

## The new EU indicator of material and social deprivation

### Technical note

#### 1. Composition of the set of deprivation items

The new indicator of *material and social* deprivation replaces the standard *material* deprivation indicator which the EU adopted in 2009.

The 2009 indicator was defined as the proportion of people living in households confronted with at least three out of nine deprivations. These deprivations are the inability for a household to:

1. face unexpected expenses;
2. afford one week annual holiday away from home;
3. avoid arrears (in mortgage rent, utility bills and/or hire purchase instalments);
4. afford a meal with meat, chicken, fish or vegetarian equivalent every second day;
5. afford keeping their home adequately warm;
6. have access to a car/van for personal use;
7. afford a washing machine;
8. afford a colour TV; and
9. afford a telephone.

The new deprivation indicator is based on 13 items whose selection results from a systematic item by item robustness analysis (see Guio et al, 2012 and Guio et al, 2017)<sup>1</sup>.

Since 2014, these items are collected annually in each country. Seven deprivation items relate to the person's household and six to the person themselves. The seven household deprivations consist of six items already included in the 2009 indicator (items 1-6) and one new item – i.e., the inability for the household to:

1. face unexpected expenses;
2. afford one week annual holiday away from home;
3. avoid arrears (in mortgage, rent, utility bills and/or hire purchase instalments);
4. afford a meal with meat, chicken or fish or vegetarian equivalent every second day;
5. afford keeping their home adequately warm;
6. have access to a car/van for personal use; and
7. replace worn-out furniture.

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<sup>1</sup> Guio, A.-C., Gordon, D. and Marlier, E. (2012), "Measuring material deprivation in the EU: Indicators for the whole population and child-specific indicators", Eurostat Methodologies and working papers, Publications office of the European Union, Luxembourg.

Guio, A.-C., Gordon, D., Najera, H. and Pomati, M. (2017), "Revising the EU material deprivation variables (analysis of the final 2014 EU-SILC data)", Final report of the Eurostat Grant "Action Plan for EU-SILC improvements".

The six personal deprivations are the inability for the person to:

1. replace worn-out clothes with some new ones;
2. have two pairs of properly fitting shoes;
3. spend a small amount of money each week on him/herself (“pocket money”);
4. have regular leisure activities;
5. get together with friends/family for a drink/meal at least once a month; and
6. have an internet connection.

The six personal items are collected at the “adult” level, i.e. for all persons aged 16 or over. They allow making the new indicator gender and age sensitive for adults living in the same household.

## 2. Name and use of the indicator

Compared with the standard 9-item indicator of *material* deprivation adopted in 2009, the new deprivation indicator also includes items related to social activities (leisure, internet, get together with friends/family, pocket money). It is therefore a measure of “*material and social* deprivation” (or in short “deprivation”), whose composition is different from that of the “*severe material* deprivation” (based on the 9-item list) used in the Europe 2020 Social Inclusion target. In order to avoid confusion, the indicator used in the Europe 2020 target should always be referred to as “**severe material** deprivation” (or, if space allows: “(9-item) **severe** material deprivation”); whereas the new indicator should be referred to as “deprivation” (or, if space allows: “(13-item) material and social deprivation”).

## 3. Construction of the indicator

The construction of this indicator necessitates the following steps:

### 3.1 Definition of items: focus on enforced lack

The deprivation items are based on an “enforced lack concept”, i.e. the person/ household lacks the item for financial reasons, not by choice. They are collected in three different ways, depending on the item:

- Using a yes/no formulation: “Can you afford...”:
  - keeping the home adequately warm (HH050);
  - going on holidays (HS040);
  - facing unexpected expenses (HS060);
  - having a meal with proteins every second day (HS050).
- Using a three-answer categories question: “Can you tell me if...”:
  - you have the item;
  - you do not have the item because you cannot afford it;
  - you do not have the item for any other reason.

This three-answer option is used for all six personal items (PD020, PD030, PD050, PD060, PD070, PD080) and for two household items (furniture (HD080) and car (HS110)). Only people lacking an item for the affordability reason (second modality) are considered as deprived of this item. Those lacking the item for any other reason are considered as not deprived of this item.

- Finally, the item related to arrears is based on the combination of three questions, using a yes/no formulation: a) do you have arrears on mortgage or rent payments (HS011); b) on utility bills (HS012); and c) on hire purchase instalments or other loan payments (HS013). Households confronted with at least one of these arrears are “deprived” for this item.

### 3.2 Unweighted count of items

The new indicator is based on the unweighted sum of the 13 items for each person. The scale ranges from 0 (no deprivation) to 13 (enforced lack of all items). The reliability of the scale is very high both at the EU level and in each Member State: the Cronbach’s alpha statistic, which measures the internal consistency of a scale (see Nunally, 1978<sup>2</sup>), is 0.85 for the pooled EU dataset and ranges from 0.76 in Finland to 0.89 in Bulgaria (the usual minimal threshold is 0.70). The alpha is (much) higher than for the current indicator in all countries. The reason why the indicator uses a simple sum of deprivations rather than a weighted sum is as follows (Guio et al 2012, p. 110): *“Classical Test Theory assumes that there are an infinite (or very large) number of material deprivation measures. If we could have answers to this infinite number of deprivation questions then we would have ‘perfect knowledge’ (we would know everything) about each person’s deprivation. No set of weights could add any additional information as we would already know everything i.e. the infinite deprivation index is self-weighting. The square root of the Cronbach’s alpha statistic can be considered to be the correlation between the indicator and the ‘perfect’ index made from the answers to the infinite set of deprivation questions. The Cronbach’s alpha for the new indicator is 0.85. The correlation with the perfect infinite set of deprivation indicators is therefore impressive (0.92), so there is little additional information that any differential weights could add. Even if perfect error free differential weights could be developed the results from the current deprivation indicator and the weighted indicator would be essentially identical. In view of these results and because of the advantages of the unweighted approach (in particular, its simplicity and transparency), an equal weighting approach seems to be well suited for the construction of EU material deprivation indicators.”*

### 3.3 Selected-respondent countries

In most but not all register countries, the six personal items are only collected for one adult in the household, i.e. the selected respondent. The sample of selected respondents is representative of the “adult” population (people aged 16 or over) in these countries; specific weights should therefore normally be used to take into account the fact that only one adult member is surveyed. Instead, in order to ensure consistency with other household items, the information collected from the selected respondent is distributed to other household members and personal weights are used for the whole population (RB050), as in other (non-selected respondent) countries. By definition, in selected respondent countries, the deprivation indicator does not differ within the household (by gender, age etc.). So, the analysis of intra-household sharing of deprivation among adults of a same household cannot be performed.

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<sup>2</sup> Nunally, J. C. (1978), *Psychometric theory* (2nd ed.), McGraw-Hill, New York.

### 3.4 From the deprivation count to the deprivation rate

On the basis of the deprivations count (ranging from 0 to 13), the deprivation rate is defined as the weighted proportion of people lacking at least five items in the whole population. The weight used is the personal weight RB050.

The choice of the threshold is data-driven. At EU level, this threshold results in a proportion of people deprived that is close to that of the 2009 standard material deprivation indicator (3+ deprivations out of 9).

### 3.5 The specific case of children

Seven out of the 13 deprivation items included in the new indicator are collected at the household level and are thus assumed to apply equally to all household members. The remaining six items are collected at the individual level: they are collected only for people aged 16 or over and have therefore to be “distributed” to children below 16. The rule applied for this distribution is the following: “if at least half the number of adults for which the information is available in the household lack an item, then the children living in that household are considered as deprived from that item”.

The same set of 13 items and the same threshold (5+) is used for both children and adults. However, when computing child deprivation, a lower weight is given to adult items, in order to avoid making the indicator of children too sensitive to adult deprivations. Among the 5+ deprivations required to be considered as deprived, there needs to be at least three household deprivations (out of the seven household deprivations included in the list).

When the 13-item indicator is broken down for children, it provides information on the proportion of children living in a “deprivation context”. It should be clearly mentioned that these children *live in (socially and materially) deprived households*.

A child-specific deprivation indicator is currently being developed at the EU level. It will be based on items addressing the specific living conditions of children (items collected in an EU-SILC ad-hoc module), which may differ from those of their parents/households.