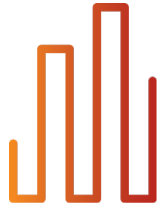
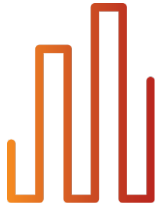

Revision of EU indicators on material deprivation

**Anne-Catherine Guio, Dave Gordon, Eric Marlier,
Hector Najera and Marco Pomati**



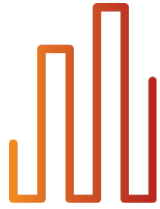
EU COOPERATION IN THE SOCIAL FIELD

- a) Mutual feedback process of planning, targeting, monitoring, examination, comparison and adjustment of countries' policies. Key elements:
- common EU objectives & guidelines;
 - regular “National Action Plans” or “National Strategy Reports” or “National Social Reports”... (the name has changed over time);
 - **commonly agreed indicators**;
 - regular monitoring, reporting and assessment.
- b) Involves the European Commission & all 28 EU MSs (+ various stakeholders).
- c) Peer review exercise: transnational exchange and learning from good (and bad) countries' practices.



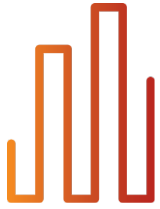
COMMONLY AGREED INDICATORS

- For indicators to be **fit for purpose**, their construction needs to follow a **principle-based** approach: a specific methodological **framework** is required for developing the specific indicators needed
- EU framework for EU social indicators adopted in June 2006. Almost identical to that agreed in 2001 on the basis of Atkinson, T., Cantillon, B., Marlier, E. and Nolan, B. (2002). "Social Indicators: The EU and Social Inclusion"
- See Atkinson's 2016 report (World Bank) for a global extension of these principles



EU PORTFOLIO OF SOCIAL INCLUSION (SI) INDICATORS

- **The portfolio of SI indicators** covers financial poverty (incl. persistent poverty & poverty gap), income inequality, access to healthcare, education (early-school leavers, educational attainment of adult population and pupils' literacy), joblessness, LT unemployment, integration of immigrants on the LM, material deprivation and housing.
- No “composite” indicators (which first summarize information across individuals [or households] at the dimension level and then aggregates it across dimensions) but **two “aggregated” indicators** (which aggregate information first across dimensions at the individual/hhd level and then summed up over individuals/hhd):
 - Material deprivation indicator
 - Europe 2020 social inclusion target

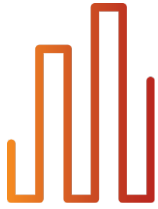


REVISION OF EU MD INDICATORS

Why? Small number of items the current indicators are based on (due to small number of relevant items included in the core part of EU-SILC) + weak reliability of some of these items.

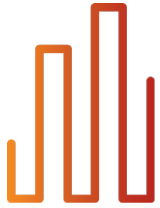
How?

- Consensus Eurobarometer survey (2007) on “how necessary are a large list of items to have a decent life in each country”;
- Collection of additional “necessary” MD items in the 2009 and in 2014 thematic EU-SILC module on MD;
- EU Task-Force on MD worked on improving these indicators and on developing 1+ indicators focused on child MD [see Guio, Gordon and Marlier (2012) and Guio, Gordon, Najera and Pomati (2017)].
- SPC - ISG



CONCEPTUAL FRAMEWORK

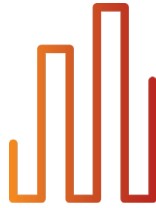
- Approach followed: both theory and data driven.
- Leads to MD indicators covering some key aspects of living conditions that are **customary in the society** and from which some people are excluded **due to a lack of resources** (concept consistent with Townsend's theory of relative deprivation and with the 1985 EU Council definition).
- Focus: “**enforced lacks**”, i.e. lacks due to insufficient resources AND NOT to choices.
- Importance of participation in the society to which the person belongs: our proposed MD indicators include items that measure “**social deprivation**” (leisure, contacts with friends, holidays...).



ANALYTICAL FRAMEWORK

Step by step, we have looked at...

- The **dimensional structure** of the whole set of items.
- The **suitability** of MD items for individual EU countries and for population sub-groups within countries, by looking at the extent to which people want/do not want a given item.
- The **validity** of each MD item, by ensuring that they all exhibit statistically significant relation with variables known to be correlated with MD (AROP, subjective poverty and health).
- The **reliability** of the scale (Cronbach's alpha, beta, omega) and of individual items (Item Response Theory).
- The **additivity** of MD items, by checking that someone say with an MD index score of 2 is in reality suffering from more severe MD than someone with a score of 1, i.e. that the MD index components add up.



Child-specific Deprivations

- Some new clothes (M)
- Two pairs of shoes (M)
- Fresh fruits & vegetables daily (M)
- Three meals a day (M)
- Meat, chicken, fish daily (M)
- Suitable books (M)
- Outdoor leisure equipment (M)
- Indoor games (M)
- Place to do homework (M)
- Dentist when needed (M - optional)
- GP when needed (M - optional)
- Leisure activities (M)
- Celebrations (M)
- To invite friends (M)
- School trips (M)
- Outdoor space to play (M)
- Holiday (M - optional)

Housing Deprivations

- No hot running water (M)
- Shortage of space
- Darkness
- Leaky roof, damp, etc.
- No toilet
- No bath
- Overcrowding
- High housing costs

Current MD indicators

Local Environment Deprivations

- Litter lying around (M)
- Vandalism (M)
- Diff access to public transport (M)
- Diff access to post, banks (M)
- Noise
- Pollution
- Crime

Adult Deprivations (enforced lack)

- Some new Clothes (M)
- Two pairs of shoes (M)
- Some money for oneself (M)
- Mobile phone (M)
- Drink/meal monthly (M)
- Leisure activities (M)

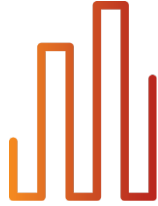
Household Deprivations

- Incapacity to keep home warm
- Arrears
- Incapacity to face unexpected expenses
- Lack of meat, chicken, fish
- Lack of Holiday

Enforced lack of:

- Telephone
- Colour TV
- Washing machine
- Car
- Internet (M)
- Worn-out furniture (M)

Final list: 13 items have successfully passed all tests



Child-specific Deprivations

~~Some new clothes (M)~~
~~Two pairs of shoes (M)~~
~~Fresh fruits & vegetables daily (M)~~
~~Three meals a day (M)~~
~~Meat, chicken, fish daily (M)~~
~~Suitable books (M)~~
~~Outdoor leisure equipment (M)~~
~~Indoor games (M)~~
~~Place to do homework (M)~~
~~Dentist when needed (M - optional)~~
~~GP when needed (M - optional)~~
~~Leisure activities (M)~~
~~Celebrations (M)~~
~~To invite friends (M)~~
~~School trips (M)~~
~~Outdoor space to play (M)~~
~~Holiday (M - optional)~~

Housing Deprivations

~~No hot running water (M)~~
~~Shortage of space~~
~~Darkness~~
~~Leaky roof, damp, etc.~~
~~No toilet~~
~~No bath~~
~~Overcrowding~~
~~High housing costs~~

Revised MD
indicators

Local Environment Deprivations

~~Litter lying around (M)~~
~~Vandalism (M)~~
~~Diff access to public transport (M)~~
~~Diff access to post, banks (M)~~
~~Noise~~
~~Pollution~~
~~Crime~~

Adult Deprivations (enforced lack)

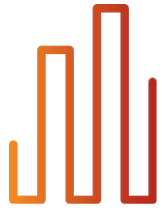
~~Some new Clothes (M)~~
~~Two pairs of shoes (M)~~
~~Some money for oneself (M)~~
~~Mobile phone (M)~~
~~Drink/meal monthly (M)~~
~~Leisure activities (M)~~

Household Deprivations

~~Incapacity to keep home warm~~
~~Arrears~~
~~Incapacity to face unexp. expenses~~
~~Lack of meat, chicken, fish~~
~~Lack of Holiday~~

Enforced lack of :

~~Telephone~~
~~Colour TV~~
~~Washing machine~~
~~Car~~
~~Internet (M)~~
~~Worn-out furniture (M)~~



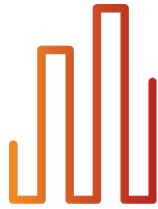
SUITABILITY

Focus on three-answer modality items:

- 1) people having the item;
- 2) people not having the item because they cannot afford it;
- 3) people not having the item for any other reason.

Look at the % of people “wanting” each item, i.e. those who have the item or who would like to have it but cannot afford it (put differently: 100% of people minus those who do not have the item for other reasons).

➔ Objective: Assess the degree of "importance" of each item at EU & country levels.



SUITABILITY, % OF WANTING

	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	UK
Furniture																														
% of wanting	90.8	88.8	86.9	75.5		84.2	92.2	84.7	53.0	88.5	95.5		71.4	63.6	83.1	74.8	85.5	74.9	94.0	84.8	66.6		98.0	75.0	90.6	72.9	93.2	35.5	70.9	84.6
Car																														
% of wanting	91.4	92.5	81.7	94.2	84.1	93.9	93.6	86.0	86.4	89.5	95.4	94.0	84.2	81.5	93.8	98.1	90.1	81.8	95.7	81.5	92.3	95.1	95.1	85.1	89.9	72.2	90.9	96.5	86.6	91.6
Clothes																														
% of wanting	95.8	98.3	89.2	94.4	92.2	97.4	94.7	92.2	99.5	97.5	97.7	98.4	85.3	90.0	96.7	94.4	87.4	90.5	99.4	88.5	96.4	98.7	99.7	92.1	98.1	96.1	97.5	98.1	88.3	98.6
Shoes																														
% of wanting	99.6	99.6	88.9	99.7	96.9	99.3	99.0	99.4	99.8	99.5	###	99.1	98.4	99.6	99.1	99.4	96.8	98.9	99.8	93.0	97.2	99.1	99.7	99.6	99.6		99.2	99.9	99.2	99.7
Getting together with friends/family																														
% of wanting	92.7	93.4	91.7	94.8	90.4	84.2	91.7	88.1	81.3	89.5	72.8	92.7	83.5	79.9	81.2		82.6	89.7	93.8	90.6	87.9	88.8	98.9	87.8	91.8	92.3	90.2	91.9	84.9	85.2
Leisure																														
% of wanting	78.2	84.0	57.4	63.9	64.0	76.3	78.5	73.1	51.4	73.7	69.6	64.3	44.5	56.6	86.5		61.4	65.9	74.8	77.4	75.3	84.8	75.1	61.7	54.1	75.2	63.3	58.4	66.0	88.9
Pocket money																														
% of wanting	89.8	95.5	92.0	95.8	81.8	92.8	98.1	95.0	77.0	87.0	98.9	95.0	78.8	90.1	97.7		84.3	92.0	88.8	96.2	85.0	84.2	99.5	89.8	86.7	90.5	98.6	98.4	83.7	98.8
Internet																														
% of wanting	84.8	88.7	64.7	63.4	79.3	87.8	95.4	85.6	69.9	80.2	88.8	84.6	56.7	72.8	85.1		66.7	68.8	89.2	74.6	80.7	94.9	95.1	80.8	69.7	68.0	91.1	77.4	80.3	97.6

Most items pass the test. Internet is borderline in a few countries but the degree of “wanting” is increasing rapidly (large increase between 2009 and 2014).

We have not excluded leisure because those who do not have leisure for “other reasons” include people who do “want” leisure but are prevented from having leisure (e.g. because of work, of poor health, of lack of time due to caring responsibilities, of difficulty of access etc.).



SUITABILITY

We also tested the **homogeneity of preferences** across countries and within each country (i.e.: are there differences between groups within individual countries ?).

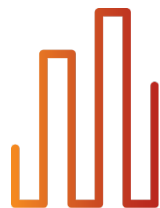
Two models were tested at the same time:

- one comparing “cannot afford” versus “have”;
- one comparing “other reasons” versus “have”.

Independent variables: equivalised household income, household type, degree of urbanisation of the residence, age, work intensity, education, citizenship.

Results:

- **Income:** negative impact on both the probability of replying “no for affordability reasons” (versus “have”) and “no, for other reasons” (also versus “have”). Coefficient far smaller for the second option than for the first one.
- **Age:** positive impact on the probability of replying “no, for other reasons” and negative impact on the probability of replying “no, for affordability reasons”.
- The variables having the larger impact are **country dummies**, indicating in some countries different national/cultural practices (or differences in the way data were collected → wording in national questionnaire checked and revised).



SUITABILITY

Elderly tend to be less numerous to want some items, but:

- a. the use of enforced lack (i.e. lack due to affordability reasons) helps to correct for the difference in “wanting” between age groups;
- b. the EU-SILC response categories do not differentiate precisely between respondents who “do not want” an item and those who “do not have” the item for other reasons → a four-answer modality would help
- c. with population ageing, with longer life expectancy and also with the reduction in the relative cost of many consumer durables, penetration rates of some items like computers and Internet access is likely to increase among older people in the near future; and
- d. a common MD measure for the whole population is also highly desirable for the EU social inclusion “headline” target. It is consistent with the approach followed for the current EU MD indicator and is much easier to communicate.



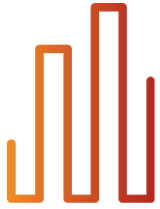
VALIDITY

Validity tests aim to check if an individual MD item exhibits statistically significant relative risk ratios with a set of independent variables known to be correlated with the *underlying* MD construct.

Test for each MD item (dependent variable) against the following independent variables:

1. at-risk-of-poverty (EU definition);
2. subjective poverty (difficulty making ends meet);
3. self-perceived health status (controlling for age and gender);
4. deprivation (current 9-item definition).

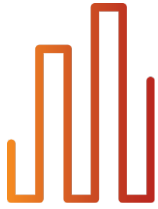
→ All items pass the test (i.e. have significant relationship with at least three of the above four variables).



RELIABILITY – DIFFERENT TESTS

1) Reliability: Classical Test Theory (Alpha)

- The Cronbach Alpha assesses the internal consistency of a scale, i.e. how closely related a set of items are as a group.
- A “high” value of Alpha is often used as evidence that the set of items measures an underlying (or “latent”) construct. An Alpha of **0.70** or higher is considered as “satisfactory” in most social science research situations.

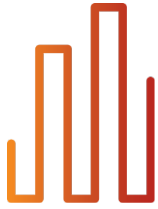


RELIABILITY – CLASSICAL TEST THEORY (ALPHA)

- Our Cronbach Alpha analysis was performed at both country and EU levels.
- Slight problem of reliability (i.e. the Alpha increases slightly when the item is dropped) for a few items in a few countries:

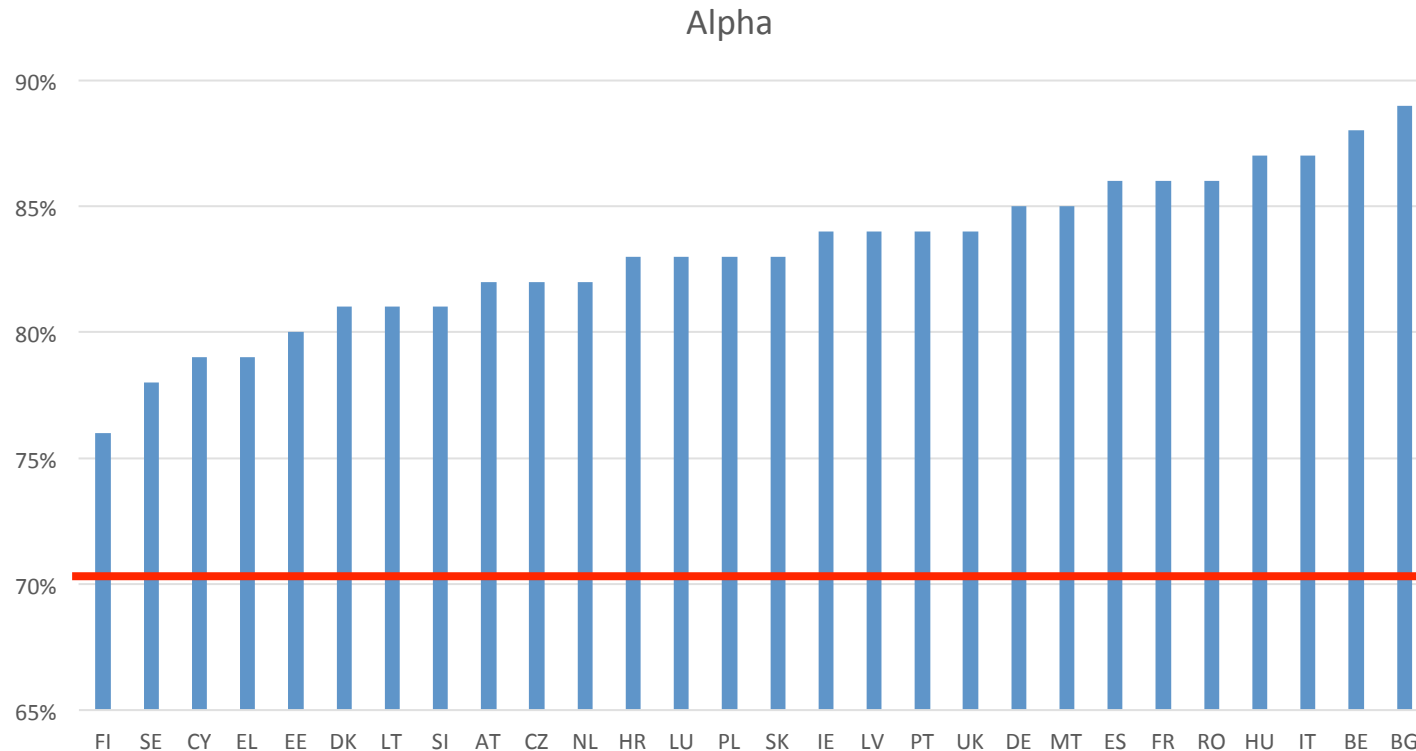
Car	IT, CY
Home warm	FI, LT, SE
Shoes	LT
Internet	DK, NL, SE, UK

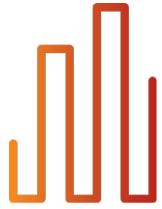
- However, the gain in the overall reliability of the MD index in each of these countries would be very small if these slightly less reliable (but “suitable” and “valid”) items were dropped. For ex:
 - FI: Alpha without “home warm” would be 78% (vs. 76% with 13-item indicator);
 - CY: 80% without “car” versus 79%;
 - IT: 88% without “car” versus 87%; etc.



RELIABILITY – CLASSICAL TEST THEORY (ALPHA)

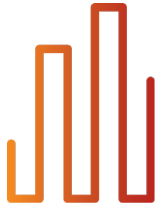
- The final Cronbach Alpha using the 13 items is higher than the 70% threshold in all countries.





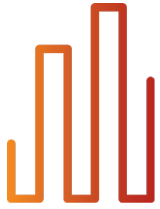
RELIABILITY – OTHER TESTS

- Reliability can be seen as the extent to which all of the items of a scale measure the same latent variable (the general factor).
- Some researchers have pointed out the limitations of Cronbach Alpha and proposed alternative statistics to complement it:
 - Coefficients Beta
 - Coefficient Omega
 - Item cluster analysis
- Reliable items are those items that successfully passed these 4 tests.



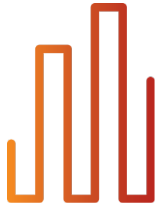
ADDITIVITY

- We expect from our MD index that people who suffer from two deprivations (e.g. those who cannot afford both clothes and shoes) should live in households with (on average) significantly lower net equivalised incomes than those who only suffer from one deprivation (clothes or shoes only) or no deprivations. Similarly, those people suffering from one deprivation should have lower incomes than those with no deprivation. This should hold for all possible combinations of MD items.



CONCLUSIONS OF OUR ROBUSTNESS ANALYSIS

- In a few countries, a few items did not pass some of the tests. Some failure may be due to different wording in national questionnaires, some are “cultural” (for example “home warm” in Nordic countries), some are due to the very high penetration rate in some countries (Internet).
- What would have been the impact of using a different basket of items in these countries? In fact, no impact for most severe items.
- Threshold of 5+ adopted in March 2017, minimal number of hhd items for children.

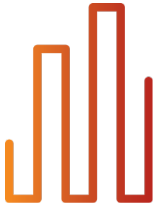


INTRA-HOUSEHOLD DISTRIBUTION OF DEPRIVATION

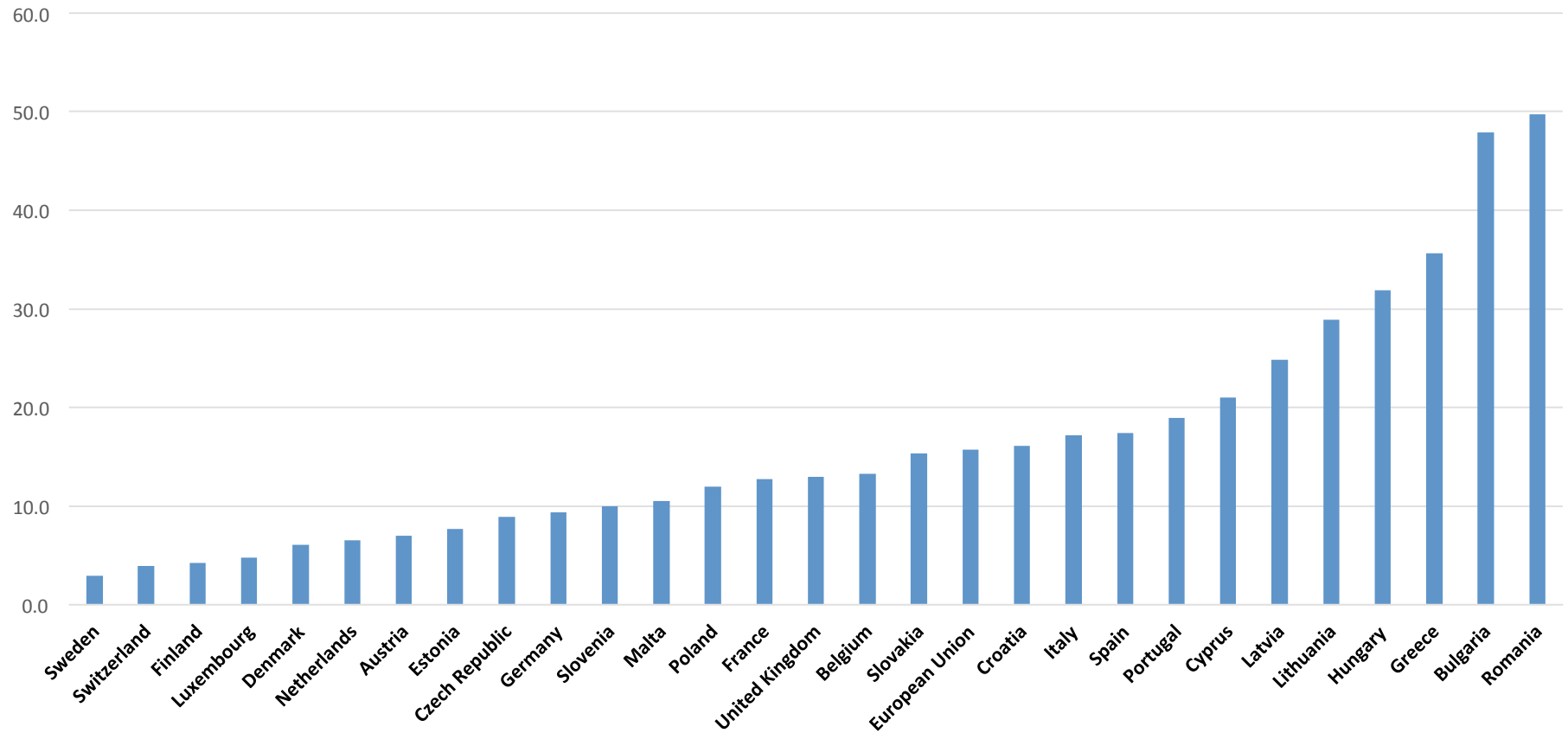
Six items (out of 13) collected at individual level:

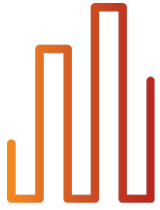
- Some new clothes
- Two pairs of shoes
- Some money for oneself
- Drink/meal monthly
- Leisure activities
- Internet

➔ Possible to open for the 1st time the black box of the hhd and make the new MD indicator fully gender/age sensitive (except in selected respondent countries)



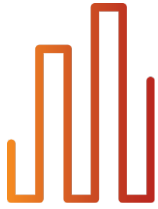
MATERIAL AND SOCIAL DEPRIVATION IN THE EU





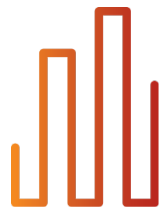
CHILD-SPECIFIC DEPRIVATION

- In parallel, work on an **EU child-specific** indicator is ongoing... Discussion tomorrow...
- Running module collecting information on child MD **every third year** in EU-SILC...
- Important to offer a focus on **child-specific indicator in three years** to complement the **annual** information on the deprivation context of hhd in which children live.



CHILD-SPECIFIC DEPRIVATION: THE FINAL LIST

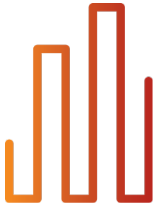
1. Child: Some new clothes
2. Child: Two pairs of shoes
3. Child: Fresh fruits & vegetables daily
4. Child: Meat, chicken, fish daily
5. Child: Suitable books
6. Child: Outdoor leisure equipment
7. Child: Indoor games
8. Child: Leisure activities
9. Child: Celebrations
10. Child: Invite friends
11. Child: School trips
12. Child: Holiday
13. Household: Replace worn-out furniture
14. Household: Arrears
15. Adults in the household: Internet
16. Household: Home adequately warm
17. Household: Car



OTHER AGGREGATED EU SOCIAL INDICATORS?

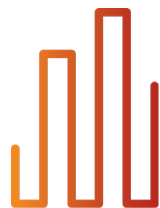
- Detractors question the usefulness of aggregation “if for policy purposes disaggregation will be indispensable” and state that “we may need to focus our efforts and resources on developing the best possible distinct measures of the various dimensions of poverty” (Ravallion, 2011).
- Supporters insist on the interest of identifying multidimensionally poor people, of showing aspects in which they are deprived and of revealing the interconnections among deprivations.

Alkire *et al.* (2012, 2014) explored extensively the potentialities of EU-SILC data to illustrate the A&F (MPI) methodology in the EU context.



***EU multidimensional poverty index:
Refinements and possible
extensions (Net-SILC3 project)***

S. Alkire, M. Apablaza and A-C Guio



KEY ISSUES

Choice of (sub-)dimensions:

- No consultative/participatory processes at EU level;
- Trade-off between coherent conceptual framework & data constraints;
- Global MPI covers: Nutrition/Health, Education, Shelter/Assets,
- Net-SILC2 paper covers: Health, Education, Environment & Housing, Employment, MD, Income
- Net-SILC3 paper will also use well-being and subjective assessment → Compare broader concepts of MPI taking profit from information collected in ad-hoc EU-SILC modules (not available each year) versus a stricter definition of MPI based on the subset of variables available yearly
- + develop longitudinal extension.