

Broadening well-being indicators for developed countries: A new proposal based on key social needs

Luis Ayala (UNED)

Olga Cantó (Universidad de Alcalá)

Rosa Martínez (UNED)

Carolina Navarro (UNED)

Marina Romaguera-de-la-Cruz (UNED)

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Main aim of the paper

- Collective demand to develop **unmet social needs** measures for developed countries incorporating indicators **beyond monetary poverty**
- Propose a set of **dimensions and indicators** to approximate key social needs and aggregate them in a **composite index** for a selected sample of EU countries
- We aim to **improve the measurement of social needs** through **broader** and **more systematic** dimensions and indicators

Contribution

- Main advantages over previous studies:
 - Large number of indicators and homogeneous information for large number of countries at different moments in time
 - Selection of social needs indicators based on the principles of access, quality and equity
 - Indicators can be easily defined and quantified based on microdata
 - Possibility of using a weighting system that takes into account the society's ranking of each dimension

Previous research (I)

- **Measure of Economic Welfare** (Nordhaus and Tobin, 1972):
 - Economic aspects of well-being
- **Unsatisfied Basic Needs** (ECLAC, 1980):
 - Economic capacity (with proxies)
- **Index of Economic Wellbeing** (Osberg and Sharpe, 2002):
 - Economic aspects of well-being
- **Human Development Index** (HDI):
 - Health, education and economic well-being. 4 underlying indicators
- **Multidimensional Poverty Index** (MPI; Alkire and Foster, 2011):
 - Health, education and economic well-being. 10 underlying indicators

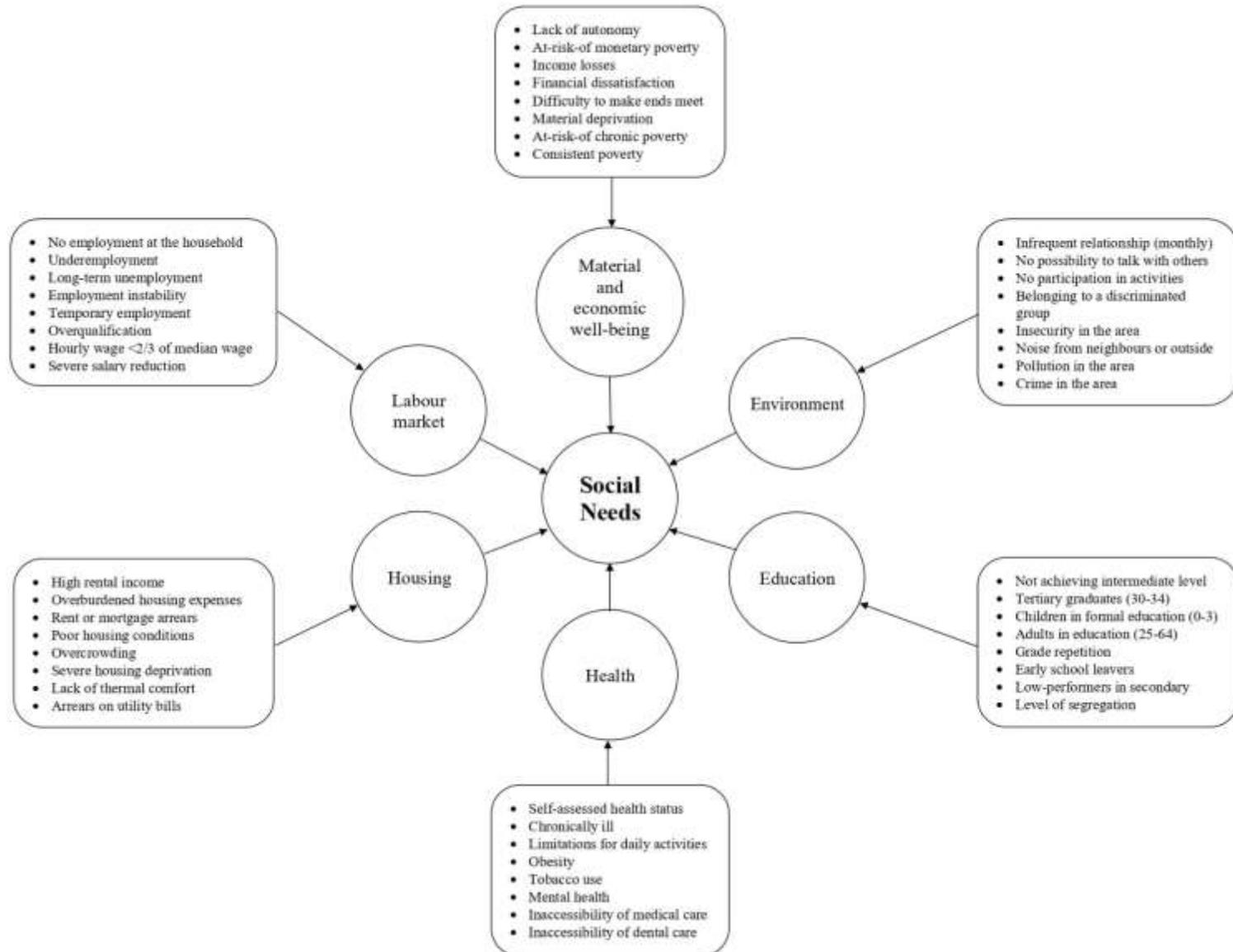
Previous research (II)

- **Beyond GDP initiative** and **Quality of life** indicators (EU, 2009)
- **Better Life Index** (OECD, 2013):
 - Material living conditions (housing, income, jobs) and quality of life (community, education, environment, governance, health, life satisfaction, safety and work-life balance)
 - Each dimension is constructed from 1 to 4 underlying indicators
- **Social Progress Index** (Porter et al., 2014):
 - Basic human needs, foundations of well-being, and opportunities
 - 45 underlying indicators

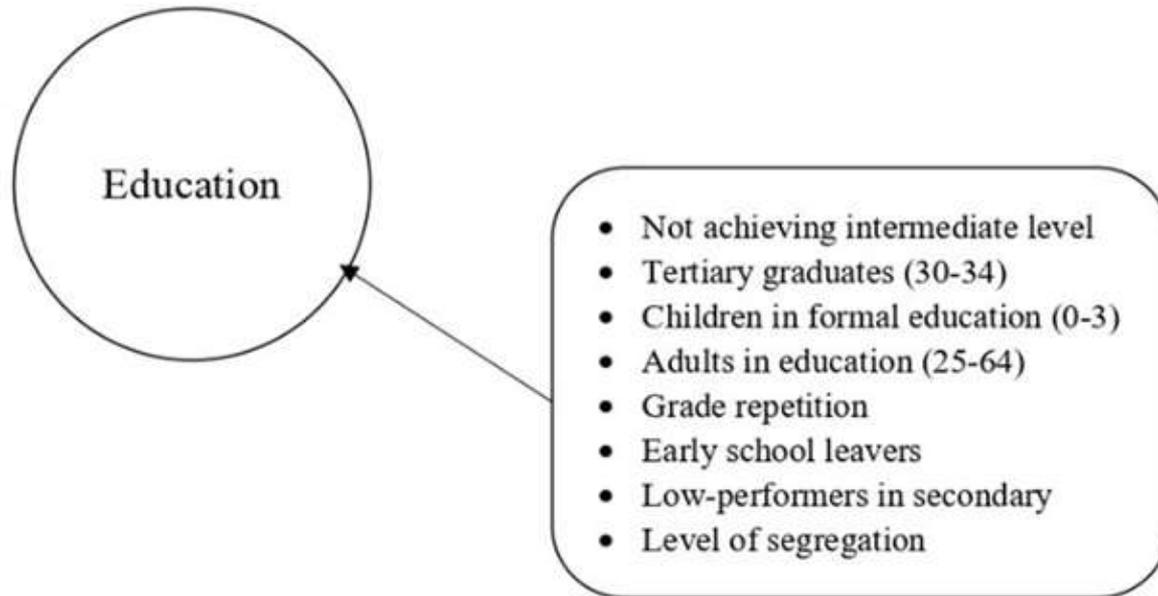
“Good practices” to select indicators

- Atkinson et al. (2002): Any indicator should:
 - 1) Capture the essence of the problem
 - 2) Have sufficient normative content
 - 3) Be statistically robust
 - 4) Reflect the effect of social intervention
 - 5) Allow comparability across countries
 - 6) Have sufficient periodicity
- A common problem is the gap between the time at which the observed reality takes place and the date of publication of the data

Dimensions and indicators (I)



Dimensions and indicators (II)



Comparable indicators in space and time based on the principles of access, quality and equity

Methodology (I)

- Empirical illustration of a **composite index of unmet social needs**
 - 6 dimensions, 48 indicators
 - Indicators expressed as **% and in negative terms**
- Countries selected:
 - **Nordic:** Denmark and Sweden
 - **Anglo-Saxon:** Ireland and United Kingdom
 - **Continental:** Germany and France
 - **Mediterranean:** Spain and Italy
 - **Eastern European:** Poland
- **Years of analysis:** 2005, 2010, 2015, 2019

Methodology (II)

1) Data preparation

- **Imputation of missing data:** information of the closest period
- **Normalisation of indicators:** min-max method in each period

$$I_{qc}^t = \frac{x_{qc}^t - \min_c(x_q^t)}{\max_c(x_q^t) - \min_c(x_q^t)}$$

We avoid applying normalisation to the whole dataset, as we propose to monitor unmet social needs on a regular basis

Methodology (III)

2) Weighting and aggregation

- Two alternative **weighting strategies**:
 - Equal weights for indicators and dimensions
 - Equal weights for indicators + subjective weights for dimensions
- We **aggregate with an arithmetic mean** of both indicators and dimensions:

$$D_{ic}^t = \sum_{q=1}^8 \delta_{qc}^t I_{qc}^t$$

$$S_c^t = \sum_{i=1}^6 w_{ic}^t D_{ic}^t$$

Methodology (IV)

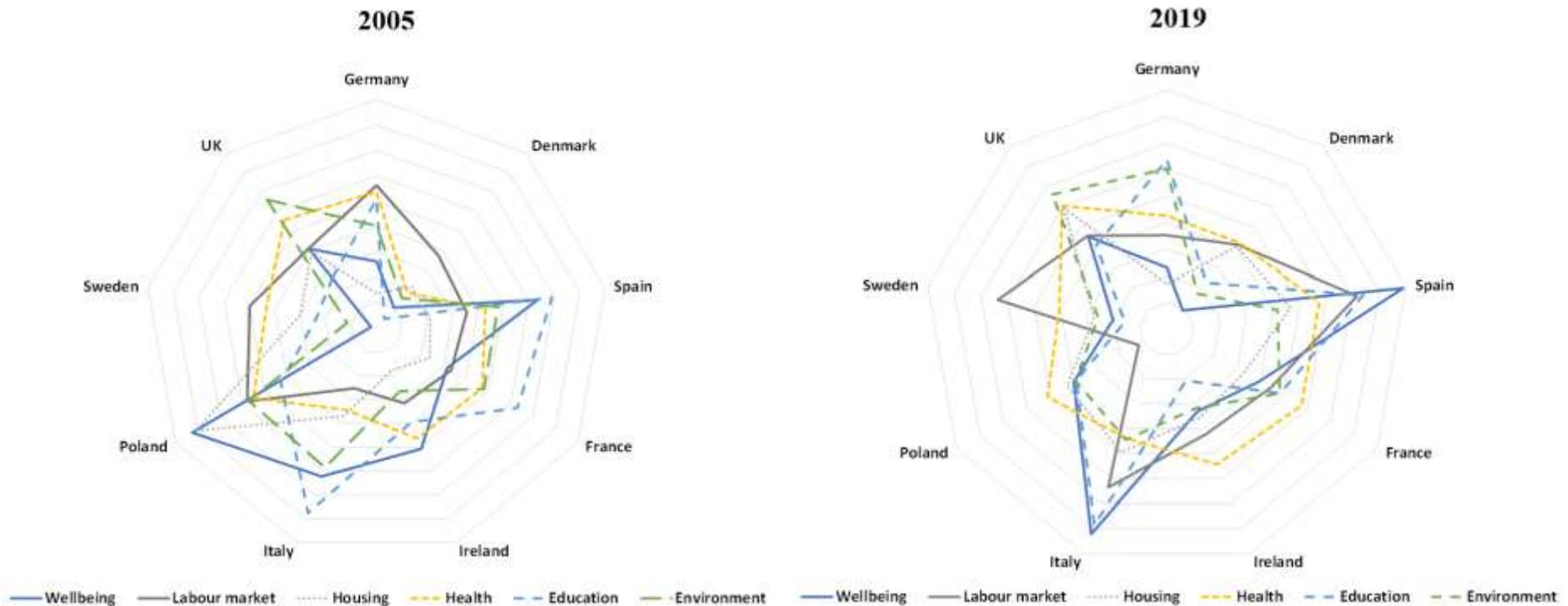
3) Robustness tests

- Diverse **normalisation** methods:
 - Without normalisation
 - Z-scores
 - Min-max method for the entire period of analysis

- **Weighting and aggregation**:
 - PCA (for indicators) + Equal weights (for dimensions)
 - Geometric aggregation
 - Ravallion's proposal (2012): $r = 0.25, 0.5, 0.75$

Results (I)

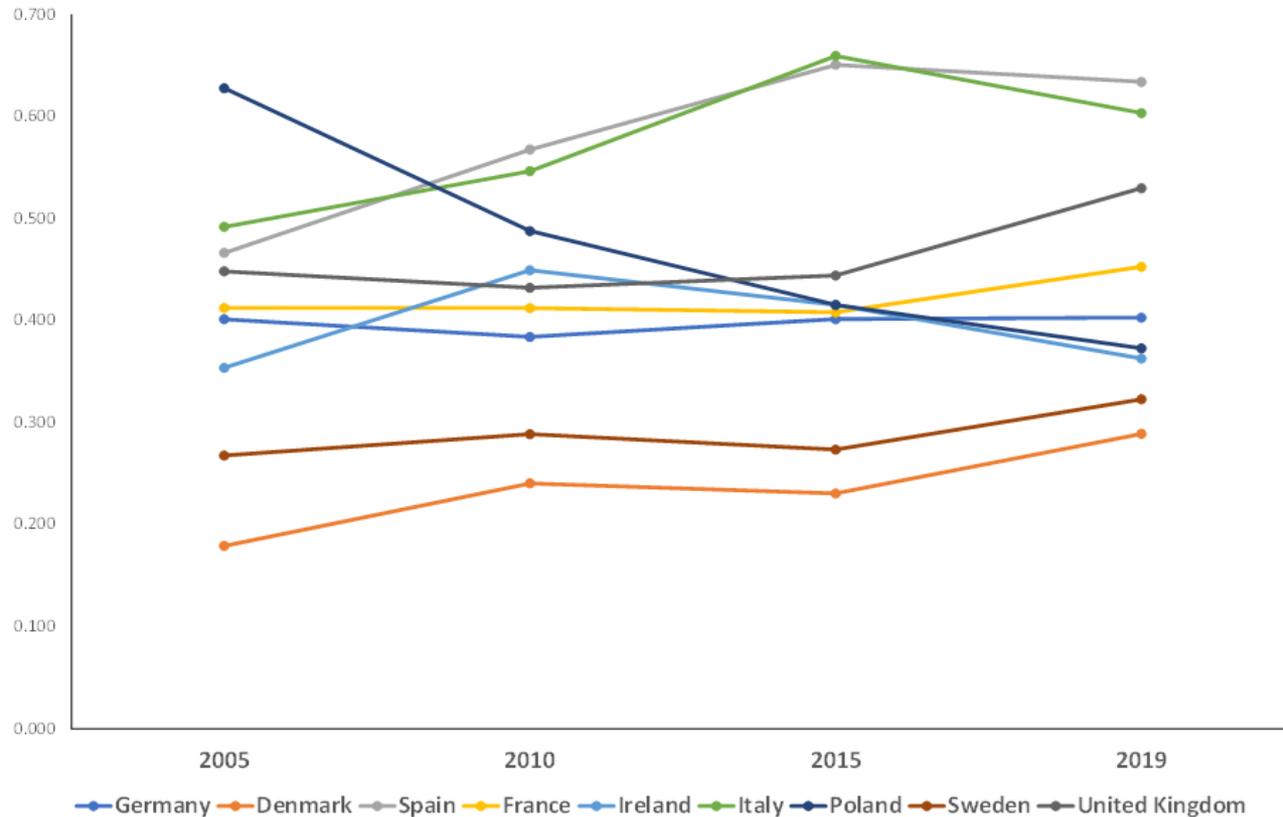
Figure 2. Unmet Social Needs by Dimensions



Both before and after the Great Recession, the **greatest problems** are related to **health and the labour market** and the least to the **environment and housing**

Results (II)

Figure 3. Composite Index of Unmet Social Needs, arithmetic mean



The synthetic index of unmet social needs reveals a relationship between the degree of unmet needs and welfare regimes

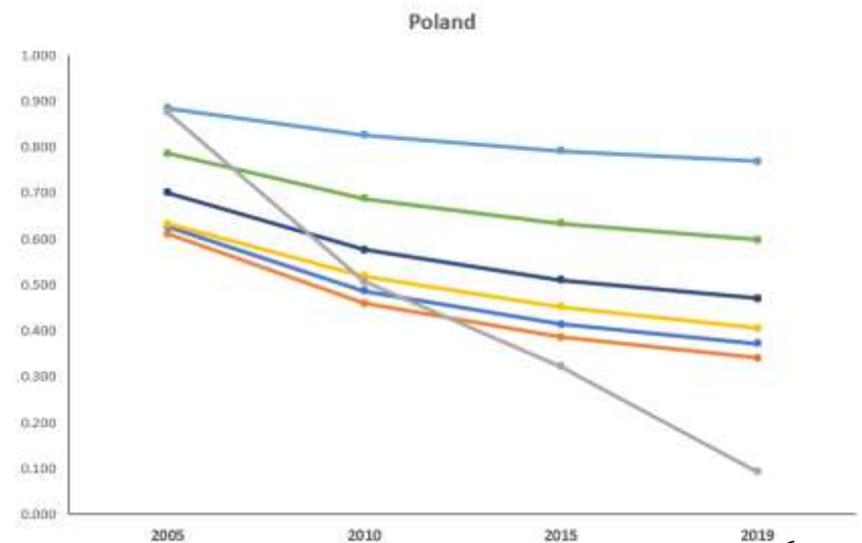
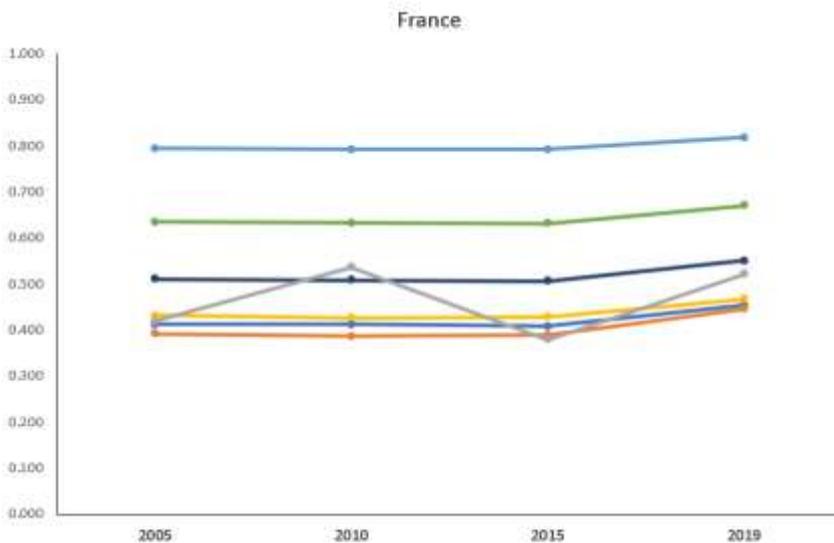
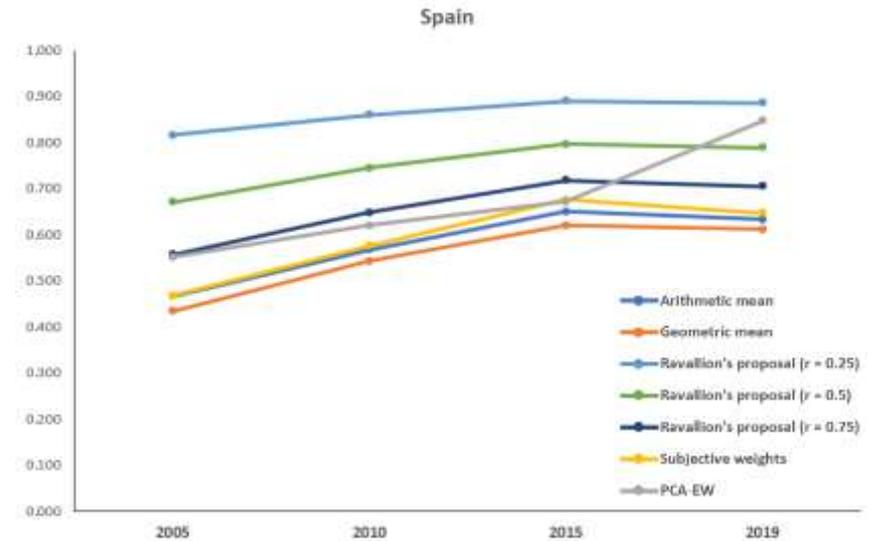
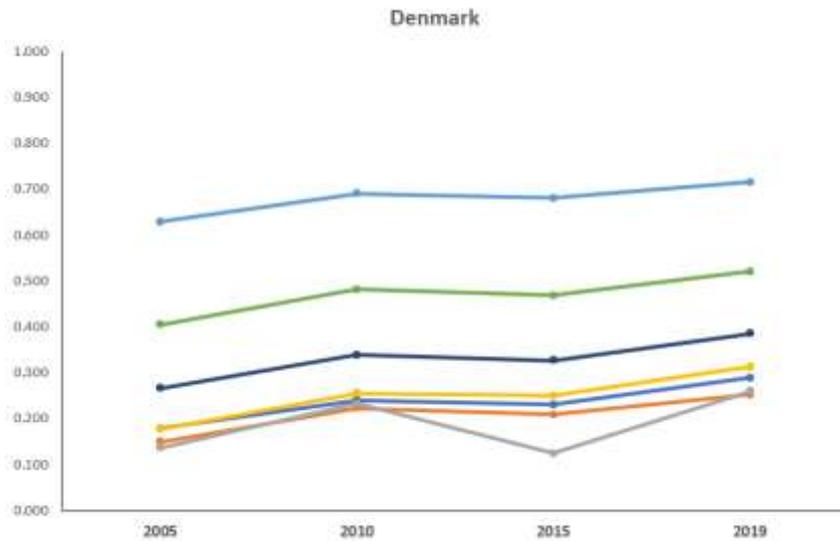
Results (II)

Table 3. Composite Index of Unmet Social Needs, subjective weights

	2005	2010	2015	2019
Germany	0.451	0.417	0.422	0.418
Denmark	0.177	0.255	0.250	0.313
Spain	0.468	0.577	0.676	0.648
France	0.432	0.426	0.428	0.467
Ireland	0.369	0.495	0.441	0.393
Italy	0.471	0.518	0.636	0.604
Poland	0.634	0.520	0.452	0.406
Sweden	0.316	0.300	0.288	0.328
United Kingdom	0.426	0.403	0.446	0.517

Subjective weights tend to increase unmet needs in comparison with equal weights: larger perception of unmet needs when public opinions on the relative importance of dimensions is considered

Robustness tests (I)



Robustness tests (II)

Table A6. Spearman's rank correlation coefficient with arithmetic mean by year

	2005	2010	2015	2019
Subjective weights	0.933	0.933	0.933	1
PCA-EW	0.933	0.933	0.933	1
Geometric mean	1	1	0.983	0.983
$r = 0.25$	1	1	1	0.983
Ravallion's proposal $r = 0.5$	1	1	1	1
$r = 0.75$	1	1	1	1

In general, results are **not very sensitive** to the use of other **weighting schemes** or **aggregation method**

Conclusions

- The greatest problems of European countries are related to **health and the labor market** and the least to the **environment and housing**
- The main change in the last decade has been the **loss of strength of the labor market** in **Southern European countries**
- The **synthetic index of unmet social needs** reveals a relationship between the **degree of unmet needs** and **welfare regimes**
- **Poland** shows a **unique experience** going from a country with the worst indicators to levels similar to Central European countries
- In general, results are **not very sensitive** to the use of other **weighting schemes** or **aggregation method**