited employment and educational opportunities, inadequate access to social and community networks and activities. Khan, Combaz, and Fraser (2015) provide a comprehensive overview of the topic and the related literature.

44. The social exclusion perspective evolved in in European welfare states to emphasise the denial of "social rights" (UNDP 2011). For example, Lenoir (1974) defined "the excluded" in contradiction to the ideal of citizenship and social justice. If poverty is defined in relation to income or material deprivation, social exclusion is defined in relation to such social rights as the right to work, the right to housing, the right to health services, or the right to education (Lister, 2004).

45. For Sen (2000), social exclusion means denial of freedoms. People may be unable to take advantage of an opportunity because of deliberate policies or social practices (active exclusion), or as a result of complex webs of social processes without intentions from anyone (passive exclusion). Social exclusion assigns a central role to social relational and unequal power relationships (Stewart et al., 2006). According to Silver (1995), social exclusion breaks the bond between society and the individual.

46. Its potential political implications make the measurement of poverty a necessarily delicate exercise. The vital relevance of exclusion (and its measurement) for the social fabric

can be illustrated in the process of European political and economic integration. After Ireland joined the European Community as one of its poorest members in 1973, three poverty programmes where launched (Room 1995, Daly 2010). Among other things this lead to the adoption of a clear-cut definition of poverty: "'The poor shall be taken to mean persons, families and groups of persons whose resources (material, cultural and social) are so limited as to exclude them from the minimum acceptable way of life in the Member States in which they live." (European Council 1984)[7]

47. Until today, the practical measurement of poverty in Europe follows the relative definition of poverty that was originally advocated by Townsend (1979). It points clearly beyond the merely monetary realm and puts emphasis on the social exclusion process. These two aspects were particularly emphasised by Berghmann (1995: 21) in the table below.

Table 2.1
Comparing the definitions of social exclusion and poverty

	static	**dynamic**
monetary	poverty	impoverishment
multidimensional	deprivation	social exclusion

2.2 The evolution of poverty measurement[8]

48. Since the 19th century different approaches to the measurement of poverty have evolved as a basis for international and comparative work. They can be broadly distinguished by their focus on physical subsistence, basic needs, and relative deprivation. More recent developments try to extend dimensions of welfare (including wealth or time) or combine multiple aspects of poverty into one single measure.

2.2.1 Physical subsistence

49. The notion of merely physical subsistence has influenced scientific practice and international and national policies for over 100 years. [9] Examples are the statistical measures adopted to describe social conditions, at first within individual countries but later with wide application by international agencies such as the UNDP, the World Bank and others.

[7] http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:31985D0008&from=EN
[8] Most of this section is based on the findings of the Rio Group, summarized and published in the Compendium of best practices in poverty measurement (2006).
[9] Welfare reform in Victorian England struggled to separate what was seen as the morally "deserving" from the "undeserving" poor. Therefore secondary poverty, which could result from suboptimal or even immoral consumption, was distinguished from unavoidable primary poverty which was defined strictly as a situation where incomes were not "sufficient to obtain the minimum necessaries for the maintenance of merely physical efficiency" (Rowntree, 1901, p.86). It ought to be acknowledged that, even in Victorian England the common understanding of poverty included a much broader population, even if their condition was perhaps considered morally justified at that time (Veit-Wilson 1986).

50. The use of "subsistence" to define poverty has been criticized because it implies that human needs are mainly physical rather than social. People are not simply organisms requiring physical energy; they are social beings expected to perform socially demanding roles as workers, citizens, parents, partners, neighbours, and friends (Lister, 1990). Moreover, they are not simply consumers of physical goods but producers of those goods and also expected to act out different roles in their various social associations. They are dependent on collectively provided utilities and facilities. These needs apply universally and not merely in the rich industrial societies.

51. Physical needs have been included in the categorisation of "absolute" poverty, which is sometimes further qualified as "extreme" or "severe."[10] These needs, however, are subject to change because of shifts in social activity and demand patterns. The need for material goods, their relevance to the society of the day, and even the goods themselves, are not, after all, fixed or unvarying. The amount, quality and cost of food depend on work, climate, and social customs. Therefore, material needs turn out to be socially determined in different ways.

2.2.2 Basic needs

52. By the 1970s, a second formulation—that of "basic needs"—began to exert wide influence, and was supported strongly by ILO. Two elements were included: the minimum consumption needs of a family (i.e., adequate food, shelter and clothing, as well as certain household furniture and equipment); and essential services provided by and for the community at large, such as safe water, sanitation, public transport and health care, education, and cultural facilities. Furthermore, in rural areas, basic needs also include land, agricultural tools, and access to farming. The "basic needs" concept is an extension of the subsistence concept. In addition to material needs for physical survival, it also includes access to those facilities and services, such as health care, sanitation, and education that are required by local communities and populations. In the past as well as nowadays, restricting the meaning of poverty to material and physical needs seems easier than to include the non-fulfilment of social roles specific to each individual.

2.2.3 Relative deprivation

53. Townsend (1979) proposed a third formulation of the meaning of poverty: relative deprivation. The term "deprivation" includes material and social conditions which are relevant to subjective poverty and perceptions about poverty in a society. The term "relative" implies that poverty standards need to be gauged against their specific social context which varies over time.

54. With rapid social change it may be difficult to justify a poverty standard devised in the past. People living in the present are not subject to the laws, obligations, and customs that

[10] An "absolute" poverty line refers to the approach of establishing a poverty line, while "extreme" and "severe" refer to how low the threshold is set. Therefore, not all absolute poverty lines necessarily refer to "extreme" poverty. In practice, many countries use multiple absolute poverty lines, to identify the poor and the poorest (extreme poverty line).

applied to the previous century. Globalisation is connecting peoples and making them more aware of differences in standards of living, while inequalities within and between countries are growing. There are, therefore, major objections to merely updating any historical benchmark of poverty on the basis, for example, of the price index.

55. Poor people are not just victims of a misallocation of resources. They rather lack, or are denied, the resources needed to fulfil social demands and observe the customs and laws of society. This realisation led to the development of "relative deprivation" approach, under which a threshold in each dimension of poverty is envisaged, according to prevailing social norms, below which withdrawal or exclusion from active membership of society is common.

56. Relative measures are most frequently used in wealthier societies. For example, the current EU definition of poverty and social exclusion combines income poverty that is defined on an annually determined relative threshold with non-monetary deprivations that are not changed over time.[11] One of the five headline targets of the Europe 2020 strategy is to reduce poverty by lifting at least 20 million people out of the risk of poverty or social exclusion by 2020. The headline indicator to monitor this poverty target is the AROPE indicator "at risk of poverty or social exclusion", showing people who face at least one of the following conditions:

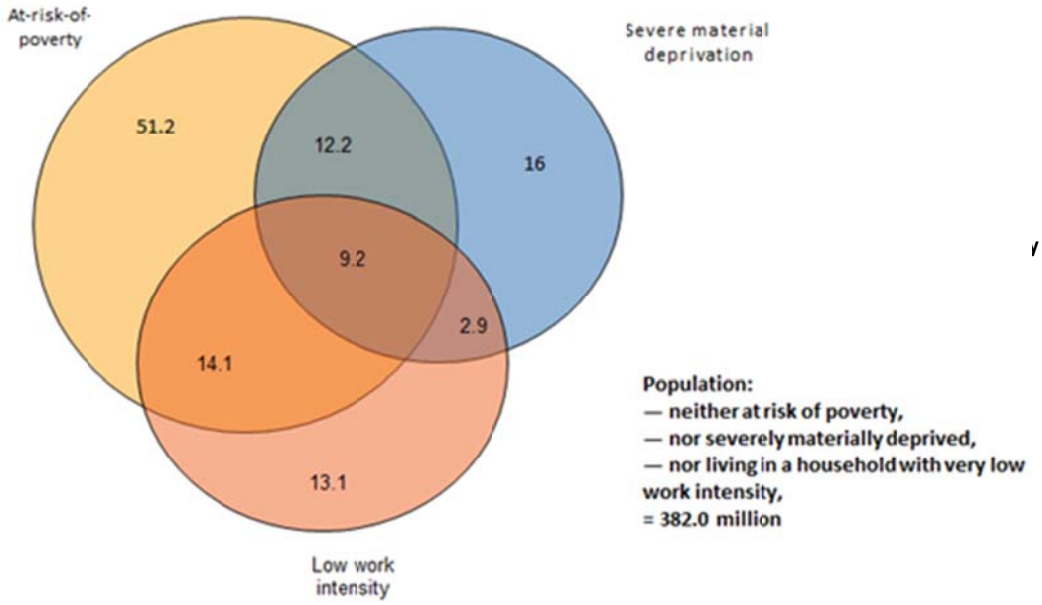
- They are at risk of living in income poverty after social transfers (their equivalised disposable income is below their national at-risk-of-poverty threshold, which is set at 60% of the national median equivalised disposable income);
- They are severely materially deprived—they cannot afford at least four of nine items deemed to be essentials[12] (a detailed list of EU deprivation indicators is available in chapter 4); or
- They live in households with very low work intensity (defined as people from 0–59 years of age living in households where adults [those aged 18–59, but excluding students aged 18–24] worked less than 20% of their total potential during the previous 12 months).

57. In the European Union, people are considered to be at-risk-of-poverty or social exclusion if they face at least one of these risks. Nearly 120 million people (representing about a quarter of the EU population of about 500 million) fell into this category in 2015. Around 32% of those people who were at risk of poverty or social exclusion within the EU-28 in 2015 faced a combination of two or even all three of these risks. Figure 2.1 illustrates the combination of those risks for the EU population in 2015.

[11] For further details see http://ec.europa.eu/eurostat/statistics-explained/index.php/People_at_risk_of_ poverty _or social_exclusion.

[12] The concept of "enforced lack" (wanting the item but not being able to afford it) is used. The list of deprivation items is currently under revision and a new definition is expected to consist of 12 items.

Figure 2.1
Numbers of persons at risk of poverty or social exclusion by type of risks, EU-28, 2015
(Millions)



Source: Eurostat (online data code: ilc_pees01).
Note: The sum of the data for the seven groups at risk of poverty or social exclusion differs slightly from the total (published elsewhere) due to rounding estimates.

2.2.4 Wealth

58. In more prosperous economies even relative standards of deprivation or income may fail to capture inequalities which determine personal freedom and participation in society. The possession of wealth is a particularly relevant metric that potentially determines poverty conditions and how to cope with them.

59. Compared with income, wealth (a stock measure) is more stable over time, reflecting accumulated saving and investments (although it can decline dramatically in the case of crashes in investment or housing markets). Wealth allows individuals to smooth consumption over time and offers protection against unexpected changes to income. Households that are "asset rich and income poor" can be expected to have a higher material standard of living than would be indicated by their income alone. While some wealth is held in assets that are not easily converted into money, its existence may allow its owners to borrow to finance expenditures, e.g., for house extensions, motor vehicle purchases, and so on. Chapter 3 discusses the issue of wealth and poverty in further detail.

2.2.5 Time poverty

60. The notion of "time poverty" is being increasingly used to describe groups of people whose disposable incomes may be high enough to keep them out of poverty, but only because they work long hours and therefore have relatively little time for personal

maintenance, social care, or leisure as a result.[13] Joint analysis of income and time allows for the in-depth exploration of such issues as the gender and poverty interface. It allows for a focus on vulnerable people who may be missed by traditional income poverty measures—for example, those who have to work long hours to attain incomes that are above the poverty line, or those who cannot take a job because of family care obligations, or those "time poor" individuals who could reduce their work hours without risking income poverty but keep on pushing because of stereotypes. Long hours on the job are the main cause of time poverty for both men and women—but the effects on women are more drastic. Country examples in time poverty are illustrated in Box 2.1.

Box 2.1

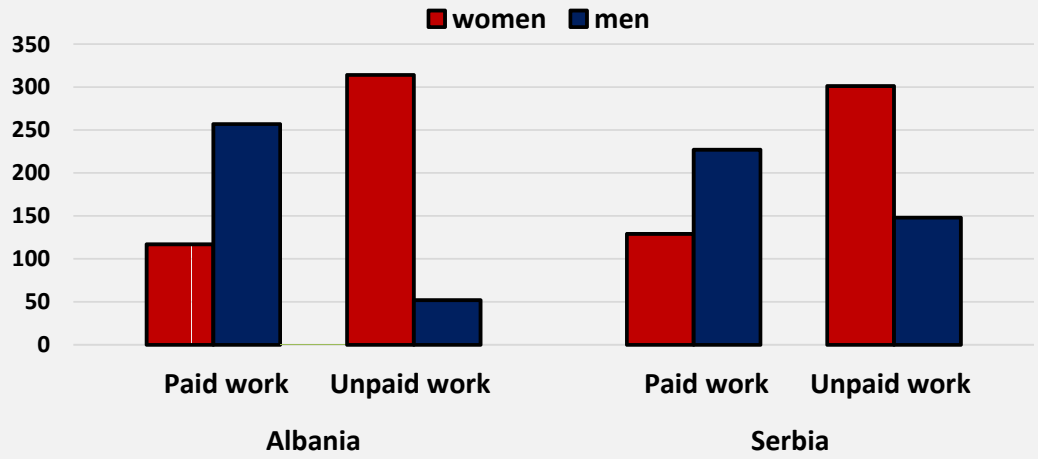
Time poverty—country examples

In Turkey, among full-time workers, the time poverty rate of women was found to be nearly twice that of men (70% versus 37%), and among part-time workers it was more than nine times as high (37% versus 4%—Zacharias et al., 2014). This suggests that gender differentials in time poverty do not result mainly from differences in hours of paid employment, but rather from women's greater engagement in unpaid household production activities—leaving less time for remunerated work. Some one million non-employed women in Turkey were estimated to be time poor because of their extensive household production engagements. The study also found a higher incidence of time poverty among the consumption-poor as compared to non-poor persons (65% versus 37%). This ratio is even more pronounced with regard to women: for employed men, 42% of the consumption-poor were found to be living in time poverty, versus 29% of the consumption non-poor. For employed women, these rates were 68% and 48%, respectively. Consumption-poor urban and rural women had the highest rates of time poverty. Since the majority of the rural, time-poor employed women work without pay on the family farm or enterprise, the impoverishing effects of time deficits may be harder on them than on wage workers.

Research measuring the value of unpaid care work in Albania and Serbia indicates that women perform more than twice as much unpaid labour as men (Table 1). In Albania, women spent over 5 hours per day on unpaid labour versus just less than an hour for men. In Serbia this disproportion was lower but still large, with women spending on average some 5 hours of unpaid work per day, compared to over 2 hours by men.

[13] In 2013 UNECE has published the "Guidelines for Harmonizing Time-use Surveys" to help statisticians and policymakers understand the importance of these surveys, provide guidance in their design and use, and improve the international comparability of their results.

Figure 1
Time use in Albania and Serbia, 2010-2011
(Minutes per day)



Source: Human Development Report (2015).

2.2.6 Multidimensional poverty[14]

61. All monetary approaches lead at best to indirect representations of welfare and have been theoretically challenged (Ringen 1988). Measures of poverty that go beyond monetary indicators appear in various conceptual frameworks such as social exclusion and inclusion,[15] basic needs,[16] social cohesion,[17] capability poverty,[18] multidimensional poverty,[19] and clustered disadvantage,[20] among others. Each concept is distinct, yet each talks about different aspects of human well-being or disadvantage directly, and suggests that these non-monetary aspects should be measured.

62. For example, in the 1960s Europe moved towards the development of social indicators to complement income measures (Atkinson et al., 2002). Key innovations included the 1968 Swedish Level of Living Study (Johansson, 1973; Allardt and Uusitalo, 1972), Jacques Delors' 1971 *"Les indicateurs sociaux",* and Peter Christian Ludz's "*Materialien zum Bericht zur Lage der Nation"* (1971). The above mentioned multidimensional concept of "social exclusion" (Lenoir, 1974) also motivated the development of social indicators. Naturally, other concepts are also in use; for example, the Council of Europe has published a methodological guide to indicators of "social cohesion", defined as "society's ability to secure the long-term well-being of all its members, including equitable access to available resources, respect for

[14] This section draws on Chapter 4 of Alkire, Foster, Seth, Santos, Roche and Ballon (2015).
[15] Lenoir (1974), and the history in Atkinson and Marlier (2010).
[16] Streeten et al. (1981), Stewart (1985).
[17] Council of Europe (2005, 2008).
[18] Anand and Sen (1997).
[19] Alkire et al. (2015).
[20] Wolff and De-Shalit (2007).

human dignity with due regard for diversity, personal and collective autonomy and responsible participation" (2005, cf 2008).

63. The need to better measure non-monetary aspects of development was reflected internationally by the *Cocoyoc Declaration* (1974) of UNEP/UNCTAD. The advent of the basic needs concept led to efforts to measure them using census data across Latin America beginning with Chile in 1975 (Feres and Mancero, 2001). Social indicators were also developed by the World Bank (Streeten et al., 1981). Conceptually, these efforts drew on Sen's capability approach. Sen proposes that social arrangements should be evaluated with respect to people's capabilities—their freedom to enjoy valuable "doings and beings". In the 2000s, the *Voices of the Poor* studies (Narayan et al., 2000) provided renewed interest in wider approaches to poverty, because that is how poor people talk about it. *Voices of the Poor* drew on Amartya Sen's capability approach work, and used the term "multidimensional poverty". The MDGs (launched in 2000) also drew together existing standards in different indicators to propose a harmonised set of indicators of which monetary poverty was just one element.

64. In the 2030 Agenda for Sustainable Development, the worldwide consensus has shifted to view poverty as multidimensional. Precursors to this conceptual shift include (1) academic writings such as by Amartya Sen (1990, 1991); (2) inputs from poor persons and non-governmental organisations, consultations leading up to the Sustainable Development Goals; (3) an increasingly visible academic literature on multidimensional poverty measurement; and (4) the pioneering leadership of countries such as Colombia, Mexico, China, South Africa, Bhutan, Pakistan, and others in using multidimensional poverty statistics to complement monetary measures and guide policy.

65. Informed by this emerging consensus, the pivotal SDG document *Transforming Our World: The 2030 Agenda for Sustainable Development* identifies, in its second sentence the global challenge of reducing poverty in "all its forms and dimensions," as the foremost challenge of our time. The SDGs transparently consider poverty to be multidimensional, repeating this multiple times throughout the document. Specifically, SDG target 1.2 is, "By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions".

66. The SDG view of poverty as multidimensional is also shared by other organisations. For example, the World Bank's Atkinson Commission Report "*Monitoring Global Poverty"* (World Bank, 2017), advised to use a six-dimensional measure of overlapping deprivations based on the methodology of Alkire & Foster as a complementary measure of global poverty. The report advised that this measure should cover health, nutrition, education, work, living standards, and violence. Hence there is an emerging consensus that multidimensional measures of poverty should complement monetary ones, and that the methodology described in this handbook is at the forefront of this change. And since 2010, the UNDP was a pioneer in launching and reporting the global MPI and in supporting national and regional MPIs.

67. Many countries are using the MPI to measure progress towards SDG 1, and as a governance tool. An MPI supports the SDG agenda as follows:

- **Leave no one behind:** MPI analysis tracks progress on poverty for different groups, showing who is poorest, how they are poor, and whose poverty reduces fastest.

Many MPIs are disaggregated by sub-national regions, by rural and urban areas, and by groups such as age cohort or ethnic groups. Disaggregated analysis helps to achieve a crucial SDG aspiration: ensuring no one is left behind.

- **Monitor progress:** the MPI is used to track and compare multidimensional poverty over time. National MPIs are used to compare regions and groups within a country;
- **Integrated, coordinated policy:** In many countries, the MPI is used by senior policymakers to coordinate policy and to understand and track the impact of their policies on the poor, helping to break down silos and intensify policy impact.
- **Universal relevance:** National and regional MPI measures are tailor made to context. They address poverty while reflecting policy priorities and relevant indicator definitions.

68. The theme of the 2017 United Nations High Level Political Forum for Sustainable Development was "Eradicating poverty in all its forms and dimensions". In 2016 and 2017 many countries have been reporting progress on multidimensional poverty reduction in their Voluntary National Reviews.

2.3 Methodological choices

69. The spectrum of poverty measurement approaches varies from purely monetary to non-monetary aspects, with much variation (see Table 2.1). Measurement choices are often implicit, and can have a profound impact on results and related policies.

70. The first choice is what to measure: income, consumption, or broader capabilities? The most common approach is to measure monetary poverty, based on indicators of income or consumption as proxies for material living standards. These are the conventional poverty measures that use information on household income or consumption estimates (see chapter 3).

71. Monetary and multidimensional poverty measures are complementary. Both are valuable for identifying poor people and shaping policy. They provide different insights. For instance, the Multidimensional Poverty Index (MPI) developed at Oxford University with the UNDP's Human Development Report Office uses ten indicators to measure three critical dimensions of poverty at the individual level: education, health, and material living standards (For more on this see Chapter 5.) These indicators measure deprivations in health and educational outcomes as well as in access to key services such as water, sanitation and electricity. In the mid-2000s, the number of people living in extreme poverty in Europe and Central Asia was 12 million according to the MPI, while 23 million lived on less than PPP$1.25/day. Nonetheless, multidimensional poverty was relatively low in most of these countries.

72. What can be surprising is the common finding that people who are multidimensionally poor, or deprived in non-monetary indicators, are not necessarily income poor. Divergences between monetary poverty and multidimensional poverty indicators mean that neither is a sufficient proxy for the other; both need to be measured (see Box 3.5). Moreover, reducing non-monetary deprivations often requires different policies than reducing income poverty.

73. A helpful survey of empirical research on commonly observed mismatches between different poverty indicators is found in Nolan and Whelan's 2011 book *Poverty and Deprivation in Europe.* Nolan and Whelan offer a systematic review of "why and how non-monetary indicators of deprivation can play a significant role in complementing (not replacing) income in order to capture the reality of poverty in Europe" (p. 1). Another literature survey is found in Chapter 4 of Alkire et al. (2015).

Table 2.2
Different approaches to poverty measurement

Unidimensional	Monetary	Income based	Absolute poverty lines	National thresholds specific for individual countries, in the national currency	1. Cost of basic needs
					2. Subsistence minimum
				Internationally comparable thresholds	3. Severely poor with income below 1.9 PPP$
					4. "Just poor" with income below 3.1 PPP$
			Relative poverty lines	Share of the median (or mean) income	5. Relative low income (example: below 50% or 60% of the contemporary median equivalised income in each country)
					6. Relative low income anchored at a fixed point in time
					7. Weakly relative poverty line
		Expenditure based	Absolute poverty lines	National thresholds specific for individual countries, in national currency	8. Cost of basic needs
					9. Subsistence minimum
				Internationally comparable thresholds	10. Severely poor with expenditures below PPP$1.90/day
					11. "Just poor" with expenditures below PPP$3.10/day
			Relative poverty lines	Share of the median (or mean) expenditure	12. Relative low expenditure (example: below 50% or 60% of the current median equivalised expenditure in each country)
					13. Relative low expenditure anchored at a fixed point in time
					14. Weakly relative poverty line
	Food energy intake (FEI)				15. Nationally specific FEI-based poverty rates (varies by climate conditions, rural/ urban distribution, type of occupation, etc.)
Multidimensional	Deprivations				16. Indicator dashboards
					17. Indices of multiple deprivation, including material deprivation
	Multidimensional poverty estimates – internationally comparable (following the methodology developed by OPHI and used for international comparisons and in the Global HDRs published by UNDP)				18. Multidimensional poverty index (thresholds for the various dimensions)
	Official national multidimensional poverty indices, following the methodology developed by OPHI				19. Severely poor
					20. Moderately poor

Source: Modified from Ivanov and Kagin (2014).

74. The second fundamental question is who should identify inadequacy: the analyst (as in most monetary and non-monetary approaches), or people themselves (subjective poverty)? While there are no internationally agreed measures on subjective poverty, national examples of its measurement and determinants exist. This Guide proposes future work that would lead to a few robust internationally comparable indicators on subjective poverty (see Section 6.8).

2.4 Measurement issues

2.4.1 Non-coverage

75. Poverty statistics should in theory cover all of the population of interest. However, when measuring poverty through poverty surveys it should be recognised that certain categories of people who may be likely to be poor are frequently omitted from the sampling frame since they do not live in households. This is of particular concern for the hard-to-reach groups, such as homeless people (including street children), drug users, sex workers, people who are in institutions, including elderly care homes, children's homes, and mental health institutions; Roma; people in temporary accommodation or hostels; prisoners; and refugees in camps or illegal immigrants are notoriously difficult to access in a systematic way. These groups usually require special approaches—either because of unrepresentative sampling concerns, or because they may face special forms of deprivation or exclusion. For instance, while children in institutions may have their basic needs (food, clothes, shelter, etc.) covered, they may lack the social skills needed for inclusion—which is not captured by standard surveys.

2.4.2 Disaggregation

76. Disaggregation is necessary to provide a detailed picture of certain population groups. This is a key aspect of Agenda 2030's aspirations "to leave no one behind". Most often, disaggregation entails survey design to allow for the collection and analysis of data concerning age, sex, education level, occupation, and place of residence. Disaggregation by employment and health status, and ethnicity, can also be of key importance.

77. The collection of data that are disaggregated by ethnicity can be challenging. On the one hand, respondents may view this as sensitive information that can potentially be misused. On the other hand, policymakers need statistical information to rectify any discrimination and unequal treatment by ethnicity.

2.4.3 Equivalence scales

78. When monetary measures are used, the choice of equivalence scale can be decisive. Such a scale is commonly used to adjust household resources in order to take into account shared consumption, housing and specific needs (Lanjouw, Milanovic and Stefano, 1998; World Bank, 2000). Economies of scale arise, for example, by sharing expenditures on

housing, utilities, car or newspapers. Apart from household size, the age or gender of household members may also influence the amount of income or consumption needed to attain a certain level of well-being. Measures of the incidence of poverty among children and the elderly are particularly affected by the choice of equivalence scale.

2.4.4 Poverty dynamics

79. When analysing poverty trends, it is important to ask: Are the poor the same this year as last year? Have they just fallen in poverty, or is their poverty recurrent? In other words, it is important to measure poverty from a longitudinal perspective. For example, in the Netherlands in the 1980s and 1990s, high levels of economic growth and significant increases in labour market participation did not reduce poverty. However, data from the lower end of the income distribution showed that poverty spells were generally of short in duration. In addition to the magnitude and duration of low income status, attention should be paid to the extent to which poverty is recurrent (Fourage and Layte, 2005). The higher income mobility or volatility and the shorter the duration of poverty, the higher the proportion of people experiencing poverty at least once during the reported period, thus the higher the reported poverty rate will be.

80. In the Republic of Moldova during 1997-2002, a decomposition of poverty into chronic and transient components revealed that poverty was mainly chronic, accounting for as much of 90% of the people classified as poor (Beegle, 2004). That is, despite transitions among households in terms of rank, a very large fraction of the poor in any year are likely to remain poor in the next period. Using the set of panel households interviewed in four consecutive years, the analysis showed that around 25% of households were poor in every period. Only 14% of households were not poor in any of the four survey rounds. While the vast majority of the population was exposed to poverty during 1997-2002, a sizeable core group of households remained poor throughout the entire period.

81. Knowing the length of time that a household has been poor is crucial for understanding the short- and long-term impact of poverty. Although short spells of poverty are always unwelcome, they may not threaten subsistence or significantly damage life prospects if individuals and households can reduce expenditure, run down savings or borrow. However, these tactics are unlikely to be sufficient in the long run. Only by using longitudinal data one can understand the processes behind cross-sectional statistics: the events leading individuals into and out of poverty, and the associated impact on their living standards. Longitudinal poverty analysis can also identify ways in and out of poverty, which can help policymakers adopt better safety nets or other inclusion policies.

2.4.5 Reporting on poverty and inequality

82. Discrepancies between international and national databases often result from differences in the ways in which the associated indicators are defined and reported. In the MDG reporting context, for example, despite the existence of the official global list of goals,

targets, and indicators issued by the United Nations,[21] most countries provided data on only some of these (see Table 2.2).

Table 2.2
Reporting on MDG indicators in international and national databases

Country	1.1 Proportion of population below PPP$1/day	1.1a Proportion of population below the national poverty line	1.2 Poverty gap ratio	1.6 Proportion of employed people living below PPP$1/day
Albania	I	B2	B*	
Armenia	B2	B2	B*	B*
Azerbaijan	I	B2	B*	N*
Belarus	I	B2	I	
Bosnia and Herzegovina	I	B2	I	
Bulgaria	I	B	B*	
Croatia	I	B	I	
Czechia	I	N2	I	
Georgia	B2	B	B2*	
Hungary	I	B2	I	
Kazakhstan	I	B2	B*	I
Kyrgyzstan	B2[3]	B2	I	
Latvia	I	B2	I	
Montenegro	I	B	B*	
Republic of Moldova	I	B2	B*	
Romania	I	B2	B*	
Serbia	I	B2	I	N*
Slovakia	I	N2	I	
Slovenia	I	N	I	
Tajikistan	B[2,3]	B2	I	I
TFYR Macedonia	I	B	B*	
Turkey	B	B2	B*	I
Turkmenistan	I	N2	I	
Ukraine	I	B2	I	N*
Uzbekistan	I	N	I	

Source: United Nations Economic Commission for Europe, *Report on the differences between national and international reporting about MDG 1 prepared for the Regional Workshop on poverty and employment indicators of the Millennium Development Goal 1, Almaty, 27-28 September 2011.*

Note: **I –** International database, **N –** National database; **B –** Both databases; **B2, N2 –** At least two definitions are used for this indicator in the national database; *** -** In the national data series, the index is computed on the basis of the national poverty line; **** -** In the national data series, the index is computed for children under three years of age; **[1] -** The international series also presents data disaggregated by gender; **[2] -** The international series also presents data disaggregated by gender; **[3] -** The national series also presents data disaggregated between rural and urban areas. Empty cells indicate that the corresponding figures do not appear in either database, for any of the years taken into consideration (from 1990 to 2009).

83. Some poverty indicators may appear only in international data series, whereas others may only appear in national series. Moreover, for indicators that are included in both sets of

[21] See http://unstats.un.org/unsd/mdg/Host.aspx?Content=Indicators/OfficialList.htm

databases, definitional variations can produce significant differences in the values reported for national and international purposes (see Table 2.3).

Table 2.3
Shares of population living below income poverty lines, for selected countries, 2009-2012

Country	Population below national poverty line, per cent	Population below PPP$1.25/day, per cent	Year
Albania	14.3	0.5	2012
Armenia	32.4	1.8	2012
Belarus	7.3	0.0	2011
Bulgaria	21.3	1.9	2011
Czechia	9.7	0.0	2011
Estonia	18.7	1.0	2011
Georgia	14.8	14.1	2012
Hungary	14.1	0.1	2011
Kazakhstan	6.5	0.1	2010
Kyrgyzstan	36.8	5.1	2011
Latvia	19.3	1.1	2011
Lithuania	18.6	0.8	2011
Montenegro	9.4	0.2	2011
Poland	17.1	0.0	2011
Republic of Moldova	17.5	0.2	2011
Romania	22.7	0.0	2011
Russian Federation	13.0	0.0	2009
Serbia	24.7	0.1	2010
Slovakia	13.3	0.3	2011
Tajikistan	47.2	6.5	2009
Ukraine	8.9	0.0	2010

Source: The official United Nations site for the Millennium Development Goals Indicators, maintained by the United Nations Statistics Division. Available from http://mdgs.un.org/unsd/mdg. Last accessed 20.12.2016.

Note: 0.0 refer to the percentage smaller than 0.05. "Population below national poverty line" refers to the percentage of the population living below the national poverty line, which is the level deemed most appropriate for the country by its authorities. Population below PPP$1.25/day refer to the percentage of the population living below the international poverty line of PPP$1.25/day.

84. Complications in measuring inequality result from the fact that the most common international databases that show income distribution data for the countries of the region —such as POVCALNET or SWIID— often present data that differ from what can be found on the public websites of the national statistical offices in the region.

2.4.6 Measuring non-monetary poverty

85. Multiple approaches have emerged in response to the need to measure non-monetary poverty. Broadly speaking, these can be divided into two groups. The first consists of dashboards of carefully defined and validated social indicators, which present each indicator separately and unidimensionally. Taken together, these measures can offer empirical insights into the different aspects of poverty considered one by one; they can also draw on different datasets.

86. The second group consists of Multidimensional Poverty Indices (MPIs), which combine individual deprivation indicators that contain deprivation thresholds into aggregated, composite measures (Alkire and Foster, 2011; see also Chapter 5). In the case of multidimensional poverty, the identification of who is poor (according to one or several poverty thresholds) is usually based on the joint distribution of individual or household deprivations, and often uses a counting approach (Atkinson, 2003). These may or may not include income or expenditure poverty among the dimensions.

3 Monetary Poverty

3.1 Concepts and methods

3.1.1 Introduction

87. As set out in the previous chapter, monetary indicators are by far the most commonly used instrument for measuring poverty. Income or consumption are usually used as proxies for low living standards.

88. Income refers to the ongoing flow of economic resources that a household receives over time. It includes wages, salaries, and money earned through self-employment as well as private pensions, investments and other non-government sources, and cash benefits/social transfers. The main international standards describing the concepts and components of household income in micro statistics are contained in the Canberra Group Handbook on Household Income Statistics (UNECE, 2011). Income is important in this context as it allows people to satisfy their needs and pursue many other goals that they deem important. Those with low incomes typically have restricted capacities to consume the goods and services they need to participate fully in the society in which they live.

89. Consumption is the use of goods and services to directly satisfy a person's needs and wants, whilst consumption expenditure is the value of consumption goods and services paid for by a household. Considered simply, and everything else being equal, people with lower levels of consumption or consumption expenditure can be regarded as having lower levels of current economic well-being. Many economists would argue that consumption is a more important determinant of economic well-being than income alone. Indeed, Brewer and O'Dea (2012) and others (see Noll, 2007 for a review) argue that it is preferable to consider the distribution of consumption rather than income, on both theoretical and pragmatic grounds. However, there are a number of reasons why many countries prefer income based poverty measures. The pros and cons of each approach are discussed later in this chapter.

90. Monetary poverty measures can broadly be divided into two types: absolute and relative. Absolute poverty lines represent the value of a set level of resources necessary to provide a given minimum standard of well-being. Perhaps the most widely recognised absolute measure is the PPP$1.90/day (in 2011 prices) line for extreme poverty, which has been established by the World Bank. However, different absolute poverty lines are used in many countries. For example, the United States Census Bureau uses an absolute poverty threshold, which stood at $12,071 a year in 2014 for a single adult household.

91. By contrast, relative measures utilise poverty lines that are set in relation to the average situation within a society. Typically, these lines are based on either mean or median income or expenditure. The rationale for such an approach comes from a definition of poverty that moves beyond absolute destitution to considering individuals' capacity to participate fully in society. An example of such a definition is that set out by the European Council in 1975, which states, "*People are said to be living in poverty if their income and resources are so inadequate as to preclude them from having a standard of living considered acceptable in the society in which they live*." This definition is operationalised through the

European Commission's indicator based on the proportion of individuals living in households with equivalised disposable incomes below 60% of the national median. The OECD uses a similar approach in their statistics, setting relative poverty thresholds at 50%-60% of the median equivalised disposable income of the entire population. SDG indicator 10.2.1 (which is to be used to monitor progress toward meeting SDG10—"reduce inequality within and among countries") focuses on reducing the share of national populations living below 50% of median income—using data that are disaggregated by age, sex, and persons living with disabilities.

92. Despite their usefulness and ubiquity, there are a number of limitations to monetary indicators of poverty. Importantly, low household incomes or low levels of consumption do not necessarily imply low standards of living. A household with a low income may be able to enjoy higher living standards by using savings or taking on debt (based on expectations of higher income in the future). Additionally, levels of wealth are typically not taken in account in monetary poverty indicators. Similarly, and depending on the thresholds used, low levels of consumption may in part reflect individual choices or non-monetary constraints (e.g., elderly people with physical limitations that limit their mobility may have low consumption levels despite adequate financial resources). More generally, monetary measures based on private household resources do not necessarily reflect access to basic services such as education, healthcare, water and infrastructure.

93. Such limitations are often recognised in the way that monetary poverty indicators are described in publications both by national governments and international organisations. For example, the United Kingdom Department for Work and Pensions refers to "relative low income" in their published statistics, whilst Eurostat reports on "at-risk-of-poverty rates" (Department for Work and Pensions, 2016; Eurostat, 2016).

3.1.2 Unit of observation

Recommendation 1: In producing data on income or consumption, the normal unit of observation should be the household, for both practical and conceptual reasons.

94. If data are collected through household surveys, it is often impractical and expensive to collect detailed data from all members of the household. More importantly, it is often very difficult or impossible to allocate economic flows to single individuals within the household or family unit. For example, certain types of income from social protection payments may be allocated at the household or family, rather than the individual level. Similarly, it is challenging to allocate expenditures that are carried out on behalf of the whole household to its individual members.

95. The need to measure income at the household level is perhaps best illustrated in the case of families with children. The children will typically have few, if any, economic resources of their own and rely predominantly on intra-household transfers from their parents. The measurement of such intra-household transfers is, at best, difficult, but by considering the household as the basic statistical unit, the need to do so is removed.

96. The measurement of economic resources at the household level presents a number of issues, however. First, it is generally necessary to assume that resources are shared equitably amongst all members of the household. In reality, there may be an unequal

distribution of resources between men and women or between different generations within the household. The limitations of this assumption have been widely recognised for some time (Jenkins, 1991) and research on time poverty (and in other areas, for example, Ponthieux, 2013) has attempted to better understand intra-household sharing of resources and its implications for poverty statistics. However, substantial methodological and data collection challenges have limited progress in this area. As a result, reliance on households as the basic unit of account remains integral to almost all published poverty statistics.

97. In determining whether a given level of household economic resources is sufficient to meet basic needs or allow participation in society, the number of people in the household clearly needs to be taken into account. The simplest approach to dealing with this is to consider household income or consumption per capita. This is the method used in the World Bank's PPP$1.90/day and PPP$3.10/day poverty lines. However, such an approach fails to account for economies of scale within households. For example, a household of three adults is likely to need a higher income to enjoy the same standard of living as a single person household, but not necessarily three times the income. Additionally, the per capita approach also assumes that the level of resources needed by, for example, a 40-year-old woman is the same as that needed by an 8-year-old boy. To account for these points, so-called equivalence scales are often used. These are discussed later in this chapter.

3.1.3 Unit of analysis

98. Although income and consumption are normally measured at the household level, this does not change the fact that poverty is experienced by individuals. Policies should likewise seek to improve the welfare of individual citizens, regardless of their status within the household.

Recommendation 2: Poverty statistics should be **reported** at the individual level, with the indicators describing, for example, the number of individuals in a population living in households below the poverty line.

3.1.4 Household definition

99. The Canberra Handbook (p. 64) sets defines a household as:

Either (a) a person living alone in a separate housing unit or who occupies, as a lodger, a separate room (or rooms) of a housing unit but does not join with any of the other occupants of the housing unit to form part of a multi-person household or (b) a group of two or more persons who combine to occupy the whole or part of a housing unit and to provide themselves with food and possibly other essentials for living. The group may be composed of related persons only or of unrelated persons or of a combination of both. The group may also pool their income.

100. This definition is based on the definition of a private household used in the Conference of European Statisticians (CES) Recommendations for the 2010 Censuses of Population and Housing (UNECE, 2006) and should be considered the recommended benchmark for poverty measurement.

101. In line with the CES census recommendations, the place of usual residence should be the basis for household membership. The recommendations distinguish a number of special cases. For example, those who work away from family home during the week and return during the weekends (place of usual residence is family home), school children away from home during term-time (place of usual residence is family home), or a child alternating between multiple residences (place of usual residence should be the address where most time is spent). In the case of a child truly spending equal time in multiple addresses, the legal address should be used. In all cases, those involved in the measurement of poverty should include within the metadata the definition of household used and the approach for the allocation of individuals.

102. Although it is recommended that households should be defined on a usual residence basis, it is recognised that different family structures and individual choices do provide a challenge in both measurement and conceptual terms, in particular the impact of children who are not usual residents of a household but do live there sometimes under a shared care arrangement. The Australian Bureau of Statistics plan to examine the impact of such arrangements on household economic resources and housing in future research. This will include an examination of equivalisation practices.

103. Individuals and families not living in private households provide a practical challenge for the compilation of poverty statistics and these are discussed in the next section, along with other population sub-groups that are sometimes omitted from official statistics.

3.1.5 Population coverage

104. Poverty statistics should cover all of the population or sub-population of interest. However, as with all social statistics, the practical limitations of data collection mean this is not always straightforward or even possible. This is a particular issue for poverty measurement, as it is often the case that poverty is more prevalent among hard-to-reach groups.

3.1.5.1 Communal establishments

105. Communal establishments or institutional households comprise persons whose need for shelter and subsistence are being provided by an institution. An institution is understood to be a legal body for the purpose of long-term inhabitation and provision of services to a group of persons. Institutions usually have common facilities shared by the occupants. The great majority of institutional households are considered to fall into the following categories: residences for students; hospitals, convalescent and old people's homes; assisted-living facilities and welfare institutions; military barracks; correctional and penal institutions; religious institutions; and worker dormitories.

106. The vast majority of household statistics collected through social surveys do not cover communal establishments, largely due to the practical difficulties associated with data collection, though there are additional challenges associated with the definition of household income or consumption in such establishments. The survey of country practices carried out for the latest edition of the Canberra Handbook revealed that none of the responding countries' income micro-statistics covered communal establishments such as

university halls of residence or institutions for long-term care. The collection of consumption data from communal establishments is likely to be particularly challenging, both conceptually and in practice.

3.1.5.2 Homeless

107. Those with no usual place of residence are also not covered by standard household surveys designed to measure income or consumption. However, they also typically represent some of the poorest and most vulnerable individuals in society. Homeless households include those living in temporary or insecure accommodation, as well as those who are sleeping rough.

108. Whilst it may not be possible to include homeless households within standard household surveys, it is important to consider alternative ways in which such households can be captured in information about poverty. The approach used is likely to vary across countries according to the information available. In Nordic countries, for example, data on population registers may be of some use. In Australia, the wider scope and coverage of the Census of Population and Housing, which uses a special enumeration strategy to target rough sleepers, people in supported accommodation and those living in overcrowded households, allows the limitations of private household survey collection to be overcome. Elsewhere, it may be possible to make use of information collected by local government or other agencies, as well as the voluntary sector.

109. Italy's experience of collecting data for the homeless population is described in Box 3.1.

Box 3.1
Collecting data on the homeless in Italy

Surveys of homeless people, conducted in 2011 and 2014, were part of a research project on the conditions of people living in extreme poverty, following an agreement between Istat, the Ministry of Education and Social Policy, the Italian Federation of Associations for the Homeless (fio.PSD), and the Italian Caritas organisation.

The first stage of this research was to define the reference population (Istat, 2014) using the common operational definition for comparative research provided by the European Typology on Homelessness and Housing Exclusion (ETHOS) (Amore et al., 2011). The definition adopted was based on the roofless and houseless subgroups. The former includes those living rough and those staying in a night shelter. The latter includes people living in homeless hostels and other forms of temporary accommodation. Not included in the study were those defined as experiencing housing exclusion, rather than homelessness, under ETHOS. This group includes those living temporarily with family or friends, or those living in extremely overcrowded conditions.

Sample design for homeless people requires a time-location sampling type, where the individuals belonging to the population of interest are identified by the places they frequent and their periods of frequency. For this study, the places that homeless people frequent are taken as the locations providing services to meet their needs, as well as the public spaces in which they

spend time (De Vitiis et al., 2014).

In contrast to household surveys, no pre-existing sampling framework for the referenced population was present. Two approaches were instead considered: the first involved selecting individuals at canteens and night shelters (known to be frequented by large numbers of homeless people); the second focused on public spaces. Both approaches had limitations related to incomplete coverage of homeless populations, and to the risk of including people multiple times.

In night shelters and canteens, the potential multiple counting issue results from possible repeated use of the same services; this can be addressed through the identification of people surveyed. Addressing this challenge is more complex for a survey conducted in public spaces, however. Full population coverage is not guaranteed with either approach: whereas the first method will not capture those homeless people who are not using either night shelters or canteen services, the second method (outdoor sampling) is unable to guarantee full coverage of the territory.

The first approach was adopted, as capturing all the required information in centres providing canteen and night shelter services seemed more feasible. The sample base was therefore constructed by referencing service providers (i.e., indirect sampling methodology).

In the first survey, conducted in 2011, the list of services was constructed in two phases, prior to the survey of the homeless: (i) a census of the organisations offering services to the homeless in 158 Italian municipalities was conducted; and (ii) an in-depth survey of services provided was also conducted (Istat, 2011, 2013). The survey of the homeless, which was the third phase of the process, was conducted over a period of thirty days, in order to include a larger number of service users.

The sample design randomly distributed the interviews over the opening hours and days of the centres in the reference month, and included all the centres involved in the two previous phases. A two-phase sample plan was used: the first stage involved selecting the survey days, while the second focused on services provided.

The number of homeless people was estimated by measuring the number of links between each interviewed individual and the services used in the week immediately preceding the interview: this was done by keeping individual weekly diaries recording individual visits to the various centres on the reference list. In this way, the estimates were not distorted by double counting.

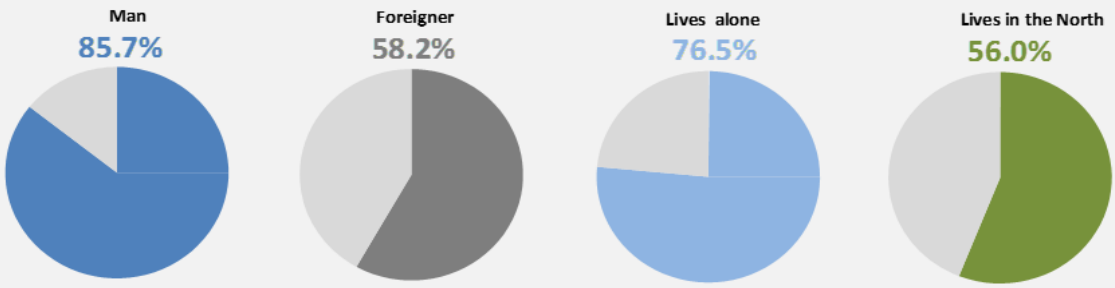
The diary was filled by the homeless people who were able to respond to the interview, with the help of interviewers and service operators, given the habitual behaviour that generally characterises the homeless population. A simplified diary version has been submitted to people using only canteens or only night-time accommodation services. Imputations procedures have been adopted for diaries partially filled or not filled at all. In the first case, an intra-record probabilistic imputation was made, whereas for total non-responses, both the weekly link number and the individual weight were imputed, taking into account the centers characteristics and their non-response rates.

In the 2014 survey, it was estimated that 50,724 homeless people (in the months of November and December) used at least one canteen or night shelter in the 158 Italian municipalities. This corresponds to 2.43 homeless people per thousand of the population regularly registered with the municipalities covered by the survey—a higher value than in 2011, when it was 2.31 per

thousand (47,648 persons). It should be noted, however, that only 69% of the homeless people surveyed stated they were entered in the civil registry of an Italian municipality. This is figure stood at 48% among foreign nationals and 97% among Italians.

The duration of the condition of homelessness had also increased in comparison with 2011: the share of those who had been homeless for less than three months had declined from 29% to 17%, while the shares of those who had been homeless for more than two years increased from 27% to 41%, and of those who had been homeless for more than four years from 16% to 21%. Some of the characteristics of the homeless population in 2014 are highlighted in the Figure 1 below.

Figure 1
The main characteristics of homeless people in Italy, 2014



3.1.5.3 Roma and Traveller populations

110. The Roma and Traveller populations are often underrepresented in poverty indicators and social statistics more broadly. This can be for a number of reasons, including, for example, unauthorised and some authorised caravan sites not being represented on the sampling frameworks used for income and consumption surveys.

111. Targeted surveys can help to better understand poverty amongst these groups. This is the approach used by UNDP, UNICEF, the World Bank, and the EU Agency for Fundamental Rights, who have collected data on poverty and social exclusion through surveys of Roma populations in the Balkans and EU countries respectively (see e.g., UNDP, 2009; UNICEF, 2010, 2011, 2012, 2014a, 2014b; European Union Agency for Fundamental Rights [FRA], 2014). This has allowed for comparisons of levels of monetary poverty and material deprivation of the Roma with the rest of the population in those countries (see Box 3.2).

Box 3.2
UNDP's experience collecting Roma poverty data

UNDP has addressed Roma inclusion issues by running specialized surveys to collect comparable and trustworthy information about Roma poverty and living conditions.

The first such survey was conducted in 2002 in five Central and Southeast European countries, and has since been repeated several times and greater numbers of countries. Data

produced by the most recent survey conducted in 2011 provided a comprehensive Roma poverty picture from a human development perspective for countries in the Eastern part of Europe (Ivanov, Kling, and Kagin, 2012). This survey was also conducted by EU-FRA for 11 EU member states, providing comparable data.

A special sampling methodology has been developed to address the specifics of this group, with UNDP providing recommendations for using ethnicity as a statistical indicator for monitoring living conditions and discrimination (Škobla, Leončikas, and Štěpánková, 2009).

The provision of comparable survey-based poverty data was crucial for setting up the monitoring system of the Decade of Roma Inclusion (http://www.romadecade.org/).

3.1.5.4 Other difficult-to-reach populations

112. In addition to these groups (who are typically absent from the sampling frameworks for household surveys in most countries), there are also groups who, while in theory are included within the surveyed populations, are often very difficult to reach, leading to their under-coverage in official statistics. These include fragile and disjointed households, those who are not fluent in the main languages of the country in which they live, and those living in flats/apartments or in houses of multiple occupations.

113. Other reasons why some sub-populations are harder to cover in surveys include such practical obstacles as difficulties in accessing individual addresses for those living in flats/apartments, being present at the address when interviewers make contact, language barriers, and unwillingness to participate in official surveys (particularly when personal financial information is collected).

114. High income and wealthy individuals are also often difficult to reach in household surveys. Although information about such individuals does not feature directly in absolute poverty statistics, their absence may affect who is identified as being in poverty, depending on the type of threshold used. And it can have a direct impact on measurements of relative poverty (inequality) where the threshold is set with respect to the mean.

Recommendation 3: It is recognised that the majority of poverty statistics only cover private households. It is recommended that NSIs explore the feasibility of extending this coverage. This may involve research among communal establishments, including hostels and shelters for people who are homeless (as in Box 3.1), or utilising alternative data sources (including big data), in order to estimate poverty in difficult-to-reach population groups. Informing users about the coverage of the published poverty statistics is essential.

3.1.6 Disaggregation

115. In addition to indicators for the overall population, it is important to produce poverty indicators that are disaggregated by such dimensions of socio-economic vulnerability as age and gender. Such disaggregation is highly desirable for a number of reasons. First, poverty indicators for the overall population may mask substantial variations in the poverty levels

experienced by different population subgroups. Understanding which groups experience the highest levels of poverty is important for targeting policy interventions effectively. For example, high levels of poverty among retired people will likely require different policies than those targeted at reducing poverty among children.

116. Monitoring disaggregated indicators can help ensure that no-one is left behind as countries make progress towards reducing poverty. Some research on MDG achievement found that most progress in poverty reduction was made amongst those easiest to reach, or in situations easiest to address—leaving many of the poorest and most vulnerable behind (e.g., Save the Children, 2010).

117. The production of such disaggregated data can provide challenges for compilers of poverty statistics. For one thing, producing disaggregated data requires larger survey samples, and may also require more complex sample designs (especially where certain sub-groups make up a small proportion of the overall population). All of this can add to the costs of data collection.

118. Some disaggregations need to be interpreted with caution as the needs of different subgroups may not be fully reflected in standard poverty lines. For example, the material needs of people with disabilities are often greater, due to both additional costs as a result of goods and services needed due their disability as well as higher costs for some other items compared with individuals without disabilities. Some studies have attempted to account for this using a variety of methods (see, for example, MacInnes et al., 2014).

119. In addition to this recommended minimum disaggregation, further disaggregation would in many areas be of policy relevance. For example, the child population could be disaggregated into smaller age groups as there are often significant differences in poverty rates between these age groups. Different rationale can be applied to this, for example related to policy objectives (for example pre-school; school age; secondary school); or age groups (0-4; 5-9; 10-14; and 15-17). Disaggregations by other variables, including ethnicity and occupational group may also be relevant in some countries.

Recommendation 4: Given their importance, poverty data should be disaggregated whenever possible. As a minimum, poverty indicators for the UNECE region should be disaggregated by age, sex, employment status, household type, disability status[22] and urban/rural population.

It is further recommended that the following classifications be used for these breakdowns.

Age:

- 0-17 (children)
- 18-24
- 25-49
- 50-64
- 65 and over

[22] Where possible, disability status should be measured using the short set of disability questions developed by the Washington Group http://www.washingtongroup-disability.com/washington-group-question-sets/short-set-of-disability-questions/

Employment status[23]*:*

Employed
Unemployed
Retired
Other outside the labour force

Household type:

One-person households;

Two adult household without children;

Two adult household with one child under 18;

Two adult household with two or more children under 18;

One adult households with children under 18;

Other.

Urban/rural[24]*:*

Predominantly urban region
Intermediate region
Predominantly rural region

3.2 Welfare measures

3.2.1 Income concepts and definitions

120. The conceptual definition of household income established by the International Conferences of Labour Statisticians (ILO, 2004) and adopted in the 2011 Canberra Group Handbook, is as follows:

> *Household income consists of all receipts whether monetary or in kind (goods and services) that are received by the household or by individual members of the household at annual or more frequent intervals, but excludes windfall gains and other such irregular and typically one-time receipts.*
>
> *Household income receipts are available for current consumption and do not reduce the net worth of the household through a reduction of its cash, the disposal of its other financial or non-financial assets or an increase in its liabilities.*
>
> *Household income may be defined to cover: (i) income from employment (both paid and self-employment); (ii) property income; (iii) income from the production of*

[23] Where possible, employment status should relate to the (most frequent) status during the income/consumption reference period.

[24] This classification should be based upon the population density of local areas rather than self-report. Details of existing classification methodologies used for international comparison within the UNECE region are available from OECD (2011) and Eurostat (2015b).

household services for own consumption; and (iv) current transfers received (other than social transfers in kind); and (v) social transfers in kind.

121. This definition shows what, in principle, should be included in a comprehensive measure of household income (see Table 3.1). In practice, income definitions adopted by individual countries may be more limited in scope, as some elements of household income may not be collected or modelled (this is typically the case, for instance, with unpaid domestic services, with services provided household consumer durables, and by social transfers received in kind).

122. The component elements of income can be aggregated in order to produce selected measures for particular analytical and policy purposes. The sum of income from employment (section 1 in Table 3.1) and income from household production of services for own consumption (section 3) is referred to as **income from production**. Adding income from production to property income (section 2) gives **primary income**. Total income is the sum of primary income and current transfers received (section 4); from this measure it is possible to obtain **disposable income**, which is total income less current transfers paid (section 8). Total and disposable incomes are the most commonly used income aggregates.

Recommendation 5: It is recommended that annual (equivalised) **disposable** income be the main income measure used for poverty measurement, as this reflects the actual income that individuals within a household have available for spending or saving. However, to provide additional insights into the nature of poverty in a country or area, compilers of poverty statistics may also wish to make use of supplementary income measures, such as income before social transfers.

Disposable income should be defined in line with the practical definition set out in the Canberra Group Handbook (2011), with the exception of the net value of owner-occupied housing services, which should be excluded (see Section 3.2.8.3).

123. The relationship between those identified as at-risk-of-poverty based on disposable income and those who are dependent on social transfers in Germany is explored in Box 3.3.

Table 3.1
Income components in the conceptual definition of the Canberra Group Handbook

Canberra 2011 conceptual definition
1 Income from employment
1a Employee income
Wages and salaries
Cash bonuses and gratuities
Commissions and tips
Directors' fees
Profit-sharing bonuses and other forms of profit-related pay
Shares offered as part of employee remuneration
Free or subsidised goods and services from an employer
Severance and termination pay
Employers' social insurance contributions
1b Income from self-employment
Profit/loss from unincorporated enterprise
Goods and services produced for barter, less cost of inputs
Goods produced for own consumption, less cost of inputs
2 Property income
2a Income from financial assets, net of expenses
2b Income from non-financial assets, net of expenses
2c Royalties
3 Income from household production of services for own consumption
3a Net value of owner-occupied housing services
3b Value of unpaid domestic services
3c Value of services from household consumer durables
4 Current transfers received
4a Social security pensions/schemes
4b Pensions and other insurance benefits
4c Social assistance benefits (excluding social transfers in kind)
4d Current transfers from non-profit institutions
4e Current transfers from other households (cash only)
5 Income from production (sum of 1 and 3)
6 Primary income (sum of 2 and 5)
7 Total income (sum of 4 and 6)
8 Current transfers paid
8a Direct taxes (net of refunds)
8b Compulsory fees and fines
8c Current inter-household transfers paid
8d Employee and employers' social insurance contributions
8e Current transfers to non-profit institutions
9 Disposable income (7 less 8)
10 Social transfers in kind (STIK) received
11 Adjusted disposable income (9 plus 10)

Source: UNECE, 2011.

Box 3.3

Persons at risk of poverty and beneficiaries of social transfers: Different concepts - different people? A case study from Germany 2014

The German system of social reporting in official statistics ("amtliche Sozialberichterstattung") provides a wide range of comparable national and regional ("Länder") level data. One data source looks at the beneficiaries of the social security system. Another source provides data on relative poverty (at-risk-of-poverty rate). Statistics drawing on both sources are published online.

Poverty at the national level can be measured via EU-SILC (Statistics on Income and Living Conditions) methodology, which covers individual and household living conditions in both monetary and non-monetary terms. One of the key indicators is the at-risk-of-poverty rate, based on household disposable income (after social transfers).

For analysis at the regional level, the utility of SILC is limited by the fact that its sample size is currently 0.03% of the German population. Therefore, the at-risk-of-poverty rate on NUTS 1 ("Länder") and NUTS 2 levels (plus additional regional breakdowns) is not based on SILC data, but rather on information produced by the "Mikrozensus (labour force survey)"—an annual household survey that samples 1.0% of the total population. The at-risk-of-poverty rate only reflects current income; situational needs, wealth status, and actual housing costs are not considered.

In contrast to the at-risk-of-poverty rate, the number of persons relying on social transfers is a different concept describing people who are dependent on social assistance in order to get by. In Germany, the most claimed social assistance for this group is the so-called unemployment benefit II (based on Book II of the Social Code, known as the "Hartz IV" Act). All people who are able to work, but are unemployed and in need (and who are not entitled to unemployment insurance under Social Code III) receive transfers for themselves and (if applicable) their dependents. This includes assistance for costs of accommodation as well as mandatory health insurance. Similar transfers are provided for persons unable to work and persons above retirement age in accordance with Social Code XII.

Data on social transfers usually take the form of administrative data and are available for recipients of different types of social status as well as at various regional levels. In contrast to the household survey Mikrozensus, administrative data are available at the NUTS 3 level ("Kreise") and beyond. Therefore, administrative data are the main source for studies on inequality and poverty at the municipal level.

Although these two indicators (the poverty rate and the number of recipients of social transfers) are derived from different data sources, are based on different definitions of poverty, and are available at different spatial levels of aggregation, they are both widely accepted and used in various studies on social development. Often they both complement one another. However, they also may lead to different results and conclusions about who is at risk of poverty.

The Mikrozensus is able to apply both concepts simultaneously to the same person, allowing the degree of overlapping between the two measures to be examined. Analysis of the Mikrozensus data for the year 2014 shows that:

- 17.9% of the population (14.2 million people) in private households either live below the at-risk-of-poverty threshold and/or receive social transfers. This part of the population can be considered as potentially poor.
- Of this group, just under one third (32.6%) had an income below the at-risk-of-poverty threshold—and was receiving social transfers. In other words, despite receiving transfers to avoid poverty, they are still considered at risk.
- More than half of the potentially poor (53.4%) were at risk of monetary poverty—and were not receiving social transfers. One explanation may be that, although those people are considered at-risk-of-poverty with regard to their current income, they do not fulfil the conditions to receive social assistance (for example because of their level of wealth or the low housing costs/rent). Another potential explanation is that some may fulfil the conditions to receive social assistance but for some reason they do not report this to the social security authorities (possibly due to lack of information or fear of becoming stigmatized).
- 14% of the potentially poor were receiving transfers but were not at risk according to their income after transfers, which was above the poverty threshold. This is sometimes the case when transfers to cover costs of accommodation and heating are particularly high. Additional earnings and allowances to meet additional household member needs can also push income after transfer payments above the at-risk-of-poverty threshold.

3.2.2 Advantages and disadvantages of income as a poverty measure

124. There is no simple answer to the question of whether income or another welfare measure is preferable for measuring monetary poverty. In practice, the decision will likely be influenced by both conceptual and pragmatic issues. Some of the main pros and cons relating to the use of income are set out below.

3.2.2.1 Advantages

125. **Income measures households' command over resources**. From a conceptual perspective, income allows people to satisfy their needs and pursue many other goals that they deem important to their lives. In particular, an indicator such as disposable income is desirable as a welfare measure as, in general, it is an effective proxy for the resources that are available to an individual or household for either consumption (if they so wish) or saving.

126. **Direct policy link**. Income based poverty measures are often appealing to policy makers due to the direct policy levers that exist through, for example, the targeting of social protection payments to families below the poverty line.

127. **Disaggregation by income source components**. In general, it is possible to break down income by source (wages, pensions, social protection receipts, intra-household transfers,

etc.) when analysing poverty. This provides advantages both in terms of understanding poverty within a certain group, and as a quality check for the data, via possible comparisons with other sources.

128. **Ease/cost effectiveness of measurement**. In general, data on household income are relatively cost effective to collect, compared with consumption expenditure. Even if administrative data are not available, the relatively small number of potential sources of income means that data collection can potentially be relatively straightforward. This makes income-based poverty measures particularly useful when either the cost of collecting consumption data would be prohibitive, or where precision at the national or regional level (via surveys based on larger sample sizes) is a priority.

3.2.2.2 Disadvantages

129. **Links between income and living standards are not always clear**. Income is a measure of potential rather than achieved living standards. As a result, current income may either overstate living standards (when the family is saving, as not all the income translates into current consumption) or understate them (when current consumption is not constrained by income, through dissaving or borrowing) (Atkinson et al., 2002).

130. **Sensitivity to short-term income fluctuations for some groups**. Linked to the above point, incomes for some population groups may be particularly susceptible to short-term fluctuations, which are typically not reflected in achieved living standards. These groups include the self-employed, agricultural workers, and the temporarily unemployed.

131. **Some components are difficult to measure**. While data on some income components such as wages and salaries are relatively straightforward to collect, other components (including self-employment, and especially including agricultural work) are much more difficult to accurately measure, largely because of the difficulty in separating out business costs and revenues. In developing countries, income data may be particularly difficult to collect, and their accuracy difficult to verify, because most of the population may be engaged in the informal sector. There is evidence of increasing imputation rates (due to refusal or inability to reveal specific income components) over time, in recent years (see Meyer et al., 2015).

132. **Evidence of under-reporting**. Evidence from a range of countries suggests a general tendency for income to be under-reported by low-income households (e.g., Meyer and Sullivan, 2011; Brewer and O'Dea, 2012). There are a number of possible reasons for this. In part, people may forget income they have received during the reference period from sources such as intra-household transfers, social transfers, or home-produced items they have sold. Second, people may be reluctant to disclose the full extent of their income, for privacy reasons—particularly if any of that income has either not been disclosed to the tax authorities or has been obtained through illegal activities (e.g., Deaton and Grosh, 2000). Underreporting of income can be minimised to a certain extent through interviewer training in probing and explaining confidentiality rules, asking survey respondents to refer to payslips and other documentation where possible, and the use of data from other sources such as administrative data.

3.2.3 Data sources for household income

133. In most countries, household income microdata primarily come from household surveys developed specifically for that purpose. However, in a number of countries (for example, the Nordic countries), registers (administrative data) are the main source of information on the distribution of household income.

134. Both types of source have their own strengths and limitations. Where possible, it is recommended that producers of poverty statistics using income as a welfare measure adopt hybrid approaches, taking information on some components of income from administrative sources (such as tax records or benefits data), and matching this with survey data containing information not available from registers. This approach is being taken in increasing numbers of CES countries; Box 3.4 provides an example of the combined use of survey and administrative data in Italy.

135. Household income data are also available from national accounts. However, the sources used for national accounts production are typically only available as aggregates and per capita measures, without distributional information. As such, they are of limited use in measuring poverty.

136. The collection of income data is covered in more detail in the Canberra Handbook (UNECE, 2011).

Box 3.4
The combined use of survey and administrative data

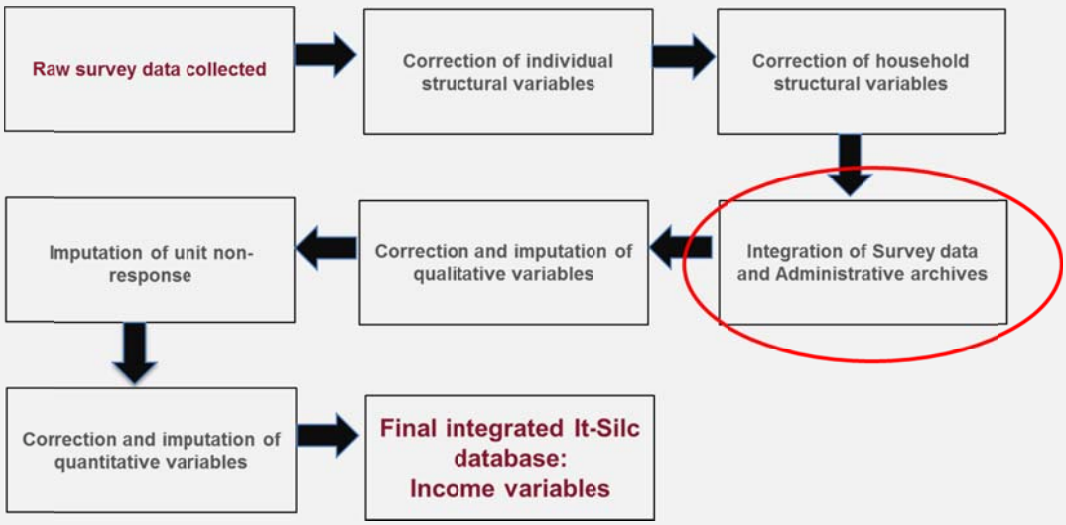
Many EU countries are considering increased uses of administrative data for statistical purposes, driven mainly by the need to reduce the cost of data collection and burdens on respondents (Jäntti, Törmälehto and Marlier, 2013). The main administrative sources for social statistics are population registers, tax registers, social security data, and health and education records.

Two quality dimensions should be carefully looked at when considering the increased use of administrative data: timeliness and comparability. Using registers can cause timeliness problems due to late data delivery by data owners, and to extensive practices intended to ensure internal consistency.

The Italian SILC (IT-SILC) has developed a multi-source data collection methodology for the main income components, beginning in 2004 and developing further in later years (Consolini and Donatiello, 2013). Survey data and administrative records are combined via exact record linkage. The individual matching-key is the tax code that is the personal ID number assigned to each person by the Italian tax authority.

The main steps in the IT-SILC production process are set out in Figure 1 below.

Figure 1
Main steps in the IT-SILC production process



The integration process shown in this diagram consists of the acquisition of administrative data, the exact matching procedure, and detection and reconciliation of discrepancies.

Comparison of survey data with the final integrated data highlights how linking with administrative data can improve the quality of the final income estimates.

Total household net income

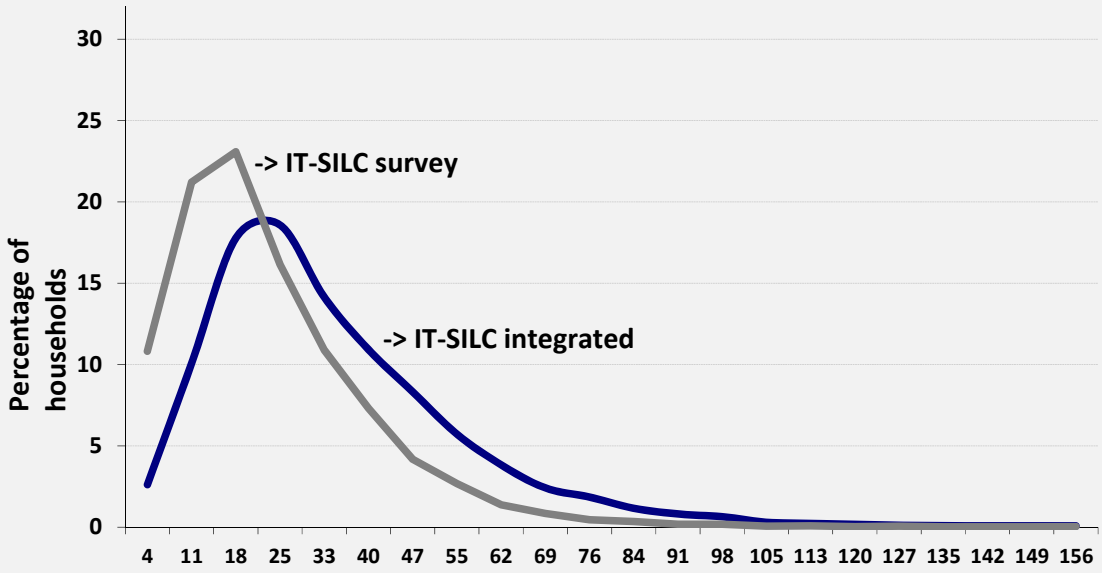
The distribution of total household net income (the sum of total disposable household income, imputed rent, the interest repayments on mortgage) for the IT-SILC estimates shows higher levels (mean and median values increase by around 50%) and a shift to the right of the whole income distribution curve (see Figure 2). In addition, the income distribution is less concentrated, according to the Gini coefficient value (0.30 compared with 0.33) (Delle Fratte and Lariccia, 2015).

Table 1
Indicators on income levels and distribution by data source, 2011

	IT-SILC survey	IT-SILC integrated
Yearly mean *(euros)*	23,454	35,036
Yearly median *(euros)*	19,676	29,611
Gini coefficient	0.33	0.30

These differences are partly explained by the presence of several secondary and low-income components in the administrative data but not in the survey data, possibly due to respondents forgetting to mention them. Also, the presented data show the under-coverage in the survey of well-to-do sections of households

Figure 2
Income distribution by data source, 2011



The majority of changes from the original survey data lead to increases in reported incomes, which sometimes significantly change the position of individual households within the income distribution: 8.3% of households belonging to the bottom two quintiles according to the survey data are, according to the IT-SILC integrated data, actually in the top two quintiles.

At-risk-of-poverty rate

The overall at risk of poverty rate in 2011 was estimated at 21.2% using survey data and 19.6% when using the linked data (IT-SILC). Overall, 87% of people were classified in the same way by both the survey and IT-SILC data.

Table 2
People at risk of poverty by data source, 2011

IT-SILC survey data	IT-SILC integrated	Percentage
At risk of poverty	At risk of poverty	13.8
At risk of poverty	Not at risk of poverty	7.4
Not at risk of poverty	At risk of poverty	5.8
Not at risk of poverty	Not at risk of poverty	73.0
Total		**100.0**

Analysis of the data from these two sources, as well as examining administrative data on its own, reveals that the integrated use of sample and administrative data improves the quality of final estimates on income variables, in comparison with the estimates obtained by

considering only survey data or administrative data.

Even if the different sources show substantial consistency in terms of identifying those in poverty, it is still preferable to make use of registers not as a substitute for survey data, but as a complement, often through the combination of multiple data sources and multi-modal data collection.

Some income components can be satisfactorily estimated exclusively using administrative data (for example, pension income) and administrative data can be used both to improve survey data quality (taking into account missing-data mechanisms and measurement errors), and to pursue more detailed analysis.

The choice is a trade-off between higher accuracy and coverage of the target population on the one hand, versus possible reductions in data timeliness (due to the time needed to reconcile survey and administrative data at the micro level) and consistency (because administrative data are collected according to administrative, rather than statistical criteria) on the other.

3.2.4 Consumption expenditure: concepts and definitions

Recommendation 6: Where consumption is used as a welfare measure, it should be based on consumption expenditure.

137. According to the OECD Framework for Statistics on the Distribution of Income, Consumption, and Wealth (OECD, 2013a), consumption expenditure represents "the value of consumption goods and services used or paid for by a household to directly meet its needs. These goods and service are obtained:

- through the purchase of goods and services in the market;
- as in-kind income from employers, from self-employment (through the barter of goods and services produced by the household), or from property or other investments (e.g., portion of crop provided by share-farming tenant);
- from the household's own production of goods and services; or
- as transfers in kind from other households or from businesses."

138. If the goods and services included in consumption expenditure were produced by the people themselves or were received from elsewhere as income in kind, the notional market value of the goods and services should be included as consumption expenditure.

139. Excluded from consumption expenditure are expenses not directly aimed at meeting household needs, such as current transfers to government, social organisations or other households. These are classified as non-consumption current expenditure. Also excluded is the payment of interest on consumer credit.

140. Different theoretical approaches exist for measuring household consumption expenditure. With the acquisition approach, goods, and services are included when they are acquired or taken possession of, regardless of whether they have been paid for or; in the

case of goods, regardless of whether they have been used. With the use approach, goods and services are included when they are used, regardless of when they were acquired or paid for. While the use approach may more closely equate to consumption, the OECD Framework recommends use of the acquisition approach for practical reasons. (In practice, for most consumption goods and services, there will be little difference between the two approaches.)

141. The assumption does not hold for dwellings or for consumer durables such as motor vehicles, electrical appliances, furniture, clothing, and the like (which would normally be expected to be usable for more than a year). When a household purchases a dwelling or consumer durables, it does not normally consume them immediately. Rather, the household can be viewed as a producing entity that invests in those items as capital expenditure and provides a flow of services to itself as the consuming entity.

142. In the OECD Framework, it is therefore the flow of services obtained from consumer durables and owner-occupied housing that is included as consumption expenditure, rather than the initial purchase of the capital items.

3.2.5 Consumption expenditure: advantages and disadvantages

3.2.5.1 Advantages

143. **Better proxy of material living standards**. It is the consumption of goods and services that ultimately satisfies a household's needs and wants within the household budget limits. Because of this, consumption expenditure can be considered a more direct measure of achieved living standards than income.

144. **Short-term fluctuations are smoothed out**. Households can smooth consumption by, for example, adjusting savings or drawing on wealth and borrowing. Incomes may also be more volatile, a finding that led to Friedman's "permanent income hypothesis" (Friedman, 1957), which suggests that decisions made by consumers are based on long-term income expectations rather than their current income. This does not mean that consumption is not subject to seasonal fluctuations, but these are supposedly smaller than seasonal income fluctuations. Nevertheless, expenditure volatility may be high under some circumstances, for example, when households make purchases in large volumes and low frequency, or in agricultural societies, where incomes and expenditures are highly correlated with farm production cycles.

145. **Data quality is arguably better, at least at the bottom of distribution**. It is often suggested that, at least in countries such as the United States and the United Kingdom, the quality of consumption expenditure data is better than that for income towards the bottom of the income distribution (e.g., Meyer and Sullivan, 2011; Brewer and O'Dea, 2012) — although this depends on the collection method, as well as such factors as the length of reference period used. This potential advantage is commonly ascribed to the fact that questions about consumption are usually seen as less sensitive than questions about income (though see below for exceptions). Also, using a shorter reference period at least for day-to-day expenditures can lead to fewer recall errors.

3.2.5.2 Disadvantages

146. **Under-reporting of certain expenditures**. Certain groups of expenditures are typically underestimated in surveys because of under-reporting by respondents. These include expenditures for goods and services that are illegal (e.g., illegal drugs, prostitution) or which may be seen as socially unacceptable (e.g., alcohol, gambling). In addition, recent evidence shows that while reporting rates for some of the biggest components of consumption have remained stable over time, there have been noticeable declines for some categories such as food away from home, shoes and clothing, and alcoholic beverages (see Bee, Meyer, and Sullivan, 2015).

147. **Irregular expenditures on high value items**. Whilst a diary period of a couple of weeks may, in the majority of cases, provide a good indication of typical expenditure on categories such as food, drink and transport, expenditure on high value items is usually infrequent, and may not be properly reflective even when a survey with an annual reference period is used. While, at the aggregate level, this may provide a reliable measure of household expenditure, for individual household it will lead to 'noisy' data with levels of total consumption expenditure not necessarily indicative of material living standards.

148. **Indirect policy levers**. Beyond subsistence minima, levels of consumption expenditure are largely an issue of personal choice. As a consequence, while governments may take steps to either increase the resources available for consumption, increase the potential to acquire those resources, or otherwise improve the material living standards of those in poverty (by, for example, by improving social housing), these may not be directly reflected in the recorded consumption expenditure of households.

149. **Data collection complex/expensive**. As highlighted in the previous section, regardless of the method used, the collection of detailed household consumption expenditure data is expensive—considerably more so than income data. In particular, the cost of conducting household budget surveys is such that, in many European countries, they are conducted approximately once every five years. This makes them unsuitable for effective poverty policy monitoring in those countries.

150. **Individual choice**. In some circumstances, low levels of consumption may reflect individual choices or non-monetary constraints. For example, elderly people with physical limitations, such as lack of mobility, may have low levels of consumption expenditure despite adequate financial resources. Whether individual choice presents an issue for consumption expenditure-based measures depends on the level of threshold used. Where a threshold is at or close to subsistence minimum levels, it is obviously less likely that choice will play a significant factor in consumption expenditure around that point.

3.2.6 Data sources for consumption expenditure

3.2.6.1 Household surveys

151. Data on consumption expenditure are collected through household surveys, either through household budget surveys explicitly focused on expenditure (as well as possibly income), or more general surveys covering a wider range of topics. While data on

consumption expenditure for households are available from national accounts, again the aggregate nature of the data make them unsuitable for poverty measurement.

152. Household budget surveys can vary widely in terms of design; however, almost all are designed primarily to provide expenditure weights for measures of inflation and to feed into the production of the national accounts. Consequently, these surveys focus extensively on detailed expenditure categories, which limits their potential to collect information on individual and household characteristics and other items relevant to increased understanding of poverty within a country.

153. By contrast, the Living Standards Measurement Study (LSMS) surveys, first developed by the World Bank in the 1980s, are multi-purpose household surveys collecting the information necessary to measure living standards through household consumption (though in considerably less detail than a typical household budget survey). Additional topics covered include health, education, employment, migration, and savings. As with EU-SILC in many European countries, this wider range of data collected alongside the main welfare indicator aids the development of effective policies for poverty reduction.

3.2.6.2 Retrospective and ongoing collection

154. Data on consumption expenditure are collected retrospectively and/or on an on-going basis. Data collected retrospectively are collected by an interviewer or via a questionnaire completed by the respondent. Interview data are generally collected through face-to-face interviews or by telephone. Retrospective collection means that data are collected for an earlier period. Data collected on an ongoing basis are collected with a diary (either paper or electronic) completed by the household.

155. Both methods imply risk of errors: omission of certain expenses (especially for small expenses when using retrospective methods) or the inclusion of expenditures outside the reference period (when there is telescoping of expenditures and no bounding interview).

156. Both retrospective interviews and diaries can pose large burdens for households. Retrospective interviews can be very time-consuming when many expenditure items are being reported, for large households or for households with complex structures. Diaries can also place large burdens on respondents, as reporting periods can vary from several days to several months (although usually the recording period is daily for one to two weeks).

Recommendation 7: Where both income and consumption expenditure data are available for a given population, there is value in utilising poverty measures based on both approaches.

For international comparisons of poverty across the UNECE region, it is recommended that income be the main welfare measure, given its widespread usage among EU and OECD countries as well as increasing availability in other areas of the region.

3.2.7 Using multiple welfare measures

157. Looking at the intersection of multiple indicators for the same people using income, expenditure, and material deprivation (another form of poverty covered below) measures

can produce new insights. Where a household is income poor but is maintaining expenditure and is not materially deprived (those in income poverty only), this may indicate that the household is able to draw on savings or access loans either informally or formally to maintain living standards. In some cases, such behaviour may be driven by the knowledge or expectation that household income will increase in the near future—for example, for those starting a new job soon or students. However, many households of this type are likely to remain vulnerable to poverty.

158. Expenditure poverty in the absence of either income poverty or material deprivation can be seen as an indicator of uncertainty over future income levels and a lack of accumulated wealth or assets which could be used to maintain living standards if income drops. This may occur in employment that has no guaranteed future income (for example, for those in short-term employment and the self-employed), or on so-called "zero-hours" contracts (Serafino and Tonkin, 2017a).

159. Often it is not possible to examine these different poverty measures with the same dataset. However, techniques such as statistical matching open up the possibility of using synthetic datasets (see Box 3.5). Box 3.5 describes work on the statistical matching of data for measuring poverty undertaken in the EU. Another example from the US of fusing datasets is provided by Garner & Gudrais (2017).

Box 3.5

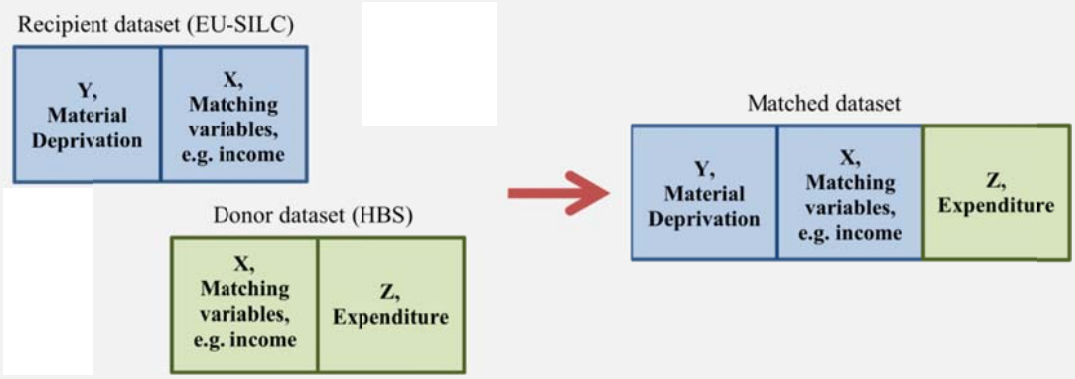
Comparing poverty estimates using income, expenditure, and material deprivation data

As part of the Eurostat funded Second Network for the Analysis of EU-SILC (Net-SILC 2), Serafino and Tonkin (2017b) carried out a study comparing people's exposure to poverty in a range of countries (Belgium, Germany, Spain, Austria, Finland, and the United Kingdom) using data for income, expenditure, and material deprivation. The concept of material deprivation is introduced in more detail in Chapter 4 (section 4.4).

As there is currently no single data source providing joint information on all of these variables for households or individuals, it was necessary to first statistically match expenditure data from the 2010 round of the household budget survey (HBS) with income and material deprivation data in the EU Statistics on Income and Living Conditions (EU-SILC) database.

Statistical (or synthetic) matching is a broad term used to describe the fusing of two datasets. In this context, the datasets are of households sampled from the same population. The usual approach is to define one data set as the recipient (in this case, EU-SILC), and the other as the donor (HBS) (see Figure 1). The recipient data set contains a variable Y (e.g., on material deprivation), which is not found in the donor data set, while variable Z, expenditure, is only contained within the donor data set. The aim is to use information contained within the set of variables common to both datasets, X, for example, age, sex and income, to link records from the donor to the recipient. Therefore, expenditure is linked to EU-SILC, which contains information on income, material deprivation and work intensity.

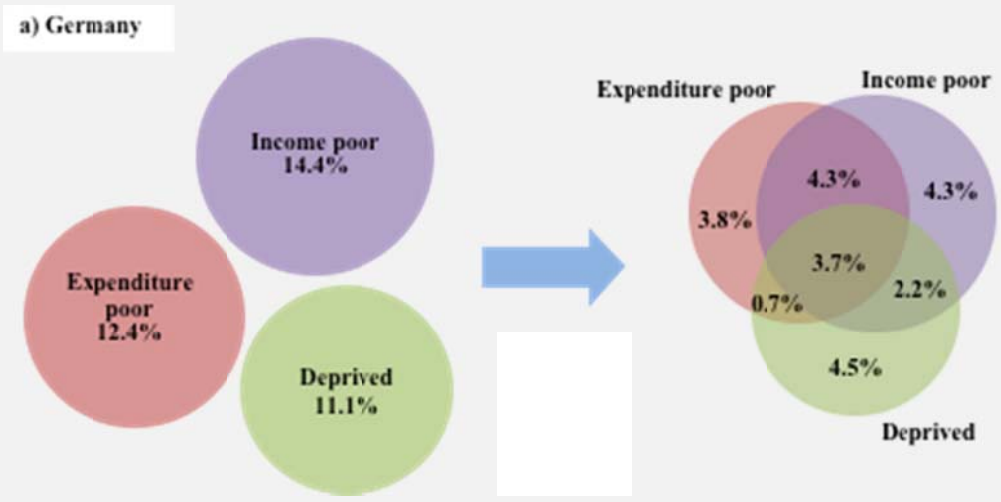
Figure 1
Matched dataset with EU-SILC and HBS data

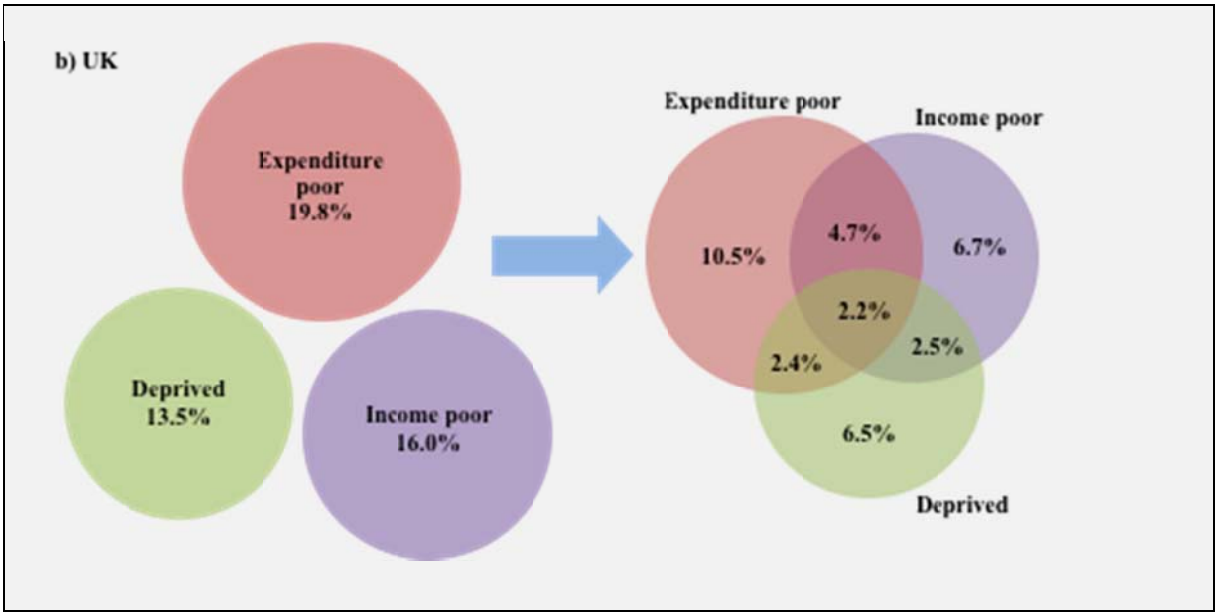


Further details of the statistical matching techniques used can be found in Webber and Tonkin (2013).

The degree of overlap between the three poverty measures varies across the countries examined, with the difference between the United Kingdom and Germany particularly prominent. In the United Kingdom, 35% of people experienced poverty in at least one of the three measures, while 12% were in poverty in two or more of the measures and just over 2% were in poverty in all three. In Germany, the degree of overlap between the measures was higher: despite the proportion of people in poverty on at least one of the three measures being lower (24%), a similar proportion were in poverty on two or more of the measures (11%) and almost double the proportion were in poverty on all three (almost 4%), (see Figure 2)

Figure 2
Poverty measures overlap, Germany and United Kingdom, 2010





Recommendation 8: Given the advantages of considering multiple welfare measures together, it is recommended that, where data availability allows it, compilers of poverty statistics consider examining poverty measures based on income and expenditure as well as their intersection, taking advantage of register data and/or statistical matching techniques where possible.

3.2.8 Key measurement issues

160. The final part of this section on welfare measures briefly examines some of the key measurement issues affecting income and consumption expenditure.

3.2.8.1 Self-employment income

161. The measurement of self-employment income represents a particular challenge compared with employee income, in terms of both definitions and the practicalities of measurement. This is a particular issue when income is used to measure poverty as in some populations, a substantial number of those in poverty may have income from self-employment as one of their main sources.

162. The first challenge is perhaps in the correct identification of those who are self-employed. The International Labour Organisation (ILO, 1993) defines self-employment jobs as "those jobs where the remuneration is directly dependent upon the profits (or the potential for profits) derived from the goods and services produced (where own consumption is considered to be part of profits)". However, this may differ from the definitions used for national employment or tax law, which may differ again from individuals' self-classification. For example, directors of limited-liability companies may view themselves as self-employed, but are treated as employees for tax purposes.

163. The next challenge comes in defining and identifying self-employment income. While the self-employed will usually pay themselves a wage, this cannot usefully be compared with the earnings of employees. This is because self-employed workers frequently take a small salary in favour of taking dividends or putting profits into the company.

164. Clear definitions in survey questions are vital, as what individuals may think of as their income may differ from what is considered income under the definitions used (e.g., those from the UNECE Canberra Handbook, 2011). Additionally, self-employed individuals may not be able to provide an accurate estimate of their income, particularly if they have not yet filed (or are not required to file) their end-of-year accounts with the tax authorities.

165. Where possible, asking about profits and other data typically required for tax purposes is the recommended approach for survey data collection. Where a respondent has not prepared accounts for the tax authorities, the alternative approach is to collect data on any earnings from their business, plus any money that has been drawn from their business accounts for personal use.

3.2.8.2 Goods/services produced for own consumption

166. Home production for own consumption refers to the goods or services that are produced within the household for the household's own consumption, rather than for sale or exchange. The estimated market value of the goods/services is included as part of households' self-employment income, less any expenses incurred in their production. The value of these goods and/or services should also be counted as part of households' consumption expenditure. In practice, most services (with the exception of housing services from owner-occupied dwellings) are not included in operational definitions of income and consumption expenditure, whereas goods should be.

167. The relative contribution of goods produced for own consumption can vary considerably between economies. In some countries, the value of such goods and the proportion of households producing them may be negligible. Where that is the case, they are often excluded from income statistics. However, in other economies, particularly agricultural, the value of own consumption may be substantial for many households. In such cases, it is important to capture this information within welfare in order to ensure the accurate measurement of households' poverty status.

168. Two particular examples of home production for own consumption are described in further detail below: housing services from owner-occupied dwellings, and consumer durables.

3.2.8.3 Housing services from owner-occupied dwellings

169. Owning your own house or apartment in effect provides you with housing services, which should be considered as part of both income and consumption. The value of such services is estimated as being the market rent for a similar property, less the costs incurred by the household in their role as landlord. These housing services should feature in both income (increasing the level of household resources) and consumption expenditure (contributing to the household's economic well-being). Including net imputed rent is

particularly important when making comparisons of poverty across countries, where rates of home ownership can vary considerably.

170. Where there is an established rental market, rental equivalence is generally considered the preferred approach for estimating imputed rental values. The basic econometric method that is used is hedonic regression with the attributes of the dwelling used as covariates. If there is selection bias, a Heckman correction may be applied, with a model for the housing tenure and a model for the imputation of the values. An alternative approach is to use cell-based mean imputation, which is typically referred to as the stratification method.

171. Where rental markets are less well-developed, one commonly used alternative to the rental equivalence approach is the user cost method, based on the estimation of the costs incurred for homeownership by foregoing the opportunity to invest in financial assets from which real income flows are created in the form of income from interest and dividends. However, research by Garner and Verbrugge (2009) shows a considerable divergence between user costs and net rents in the US. A further alternative is self-assessment—effectively asking how much you would have to pay if, instead of owning your home, you had to rent it. These methods are summarised in the table below.

Rental markets	
Developed	*Under-developed*
i) hedonic regression (with/without Heckman correction)	iii) user cost method
ii) stratification (cell based imputation)	iv) subjective self-assessment

172. Box 3.6 summarises some research carried out looking at the measurement of imputed rent using EU-SILC data (Törmälehto and Sauli, 2013), while Box 3.9 describes practices across OECD members.

Box 3.6
Imputed rent in EU-SILC: 2007-2010

In the EU-SILC guidelines, imputed rent is included as a variable, but does not form part of the main measure of disposable income used to calculate at-risk-of-poverty rates—primarily due to concerns regarding data quality and comparability. Each country estimates gross imputed rents in its own preferred way. Based on the 2010 data, the most common methods are stratification and regression. Five countries used the Heckman correction while the user cost method was applied in three to four countries. Table 1 below shows the share of market renters in each country, along with the imputation method used.

Table 1
The share of market renters (percentage from population)

	2007	2008	2009	2010	Imputation method
RO	1.0	0.9	0.8	1.1	Stratification
MT			1.4	1.4	Stratification
LT	1.2	1.4	2.1	1.1	Stratification
BG	2.2	1.6	2.1	2.2	Stratification
PL	2.6	2.2	2.1	2.4	Regression
HU	2.7	2.6	2.2	2.4	Regression/subjective self-assessment
EE	4.4	2.9	2.5	2.6	User cost
SI	5.5	4.9	4.1	5.0	Stratification
CZ	4.8	5.0	5.4	5.0	User cost, subjective self-assessment
LV	5.7	6.6	6.3	6.7	Log-linear regression
IS	5.7	6.8	7.9	10.4	User cost
ES	7.5	8.1	8.2	8.7	Stratification/subjective self-assessment
SK	9.2	9.1	8.8	8.4	User cost
CY	9.9	10.6	10.3		Regression with Heckman correction
NO	10.3	9.8	10.4	10.9	Stratification
FI	9.8	10.1	10.4	10.1	Stratification
PT	9.6	11.3	10.9	12.8	Regression 2008-
IE	8.7*	9.3	11.3		Stratification
UK	8.2	9.3	12.4	11.9	Regression with Heckman correction
IT	12.8	13.1	13.3	14.0	Regression with Heckman correction
EL	17.9	17.9	18.0	18.2	Stratification/subjective self-assessment
BE	18.6	18.4	18.5	19.6	Regression with Heckman correction
FR	20.3	19.3	19.8	20.2	Regression
LU	19.7	19.4	22.3	27.6	Regression with Heckman correction
AT	28.7	27.5	27.7	26.7	Regression
SE	28.3	30.2	29.8	28.7	User cost
NL	33.1	32.2	31.1	32.5	Regression
DK	32.9	33.5	33.7	33.2	Stratification
DE	38.2	39.0	38.9	39.7	Stratification

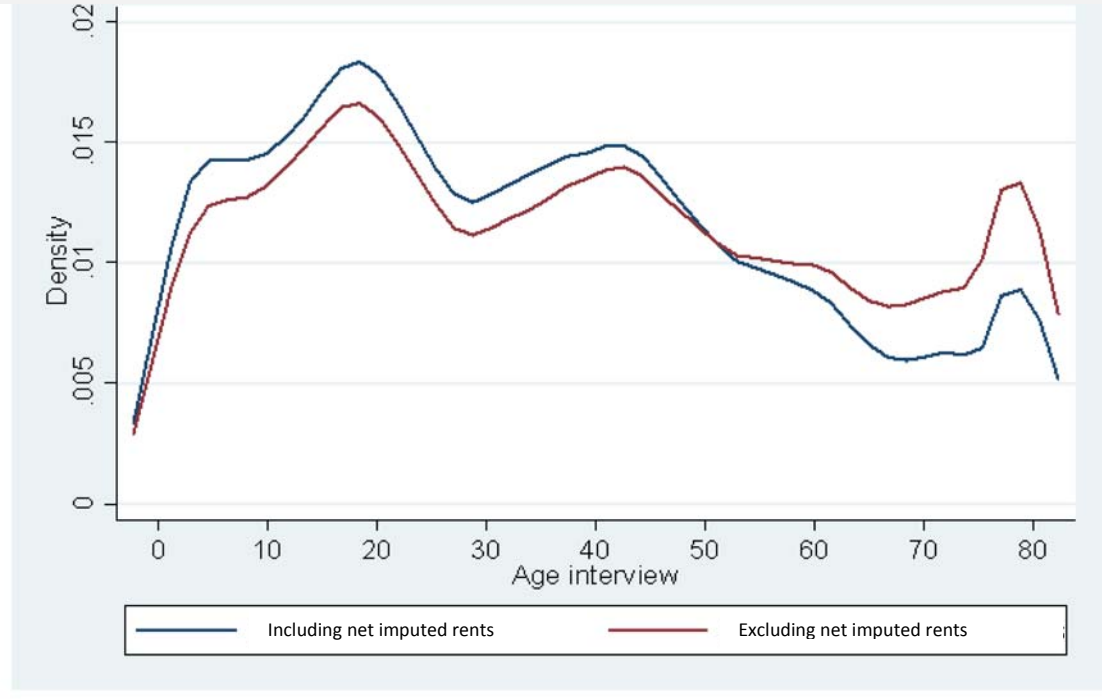
* Self-assessment in 2007

Source: Törmälehto and Sauli (2013).
Note: Countries arranged by the share of market renters in 2009.

Törmälehto and Sauli (2013) showed that, overall, the inclusion of imputed rent in reported income led to a reduction in the at-risk-of-poverty rate in the majority of countries. When looking at poverty by age, including imputed rent has the effect of lifting older people from

poverty (Figure 1).

Figure 1
Income poor by age, 2009



Source: authors' elaborations from the EU-SILC users' databases 2007–2010 (March 2012).

However, the authors also establish that the data quality, completeness and transparency of the estimation methods in the EU-SILC have shortcomings. Consequently, they conclude that further methodological studies and improvements in data quality are necessary; meaning that disposable income including imputed rents cannot yet replace the current concept of cash disposable income as the primary income measure.

Recommendation 9: Due to the challenges associated with measuring housing services from owner-occupied dwellings and the variation in methods employed across countries, it is recommended that such services be excluded from the main poverty indicators used for international comparison. However, for national purposes, compilers of poverty statistics may find it useful to consider supplementary measures including imputed rent, or take account of home ownership in other ways, such as using an after housing costs measure.

To better aid international comparison in future, as well as the targeting of resources at the national and international level, it is recommended that international organisations develop new guidelines on the measurement of imputed rent for inclusion in poverty and inequality statistics.

3.2.8.4 Consumer durables

173. Household consumer durables services refer to the imputed value of services provided by household-owned cars, washing machines, refrigerators, clothes, etc.

174. Such items are typically bought at a point in time, and then consumed over a period of several years. In theory, consumption should only include the amount of a durable good that is consumed during the year. This can be measured by the change in the value of the asset during the year, plus the cost of locking up one's money in the asset.

Recommendation 10: In practice, because of the challenges involved in measuring the value of services by household consumer durables, they are excluded from the operational definition of income set out in the Canberra Handbook (2011). For the same reason, they are also excluded from the measurement of consumption expenditure in practice. It is therefore recommended that the same practice apply for the purpose of internationally comparable poverty statistics.

3.2.8.5 Transfers between households

175. Transfers between households can have a significant impact on the economic well-being of the households that receive them, as well as those which pay them. Such transfers may include financial support to students or young adults living away from the home, as well as payments from family members working abroad to the rest of their family in their home country (remittances). Family support payments (such as alimony and child and parental support) also fall into this category.

176. The OECD framework for income, consumption and wealth statistics (OECD, 2013a) highlights that inter-household transfers are:

- Given without an expectation of repayment (similar to any current transfer).
- Given with the aim of supporting current consumption. This is related to the classification of a specific economic flow between households as income received (when money, goods or services are used immediately or in the short-term) or as an increment of wealth (when saved or comprising a capital item such as a consumer durable).
- Often made regularly (i.e., anticipated or relied upon by the recipient household). Regular inter-household transfers include regular alimonies, child and parental support payments, either voluntary or compulsory. Inter-household transfers can be donated either by family members or by other persons not living in the recipient household.

177. While regular inter-household transfers are included as income, any regular transfers in kind (such as food) are additionally counted as part of income and consumption expenditure by the recipient household. If the transfer between households takes the form of consumer durables or assets, are intended to support the purchase of an asset, or if it is expected that the majority of the value will be used for saving (or paying off debt), then the transfer is not considered income, but rather a capital transfer.

178. Box 3.7 provides an example of the impact of remittances on poverty in Eastern Europe and Central Asia.

Box 3.7

Remittances and poverty in Eastern Europe and Central Asia

Eastern Europe and Central Asia show high rates of labour mobility, which is apparent in a number of waves that have occurred since the early 1990s. The first waves of migration were often associated with movements of people to newly independent (or other) states of national origin, as well as waves of refugees and internally displaced people fleeing violent conflicts (especially in the Western Balkans). Subsequent waves of migrants were driven by economic considerations—especially the lack of productive employment opportunities at home and better possibilities abroad. As a result, labour migration and associated remittances flows have become extremely large in the region—three out of the top five remittance-receiving countries in 2014 (by the remittance inflow to GDP ratio) were Tajikistan (41%), Kyrgyzstan (30%) and the Republic of Moldova (25%). Armenia, Georgia, and Bosnia and Herzegovina report remittances-to-GDP ratios in excess of 10%. For a number of these countries, remittances come close to export receipts in size, and dwarf FDI and ODA flows. They deeply affect economies and individual families alike.

A number of countries track the poverty reduction impact of remittances via data collected through household budget surveys. Kyrgyzstan's National Statistical Committee regularly reports poverty rates with and without remittances, including a breakdown by regions. These data show a significant impact of remittances, reducing the national poverty rate from 36% to 30%. This impact is even larger for extreme poverty, which drops from nearly 8% to 1%) and for less developed southern regions, like Jalal-Abad, Batken, and Osh.

In the Republic of Moldova, the National Bureau of Statistics (NBS) supplies data to the Ministry of Economy and Trade, which is responsible for poverty monitoring. NBS publishes only structure of incomes, which includes remittances. The Ministry of Economy publishes poverty data with and without remittances in its annual poverty monitoring reports. In 2014, remittances reduced national poverty rates from 26.7% to 11.4%. These data also show that remittances reduce poverty in villages from 35.3% to 16.4%.

In Armenia, the National Statistical Service publishes the share of remittances in household income (which on average was as high as 10.4% in 2014), but do not report poverty rates without remittances. The Ukraine State Statistical Service reports the share of a broad category "money transfers from relatives and other persons; other cash incomes" (which was 7% in 2014).

Such data face some methodological questions. Respondents could be reluctant to report remittances received from abroad (although the large scale of migration and remittance flows could reduce such concerns). Remittances be received irregularly and not always within the reporting timeframe of the survey. An IMF study using household level data for Armenia found systematic under-reporting of remittances by about 30%.

The poverty reduction effect of remittances should be treated with caution, as simple "before and after remittances" poverty calculations do not necessarily reflect other dimensions of migration. Among other things, they do not take into account opportunity costs—back home migrants would find some jobs, lower paid than abroad, but nevertheless earn some money. Remittances may also reduce labour supply of households, consequently

reducing incomes of families.

Source: "Labour Migration, Remittances and Human Development in Central Asia" Central Asia Human Development Series (UNDP, 2015)

3.2.8.6 Social transfers in kind

179. The Canberra Group Handbook (2011) defines social transfers in kind (STIK) as goods and services provided by government and non-profit institutions that benefit individuals but are provided for free or at subsidised prices. The Handbook recommends that where possible, the value of social transfers in kind should be added to household disposable income to create a measure of adjusted disposable income. Similarly, social transfers in kind added to consumption expenditure provide a measure of *actual final consumption*—the total value of all goods and services used by the household.

180. Taking social transfers in kind into account is particularly important when make cross-country poverty comparisons. This is because in country A, certain services may be largely provided by the state, free at the point of use, whereas in country B it may be necessary to pay for those services directly. This means that (all else equal) someone with the same disposable income (or consumption expenditure) in country A would have a higher standard of living than in country B. Social transfers in kind are also very important for measuring economic well-being within countries. Since one of the major policy aims in this area is often to make access to important services more equal, the distributional impact of social transfers in kind is generally progressive. Additionally, over time, changes in the level and form of these transfers, as well as among recipient groups, can distort cross-county comparisons if STIK is omitted.

181. Despite this, social transfers in kind are commonly excluded from measures of income and consumption expenditure, due to the challenges associated with measurement, though a number of countries have produced some estimates, at least on an experimental basis. In addition, one potential drawback of including social transfers in kind within a welfare measure is that they may mask underlying disadvantage, though this depends to a large extent on the valuation method used.

182. Box 3.8 provides an example of income poverty measures from the United Kingdom and Finland, two countries that do produce distributional analyses of the impact of social transfers in kind (Tonkin et al., 2014). Another example is the inclusion of in-kind benefits since 2011 within resources for the Supplemental Poverty Measure published by the US Census Bureau (see Renwick & Fox, 2016). Box 3.9 describes practice across OECD member countries.

Recommendation 11: As accounting for the value of social transfers in kind is not yet common practice, it is recommended that they be excluded from indicators used for international poverty comparisons (at least for now). It is also recommended that statistical compilers consider developing methods for including these transfers in income and consumption expenditure statistics, and invest in learning from international best practices, so that future international comparisons may be based on data in which the effects of these transfers are included. To assist with this, guidance for national statistical offices should be developed by international organisations.

Box 3.8

Poverty measures including social transfers in kind in United Kingdom and Finland

Both the United Kingdom and Finnish national statistics offices regularly publish statistics on the distribution of income including the value of social transfers in kind (STIK), through imputing the value of in kind benefits to each country's household budget survey data (e.g., ONS, 2016).

Both countries estimate the value of education services received by households using an "actual consumption" approach, in which an attempt is made to assess the value of education services for the households that directly benefit from these services. This approach relies on information produced by various government departments and agencies on the cost per full-time equivalent pupil or student in different stages of education.

In the United Kingdom, the "actual consumption" approach used for assessing the value of education services is considered to be less appropriate for health care as it implies that people who are ill are better off than healthy people with the same disposable income. An "insurance value" style approach is therefore applied, under which the benefit is assigned to all households. Overall, it accounts for 60% of the total value of social transfers in kind in the United Kingdom's 2012 household budget survey data. In Finland, the value of healthcare services is assessed using an actual consumption approach in their regular statistics, although—for the purpose of the analysis presented below (Tonkin et al., 2014), an "insurance value" approach was used to provide comparability with the United Kingdom.

In both countries, education and healthcare make up the vast majority of social transfers in kind reported, though some other forms are also estimated, notably for travel and housing subsidies in the United Kingdom and for social care in Finland (Figure 1).

The distributional impact of social transfers in kind in the United Kingdom is broadly progressive, with the bottom and second quintiles receiving the equivalent of EUR 9,200 per year, compared with EUR 6,600 received by the richest fifth. This pattern reflects the demographic profiles of the different quintiles. By contrast, in Finland, the middle and second quintiles have the highest average values; together they account for almost half (46%) of the total value of these transfers. The poorest fifth of households received the equivalent of EUR 6,100 from social transfers in-kind, while the average in the fifth quintile group was close to EUR 6,900.

Figure 1

Social transfers in kind by household equivalent income quintile group, Finland and the United Kingdom, 2012

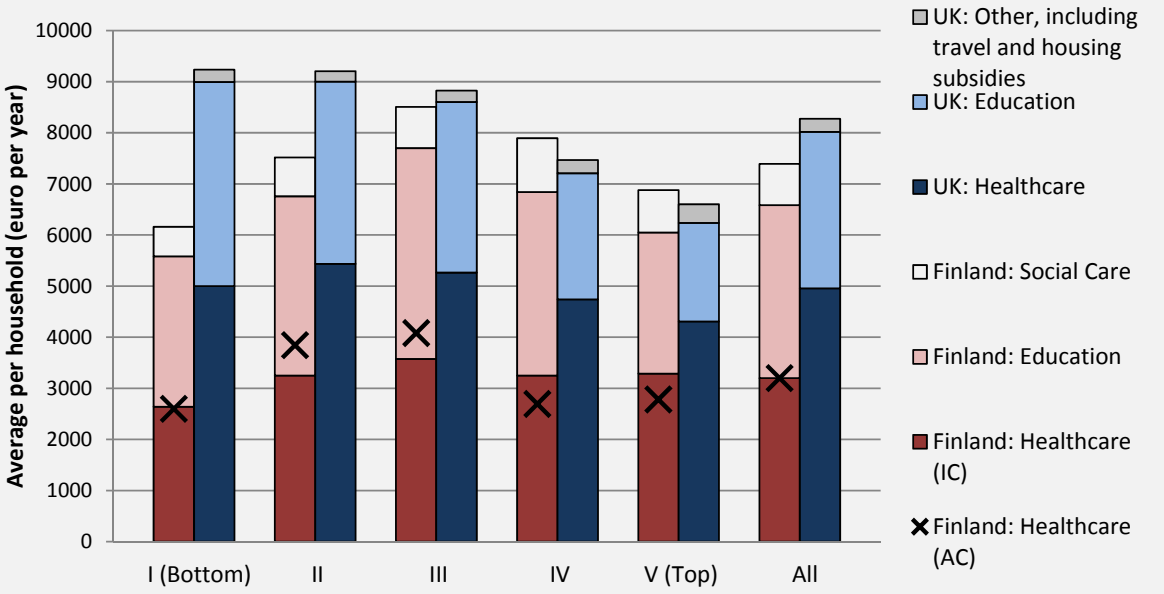
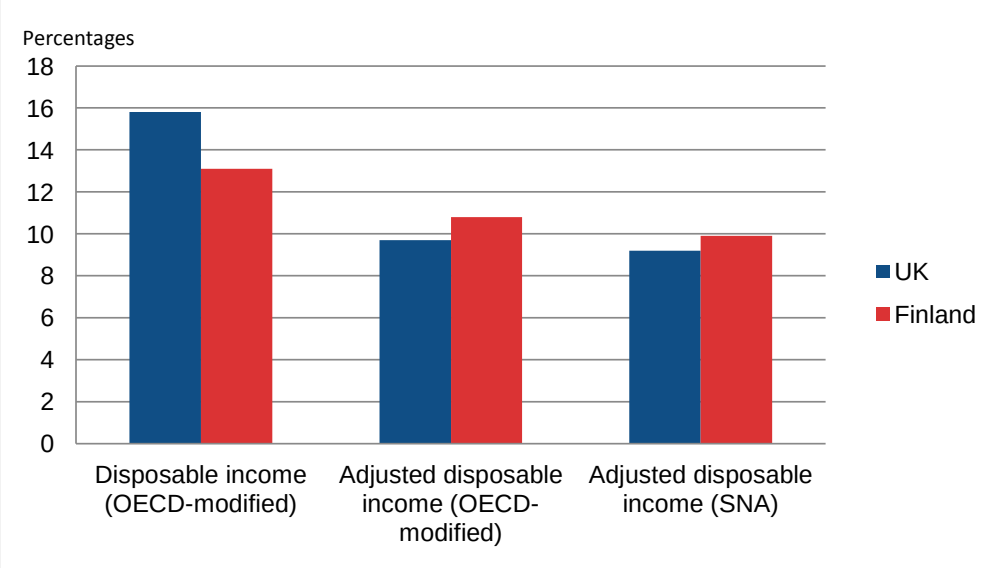


Figure 2 compares poverty rates based on adjusted disposable income, including social transfers in kind. The final column uses the so-called simplified needs adjusted (SNA) equivalisation scale (Aaberge et al., 2013), which was specifically designed for using with social transfers in kind. The OECD-modified scale is designed for equivalising cash income and is not necessarily appropriate when STIK are included in the income measure. For example, the OECD-modified scale assigns a smaller value for children than for additional adults, based on assumed needs. However, young children have a high need for education services and also comparably higher needs for healthcare (though less than for older people). Therefore, applying a standard equivalisation scale risks overstating the living standards of households with young children.

Figure 2
Relative at-risk-of-poverty rate, United Kingdom and Finland, 2012



The impact of including social transfers in kind in this indicator is quite noticeable, particularly for the United Kingdom. Including these transfers while retaining the OECD-modified equivalisation scale reduced the headline at-risk-of-poverty rate to 9.7% in the United Kingdom (a 39% decline). This was around 1 percentage point lower than the Finnish rate for the same measure (10.8%; a relative reduction of 17.6%).

Box 3.9

The measurement of imputed rents and social transfers in kind in the OECD

The inclusion of imputed rents and social transfers in kind in national measures of income is of great importance to poverty and income distribution studies, and for guiding policymaking.

In 2001, the first edition of the Canberra Group Handbook included imputed rent in the conceptual definition of income but not in the operational one, mainly due to methodological concerns and the lack of harmonised and comparable data. However, in 2011, in the 2nd edition of the Handbook, the operational definition of income was broadened to include the net value of owner-occupied housing services in the recommended income definition to be used for international comparisons.

Both editions of the Handbook acknowledged the importance of adding the value of social transfers in kind to household disposable income, to create a measure of adjusted disposable income. The 2011 edition of the Handbook also stressed that "the development of comparable estimates of STIKs should have high priority if the accuracy as well as the international comparability of income distribution statistics is to be improved".

In practice, however, due to measurement challenges and methodological concerns, available international evidence on levels and trends in income inequalities and poverty usually keep relying on the concept of household disposable cash income, thus ignoring the services from owner-occupied dwellings and the services that governments provide to households. At the European level, imputed rent and social transfers in kind are not included in the standard definition of income underpinning the main indicator of risk of poverty. Similarly, they are not included in the income definition underpinning the indicators of the OECD income distribution database.

In 2015, the OECD sent a questionnaire to its network of income data providers, to collect information on what statistical offices and other data producers have done, are doing, and are planning to do in terms of including imputed rents and social transfers in kind in their measures of income inequality. To date the OECD has received replies from 27 countries, which show the interest that national statistical offices give to this area of work. A brief overview of the main results of the OECD questionnaire is provided here, while a more detailed analysis can be found in Balestra and Sustova (2017).

Only 3 out of 27 OECD countries (Canada, Republic of Korea, and United States) do not compute imputed rent. Most countries produce and disseminate such estimates annually,

with 2013 and 2014 being reported as the most frequent "latest year of estimate". The rental equivalence approach is used by the large majority of countries, and implemented through different methods—including the stratification method, the hedonic and linear regression methods, and the subjective method, as well as a mix of the above. Most countries do not plan to change measurement approaches/methods in the near future, either because the current one is delivering satisfactory results or because they want to avoid breaks in the relevant data series.

Half of the countries producing estimates of imputed rent include them in national definitions of income; five include imputed rent in the main national concept of income; and seven include it in secondary or alternative ones. The inclusion of imputed rent in the operational income definition produces different effects on poverty rates: poverty decreases in a small majority of countries, while it increases in Austria, Finland, France, Mexico, and Norway. The impact also varies across different population groups.

Only ten of the countries that answered the questionnaire are computing estimates of social transfers in kind (Australia, Austria, Denmark, Finland, France, Japan, Mexico, the Netherlands, Norway, and Sweden). The majority of countries produce and disseminate such estimates regularly—two to five years is the most frequent periodicity for publication of the estimates. All countries include healthcare benefits in their estimates of STIKs; almost all include education and childcare, and a majority include long-term services for the elderly. Two countries (Australia and France) include social housing in the estimates, while Norway includes subsidies for public transport, social services targeted towards disadvantaged individuals and culture. As for the valuation methods used, countries can be grouped in three groups: those that use the average cost of production approach, those that use the average cost of provision approach, and those that use a mix of these two approaches. Denmark, Finland and Mexico allocate the value of these transfers to beneficiaries (actual consumption approach); Japan, Netherlands and Norway allocate the value of services equally among those having certain characteristics (insurance value approach); while the remaining four countries (Australia, Austria, France and Sweden) use a combination of approaches. In most countries, these transfers are attributed to the individual beneficiaries, although in a few countries they are attributed to the household as a whole. Only 4 out of the 10 countries that produce estimates of STIKs include their value when computing household income. Estimates of the size of these transfers vary from 7.1% of household cash disposable income in Mexico to up to 44% (if only the part of public consumption that may be individualised is distributed) or 62% (if total public consumption is distributed to individuals) in Denmark. The average share is however lower—around one fifth to one fourth of household cash disposable income. Half of countries reported a decrease in national poverty rates due to the inclusion of STIKs in the definition of income.

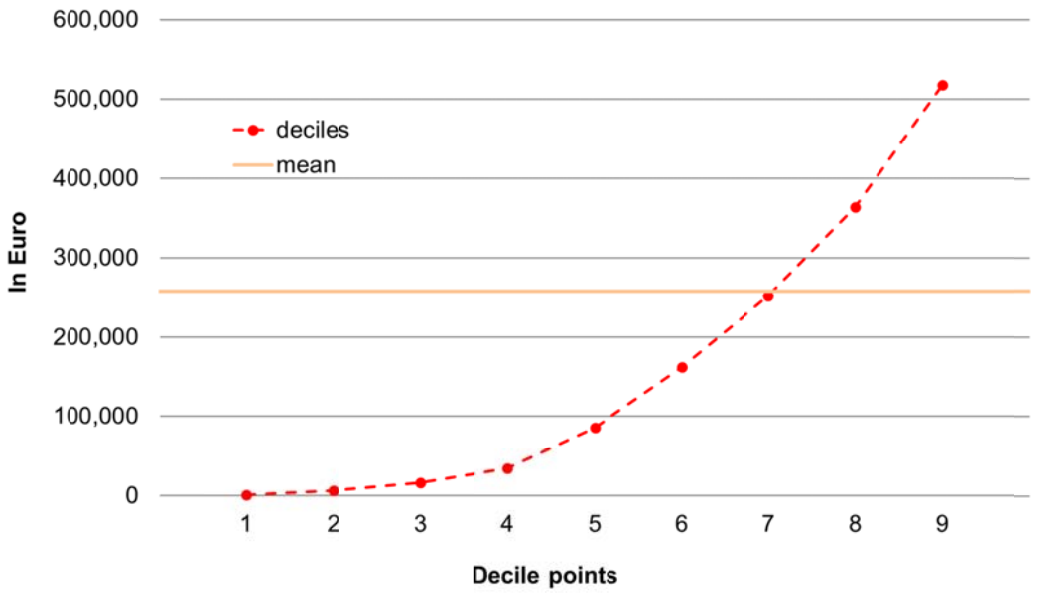
The 2016 EU-SILC ad hoc module on access to services could potentially help to make the imputation of STIKs more accurate. The module focuses on the affordability of services, and on the unmet needs for such services; questions on the cost of these services paid for by households are also included, which could help identify the exact amount of social transfers in kind to allocate to a particular household. The ad hoc module considers the following services: childcare, formal education and training, lifelong learning, healthcare and professional homecare.

3.2.9 Wealth

183. Compared with income, wealth (a stock measure), is more stable over time, reflecting accumulated savings and investments, although it can drop dramatically in the case of crashes in investment or housing markets. Households can use wealth to consume more than their income, or they may consume less than their income, and thus save. Wealth allows individuals to smooth consumption over time and to protect them from unexpected changes to income.

184. Compared with the distribution of income and consumption, wealth is even more highly concentrated towards the top of the distribution. As an example, Figure 3.1 shows wealth by wealth decile in Austria in 2010. The poorest 10% of households had net assets of less than 1000 euros and the median was around 86,000 euros. By contrast, the richest 10 per cent of households had net assets in excess of 518,000 euros.

Figure 3.1
Net wealth of private households in Austria, 2014
(Mean and decile points)



Source: Household Finance and Consumption Survey (HFCS)-Austria (2014).

185. While wealth cannot be used on its own as a measure of poverty, used alongside data for income and consumer expenditure, it can provide important additional insights. For example, considering wealth makes it possible to distinguish (among the income-poor) those who have sufficient wealth to support their living standards for a given period and those who lack this buffer. Both groups experience low income, but the latter are clearly worse-off than the former. While some wealth is held in assets that are not easily converted into money, its existence may allow people to borrow to finance expenditures, (e.g., for housing improvements, motor vehicle purchases, and so on).

186. Additionally, it allows the identification of the "asset-poor only", that is, households with high enough income or consumption levels to achieve a given minimum standard of

living at this moment, but do not have enough assets to protect them should their resources for consumption fall suddenly.

187. Collection of microdata on the distribution of household wealth is not as well established in statistical offices as is the collection of microdata on the distribution of income or consumption expenditure. However, an OECD expert group has developed international guidelines for wealth microstatistics (OECD, 2013b), and increasing numbers of countries now collect such data, sometimes through their central bank.

188. To be used in the measurement of poverty, such wealth data need to be compatible with poverty data from other sources. In practice, this is challenging, particularly in countries where data collection relies on household surveys rather than registers, due to the substantial burden placed on survey respondents. In such cases, it may be possible to utilise statistical matching techniques to create synthetic datasets containing all the variables of interest (see e.g., Tonkin, Serafino and Davies, 2016). An alternative approach which has been used is to proxy liquid financial wealth using other survey variables, such as the EU-SILC variable on capacity to face unexpected expenses (see e.g. Morrone et al, 2011; or Tormalehto et al., 2013).

Recommendation 12: While wealth is an important factor to consider alongside income or consumption in assessing poverty, it cannot be used as a measure of poverty on its own. It is recommended that countries invest in developing wealth statistics that can be assessed alongside other welfare measures, with the long-term aim of being able to consider jointly the distribution of income, consumption, and wealth, in order to provide a complete picture of individuals' economic well-being. This should be possible when registers and other administrative data sources are available to producers of statistics. Alternatively, statistical matching techniques should be utilised where income (or consumption) and wealth are not available through the same survey source.

3.3 Setting a poverty line

3.3.1 Absolute and relative poverty lines

189. As described above, an individual or household is classified as poor (or at risk of poverty) if its resources are less than the value of a given monetary threshold ("poverty line"). The poverty line represents the aggregate value of all the goods and services considered necessary to satisfy the household's basic needs.

190. There are three basic approaches to establishing a poverty line:

- The absolute poverty line (or "having less than an objectively defined absolute minimum", Hagenaars and De Vos, 1988)
- The relative poverty line (or "having less than others")
- The subjective poverty line (or "feeling you do not have enough to get by")

191. The first two of these approaches are the primary focus of this chapter.

192. In setting a poverty line, the definition of what can be considered "good practice" should take the following points into account:

- Is there a clear definition of the relevant standard and its units of measurement?
- Is the definition based on an existing source of information that meets minimum quality standards?
- Has the definition been applied more than once, ideally for the same country or region? (If calculations have been carried out only once but for many countries, then they may still qualify);
- Does the definition produce information that is useful for public policies?

193. Almost all countries with official measures of poverty base these on either absolute or relative poverty lines and produce poverty indicators according to these lines.

3.3.2 Absolute poverty lines

194. Strictly speaking, absolute poverty thresholds may be based on any definition of poverty that does not depend on the average condition of the population. Absolute poverty lines are by far the most commonly used approach for identifying the poor over time and space. They are universally used in low and middle-income countries. They allow for transparent comparisons over time where changes in measured poverty can be attributed purely to changes in the distribution rather than to a moving poverty cut-off. Perhaps the most common approach to establishing an absolute poverty line involves determining the monetary value of a set of goods and services considered essential to achieve a minimally acceptable standard of living.

195. There are some important practical challenges associated with the construction of absolute poverty lines using such an approach. First, it is unrealistic to maintain the composition of this basket of "essential" goods and services as fixed over time and across countries and regions. The resources that might be considered essential in terms of food, clothing and housing in the early part of the 20th century are likely to be substantially

different to what is deemed vital today (as a result of technological advances and general improvements in living conditions) in order to reach a decent standard of living.

196. This raises the important question of how frequently an absolute poverty line should be updated. Here the trade-offs are clear: the threshold should be fixed long enough to be able to discern underlying changes in poverty; and it must be updated often enough so that the standard is reasonably consistent with prevailing circumstances. Absolute poverty lines are often held constant over a long period, and then updated to reflect changing living standards. After updating, comparisons are typically not made across the two standards. Instead, each distribution is evaluated at the new, updated poverty line.

197. The United States poverty line has remained fixed (in real terms) since 1965 (see Box 3.10); the nominal poverty line is adjusted for inflation. The World Bank's main poverty standard was updated in 2015, and all income distributions back to 1981 were re-evaluated at the new line.

198. Although absolute poverty lines are most commonly used in the developing world, there are a number of reasons for also considering such an approach in high-income countries. First, although the proportion of the population in absolute poverty in such countries may be very small, it is important to understand the characteristics of those who are living in poverty, in order to effectively target welfare policies[25]. Additionally, an absolute poverty line is effective for use in evaluating poverty within a country over short-to-moderate spans of time, or across two countries when they have roughly similar levels of development. This approach may be harder to justify over longer periods of time or in a comparison of countries with very different levels of development.

3.3.2.1 Setting absolute poverty lines: the cost of basic needs approach

199. The ways in which absolute poverty lines are set vary considerably across countries. As stated above, the cost of basic needs approach is most commonly used, particularly in developing countries, but variations in the way the approach can be applied multiply with each step. The basic method involves estimating the cost of acquiring enough food for adequate nutrition, using a pre-defined number of calories per equivalised[26] adult per day and then adding the cost of other essentials such as clothing and shelter.

200. The process of defining a poverty line using the cost of basic needs approach is set out in more detail below.

3.3.2.1.1 Specify a food poverty threshold

201. Food poverty lines are based on minimum nutritional requirements. People are counted as food poor if the nutritional content of the food(s) they consume is below a prescribed threshold. As a simplifying assumption, most countries use dietary energy

[25] The use of absolute poverty lines in developed countries make the challenges of adequate population coverage of statistics, discussed in section 3.1.5, particularly acute. Many of those who are in absolute poverty may not be covered by traditional household surveys.

[26] Equivalisation is the process of adjusting a welfare measure to account for household size and composition, taking into account any possible economies of scale. The use of equivalence scales is discussed in Section 3.3.4.1

(calories) as a proxy for overall nutritional status—i.e., if people get enough calories in their diet, it is assumed that they obtain adequate protein and other essential nutrients.

3.3.2.1.2 Food basket construction and food poverty lines

202. To determine the cost of the food basket, there are two different basic methods: constructing an explicit food basket and then pricing it, or estimating the cost of the food basket without listing its contents.

A. **Constructing an explicit food basket**. Under this approach, an explicit bundle of food by item and weight (for example, meat—0.25 kg, sugar—0.03 kg, etc.) is seen as needed to provides a total close to the specified threshold in kilocalories per equivalised[27] adult per day. The conversion is made through a so-called food composition table, which varies across individual countries to reflect their individual situations. The composition of the food basket depends on the choice of reference population. Since the aim is to identify and count the poor, the reference population is usually some lower percentile of households according to their equivalised adult consumption expenditure distribution. The choice of the percentile cut-off point is usually guided by the most recent poverty incidence estimates, which infers that the reference population should be similar to the poor population.

B. **Price per kilocalorie**. This method avoids constructing a food basket by instead calculating the total expenditure and total caloric content of all the food consumed by the reference population. The ratio between the two totals is a price per kilocalorie estimate. When this figure is multiplied by the energy threshold, it provides an estimate of the food poverty line. Once a price-per- kilocalorie estimate is calculated, food poverty lines for different calorie thresholds are easily calculated. However, this approach requires the more extensive conversion into energy equivalents, as there are more food commodities consumed by the reference population.

3.3.2.1.3 Calculation of the total poverty line

203. This process involves two steps: defining essential non-food basic needs, and adding their costs to the food poverty line. Essentially, the food poverty line needs to be adjusted upward by an amount equal or proportionate to the costs of acquiring essential non-food basic needs of a person experiencing poverty or near-poverty. Therefore, these essential non-food basic needs require a definition that can be measured. Developing countries generally follow one of two operational definitions or procedures:

- **List of specified essential non-food needs**. This list is usually created by a group of users and stakeholders in association with the national statistics office or the agency charged with producing the country's official poverty statistics. The list is exhaustive, covering items like clothing and footwear, shelter, fuel and light, household goods, health services, personal care, and education. Costs per person are assigned to each item. Hence, if the non-food poverty line denotes the sum of the costs, then total poverty line is equal to the sum of food and non-food poverty lines. However, the outcome is very sensitive to the contents of a highly subjective list. Additions to or

[27] Equivalisation is the process of adjusting a welfare measure to account for household size and composition, taking into account any possible economies of scale. The use of scales are discussed in Section 3.3.4.1

subtractions from this list directly affects the total poverty line. This can easily give rise to questions about why one item is included while another is not.

- **Engel coefficient**. The most commonly used approach for setting the non-food poverty line is based on the observed Engel coefficient (the proportion of expenditure devoted to food) for a reference group of the population. This approach consists of multiplying the inverse of this coefficient by the cost of the food basket, so that the non-food basket cost is directly obtained from the consumption habits of the reference population. This methodology is based on the original work done by Mollie Orshansky when drawing the United States poverty lines (see Box 3.10); it is sometimes referred to as the Orshansky multiplier. As an alternative, another reference group for the construction of the non-food poverty line, such as households with a level of total expenditure close to the food poverty line, may also be selected.

3.3.2.1.4 Advantages and disadvantages of the cost of basic needs approach

204. Advantages:

- Thresholds are defined directly from surveys;
- Data are comparable over short-to-moderate spans of time.

205. Disadvantages:

- The threshold is very sensitive to the initial calculation point—changing the reference point in time for calculating the poverty threshold can change reported poverty indicators, even though the underlying tendencies remain the same;
- There is the related question of how frequently to update the poverty line. But here the trade-offs are clear: the poverty line must be fixed long enough to be able to discern underlying changes in poverty levels, and it must be updated often enough so that the standard is reasonably consistent with prevailing circumstances. Similar to any absolute poverty measurement, the poverty line is often held constant over many periods, and then updated to reflect changing living standards. After updating the line, comparisons are typically not made across the two standards;
- Estimates of energy (caloric) requirements for the population are generally based on internationally agreed recommendations (FAO/WHO), but the actual energy (caloric) requirements used by the countries differ, which can lead to comparability issues;
- The consumer price index as currently constructed in most countries may not reflect the consumption pattern of the reference population used in determining the poverty lines.

3.3.2.2 Setting absolute poverty lines: the subsistence minimum

206. Another method used for constructing absolute poverty lines is the subsistence minimum approach, which is used mainly in CIS countries. For calculating the subsistence minimum, calculation of both food and non-food components are needed.

3.3.2.2.1 Calculation of food component or food poverty line

207. The subsistence minimum is defined on the basis of a minimum food basket. The minimum food basket represents a table of defined quantities of food products and contains the amount of food that is physiologically required (proteins, fats, and carbohydrates) for an equivalised adult to lead a normal life and have the ability to work, which is converted to certain amount of calories. Usually, the minimum food basket is defined by the ministry of health or other such agency. Initially the cost of each component of the minimum food basket is calculated by means of average food prices. The monthly cost of a food basket product is then obtained by multiplying a product's monthly norm by its average price. The sum of the costs for all the food basket products therefore represents the monthly cost of the minimum food basket.

3.3.2.2.2 Calculation of the total poverty line

208. This computation involves defining essential non-food basic needs and adding their cost to the food poverty line, to arrive at the total poverty line. As with the cost of basic needs approach, the food poverty line needs to be adjusted upward by an amount equal or proportionate to the cost of acquiring the essential non-food basic needs of a person experiencing poverty or near-poverty. To define these, countries typically follow one of two procedures:

1. A list of specified essential non-food needs is compiled. This list can be created in the same way as for the cost of basic needs approach.
2. A use coefficient—the share of food expenditure in total household consumption expenditure—can be derived from an ongoing household survey. This is done by multiplying the inverse of the coefficient by the cost of the food basket. Here the reference population is usually some lower percentile of households according to their equivalised adult consumption expenditure distribution. The choice of the percentile cut-off point to calculate the subsistence minimum or total poverty line is usually guided by the most recent poverty incidence estimates. The obtained amount represents the final value of the subsistence minimum for an equivalised adult in a given month.

209. With this approach, the total poverty line is updated by calculating the cost of the subsistence minimum on a monthly basis.

210. There are a number of disadvantages to the subsistence minimum approach:

- The threshold is not defined from any survey;
- The basket of goods used for the consumer price index may diverge significantly from the one used to construct the poverty lines;
- Changes in prices (inflation) may not correspond directly to changes in the population's (especially to the poor population's) welfare. Increases in the prices for certain products in the minimum food basket automatically produce increases in the threshold (subsistence minimum), even if poor households switch to cheaper food products of a similar nature;
- The seasonality of food products that are given in the minimum food basket will have an impact on the food poverty line.

211. Box 3.10, Box 3.11 and Box 3.12 provide examples of how absolute poverty measures have been implemented in developed economies, including the United States, Italy, and the Russian Federation. In addition, the European Reference Budgets Network, a pilot project established by the European Commission, was set up in 2013 to develop a proposed common methodology for comparable reference budgets for all EU countries for different family types. The intention is that such budgets could be used for poverty measurement as well as helping EU member states design effective and adequate income support measures (Goedemé et al., 2015).

Box 3.10

The official thresholds measure in the United States

The United States uses an official measure of absolute poverty which dates from the early 1960s. Molly Orshansky, an economist at the Social Security Administration, developed a measure of poverty, which over time has become an absolute measure, based on the cost of a minimum diet multiplied by a factor of three.

Orshansky's "generally accepted" standards of adequacy for food were taken from the "economy food plan" prepared by the United States Department of Agriculture, which was developed for "temporary or emergency use when funds are low" and made no allowance for the possibility of eating meals outside the home.

The multiplier of three was derived from an analysis of then relatively current household survey data from the Household Food Consumption Survey conducted in 1955. This analysis revealed that food expenditures accounted for about 1/3 of after tax family income for families of three or more. Thus, the other 2/3s would cover all other expenses made by families. This pattern of expenditures reflected the situation of these particular families in the U.S. during the mid-1950's through early 1960's based on household survey data. For these families, poverty thresholds were set at three times the cost of the economy food plan. Different procedures were used for calculating poverty thresholds for two-person households and persons living alone.

The measure provided a range of income levels, or thresholds, which took into consideration different needs of children, adults, and seniors and of farm and non-farm households (to take self-production into account). Regional differences in living costs were not taken into account. To estimate poverty rates, these thresholds were compared to pre-tax cash income

The resulting poverty lines were re-evaluated every year on the basis of the changes in the cost of the food plans. Only two sets of changes have been made over the years:

In 1969, these thresholds were adopted as the official poverty measure. The method for annual updating was changed to the Consumer Price Index. For families living on farms the threshold value was increased from 70% to 85% of that of the other families.

In 1981, there were several minor changes. The thresholds were simplified by removing the distinction by gender of the household head and the distinction between farm and non-farm families. The largest family size covered by poverty lines became nine persons or more.

Except for these relatively small changes, the poverty line has not been changed since 1965.

The United States therefore use an absolute poverty line, which is updated only with respect to price changes.

Every year, the official poverty estimates are produced by the United States Census Bureau, using pre-tax cash income estimates from the Annual Social and Economic Supplement of the Current Population Survey to estimate the number and proportion of the poor.

The United States official poverty measure has been widely criticized over the years. In 2010 an interagency technical working group instructed the US Census Bureau, with the assistance of the Bureau of Labor Statistics, to produce a supplemental poverty measure (SPM) that addresses many of the shortcomings of the official measure. Note that the new measure does not replace the official measure but rather provides a supplemental set of estimates. The new measure uses thresholds derived from the Consumer Expenditure Survey that are updated each year based on expenditures on food, clothing, shelter and utilities and adjusted to reflect geographic and housing tenure (i.e. owners with a mortgage, owners without a mortgage and renters) differences in housing costs. The SPM uses a resource measure that takes into account many social transfers in-kind, tax credits and obligations and subtracts necessary expenditures including work-related transportation, childcare expenditures and medical out-of-pocket expenditures. For more information on the supplemental poverty measure, see Renwick and Fox (2016).

Box 3.11
Establishing an absolute poverty line in Italy

The Italian National Institute of Statistics produces annually a measure of absolute poverty based on a basket of goods and services considered necessary in order for a household to avoid extreme social exclusion (basic needs).

The basket is made up of three components, the first being a food and beverage component. This is based on the calories individuals need to carry out normal daily activities. This is assumed to be invariant over time and independent of individual preferences for particular food and beverages. In order to establish nutritional levels correctly, a nutritional model defined by the National Nutritional Institute, showing daily individual diets based on sex and age, is used. This model translates the Italian recommended daily allowances into combinations of average daily food quantities. The costs of the food basket are estimated on the basis of the lowest consumer prices available for each household in Italy. The choice of using the lowest price available instead of the absolute minimum price reflects the facts that the price/cost of a good or service can vary depending on market characteristics, and that not all households have the same opportunity to buy at the same price, due to both differences in supply/availability and the mobility of individual households. Currently, this component is calculated for individuals without taking into account possible economies of scale available to households of different size.

The second component of the basket is housing. This includes a value both for the accommodation itself and the facilities it should contain. For the accommodation itself, expenditure on rents is used, making use of national regulations that link specific household

sizes to minimum dimensions for a property. Electricity and heating costs form part of the housing measure; a TV, refrigerator, washing machine, and a non-electrical cooker are also included in the basket of basic needs. For these goods, depreciation is taken into account, calculated on the basis of average duration of ownership (estimated from insurance data).

These two components alone do not give a complete picture of individual and household needs, as health, education, transport, and clothing expenses are excluded. For these important but extremely difficult to calculate needs, a lump-sum residual component is also calculated. As these expenditures depend on individual characteristics and less on economies of scale, and since the individual items cannot be adequately quantified (i.e., how many and what kind of clothes an individual needs), the residual component is calculated as a percentage of expenditure on food and beverages.

The total monetary value of the three components serves as a standard reference consumption expenditure value for an Italian household that guarantees adequate nourishment, a decent dwelling, and the fulfilment of other basic needs and avoids any kind of social exclusion. The main principle is that the basic needs are the same all over the nation—adjusted for local differences due to such factors as the climate in determining heating needs. The baskets' monetary value and the poverty threshold therefore vary by geographical area and municipality size. In the Italian approach, poverty thresholds are calculated for each household, depending on number of people and their age.

To adjust the poverty threshold for price changes over time, consumer price analytical indexes (the specific index for each good and service in the basket) for the whole community are used. Under the assumption that prices trends can differ spatially, the deflation/inflation is done by geographical area.

Box 3.12
Establishing an absolute poverty line in the Russian Federation

The Russian Federal State Statistics Service (Rosstat) has produced indicators for income distribution since 1970 and for poverty since 1990. Currently, Russian statistics measure both absolute and relative poverty.

The formal absolute national poverty level is assessed according to the "population with incomes below the subsistence minimum" indicator. This is calculated for the Russian Federation as a whole, as well as by the constituent entities of the country.

In accordance with Federal Law of 24 October 1997 ("On the Subsistence Minimum in the Russian Federation"), the subsistence minimum is defined as the valuation of the consumer basket as well as compulsory payments and fees.

Starting from 2013, the procedure for calculating the consumer basket and the subsistence minimum was changed in accordance with the Federal law "On the consumer basket for the Russian Federation as a whole" (3 December 2012). According to this law, the consumer basket reflects the prices of a minimum set of foodstuffs (in real terms), as well as non-food products and services, the value of which is determined in relation to the food basket (the costs of foodstuffs constitute 50% of the total). This minimum cost food basket is designed

to represent what is necessary to maintain human health and ensure normal activities. The basket is established for the Russian Federation as a whole, with some variation for sub-national conditions.

The valuation of the consumer basket is based on Rosstat data on consumer prices for food and consumer price indices for food, non-food products, and services. The value of the subsistence minimum is determined on a quarterly basis.

3.3.2.3 Setting absolute poverty lines: Estimating international poverty lines for groups of countries

212. The previous sections set out the two main approaches to setting absolute poverty lines for individual countries. However, international comparisons of absolute poverty require poverty lines that can be used across groups of countries. The World Bank's international poverty line for measuring extreme poverty (currently PPP$1.90/day using 2011 exchange rates) has historically been based on a "typical" value of a sub-sample of the lowest of a group of national poverty lines. There are a number of criticisms of this approach, including the sensitivity of the results to the method for selecting the sub-sample, and the quality of the data for inflating the lines vis-à-vis the reference year for the comparison. It also only provides a measure of extreme poverty in global terms, and is therefore unsuitable for use among CES countries.

213. Jolliffe and Prydz (2016) propose a new approach for estimating international poverty lines for groups of similar countries, based on national poverty data. Their approach is based on estimating implicit national poverty lines by combining national poverty headcounts from national sources with corresponding consumption and income distributions.[28]

214. Using a sample of 115 national poverty lines, Jolliffe and Prydz (2016) consider two different ways to select a reference set of national poverty lines upon which to base international lines. The first is to group countries into quartiles based on their per capita household final consumption expenditure. The second is to use their World Bank official income classification, which is based on GNI per capita. Taking median values of poverty lines for both approaches yielded very similar results (within 5%). In particular, the median for low-income countries was PPP$1.91/day, close to the established World Bank international poverty line of PPP$1.90/day. The estimated lines from this research are set out in the Table 3.2 below.

[28] A further approach to be considered for international poverty comparisons is the weakly relative poverty line (Ravallion & Chen, 2009). This is discussed in Section 3.3.3.4 below.

Table 3.2
International poverty lines by group

A. Country quartile groups	Median	Mean	B. Income Classifications	Median	Mean
Lowest 25% (29)	1.86	2.11	Low Income (33)	1.91	2.23
25-50 % (29)	3.34	3.65	Lower Middle (32)	3.21	3.87
50-75% (29)	5.62	6.17	Upper Middle (32)	5.48	5.61
Highest 25% (28)	22.20	21.45	High Income (29)	21.70	21.19

Source: Jolliffe and Prydz (2016).

Note: Countries are grouped based on per capita household final consumption expenditure (HFCE) quartile in panel A and categorized based on World Bank official income classification, which uses per capita GNI, in panel B. Number of countries in each group in parentheses.

3.3.3 Relative Poverty Lines

215. Relative poverty has been described as people who "lack the resources to obtain the type of diet, participate in the activities and have the living conditions and the amenities which are customary, or at least widely encouraged or approved in the societies to which they belong. Their resources are so seriously below those commanded by the average family that they are in effect excluded from the ordinary living patterns, customs, and activities" (Townsend, 1979).

216. A relative poverty line is usually an explicit function of the income (or consumption expenditure) distribution, namely, a constant fraction of some income standard. One example is the European Union's country-level poverty lines, which are set at 60% of a country's median (disposable) income. The nature of a relative poverty line dictates that the cut-off below which one is considered poor varies proportionally with its income standard. Indeed, a level of income that is above the poverty line in one distribution may lie below the poverty line of another distribution having a higher income standard.

217. It is also possible to develop basket-based relative poverty thresholds, such as that used in the Canadian Market basket Measure of low income. In a basket-based relative approach, items are chosen that ensure a standard of living above the basic needs or subsistence level, and relative to median standards. Items might include a high speed internet connection, tickets to cultural or sporting events, and other items which would not usually be considered for an absolute line. When the basket is rebased, as it would be at a regular interval, new items that have become more common to society may be added in, such as "data plans" for mobile phones.

218. Relative poverty lines are most often used in countries with higher incomes, where there is less concern about achieving a minimum absolute living standard and greater interest in inclusion or relative position.

219. With a relative line, the analysis of a change in poverty over time is less transparent than with an absolute line. Moreover, if the incomes of every household double, the incidence of poverty calculated by the relative line will remain the same. (In this respect, relative income poverty trends also show trends in income inequality.) In addition, if the

incomes of poor households fall but by smaller amounts than the incomes of wealthy households, relative poverty decreases.

220. A key advantage of a relative poverty line is its conceptual clarity and simplicity of use (particularly for international comparisons). However, any relative poverty threshold is essentially arbitrary. In addition, unlike absolute poverty, the relative poverty line can increase with general increases in average incomes, if the incomes of poorer households rise more slowly than national averages. In this case, the process of poverty reduction will not be as obvious as in the case of absolute poverty. Given the advantages and disadvantages of both relative and absolute poverty measures, many countries use both types of measure (as well as subjective measures in some cases), in order to gain a richer understanding of poverty in their country.

3.3.3.1 Mean vs median

221. The selection of the parameter to determine the value of the poverty line influences both its measurement and interpretation. The arithmetic mean, which is relatively straightforward to calculate, shows the level of income (consumption expenditure, welfare) all households would have if incomes were equally distributed. However, this parameter can be very sensitive to extreme values of the distribution. Related to this, where microdata have been top-coded (constrained to an arbitrary maximum, perhaps to minimise disclosure risk), this will have a negative impact on the mean, but not the median.

222. For this reason, the median income is commonly used for determining the poverty line. The median income is the household income of what would be the middle individual if all individuals in the population were sorted from poorest to richest. As it represents the middle of the income distribution, the median household income provides a good indication of the standard of living of the "typical" individual in terms of income. The median is the most stable among other measures, and it is the most appropriate choice for a log-normal distribution (which often well approximates the distribution of income or consumption expenditure) as well as for predicting separately the effects of the economic cycle and inequality within the distribution.

Recommendation 13: In setting relative poverty lines for international comparison purposes, it is recommended that the median is used as a parameter, as it provides a more stable threshold which is less affected by measurement issues towards the top of the distribution.

223. The difference between the mean and the median can be regarded as one measure of income dispersion. In most countries, average household income will be higher than the median household income. The reason for this is that the distribution of income is usually skewed towards the lower end of the distribution. The ratio between the mean and the median can be considered a crude measure of inequality: the higher the value, the greater the inequality.

224. The poverty line calculated using the mean is very often higher than that calculated by the median; consequently, the apparent proportion of the population deemed to be at risk of poverty would typically be greater. An example, showing the impact of using mean or median income in calculating the at-risk-of-poverty threshold in EU-SILC is given in Box 3.13.

Box 3.13
Use of mean and median income in the at-risk-of-poverty threshold in EU-SILC

Looking across the countries producing EU-SILC data, the difference between mean and median (for the relative poverty threshold set at 60%) varies from 6.5% (in Sweden) to 27.9% (Cyprus). As a consequence, the difference between the poverty rates obtained using these thresholds varies from 3.0 percentage points for Norway to 16.9 percentage points for Cyprus (see Table 1).

Table 1
Individual at risk-of-poverty thresholds and rates for national populations, 2014

	Poverty threshold ((OECD-modified) equivalised disposable incomes in Euros) set at:		At risk-of-poverty rate (share in total population)	
	60% median	60% mean	60% median	60% mean
Belgium	13,023	14,058	15.5	19.9
Bulgaria	1,987	2,344	21.8	28.8
Czechia	4,573	5,160	9.7	15.0
Denmark	16,717	18,665	12.1	17.6
Germany	11,840	13,522	16.7	22.5
Estonia	4,330	5,292	21.8	31.8
Ireland	12,101	14,234	16.4	25.0
Greece	4,608	5,327	22.1	28.3
Spain	7,961	9,243	22.2	29.4
France	12,719	14,767	13.3	21.5
Croatia	3,135	3,479	19.4	24.0
Italy	9,455	10,748	19.4	25.3
Cyprus	8,640	11,051	14.4	31.3
Latvia	3,122	3,794	21.2	31.2
Lithuania	2,894	3,585	19.1	30.2
Luxembourg	20,592	23,133	16.4	22.5
Hungary	2,707	3,074	15.0	21.1
Malta	7,672	8,574	15.9	22.7
Netherlands	12,535	13,914	11.6	16.3
Austria	13,926	15,648	14.1	19.5
Poland	3,202	3,698	17.0	24.3
Portugal	4,937	5,914	19.5	28.4
Romania	1,293	1,466	25.1	30.0
Slovenia	7,146	7,706	14.5	17.7
Slovakia	4,086	4,491	12.6	16.4
Finland	14,221	15,678	12.8	18.1
Sweden	16,272	17,331	15.1	18.2
United Kingdom	12,317	14,482	16.8	26.0
Iceland	13,492	14,712	7.9	12.0
Norway	26,265	28,181	10.9	13.9

Source: Data from EU-SILC surveys ilc_li01 and ilc_li02. Available from http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_li01 and http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_li02.

3.3.3.2 Level of threshold

225. Together with the selection of the threshold parameter, the choice of the fraction of the parameter can also strongly influence reported poverty levels. Not only because the higher the fraction, the greater the poverty rate; but also because the reported rate depends on the distribution/concentration of the equivalised distribution around the chosen value.

226. The most commonly used thresholds tend to be either 60% (used by Eurostat and many EU countries) or 50% (used by the United Nations and the OECD, as well as individual countries) of median equivalised disposable income. These thresholds are commonly used in part for reasons of comparability with other approaches, and in part due to pragmatic considerations such as measurement error and accepted practice.

227. The use of a single poverty line can be complemented by use of additional thresholds (obtained as a percentage of the standard threshold) in order to highlight the sensitivity of the results to threshold value. The additional thresholds allow for the identification and analysis of the characteristics of households closer to the poverty line, and to those most exposed to the risk of falling below the line. The use of additional thresholds is particularly useful where the threshold value used is sensitive to peaks in the income distribution introduced by the government transfer system. For example, in Australia, there are peaks in the income distribution which reflect the rate of various income support payments and if a threshold value is positioned close to one of these peaks, it is possible that in a given year the proportion of persons above or below the line could vary depending on relative changes in the value of those payments. The application of different poverty thresholds in EU-SILC is described in Box 3.14.

Recommendation 14: For international comparisons of relative poverty among CES countries, a 50% threshold is recommended for the main indicator, in order to ensure consistency with the global SDG 10 indicator on relative poverty. In addition to the global SDG indicator, this threshold is also consistent with that used by the OECD in reporting on relative poverty in member states.

This measure may be complemented by the use of additional thresholds (such as 60% in EU countries), in order to provide further context when comparing across groups of countries, particularly relating to sensitivity of poverty rates to the choice of threshold.

Box 3.14
EU-SILC use of different relative poverty thresholds

European at-risk-of- (relative) poverty levels using a threshold line set at the 70% of the median value are about four times higher than those that obtain when using a 40% threshold. However, the relative rankings of individual countries can change significantly with uses of different thresholds. For example, Malta shows the second lowest at-risk-of-poverty rate when the threshold is set at 40% of the median—but falls to 19th when the threshold is set at 70% of the median (the rate rises from 2.4% to 25.7%). This means that a significant share of the population (almost 25%) has equivalised incomes very close to 50%

of the median value. The opposite case is apparent in Romania, where the at-risk-of-poverty rate using the 70% threshold is "only" 2.3 times greater than that which obtains with the 40% line. The share of the population with equivalised incomes close to half of the median value is about 17%.

Table 1

Individual at-risk-of poverty thresholds and rates for national populations, 2014

	Poverty threshold ((OECD-modified) equivalised disposable incomes in Euros) set at:				At risk of poverty rate (share in total population)			
	40% median	50% median	60% median	70% median	40% median	50% median	60% median	70% median
Belgium	8,682	10,852	13,023	15,193	3.8	8.6	15.5	24.9
Bulgaria	1,324	1,655	1,987	2,318	10.8	15.9	21.8	28.0
Czechia	3,049	3,811	4,573	5,336	2.4	5.2	9.7	17.0
Denmark	11,144	13,931	16,717	19,503	4.4	6.6	12.1	20.4
Germany	7,893	9,867	11,840	13,813	5.4	10.5	16.7	23.7
Estonia	2,887	3,609	4,330	5,052	7.9	13	21.8	29.0
Ireland	8,068	10,084	12,101	14,118	4.3	8.8	16.4	24.4
Greece	3,072	3,840	4,608	5,376	10.4	15.8	22.1	28.9
Spain	5,308	6,634	7,961	9,288	10.6	15.9	22.2	29.7
France	8,480	10,600	12,719	14,839	2.9	6.7	13.3	21.9
Croatia	2,090	2,613	3,135	3,658	8.2	13.4	19.4	27.0
Italy	6,303	7,879	9,455	11,031	8.7	12.7	19.4	26.6
Cyprus	5,760	7,200	8,640	10,080	3.3	7.8	14.4	24.2
Latvia	2,081	2,601	3,122	3,642	7.9	13.2	21.2	29.2
Lithuania	1,929	2,411	2,894	3,376	6.9	11.3	19.1	26.6
Luxembourg	13,728	17,160	20,592	24,024	4.0	8.1	16.4	24.4
Hungary	1,805	2,256	2,707	3,159	4.5	9.2	15.0	22.4
Malta	5,115	6,394	7,672	8,951	2.4	8.4	15.9	25.7
Netherlands	8,356	10,446	12,535	14,624	2.8	5.9	11.6	19.2
Austria	9,284	11,605	13,926	16,247	4.0	8.2	14.1	21.2
Poland	2,135	2,668	3,202	3,735	5.8	10.7	17.0	24.8
Portugal	3,291	4,114	4,937	5,760	8.6	13.8	19.5	27.1
Romania	862	1,077	1,293	1,508	13.1	19.1	25.1	31.0
Slovenia	4,764	5,955	7,146	8,337	4.1	9.1	14.5	21.6
Slovakia	2,724	3,405	4,086	4,767	5.1	8.4	12.6	19.7
Finland	9,481	11,851	14,221	16,591	2.5	5.5	12.8	22.2
Sweden	10,848	13,560	16,272	18,984	4.7	8.5	15.1	22.5
United Kingdom	8,211	10,264	12,317	14,369	5.0	9.5	16.8	25.6
Iceland	8,995	11,243	13,492	15,741	2.1	3.9	7.9	15.6
Norway	17,510	21,887	26,265	30,642	3.9	6.2	10.9	17.7

Source: Data from EU-SILC surveys ilc_li01 and ilc_li02. Available from http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_li01 and http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_li02.

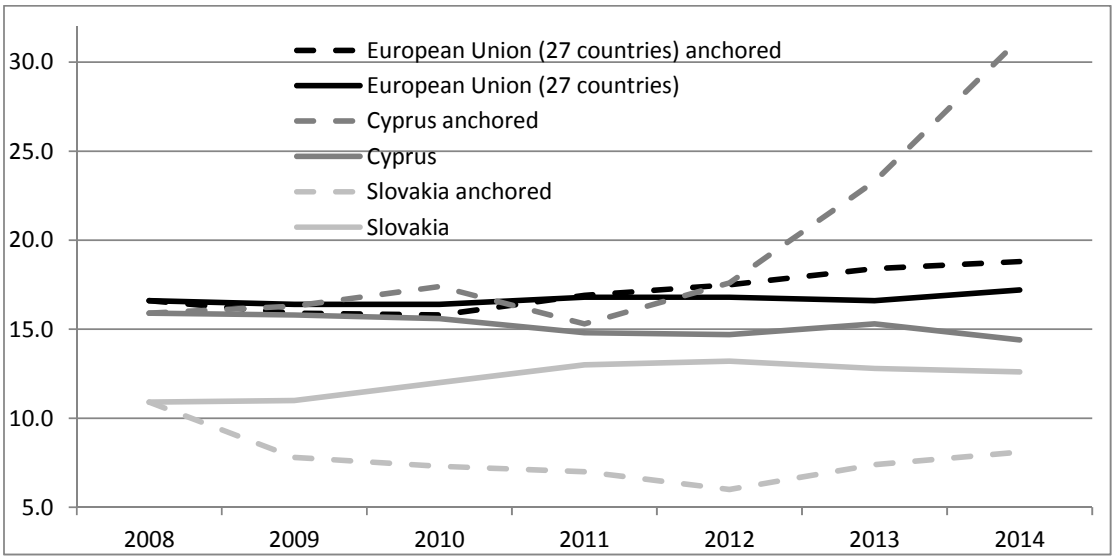
3.3.3.3 Anchored poverty lines

228. Anchored poverty lines are sometimes used to supplement more "standard" relative poverty measures, as they bring some of the strengths of absolute poverty measures while also being considerably more straightforward to use.

229. An example is Eurostat's at-risk-of poverty rate anchored in time. The measure is obtained using the at-risk-of-poverty threshold in a particular year, adjusted for inflation during the following years. Comparison of changes in this measure with those in the "standard" at-risk-of-poverty rate gives an indication of changes in the absolute situation of those with low incomes in relation to changes in the relative situation. In other words, the former takes explicit account of changes in overall price levels, so if there is an increase in real incomes (as typically there is) it implies that everyone, including those at risk of poverty, becomes better off over time. In contrast, the standard measure accounts for changes in average income levels (including the price effect and changes in real income).

230. By comparing the results obtained using the anchored poverty line with the standard one (60% of the median), it is possible to evaluate the differences.

Figure 3.2
At-risk-of-poverty rates anchored at a fixed moment in time (2008) versus "standard" at-risk-of-poverty rates, 2008-2014



Source: Eurostat.

231. In Figure 3.2, for the EU as a whole, we observe that during 2008-2011 the anchored at-risk-of-poverty rate is slightly lower than the standard rate—indicating that living standards for the population increased a little more than prices. In the following years the situation reverses: the at-risk-of-poverty rate that obtains with the anchored line is higher than what obtains with the standard rate. Due to the economic crisis, growth in median incomes was lower than the price increase. Moreover, because the anchored measure is adjusted only for inflation, the anchored at-risk-of-poverty rate can be interpreted as the share of the population who can afford to purchase a fixed (in 2008) basket of goods and services. However, the composition of this basket is not really identified; nor is it possible to

update its value by taking into account price trends for new goods and services that become available for vulnerable households.

3.3.3.4 Weakly relative poverty line

232. With a standard relative poverty line, poverty will not fall when all incomes in a country grow at the same rate. Similarly, poverty would not rise if all incomes fell at the same rate. Ravallion and Chen (2009) argue that this is implausible and argue instead for the use of a "weakly relative" poverty line. With such a line for measuring poverty internationally, the line is constant (e.g., PPP$1.25/day in 2005 prices) up to a certain level of average national consumption (e.g., PPP$2 a day) where absolute basic needs are thought to be met. Above this level, in light of the growing importance of social exclusion, the poverty threshold could take the form of a line that increases in slope with average consumption per capita, with a gradient of a third (a value established based on data from national poverty lines). This approach was developed based on data for 115 developing countries. If rich countries were considered, it might be expected that the gradient would become 1 (i.e. the 'weakly relative' line becoming 'fully relative' for very high income countries).

3.3.4 Key issues

3.3.4.1 Equivalence scales and economies of scale

233. As highlighted above, the unit of observation for income or consumption expenditure is typically the household or family, while the unit of analysis for poverty should ideally be the individual.

234. In light of this, it is essential that individuals living in households (or families) of different sizes and composition be placed on an equal footing when assessing whether they are in poverty. The simplest alternative for linking the value of the poverty line to the size of the household is to use a per capita poverty line. However, this implicitly assumes that the monetary costs of satisfying an individual's needs are constant, and that there are no economies of scale in consumption. This runs counter to the evidence that children need a smaller budget than adults to satisfy their food and clothing needs (i.e., there are consumer unit equivalencies). Additionally, multiple individuals living together and sharing public goods enjoy economies of scale with regard to heating and housing. As a result, two persons living together can cover their needs without needing to spend twice as much as a person living alone (economies of scale or decreasing marginal cost when the household size increases).

235. While there is no generally accepted method for calculating equivalence scales (Klasen, 2000), there are at least three main approaches that are often used (Deaton and Zaidi, 2002):

- One relying on behavioural analysis to estimate equivalence scales (behavioural approach);
- One using direct questions to obtain subjective estimates (subjective approach);

- One that simply sets scales in some reasonable, but essentially arbitrary, way (arbitrary or parametric approach).

236. The first two methods are, for conceptual and econometrical reasons, not fully convincing (Deaton and Zaidi, 2002; Deaton, 1997). Most studies to date are therefore based on arbitrary (or parametric) equivalence scales.

237. One of the most widely used equivalence scales (based on the parametric approach) is the so-called "OECD-modified scale", which assigns a value of 1 to the household head, of 0.5 to each additional adult member, and of 0.3 to each child. This scale was adopted by Eurostat in the late 1990s.

238. The square root scale is also commonly used in the CES region. Recent OECD publications comparing income inequality and poverty across countries use a scale that divides household income by the square root of household size. This implies that, for instance, a household of four persons has needs twice as large as one composed of a single person. However, some OECD country reviews, especially for Non-Member Economies, apply equivalence scales that are in use in their respective country.

239. At a national level, a variety of practices are used, including country specific equivalence scales. The use of equivalence scales in Polish and Russian poverty measures are described in Box 3.15 and Box 3.16.

240. 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, since children tend to live in larger households than do the elderly (Förster, 1994). In selecting a particular equivalence scale, it is therefore important to be aware of its potential effect on the level of inequality and poverty, on the size of the poor population and its composition, and on the ranking of countries. The impact of the parameters used to assess the relative poverty risk among children and those over 65 is shown in Table 3.3.

Table 3.3
Relative poverty risk of children vs the elderly, by type of equivalence scale

Country	Year	Parameter of equivalence scale		
		theta=1	theta=0.75	theta=0.5
Albania	1996	3.5	3.5	1.6
Armenia	1998/99	1.3	1.0	0.7
Azerbaijan	1999	1.1	1.0	1.0
Belarus	1999	2.0	0.9	0.4
Bulgaria	1997	1.5	0.9	0.6
Croatia	1998	0.9	0.4	0.2
Czechia	1996	40.3	21.3	1.1
Georgia	1996/97	1.5	0.9	0.7
Hungary	1997	7.4	2.9	1.0
Kazakhstan	1996	1.4	1.0	0.7

Country	Year	Parameter of equivalence scale		
		theta=1	theta=0.75	theta=0.5
Kyrgyzstan	1997	1.2	1.1	0.9
Latvia	1997/98	2.7	1.6	0.8
Lithuania	1999	2.3	1.4	0.7
TFYR Macedonia	1996	1.7	1.4	0.9
Republic of Moldova	1997	1.6	1.0	0.7
Romania	1998	4.2	2.0	0.6
Russian Federation	1998	1.2	0.9	0.7
Slovenia	1997/1998	1.0	0.6	0.3
Tajikistan	1999	1.2	1.2	1.0
Turkmenistan	1998	1.8	1.7	1.3
Ukraine	1996	1.1	0.7	0.4

Source: Calculations based on World Bank (2000).

Note: Relative poverty risk of Children vs Elderly shows ratio of child (0-15) to elderly (65+) poverty risk, i.e. 1 means equal risk of poverty, 2 means children poverty risk is twice higher than elderly, while 0.5 means elderly poverty is twice higher. Theta is a parameter of simplified one-parameter equivalence scale, Equivalent size = (household size)$^{\theta}$. OECD scale is close to θ=0.5, while θ=1 implies no economies of scale, and θ = 0.75 is a reasonable estimate for transition countries used by the World Bank (2000).

241. The impact of applying different scales is explored in more detail in the UNECE Canberra Handbook (2011).

242. The adjustment of household income through equivalisation allows for more accurate comparative analysis between incomes of families of different sizes and composition, and it is recommended particularly for the analysis of relative poverty in international (or interregional) comparisons, as well as within countries over time.

Recommendation 15: In setting a poverty line, equivalised welfare measures should be used. For international comparisons, a trade-off needs to be made between applying country-specific approaches reflecting variation in economies of scale and ensuring comparability across the region. For comparisons across the CES region, it is recommended that the square root scale be used in order to provide consistency with existing international statistics based on a 50% of median threshold contained within the OECD income distribution database for many CES countries.

Use of an alternative scale (such as modified-OECD) for this headline measure could lead to inconsistencies in the levels of relative poverty reported by the UNECE and OECD, reducing the coherence of international statistics. However, use of such alternative scales would be useful for any supplementary measures to streamline comparison among a set of countries that are relatively homogenous (from a global perspective).

Box 3.15
Influence of different equivalence scales on poverty rates in Poland

The influence of different equivalence scales on poverty rates (head count ratio) was first analysed by Poland's Central Statistical Office on the basis of Poland's 2013 EU-SILC survey. The definition of poverty adopted by Eurostat was applied. According to this definition, people are considered poor if they lived in households falling below 60% of the median equivalised disposable income of the total population.

Table 1
Relative poverty rates in Poland calculated with different equivalence scales

Poverty threshold	Equivalence scale		Persons aged			
			Total	0-17	18-65	65 or more
			% of persons in households			
60% of median disposable income	**Original OECD equivalence scale**	*1-0.7-0.5*	18.0	26.3	17.5	9.5
	Modified OECD equivalence scale	*1-0.5-0.3*	17.3	23.2	16.7	12.3
	Square root scale	*sqrt(n)*	17.7	22.6	16.7	15.8
	Per person	*n*	20.1	33.2	19.2	7.7

The results of the analysis indicated that the use of different equivalence scales in Poland does not have a significant impact on poverty estimates at the level of the whole population. However, it does influence the results broken down into different age groups. For the whole population, the lowest value of the relative poverty rate (approximately 17%) was generated by the modified OECD equivalence scale. The highest value (20%) came when the effects of the household's structure were omitted.

As mentioned, the effects of applying different equivalence scales were more apparent when the analysis was conducted at the level of different age groups rather than the whole population. Generally, it can be said that assigning a higher weight to each additional household member (in particular to children) results in higher poverty rates among the youngest persons and lower rates among the oldest ones.

For example, the relative poverty indicator for Polish children (persons aged 0-17) assessed via the original OECD equivalence scale was estimated at approximately 26%. When calculated according either to the modified OECD equivalence scale or the square root scale were, it was some 3 percentage points lower. Likewise, when relative poverty rates for the elderly (65 and above) were calculated on a basis of the original OECD equivalence scale, approximately every tenth person could be considered as being at risk of poverty. Applying the modified OECD equivalence scale increased the at-risk-of-poverty rate for this group of persons to 12%; in the case of the square root scale, it reached almost 16%.

These differences underscore how different methodological choices (including the choice of equivalence scale) can have a significant influence on reported poverty rates, as well as the identification of the social groups that can be considered the most vulnerable to poverty. This is important to remember in the context of policies that seek to reduce poverty.

Box 3.16
Equivalisation in Russian poverty measurement

Economies of scale resulting from cohabitation (everything else equal) occur for reasons related to sharing of certain costs, in particular related to payments for housing and communal services, purchases of vehicles or newspapers, household appliances, etc.

In Russia, a 1996 Russian State Statistics Committee (Rosstat) study of primary household budget survey microdata found that the savings achieved from cohabitation in households surveyed did not exceed 5% total living costs. The absence of substantial empirical confirmation of the effect of cohabitation can be explained by the fact that about 50% of consumer spending in low-income households is spent on food, while non-food expenditures on goods and services relate mainly to personal consumption. In other words, the basic expenses in poor households are of an individual nature, and cannot be consumed jointly.

Using equivalisation scales for determining absolute poverty:

Under these conditions, the use of statistically unsuitable equivalence scales can lead to artificially low levels of absolute poverty (see Tables 1 and 2). The magnitude of absolute poverty depends directly on the equivalence scale chosen (or equivalency ratio E) and can, all else equal, differ at times.

For example, as shown by experimental calculations carried out on the basis of the 2014 population income survey (with 2013 data), the absolute poverty indicator, calculated by Rosstat without equivalisation (E=1) was 11.1%. The application of the equivalency ratio E = 0.73 reduced the value of the poverty rate to 5.0%, and at E = 0.5 - to 2.7%.

Table 1 shows the values of absolute poverty levels, and Table 2 shows the age structure of the absolutely poor population for different equivalency ratios (in percentages).

Table 1
Values of absolute poverty levels

	Total	Younger than working age	Working age	Older than working age
E=1	11.1	20.5	10.9	3.2
E=0.73	5.0	9.3	5.1	1.2
E=0.5	2.7	4.7	2.8	0.6

Table 2
Age structure of the absolutely poor population for different equivalency ratios
(Percentages)

	Total	Younger than working age	Working age	Older than working age
E=1	100	35.9	57.9	6.2
E=0.73	100	35.8	59.2	5.0
E=0.5	100	33.9	61.5	4.6

Note: In calculating absolute poverty, Rosstat does not use an equivalence scale, since the value of the subsistence minimum (absolute poverty line) for a household is generally defined in terms of its composition as a sum of relevant indicators set out in the specific constituent entity of the Russian Federation for different socio-demographic groups, taking into account a calculation of basic expenses for personal consumption.

Using equivalisation scales in determining relative poverty:

While the application of equivalisation scales has only a slight impact on the at-risk-of-(relative) poverty rate for the population as a whole, it can have a more significant impact on the reported composition of the poor.

For the experimental calculation of the relative poverty of the general population conducted on the basis of 2014 population income survey in 2014, a poverty line of 50% of the median per capita income level was used, and three values of the coefficient of equivalence (E = 1, 0.73, 0.5) were examined.

Table 3 shows relative poverty levels and Table 4 shows the structure of the relatively poor population by main age groups depending on the equivalency ratio (in percentages).

Table 3
Relative poverty levels

	Total	Younger than working age	Working age	Older than working age
E=1	15.6	26.7	14.8	8.0
E=0.73	15.1	22.9	13.6	12.0
E=0.5	15.7	20.2	13.1	18.8

Table 4
Age structure of the relatively poor population for different equivalency ratios
(Percentages)

	Total	Younger than working age	Working age	Older than working age
E=1	100	33.2	55.7	11.1
E=0.73	100	29.5	53.1	17.3
E=0.5	100	25.0	49.1	25.9

3.3.4.2 Prices and PPPs: The International Comparison Programme

243. Cross-country comparisons of poverty rates depend crucially on information about prices in various countries (except where fully relative measures of poverty are used). This information allows researchers to compare welfare between individuals living in different countries by adjusting domestic incomes by purchasing power parity (PPP) exchange rates, so that one international dollar affords, in principle, the same command over goods and services in any country of the world.[29] PPP exchange rates play a role similar to that played

[29] For example, if the price of a hamburger in France is €4.80 and in the United States it is $4.00, the PPP for hamburgers between the two economies is $0.83 to the euro from the French perspective (4.00/4.80) and €1.20 to the dollar from the US perspective (4.80/4.00). In other words, for every euro spent on hamburgers in France, $0.83 would have to be spent in the United States to obtain the same quantity and quality—that is, the same volume—of hamburgers. Conversely, for every dollar spent on hamburgers in the United States, €1.20 would have to be spent in France to obtain the same volume of hamburgers. To compare the volumes of

by national price indexes in the case of individual countries over time. In order to compare average or individual welfare in the same country in two periods, one needs to adjust for changes in national price levels. Similarly, to compare welfare between individuals living in different countries at the same point in time, one needs an estimate of price levels they face. Cross-country comparisons of absolute poverty rates are thus sensitive to estimates of PPP exchange rates.

244. These estimates are obtained through a large International Comparison Programme (ICP).[30] The ICP is a joint project of the United Nations, OECD, the World Bank and regional development banks, which measures national price levels. The project entails direct comparisons of prices for some 1000 goods and services to construct country-wide price indexes for total GDP and such broad components as household consumption, investment, and government spending, and for narrower components of expenditures on goods like clothing and footwear, and transport. These comparisons are carried out at approximately decennial intervals.

245. PPPs are relative price ratios that are calculated in several stages: first for individual goods and services, then for groups of products, and finally for each of the various levels of aggregation adding up to GDP. In moving up the aggregation hierarchy, the relative price ratios refer to increasingly complex assortments of goods and services. Thus, if the PPP for GDP between France and the United States is €0.95 to the dollar, it can be inferred that for every dollar spent on GDP in the United States, €0.95 would have to be spent in France to purchase the same volume of goods and services.

246. Purchasing the same volume of goods and services does not mean that the baskets of goods and services purchased in both economies will be identical. The composition of the baskets will vary to reflect differences in tastes, cultures, climates, price structures, product availability, and income levels. But both baskets will, in principle, provide equivalent satisfaction or utility. PPP indexes are further standardised by expressing them in a common currency unit. The common currency used for the global comparison is the US dollar, and so each economy's PPP is standardised by dividing it by that economy's dollar exchange rate. The standardised indexes so obtained are called price level indexes (PLIs or $PPP).[31]

247. Since the early 1990s, the World Bank has monitored global extreme poverty using an international poverty line that was explicitly based on the national poverty lines of some of the world's poorest countries. Each release of new PPP data has led both to revisions of the international poverty line and to re-assessments of the relative differences in well-being across countries and regions.

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hamburgers purchased in the two economies, either the expenditure on hamburgers in France can be expressed in dollars by dividing by 1.20 or the expenditure on hamburgers in the United States can be expressed in euros by dividing by 0.83.

[30] For more details on the ICP, see http://go.worldbank.org/X3R0INNH80.

[31] Economies with PLIs greater than 100 have price levels that are higher than that of the base economy. Economies with PLIs less than 100 have price levels that are lower than that of the base economy. So, returning to the hamburger example, if the exchange rate is $1.00 to €0.79, the PLI for a hamburger with the United States as the base economy is 152 (1.20/0.79 × 100). From this, it can be inferred that, given the relative purchasing power of the dollar and the euro, hamburgers cost 52% more in France than they do in the United States.

248. To measure poverty in different countries using these international poverty lines, three steps are undertaken. First, the international poverty line is turned into a poverty line in national currencies at the benchmark year using the PPP exchange rates from the particular ICP round. Second, this poverty line is adjusted using national inflation rates to generate poverty lines in national currencies backwards and forward in time. Third, the share of the population living below this poverty line is determined using national household income or expenditure surveys. It is important to emphasise that, in each revision, poverty rates are recalculated not only for the most recent years, but for all years since the beginning of measurement of poverty at the global level (where the first data point generally produced is 1981).

249. The first international poverty line that was based on a sample of national poverty lines was set at $1.01 using 1985 PPPs, by Ravallion, Datt and van de Walle (1991) and used in the 1990 World Development Report (World Bank, 1990). Chen and Ravallion (2001) later updated this to $1.08 per day, using 1993 PPPs. With the release of the 2005 PPPs and a new set of national poverty lines, Ravallion, Chen and Sangraula (2009) proposed a new global poverty line of $1.25 per day.

250. The latest ICP round was conducted in 2011, and in October 2014, the full set of results was presented to the public. The new estimates of price levels in 199 countries led to the new estimates of PPP exchange rates, and accordingly new $PPP estimates of national aggregates for all the participating countries. Though there was some disagreement among scholars, the dominant view is that these new PPPs represented an improvement over the 2005 set, creating the need for another revision to the World Bank's international poverty line.

251. In 2015 the World Bank revised its international poverty line by taking national poverty lines for 15 very poor countries (expressed in local currency units at 2005 prices), and inflating them to 2011 using each country's own consumer price index. Then, once in 2011 prices, these national lines were converted into dollars using the 2011 PPPs, and a simple average was taken. The result of those operations yielded $1.88 per person per day, which the World Bank rounded up to $1.90, and which represent the new World Bank's international poverty line.

252. It is important to note that PPPs offer comparisons across economies, not across the rich and poor within economies. This may turn out to be problematic, since the spending patterns of poor households differ systematically from those of the better-off. The poor spend a large proportion (often a majority) of their incomes on basic staple foods, which account for a relatively small proportion of the spending of the better-off, and therefore of the country as a whole.

3.4 Poverty indicators

3.4.1 Overview

253. Having decided on a welfare measure and established at least one poverty line, the next stage is the selection of one or more indicators useful for tackling poverty. Indicators

may be used to highlight the level of poverty in different countries or areas, the depth of poverty that people experience, and how poverty is changing over time.

254. The measures described below have strengths and weaknesses. For that reason, most countries and international organisations tend not to focus on a single indicator, but to publish a suite of measures, which allow those using the data a more rounded picture of poverty.

255. Monetary poverty indicators can broadly be grouped into two categories of measures: static measures based on income or consumption at a given point in time; and dynamic measures that make use of longitudinal data to consider poverty over time, as well as transitions into and out of poverty. Broadly speaking, while static measures are useful for giving a headline indication of current levels of poverty and how they vary across place, time and groups, dynamic measures are of more use in helping policy makers design interventions to tackle poverty effectively.

3.4.2 Static measures

3.4.2.1 Headcount ratio

256. The most commonly used measure is the headcount ratio, which describes the proportion of the population that is living in households whose income or consumption expenditure is less than the poverty line. It is popular because it is easy to both understand and measure, allowing users to easily understand the scale of poverty amongst different groups. This can be expressed as:

$$P_0 = \frac{1}{N}\sum_{i=1}^{N} I(y_i < z)$$

where P_0 is the proportion of the population that is poor, N is the total population (or sample) and I (-) is a function that takes a value of 1 if income/expenditure (y_i) is less than the poverty line (z) and 0 if y_i is greater than z .

257. Despite its strengths and ubiquity, the headcount ratio has a number of limitations. First, while it describes the number of people who are in poverty, it does not reflect the depth of poverty that people experience. It is based on a binary measure of poverty and no distinction is made between those who are just below the poverty line and those who are significantly below. One implication of this is that if poor individuals become less poor (but are still below the poverty line), there will be no change in the indicator. Similarly, if the depth of peoples' poverty increases, the indicator also will not be affected.

258. This feature can also potentially lead to perverse incentives with regard to policymaking. If the focus is solely on the headcount ratio, the easiest way to reduce poverty would be to focus on those groups who are just below the poverty line, rather than those who are very poor, which would arguably be more socially beneficial.

3.4.2.2 Poverty gap index

259. The poverty gap index measures the extent to which individuals fall below the poverty line (the poverty gaps) as a percentage of the poverty line. The poverty gap index can be expressed as:

$$P_0 = \frac{1}{N}\sum_{i=1}^{N}\frac{G_i}{z}$$

where the poverty gap (G_i) is equal to the value of the poverty line less actual (equivalised) income or expenditure for individuals in poverty, and zero for those who are not in poverty.

260. The sum of these poverty gaps can be seen as the minimum cost of eliminating poverty, if it were somehow possible to perfectly target social transfers.

261. The division by the poverty line normalises the measure, allowing for comparisons across countries and across time.

262. The poverty gap ratio also has its limitations, however. In particular, the measure only reflects the average depth of poverty, so cannot reflect changes in inequality among the poor. Additionally, it can actually rise rather than fall when people leave poverty, if the average poverty gap of those that remain increases as a result. An additional consideration is that data on the very lowest incomes can often be affected by poor data quality, which in turn will affect the usefulness of poverty gap measures.

263. An alternative method of providing a sense of the depth of poverty is to examine headcount ratios using lower thresholds. For example, in Canada, very few seniors are found below 30% of the low income measure (LIM), indicating that "depth of poverty" is less severe for this group (because of guaranteed income supplements for low income seniors).

3.4.2.3 Squared poverty gap

264. The squared poverty gap index averages the squares of the poverty gaps relative to the poverty line. This implicitly puts more weight on observations that are well below the poverty line, thereby taking into account inequality among the poor. However, the squaring of the poverty gaps means that it is less easy to interpret than the standard poverty gap index.

265. It is one of a class of poverty measures proposed by Foster, Greer and Thorbecke (1984) which vary the weight of the income (or expenditure) level of the poorest members in society. These measures are additively decomposable. They also allow separating changes into a component resulting from rising average incomes and a component resulting from changes in the distribution of income. The use of these measures in Russian poverty statistics is illustrated in Box 3.17.

Box 3.17
Poverty indicators in Russian Federation

Possibilities for calculating absolute poverty indicators in Russian Federation are determined in part by the availability of relevant information at the time of compiling the statistics. The production of statistics for each reporting period is carried out in several stages, the results of which constitute preliminary and final estimates of the indicators. The details of the choice of income measure and of the indicator of the level of absolute poverty at the preliminary and final stages are described below:

1. At the preliminary assessment stage:

Criterion of income—monetary income of population (macro assessment): This includes employee wages and salaries (based on payroll data and adjusted for arrears), earnings of persons engaged in entrepreneurial activities, pensions, allowances, scholarships and other social transfers, income from property, interest on deposits, securities, dividends, and other income. The calculation of monetary income for the population includes an adjustment for hidden compensation, which is defined as the difference between total household expenses (including the growth of their financial assets) and officially registered income.

Absolute poverty indicator: The ***number of people with incomes below the subsistence minimum*** (headcount measure) is calculated based on use of analytical models in accordance with the procedures approved by Rosstat in 1996, by agreement with a number of interested ministries and agencies.

The share of the population with incomes below the subsistence minimum is calculated by the following lognormal formula:

$$L\left(z; x_0; \sigma_{\ln x}\right) = \begin{cases} 0, x \le 0; \\ F(u) = \dfrac{1}{\sqrt{2\pi}} \int\limits_{-\infty}^{u} e^{-\frac{t^2}{2}} dt, x > 0. \end{cases}$$

where $u = \dfrac{\ln z - \ln x_0}{\sigma_{\ln x}}$; $\ln x_0 = \ln \mu - 0{,}5 \cdot \sigma^2_{\ln x}$;

μ – macro-value of per capita income;

$\sigma_{\ln x}$ - average quadratic deviation of income logarithms determined on the basis of the empirical distribution of population income according to the results of Population Income Survey;

z – subsistence minimum in the average per capita.

Note: A similar approach is used in calculating the MDG indicator "Proportion of population whose dietary energy consumption is below the minimum allowed level". In determining the proportion of people whose dietary energy consumption is below the minimum level, a logarithmic function is used.

2. At the stage of final assessment:

Criterion of income—monetary income of population (measured using the population income survey): This includes labour incomes (the sum of remuneration before payment of income tax, including the monetary value of benefits provided by employers, at the main place of employment, income from self-employment, including gross income from sales of

products (services) of own production, income from other labour activities, in addition to the main job); income from interest earned on savings; income from rental property; income from the lease (sublease) of land; and transfers received (social benefits, including pensions, benefits, compensation and other social benefits; cash receipts from individuals and organisations other than the social security authorities, including child support and other payments equal to them).

Absolute poverty indicator: the ***share of the population with incomes below the subsistence minimum*** is estimated on the basis of the survey data comparing the income of each household surveyed with the value of the subsistence minimum as determined by household composition (as the sum of the relevant figures set out in the specific constituent entity of the Russian Federation for the different socio-demographic groups). Estimated shares of the population with incomes below the subsistence minimum are produced by the formula:

$$P_0 = \frac{1}{n}\sum_{i-1}^{n}\left[\max\left(\frac{z - x_i}{z};0\right)\right]^0$$

where

z –subsistence minimum in the average per household member;

x_i - per capita income index value of i-person surveyed;

n - total number of population surveyed.

The poverty gap ratio (P_1), which characterizes the average distance of poor people from the poverty line, is also calculated, using the formula:

$$P_1 = \frac{1}{n}\sum_{i-1}^{n}\left[\max\left(\frac{z - x_i}{z};0\right)\right]^1$$

The poverty severity ratio (P_2), which characterizes the degree of inequality among poor people, is calculated by the formula:

$$P_2 = \frac{1}{n}\sum_{i-1}^{n}\left[\max\left(\frac{z - x_i}{z};0\right)\right]^2$$

The difference between the poverty gap ratio and poverty severity ratio is that by it is calculating a greater weight given to households with a significant lack of funds.

Indicators P_0, P_1 and P_2 combined into a class of poverty by Foster, Greer, and Thorbecke:

$$P_\alpha = \frac{1}{n}\sum_{i-1}^{n}\left[\max\left(\frac{z - x_i}{z};0\right)\right]^\alpha$$

3.4.2.4 Person-equivalent poverty

266. Despite the importance of tracking changes in the depth of poverty, measures such as the poverty gap index have had relatively limited use in policy formation and monitoring due to being deemed "unintuitive" and difficult to understand.

267. The person-equivalent approach, developed by Castleman, Foster and Smith (2015), seeks to address this problem, whilst keeping the desirable characteristics of poverty gap measures. Person-equivalent headcount measures benchmark the initial conditions of the poor, with this benchmark then being used to sum the number of person-equivalents to get a headcount measure. Someone who is twice as far below the poverty line as a standardised person is counted as two person-equivalents, whilst someone who is only half as poor would be counted as half a person-equivalent.

3.4.2.5 Other measures

268. There are a number of other static measures with characteristics that make them desirable as indicators. However, they lack the intuitive appeal of the straightforward measures presented above. A short overview of the Watts index and the Sen-Shorrocks-Thon index is given below.

269. The **Watts index** divides the poverty line by income, takes logarithms, and finds the average over the poor. The use of logarithms means that, as with the squared poverty gap, the Watts index is much more sensitive to changes in the lowest incomes than it is to changes for those with higher incomes. It is also possible to decompose the measure by group or region.

270. The **Sen-Shorrocks-Thon index** was developed from the now relatively little used Sen index. It is the product of the headcount index, the poverty gap index and a term that uses the Gini coefficient of the poverty gap ratio.

$$P_{SST} = P_0 P_1^P (1+\hat{G}^P)$$

271. One of its key strengths is the possibility for decomposition, allowing users to understand whether changes in the overall poverty index are being driven by changes in the number of people who are below the poverty line, the depth of that poverty, or the level of inequality amongst the poor population.

Recommendation 16: For regional poverty measures, it is recommended that the primary indicator is the headcount ratio, due to its widespread acceptance in policy and ease of comprehension. Poverty data producers should consider the value of adopting other indicators, such as the poverty gap ratio or person-equivalent poverty at the national level. The headcount ratio should be reported alongside the value of the poverty line for a single adult household (in PPP).

3.4.3 Dynamic measures

272. Analysing poverty trends can provide an important addition to the information that is provided by static measures.

3.4.3.1 Persistent poverty

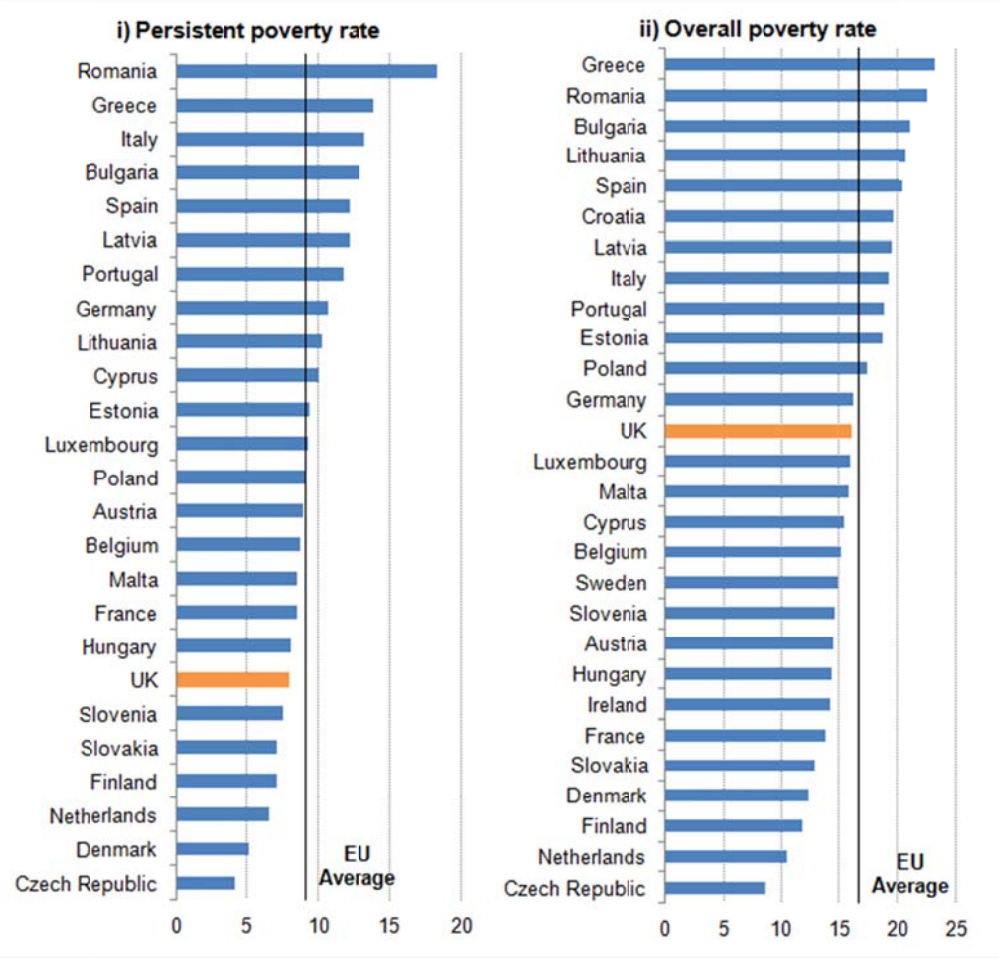
273. It is widely acknowledged that experiencing poverty over a number of years is more detrimental for the individual than a brief period in poverty. A household can use a variety of strategies to deal with short-term drops in income, which do not apply in the long term, such as reducing expenditure or making use of savings or loans. These strategies reduce the risk of social exclusion for those who briefly fall into poverty. Studies have shown that the impact of persistent poverty on children in particular can be especially detrimental, adversely affecting their cognitive development, particularly in the first years of life, and increasing the likelihood that they will experience poverty as adults (see e.g., Dickerson and Popli, 2014). In addition, Fouarge and Layte (2005) have shown that the chances of escaping poverty decrease the longer an individual remains in poverty. For these reasons, indicators which can make use of longitudinal data to help identify those groups that are more likely to experience lengthy spells of poverty are invaluable to policy makers. One example is measures of persistent poverty. There are a number of variants of persistent poverty indicators in use. Perhaps the most widely used one is that used by the European Commission, which defines the persistent at-risk-of-poverty rate as the percentage of the population living in households where the equivalised disposable income was below the at-risk-of-poverty threshold for the current year and at least two out of the preceding three years. Its calculation requires a longitudinal instrument, through which the individuals are followed over four years.

274. Box 3.18 provides examples of the analysis of both persistent at-risk-of-poverty rates and entry and exit rates in the United Kingdom and other EU countries.

Box 3.18
Persistent poverty in the United Kingdom and EU

Figure 1 shows both the overall at-risk-of-poverty rate and the persistent-at-risk-of-poverty rate for EU countries in 2013 (ONS, 2015). In 2013, 7.8% of people in the United Kingdom were at persistent risk of poverty, equivalent to approximately 4.6 million people. This is less than half the overall relative at-risk-of-poverty rate, which in 2013 stood at 15.9%. In comparison with other individual EU countries, in 2013, the United Kingdom had one of the lowest levels of persistent poverty (i), but had the 13th highest level of cross-sectional poverty out of the 28 member states (ii).

Figure 1
Persistent and single year at-risk-of-poverty rates for EU countries, 2013



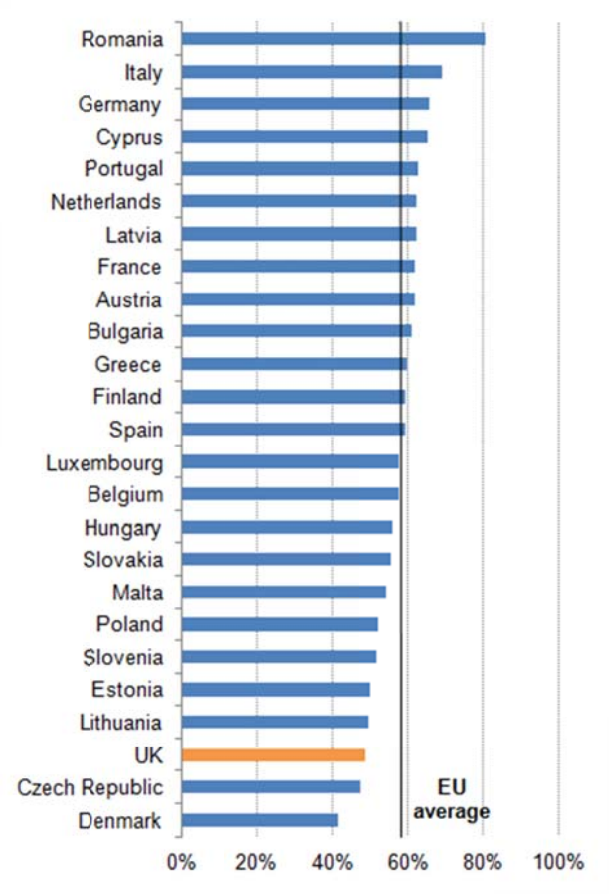
Source: Office for National Statistics, Eurostat.

Note: Persistent poverty rates are the latest available. For Bulgaria, Romania and Greece 2013 figures were not available at time of publication, so 2012 figures were used. No persistent poverty estimates were available for Sweden, Ireland, or Croatia. Overall poverty estimates are all 2013 rates.

This relationship between persistent and overall poverty rates can be most clearly seen when considering the ratio between the two rates expressed as a percentage in Figure 2 below. A ratio of 50% would suggest that half of those currently in poverty were also poor in at least two out of the last three years. In 2013, the United Kingdom had a ratio of 49% indicating that less than half of those in poverty that year had been persistently poor. This is one of the lowest of the EU countries for which data are available and below the EU average of 58%. In contrast to the United Kingdom, the persistent poverty rate in Romania was 81% of the overall poverty rate for 2013; in Italy it was 69%. This suggests that in these countries the vast majority of people in relative income poverty experienced it over a number of years. By contrast, in the United Kingdom, for those experiencing relative low income, it is more likely to be for a shorter period.

Figure 2

Rate of persistent poverty as a percentage of overall relative poverty across the EU, 2013



Source: Office for National Statistics, Eurostat.

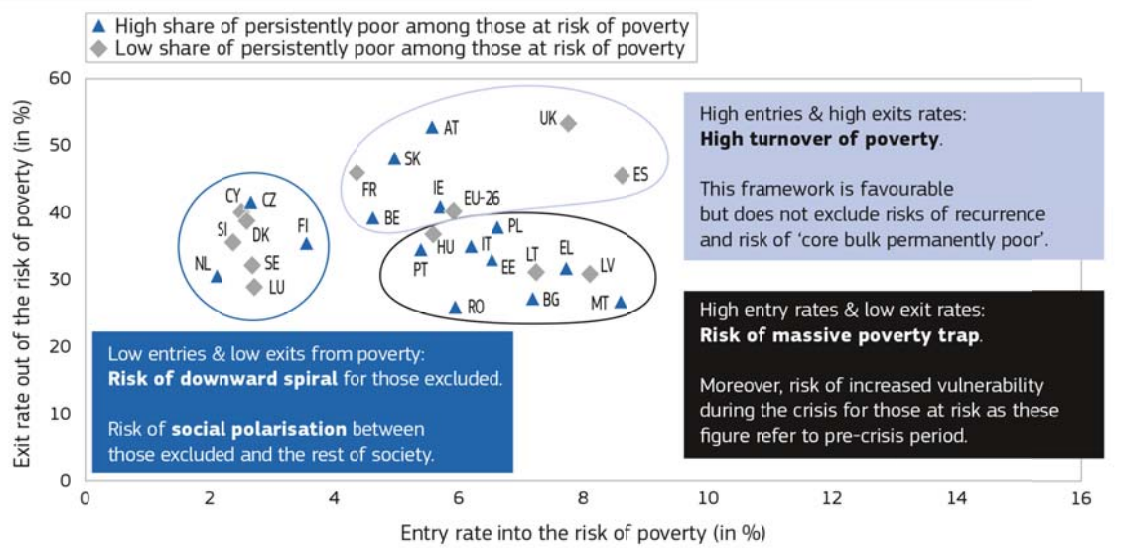
Note: For Bulgaria, Romania, and Greece, the ratio is calculated using 2012 poverty rates since these were the latest available for persistent poverty in these countries

275. Box 3.19 provides an example of analysis of poverty entry and exit rates conducted by the European Commission.

Box 3.19
Poverty entry and exit rates in EU countries

Between 2008 and 2009, some 6% of the EU population as a whole was likely to have fallen into poverty from one year to the next, while 40% of the population that was at risk of poverty in 2008 had managed to exit from poverty by the following year (European Commission, 2012). However, the entry and exit rates varied considerably across countries (Figure 1).

Figure 1
Rates of entry and exit from risk of poverty, 18-64 year olds



Source: EU-SILC LONGITUDINAL UDB 2009 – version 3 of August 2012 – DG EMPL calculations.

The first group of countries, which is most clearly represented by the United Kingdom and Spain, but also includes to a lesser extent Belgium, France, Ireland, Austria, and Slovakia, are in a relatively positive situation where both entry and exit rates are high.

The second group of countries (consisting of Bulgaria, Estonia, Greece, Italy, Latvia, Lithuania, Hungary, Malta, Portugal, Romania, and Poland) shows both a high risk of entering poverty, and low chances of escaping poverty. This situation is problematic from a policy point of view, as it reflects a high risk of being trapped in poverty.

In the third group, low risks of entering into poverty are combined with low exit rates. In the Czechia, Finland, and the Netherlands, this turns out to be a sign of social polarisation, as the share of persistent poor is high compared to the risk of poverty. In contrast, there is a greater churning in Cyprus, Denmark, Luxembourg, Slovenia and Sweden.

3.4.3.2 Entry and Exit rates

276. Another important application of longitudinal data is the examination of transitions into and out of poverty from one year to the next. This can be particularly useful where limited panel durations make analysis of poverty duration challenging.

277. The entry rate into poverty is generally measured as the percentage of people who were not in poverty one year earlier but fell into poverty in the following year. Conversely, the exit rate is defined as the percentage of individuals not at-risk-of-poverty in the current year among those who were at-risk-of-poverty the year before.

278. Since there are fewer people in poverty than not in poverty, it is to be expected that exit rates expressed as a percentage of those in poverty will usually[32] be higher than entry rates as a percentage of those not in poverty. Small changes in the number of people in each case would equate to a much larger percentage change for those in poverty.

Recommendation 17: Dynamic measures of poverty are a valuable tool in developing and targeting policy effectively. Although no dynamic indicators are currently proposed for the CES region overall due to the limited availability of suitable longitudinal data apart from countries producing EU-SILC data, NSIs should consider opportunities for producing longitudinal data, from either survey or administrative sources, in order to be able to produce comparable dynamic poverty indicators in the future.

3.5 Improving international comparability: Regional indicators and metadata

3.5.1 Poverty and the SDGs

279. On 25 September 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development Goals (SDGs) with 17 global goals and 169 targets. The goals and targets are designed to be relevant for the whole world and to be monitored at the global, regional, and national levels.

280. Poverty reduction is central to the SDGs. Goal 1 calls for an end to poverty in all its manifestations by 2030. Additionally, poverty dimensions are present in Goal 10 on reducing inequalities within and among countries, and in Goal 2 on ending hunger and achieving food security.

281. The Millennium Development Goal (MDG, 2000-2015) indicators on poverty were not fully suitable for comparing poverty in the UNECE region. All UNECE countries are middle- and upper-income countries, where physical survival is generally given, and the majority of the poor live on well above $1 per day. Many MDG indicators were therefore of limited relevance for their stage of development. Similarly, some of the global SDG indicators are less relevant to the UNECE region as a whole. However, they may be supplemented with

[32] This is true where there are more people out of poverty than in. This may not be the case for all groups, concepts or countries.

additional indicators that are monitored at the national and regional level. This section of the guide therefore sets out a regional approach to monetary poverty indicators, in line with the SDG targets.

Recommendation 18: Monetary poverty indicators for the UNECE region should be aligned to the SDG targets.

3.5.2 Monetary poverty indicators for CES countries

3.5.2.1 Target 1.1: By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than PPP$1.90/day (in 2011 prices).

282. Global indicator: 1.1.1 Proportion of population below international poverty line disaggregated by sex and age group and employment status.

283. Regional indicator: No specific recommendation for absolute poverty line for CES countries.

284. Rationale: The PPP$1.90/day extreme poverty line is not appropriate for CES countries. Furthermore, determining a single absolute poverty line, which would be appropriate for all CES countries, is not feasible. Where direct comparisons of absolute poverty levels are considered useful across groups of similar countries, it is recommended that an absolute poverty line for that group of countries be established using the principles set out in Section 3 of this chapter and in more detail by Jolliffe and Prydz (2016).

3.5.2.2 Target 1.2: By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions

285. Global indicator: 1.2.1 Proportion of population living below national poverty line, disaggregated by sex and age group.

286. Regional indicator: Proportion of population living below national poverty line.

287. Rationale: The global indicator is equally appropriate for CES countries, acknowledging the weak international comparability of national poverty lines and definitions.

288. Disaggregation: As a minimum, the regional indicator should be disaggregated by age and sex (as per the global indicator). In line with the recommendations earlier in this chapter, it is also recommended that further disaggregation be provided where feasible, by employment status, household type, and urban/rural classifications.

3.5.2.3 Target 10.2: By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

289. Global indicator: 10.2.1 Proportion of people living below 50% of median income disaggregated by age and sex.

290. Regional indicator: Proportion of people living below 50% of median income disaggregated by age and sex.

291. Rationale: The global indicator is equally appropriate for CES countries. As a significant number of countries in the region will already be reporting on this indicator for the OECD Income Distribution Database (IDD), it makes sense to apply the same definitions where feasible, to avoid a proliferation of similar indicators and resulting confusion for users of statistics. The OECD definitions are in line with the recommendations set out in this chapter.

292. Disaggregation: As a minimum, the regional indicator should be disaggregated by age and sex, as the global indicator. In line with the recommendations earlier in this chapter, it is also recommended that further disaggregations be provided where feasible, by employment status, household type and urban/rural classifications.

3.5.3 Metadata considerations

293. At the national level, poverty lines are set using various definitions and methods. Terms such as “relative poverty”, “absolute poverty”, “severe poverty” or “extreme poverty” should be used in conjunction with their specific definitions. Metadata are needed to explain how national poverty lines were determined, ensuring users can interpret the information correctly.

294. In measuring poverty, even variation in the base year can make results incomparable. At the international level, the standard measure of PPP$1.90/day is used, measured in 2011 prices. In the past, PPP$1.00/day (in 1985 prices), PPP$1.08/day (1993) and PPP$1.25/day (2005) have been used. These changes show the importance of including the metadata alongside the data, even if standard definitions are used. In reports, further details, such as the basket used for the PPP conversion, can be covered.

295. Maintenance of good metadata is important for cross-country comparability. Work on monitoring MDGs has revealed that metadata were often missing, incomplete, or incorrect. In some cases, the exact or even broad definitions are missing. In several cases, the methodology is not clearly specified and sometimes even the definition is not provided (United Nations, 2008). Publishing the national poverty line without any further specification makes comparative analysis difficult.

296. In general, data sources are listed in national reports. However, in several cases it is not clear to which indicator or which period they refer. Important for the interpretation is a reference to the primary sources. These are often missing or not specific enough. It is of imminent importance that such metadata be available along with the poverty estimates provided in national reports.

297. At the international level, both the OECD and Eurostat set out metadata reporting requirements for countries contributing to the IDD and producing EU-SILC data respectively. UNECE has also developed a publication, "Getting the Facts Right" (2013), which provides a guide to presenting metadata, with particular emphasis on the MDGs.

Recommendation 19: Metadata are important for helping users understand the extent to which figures are comparable across countries and over time. This is particularly the case where indicators are based on national poverty lines, which allows for considerable variation in practice between countries.
For monetary poverty indicators for the UNECE region, it is recommended that the following minimum set of metadata be made available, in order to assist users in making sensible comparisons both between countries and within countries over time:

Conceptual metadata

- Unit of observation (e.g., household)
- Unit of analysis (e.g., individual)
- Population covered (e.g., private households)
- Definition of welfare measure, including information on any deviation from the main international standards (e.g., UNECE Canberra Handbook (2011))
- Equivalence scale used: (e.g., square-root scale)
- Type of poverty line: Absolute or relative (for indicators based on national poverty lines)
- Methodology for calculating poverty line (for indicators based on national poverty lines)
- Reference period: Period of time or point in time to which the measured observation is intended to refer
- Unit of measure: Unit in which the data values are measured (e.g., headcount ratio, percentage of population).

Methodological metadata

- Data provider: Organization that produced the data
- Source data: Characteristics and components of the raw data used for compiling statistical aggregates, (i.e., type of primary source [e.g., survey, census, registry]) and any other relevant characteristics (e.g., sample size for survey data).
- Contact information: Individual or organizational focal points for the data, including information on how to reach them (e.g., website, mail address, phone, e-mail).

Quality metadata

- Comparability: Explanations should be provided where differences between statistics can be attributed to differences between the true values of statistical characteristics. Comparability issues can be broken down into:
    - Geographic differences: degrees of comparability between statistics measuring the same phenomenon for different geographical areas;
    - Temporal differences: degrees of comparability between two or more instances of data on the same phenomenon in the same country measured

at different points in time.
- Periodicity: e.g., annual, every five years, etc.
- Timeliness: Number of months after income/consumption reference period.
- Accuracy: Closeness of computations or estimates to the exact or true values that the statistics are intended to measure. This includes bias (systematic error) and variance (random error). This may be described in terms of major sources of error (e.g., coverage, sampling, non-response) or measures of accuracy.

3.6 Summary of recommendations

298. This section provides a summary of the recommendations for improving the international comparability of statistics on monetary poverty and the related metadata set out in the previous sections of this chapter. Recommendations 1-4 also pertain to the measurement of multidimensional poverty (chapter 5).

3.6.1 Unit of observation/analysis and population coverage

- Recommendation 1. In producing data on income or consumption, the normal unit of observation should be the household, for both practical and conceptual reasons.
- Recommendation 2. Poverty statistics should be reported at the individual level, with the indicators describing, for example, the number of individuals in a population living in households below the poverty line.
- Recommendation 3. It is recognised that the majority of poverty statistics only cover private households. It is recommended that NSIs explore the feasibility of extending this coverage. This may involve research such as that given in the case study examples in this chapter, or utilising alternative data sources, including big data, in order to estimate poverty in population groups that are difficult to reach. It is essential to inform users about the coverage of the published poverty statistics.

3.6.2 Disaggregation of data

- Recommendation 4. Given the importance of disaggregation, it is recommended to disaggregate poverty indicators whenever possible. As a minimum, the poverty indicators for the UNECE region should be disaggregated by age, sex, employment status, household type, disability status[22] and urban/rural population.
- It is further recommended that the following classifications be used for these breakdowns.

Age:
- 0-17 (children)
- 18-24

- 25-49
- 50-64
- 65 and over

Employment status[23]:

- Employed
- Unemployed
- Retired
- Other outside the labour force

Household type:

- One-person households;
- Two adult household without children;
- Two adult household with one child under 18;
- Two adult household with two or more children under 18;
- One adult households with children under 18;
- Other

Urban/rural[24]*:*

1. Predominantly urban region
2. Intermediate region
3. Predominantly rural region

3.6.3 Welfare measures

- Recommendation 5. It is recommended that annual (equivalised) **disposable** income be the main income measure used for poverty measurement, as this reflects the actual income that individuals within a household have available for spending or saving. However, to provide additional insights into the nature of poverty in a country or area, compilers of poverty statistics may also wish to make use of supplementary income measures, such as income before social transfers.
- Recommendation 6. Where consumption is used as a welfare measure, it should be based on consumption expenditure.
- Recommendation 7. Both income and consumption expenditure have particular strengths and weaknesses as poverty measures. Their choice should depend on data availability. Where both income and consumption expenditure data are available for a given population, there is value in utilising poverty measures based on both approaches. However, for international comparisons of poverty across the UNECE region, it is recommended that income be the main welfare measure, given its widespread usage among EU and OECD countries as well as increasing availability in other areas of the region.
- Recommendation 8. Given the advantages of considering multiple welfare measures together, it is recommended that, where data availability allows it, compilers of poverty statistics consider examining poverty measures based on income and expenditure as well as their intersection, taking advantage of statistical matching techniques where possible.

- Recommendation 9. Due to the challenges associated with measuring housing services from owner-occupied dwellings and the variation in methods employed across countries, it is recommended that such services be excluded from the main poverty indicators used for international comparison. However, for national purposes, compilers of poverty statistics may find it useful to consider supplementary measures including imputed rent, or take account of home ownership in other ways, such as using an after housing costs measure. To better aid international comparison in future, as well as the targeting of resources at the national and international level, it is recommended that international organisations develop new guidelines on the measurement of imputed rent for inclusion in poverty and inequality statistics.
- Recommendation 10. In practice, because of the challenges involved in measuring the value of services by household consumer durables, they are excluded from the operational definition of income set out in the Canberra Handbook (2011). For the same reason, they are also excluded from the measurement of consumption expenditure in practice. It is therefore recommended that the same practice apply for the purpose of internationally comparable poverty statistics.
- Recommendation 11. As accounting for the value of social transfers in kind is not yet common practice, it is recommended that they be excluded from indicators used for international poverty comparisons (at least for now). It is also recommended that statistical compilers consider developing methods for including these transfers in income and consumption expenditure statistics, and invest in learning from international best practices, so that future international comparisons may be based on data in which the effects of these transfers are included. To assist with this, guidance for national statistical offices should be developed by international organisations.
- Recommendation 12. While wealth is an important factor to consider alongside income or consumption in assessing poverty, it cannot be used as a measure of poverty on its own. It is recommended that countries invest in developing wealth statistics that can be assessed alongside other welfare measures, with the long-term aim of being able to consider jointly the distribution of income, consumption, and wealth, in order to provide a complete picture of individuals' economic well-being. This should be possible when registers and other administrative data sources are available to producers of statistics. Alternatively, statistical matching techniques should be utilised where income (or consumption) and wealth are not available through the same survey source.

3.6.4 Poverty line

- Recommendation 13. In setting relative poverty lines for international comparison purposes, it is recommended that the median is used as a parameter, as it provides a more stable threshold which is less affected by measurement issues towards the top of the distribution
- Recommendation 14. For international comparisons of relative poverty among CES countries, a 50% threshold is recommended for the main indicator, in order to ensure consistency with the global SDG 10 indicator on relative poverty. In addition

to the global SDG indicator, this threshold is also consistent with that used by the OECD in reporting on relative poverty in member states. This measure may be complemented by the use of additional thresholds (such as 60% in EU countries), in order to provide further context when comparing across groups of countries, particularly relating to sensitivity of poverty rates to the choice of threshold.

- Recommendation 15. In setting a poverty line, equivalised welfare measures should be used. For international comparisons, a trade-off needs to be made between applying country-specific approaches reflecting variation in economies of scale and ensuring comparability across the region. For comparisons across the CES region, it is recommended that the square root scale be used in order to provide consistency with existing international statistics based on a 50% of median threshold contained within the OECD income distribution database for many CES countries. Use of an alternative scale (such as modified-OECD) for this headline measure could lead to inconsistencies in the levels of relative poverty reported by the UNECE and OECD, reducing the coherence of international statistics. However, use of such alternative scales would be useful for any supplementary measures to streamline comparison among a set of countries that are relatively homogenous (from a global perspective).

3.6.5 Indicators

- Recommendation 16. For regional poverty measures, it is recommended that the primary indicator is the headcount ratio, due to its widespread acceptance in policy and ease of comprehension. Poverty data producers should consider the value of adopting other indicators, such as the poverty gap ratio or person-equivalent poverty at the national level. The headcount ratio should be reported alongside the value of the poverty line for a single adult household (in PPP).
- Recommendation 17. Dynamic measures of poverty are a valuable tool in developing and targeting policy effectively. Although no dynamic indicators are currently proposed for the CES region overall due to the limited availability of suitable longitudinal data apart from countries producing EU-SILC data, NSIs should consider opportunities for producing longitudinal data, from either survey or administrative sources, in order to be able to produce comparable dynamic poverty indicators in the future.

3.6.6 Regional poverty measures

- Recommendation 18. Monetary poverty indicators for the UNECE region should be aligned to the SDGs targets.

3.6.7 Metadata

- Recommendation 19. Metadata are important for helping users understand the extent to which data are comparable across countries and over time. This is particularly the case where indicators are based on national poverty lines, which allows for considerable variation between countries.

- For monetary poverty indicators for the UNECE region, it is recommended that the following minimum set of metadata be made available, in order to assist users in making sensible comparisons both between countries and within countries over time:

  Conceptual metadata

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  - Equivalence scale used (e.g., square-root scale)
  - Type of poverty line: Absolute or relative (for indicators based on national poverty lines)
  - Methodology for calculating poverty line (for indicators based on national poverty lines)
  - Reference period: Period of time or point in time to which the measured observation refers
  - Unit of measure: Unit in which the data values are measured (e.g., headcount ratio, percentage of population).

  Methodological metadata

  - Data provider: Organization that produced the data.
  - Source data: Characteristics and components of the raw statistical data used for compiling statistical aggregates, i.e., type of primary source (e.g., survey, census, registry) and any relevant characteristics (e.g., sample size for survey data).
  - Contact information: Individual or organizational focal points for the data, including information on how to reach them (e.g., website, mail address, phone, e-mail).

  Quality metadata

  - Comparability: Explanations should be provided where differences between statistics can be attributed to differences between the true values of statistical characteristics. Comparability issues can be broken down into:
    - Geographic differences: degrees of comparability between statistics measuring the same phenomenon for different geographical areas;
    - Temporal differences: degrees degree of comparability between two or more instances of data on the same phenomenon measured at different points in time.
  - Periodicity: e.g., annual, every five years, etc.
  - Timeliness: Number of months after income/consumption reference period.
  - Accuracy: Closeness of computations or estimates to the exact or true values that the statistics are intended to measure. This includes bias (systematic error) and variance (random error). This may be described in terms of major sources of error (e.g., coverage, sampling, non-response) or measures of accuracy.

4 Poverty Dashboards and the Material Deprivation Indices

4.1 Introduction

299. This chapter explains the measurement of non-monetary aspects of poverty and social exclusion. Reducing such deprivations is essential to meeting the Sustainable Development Goals (SDGs). Measuring non-monetary deprivations is part of poverty measurement because the SDGs clearly regard poverty as multidimensional. The SDGs focus on reducing poverty "in all its forms and dimensions". Some national and regional policies already address non-monetary deprivations in such areas as housing, health, education, and other services. The chapter shows how countries can introduce a basic dashboard of social indicators and indices of material deprivation.

4.2 Processes and principles

300. The development of poverty indicators has often been the responsibility of national governments. More recently, some indicators have been estimated by international organisations. For example, the World Bank generated the PPP$1/day index in 1990, and has developed subsequent methodological revisions until its current form of PPP$1.90/day. UNICEF, UNESCO and other agencies, together with data providers using demographic and health surveys, also contributed to the standardisation of data and indicators in such areas as malnutrition, education, and health.

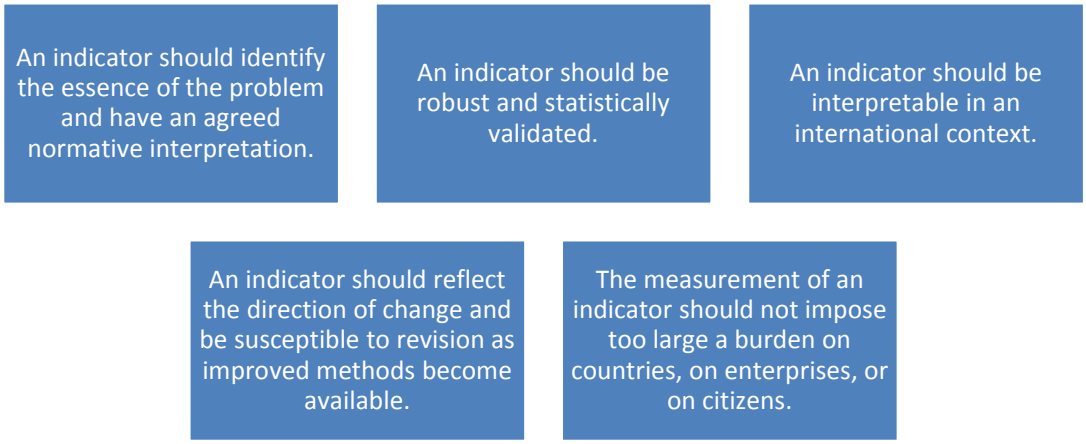
301. The Millennium Development Goals (MDGs) saw the development of relevant metadata and data quality standards for harmonised statistics by the Inter-Agency Expert Working Group on the MDG indicators and the United Nations Statistical Commission (UNSC). However, this process was criticised as being too centralized. The UNSC-led process of developing comparable SDG indicators has been considerably more inclusive, involving consultation with the 28 government members of the Inter-Agency Expert Group but also observer governments, UN agencies, academics, and civil society actors, *inter alia* via online open consultations. What seems clear is that the procedural aspects of indicator development and approval are vital and cannot be overlooked.

302. Drawing on such experiences as the EU's open method of coordination (OMC) in developing the EU-SILC surveys and common measurement standards, Tony Atkinson and Eric Marlier (2010) proposed to UNDESA principles and processes for the development of comparable indicators of poverty and social exclusion. This section summarizes their recommendations, which would be relevant insofar as UNECE develops harmonized datasets.

303. In terms of procedures, Atkinson and Marlier "draw on our experience from the construction of social indicators in the European Union and in their actual use in the policy process (Atkinson et al., 2002; Marlier et al., 2007), because there are, in our view, lessons to be learned about the way EU member states cooperate through the OMC. The OMC

process has limitations, but it illustrates concretely how 27 countries can reach agreement on common objectives and monitoring procedures and how evidence-based policymaking can be aided by comparative analysis and international benchmarking. … The fight against poverty and social exclusion is a common challenge, and there is scope for mutual learning, despite the differences in circumstances and in levels of living" (2010:387).

304. Atkinson and Marlier (2010: 45) outline five criteria for internationally comparable indicators of deprivation in social inclusion:



305. In October 2016, the World Bank launched the Atkinson Commission Report "Monitoring Global Poverty" (World Bank, 2017). This report highlights the importance of multidimensional poverty, and proposes that indicators be collected universally, to create both a dashboard of social indicators and a multidimensional poverty index (MPI) that reflects overlap between component indicators. It suggested (like this chapter) that the national policy be given priority, but that social indicators be designed with an eye towards obtaining at least partial comparability across countries because of the rich analysis that this can support. The Atkinson Report also proposed that MPI design follow due process and involves all nations and stakeholders. An interesting example of such a process is the OMC followed in the European Union (Box 4.1).

Box 4.1

EU-SILC and the Open Method of Coordination

A key feature of EU-SILC is the process by which it was developed: the **Open Method of Coordination**. This method balanced national priorities with progressive harmonisation of data and targets.

> "The open method of coordination, which is designed to help member states progressively to develop their own policies, involves fixing guidelines for the Union, establishing quantitative and qualitative indicators to be applied in each member state, and periodic monitoring" (Atkinson et al. 2002, 1–5).

EU-SILC is replete with interesting lessons. For example, many surveys are only representative at the national level, but some sample sizes are much larger. Certain

questions (e.g., levels of education, self-reported health status) may still be difficult to compare across countries (Alkire and Apablaza, 2016)—an issue that future surveys may address. Also, the use of administrative data alongside survey data has been explored in the EU-SILC project, and studies have shown both its potential and difficulties for poverty monitoring.

EU-SILC data have been used since 2010 to monitor poverty and social exclusion in the EU. The headline target of reducing (by 20 million in 2020) the numbers of people living in poverty and social exclusion has been defined based on the EU-SILC instrument.

306. Atkinson and Marlier (2010: 8–14) also provide an overview of the purposes for which appropriate indicators should be stock or flow, subjective or objective, relative or absolute, static or dynamic, input- , output- , or outcome-based, and so on. When statistics are used by the public, issues such as ease of interpretation also affect indicator selection and design.

307. In addition, Atkinson and Marlier propose three principles for the selection of a set of visible social indicators:

a) The portfolio of indicators should be balanced across the different dimensions
b) The indicators should be mutually consistent and their weight within the portfolio should be proportionate
c) The portfolio of indicators should be as transparent and accessible as possible to citizens

4.3 Comparable dashboards

308. A poverty dashboard shows levels of deprivation in different dimensions, presenting each of them using just one indicator. It is desirable for dashboards to have a clear hierarchy and set of priorities, and potentially to even name a small set of 5-10 indicators as tier 1 or key indicators.

Recommendation 20: It is desirable for dashboards to have a clear hierarchy and set of priorities, and to name a small set of 5-10 indicators as tier 1 or key indicators.

4.3.1 Requirements for comparable dashboards

309. **Process**: The development of comparable dashboards requires first the identification of an agreed set of indicators and definitions. Europe's open method of coordination, which developed a set of key indicators based on national action plans and further discussion, is a good example of such a process.

310. **Data sources**: Following agreement of indicator definitions, countries need to harmonise survey questions or administrative or registry data sources, sample design and definitions of groups by which indicators are to be disaggregated, periodicity, methods of tabulation, and reporting formats.

311. **Reporting**: A comparable dashboard could be reported on a common platform, or provided by a coordinating institution.

4.3.2 Examples of comparable international dashboards: MDGs and SDGs

312. The MDGs can serve as a prominent example of the implementation of the dashboard approach—they were a dashboard of 49 indicators initially, which were defined to monitor the 18 targets to achieve the eight goals. Improvements in different aspects of poverty were evaluated with independent indicators such as the proportion of people living below PPP$1.25/day, the share of underweight children under 5 years of age, the child mortality rate, the share of parliamentary seats held by women, and so on. The MDG indicators provided a multi-faceted profile of a population's achievements across a range of dimensions and tracked changes in these over time.

313. The development of the more than 231 SDG indicators and their associated metadata is ongoing at the time of writing. Responding to very strong demands by both government and civil society actors, the process has been considerably more inclusive than the development of MDG indicators.

4.3.3 Example of dashboards in Europe

314. Box 4.2 shows the examples of European Social Indicators used to monitor social exclusion and poverty. Box 4.3 represents the basic list of deprivation introduced by Rosstat in the Russian Federation.

Box 4.2
European social indicators

The open method of coordination produced the EU Social Indicators in the areas of social inclusion and social protection. These indicators cover several areas Europe 2020 poverty and social exclusion target:

a) Overarching portfolio
b) Social inclusion
c) Pensions
d) Health care and long-term care
e) Investing in children

Table 1 below shows the different indicators used to monitor the Europe 2020 poverty and social exclusion target.

Table 1
Indicators used to monitor the Europe 2020 poverty and social exclusion target

Indicator	Definition
At risk of poverty or social exclusion rate (headline indicator for Europe 2020)	The sum of persons who are at-risk-of-poverty, or severely materially deprived, or living in households with very low work intensity, as a share of the total population
At-risk-of poverty rate	Share of persons aged 0+ with an equivalised disposable income below 60% of the national equivalised median income. The equivalised median income is defined as the household's total disposable income divided by its "equivalent size", to take account of the size and composition of the household, and is attributed to each household member. Equivalisation is made on the basis of the OECD modified scale.
Population living in very low work intensity (quasi-jobless) households	People aged 0-59, living in households where working-age adults (18-59) worked less than 20% of their total work potential during the past year.
Severe material deprivation rate	Share of population living in households suffering deprivation in at least 4 of the following nine[33] areas: i) unable to pay rent or utility bills, ii) unable to keep home adequately warm, iii) unable to cover unexpected expenses, iv) unable to eat meat, fish or a protein equivalent every second day, v) does not take a week holiday away from home, or could not afford such (even if wanted to), vi) unable to afford a car, vii) unable to afford a washing machine, viii) unable to afford a colour TV, or ix) unable to afford a telephone.

Source: EU social indicators (http://ec.europa.eu/social/)

These dashboards are often useful in terms of policy evaluation (e.g., the Europe 2020 vision), monitoring progress on poverty and social exclusion targets, assessing specific social challenges facing EU countries (e.g., through the joint assessment framework), identifying the key social trends in the EU (e.g., through the social protection performance monitor), reporting on EU social policies and adequacy in terms of child poverty and well-being, and for analytical work on social and economic policy.

Box 4.3
Measuring basic deprivations in the Russian Federation

The Russian Federation came up with a list of 63 basic deprivations, drawing on the international and Russian experiences of using the deprivation method for poverty definition and measurement. This is a first attempt to harmonize indicators across regions. Through focus groups, 200 administrators of household budget surveys in urban and rural settlements developed a list of characterizations of familial poverty. The deprivations focus on five aspects of life: current consumption, housing and property provisions, medical services, educational services, and culture and leisure.

The Russian Task Force then assessed the relative demand value for the benefits, goods, and services from the focus groups, to define the significance of material deprivation for each indicator, parsing actual from potential population demand. After testing the list using the frequency method, they came up with a dashboard of indicators, as well as a supplementary list of deprivations which could also be monitored. The "list of basic deprivations" that the statistical office shortlisted are presented in the table below

Basic List of Deprivations

- Inability to afford a meal with meat, chicken, fish twice per week
- Inability to afford fruits for all the family members all year round
- Inability to afford new clothing and footwear
- Inability to afford new clothing for children as they grow up
- Absence of a TV, fridge, and washing machine and the inability to afford them in case of need
- Family lives in extremely close quarters (less than 5 square meters per person)
- Inability to pay utility bills in time
- Absence of central heating in housing and lack of resources to buy enough fuel
- Inability to afford new furniture instead of old
- Inability to afford emergency housing repairs
  (install glass, renew plumbing, fix roof leaks, mend the fence, paint the house, etc.)
- Inability to afford necessary and essential medicines

Source: Rosstat.

4.3.4 Assessments of comparable dashboards

4.3.4.1 Advantages

315. Dashboards are an essential component of poverty measurement. The issue is not whether to have dashboards: it is when to highlight a set of unidimensional indicators prominently, and to promote their use to assess the overall situation of a population. A dashboard is essential in the following three sets of circumstances:

316. **Specialised datasets**. First, the single indicators that comprise a dashboard draw on different specialised datasets, which may include survey data, administrative data, or even "big data". A dashboard makes possible the combination of these data (as component indicators) irrespective of their intrinsic comparability (of lack thereof). The information contained in the data components can also be used to design sector-specific policies. Thus, certain indicators, which are complex or which can only be designed using specialised surveys or sample designs, are likely to appear only in dashboards.

317. **Special groups**. Second, the single indicators that comprise a dashboard can refer to and analyse diverse segments of the population: children, female CEOs and politicians, youth aged 15-24, Roma, or construction workers. For example, quality of education and skills formation could be drawn from a survey of schools and school-going children; an employment-related indicator could be estimated from labour force surveys; an indicator of social security could draw upon administrative records, and so on. Also, if surveys are used as the data source, each survey's sample design must be representative for the particular groups that are of special relevance to that indicator, and these will vary across indicators.

318. **Familiarity and convention**. Third, conventions regarding data quality and meta-data are already in place for many social indicators, making their computation relatively straightforward. They are also familiar, facilitating their communication. Moreover, each indicator is likely to be generated by a different expert group with specialised skills and interests in the topic.

4.3.4.2 Disadvantages

319. One potential drawback of dashboards is that they may provide too much information, risking diffuse or competing priorities. As Stiglitz, Sen and Fitoussi (2009) observed, "large and eclectic" dashboards lack a sense of priority. Furthermore, dashboards do not provide an explicit weighting across indicators. These can be ameliorated if, as Atkinson and Marlier (Atkinson et al., 2002; Marlier et al., 2007) suggest, the indicators are organised in tiers, in which the "top" tier of indicators is relatively balanced across dimensions, in which their weight is proportionate, and indicators are easy to communicate and understand. However, this rarely occurs in practice.

320. Second, because dashboards present each deprivation in isolation, and may use distinct and specialised survey instruments, they do not show overlapping or joint distribution of deprivations. Yet it is often important to know who suffers multiple simultaneous disadvantages, as these may be more deeply impoverishing than experiencing just one. These cannot be shown via a dashboard. Furthermore, in terms of policy efficacy, policies that address interconnected deprivations together, in a coordinated, multi-sectoral or integrated approach, have been demonstrated to be more cost-effective (UNDP, 2010). Alkire and Robles (2016) have proposed that dashboards drawing on the same survey should, at a minimum, describe this joint deprivation and have proposed graphical methods for doing so.

321. Third, dashboards do not provide a headline figure. They identify different aspects of poverty individually, but do not identify who is poor overall, based on deprivations in multiple indicators. That provides a communication challenge, because a headline could be confusing if for different indicators, "poverty has gone up, gone down, and stayed the

same" (Alkire, Foster, and Santos, 2011). While momentum may be generated from updates to monetary poverty measures, this momentum can be dissipated by the complexity of a dashboard update. The relationship between income poverty measures and other elements of a dashboard may also not be clear.

322. Fourth, the costs of designing and maintaining dashboards must be considered. Dashboard indicators may be updated with different frequencies, depending on the pace of change in an indicator. While this is appropriate, dashboard updates will be required to clarify which indicators are based on new data and which are carried over from previous updates. Yet even if each indicator is not updated each year, a large dashboard based on a diversity of specialised and possibly extensive harmonised data sources implies the need to sustain each of these data sources over time, and the cost implications of this must be considered.

Recommendation 21: The costs of data production and indicator computation for dashboard indicators should be made explicit at the time of indicator selection, and the dashboard should include indicators whose collection is financially sustainable. For example, candidate indicators should be reported together with a) the average minutes data collection takes for each unit, b) the number of units required for a national statistic (sample size), c) any special sampling issues that affect costs, and d) the frequency of updating (annual, every 5 years).

4.4 Material deprivation indices

323. Material deprivation indices can complement monetary poverty measures by bringing into view different but related measures of material deprivation. They have come to greater prominence in Europe because material deprivation, quasi-joblessness and at-risk-of-poverty-and-exclusion indicators together form the EU-2020 poverty measure. Also, in the United Kingdom, the Index of Multiple Deprivation is used for complementary policy purposes and contains multiple deprivations including non-material deprivations such as health and employment (see 4.4.4).

324. Material deprivation indices intend to use multiple indicators to measure a single underlying condition – material deprivation. In contrast, for multidimensional measures (or multiple deprivation measures), there is no single underlying condition. Each component indicator reflects deprivations which may differ in kind, which may be interlinked, but 'matter' directly. The statistical validation of these two approaches is very different.

325. Therefore, the statistical methodologies used to assess validity and reliability in material deprivation indices are distinct from methodologies used to design multidimensional poverty measures, which do not posit an underlying unidimensional concept.

Recommendation 22: Because of its extensive use, countries should include the material deprivation index (in its most recent specification) in the dashboard of comparable indicators.

Like the example given below from Republic of Moldova, countries have the option to modify the material deprivation indicator for national reporting, and like the United Kingdom, countries may wish to explore a small area index using a wider set of dimensions.

4.4.1 Requirements

326. As in the case of comparable dashboards and multidimensional poverty indices, the development of official material deprivation indices requires: a process to agree upon a set of component items, and to assess and select the final methodology; the harmonisation of data sources, including frequency and disaggregation; and reporting comparable indices on a central platform.

4.4.2 Example: Material deprivation in Europe

327. The most familiar material deprivation index used to measure poverty and deprivation is the material deprivation rate. Eurostat (2002) constructed an index of non-monetary poverty (*pauvreté d'existence*) for European countries, and the index reported since 2010 by Eurostat built upon it. The material deprivation rate is defined as the enforced inability to afford some items that are considered, by most people, to be desirable or even necessary to lead an adequate life. Importantly, this indicator considers the choice that individuals have—it is only if they cannot afford the good or service, rather than choose not to have them.

328. The definition of deprivation items is specific to time, place and policy context and it took a long time before the present agreement was found among EU Member States. The selection of items was partly based on prior surveys among the general population to identify items that are publicly considered as relevant for the entire population.

329. The indicator is computed by Eurostat and published as a Europe 2020 sub-indicator of the "people at risk of poverty or social exclusion" indicator (Eurostat, 2015). The standard EU material deprivation rate is the proportion of "materially deprived" individuals, that is, those who live in a household with an enforced inability to afford three or more of the nine specified items (Guio and Marlier, 2013). Households are seen as "severely materially deprived" if they have an enforced inability to afford four or more of these items. The nine items[33] currently adopted within the EU portfolio, drawn from Guio et al. (2009), are:

a) coping with unexpected expenses
b) one week's annual holiday away from home
c) avoiding arrears (in mortgage or rent, utility bills, or purchase instalments)
d) a meal with meat, chicken, fish or vegetarian equivalent every second day
e) keeping the home adequately warm

[33] As of end 2016, discussions are ongoing to remove colour TV, washing machine and telephone and to add seven new items: To replace worn-out clothes by new (not second-hand) ones; Two pairs of properly fitting shoes, including a pair of all-weather shoes; To spend a small amount of money each week on oneself without having to consult anyone; To get together with friends/family for a drink/meal at least monthly; To have regular leisure activities; Internet; To replace worn-out furniture.

f) a washing machine
g) a colour TV
h) a telephone
i) a personal car

330. All current items are addressing deprivation of the whole household as unit of observation. In order to aggregate the data, the nine items are combined at the individual level and then summed over individuals to form an aggregate index.[34]

331. The indicator is updated annually, based on the EU-SILC instrument, and is publicly available on the Eurostat website. For some countries, the oldest data begin in 2004, while the most recent can be found for 2016. The indicator has been used by the European Commission, alongside their measure of monetary poverty and very low work intensity, to assess progress in reaching the EU-2020 goal to "reduce the number of people *at risk of poverty or social exclusion* by 20 million by 2020 compared with 2008" (Eurostat, 2015).

332. A degree of overlap exists between those identified as materially deprived, income poor, and expenditure poor but there are also significant mismatches. In order to reach the EU-2020 target, a focus on one aspect of poverty or social exclusion is not enough; rather, a multifaceted approach, backed with reliable data, is necessary. Data are also provided at a decomposed level, for such demographics as age, sex, household type, educational attainment, and country of birth. Figure 4.1 and

333. Figure 4.2 show some of these decompositions in graphical form. Figure 4.3 graphically highlights the differences between countries in 2014.

[34] This is referred to as an "aggregated" indicator. This is distinct from "composite" indicators (such as UNDP's Human Development Index), which first aggregates across people and then across these characteristics.

Figure 4.1
Severe material deprivation rate, by sex and age group, EU 28, 2010 and 2013

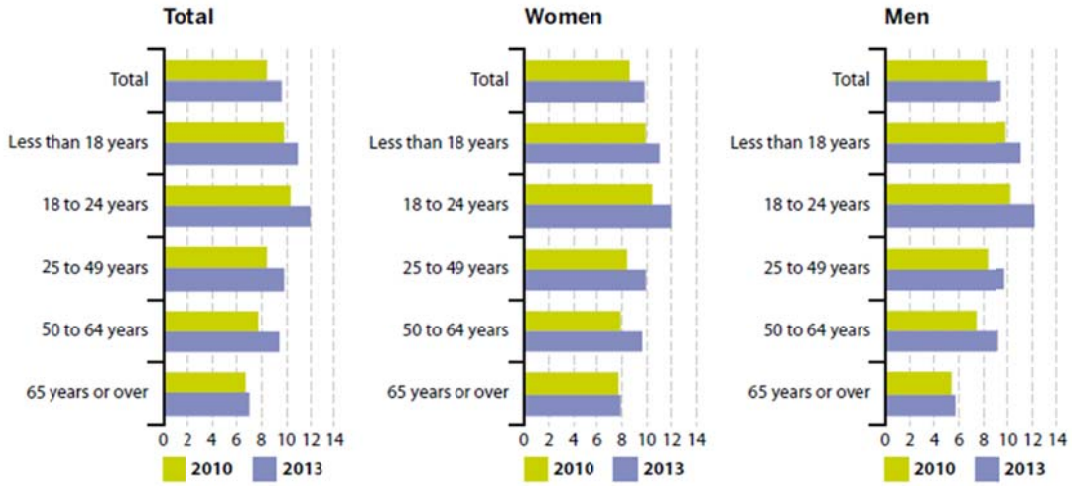


Figure 4.2
Severe material deprivation rate by household type, educational attainment, and country of birth, EU-28, 2013

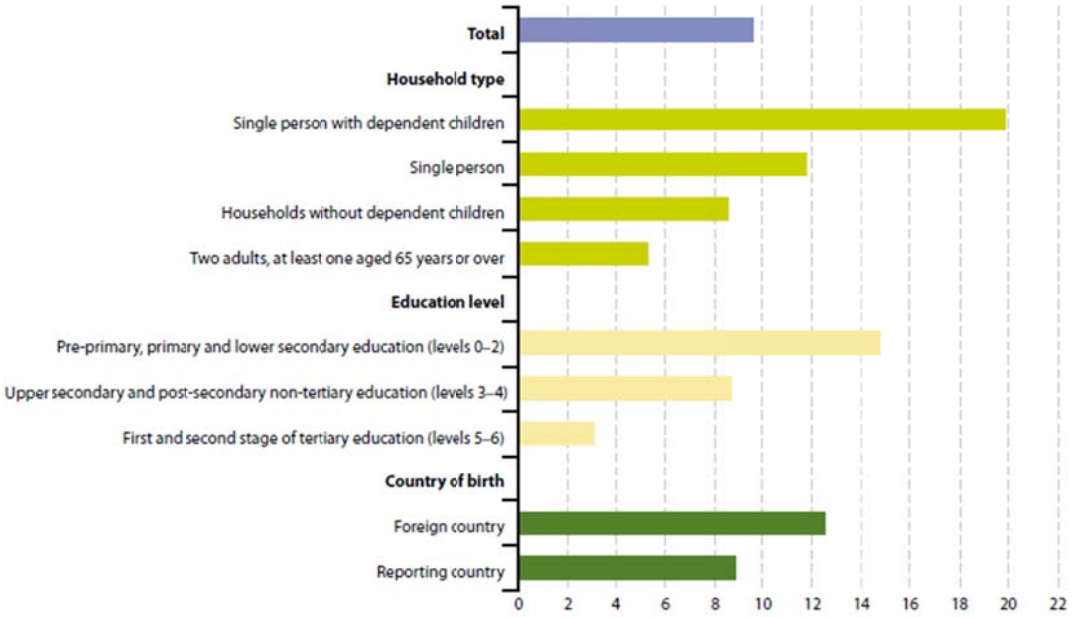
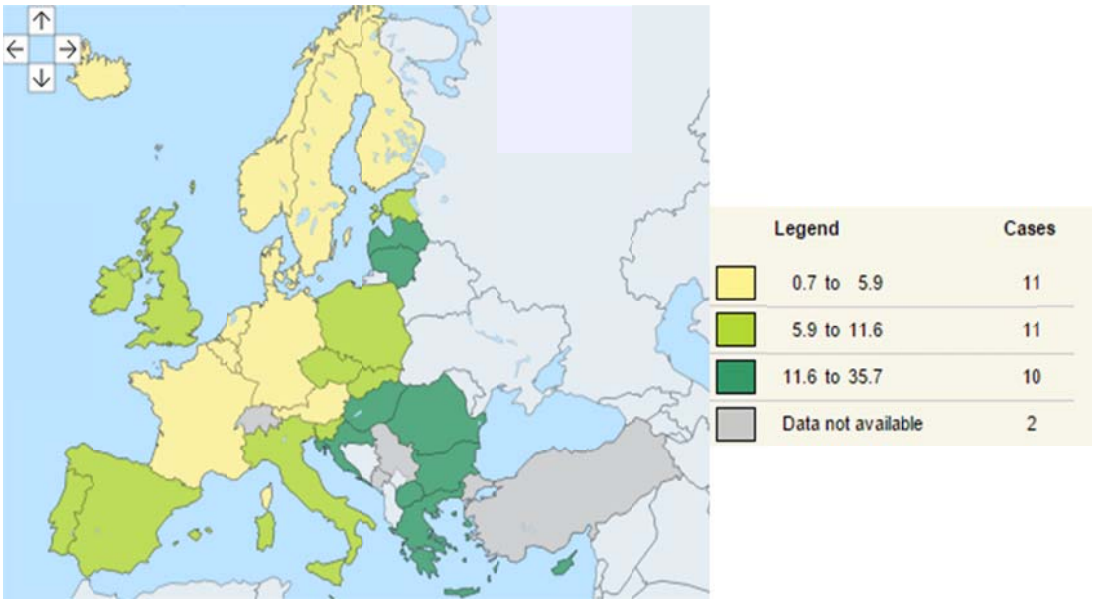


Figure 4.3
Map of severely materially deprived countries, 2014, per cent of population[35]



4.4.3 Alternative material deprivation rate

334. With a view to revising the official material deprivation rate, an alternative indicator has been proposed by Guio, Gordon, and Marlier (2012). Their suggested indicator consists of 13 items, six of which are included in the existing indicator, seven of which are new. They have also created a separate indicator for children (1-15 years of age) with 18 items. The proposed list for material deprivation indicators for the whole population is as follows:

335. **Personal items**: The person cannot afford but would like to have (i.e., a lack is an "enforced lack" that does not simply reflect a choice):

f) To replace worn-out clothes by some new (not second-hand) ones
g) Two pairs of properly fitting shoes, including a pair of all-weather shoes
h) To spend a small amount of money each week on oneself without having to consult anyone
i) To have regular leisure activities
j) To get together with friends/family for a drink/meal at least monthly

336. **Household items**: The household cannot afford:

a) To replace worn-out furniture
b) A meal with meat, chicken, fish or vegetarian equivalent every second day
c) To face unexpected expenses
d) One week annual holiday away from home

[35]Available from http://ec.europa.eu/eurostat/web/gdp-and-beyond/quality-of-life/severely-materially-deprived-people [03/02/2016]

e) To avoid arrears (mortgage or rent, utility bills or purchase instalments)
f) A computer and an internet connection (enforced lack: cannot afford but would like to have)
g) To keep the home adequately warm (enforced lack)
h) A car/van for private use (enforced lack)

337. As an illustration, if we set the threshold at 5+ missing items (out of 13), the proportion of materially deprived people in the EU as a whole (EU-27 weighted average) was 17.7 per cent in 2009, a percentage that is close to the current EU indicator of "standard" material deprivation (3+ items are lacking out of nine) of 17.1 per cent. A threshold of 7+ missing items (out of 13) leads to a material deprivation rate for the EU as a whole that is slightly higher than the current EU indicator of "severe" material deprivation (4+ lacked items out of nine): 9.2 per cent as opposed to 8.1 per cent.

338. The proposed multiple deprivations indicator for children is as follows:

Children's items: The household cannot afford for at least one child to have (enforced lack):

- Some new (not second-hand) clothes
- Two pairs of properly fitting shoes, including a pair of all-weather shoes
- Fresh fruits and vegetables daily
- One meal with meat, chicken, fish or vegetarian equivalent daily
- Books at home suitable for the children's age
- Outdoor leisure equipment
- Indoor games
- A suitable place to do homework
- Regular leisure activities (sports, youth organisations, etc.)
- Celebrations on special occasions
- To invite friends round to play and eat from time to time
- To participate in school trips and school events that cost money
- One week annual holiday away from home

Household items: The household cannot afford:

- To replace worn-out furniture
- To avoid arrears (mortgage or rent, utility bills, or purchase instalments)
- A computer and an internet connection (enforced lack: cannot afford but would like to have)
- To keep the home adequately warm (enforced lack)
- A car/van for private use (enforced lack)

339. Box 4.4 represents the example of measuring material deprivation in the Republic of Moldova.

Box 4.4
Material deprivation in the Republic of Moldova

In an effort to provide a broader picture of national poverty, the Republic of Moldova reports on three poverty measures: the proportion of the population at risk of income poverty, the proportion of households with very low work intensity, and a measure of material deprivation.

While it uses the EU-SILC methodology, the Republic of Moldova's indicators differ from those of EU-SILC. Both measures focus on whether households can afford to avoid arrears, keep the house adequately warm, face unexpected expenses, eat protein (if desired), go on holiday for a week, and have a personal car, washing machine, television, and telephone. However, the Republic of Moldova considers those who answer "I do not know" to questions of affordability (2-5) as not having financial difficulties in that indicator. Also, if households do not own any of the items (6-9), it is assumed that they cannot financially afford it, as there is no additional information on affordability to buy these items. These assumptions are not made in the EU-SILC measure.

Table 1
The items that make the object of the material deprivation in the EU and the Republic of Moldova

European Union	Republic of Moldova	Answer options
Your household could afford financially the follow:	***In the last 12 months, your household had arrears conditioned by financial difficulties:***	
Avoiding arrears (in mortgage or rent, utility bills, or hire purchase instalments)	1. For paying utility bills 2. For bank credit reimbursement	1. Yes, once 2. Yes, several times 3. No
Your household could afford financially the follow:		
Keeping the home adequately warm	To keep the house adequately warm	1. Yes 2. No 3. I do not know
Face unexpected expenses	Face unexpected expenses of 5000 lei	1. Yes 2. No 3. I do not know
Eat meat, fish or a protein equivalent every second day	To include in the diet meat or fish every second day (if desired)	1. Yes 2. No 3. I do not know
A week of holiday away from home once a year	A week of holiday away from home once a year	1. Yes 2. No 3. I do not know
Your household could afford financially the follow:	***Quantity at the moment of the survey:***	
A personal car	* Car, personal minivan	Number of items ___
A washing machine	* Automatic Washing Machine * Mechanical Washing machine	Number of items ___
A colour TV	* TV	Number of items ___
A telephone	** Telephone Mobile phone	Number of items ___

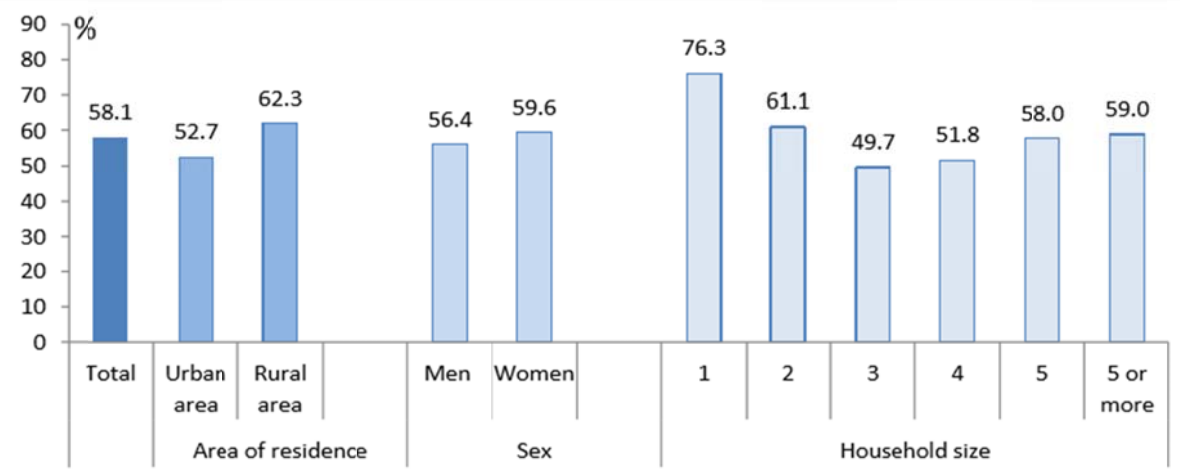
Source: Household Budget Survey (NBS, 2014)

Notes: * The information is taken from Chapter 7 of the Main questionnaire "Durable goods in the household" and the lack of these items does not represent that in reality the household has financial difficulties to afford them. ** The information is taken from Chapter 1 of the Main questionnaire "Household Dwelling".

The Republic of Moldova reports the share of people who are materially deprived (i.e., the household cannot afford at least three of the nine items) and those who are severely materially deprived (i.e. they cannot afford at least four of these items). These definitions are the same as those used in the EU-SILC. Estimates based on the 2014 household budget survey indicate that over half of the Republic of Moldova's households are severely deprived, with differences by rural and urban areas.

Figure 1

Share of materially deprived people area of residence, sex and household size, 2014



Source: Authors' estimates based on the data from HBS (BNS, 2014).

4.4.4 Case study: English index of multiple deprivation

340. In the United Kingdom, interest in measuring geographic variation in social and economic circumstances to guide urban policy resource allocation came with the emergence of the "social exclusion" concept in the EU in the 1980s. This interest led gradually to the creation of an index of multiple deprivation (IMD) that has different definitions in England, Northern Ireland, Scotland, and Wales. Here we focus on the English index.

341. The Government initially developed an index of deprivation in 2000, and adjusted it in 2004, 2007, 2010, and 2015. The English index of deprivation is the Government's official measure of multiple deprivations at the small area level. Deprivation is measured on a relative scale: an area is characterised as deprived if it is deprived *relative to other areas*.

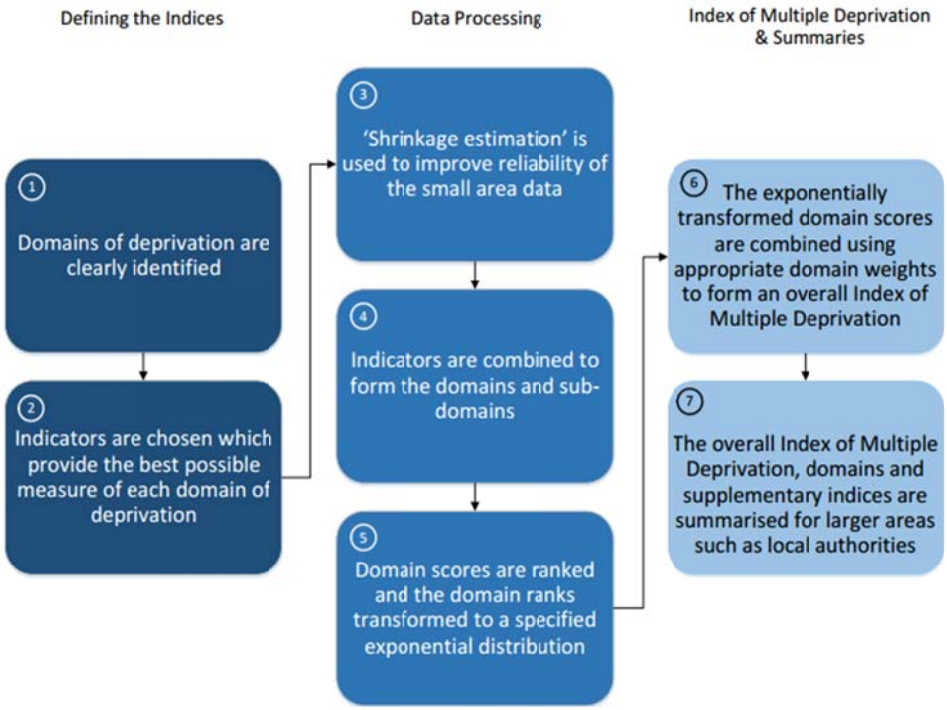
342. The index uses census and administrative data to map differences in deprivation across local areas for targeting the provision of government services. It combines indicators that cover a range of economic, social, and housing issues into a single deprivation score for each small area in England, allowing them to be ranked in order of deprivation around the average score. The indices are then used to analyse patterns of deprivation, to identify areas that would benefit from special state initiatives, and to determine eligibility for specific funding streams.

343. The model of multiple deprivations is based on the idea of distinct dimensions of deprivation, which can be recognized and measured separately. Unlike the material deprivation index, the IMD is broader, including health, education, and crime for example. The IMD brings together 37 different indicators that cover seven dimensions along which deprivation takes place: income, employment, health and disability, education, skills, and training, barriers to housing and services, living environment, and crime. Indicators for each domain are combined to produce rankings for each domain. The different domains are then combined to create the overall IMD 2007 after being weighted as follows: income (22.5%), employment (22.5%), health and disability (13.5%), education, skills and training (13.5%), barriers to housing and services (9.3%), living environment (9.3%), and crime (9.3%). The weights were selected based on theoretical considerations and academic work, the results of research on previous indices and a consultation process. The indicators for each domain were selected according to technical criteria so that all indicators would:

- Be "domain specific" and appropriate to the purpose (i.e., the best possible measures of that form of deprivation)
- Measure major features of deprivation (not just conditions experienced by a very small number of people or areas)
- Be up-to-date
- Be updatable on a regular basis
- Be statistically robust
- Be available for the whole of England at small area level in consistent form.

344. In order to calculate the indices of deprivation seven steps are followed, which are summarised in Figure 4.4.

Figure 4.4
Overview of the English multiple deprivation methodology



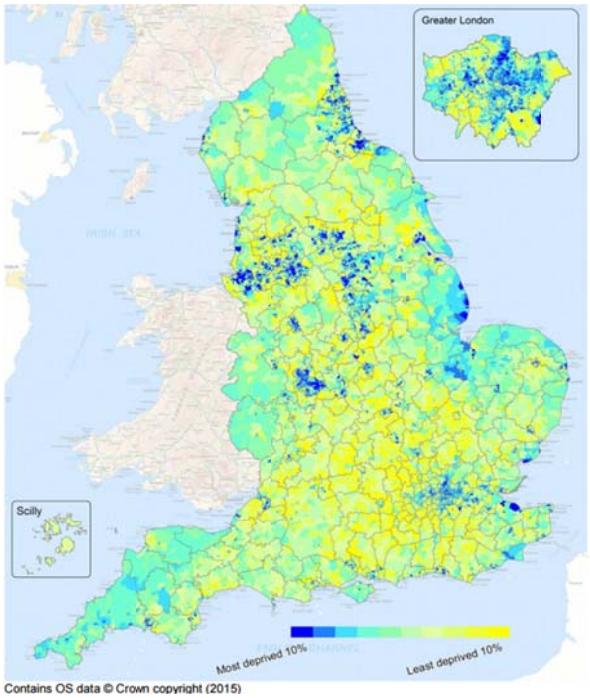
Source: Smith et al. (2015a).

345. Six local district level summary measures of the IMD have been produced:

1. **Average score:** the population-weighted average of the combined scores for the Super Output Areas (SOAs)[36] in a district.
2. **Average rank**: the population-weighted average of the combined ranks for the SOAs in a district.
3. **Extent**: the proportion of a district's population living in the most deprived SOAs in the country.
4. **Local concentration**: the population-weighted average of the ranks of a district's most deprived SOAs that contain exactly 10% of the district's population.
5. **Income scale**: the number of people who are income deprived.
6. **Employment scale**: the number of people who are employment deprived.

346. No single summary measure is favoured over another as there is no single best way of describing or comparing England's 354 local authority districts because of the diversity in population density and composition. However, once the index is calculated the data can be accurately mapped to reveal the most (and least) deprived areas in England, as shown in Figure 4.5. Data are available at the small area level, at both IMD level and individual domain level, for decile, rank, and score statistics. The former two statistics relay data about deprivation within that area relative to the other areas, while the latter statistic is calculated for each indicator within each domain, with specific numerators and denominators.

Figure 4.5
The Index of Multiple Deprivation (IMD), 2015



Source: Smith et al. (2015b).

[36] Super Output Areas are a geography for the collection and publication of small area statistics. They are used on the Neighbourhood Statistics site and across National Statistics (ONS).

4.4.4.1 Possible limitations

347. While the IMD is a useful tool for measuring deprivation in England, several limitations should be considered:

- The published ranks and deciles are purely relative, so the interpretation of the scores is not straightforward. No statistic is cardinal, so comparisons cannot be done on an absolute scale.
- There are issues concerning dynamic comparisons: while the index for an area is comparable for one year, real comparisons over time are complicated by the relative nature of the index.
- The data for each of the indicators are not from a single consistent point in time (however, most for the 2015 IMD are from the 2012/13 tax year). Furthermore, the data will always lag somewhat behind the current situation.
- While the decile, rank and score statistics are readily available, the availability of the "raw" empirical data is limited, which complicates assessment of the index's robustness.
- Because separate indices are produced for England, Northern Ireland, Scotland, and Wales, comparisons between the four are unfeasible.

4.4.5 Assessment of material deprivation indices

4.4.5.1 Advantages

348. The clear advantage of material deprivation indices is that they capture aspects of economic deprivation that monetary poverty measures overlook. They can thereby improve the extent to which poverty statistics match experiences of poverty.

349. Used together with income poverty measures, material deprivation measures may improve the accuracy of poverty assessments. For example, material deprivation measures may also reflect wealth or permanent income, insofar as these are relevant to the poor but omitted from monetary measures.

350. Material deprivation indices have fewer data requirements (than monetary measures) in terms of survey length and complexity, and may have lower non-sampling measurement errors.

351. The material deprivation index, once validated, is easy to compute and to compare across countries. Comparisons do not require prices, inflation, or purchasing power parity between currencies.

4.4.5.2 Disadvantages

352. The material deprivation index is a limited proxy for poverty. By design, it does not reflect other relevant dimensions of poverty, nor their joint distribution. For example, quasi-joblessness shows yet a different pattern of deprivation, as might health or education. Note that the United Kingdom Indices of Multiple Deprivation do include other dimensions.

353. For this reason, while a material deprivation index may be a very welcome component of a dashboard or an index, it cannot serve as a stand-alone measure of poverty in all its dimensions.

354. Some statistically valid elements of the material deprivation index may be problematic in terms of policy prescriptions—car ownership being one such example. Thus, the methodology needs to incorporate consultative input and policy considerations into indicator design, while ensuring that the final measure satisfies statistical criteria.

4.5 Conclusion

This chapter describes the processes and principles of establishing comparable indicators of poverty and social exclusion and measures of material deprivation. The requirements for comparable dashboards are briefly described, including the advantages and disadvantages of such dashboards. As in the case of comparable dashboards, the development of official material deprivation indices also requires certain processes and principles to be followed. These indices can complement monetary poverty measures, and are recommended as one of the comparable indicators on a poverty dashboard. A number of case studies demonstrate the measurement of deprivation, as users may find useful the experiences of some countries in tailoring deprivation measures to their data and contexts.

5 Multidimensional Poverty Indices

5.1 Introduction

355. Some national and regional policies already address non-monetary deprivations such as housing, health, education, and services. But few look at the overlap across non-monetary deprivations, such as the EU material deprivation measure. The new multidimensional poverty measures do both. Multidimensional poverty measures are being adopted by many countries including Armenia, Chile, Colombia, and Mexico as official permanent statistics that complement monetary poverty measures. When comparable multidimensional poverty indices (MPIs) are available across countries, for example in the MPI published by the Oxford Poverty and Human Development Initiative (OPHI) and UNDP, we can compare national experiences. This chapter explains how to construct multidimensional poverty measures and what their interpretation provides for policy. It also gives many examples.

356. The chapter presents MPIs as a useful and popular complement to countries' national monetary poverty measures, as can be seen from the examples of countries that use national MPIs (and their associated dashboards) as official statistics. Step by step guidelines are provided on how to design and use a national MPI for policy. The chapter also introduces some internationally comparable MPIs, for example the one published by UNDP, and shows what value-added emerges from comparable MPIs. By introducing these measurement techniques, the chapter provides a set of resources on how non-monetary aspects of poverty can be measured and monitored. It also shows the value-added and challenges of different measurement approaches.

357. Naturally, one cannot discuss measurement without discussing data. So, the chapter also addresses the data needs. A core data question concerns whether UNECE countries will develop a comparable regional MPI. At present, it is not possible to do so using existing data. The chapter therefore proposes that each country develop a national MPI that suits its national data sources and policy objectives. However, importantly, it proposes that they do so with an aim towards an eventual harmonization using a core subset of dimensions and indicators. These could be used to make a UNECE MPI and dashboard. Considering recent examples and participatory consultations, a core subset of dimensions is likely to include living standards, services, health, education, and the lived environment.

Recommendation 23: Each country should develop a national MPI that suits its national data sources and policy objectives. It is desirable that the national MPI includes the dimensions of living standards, services, health, education, work and the lived environment.

358. If national priorities are met (these have priority), and if in time, harmonized data are available, then for low marginal costs, both national and comparative measures can be built for UNECE countries. Comparing country experiences seems to be of considerable interest to UNECE member states. With both national and regional aims in mind, this chapter aims to support countries' exploration of rigorous multidimensional poverty measures, and to encourage the creation of data sources that would permit the generation of a regional MPI based on comparable indicators of non-monetary poverty. With both national and regional

aims in mind, this Guide aims to support countries' exploration of rigorous multidimensional poverty measures, and to encourage the creation of data sources that would permit the generation of a regional MPI based on comparable indicators of non-monetary poverty.

359. In the case of monetary poverty, national income poverty measures are used for national poverty reduction policies, while cross-national studies are conducted that draw on comparable measures such as the PPP$3.10/day poverty measure to elucidate good practices that would be relevant to other UNECE countries. A similar structure is proposed for multidimensional poverty, with national measures providing the basic tool for national policymaking, and a restricted yet comparable multidimensional measure providing insights and lessons learned across national boundaries.

360. Some measurement considerations are similar to monetary poverty: in particular, Recommendations 1-4 of Chapter 3 also pertain to multidimensional poverty. These refer to the unit of identification, the unit of analysis, the need to include overlooked populations in household survey sampling frameworks, and disaggregation by key population subgroups.

5.2 Overview

361. Multidimensional poverty indices are being developed by many countries as official national poverty statistics. Armenia, Bhutan, Colombia, Chile, Costa Rica, the Dominican Republic, El Salvador, Ecuador, Honduras, Mozambique, Pakistan and Panama among others have official multidimensional poverty indices (MPIs) that complement their official monetary poverty statistics and are updated and reported regularly alongside monetary poverty measures (all country documents are linked from www.mppn.org). Mexico has a single official poverty measure, which became multidimensional in 2009, and includes income and six non-income components. Countries such as Tunisia and Turkey are designing national MPIs. Academic studies in the United States, Germany and elsewhere are exploring these measures, and UNDP has published studies of social exclusion that implement MPIs in the analysis (Bartels and Stockhausen 2017, Brucker et al 2015, Nowak and Scheicher 2017, Suppa 2017, UNDP 2011, Wagle 2014).

362. This chapter introduces MPIs and shows how they add value to a monetary poverty measure or a dashboard. Differently from the index of material deprivation discussed before, MPIs reflect a view of poverty that remains multidimensional, being grounded in Sen's capability approach. In contrast, measures of material deprivation focus on a single underlying phenomenon, material deprivation, and seek to describe it using various indicators. Because of this, different techniques are used to build the index of material deprivation. In practice, material deprivation can be one indicator within an MPI.

363. The methodology underlying the MPI is based on Alkire and Foster (2011) and offers a high degree of flexibility in the choice of indicators. These indicators can be tailored to suit the specific requirements of each country and reflect the priorities of policymakers. The MPI can be used for a multitude of policy purposes including: targeting of social and economic policies, monitoring their impact and implementation, coordination among different decision makers, assessment of sub-national differences in development, graduation of social protection schemes, and informing socially responsible investments.

364. The MPI can be a particularly useful tool to assess how countries meet the SDGs. The first goal of the SDGs is to eradicate poverty in *all its dimensions*, meaning that the SDGs focus on multidimensional poverty. MPIs based on the Alkire-Foster method are being reported by many countries for Indicator 1.2.2 (See Section 5.9).

365. There are two kinds of MPIs. National MPIs are like national monetary poverty measures. They reflect national priorities and are constructed using national datasets. But they cannot be compared. A regional or global MPI, like the global income poverty measure of PPP$1.90/day, is comparable across countries. For example, the OPHI/UNDP Global MPI covers a similar number of developing countries as the World Bank's PPP$1.90/day measure, drawing on national and international datasets, the Economic Community of Latin America and the Caribbean (ECLAC) published a regional MPI in their 2014 *Social Panorama,* and Alkire and Apablaza (2016) created a preliminary MPI across European Countries using EU-SILC data (See Box 5.3). MPIs in either comparable or national forms can be used by countries to report on SDG target 1.2.

Recommendation 24: UNECE countries should report a Multidimensional Poverty Index against SDG target 1.2. In the short term, countries can report existing national MPIs or the value of their global MPI published by UNDP.

366. In this sense, the flexibility of the Alkire-Foster method used to build any MPI allows the index to capture national and international concerns of poverty and development (e.g., national development plans and SDGs). The current MPIs that are in place include a range of indicators pertinent to SDG goals such as health, education, living standards, social inclusion, violence, and employment, among others.

367. This chapter describes methodological issues in building an MPI, starting with the steps needed to set the unit of identification, dimensions and indicators with their respective deprivation cut-offs and weights, and poverty cut-offs. It also illustrates the advantages and disadvantages of some methodological issues in building an MPI.

5.3 Requirements

368. Building an MPI may seem more complicated than an income poverty measure because it is new. So it is useful to clarify three common misconceptions from the start. The first is that a MPI is more data hungry than a monetary poverty measure because it covers more dimensions. In fact, whereas around 500 items from the same survey are often used to build a consumption aggregate, an MPI is ordinarily built from between 30 and 50 survey questions that have to come from one and the same survey. Thus the Atkinson Commission Report "*Monitoring Global Poverty"* (World Bank, 2017) rightly observes that the MPI is less data intensive than monetary measures: "The creation of the overlapping poverty measure, or of the more general measures of multidimensionality developed by Alkire and Foster (2011a), in one sense raises the stakes with regard to data requirements. In order to ascertain the extent of overlap of deprivation across dimensions, it is necessary to have a data source at the level of the individual or household covering all relevant dimensions. At the same time, the number of questions required per dimension may be considerably less in the case of nonmonetary indicators than is the case with the measurement of consumption for the monetary policy indicator. The multidimensional poverty indicator for Colombia is

based on some 38 survey questions, that for Pakistan on 54 survey questions, and for Costa Rica on 77 survey questions. The information required to calculate consumption is typically much more extensive. For example, the 1993–94 survey for Cambodia had a detailed consumption recall list of some 450 items (Gibson 2005, 137). Therefore, it should not be assumed that a non-monetary approach is more data-demanding". And while monetary poverty and employment questions are time consuming to collect, other indicators may be significantly faster.

369. A second legitimate query is whether the MPI takes longer to compute. Because the MPI reflects poverty directly, it does not require adjustment (such as for urban-rural prices, inflation, nor imputation for rent. In practical terms, after the MPI is initially designed, a country can release its updated official national MPI two weeks after it receives the cleaned dataset. It can also be done transparently. Mexico, Ecuador, Colombia, and others post online the computational algorithms (STATA, ADePT, R, SAS or SPSS) needed to make their national MPIs—so students, think tanks, and analysts can clearly understand and replicate every detail.

370. A third query is how an MPI can inform policy, because is implications affect more ministries and sectors. Like other indicators, the development of an MPI requires a legitimate procedure, clarification of data sources, and a clear reporting framework. These may occur at the national or regional level. It has proven tremendously useful to involve statistics users (policy makers from different relevant sectors and levels of government, and coordinating bodies) in measurement design. This facilitates their understanding of the relevant insights the measure can provide, such that these are translated effectively into policy actions to reduce poverty. Experience to date has shown that the MPI can be a powerful tool for governance, because it addresses interlinked dimensions of poverty together in budget allocation, targeting, policy design and coordination, evaluation, and so on.[37]

5.4 Steps to build an MPI

5.4.1 Preliminary step

371. It is first necessary to determine the unit of identification that will be used to identify whether each person is poor or not, and the unit of analysis by which the poverty figures will be reported. Like in the case of monetary poverty, most countries use the household as the unit of identification because of data constraints, and most aggregate in terms of the percentage of people who are poor. If data are available at the individual level, the person can be the unit of identification, in which case gender disaggregation can be meaningfully interpreted, however comparable data are rarely available at the individual level across all age cohorts.

[37] The magazine *Dimensions* publishes country case studies and synthesizes other documents that show how national MPIs are being used in policy. See http://www.mppn.org/dimensions/editions/

372. Once this has been accomplished, Alkire, Foster, Seth, Santos, Roche, and Ballon (2015) describe the following steps for the construction of the MPI:

5.4.2 Identification of the poor

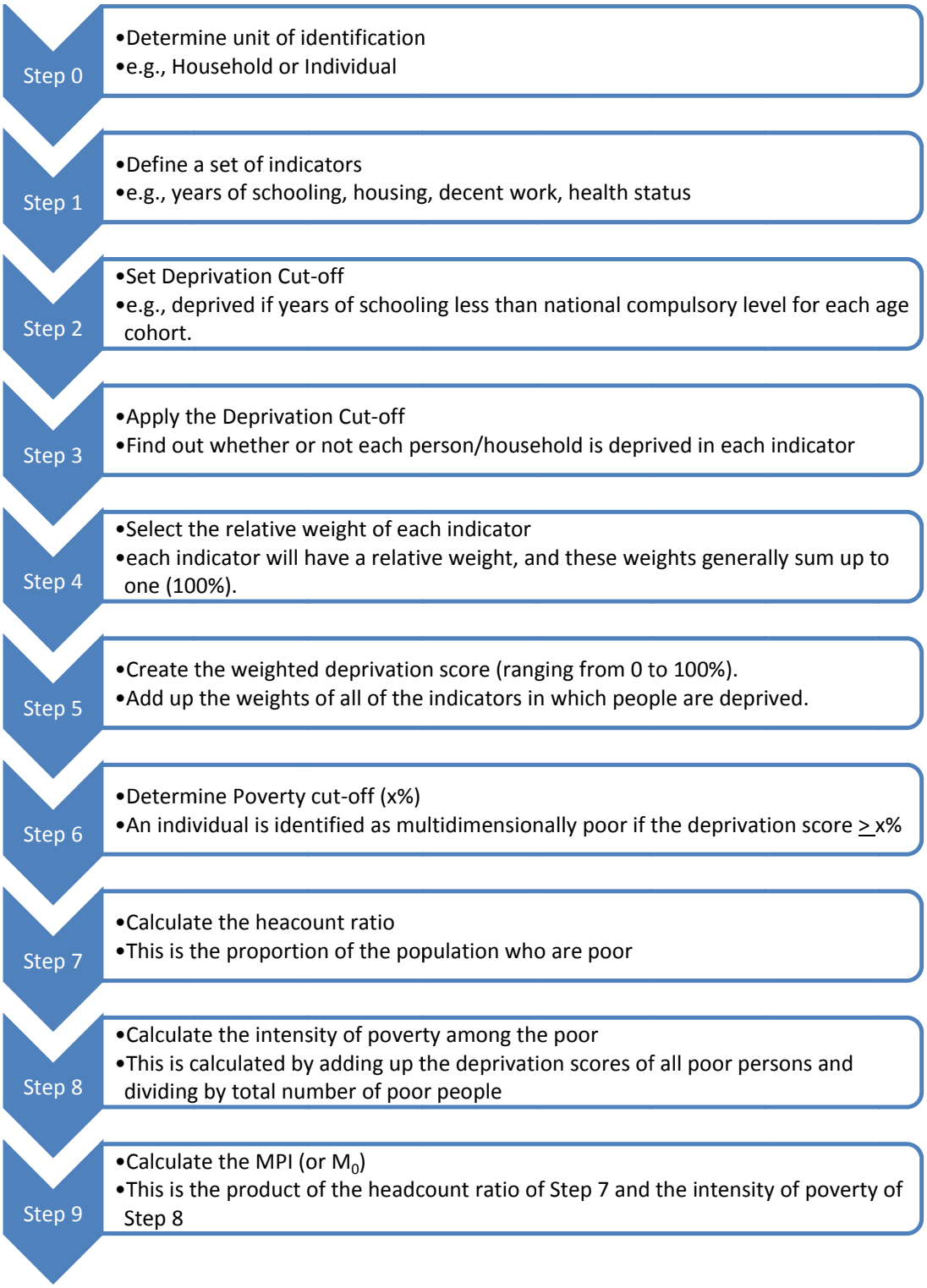
a) Defining the set of indicators which will be considered in the multidimensional measure. Data for all indicators need to be available for the same unit of identification.
b) Setting the deprivation cut-offs for each indicator, namely the level of achievement considered sufficient (normatively) in order to be non-deprived in each indicator.
c) Applying the cut-offs to ascertain whether each person is deprived or not in each indicator.
d) Selecting the relative weight or value of each indicator, such that these sum to one.
e) Creating the weighted sum of deprivations for each person, which can be called his or her deprivation score.
f) Determining (normatively) the poverty cut-off, namely, the proportion of weighted deprivations a person needs to experience in order to be considered multidimensionally poor, and identifying each person as multidimensionally poor or not according to the selected poverty cut-off.

5.4.3 Aggregation

a) Computing the proportion of people who have been identified as multidimensionally poor in the population. This is the headcount ratio (H) of multidimensional poverty, also called the incidence of multidimensional poverty.
b) Computing the average share (A) of weighted indicators in which poor people are deprived. This entails adding up the deprivation scores of the poor and dividing them by the total number of poor people. This is the intensity of multidimensional poverty, also sometimes called the breadth of poverty.
c) Computing the M_0 measure (or MPI) as the product of the two previous partial indices: H times A. Analogously, M_0 can be obtained as the mean of the vector of censored deprivation scores, which is also the sum of the weighted deprivations that poor people experience, divided by the total population.

373. Figure 5.1 below shows the different steps needed to build a MPI. Box 5.1 illustrates the basic example of computing a MPI in practice.

Figure 5.1
Steps for measuring a Multidimensional Poverty Index



Box 5.1
An example of how to compute the MPI

Suppose we have a society of three individuals: Anna, Diana, and Victor. The MPI we seek to construct has the following indicators nested within three dimensions

Dimensions of poverty	Indicator	Deprived if…	Weight
D1	a	…	1/6
	b	…	1/6
D2	c	…	1/6
	d	…	1/6
D3	e	…	1/18
	f	…	1/18
	g	…	1/18
	h	…	1/18
	i	…	1/18
	j	…	1/18

Data are collected for these three individuals, and a deprivation matrix is constructed as show in the table below (indicator weights are shown in parenthesis). Values of 1 in the table indicate deprivation in this component.

	Indicators										Deprivation Score
	a (1/6)	b (1/6)	c (1/6)	d (1/6)	e (1/18)	f (1/18)	g (1/18)	H h(1/18)	i (1/18)	j (1/18)	
Anna	1	1	0	0	1	0	0	1	0	0	4/9 = 0.44
Diana	0	0	1	0	1	0	1	1	0	0	1/3 = 0.33
Victor	0	1	0	0	0	0	0	0	0	0	1/6 = 0.17

If the poverty cut-off is, for instance, 33%, then both Anna and Diana are identified as multidimensionally poor because their deprivation scores are 33% or higher, while Victor is not.

Assuming equal sampling weights (this is often <u>not</u> the case in sample data), we get the following measures:

1. The headcount ratio (H) is 2/3 = 0.66. That is, 66% of the population is MPI poor.
2. The intensity of poverty among the poor (A) is obtained as the average deprivations among the poor, or (0.33+0.44)/2 = 2/5 = 0.39. That is, the poor are, on average, deprived in 39% of the indicators.
3. The adjusted headcount ratio M_0 (or MPI) is H x A = 0.66 x 0.39 = 0.250.

5.5 Key decisions[38]

5.5.1 Unit of identification

374. To build an MPI, a preliminary step is to choose whether to identify poverty based on the deprivations of an individual, or whether to combine individual level characteristics within a household or other unit, to identify all members of a household equally as all being poor or non-poor. The same choice is made in constructing an income or consumption poverty index. Usually for monetary poverty, household income or consumption is assessed. But in this case sex disaggregation, for example, cannot be meaningfully performed.

375. In multidimensional measures, the unit of identification is normally the individual or the household. Both options have been used in official national MPIs and in research exercises, and each has advantages and disadvantages.[39] In both cases there is potential to reveal at least some of the intra-household inequalities.[40]

376. When the unit of identification is the individual, it is possible to meaningfully decompose by gender, age, occupation, and other characteristics. That is, it is possible to assess intra-household patterns of poverty. However, it may be difficult to define indicators that are relevant from cradle to grave, so separate measures may be more appropriate for children and for those who are above a certain age.

377. When the unit of identification is the household, this acknowledges the shared effect that one household members' deprivation has on others, it allows some child indicators to be included,[41] and allows compensation in some indicators. For instance, if an elderly household member is not highly educated but younger ones are, the elder educational deprivation may affect their own poverty condition much less, because their younger family members can read essential materials.

5.5.2 Dimensions

378. Dimensions are conceptual categories that can be used to facilitate a particular weighting structure and to explain the measure to the public and to policymakers. Dimensions for a national MPI should be selected in consultation with stakeholders, such as policymakers, civil society, researchers and statisticians. For example, the 10 indicators of the Global MPI (see Section 5.6) are grouped into three equally weighted dimensions: health, education, and living standards.

379. Some examples of dimensions used in official multidimensional poverty measures include:

[38] Each of these decisions is elaborated in Alkire et al. (2015).
[39] For a systematic treatment see Alkire et al. (2015), Chapter 7.
[40] More information on the importance of statistics and indicator on gender equality is available in the United Nations Economic Commission for Europe (2015b).
[41] See Alkire and Santos (2014) for an example of analysis of the global MPI for households with differing child compositions.

1. Health
2. Education
3. Work
4. Housing
5. Living standards
6. Basic services
7. Lived environment
8. Social security
9. Personal security (safety from violence)
10. Food security
11. Childhood and youth

380. The choice of dimensions in Different National MPIs is presented in Box 5.2.

Box 5.2

The choice of dimensions in different national MPIs

As mentioned previously, the Alkire-Foster methodology for MPI construction allows a large degree of flexibility in the choice of dimensions, the numbers of dimensions, indicators, and weights. Different countries have built national MPIs in keeping with their national development agendas, in order to target specific groups of the population and monitor social protection schemes. The table below shows the different dimensions chosen by national MPIs around the world.

Table 1

National MPI dimensions worldwide

Country	Dimensions
Armenia	(1) Education, (2) Health, (3) Labour, (4) Basic Needs, (5) Housing
Chile	(1) Education, (2) Health, (3) Work and social security, (4) Basic standard of living
Costa Rica	(1) Education, (2) Health, (3) Work and social security, (4) Basic standard of living
Colombia	(1) Education, (2) Childhood and youth, (3) Work, (4) Health care, (5) Housing and public services
Dominican Republic	(1) Education and childcare, (2) Health, (3) Work and Livelihood (4) Housing and environment (5) Digital Divide and Social Relations
Ecuador	(1) Education, (2) Health, water and nutrition, (3) Work and social security, (4) Housing and public services
El Salvador	(1) Education and childhood, (2) Health and food security, (3) Work, (4) Housing, (5) Security and environment
Mexico	(1) Education, (2) Access to health care, (3) Access to food, (4) Access to social security, (5) Housing, (6) Basic home services, (7) Income
Panama	(1) Health, (2) Education, (3) Work, (4) Housing, Basic Services & Internet Access, (5) Environment and Sanitation
ECLAC	(1) Housing, (2) Basic Services, (3) Living Standards, (4) Education, (5) Employment and Social Protection
Pakistan	(1) Education, (2) Health, (3) Living Standards

5.5.3 Indicators and deprivation cut-offs

381. Indicators are the variables in the matrix that are used, with a deprivation cut-off, to identify whether a person is deprived (or not) in that indicator. The number of indicators should be limited, for ease of communication and policy focus. In practice, most MPIs have 7-20 indicators. Redundancy analysis and other techniques can be used to select the strongest indicators (Alkire et al, 2015, Chapter 7).

382. Normally the data for all indicators is available from the same data source. Exceptionally, administrative or satellite data may be merged using the household id or GIS location, if the merging manages to retain a very high proportion of the original households.

383. Deprivation cut-offs normally draw upon commonly agreed standards. These may include compulsory years of schooling, or age-specific standards for malnutrition, or the SDG indicator definitions. In the case of national MPIs, they may also draw upon documents such as a constitution, national development plan, or the result of participatory processes engaging poor people and communities.

384. Deprivation cut-offs are absolute, not relative. This is to ease the interpretation and communications of trends over time, because the thresholds are fixed, and are intuitive. If an indicator with a relative cut-off (like income) is included in the MPI, considerable care must be taken in explaining changes over time. It also means that the MPI satisfies properties like the focus axioms (so changes in the attainments of non-poor or non-deprived people do not affect the MPI). It may also contribute to a stronger measure for technical and data reasons (for example if variables are binary or categorical).

385. Household level indicators such as water, sanitation, housing conditions, overcrowding, waste disposal, electricity, material deprivation, access to the internet, and so on, all draw upon household indicators. If an individual is the unit of identification, household level deprivations should be attributed to all household member equally.

386. Indicators such as malnutrition, health, years of schooling or school attendance, employment, quality of work, social security benefits, health insurance, disability benefits, pensions, and so on, are normally available for certain or all individuals in a household. If the household is the unit of identification, information from relevant household members must be combined to define the household and all its members as deprived or not in that indicator. For example, a household might be deprived if any person within it experiences a deprivation, or if all persons do, or some proportion. The indicator must be defined for all household types. Examples of complex indicators are:

- If no member of the household has completed lower secondary school, the household is deprived.
- If any school aged child is not attending school and has not completed the compulsory level of schooling, the household is deprived. Households with no school aged children are considered as non-deprived.
- If all household members are unemployed or under-employed, the household is deprived.

387. The design of such indicators should ensure that they are responsive to policy. For example, defining as deprived *anyone* in the household who did not complete lower secondary school creates a situation creates effectively a stock indicator, because the

uneducated will likely include many adults who cannot change their educational deprivation status through their life course, so it will only change when they leave the household.

5.5.4 Weights

388. As indicated by Sen (1996), the weighting structure should be explicit and transparent so as to be open to public debate; and further, key comparisons must be robust to a plausible range of weights. Normally, the relative weights reflect normative assessment—for example, that achievements in health, education, and living standards are roughly equal in intrinsic value. Equal weights across dimensions also ease the interpretation of the index for policy, to the extent that Atkinson et al. (2002) recommend that dimensions be chosen such that their weights can be roughly equal. In fact, all official statistics to date, with the exception of Chile, have used a nested weight structure, with equal weights across dimensions, and equal weights across indicators within dimensions—unless data particularities required the modification of this structure. Also, robustness tests are always performed and reported, to ensure that the final MPI is robust to a range of plausible weights (Alkire and Santos 2014, Alkire et al, 2015, Chapter 8).

Recommendation 25: It is recommended to use equal weights for the dimensions of a multidimensional poverty index, and equal weights among indicators unless a deviation from this can be normatively justified. Robustness tests should be reported, to see whether policy relevant comparisons are robust to a range of plausible weights.

389. Other inputs into the final weighting structure include national policies – often as presented in development plans – as well as participatory exercises with poor communities. The issue of weighting is no more challenging for the MPI than for other poverty indicators, such as imputing prices for non-market goods or adjusting rural and urban poverty lines for monetary poverty measures.

Box 5.3
Multidimensional Poverty Indicators in Europe: EU-SILC

Alkire and Apablaza (2016) calculate an MPI for Europe based on the Alkire-Foster (AF) methodology drawing on existing Europe 2020 indicators, as well as on indicators of health, education and the living environment. The MPI (which consists of 12 indicators) can be compared across time and space (Table 1).

Table 1
Dimensions, indicators and weights applied for generating a MPI

Dimension	Indicator Variable	Weight
Income	AROP	1/6
Employment	Quasi-Joblessness	1/6
Material Deprivation	Severe Material Deprivation	1/6
Education	Completed Primary Education	1/6
Environment	Noise	1/24
	Pollution	1/24
	Crime	1/24
	Housing	1/24
Health	Fair Health	1/24
	Chronic Illness	1/24
	Morbidity	1/24
	Unmet Medical Needs	1/24

The results (shown in Table 2) suggest a decline in multidimensional poverty in Europe from 2006 to 2012. However, while the MPI headcount fell from 10.04% in 2006 to 8.81% in 2012, the intensity of poverty among the poor people remained largely unchanged.

Table 2
Multidimensional Poverty in Europe 2006-2012, k=34%
(Level and percentage of individuals in EU countries with consistent data – linearized std. errors in brackets)

	2006	2007	2008	2009	2010	2011	2012
Multidimensional poverty (M_o)	0.0484	0.0443	0.0418	0.0413	0.0419	0.0424	0.0429
	(0.0012)	(0.0011)	(0.0012)	(0.0012)	(0.0011)	(0.0011)	(0.0011)
Headcount ratio (H)	10.04%	9.24%	8.77%	8.63%	8.67%	8.75%	8.81%
	(0.0012)	(0.0012)	(0.0013)	(0.0013)	(0.0013)	(0.0012)	(0.0013)

Intensity of poverty	48.18%	47.99%	47.73%	47.80%	48.30%	48.45%	48.62%
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0005)	(0.0006)
Contribution of each dimension to total multidimensional poverty							
Income	24.23%	24.58%	25.23%	26.67%	25.36%	25.25%	25.33%
Employment	18.40%	18.68%	18.31%	18.69%	19.88%	19.63%	19.45%
Material deprivation	16.13%	15.83%	15.56%	14.97%	15.31%	16.43%	17.92%
Education	17.94%	17.46%	17.90%	17.38%	16.86%	16.22%	15.44%
Environment	11.80%	12.07%	11.34%	11.58%	11.16%	10.77%	10.39%
Health	11.50%	11.38%	11.66%	11.72%	11.42%	11.70%	11.48%

Source: Alkire and Apablaza (2016) based on EU-SILC users' database of March 2014.

Note: Belgium, Bulgaria, Ireland, Croatia, Malta, Romania, Iceland, Norway and Switzerland nor included.

With the update in the EU-SILC surveys after 2013, several new indicators have appeared which can be used to build national MPIs. These include indicators for:

- Housing (overcrowding, accommodation, rooms, heating);
- Education (assessments of an individual's obtained skills (e.g., via adult education, national education schemes, vocational training, open learning, etc.—an improvement over the previous indicator, which consisted of the level of education);
- Health (disability, activity)

Other possible indicators include indebtedness, and subjective assessment of income required for good living standards.

5.5.5 Poverty cut-off(s)

390. Cut-offs for multidimensional poverty measures are the share of weighted indicators in which a person or household must be deprived in order to be identified as poor. Cut-offs are applied to the deprivation scores, and each person or household is thereby identified as poor or non-poor.

391. As in the case of income poverty, results may be reported for more than one poverty cut-off. For example, an extreme poverty and moderate poverty level may be reported, as in the case of the national MPIs in Ecuador and Pakistan.

392. Poverty lines are easiest to present and interpret if they bear some resemblance to the weighting structure of indicators and dimensions. They may be set using a combination of factors, including normative assessment of what poverty is, consistency with subjective poverty assessments, or observation of the share of dimensions experienced by certain

groups of people. The accuracy or inaccuracy of component indicators must also be considered: if some indicator clearly identifies as deprived people who may not be poor, a union approach should not be used. If a human rights framework underlies the structure of the measure, this will also affect the poverty cut-off. For example, if there are 3 equally-weighted dimensions, poverty cut-offs of 33% or 34% may be natural as they reflect a person who is deprived in at least one dimension, or strictly more than one dimension, whereas if there are 4 dimensions, then cut-offs of 25% or 26% provide the same intuition.

393. Poverty cut-offs may be set and justified using a combination of factors, including normative assessment of what poverty is, consistency with subjective or participatory poverty assessments, or observation of the share of dimensions experienced by certain groups of people. The accuracy or inaccuracy of component indicators must also be considered: if some indicator clearly identifies as deprived people who may not be poor (such as cooking with wood), a union approach – in which any measured deprivation at all identifies a person as poor – should not be used. If a human rights framework underlies the structure of the measure, this will also affect the poverty cut-off.

394. Robustness tests are always to be performed here too, in order to make transparent any sensitivity to the poverty line, and also to highlight comparisons which are robust to a range of poverty cut-offs. Empirically, many MPIs have been proven to be robust across a range of plausible weights and poverty cut-offs (always considering standard errors).

5.5.6 Should income be included in the MPI?

395. It is frequently asked whether income or consumption poverty measures should be included in a national MPI, instead of reporting them separately. To date, it seems preferable to report monetary poverty separately, although Armenia and Mexico (only) combine them. Here are some considerations:

5.5.6.1 Advantages of including income as a dimension

396. There are three main advantages of including income:

- Having a **single headline poverty indicator** that encompasses everything.
- The priority of income poverty reduction relative to reduction in other deprivations is **transparent** through the relative weights. Moreover, the relative weight of income can be adjusted (if there are two separate measures the weight of each may be implicitly equal).
- The relationships between different deprivations and income can be studied easily under this framework because all indicators are drawn from the **same data source**.

5.5.6.2 Disadvantages of including income as a dimension

397. There are several disadvantages to including income or consumption poverty measures within an MPI:

- Given the familiarity with income and consumption poverty measures, it can be easier to release a second measure that complements those, rather than

discontinuing or changing a familiar statistic. The press and media have proven able to have the ability to understand and communicate two poverty measures, each having their distinctive contribution, effectively.

- Income and consumption are volatile and exhibit seasonality. Yet to improve reporting accuracy often short recall periods are used at least for some items. The effect of this is that the status of each household as deprived or non-deprived at the time of the survey may not reflect their average status across the past year or other period since the last survey. Monetary measures may be accurate "on average" but not at the household level. Yet the MPI requires each indicator to accurately depict deprivation status at the household level.
- The sample designs for different survey types may need to be harmonised, and surveys may need to be extended to include all relevant indicators, without jeopardizing data quality.
- If the MPI is being used primarily to design and coordinate social policies, the inclusion of income may be less necessary as the MPI will predominantly monitor the outcomes of a set of policies distinct from income poverty.
- For the properties of the MPI to be established, income is measured using an absolute poverty line. If a relative poverty line is used for income (as in Alkire and Apablaza 2016), then the poverty focus and deprivation axioms do not hold. Having a mixture of relative and absolute cut-offs also is conceptually challenging.
- Even if income is included, care must be taken in the design of the measure. For example, in the case of Mexico, it appears that economic and non-economic aspects of poverty are equally weighted. But in fact, the identification procedure is designed to exclude all persons who are not income poor from having the possibility of being identified as poor. Given the evident mismatches between income poverty and other kinds of poverty, and given that these are in part due to non-sampling measurement error, this is a potentially problematic identification structure. Persons who are multiply deprived in a set of non-monetary deprivations should have the possibility to be identified as multidimensionally poor unless there is a very good reason for prohibiting this. This is particular the case if, as in Mexico which uses a human rights framework, non-monetary deprivations are interpreted as violations of social rights.

398. In the end, the decision of whether to report income or consumption and expenditure poverty separately or inside a multidimensional poverty measure is a particularly important decision. There are pros and cons on both sides. The OPHI/UNDP Global MPI (see Section 5.6) does not include consumption poverty because that variable is not included in the surveys employed, so it is not a feasible option for consideration. However, even if it were available in the data, there are benefits to separating international comparisons, given current controversies regarding the PPP exchange rates used in monetary poverty computations. All countries except for Armenia, Kyrgyzstan and Mexico have opted to keep monetary and MPI measures distinct even when in most cases both measures are developed using the same survey instrument.

Recommendation 26: It is recommended to develop separate and complementary measures for monetary poverty and multidimensional poverty.

Box 5.4
Towards a multidimensional poverty index in Germany

A multidimensional poverty index for an advanced economy like Germany is proposed by Suppa (2017). Drawing on the capability approach as conceptual framework, the Alkire-Foster method is applied to the German context.

The increasing interest of academics and policy makers in alternative measures for human well-being also seems to bring about a consensus about relevant dimensions. The proposed multidimensional poverty index for Germany strongly relies on these insights and recommendations, in particular in Stiglitz et al. (2009), Atkinson et al. (2002), Nussbaum (2001) and OECD (2011). Moreover, the specification also relates to the public debate on poverty and deprivation in Germany. Most indicators included in the proposed poverty measure are already considered as "core indicators" by Germany's official reports on poverty and wealth (e.g., Bundesregierung, 2013). These indicators themselves have been selected based on scholarly advice (Arndt and Volkert, 2007).

The proposal uses data from the German socio-economic panel (SOEP), a rich multi-purpose household survey (see Wagner et al., 2007). The poverty index is calculated for three points of time (spanning 2001-2012) and comprises 6 dimensions: education, health, housing, employment, material deprivation, and social participation. Data for this dimension are information about the frequency of engagement in social activities common in contemporary Germany (e.g., attending cultural or religious events, meeting friends, engaging in voluntary work, helping out friends and neighbours, etc.). An individual is considered deprived in social participation if she reports never meeting friends or to never performing any of the other seven activities.

Income is not included for both conceptual and empirical reasons. Conceptual arguments against a lack-of-income dimension rely on potential double-counting, since dimensions for which income is important (e.g., social participation) are already included. Empirically, income poverty is largely captured by material deprivation indicators. The detailed specification is summarized in the table below.

Dimensions are weighted equally and most indicators are also equally weighted within dimensions. For most analyses a poverty cut-off of k=33 is used. Many results are, however, robust to the choice of k.

From a policy perspective, the chosen dimensions are sensitive to major economic developments. The period of investigation covers for instance extensive labour market reforms and the financial crisis. The decomposability properties of the Alkire-Foster method allow for disentangling the effect of these developments on the poor. For example, whereas precarious employment and underemployment rise throughout the decade, unemployment and material deprivation both peak around 2007. While unemployment later falls even below its initial level, material deprivation remains high.

Another important question is whether both measures identify the same individuals as poor. Applying a multidimensional poverty cut-off of k=33 and an income poverty cut-off of 60% of the median net household equivalent income implies poverty rates of 11-13%. However, only 5% of the population are identified as poor by both measures, while 8% are only income poor

and 5% are only multidimensionally poor. This result is robust to different cut-offs: generally, less than 50% of the income-poor are also multidimensionally poor. As both measures substantially disagree on who is poor, different policy implications are to be expected.

Recently, *SpiegelOnline*, a major news portal in Germany, asked what poverty means in Germany. A tool illustrating different approaches to poverty also presents a slightly simplified version of the specification discussed above (http://www.spiegel.de/wirtschaft/armutsrechner-bin-ich-arm-a-1093182.html).

The MPI specification of Suppa (2017) is presented in Table 1:

Table 1
MPI specification

Functioning	Deprivation Cut-off	Weight
Education	Elementary schooling not completed or elementary schooling completed but no vocational qualification	1/12
	Less than 10 books in household	1/12
Housing	The house requires major renovation or is ready for demolition	1/18
	Any of the following are absent: bath, shower, kitchen, warm water, toilet	1/18
	Overcrowding (less than one room per person)	1/18
Health	Partially or severely disabled	1/18
	Reporting 2/4 health issues[b]	1/18
	Body mass index larger than 30	1/18
Material Deprivation	Reporting 2/4 goods missing for financial reasons[c]	1/12
	Any of the following are absent: life insurance, pension, owning the house or apartment, other house, financial assets, commercial enterprise, tangible assets	1/12
Social Participation	5/7 activities performed never[d]; remaining at most less than monthly	1/12
	Never meeting friends	1/12
Employment	Unemployed	1/6
	Involuntarily, hours worked < 30	1/18
	Precariously employed (incl. temporary work)	1/18

Notes: [a] Graduation in Germany is usually achieved after 10 years of schooling. [b]The four health issues are (i) a strong limitation when climbing stairs, (ii) a strong limitation for tiring activities, (iii) physical pain occurred always or often during the last 4 weeks, and (iv) the health condition limited always or often socially. [c]The four goods asked for are (i) a warm meal, (ii) whether friends are invited for dinner, (iii) whether money is put aside for emergencies, and (iv) whether worn out furniture is replaced. [d]Activities included are (i) going to the movies, pop music concerts, dancing, disco, etc, (ii) going to cultural events (such as concerts, theatre, lectures), (iii) doing sports yourself, (iv) volunteer work, (v) attending religious events, (vi) helping out friends, relatives or neighbours (vii) involvement in a citizens' group, political party, local government.

5.6 Case study: The OPHI/UNDP Global MPI

399. Another example following the Alkire-Foster method is the OPHI/UNDP Global MPI. [42] This index may not be relevant in most UNECE countries because it focuses on acute poverty. However, it may be conceptually useful, as it illustrates the kinds of insights that can emerge from rigorously comparable multidimensional poverty measures.

400. The Global MPI is a measure of acute global poverty developed by the Oxford Poverty and Human Development Initiative (OPHI) with UNDP's Human Development Report Office (Alkire and Santos, 2010, 2014; UNDP, 2010; Alkire and Robles, 2016).[43] Acute poverty is understood as a person's inability to meet *simultaneously* minimum internationally comparable standards in indicators related to the MDGs[44] and to core functionings. The mathematical structure of the index belongs to the family of measures developed by Alkire and Foster (2007, 2011a; Alkire et al.,2015). In particular, the Global MPI uses indicators that were available for more than 100 developing countries in 2009. The primary data sources are the demographic and health surveys (DHS) and multiple indicator cluster surveys (MICS), with some national or regional datasets also included.

Table 5.1
The dimensions, indicators, deprivation cut-offs and weights of the Global MPI

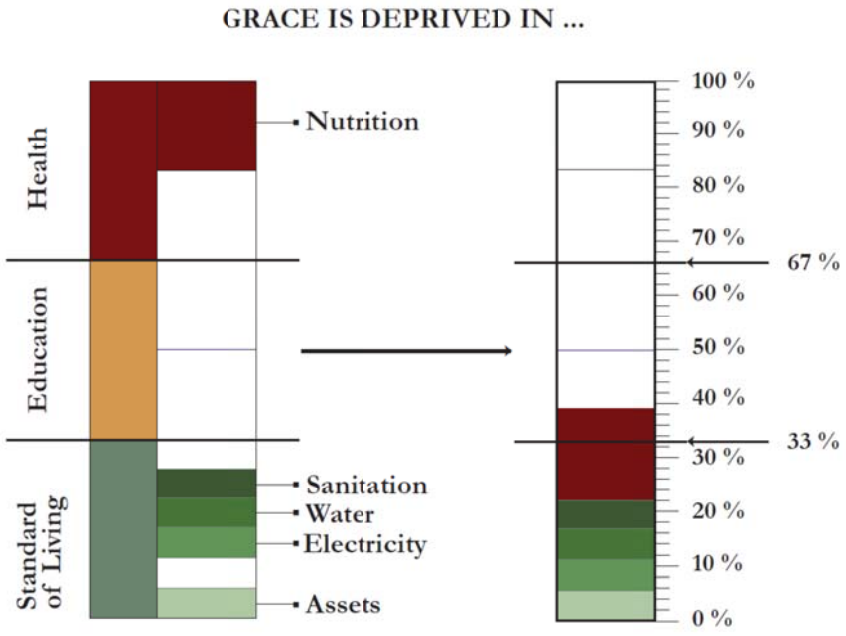
Poverty dimension	Indicator	Deprived if…	Weight
Education	Years of schooling	No household member aged 10 years or older has completed five years of schooling	1/6
	Child school attendance	Any school-aged child is not attending school up to class 8	1/6
Health	Child mortality	Any child has died in the family in the five-year period preceding the survey	1/6
	Nutrition	Any adult aged 70 or younger or any child for whom there is nutritional information is malnourished	1/6
Living standards	Electricity	The household has no electricity	1/18
	Improved sanitation	The household's sanitation facility is not improved, or it is improved but shared with other households	1/18
	Improved drinking water	The household does not have access to improved drinking water (according to MDG guidelines) or safe drinking water is equal or more than a 30-minute walk from home, roundtrip	1/18
	Flooring	Dirt, sand, dung or "other" type of floor	1/18
	Cooking fuel	The household cooks with dung, wood or charcoal	1/18

[42] The global MPI currently is computed by the University of Oxford's Poverty & Human Development Initiative (OPHI) and UNDP's Human Development Report Office, and both institutions publish national figures. In addition, OPHI publishes extensive disaggregated data, and hosts an interactive databank so users can create their own maps and infographics.
[43] The global MPI is one member of the Alkire and Foster class of multidimensional poverty measures that extends the Foster, Greer and Thorbecke class of poverty measures (2011a,b). Alkire et al. (2015) systematically introduce this measurement methodology and situate it in the field of multidimensional methodologies used for poverty comparisons.
[44] A revised Global MPI would naturally reflect core poverty indicators in the SDGs.

Poverty dimension	Indicator	Deprived if…	Weight
	Asset ownership	The household does not own more than one radio, TV, telephone, bike, motorbike or refrigerator and does not own a car or truck	1/18

401. The 2017 Global MPI assesses multidimensional poverty for people in 103 countries for which data from 2006 onwards are available.[45] As summarized in Table 5.1, the Global MPI uses information from 10 indicators which are organised in three dimensions:[46] health, education and living standards. Each person is considered to be deprived in each indicator based on the deprivation cut-off presented in the table. Then, each person's deprivation score is constructed based on a weighted average of the deprivations they experience using a nested weight structure: each dimension is equally weighted, and each indicator within a dimension is also equally weighted. Finally, a poverty cut-off of 33.33% identifies as multidimensionally poor those people who are deprived in 33.33% or more of the weighted indicators. Figure 5.2 takes the example of a hypothetical person (Grace) and shows the move from individual deprivations to the deprivation score of each unit (or household) in order to compute the Global MPI for each country.

Figure 5.2
Moving from individual deprivations to the deprivation score



402. As already discussed, the MPI reflects both the **incidence** or headcount ratio (H) of poverty (that is, the proportion of the population that is multidimensionally poor), and the average **intensity** (A) of their poverty (i.e., the average proportion of indicators in which

[45] MPI estimations prior to 2004 are available online and in detailed tables upon request.
[46] For a more detailed description of the current indicator definitions, see Alkire and Robles (2016). For the original MPI indicators, see Alkire and Santos (2010).

poor people are deprived). The Global MPI is calculated by multiplying the incidence of poverty by the average intensity across the poor ($H \times A$).[47]

403. In addition to identifying those who are MPI poor, additional poverty cut-offs are used, allowing us to identify those who are "vulnerable to poverty" (people deprived in 20% to 33.33% of weighted indicators), and those who are in "severe poverty" (those deprived in 50% or more of the weighted indicators).

404. The Global MPI has been published by UNDP in every Human Development Report since 2010. From 2015 it is being updated twice per year.

Box 5.5
An MPI for Kyrgyzstan

An MPI was adapted to Kyrgyzstan (for 2006-2010) using the Alkire-Foster method. Poverty was conceptualized as a state in which established social norms and standards influence what constitutes a decent life. People whose levels of goods and services fall below these norms are considered poor. Calculations were based on official household budget and labour force survey data.

Eight indicators belonging to four dimensions (health and nutrition, education and employment, quality of housing, and financial insecurity) were used. All indicators were weighted equally, and while the focused on consumption levels, they were more nuanced than simply income or basic necessities. A household was considered poor if it was simultaneously deprived in at least two indicators.

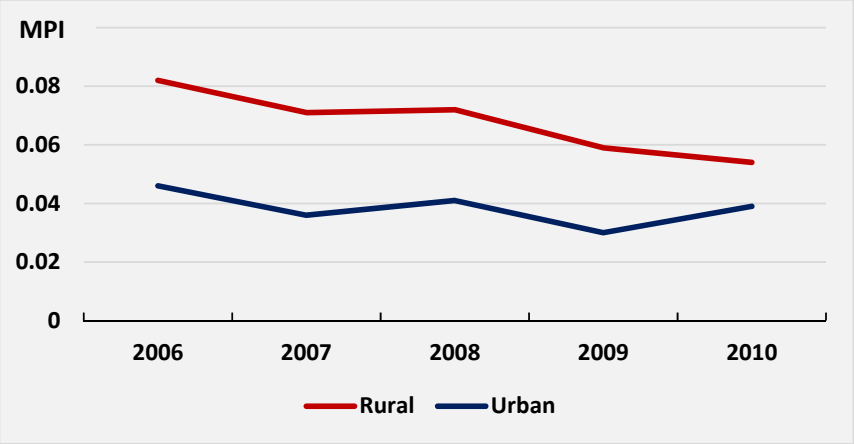
Table 1
Dimensions and indicators used to identify the poor

Dimensions	Indicators	Deprived if…
Health and nutrition	Quality of food	Consuming less than 2100 kcal daily
	Access to healthcare services	Unable to get medical care
Education and employment	School enrolment or number of unemployed adults	School-age children not engaged in education or unemployed adults
	Number of people who dropped out of the educational system without completion	Did not reach the required level of education
Quality of housing	Lack of access to clean drinking water	Open-air source of drinking water
	Lack of toilet facilities or sewage	No toilet facilities
Financial insecurity	Levels of relative poverty	Relative poverty
	Presence of debt that exceeds 30% of income	Debt exceeding 30% of income

[47] The MPI can be equivalently computed as the mean of the censored deprivation matrix, times the number of indicators (here, 10). See Alkire et al. (2015), Chapter 5.

While the MPI was considerably higher in rural areas than in urban areas during 2006-2010, it was generally falling in rural areas but unstable in urban areas.

Figure 1
Tendencies of levels of multidimensional poverty in urban and rural areas, 2006-2010



Source: UNDP Human Development Report of the Kyrgyz Republic (2012).

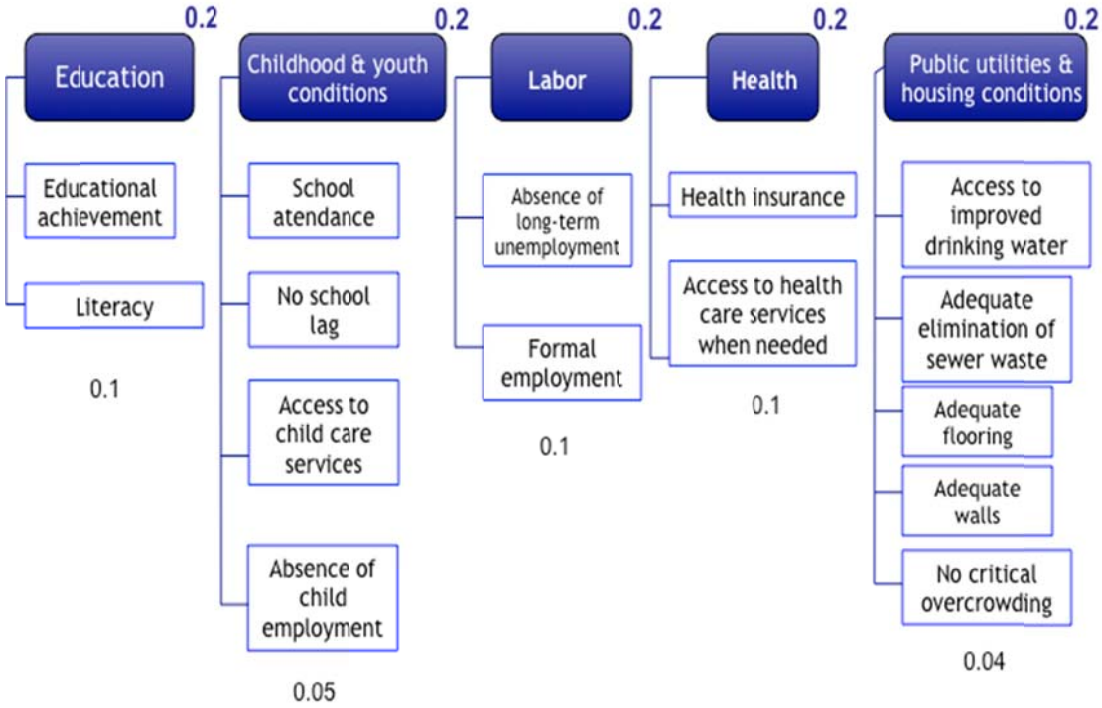
5.7 Case study: Colombia's national MPI–Structure and policy applications

405. Colombia's MPI was launched in 2011 based on the priorities established in the National Development Plan (NDP) of 2011. It uses the Alkire-Foster method to generate the MPI and the associated set of sub- and partial indices. The household is taken as the unit of identification, not only for reasons of data availability but also because of the desire to recognise the importance of the household and incentivize caring and sharing across household members. It defines five equally weighted dimensions, and 15 indicators which are equally weighted within each dimension (Figure 5.3). The weights and poverty threshold are justified both normatively and by reference to subjective poverty assessments, and to the number of deprivations experienced by persons who are, and are not, income poor. The household survey that provides information for the index is fielded annually and the MPI is updated annually, with the data and computational algorithms being publicly available online.

406. Colombia's MPI has proved to be a powerful tool for informing specific policy actions against poverty and tracking its progress, as it can be broken down to reveal the contribution of each indicator to changes in overall poverty levels and to each of the regions and sociodemographic groups in Colombia. Colombia also developed detailed poverty maps using census data for 11 of the 15 indicators, which provides information to local actors. The MPI directly informs the *Families in Action* programme that assigns cash transfers to households who improve their educational achievements; it also gives access to benefits

under the *Unidos* government programme. Importantly, it is the basis for monitoring and accountability in the special ministerial cabinet roundtable that ensures the targets in the National Development Plan are on track. At a geographically aggregated level, it also informs targeting of resources. A social map at the municipal level is uploaded online, and projects and activities by the private sector and other non-governmental organisations are displayed on it, together with cases of success and other information, in order to urge actors outside government to play their part in fighting poverty in all its dimensions.

Figure 5.3
Dimensions, Variables and Weights for the MPI Colombia



Source: Angulo, Pardo and Díaz (2011).

What is the MPI-C used for in Colombia?	
Targeting	☑
Institutional design	☑
Policy coordination	☑
Monitoring of targets by sector	☑
Graduation of social protection programs	☑
City-level measures	☑
Informing social responsibility investment	☑

Box 5.6
Lessons from Colombia's National MPIs

Angulo (2016) describes the general process through which Colombia has designed and implemented its national MPI (C-MPI). In addition to its statistical dimensions, ensuring that the MPI could be a useful policy tool has meant that this process has also required political coordination.

Because the most significant tools in Colombia's poverty reduction strategy focus on the household rather than on the individual, the unit of identification was chosen to be the household. Three stakeholders have been involved in the building, dissemination, and application stages of the national MPI: the National Planning Department (DNP), the National Statistics Office (DANE), and the Department for Social Prosperity (DPS). While DANE is the main actor in the dissemination process, the application process at the national level is carried out by the DNP and the DPS. The DNP focuses on monitoring the National Development Plan and public policy design, while the DPS tends to use the C-MPI either as a targeting tool or for designing and operating social programs.

Table 1
Examples of Applications using C-MPI

Application	Description
National roundtable to reduce poverty and inequality	Use of C-MPI in a high-level committee for monitoring the national poverty and inequality reduction strategy.
Geographic targeting tool for social programmes	- A criterion to introduce geographic differentiation in the conditional cash transfer programme (Program *Mas Familias en Accion*).
	- A diagnostic tool for regional development plans elaborated by the DNP and local governments.
	- A criterion to distribute the overall number of beneficiaries per municipality in several programmes from the DPS.
Social map	A geographic tool to encourage public-private partnership to reduce poverty and inequality and improve the quality of life.
Criteria for graduation from the Colombian safety net to overcome extreme poverty (Unidos)	The C-MPI and the extreme poverty line are two criteria to graduate households from the safety net Unidos. In this case, the C-MPI has to be estimated using beneficiary surveys.
Definition of policy combinations to reduce multidimensional poverty and to consolidate the expansion of the middle class	- Use of the C-MPI to identify the most frequent deprivation combinations in order to design public policy and social programmes.
	- Use of the C-MPI, in combination with the World Bank's income methodology, to measure the middle class. The DPS is designing a public policy agenda to foster the consolidation of the middle class in the country.

Source: Angulo (2016).

5.8 Case study: The Mexican MPI

407. The design of Mexico's MPI began in 2000 and culminated with its launch in December 2009. It was the first national poverty measures to reflect multiple dimensions along with income. Mexico's MPI is estimated by the Council for the Evaluation of Social Policy (CONEVAL), which is autonomous body of the Mexican executive. The Mexican index is today one of two such official MPI measures that includes income as a component (the Armenian index is the other one). In the Mexican case, income is weighted at 50%.

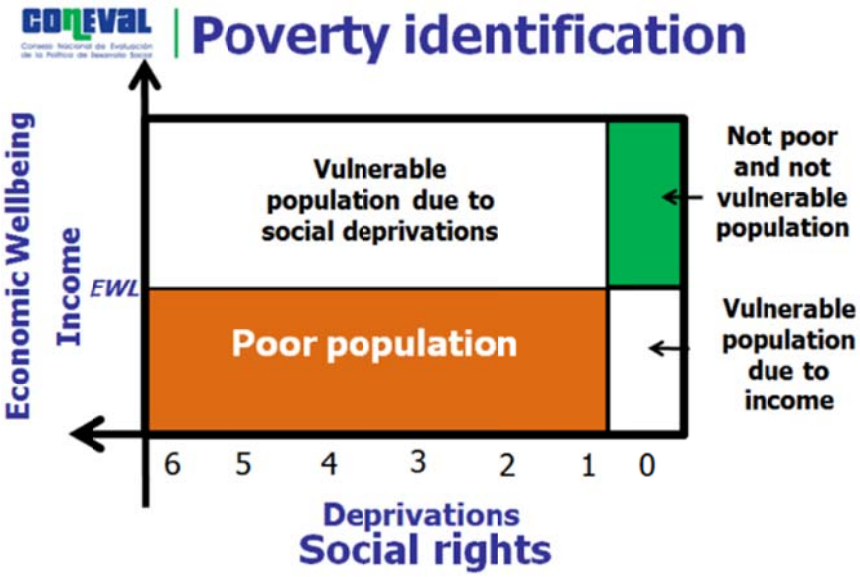
408. The national household survey that provides the data for Mexico's MPI is fielded every two years. The dimensions are defined by the General Law for Social Development (LGDS) based on social rights guaranteed by the National Constitution. The unit of identification is the individual person, so the index can be disaggregated by gender and age. Mexico's MPI is defined in the economic wellbeing space and in the social rights space. Economic wellbeing is gauged according to national income poverty lines for urban and rural areas. It uses the food poverty line for extreme poverty and the basic needs poverty line for moderate poverty. The social rights space contains six social rights:

a) Deprivation in educational occurs when individuals aged three and above lack the mandatory basic education that prevails for their cohort.
b) Deprivation in access to health services identifies individuals who are not enrolled in or entitled to any mechanism of health protection either public or private.
c) Deprivation in social security for economically active individuals occurs if they do not enjoy the benefits established in the law or are not voluntarily enrolled in social security or retirement investment plan. For those out of the labour force, deprivation in social security occurs when they (or their relatives) cannot benefit from a retirement programme or pension (either voluntary or universal pension system).
d) Deprivation in housing occurs when either the ratio of individuals per room is greater than 2.5; or when the dwelling has a dirt floor or is made of cardboard, metal or asbestos sheets, waste, mud, daub, wattle, reed, bamboo, or palm wood.
e) Deprivation in access to basic services in the dwelling occurs if water is taken from an unprotected or shared source, if drainage is non-existent or connects to unprotected disposal, if there is no electricity, or if wood or coal are used for cooking inside the dwelling with no chimney.
f) Deprivations in access to food occur in the presence of moderate or severe food insecurity according to FAO (2006).

409. A person is identified as multidimensionally poor if she is deprived in economic wellbeing according to the basic needs poverty line, and is deprived in one or more areas of social rights. Hence, income and social rights have an effective weight of 50%, and each of the social rights has an equal weight of (1/12). A person is in extreme poverty if she is deprived according to a more extreme (food) income poverty line and in at least three social rights. CONEVAL's report on multidimensional poverty presents the headcount ratio of multidimensional poverty (H), and also the average number of social deprivations among the poor. A modified form of a multidimensional poverty index is reported, which is H times the proportion of social rights in which poor people, on average, are deprived (not including

income because if a person is not income deprived, by definition, they are not multidimensionally poor).

Figure 5.4
Poverty identification by the National Council for the Evaluation of Social Development Policy (CONEVAL)



Source: Coneval (2010), used with permission.

410. The MPI and associated statistics are decomposed by state, gender, indigenous identity, and other salient characteristics, and are presented in national as well as state level reports. Mexico's MPI is used by the Cabinet as a tool for policy coordination across programmes and sectors. In addition, the Mexican MPI served as a fundamental informative tool in the creation of two major policies against poverty: the National Crusade against Hunger and the universal pension system.

5.9 Assessment of the MPI

5.9.1 Advantages of the MPI

5.9.1.1 Headline or tier 1 poverty indicator

411. A headline MPI enables comparisons across regions and trends that can indicate whether poverty (defined across multiple deprivations) has increased or decreased. A national or regional MPI could be reported alongside the monetary poverty headline indicator, as a sister measure. This is increasingly occurring nationally—for example in Armenia, Bhutan, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Honduras, Pakistan, and Panama.

5.9.1.2 Joint distribution of deprivations

412. For human development in the context of the SDGs, four criteria are particularly important:

1. multidimensional analysis
2. decomposition (or disaggregation) by regions and population groups
3. interlinkages across dimensions (joint distribution), and
4. weights and robustness

413. The MPI illuminates the overlapping disadvantages poor people experience. It is built from unit data structured to define deprivations for each chosen indicator and person. The deprivation profiles depict the 0-1 vector of deprivations each person does or does not experience. It uses these (weighted) vectors to identify who is poor, to aggregate information on poverty into a headline measure, and to generate the MPI as well as the incidence, intensity, and indicator composition of poverty. Because of its order of aggregation—first across indicators for each person and then across the population—the MPI captures interconnections between different deprivations for the same person. In this way, the MPI builds upon the counting traditions widely used in Latin America and Europe (Atkinson 2003, 2016). Dashboards and standard composite indices do not capture the joint distribution of deprivations, because they first aggregate information about one deprivation across all units.

5.9.1.3 Informs integrated, multisectoral policies

414. In addition to SDG1, reducing poverty in all its dimensions is a crosscutting goal in the SDGs. Because an MPI incorporates multiple dimensions, it can promote integrated and collaborative policies across a subset of SDG indicators, while prioritizing the poor. According to a July 2015 UNGA document the SDGs are providing "a stronger incentive than in the past for cross-sector, integrated and collaborative work. Similarly, to evaluate progress under the sustainable development goals, it will be necessary to look at multiple goals concurrently and in an integrated fashion." In terms of core poverty indicators, an MPI is a tool satisfying the call of the SDGs to "facilitate integration and policy coherence across sectors".[48] At the national level, this has already been a key attraction of the MPI, which animates Mexico's Crusade against Hunger and Colombia's Poverty Roundtable, as discussed above.

[48] The Economic and Social Council of the UN GA (2015). Available from http://www.un.org/ga/search/view_doc.asp?symbol=A/70/75&Lang=E. This document observes that "Insufficient understanding of and accounting for trade-offs, interlinkages, synergies and benefits across sectors have at times resulted in incoherent policies, adverse impacts of some sector-specific development policies and, ultimately, diverging outcomes and trends across broad objectives for sustainable development." It recognises the need for "United Nations agencies, funds and programmes concerned with a specific goal (e.g., education, health, economic growth)" to take into account targets that refer to other goals".

5.9.1.4 Data requirements

415. Because the MPI has multiple indicators it is often mistakenly presumed that the time and cost of surveys is higher. Actually, the reverse is the case. While the exact proportions depend on the variables included (particularly whether monetary poverty is included, and what kinds of employment questions are addressed), ordinarily MPIs draw on less than 10% of the number of question contained in monetary poverty measures, and take a fraction of the time and cost to implement. MPIs are therefore appropriate for surveys with higher levels of disaggregation. A number of countries have also implemented a limited MPI from census data (Mexico, South Africa, Tunisia, Colombia, and Bhutan).

5.9.1.5 Identifies somewhat different set of the poor than monetary measures

416. AN MPI cannot be assumed to identify the same persons as poor nor to proxy the level or the trend of income poverty measures. Many studies have documented the mismatch between non-monetary deprivations and monetary poverty. This mismatch is also evident between MPIs and monetary poverty measures. For example, in Chile, 14.4% of people are income poor; 20.4% are MPI poor, but only 5.5% are poor in both national measures (Ministerio de Desarrollo Social - Gobierno de Chile, 2015). A study of moderate multidimensional poverty in 17 Latin American countries over time suggests that a significant proportion of the populations are not income poor yet are multidimensionally poor (Santos *et al.* 2015). Using both income and MPI measures provides a more accurate picture of poverty. Reductions in multidimensional poverty also may not match monetary poverty trends nationally or sub-nationally. For example, whereas absolute reductions in monetary poverty rates in initially poorer states were faster in India between 1993-1994 and 2004-2005, reductions in the MPI rates were slower in initially poorer states during this period (Alkire and Seth 2015).

5.9.1.6 Reflects a multidimensional situation no single indicator proxies

417. Empirical studies also show limited overlaps between deprivations in different indicators. Deprivation in one indicator does not necessarily proxy deprivations in others. For example, the next table shows the deprivation rates of 10 indicators across 101 countries in the second row and second column. Table 5.2 also shows at its centre the proportion of population that showed coupled deprivations in any two given of the 10 indicators. We can point out that although the levels of the two education indicators are very similar (18.4% and 19.9%); their overlap is relatively low, with only 8% experiencing both deprivations. Such a mismatch, which occurs in many indicator pairs, suggests the value of looking at a set of simultaneous deprivations together in order to distinguish those who are deprived in a larger set of indicators from those who are not deprived or deprived in a lesser set.

Table 5.2
Average deprivation in pair-wise indicators across 101 developing countries

		Years of schoo-ling	School atten--dance	Child mortality	Nutri-tion	Electrici-ty	Sani-tation	Drinking water	Floor	Cooking fuel
Population deprived in each indicator (in %)		14	14	17	27	22	40	26	27	53
Percentage of population simultaneously deprived in both the column and row indicators										
Years of schooling	14									
School attend-ance	14	5								
Child mortality	17	4	5							
Nutrition	27	5	6	7						
Electricity	22	8	7	8	9					
Sanitation	40	10	10	11	15	19				
Drinking water	26	5	5	5	8	10	13			
Floor	27	8	8	9	12	17	22	9		
Cooking fuel	53	12	12	14	19	21	33	19	25	
Assets	23	8	7	7	10	14	19	8	16	21

Source: Alkire and Robles (2016).

5.9.1.7 Communication and data visualization

418. The MPI is the product of two easy-to-understand and intuitive partial indices. The **headcount ratio** (H) can be easily explained to journalists, who are already familiar with this idea from monetary measures. And the new partial index of **intensity** (A)—the percentage of deprivations that poor people in that country face at the same time—creates powerful properties yet also ties the poverty measure back to human lives and experiences. Data visualization examples include maps, poverty composition graphics, bubble charts of incidence and intensity, and so on.

5.9.1.8 Decomposition by population subgroups

419. Because the MPI is additive and decomposable, and because the data it uses are directly comparable across populations, the MPI, headcount ratio (percentage of people who are poor), intensity (average deprivation score among poor people), as well as all indicator levels and trends can be disaggregated by any subgroup for which the data are representative, such as subnational region, ethnic group, age group, or other social categories. This supports the SDG goal of "leaving no one behind" and seeing whether the poorest groups are catching up over time. For example, the Global MPI mentioned below has been disaggregated for 1468 subnational regions, by rural-urban areas for all except two countries, by age group (Vaz, 2014; and Vaz, forthcoming 2015), sex, and, for some

countries, by additional variables such as ethnicity, caste, sex of the household head, and disability status (Alkire and Seth, 2015). In the 2017 Global MPI tables, 984 subnational regions are reported. All low-income countries, 37 of the 39 Sub-Saharan African countries, 9 of the 10 East Asian countries, 14 of the 18 Latin American countries, and all South Asian countries covered can be disaggregated sub-nationally, for example. All national MPIs are disaggregated by relevant groups (geographic, rural-urban, indigenous ethnicity, etc.); Africa, Mexico, and Colombia for example build national MPIs from census data to obtain poverty maps directly.

Box 5.7

Subgroup decomposition and dimensional contribution—Pakistan

In 2016, Pakistan launched its national MPI. The Pakistani Ministry of Planning, Development, and Reform (with assistance from UNDP, OPHI, and the Pakistan Bureau of Statistics) built Pakistan's national MPI after a series of consultations with key national stakeholders. The measure took the functional form given in the Table 1 below.

Table 1

Pakistan's National MPI

Dimension	Indicator	Deprivation Cut-off	Weights
Education	Years of schooling	Deprived if no man *OR* woman in the households above 10 years of age has completed 5 years of schooling	1/6 = 16.67%
	Child school attendance	Deprived if any school-aged child is not attending school (between 6 and 11 years of age)	1/8 = 12.5%
	School quality	Deprived if any child is not going to school because of quality issues (not enough teachers, schools are far away, too costly, no male/female teacher, substandard schools), or is attending school but remains dissatisfied with the service	1/24 = 4.17%
Health	Access to health facilities/ clinics/Basic Health Units (BHU)	Deprived if health facilities are not used at all. Or are only used once in a while, because of access constraints (too far away, too costly, unsuitable, lack of tools/staff, not enough facilities)	1/6 = 16.67%
	Immunisation	Deprived if any child under the age of 5 is not fully immunised according to the vaccinations calendar (households with no children under 5 are considered non-deprived).	1/18 = 5.56%
	Ante-natal care	Deprived if any woman in the household who has given birth in the last 3 years did not receive ante-natal check-ups (households with no woman who has given birth are considered non-deprived).	1/18 = 5.56%
	Assisted delivery	Deprived if any woman in the household has given birth in the last 3 years attended by untrained personnel (family member, friend, traditional birth attendant, etc.) or in an inappropriate facility (home, other) (households with no woman who has given birth are considered non-deprived).	1/18 = 5.56%
Standard of Living	Water	Deprived if household has no access to an improved source of water according to MDG standards, considering distance (less than a 30 min return trip): tap water, hand pump, motor pump, protected well, mineral water	1/21 = 4.76%

Dimension	Indicator	Deprivation Cut-off	Weights
	Sanitation	Deprived if household has no access to adequate sanitation according to MDG standards: flush system (sewerage, septic tank and drain), privy seat	1/21 = 4.76%
	Walls	Deprived if the household has unimproved walls (mud, uncooked/mud bricks, wood/bamboo, other)	1/42 = 2.38%
	Overcrowding	Deprived if the household is overcrowded (4 or more people per room)	1/42 = 2.38%
	Electricity	Deprived if the household has no access to electricity	1/21 = 4.76%
	Cooking fuel	Deprived if the household uses solid cooking fuels for cooking (wood, dung cakes, crop residue, coal/charcoal, other)	1/21 = 4.76%
	Assets	Deprived if the household does not have more than two small assets (radio, TV, iron, fan, sewing machine, video cassette player, chair, watch, air cooler, bicycle) *OR* no large asset (refrigerator, air conditioner, tractor, computer, motorcycle), *AND* has no car.	1/21 = 4.76%
	Land and livestock (only for rural areas)	Deprived if household is deprived in land *AND* deprived in livestock, i.e. a) Deprived in land: the household has less than 2.25 acres of non-irrigated land *AND* less than 1.125 acres of irrigated land b) Deprived in livestock: the household has less than 2 cattle, fewer than 3 sheep/goats, fewer than 5 chickens *AND* no animal for transportation (urban households are considered non-deprived)	1/21 = 4.76%

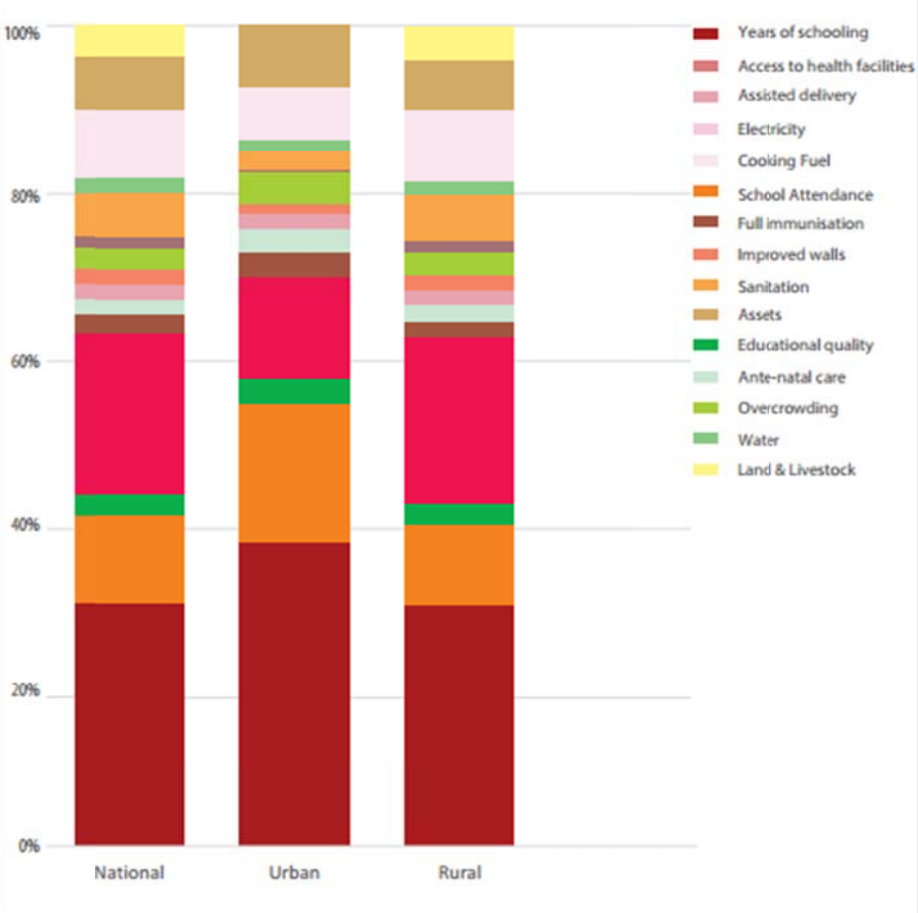
Source: Multidimensional Poverty in Pakistan (Official Report, 2016).

One of the special features of this MPI is its high-resolution lens. It provides an aggregate headline figure, but also allows for subgroup decomposition and dimensional breakdown. By dividing the population into mutually exclusive and collectively exhaustive sub-groups, the overall MPI can be expressed as an average of the sub-group MPIs. It is also useful to observe the contribution of each indicator to overall poverty. Pakistan's MPI was decomposed by rural and urban regions, by provinces, and by districts. Percentage contribution of each indicator was also computed.

It was found that a lot of variation exists at the regional as well as the district level. The map below shows the variation in the headcount ratio of those who are multi-dimensionally poor across the various districts. This shows that while the headline figure is important and informative, sub-group decomposition allows policy to be targeted towards poor regions directly. This shows where poor people are. An investigation into the contribution of each dimension to overall poverty shows how people are poor. Combined with information from the headcount ratio (how many people are poor) and the intensity of poverty (how poor they are), the high-resolution lens of MPI becomes a very valuable tool for policymaking.

To illustrate the dimensional contribution, Pakistan has investigated the percentage contribution of each indicator to overall poverty, both at the national level and at the rural/urban levels. The results are presented in the Figure 1 below.

Figure 1
Percentage contribution of each indicator to MPI, by national and rural/urban



Source: Multidimensional Poverty in Pakistan (Official Report, 2016).

5.9.1.9 Coordinated dashboard and tables

420. Any MPI can be published with a complementary dashboard showing the deprivations in each indicator that composes it, and how the composition of poverty varies by subgroup and over time. Such information is essential to guide integrated policies. Whereas the traditional dashboard of non-monetary indicators reflects deprivations of all people, rich and poor (and is also reported), the coordinated dashboard of consistent sub-indices that unpack the MPI is focused on the poor. The MPI and its associated statistics can be reported for more than one poverty line or cut-off. For each national, rural-urban, and subnational entry of the Global MPI, for example, online tables report the headcount ratio H and intensity A (poverty cut-off 33%), dimensional contributions, headcount ratios for poverty cut-offs of 20% and 50%, censored headcount ratio for each indicator, percentage contribution (weighted) of each indicator to overall poverty, and uncensored headcount

ratios for each indicator. Standard errors and confidence intervals for national figures are available online (others by request). The tables also report the subset of the poor who are destitute (using a set of destitution deprivation cut-offs for key indicators), and inequality among the poor as well as any drop in the sample retained for estimations. Nationally, similar tables are issued, and the indicator dashboards are used extensively for policy formulation and monitoring.

5.9.1.10 Cross-national comparisons

421. Alongside *indirect* monetary measures of poverty, Amartya Sen (1981) proposes using *direct* measures of poverty, which reference deprivations in functionings or their proxies. Direct methods verify whether people actually achieve certain functionings or satisfy certain needs. Indirect methods such as an income or consumption budget set establish people's access to the resources which might enable them to achieve such functionings—but do not guarantee them. An additional advantage of direct measures for a regional or global measure is that standardized assessments can be compared directly across regions and countries and do not require adjustments for PPP exchange rates or inflation. The MDGs and associated harmonization of social indicators have standardized many deprivation definitions (safe water, adequate sanitation, etc.); a regional MPI may build on these and on evolving SDG indicators.

5.9.1.11 Statistical inference

422. The MPI, the headcount ration (H), the intensity (A), and consistent indicator levels and trends are published with their respective standard errors and confidence intervals. This permits assessments of statistically significant differences across poverty levels, including across countries and subnational groups.[49] It also enables countries to ascertain whether MPI levels, and deprivation levels in each component indicator, have significantly declined over time, either nationally or by disaggregated groups.

5.9.2 Disadvantages

5.9.2.1 Confusion with composite indicators

423. Just as countries normally measure income per capita, income inequality, and income poverty, so too the suite of human development measures have a measure of each type: a measure of **wellbeing** (such as the human development index [HDI]), a measure of **inequality** (such as the inequality-adjusted HDI), and a measure of **poverty** (such as the MPI). Each measure is different and valuable in its own right, and they can all be used to measure human development. But it is important not to confuse indicators of poverty with indicators of well-being or inequality.

[49] Alkire and Santos (2014) compare results for bootstrapped and analytical standard errors for the Global MPI. Chapter 8 of Alkire et al. (2015) covers analytical standard errors and statistical inference for comparisons of level and trend.

424. The largest single disadvantage of MPI is that, because the methodologies are relatively new, statisticians are not familiar with them. In particular, multidimensional poverty indicators are often incorrectly confused with "composite" indicators which first aggregate across unit data, and then build an overall measure. Examples of these include the OECD Your Better Life Index, the social progress index, and the human development index. Composite indicators have very different properties. They do not reflect the joint distribution of deprivations. They do not identify who is poor. Also, the weights for composite indicators are required to play a much more demanding role as mentioned above, because they generate marginal rates of substitutability between indicators at different levels of achievement. In contrast, the MPI, like a monetary poverty index or like the material deprivation index, is based on unit record data, and aggregates this for each person or household, identifies who is poor, and only subsequently builds a national measure.

5.9.2.2 Rare events

425. No measure will sufficiently reflect poverty for all social groups in all dimensions. Thus, the MPI will ordinarily be interpreted alongside a small set of indicators. Some indicators, such as those pertaining to rare events, such as maternal mortality or to small populations (the percentage of national political leaders who are women), are not ordinarily included in an MPI because if they are combined with far more frequent deprivations such as lack of sanitation, then they may always appear to have a very low frequency and contribution, and it may be difficult to obtain statistically significant changes.

426. The MPI's ability to provide an overview of disadvantages of different population groups may be improved in the design phase. For example, many countries include variables pertaining to childhood and youth in their MPI, or else have a separate dimension focused on childhood and youth conditions. In the absence of such an effort, there may be a value in developing a supplementary MPI for children, which is able to highlight the differing challenges faced by children 0-17 in different cohorts across the society. Bhutan, for example, has chosen to produce an MPI for children aged 0-17 which has 50% the same indicators as their national MPI, and 50% child-specific indicators, which are separately defined for each age cohort and, in some cases, gender.

As was mentioned in chapter 3, given the populations currently overlooked by household surveys, including the homeless and institutionalized populations, special studies may need to be performed in order to assess the poverty of certain groups which may have unusually high but invisible levels of poverty (recommendation 3).

6 Challenges for the Future

427. This Guide focuses on areas where the statistical community has expressed a particular need for further guidance in measuring poverty. It includes recommendations wherever these are warranted by current knowledge and experience. Yet, current knowledge on several key issues is not sufficient for the formulation of clear-cut recommendations; further work is required. The most important of these issues are briefly summarized below. It is expected that international organizations will coordinate further methodological work on these topics.

6.1 Hard to reach populations

428. In an era of falling response rates, it may seem that all household populations are hard to survey, but some populations present special challenges that make them harder (Tourangeau et al., 2014). When measuring poverty through poverty surveys, it should be recognised that certain categories of people who may be among the most likely to be poor are frequently omitted from the sampling frame since they do not live in private households. The welfare of marginalized groups such as homeless people (including street children), drug users, sex workers, people who are in institutions (including elderly care homes, children's homes, and mental health institutions); people in temporary accommodation or hostels; prisoners; and refugees in camps or illegal immigrants is notoriously difficult to assess systematically.

429. In most demographic studies where representative household surveys are the gold standard for data collection, such marginalized population segments are lost by definition or, at best, are grossly underrepresented. An additional set of problems concerns the willingness of individuals from marginalized, hard-to-reach groups to provide information to survey interviewers, especially about the type of sensitive matters that define their marginality (undocumented migrants), or difficulty in being interviewed (low literacy groups, or where there is a language barrier). It can be argued that the same social characteristics and constraints that hinder access to these individuals may also impair their willingness or ability to answer survey questions. These types of bias led to significant underestimation of poverty rates, for example in EU-SILC (Nicaise and Schockaert, 2014). It is therefore also important when reporting estimates to inform the user about the potential sources of bias. Box 6.1 provides an additional example of underestimating income inequality due to the varying non-response of population living in the capital and rural regions in Ukraine**.**

430. A significant number of children would be excluded from usual survey samples. For example, in many countries in Central and Eastern Europe between 1 and 2 per cent of children are growing up in institutionalised care, and children from poor or excluded backgrounds have been shown to be more likely to be institutionalised (United Nations Children's Fund Regional Office for CEE/CIS, 2014). Others are involved in seasonal migration or in marginal or excluded communities (e.g., Roma), whose households may not be included in surveys. Children may be omitted from household responses due to the reluctance of the respondent to recognize as household members foster children, trafficked children, or children who are engaged in hazardous child labour.

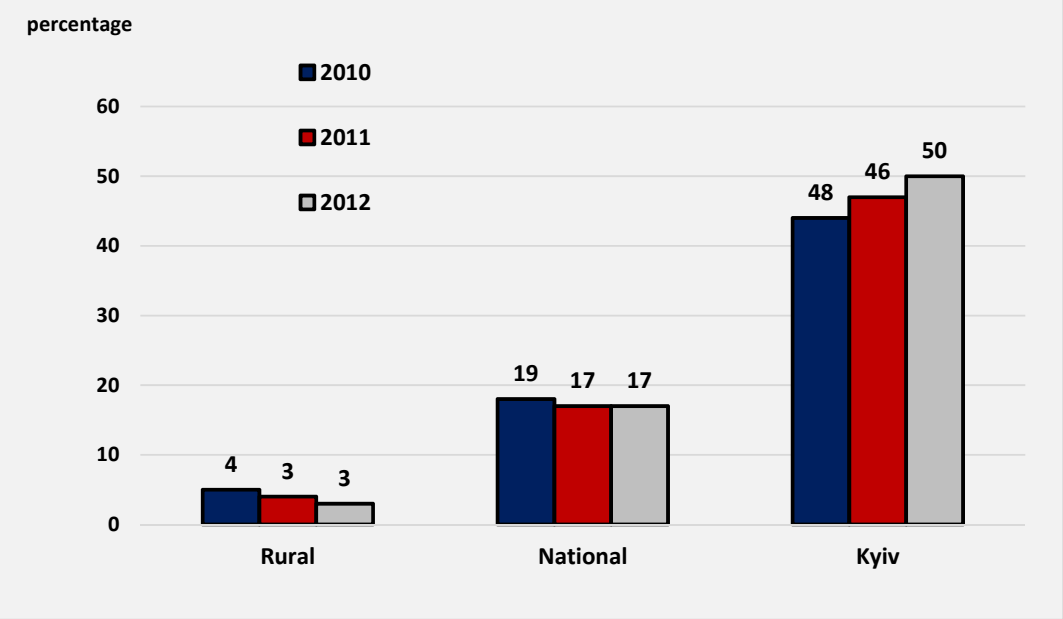
431. Some populations are less represented in household surveys because they live in remote areas, enclaves or in families or communities whose presence is illegal and unregistered, for example Roma populations (McDonald and Negrin, 2010). UNICEF has conducted Multiple Indicator Cluster Surveys on Roma populations in Serbia and Montenegro to obtain data on these populations. (See Box 3.2 for the approach developed by UNDP in responding to these challenges.)

432. The challenge remains that surveys are better suited to cover only the easily accessible populations. Covering all the "hard to sample", "hard to identify", "hard to find or contact", "hard to persuade" or "hard to interview" categories of respondents may make a survey complicated and costly. Such a challenge must be met with innovative strategies for sampling, identifying, locating, contacting and interviewing.

Box 6.1
Household surveys in Ukraine

A recent study conducted by order of the State Statistics Service of Ukraine (SSSU) by experts of the Academy of Sciences of Ukraine and supported by the World Bank found a systematic downward bias in the income distribution data of household surveys in Ukraine. Non-response rates for household living conditions surveys during 2010-2012 in Kiev - Ukraine's capital region - were double the national average, and many times greater than the non-response rates reported for Ukraine's poorer rural regions (Figure 1). Correcting this bias on base of one of the approaches which are being tested in the SSSU would raise Ukraine's official Gini coefficient for income equality from 23 to 27 (Sarioglo, 2016).

Figure 1
Household living standards survey non-response rates in Ukraine, 2010-2012



Source: State Statistics Service of Ukraine.

6.2 Imputed rent and housing cost

433. Evidence suggests that housing represents between 14% and 25% of net adjusted disposable income in OECD countries (OECD, 2014) and up to 30% of the consumption aggregate in developing countries (Balcazar et al., 2014; Deaton and Zaidi, 2002). Omitting housing in the welfare aggregate may mean ignoring substantial differences in quality of life between otherwise similar households, hence resulting in distorted household welfare rankings.

434. Measuring housing value is challenging, both in terms of housing wealth and imputed rents. As with any durable good, the amount that should be captured is the value of the flow of services associated with occupying the dwelling (Balcazar et al., 2014). A good indicator, such as the rental value, may not be available for most households. For instance, in many countries of Eastern Europe and Central Asia, home ownership is prevalent and rental markets are thin. In addition, these markets tend to be composed of dwellings and households with specific characteristics, making it difficult to use actual rental information to impute rental values to the rest of the country. Self-reported implicit rent may be unreliable because of limited information about rental markets among homeowners. Real estate markets may also move very slowly and long-time homeowners may not be able to report accurately the sale value of their dwellings, limiting the potential use of such information for imputing rent if collected in surveys. Finally, different countries may use different methodologies to impute rent among homeowners, which complicates comparisons across countries on important social indicators such as poverty or inequality.

435. In light of these issues, improving estimates of the value of housing services could significantly improve welfare measurement in the region and increase international comparability of social indicators. Some efforts have already been undertaken in this direction. For instance, Balcazar et al. (2014) documents the most commonly used methods for rent imputation and provide a basic discussion of its inclusion on poverty and inequality. Cancho and Azevedo (2016) discuss potential sources of bias when using self-reported implicit rent information. However, more systematic work is necessary to identify:

- best practices for rent imputation
- guidelines to evaluate when it is better to impute or to ignore the rental information
- the actual effect on poverty, inequality and the composition of the poor that the inclusion of imputed rent implies

6.3 Social transfers in kind

436. Taking social transfers in kind (STIK) into account in household income and consumption measures is important for comparing rates and experiences of poverty in different countries, as well as for making international comparisons of the level of economic well-being more broadly. However, because of measurement challenges they are often excluded from the welfare measures used for poverty statistics.

437. OECD research (Balestra and Sustova, 2017) shows that the majority of countries that contribute to their OECD Income Distribution Database do not produce any estimates of these transfers, with even smaller numbers including them within their income statistics.

438. The types of benefit included within social transfers in kind also vary from country to country, affecting comparability. For example, Tonkin et al. (2014) showed that while both the United Kingdom and Finland include the value of health and education in-kind transfers in their statistics on income (re)distribution, social housing and public transport subsidies were included in the United Kingdom but not in Finland, and elderly care was included in Finland only.

439. A further challenge to comparability comes from the different methods used. Tonkin et al. (2014) highlight that the value of healthcare services for individuals and households is estimated using an "insurance value" approach in the United Kingdom, but an "actual consumption" approach in Finland. Balestra and Sustova (2017) suggest such methodological differences are widespread, with 30 per cent of countries producing estimates of social transfers in kind using the insurance value method, the same proportion using actual consumption, and 40 per cent using a combination of the two.

440. To address limited data availability, it is recommended that statistical compilers not currently producing estimates of the distribution of social transfers in kind consider including them in income and consumption expenditure statistics. This work should be supported at the international level through guidelines that support countries in adopting a common methodological approach.

6.4 Wealth

441. Income and consumption provide only a partial view of the economic resources that are available to individuals and households. Knowing about the levels of wealth (or debt) that people have is crucial to better understanding their economic well-being and therefore their experience of poverty.

442. One way of considering how household wealth holdings affect poverty is through asset-based poverty measures, where asset poverty is defined as an individual having insufficient wealth to meet their basic needs over time. This might be operationalised as having net liquid financial wealth insufficient to cover three months of 60% of median income, taking account of household composition using an appropriate equivalisation scale (e.g. Azpirate, 2008; Tonkin, Serafino and Davies, 2016). Combining such measures with income- or consumption-based poverty measures would allow for distinguishing among the income poor those who have sufficient financial wealth to maintain their material living standards at an appropriate level at least for a short time (income-poor only), versus those who lack such a buffer (asset and income poor).

443. It is also possible to identify those whose income is currently above the poverty line, but who lack the assets to protect themselves from a sudden fall in their income through, for example, losing their job (asset-poor only). Being able to identify these different groups within a population would help policymakers to target interventions to reduce poverty.

444. One of the primary reasons why such measures are not more widely used at present is the limited availability of wealth distribution data, particularly for the same people who are included in the income or consumption poverty statistics. Collecting information on income and/or expenditure and wealth simultaneously is challenging due to the length of questionnaires required. Such data is primarily collected via survey, resulting in high respondent burdens and therefore potentially low response rates.

445. Integrated data collection for income, expenditure, and wealth has been successfully undertaken by some statistical agencies—for example by the Australian Bureau of Statistics through their integrated Survey of Income and Housing (SIH) and Household Expenditure Survey (HES). Increasing use of administrative data by producers would further increase opportunities for such integrated models.

446. However, for many producers, the best opportunities for integrated analysis of income, consumption, and wealth lie in the use of statistical or synthetic matching techniques, combining multiple data sources for different sets of individuals based on common, harmonised matching variables (see Tonkin et al. (2016) for an example). It is therefore recommended that work should be undertaken to develop the use of these techniques in this area of statistics, including the development of guidance and identification of best practices where appropriate.

6.5 Comparable welfare aggregates

447. To examine poverty and inequality, one needs a measure of material well-being. Ideally, this measure should correspond as closely as possible to the way a person experiences his or her standard of living. It is natural to think that a person's standard of living, or material wellbeing, is a function of all goods and services consumed by that person. Economic theory allows one to rank levels of well-being using the cost (monetary value) of the consumption bundle consumed in a given period. In theory, any welfare measure should include all of the factors (including health, leisure, social capital, and other desiderata) that contribute to welfare. In practice, however, because of measurement and valuation difficulties, the focus in microdata analysis is only on material well-being, using information on consumption of goods and services by a household. Even such "simple" measures are, in practice, quite complicated to capture well, and there is debate as to whether income or consumption is the preferable measure (see Deaton and Zaidi (2002)).

448. Regardless of the measure chosen, it should be comprehensive and no aspect of income or consumption should be omitted. Within and across countries, the components of income or consumption are heterogeneous due to differences between surveys and the availability of items across countries. Thus, more systematic work needs to be done in terms of

- constructing comparable welfares as well as its components
- developing sets of key questions that are common for the countries in the region
- the impact of different sets of components in the welfare measure on the estimates of poverty and inequality

6.6 Comparability of multidimensional poverty measures

449. This Guide recommends countries to report a Multidimensional Poverty Index against target 1.2 of the SDGs (recommendation 24). In the short term, countries can report existing national MPIs (Armenia, Kazakhstan, Kyrgyzstan, and Tajikistan), or the value of their global MPI published by UNDP. The guide also recommends that it is desirable to include the dimensions of living standards, services, health, education, work and the lived environment in the national MPI (recommendation 23).

450. In the medium term perspective, countries participating in the Conference of European Statisticians could engage in a process to enhance comparability of their measures of multidimensional poverty and their MPIs. For example, for groups of countries or sub-regions, a fully harmonized MPI could be developed and agreed upon. Among all countries participating in the Conference of European Statisticians, such agreement could pertain to core indicators for measuring the six core dimensions recommended in this Guide (living standards, services, health, education, work and the lived environment). International exchange and work on this topic would benefit countries in producing the SDG indicator 1.2.2 "Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions".

6.7 Individual level poverty measures

451. Traditional poverty measures usually take the household as the unit of observation. The focus on aggregate units rather than on individuals is based on the assumption that resources are shared equally within the household. Using a collective unit like the household has two consequences: no one can be counted as poor in households above the poverty line; and all household members are assumed to be equally poor.

452. Both quantitative and qualitative studies have found that household-level variables are not necessarily optimal predictors of individual well-being and poverty status, as they ignore gender and other intra-household inequalities (such as those based on age), as well as the possibility that non-earners may be poorer than other earning adults in the same household. For instance, research has suggested that, particularly in low-income households, the assumption of income sharing does not always hold as men sometimes benefit at the expense of women from shared household income (Department for Work and Pensions, 2004). However, assuming no pooling of income is equally problematic.

453. Opening the household black box and producing poverty measures at the individual level requires the use of variables that specifically aim to depict the processes involved in the acquisition and expenditure of resources within the family: the entry of resources into the household; how resources are allocated and controlled; and how resources are expended (Daly, 1992). Unfortunately, such variables are quite rare in household surveys.

454. The development of poverty measures at individual level is still in its early stages, and further research is needed before making recommendations. In the meanwhile, the researcher must make careful methodological choices about the unit of measurement and analysis, and be aware of the implications of these choices in her research. It is also advised

that, in the identification of the poor, different poverty measures, based on information collected both at household and individual levels, are combined. Finally, adequate and comparable datasets are needed that allow for the study of intra-household inequalities in poverty by providing information on the acquisition and expenditure of economic resources within the household.

6.8 Spatial differences within countries with regard to consumption and income poverty

455. Surveys were often collected over a long period of time and across many administrative areas within the countries. In this case, it is necessary to adjust for changes in prices over time using quarterly or monthly consumer price index series. Regional price differences can also cause the same bundle of goods to be more expensive in one region than in another. However, differences in expenditure caused by these regional price differences are not reflected in measured well-being or welfare. Thus, these regional price differences need to be corrected. For example, the spatial price adjustment for the supplemental poverty measure in the United States is based on median rents of a specific type of rental unit, because food prices do not vary that much for the United States while rents do (Renwick et al, 2014; Renwick and Fox, 2016).

456. The Paasche price index (Deaton and Zaidi 2002) offers a reliable way to measure the spatial price differences. Because non-food prices are usually not available for countries and unit values for non-food items are normally not collected by household surveys, the spatial price deflator is based entirely on difference on food prices. More work needs to be done to identify:

- the most reliable method for spatial price deflators for income and consumption welfare, and
- best practices and methods to include non-food prices given the heterogeneity of items within and across countries.

6.9 Subjective poverty

457. Measures based on subjective perceptions of poverty could contribute greatly to the understanding of poverty and complement the other measures examined in this Guide. Subjective measures can *inter alia* help to identify weights for different dimensions of welfare and determine the social threshold below which people tend to think they are poor (Ravallion, 2012). Moreover, diagnosis of perception of poverty (self-assessment of situation, opinions on a scope of phenomenon in a local community or in the country) shows to what extent assessment based on the so-called objective measures is in line with the opinions of society regarding this problem.

458. While no measures of subjective poverty have been explicitly agreed to internationally, the EU-SILC indicator of “making ends meet” has been used in comparative studies (e.g., Guagnano et al., 2013; Noll and Weick, 2014). Further examples include the

Poverty and Social Exclusion Survey in the United Kingdom, [50] the Social Cohesion Survey in Poland (Bieńkuńska and Piasecki, 2016), and in different surveys in the United States (Garner, 2003). The module on the social perception of poverty was also included to the Eurobarometer surveys conducted in 2009 and 2010 (Special Eurobarometer 355, European Commission). Moreover, in May 2015, the OECD launched "Compare your income"[51], a pioneering online interactive tool that aims to raise awareness among people in OECD countries on how economic resources are distributed, and which asks users to provide their own assessment of the minimal income that a household as they own would need to avoid poverty.

459. The 2015 UNECE survey on methods of poverty measurement in official statistics showed great variation across countries in the understanding and measurement of subjective poverty. The questions used in surveys used can be grouped as follows:

- Ability to meet various needs—financial restrictions faced by the household
- Considering oneself as poor—individual self-assessment
- Income necessary to make ends meet—households' minimum perceived needs

460. The obtained estimates vary significantly due to different methods and cultural perceptions of well-being, including poverty. Large variations have also been observed within countries by age, gender, and region.

461. The challenges and progress made in obtaining comparable estimates for subjective measures of well-being (OECD, 2013c) and health (UNECE, 2012c; Robine et al., 2013) are well documented. Such progress is also needed for robust internationally comparable measures of subjective poverty. This can be achieved through the following activities:

- Collecting information on and evaluating the results of different international and national experiences
- Identifying a small set of measures that could add the most value to the understanding of poverty and could lend themselves to international harmonization
- Testing survey questions in different countries and with different population groups
- Consolidating the evidence into concrete recommendations for routine data collection in official statistics.

[50] See www.poverty.ac.uk.
[51] See www.oecd.org/statistics/compare-your-income.htm.

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Annex I Goal 1 and Goal 10 poverty-related targets and indicators in the 2030 Agenda for Sustainable Development

Goals and Targets	Global Indicators	Tier	Possible Custodian Agency(ies)
Goal 1. End poverty in all its forms everywhere			
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)	1	World Bank
1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	1.2.1 Proportion of population living below the national poverty line, by sex and age	1	National Governments
	1.2.2 Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	2	National Governments
1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable	1.3.1 Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work injury victims and the poor and the vulnerable	1	ILO
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1 Proportion of population living in households with access to basic services	3	

Goals and Targets	Global Indicators	Tier	Possible Custodian Agency(ies)
	1.4.2 Proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure	3	World Bank as part of 23 members of Global Donor Working Group on Land
1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters	1.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 people a	2	UNISDR
	1.5.2 Direct disaster economic loss in relation to global gross domestic product (GDP)	2	UNISDR
	1.5.3 Number of countries with national and local disaster risk reduction strategies	2	UNISDR
1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions	1.a.1 Proportion of resources allocated by the government directly to poverty reduction programmes	2	World Bank
	1.a.2 Proportion of total government spending on essential services (education, health and social protection)	3	World Bank
1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions	1.b.1 Proportion of government recurrent and capital spending to sectors that disproportionately benefit women, the poor and vulnerable groups	3	
Goal 10. Reduce inequality within and among countries			
10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average	10.1.1 Growth rates of household expenditure or income per capita among the bottom 40 per cent of the population and the total population	1	World Bank

Goals and Targets	Global Indicators	Tier	Possible Custodian Agency(ies)
10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	10.2.1 Proportion of people living below 50 per cent of median income, by age, sex and persons with disabilities	3	World Bank
10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard	10.3.1 Proportion of the population reporting having personally felt discriminated against or harassed within the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law	3	OHCHR

Source: UNSTAT. Report of the Inter-agency and Expert Group on Sustainable Development Goal Indicators (Revised) E/CN.3/2016/2/Rev.1. http://bit.ly/1N9Ynvg, IAEG. Provisional proposed tiering system for the indicators, as of March 24, 2016. http://bit.ly/1qjJdcD

Notes: Tiers of indicators reflect their conceptual clarity and availability, in particular:

Tier 1: Indicator conceptually clear, established methodology and standards available and data regularly produced by countries.

Tier 2: Indicator conceptually clear, established methodology and standards available but data are not regularly produced by countries.

Tier 3: Indicator for which there are no established methodology and standards or methodology/standards are being developed/tested.

Annex II Results of the UNECE survey on poverty measurement

In 2014, UNECE conducted a survey on poverty measurement among national statistical offices of countries participating in the work of the Conference of European Statisticians (these include UNECE member countries, see http://www.unece.org/oes/nutshell/member_states_representatives.html and additionally Australia, Brazil, Chile, China, Colombia, Japan, Mexico, Mongolia, New Zealand and Republic of Korea). The survey inquired about practices, standards and techniques in poverty measurement. The tables below display the results from the 45 countries who responded.

Table II.1 Absolute poverty

Country	Poverty indicator	Welfare indicator	Poverty threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
European Statistical System										
Estonia	Income/ disposable income	Monetary and in kind	Subsistence minimum	Private households	Person	OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
Hungary	Income/ disposable income	Monetary and in kind	Subsistence minimum	Private households	Persons	Special Hungarian scale[1]	Demographic	Yes	Annual	Sample survey
Italy	Expenditure/ consumption expenditure	Monetary and in kind	Cost of basic needs	Private households	Household, person	Implicit equivalence scale	Demographic, geographic, social	No	Annual	Sample survey
Latvia	Income/ disposable income	Monetary	Subsistence minimum[2]	Private households	Person	No	Only country level	No	Monthly	Sample survey
Netherlands[14]	Income/ disposable income	Monetary and in kind	Fixed amount (990 euro a month in prices of 2012)	Private households[3]	Household, person	National equivalence scale	Demographic, geographic, social	Yes	Annual	Sample survey

Country	Poverty indicator	Welfare indicator	Poverty threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
	Income/ disposable income	Monetary and in kind	Minimum benefits policy bound (amounts vary by household type)	Private households	Household, person	National equivalence scale	Demographic, geographic, social	Yes	Annual	Sample survey
Poland	Expenditure/ consumption expenditure	Monetary and in kind	Subsistence minimum	Private households	Person	OECD scale	Demographic, geographic, social	No	Annual	Sample survey
	Expenditure/ consumption expenditure	Monetary and in kind	”Legal” poverty threshold[4]	Private households	Person	No	Demographic, geographic, social	No	Annual	Sample survey
Switzerland	Income/ disposable income	Monetary and in kind		Private households	Person	No	Demographic, social	Yes	Annual	Sample survey
United Kingdom[14]	Income/ disposable income	Monetary and in kind	2010/11, 60% median income before and after housing costs	Private Households	Person	Modified OECD scale	Demographic, geographic, social	No	Annual	Sample survey
Eastern Europe, Caucasus and Central Asia										
Armenia	Expenditure/ consumption expenditure	Monetary and in kind	Cost of basic needs	Private households	Household, person	National equivalence scale[5]	Demographic, geographic	No	Annual	Sample survey
Azerbaijan	Expenditure/ consumption expenditure	Monetary	Subsistence minimum	Private households	Person	No	Demographic, geographic	No	Annual	Sample survey

Country	Poverty indicator	Welfare indicator	Poverty threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
Belarus	Income/ disposable income	Monetary and in kind	Subsistence minimum	Private households	Person	No	Demographic, geographic, Social	No	Quarter, annual	Sample survey
Kazakhstan	Expenditure/ consumption expenditure	Monetary and in kind	Subsistence minimum	Private households	Person	National equivalence scale[6]	Demographic, geographic	No	Quarter, annual	Sample survey
Kyrgyzstan	Expenditure/ consumption expenditure	Monetary and in kind	Cost of basic needs	Private households	Person	No	Demographic, geographic	No	Annual	Sample survey
Republic of Moldova	Expenditure/ consumption expenditure	Monetary and in kind	Cost of basic needs	Private households	Person	OECD scale	Demographic, geographic	Partially	Annual	Sample survey
Russian Federation	Income/macro economic indicator of per capita disposable income	Monetary	Subsistence minimum[7]	Private households	Person	No	Quarter - Demographic, geographic; Year - geographic	No	Quarter, annual	Sample survey
	Income/ disposable Income	Monetary and in kind	Subsistence minimum	Private households	Person	No	Demographic, geographic, social	No	Annual	Sample survey
	Income/ disposable income	Monetary and in kind	1.25$, 2.5$ and 4.0$ per capita per day according to PPP	Private households	Person	No	Only country level	No	Annual	Sample survey

Country	Poverty indicator	Welfare indicator	Poverty threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
Ukraine	Income/ disposable income	Monetary and in kind	Subsistence minimum	Private households	Household, person	National equivalence scale[8]	Demographic, geographic, social	Yes	Quarter, annual	Sample survey
	Expenditure/ consumption expenditure	Monetary and in kind	Subsistence minimum	Private households	Household, person	National equivalence scale	Demographic, geographic, social	Yes	Quarter, annual	Sample survey
	Expenditure/ consumption expenditure	Monetary and in kind	5.0$ per equivalent person per day according to PPP	Private households	Person	National equivalence scale	Only country level	Yes	Quarter, annual	Sample survey
Uzbekistan	Expenditure/ consumption expenditure	Monetary and in kind	Cost of basic needs	Private households	Person	No	Demographic, geographic, social	No	Annual	Sample survey
Other countries										
Bosnia and Herzegovina	Expenditure/ consumption expenditure	Monetary and in kind	Cost of basic needs	Private households	Household, person	OECD scale	Demographic, geographic, social	No	Every 3-4 years	Sample survey
Canada[14]	Income/ disposable income	Monetary	Income level where households spend 20% more of their income on necessities than average household	Private households	Economic Family[9]	Thresholds are determined for each family size	Demographic, geographic, social	No	Annual	Sample survey

Country	Poverty indicator	Welfare indicator	Poverty threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
	Income/ disposable income	Monetary	Cost of basic needs	Private households	Economic Family	Square root scale	Demographic, geographic, social	No	Annual	Sample survey
China	Income/ disposable income	Monetary and in kind	Minimum standard set by the central government	Rural households	Person	No	Demographic, geographic	Yes	Annual	Sample survey
Colombia	Income/ disposable income	Monetary and in kind	Cost of basic needs	Private households	Person	No	Demographic, geographic, social	No	Annual	Sample survey
Mexico	Income/ disposable income	Monetary and in kind	Cost of basic needs	Private households	Household, person	Yes	Demographic, geographic, social	Yes	Every 2 years for federal entities, every 5 years for municipa-lities	Sample survey
Mongolia	Expenditure/ consumption expenditure	Monetary and in kind	Cost of basic needs	Private households	Household, person	No	Demographic, geographic, social	No	Annual	Sample survey
Montenegro	Expenditure/ consumption expenditure	Monetary and in kind	Cost of basic needs	Private households	Person	Modified OECD scale	Demographic, geographic, social	No	Annual	Sample survey

Country	Poverty indicator	Welfare indicator	Poverty threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
New Zealand[14]	Income/ disposable income	Monetary	60% of 2007 median household equivalised disposable income	Private households	Person	Revised Jensen Scale (1988)[10]	Demographic	No	Annual	Sample survey
	Income/ disposable income	Monetary	60% of 2007 median household equivalised disposable income less 25% as an allowance for housing costs	Private households	Person	Revised Jensen Scale (1988)	Demographic	No	Annual	Sample survey
Turkey	Expenditure/ consumption expenditure	Monetary and in kind	1$, 2.15$ and 4.30$ per capita per day according to PPP	Private households	Person	National equivalence scale[11]	Geographic	No	Annual	Sample survey
United States	Income	Monetary	Cost of all goods and services (estimated as 3 X the cost of basic food plan) (see Box 3.10)	Private households	Person	Implicit in food plans	Demographic, geographic, social	No	Annual	Sample survey

Country	Poverty indicator	Welfare indicator	Poverty threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
	Income/ disposable income	Monetary and in kind	30^{th}-36^{th} percentile of expenditures on food, clothing, shelter and utlities[12](see Box 3.10)	Private households	Person	National equivalence scale[13]	Demographic, geographic, social	No	Annual	Sample survey

Source: National Statistical Offices (2015).

Notes: 1 First active adult - 1.00; all other adults - 0.75; first child - 0.65; second child - 0.50; all other children - 0.40 unit. In case of inactive households: first inactive adult - 0.90; all other persons - 0.65; 2 From 2014 the CSB terminates calculation of subsistence minimum; 3 Do not include student households and households with (annual) incomplete income data; 4 Is the amount which, according to the Law on Social Assistance (uniform text Journal of Laws 2013, item 182, with later amendments), provides eligibility for a monetary benefit from social assistance system.; 5 Children 0-14 - 0.65, Others - 1; 6 First member of a household - 1, each second and subsequent member of a household - 0.8; 7 - population with incomes below the subsistence minimum – short-time and preliminary assessment (by the analytical model). The survey (HBS) will be conducting till 2015. 8 First member of a household - 1, each second and subsequent member of a household - 0.7; 9 An economic family is a group of individuals sharing a common dwelling unit who are related by blood, marriage (including common-law relationships) or adoption; 10 Takes into account number and age of children; 11 (Number of adults + 0.9 * Number of children) ^ 0.6; 12 The SPM differs from the official poverty measure by taking account of government in-kind benefits and necessary expenses and taxes that are not in the official measure, and also adjusts thresholds geographically and by housing tenure type (i.e. owners with a mortgage, owners without a mortgage, and renters). The SPM thresholds are based on a range in the distribution of the sum of annual expenditures for food, clothing, shelter, and utilities (FCSU), with a multiplier for other basic needs. 13 The three-parameter scale is calculated in the following way: One and two adults: scale = $(adults)^{0.5}$ Single parents: scale = $(adults + 0.8*first\ child + 0.5*other\ children)^{0.7}$ All other families: scale = $(adults + 0.5*children)^{0.7}$; 14 Use anchored poverty lines, which are distinct from absolute poverty lines (see Table 2.1 and Chapter 3).

Table II.2 Relative poverty

Country	Poverty indicator	Welfare indicator	Poverty Threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
European Statistical System										
Austria	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Demographic, social	Yes	Annual	Sample survey
Bulgaria	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Household, person	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
Croatia	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Household, person	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
Cyprus	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Persons	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
Czechia	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Demographic, social	Yes	Annual	Sample survey
Denmark	Income/ disposable income	Monetary	50% and 60% of the equivalised median disposable income	Total population	Person	Modified OECD scale	Demographic, social	Yes	Annual	Sample survey

Country	Poverty indicator	Welfare indicator	Poverty Threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
Estonia	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
Germany	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Demographic, social	Yes	Annual	Sample survey
Hungary	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Persons	Modified OECD scale	Demographic	Yes	Annual	Sample survey
Ireland	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Persons	National equivalence scale[1]	Demographic, geographic, social	Yes	Annual	Sample survey
Italy	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income.	Private households	Household, person	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
	Expenditure/ consumption expenditure	Monetary and in kind	60% of the equivalised median consumption	Private households	Household, person	Carbonaro's equivalence scale[3]	Demographic, geographic, social	No	Annual	Sample survey
Latvia	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Household, person	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey

Country	Poverty indicator	Welfare indicator	Poverty Threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
Lithuania	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
Netherlands	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households[4]	Household, person	National equivalence scale	Demographic, geographic, social	Yes	Annual	Sample survey
	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Household, person	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
Norway	Income/ disposable income	Monetary	50% and 60% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Census, administrative records
Poland	Expenditure/ consumption expenditure	Monetary and in kind	50% of the equivalised mean consumption expenditure	Private households	Person	OECD scale	Demographic, geographic, social	No	Annual	Sample survey
	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Demographic, geographic, social	Yes	Every 4-5 years	Sample survey

Country	Poverty indicator	Welfare indicator	Poverty Threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
Romania	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Household, persons	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
Slovakia	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Household, persons	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
Spain	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
Switzerland	Income/ disposable income	Monetary and in kind	50% and 60% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Demographic, geographic, social	Yes	Annual	Sample survey
United Kingdom	Income/ disposable income	Monetary	60% median income before and after housing costs	Private Households	Person	Modified OECD scale	Demographic, geographic, social	No	Annual	Sample survey
Eastern Europe, Caucasus and Central Asia										
Belarus	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Person	National equivalence scale[5]	Geographic	No	Annual	Sample survey
Georgia	Expenditure/ consumption expenditure	Monetary and in kind	60% of equivalised median consumption expenditure	Private households	Person	National equivalence scale[6]	Demographic, geographic	No	Annual	Sample survey

Country	Poverty indicator	Welfare indicator	Poverty Threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
Kazakhstan	Expenditure/ consumption expenditure	Monetary and in kind	60% of equivalised median consumption expenditure	Private households	Person	National equivalence scale[7]	Demographic, geographic	No	Quarter, annual	Sample survey
Republic of Moldova	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Demographic, geographic	Partially	Annual	Sample survey
Russian Federation	Income/ disposable income	Monetary and in kind	40%, 50% and 60% of the equivalised median disposable income	Private households	Person	Square root scale	Demographic, geographic, social	No	Annual	Sample survey
Ukraine	Expenditure/ consumption expenditure	Monetary and in kind	75% and 60% of equivalised median consumption expenditure	Private households	Household, persons	National equivalence scale[8]	Demographic, geographic, social	Yes	Quarter, annual	Sample survey
Other countries										
Bosnia and Herzegovina	Expenditure/ consumption expenditure	Monetary and in kind	60% of equivalised median consumption expenditure	Private households	Household, person	Modified OECD scale	Demographic, geographic, social	No	Every 3-4 years	Sample survey
Canada	Income/ disposable income	Monetary	50% of the equivalised median disposable income	Private households	Household	Square root scale	Demographic, geographic, social	No	Annual	Sample survey

Country	Poverty indicator	Welfare indicator	Poverty Threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
Israel	Income/ disposable income	Monetary	50% of equivalised median disposable income	Private households	Household, persons	National equivalence scale[2]	Demographic, geographic	No	Annual	Sample survey
Japan	Income/ disposable income	Monetary	50% of the equivalised median disposable income	Private households	Person	Square root scale	Demographic, social	No	Every 3 years	Sample survey
Montenegro	Income/ disposable income	Monetary and in kind	60% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Demographic, geographic, social	No	Annual	Sample survey
New Zealand	Income/ disposable income	Monetary	60% of contemporary median household equivalised	Private households	Person	Revised Jensen Scale (1988)[9]	Demographic	No	Annual	Sample survey
	Income/ disposable income	Monetary	60% of contemporary median household equivalised disposable income less 25% as an allowance for housing costs	Private households	Person	Revised Jensen Scale (1988)	Demographic	No	Annual	Sample survey

Country	Poverty indicator	Welfare indicator	Poverty Threshold (line)	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
Turkey	Income/ disposable income	Monetary and in kind	40%, 50%, 60% and 70% of the equivalised median disposable income	Private households	Person	Modified OECD scale	Geographic	Yes	Annual	Sample survey

Source: National Statistical Offices (2015).

Note: 1 First member of a household - 1, each subsequent adult (aged 14+ in household) - 0.66, each child (aged less than 14) - 0.33; 2 First member of a household – 1.25, second member - 0.75, third member - 0.65, fourth and fifth member - 0.55 each, sixth and seventh member - 0.50 each, eighth member - 0.45, ninth and each subsequent member - 0.40. The official measurement in Israel is performed by the National Insurance Institute (NII); 3 • 1 (N of HH members) - 0.6 (correction factor);• 2 (N of HH members) - 1.0 (correction factor);• 3 (N of HH members) - 1.33 (correction factor);• 4 (N of HH members) - 1.63 (correction factor);• 5 (N of HH members) - 1.90 (correction factor);• 6 (N of HH members) - 2.16 (correction factor);• 7 or more (N of HH members) - 2.40 (correction factor); 4 Do not include student households and households with (annual) incomplete income data; 5 1.0 – the first adult in the household,0.8 – every other adult, 0.9 – every child between 6-18 years old,0.7 – every child between 3-5 years, 0.5 – every child under 3 years old; 6 1. Child (aged 0-7) - 0.64; 2. Adult (aged 8-15) - 1; 3. Working age male (aged 16-64) - 1; 4. Working age female (aged 16-59) - 0.84; 5. Pension age male (aged 65 and more) - 0.88; 6. Pension age female (aged 60 and more) - 0.76. In the power of 0.8 (cohabitation coefficient); 7 First member of a household - 1, each second and subsequent member of a household - 0.8; 8 First member of a household - 1, each second and subsequent member of a household - 0.7; 9 Takes into account number and age of children

Table II.3 Subjective poverty

Country	Type of indicator	Coverage	Unit of analysis	Use of equivalence scale	Available breakdowns	Possibility of measurement of persistent poverty	Periodicity of indicator published	Type of data source
European Statistical System								
Switzerland	Subjective assessment of living standards	Private households	Person	No	Demographic, geographic, social	No	Annual	Sample survey
Eastern Europe, Caucasus and Central Asia								
Armenia	Subjective assessment of living standards	Private households	Persons aged 16 years and above	No	By objective poverty level	No	Annual	Sample survey
Belarus	Subjective assessment of living standards	Private households	Household	No	Demographic, geographic	No	Quarter, annual	Sample survey
Kazakhstan	Subjective assessment of living standards	Private households	Person	National equivalence scale[1]	Demographic, geographic	No	Annual	Sample survey
Ukraine	Subjective assessment of living standards	Private households	Household	No	Demographic, geographic, social	No	Annual	Sample survey
Other countries								
Turkey	Subjective assessment of living standards	Private households	Household	No	Only country level	No	Annual	Sample survey

Source: National Statistical Offices (2015).
Note: [1] First member of a household - 1, each second and subsequent member of a household - 0.8.

Table II.4 Other approaches towards measuring poverty

Country	Applied approach	Short description of applied approach (including criteria adopted, poverty threshold, etc. as appropriate)	Coverage	Unit of analysis	Available breakdowns	Periodicity of indicator published	Type of data source
European Statistical System							
Austria	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Persons	Demographic, social	Annual	Sample survey
	At-risk-of-poverty or social exclusion	a) At-risk-of-poverty - 60% of the equivalised median disposable income b) Severe material deprivation - severe material deprivation (at least 4 out of 9) according to EU methodology c) Living in a household with very low work intensity - number of persons living in a household having a work intensity below a threshold set at 0.20	Private households	Persons	Demographic, social	Annual	Sample survey
Bulgaria	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Households, persons	Demographic, geographic, social	Annual	Sample survey
Croatia	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Person	Total population	Annual	Sample survey
Cyprus	At-risk-of-poverty or social exclusion	a) At-risk-of-poverty - 60% of the equivalised median disposable income b) Severe material deprivation - severe material deprivation (at least 4 out of 9) according to EU methodology c) Living in a household with very low work intensity - number of persons living in a household having a work intensity below a threshold set at 0.20	Private households	Person	Demographic, geographic, social	Annual	Sample survey
Czechia	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Person	Demographic, social	Annual	Sample survey

Country	Applied approach	Short description of applied approach (including criteria adopted, poverty threshold, etc. as appropriate)	Coverage	Unit of analysis	Available breakdowns	Periodicity of indicator published	Type of data source
	At-risk-of-poverty or social exclusion	a) At-risk-of-poverty - 60% of the equivalised median disposable income b) Severe material deprivation - severe material deprivation (at least 4 out of 9) according to EU methodology c) Living in a household with very low work intensity - number of persons living in a household having a work intensity below a threshold set at 0.20	Private households	Person	Demographic, social	Annual	Sample survey
Estonia	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Person	Demographic, geographic, social	Annual	Sample survey
Germany	At-risk-of-poverty or social exclusion	a) At-risk-of-poverty - 60% of the equivalised median disposable income b) Severe material deprivation - severe material deprivation (at least 4 out of 9) according to EU methodology c) Living in a household with very low work intensity - number of persons living in a household having a work intensity below a threshold set at 0.20	Private households	Person	Demographic, social	Annual	Sample survey
	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Person	Demographic, social	Annual	Sample survey
Hungary	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Person	Demographic	Annual	Sample survey

Country	Applied approach	Short description of applied approach (including criteria adopted, poverty threshold, etc. as appropriate)	Coverage	Unit of analysis	Available breakdowns	Periodicity of indicator published	Type of data source
Ireland	Deprivation/ material deprivation	Households that are excluded and marginalised from consuming goods and services which are considered the norm for other people in society, due to an inability to afford them, are considered to be deprived. The identification of the marginalised or deprived is currently achieved on the basis of a set of eleven basic deprivation indicators: 1. Two pairs of strong shoes 2. A warm waterproof overcoat 3. Buy new (not second-hand) clothes 4. Eat meat with meat, chicken, fish (or vegetarian equivalent) every second day 5. Have a roast joint or its equivalent once a week 6. Had to go without heating during the last year through lack of money 7. Keep the home adequately warm 8. Buy presents for family or friends at least once a year 9. Replace any worn out furniture 10. Have family or friends for a drink or meal once a month 11. Have a morning, afternoon or evening out in the last fortnight for entertainment Individuals who experience two or more of the eleven listed items are considered to be experiencing enforced deprivation. This is the basis for calculating the deprivation rate.	Private households	Person	Demographic, geographic, social	Annual	Sample survey
	Consistent poverty	The consistent poverty measure looks at those persons who are defined as being at risk of poverty and experiencing enforced deprivation (experiencing two or more types of deprivation). An individual is defined as being in 'consistent poverty' if they are: • Identified as being at risk of poverty and • Living in a household deprived of two or more of the eleven basic deprivation items listed above.	Private households	Person	Demographic, geographic, social	Annual	Sample survey

Country	Applied approach	Short description of applied approach (including criteria adopted, poverty threshold, etc. as appropriate)	Coverage	Unit of analysis	Available breakdowns	Periodicity of indicator published	Type of data source
Italy	Extreme (home-lessness)	Those who live in: a) public spaces; b) a night-time dormitory and/or are forced to spend many hours of the day in a public space; c) live in shelters for the homeless/temporary lodgings; lodgings provided in support of those in specific social situations.	Homeless population	Homeless person	Demographic, geographic, social	Occasional (first survey in 2011, follow up in 2014)	Sample survey
	At-risk-of-poverty or social exclusion	a) At-risk-of-poverty - 60% of the equivalised median disposable income b) Severe material deprivation - severe material deprivation (at least 4 out of 9) according to EU methodology c) Living in a household with very low work intensity - number of persons living in a household having a work intensity below a threshold set at 0.20	Private households	Household, person	Demographic, geographic, social	Annual	Sample survey
	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Household, person	Demographic, geographic, social	Annual	Sample survey
Latvia	At-risk-of-poverty or social exclusion	a) At-risk-of-poverty - 60% of the equivalised median disposable income b) Severe material deprivation - severe material deprivation (at least 4 out of 9) according to EU methodology c) Living in a household with very low work intensity - number of persons living in a household having a work intensity below a threshold set at 0.20	Private households	Household, person	Demographic, geographic, social	Annual	Sample survey
	Deprivation/ material deprivation	Severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Household, person	Demographic, geographic, social	Annual	Sample survey
	Low work intensity	Living in a household with very low work intensity - number of persons living in a household having a work intensity below a threshold set at 0.20	Private households	Household, person	Demographic, geographic, social	Annual	Sample survey

Country	Applied approach	Short description of applied approach (including criteria adopted, poverty threshold, etc. as appropriate)	Coverage	Unit of analysis	Available breakdowns	Periodicity of indicator published	Type of data source
	Guaranteed minimum income (GMI) beneficiaries	The GMI benefit amount is calculated as a difference between the guaranteed minimum income level for each family member (established by the Cabinet of Ministers) and the total income of a family (person)	Total population	Family, person	Demographic, geographic, social	Monthly, annual	Administrative records
	Needy persons	Needy persons status is granted if the income per capita per month does not reach 128 EUR	Total population	Family, person	Demographic, geographic, social	Monthly, annual	Sample survey
Lithuania	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Person	Demographic, geographic, social	Annual	Sample survey
	At-risk-of-poverty or social exclusion	a) At-risk-of-poverty - 60% of the equivalised median disposable income b) Severe material deprivation - severe material deprivation (at least 4 out of 9) according to EU methodology c) Living in a household with very low work intensity - number of persons living in a household having a work intensity below a threshold set at 0.20	Private households	Person	Demographic	Annual	Sample survey
Netherlands	At-risk-of-poverty or social exclusion	a) At-risk-of-poverty - 60% of the equivalised median disposable income b) Severe material deprivation - severe material deprivation (at least 4 out of 9) according to EU methodology c) Living in a household with very low work intensity - number of persons living in a household having a work intensity below a threshold set at 0.20	Private households	Household, person	Demographic, social	Annual	Sample survey
	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Household, person	Demographic, social	Annual	Sample survey

Country	Applied approach	Short description of applied approach (including criteria adopted, poverty threshold, etc. as appropriate)	Coverage	Unit of analysis	Available breakdowns	Periodicity of indicator published	Type of data source
Poland	Indicator of living conditions poverty	% of households in which at least 10 of 30 symptoms of poor living conditions were observed (symptoms concerning the dwelling quality, the provision of durable consumer goods, and the deprivation of various types of consumer needs (financial and nonfinancial)	Private households	Household	Demographic, geographic, social	Every 4-5 years	Sample survey
	Indicator of poverty in terms of the lack of budget balance	% of households in which at least 4 out of 7 symptoms of "inability to deal with their budget" were observed (symptoms concerning both, the subjective opinions of households on their material status, and the facts testifying to budget difficulties faced by the household - including payment arrears)	Private households	Household	Demographic, geographic, social	Every 4-5 years	Sample survey
	Multidimen-sional poverty	% of households affected by the following three forms of poverty at the same time: income poverty, living conditions poverty and poverty in terms of the lack of budget balance	Private households	Household	Demographic, geographic, social	Every 4-5 years	Sample survey
	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Household	Demographic, geographic, social	Annual	Sample survey
Slovakia	At-risk-of-poverty or social exclusion	a) At-risk-of-poverty - 60% of the equivalised median disposable income b) Severe material deprivation - severe material deprivation (at least 4 out of 9) according to EU methodology c) Living in a household with very low work intensity - number of persons (age group 0-59) living in a household having a work intensity below a threshold set at 0.20	Private households	Person	Demographic, geographic, social	Annual	Sample survey
	Low work intensity	Living in a household with very low work intensity - number of persons (age group 0-59) living in a household having a work intensity below a threshold set at 0.20	Private households	Person	Demographic	Annual	Sample survey
Spain	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Person	Demographic, geographic, social	Annual	Sample survey

Country	Applied approach	Short description of applied approach (including criteria adopted, poverty threshold, etc. as appropriate)	Coverage	Unit of analysis	Available breakdowns	Periodicity of indicator published	Type of data source
	At-risk-of-poverty or social exclusion	a) At-risk-of-poverty - 60% of the equivalised median disposable income b) Severe material deprivation - severe material deprivation (at least 4 out of 9) according to EU methodology c) Living in a household with very low work intensity - number of persons living in a household having a work intensity below a threshold set at 0.20	Private households	Person	Demographic, geographic, social	Annual	Sample survey
Switzerland	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Person	Demographic, geographic, social	Annual	Sample survey
United Kingdom	Deprivation/ material deprivation	Separate measures provided for children and for pensioners based on suites of 21 and 15 questions respectively around access to specific goods and services (informed by independent academic analysis). Responses are prevalence weighted and scaled to give a score out of 100. Children are considered to be in material deprivation if they live in a family with a final score of over 25, for pensioners if the final score is over 20. For children, material deprivation is reported in conjunction with 50% and 70% BHC median income.	Private Households	Person	Only country level	Annual	Sample survey
Eastern Europe, Caucasus and Central Asia							
Belarus	Deprivation/ material deprivation	Proportion of people living in households who lack at least 4 material deprivations. National list of material deprivations consists of 12 items.	Private households	Person	Demographic, geographic	Annual	Sample survey
Republic of Moldova	Deprivation/ material deprivation	Small Area Deprivation Index (SADI) tracks multiple types of deprivation (income, economic, geographic, demographic, health and education) which are then computed into a Multiple Deprivation Index (MDI). All primaria in Republic of Moldova are then assigned a rank between 1 and 843 that reflects their level of deprivation, with 1 representing the most deprived primaria.	843 rural communities /villages	Rural communities /villages	Regions and municipalities	Every second year	Administrative data, census

Country	Applied approach	Short description of applied approach (including criteria adopted, poverty threshold, etc. as appropriate)	Coverage	Unit of analysis	Available breakdowns	Periodicity of indicator published	Type of data source
Ukraine	Deprivation/ material deprivation	Proportion of households with 4 deprivation out of 18 according to the national methodology The national list of deprivations envisaged the two groups: • economic deprivations: 1) lack of funds to not refuse oneself in the most needed not expensive foodstuffs; 2) lack of funds to update if proved necessary the outwear and footwear for cold season for adults once every 5 years 3) lack of funds to purchase if proved necessary the new clothes and footwear for children; 4) absence of TV-set; 5) absence of refrigerator; 6) absence of housing under normal conditions (the available housing requires capital repair, it is damp, ramshackle, old); 7) lack of funds for timely and full payments of bills for housing and the necessary services to keep it or pay for gas to cook meals; 8) availability of living floor space that does not exceed 5 sq. m per person; 9) lack of funds to pay for the doctor's needed services (apart from dentists) in medical institution (because of absence or it is difficult to get such services for free), analysis, surveys, procedures prescripted by the doctor; 10) lack of funds to pay for the needed medicines and medical equipment prescripted by the doctor; 11) lack of funds to be treated in the hospital without a surgery operation or vital surgery operation (apart from cosmetic one) and further related treatment in the hospital (because of absence of such services for free); 12) lack of funds to obtain any vocational education; • deprivation by access, i.e. insufficient development of infrastructure as a characteristic of geographical accessibility of services and non-geographical barriers:	Private households	Household	Demographic, geographic, social	Every two years	Sample survey

Country	Applied approach	Short description of applied approach (including criteria adopted, poverty threshold, etc. as appropriate)	Coverage	Unit of analysis	Available breakdowns	Periodicity of indicator published	Type of data source
		13) absence of a nearby housing, retail outlets; 14) absence of institutions rendering consumer services in inhabited locality; 15) absence of a nearby housing, medical institution, drug-store; 16) inability to secure the inhabited locality with timely services of the fast medical aid; 17) absence of a nearby housing, pre-school institutions; 18) absence of regular daily transport connection with other inhabited locality with more developed infrastructure".					
		Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Person	Demographic, geographic, social	Every two years	Sample survey
	Relative poverty + deprivation	Households in which consumption expenditure per equivalent adult is less than 75% of equivalised median consumption expenditure and is deprived by 4 out of 18 attributes	Private households	Household	Country wide only	Every two years	Sample survey
Other countries							
Bosnia and Herzegovina	Deprivation/ material deprivation	Material deprivation (at least 3 out of 9), severe material deprivation (at least 4 out of 9) according to EU methodology	Private households	Household, persons	Demographic, geographic, social	Every 3-4 years	Sample survey
China	Multidimen-sional Poverty	Dimensions: monetary and non-monetary indicators (more than 30 indicators)	Rural households	Person	Demographic	Annual	Sample survey

Country	Applied approach	Short description of applied approach (including criteria adopted, poverty threshold, etc. as appropriate)	Coverage	Unit of analysis	Available breakdowns	Periodicity of indicator published	Type of data source
Colombia	Multidimen-sional Poverty	Dimensions: 1. Education of household members 2. Childhood and youth conditions 3. Health 4. Employment 5. Access to household utilities and living conditions. A household is considered as poor if it has deprivation in at least 33% of the indicators, taking into account the weight of each indicator. This index has a nested weighting structure where each dimension is equally weighted (0.2), and inside the dimension, each indicator has the same weight.	Private households	Household	Demographic	Annual	Sample survey
Mexico	Multidimen-sional poverty	Dimensions: income, social deprivations	Private households	Person	Demographic, geographic, social	Every 2 years for federal entities; every 5 years for municipalities	Sample survey

Country	Applied approach	Short description of applied approach (including criteria adopted, poverty threshold, etc. as appropriate)	Coverage	Unit of analysis	Available breakdowns	Periodicity of indicator published	Type of data source
New Zealand	Hardship	A 40-item Economic Living Standards Index (ELSI) ranks households from low to high living standards using non-monetary indicators (NMIs). To create the ELSI scores, the NMI items are scored from two different perspectives: 1. from an enforced lack perspective in which respondents do not have essential items because of the cost, or have to severely cut back on purchases because the money is needed for other essentials: for example, unable (because of the cost) to have regular good meals, two pairs of shoes in good repair for everyday activities, or visit the doctor; putting up with the cold, and so on because money is needed for other basics) 2. from the perspective of the degree of restriction/freedom reported for having or purchasing desirable non-essentials (while having the essentials) – a freedoms enjoyed perspective, for short: for example, having all the essentials, and in addition not having to cut back on local trips, not having to put off replacing broken or worn out appliances, being able to take an overseas holiday every three years or so if desired, and not having any great restrictions on purchasing clothing. A state of hardship (unacceptably low material well-being) is characterised by having many enforced lacks of essentials and few or no freedoms. Higher living standards are characterised by having all the essentials (no enforced lacks) and also having many freedoms and few restrictions in relation to the non-essential items that are asked about. The ELSI hardship threshold is set to be equivalent to one set at 6 or more deprivations out of 16 in the calibration list.	Private households	Person	Demographic	Annual	Sample survey

Country	Applied approach	Short description of applied approach (including criteria adopted, poverty threshold, etc. as appropriate)	Coverage	Unit of analysis	Available breakdowns	Periodicity of indicator published	Type of data source
	Hardship	The Material Wellbeing Index is a revised and updated version of ELSI, building off what has been learnt from using ELSI over the last decade. There are a set of 24 items that go into constructing the index and these items cover 6 areas: 1. Ownership (have, don't have and enforced lack) 2. Social participation (do, don't do and enforced lack) 3. Economising (not at all, a little, a lot) – to keep down costs to help in paying for (other) basic items 4. Freedoms/Restrictions (buying items) 5. Financial strain (in last 12 months) 6. Housing problems (no problem, minor problem, major problem)	Private households	Person	Demographic	Annual	Sample survey

Source: National Statistical Offices (2015).